

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

### **PREQUALIFICATION**

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

### **REQUESTS FOR AUTHORIZATION TO BID**

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

### **WHO CAN BID ?**

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

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

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

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

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

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

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

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

<b>Questions Regarding</b>	<b>Call</b>
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.

# 61

RETURN WITH BID

Proposal Submitted By
Name
Address
City

## Letting March 11, 2005

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

### NOTICE TO PROSPECTIVE BIDDERS

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

(SEE INSTRUCTIONS ON THE INSIDE OF COVER)

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



Illinois Department  
of Transportation

Springfield, Illinois 62764

Contract No. 60997  
LAKE County  
Section 19R-1  
Route FAP 337  
Project NHF-337(6)  
District 1 Construction Funds

PLEASE MARK THE APPROPRIATE BOX BELOW:

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

Prepared by

F

Checked by

(Printed by authority of the State of Illinois)

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## INSTRUCTIONS

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

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

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

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

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

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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. 60997  
LAKE County  
Section 19R-1  
Project NHF-337(6)  
Route FAP 337  
District 1 Construction Funds**

**3.27 km of 2 @ 7.60 m and variable width pavement reconstruction, variable width widening, construction of a bridge carrying Elgin, Joliet & Eastern Railroad over IL Route 22, retaining walls, intersection improvements, drainage and lighting all along IL Route 22 from west of U.S. Route 12 to east of Buesching Road in Lake Zurich.**

2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good and workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents shall govern performance and payments.

**RETURN WITH BID**

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, form of contract and contract bond, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.
  
4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** The undersigned further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bond satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract.
  
5. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

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

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

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

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

**Attach Cashier's Check or Certified Check Here**

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

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

Item \_\_\_\_\_

Section No. \_\_\_\_\_

County \_\_\_\_\_

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

BD 354 (Rev. 11/2001)

**RETURN WITH BID**

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

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

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

**Schedule of Combination Bids**

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

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

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER - 60997

State Job # - C-91-326-00  
 PPS NBR - 1-73542-0300  
 County Name - LAKE - -  
 Code - 97 - -  
 District - 1 - -  
 Section Number - 19R-1

Project Number  
 NHF-0337/006/000

Route  
 FAP 337

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
MX030063	STORM SEW WM REQ 300	METER	476.000				
MX030064	STORM SEW WM REQ 450	METER	212.000				
MX030067	STORM SEW WM REQ 900	METER	121.000				
MX030102	STORM SEW WM REQ 375	METER	198.000				
MX030187	STORM SEW WM REQ 1050	METER	42.000				
MX030199	TEMP PAVEMENT	SQ M	23,264.000				
MX030242	SLEEPER SLAB	METER	269.000				
MX030314	SAN MAN 1.2D F&L CH S	EACH	30.000				
MX030315	DROP SAN MAN 1.2 FLCS	EACH	9.000				
MX030393	SAN SEW DIP 300	METER	127.000				
MX030414	STL CAS 900 BOR/JKD	METER	81.000				
MX030493	SUB BALLAST CRUSH STN	M TON	1,037.000				
MX030546	SAN SEW DIP 150	METER	30.000				
MX030547	SAN SEW DIP 200	METER	127.000				
MX030548	SAN SEW DIP 250	METER	7.000				



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MX030549	SAN SEW DIP 350	METER	8.000				
MX030550	SAN SEW DIP 150 AUG	METER	120.000				
MX030551	SAN SEW DIP 200 AUG	METER	86.000				
MX030552	SAN SEW DIP 300 AUG	METER	80.000				
MX030553	SAN SEW SPL 200	METER	45.000				
MX030554	SAN SEW DIP EP CT 450	METER	21.000				
MX030556	DI WAT MN 300 AUG/JKD	METER	20.000				
MX030557	DI FORCE MAIN 250	METER	647.000				
MX030558	TEMP MH TA 1.5 T1F OL	EACH	1.000				
MX030559	TEMP MH TA 1.5 T1F CL	EACH	4.000				
MX030560	EARTH RET SYS 5M-8M	SQ M	300.000				
MX030561	EARTH RET SYS 8M-11M	SQ M	155.000				
MX030562	T A FOC 62.5/125 12FM	METER	1,490.000				
MX030563	TMP FOCC 62.5/125 12F	METER	520.000				
MX030571	STL CAS 500 AUG/JKD	METER	60.000				

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MX030572	STL CAS 550 AUG/JKD	METER	27.000				
MX032134	BRACED EXCAVATION	CU M	1,188.000				
MX032178	TEMP INFO SIGNING	SQ M	4.000				
MX032200	ENGINEERED BARRIER	SQ M	347.000				
MX032347	COMPOST PLACEMENT 100	SQ M	3,813.000				
MX032819	ELCBL C TRACER 14 1C	METER	4,091.000				
MX032858	WATER SERV LN 25 BOR	METER	120.000				
MX032940	TEMP MH TA 1.2 T1F CL	EACH	1.000				
MX032950	PERM STEEL SHT PILING	SQ M	107.600				
MX033089	ENGINEERED FILL C2	CU M	8,753.000				
MX033109	DRILL/SET SOLDIER PIL	CU M	622.500				
MX033290	SED CONT SILT FENCE	METER	6,956.000				
MX033291	SED CON SILT FEN MAIN	METER	6,956.000				
MX355150	BIT BC SUPER 150	SQ M	970.000				
MX355200	BIT BC SUPER 200	SQ M	3,524.000				

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MX356370	BC BC WIDE SUPER 200	SQ M	89.000				
MX406012	BC SC SUPER "C" N50	M TON	834.000				
MX406022	BC SC SUPER "D" N50	M TON	825.000				
MX406076	P BCSC SUPER "F" N90	M TON	1,910.000				
MX406214	BCBC SUP IL-19.0 N50	M TON	1,387.000				
MX406218	BCBC SUP IL-19.0 N90	M TON	1,223.000				
MX406770	P LB MM SU IL4.75 N50	M TON	600.000				
MX482280	BIT SHLD SUPER 150	SQ M	66.000				
MX482330	BIT SHLD SUPER 200	SQ M	2,410.000				
MX500142	FLO BRG FIXED 2600KN	EACH	2.000				
MX500343	FL BRG GD EXP 2600KN	EACH	2.000				
MX500510	FL BRG N-G EXP 750KN	EACH	2.000				
MX550161	TEMP STORM SEWER 300	METER	262.000				
MX602400	MAN A 1.8D T1F CL R-P	EACH	10.000				
MX606050	COMB CC&G TM5.60	METER	290.000				

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MX871055	FOCC62.5/125 MM12SM12	METER	4,091.000				
MX873027	ELCBL C GROUND 6 1C	METER	1,273.000				
MX873030	ELCBL C 20 3C TW SH	METER	1,279.000				
MX878030	CONC FDN TY E 900D	METER	69.000				
MZ001050	AGG SUBGRADE 300	SQ M	96,983.000				
MZ013825	CONTR LOW-STRENG MATL	CU M	70.000				
MZ015000	CURB STOPS 25	EACH	16.000				
MZ015200	CURB STOPS 35	EACH	2.000				
MZ015300	CURB STOPS 50	EACH	2.000				
MZ022800	FENCE REMOVAL	METER	585.000				
MZ056800	SAN SEW 150	METER	50.000				
MZ056900	SAN SEW 200	METER	246.000				
MZ057000	SAN SEW 250	METER	157.000				
MZ057100	SAN SEW 300	METER	471.000				
MZ067600	STEEL CASINGS 450	METER	37.000				

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MZ067700	STEEL CASINGS 500	METER	22.000				
MZ067800	STEEL CASINGS 550	METER	119.000				
M2010110	TREE REMOV 6-15	UNIT	573.000				
M2010210	TREE REMOV OVER 15	UNIT	895.000				
M2010500	TREE REMOV HECTARES	HA	3.900				
M2011000	TEMPORARY FENCE	METER	143.000				
M2020010	EARTH EXCAVATION	CU M	79,928.000				
M2020030	EARTH EXC - EROS CONT	CU M	96.000				
M2021200	REM & DISP UNS MATL	CU M	46,738.000				
M2070220	POROUS GRAN EMBANK	CU M	302.000				
M2070420	POROUS GRAN EMB SUBGR	CU M	1,790.000				
M2080150	TRENCH BACKFILL	CU M	11,991.000				
M2101000	GEOTECH FAB F/GR STAB	SQ M	4,000.000				
M2113100	TOPSOIL F & P 100	SQ M	66,858.000				
M2113600	TOPSOIL F & P 600	SQ M	7,360.000				

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M2130010	EXPLOR TRENCH SPL	METER	100.000				
M2500210	SEEDING CL 2A	HA	3.600				
M2500310	SEEDING CL 4	HA	0.400				
M2500400	NITROGEN FERT NUTR	KG	666.000				
M2500500	PHOSPHORUS FERT NUTR	KG	666.000				
M2500600	POTASSIUM FERT NUTR	KG	666.000				
M2510630	EROSION CONTR BLANKET	SQ M	40,100.000				
M2520110	SODDING SALT TOLERANT	SQ M	34,118.000				
M2520200	SUPPLE WATERING	UNIT	170.000				
M2800250	TEMP EROS CONTR SEED	KG	389.000				
M2810103	STONE RIPRAP CL A2	SQ M	325.000				
M2820100	FILTER FAB FOR RIPRAP	SQ M	325.000				
M3111100	SUB GRAN MAT B 100	SQ M	6,213.000				
M3511150	AGG BASE CSE B 150	SQ M	2,427.000				
M3540230	PCC BASE CSE W 230	SQ M	2,995.000				

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M4021010	AGG SURF CSE B	M TON	50.000				
M4060200	BIT MATLS PR CT	M TON	11.000				
M4060300	AGG PR CT	M TON	642.000				
M4060895	CONSTRUC TEST STRIP	EACH	2.000				
M4060980	BIT SURF REM BUTT JT	SQ M	179.000				
M4061000	BIT REPL OVER PATCH	M TON	700.000				
M4202255	PCC PVT 250 JOINTED	SQ M	83,481.000				
M4205200	PROTECTIVE COAT	SQ M	110,778.000				
M4230200	PCC DRIVEWAY PAVT 200	SQ M	340.000				
M4240125	PC CONC SIDEWALK 125	SQ M	7,222.000				
M4400065	BIT SURF REM 65	SQ M	14,779.000				
M4400425	BIT REM OV PATCH 125	SQ M	2,260.000				
M4402000	PAVEMENT REM	SQ M	79,701.000				
M4402010	DRIVE PAVEMENT REM	SQ M	18,018.000				
M4402020	CURB REM	METER	998.000				

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M4402040	COMB CURB GUTTER REM	METER	5,619.000				
M4402050	SIDEWALK REM	SQ M	2,568.000				
M4402280	CONC BARRIER REMOV	METER	26.000				
M4402290	CONC CURB REMOV	METER	5.000				
M4402420	MEDIAN REMOVAL	SQ M	265.000				
M4410100	PAVT REPLACE	SQ M	458.000				
M4426025	CL B PATCH T1 250	SQ M	115.000				
M4426225	CL B PATCH T2 250	SQ M	1,840.000				
M4428030	CL D PATCH T1 250	SQ M	115.000				
M4428230	CL D PATCH T2 250	SQ M	420.000				
M5010522	PIPE CULVERT REMOV	METER	95.000				
M5020100	STRUCTURE EXCAVATION	CU M	1,433.000				
M5030350	CONC STRUCT	CU M	789.400				
M5030380	RUSTICATION FINISH	SQ M	521.000				
M5050105	F & E STRUCT STEEL	L SUM	1.000				



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M5070209	UNTREATED TIMBER LAG	SQ M	525.000				
M5070213	FUR SOLDIER PILES BU	METER	172.500				
M5070215	FUR SOLDIER PILES WS	METER	605.000				
M5080205	REINF BARS, EPOXY CTD	KG	48,690.000				
M5100305	PIPE HANDRAIL SPL	METER	353.700				
M5120115	F MET PILE SHELL 356	METER	994.000				
M5120340	DRIV & FILLING SHELLS	METER	994.000				
M5120900	TEMP SHT PILING	SQ M	7,759.000				
M5401050	PCBC 1.5X1.5	METER	7.300				
M5401090	PCBC 2.1X2.1	METER	5.500				
M542E112	PRC FL-END SEC 300	EACH	4.000				
M542E116	PRC FL-END SEC 375	EACH	2.000				
M542E120	PRC FL-END SEC 450	EACH	1.000				
M542E128	PRC FL-END SEC 600	EACH	3.000				
M542E144	PRC FL-END SEC 900	EACH	2.000				

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M542G035	GRAT-C FL END S 600	EACH	3.000				
M542G055	GRAT-C FL END S 900	EACH	2.000				
M5500010	STORM SEW CL A 1 100	METER	27.000				
M5500015	STORM SEW CL A 1 150	METER	3.000				
M5502820	SS 1 RCP CL 4 200	METER	10.000				
M5502840	SS 1 RCP CL 4 300	METER	2,086.000				
M5502850	SS 1 RCP CL 4 375	METER	190.000				
M5502860	SS 1 RCP CL 4 450	METER	2.000				
M5502880	SS 1 RCP CL 4 600	METER	83.000				
M5502920	SS 1 RCP CL 3 900	METER	22.000				
M5503050	SS 2 RCP CL 3 300	METER	732.000				
M5503060	SS 2 RCP CL 3 375	METER	262.000				
M5503070	SS 2 RCP CL 3 450	METER	446.000				
M5503080	SS 2 RCP CL 3 525	METER	74.000				
M5503090	SS 2 RCP CL 3 600	METER	140.000				

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M5503111	SS 2 RCP CL 3 750	METER	473.000				
M5503130	SS 2 RCP CL 3 900	METER	267.000				
M5503140	SS 2 RCP CL 3 1050	METER	103.000				
M5503260	SS 3 RCP CL 4 300	METER	53.000				
M5503270	SS 3 RCP CL 4 375	METER	160.000				
M5503300	SS 3 RCP CL 4 600	METER	212.000				
M5503320	SS 3 RCP CL 4 750	METER	59.000				
M5503340	SS 3 RCP CL 4 900	METER	162.000				
M5503350	SS 3 RCP CL 4 1050	METER	91.000				
M5503510	SS 4 RCP CL 5 600	METER	48.000				
M5503530	SS 4 RCP CL 5 750	METER	697.000				
M5504800	SS CLEANED	METER	50.000				
M5510025	STORM SEWER REM 300	METER	903.000				
M5510035	STORM SEWER REM 375	METER	313.000				
M5510045	STORM SEWER REM 450	METER	330.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
M5510055	STORM SEWER REM 525	METER	25.000				
M5510060	STORM SEWER REM 600	METER	193.000				
M5510070	STORM SEWER REM 750	METER	22.000				
M5610415	D I WATER MAIN 150	METER	222.000				
M5610420	D I WATER MAIN 200	METER	260.000				
M5610425	D I WATER MAIN 250	METER	497.000				
M5610430	D I WATER MAIN 300	METER	1,510.000				
M5610635	WATER VALVES 150	EACH	5.000				
M5610640	WATER VALVES 200	EACH	6.000				
M5610645	WATER VALVES 250	EACH	5.000				
M5610650	WATER VALVES 300	EACH	11.000				
M5610945	ADJ WATER MAIN 300	METER	20.000				
M5611210	TAP VALVE & SLVE 150	EACH	8.000				
M5611215	TAP VALVE & SLVE 200	EACH	4.000				
M5611220	TAP VALVE & SLVE 250	EACH	3.000				

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M5611225	TAP VALVE & SLVE 300	EACH	2.000				
M5620115	WATER SERV LINE 25	METER	120.000				
M5620125	WATER SERV LINE 35	METER	20.000				
M5620135	WATER SERV LINE 50	METER	20.000				
M5620215	CORP STOPS 25	EACH	16.000				
M5620225	CORP STOPS 35	EACH	2.000				
M5620235	CORP STOPS 50	EACH	2.000				
M5800100	MEMBRANE WATERPROOF	SQ M	211.000				
M5870020	BRIDGE SEAT SEALER	SQ M	32.000				
M5910100	GEOCOMPOSITE WALL DR	SQ M	651.000				
M6010125	PIPE DRAINS 300	METER	21.000				
M6010605	PIPE UNDERDRAINS 100	METER	940.000				
M6011100	P UNDR - STRUCT 100	METER	336.500				
M6011110	P UNDR - STRUCT 200	METER	21.000				
M6020105	CB A 1.2M D T1F OL	EACH	2.000				

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M6020185	CB A 1.2M D T24F&G	EACH	217.000				
M6021410	MAN A 1.2D T1F CL	EACH	65.000				
M6021610	MAN A 1.5D T1F CL	EACH	58.000				
M6021810	MAN A 1.8D T1F CL	EACH	3.000				
M6022010	MAN A 2.1D T1F CL	EACH	5.000				
M6024310	VV TA 1.2MD T1F CL	EACH	13.000				
M6024410	VV TA 1.5MD T1F CL	EACH	31.000				
M6060010	CLASS SI CONC OUTLET	CU M	8.000				
M6060070	CONC CURB TB	METER	516.000				
M6060260	CONC GUTTER TA	METER	153.000				
M6060400	COMB CC&G TB15.15	METER	58.000				
M6060500	COMB CC&G TB15.30	METER	1,111.000				
M6060700	COMB CC&G TB15.60	METER	12,441.000				
M6061930	COMB CC&G TM10.30	METER	90.000				
M6061990	COMB CC&G TM10.60	METER	90.000				

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M6063600	CONC MEDIAN SURF 100	SQ M	788.000				
M6064200	CONC MED TSB15.60	SQ M	2,043.000				
M6066000	CORRUGATED MED	SQ M	206.000				
M6300100	SPBGR TY A	METER	53.340				
M6320030	GUARDRAIL REMOV	METER	472.000				
M6690100	BACKFILL PLUGS	CU M	17.000				
M6690200	NON SPL WASTE DISPOSL	CU M	1,268.000				
M7030100	SHORT-TERM PAVT MKING	METER	1,283.000				
M7030210	TEMP PVT MK LTR & SYM	SQ M	167.700				
M7030220	TEMP PVT MK LINE 100	METER	41,268.000				
M7030240	TEMP PVT MK LINE 150	METER	1,031.000				
M7030260	TEMP PVT MK LINE 300	METER	106.000				
M7030280	TEMP PVT MK LINE 600	METER	678.000				
M7030510	PAVT MARK TAPE T3 L&S	SQ M	130.400				
M7030520	PAVT MARK TAPE T3 100	METER	60,218.000				

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M7030540	PAVT MARK TAPE T3 150	METER	3,833.000				
M7030560	PAVT MARK TAPE T3 300	METER	20.000				
M7030580	PAVT MARK TAPE T3 600	METER	698.000				
M7031000	WORK ZONE PAVT MK REM	SQ M	11,098.000				
M7040100	TEMP CONC BARRIER	METER	339.000				
M7040200	REL TEMP CONC BARRIER	METER	353.000				
M7200100	SIGN PANEL T1	SQ M	86.010				
M7200200	SIGN PANEL T2	SQ M	4.640				
M7240310	REMOV SIGN PANEL T1	SQ M	3.520				
M7240320	REMOV SIGN PANEL T2	SQ M	3.200				
M7240710	RELOC SIGN PANEL T1	SQ M	5.040				
M7290100	METAL POST TY A	METER	404.000				
M7290200	METAL POST TY B	METER	224.000				
M7300100	WOOD SIN SUPPORT	METER	44.000				
M7800400	PREF PL PM TB LTR-SYM	SQ M	35.000				



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M7800405	PREF PL PM TB LN 100	METER	1,890.000				
M7800415	PREF PL PM TB LN 150	METER	238.000				
M7800420	PREF PL PM TB LN 200	METER	177.000				
M7800425	PREF PL PM TB LN 300	METER	74.000				
M7800440	PREF PL PM TB LN 600	METER	36.000				
M7800600	EPOXY PVT MK LTR-SYM	SQ M	203.000				
M7802010	POLYUREA PM T1 LN 100	METER	4,330.000				
M7802015	POLYUREA PM T1 LN 150	METER	2,980.000				
M7802020	POLYUREA PM T1 LN 200	METER	1,113.000				
M7802030	POLYUREA PM T1 LN 300	METER	219.000				
M7802060	POLYUREA PM T1 LN 600	METER	403.000				
M7830100	PAVT MARKING REMOVAL	SQ M	11,209.000				
M8070140	GROUND ROD 19 X 3.0	EACH	6.000				
M8080150	TEMP WP 15.24 CL4	EACH	15.000				
M8100060	CON T 50 GALVS	METER	3,801.000				

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M8100070	CON T 65 GALVS	METER	187.000				
M8100080	CON T 75 GALVS	METER	17.000				
M8100100	CON T 100 GALVS	METER	130.000				
M8101050	CON P 50 GALVS	METER	582.000				
M8101060	CON P 65 GALVS	METER	20.000				
M8101090	CON P 100 GALVS	METER	584.000				
M8150200	TR & BKFIL F ELECT WK	METER	4,368.000				
M8160210	UD2#10XLP#10XLPG 20P	METER	385.000				
M8170805	EC C EPR USE 3-1C 2	METER	18.000				
M8303110	LT P S 12.0MH 1.8MA	EACH	5.000				
M8360100	LIGHT POLE FDN 600	METER	15.000				
M8731210	ELCBL C SIGNAL 14 2C	METER	1,353.000				
M8731220	ELCBL C SIGNAL 14 3C	METER	3,529.000				
M8731240	ELCBL C SIGNAL 14 5C	METER	2,564.000				
M8731250	ELCBL C SIGNAL 14 7C	METER	3,211.000				

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M8731300	ELCBL C LEAD 14 1PR	METER	3,712.000				
M8731800	ELCBL C SERV 6 2C	METER	179.000				
M8750450	TS POST GALVS 3.00	EACH	5.000				
M8750510	TS POST GALVS 4.85	EACH	9.000				
M8770035	S MAA & P 7.92	EACH	6.000				
M8770040	S MAA & P 8.53	EACH	2.000				
M8770045	S MAA & P 9.14	EACH	1.000				
M8770050	S MAA & P 9.75	EACH	1.000				
M8770060	S MAA & P 10.97	EACH	2.000				
M8770070	S MAA & P 12.19	EACH	4.000				
M8770075	S MAA & P 12.80	EACH	2.000				
M8770085	S MAA & P 14.02	EACH	2.000				
M8770090	S MAA & P 14.63	EACH	1.000				
M8770100	S MAA & P 16.46	EACH	3.000				
M8770715	STL COMB MAA&P 6.09	EACH	1.000				

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M8770770	STL COMB MAA&P 12.80	EACH	2.000				
M8770775	STL COMB MAA&P 13.41	EACH	1.000				
M8780100	CONC FDN TY A	METER	12.000				
M8780200	CONC FDN TY D	METER	8.400				
M8780400	CONC FDN TY E 750D	METER	59.800				
M8860000	DETECTOR LOOP PREFORM	METER	1,523.000				
M8860100	DET LOOP T1	METER	99.000				
M8950230	REM ELCBL FR CON	METER	520.000				
XX002856	RE-OPTIMIZE TR SIG SY	L SUM	1.000				
X0321556	SANITARY MANHOLE ADJ	EACH	17.000				
X0321809	PERMANENT GRND ANCHOR	EACH	20.000				
X0322938	TEMPORARY END SECTION	EACH	1.000				
X0322996	END SECTION RELOCATED	EACH	1.000				
X0323092	HEADWALL REMOVAL	EACH	2.000				
X0323236	TEMPORARY INLET	EACH	14.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0323426	SED CONT DR ST INL CL	EACH	510.000				
X0323793	PT NEW MA&P < 12.19	EACH	4.000				
X0323794	PT NEW MA&P => 12.19	EACH	6.000				
X0323797	PT NEW TRAF SIG POST	EACH	5.000				
X0324769	SAN SEW LIFT STATION	L SUM	1.000				
X0324770	LIFT STATION ELECTTIC	L SUM	1.000				
X0324771	FR & GR RM/REPL T1FOL	EACH	7.000				
X0324772	T1 FRAME OL TEMP	EACH	20.000				
X0324773	FLASH BEACON INSTALL	EACH	4.000				
X0324891	STEEL GRATE WALKWAY	SQ M	45.700				
X0545005	BOX CULVERT REMOV	L SUM	1.000				
X0976500	END SECTIONS REMOVED	EACH	11.000				
X4021000	TEMP ACCESS- PRIV ENT	EACH	23.000				
X4022000	TEMP ACCESS- COM ENT	EACH	53.000				
X4023000	TEMP ACCESS- ROAD	EACH	16.000				

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X6700410	ENGR FLD OFF A SPL	CAL MO	20.000				
X7015000	CHANGEABLE MESSAGE SN	CAL MO	72.000				
X8050015	SERV INSTALL POLE MT	EACH	7.000				
X8800020	SH LED 1F 3S MAM	EACH	28.000				
X8800035	SH LED 1F 3S BM	EACH	5.000				
X8800038	SH LED 1F 4S MAM	EACH	2.000				
X8800040	SH LED 1F 5S BM	EACH	19.000				
X8800045	SH LED 1F 5S MAM	EACH	28.000				
X8800060	SH LED 2F 3S BM	EACH	1.000				
X8805275	SH LED 2F 1-3 1-4 BM	EACH	1.000				
X8805280	SH LED 2F 1-3 1-5 BM	EACH	2.000				
X8810610	PED SH LED 1F BM	EACH	16.000				
X8810620	PED SH LED 2F BM	EACH	12.000				
Z0007601	BLDG REMOV NO 1	L SUM	1.000				
Z0007602	BLDG REMOV NO 2	L SUM	1.000				

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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
Z0007603	BLDG REMOV NO 3	L SUM	1.000				
Z0007604	BLDG REMOV NO 4	L SUM	1.000				
Z0007605	BLDG REMOV NO 5	L SUM	1.000				
Z0007606	BLDG REMOV NO 6	L SUM	1.000				
Z0007607	BLDG REMOV NO 7	L SUM	1.000				
Z0007608	BLDG REMOV NO 8	L SUM	1.000				
Z0007609	BLDG REMOV NO 9	L SUM	1.000				
Z0007610	BLDG REMOV NO 10	L SUM	1.000				
Z0007611	BLDG REMOV NO 11	L SUM	1.000				
Z0007612	BLDG REMOV NO 12	L SUM	1.000				
Z0007613	BLDG REMOV NO 13	L SUM	1.000				
Z0007614	BLDG REMOV NO 14	L SUM	1.000				
Z0007615	BLDG REMOV NO 15	L SUM	1.000				
Z0007616	BLDG REMOV NO 16	L SUM	1.000				
Z0007617	BLDG REMOV NO 17	L SUM	1.000				

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Z0007618	BLDG REMOV NO 18	L SUM	1.000				
Z0007619	BLDG REMOV NO 19	L SUM	1.000				
Z0007620	BLDG REMOV NO 20	L SUM	1.000				
Z0007621	BLDG REMOV NO 21	L SUM	1.000				
Z0007622	BLDG REMOV NO 22	L SUM	1.000				
Z0007623	BLDG REMOV NO 23	L SUM	1.000				
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0018500	DRAINAGE STR CLEANED	EACH	130.000				
Z0018800	DRAINAGE SYSTEM	L SUM	1.000				
Z0030250	IMP ATTN TEMP NRD TL3	EACH	4.000				
Z0030350	IMP ATTN REL NRD TL3	EACH	7.000				
Z0048665	RR PROT LIABILITY INS	L SUM	1.000				
Z0049806	R&D FRIABL ASB BLD 6	L SUM	1.000				
Z0049906	R&D NON-FR ASB BLD 6	L SUM	1.000				
Z0049907	R&D NON-FR ASB BLD 7	L SUM	1.000				



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Route  
 FAP 337

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
Z0049908	R&D NON-FR ASB BLD 8	L SUM	1.000				
Z0049911	R&D NON-FR ASB BLD 11	L SUM	1.000				
Z0049914	R&D NON-FR ASB BLD 14	L SUM	1.000				
Z0049915	R&D NON-FR ASB BLD 15	L SUM	1.000				
Z0049919	R&D NON-FR ASB BLD 19	L SUM	1.000				
Z0049921	R&D NON-FR ASB BLD 21	L SUM	1.000				
Z0049923	R&D NON-FR ASB BLD 23	L SUM	1.000				
Z0076600	TRAINEES	HOUR	4,000.000		0.800		3,200.000
20101100	TREE TRUNK PROTECTION	EACH	130.000				
20101200	TREE ROOT PRUNING	EACH	50.000				
28000300	TEMP DITCH CHECKS	EACH	127.000				
28000510	INLET FILTERS	EACH	510.000				
50500505	STUD SHEAR CONNECTORS	EACH	1,447.000				
51203200	TEST PILE MET SHELLS	EACH	2.000				
51500100	NAME PLATES	EACH	2.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER - 60997

State Job # - C-91-326-00  
 PPS NBR - 1-73542-0300  
 County Name - LAKE - -  
 Code - 97 - -  
 District - 1 - -  
 Section Number - 19R-1

Project Number  
 NHF-0337/006/000

Route  
 FAP 337

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
54001000	BOX CUL END SECT	EACH	2.000				
56400100	FIRE HYDNITS TO BE MVD	EACH	25.000				
56400820	FIRE HYD W/AUX V & VB	EACH	6.000				
56500600	DOM WAT SER BOX ADJ	EACH	10.000				
56500800	DOM WAT SER BOX	EACH	20.000				
60207605	CB TC T8G	EACH	19.000				
60236200	INLETS TA T8G	EACH	2.000				
60237470	INLETS TA T24F&G	EACH	116.000				
60250200	CB ADJUST	EACH	6.000				
60255500	MAN ADJUST	EACH	48.000				
60255800	MAN ADJ NEW T1F CL	EACH	1.000				
60257900	MAN RECONST	EACH	5.000				
60260050	SAN MAN RECONST	EACH	2.000				
60260100	INLETS ADJUST	EACH	5.000				
60262700	INLETS RECONST	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION  
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60997

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Project Number  
 NHF-0337/006/000

Route  
 FAP 337

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
60265700	VV ADJUST	EACH	17.000				
60266500	VV REMOVED	EACH	4.000				
60266910	VALVE BOX REMOVED	EACH	10.000				
60405740	FR & GRATES REMOVED	EACH	6.000				
60500040	REMOV MANHOLES	EACH	31.000				
60500050	REMOV CATCH BAS	EACH	43.000				
60500060	REMOV INLETS	EACH	35.000				
60500105	FILL MANHOLES	EACH	13.000				
60500205	FILL CATCH BAS	EACH	3.000				
60500405	FILL VALVE VLTS	EACH	17.000				
63100045	TRAF BAR TERM T2	EACH	1.000				
63100169	TR BAR TRM T1 SPL FLR	EACH	1.000				
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000				
66900500	BETX SOIL ANALYSIS	EACH	3.000				
66900530	SOIL DISPOSAL ANALY	EACH	3.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION  
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Route  
 FAP 337

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
66900610	ARSENIC/PH SOIL ANALY	EACH	2.000				
66900635	LEAD TCLP SOIL ANAL	EACH	2.000				
66900640	VOCS/SVOCS SOIL ANLYS	EACH	4.000				
67000600	ENGR FIELD LAB	CAL MO	20.000				
67100100	MOBILIZATION	L SUM	1.000				
70101800	TRAF CONT & PROT SPL	L SUM	1.000				
70103815	TR CONT SURVEILLANCE	CAL DA	200.000				
72400100	REMOV SIN PAN ASSY TA	EACH	79.000				
72400200	REMOV SIN PAN ASSY TB	EACH	13.000				
72400500	RELOC SIN PAN ASSY TA	EACH	23.000				
72400600	RELOC SIN PAN ASSY TB	EACH	4.000				
78100100	RAISED REFL PAVT MKR	EACH	951.000				
78100200	TEMP RAIS REF PVT MKR	EACH	580.000				
78200410	GUARDRAIL MKR TYPE A	EACH	4.000				
78201000	TERMINAL MARKER - DA	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION  
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Route  
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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
78300200	RAISED REF PVT MK REM	EACH	580.000				
80400100	ELECT SERV INSTALL	EACH	1.000				
80400200	ELECT UTIL SERV CONN	L SUM	1.000		3,200.00		3,200.00
81400100	HANDHOLE	EACH	54.000				
81400200	HD HANDHOLE	EACH	23.000				
81400300	DBL HANDHOLE	EACH	7.000				
82102310	LUM SV HOR MT 310W	EACH	9.000				
82500510	LT CONT CBRCS 60-240	EACH	1.000				
85000200	MAIN EX TR SIG INSTAL	EACH	4.000				
85700200	FAC T4 CAB	EACH	6.000				
85700305	FAC T5 CAB SPL	EACH	1.000				
86000100	MASTER CONTROLLER	EACH	1.000				
86400100	TRANSCEIVER - FIB OPT	EACH	7.000				
87900200	DRILL EX HANDHOLE	EACH	4.000				
88024130	OPSH 1F 3S MAM	EACH	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION  
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Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
88024210	OPSH 1F 4S BM	EACH	1.000				
88024320	OPSH 1F 5S MAM	EACH	1.000				
88200100	TS BACKPLATE	EACH	58.000				
88500100	INDUCTIVE LOOP DETECT	EACH	52.000				
88700200	LIGHT DETECTOR	EACH	10.000				
88700300	LIGHT DETECTOR AMP	EACH	7.000				
88800100	PED PUSH-BUTTON	EACH	25.000				
89000100	TEMP TR SIG INSTALL	EACH	5.000				
89502375	REMOV EX TS EQUIP	EACH	4.000				
89502380	REMOV EX HANDHOLE	EACH	27.000				
89502385	REMOV EX CONC FDN	EACH	33.000				

**CONTRACT NUMBER**

**60997**

**THIS IS THE TOTAL BID**

**\$ \_\_\_\_\_**

**NOTES:**

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

## RETURN WITH BID

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

#### I. GENERAL

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

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

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

#### II. ASSURANCES

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

##### B. Felons

1. The Illinois Procurement Code provides:

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

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

##### C. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

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



## RETURN WITH BID

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

### **D. Negotiations**

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

### **E. Inducements**

1. The Illinois Procurement Code provides:

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

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

### **F. Revolving Door Prohibition**

1. The Illinois Procurement Code provides:

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

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

### **G. Reporting Anticompetitive Practices**

1. The Illinois Procurement Code provides:

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

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

### **H. Confidentiality**

1. The Illinois Procurement Code provides:

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

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

## RETURN WITH BID

### **I. Insider Information**

1. The Illinois Procurement Act provides:

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

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

### **III. CERTIFICATIONS**

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

### **B. Bribery**

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

### **C. Educational Loan**

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

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

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

### **D. Bid-Rigging/Bid Rotating**

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

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

## RETURN WITH BID

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

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

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

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

### **E. International Anti-Boycott**

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

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

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

### **F. Drug Free Workplace**

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

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

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

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

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

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

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

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

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

**G. Debt Delinquency**

1. The Illinois Procurement Code provides:

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

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

**H. Sarbanes-Oxley Act of 2002**

1. The Illinois Procurement Code provides:

Section 50-60(c).

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

**I. ADDENDA**

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

**J. Section 42 of the Environmental Protection Act**

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

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

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

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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:

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RETURN WITH BID/OFFER

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Financial Information & Potential Conflicts of Interest Disclosure

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

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)

NAME:

ADDRESS

Type of ownership/distributable income share:

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

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

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

Yes \_\_\_ No \_\_\_

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

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

**RETURN WITH BID/OFFER**

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

---

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

Yes \_\_\_ No \_\_\_

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

- 1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois Toll Highway Authority? Yes \_\_\_ No \_\_\_
  
- 2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds \$90,420.00, (60% of the Governor's salary as of 7/1/01) provide the name of the spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. \_\_\_\_\_

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

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

Yes \_\_\_ No \_\_\_

---

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

Yes \_\_\_ No \_\_\_

---

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

Yes \_\_\_ No \_\_\_

---

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

Yes \_\_\_ No \_\_\_

---

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

Yes \_\_\_ No \_\_\_

---

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

Yes \_\_\_ No \_\_\_



**RETURN WITH BID/OFFER**

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

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

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

**APPLICABLE STATEMENT**

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

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

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

Completed by: \_\_\_\_\_  
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 \_\_\_\_\_

RETURN WITH BID/OFFER

**ILLINOIS DEPARTMENT  
OF TRANSPORTATION**

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

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

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

**DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION**

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

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

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

**THE FOLLOWING STATEMENT MUST BE SIGNED**

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

## **RETURN WITH BID**

### **SPECIAL NOTICE TO CONTRACTORS**

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

#### **CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION**

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



**RETURN WITH BID**

**Contract No. 60997  
LAKE County  
Section 19R-1  
Project NHF-337(6)  
Route FAP 337  
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. 60997  
LAKE County  
Section 19R-1  
Project NHF-337(6)  
Route FAP 337  
District 1 Construction Funds**

PROPOSAL SIGNATURE SHEET

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

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

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

(IF A CORPORATION) Corporate Name \_\_\_\_\_  
By \_\_\_\_\_  
Signature of Authorized Representative \_\_\_\_\_  
Typed or printed name and title of Authorized Representative \_\_\_\_\_

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

(IF A JOINT VENTURE) Corporate Name \_\_\_\_\_  
By \_\_\_\_\_  
Signature of Authorized Representative \_\_\_\_\_  
Typed or printed name and title of Authorized Representative \_\_\_\_\_

Attest \_\_\_\_\_  
Signature \_\_\_\_\_  
Business Address \_\_\_\_\_

If more than two parties are in the joint venture, please attach an additional signature sheet.

RETURN WITH BID



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

Item No.
Letting Date

KNOW ALL MEN BY THESE PRESENTS, That We

as PRINCIPAL, and

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

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

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

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

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

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

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
COUNTY OF

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

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

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

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

My commission expires Notary Public

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

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



# PROPOSAL ENVELOPE



## PROPOSALS

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

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

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

Engineer of Design and Environment - Room 323  
Illinois Department of Transportation  
2300 South Dirksen Parkway  
Springfield, Illinois 62764

### **NOTICE**

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

# CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

## NOTICE

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

**Contract No. 60997  
LAKE County  
Section 19R-1  
Project NHF-337(6)  
Route FAP 337  
District 1 Construction Funds**



**Illinois Department of Transportation**



## NOTICE TO BIDDERS

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

**Contract No. 60997  
LAKE County  
Section 19R-1  
Project NHF-337(6)  
Route FAP 337  
District 1 Construction Funds**

**3.27 km of 2 @ 7.60 m and variable width pavement reconstruction, variable width widening, construction of a bridge carrying Elgin, Joliet & Eastern Railroad over IL Route 22, retaining walls, intersection improvements, drainage and lighting all along IL Route 22 from west of U.S. Route 12 to east of Buesching Road in Lake Zurich.**

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.  
  
(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the  
Illinois Department of Transportation

Timothy W. Martin, Secretary

BD 351 (Rev. 01/2003)

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

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

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

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RECURRING SPECIAL PROVISIONS

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## STATE OF ILLINOIS

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### SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2002, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAP Route 337 (Illinois Route 22), Project NHF-0337(006), Section: 19R-1, Lake County: and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

FAP Route 337 (IL Route 22)  
Section: 19R-1  
Lake County  
Contract No.: 60997

#### LOCATION OF IMPROVEMENT

This improvement begins at Station 6+927.80 on Illinois Route 22, a point approximately 756 meters west of the centerline of U.S. Route 12 (Rand Road) and extends in an easterly direction to station 10+200.00, approximately 172 meters east of the intersection of Buesching Road, a total distance of approximately 3,272 meters, in the Village of Lake Zurich, Lake County, Illinois.

#### DESCRIPTION OF IMPROVEMENT

This project consists of roadway reconstruction, building removal, bridge construction, intersection improvements, drainage system replacement and construction, roadway lighting, and traffic signal replacements and all incidental and collateral work necessary to complete the improvements as shown on the plans and described herein.

#### MAINTENANCE OF ROADWAYS

Effective: September 30, 1985

Revised: November 1, 1996

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

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

**STATUS OF UTILITIES TO BE ADJUSTED**

Effective: January 30, 1987

Revised: July 1, 1994

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

<u>Name of Utility</u>	<u>Type</u>	<u>Location</u>	<u>Estimated Dates for Start and Completion of Relocation or Adjustments</u>
Nicor	Gas Line	7+250, 2m RT	_____
		7+275, 3m RT	
		7+364, 4m RT	
		7+364, 8m RT	
		7+397, 9m RT	
		7+541, 12m RT	
		7+591, 12m RT	
		7+626, 20m RT	
		7+737, 13m RT	
		7+764, 11m RT	
		7+797, 8m RT	
		7+832, 8m RT	
		7+900, 8m RT	
		7+980, 8m RT	
		8+031, 8m RT	
		8+070, 8m RT	
		8+138, 16m RT	
		8+179, 10m LT	
		8+209, 10m LT	
		8+975, 6m RT	
		9+000, 1m LT	
		9+089, 8m LT	
		9+140, 6m LT	
		9+190, 6m LT	
		9+240, 6m LT	
		9+282, 6m LT	
		50+085, 2m LT	
50+165, 4m RT			
70+915, 7m LT			
71+064, 6m RT			
71+062, 6m RT			
Ameritech	Telephone	7+250, 6m RT	
		7+275, 9m RT	
		7+364, 12m RT	
		7+397, 10m RT	
		7+433, 10m RT	

ComEd	Electric	7+725, 18m LT 7+737, 5m RT 7+980, 9m RT 9+089, 8m RT 9+240, 9m RT 9+279, 9m RT 9+730, 3m LT 9+775, 3m LT 9+730, 7m RT 9+860, 9m LT 9+900, 11m LT 9+920, 11m LT 9+930, 11m LT 9+962, 11m LT 9+980, 11m LT 10+000, 11m LT 10+006, 11m LT 10+041, 19m RT
Village of Lake Zurich	Water Main	7+364, 11m RT 7+397, 10m RT 7+433, 10m RT 7+702, 16m LT 7+790, 16m LT 7+900, 9m RT 7+937, 8m RT 7+937, 10m RT 7+983, 10m RT 8+031, 10m RT 8+125, 12m RT 8+629, 21m RT 9+089, 6m RT 10+034, 10m RT 70+915, 8m RT
Village of Lake Zurich	Storm Sewer	7+370, 11m LT
Village of Lake Zurich	Sanitary Sewer	8+129, 12m RT 9+055, 14m LT 9+089, 9m LT 10+049, 12m RT

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

## **START OF WORK**

The contractor will not be allowed to proceed with any construction operations on the pavement, which require a permanent lane closure, or to otherwise interfere with traffic as determined by the Engineer, prior to April 1, 2005. The Engineer's written approval shall be obtained by the Contractor before proceeding with any work on this project, prior to the stipulated date.

Temporary lane closures will be allowed prior to April 1, 2005 between 9 am and 3 pm.

## **COMPLETION DATE PLUS GUARANTEED WORKING DAYS**

The Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on, September 1, 2006 except as specified herein.

The Contractor will be allowed to complete traffic signal, lighting, permanent pavement marking, landscaping and all clean-up and punch list items within 25 guaranteed working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the guaranteed working days allowed for clean up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

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

## **RESTRICTION ON GUARANTEED WORKING DAYS**

Effective: January 21, 2003

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

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

Failure to Open Traffic Lanes to Traffic: Should the Contractor fail to completely open and keep open all the traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable and shall pay to the Department the amount of \$250 per lane blocked, not as a penalty but as liquidated and ascertained damages, for each and every 15 minute interval or a portion thereof that a lane is blocked outside the allowable time limitations. The Department may deduct such damages from any monies due the Contractor. These damages shall apply during the period governed by guaranteed working days and any extensions of that contract time.

**POROUS GRANULAR EMBANKMENT, SUBGRADE**

Effective: September 30, 1985

Revised: November 1, 1996

This work consists of furnishing, placing, and compacting porous granular material to the lines and grades shown on the plans or as directed by the Engineer in accordance with applicable portions of Section 207 of the Standard Specifications. The material shall be used as a bridging layer over soft, pumpy, loose soil and for placing under water and shall conform with Article 1004.06 of the Standard Specifications except the gradation shall be as follows:

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

<u>Sieve Size</u>	<u>Percent Passing</u>
*150 mm (6 inches)	97 $\pm$ 3
*100 mm (4 inches)	90 $\pm$ 10in
50 mm (2 inches)	45 $\pm$ 25
75 um (#200)	5 $\pm$ 5

2. Gravel, Crushed Gravel and Pit Run Gravel

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

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

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

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

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

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

This work will be measured for payment in accordance with Article 207.04 of the Standard Specifications. When specified on the contract, the theoretical elevation of the bottom of the aggregate subgrade shall be used to determine the upper limit of Porous Granular Embankment, Subgrade. The volume will be computed by the method of average end areas.

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

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

**AGGREGATE SUBGRADE, 300MM (12")**

Effective: May 1, 1990

Revised: July 1, 1999

This work shall be done in accordance with the applicable portions of Section 207 of the Standard Specifications. The material shall conform with Article 1004.06 of the Standard Specifications except as follows:

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

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

2. Gravel, Crushed Gravel, and Pit Run Gravel

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

3. Crushed Concrete with Bituminous Materials\*\*

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

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

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

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

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

Method of Measurement.

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

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

## **AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS**

Effective: April 1, 2001

Revise Article 402.10 of the Standard Specifications to read:

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

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

- (a) Private Entrance. The minimum width shall be 3.6 m (12 ft). The minimum compacted thickness shall be 150 mm (6 in.). The maximum grade shall be eight percent, except as required to match the existing grade.
- (b) Commercial Entrance. The minimum width shall be 7.2 m (24 ft). The minimum compacted thickness shall be 230 mm (9 in.). The maximum grade shall be six percent, except as required to match the existing grade.



- (c) Road. The minimum width shall be 7.2 m (24 ft). The minimum compacted thickness shall be 230 mm (9 in.). The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

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

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

Add the following to Article 402.12 of the Standard Specifications:

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

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

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

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

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

## **TEMPORARY PAVEMENT**

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

The contractor shall use either portland cement concrete 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 described in the plans. 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 be paid for at the contract unit price per square meter (square yard) for PAVEMENT REMOVAL.

### **ENGINEERED FILL**

This work consists of providing engineered fill consisting of light weight, cellular concrete at the location shown in the plans in accordance with the details in the plans and these special provisions.

The subcontractor that does this work must provide documentation that he/she has satisfactorily completed at least five other installations of cellular concrete of no less than 2000 cubic meters each.

The specialized batching, mixing and placing equipment shall be automated. The batch plant scales shall be inspected and calibrated by a reputable scale servicing company. Bulk cement shall be weighed on a scale which shall operate within a tolerance of 1-1/2 percent of the weight of the cement per batch.

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

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

Written approval of the subcontractor and equipment by the manufacturer of the engineered fill.

Materials. The materials shall meet the following requirements:

Cement. The Portland cement shall comply with Article 1001.01 - 1001.06 of the Standard Specifications. Pozzolans and other cementitious materials may only be used when specifically approved by the manufacturer of the Engineered fill and the Engineer.

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

Concrete Admixtures. Concrete admixtures may be used only when approved by the manufacturer of the engineered fill and the Engineer. The concrete admixtures shall meet the requirements of Article 1021.01 - 1021.04 of the Standard Specifications.

Engineered Fill. The engineered fill shall have the following properties:

	<u>Class II</u>	<u>Class IV</u>
Cast Density ASTM C138	384-480 kg/m <sup>3</sup> (24-30pcf)	577-673 kg/m <sup>3</sup> (36-42 pcf)
Minimum Compressive Strength @28 days ASTM C495-Modified	276 kpa (40 psi)	827 kpa (120 psi)
Freeze-Thaw Resistance (min. cycles @ relative E=70%)per ASTM C666 - Modified	n/a	300 cycles
Coefficient of Permeability (cm/sec) per ASTM D2434 @ 17 kpa (2.5 psi)	1.3 x10 <sup>-3</sup>	4.4x10 <sup>-6</sup>
@ 124 kpa (18 psi)	1.2x10 <sup>-4</sup>	3.1x10 <sup>-7</sup>
Water Absorption long term immersion as % of cast density (120) days per ASTM C796-Modified	20% max.	14% max.

Prior to installation of the engineered fill the ground surface shall be cleared of debris, sharp objects and trees. Tree stumps shall be either removed or cut to the level of the ground surface. All wheel tracks or ruts in excess of 76 millimeters (3 inches) in depth shall be graded smooth or otherwise filled with soil to provide a reasonable smooth surface.

If required in the plans, a geotechnical fabric for ground stabilization shall be placed in accordance with section 210 of the standard specifications.

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

Installation. The engineered fill shall be placed in accordance with the installation procedures provided by the manufacturer of the engineered fill. Each lift of the Type II engineered fill shall be placed to a maximum depth of 1.2 meter (4 feet) and the Type IV engineered fill shall be placed to a maximum depth of 0.6 meter (2 feet).

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

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

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

Mixing of the engineered fill and placing shall be done as follows:

Only automated proportioning, mixing and placing equipment approved by the manufacturer of the engineered fill shall be used. After mixing the materials shall be promptly placed in the final location.

The plant shall be equipped with an automatic batch counter and automatic timer to account for the foam in the mixer.

The engineered fill shall be placed in lifts as recommended by the manufacturer. The material shall be placed to prevent segregation. Intermediate lifts may be placed horizontal. Only the top lift shall be sloped to grade.

The final surface elevation of the engineered fill shall be within  $30\pm\text{mm}$  ( $0.1\pm\text{foot}$ ) of the plan elevation. The final surface of the engineered fill shall be primed with an asphalt primer.

Temperature Requirements. The air temperature shall not be less than  $1.7^{\circ}\text{C}$  ( $35^{\circ}\text{F}$ ) at the time of placement. The temperature of the engineered fill mixture at the point of discharge shall not be below  $7.2^{\circ}\text{C}$  ( $45^{\circ}\text{F}$ ) nor greater than  $35^{\circ}\text{C}$  ( $95^{\circ}\text{F}$ ).

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

Four strength test specimens shall be obtained for each 230 cubic meter (300 cubic yards) of engineered fill placed or for each four hours of placing.

The specimens shall be tested in accordance with ASTM C495 except:

The test specimens shall be 152mmx305mm (6" x 12") cylinders. The specimens shall be covered immediately to prevent damage and loss of moisture.

The specimens shall be moist cured for 7 days prior to a 28-day compressive strength test. Do not oven dry test specimens.

Specimens may be tested at any age to monitor the compressive strength. At least 2 specimens from each series should be tested at 28 days. The manufacturer may require special handling and testing techniques of the engineered fill.

Method of Measurement.

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

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

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

Basis of Payment. This work will be paid for at the contract unit price per cubic meter for ENGINEERED FILL of the class specified.

Geotechnical fabric and geomembrane, if specified, shall be paid for separately.

### **RECLAIMED ASPHALT PAVEMENT FOR NON-POROUS EMBANKMENT AND BACKFILL**

Effective: April 1, 2001

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

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

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

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

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

Effective: April 1, 2001

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

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

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

## **SLEEPER SLAB**

Work under this item shall consist of constructing Portland cement concrete sleeper slab in accordance with Section 420 of the Standard Specifications and details as shown on the drawings.

Basis of Payment: This work will be paid at the contract unit price per meter for SLEEPER SLAB of the width and thickness specified which price shall include concrete, reinforcement bars and expansion joint filler and sealer, and all labor for completing the work.

## **STORM SEWER ADJACENT TO OR CROSSING WATER MAIN**

Effective: February 1, 1996

Revised: March 31, 1998

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

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

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

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

## **BACKFILLING STORM SEWER UNDER ROADWAY**

Effective: September 30, 1985

Revised: July 2, 1994

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

## **CLEANING EXISTING DRAINAGE STRUCTURES**

Effective: September 30, 1985

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.

### **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) 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:**

701101  
701421-01  
701422-01  
701426-01  
701431-03  
701501-02  
701601-03

701701-03  
701801-03  
702001-04  
704001-02

**DETAILS:**

TRAFFIC CONTROL AND PROTECTION FOR SIDEROADS, INTERSECTIONS AND DRIVEWAYS  
TRAFFIC CONTROL AND PROTECTION AT TURN BAYS  
PAVEMENT MARKING LETTERS AND SYMBOLS FOR TRAFFIC STAGING  
TEMPORARY INFORMATION SIGNING  
SUGGESTED STAGES OF CONSTRUCTION AND TRAFFIC CONTROL

**SPECIAL PROVISIONS:**

MAINTENANCE OF ROADWAYS  
TEMPORARY INFORMATION SIGNING  
TRAFFIC CONTROL DEFICIENCY DEDUCTION  
CHANGEABLE MESSAGE SIGN  
WORK ZONE TRAFFIC CONTROL DEVICES  
WORK ZONE TRAFFIC CONTROL (LUMP SUM PAYMENT)  
FLAGGER VESTS  
MPACT ATTENUATORS, TEMPORARY  
TEMPORARY CONCRETE BARRIER

**RECURRING SPECIAL PROVISIONS**

PORTABLE CHANGEABLE MESSAGE SIGNS  
NIGHT TIME INSPECTION OF ROADWAY LIGHTING

**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:

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

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

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

Note 3. All sign faces shall be Type A except all orange signs shall meet the requirements of Article 1084.02(b).

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



## GENERAL CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

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

## CHANGEABLE MESSAGE SIGNS

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

Four signs will be required for this contract.

## COMPOST PLACEMENT

This work consists of furnishing and placing compost material to the lines and grades shown on the plans or as directed by the Engineer in accordance with Section 211 of the Standard Specifications.

This work will be measured for payment in accordance with Article 211.07 of the Standard Specifications.

This work shall be paid for at the contract unit price per square meter for COMPOST PLACEMENT of the thickness specified.

## **BOX CULVERT REMOVAL**

This work shall consist of the removal of an existing box culvert at the location shown on the plans or as directed by the Engineer. This work shall be as specified in Section 501 of the Standard Specifications.

Removal of the culvert will need to be staged to maintain traffic on the roadway. Drainage including temporary drainage connections will need to be maintained at all times. Immediately after removal of the initial segment of culvert and the installation of the replacement culvert, a temporary collar of concrete shall be installed between the remaining segment of the existing box culvert to be removed and the newly installed pipe culvert.

This item will be paid for at the contract unit price per Lump Sum for BOX CULVERT REMOVAL which payment shall be full compensation for removing the existing culvert, providing a temporary connection and collar to the proposed culvert, removal of the temporary collar, excavation, trench backfill, and all other appurtenances and collateral work necessary to complete this work as specified.

## **HEADWALL REMOVAL**

This work shall consist of the removal of existing box culvert headwalls at the location shown on the plans or as directed by the Engineer. This work shall be as specified in Section 501 of the Standard Specifications.

This item will be paid for at the contract unit price per Each for HEADWALL REMOVAL which payment shall be full compensation for removing the existing box culvert headwall, excavation, trench backfill, and all other appurtenances and collateral work necessary to complete this work as specified.

## **END SECTIONS TO BE REMOVED**

This work shall consist of the removal of existing storm sewer end sections at the location shown on the plans or as directed by the Engineer. This work shall be as specified in Section 551 of the Standard Specifications.

This item will be paid for at the contract unit price per Each for END SECTIONS TO BE REMOVED which payment shall be full compensation for removing the existing storm sewer end sections, excavation, trench backfill, and all other appurtenances and collateral work necessary to complete this work as specified.

## **TEMPORARY STORM SEWER AND END SECTIONS**

This work shall consist of installing temporary storm sewer and end sections at locations shown on the plans or as directed by the Engineer and their removal after completion of the staging phase. This work shall be as specified in Section 542 and 550 of the Standard Specifications and as shown on the plans and shall include all incidental materials and labor necessary to construct this item as shown on the plans.

The Contractor shall have the option of utilizing new material or previously used material if acceptable to the Engineer.

This item will be paid for at the contract unit price per meter for Temporary Storm Sewer and per each for Temporary End Section of the size as specified on the plans which payment shall be full compensation for furnishing and installing the sewer and end sections, excavation, trench backfill, removal of the temporary sewer and end sections and all other appurtenances and collateral work necessary to complete this work as specified.

### **END SECTIONS TO BE RELOCATED**

This work shall consist of removing an existing end section and relocating it to a location shown on the plans or as directed by the Engineer. This work shall be as specified in Section 542 and 550 of the Standard Specifications and as shown on the plans and shall include all incidental materials and labor necessary to construct this item as shown on the plans.

This item will be paid for at the contract unit price per each for End Sections To Be Relocated as specified on the plans which payment shall be full compensation for removing the existing end section and relocating and installing it at a new location, excavation, trench backfill, and all other appurtenances and collateral work necessary to complete this work as specified.

### **TEMPORARY DRAINAGE STRUCTURES**

This work shall consist of installing temporary manholes and inlets at locations shown on the plans or as directed by the Engineer and their removal after completion of the staging phase. This work shall be as specified in Section 602 of the Standard Specifications and as shown on the plans and details and shall include the drainage structure, cast iron frame and lid, and all incidental materials and labor necessary to construct this item as shown on the plans.

The frames and lids shall be as designated on the plan. The Contractor shall have the option of utilizing new material or previously used material if acceptable to the Engineer.

This item will be paid for at the contract unit price each for Temporary Manholes and Inlets of the type and size as specified on the plans which payment shall be full compensation for furnishing and installing the manhole or inlet, frame and lid, excavation, trench backfill, removal of the inlet or manhole and all other appurtenances and collateral work necessary to complete this work as specified.

### **FRAMES AND GRATES**

This work shall consist of installing temporary drainage structure frames and grates and removing and replacing frames and grates on drainage structures at locations shown on the plans or as directed by the Engineer. This work shall be as specified in Section 602 of the Standard Specifications.

The frames and lids shall be as designated on the plan. The Contractor shall have the option of utilizing new material or previously used material if acceptable to the Engineer.

This item will be paid for at the contract unit price each for Frames and Grates to be Removed and Replaced and Temporary Frames and Grates of the type as specified on the plans which payment shall be full compensation for removing the existing frame and grate, installing the new frame and grate, excavation, trench backfill, and all other appurtenances and collateral work necessary to complete this work as specified.

### **MANHOLE WITH RESTRICTOR PLATE**

This work shall consist of constructing manholes with restrictor plates. This work shall be as specified in Section 602 of the Standard Specifications and as shown on the plans and details and shall include the manhole structure, the restrictor plate, cast iron frame and lid, and all incidental materials and labor necessary to construct this item as shown on the plan and detail.

The restrictor plates shall be galvanized steel conforming to the requirements of AASHTO M 183. The Zinc coating shall conform to the requirements of AASHTO M 111. The stud and nut assemblies shall be stainless steel conforming to the requirements of AASHTO M 163.

The frames and lids shall be as designated on the plan.

This item will be paid for at the contract unit price each for Manholes of the type and size as specified on the plans with restrictor plates, which payment shall be full compensation for furnishing and installing the manhole with restrictor plate, frame and lid, excavation, trench backfill, and all other appurtenances and collateral work necessary to complete this work as specified.

### **COMBINATION CONCRETE CURB AND GUTTER, TYPE M-5.60**

Work under this item shall consist of constructing combination concrete curb and gutter in accordance with Section 606 of the Standard Specifications and details as shown on the drawings for an M-5.30 curb and gutter except that the dimensions of the gutter shall be 600mm.

Basis of Payment: This work will be paid at the contract unit price per meter for COMBINATION CONCRETE CURB AND GUTTER, TYPE M-5.60 of the type specified.

### **CORRUGATED MEDIAN, MODIFIED**

Work under this item shall consist of constructing modified portland cement corrugated median in accordance with Section 606 of the Standard Specifications and details as shown on the drawings.

Basis of Payment: This work will be paid at the contract unit price per square meter for CORRUGATED MEDIAN, MODIFIED at the locations and dimensions specified which price shall include concrete, pavement fabric, sawcutting, and all labor for completing the work.

### **FENCE REMOVAL**

This item of work shall consist of the removal and disposal of existing fence, gates, hardware, posts and foundations.

FENCE REMOVAL will be measured for payment in meters, measured from center to center of end fence posts. This work will be paid for at the contract unit price per meter for FENCE REMOVAL, which price shall include removing end posts, line posts, foundations, hardware, and gates, and for disposing of all material off site in accordance with the standard specifications.

### **FLASHING BEACON INSTALLATION**

Effective: September 9, 2004

This item shall consist of installing and maintaining the flashing beacon installation at an intersection in place according to details in the plans and as described herein. The energy charges for the operation of the flashing beacon installation shall be paid for by the Department unless otherwise directed by the Engineer.

The installation of a flashing beacon installation shall meet the requirements of the Standard Drawings, except as revised with this Special Provision. A continuous cable shall be installed from each signal head to the controller.

Basis of Payment. This work will be paid for at the contract unit price each for FLASHING BEACON INSTALLATION, which price shall be payment in full for all materials, equipment, and labor necessary to install the flashing beacon as shown on the plans. Each installation shall be paid for separately.

### **TRAFFIC SIGNAL SPECIFICATIONS**

Effective: January 1, 2002

Revised: May 22, 2002

These Traffic Signal Special Provisions and the "District 1 Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

## **SECTION 720 SIGNING**

### **MAST ARM SIGN PANELS.**

Add the following to Section 720.02 of the Standard Specifications:

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

## **SECTION 800 ELECTRICAL**

### **INSPECTION OF ELECTRICAL SYSTEMS.**

Add the following to Section 802.01 of the Standard Specifications:

All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier facilities prior to field installation, at no extra cost to this contract. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be new, built, tested and approved by the controller equipment vendor, in the vendor's District One facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

### **DAMAGE TO TRAFFIC SIGNAL SYSTEM.**

Revise Section 802.02 of the Standard Specifications to read:

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

### **RESTORATION OF WORK AREA.**

Add to Section 802 of the Standard Specifications:

Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, trench and backfill, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. Restoration of the work area shall be incidental to the contract without any extra compensation allowed to the Contractor.

### **SUBMITTALS.**

Revise Section 802.04 of the Standard Specifications to read:

The Contractor shall provide:

- a. All material approval requests shall be submitted a minimum of seven (7) days prior to the delivery of equipment to the job site, or within 30 consecutive calendar days after the contract is awarded, or within 15 consecutive calendar days after the preconstruction meeting, whichever is first.
- b. Seven (7) copies of a letter from the Traffic Signal Contractor listing the manufacturer's name and model numbers of the proposed equipment and stating that the proposed equipment meets all contract requirements. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approvable. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.

- c. One (1) copy of material catalog cuts.
- d. Seven (7) copies of mast arm poles and assemblies.
- e. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of the letter, material catalog cuts and mast arm poles and assemblies drawings as required in items b, c and d.
- f. Exceptions, Deviations and Substitutions. In general, exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

### **MAINTENANCE AND RESPONSIBILITY.**

Revise Section 802.07 of the Standard Specifications to read:

- a) Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which they are located. Once the Contractor has begun any work on any portion of the project all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation", "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation", shall become the full responsibility of the Contractor. The Contractor shall supply the engineer and the Department's Electrical Maintenance Contractor a 24-hour emergency contact name and telephone number.
- b) When the project has a pay item for "Maintenance of Existing Traffic Signal Installation", "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation", the Contractor must notify both the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4139 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.
- c) Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer

at (847) 705-4139 and the Department's Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. See additional requirements in these specifications under Inductive Loop Detector.

- d) The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.
- e) The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Department, the Department's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The District's Electrical Maintenance Contractor may inspect any signaling device on the Department's highway system at any time without notification.

### **TRAFFIC SIGNAL INSPECTION (TURN-ON).**

Revise Section 802.10 of the Standard Specifications to read:

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

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4139 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Department's facsimile number is (847) 705-4089.

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



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

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

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

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

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

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

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements shall be subject to removal and disposal at the Contractor's expense.

#### **LOCATING UNDERGROUND FACILITIES.**

Revise Section 803.00 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District 1 Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

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

### **ELECTRIC SERVICE INSTALLATION.**

Revise Section 805.00 of the Standard Specifications to read:

Description. This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the "District 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications.

#### Materials.

- a. General. The completed control panel shall be constructed in accordance with UL Std. 508, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.
- b. Enclosures.
  1. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 2.03 mm (0.080-inch) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 350 mm (14-inches) high, 225 mm (9-inches) wide and 200 mm (8-inches) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.
  2. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 3.175 mm (0.125-inch) thick, the top 6.350 mm (0.250-inch) thick and the bottom 12.70 mm (0.500-inch) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full length tamperproof stainless steel 1.91 mm (.075-inch) thick hinge bolted to the cabinet with

stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 1000 mm (40-inches high), 400 mm (16-inches) wide and 375 mm (15-inches) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.

- c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of -40C to +85C. The surge protector shall be UL 1449 Listed.
- d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, otherwise noted on the plans, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.
- e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.
- f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.
- g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.
- h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 3.0 meters (10') in length, and 20mm (3/4") in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

### Installation

- a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

- b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.
- c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment. The service installation shall be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The type A foundation which includes the ground rod shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 20mm (3/4") grounding conduit, ground rod, and pole mount assembly. Any changes by the utility companies shall be approved by the engineer and paid for as an addition to the contract according to Article 109.05 of the Standard Specifications.

#### **GROUNDING OF TRAFFIC SIGNAL SYSTEMS.**

Revise Section 807.00 of the Standard Specifications to read:

General. All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See IDOT District 1 Traffic Signal detail plan sheet for additional information.

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

Testing shall be according to Section 801.11.

- a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.
- b) The equipment grounding conductor shall be green color coded. The following is in addition to Section 801.14 of the Standard Specifications.
  - 1) Equipment grounding conductors shall be XLP insulated No. 6, unless otherwise noted on the plans, and bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.
  - 2) Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. A Listed electrical joint compound shall be applied to all conductors terminations, connector threads and contact points.

- 3) All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.
- c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment grounding conductor and is bonded to ground rods via exothermic welding, listed pressure connectors, listed clamps or other approved listed means.

### **HANDHOLES.**

Add the following to Section 814.00 of the Standard Specifications:

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

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

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

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

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

### **FIBER OPTIC TRACER CABLE.**

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

Add to Section 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. The tracer cable will be allowed to be spliced at the handholes only. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable splice shall use a Western Union Splice soldered with resin core flux. All exposed surfaces of the solder shall be smooth. Splices shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with WCSMW 30/100 heat shrink tube, minimum length (100 mm) 4" and with a minimum (25 mm) 1" coverage over the XLP insulation, underwater grade.

Revise Section 817.05 of the Standard Specifications to read:

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

**GROUNDING CABLE.**

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

Add to Section 817.02 (b) of the Standard Specifications:

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

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

Revise Section 817.05 of the Standard Specifications to read:

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

**RAILROAD INTERCONNECT CABLE.**

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

Add to Section 817.02 of the Standard Specifications:

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

Revise Section 817.05 of the Standard Specifications to read:

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

**MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.**

Revise Section 850.00 of the Standard Specifications to read:

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

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

This item shall include maintenance of all traffic signal equipment at the intersection, including emergency vehicle pre-emption equipment, master controllers, telephone service installations, communication cables and conduits to adjacent intersections.

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

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

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. At approaches where a yellow flashing indication is necessary, as directed by the Engineer, stop signs will not be required. The Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

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

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

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

Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost

of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

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

### **TRAFFIC ACTUATED CONTROLLER.**

Add the following to Section 857.00 of the Standard Specifications:

Controllers shall be NEMA TS2 Type 1, Econolite ASC/2S-1000 or Eagle M41 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District 1 approved closed loop equipment manufacturers will be allowed. The controller shall be the most recent model and software version supplied by the manufacturer at the time of the approval. The traffic signal controller shall provide features to inhibit simultaneous display of a circular yellow ball and a yellow arrow display. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase.

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

### **MASTER CONTROLLER.**

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

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

Functional requirements in addition to those in section 863 of the Standard Specification include:

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

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

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum.

The cabinet shall be provided with a Siecor CAC 3000, or equivalent, Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date. The CAC 3000 shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor.



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

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

Each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support. Each set shall consist of software on suitable media (CD, 3 1/2" or 5 1/4" floppy disks as requested by the Engineer), and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for his use in monitoring the system.

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

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

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District 1 staff.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the Administrative Support Manager in the District 1 Business Services Section at (847) 705-4011 to request a phone line installation.

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

The usual time frame for the activation of the phone line is 4-6 weeks after the Business Services Section has received the Contractor supplied fax. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor in anticipation of this time frame. On jobs which include roadway widening in which the conduit cannot be installed until this widening is completed, the Contractor will be allowed to delay the phone line installation request to the Business Services Section until a point in time that is 4-6 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the Administrative Support Manager with an expected installation date considering the 4-6 week processing time.

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

All costs associated with the telephone line installation and activation (not including the Contract specified conduit installation between the point of telephone service and the traffic signal

controller cabinet) shall be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number not a Contractor phone number).

**FIBER OPTIC CABLE.**

Revise Section 871.00 of the Standard Specifications to read:

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

The control cabinet distribution enclosure shall be 3M Model 8173 or an approved equivalent. The fiber optic cable shall provide six fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of (4m) 13.0' of slack cable shall be provided for the controller cabinet. The controller cabinet slack cable shall be stored as directed by the Engineer.

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

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

**CONCRETE FOUNDATIONS.**

Add the following to Section 878.03 of the Standard Specifications:

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

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

Concrete Foundations, Type "D" for Traffic Signal Cabinets shall be a minimum of 1.22 m (48") long and 790 mm (31") wide. All Type "D" foundations shall be a minimum depth of 1.22 m (48"). The concrete apron shall be 910 mm X 1220 mm X 130 mm (36"x48"x5"). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "E" for Mast Arm and Combination Mast Arm Poles shall meet the following requirements:

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

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

\* WATER TABLE ASSUMED BELOW DEPTHS SPECIFIED

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

### **DETECTOR LOOP.**

Revise Section 886 of the Standard Specifications to read:

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4139 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the portland cement concrete surface, using the same notification process as above.

Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details". Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

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

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit 250W175C water proof tag, or an approved equal, secured to each wire with nylon ties.

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

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

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

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

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

Preformed detector loops shall be installed in new pavement constructed of portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be protected to the satisfaction of the Engineer.

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

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

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

### **EMERGENCY VEHICLE PRIORITY SYSTEM.**

Revise Section 887.00 of the Standard Specifications to read:

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

All new installations shall be equipped with Confirmation Beacons as shown on the "District 1 Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 150 watt Par 38 flood lamp for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signaled by a flashing indication at the rate specified by Section 4E-5 of the "Manual On Uniform Traffic Control Devices." The stopped pre-empted movements shall be signaled by a continuous indication.

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

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

### **TEMPORARY TRAFFIC SIGNAL INSTALLATION.**

Revise Section 890.00 of the Standard Specifications to read:

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

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

All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 100 mm (4 inch) diameter holes to run the electric cables through. The 100 mm (4 inch) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 807 of the Standard Specifications and shall meet the requirements of the District 1 Traffic Signal Specifications for "Grounding of Traffic Signal Systems".

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

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

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

All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. Minor cross streets shall have vehicular detection provided by Microwave Vehicle Sensors or Video Vehicle Detection System as shown on the plans or as directed by the Engineer. The microwave vehicle sensor or video vehicle detection system shall be approved by IDOT before furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system.

All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.

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

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

Maintenance shall meet the requirements of the Traffic Specifications and District Specifications for "Maintenance of Existing Traffic Signal Installation." Maintenance of temporary signals and of the existing signals shall be incidental to the cost of this item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. Maintenance responsibility of the existing signals shall be incidental to the item Temporary Traffic Signal Installation(s). In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic (847) 705-4139 for an inspection of the installation(s).

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

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

### **REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT.**

Add the following to Section 895.05 of the Standard Specifications:

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

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

The Contractor shall safely store and arrange for pick up of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

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

## **SECTION 1000 MATERIALS**

### **PEDESTRIAN PUSH-BUTTON.**

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

(b) Push-button assemblies shall be a cast aluminum alloy Pelco Push-button station, or an approved equivalent.

(d) The assembly shall provide ADA push-buttons with one of the following signs: SF-1017, 1018 or 1020 - 5" x 7<sup>3</sup>/<sub>4</sub>" (127 mm x 197 mm).

### **CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.**

Revise Section 1074.03 of the Standard Specifications to read:

Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.

- Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- BIU – Containment screw required.
- Transfer Relays – Solid state or mechanical flash relays are acceptable.
- Switch Guards – All switches shall be guarded.
- Heating – Two (2) porcelain light receptacles with cage protection controlled by both a wall switch and a thermostat.
- Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
- Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channel (16) of vehicular operation.
- Field Wiring Labels – All field wiring shall be labeled.
- Field Wiring Termination – Approved channel lugs required.
- Power Panel – Provide a nonconductive shield.
- Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
- Police Door – Provide wiring and termination for plug in manual phase advance switch.
- Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

### **TRAFFIC ACTUATED CONTROLLER AND CABINET INTERCONNECTED WITH RAILROADS.**

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

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

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



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

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

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

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

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

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

### **ELECTRIC CABLE.**

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

### **MAST ARM ASSEMBLY AND POLE.**

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

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization.

This work shall consist of furnishing and installing a galvanized steel or extruded aluminum shroud for protection of the mast arm pole base plate similar to the dimensions detailed in the "District 1 Standard Traffic Signal Design Details." The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall allow air to circulate throughout the mast arm but not allow manifestation of insects or critters. The shroud shall be constructed,

installed and designed not to be hazardous to probing fingers and feet. All mounting hardware shall be stainless steel. The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

### **TRAFFIC SIGNAL POST.**

Add the following to Section 1077.03 (b) of the Standard Specifications:

All posts and bases shall be steel and hot dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization.

### **SIGNAL HEADS.**

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

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

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

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

### **SIGNAL HEAD, BACKPLATE.**

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

### **INDUCTIVE LOOP DETECTOR.**

Add the following to Section 1079.01 of the Standard Specifications:

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

### **ILLUMINATED SIGN, LIGHT EMITTING DIODE.**

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

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

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

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

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

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

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

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

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

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

### **GROUNDING EXISTING HANDHOLE FRAME AND COVER.**

Description. This work shall consist of all materials and labor required to bond the equipment grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "District 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications.

The equipment grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2)  $\frac{1}{2}$ -inch diameter x 1  $\frac{1}{4}$ -inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Burndy type YGHA or approved equal). The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

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

The grounding cable shall be paid for separately.

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

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

### **RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM**

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

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

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

Traffic counts shall be taken at the subject intersection a minimum of 30 days after the traffic signals are approved for operation by the Area Traffic signal Operations Engineer. Seven day/twenty-four hour automatic traffic recorder counts will be required and manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m. and 3:30 p.m. to 6:30 p.m. on typical weekday from midday Monday to midday Friday, and if necessary, on the weekend. Additional manual turning movement counts may be necessary if heavy traffic flows exist during off peak hours. The turning movement counts shall identify cars, heavy vehicles, buses, and pedestrian movements.

A Capacity Analysis shall be conducted at the subject intersection to determine its level of service and degree of saturation. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system

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

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

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

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

### **UNIT DUCT.**

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

### **SIGNAL HEAD, LIGHT EMITTING DIODE.**

#### **a) General:**

- 1) Signal Head, Light Emitting Diode (LED), 1 Face, (All Section Quantities), (All Mounting Types) shall meet the requirements of Sections 880 and 881 and Articles 1078.01 and 1078.02 of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2002, with the following modifications:
- 2) All signal and pedestrian heads shall be 300 mm (12") glossy black polycarbonate. Connecting hardware and mounting brackets shall be polycarbonate (black) or galvanized. A corrosive resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

- 3) The optical unit of all traffic signal and pedestrian head sections shall be light emitting diodes (LEDs) instead of incandescent bulbs. Each signal head shall conform fully to the "Interim Purchase Specification of the Institute of Transportation Engineers (ITE) for LED Vehicle Traffic Signal Modules" published July, 1998, or applicable successor ITE specification.
- 4) The lens of each signal indication shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating applied to provide abrasion resistance.
- 5) Each pedestrian signal LED module shall provide the ability to actuate the outlined upraised hand and the outlined walking person on one 12-inch (300mm) section. Two (2) sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).
- 6) The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
- 7) In the event of a power outage, light output from the LED modules shall cease instantaneously.
- 8) In addition to conforming with the requirements for circular LED signal modules, LED arrow indication modules shall meet existing specifications stated in the ITE Standard: "Vehicle Traffic Control Signal Heads," section 9.01. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs. The LEDs shall be spread evenly across the illuminated portion of the arrow area.
- 9) The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Section 4.1.1 of the Interim Purchase Specification of the ITE for LED Vehicle Traffic Signal Modules within the first 60 months of the date of delivery shall be replaced or repaired. The manufacturer's written warranty for the LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the State.
- 10) Each module shall consist of an assembly that utilizes LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections.
- 11) The LEDs utilized in the modules shall be AlInGaP technology for red, yellow, Portland orange (pedestrian) and white (pedestrian) indications, and GaN for green indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40°C to +74°C.
- 12) The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

b) Electrical

- 1) Maximum power consumption for LED modules is per Table 1.
- 2) LED modules will have EPA Energy Star compliance ratings, if applicable to that shape, size and color.
- 3) The modules shall operate from a 60 HZ  $\pm$ 3 HZ AC line over a voltage ranging from 95 volts to 135 volts. The fluctuations of line voltage shall have no visible effect on the luminous intensity of the indications.
- 4) Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.
- 5) The LED signal module shall have a power factor of 0.90 or greater.
- 6) Total harmonic distortion (current and voltage) induced into an AC power line by a LED signal module shall not exceed 20 percent.
- 7) The signal module on-board circuitry shall include voltage surge protection to withstand high-repetition noise transients as stated in Section 2.1.6 of NEMA Standard TS-2, 1992.
- 8) The LED circuitry shall prevent perceptible flicker to the unaided eye over the voltage range specified above.
- 9) All wiring and terminal blocks shall meet the requirements of Section 13.02 of the ITE Publication: Equipment and Material Standards, Chapter 2 (Vehicle Traffic Control Signal Heads).
- 10) The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).
- 11) When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.
- 12) The modules and associated on-board circuitry must meet Class A emission limits referred in Federal Communications Commission (FCC) Title 47, SubPart B, Section 15 regulations concerning the emission of electronic noise.

c) Photometric Requirements

- 1) The minimum initial luminous intensity values for the modules shall be as stated in Table 2 and/or Table 4 at 25°C.
- 2) The modules shall meet or exceed the illumination values as shown in Table 3 and/or Table 4, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.
- 3) The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Table 5, throughout the useful life over the operating temperature range.

d) Environmental Requirements

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

e) Construction

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

f) Materials

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

g) Traffic Signal and Pedestrian LED Module Identification

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

h) Traffic Signal LED Module

- 1) Modules can be manufactured under this specification for the following faces:



- a 300 mm (12-inch) circular, multi-section
  - b 300 mm (12-inch) arrow, multi-section
  - c 300 mm (12-inch) pedestrian, 2 sections
- 2) The maximum weight of a module shall be 1.8 kg (4 lbs.).
  - 3) Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
- i) Retrofit Traffic Signal Module
- 1) The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superceded in this section.
  - 2) Retrofit modules can be manufactured under this specification for the following faces:
    - a 300 mm (12-inch) circular, multi-section
    - b 300 mm (12-inch) arrow, multi-section
    - c 300 mm (12-inch) pedestrian, 2 sections
  - 3) The module shall fit into existing traffic signal section housings built to the specifications detailed in ITE Publication: Equipment and Material Standards, Chapter (Vehicle Traffic Control Signal Heads).
  - 4) Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.
  - 5) The maximum weight of a Retrofit module shall be 1.8 kg (4 lbs.).
  - 6) Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
  - 7) The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.
- j) Two secured, color coded, 600 V, 20 AWG minimum, jacketed wires, conforming to the National Electric Code, rated for service at +105°C, are to be provided for electrical connection for each LED signal module. Conductors for modules, including Retrofit modules, shall be 39.4-inches (1m) in length, with quick disconnect terminals attached.
- k) Lens
- 1) The lens of the module shall be tinted and integral to the unit, convex with a smooth outer surface and made of plastic.
  - 2) The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

- 3) The LED signal module lens shall be UV stabilized and shall be capable of withstanding ultraviolet (direct sunlight) exposure for a minimum period of 60 months without exhibiting evidence of deterioration.
  - 4) The polymeric lens shall have a surface coating or chemical surface treatment to provide front surface abrasion resistance.
- l) The following specification requirements apply to the 12-inch (300 mm) arrow module only. All general specifications apply unless specifically superceded in this section.
- 1) The arrow module shall meet specifications stated in Section 9.01 of the ITE Publication: Equipment and Material Standards, Chapter 2 (Vehicle Traffic Control Signal Heads) for arrow indications.
  - 2) The LEDs shall be spread evenly across the illuminated portion of the arrow area.
- m) The following specification requirements apply to the 12-inch (300 mm) PV module only. All general specifications apply unless specifically superceded in this section.
- 1) The module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.
  - 2) The LEDs shall be spread evenly across the module.

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

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

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

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

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

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

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

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

TABLES

Table 1 Maximum Power Consumption (in Watts)

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

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

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

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

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

Table 4 Minimum Initial & Maintained Intensities for Arrow and Pedestrian Indications (in cd/m<sup>2</sup>)

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

Table 5 Chromaticity Standards (CIE Chart) Section 8.04 of

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

### TEMPORARY FIBER OPTIC CABLE

This work shall consist of furnishing and installing Temporary Fiber Optical cable in conduit and on aerial with all accessories and connectors according to Section 871 of the Standard Specifications and removal of the cable upon completion of the proposed permanent fiber optic cable. The cable shall be of the type, size, and the number of fiber specified.

Basis of Payment. The work shall be paid for at the contract unit price for TEMPORARY FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 12F and TEMPORARY AERIAL FIBER OPTIC CABLE NO. 62.5/125 12F ON MESSENGER, per (meter) foot for the cable in place, including distribution enclosure and all connectors.

## **TRAFFIC SIGNAL PAINTING**

Effective: June 17, 2002

Revised April 10, 2003

**Description.** This work shall include surface preparation, powder type painted finish application and packaging of new galvanized steel traffic signal mast arm assemblies and poles and traffic signal posts. All work associated with the painting shall be performed before shipment from the traffic signal mast arm assembly, pole and post manufacturer's facilities. Traffic signal mast arm shrouds and post bases shall also be painted.

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

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

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

Traffic signal head and controller cabinets are not included in this pay item.

Any damage to the finish after leaving the manufacturer's facility shall be repaired to the satisfaction of the Engineer using a method approved by the Engineer and manufacturer. If while at the manufacturer's facility the finish is damaged, the finish shall be re-applied.

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

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

## **BRACED EXCAVATION**

Description. This work shall consist of all labor, materials, equipment and services necessary to complete the braced excavation required for construction of the abutments. Temporary sheet piling associated with the braced excavation shall be furnished and installed in accordance with the applicable portions of Section 512 of the Standard Specifications.

This work shall also include furnishing, installing and subsequent removal of struts, tiebacks, wales, H-piles, miscellaneous steel shapes, plates and connecting hardware as required for proper completion of this work.

The following items are to be included in the design and construction procedures for all temporary facilities adjacent to Elgin Joliet & Eastern Railroad track:

- (1) Temporary sheeting and shoring for support of adjacent track during construction shall not be closer than 2.81 m.
- (2) Interlocking steel sheet piling, driven prior to excavation, must be used to protect track stability. The use of trench boxes or similar devices is not acceptable in the area. Soldier piling and lagging will be considered for supporting adjacent track(s) only when its use is approved by the Engineer. Consideration for the use of soldier piling and lagging will be made if the required penetration of steel sheet piling cannot be obtained and when dry, non-running, stable material will be encountered. The method of earth tieback sheeting will not be allowed.
- (3) The sheeting shall be designed to support all lateral forces caused by the earth, railroad and other surcharge loads. The railroad loading to be applied is an E-356 (E-80 English) loading. The lateral forces acting on the sheeting shall be computed as follows:
  - a. The active earth pressure due to the weight of the soil is to be computed by the Rankine theory.
  - b. The Boussinesq analysis shall be used to determine the lateral pressure caused by the railroad loading. The load on the track shall be taken as a strip load with a width equal to the length of the ties (2.59 m). The vertical surcharge,  $q$  (Pa), caused by each axle, shall be uniform and equal to the axle weight divided by the tie length and the axle spacing (1.524 m). For an E-356 loading, this results in:

$$q = 355,860 / (2.59 \times 1.524) = 90,156 \text{ Pa.},$$

The horizontal pressure due to the live load surcharge at any point on the sheet-piling wall is  $P_h$  and can be calculated by the following:

$$P_h = (2q/u)(B \sin B \cos 2a)$$

- (4) The allowable stresses for the sheet piling and other steel members (wales, struts, etc.) shall be in accordance with AREMA Chapter 15, Parts 1 and 2. These allowable stresses may be increased ten percent (10%) due to the temporary nature of the installation.
- (5) Absolute use of track is required while driving sheeting within 7.62 m from centerline of a live track or when there is a potential to foul an active track by a crane or other piece of construction equipment.
- (6) Cavities adjacent to the sheet piling, created by the driving of sheet piling, shall be filled with sand and any disturbed ballast must be restored and tamped immediately.

- (7) Sheet piling shall be cut off at the top of tie during construction. After construction and backfilling has been completed, piling within 2.81 m from centerline of track, or when bottom of excavation is below a line extending a 1:1 slope from end of tie to point of intersection with sheeting, shall be cut off 450 mm below existing ground line and left in place.
- (8) Any excavation adjacent to track shall be covered and ramped and provided with barricades as required by EJ&E. A walkway with a handrail must be provided adjacent to the track for any excavation within 2.81 m of the centerline. The walkway will be designed in accordance with AREMA requirements.
- (9) Final backfilling of excavation shall be as required by project specifications.
- (10) The Contractor shall advise EJ&E of the time schedule of each operation and obtain approval of EJ&E for all work to be performed adjacent to EJ&E tracks so that railroad personnel may properly supervise it.
- (11) All drawings for temporary sheeting and shoring shall be prepared and sealed by an Illinois Licensed Structural Engineer and shall be accompanied by complete design computations when submitted for approval.
- (12) Where physical conditions of design impose insurmountable restrictions requiring the placing of sheeting closer than specified above, the matter must be submitted to the Engineer, for approval of any modifications.
- (13) A minimum of five (5) copies of the submission is to be sent to the EJ&E for review and approval. The Contractor is advised that he can expect a minimum thirty (30) day review period from the day it is received by the Railroad.
- (14) EJ&E's field representative must be present at the site during the entire erection procedure period. The Contractor must notify the railroad representative at least seventy-two (72) hours in advance of the work. No changes will be accepted after that time.
- (15) The Contractor will not be permitted to leave any part of the bracing system in the finished concrete abutments.

Method of Measurement. Braced Excavation will be measured for payment in cubic meters of excavation and removal actually performed to construct the abutments.

Basis of Payment. This work shall be paid for at the contract unit price per cubic meters for BRACED EXCAVATION. Temporary sheet piling associated with braced excavation will not be measured for payment but shall be included in the cost for BRACED EXCAVATION.

## **STEEL GRATE WALKWAY**

Description. This work shall consist of furnishing and installing the Steel Grate Walkway as shown on the plans and as directed by the Engineer including, but not limited to purchase, preparation and fabrication of grating and all associated materials, shipping and handling including special permits if required. The following requirements are in addition to the requirements specified in Standard Specification Section 505.

Materials. The metal bar gratings shall comply with standard specifications for Metal Bar Grating published in ANSI/NAAMM A202.1 "Metal Bar Grating Manual". Welded and fabricated steel grating shall have bearing bars at 30 mm on centers and cross bars 100 mm on centers. The sizes of the bearing bars shall be as indicated on the plans. Traffic surface for the steel bar gratings shall be serrated. The fabricated steel grating shall be hot-dip galvanized with a coating weight of not less than 610 gram per square meter of coated surface.

Installation of gratings shall comply with recommendations of NAAMM grating standard referenced under Part 2 that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.

Method of Measurement. Steel Grate Walkway shall be measured for payment in square meter of actual Steel Grate Walkway furnished and installed.

Basis of Payment. This work will be paid for at the contract unit price per square meter for STEEL GRATE WALKWAY.

## **PIPE HANDRAIL, SPECIAL**

Description. This work shall consist of furnishing and installing the pipe handrail, special as shown on the plans and as directed by the Engineer.

Materials. The pipe handrail requirements shall be in accordance with Article 510 of the Standard Specifications for Road and Bridge Construction, January 2002 with the following exceptions:

The railings and posts shall be 50 mm diameter "Extra Strong" pipe.

Railings and posts shall be galvanized. At all points except expansion joints, connections of railings to posts shall be by continuous welding without fittings.

Method of Measurement. Method of measurement shall be in accordance with Article 510 of the Standard Specifications for Road and Bridge Construction, January 2002.

Basis of Payment. This work will be paid for at the contract unit price per meter for PIPE HANDRAIL, SPECIAL.



## **PERMANENT GROUND ANCHORS**

Effective: October 4, 1995

Revised: October 6, 1997

This work shall consist of designing, furnishing, installing, testing and stressing permanent cement-grouted ground anchors according to the plans and the special provisions. This work also includes the furnishing and installing of the anchorage head assemblies.

This is a performance specification for a single ground anchor. The Contractor is given the responsibility for the ground anchor design, construction and performance. The anchor bond lengths shown on the plans are estimated based on the soil data and were determined according to AASHTO Specifications. The Contractor shall select the ground anchor type, the installation method and determine the bond length and anchor diameter. The Contractor shall be responsible for installing ground anchors that will develop the design capacity indicated on the Contract Plans according to the testing subsection of this Specification.

## **SITE GEOLOGY AND SOILS CONDITIONS**

The geologic conditions for this project are represented by the boring information shown on the plans. The Contractor, utilizing his/her expertise, shall be responsible for interpreting the data, including but not limited to, the making of additional borings as necessary to be fully familiar with the existing conditions in order to design and successfully install the permanent ground anchors as specified. Variations in geologic deposits, rock surface or ground water elevations, etc., are to be expected between borings and shall not be considered a change in site conditions as defined by Article 104.03 of the Standard Specifications.

## **SUBMITTALS**

Qualifications. The Contractor performing the work described in this Specification shall have installed permanent ground anchors for a minimum of three (3) years. At the time of the preconstruction meeting, the Contractor shall submit a list containing at least five (5) projects, completed within the last three (3) years, where the Contractor has installed permanent ground anchors. A brief description of each project and a reference shall be included for each project listed. As a minimum, the reference shall include an individual's name, company and current phone number.

The Contractor shall submit a list identifying the engineer, drill operators and on-site supervisors who shall be assigned to the project. The list shall contain a summary of each individual's experience and it shall be complete enough for the Engineer to determine whether or not each individual has satisfied the following qualifications.

The Contractor shall assign an engineer to supervise the work with at least three (3) years of experience in the design and construction of permanently anchored structures. The Contractor may not use consultants or manufacturer's representatives in order to meet the requirements of this section. Drill operators and on-site supervisors shall have a minimum of one (1)-year experience installing permanent ground anchors with the Contractor's organization.

Work shall not be started on any ground anchor wall system nor materials ordered until approval of the Contractor's qualifications are given. The Engineer may suspend the ground anchor work if the Contractor substitutes unqualified personnel for approved personnel during construction. If work is suspended due to the substitution of unqualified personnel, the Contractor shall be fully liable for additional costs resulting from the suspension of work and no adjustments to contract time resulting from suspension will be allowed.

Shop plans. At least four weeks before work is to begin, the Contractor shall submit to the Engineer for review and approval complete shop plans and design calculations describing the ground anchor system or systems intended for use. The submittal shall include the following:

- (1) A ground anchor schedule giving:
  - (a) Ground anchor number
  - (b) Ground anchor design load
  - (c) Type and size of tendon
  - (d) Minimum total anchor length
  - (e) Minimum bond length
  - (f) Minimum tendon length
  - (g) Minimum unbonded length
  
- (2) A drawing of the ground anchor tendon and the corrosion protection system, including details for the following:
  - (a) Spacers separating elements of tendon and their location
  - (b) Centralizers and their location
  - (c) Unbonded length corrosion protection system
  - (d) Bond length corrosion protection system
  - (e) Anchorage head assembly and trumpet
  - (f) Anchorage cover corrosion protection system
  - (g) Drilled or formed hole size
  - (h) Level of each stage of grouting
  - (i) Any revisions to structure details necessary to accommodate the ground anchor system intended for use.
  
- (3) The grout mix design and procedures for placing the grout.

No work on ground anchors shall begin until shop plans have been approved in writing by the Engineer. Such approval shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work.

## MATERIALS

Prestressing Steel: Ground anchor tendons shall consist of single or multiple elements of one of the following prestressing steels:

- 1) Uncoated, seven-wire strands, conforming to AASHTO M203
- 2) Indented, seven-wire strands, conforming to ASTM A886/A886M
- 3) Epoxy coated, seven-wire strands, conforming to ASTM A882/A882M

Prestressing Steel Couplers: Prestressing steel couplers shall be capable of developing 95 percent of the minimum specified ultimate tensile strength of the prestressing steel.

Grout: Cement shall be Type I, II or III portland cement conforming to Section 1001 of the Standard Specifications. Cement used for grouting shall be fresh and shall not contain any lumps or other indications of hydration or "pack set."

Aggregate shall conform to the requirements for fine aggregate Section 1003 of the Standard Specifications.

Admixtures may be used in the grout subject to the approval of the Engineer. Expansive admixtures may only be added to the grout used for filling sealed encapsulations, trumpets, anchorage head assemblies and covers. Accelerators shall not be used.

Water for mixing grout shall be according to Section 1002 of the Standard Specifications.

Steel Elements: Anchorage head assemblies, including bearing and wedge plates, shall be fabricated from steel conforming to AASHTO M270 (ASTM A702) Grade 250 (36), or be a ductile iron casting conforming to ASTM A536.

Trumpets used to provide a transition from the anchorage head assembly to the unbonded length corrosion protection shall be fabricated from a steel pipe or tube conforming to the requirements of ASTM A-53 for pipe or ASTM A-500 for tubing. Minimum wall thickness shall be 5 mm (0.20 inch).

Anchorage covers used to enclose exposed anchorage's shall be fabricated from steel, steel pipe, steel tube, or ductile cast iron conforming to the requirement of AASHTO M270 (ASTM A709) Grade 250 (36) for steel, ASTM A-53 for pipe, ASTM A-500 for tubing, and ASTM A-536 for ductile cast iron. Minimum thickness shall be 2.5 mm (0.10 inch).

Corrosion Protection Elements: Corrosion inhibiting grease shall conform to the requirements of the Post Tensioning Institute's "Specifications for Unbonded Single Strand Tendons," Section 3.2.5.

The sheath for the unbonded length of a tendon shall consist of one of the following:

- (1) Seamless polyethylene (PE) tube having a minimum wall thickness of 1525 microns (60 mils) plus or minus 250 microns (10 mils). The polyethylene shall be cell classification 334413 by ASTM D3350.
- (2) Seamless polypropylene tube having a minimum wall thickness of 1525 microns (60 mils) plus or minus 255 microns (10 mils). The polypropylene shall be cell classification PP210B55542-11 by ASTM D4101.
- (3) Heat shrinkable tube consisting of a radiation crosslinked polyolefin tube internally coated with an adhesive sealant. The minimum tube wall thickness before shrinking shall be 610 microns (24 mils). The minimum adhesive sealant thickness shall be 510 microns (20 mils).
- (4) Corrugated polyvinyl chloride (PVC) tube having a minimum wall thickness of 760 microns (30 mils).

Encapsulation for the tendon bond length shall consist of one of the following:

- (1) Corrugated high density polyethylene (HDPE) tube having a minimum wall thickness of 760 microns (30 mils) and conforming to AASHTO M252 requirements.
- (2) Deformed steel tube or pipe having a minimum wall thickness of 635 microns (25 mils).
- (3) Corrugated polyvinyl chloride (PVC) tube having a minimum wall thickness of 760 microns (30 mils). (ASTM D-1784) class 13464-B

- (4) Fusion-bonded epoxy conforming to the requirements of AASHTO M284, except that it shall have a film thickness of 380 microns (15 mils).

Miscellaneous Elements: The bondbreaker for a tendon shall consist of smooth plastic tube or pipe that is resistant to aging by ultra-violet light and that is capable of withstanding abrasion, impact and bending during handling and installation.

Spacers for separation of elements of a multi-element tendon shall permit the free flow of grout. They shall be fabricated from plastic, steel or material which is not detrimental to the prestressing steel. Wood shall not be used.

Centralizers shall be fabricated from plastic, steel or material which is not detrimental to either the prestressing steel or any element of the tendon corrosion protection. Wood shall not be used.

## FABRICATION

Tendons for ground anchors may be either shop or field fabricated from materials conforming to this specifications requirements. Tendons shall be fabricated as shown on the approved shop plans.

Bond Length and Tendon Bond Length: The Contractor shall determine the bond length necessary to satisfy the load test requirements. The minimum bond length shall be 3 m (10 ft) in rock, 4.6 m (15 ft) in soil. The minimum tendon bond length shall be 3 m (10 ft).

Spacers shall be placed along the tendon bond length of multi-element tendons so that the prestressing steel will bond to the grout. They shall be located at 3 m (10 ft) maximum centers with the upper one located a maximum of 1.5 m (5 ft) from the top of the tendon bond length and the lower one located a maximum of 1.5 m (5 ft) from the bottom of the tendon bond length.

Centralizers shall be able to maintain the position of the tendon so that a minimum of 19 mm (0.75 inches) of grout cover is obtained on the tendons at all locations along the tendons. They shall be located at 1.5 m (5 ft) maximum centers with the lower one located 305 mm (1 ft) from the bottom of the bond length. Centralizers are not required on tendons installed utilizing a hollow-stem auger if it is grouted through the auger and the drill hole is maintained full of a stiff grout 230 mm (9 inch) slump or less during extraction of the auger, or when installed utilizing a pressure injection system in coarse grained soils using grout pressures greater than 1035 kPa (150 psi).

Encapsulation Protected Ground Anchor Tendon: The tendon bond length shall be encapsulated by a grout-filled corrugated plastic or deformed steel tube, or by a fusion-bonded epoxy coating. The tendon can be grouted inside the encapsulation prior to inserting the tendon in the drill hole or after the tendon has been placed in the drill hole. Punching holes in the encapsulation and allowing the grout to flow from the encapsulation to the drill hole, or vice versa, will not be permitted. The tendon shall be centralized within the encapsulation and the tube sized to provide an average of 5 mm (0.20 inch) of grout cover for the prestressing steel. The anchorage device of tendons protected with fusion-bonded epoxy shall be electrically isolated from the structure.

Unbonded Length: The unbonded length of the tendon shall be a minimum of 4.6 m (15 ft) or as indicated on the plans.

Corrosion protection shall be provided by a sheath completely filled with corrosion inhibiting grout, or a heat shrinkable tube. Continuity of corrosion protection shall be provided at the transition from the bonded length to unbonded length of the tendon.

If the sheath provided is not a smooth tube, then a separate bondbreaker must be provided to prevent the tendon from bonding to the anchor grout surrounding the unbonded length.

Anchorage and Trumpet: Nonrestressable anchorage's may be used unless restressable anchorage's are designated on the plans.

The trumpet shall be welded to the bearing plate. The trumpet shall have an inside diameter at least 6 mm (1/4 inch) larger than the hole in the bearing plate. The trumpet shall be long enough to accommodate movements of the structure during testing and stressing. For strand tendons with encapsulation over the unbonded length, the trumpet shall be long enough to enable the tendons to make a transition from the diameter of the tendon in the unbonded length to the diameter of the tendon at the anchorage head assembly without damaging the encapsulation. Trumpets shall be filled with grout and have a temporary seal provided between the trumpet and the unbonded length corrosion protection.

Tendon Storage and Handling: Tendons shall be stored and handled in such a manner as to avoid damage or corrosion. Damage to tendon prestressing steel as a result of abrasions, cuts, nicks, welds and weld splatter will be cause for rejection by the Engineer. Grounding of welding leads to the prestressing steel is not permitted. Prior to inserting a tendon into the drilled hole, its corrosion protection elements shall be examined for damage. Any damage found shall be repaired in a manner approved by the Engineer.

## INSTALLATION

The first two (2) anchors of each level should be installed and performance tested successfully before drilling any other anchors at that level. In the event that one or both anchors fail the performance test, the Contractor shall re-evaluate the installation procedure and take necessary corrective action. In addition, the first two (2) anchors installed after the Contractor takes necessary corrective action shall be performance tested. The above process shall be repeated until these anchors pass the performance test.

The Contractor shall follow the same installation procedures that are used on the two (2) successful performance test anchors.

Drilling: The drilling method used may be core drilling, rotary drilling, percussion drilling, auger drilling or driven casing. The method of drilling used shall be that which prevents loss of ground above the drilled hole that may be detrimental to the structure or existing structures. Casing for anchor holes, if used, shall be removed, unless permitted by the Engineer to be left in place. Excessive amounts of water shall not be used in the drilling operation. Inclination and alignment shall be within plus or minus 3 degrees of the planned angle at the anchorage head assembly. Drilling in shale shall require the hole to be completed, tendon inserted, and grouted within the same working day.

Tendon Insertion: The tendon shall be inserted into the drilled hole to the desired depth without difficulty. When the tendon cannot be completely inserted it shall be removed and the drill hole cleaned or redrilled to permit insertion. Partially inserted tendons shall not be driven or forced into the hole.

**Grouting:** The grouting equipment shall produce a grout free of lumps and undispersed cement. A positive displacement grout pump shall be used. The pump shall be equipped with a pressure gauge to monitor grout pressures. The pressure gauge shall be capable of measuring pressures of at least 1035 kPa (150 psi) or twice the actual grout pressures used, whichever is greater. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The mixer shall be capable of continuously agitating the grout.

The grout shall be injected from the lowest point of the drilled hole. The grout may be pumped through grout tubes, casing, hollow-stem augers or drill rods. The grout may be placed before or after insertion of the tendon. The quantity of the grout and the grout pressures shall be recorded. The grout pressures and grout takes shall be controlled to prevent excessive heave of the ground or fracturing of rock formations.

Except where indicated below, the grout above the top of the bond length may be placed at the same time as the bond length grout, but it shall not be placed under pressure. The grout at the top of the drill hole shall stop 150 mm (6 inches) from the back of the trumpet.

If the ground anchor is installed in a fine-grained soil using a drilled hole larger than 150 mm (6 inches) in diameter, then the grout above the top of the bond length shall be placed after the ground anchor has been load tested. The entire drill hole may be grouted at the same time if it can be demonstrated that the ground anchor system does not derive a significant portion of its load resistance from the soil above the bond length portion of the ground anchor.

If grout protected tendons are used for ground anchors anchored in rock, then pressure grouting techniques shall be utilized. Pressure grouting requires that the drill hole be sealed and that the grout be injected until a 345 kPa (50 psi) grout pressure can be maintained on the grout within the bond length for a period of 5 minutes.

Upon completion of grouting, the grout tube may remain in the drill hole provided it is filled with grout.

After grouting, the tendon shall not be loaded for a minimum of three days.

**Trumpet and Anchorage:** The corrosion protection surrounding the unbonded length of the tendon shall extend into the trumpet a minimum of 150 mm (6 inches) beyond the bottom seal in the trumpet.

The corrosion protection surrounding the unbonded length of the tendon shall not contact the bearing plate or the anchorage head assembly during load testing or stressing.

The trumpet shall be completely filled with corrosion inhibiting grout. The grout shall be placed after the ground anchor has been load tested and locked off at the design load. The Contractor shall demonstrate that the procedures selected for placement of grout will produce a completely filled trumpet and anchorage head assembly.

Anchorage's not encased in concrete wall fascia shall be covered with a corrosion inhibiting grout-filled steel enclosure.

## TESTING AND STRESSING

Each ground anchor shall be load tested by the Contractor in the presence of the Engineer. No load greater than 10 percent of the design load may be applied to the ground anchor prior to load testing. The test load shall be simultaneously applied to the entire tendon.

Testing Equipment: Two dial gauges or vernier scales capable of measuring displacements to 25 microns (.001 inch) shall be used to measure ground anchor movement on either side of the jack from two independent points. They shall have adequate travel so total ground anchor movement can be measured without resetting the devices.

A hydraulic jack and pump shall be used to apply the test load. The jack and a calibrated pressure gauge shall be used to measure the applied load. The pressure gauge shall be graduated in 690 kPa (100 psi) increments or less. When the theoretical elastic elongation of the total anchor length at the maximum test load exceeds the ram travel of the jack, the procedure for recycling the jack ram shall be included in the working drawings. Each increment of test load shall be applied in one minute or less.

A calibrated reference pressure gauge shall be available at the site. The reference gauge shall be calibrated with the test jack and pressure gauge.

An electrical resistance load cell and readout shall be provided when performing a creep test.

The stressing equipment shall be placed over the ground anchor tendon in such a manner that the jack, bearing plates, load cell and stressing anchorage are axially aligned with the tendon and the tendon is centered within the equipment.

Performance Test: Five percent of the ground anchors or a minimum of three ground anchors, whichever is greater shall be performance tested according to the following procedures. The Engineer shall select the ground anchors to be performance tested. The remaining anchors shall be tested according to the proof test procedures.

The performance test shall be made by incrementally loading and unloading the ground anchor according to the following schedule unless a different maximum test load and schedule are indicated on the plans. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement, on either side of the jack, shall be measured and recorded to the nearest 25 micron (.001 inch) with respect to the independent fixed reference points at the alignment load and at each load increment. The load shall be monitored with a pressure gauge. The reference pressure gauge shall be placed in series with the pressure gauge during each performance test. If the load determined by the reference pressure gauge and the load determined by the pressure gauge differ by more than 10 percent, the jack, pressure gauge and reference pressure gauge shall be recalibrated. At load increments other than the maximum test load, the load shall be held just long enough to obtain the movement reading.

Performance Test Schedule

<u>Load</u>	<u>Load (Continued)</u>
AL	AL
0.25DL*	0.25DL
AL	0.50DL
0.25DL	0.75DL
0.50DL*	1.00DL
AL	1.20DL*
0.25DL	AL
0.50DL	0.25DL
0.75DL*	0.50DL
AL	0.75DL
0.25DL	1.00DL
0.50DL	1.20DL
0.75DL	1.33DL*
1.00DL*	(Max. test load)
	Reduce to lock-off load (1.00DL)

Where: AL = Alignment Load  
 DL = Design load for ground anchor  
 \* = Graph required

The maximum test load in a performance test shall be held for 10 minutes. The jack shall be repumped as necessary in order to maintain a constant load. The load hold period shall start as soon as the maximum test load is applied and the ground anchor movement shall be measured and recorded at 1, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movements between 1 minute and 10 minutes exceed 1 mm (0.04 in), the maximum test load shall be held for an additional 50 minutes. If the load hold is extended, the ground anchor movement shall be recorded at 15, 20, 25, 30, 45 and 60 minutes.

A graph shall be constructed showing a plot of ground anchor movement versus load for each load increment marked with an asterisk (\*) in the performance test schedule and a plot of the residual ground anchor movement of the tendon at each alignment load versus the highest previously applied load. Graph format shall be approved by the Engineer prior to use.

Proof Test: The proof test shall be performed by incrementally loading the ground anchor according to the following schedule. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement, on either side of the jack, shall be measured and recorded to the nearest 25 micron (.001 inch) with respect to the independent fixed reference points at the alignment load and at each increment of load. The load shall be monitored with a pressure gauge. At load increments other than the maximum test load, the load shall be held just long enough to obtain the movement reading.

Proof Test Schedule

<u>Load</u>	<u>Load (Continued)</u>
AL	1.00DL
0.25DL	1.20DL
0.50DL	1.33DL
0.75DL	(Max. test load)
	Reduce to lock-off load (1.00DL)



Where: AL = Alignment Load  
 DL = Design load for ground anchor

The maximum test load in a proof test shall be held for 10 minutes. The jack shall be repumped as necessary in order to maintain a constant load. The load hold period shall start as soon as the maximum test load is applied and the ground anchor movement shall be measured and recorded at 1, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movement between 1 minute and 10 minutes exceeds 1 mm (0.04 inch), the maximum test load shall be held for an additional 50 minutes. If the load hold is extended, the ground anchor movement shall be recorded at 15, 20, 25, 30, 45 and 60 minutes. A graph shall be constructed showing a plot of ground anchor movement versus load for each load increment in the proof test.

Creep Test: Creep tests shall be performed only if required by the plans. The Engineer shall select the ground anchor(s) to be creep tested.

The creep test shall be made by incrementally loading and unloading the ground anchor according to the performance test schedule used. At the end of each loading cycle, the load shall be held constant for the observation period indicated in the creep test schedule below unless a different maximum test load is indicated on the plans. The times for reading and recording the ground anchor movement during each observation period shall be 1, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30, 45, 60, 75, 90, 100, 120, 150, 180, 210, 240, 270 and 300 minutes as appropriate. Each load hold period shall start as soon as the test load is applied. In a creep test the pressure gauge and reference pressure gauge will be used to measure the applied load, and the load cell will be used to monitor small changes of load during a constant load hold period. The jack shall be repumped as necessary in order to maintain a constant load.

Creep Test Schedule

<u>Load</u>	<u>Observation Period (Minutes)</u>
AL	
0.25DL	10
0.50DL	30
0.75DL	30
1.00DL	45
1.20DL	60
1.33DL	300

A graph shall be constructed showing a plot of the ground anchor movement and the residual movement measured in a creep test as described for the performance test. Also, a graph shall be constructed showing a plot of the ground creep movement for each load hold as a function of the logarithm of time.

Ground Anchor Load Test Acceptance Criteria: A performance-tested or proof-tested ground anchor with a 10 minute load hold is acceptable if the:

- (1) Ground anchor resists the maximum test load with less than 1 mm (0.04 inch) of movement between 1 minute and 10 minutes; and
- (2) Total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.

- (3) Total movement at the maximum test load for ground anchors in rock may not exceed the theoretical elastic elongation of the unbonded length plus 50 percent of the theoretical elastic elongation of the bonded length.

A performance-tested or proof-tested ground anchor with a 60 minute load hold or a creep tested ground anchor is acceptable if the:

- (1) Ground anchor resists the maximum test load with a creep rate that does not exceed 2 mm (0.08 inch) in the last log cycle of time; and
- (2) Total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.
- (3) Total movement at the maximum test load for ground anchors in rock may not exceed the theoretical elastic elongation of the unbonded length plus 50 percent of the theoretical elastic elongation of the bonded length.

If the total movement of the ground anchor at the maximum test load does not exceed 80 percent of the theoretical elastic elongation of the unbonded length, the ground anchor shall be replaced at the Contractor's expense.

A ground anchor which has a creep rate greater than 2 mm (0.08 inch) per log cycle of time can be incorporated into the structure at a design load equal to one-half of its failure load. The failure load is the load resisted by the ground anchor after the load has been allowed to stabilize for 10 minutes.

When a ground anchor fails, the Contractor shall modify the design and/or the installation procedures. These modifications may include, but are not limited to, installing a replacement ground anchor, reducing the design load by increasing the number of ground anchors, modifying the installation methods, increasing the bond length or changing the ground anchor type. Any modification which requires changes to the structure shall be approved by the Engineer. Any modifications of design or construction procedures shall be without additional cost to the Department and without extension of contract time.

Retesting of a ground anchor will not be permitted, except that regouted ground anchors may be retested each time they are regouted.

Lock Off: Upon successful completion of the load testing, the ground anchor load shall be reduced to the design load indicated on the plans and transferred to the anchorage device. The ground anchor may be completely unloaded prior to lock-off. After transferring the load and prior to removing the jack, a lift-off load reading shall be made. The lift-off load shall be within 10 percent of the specified lock-off load. If the load is not within 10 percent of the specified lock-off load, the anchorage shall be reset and another lift-off load reading shall be made. This process shall be repeated until the desired lock-off load is obtained.

#### METHOD OF MEASUREMENT

This work will be measured per each permanent ground anchor, installed according to the plans or as approved by the Engineer, and passing the testing program(s) required in this Special Provision.

## BASIS OF PAYMENT

This work will be paid for at the contract unit price each for PERMANENT GROUND ANCHORS and shall be compensation in full for designing, furnishing, installing and testing the permanent ground anchors and anchorage head assemblies.

## **PIPE UNDERDRAINS FOR STRUCTURES 200MM PIPE UNDERDRAINS FOR STRUCTURES 100MM**

Effective: May 17, 2000

Revised: July 1, 2003

Description. This work shall consist of furnishing and installing the perforated drain pipe, geotechnical fabric and coarse aggregate as shown on the plans, as specified herein, and as directed by the Engineer

Materials. Materials shall meet the requirements as set forth below:

Pipe Underdrains shall consist of perforated drain pipe in accordance with Article 601.02 of the Standard Specifications. Outlet pipes shall not be perforated.

The coarse aggregate shall have a gradation of CA5 or CA7 in accordance with Section 1004 of the Standard Specifications.

The fabric surrounding the coarse aggregate shall consist of Geotechnical Fabric for French Drains in accordance with Article 1080.05 of the Standard Specifications.

Construction Requirements. All work shall be in accordance with the applicable requirements of Section 601 of the Standard Specifications.

The pipe underdrains shall be installed to the lines and gradients as shown on the plans. The drain pipe shall be situated within an area of coarse aggregate as shown on the plans. The coarse aggregate shall be wrapped completely in geotechnical fabric as shown on the plans

The geotechnical fabric shall be delivered to the job site in such a manner to facilitate handling and incorporation into the work without damage. In no case shall the geotechnical fabric be stored and exposed to direct sunlight that might significantly diminish its strength or toughness. Torn or punctured geotechnical fabric shall not be used.

After the trench has been approved by the Engineer, the geotechnical fabric shall be loosely rolled out in such a manner that the center of the fabric is at the centerline of the excavated trench, and such that it will not tear when the aggregate is placed. When several sections of geotechnical fabric are used, the fabric shall overlap a minimum of 600 mm (2 ft.) to assure continuity of the fabric. Enough fabric shall remain uncovered after the trench is filled to provide for fabric overlap at the top.

Method of Measurement. Pipe underdrains shall be measured for payment in meters, in place. Measurement shall be along the centerline of the pipe underdrains. All connectors, elbows, etc.... shall be included in the measurement.

Basis of Payment.

This work will be paid for at the contract unit price per meter for pipe underdrains for structures, of the diameter specified, installed and measured as specified herein. furnishing and installation

of the coarse aggregate and geotechnical fabric, and forming holes in structural elements, will not be paid for separately, but shall be included in the cost of the pipe underdrains for structures, of the diameter specified.

## **RUSTICATION FINISH**

Effective: May 1, 1990

Revised: January 12, 2000

This work consists of providing a rustication finish on concrete surfaces as detailed in the plans and as described in this Special Provision.

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

Formwork shall have the strength and stability to ensure finished concrete dimensions within the tolerances specified herein. The quality of the formwork shall be maintained throughout the entire project.

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

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

In order to establish procedures to achieve a rustication finish satisfactory to the Engineer, the Contractor shall submit to the Engineer for approval a 610x610 (2 foot x 2 foot) sample panel prior to casting the structure to receive the rustication finish. The sample shall be cast using the concrete mix and aggregate proposed for use in the work. Concreting and formwork operations, in preparation of the sample panel, shall follow actual work procedure in so far as practical. In any event, the approved panel shall be used as the control for the appearance of the finished work. Any work found to be unsatisfactory to the Engineer shall be corrected as required by the Engineer, at no additional cost to the State.

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

Method of Measurement. The limits used to measure the area of Rustication Finish will be those dimensions indicated on the plans or as directed by the Engineer and the area computed in square meters (square foot).

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

## NON-SPECIAL WASTE WORKING CONDITIONS

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

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

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

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

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

1. Station 7+965 to Station 8+020  $\pm$  0 to 20 meters (0 to 66 feet) LT (Lake Zurich Tire – 526 West Main Street, Lake Zurich) – non-special waste. Contaminants of concern sampling parameters: BETX< PNAs, and Arsenic
2. Station 8+595 to Station 8+618  $\pm$  25 to 45 meters (82 to 148 feet) LT (Former IDOT Maintenance Yard – Southeast side of IL 22, Lake Zurich) – non-special waste. Contaminants of concern sampling parameters: TCLP Lead.
3. Station 8+865 to Station 8+880  $\pm$  0 to 15 meters (0 to 49 feet) RT (W.R. Grace – 300 Genesee Street, Lake Zurich) – non-special waste. Contaminants of concern sampling parameters:PNAs

Backfill plugs shall be place within the following locations.

1. Station 7+965 to Station 8+020  $\pm$  0 to 20 meters (0 to 66 feet) LT (Lake Zurich Tire – 526 West Main Street, Lake Zurich). Contaminants of concern sampling parameters: BETZ and PNAs.

Engineered Barrier. An engineered barrier shall be installed in storm sewer trenches between Station 7+965 to Station 8+000 LT offset 0 to 20 meters (0 to 66 feet) to limit the exposure and control the migration of contamination from the contaminated soil that remains within the trench excavation. It shall be placed beneath the trench backfill material.

The engineered barrier shall consist of a geosynthetic clay liner system, geomembrane liner, or equivalent material as approved by the Engineer. A geosynthetic clay liner shall be composed of a bentonite clay liner approximately 6.4 millimeters (0.25 inches) thick. The engineered barrier shall have a permeability of less than  $10^{-7}$  cm/sec. Installation of the geosynthetic clay liner system shall be in accordance with the manufacturer's recommendations except that all laps shall face down-slope.

The geomembrane liner shall have a minimum thickness of 30 mil. The geomembrane liner shall line the entire trench and in accordance with the manufacturer's recommendations.

No equipment will be allowed on the engineered barrier until it is covered by a minimum of 305 millimeters (1 foot) of backfill. Any damage to the engineered barrier caused by the Contractor shall be repaired at the Contractor's expense in accordance with the manufacturer's recommendations and as directed by the Engineer.

Method of Measurement. Engineered barrier will be measured for payment in place and the area computed in square meters (square yards).

Basis of Payment. The engineered barrier will be paid for at the contract unit price per square meters (square yards) for ENGINEERED BARRIER, which price will include the cost of all equipment, labor, and materials for placing of the engineered barrier.

## **FIRE HYDRANT RELOCATION**

**Description.** The work shall consist of the removal of existing fire hydrants from existing mains to be abandoned and reinstalling them on proposed mains, together with furnishing and installing a new auxiliary valve, valve box and hydrant drain field. The work shall be performed in accordance with Section 564 of the Standard Specifications.

**Materials.** Materials shall meet the following requirements:

- a) Water Valves: Resilient-seated gate valves in accordance with Section 42 of the Standard Specifications for Water and Sewer Main Construction in Illinois (SSWSMCI). End connections shall be mechanical joint.
- b) Valve Boxes: Screw type adjustable in accordance with Section 44 of the SSWSMCI.
- c) Hydrant Drain Field: Coarse Aggregate, Gradation CA 11, 0.178 cubic meters minimum, wrapped in Geotechnical Fabric meeting the requirements of Section 1080.05 of the Standard Specifications.

**Basis of Payment.** This work shall be paid at the contract unit price each for FIRE HYDRANT TO BE MOVED, which price shall include the water valve and box, all fittings, excavation and backfill, drain field, Geotechnical Fabric, and disposing of surplus materials.

## **FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX**

**Description.** This work shall consist of installing fire hydrants with auxiliary valves and valve boxes at locations shown on the plans. The work shall be performed in accordance with

applicable portions of Sections 561 and 564 of the Standard Specifications and Section 45 of the Standard Specifications for Water and Sewer Main Construction in Illinois (SSWSMCI) and details shown on the plans.

**Materials.** Materials for work under this item shall include:

- (a) Hydrants: in accordance with Section 45-2.01 of the SSWSMCI and compatible with Village of Lake Zurich requirements.
- (b) Auxiliary Valves: Resilient-seated gate valves in accordance with Section 42 of the SSWSMCI. End connections shall be mechanical joint.
- (c) Valve Boxes: Screw type adjustable in accordance with Section 44 of the SSWSMCI.
- (d) Hydrant Drain Field: Coarse Aggregate, Gradation CA 11, 0.178 cubic meters minimum, wrapped in Geotechnical Fabric meeting the requirements of Section 1080.05 of the Standard Specifications.

**Basis of Payment.** This work shall be paid at the contract unit price each for FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX, which price shall include all fittings, excavation, drain field, Geotechnical Fabric, backfill, and disposing of surplus materials.

## **WATERMAIN IMPROVEMENTS**

**Description.** Work on these items shall be constructed in accordance with Sections 561 and 562 of the Standard Specifications and Division 40 of the Standard Specifications for Water and Sewer Main Construction in Illinois (SSWSMCI).

**Materials.** Materials shall meet the following requirements:

- a) Water Main; Ductile Iron Class 52, cement lined, mechanical or push on joints in accordance with Section 40-2.02 of the SSWSMCI). Joints shall meet the requirements of Section 41-2.05A of the SSWSMCI.
- b) Water Main fittings: in accordance with Section 40-2.05A of the SSWSMCI.
- c) Water Service Line: Type K copper pipe in accordance with Section 40-206A of the SSWSMCI. The service line shall be one piece between the corporation and curb stops.
- d) Water Valves: Resilient-seated gate valves in accordance with Section 42 of the SSWSMCI. End connections shall be mechanical joint.
- e) Valve Boxes: Screw type adjustable in accordance with Section 44 of the SSWSMCI.
- f) Corporation Stops: brass fabricated in accordance with Section 40-2.06C of the SSWSMCI and details shown on the plans.
- g) Curb Stops: brass fabrication, Minneapolis style in accordance with ANSI/AWWA C800 and details shown on the plans.
- h) Domestic Service Boxes: Screw type adjustable Minneapolis style gray iron in accordance with Section 44 of the SSWSMCI as applicable and details shown on the plans.
- i) Materials to be installed are subject to approval by the Village of Lake Zurich.

## **Construction Requirements**

- a) Water Main and Water Service Lines in trench will be installed in accordance with Sections 561 and 562 of the Standard Specifications, respectively.
- b) Water Main and Water Services Lines either bored or augured and jacked shall be constructed in accordance with Section 552 of the Standard Specifications, substituting "Water Main" and "Water Service Lines" for "Storm Sewer" in the section. At the contractor's option, Water Service Lines may be Directional Bored.

### **Method of Measurement**

- a) Water Main will be measured for payment in meters, measured in place. Water Main fittings will not be paid for but considered incidental to the Water Main
- b) WATER SERVICE LINE will be measured and paid in accordance with Section 562 of the Standard Specifications.
- c) WATER VALVES, VALVE BOXES, CORPORATION STOPS, CURB STOPS and DOMESTIC SERVICE BOXES will be paid at the contract unit price each of the size and type specified, which price shall include all fittings, excavation and connection to existing or proposed water mains and services.

### **Basis of Payment.**

- a) Water Main will be paid at the contract unit price per meter for DUCTILE IRON WATER MAIN and DUCTILE IRON WATER MAIN AUGERED AND JACKED of the diameter specified, which price shall include all pipe fittings, joint materials, the hydrostatic tests, disinfecting of the water main and all excavation, except excavation in rock.
- b) Water Service Lines will be paid at the contract unit price per meter for WATER SERVICE LINE and WATER SERVICE LINE BORED, of the diameter specified, which price shall include all fittings, excavation and backfill.
- c) WATER VALVES, VALVE BOXES, CORPORATION STOPS, CURB STOPS and DOMESTIC SERVICE BOXES will be paid at the contract unit price each of the size and type specified, which price shall include all fittings, excavation and backfill and reconnection to existing water mains and services

## **SANITARY SEWER STRUCTURES**

**Description.** Work under this item shall consist of constructing, adjusting, or reconstructing sanitary manholes, with frames and lids. The work shall be constructed in accordance with Section 602 of the Standard Specifications and Section 32 of the Standard Specifications for Water and Sewer Main Construction in Illinois (SSWSMCI).

**Materials.** Materials shall meet the following requirements.

- a) Manhole Sections shall be Precast Reinforced Concrete in accordance with Section 1043 of the Standard Specifications with precast bench.
- b) Drop Connections shall be cast-in-place in accordance with Standard Drawing No. 6 of the SSWSMCI. As an option, the drop connection may be integrally cast with the base and barrel sections.
- c) Chimney seals shall consist of external placed WrapidSeal Manhole Encapsulation System and are required for all new, adjusted and reconstructed manholes. Refer to details shown on the plans.
- d) Exterior banding required between barrel and cone sections.
- e) Pipe Connections. Flexible watertight connections in accordance with Article 32-3.11 of the SSWSMCI.
- f) Manhole Castings shall be Type 1 Frame and Closed Lid in accordance with Highway Standard 604001. Lids shall be self-sealing with concealed pick holes and labeled 'Sanitary Sewer'.
- g) Manhole steps shall be fiberglass in accordance with Village standards.

**Classification.** Classification as to adjustment or reconstruction shall follow Article 620.03 of the Standard Specifications

**Construction Requirements.** In accordance with applicable portions of Section 602 of the Standard Specifications.



**Basis of Payment.** For new construction, the work shall be paid for at the contract price each for SANITARY MANHOLES WITH FRAME, LID, AND CHIMNEY SEAL and DROP SANITARY MANHOLES WITH FRAME, LID, AND CHIMNEY SEAL of the diameter specified, which price shall include all frames, lids, sand cushion, steps and flat top slabs, and all excavation and backfilling, except excavation in rock.

For adjustment or reconstruction using existing frames and lids, the work will be paid at the contract unit price each for SANITARY MANHOLES TO BE ADJUSTED or SANITARY MANHOLES TO BE RECONSTRUCTED, which price shall include resetting the frame and lid, WrapidSeal Encapsulation System, and all excavation and backfilling, except excavation in rock.

## **REMOVING OR FILLING VALVE VAULTS**

**Description.** This work shall consist of removing or filling existing valve vaults or valve boxes. The work shall be performed in accordance with Section 605 of the Standard Specifications.

**Basis of Payment.** The work of removing existing valve vaults and valve boxes at locations designated on the plans will be paid for at the contract unit price each for VALVE VAULTS TO BE REMOVED and VALVE BOXES TO BE REMOVED, which price shall include removing and disposing of the existing structure and sealing existing pipes and backfilling.

The work of filling existing valve vaults at locations designated on the plans will be paid for at the contract unit price each for FILLING VALVE VAULTS, which price shall include removing and disposing of the top portions of the structures as necessary, sealing existing pipes when necessary and backfilling the existing structures with sand.

## **EXPLORATION TRENCH, SPECIAL**

**Description.** This work shall consist of constructing a trench for the purpose of verifying clearances and locations of existing utilities and storm sewers. The exploration trench shall be excavated at the locations directed by the Engineer.

The depth of the trench shall be variable. The width of the trench shall be sufficient to allow proper investigation of the entire trench.

After the trench has been inspected by the Engineer, the excavated material shall be used to backfill the trench in a manner satisfactory to the Engineer. Any excess materials shall be disposed of according to Article 202.03 of the Standard Specifications.

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

## **TAPPING VALVES AND SLEEVES**

**Description.** This work shall consist of connecting proposed water mains to existing water mains using a pressure connection with the existing water main remaining in service during the connection process. The Work shall be constructed in accordance with Section 42 of the Standard Specifications for Water and Sewer Main Construction in Illinois (SSWSMCI). The valve will be housed in a Valve Vault that is paid for separately.

**Materials.** Materials shall meet the requirements Article 42-2.07 of the SSWSMCI and the following:

1. Tapping Valves
  - a) Resilient seat type per AWWA C509-80
  - b) Machined ends to mate with tapping sleeve
  - c) Mechanical joint connection to proposed pipe
2. Tapping Sleeve
  - a) Constructed in accordance with ANSI/AWWA C110
  - b) Same manufacturer as tapping valve

**Construction Requirements.** The work shall be constructed in accordance with Section 46 of the SSWSMCI.

**Basis of Payment.** The work shall be paid at the contract unit price each for TAPPING VALVES AND SLEEVES of the size specified, which price shall include the Tapping Valve, Tapping Sleeve, fittings, joint materials, tapping equipment, and excavation and backfill with fine aggregate.

## **SANITARY SEWERS**

The Work shall consist of installing a sanitary sewer pipe of the materials and size specified complete in place, including excavation, bracing, bedding and covering of pipe; trench dewatering; trench backfilling with excavated materials; removal and disposal of waste excavated materials, removal and disposal of existing sewers when encountered; reconnection of existing services; protection, replacement, or repair of utilities; but not including trench backfill. The Work shall be performed and measured in accordance with the applicable portions of Section 550 of the Standard Specifications.

The Work shall also consist of auguring and jacking sanitary sewers in accordance with Section 552 of the Standard Specifications, substituting "Sanitary Sewer" for "Storm Sewer".

Materials. Pipe Materials shall meet the following::

For the Pay Item **Sanitary Sewers**, materials shall be PVC in accordance with Article 30-3.01G of the Standard Specifications for Water and Sewer Main Construction in Illinois, 1996 Edition (SSWSMCI). Wall thickness shall conform to SDR 26 for Depths up to 5 meters and SDR 18 for depths over 5 meters. Joints shall be flexible elastomeric seals per Article 30-3.02A(3).

For the Pay Item **Sanitary Sewers, Special**, materials shall be PVC Standard Dimension Ratio Pressure Rated in accordance with ASTM Standard D2241 and Article 40-2.03 of the SSWSMCI. Wall thickness shall conform to SDR 26 for Depths up to 5 meters and SDR 18 for depths over 5 meters. Joints shall be flexible elastomeric seals pressure rated per Article 40-2.04.

For the Pay Item **Sanitary Sewers, Ductile Iron Pipe or Ductile Iron Force Main**, materials shall be Class 52, Bituminous Coated, Cement Lined Ductile Iron Pipe in accordance with Article 30-3.01E of the SSWSMCI. Joints shall be mechanical or rubber ring in accordance with Article 41-2.05A of the SSWSMCI.

For the Pay Item **Sanitary Sewers, Ductile Iron Pipe, Epoxy Coated**, materials shall be Class 52, Bituminous Coated, Epoxy Lined Ductile Iron Pipe in accordance AWWA C151. Epoxy coating shall consist of a two component, high solids epoxy with a minimum thickness of 24 mils.

Sanitary Sewer fittings will not be paid for but considered incidental to the various sanitary sewer items.

Ductile iron pipe shall be wrapped with polyethylene film conforming to ASTM-D1248, Type I, Class B, and black color, Grade E-1 with a minimum 8 mil thickness.

Basis of Payment. The work shall be paid at the contract unit price per meter for SANITARY SEWERS; SANITARY SEWERS, SPECIAL; SANITARY SEWERS, DUCTILE IRON PIPE; SANITARY SEWERS, DUCTILE IRON PIPE, AUGURED; SANITARY SEWERS, DUCTILE IRON PIPE EPOXY COATED; and DUCTILE IRON FORCE MAIN of the size specified, which price shall include all fittings, excavation and connection to existing mains and structures.

## **STEEL CASING**

### Description

Work under these items shall consist of furnishing and installing steel casing and casing spacers to serve as a liner for the ductile iron water main for placement under roadways where shown on the plans. The steel casing shall be installed by open trench methods in accordance with applicable portions of Section 550 of the Standard Specifications or jacked in place in accordance with Section 552 of the Standard Specifications.

### Materials

1. Steel Casing per section 20.2.19C of the Standard Specifications for Water and Sewer Construction in Illinois.
2. Stainless Steel Casing Spacers
  - a) Shell and Riser - Minimum 14 gauge T-304 Stainless Steel with Flanges ribbed for strength.
  - b) Fasteners - Minimum 7.94mm T-304 Stainless Steel
  - c) Liner - PVC 2.29mm thick per ASTM D1706-61T
  - d) Runners - Ultra high weight polymer
3. End Seals – Provide a watertight masonry cap on each end of the casing.
4. All ductile iron water main, force main or sanitary sewer installed in casing shall have mechanical joints and shall be paid for separately.
5. Trench Backfill shall be measured and paid for separately.

### Construction Requirement

1. Casing Pipe shall be placed in accordance with Section 550 or 552 of the Standard Specifications.
2. A spacer assembly shall be placed to support the water main or sanitary sewer within 600mm of each end of the casing pipe and additional spaces at intervals not exceeding three meters between the end spaces. The water main, force main or sanitary sewer shall be centered within the casing pipe.
3. Upon completion of the casing pipe, water main or sanitary sewer and spacer installation, the ends shall be sealed with a masonry cap. Pea gravel shall be jetted through the annular space between the casing pipe and water main or sanitary sewer.

**Method of measurement.** Steel casings of the various diameters will be measured for payment in meters, measured in place.

**Basis of payment.** This work shall be paid for at the contract unit price per meter for STEEL CASING and STEEL CASING PIPE AUGERED AND JACKED, of the size specified, which price shall include the Steel Casing, Casing Spacers, Fasteners, Runners, End Seals, Jetted Fill, and all other miscellaneous and collateral work needed to complete the work under this item.

## **ADJUSTING WATER MAINS**

**Description.** This work shall consist of removing conflicting portions and lowering existing water mains to accommodate storm sewer construction at locations shown on the plans. The work shall be performed in accordance with Section 561 of the Standard Specifications, the "Standard Specifications for Water & Sewer Main Construction in Illinois" (SSWSMCI) and details shown on the plans.

**Materials.** Materials shall meet the following requirements:

1. Water Main; Ductile Iron Class 52, cement lined, mechanical joints in accordance with Section 40-2.02 of the SSWSMCI. Joints shall meet the requirements of Section 41-2.05A of the SSWSMCI.
2. Water Main fittings: in accordance with Section 40-2.05A of the SSWSMCI. Mechanical Joint with Megalug type Retainer Gland.

**Method of Measurement.** Adjusting water main of the various diameters will be measured horizontally for payment in meters, measured in place. Water Main fittings will not be paid for separately but considered incidental to the cost of the water main.

**Basis of Payment.** The work shall be paid at the contract price per meter for ADJUSTING WATER MAIN of the diameter specified, which price shall include removal of the existing water main, all water main fittings, joint materials, excavation, and reconnection to existing water mains.

Trench Backfill if required will be paid for as specified in Article 208.04

## **EARTH RETENTION SYSTEM**

### **Description**

Work specified herein shall include design of an earth retention system and furnishing and installing materials necessary to construct that system. At Contractor's option, earth retention system may use steel sheet piling, soldier piles and lagging, or an alternate system proposed by Contractor and acceptable to Engineer. Majority of material will be abandoned in place.

### **Submittals**

Contractor shall design earth retention system including all temporary steel and lagging and shall prepare Shop Drawings showing details of the lagging, struts, and wales, if any.

Design calculations shall be submitted to Engineer for review. All calculations shall be sealed by a structural engineer registered in the State of Illinois.

Contractor shall place his stamp on each submittal to certify that he has determined and verified all field dimensions necessary and that submittal is in compliance with the contract Documents. It is expressly understood that review of Shop Drawing submittals does not relieve Contractor of the responsibility for obtaining satisfactory results or for accuracy of dimensions or details or for conformity of such drawings with the contract Documents.

## **Materials**

### Steel Sheet Piling

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

### Soldier Piles

Soldier piles may be new or used material and shall be made of steel conforming to ASTM A709/A709M, Grade 36. Piles, used by Contractor, shall be identifiable and in good condition free of bends and other structural defects. Engineer's approval will be required prior to driving any piles. All driven piles not approved by Engineer shall be removed at Contractor's expense.

### Wood Lagging

Mixed hardwood; size, grade and species in accordance with calculations and Shop Drawings.

### Temporary Structural Steel

Temporary structural steel may be new or used material and shall have a minimum yield strength of 36 ksi or otherwise as designed by Contractor, subject to approval of Engineer. Temporary structural steel shall be in good condition free of bends and other structural defects.

## **Execution**

Contractor shall verify locations of all underground utilities before driving any piling. Any disturbance or damage to existing structures, utilities or other property, caused by Contractor's operation, shall be repaired by Contractor in a manner satisfactory to Engineer at no additional cost to the Department.

Contractor shall be responsible for determining appropriate equipment necessary to drive piles to the tip elevation(s) according to Contractor's approved design. 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, adequacy of sheet piling design will require re-evaluation by the Department prior to allowing excavation adjacent to piling in question. Contractor shall not excavate below maximum excavation line shown on the Plans without prior permission of Engineer.

When backfilling has reached a level 2.5m below finished grade, earth retention system above this elevation shall be removed before completing remainder of backfilling. Earth retention system more than 2.5m below finished grade shall be abandoned in place.

### **Method of Measurement**

Earth retention system will be measured in place as the square meters of wall extending from bottom of excavation to existing ground surface, regardless of the driven depth of sheet piles or soldier piles. Walls with a height of 8m or less and walls with a height greater than 8m shall be measured separately.

### **Basis of Payment**

This work shall be paid for at the contract unit price per square meter for EARTH RETENTION SYSTEM, HEIGHT 5m TO 8m or at the contract unit price per square meter for EARTH RETENTION SYSTEM, HEIGHT 8m TO 11m.

## **SANITARY SEWER LIFT STATION**

### **Description**

Sewage Lift Station shall include duplex submersible pumps with controls, guide rails, and quick disconnect type discharge fittings. Pumps shall be mounted in a precast concrete structure with an access cover for each pump. Separate precast structures shall contain valves and a magnetic flow meter. NEMA 3R weather proof control box shall be supplied for mounting controls. Structure locations and dimensions shall be as shown on Plans. Piping system shall include portable pump connection with 3-way valve.

### **Operating Conditions**

Each pump shall be capable of pumping 3330 liters per minute at a total head of 30.5 meters when operating at 1800 rpm, nominal speed. Pump motor shall be 28.84 kW (40 hp), 1800 rpm, 3 phase 460 volts, 60 Hz.

### **Materials**

#### Precast Concrete Structures

Wet well, valve vault, and meter manhole shall be constructed in accordance with Section 602 of the Standard Specifications. Wet well shall have 1.83 m x 2.44 m top section with a flat slab top with access cover cast in. Wet well shall have intermediate flat slab top with 2.44 m x 2.44 m sections down to bottom. Provide concrete slope fillets at bottom of structure. Valve vault shall be 2.44 m square with a flat slab top and 0.91 m square riser with cast in cover. Meter manhole shall be 1.52 m diameter and shall have a cover similar and equal to Neenah R-1683. Wet well and valve vault shall have precast bases with integral wall sections as shown on Plans. Depths and wall thickness of all structures shall be as shown on Plans.

#### Access Frame and Cover

Access covers shall have a 1/4-inch extruded aluminum channel frame incorporating a continuous concrete anchor and providing a drainage channel. Access frame dimensions shall be as shown on Drawings. Door panel shall be fabricated from 1/4-inch aluminum diamond plate designed to withstand a live load of 300 pounds per square foot. Door shall open to 90 degrees and automatically lock with a stainless steel hold open arm. Door shall close onto a neoprene cushion/gasket. Aluminum shall be mill finish with two coats of a bituminous coating, applied by manufacturer, to portions of frame to be in contact with concrete. Compression

spring, hinge, attaching hardware, and slam lock shall be stainless steel. Wet well door frames shall have piped discharge from drainage channel to wet well and shall be lockable. Access frame and cover shall be as manufactured by Halliday Products, Bilco Company, Dur-Red, or approved equal.

#### Pipe

Piping in wet well and valve and meter manholes shall be ductile iron pipe of sizes shown on the Plans and shall have flanged connections to valves and meter in manholes. Joints in buried conditions shall be mechanical joint or push-on joint with proper restraint. Mechanical joints shall be in accordance with AWWA C111, tie rods in accordance with ASTM A307. Nuts and bolts shall be corrosion resistant steel, NSS Technologies, Inc. Core-Blue or approved equal. Holes in mechanical joints with tie rods shall be carefully aligned to permit installation of harness bolts. Push-on joints shall be in accordance with AWWA C111, except gaskets shall be neoprene or other synthetic rubber. Natural rubber will not be acceptable. Each spigot end shall be suitably beveled to facilitate assembly. Minimum thickness of pipe shall conform to AWWA C151 Class 53 standard thickness. Fittings shall be ductile iron of equal or greater specified pipe thickness, and conform to AWWA C110. Mechanical joint fittings, where specified, shall conform to AWWA C111. Compact fittings shall be allowed, and shall conform to AWWA C153. All pipe and fittings shall be manufactured in the United States. Exterior of ductile iron pipe and fittings shall be shop coated with a bituminous coating for all buried or submerged installations. Interior cement mortar lining and bituminous coating shall conform to AWWA C104. Thickness of standard cement lining shall not be less than 3 mm for sizes 75 mm through 300 mm diameter with a permitted thickness tolerance of + 1.5 mm on pipe and fittings. Cement mortar lined pipe which is not steam cured shall be furnished with a bituminous seal coat applied over cement lining on inside of pipe. Buried ductile iron pipe shall be encased in polyethylene wrap in accordance with AWWA C105.

#### Submersible Pumps

Major pump components shall be of gray cast iron, ASTM A48, Class 30, with smooth surfaces devoid of blow holes or other irregularities. All exposed nuts or bolts shall be Type 304 stainless steel or brass construction. All metal surfaces coming into contact with sewage other than stainless steel or brass, shall be protected by a factory applied spray coating of alkyd primer with a chlorinated rubber paint finish on exterior of pump. Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings will result in controlled compression of rubber O-rings in two planes and O-ring contact of four sides without requirement of a specific torque limit. Rectangular cross-sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease, or other devices shall be used.

Cooling System: Motors shall be sufficiently cooled by surrounding environment, pumped media or dielectric oil within motor. A water jacket is not required.

Power Cable: Power cable shall be sized according to NEC and ICEA standards and shall be of sufficient length to reach junction box without need for any splices. Motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 20 m. Cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. Cable entry shall consist of a single cylindrical elastomer grommet having a close tolerance fit against cable outside diameter and entry inside diameter and

compressed by body containing a strain relief function, separate from function of sealing cable. Assembly shall provide ease of changing cable when necessary using same entry seal. Cable entry junction chamber and motor shall be separated by a stator lead sealing gland, terminal board or epoxy potting, which shall isolate interior from foreign material gaining access through pump top. Silicones or other secondary sealing systems shall not be considered acceptable.

**Motors:** Pump motor shall be explosion proof, induction type with a squirrel cage rotor, shell type design, housed in an air or oil filled, watertight chamber, NEMA B type. Stator windings and lead shall be insulated with moisture resistant Class F insulation rated for 155 degrees C. Motor shall be designed for continuous duty handling pumped media of 40 degrees C and capable of up to 15 evenly spaced starts per hour. Rotor bars and short circuit rings shall be made of cast aluminum. Thermal switches set to open at 126 degrees C shall be embedded in stator lead coils to monitor temperature of each phase winding. These thermal switches shall be used in conjunction with, and supplemental to, external motor overload protection and shall be connected to control panel. Junction chamber containing terminal board, shall be hermetically sealed from motor by an elastomer compression seal. Crimping type connection devices are not acceptable. Motor and pump shall be designed and assembled by same manufacturer. Combined service factor (combined effect of voltage, frequency and specific gravity) shall be a minimum of 1.15. Motor shall have a voltage tolerance of plus or minus 10 percent. Motor shall be designed for operation up to 40 degrees C ambient and with a temperature rise not to exceed 45 degrees C. A performance chart shall be provided showing curves for torque, current, power factor, input/output kW and efficiency. Chart shall also include data on starting and no-load characteristics. Motor horsepower shall be adequate so that pump is non-overloading throughout entire pump performance curve from shut-off through run-out.

**Bearings:** Pump shaft shall rotate on two bearings. Motor bearings shall be permanently grease lubricated or permanently lubricated by dielectric oil within motor housing.

**Seals:** Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. Seals shall operate in an oil reservoir that hydro-dynamically lubricates lapped seal faces at a constant rate. Lower, primary seal unit, located between pump and oil chamber, shall contain one stationary and one positively driven rotating tungsten-carbide ring. Upper, secondary seal unit, located between oil chamber and motor housing, shall contain one stationary tungsten-carbide seal ring and one positively driven rotating carbon seal ring. Each seal interface shall be held in contact by its own spring system. Seals shall require neither maintenance nor adjustment nor depend on direction of rotation for sealing. Position of both mechanical seals shall depend on shaft. Mounting of lower mechanical seal on impeller hub will not be acceptable. For special applications, other seal face materials shall be available. Each pump shall be provided with an oil chamber for shaft sealing system. Oil chamber shall be designed to prevent overfilling and to provide oil expansion capacity. Drain and inspection plug, with positive anti-leak seal shall be easily accessible from outside. Seal system shall not rely upon pumped media for lubrication. Motor shall be able to operate dry without damage while pumping under load.

**Pump Shaft:** Pump and motor shaft shall be same unit. Pump shaft shall be an extension of motor shaft. Couplings shall not be acceptable. Shaft or shaft sleeve shall be Type 303 stainless steel, minimum.

**Impeller:** Impeller(s) shall be of gray coast iron, ASTM A48, Class 30, dynamically balanced, double shrouded, non-clogging design having a long throughlet without acute turns. Impeller(s) shall be capable of handling solids, fibrous materials, heavy sludge, and other matter found in



wastewater. Whenever possible, a full vaned, not vortex, impeller shall be used for maximum hydraulic efficiency; thus, reducing operating costs. Upon request, pump manufacturer shall provide mass moment of inertia calculations. Impeller(s) shall be keyed to shaft and shall be capable of passing a minimum 75 mm diameter spherical solid.

**Wear Rings:** Wear ring system shall be used to provide efficient sealing between volute and suction inlet of impeller. Each pump shall be equipped with a brass, or nitrile rubber coated steel wear ring.

**Volute:** Pump volute shall be single-piece gray cast iron, Class 30, non-concentric design with smooth passages large enough to pass any solids that may enter impeller. Minimum inlet and discharge size shall be as specified.

**Protection:** All stators shall incorporate thermal switches in series to monitor temperature of each phase winding. At 125 degrees C, thermal switches shall open, stop motor, and activate a local alarm. A leakage sensor shall be installed to detect water in seal chamber or stator chamber. When a stator chamber sensor is activated, motor shall be stopped and a "Pump Fail" alarm shall be sent locally. When a seal chamber sensor is activated, a "Seal Fail" alarm shall be sent locally.

**Manufacturer:** Submersible pumps shall be manufactured by Fairbanks Morse Pump, ITT Flygt Corp., Hydromatic Pump, or approved equal.

#### Pump Mounting

Discharge of each pump shall be fitted with diaphragm-type hydraulically operated sealing flange or approved equal. When pump is in operation, pressure shall force diaphragm against discharge elbow flange providing a leak-proof seal. When pump is idle, pressure shall be removed from diaphragm so that pump can be removed from wet well with no mechanical contact of sealing flanges. Complete weight of pump is to rest on bottom support plate with no weight to be supported on guide rails or discharge elbow. Sealing diaphragm to be removable and to be mounted on pump discharge flange. Diaphragm material to be Nitrile or Viton rubber.

Separate mounting plate shall be furnished for each pump. Plates shall include adjustable guide rail supports and discharge elbow flange to align pipe with hydraulic sealing flange. Stationary and movable portions of hydraulically sealed discharge coupling assembly shall be machined cast iron. Discharge elbow shall be 125 lb. standard flange, 200 mm pipe size. Plates and fittings shall be coated with epoxy paint. Sealing face of discharge elbow shall be coated with sprayed on metal (pure zinc for smoothness and corrosion resistance,

Guide rail assembly shall consist of Type 304 stainless steel upper guide rail brackets, pump guide brackets and 14-gage slide rail assembly. Upper guide rail bracket shall mount to basin wall and position upper end of stainless steel guide rail while discharge pipe positions lower end of guide rail. Stainless steel rail shall support pump at a distance of 100 mm from basin floor to provide unrestricted flow of material into pump. Stainless steel guide brackets shall be attached to pump for positioning of unit on guide rail during installation or removal of unit within basin. Stationary fitting shall have a fabric reinforced Buna-N diaphragm clamped between stainless steel rail and stationary cast iron pressure vessel. Cast iron movable fitting, when in position, shall be held against stationary fitting by construction of stainless steel rail, aligning movable fitting to flexible

diaphragm for proper sealing of two surfaces under pressure. Stainless steel lifting cable with a minimum breaking strength of 1,000 kg shall be provided for pump installation and removal. All hardware shall be 300 Series stainless steel.

### Wiring Bracket

Wiring bracket shall provide cord grip holders for the pump power and control cords. All cords shall extend from bracket through conduit to control panel. No splices shall be made in wiring. Continuous cords must be used from control panel to pumps and controls. Wiring bracket shall be fastened to access frame. Kellum connectors shall be furnished for each pump cord. Brackets shall be fabricated from stainless steel.

### Controls

Lift station controls shall be as specified in special provision LIFT STATION ELECTRICAL WORK.

### Valves

Check Valve: Swing check valves with air-cushion cylinder shall be constructed of heavy cast iron body with a bronze or stainless steel body seat and single, continuous stainless steel shaft for attachment of outside weight or lever and complete bronze air-cushion cylinder. Valve shall prevent return of water or sewage back through valve on pump shut-off or power failure and be tight seating. Seal ring must be renewable and securely held in place by stainless steel screws. Cushion cylinder assembly shall be externally attached to side of valve body with piston operating in cylinder, in a manner that will permit valve to be operated without slamming. Cushion shall be by air, and cushion cylinder shall be so arranged that air cushion can be adjusted to suit application. Valve disc shall be cast iron suspended from a stainless steel shaft which shall pass through a stuffing box and be connected to cushion cylinder on outside of valve. Valve shall be similar and equal to APCO Series 6000, GA Industries Model 250-D, or approved equal.

Plug Valve: Valves shall be of non-lubricated eccentric type with resilient faced plugs. Interior valves shall be furnished with flanged ends drilled to ASME 16.1 standard. Buried valves shall be mechanical joint conforming to AWWA C111. Full opening capacity of valve shall be equal to 80 percent of full pipe area for all valve sizes shown in Plans. Valve bodies shall be of ASTM A126 Class B cast iron in compliance with AWWA C504 Section 5.4. Cast on each valve body or operator shall be labeled word "open" and an arrow indicating direction to open. All exposed surfaces, nuts, bolts, springs, washers, etc., shall be stainless steel. Resilient plug facings shall be of neoprene, suitable for use with domestic sewage, sludge, or water. Valves shall be furnished with corrosion resistant plug seats which comply with AWWA C507 Section 7, paragraph 7.2 and with AWWA C504 Section 9, paragraph 9.4. Valves shall be furnished with replaceable, Teflon or equal, sleeve-type bearings in upper and lower journals. These bearings shall comply with AWWA C507 Section 8, paragraphs 8.1, 8.3, and 8.4, and with AWWA C504, Section 10. Valve shaft seals shall comply with AWWA C507 Section 10 and with AWWA C504 Section 11. Valve pressure ratings shall be

1200 kPa for valves up to a 300 mm nominal diameter. Valves shall provide drip-tight shut-off up to full pressure ratings. Where required, valves shall be capable of providing drip-tight shut-off up to full rating with pressure in either flow direction. All valves shall be furnished with a gear actuator complete with an extended nut. Actuator mounting brackets shall be totally enclosed and have gasket seals. Plug valves shall be as manufactured by DeZurik, Milliken Valve Company, Inc., or approved equal.

### Magnetic Flow Meter

Flow tube shall use a spool piece configuration with two sensors containing coils and electrodes. Spool piece flow tube shall be made of carbon steel and shall be coated with an electro-static epoxy finish inside and outside with stainless steel sensor bolts. An internal liner is not required. Flow tube shall be provided with raised face carbon steel flanges to ANSI 150 class. Each flow sensor shall contain a coil, a pair of Type 316 stainless steel sensing electrodes, and an integral grounding electrode. Sensors shall use solid state design, with coils, electrodes, and other sensor components encapsulated in polyurethane conforming to NSF Standard 61, suitable for use with potable water. Sensors shall be field-replaceable and field-interchangeable without need for recalibration. Sensors shall use pulsed DC excitation, with a magnetizing current greater than 1 amp peak to peak, coil voltage of not less than 80 volts, selectable frequency capability not less than 30 Hertz, and a quality factor (square root of multiplication of magnetizing current in amps peak to peak and frequency in Hertz) capability of 6.7 to ensure a high signal-to-media noise ratio. Accuracy shall be traceable to U.S. National Institute of Standards and Technology (NIST) and a computer printed NIST traceable calibration certificate shall be supplied with each meter. Accuracy shall be :

- ± 0.5% of rate for mean velocities > 0.3 m/sec.
- ± 0.005 fps for velocities < 0.3m/sec.

Accuracy shall be guaranteed on-site for raw sewage, even with a permanent coating of raw sewage or similar on electrodes, provided that specification parameters and installation recommendations are met. Mean velocity shall be from 0-0.6 m/sec to 0-15.25 m/sec with a minimum detectable velocity of 0.006 m/sec. Temperature error coefficient shall be less than 0.05% per 5.5 degrees C.

Converter shall contain a four digit liquid crystal display for rate of flow. Converter shall have capability to dampen flow rate display to provide an average value of readings over a selectable time period from 0 to 60 seconds. Converter shall include two six digit, non-resettable liquid crystal display totalizers for forward and reverse flow. They shall be resettable in an internal lockable enclosure. Converter shall include light emitting diodes to indicate status of power, minimum/maximum, reverse flow, non-full pipe, security lockout, zero test, and forward span test. Converter shall include magnetically-actuated switches for zero test, forward span test, and reverse span test. Magnetically-actuated switches shall be capable of being activated without opening enclosure. Switches shall be capable of being disabled with an internal security lockout switch, requiring lockable door to be opened to conduct zero and span tests. Converter shall have an impedance of  $10^{11}$  ohms. Converter shall include two isolated 4 to 20 mA outputs based on forward and reverse flow. Converter shall have capability to dampen 4 to 20 mA outputs to

provide an average value of readings over a selectable time period from 0 to 60 seconds. Converter shall include pulse frequency outputs based on forward and reverse flow, selectable from either open collector output scalable from 10 pulse per hour to 10,000 pulses per second, rated 30 volts, 100 mA or isolated relay scalable from 10 pulse per hour to 10 pulses per second, rated 125 volts AC, 1 A, 30 VA. Converter shall operate on 120 volts AC, 60 hertz line power. Power consumption shall be 4 to 6 VA, including sensors. Converter shall be housed in a rugged, lockable, dust-tight, corrosion resistant NEMA 4X polyester fiberglass enclosure suitable for conduit connections.

Enclosure shall include a clear polycarbonate window for viewing rate of flow and totalizers without opening enclosure. Provide 30.5 m of cable for wiring from sensors to converter.

### Submittals

Contractor shall submit appropriate data and information for following:

- Submersible wastewater pump
- Wet well and valve vault and hatches
- Meter manhole and cover
- Meter manhole sump pump
- Valves
- Magnetic flow meter
- Pipe and fittings
- Sanitary manholes LS-01 through LS-04
- Accessory components
- Dimensional layout of structures, piping, and equipment
- Parts lists

Submit Operation and Maintenance Manuals for complete integrated system and include all major sub-assemblies. Manual shall be complete with respect to operation and maintenance of sub-assemblies as well as system as a whole, including interface with electrical work.

### Startup and Training

Contractor shall furnish services of a factory-trained representative for each equipment manufacturer for one (1) visit of one 8-hour day to inspect and test final installation. In addition, Contractor shall furnish services of factory-trained engineer for one (1) 8-hour day to instruct Owner's personnel in proper operation and maintenance of station. Contractor shall include cost of these inspections in his bid prices for Sanitary Sewer Lift Station.

### Demolition of Existing Structures

Existing wet well and manholes LS-05E & LS-06E shall be demolished following startup of new lift station. Existing wet well shall be removed to a minimum of 4.6 meters below finished grade. Existing manhole LS-05E shall be removed as necessary to allow installation of 200 mm sanitary sewer between manholes WS-01 and LS-04. If this structure does not interfere with the installation of the sewer, it may be removed to a minimum depth of 0.7 meters below finished grade. Existing manhole LS-06E shall be removed to a minimum depth of 0.7 meters below finished grade.

Structure bottoms shall be broken, and structures shall be backfilled with crushed stone, gradation CA-6. The Work shall be performed in accordance with Section 605 of the Standard Specifications and cost shall be included in cost of Sanitary Sewer Lift Station.

#### Basis of Payment

The Work shall be paid at the Contract unit price for SANITARY SEWER LIFT STATION which price shall include all excavation and backfill, precast structures, piping, and equipment.

### **LIFT STATION ELECTRICAL WORK**

#### Applicable Provisions

Applicable provisions of Standard Specifications for Road and Bridge Construction shall govern the work of this section.

#### Applicable Publications

The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent applicable.

American National Standards Institute/National Fire Protection Agency (ANSI/NFPA), Specifications and Standards, current edition:

NFPA70 – National Electrical Code.

NFPA 820 – Standard for Fire Protection in Wastewater Treatment and Collection Facilities.

American National Standards Institute/Instrument Society of America (ANSI/ISA), Specifications and Standards:

ANSI/ISA-5.1-1984 (R1992) - Instrumentation Symbols and Identification.

ISA-5.3-1983 - Graphic Symbols for Distributed Control/Shared Display Instrumentation, Logic, and Computer Systems.

ANSI/ISA-5.5-1991 - Instrument Loop Diagrams.

ANSI/ISA-82.02.01-1999 (IEC 61010-1 MOD) - Safety Standard for Electrical and Electronic Test, Measuring, Controlling, and Related Equipment, General Requirements.

Canadian Standards Association (CSA), Specifications and Standards, current edition.

Electrical and Electronic Manufacturers Association, Canada (EEMAC), specifications and Standards, current edition.

International Electrotechnical Commission (IEC), Specifications and Standards, current edition.

National Electrical Contractors Association (NECA), Standard of Installation, current edition.

National Electrical Manufacturers Association (NEMA), Specifications and Standards, current edition.

Underwriters Laboratories, Inc. (UL), Specifications and Standards, current edition.

#### Description Of Work

The work specified herein shall include the furnishing of all materials, equipment, labor, and supervision necessary to fabricate, install, start-up, and test a complete and operable Lift Station Instrumentation and Control System(s) as identified on the contract drawings.

Perform all excavation and backfill work to accomplish indicated electrical systems installation in accordance with other sections of this specification.

The labor specified herein includes but is not limited to engineering, software development, panel fabrication, equipment calibration and adjustment, testing, training, and documentation.

This section includes coordination with electrical contractor to ensure that the proper number of raceways and conductors are installed. It shall be the responsibility of the instrumentation and control system supplier to coordinate this work with the installing electrician. Additional costs due to inadequate coordination as required herein shall be borne solely by this contractor.

#### Electric Service

Contractor shall arrange with Electric Utility for permanent and temporary electric service. Payment of Utility Company charges for service will be paid by allowance(s) listed on bid form. Allowance will cover utility invoices only, contractor handling charges, overhead, and mark-up shall be included in the base bid.

Contractor shall provide and install metering equipment in accordance with electric utilities written regulations.

#### Material

##### Conduit

- U.L. Listed
- PVC coated galvanized rigid steel.
- Robroy, or equal.

##### Fittings and Conduit Bodies

- U.L. Listed
- PVC coated.
- Stainless Steel Hardware
- Robroy, or equal.

#### Grounding

Supplementary Grounding Electrode: Use driven ground rods.

Provide code sized copper grounding electrode conductor from secondary service system neutral to ground rod. Install conductor in separate rigid conduit and bond at both ends to the conduit with approved fittings. Bond conduit as described below.

Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, and receptacle ground connectors.

Equipment Grounding Conductor: Provide separate, insulated green conductor within each raceway, sized per NEC or as indicated in the contract documents whichever is larger. Terminate each end on suitable lug, bus, enclosure or bushing, per NEC. Provide a ground wire from each device to the respective enclosure.

Measure ground resistance from system neutral connection at service entrance to convenient ground reference point using suitable ground testing equipment. Resistance shall not exceed 2 ohms.

#### Related Work Elsewhere

For the purpose of obtaining a complete and integrated lift station, the work specified herein shall be coordinated with the work of the lift station contractor specified in SANITARY SEWER LIFT STATION. A single consolidated Shop Drawing submittal shall be made for the lift station and electrical work.

#### Shop Drawings

General requirements specific to this section include:

Submit complete and integrated document containing all equipment included under the scope of this section.

Submittal shall be complete, neat, orderly, and indexed with tabbed dividers. Partial submittals will not be accepted.

Include a complete list of proposed exceptions to and deviations from these specifications.

Clarity and completeness are of prime importance. Acceptability of submittal drawings shall be at the sole discretion of the Engineer in regards to this requirement.

Submit the following information:

##### Bill of Materials:

Complete listing of all components identifying exact make and model, quantity, and description.

##### Component Data Sheets:

Detailed listing for each type of device, identifying manufacturer, model, options, ranges, and other information necessary to supplement component catalog cut sheets and clearly show compliance with these specifications.

##### Component Catalog Cut sheets:

Manufacturer's standard catalog information.

##### Control Panel Construction Drawings:

Scaled drawings of all control panels and enclosures.  
Front panel elevation complete with nameplate legend.  
Back panel elevation complete with schedule of devices.

**Control Panel Schematic Wiring Diagrams:**

- Ladder type schematic diagrams.
- Show all devices requiring electrical connections.
- Identify all wire and terminal numbers.
- Cross-reference all relay contacts and coils.
- Identify switching action on all switching devices.
- Common diagrams will not be accepted.

**Analog Loop Diagrams:**

- Show all devices requiring electrical connections.
- Identify all wire and terminal numbers.
- Identify location of loop power supply.
- Identify field devices, back-of-panel devices, and front-of panel devices.
- Show tabular summary of transmitter output capability, input impedance of each receiver, total loop impedance, and reserve output capacity.
- Common diagrams will not be accepted.

**Control Panel Power and Environmental Requirements:**

- Identify voltage and ampacity requirements.
- Show sizing calculations for environmental controls (ventilation, heat, air conditioning).

**Interconnecting Wiring Diagrams:**

- Show all interconnections between control panels and field devices.
- Show all terminations for future signals.
- Identify all wire and terminal numbers, including field terminal junction box terminals.

**Control Device Installation Details:**

- Supplement contract documents with additional details necessary for proper installation of instrumentation devices.

**Configuration Documentation:**

- Submit complete, documented configuration data for all configurable controllers.

**Factory Acceptance Testing**

The entire Lift Station Control System shall be assembled at the manufacturer's facility and tested to the greatest extent possible. This test shall include demonstration of proper system operation. Document the results of this test in writing and submit to the Engineer.

Correct any deficiencies identified during the test prior to shipping the control system to the job site.

**Operation & Maintenance Manuals And Instructions**

Submit 4 copies of the Operation & Maintenance Manuals and Instructions to Engineer for his review.

Submit 6 copies of the final revised shop drawings incorporating any modifications made as a result of factory test, installation, start-up, operational testing, or for any other cause. Submit results of all field-testing and corrective actions taken for all control devices.



Submit manufacturers standard operation & maintenance information including installation manuals and safety instructions.

Submit contact list identifying names, addresses, telephone numbers, and any additional contact information for each equipment service organization involved with the Lift Station Control System.

Submit detailed operation and maintenance procedures for each major equipment item; include description of operation for all modes of operation, routine maintenance procedures, and trouble-shooting guide.

Submit listing spare parts provided under this contract and of recommended additional spare parts not provided under this contract along with costs.

Contractor shall be responsible to provide one accurate copy of reproducible record drawings upon completion of the project. Record drawings shall include, but not be limited to, location and sizes of underground conduits and wiring,

#### Quality Assurance

Lift Station Instrumentation and Control System shall be the end product of a company specializing in the manufacture of similar control systems for a documented minimum of five years.

Control panel(s) shall bear a serialized UL 508 label.

Control panel(s) shall be U.L. label indicating suitability for use as service entrance equipment.

#### Warranty

Provide warranty covering equipment and labor for a period of one year from the date of substantial completion.

#### Manufacturer

Acceptable manufacturers include:

Pumpak, Ltd. – A Division of Healy-Ruff  
Sta-Con, Incorporated  
Metropolitan Pump

#### Environmental Requirements

##### Enclosure:

NEMA 3R enclosure constructed of 304SS and suitable for mounting as shown on the drawings.

Painted steel back-panel for equipment mounting.

Dead front, three-point latch, gasketed exterior door, with padlocking attachment and full-length piano type hinge.

Aluminum or stainless steel inner door for mounting of all pilot devices.

Temperature Control:

Thermostatically controlled, fan-forced heater, sized to maintain equipment-operating temperature inside panel.

Thermostatically controlled condensation heater sized to prevent condensation inside panel or any panel components.

Corrosion Protection:

Vapor phase protective corrosion inhibitor selected based upon interior volume of enclosure.

Electrical Requirements

Service Entrance:

Suitable for electric service as shown on the drawings.

Main circuit breaker, service entrance rated (UL Labeled), and suitable for the ampacity and available fault current identified on the drawings, 35,000 AIC Symmetrical, minimum. Interlock with generator circuit breaker as described below.

Portable Generator Provisions:

Generator circuit breaker suitable for the ampacity shown on the drawings.

Walking-beam interlocking assembly preventing simultaneous closing of main and generator circuit breakers.

Heavy-duty, weatherproof, circuit breaking receptacle of ampacity shown on the drawings and compatible with the plug provided with the portable generator. Reverse-service receptacle shall be provided complete with back-box, angle adapter, and weatherproof cover.

Receptacle shall be match existing generator plug, and shall be Crouse-Hinds #AR 1042-S22. Field verify exact model number with Owner.

Motor Controllers:

Manufacturer:

Allen Bradley, SMC Plus, or equal.

Overcurrent Protection:

Thermal magnetic circuit breaker, one for each motor.

Sized based on pump motor requirements.

Motor Starters

Solid State Reduced Voltage Starter.

Isolation Contactor.

NEMA rated full-voltage by-pass/back-up contactor, one for each motor.

Size 1 minimum.

Fractional size (IEC) starters are not acceptable.

Overload Protection:

Solid State with manual reset, one for each motor.

Field adjustable trip setting.

Size based on motor nameplate ratings.

Control Power:

480V System (refer to contract drawings).

Grounded 480-120V control power transformer with two primary fuses and one secondary fuse.

Size transformer to accommodate control panel loads.

Single-pole circuit breakers as needed for control panel loads.

120/208V or 120/240V System (refer to contract drawings).

Single-pole circuit breakers as needed for control panel loads.

Miscellaneous:

Interior mounted, individually protected, GFCI duplex outlet.

Control System Requirements

Motor Control:

Each pump shall be equipped with the following pilot control devices (pilot devices shall be 30mm, oil tight, push-to-test as manufactured by Allen Bradley, or equal):

Hand-Off-Auto selector switch.

Soft Start/By-pass contactor selector switch.

Run Pilot Light (Green).

Fail Pilot Light (Red).

High Temperature Pilot Light (Red).

Seal Fail Pilot Light (Amber).

Reset Pushbutton.

Runtime Totalizer (Seven digit, accurate to 0.01 hours).

In Hand position pump shall run continuously. In Auto position pump shall run in response to signals from wet well level control system.

In the Soft Start position, the pump shall be controlled by the Solid State Reduced Voltage Starter (SSRV). After the motor has attained full voltage running condition, the By-pass contactor shall close and positively short circuit the SCRs. In the by-pass mode, the By-pass contactor shall provide redundant across-the-line control of motor.

Run light shall be energized by motor starter auxiliary contact.

Fail light shall be energized by a discrepancy between required and run conditions after an adjustable time delay. Fail condition shall prevent pump from running and shall require local reset.

High temperature light shall be energized by pump high temperature switch. Provide adjustable time delay to prevent nuisance alarms after power outage. Provide interface relay compatible with pump requirements. High temperature condition shall prevent pump from running and shall require local reset.

Seal fail light shall be energized by pump seal fail sensor. Provide interface relay compatible with pump requirements. Seal fail light shall provide indication only.

### Wet Well Level Control

Provide 1-2/Alternate/2-1 touch screen selector switch for selection of lead pump. In alternate position, lead pump shall automatically alternate between Pump No. 1 and Pump No. 2. Control system shall automatically skip over any pump which has failed or been turned off.

Float switches and level transducer shall generate automatic pump required signals as specified below. Provide intrinsically safe relay for float switches and intrinsically safe barrier for level transducer.

- High level float switch. (High Level Alarm – Activate back-up mode)
- Start lag pump set-point
- Start pump float switch (back-up mode)
- Start lead pump set-point.
- Stop pumps set-point.
- Low level alarm set-point.
- Stop pump float switch (Back-up Mode).
- Low level alarm float switch/Stop all pumps (redundant off).
- Wet well level transducer.

Automatic Control shall be accomplished via a Programmable Logic Controller, Allen-Bradley Micrologix 1500. Substitutions will not be allowed.

Operator interface for set-point adjustment, wet well level indication, pump start statistics, and alarm history shall be via an Allen-Bradley PanelView 550 touch screen. Alarm history display shall include 100 most recent alarm, displayed in reverse chronological order, indicating alarm tag name, date, and time.

Back-up control shall be activated when wet well level rises above the High Level float switch. First pump shall start immediately. In the event that the stop pumps float cannot be reached, the second pump will start following a hard-wired, adjustable delay. In the event of failure of the first pump, the second pump shall be started. Control shall be hardwired, independent of the PLC, and shall utilize the By-pass contactor. Pump Stop shall be controlled by the Stop Pump float switch.

### Alarming

Alarm conditions shall be annunciated via an (8) eight channel, automated alarm dialer, Raco Verbatim, or equal. Alarm channels shall be assigned as follows. Alarm channels may be reassigned by the owner or the engineer during shop drawing review or start-up.

- Channel 1 – High wet well level
- Channel 2 – Low wet well level
- Channel 3 – Pump No. 1 Fail
- Channel 4 – Pump No. 2 Fail
- Channel 5 – PLC Fail
- Channel 6 – Power Fail
- Channel 7 – Spare
- Channel 8 – Spare

## Remote Monitoring

Panel shall be designed such that in the future the automatic alarm dialer may be removed and replaced with a modem and radio for incorporation in the lift station into a telemetry/SCADA system.

## Components

### Float Switches

Float switches shall be Anchor Scientific Rotofloat-SST, Consolidated/U.S. Filter, or equal complete with 15-pound anchor, nylon coated stainless steel rope, and clamps. High-level float switch shall be a normally closed contact float switch.

### Level Transducer

The transducer housing shall be fabricated of Type 316 stainless steel with a bottom diaphragm 2-1/2" diameter of heavy-duty, limp, foul-free, molded Teflon bonded to a synthetic rubber back/seal.

The transducer shall be of the solid-state head-pressure sensing type, suitable for continuous submergence and operation and shall be installed in accordance with manufacturer's instructions. The sensor shall be mounted using a stainless steel cable system in a location and as shown on the plans.

Manufacturer shall be Sigma Model 6100, Consolidated/U.S. Filter, or equal.

### Alarm Strobe

External strobe shall be weatherproof, red in color, and constructed of shatter-proof polycarbonate material. The strobe shall utilize a Xenon flash tube and shall contain internal timing and trigger circuits. Unit shall be U.L. Listed and manufactured by Edwards Signal, 94 Series, or equal.

### UPS

Furnish Uninterruptible Power Supply (UPS) sized to maintain control circuit and PLC power for at least 15 Minutes. Furnish American Power Conversion (APC),

### Pilot Device – Selector Switch/Indicating Light

Manufacturer shall be Allen Bradley Bulletin 800T/800H, Cutler Hammer, Square D, or equal. Indicating lights shall be Push-to-Test type, with high brightness, long life, LED cluster lamps.

## Division Of Work

The Contractor shall have overall system responsibility and shall provide all materials and labor necessary provide a complete and operable system and comply with all requirements of this section.

It shall be the responsibility of the Contractor and the System Integrator to coordinate various installation aspects including but not limited to the following:

#### Electrical Contractor Work:

- Proper type, size, and number of raceways and signal wiring.
- Proper type, size, and number of raceways and power wiring,
- Proper installation including working clearances based on actual as-built physical dimensions of electrical panels and enclosures.
- Proper shipping splits and shipping schedules for timely installation of equipment.
- Conduit entrance requirements.
- Proper special cable lengths required for field instruments.
- Wire numbering methodology for all field wiring.

The System Integrator shall be responsible for certifying the correctness of installation for all work related to the process instrumentation and control system regardless of who performs the installation work.

The contract drawings are diagrammatic in nature; it shall be the responsibility of the System Integrator supplement the contract drawings and complete the final design of the process instrumentation and control system and to coordinate exact requirements with the installing contractors.

#### Field Measurements

Field verify with exact measurements, the available mounting space for control system equipment. Identify deficiencies prior to beginning installation.

Where ranges are indicated on the contract documents, they are to be considered preliminary. Field verify the exact ranges required based on field conditions.

#### Delivery, Storage, And Handling

It shall be the responsibility of the installing contractor to receive all process instrumentation and control equipment at the job site. Carefully inspect all equipment for damage prior to accepting from the shipping agency. Do not accept shipment if damage is evident.

Exercise due diligence in storing, protecting, and moving process instrumentation and control equipment. Damaged or worn equipment will not be accepted and will be replaced at no additional cost to the Owner.

#### Installation

Install equipment in locations as indicated on the contract documents. Adjust locations as needed to ensure operability, serviceability, and compliance with all applicable codes and standards.

Installation shall be completely tested prior to start-up. This work includes verification of all field wiring continuity and proper termination of wiring.

#### Start-Up Services

System Integrator shall provide installation and start-up services required to place the complete system into operation.

## Testing And Demonstration

Each signal and function shall be fully tested. These tests shall be based on actual operation of primary elements and verification of proper control system response. Submit test results as part of Operations and Maintenance Manual.

Record calibrations of all analog devices.

Demonstrate proper operation of the process and instrumentation control system to the Owner and in the presence of the Engineer.

## Training

Training shall be suitable for plant operations personnel with limited knowledge of electrical components.

Provide two instructor days of operator training at the job site. Training shall consist of operations instruction and maintenance/trouble-shooting instruction.

Operations instruction shall identify all control loops with description of all interlocks, interface with other loops, and operational input requirements. Describe procedures for re-starting the system.

Maintenance instruction shall identify periodic maintenance that can be performed by the operator. Provide description of procedures and locations for replacement of consumable devices such as fuses and for checking the calibration or operation of devices.

Trouble-shooting instruction shall identify simple procedures and methods for identifying potential causes in the event of failures. For example, instruct operator on correlation of input signals and PLC I/O module indicator lights.

## Basis of Payment

The Work shall be paid shall be paid at the Contract unit price for LIFT STATION ELECTRICAL WORK which price shall include all labor, materials, equipment, and supervision necessary to provide, furnish, and install the Work described above.

## **GENERAL ELECTRICAL REQUIREMENTS**

Effective: March 1, 2003

Add the following to Article 801 of the Standard Specifications:

“Maintenance transfer and Preconstruction Inspection:

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance transfer and preconstruction site inspection, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting and/or traffic control systems which may be affected by the work.

The request for the maintenance transfer and preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

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

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

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

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

Add the following to Article 801 of the Standard Specifications:

"Electrical material or equipment which are similar or identical shall be the product of the same manufacturer, Electrical materials and equipment shall bear the UL label whenever such labeling is available."

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

Revise the 7<sup>th</sup> and 8<sup>th</sup> paragraphs of Article 801.08 of the Standard Specifications to read:



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

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

Revise Article 801.12 of the Standard Specifications to read:

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

Add the following to Section 801.12 of the Standard Specifications:

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

Add the following to Section 801 of the Standard Specifications:

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

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

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

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

Lighting Unit Identification. Each pole, light tower and underpass light shall be labeled as indicated in the plans to correspond to actual circuiting, and as designated by the Engineer. They shall be installed by the Contractor on each lighting unit pole shaft and on the underpass walls, or piers, as shown in the details. Median-mounted poles shall have two sets of identification labeling oriented to allow visibility from travel in either direction. Lighting Controllers shall also be identified by means identification decals as described herein. Identification shall be in place prior to placing the equipment in service. Identification of weathering steel poles shall be made by application of letters and numerals as specified herein to an appropriately sized 3.175 mm (1/8-inch) thick stainless steel

plate which shall be banded to the pole with two stainless steel bands. Identification of painted poles shall be made by application of letters and numerals as specified herein via an adhesive approved by the paint manufacturer for the application. Identification of luminaires which are not pole mounted, such as underpass luminaires, shall be done using identification brackets. In general, the brackets shall be mounted adjacent to and within one foot of their respective luminaires. The brackets shall be fabricated from 3.175 mm (one-eighth (1/8)) inch aluminum alloy sheet according to the dimensions shown on the plans. The bracket shall be bent so as to present the luminaire identification numbers at a sixty (60) degree angle to the wall. The bracket shall be attached to concrete walls with three (3) 6.35 mm (1/4 inch), self drilling, snap-off type galvanized steel concrete anchors set flush with the wall, or power driven fasteners approved by the Engineer. The brackets shall be offset from the wall with 12.7 mm (1/2") aluminum bushings. The structural steel shall not be drilled to attach the brackets. The luminaire identification numbers shall be applied to the bracket using the method described for identification applied to poles.

## **WIRE AND CABLE**

Effective: January 1, 2002

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

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

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

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

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

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

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

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

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

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

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

Aerial Electric Cable Properties

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

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

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

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

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

Revise Article 1066.04 to read:

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

Revise the second paragraph of Article 1066.05 to read:

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

Revise Article 1066.08 to read:

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

**LUMINAIRE**

Effective: March 1, 2003

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

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

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

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

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

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

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

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

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

where:

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

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

$W_{lampN}$  = lamp watts at 240v”

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

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

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

Ballast losses shall be calculated based on input watts and lamp watts at nominal system voltage as indicated in the following equation:

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

where:

$W_{line}$  = line watts at 240v

$W_{lamp}$  = lamp watts at 240v

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

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

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

“Ballast output over lamp life. Over the life of the lamp the ballast shall produce an average output wattage of the nominal lamp rating  $\pm 3\%$ . Lamp wattage readings shall be taken at 5-volt increments throughout the ballast trapezoid. The lamp wattage values shall then be averaged within the trapezoid and shall be within  $\pm 3\%$  of the nominal ballast rating. Submittal documents shall include a tabulation of the lamp wattage vs. lamp voltage readings. Example: *For a 400w luminaire, the averaged lamp wattage reading shall not exceed the range of 388 to 412 watts*”

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

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

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

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

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

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

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

“The lamps shall be of the clear type and shall have a color of 2050° to 2100° Kelvin.” Add the following table(s) to Article 1067 of the Standard Specifications:

**IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE**

GIVEN CONDITIONS			
<b>ROADWAY DATA</b>	Pavement Width	m	(ft)
	Number of Lanes		
	I.E.S. Surface Classification	R3	
	Q-Zero Value	.07	
<b>LIGHT POLE DATA</b>	Mounting Height	m	(ft)
	Mast Arm Length	m	(ft)
	Pole Set-Back From Edge of Pavement	m	(ft)
<b>LUMINAIRE DATA</b>	Lamp Type		
	Lamp Lumens		
	I.E.S. Vertical Distribution		
	I.E.S. Control Of Distribution		
	I.E.S. Lateral Distribution		
	Total Light Loss Factor		
<b>LAYOUT DATA</b>	Spacing	m	(ft)
	Configuration		
	Luminaire Overhang over edge of pavement	m	(ft)

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

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

<b>ILLUMINATION</b>	Average Horizontal Illumination, $E_{AVE}$	Lux	
	Uniformity Ratio, $E_{AVE}/E_{MIN}$		
<b>LUMINANCE</b>	Average Luminance, $L_{AVE}$	$Cd/m^2$	
	Uniformity Ratio, $L_{AVE}/L_{MIN}$		
	Uniformity Ratio, $L_{MAX}/L_{MIN}$		
	Max. Veiling Luminance Ratio, $L_V/L_{AVE}$		

## LAMPS

Effective: January 1, 2002

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

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

## ELECTRIC SERVICE INSTALLATION

Effective: January 1, 2002

**Description.** This item shall consist of all material and labor required to extend, connect or modify the electric services, as indicated or specified, which is over and above the work performed by the utility. Unless otherwise indicated, the cost for the utility work, if any, will be reimbursed to the Contractor separately under ELECTRIC SERVICE CONNECTION. This item may apply to the work at more than one service location and each will be paid separately.

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

Item	Article/Section
(a) Electric Service Installation – Lighting .....	1086.01

### CONSTRUCTION REQUIREMENTS

**General.** The Contractor shall ascertain the work being provided by the electric utility and shall provide all additional material and work required to complete the electric service work in complete compliance with the requirements of the utility.

No additional compensation will be allowed for work required for the electric service, even though not explicitly shown on the Drawings or specified herein

**Method Of Measurement.** Electric Service Installation shall be counted, each.

**Basis Of Payment.** This work will be paid for at the contract unit price each for ELECTRIC SERVICE INSTALLATION which shall be payment in full for the work specified herein.

## ELECTRIC UTILITY SERVICE CONNECTION

Effective: January 1, 2002

**Description.** This item shall consist of payment for work performed by the Electric Utility Company in providing or modifying electric service as indicated. THIS MAY INVOLVE WORK AT MORE THAN ONE ELECTRIC SERVICE.

### CONSTRUCTION REQUIREMENTS

**General.** It shall be the Contractor's responsibility to contact the utility. The Contractor shall coordinate his work fully with the electric utility both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement.



The Contractor should make particular note of the need for the earliest attention to arrangements with the utility for service. In the event of delay by the utility, no extension of time will be considered applicable for the delay unless the Contractor can produce written evidence of a request for electric service within 30 days of execution.

**Method Of Payment.** The Contractor will be reimbursed to the exact amount of money as billed by the Electric Utility Company for its services. Work provided by the Contractor for electric service will be paid separately as described under ELECTRIC SERVICE INSTALLATION. No extra compensation shall be paid to the Contractor for any incidental materials and labor required to fulfill the requirements as shown on the plans and specified herein.

For bidding purposes, this item shall be estimated as \$3,200.00

**Basis Of Payment.** This work will be paid for at the contract lump sum price for ELECTRIC UTILITY SERVICE CONNECTION which shall be reimbursement in full for electric utility service charges.

## GROUND ROD

Effective: January 1, 2002

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

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

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

## CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

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

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

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

## LIGHT POLES

Effective: March 1, 2003

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

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

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

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

## PERMANENT STEEL SHEET PILING

Effective: December 15, 1993

Revised: October 1, 2002

Description. This work shall consist of furnishing and installing the permanent sheet piling to the limits and tolerances shown on the plans according to Section 512 of the Standard Specifications.

The Contractor shall select from the following table, a sheet pile section to be used for each wall section with an "effective section modulus" equal to or larger than that specified on the plans.

SHEET PILE SECTION DESIGNATION	EFFECTIVE SECTION MODULUS * 10 <sup>3</sup> mm <sup>3</sup> /m (in <sup>3</sup> /ft.)	SHEET PILE SECTION DESIGNATION	EFFECTIVE SECTION MODULUS * 10 <sup>3</sup> mm <sup>3</sup> /m (in <sup>3</sup> /ft.)
SZ-10	189 (3.5)	SZ-22	728 (13.5)
SZ-11	216 (4.0)	SPZ-23.5	729 (13.6)
SZ-12	277 (5.1)	PZ-22	823 (15.3)
SZ-14	331 (6.2)	SZ-222	968 (18.0)
CZ-67	349 (6.5)	SZ-24	1072 (19.9)
SZ-15	356 (6.6)	CZ-114RD	1082 (20.1)
CZ-72	393 (7.3)	SZ-25	1105 (20.5)
SZ-14.5	445 (8.3)	PLZ-23	1113 (20.7)
SPZ-16	452 (8.4)	SPZ-23	1153 (21.4)
CZ-84	480 (8.9)	CZ-114	1165 (21.7)
CZ-95RD	550 (10.2)	SZ-27	1206 (22.4)
CZ-95	566 (10.5)	PLZ-25	1236 (23.0)
SZ-18	588 (10.9)	SPZ-26	1311 (24.4)
SPZ-19.5	604 (11.2)	CZ-128	1332 (24.8)
CZ-101	601 (11.3)	PZ-27	1371 (25.5)
SZ-20	648 (12.0)	CZ-134	1415 (26.3)
CZ-107	653 (12.1)	CZ-141	1497 (27.9)
SZ-21	674 (12.5)	CZ-148	1581 (29.4)
SPZ-22	682 (12.7)		
CZ-113	695 (12.9)		

\* Effective Section Modulus is computed by taking the effects of corrosion loss allowances and the Hartman reduction factor.

The selection of the sheet pile section shall not relieve the Contractor of the responsibility to satisfy all details including minimum clearances, cover, embedments, reinforcement, shears stud locations, interlocking, and field cutting. Any modifications of the plans to accommodate the Contractors selection shall be paid for by the Contractor and subject to the approval of the Engineer.

Method Of Measurement. This work will be measured in place in square meters (square feet). Sheet piling associated with other work in this contract or for permanent sheet piling that is cut off or driven beyond those dimensions shown on the plans will not be measured for payment.

Basis Of Payment. This work will be paid for at the contract unit price per square meter (square foot) for PERMANENT STEEL SHEET PILING at the location shown on the plans.

## **DRAINAGE SYSTEM**

Effective : June 10, 1994

Revised: January 1, 2002

Description. This work shall consist of furnishing and installing a bridge drainage system as shown on the plans, including all piping, fittings, support brackets, inserts, bolts, and splash blocks when specified.

Material. The pipe and fittings shall be reinforced fiberglass according to ASTM D 2996 RTRP with a 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 according to

AASHTO M 232. The fiberglass pipe and fittings furnished shall be pigmented through out, 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 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.

## **FLOATING BEARINGS**

Effective: October 13, 1988

Revised: June 21,2004

Description. This work shall consist of furnishing and installing floating (pot type) bearing assemblies as shown on the plans.

Floating bearings shall be the following types:

Fixed:	Allows rotation in any direction and fixed against translation.
Guided Expansion:	Allows rotation in any direction and translation in limited directions.
Non-Guided Expansion:	Allows rotation in any direction and translation in any direction.

The floating bearings shall be of the type specified and designed for the loads shown on the plans. The design of the top and bottom bearing plates are based on detail assumptions which are not applicable to all suppliers and may require modifications depending on the supplier chosen by the Contractor. The overall depth dimension for the floating bearings shall be as specified on the plans. The horizontal dimensions shall be limited to the available bearing seat

area. Any modifications required to accommodate the bearings chosen shall be submitted to the Engineer for approval prior to ordering materials. Modifications required shall be made at no additional cost to the State. Inverted pot bearing configurations will not be permitted.

The Contractor shall comply with all manufacturer's material, fabrication and installation requirements specified.

Submittals. Shop drawings shall be submitted to the Engineer for approval according to Article 105.04 of the Standard Specifications. In addition the Contractor shall furnish certified copies of the bearing manufacturer's test reports on the physical properties of the component materials for the bearings to be furnished and a certification by the bearing manufacturer stating the bearing assemblies furnished conform to all the requirements shown on the plans and as herein specified. Submittals with insufficient test data and supporting certifications will be rejected.

Materials. The materials for the floating bearing assemblies shall be according to the following:

- (a) Elastomeric Materials. The rubber disc shall be according to Article 1083.02 of the Standard Specifications for "55 Duro" rubber.
- (b) Polytetrafluoroethylene (TFE) Material. The TFE material shall be according to Article 1083.03 of the Standard Specifications.
- (c) Stainless Steel Sheets: The stainless steel sheets shall be of the thickness specified and shall be according to ASTM A 240, Type 302 or 304. The sliding surface shall be polished to a bright mirror finish less than 510 nm (20 micro-in.) root mean square.
- (d) Structural Steel. All structural steel used in the bearing assemblies shall be according to AASHTO M 270M Grade 345 (M 270, Grade 50), unless otherwise specified.
- (e) Threaded studs. The threaded stud, when required, shall conform to the requirements of AASHTO M 164M (M 164).

Fabrication and Installation of Floating Bearings. The bearings shall be complete factory-produced assemblies. They shall provide for rotation in all directions and for sliding, when specified, in directions as indicated on the plans. All bearings shall be furnished as a complete unit from one manufacturing source. All material used in the manufacture shall be new and unused with no reclaimed material incorporated into the finished assembly.

When directed by the Engineer, the manufacturer shall furnish random samples of component materials used in the bearings for testing by the Department.

The bearings furnished shall be manufactured so that the rotational capability is provided by an assembly having a rubber disc of proper thickness, confined in a manner so it behaves like a fluid. The disc shall be installed, with a snug fit, into a steel cylinder and confined by a tight fitting piston. The outside diameter of the piston shall be no more than 750 microns (0.03 in.) less than the inside diameter of the cylinder at the interface level of the piston and rubber disc. The sides of the piston shall be beveled. TFE sheets shall be attached to the top and bottom of the rubber disc to facilitate rotation of the rubber disc. Suitable brass sealing rings shall be provided to prevent any extrusion between piston and cylinder.

The translation capability for both guided and non-guided expansion bearings shall be provided by means of a polished stainless steel sliding plate that bears on a TFE sheet bonded and recessed to the top surface of the piston. The sliding element of expansion bearings shall be restrained against movement in the fixed direction by exterior guide bars capable of resisting the horizontal forces or 20 percent of the vertical design load on the bearing applied in any direction, whichever is greater. The sliding surfaces of the guide bar shall be of TFE sheet and stainless steel. Guiding off of the fixed base, or any extension of it, will not be permitted.

Structural steel bearing plates shall be fabricated according to Article 505.04(I) of the Standard Specifications. Prior to shipment the exposed edges and other exposed portions of the structural steel bearing plates shall be cleaned and painted according to Articles 506.03 and 506.04 of the Standard Specifications. Painting shall be with the paint specified for shop painting of structural steel. During cleaning and painting the stainless steel, TFE sheet and neoprene shall be protected from abrasion and paint.

TFE sheets shall be bonded to steel under factory controlled conditions using heat and pressure for the time required to set the epoxy adhesive used. The TFE sheet shall be free from bubbles and the sliding surface shall be burnished to an absolutely smooth surface.

The steel piston and the steel cylinder shall each be machined from a solid piece of steel. The steel base cylinder shall be either integrally machined, recessed into with a snug fit, or continuously welded to its bottom steel bearing plate.

Packaging. Each floating bearing assembly shall be fully assembled at the manufacturing plant and delivered to the construction site as complete units. The assemblies shall be packaged, crated or wrapped so the assemblies will not be damaged during handling, transporting and shipping. The bearings shall be held together with removable restraints so sliding surfaces are not damaged.

Centerlines shall be marked on both top and base plates for alignment in the field. The bearings shall be shipped in moisture-proof and dust-proof covers.

Testing. Each floating bearing assembly shall be load tested to 150 percent of the rated capacity at a 2 percent slope by the manufacturer prior to shipment. The load of 150 percent of the rated capacity shall be maintained for at least 30 minutes. Any bearings showing failure of the sealing rings or other component parts after this load test shall be replaced. The Contractor shall furnish to the Department a notarized certification from the bearing manufacturer stating the floating bearings have been load tested as specified. The Department reserves the right to perform the specified load test on one or more of the furnished bearings. If the tested bearing shows failure it shall be replaced and the remaining bearings shall be load tested for acceptance at the Contractor's expense.

Shear Inhibited Disc Type Bearing. Shear Inhibited Disc type bearing assemblies may be used in lieu of the Floating (Pot type) Bearing assemblies at the option of the Contractor. All requirements specified for floating bearings shall be applicable for the shear inhibited disc type bearings except as follows:

- (a) The Structural Element shall be restricted from shear by the pin and ring design and need not be completely confined as with the Floating Bearing design.
- (b) The Structural Element shall be molded of Polyether Urethane compound and shall be monolithic. The physical properties of the Polyether Urethane shall be according to one of the following requirements:

PHYSICAL PROPERTY	ASTM TEST METHOD	REQUIREMENTS			
		COMPOUND A		COMPOUND B	
		MIN.	MAX.	MIN.	MAX.
Hardness, Type D durometer	D 2240	46	50	60	64
Tensile Stress, kPa (psi) At 100% elongation	D 412	10,350 kPa (1500 psi)	--	13,800 kPa (2000 psi)	--
Tensile Stress, kPa (psi) At 300% elongation	D 412	19,300 kPa (2800 psi)	--	25,500 kPa (3700 psi)	--
Tensile Strength, kPa (psi)	D 412	27,600 kPa (4000 psi)	--	34,500 kPa (5000 psi)	--
Ultimate Elongation, %	D 412	300	--	220	--
Compression Set 22 hr. at 70 °C (158 °F), %	D 395	--	40	--	40

Bearings shall be erected according to Article 505.08(f) of the Standard Specifications.

Exposed edges and other exposed portions of the structural steel plates shall be field painted as specified for Structural Steel.

Basis of Payment. This work will be paid for at the contract unit price each for FLOATING BEARINGS, FIXED; FLOATING BEARINGS, GUIDED EXPANSION; or FLOATING BEARINGS, NON-GUIDED EXPANSION of the load rating specified.

When the fabrication and erection of floating bearings is accomplished under separate contracts, the applicable requirements of Article 505.09 shall apply.

Fabricated floating bearings and other materials complying with the requirements of this item, furnished and accepted, will be paid for at the contract unit price each for FURNISHING FLOATING BEARINGS, FIXED, FURNISHING FLOATING BEARINGS, GUIDED EXPANSION or FURNISHING FLOATING BEARINGS, NON-GUIDED EXPANSION of the load rating specified.

Storage and care of fabricated floating bearings and other materials complying with the requirements of this item by the Fabrication Contractor beyond the specified storage period, will be paid for at the contract unit price per calendar day for STORAGE OF FLOATING BEARINGS if a pay item is provided for in the contract, or will be paid for according to Article 109.04 if a pay item is not provided in the contract.

Floating bearings and other materials fabricated under this item erected according to the requirements of the specifications, and accepted, will be paid for at the contract unit price each for ERECTING FLOATING BEARINGS, FIXED, ERECTING FLOATING BEARINGS, GUIDED

EXPANSION or ERECTING FLOATING BEARINGS, NON-GUIDED EXPANSION of the load rating specified.

### **CLEANING AND PAINTING NEW METAL STRUCTURES**

Effective Date: September 13, 1994

Revised Date: August 19, 2004

Description. The material and construction requirements that apply to cleaning and painting new structural steel shall be according to the applicable portion of Sections 506 of the Standard Specifications except as modified herein. The three coat paint system shall be the system as specified on the plans and as defined herein.

Materials. All materials to be used on an individual structure shall be produced by the same manufacturer. The Bureau of Materials and Physical Research has established a list of all products that have met preliminary requirements. Each batch of material must be tested and approved by that bureau before use.

The paint materials shall meet the requirements of the following articles of the Standard Specification:

<u>Item</u>	<u>Article</u>
(a) Inorganic Zinc-Rich Primer	1008.22
(b) Waterborne Acrylic	1008.24
(c) Aluminum Epoxy Mastic	1008.25
(d) Organic Zinc-Rich Primer (Note 1)	
(e) Epoxy Intermediate (Note 1)	
(f) Aliphatic Urethane (Note 1)	

Note 1: These material requirements shall be according to the Special Provision for the Organic Zinc-Rich Paint System.

Submittals. At least 30 days prior to beginning field painting, the Contractor shall submit for the Engineer's review and acceptance, the following applicable plans, certifications and information for completing the field work. Field painting can not proceed until the submittals are accepted by the Engineer. Qualifications, certifications and QC plans for shop cleaning and painting shall be available for review by the QA Inspector.

- a) Contractor/Personnel Qualifications. Except for miscellaneous steel items such as bearings, side retainers, expansion joint devices, and other items allowed by the Engineer, or unless stated otherwise in the contract, the shop painting Contractors shall be certified to perform the work as follows: the shop painting Contractor shall possess AISC Sophisticated Paint Endorsement or SSPC-QP3 certification. Evidence of current qualifications shall be provided.

Personnel managing the shop and field Quality Control program(s) for this work shall possess a minimum classification as a National Association of Corrosion Engineers (NACE) Coating Inspector Technician, or shall provide evidence of successful inspection of 3 projects of similar or greater complexity and scope that have been completed in the last 2 years. Copies of the certification and/or experience shall be provided.

The personnel performing the QC tests for this work shall be trained in coatings inspection and the use of the testing instruments. Documentation of training shall be provided.



- b) Quality Control (QC) Program. The shop and field QC Programs shall identify the following; the instrumentation that will be used, a schedule of required measurements and observations, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings. The field program shall incorporate the IDOT Quality Control Daily Report form, as supplied by the Engineer.
- c) Field Cleaning and Painting Inspection Access Plan. The inspection access plan for use by Contractor QC personnel for ongoing inspections and by the Engineer during Quality Assurance (QA) observations.
- d) Surface Preparation/Painting Plan. The surface preparation/painting plan shall include the methods of surface preparation and type of equipment to be utilized for solvent cleaning, abrasive blast cleaning, washing, and power tool cleaning. The plan shall include the manufacturer's names of the materials that will be used, including Product Data Sheets and Material Safety Data Sheets (MSDS).

A letter or written instructions from the coating manufacturer shall be included, indicating the required drying time for each coat at the minimum, normal, and maximum application temperatures before the coating can be exposed to temperatures or moisture conditions that are outside of the published application parameters.

Field Quality Control (QC) Inspections. The Contractor shall perform first line, in process QC inspections of each phase of the work. The Contractor shall implement the submitted and accepted QC Program to insure that the work accomplished complies with these specifications. The Contractor shall use the IDOT Quality Control Daily Report form supplied by the Engineer to record the results of quality control tests. The completed reports shall be turned into the Engineer before work resumes the following day.

The Contractor shall have available at the shop or on the field site, all of the necessary inspection and testing equipment. The equipment shall be available for the Engineer's use when requested.

Field Quality Assurance (QA) Observations. The Engineer will conduct QA observations of any or all phases of the work. The Engineer's observations in no way relieve the Contractor of the responsibility to provide all necessary daily QC inspections of his/her own and to comply with all requirements of this Specification.

The Engineer has the right to reject any work that was performed without adequate provision for QA observations.

The Engineer will issue a Non-Conformance Report when cleaning and painting work is found to be in violation of the specification requirements, and is not corrected to bring it into compliance before proceeding with the next phase of work.

Inspection Access and Lighting. The Contractor shall facilitate the Engineer's observations as required, including allowing ample time to view the work. The Contractor shall furnish, erect and move scaffolding or other mechanical equipment to permit close observation of all surfaces to be cleaned and painted. This equipment shall be provided during all phases of the work. Examples of acceptable access structures include:

- Mechanical lifting equipment, such as, scissor trucks, hydraulic booms, etc.
- Platforms suspended from the structure comprised of trusses or other stiff supporting members and including rails and kick boards.
- Simple catenary supports are permitted only if independent life lines for attaching a fall arrest system according to Occupational Safety and Health Administration (OSHA) regulations are provided.

When the surface to be inspected is more than 1.8 m (6 ft) above the ground or water surface, the Contractor shall provide the Engineer with a safety harness and a lifeline according to OSHA regulations. The lifeline and attachment shall not direct the fall into oncoming traffic. The Contractor shall provide a method of attaching the lifeline to the structure independent of the inspection facility or any support of the platform. When the inspection facility is more than 800 mm (2 1/2 ft) above the ground, the Contractor shall provide an approved means of access onto the platform.

The Contractor shall provide artificial lighting in areas where natural light is inadequate, as determined by the Engineer, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 325 LUX (30 foot candles). Illumination for cleaning and painting, including the working platforms, access, and entryways shall be at least 215 LUX (20 foot candles).

**Construction Requirements.** The Contractor shall be responsible for any damage caused to persons, vehicles, or property, except as indemnified by the Response Action Contractor Indemnification Act. Whenever the intended purposes of the protective devices are not being accomplished, as determined by the Engineer, work shall be immediately suspended until corrections are made. Painted surfaces damaged by any Contractor's operation shall be removed and repainted, as directed by the Engineer, at the Contractor's expense.

The Contractor shall comply with the provisions of the Illinois Environmental Protection Act. Paint drips, spills, and overspray are not permitted to escape into the air or onto any other surfaces or surrounding property not intended to be painted. Containment shall be used to control paint drips, spills, and overspray, and shall be dropped and all equipment secured when sustained wind speeds of 64 kph (40 mph) or greater occur, unless the containment design necessitates action at lower wind speeds. The contractor shall evaluate project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a plan for containing or controlling paint debris (droplets, spills, overspray, etc.) to the Engineer for approval prior to starting the work. Approval shall not relieve the Contractor of their ultimate responsibility for controlling paint debris from escaping the work zone.

**Surface and Weather Conditions.** Surfaces to be painted after cleaning shall remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt, or moisture does not come in contact with surfaces cleaned or painted that day.

The surface temperature shall be at least 3°C (5°F) above the dew point during final surface preparation operations. The paint manufacturers' published literature shall be followed for specific temperature, dew point, and humidity restrictions during the application of each coat.

The Contractor shall monitor temperature, dew point, and humidity every 4 hours during surface preparation and coating application in the specific areas where the work is being performed.

The frequency of monitoring shall increase if weather conditions are changing. The Engineer has the right to reject any work that was performed under unfavorable weather conditions. Rejected work shall be removed, recleaned, and repainted at the Contractor's expense.

Seasonal Restrictions on Field Cleaning and Painting. Field cleaning and painting work shall be accomplished between April 15 and October 31 unless authorized otherwise by the Engineer in writing.

**Inorganic Zinc-rich/ Waterborne Acrylic Paint system.** This system shall be for shop and field application of the coating system, shop application of the intermediate and top coats will not be allowed.

In the shop, all structural steel designated to be painted shall be given one coat of inorganic zinc rich primer. In the field, before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 7 MPa (1000 psi) and 34 MPa (5000 psi) and according to "Low Pressure Water Cleaning" of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3 and spot primed with aluminum epoxy mastic. The structural steel shall then receive one full intermediate coat and one full topcoat of waterborne acrylic paint.

- a) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 64 kph (40 mph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.
- b) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:  
Zinc Primer: 75 microns (3 mils) min., 150 microns (6 mils) max.  
Epoxy Mastic: 125 microns (5 mils) min., 180 microns (7 mils) max.  
Intermediate Coat: 50 microns (2 mils) min., 100 microns (4 mils) max.  
Topcoat: 50 microns (2 mils) min., 100 microns (4 mils) max.

The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 180 and 355 microns (7 and 14 mils).

- c) The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.
- d) Damage to the paint system shall be spot cleaned using SSPC-SP3. The cleaned areas shall be spot painted with a penetrating sealer as recommended by the manufacturer, which shall overlap onto the existing topcoat. Then the aluminum epoxy mastic shall be spot applied not to go beyond the area painted with the sealer. The acrylic intermediate and topcoat shall be spot applied to the mastic with at least a 150 mm (6 inch) overlap onto the existing topcoat.

**Organic Zinc-Rich/ Epoxy/ Urethane Paint System.** This system shall be for full shop application of the coating system, all contact surfaces shall be masked off prior to application of the intermediate and top coats.

Additional Surface Preparation. In addition to the requirements of Section 3.2.9 of the AASHTO/AWS D1.5M/D1.5:2002 Bridge Welding Code (breaking thermal cut corners of stress carrying members), rolled and thermal cut corners to be painted with organic zinc primer shall be broken if they are sharper than a 1.5 mm (1/16 in.) radius. Corners shall be broken by a single pass of a grinder or other suitable device at a 45° angle to each adjoining surface prior to final blast cleaning, so the resulting corner approximates a 1.5 mm (1/16 in.) or larger radius after blasting. Surface anomalies (burrs, fins, deformations) shall also be treated to meet this criteria before priming.

In the shop, all structural steel designated to be painted shall be given one coat of organic zinc rich primer. Before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 7 MPa (1000 psi) and 34 MPa (5000 psi) and according to "Low Pressure Water Cleaning" of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3, and the structural steel shall then receive one full intermediate coat of epoxy and one full topcoat of aliphatic urethane.

- (a) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 64 kph (40 mph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.
- (b) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:
  - organic Zinc Primer: 75 microns (3 mils) min., 125 microns (5 mils) max.
  - Aluminum Epoxy Mastic: 125 microns (5 mils) min., 180 microns (7 mils) max.
  - Epoxy Intermediate Coat: 75 microns (3 mils) min., 150 microns (6 mils) max.
  - Aliphatic Urethane Top Coat: 65 microns (2.5 mils) min., 100 microns (4 mils) max.
- (c) The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 215 and 375 microns (8.5 and 15 mils).
- (d) When specified on the plans or as requested by the Contractor, and approved by the Engineer, the epoxy intermediate and aliphatic urethane top coats shall be applied in the shop. All faying surfaces of field connections shall be masked off after priming and shall not receive the intermediate or top coats in the shop. The intermediate and top coats for field connections shall be applied, in the field, after erection of the structural steel is completed. The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.
- (e) Erection and handling damage to the shop applied system shall be spot cleaned using SSPC-SP3. The surrounding coating at each repair location shall be feathered for a minimum distance of 40 mm (1 1/2 in.) to achieve a smooth transition between the prepared areas and the existing coating. The existing coating in the feathered area shall be roughened to insure proper adhesion of the repair coats. The areas cleaned to bare metal shall be spot painted with aluminum epoxy mastic. The intermediate and finish coat shall be spot applied to with at least a 150 mm (6 inch) overlap onto the existing finish coat.

The paint manufacturer's product data sheets shall be available for QA review in the shop and submitted to the Engineer prior to start of field work and the requirements as outlined in the data sheets shall be followed.

### Special Instructions.

**Painting Date/System Code.** At the completion of the work, the Contractor shall stencil in contrasting color paint the date of painting the bridge, the painting Contractors name, and the paint type code from the Structure Information and Procedure Manual for the system used. The letters shall be capitals, not less than 50 mm (2 in.) and not more than 75 mm (3 in.) in height.

The stencil shall contain the following wording "PAINTED BY (insert the name of the painting Contractor)" and shall show the month and year in which the painting was completed, followed by "CODE S" for the Inorganic Zinc/ Acrylic System and "CODE X" for the Organic Zinc/ Epoxy/ Urethane System, all stenciled on successive lines. This information shall be stenciled on the cover plate of a truss end post near the top of the railing, or on the outside face of an outside stringer near both ends of the bridge facing traffic, or at some equally visible surface designated by the Engineer.

**Method of Measurement.** Shop cleaning and painting new structures will not be measured for payment. Field cleaning and painting will not be measured for payment except when performed under a contract that contains a separate pay item for this work.

**Basis of Payment.** This work will be paid for according to Article 506.07.

## **DRILLED SOLDIER PILE RETAINING WALL**

Effective: September 20, 2001

Revised: April 25, 2003

**Description.** This work shall consist of providing all labor, materials, and equipment necessary to fabricate and furnish the soldier piles, create and maintain the shaft excavations, set and brace the soldier piles into position and encase the soldier piles in concrete to the specified elevation. Also included in this work is the backfilling of the remainder of the shaft excavation with Controlled Low-Strength Material (CLSM), the furnishing and installation of the timber lagging, and the furnishing and installation of CLSM secant lagging. All work shall be according to the details shown on the plans and as directed by the Engineer.

The remainder of the retaining wall components as shown on the plans, such as concrete facing, shear studs, reinforcement bars, tie backs, hand rails, and various drainage items etc., are not included in this Special Provision but are paid for as specified elsewhere in this Contract.

**Materials.** The materials used for the soldier piles and lagging shall satisfy the following requirements:

- (a) The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270, Grade 250 (36), unless otherwise designated on the plans.
- (b) The soldier pile encasement concrete shall be portland cement concrete according to Section 1020, except the mix design shall be as follows:

- (1) A Type I or II cement shall be used at 360 kg/cu m (605 lb/cu yd). When the plans specify that soil and ground water sulfate contaminates exceed 500 parts per million, a Type V cement shall be required. The cement shall be increased 35 kg/cu m (60 lb/cu yd) if the concrete is to be placed under water.
  - (2) Class C or F fly ash may replace Type I or II cement. The cement replacement shall not exceed 15 percent by mass (weight) at a minimum replacement ratio of 1.5:1. The fly ash shall not be used in combination with ground granulated blast-furnace slag.
  - (3) Grade 100 or 120 ground granulated blast-furnace slag may replace Type I or II cement. The cement replacement shall not exceed 25 percent by mass (weight) at a minimum replacement ratio of 1:1. The ground granulated blast-furnace slag shall not be used in combination with fly ash.
  - (4) The maximum water/cement ratio shall be 0.44.
  - (5) The mortar factor shall be a value which produces a coarse aggregate content comprising between 55 and 65 percent of total aggregate by mass (weight).
  - (6) The slump at point of placement shall be 175 mm  $\pm$  25 mm (7  $\pm$  1 in.). If concrete is placed to displace drilling fluid or against temporary casing, the slump shall be 200 mm  $\pm$  25 mm (8  $\pm$  1 in.) 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 (4000 psi) at 14 days. The minimum flexural strength shall be 4,650 kPa (675 psi) at 14 days.
  - (9) A retarding admixture shall be required.
  - (10) A water-reducing or high range water-reducing admixture shall be required.
  - (11) An accelerating admixture may be used with the permission of the Engineer in extraordinary situations.
  - (12) The coarse aggregate shall be CA 13, CA 14, CA 16 or a blend of these gradations. The fine aggregate shall consist of washed sand only.
- (c) 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.
- (d) Temporary casing shall be produced by electric seam, butt, or spiral welding to produce a smooth wall surface, fabricated from steel satisfying ASTM A252 Grade 2. The minimum wall thickness shall be as required to resist the anticipated installation and dewatering stresses, as determined by the Contractor, but in no case less than 6 mm (1/4 in.).

- (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.
- (f) Timber Lagging. The minimum tabulated unit stress in bending ( $F_b$ ), used for the design of the timber lagging, shall be 6.9 MPa (1000 psi) unless otherwise specified on the plans. When treated timber lagging is specified on the plans, the method of treatment shall be according to Article 1007.12.

Equipment. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans. Concrete equipment shall be according to Article 1020.03.

Construction Requirements. The shaft excavation for each soldier pile shall extend to the tip elevation indicated on the plans for soldier piles terminating in soil or to the required embedment in rock when rock is indicated on the contract plans. The Contractor shall satisfy the following requirements:

- (a) Drilling Methods. The soldier pile installation may involve the use of one or more of the following drilling methods to maintain excavation side wall stability during the various phases of shaft excavation and concrete placement, dependent on the site conditions encountered:
  - (1) Dry Method. The dry method consists of drilling the shaft excavation, removing accumulated water and loose material from the excavation, placing the soldier pile and concrete in a predominately dry excavation. This method shall be used only at sites where the groundwater and soil conditions are suitable to permit the drilling and dewatering of the excavation without causing excessive water infiltration, boiling, squeezing, or caving of the excavation side walls. This method allows the concrete placement by tremie or concrete pumps, or if the excavation can be dewatered, the concrete can be placed by free fall.
  - (2) Wet Method. The wet construction method may be used at sites where dewatering the excavation would cause collapse of the excavation sidewalls or when the volume and head of water flowing into the shaft excavation is likely to contaminate the concrete during placement. This method uses water or slurry to maintain stability of the shaft perimeter while advancing the excavation. After the excavation is completed, the water level in the shaft is allowed to seek equilibrium, the base is cleaned, the soldier pile is set and the concrete is discharged at the base using a tremie pipe or concrete pump, displacing the drilling fluid upward.
  - (3) Temporary Casing Method. Temporary casing shall be used when either the wet or dry methods provide inadequate support to prevent sidewall caving or to ensure there is not excessive deformation of the hole. Temporary casing may also be used to reduce the flow of water into the excavation to allow dewatering, adequate cleaning, or to ensure proper concrete placement.

Temporary casing will not be allowed to remain permanently in place without the approval of the Engineer. Before the temporary casing is broken loose, the level of

soldier pile encasement concrete in the casing shall be a minimum of 1.5 m (5 ft) above the bottom of the casing. After being broken loose, and as the casing is withdrawn, additional concrete shall be added to maintain sufficient head so that water and soil trapped behind the casing can be displaced upward and discharged at the ground surface.

No shaft excavation shall be made adjacent to a soldier pile with encasement concrete that has a compressive strength less than 10.35 MPa (1500 psi), nor adjacent to secant lagging until the CLSM has reach sufficient strength to maintain it's position and shape unless otherwise approved by the Engineer. Materials removed or generated from the shaft excavations shall be disposed of by the Contractor according to Article 202.03. Excavation by blasting will not be permitted.

- (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) Top of Rock. The actual top of rock will be defined as the point where material is encountered which can not be drilled with a conventional earth auger and/or under-reaming tool, and requires the use of special rock augers, core barrels, air tools or other methods of hand excavation.
- (e) Design Modifications. If the top of rock elevation encountered is below that estimated on the plans, such that the soldier pile length above rock is increased by more than 10 percent, the Engineer shall be contacted to determine if any soldier pile design changes are required. In addition, if the type of soil or rock encountered is not similar to that shown in the subsurface exploration data, the Engineer shall be contacted to determine if revisions are necessary.
- (f) Soldier Pile Fabrication and Placement. The soldier pile is defined as the structural steel section(s) shown on the plans as well as any connecting plates used to join multiple sections. Cleaning and painting of all steel components, when specified, shall be as shown on the plans and accomplished according to the special provision for "Cleaning and Painting New Metal Structures". This work will not be paid for separately, but shall be considered included in the cost of Furnishing Soldier Piles of the type specified.

The soldier pile shall be shop fabricated such that no field welding is required. The Contractor shall attach suitable bracing or support to maintain the position of the soldier pile within the shaft excavation such that the final location will satisfy the Construction Tolerances portion of this Special Provision. The bracing or supports shall remain in place until the concrete for encasement has reached a minimum compressive strength of 10.35 MPa (1500 psi).



When embedment in rock is indicated on the plans, modification to the length of a soldier pile may be required to satisfy the required embedment. The modification shall be made to the top of the soldier pile unless otherwise approved by the Engineer. When the top of rock encountered is above the estimated elevation indicated on the plans, the soldier piles shall be cut to the required length. If the top of rock encountered is below that estimated on the plans, the Contractor shall either furnish longer soldier piles or splice on additional length of soldier pile per Article 512.05(b) to satisfy the required embedment in rock. In order to avoid delays, the Contractor may have additional soldier pile sections fabricated as necessary to make the required adjustments. Additional soldier pile quantities, above those shown on the plans, shall not be furnished without prior written approval by the Engineer.

- (g) Concrete Placement. Concrete work shall be performed according to the applicable portions of Section 503 and as specified herein.

The soldier pile encasement concrete pour shall be made in a continuous manner from the bottom of the shaft excavation to the elevation indicated on the plans. Concrete shall be placed as soon as possible after the excavation is completed and the soldier pile is secured in the proper position. Uneven levels of concrete placed in front, behind, and on the sides of the soldier pile shall be minimized to avoid soldier pile movement, and to ensure complete encasement. Concrete shall be placed either by free fall, or through a tremie or concrete pump subject to the following conditions:

- (1) The free fall placement shall only be permitted in shaft excavations that can be dewatered without causing side wall instability and where no more than 75 mm (3 in.) of standing water exists at the time of concrete placement. The maximum height of free fall placement shall not exceed 18.3 m (60 ft.) and the concrete shall be directed to the base to minimize contact with either the soldier pile or the shaft excavation side wall. Drop chutes may be used to direct concrete to the base during free fall placement.
- (2) Tremies shall be according to Article 503.08 and contain no aluminum parts that may have contact with the concrete. The inside and outside surfaces of the tremie shall be clean and smooth to permit both flow of the concrete and unimpeded withdrawal during concrete placement.
- (3) Concrete pumps. Pumps and lines may be used for concrete placement and shall have a minimum 100 mm (4 in.) 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 (10 in.) of the base of the excavation. Valves, bottom plates or plugs may be used only when they can be removed from the excavation unless approved by the Engineer. The discharge end shall be immersed at least 1.5 m (5 ft.) in concrete at all times after starting the pour.

Following the soldier pile encasement concrete pour, the remaining portion of the shaft excavation shall be backfilled with CLSM.

CLSM Secant lagging placement shall be placed as soon as practical after the shaft excavation is cleared.

- (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 (1 1/2 in.) of plan station and 13 mm (1/2 in.) 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  $\pm 25$  mm ( $\pm 1$  in.) of the plan elevation.
- (i) **Timber Lagging.** Timber lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the timber lagging behind the flanges of the soldier piles shall be the minimum necessary to install the lagging. When the plans require the Contractor to design the timber lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading, traffic surcharges and the lagging span length(s). The nominal thickness of the lagging selected shall not be less than 75 mm (3 in.) and shall satisfy the minimum tabulated unit stress in bending ( $F_b$ ) stated elsewhere in this Special Provision. The Contractor shall be responsible for the successful performance of the lagging system until the concrete facing is installed. When the nominal timber lagging thickness(s) and allowable stress are specified on the plans, the timber shall be rough cut or surfaced and in accordance with Article 1007.03.
- (j) **Structure Excavation.** When structure excavation is necessary to place a concrete facing, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the face of the soldier pile to a vertical plane 600 mm (2 ft) from the finished face of the wall. The depth shall be from the top of the original ground surface to the bottom of the concrete facing. The additional excavation necessary to place the lagging whether through soil or CLSM shall be included in this work.
- (k) **Geocomposite Wall Drain.** When required by the plans, the geocomposite wall drain shall be installed and paid for according to Section 591 except that, in the case where a concrete facing is specified on the plans, the wall drain shall be installed on the concrete facing side of the timber lagging with the pervious (fabric) side of the drain installed to face the timber.

When a concrete facing is not specified on the plans, the pervious (fabric) side of the drain shall be installed to face the soil. In this case, the drain shall be installed in stages as the timber lagging is installed. The wall drain shall be placed in sections and spliced, or kept on a continuous roll, so that as each timber is placed, the drain can be properly located as the excavation proceeds.

Method of Measurement. The furnishing of soldier piles will be measured for payment in meters (feet) along the centerline of the soldier pile for each of the types specified. The length shall be determined as the difference between the plan top of soldier pile and the final as built shaft excavation bottom.

The drilling and setting of soldier piles in soil and rock, will be measured for payment and the volumes computed in cubic meters (cubic feet) for the shaft excavation required to set the soldier piles according to the plans and specifications, and accepted by the Engineer. These volumes shall be the theoretical volumes computed using the diameter(s) of the shaft(s) shown in the plans and the depth of the excavation in soil and/or rock as appropriate. The depth in soil will be defined as the difference in elevation between the ground surface at the time of concrete placement and the bottom of the shaft excavation or the top of rock (when present), whichever is encountered first. The depth in rock will be defined as the difference in elevation between the measured top of rock and the bottom of the shaft excavation.

Drilling and placing CLSM secant lagging shall be measured for payment in cubic meters (cubic feet) of the shaft excavation required to install the secant lagging as shown in the plans. This volume shall be the theoretical volume computed using the diameter(s) shown on the plans and the difference in elevation between the as built shaft excavation bottom and the ground surface at the time of the CLSM placement.

Timber lagging shall be measured for payment in square meters (square feet) of timber lagging installed to the limits as shown on the plans. The quantity shall be calculated using the minimum lagging length required on the plans multiplied by the as installed height of timbers, for each bay of timber lagging spanning between the soldier piles.

Basis of Payment. The furnishing of soldier piles will be paid for at the contract unit price per meter (foot) for FURNISHING SOLDIER PILES, of the type specified, for the total number of meters (feet) furnished to the job site. The cost of any field splices required due to changes in top of rock elevation shall be paid for according to Article 109.04.

The drilling and setting of soldier piles will be paid for at the contract unit price per cubic meter (cubic foot) for DRILLING AND SETTING SOLDIER PILES (IN SOIL) and DRILLING AND SETTING SOLDIER PILES (IN ROCK). The required shaft excavation, soldier pile encasement concrete and any CLSM backfill required around each soldier pile will not be paid for separately but shall be included in this item.

The timber lagging will be paid for at the contract unit price per square meter (square foot) for UNTREATED TIMBER LAGGING, or TREATED TIMBER LAGGING as detailed on the plans.

The secant lagging will be paid for at the contract unit price per cubic meter (cubic foot) for SECANT LAGGING. The required shaft excavation and CLSM backfill required to fill that excavation shall be included in this item.

Obstruction mitigation shall be paid for according to Article 109.04.

No additional compensation, other than noted above, will be allowed for removing and disposing of excavated materials, for furnishing and placing concrete, bracing, lining, temporary casings placed and removed or left in place, or for any excavation made or concrete placed outside of the plan diameter(s) of the shaft(s) specified.

### **BITUMINOUS BASE COURSE / WIDENING SUPERPAVE (BDE)**

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:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Aggregate	93.0 to 96.0
Asphalt Cement	4.0 to 7.0
Dust/AC Ratio	1.4

When RAP material is being used, the JMF shall be according to the following limits:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Virgin Aggregate(s)	46.0 to 96.0
RAP Material(s) (Note 1)	0 to 50
Mineral Filler (if required)	0 to 5.0
Asphalt Cement	4.0 to 7.0
Dust/AC Ratio	1.4

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

Bituminous concrete binder course Superpave mixture IL-25.0 or IL-19.0 meeting the requirements of the special provision, "Superpave Bituminous Concrete Mixtures" may also be used. The minimum compacted lift thickness specified therein shall apply.

(b) Volumetric Requirements.

Design Compactive Effort	Design Air Voids Target (%)
N <sub>DES</sub> =50	2.0

(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 355.06 of the Standard Specifications to read:

**"355.06 Mixture Production.** The asphalt cement shall be transferred to the asphalt tanks and heated to a temperature of 120 °C (250 °F) to 175 °C (350 °F). If the loading temperature exceeds 175 °C (350 °F), the asphalt shall not be used until it has cooled to 175 °C (350 °F). Wide variations in temperature which affect the amount of asphalt delivered will not be permitted.

When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 30 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

(a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".

(b) Required Tests. Testing shall be conducted to control the production of the bituminous mixture using the test methods identified and performed at a frequency not less than indicated in the following table.

Parameter	Frequency of Tests Non-Class I Mixtures	Test Method
Aggregate Gradation  Hot bins for batch and continuous plants.  Individual cold-feeds or combined belt-feed for drier-drum plants.  (% passing sieves: 12.5 mm (1/2 In.), 4.75 mm (No. 4), 75 µm (No. 200))	1 gradation per day of production.  The first day of production shall be washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix.  The dry gradation and the washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).
Asphalt Content by ignition oven (Note 1.)	1 per day	Illinois-Modified AASHTO T 308
Air Voids		
Bulk Specific Gravity of Gyratory Sample	1 per day	Illinois-Modified AASHTO T 312
Maximum Specific Gravity of Mixture	1 per day	Illinois-Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

(c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures, except air voids shall be plotted on the control charts within the following control limits:

Air Void Control Limits	
Mixture	Individual Test
Shoulders	± 1.2 %
Others	± 1.2 %"

Revise Article 355.08 of the Standard Specifications to read:

" **355.08 Placing.** The bituminous mixture shall be placed with a spreading and finishing machine. The minimum compacted thickness of each lift shall be according to the following table:

Nominal 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.”

**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 Protection Method I	   115% 110%
For concrete in superstructures: When protected by: Protection Method II Protection Method I	   123% 115%
For concrete in footings: When protected by: Protection Method I, II or III	   107%
For concrete in slope walls: When protected by: Protection Method I	   107%"

Delete the fourth paragraph of Article 504.05(a) of the Standard Specifications.

Revise the second and third sentences of the fifth paragraph of Article 504.05(a) of the Standard Specifications to read:

"All test specimens shall be cured with the units according to Article 1020.13."

Revise the first paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"Curing and Low Air Temperature Protection. The curing and protection for precast, prestressed concrete members shall be according to Article 1020.13 and this Article."

Revise the first sentence of the second paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"For curing, air vents shall be in place, and shall be so arranged that no water can enter the void tubes during the curing of the members."

Revise the first sentence of the third paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"As soon as each member is finished, the concrete shall be covered with curing material according to Article 1020.13."

Revise the eighth paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"The prestressing force shall not be transferred to any member before the concrete has attained the compressive strength of 28,000 kPa (4000 psi) or other higher compressive release strength specified on the plans, as determined from tests of 150 mm (6 in.) by 300 mm (12 in.) cylinders cured with the member according to Article 1020.13. Members shall not be shipped until 28-day strengths have been attained and members have a yard age of at least 4 days."

Delete the third paragraph of Article 512.03(a) of the Standard Specifications.

Delete the last sentence of the second paragraph of Article 512.04(d) of the Standard Specifications.

Revise the "Index Table of Curing and Protection of Concrete Construction" table of Article 1020.13 of the Standard Specifications to read:

"INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION"			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
<b>Cast-in-Place Concrete:</b> <sup>11/</sup>			
Pavement			
Shoulder	1020.13(a)(1)(2)(3)(4)(5) <sup>3/ 5/</sup>	3	1020.13(c)
Base Course			
Base Course Widening	1020.13(a)(1)(2)(3)(4)(5) <sup>1/ 2/</sup>	3	1020.13(c)
Driveway			
Median			
Curb			
Gutter	1020.13(a)(1)(2)(3)(4)(5) <sup>4/ 5/</sup>	3	1020.13(c) <sup>16/</sup>
Curb and Gutter			
Sidewalk			
Slope Wall			
Paved Ditch			
Catch Basin			
Manhole	1020.13(a)(1)(2)(3)(4)(5) <sup>4/</sup>	3	1020.13(c)
Inlet			
Valve Vault			
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5) <sup>2/</sup>	3 <sup>12/</sup>	1020.13(c)
Pavement Replacement	1020.13(a)(1)(2)(3)(4)(5) <sup>1/ 2/</sup>	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) <sup>4/6/</sup>	7	1020.13(e)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5) <sup>1/7/</sup>	7	1020.13(e)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) <sup>8/</sup>	7	1020.13(e)(1)(2)
Deck	1020.13(a)(5)	7	1020.13(e)(1)(2) <sup>17/</sup>
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5) <sup>1/7/</sup>	7	1020.13(e)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5) <sup>1/</sup>	7	1020.13(e)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5) <sup>4/6/</sup>	7	1020.13(e)(1)(2) <sup>18/</sup>
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)
<b>Precast Concrete:</b> <sup>11/</sup>			
Bridge Beams			
Piles			
Bridge Slabs	1020.13(a)(3)(5) <sup>9/10/</sup>	As required.	<sup>13/</sup> 504.06(c)(6), 1020.13(e)(2) <sup>19/</sup>
Nelson Type Structural Member			
All Other Precast Items	1020.13(a)(3)(4)(5) <sup>2/9/10/</sup>	As required.	<sup>14/</sup> 504.06(c)(6), 1020.13(e)(2) <sup>19/</sup>
<b>Precast, Prestressed Concrete:</b> <sup>11/</sup>			
All Items	1020.13(a)(3)(5) <sup>9/10/</sup>	Until strand tensioning is released. <sup>15/</sup>	504.06(c)(6), 1020.13(e)(2) <sup>19/</sup>

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  $50 \pm 4$  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  $50 \pm 4$  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](http://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 contract. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.
- (e) DBE as a material supplier:
  - (1) 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
  - (2) 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
  - (3) 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.
  - (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
  - (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
  - (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

- (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
  - b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a 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.

### **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 Flagger. 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."

### **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 Cementitious Materials for Concrete Repairs. For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume or a packaged rapid set mortar shall be used. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

### CONSTRUCTION REQUIREMENTS

General. Impact Attenuators shall meet the testing criteria contained in National Cooperative Highway Research Program (NCHRP) Report 350 for the test level specified and shall be on the Department's approved list.

Installation. Regrading of slopes or approaches for the installation shall be as shown on the plans.

Attenuator bases, when required by the manufacturer, shall be constructed on a prepared subgrade according to the manufacturer's specifications. The surface of the base shall be slightly sloped or crowned to facilitate drainage.

Impact attenuators shall be installed according to the manufacturer's specifications and include all necessary transitions between the impact attenuator and the item to which it is attached.

When water filled attenuators are used between November 1 and April 15, they shall contain anti-freeze according to the manufacturer's recommendations.

Markings. Sand module impact attenuators shall be striped with alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes. There shall be at least two of each stripe on each module.

Other types of impact attenuators shall have a terminal marker applied to their nose and reflectors along their sides.

Maintenance. All maintenance of the impact attenuators shall be the responsibility of the Contractor until removal is directed by the Engineer.

Relocate. When relocation of temporary impact attenuators is specified, they shall be removed, relocated and reinstalled at the new location. The reinstallation requirements shall be the same as those for a new installation.

Removal. When the Engineer determines the temporary impact attenuators are no longer required, the installation shall be dismantled with all hardware becoming the property of the Contractor.

Surplus material shall be disposed of according to Article 202.03. Anti-freeze, when present, shall be disposed of/recycled according to local ordinances.

When impact attenuators have been anchored to the pavement, the anchor holes shall be repaired with rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

Method of Measurement. This work will be measured for payment as each, where each is defined as one complete installation.

Basis of Payment. This work will be paid for at the contract unit price per each for IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW); IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, NARROW); IMPACT ATTENUATORS, TEMPORARY (SEVERE USE, WIDE); or IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE) of the test level specified.

Relocation of the devices will be paid for at the contract unit price per each for IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE); IMPACT ATTENUATORS, RELOCATE (SEVERE USE); or IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE); of the test level specified.

Regrading of slopes or approaches will be paid for according to Section 202 and/or Section 204 of the Standard Specifications.

**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) $\pm$ 15%
Whales (holes)	ASTM D 3887	7.5 $\pm$ 2 holes/25 mm (1 in.)
Chorses (holes)	ASTM D 3887	15.5 $\pm$ 2holes/25 mm (1 in.)
Instronball Burst	ASTM D 3887	830 kPa (120 psi) min.
Thickness	ASTM D 1777	1.0 $\pm$ 0.1 mm (0.040 $\pm$ 0.005 in.)

- (4) Certification. The manufacturer shall furnish a certification with each shipment of inlet filters, stating the amount of product furnished, and that the material complies with these requirements.”

### MULTILANE PAVEMENT PATCHING (BDE)

Effective: November 1, 2002

Pavement broken and holes opened for patching shall be completed prior to weekend or holiday periods. Should delays of any type or for any reason prevent the completion of the work, temporary patches shall be constructed. Material able to support the average daily traffic and meeting the approval of the Engineer shall be used for the temporary patches. The cost of furnishing, placing, maintaining, removing and disposing of the temporary work, including traffic control, shall be the responsibility of the Contractor.

### ORGANIC ZINC RICH PAINT SYSTEM

Effective: November 1, 2001

Revised: August 1, 2003

Add the following to Section 1008 of the Standard Specifications:

“ **1008.26 Organic Zinc-Rich Paint System.** The organic zinc-rich paint system shall consist of an organic zinc-rich primer, an epoxy or urethane intermediate coat, and aliphatic urethane finish coats. It is intended for use over blast-cleaned steel when three-coat shop applications are specified. The system is also suitable for field painting blast-cleaned existing structures.

- (a) General Requirements.

(1) Compatibility. Each coating in the system shall be supplied by the same paint manufacturer.

(2) Toxicity. Each coating shall contain less than 0.01 percent lead in the dry film and no more than trace amounts of hexavalent chromium, cadmium, mercury or other toxic heavy metals.

(3) Volatile Organics. The volatile organic compounds of each coating shall not exceed 420 g/L (3.5 lb/gal) as applied.

(b) Test Panel Preparation.

(1) Substrate and Surface Preparation. Test panels shall be AASHTO M 270M, Grade 250 (M 270 Grade 36), hot-rolled steel measuring 100 mm x 150 mm (4 in. x 6 in.). Panels shall be blast-cleaned per SSPC-SP5 white metal condition using metallic abrasive. The abrasive shall be a 60/40 mix of shot and grit. The shot shall be an SAE shot number S230 and the grit an SAE number G40. Hardness of the shot and grit shall be Rockwell C45. The anchor profile shall be 40-65 microns (1.5-2.5 mils) measured according to ASTM D 4417, Method C.

(2) Application and Curing. All coatings shall be spray applied at the manufacturer's recommended film thickness. The coated panels shall be cured at least 14 days at  $24\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  ( $75\text{ }^{\circ}\text{F} \pm 2\text{ }^{\circ}\text{F}$ ) and  $50 \pm 5$  percent relative humidity.

(3) Scribing. The test panels shall be scribed according to ASTM D 1654 with a single "X" mark centered on the panel. The rectangular dimensions of the scribe shall have a top width of 50 mm (2 in.) and a height of 100 mm (4 in.). The scribe cut shall expose the steel substrate as verified with a microscope.

(4) Number of Panels. All testing shall be performed on triplicate panels.

(c) Zinc-Rich Primer Requirements.

(1) Generic Type. This material shall be an organic zinc-rich epoxy or urethane primer. It shall be suitable for topcoating with epoxies, urethanes, and acrylics.

(2) Zinc Dust. The zinc dust pigment shall comply with ASTM D 520, Type II.

(3) Slip Coefficient. The organic zinc coating shall meet a Class B AASHTO slip coefficient (0.50 or greater) for structural steel joints using ASTM A 325M (A 325) or A 490M (A 490) bolts.

(4) Salt Fog. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 5,000 hours of salt fog exposure when tested according to ASTM B 117 and evaluated according to AASHTO R 31.

(5) Cyclic Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 5,000 hours of cyclic exposure when tested according to ASTM D 5894 and evaluated according to AASHTO R 31.

(6) Humidity Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 4,000 hours of humidity exposure when tested according to ASTM D 2247 and evaluated according to AASHTO R 31.

(7) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 6200 kPa (900 psi) when tested according to ASTM D 4541 Annex A4.

(8) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24-hour cycle shall consist of 16 hours of approximately  $-30\text{ }^{\circ}\text{C}$  ( $-22\text{ }^{\circ}\text{F}$ ) followed by 4 hours of thawing at  $50\text{ }^{\circ}\text{C}$  ( $122\text{ }^{\circ}\text{F}$ ) and 4 hours tap water immersion at  $25\text{ }^{\circ}\text{C}$  ( $77\text{ }^{\circ}\text{F}$ ). The test panels shall remain in the freezer on weekends and holidays.



(d) Intermediate Coat Requirements.

(1) Generic Type. This material shall be an epoxy or urethane. It shall be suitable as an intermediate coat over inorganic and organic zinc primers and compatible with acrylic, epoxy, and polyurethane topcoats.

(2) Color. The color of the intermediate coat shall be white or off-white.

(e) Urethane Finish Coat Requirements.

(1) Generic Type. This material shall be an aliphatic urethane. It shall be suitable as a topcoat over epoxies and urethanes.

(2) Color and Hiding Power. The finish coat shall match Munsell Glossy Color 7.5G 4/8 Interstate Green, 2.5YR 3/4 Reddish Brown, 10B 3/6 Blue, or 5B 7/1 Gray. The color difference shall not exceed 3.0 Hunter Delta E Units. Color difference shall be measured by instrumental comparison of the designated Munsell standard to a minimum dry film thickness of 75 microns (3 mils) of sample coating produced on a test panel according to ASTM D 823, Practice E, Hand-Held, Blade Film Application. Color measurements shall be determined on a spectrophotometer with 45 degrees circumferential/zero degrees geometry, illuminant C, and two degrees observer angle. The spectrophotometer shall measure the visible spectrum from 380-720 nanometers with a wavelength interval and spectral bandpass of 10 nanometers.

The contrast ratio of the finish coat at 75 microns (3 mils) dry film thickness shall not be less than 0.99 when tested according to ASTM D 2805.

(3) Weathering Resistance. Test panels shall be aluminum alloy measuring 300 mm x 100 mm (12 in. x 4 in.) prepared according to ASTM D 1730 Type A, Method 1 Solvent Cleaning. A minimum dry film thickness of 75 microns (3 mils) of finish coat shall be applied to three test panels according to ASTM D 823, Practice E, Hand Held Blade Film Application. The coated panels shall be cured at least 14 days at 24 °C ± 1 °C (75 °F ± 2 °F) and 50 ± 5 percent relative humidity. The panels shall be subjected to 300 hours of accelerated weathering using the light and water exposure apparatus (fluorescent UV - condensation type) as specified in ASTM G 53-96 and ASTM G 154 (equipped with UVB-313 lamps). The cycle shall consist of 8 hours UV exposure at 60 °C (140 °F) followed by 4 hours of condensation at 40 °C (104 °F). After exposure, rinse the panel with clean water; allow to dry at room temperature for one hour. The exposed panels shall not show a color change of more than 3 Hunter Delta E Units.

(f) Three Coat System Requirements.

(1) Finish Coat Color. For testing purposes, the color of the finish coat shall match Federal Standard No 595, color chip 14062 (green).

(2) Salt Fog. When tested according to ASTM B 117 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of salt fog exposure:

Salt Fog Acceptance Criteria (max)			
Blister Criteria	Rust Criteria		
Size/Frequency	Maximum Creep	Average Creep	% Rusting at Scribed Edges
#8 Few	4mm	1mm	1

(3) Cyclic Exposure. When tested according to ASTM D 5894 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of cyclic exposure:

Cyclic Exposure Acceptance Criteria (max)			
Blister Criteria	Rust Criteria		
Size/Frequency	Maximum Creep	Average Creep	% Rusting at Scribed Edges
#8 Few	2mm	1mm	1

(4) Humidity Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 4,000 hours of humidity exposure when tested according to ASTM D 2247 and evaluated according to AASHTO R 31.

(5) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 6200 kPa (900 psi) when tested according to ASTM D 4541 Annex A4.

(6) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24 hour cycle shall consist of 16 hours of approximately -30 °C (-22 °F) followed by 4 hours of thawing at 50 °C (122 °F) and 4 hours tap water immersion at 25 °C (77 °F). The test panels shall remain in the freezer mode on weekends and holidays.

(g) Qualification Samples and Tests. The manufacturer shall supply, to an independent test laboratory and to the Department, samples of the organic zinc-rich primer, epoxy or urethane intermediate coat, and aliphatic urethane finish coats for evaluation. Prior to approval and use, the manufacturer shall submit a notarized certification of the independent laboratory, together with results of all tests, stating that these materials meet the requirements as set forth herein. The certified test report shall state lots tested, manufacturer's name, product names, and dates of manufacture. New certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing, other than tests conducted by the Department, shall be borne by the manufacturer.

(h) Acceptance Samples and Certification. A 1 L (1 qt) sample of each lot of paint produced for use on state or local agency projects shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state that the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be witnessed by a representative of the Illinois Department of Transportation. The organic zinc-rich primer, epoxy or urethane intermediate coat, and aliphatic urethane finish coats shall not be used until tests are completed and they have met the requirements as set forth herein."

**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.”

**POLYUREA PAVEMENT MARKING (BDE)**

Effective: April 1, 2004

Description. This work shall consist of furnishing and applying pavement marking lines.

The type of polyurea pavement marking applied will be determined by the type of reflective media used. Polyurea Pavement Marking Type I shall use glass beads as a reflective media. Polyurea Pavement Marking Type II shall use a combination of composite reflective elements and glass beads as a reflective media.

Polyurea-based liquid pavement markings shall only be applied by Contractors on the list of Approved Polyurea Contractors maintained by the Engineer of Operations and in effect on the date of advertisement for bids.

Materials. Materials shall meet the following requirements:

- (a) Polyurea Pavement Marking. The polyurea pavement marking material shall consist of 100 percent solid two part system formulated and designed to provide a simple volumetric mixing ratio of two components (must be two or three volumes of Part A to one volume of Part B). No volatile or polluting solvents or fillers will be allowed.
- (b) Pigmentation. The pigment content by weight of component A shall be determined by low temperature ashing according to ASTM D 3723. The pigment content shall not vary more than  $\pm$  two percent from the pigment content of the original qualified paint.

White Pigment shall be Titanium Dioxide meeting ASTM D 476 Type II, Rutile.

Yellow Pigment shall be an Organic Yellow and contain no heavy metals.

- (c) Environmental. Upon heating to application temperature, the material shall not exude fumes which are toxic or injurious to persons or property.
- (d) Daylight Reflectance. The daylight directional reflectance of the cured polyurea material (without reflective media) shall be a minimum of 80 percent (white) and 50 percent (yellow) relative to magnesium oxide when tested using a color spectrophotometer with a 45 degrees circumferential /zero degrees geometry, illuminant C, and two degrees observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm. In addition, the color of the yellow polyurea shall visually match Color Number 33538 of Federal Standard 595a with chromaticity limits as follows:


- (e) Weathering Resistance. The polyurea marking material, when mixed in the proper ratio and applied at 0.35 to 0.41 mm (14 to 16 mils) wet film thickness to an aluminum alloy panel (Federal Test Std. No. 141, Method 2013) and allowed to cure for 72 hours at room temperature, shall be subjected to accelerated weathering for 75 hours. The accelerated weathering shall be completed by using the light and water exposure apparatus (fluorescent UV - condensation type) and tested according to ASTM G 53.

The cycle shall consist of four hours UV exposure at 50 °C (122 °F) and four hours of condensation at 40 °C (104 °F). UVB 313 bulbs shall be used. At the end of the exposure period, the material shall show no substantial change in color or gloss.

- (f) Dry Time. The polyurea pavement marking material, when mixed in the proper ratio and applied at 0.35 to 0.41 mm (14 to 16 mils) wet film thickness and with the proper saturation of reflective media, shall exhibit a no-tracking time of ten minutes or less when tested according to ASTM D 711.
- (g) Adhesion. The catalyzed polyurea pavement marking materials when applied to a 100 x 100 x 50 mm (4 x 4 x 2 in.) concrete block, shall have a degree of adhesion which results in a 100 percent concrete failure in the performance of this test.

The concrete block shall be brushed on one side and have a minimum strength of 24,100 kPa (3500 psi). A 50 mm (2 in.) square film of the mixed polyurea shall be applied to the brushed surface and allowed to cure for 72 hours at room temperature. A 50 mm (2 in.) square cube shall be affixed to the surface of the polyurea by means of an epoxy glue. After the glue has cured for 24 hours, the polyurea specimen shall be placed on a dynamic testing machine in such a fashion so that the specimen block is in a fixed position and the 50 mm (2 in.) cube (glued to the polyurea surface) is attached to the dynamometer head. Direct upward pressure shall be slowly applied until the polyurea system fails. The location of the break and the amount of concrete failure shall be recorded.

- (h) Hardness. The polyurea pavement marking materials when tested according to ASTM D 2240, shall have a shore D hardness of between 70 and 100. Films shall be cast on a rigid substrate at 0.35 to 0.41 mm (14 to 16 mils) in thickness and allowed to cure at room temperature for 72 hours before testing.
- (i) Abrasion. The abrasion resistance shall be evaluated according to ASTM D 4060 using a Taber Abrader with a 1,000 gram load and CS 17 wheels. The duration of the test shall be 1,000 cycles. The loss shall be calculated by difference and be less than 120 mgs. The tests shall be run on cured samples of polyurea material which have been applied at a film thickness of 0.35 to 0.41 mm (14 to 16 mils) to code S-16 stainless steel plates. The films shall be allowed to cure at room temperature for at least 72 hours and not more than 96 hours before testing.

(j) Reflective Media. The reflective media shall meet the following requirements:

(1) Type I - The glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications and the following requirements:

- a. First Drop Glass Beads The first drop glass beads shall be tested by the standard visual method of large glass spheres adopted by the Department. The beads shall have a silane coating and meet the following sieve requirements:

Sieve Size	U.S. Standard Sieve Number	% Passing (By Weight)
1.70 mm	12	95-100
1.40 mm	14	75-95
1.18 mm	16	10-47
1.00 mm	18	0-7
850 µm	20	0-5

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B.

(2) Type II - The combination of microcrystalline ceramic elements and glass beads shall meet the following requirements:

a. First Drop Glass Beads. The first drop glass beads shall meet the following requirements:

1. Composition. The elements shall be composed of a titania opacified ceramic core having clear and or yellow tinted microcrystalline ceramic beads embedded to the outer surface.
2. Index of Refraction. All microcrystalline reflective elements embedded to the outer surface shall have an index of refraction of 1.8 when tested by the immersion method.
3. Acid Resistance. A sample of microcrystalline ceramic beads supplied by the manufacturer, shall show resistance to corrosion of their surface after exposure to a one percent solution (by weight) of sulfuric acid. Adding 5.7 ml (0.2 oz) of concentrated acid into the water shall make the one percent acid solution. This test shall be performed by taking a 25 x 50 mm (1 x 2 in.) sample and adhering it to the bottom of a glass tray and placing just enough acid solution to completely immerse the sample. The tray shall be covered with a piece of glass to prevent evaporation and allow the sample to be exposed for 24 hours under these conditions. The acid solution shall be decanted (do not rinse, touch, or otherwise disturb the bead surfaces) and the sample dried while adhered to the glass tray in a 66 °C (150 °F) oven for approximately 15 minutes. Microscope examination (20X) shall show no white (corroded) layer on the entire surface.

b. Second Drop Glass Beads. The second drop glass beads shall meet the requirements of Article 1095.07 of the Standard Specifications for Type B or the following manufacturer's specification:

1. Sieve Analysis. The glass beads shall meet the following sieve requirements:

Sieve Size	U.S. Standard Sieve Number	% Passing (By Weight)
850 µm	20	100
600 µm	30	75-95
300 µm	50	15-35
150 µm	100	0-5

The manufacturer of the glass beads shall certify that the treatment of the glass beads meets the requirements of the polyurea manufacturer.

2. Imperfections. The surface of the glass beads shall be free of pits and scratches. The glass beads shall be spherical in shape and shall contain a maximum of 20 percent by weight of irregular shapes when tested by the standard method using a vibratile inclined glass plate as adopted by the Department.

3. Index of Refraction. The index of refraction of the glass beads shall be a minimum of 1.50 when tested by the immersion method at 25 °C (77 °F).
- (k) Packaging. Microcrystalline ceramic reflective elements and glass beads shall be delivered in approved moisture proof bags or weather resistant bulk boxes. Each carton shall be legibly marked with the manufacturer, specifications and type, lot number, and the month and year the microcrystalline ceramic reflective elements and/or glass beads were packaged. The letters and numbers used in the stencils shall be a minimum of 12.7 mm (1/2 in.) in height.
- (1) Moisture Proof Bags. Moisture proof bags shall consist of at least five ply paper construction unless otherwise specified. Each bag shall contain 22.7 kg (50 lb) net.
- (2) Bulk Weather Resistance Boxes. Bulk weather resistance boxes shall conform to Federal Specification PPP-8-640D Class II or latest revision. Boxes are to be weather resistant, triple wall, fluted, corrugated-fiber board. Cartons shall be strapped with two metal straps. Straps shall surround the outside perimeter of the carton. The first strap shall be located approximately 50 mm (2 in.) from the bottom of the carton and the second strap shall be placed approximately in the middle of the carton. All cartons shall be shrink wrapped for protection from moisture. Cartons shall be lined with a minimum 4 mil polyester bag and meet Interstate Commerce Commission requirements. Cartons shall be approximately 1 x 1 m (38 x 38 in.), contain 910 kg (2000 lb) of microcrystalline ceramic reflective elements and/or glass beads and be supported on a wooden pallet with fiber straps.
- (l) Packaging. The material shall be shipped to the job site in substantial containers and shall be plainly marked with the manufacturer's name and address, the name and color of the material, date of manufacture, and batch number.
- (m) Verification. Prior to approval and use of the polyurea pavement marking materials, the manufacturer shall submit a notarized certification of an independent laboratory, together with the results of all tests, stating these materials meet the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, brand name of polyurea and date of manufacture. The certification shall be accompanied by one 1/2 L (1 pt) samples each of Part A and Part B. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B.
- After approval by the Department, certification by the polyurea manufacturer shall be submitted for each batch used. New independent laboratory certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer.
- (n) Acceptance samples. Acceptance samples shall consist of one 1/2 L (1 pt) samples of Part A and Part B, of each lot of paint. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B. The samples shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state the formulation for the lot represented is essentially identical to that used for qualification testing. All, acceptance samples will be taken by a representative of the Department. The polyurea pavement marking materials shall not be used until tests are completed and they have met the requirements as set forth herein.



- (o) Material Retainage. The manufacturer shall retain the test sample for a minimum of 18 months.

**Equipment.** The polyurea pavement marking compounds shall be applied through equipment specifically designed to apply two component liquid materials, glass beads and/or reflective elements in a continuous and skip-line pattern. The two-component liquid materials shall be applied after being accurately metered and then mixed with a static mix tube or airless impingement mixing guns. The static mixing tube or impingement mixing guns shall accommodate plural component material systems that have a volumetric ratio of 2 to 1 or 3 to 1. This equipment shall produce the required amount of heat at the mixing head and gun tip and maintain those temperatures within the tolerances specified. The guns shall have the capacity to deliver materials from approximately 5.7 to 11.4 L/min (1.5 to 3 gal/min) to compensate for a typical range of application speeds of 10 to 13 km/h (6 to 8 mph). The accessories such as spray tip, mix chamber, and rod diameter shall be selected according to the manufacturer's specifications to achieve proper mixing and an acceptable spray pattern. The application equipment shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. This equipment shall also have as an integral part of the gun carriage, a high pressure air spray capable of cleaning the pavement immediately prior to making application.

The equipment shall be capable of spraying both yellow and white polyurea, according to the manufacturer's recommended proportions and be mounted on a truck of sufficient size and stability with an adequate power source to produce lines of uniform dimensions and prevent application failure. The truck shall have at least two polyurea tanks each of 415 L (110 gal) minimum capacity and be equipped with hydraulic systems and agitators. It shall be capable of placing stripes on the left and right sides and placing two lines on a three-line system simultaneously with either line in a solid or intermittent pattern, in yellow or white, and applying the appropriate reflective media according to manufacturer's recommendations. All guns shall be in full view of operations at all times. The equipment shall have a metering device to register the accumulated installed quantities for each gun, each day. Each vehicle shall include at least one operator who shall be a technical expert in equipment operations and polyurea application techniques. Certification of equipment shall be provided at the pre-construction conference.

The mobile applicator shall include the following features:

- (a) Material Reservoirs. The applicator shall provide individual material reservoirs, or space for the storage of Part A and Part B of the resin composition.
- (b) Heating Equipment. The applicator shall be equipped with heating equipment of sufficient capacity to maintain the individual resin components at the manufacturer's recommended temperature of  $\pm 2.8$  °C ( $\pm 5$  °F) for spray application.
- (c) Dispensing Equipment. The applicator shall be equipped with glass bead and/or reflective element dispensing equipment. The applicator shall be capable of applying the glass beads and/or reflective elements at a rate and combination indicated by the manufacturer.
- (d) Volumetric Usage. The applicator shall be equipped with metering devices or pressure gauges on the proportioning pumps as well as stroke counters to monitor volumetric usage. Metering devices or pressure gauges and stroke counters shall be visible to the Engineer.

- (e) Pavement Marking Placement. The applicator shall be equipped with all the necessary spray equipment, mixers, compressors and other appurtenances to allow for the placement of reflectorized pavement markings in a simultaneous sequence of operations.

The Contractor shall provide an accurate temperature-measuring device(s) that shall be capable of measuring the pavement temperature prior to application of the material, the material temperature at the gun tip and the material temperature prior to mixing.

### CONSTRUCTION REQUIREMENTS

General. The pavement shall be cleaned by a method approved by the Engineer to remove all dirt, grease, glaze or any other material that would reduce the adhesion of the markings with minimum or no damage to the pavement surface. New PCC pavements shall be air-blast-cleaned to remove all latents.

Widths, lengths, and shapes of the cleaned surface shall be of sufficient size to include the full area of the specified pavement marking to be placed.

The cleaning operation shall be a continuous moving operation process with minimum interruption to traffic.

Markings shall be applied to the cleaned surfaces on the same calendar day. If this cannot be accomplished, the surface shall be re-cleaned prior to applying the markings. No markings shall be applied until the Engineer approves the cleaning.

The pavement markings shall be applied to the cleaned road surface, during conditions of dry weather and subsequently dry pavement surfaces at a minimum uniform wet thickness of 0.4 mm (15 mils) according to the manufacturer's installation instructions. On new bituminous course surfaces the pavement markings shall be applied at a minimum uniform wet thickness of 0.5 mm (20 mils). The application of and combination of reflective media (glass beads and/or reflective elements) shall be applied at a rate specified by the manufacturer. At the time of installation the pavement surface temperature and the ambient temperature shall be above 4 °C (40 °F) and rising. The pavement markings shall not be applied if the pavement shows any visible signs of moisture or it is anticipated that damage causing moisture, such as rain showers, may occur during the installation and set periods. The Engineer will determine the atmospheric conditions and pavement surface conditions that produce satisfactory results.

Using the application equipment, the pavement markings shall be applied in the following manner, as a simultaneous operation:

- (a) The surface shall be air-blasted to remove any dirt and residue.
- (b) The resin shall be mixed and heated according to manufacturer's recommendations and sprayed onto the pavement surface.

The edge of the center line or lane line shall be offset a minimum distance of 50 mm (2 in.) from a longitudinal crack or joint. Edge lines shall be approximately 50 mm (2 in.) from the edge of pavement. The finished center and lane lines shall be straight, with the lateral deviation of any 3 m (10 ft) line not to exceed 25 mm (1 in.).

Notification. The Contractor shall notify the Engineer 72 hours prior to the placement of the markings in order that he/she can be present during the operation. At the time of notification,

the Contractor shall provide the Engineer the manufacturer and lot numbers of polyurea and reflective media that will be used.

Inspection. The polyurea pavement markings will be inspected following installation according to Article 780.10 of the Standard Specifications, except, no later than December 15, and inspected following a winter performance period that extends 180 days from December 15.

Method of Measurement. This work will be measured for payment in place, in meters (feet). Double yellow lines will be measured as two separate lines.

Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for POLYUREA PAVEMENT MARKING TYPE I – LINE of the line width specified or for POLYUREA PAVEMENT MARKING TYPE II – LINE of the line width specified.

### **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 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:

“(I) 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.

**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.

E J & E @ Main St. and @ Old Rand Rd. in Lake County.

<u>NAMED INSURED &amp; ADDRESS</u>	<u>NUMBER &amp; SPEED OF PASSENGER TRAINS</u>	<u>NUMBER &amp; SPEED OF FREIGHT TRAINS</u>
Elgin, Joliet & Eastern Railway Co. 1141 Maple Road Joliet, IL 60434	0	8 Trains per day @ 45 MPH

FOR FREIGHT/PASSENGER INFORMATION CONTACT: Rick Weber PHONE: 815-740-6594

FOR INSURANCE INFORMATION CONTACT: Tina Frost PHONE: 219-883-4306

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 °C (80 °F) or subnormal rainfall, the schedule of additional waterings may be altered with the approval of the Engineer.”

Revise Article 252.09 of the Standard Specifications to read:

“**252.09 Supplemental Watering.** During periods exceeding 26 °C (80 °F) or subnormal rainfall, supplemental watering may be required after the initial and additional waterings. Supplemental watering shall be performed when directed by the Engineer. Water shall be applied at the rate specified by the Engineer within 24 hours of notice.”

Revise the first and third paragraphs of Article 252.12 of the Standard Specifications to read:

“**252.12 Method of Measurement.** Sodding will be measured for payment in place and the area computed in square meters (square yards). To be acceptable for final payment, the sod shall be growing in place for a minimum of 30 days in a live, healthy condition. When directed by the Engineer, any defective or unacceptable sod shall be removed, replaced and watered by the Contractor at his/her own expense.”

“Supplemental watering will be measured for payment in units of 1000 L (1000 gal) of water applied on the sodded areas. Waterings performed in addition to those required by Article 252.08 or after the 30 day establishment period will be considered as supplemental watering.”

Replace the first paragraph of Article 252.13 of the Standard Specifications with the following:

“**252.13 Basis of Payment.** Sodding will be paid for at the contract unit price per square meter (square yard) for SODDING or SODDING, SALT TOLERANT according to the following schedule.

- (a) Initial Payment. Upon placement of sod, 25 percent of the pay item will be paid.

(b) Final Payment. Upon acceptance of sod, the remaining 75 percent of the pay item will be paid.”

Revise Article 1081.03(b) of the Standard Specifications to read:

“(b) Salt Tolerant Sod.

Variety	Percent by Weight
Buffalo Grass	30%
Buchloe Dactyloides	
Amigo Fineleaf Tall Fescue	20%
Audubon Red Fescue	15%
Rescue 911 Hard Fescue	15%
Rugby Kentucky Bluegrass	5%
Fults Pucinnellia Distans	15%”

Revise Table II of Article 1081.04(c)(6) of the Standard Specifications to read:

TABLE II						
Variety of Seeds	Hard Seed Percent Maximum	Purity Percent Minimum	Pure, Live Seed Percent Minimum	Weed Percent Maximum	Secondary	Remarks
					Noxious Weeds No. per kg (oz) Max. Permitted*	
Alfalfa	20	92	89	0.50	211 (6)	1/
Brome Grass	-	90	75	0.50	175 (5)	-
Clover, Alsike	15	92	87	0.30	211 (6)	2/
Clover, Crimson	15	92	83	0.50	211 (6)	-
Clover, Ladino	15	92	87	0.30	211 (6)	-
Clover, Red	20	92	87	0.30	211 (6)	-
Clover, White Dutch	30	92	87	0.30	211 (6)	3/
Audubon Red Fescue	0	97	82	0.10	105 (3)	-
Fescue, Alta or Ky. 31	-	97	82	1.00	105 (3)	-
Fescue, Creeping Red	-	97	82	1.00	105 (3)	-
Fults Salt Grass	0	98	85	0.10	70 (2)	-
Kentucky Bluegrass	-	97	80	0.30	247 (7)	5/
Lespedeza, Korean	20	92	84	0.50	211 (6)	3/
Oats	-	92	88	0.50	70 (2)	4/
Orchard Grass	-	90	78	1.50	175 (5)	4/
Redtop	-	90	78	1.80	175 (5)	4/
Ryegrass, Perennial, Annual	-	97	85	0.30	175 (5)	4/
Rye, Grain, Winter	-	92	83	0.50	70 (2)	4/
Rescue 911 Hard Fescue	0	97	82	0.10	105 (3)	-
Timothy	-	92	84	0.50	175 (5)	4/
Vetch, Crown	30	92	67	1.00	211 (6)	3/ & 6/
Vetch, Spring	30	92	88	1.00	70 (2)	4/
Vetch, Winter	15	92	83	1.00	105 (3)	4/
Wheat, hard Red Winter	-	92	89	0.50	70 (2)	4/

**SELF-CONSOLIDATING CONCRETE FOR PRECAST PRODUCTS (BDE)**

Effective: July 1, 2004

Definition. Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation.

Usage. Self-consolidating concrete may be used for precast concrete products. The design and testing of a self-consolidating concrete mixture shall be according to Section 1020 of the Standard Specifications except as modified herein.

Materials. Materials shall conform to the following requirements:

- (a) Self-Consolidating Admixtures. The self-consolidating admixture system shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a flowable concrete that does not require mechanical vibration.

The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F.

The viscosity modifying admixture will be evaluated according to the test methods and mix design proportions referenced in AASHTO M 194, except the following physical requirements shall be met:

- (1) For initial and final set times, the allowable deviation of the test concrete from the reference concrete shall not be more than 1.0 hour earlier or 1.5 hours later.
  - (2) For compressive and flexural strengths, the test concrete shall be a minimum of 90 percent of the reference concrete at 3, 7 and 28 days.
  - (3) The length change of the test concrete shall be a maximum 135 percent of the reference concrete. However, if the length change of the reference concrete is less than 0.030 percent, the length change of the test concrete shall be a maximum 0.010 percentage units greater than the reference concrete.
  - (4) The relative durability factor of the test concrete shall be a minimum 80 percent.
- (b) Fine Aggregate. A fine aggregate used alone in the mix design shall not have an expansion greater than 0.30 percent per ASTM C 1260. For a blend of two or more fine aggregates, the resulting blend shall not have an expansion greater than 0.30 percent.

The aggregate blend expansion will be calculated as follows:

$$\text{Aggregate Blend Expansion} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots \text{etc.}$$

Where: a, b, c, ... = percent of aggregate blend  
A, B, C, ... = aggregate expansion according to ASTM C 1260

Mix Design Criteria. The slump requirements of Article 1020.04 of the Standard Specifications shall not apply. In addition, the allowable coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. The fine aggregate proportion shall be a maximum 50 percent by mass (weight) of the total aggregate used.

Trail Batch. A minimum 1 cu m (1 cu yd) trial batch shall be produced. The mixture will be evaluated for air content, slump flow, visual stability index, compressive strength, passing ability, and static/dynamic segregation resistance.

The trial batch shall be scheduled and performed in the presence of the Engineer. Testing shall be performed per the Department's test method or as approved by the Engineer.

For the trial batch, the air content shall be within the top half of the allowable specification range. The slump flow range shall be 510 mm (20 in.) minimum to 710 mm (28 in.) maximum. The visual stability index shall be a maximum of 1. Strength shall be determined at 28 days. At the Contractor's option, strength may be determined for additional days.

Passing ability and static/dynamic segregation resistance shall be determined by tests selected by the Contractor and approved by the Engineer. The visual stability index shall not be used as the sole criteria for evaluating static segregation resistance.

After an acceptable mixture has been batched and tested, the mixture shall also be evaluated for robustness. Robustness shall be evaluated by varying the dosage of the self-consolidating admixture system and water separately. Additional trial batches may be necessary to accomplish this.

When necessary, the trial batches shall be disposed of according to Article 202.03 of the Standard Specifications.

Quality Control. Once testing is completed and acceptable results have been attained, production test frequencies and allowable test ranges for slump flow, visual stability index, passing ability, and static/dynamic segregation resistance shall be proposed. The production test frequencies and allowable test ranges will be approved by the Engineer.

The slump flow range shall be  $\pm 50$  mm ( $\pm 2$  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:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Aggregate.....	94.0 to 96.0
Asphalt Cement.....	4.0 to 6.0*
Dust/AC Ratio .....	1.4

\*Upper limit may be raised for the lower or top lifts if the Contractor elects to use a highly absorptive coarse and/or fine aggregate requiring more than six percent asphalt. The additional asphalt shall be furnished at no cost to the Department.

When RAP material is being used, the JMF shall be according to the following limits:

<u>Ingredient</u>	<u>Percent by Dry Weight</u>
Virgin Aggregate(s) .....	46.0 to 96.0
RAP Material(s) (Note 1).....	0 to 50
Mineral Filler (if required) .....	0 to 5.0
Asphalt Cement.....	4.0 to 7.0
Dust/AC Ratio .....	1.4

Note 1. If specified on the plans, the maximum percentage of RAP shall be as specified therein.

It is recommended that the selected combined aggregate gradation not pass through the restricted zones specified in Illinois Modified AASHTO MP 2.

(b) Volumetric Requirements.

Design Compactive Effort	Design Air Voids Target (%)
$N_{DES} = 30$	2.0

(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of tests performed according to Illinois Modified AASHTO T 283 using 4 in. Marshall bricks. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSR) shall be equal to or greater than 0.75. Mixtures, either with or without an additive, with TSR values less than 0.75 will be considered unacceptable.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications."

Revise Article 312.08 of the Standard Specifications to read:

**"312.08 Mixture Production.** When a hot-mix plant conforming to Article 1102.01 is used, the aggregate shall be dried and heated in the revolving dryer to a temperature of 120 °C (250 °F) to 175 °C (350 °F).

The aggregate and bituminous material used in the bituminous aggregate mixture shall be measured separately and accurately by weight or by volume. When the aggregate is in the mixer, the bituminous material shall be added and mixing continued for a minimum of 35 seconds and until a homogeneous mixture is produced in which all particles of the aggregate are coated. The mixing period, size of the batch and the production rate shall be approved by the Engineer.

The ingredients shall be heated and combined in such a manner as to produce a mixture which, when discharged from the mixer, shall be workable and vary not more 10 °C (20 °F) from the temperature set by the Engineer.

When RAP material(s) is used in the bituminous aggregate mixture, the virgin aggregate(s) shall be dried and heated in the dryer to a temperature that will produce the specified resultant mix temperature when combined with the RAP material.

The heated virgin aggregates and mineral filler shall be combined with RAP material in such a manner as to produce a bituminous mixture which when discharged from the mixer shall not

vary more than 15 °C (30 °F) from the temperature set by the Engineer. The combined ingredients shall be mixed for a minimum of 35 seconds and until a homogeneous mixture as to composition and temperature is obtained. The total mixing time shall be a minimum of 45 seconds consisting of dry and wet mixing. Variation in wet and dry mixing times may be permitted, depending on the moisture content and amount of salvaged material used. The mix temperature shall not exceed 175 °C (350 °F). Wide variations in the mixture temperature will be cause for rejection of the mix.

- (a) Personnel. The QC Manager and Level I Technician shall have successfully completed the Department's "Superpave Field Control Course".
- (b) Required Tests. Testing for stabilized subbase and bituminous shoulders shall be conducted to control the production of the bituminous mixture using the test methods identified and performed at a frequency not less than indicated in the following table.

Parameter	Frequency of Tests Non-Class I Mixtures	Test Method
Aggregate Gradation  Hot bins for batch and continuous plants.  Individual cold-feeds or combined belt-feed for drier-drum plants.  (% passing sieves: 12.5 mm (1/2 In.), 4.75 mm (No. 4), 75 µm (No. 200))	1 gradation per day of production.  The first day of production shall be washed ignition oven test on the mix. Thereafter, the testing shall alternate between dry gradation and washed ignition oven test on the mix.  The dry gradation and the washed ignition oven test results shall be plotted on the same control chart.	Illinois Procedure (See Manual of Test Procedures for Materials).
Asphalt Content by ignition oven (Note 1.)	1 per day	Illinois-Modified AASHTO T 308
Air Voids		
Bulk Specific Gravity of Gyratory Sample	1 per day	Illinois-Modified AASHTO T 312
Maximum Specific Gravity of Mixture	1 per day	Illinois-Modified AASHTO T 209

Note 1. The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

During production, the ratio of minus 75 µm (#200) sieve material to total asphalt cement shall be not less than 0.6 nor more than 1.6, and the moisture content of the mixture at discharge from the mixer shall not exceed 0.5 percent. If at any time the ratio of minus 75 µm (#200) material to asphalt or moisture content of the mixture falls outside the stated limits, production of the mix shall cease. The cause shall be determined and corrective action satisfactory to the Engineer shall be initiated prior to resumption of production.

During production, mixture containing an anti-stripping additive will be tested by the Engineer for stripping according to Illinois Modified AASHTO T 283. If the mixture fails to meet the TSR criteria for acceptance, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria.

- (c) Control Charts/Limits. Control charts/limits shall be according to QC/QA requirements for Non-Class I Mixtures except air voids shall be plotted on the control charts within the following control limits:

Air Void Control Limits	
Mixture	Individual Test
Shoulders	± 1.2 %
Others	± 1.2 %”

Replace the first paragraph of Article 312.10 of the Standard Specifications with the following:

**“312.10 Placing and Compacting.** After the subgrade has been compacted and is acceptable to the Engineer, the bituminous aggregate mixture shall be spread upon it with a mechanical spreader. The maximum compacted thickness of each lift shall be 150 mm (6 in.) provided the required density is obtained. The minimum compacted thickness of each lift shall be according to the following table:

Nominal Maximum Aggregate Size of Mixture	Minimum Compacted Lift Thickness
CA 12 – 12.5 mm (1/2 in.)	38 mm (1 1/2 in.)
CA 10 - 19 mm (3/4 in.)	57 mm (2 1/4 in.)
CA 6 – 25 mm (1 in.)	76 mm (3 in.)

The surface of each lift shall be clean and dry before succeeding lifts are placed.”

Revise Article 482.02 of the Standard Specifications to read:

**“482.02 Materials.** Materials shall meet the requirements of Article 312.03. For the top lift, the aggregate used shall meet the gradation requirements for a CA 10 or CA 12. Blending of aggregates to meet these gradation requirements will be permitted.”

Revise the first paragraph of Article 482.04 of the Standard Specifications to read:

**“482.04 General.** For pavement and shoulder resurfacing projects, Superpave binder and surface course mixtures may be used in lieu of bituminous aggregate mixture for the resurfacing of shoulders, at the option of the Contractor, or shall be used when specified on the plans.”

Revise Article 482.04(c) of the Standard Specifications to read:

“(c) Mixture 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".

## **SUPERPAVE BITUMINOUS CONCRETE MIXTURE IL-4.75 (BDE)**

Effective: November 1, 2004

Description. This work shall consist of constructing bituminous concrete surface course or leveling binder with a Superpave, IL-4.75 mixture. Work shall be according to Section 406 of the Standard Specifications and the special provision "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as modified herein.

### Materials.

- (a) Fine Aggregate. The fine aggregate shall be at least 50 percent manufactured sand meeting FA 20 gradation. The manufactured sand shall be stone sand, slag sand, steel slag sand, or combinations thereof. When used as leveling binder, steel slag sand will not be permitted.

The fine aggregate quality shall be Class B. The total minus 75  $\mu\text{m}$  (No. 200) material in the mixture shall be free from organic impurities.

- (b) Reclaimed Asphalt Pavement (RAP). RAP will not be permitted.
- (c) Bituminous Material. The asphalt cement (AC) shall conform to Article 1009.05 of the Standard Specifications for SBS PG76-28 or SBR PG76-28, except the elastic recovery shall be a minimum of 80.

The AC shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. It shall be placed in an empty tank and not blended with other asphalt cements.

- (d) Mineral Filler. Mineral filler shall conform to the requirements of Article 1011.01 of the Standard Specifications, except it shall not be collected dust.

#### Laboratory Equipment.

- (a) Superpave Gyratory Compactor. The Superpave gyratory compactor (SGC) shall be used for all laboratory mixture compaction.
- (b) Ignition Oven. The ignition oven shall be used for determination of AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors, which exceed 1.5 percent. If the calibration factor exceeds 1.5 percent other IDOT approved methods shall be utilized for determination of AC content.

Mixture Design. The Contractor shall submit mix designs for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, "Superpave Mix Design Upgrade". Articles 406.10 and 406.13 of the Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

AASHTO MP 2	Standard Specification for Superpave Volumetric Mix Design
AASHTO PP 2	Standard Practice for Short and Long Term Aging of Hot Mix Asphalt (HMA)
AASHTO PP 19	Standard Practice for Volumetric Analysis of Compacted Hot Mix Asphalt (HMA)
AASHTO PP 28	Standard Practice for Designing Superpave HMA
AASHTO T 209	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
AASHTO T 305	Standard Method of Test for Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures.

AASHTO T 308 Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

AASHTO T 312 Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyrotory Compactor

(a) Mixture Composition. The job mix formula (JMF) shall conform to the following:

Sieve	Percent Passing
12.5 mm (1/2 in.)	100
9.5 mm (3/8 in.)	100
4.75 mm (No. 4)	90-100
2.36 mm (No. 8)	70-90
1.18 mm (No. 16)	50-65
600 μm (No. 30)	35-55
300 μm (No. 50)	15-30
150 μm (No. 100)	10-18
75 μm (No. 200)	8-10
AC Content	8% to 10%

(b) Volumetric Requirements.

Volumetric Parameter	Requirement
Design Air Voids	2.5 % at Ndesign 50
Voids in the Mineral Aggregate (VMA)	19.0% minimum
Voids Filled with Asphalt (VFA)	87-95%
Maximum Draindown	0.3%

(c) Determination of Need for Anti-Stripping Additive. The mixture designer shall determine if an additive is needed in the mix to prevent stripping. The determination shall be made on the basis of tests performed according to Illinois Modified T 283. To be considered acceptable by the Engineer as a mixture not susceptible to stripping, the ratio of conditioned to unconditioned split tensile strengths (TSRs) shall be equal to or greater than 0.75 for 4 in. specimens or 0.85 for 6 in. specimens. Mixtures having TSRs less than these, either with or without an additive, will be considered unacceptable.

When it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor's option. The liquid additive shall be selected from the Department's list of approved additives and may be limited to those, which have exhibited satisfactory performance in similar mixes.

Dry hydrated lime shall be added at a rate of 1.0 to 1.5 percent by weight of total dry aggregate. Slurry shall be added in such quantity as to provide the required amount of hydrated lime solids by weight of total dry aggregate. The exact rate of application for all anti-stripping additives will be determined by the Engineer. The method of application shall be according to Article 406.12 of the Standard Specifications.

**Mixture Production.** Plant modifications may be required to accommodate the addition of higher percentages of mineral filler as required by the JMF.

During production, mineral filler shall not be stored in the same silo as collected dust. This may require the wasting of any previously collected baghouse fines prior to production of the IL-4.75 mixture. Only dust collected during the production of IL-4.75 may be returned directly to the IL-4.75 mixture. Any additional minus 75  $\mu\text{m}$  (No. 200) material needed to produce the IL-4.75 shall be mineral filler.

The mixture shall be produced within the temperature range recommended by the asphalt cement producer; but not less than 155 °C (310 °F).

The amount of moisture remaining in the finished mixture shall be less than 0.3 percent based on the weight of the test sample after drying.

Mixtures containing steel slag sand or aggregate having absorptions  $\geq$  2.5 percent shall have a silo storage plus haul time of not less than 1.5 hours.

**Control Charts/Limits.** Control charts/limits and testing frequency shall be according to QC/QA requirements for Class I mixtures except as follows:

Parameter	Individual Test	Moving Average
% Passing		
1.18 mm (No. 16)	$\pm$ 4%	$\pm$ 3%
75 $\mu\text{m}$ mm (No. 200)	$\pm$ 1.0%	$\pm$ 0.8%
Asphalt Content	$\pm$ 0.2%	$\pm$ 0.1%
Air Voids	$\pm$ 1.0% (of design)	$\pm$ 0.8% (of design)
Density	93.5 - 97.4%	

### CONSTRUCTION REQUIREMENTS

**Placement.** The mixture shall be placed on a dry, clean surface when the air temperature in the shade is 10 °C (50 °F) or above. The mixture temperature shall be 155 °C (310 °F) or above and shall be measured in the truck just prior to placement.

When used as leveling binder, the mixture shall be overlaid within five days of being placed.

**Lift Thickness.**

- (a) Surface Course. The minimum and maximum compacted lift thickness for the IL-4.75 mixture shall be 19 mm (3/4 in.) and 32 mm (1 1/4 in.) respectively.
- (b) Leveling Binder. Density requirements for IL-4.75 mixture shall apply when the nominal , compacted thickness is 19 mm (3/4 in.) or greater.

**Compaction.** The compaction operation shall start immediately after the mixture has been placed. The Contractor shall provide a minimum of two steel-wheeled tandem rollers for breakdown ( $T_B$ ) and one finish steel-wheeled roller ( $T_F$ ) meeting the requirements of Article 406.16(a) and 1101.01(e) of the Standard Specifications except the minimum compression for all of the rollers shall be 49 N/mm (280 lb/in.) of roller width. Pneumatic-tired and vibratory rollers will not be permitted.



Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for POLYMERIZED LEVELING BINDER (MACHINE METHOD), SUPERPAVE, IL-4.75, N50; and POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, IL-4.75, N50.

### **SUPERPAVE BITUMINOUS CONCRETE MIXTURES (BDE)**

Effective: January 1, 2000

Revised: April 1, 2004

Description. This work shall consist of designing, producing and constructing Superpave bituminous concrete mixtures using Illinois Modified Strategic Highway Research Program (SHRP) Superpave criteria. This work shall be according to Sections 406 and 407 of the Standard Specifications and the special provision, "Quality Control/Quality Assurance of Bituminous Concrete Mixtures", except as follows.

#### Materials.

- (a) Fine Aggregate Blend Requirement. The Contractor may be required to provide FA 20 manufactured sand to meet the design requirements. For mixtures with  $N_{design} \geq 90$ , at least 50 percent of the required fine aggregate fraction shall consist of either stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation.
- (b) Reclaimed Asphalt Pavement (RAP). If the Contractor is allowed to use more than 15 percent RAP, as specified in the plans, a softer performance-graded binder may be required as determined by the Engineer.

RAP shall meet the requirements of the special provision, "RAP for Use in Bituminous Concrete Mixtures".

RAP will not be permitted in mixtures containing polymer modifiers.

RAP containing steel slag will be permitted for use in top-lift surface mixtures only.

- (c) Bituminous Material. The asphalt cement (AC) shall be performance-graded (PG) or polymer modified performance-graded (SBS-PG or SBR-PG) meeting the requirements of Article 1009.05 of the Standard Specifications for the grade specified on the plans.

The following additional guidelines shall be used if a polymer modified asphalt is specified:

- (1) The polymer modified asphalt cement shall be shipped, maintained, and stored at the mix plant according to the manufacturer's requirements. Polymer modified asphalt cement shall be placed in an empty tank and shall not be blended with other asphalt cements.
- (2) The mixture shall be designed using a mixing temperature of  $163 \pm 3$  °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 Gyrotory Compactor. The superpave gyrotory compactor (SGC) shall be used for all QC/QA testing.
- (b) Ignition Oven. The ignition oven shall be used to determine the AC content. The ignition oven shall also be used to recover aggregates for all required washed gradations.

The Engineer may waive the ignition oven requirement for AC content if the aggregates to be used are known to have ignition AC content calibration factors which exceed 1.5 percent. If the ignition oven requirement is waived, other Department approved methods shall be used to determine the AC content.

Mixture Design. The Contractor shall submit mix designs, for approval, for each required mixture. Mix designs shall be developed by Level III personnel who have successfully completed the course, "Superpave Mix Design Upgrade". Articles 406.10 and 406.13 of the Standard Specifications shall not apply. The mixtures shall be designed according to the respective Illinois Modified AASHTO references listed below.

AASHTO MP 2	Standard Specification for Superpave Volumetric Mix Design
AASHTO R 30	Standard Practice for Mixture Conditioning of Hot-Mix Asphalt (HMA)
AASHTO PP 28	Standard Practice for Designing Superpave HMA
AASHTO T 209	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
AASHTO T 312	Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyrotory Compactor
AASHTO T 308	Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method

- (a) Mixture Composition. The ingredients of the bituminous mixture shall be combined in such proportions as to produce a mixture conforming to the composition limits by weight. The gradation mixture specified on the plans shall produce a mixture falling within the limits specified in Table 1.

TABLE 1. MIXTURE COMPOSITION (% PASSING) <sup>1/</sup>								
Sieve Size	IL-25.0 mm		IL-19.0 mm		IL-12.5 mm <sup>4/</sup>		IL-9.5 mm <sup>4/</sup>	
	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 <sup>2/</sup>	24	50 <sup>2/</sup>	28	65	28	65
2.36 mm (#8)	16	31	20	36	28	48 <sup>3/</sup>	28	48 <sup>3/</sup>
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.

<b>TABLE 2. VOLUMETRIC REQUIREMENTS</b>					
<b>Ndesign</b>	<b>Voids in the Mineral Aggregate (VMA), % minimum</b>				<b>Voids Filled with Asphalt (VFA), %</b>
	<b>IL-25.0</b>	<b>IL-19.0</b>	<b>IL-12.5</b>	<b>IL-9.5</b>	
<b>50</b>	12.0	13.0	14.0	15	65 - 78
<b>70</b>					65 - 75
<b>90</b>					
<b>105</b>					

- (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:

<b>TABLE 4 – MINIMUM COMPACTED LIFT THICKNESS</b>	
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:

<b>TABLE 5 – LEVELING BINDER</b>	
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:

<b>TABLE 6. DENSITY CONTROL LIMITS</b>		
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 Cementitious Materials for Concrete Repairs. For a

rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume or a packaged rapid set mortar shall be used. Mixing of the rapid set mortar shall be according to the manufacturer's instructions.

## CONSTRUCTION REQUIREMENTS

**704.03 General.** Precast concrete barrier produced after October 1, 2002 shall meet National Cooperative Highway Research Program (NCHRP) Report 350, Category 3, Test Level 3 requirements and have the F shape. Precast concrete barrier shall be constructed according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products", applicable portions of Sections 504 and 1020, and to the details shown on the plans.

Precast units shall not be removed from the casting beds until a flexural strength of 2,000 kPa (300 psi) or a compressive strength of 10,000 kPa (1400 psi) is attained. When the concrete has attained a compressive strength according to Article 1020.04, and not prior to four days after casting, the units may be loaded, shipped and used.

**704.04 Installation.** F shape barrier units shall be seated on bare, clean pavement or paved shoulder and pinned together in a smooth, continuous line at the exact locations provided by the Engineer. The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six anchoring pins and protected with an impact attenuator as shown on the plans.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

**704.05 New Jersey Shape Barrier.** New Jersey shape barrier produced prior to October 1, 2002 according to earlier Department standards, may be used until January 1, 2008.

Barrier units or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced by the Contractor at his/her expense. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

F shape and New Jersey shape barrier units shall not be mixed in the same run.

The barrier unit at each end of the installation shall be secured to the pavement or paved shoulder using six dowel bars and protected with an impact attenuator as shown on the plans.

The temporary barriers shall be removed when no longer required by the contract. After removal, all anchoring holes in the pavement or paved shoulder shall be filled with a rapid set



mortar. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush.

**704.06 Method of Measurement.** Temporary concrete barrier will be measured for payment in meters (feet) in place along the centerline of the barrier. When temporary concrete barrier is relocated within the limits of the jobsite, the relocated barrier will be measured for payment in meters (feet) in place along the centerline of the barrier.

**704.07 Basis of Payment.** When the Contractor furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER or RELOCATE TEMPORARY CONCRETE BARRIER.

When the Department furnishes the barrier units, this work will be paid for at the contract unit price per meter (foot) for TEMPORARY CONCRETE BARRIER, STATE OWNED or RELOCATE TEMPORARY CONCRETE BARRIER, STATE OWNED.

| Impact attenuators will be paid for separately.”

#### | **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.”

## **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 8. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor’s needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor’s records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of

Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

**TRANSIENT VOLTAGE SURGE SUPPRESSION (BDE)**

Effective: August 1, 2003

Revise the first paragraph of Article 1074.03(a)(4) of the Standard Specifications to read:

“(4) Transient Voltage Surge Suppression. The cabinet shall be provided with transient voltage surge suppression. Transient surge suppression unit leads shall be kept as short as possible and ground shall be made directly to the cabinet wall or ground plate as near as possible to the object being grounded. All transient surge suppression units shall be tested and certified as meeting this specification by an independent testing laboratory. One copy of each of the full testing report shall be submitted to the Engineer.”

Revise Article 1074.03(a)(4)a. of the Standard Specifications to read:

- “a. Surge Suppressor. The suppressor protecting the solid state controller, conflict monitor, and detection equipment shall consist of two stages: stage one which shall include a controller cabinet AC power protection assembly and stage two which shall include AC circuit protection.

The design of the stage one suppressor shall be modular and it shall be installed in such a way that it may be removed and replaced with the intersection under power and in flashing operation. It shall have a permanently mounted and wired base and a removable circuit package. The stage one suppressor shall have two LED failure indicators for power ‘on’ and suppression ‘failure’ and shall meet the following properties:

Stage One Suppressor	
Properties	Criteria
“Plug-in” suppression module	12 pin connector assembly
Clamp voltage	250 V at 20,000 A typical
Response time	Less than 5 nanoseconds
Maximum continuous service current	15 A at 120 VAC 60 Hz
High frequency noise attenuation	At least 50 dB at 100,000 Hz
Operating temperature	-40 °C (-40 °F) to 85 °C (185 °F)

If the controller assembly includes a system telemetry module or remote intersection monitor, the status of the stage one suppressor shall be continuously and remotely monitored by an appropriate alarm circuit.

The stage two, high speed, solid state, transient suppressor shall protect the system from transient over voltage without affecting power at the load. It shall suppress transients of either polarity and from either direction (source or load). The suppressor shall have a visual “on” indicator lamp when the unit is operating normally. It shall also have a UL plastic enclosure, a four position terminal strip for power connection, and it shall utilize silicon avalanche diode technology. The stage two suppressor shall meet the following properties:

Stage Two Suppressor	
Properties	Criteria
Nominal service voltage	120 V at 50/60 Hz
Maximum voltage protection level	±330 V
Minimum voltage protection level	±220 V ±5%
Minimum surge current rating	700 A
Stand by power	Less than 0.5 Watts
Hot to neutral leakage current at 120 V RMS	Less than 5µA
Maximum response time	5 nanoseconds
Operating and Storage temperature	-20 °C (-4 °F) to 50 °C (122 °F)”

**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.”

**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.

## **WEIGHT CONTROL DEFICIENCY DEDUCTION**

Effective: April 1, 2001

Revised: August 1, 2002

The Contractor shall provide accurate weights of materials delivered to the contract for incorporation into the work (whether temporary or permanent) and for which the basis of payment is by weight. These weights shall be documented on delivery tickets which shall identify the source of the material, type of material, the date and time the material was loaded, the contract number, the net weight, the tare weight when applicable and the identification of the transporting vehicle. For aggregates, the Contractor shall have the driver of the vehicle furnish or establish an acceptable alternative to provide the contract number and a copy of the material order to the source for each load. The source is defined as that facility that produces the final material product that is to be incorporated into the contract pay items.

The Department will conduct random, independent vehicle weight checks for material sources according to the procedures outlined in the Documentation Section Policy Statement of the Department's Construction Manual and hereby incorporated by reference. The results of the independent weight checks shall be applicable to all contracts containing this Special Provision. Should the vehicle weight check for a source result in the net weight of material on the vehicle exceeding the net weight of material shown on the delivery ticket by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. No adjustment in pay quantity will be made. Should the vehicle weight check for a source result in the net weight of material shown on the delivery ticket exceeding the net weight of material on the vehicle by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. The Engineer will adjust the net weight shown on the delivery ticket to the checked delivered net weight as determined by the independent vehicle weight check.

The Engineer will also adjust the method of measurement for all contracts for subsequent deliveries of all materials from the source based on the independent weight check. The net weight of all materials delivered to all contracts containing this Special Provision from this source, for which the basis of payment is by weight, will be adjusted by applying a correction factor "A" as determined by the following formula:

$$A = 1.0 - \left( \frac{B - C}{B} \right); \text{ Where } A \leq 1.0; \left( \frac{B - C}{C} \right) > 0.50\% \text{ (0.70\% for aggregates)}$$

Where A = Adjustment factor  
B = Net weight shown on delivery ticket  
C = Net weight determined from independent weight check

The adjustment factor will be applied as follows:

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 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.

## **TEMPORARY DITCH CHECKS**

Delete Paragraphs 2 and 3 of Article 280.04(a) of the Standard Specifications.

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

## **SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING**

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



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

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

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

### **ENGINEER'S FIELD OFFICE TYPE A (SPECIAL)**

670.02 Engineer's Field Office Type A. Revise the first paragraph of this Article to read:

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

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

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

Add the following to the fourth paragraph of this Article:

A weekly cleaning service for the office shall be provided.

Revise the fifth paragraph of this Article to read:

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

Revise subparagraph (a) of this Article to read:

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

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

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

Revise subparagraph (d) of this Article to read:

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

Revise subparagraph (e) of this Article to read:

(e) Eight folding chairs.

Revise subparagraph (h) of this Article to read:

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

Revise subparagraph (i) of this Article to read:

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

Revise subparagraph (j) of this Article to read:

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

Revise subparagraph (k) of this Article to read:

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

Revise subparagraph (l) of this Article to read:

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

Add the following subparagraphs to this Article:

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

670.07 Basis of Payment. Revise the fourth sentence of the first paragraph of this Article to read:

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

**SEDIMENT CONTROL, SILT FENCE**

Revise Article 280.02(f) of the Standard Specifications to read:

“(f) Silt Fence ..... 1080.02”

Revise Article 280.04(b) of the Standard Specifications to read:

“(b) Sediment Control, Silt Fence. This silt fence shall consist of a continuous silt fence adjacent to an area of construction to intercept sheet flow of water borne silt and sediment, and prevent it from leaving the area of construction.

The silt fence shall be supported on hardwood posts spaced on a maximum of 2.4 m (8 ft) centers. The bottom of the fabric shall be installed in a backfilled and compacted trench a minimum of 150 mm (6 in) deep, and securely attached to the hardwood post by a method approved by the Engineer. The minimum height above ground for all silt fence shall be 760 mm (30 in)."

Add the following paragraph to Article 280.05 of the Standard Specifications:

"Sediment Control, Silt Fence Maintenance shall consist of maintaining silt fence that has fallen down or become ineffective as a result of natural forces. This work shall include the removal of sediment buildup from behind the silt fence when the sediment has reached a level of half the above ground height of the fence, or as directed by the Engineer. Silt fence damaged by the Contractor's operations or negligence shall be repaired at the Contractor's expense, or as directed by the Engineer."

"(c) Sediment Control, Silt Fence. This work will be measured for payment in meters (feet) in place and removed. Silt fence designated not to be removed, by the Plans or the Engineer will be measured for payment by this item, as well.

Sediment Control, Silt Fence Maintenance. This work will be measured for payment, each incident, in meters (feet) of silt fence cleaned, re-erected, or otherwise maintained."

Revise Article 280.07(c) of the Standard Specifications to read:

"(c) Sediment Control, Silt Fence. This work will be paid for at the contract unit price per meter (feet) for SEDIMENT CONTROL, SILT FENCE.

Sediment Control, Silt Fence Maintenance. This work will be paid for at the contract unit price per meter (feet) for SEDIMENT CONTROL, SILT FENCE MAINTENANCE per each occurrence."

Add the following to Article 1080.02 of the Standard Specifications:

"Sediment Control, Silt Fence fabric shall conform to the specifications of AASHTO M288-00 for Temporary Silt Fence, < 50% elongation, unsupported. This fabric shall be 90 cm (36 in) in width.

Certification. The manufacturer shall furnish a certification with each shipment of silt fence material, stating the amount of product furnished, and that the material complies with these requirements.

Sediment Control, Silt Fence support posts shall be of 5x5 cm (2x2 inch) nominal hardwood, a minimum of 1.2 m (4.0 ft) long."

**BITUMINOUS EQUIPMENT, SPREADING AND FINISHING MACHINE (BDE)**

Effective: January 1, 2005

Revise the fourth paragraph of Article 1102.03 of the Standard Specifications to read:

“The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to uniformly place a non-segregated mixture in front of the screed. The distribution system shall have chain curtains, deflector plates, and/or other devices designed and built by the paver manufacturer to prevent segregation during distribution of the mixture from the hopper to the paver screed. The Contractor shall submit a written certification that the devices recommended by the paver manufacturer to prevent segregation have been installed and are operational. Prior to paving, the Contractor, in the presence of the Engineer, shall visually inspect paver parts specifically identified by the manufacturer for excessive wear and the need for replacement. The Contractor shall supply a completed check list to the Engineer noting the condition of the parts. Worn parts shall be replaced. The Engineer may require an additional inspection prior to the placement of a surface course or at other times throughout the work.”

**BUILDING REMOVAL - CASE I (NON-FRIABLE AND FRIABLE ASBESTOS ABATEMENT) (BDE)**

Effective: September 1, 1990

Revised: August 1, 2001

**BUILDING REMOVAL:** This item shall consist of the removal and disposal of 1 building, together with all foundations, retaining walls, and piers, down to a plane 300 mm (1 ft.) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

<u>Bldg. No.</u>	<u>Parcel No.</u>	<u>Location</u>	<u>Description</u>
6	1E70041	227 Meadow	Single Family Residential

**Discontinuance of Utilities:** The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs:** Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint

signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

All friable asbestos shall be removed from the building(s) prior to demolition. The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)", "Removal and Disposal of Friable Asbestos Building No. 6", and "Removal and Disposal of Non-Friable Asbestos Building No. 6" contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all asbestos, friable and non-friable, is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Three separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO. 6
2. REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. 6
3. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. 6

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of friable and non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provisions for "Removal and Disposal of Friable Asbestos, Building No. 6" and "Removal and Disposal of Non-Friable Asbestos, Building No. 6", and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages 217 thru 219. Also refer to the Materials Description Table on page 220 for a brief description and location of the various materials. Also included is a Materials Quantities Table on page 220. This table states whether the ACM is friable or non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of friable asbestos, and non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page 222, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of these permits shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least 10 days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276  
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.
- B. Submittals that shall be made prior to start of work:
  1. Submittals required under Asbestos Abatement Experience.
  2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.
  3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.
  4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.
  5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).

6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.
7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.
8. Submit proof of written notification and compliance with Paragraph "Notifications."

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;
2. Submit daily copies of work site entry logbooks with information on worker and visitor access;
3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and
4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

- A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.
- B. The Contractor shall document current Workmen's Compensation Insurance coverage.
- C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

- A. Company Experience: Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.
- B. Personnel Experience:
  1. For Superintendent, the Contractor shall supply:
    - a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos

abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.

- b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.
2. For workers involved in the removal of friable and non-friable asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

**ABATEMENT AIR MONITORING:** The Contractor shall comply with the following:

- A. Personal Monitoring: All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the Contractor. Additional personal samples may be required by the Engineer at any time during the project.
- B. Contained Work Areas for Removal of Friable Asbestos: Area samples shall be collected for the department within the work area daily. A minimum of one sample shall be taken outside of the abatement area removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.
- C. Interior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable Transite and floor tile removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.
- D. Exterior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

The Contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

E. Air Monitoring Professional

1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the Contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".



2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO.6: This work consists of the removal and disposal of all friable asbestos from the building(s) prior to demolition. The work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)" and as outlined herein.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. 6, as shown, which price shall include furnishing all labor, materials, equipment and services required to remove and dispose of the friable asbestos.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. 6: The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.
2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. 6, as shown.

The cost for this work shall be determined as follows:

Option #1 - Actual cost of removal and disposal of non-friable asbestos.

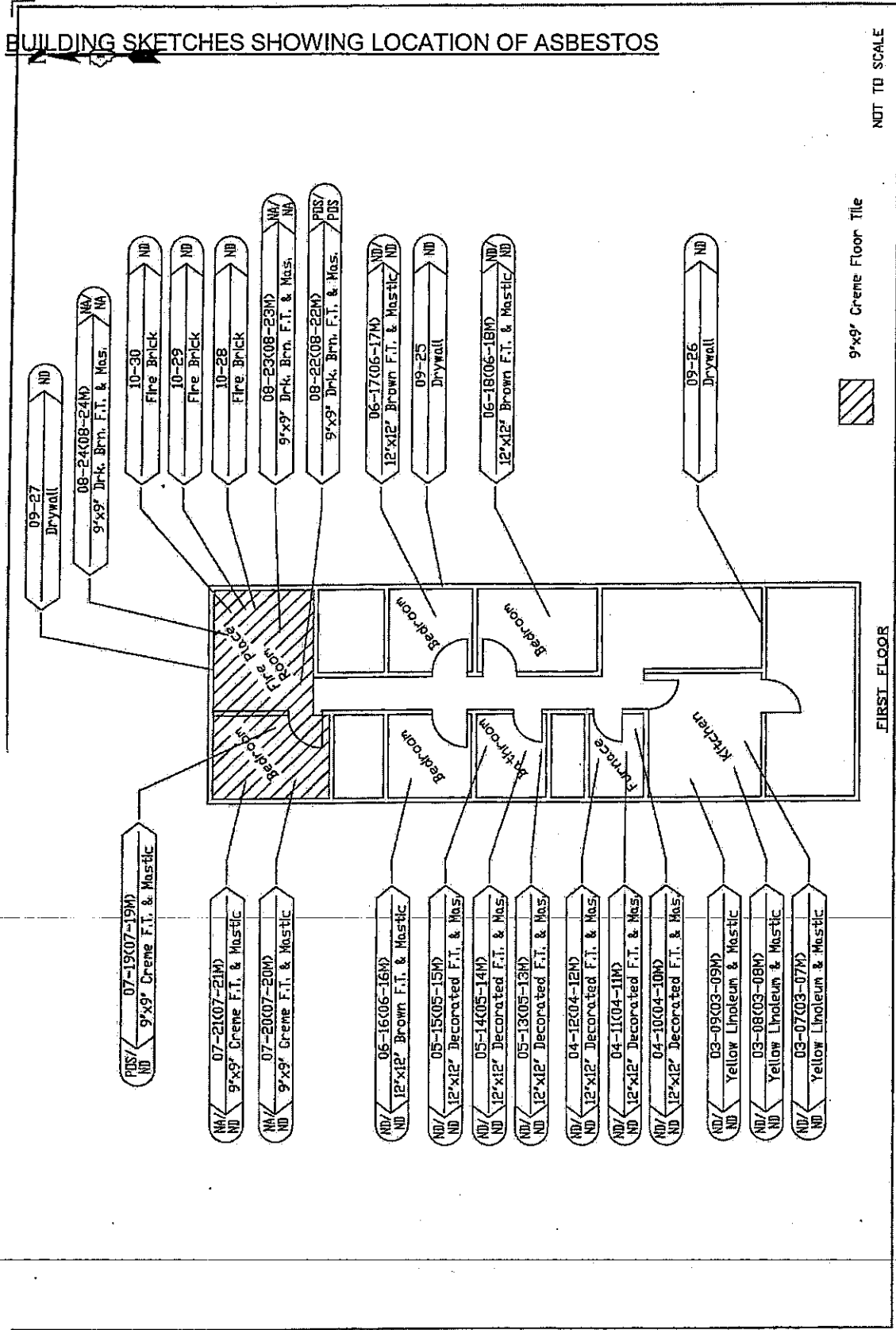
Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

The cost of removing and disposing of the building(s), assuming all asbestos, friable and non-friable is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. 6".

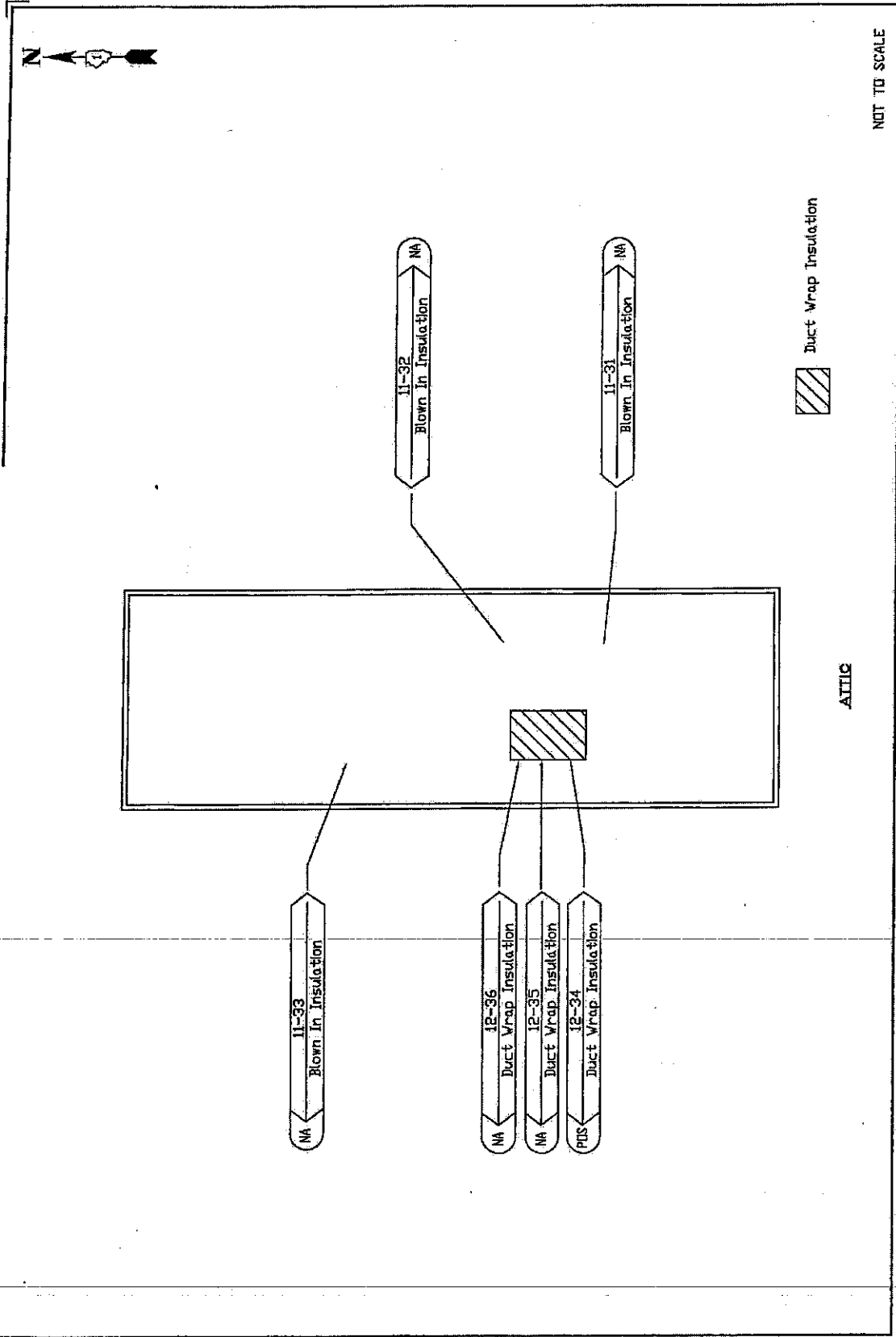
Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NO. 6 be deleted.

APPENDIX A

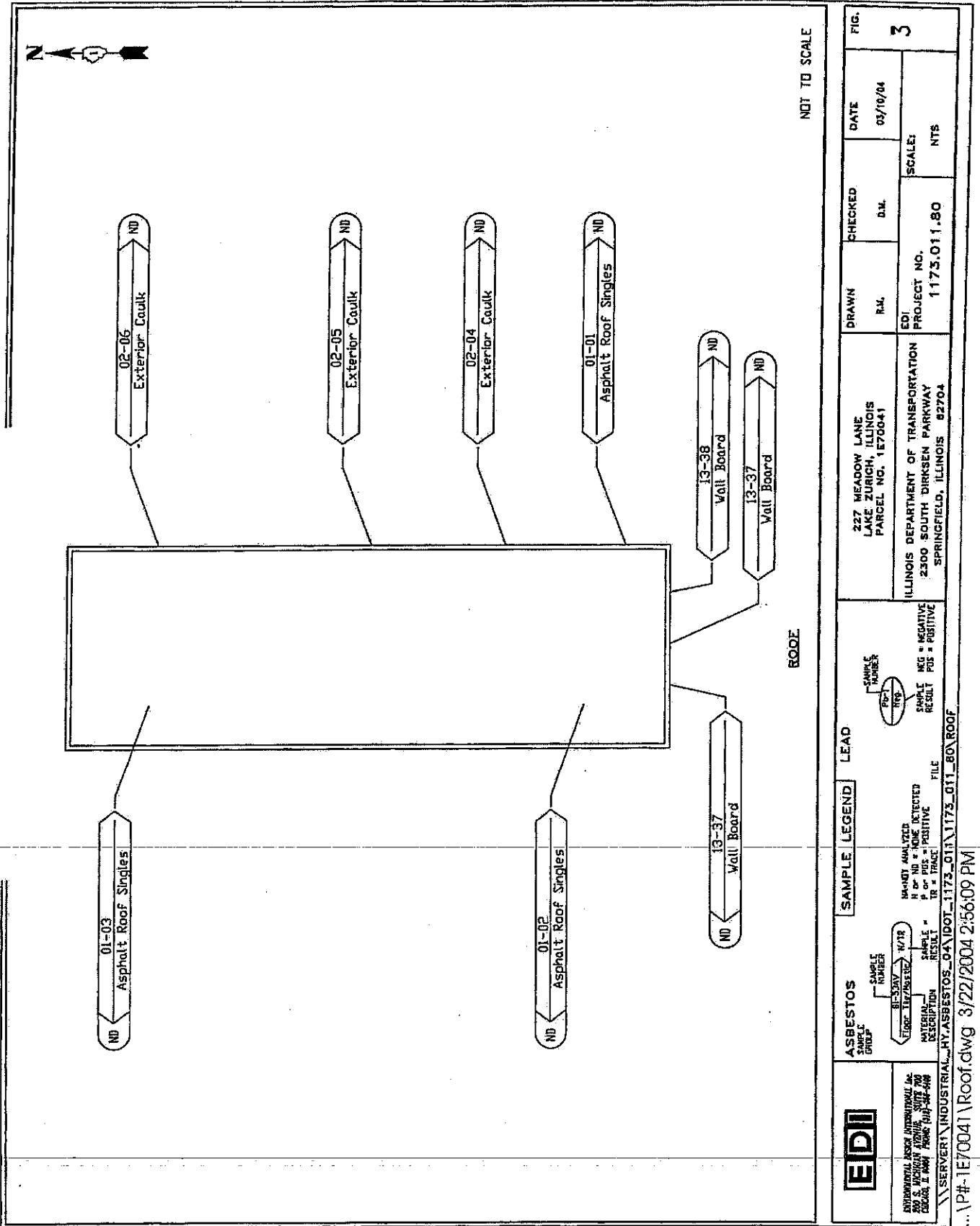
BUILDING SKETCHES SHOWING LOCATION OF ASBESTOS



<p>EDITIONAL LABOR INTERNATIONAL, INC.          2000 SOUTH DIRKSEN PARKWAY          SPRINGFIELD, ILLINOIS 62704          TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>ASBESTOS                  SAMPLE GROUP</p>	<p>SAMPLE LEGEND</p> <p>                     SAMPLE NUMBER: 07-19(07-19M)                      EDG. DESCRIPTION: 9'x9' Creme F.T. &amp; Mastic                      MATERIAL: F.T. &amp; Mastic                      RESULT: POSITIVE                      FILE: 1173_011_80</p>	<p>LEAD</p> <p>                     SAMPLE NUMBER: 07-19(07-19M)                      RESULT: NEGATIVE                      FILE: 1173_011_80</p>	<p>227 MEADOW LANE                  LAKE ZURICH, ILLINOIS                  PARCEL NO. 1E70041</p>	<p>DRAWN                  R.M.</p>	<p>CHECKED                  D.M.</p>	<p>DATE                  08/10/04</p>	<p>FIG.                  1</p>
	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>	<p>EDITIONAL LABOR INTERNATIONAL, INC.                  2000 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704                  TEL: (217) 244-1100 FAX: (217) 244-1101</p>



<p>EDUCATIONAL RESOURCES INTERNATIONAL, INC.          200 S. KOSCIUSKO AVENUE, SUITE 200          CHICAGO, IL 60606 PHONE (773) 384-4400</p>	<b>ASBESTOS</b> SAMPLE GROUP: EQIP. ID: MATERIAL: LOCATION:		<b>SAMPLE LEGEND</b> MA = NOT ANALYZED N or ND = NONE DETECTED P or POS = POSITIVE IR = IRIDE FILE		<b>LEAD</b> SAMPLE NUMBER: USE:		227 MEADOW LANE LAKE ZURICH, ILLINOIS PARCEL NO. 1E70041  ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		DRAWN R.M.	CHECKED D.M.	DATE 08/10/04	FIG. 2
	PROJECT NO. 1173.011.80			SCALE: NTS		EDI		PROJECT NO. 1173.011.80		SCALE: NTS		



<b>EDI</b> ENVIRONMENTAL DESIGN INTERNATIONAL, INC. 200 S. WICHITA AVENUE, SUITE 700 DECATUR, IL 62521-1000	ASBESTOS SAMPLE GROUP	SAMPLE NUMBER 1173-011-80	SAMPLE LEGEND LEAD	SAMPLE NAME 1173-011-80-ROOF	227 MEADOW LANE LAKE ZURICH, ILLINOIS PARCEL NO. YE70041	DRAWN R.M.	CHECKED D.M.	DATE 03/10/04	FIG. 3
	MATERIAL DESCRIPTION 1173-011-80-ROOF	ANALYTICAL METHOD EDI-1173-011-80-ROOF	ANALYSIS RESULT ND	ANALYSIS FILE 1173-011-80-ROOF	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	EDI PROJECT NO. 1173.011.80	SCALE NTS	NTS	NTS

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**APPENDIX B**

**SECTION 1**

**1.2 Results Summary**

**MATERIAL DESCRIPTION TABLE**

**ACM SURVEY RESULTS – PARCEL NO.: 1E70041**

**227 Meadow Lane, Lake Zurich, Illinois**

The following homogeneous building material types were sampled as part of this survey and their results are summarized in the table below:

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
01-01 01-02 01-03	Asphalt Roof Shingles	Roof Roof Roof	NF NF NF	Good Good Good	ND ND ND	3	1,976 Sq. Ft. 183.77 m <sup>2</sup>
02-04 02-05 02-06	Exterior Caulk	Outside Doors and Windows	NF NF NF	Fair Fair Fair	ND ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>
03-07 03-08 03-09	Yellow Linoleum	Kitchen Kitchen Kitchen	NF NF NF	Good Good Good	ND ND ND	3	150 Sq. Ft. 13.95 m <sup>2</sup>
03-07m 03-08m 03-09m	Yellow Linoleum Mastic	Kitchen Kitchen Kitchen	NF NF NF	Good Good Good	ND ND ND	3	150 Sq. Ft. 13.95 m <sup>2</sup>
04-10 04-11 04-12	12"x 12" Decorated Floor Tile	Furnace Room Furnace Room Furnace Room	NF NF NF	Good Good Good	ND ND ND	3	81 Sq. Ft. 7.53 m <sup>2</sup>
04-10m 04-11m 04-12m	12"x 12" Decorated Floor Tile-Mastic	Furnace Room Furnace Room Furnace Room	NF NF NF	Good Good Good	ND ND ND	3	81 Sq. Ft. 7.53 m <sup>2</sup>
05-13 05-14 05-15	12"x 12" Decorated Floor Tile	Bathroom Bathroom Bathroom	NF NF NF	Good Good Good	ND ND ND	3	35 Sq. Ft. 3.26 m <sup>2</sup>
05-13m 05-14m 05-15m	12"x 12" Decorated Floor Tile-Mastic	Bathroom Bathroom Bathroom	NF NF NF	Good Good Good	ND ND ND	3	35 Sq. Ft. 3.26 m <sup>2</sup>
06-16 06-17 06-18	12"x 12" Brown Floor Tile	Side Bedrooms Side Bedrooms Side Bedrooms	NF NF NF	Good Good Good	ND ND ND	3	370 Sq. Ft. 34.41 m <sup>2</sup>
06-16m 06-17m 06-18m	12"x 12" Brown Floor Tile - Mastic	Side Bedrooms Side Bedrooms Side Bedrooms	NF NF NF	Good Good Good	ND ND ND	3	370 Sq. Ft. 34.41 m <sup>2</sup>
07-19 07-20 07-21	9"x 9" Crème Floor Tile	Back Bedroom Back Bedroom Back Bedroom	NF NF NF	Good Good Good	1-5% NA NA	3	135 Sq. Ft. 12.56 m <sup>2</sup>
07-19m 07-20m 07-21m	9"x 9" Crème Floor Tile- Mastic	Back Bedroom Back Bedroom Back Bedroom	NF NF NF	Good Good Good	ND ND ND	3	135 Sq. Ft. 12.56 m <sup>2</sup>
08-22 08-23 08-24	9"x 9" Dark Brown Floor Tile	Fireplace Room Fireplace Room Fireplace Room	NF NF NF	Good Good Good	5-10% NA NA	3	210 Sq. Ft. 19.53 m <sup>2</sup>
08-22m 08-23m 08-24m	9"x 9" Dark Brown Floor Tile-Mastic	Fireplace Room Fireplace Room Fireplace Room	NF NF NF	Good Good Good	5-10% NA NA	3	210 Sq. Ft. 19.53 m <sup>2</sup>
09-25 09-26 09-27	Drywall and Joint Compound	Throughout House Throughout House Throughout House	NF NF NF	Good Good Good	ND ND ND	3	6,000 Sq. Ft. 558 m <sup>2</sup>
10-28 10-29 10-30	Firebrick	Fireplace Fireplace Fireplace	NF NF NF	Good Good Good	ND ND ND	3	50 Sq. Ft. 4.65 m <sup>2</sup>
11-31 11-32 11-33	Blown In Insulation	Attic Attic Attic	NF NF NF	Good Good Good	ND ND ND	3	1,100 Sq. Ft. 102.3 m <sup>2</sup>
12-34 12-35 12-36	Duct Wrap Insulation	Attic Attic Attic	F F F	Fair Fair Fair	35-40% NA NA	3	10 Sq. Ft. 0.93 m <sup>2</sup>

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
13-37	Wall Board	Under Aluminum Siding	NF	Fair	ND	3	2,000 Sq. Ft. 186 m <sup>2</sup>
13-38		Under Aluminum Siding	NF	Fair	ND		
13-39		Under Aluminum Siding	NF	Fair	ND		
TOTAL QUANTITY OF ACM							345 Sq. Ft. 32.09 m <sup>2</sup>
							10 Sq. Ft. 0.93 m <sup>2</sup>

<sup>1</sup> F = Friable; NF = Non-friable      Friability is further defined in section 4.  
<sup>2</sup> Cond. = Condition Of Materials      Either good, fair or poor.  
<sup>3</sup> ND = None Detected  
 NA = Not Analyzed  
 TEM = Electron Microscopy

**APPENDIX C**

**SHIPPING MANIFEST  
 Generator**

**APPENDIX C  
 SHIPPING MANIFEST  
 Generator**

1. Work Site Name and Mailing Address		Owner's Name		Owner's Telephone No.	
2. Operator's Name and Address				Operator's Telephone No	
3. Waste Disposal Site (WDS) Name Mailing Address, and Physical Site Location				WDS Telephone No.	
4. Name and Address of Responsible Agency					
5. Description of Materials					
6. Containers		No.	Type		
7. Total Quantity		M <sup>3</sup>	(Yd <sup>3</sup> )		
8. Special Handling Instructions and Additional Information					
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.					
Printed/Typed Name & Title		Signature		Month Day Year	
<b>Transporter</b>					
10. Transporter 1 (Acknowledgement of Receipt of Materials)					
Printed/Typed Name & Title		Signature		Month Day Year	
Address and Telephone No.					
11. Transporter 2 (Acknowledgement of Receipt of Materials)					
Printed/Typed Name & Title		Signature		Month Day Year	
Address and Telephone No.					
<b>Disposal Site</b>					
12. Discrepancy Indication Space					
13. Waste Disposal Site Owner or Operator: Certification of Receipt of Asbestos Materials Covered By This Manifest Except As Noted in Item 12					
Printed/Typed Name & Title		Signature		Month Day Year	

APPENDIX C

INSTRUCTIONS

Waster Generator Section (Items 1 – 9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the Company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional Office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
  - Friable asbestos material
  - Nonfriable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
  - DM - Metal drums, barrels
  - DP - Plastic drums, barrels
  - BA - 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).
8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator shall read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator shall retain a copy of this form.



APPENDIX C

INSTRUCTIONS

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport.

NOTE: The transporter shall retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS shall note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS shall retain a completed copy of this form. The WDS shall also send a completed copy to the operator listed in Item 2.

**BUILDING REMOVAL - CASE II (NON-FRIABLE ASBESTOS ABATEMENT) (BDE)**

Effective: September 1, 1990

Revised: August 1, 2001

**BUILDING REMOVAL:** This item shall consist of the removal and disposal of 6 building(s), together with all foundations, retaining walls, and piers, down to a plane 300 mm (1 ft.) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

<u>Bldg. No.</u>	<u>Parcel No.</u>	<u>Location</u>	<u>Description</u>
7	1E70043	218 Meadow	Single Family Residential
8	1E70045	209 Prairie	Single Family Residential
11	1E70104	21 Mohawk	Single Family Residential
14 & 15	1E70106	17 Cherokee	Single Family Residential
19	1E70117	1 & 7 Mohawk	2 Multi-Family Residential Units
21	1E70119	211 E. Main	Single Family Residential
23	1E70125	221 E. Main	Single Family Residential

**Discontinuance of Utilities:** The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs:** Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)" and "Removal and Disposal of Non-Friable Asbestos Building Nos. 7, 8, 11, 14, 15, 19, 21 and 23" contained herein.

**Basis of Payment:** This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all non-friable asbestos is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

**EXPLANATION OF BIDDING TERMS:** Two separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NOs. 7, 8, 11, 14, 15, 19, 21 and 23
2. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NOs. 7, 8, 11, 14, 15, 19, 21 and 23

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

**ASBESTOS ABATEMENT (GENERAL CONDITIONS):** This work consists of the removal and disposal of non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provision for "Removal and Disposal of Non-Friable Asbestos, Building No. 7, 8, 11, 14, 15, 19, 21 and 23," and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages 231 thru 273. Also refer to the Materials Description Table on page 274 for a brief description and location of the various materials. Also included is a Materials Quantities Table on page 274. This table states the ACM is non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page 288, to the Engineer for the disposal of all ACM wastes.

**Permits:** The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of the permit(s) shall be sent to the district office and the Engineer.

**Notifications:** The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least 10 days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276  
(217) 785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.
- B. Submittals that shall be made prior to start of work:
  - 1. Submittals required under Asbestos Abatement Experience.
  - 2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.
  - 3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.
  - 4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.
  - 5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).
  - 6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.
  - 7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.
  - 8. Submit proof of written notification and compliance with the "Notifications" paragraph.
- C. Submittals that shall be made upon completion of abatement work:
  - 1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;
  - 2. Submit daily copies of work site entry logbooks with information on worker and visitor access;

3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and
4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

- A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.
- B. The Contractor shall document current Workmen's Compensation Insurance coverage.
- C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

- A. Company Experience. Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.
- B. Personnel Experience:
  1. For Superintendent, the Contractor shall supply:
    - a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.
    - b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.
  2. For workers involved in the removal of asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

ABATEMENT AIR MONITORING: The Contractor shall comply with the following:

- A. Personal Monitoring. All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall

be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the contractor. Additional personal samples may be required by the Engineer at any time during the project.

B. Interior Non-Friable Asbestos-Containing Materials. The contractor shall perform personal air monitoring during removal of all non-friable Transite and floor tile removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

C. Exterior Non-Friable Asbestos-Containing Materials. The contractor shall perform personal air monitoring during removal of all non-friable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

The contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

D. Air Monitoring Professional

1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".

2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. 7, 8, 11, 14, 15, 19, 21 and 23: The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.
2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NOS. 7, 8, 11, 14, 15, 19, 21 and 23, as shown.

The cost for this work shall be determined as follows:

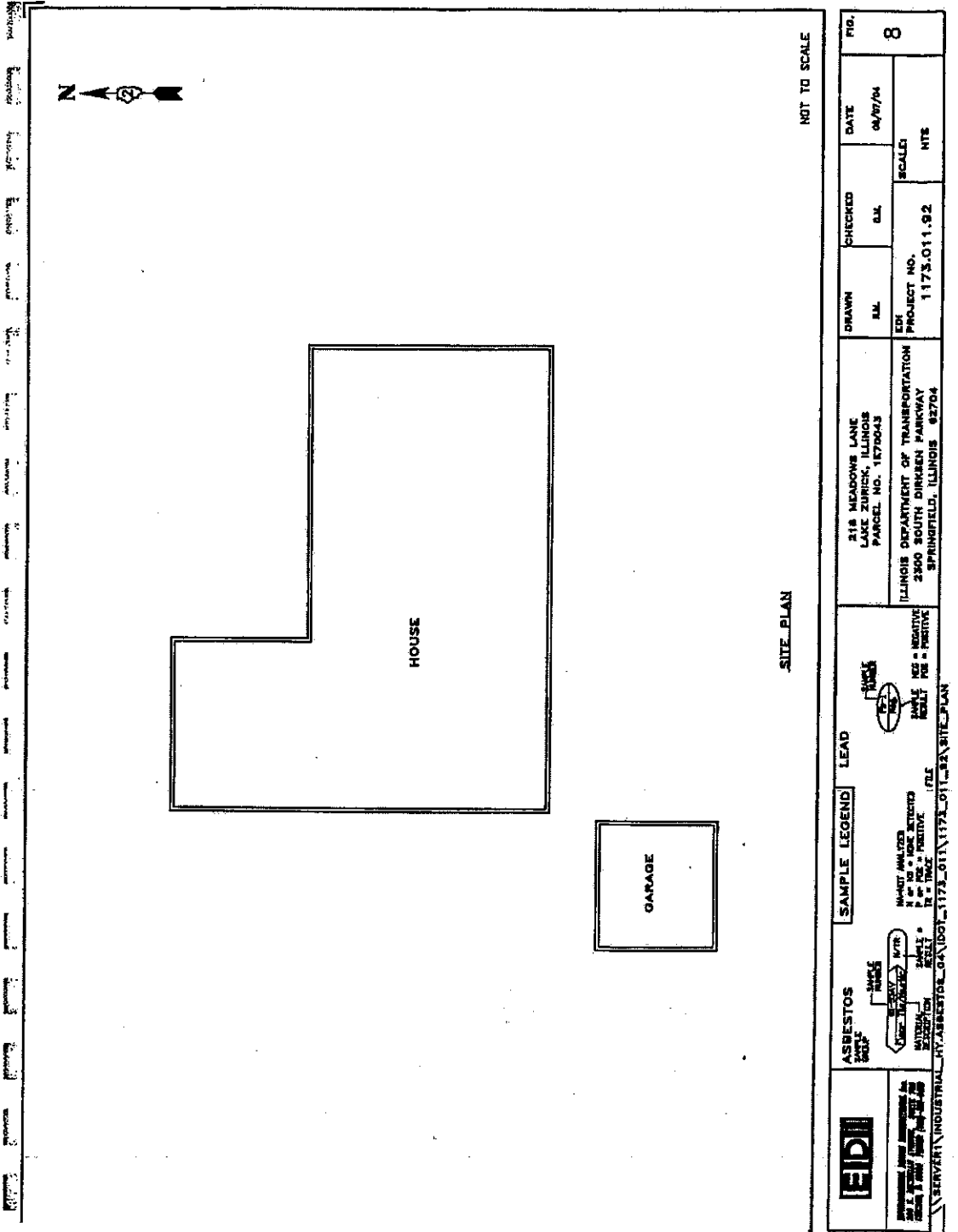
Option #1 - Actual cost of removal and disposal of non-friable asbestos.

Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

| The cost of removing and disposing of the building(s), assuming all non-friable asbestos is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. 7, 8, 11, 14, 15, 19, 21 and 23".

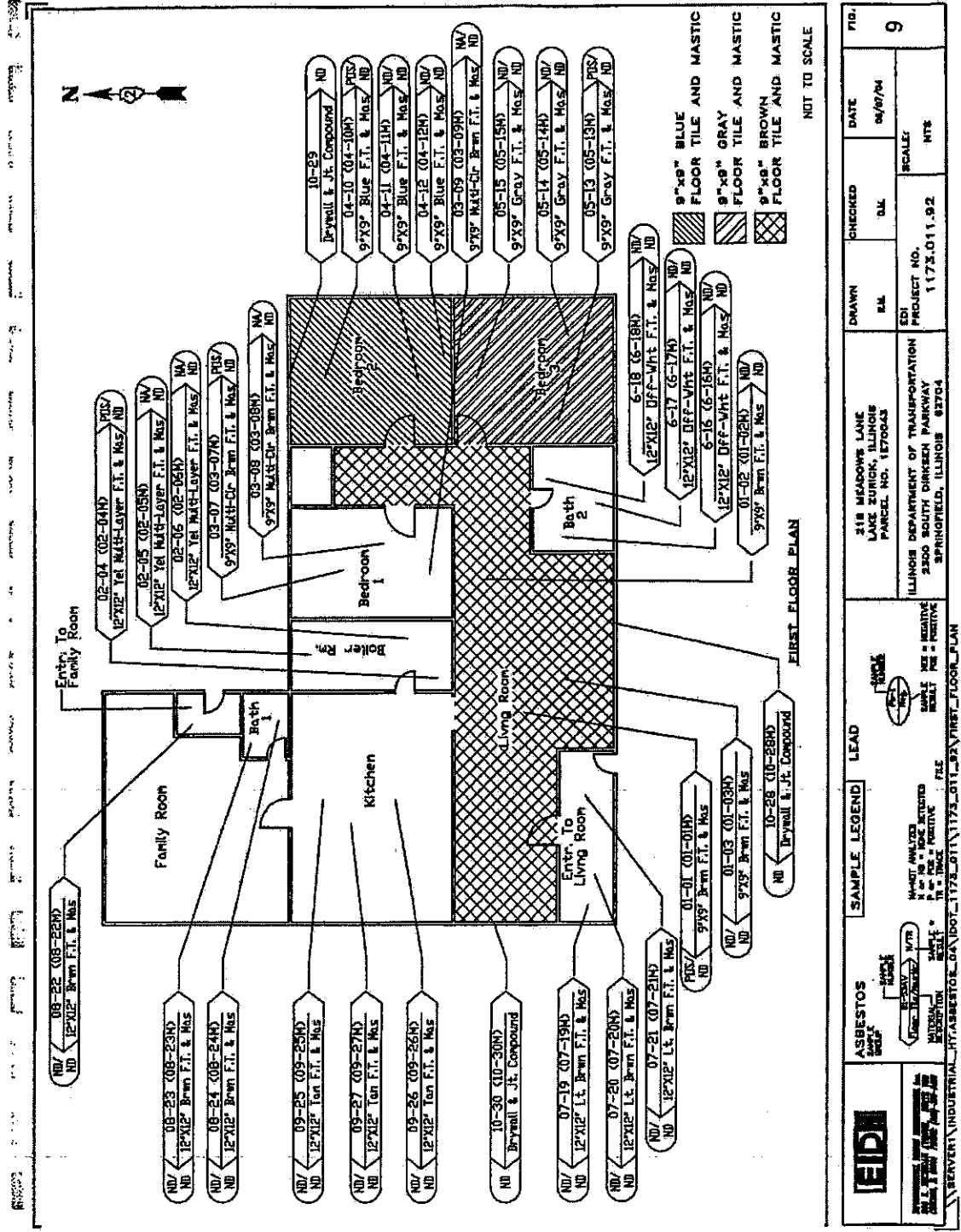
Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NOs. 7, 8, 11, 14, 15, 19, 21 and 23 be deleted.

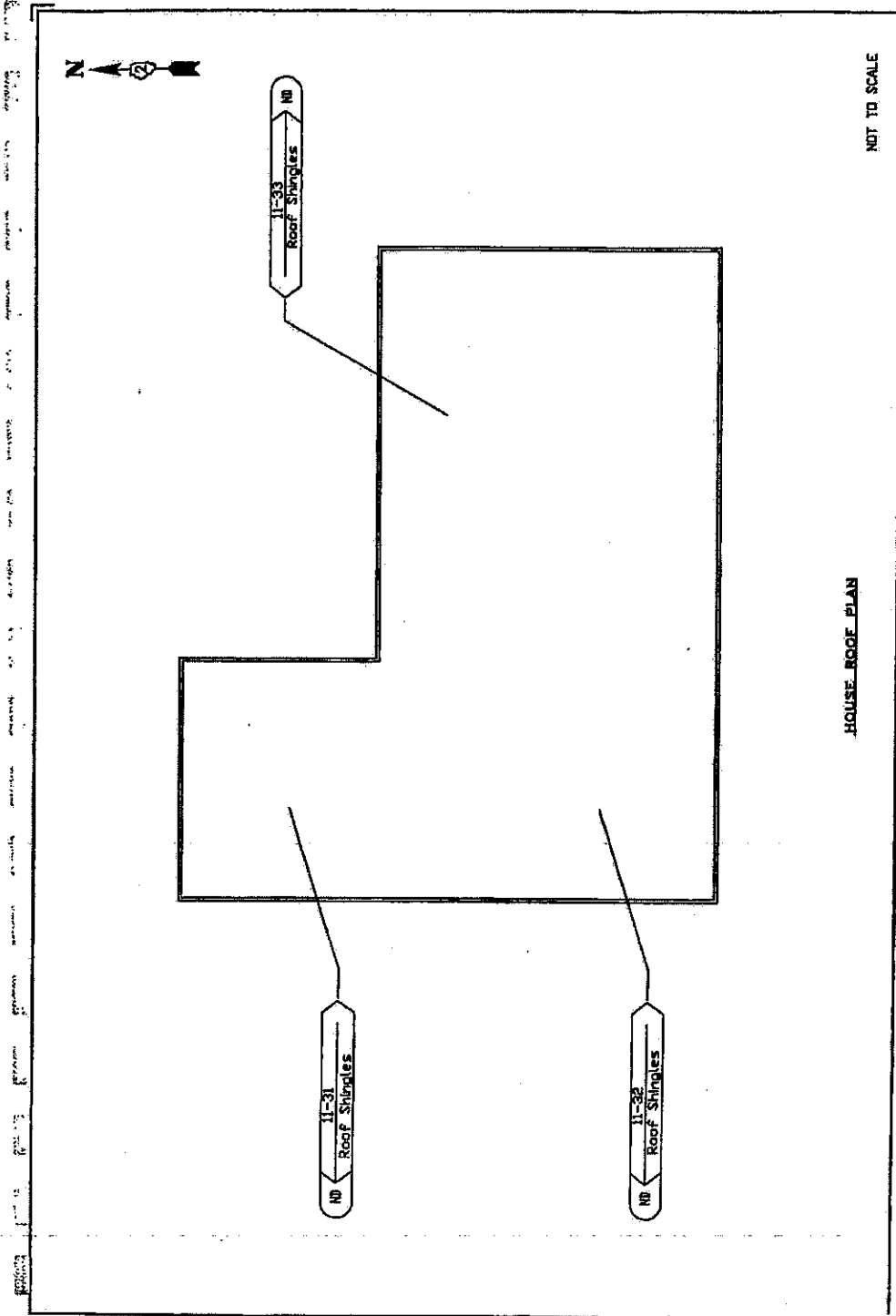
APPENDIX A



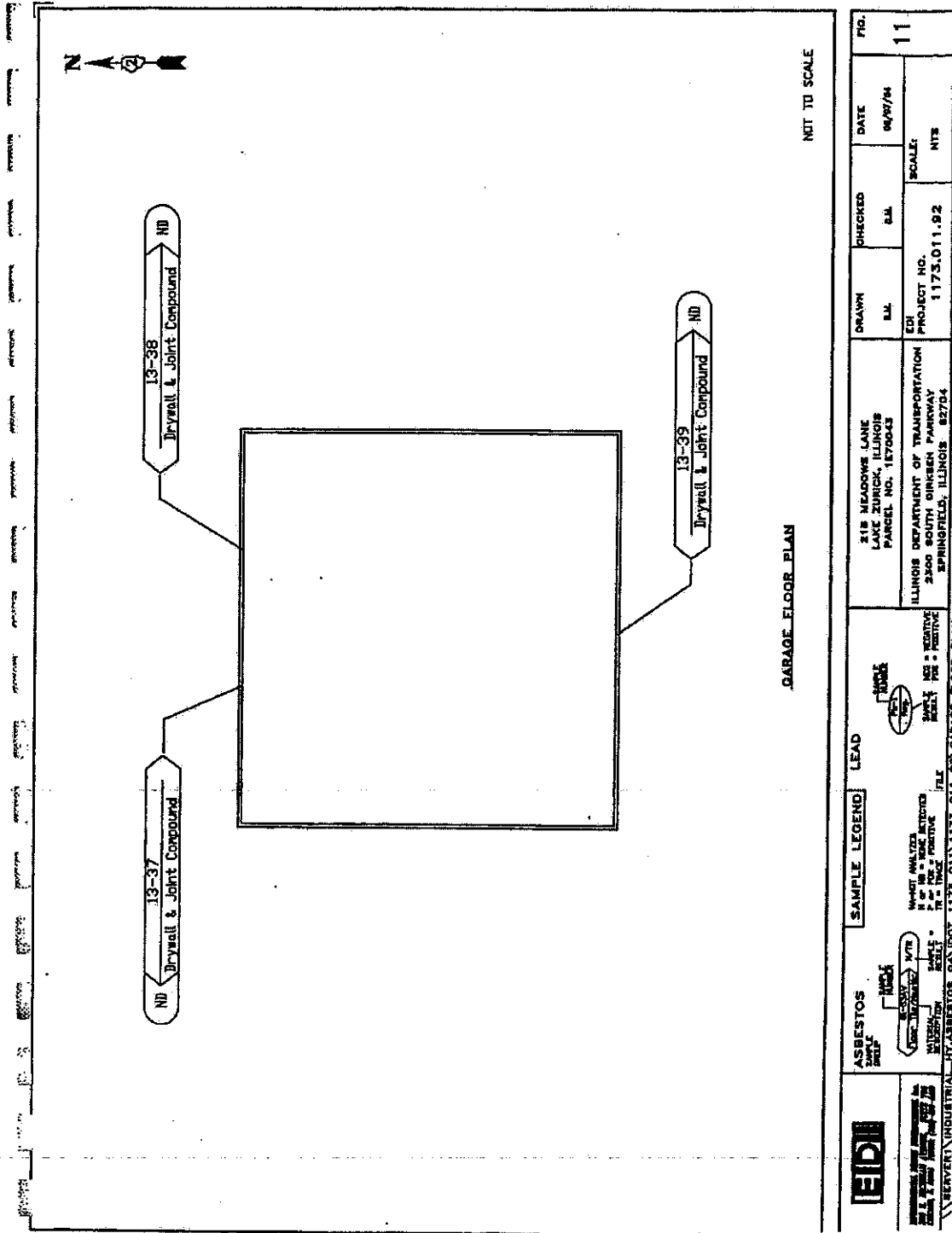
	<b>ASBESTOS</b> <small>SOIL</small>	<b>ASBESTOS</b> <small>SOIL</small>	<b>LEAD</b>	<b>LEAD</b>		<b>FIG.</b> <b>8</b>	<b>DATE</b> 04/07/04	<b>CHECKED</b> D.L.K.	<b>DRAWN</b> M.L.	<b>PROJECT NO.</b> 1173.011.02	<b>SCALE</b> NTS
<b>SAMPLE LEGEND</b> M-NETS ANALYZED N = NO. NEGATIVE P = POS. POSITIVE FILE											
SERVER1\INDUSTRIAL_GA\DOT_1173_011\1173_011_02 SITE PLAN											



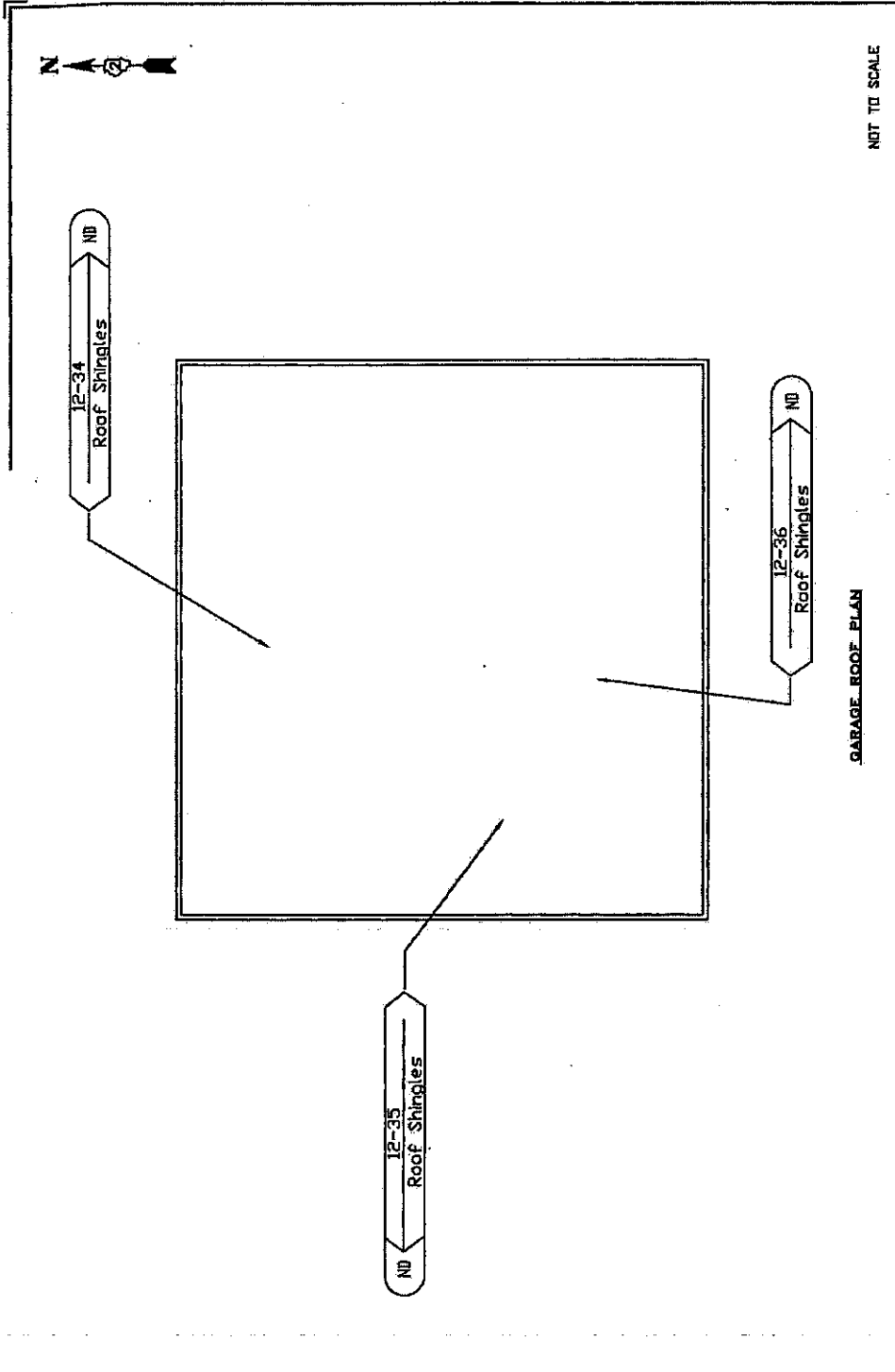




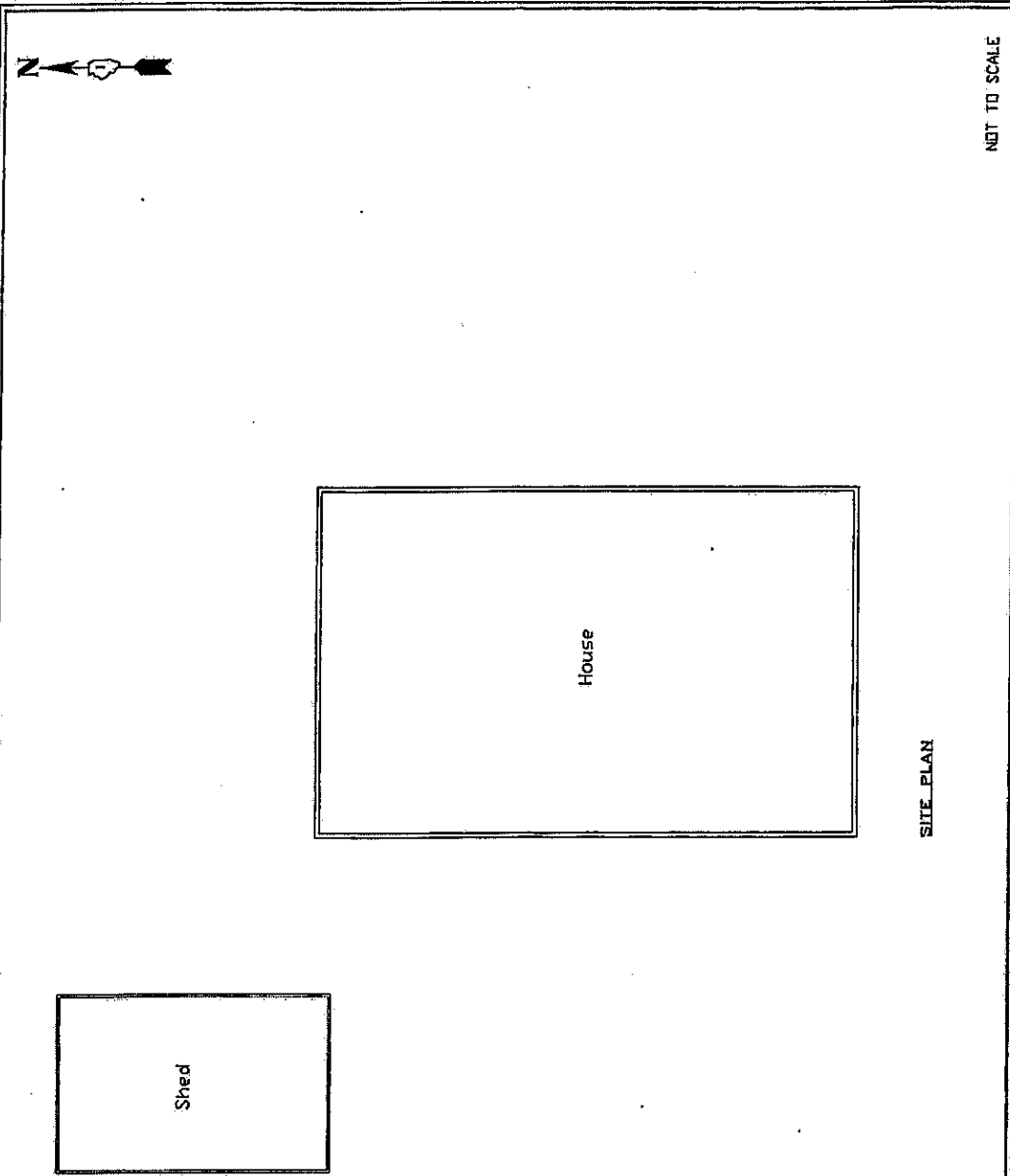
	<b>ASBESTOS</b> SAMPLE DATE	<b>SAMPLE LEGEND</b> LEAD NI - NOT ANALYZED N - NO M - MISC. MATERIALS T - TRACE F - FURTHER FILE		318 MEADOWS LAKE LAKE ZURICK, ILLINOIS PARCEL NO. 1E7D943	DRAWN E.M. EDJ	CHECKED D.M. EDJ	DATE 06/07/94	FIG. 10



	<b>ASBESTOS</b> ANALYSIS REPORT	<b>SAMPLE LEGEND</b> LEAD ANALYSIS N = NEGATIVE P = POSITIVE FILE	<b>DATE</b> 06/07/04	<b>FIG.</b> 11
	<b>PROJECT NO.</b> 1173.011.92	<b>SCALE:</b> NTS	<b>CHECKED</b> S.M.	<b>DATE</b> 06/07/04
<b>CLIENT</b> ILLINOIS DEPARTMENT OF TRANSPORTATION 3200 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	<b>PROJECT NO.</b> 1173.011.92	<b>SCALE:</b> NTS	<b>DATE</b> 06/07/04	<b>FIG.</b> 11
<b>CLIENT</b> 218 MEADOWS LANE LAKE ZURICH, ILLINOIS PARCEL NO. 18700-03	<b>PROJECT NO.</b> 1173.011.92	<b>SCALE:</b> NTS	<b>DATE</b> 06/07/04	<b>FIG.</b> 11

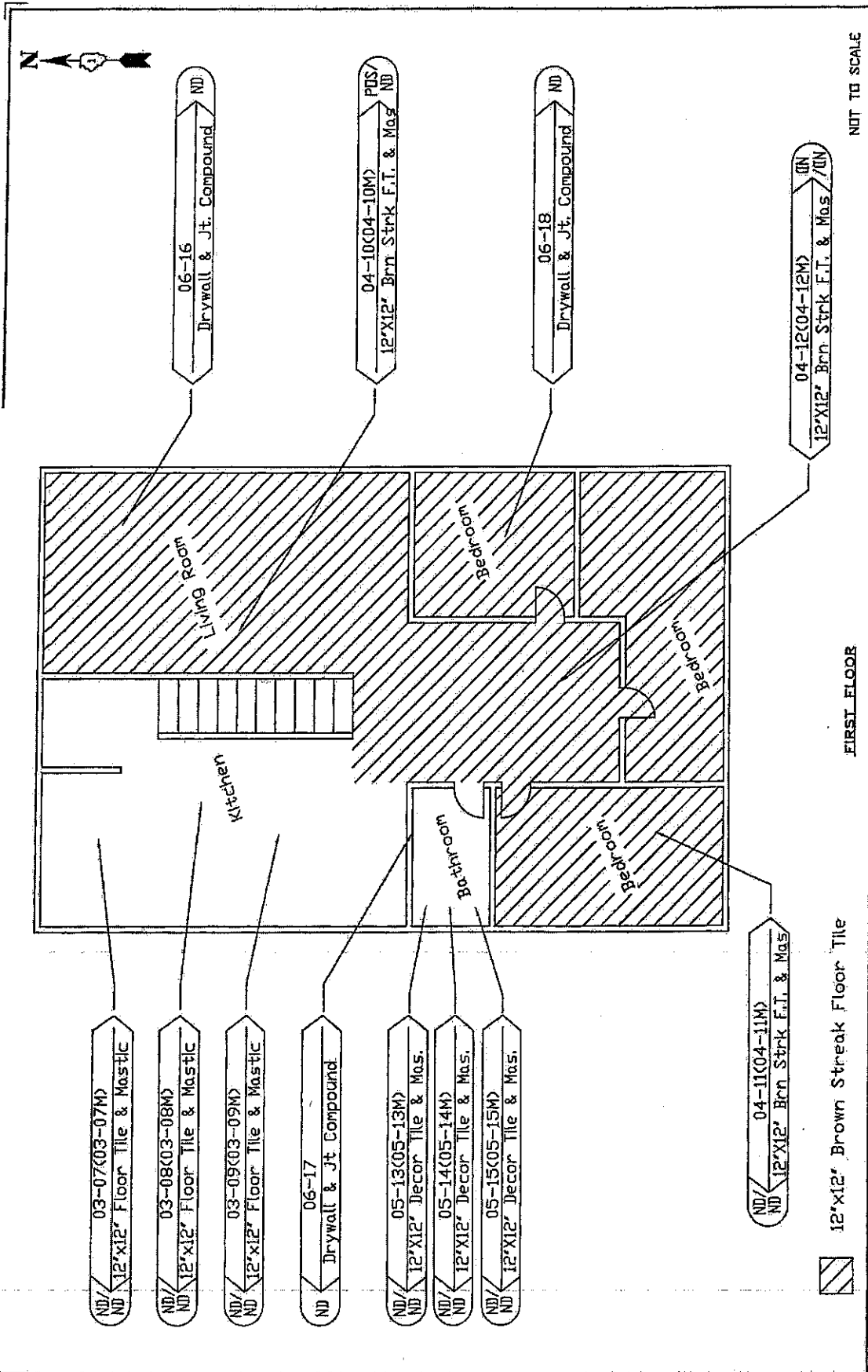


	<b>ASBESTOS</b> ANALYSIS REPORT	<b>SAMPLE LEGEND</b> LEAD (Symbol: circle with 'L') (Symbol: circle with 'P') (Symbol: circle with 'M') (Symbol: circle with 'F') (Symbol: circle with 'T') (Symbol: circle with 'S') (Symbol: circle with 'R') (Symbol: circle with 'I') (Symbol: circle with 'O') (Symbol: circle with 'N') (Symbol: circle with 'D') (Symbol: circle with 'A') (Symbol: circle with 'C') (Symbol: circle with 'E') (Symbol: circle with 'H') (Symbol: circle with 'G') (Symbol: circle with 'B') (Symbol: circle with 'V') (Symbol: circle with 'W') (Symbol: circle with 'X') (Symbol: circle with 'Y') (Symbol: circle with 'Z')	<b>ASBESTOS</b> ANALYSIS REPORT P - POSITIVE N - NEGATIVE M - MARGINAL F - FIELD T - TRACE S - SILENT R - RESISTANT I - INSULATED O - OBTAINABLE N - NOT D - DATA A - ANALYSIS C - COMPLETE E - EVALUATION H - HISTORY G - GRAPHIC B - BUREAU V - VISUAL W - WORK X - X-RAY Y - YIELD Z - ZONE	318 MEADOWS LANE LAKE ZURICH, ILLINOIS PARCEL NO. 1870043  ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	DRAWN N.L.  CHECKED D.L.  DATE 08/07/04	FIG. 12

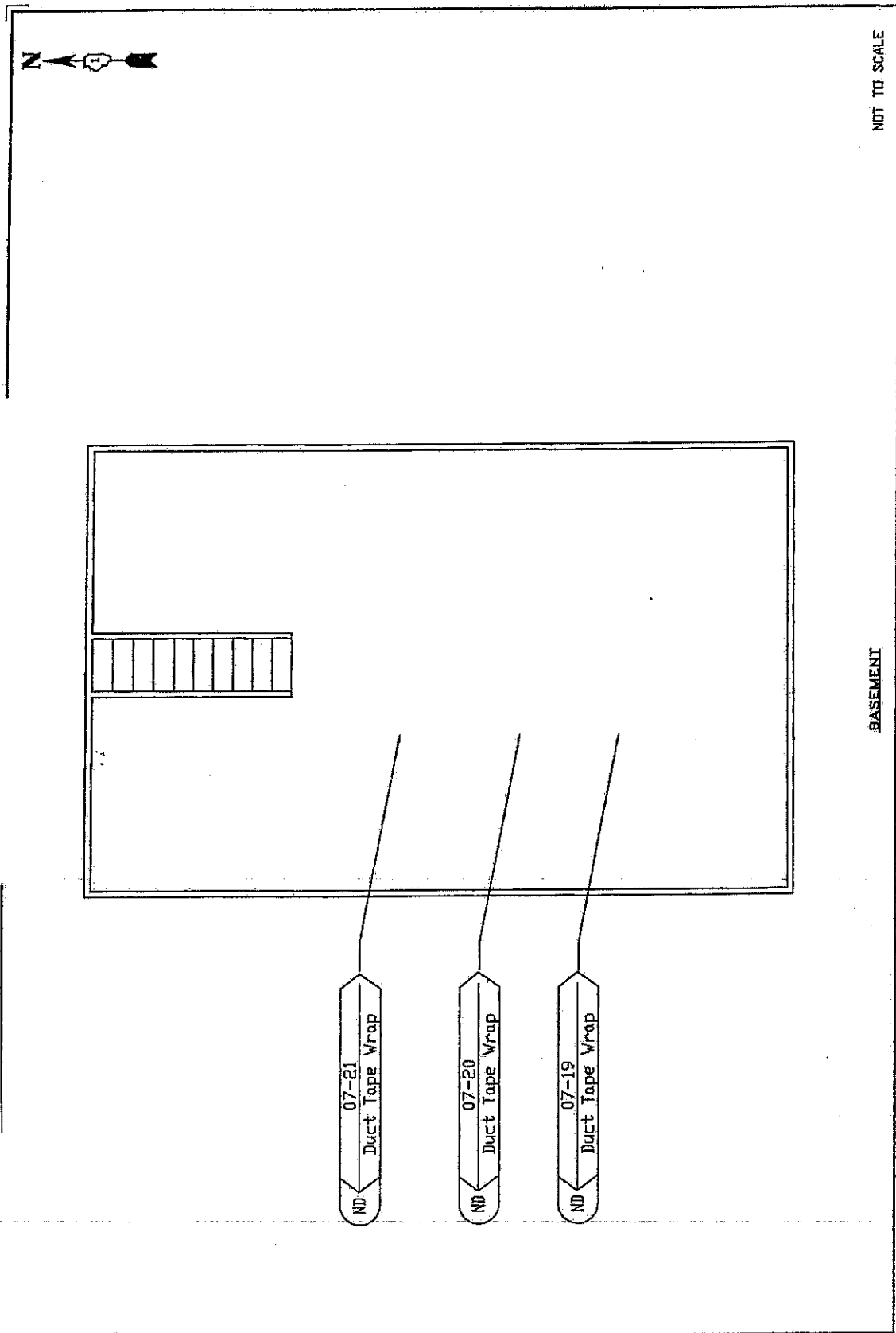


	EDI ENVIRONMENTAL DESIGN INTERNATIONAL, INC. 2000 W. 111TH STREET, SUITE 200 CHICAGO, IL 60648	<b>ASBESTOS</b> SAMPLE GROUP: 81-SXV DATE: 11/15 MATERIAL DESCRIPTION: 11/15		<b>SAMPLE LEGEND</b> LEAD SAMPLE NUMBER: 1173 SAMPLE RESULT: NEG = NEGATIVE, POS = POSITIVE, TR = TRACE, FILE		209 PRAIRIE LAKE LAKE ZURICH, ILLINOIS PARCEL NO. 1E70045 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		DATE: 03/10/04	FIG. 4
		PROJECT NO. 1173.011.80		SCALE: NTS		DRAWN: R.M. CHECKED: D.M.			

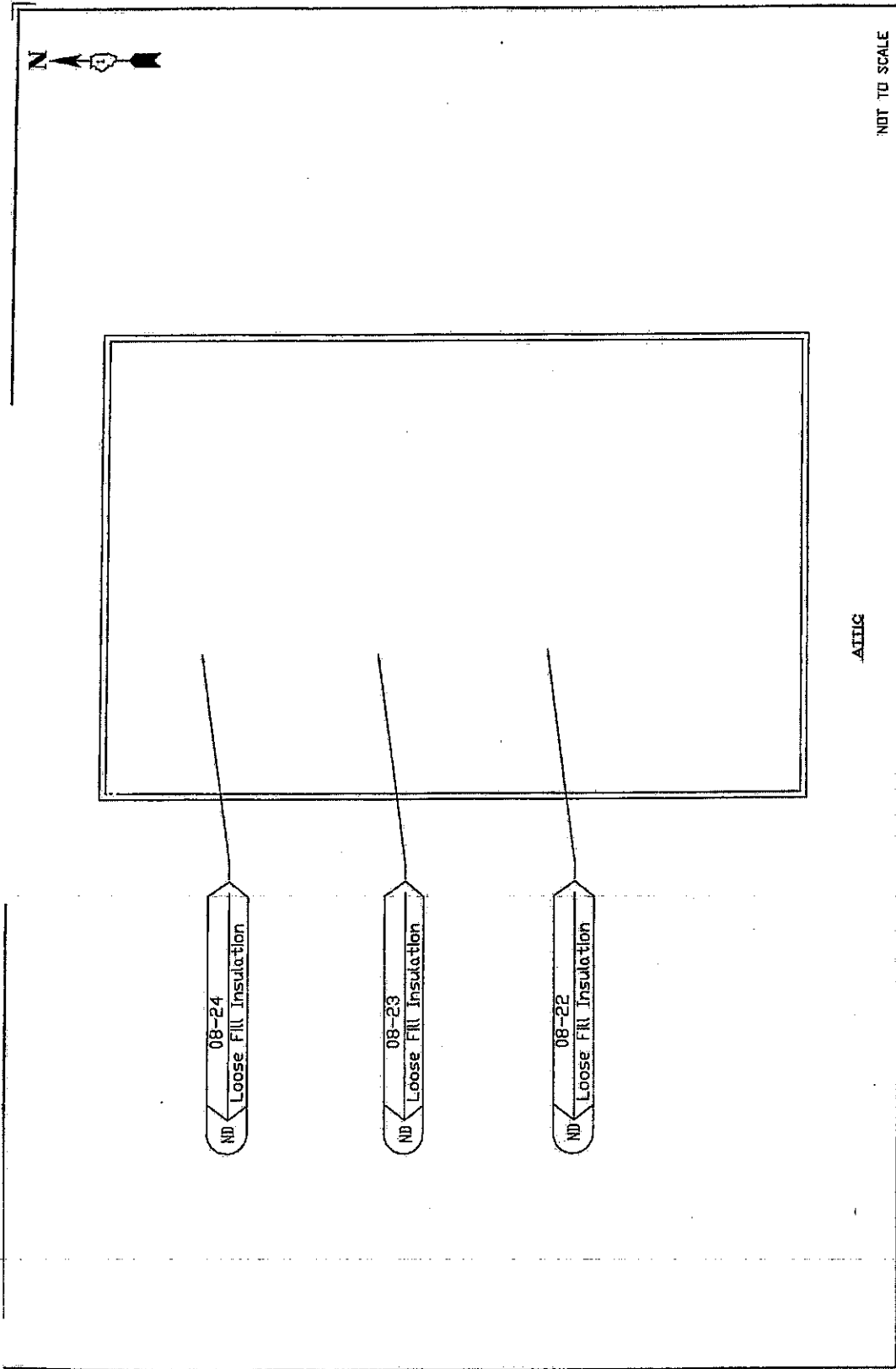
SERVER: INDUSTRIAL\_1173\_011\_80\FW-1E70045 SITE PLAN  
 ... \P#-1E70045\Site\_Plan.dwg 3/30/2004 9:13:46 AM



<p>EDITIONAL DESIGN CORPORATION          200 S. WILSON AVENUE, SUITE 700          SPRINGFIELD, ILLINOIS 62704          PHONE: (618) 266-4800</p>	<p>ASBESTOS          SAMPLE GROUP</p> <p>BI-SAV          FLOOR TILE/GROUT          NTR</p> <p>SAMPLE NUMBER</p>	<p>SAMPLE LEGEND</p> <p>NEG = NEGATIVE          POS = POSITIVE          TR = TRACE</p>	<p>LEAD</p> <p>FILE</p>	<p>208 PRAIRIE LANE          LAKE ZURICH, ILLINOIS          PARCEL NO. 1E70045</p> <p>ILLINOIS DEPARTMENT OF TRANSPORTATION          2300 SOUTH DIRKSEN PARKWAY          SPRINGFIELD, ILLINOIS 62704</p>	<p>DRAWN R.M.</p> <p>CHECKED D.M.</p> <p>DATE 09/10/04</p>	<p>FIG. 5</p>
	<p>PROJECT NO. 1173.011.50</p> <p>SCALE: NTS</p>	<p>SCALE: NTS</p>		<p>SCALE: NTS</p>	<p>SCALE: NTS</p>	<p>SCALE: NTS</p>



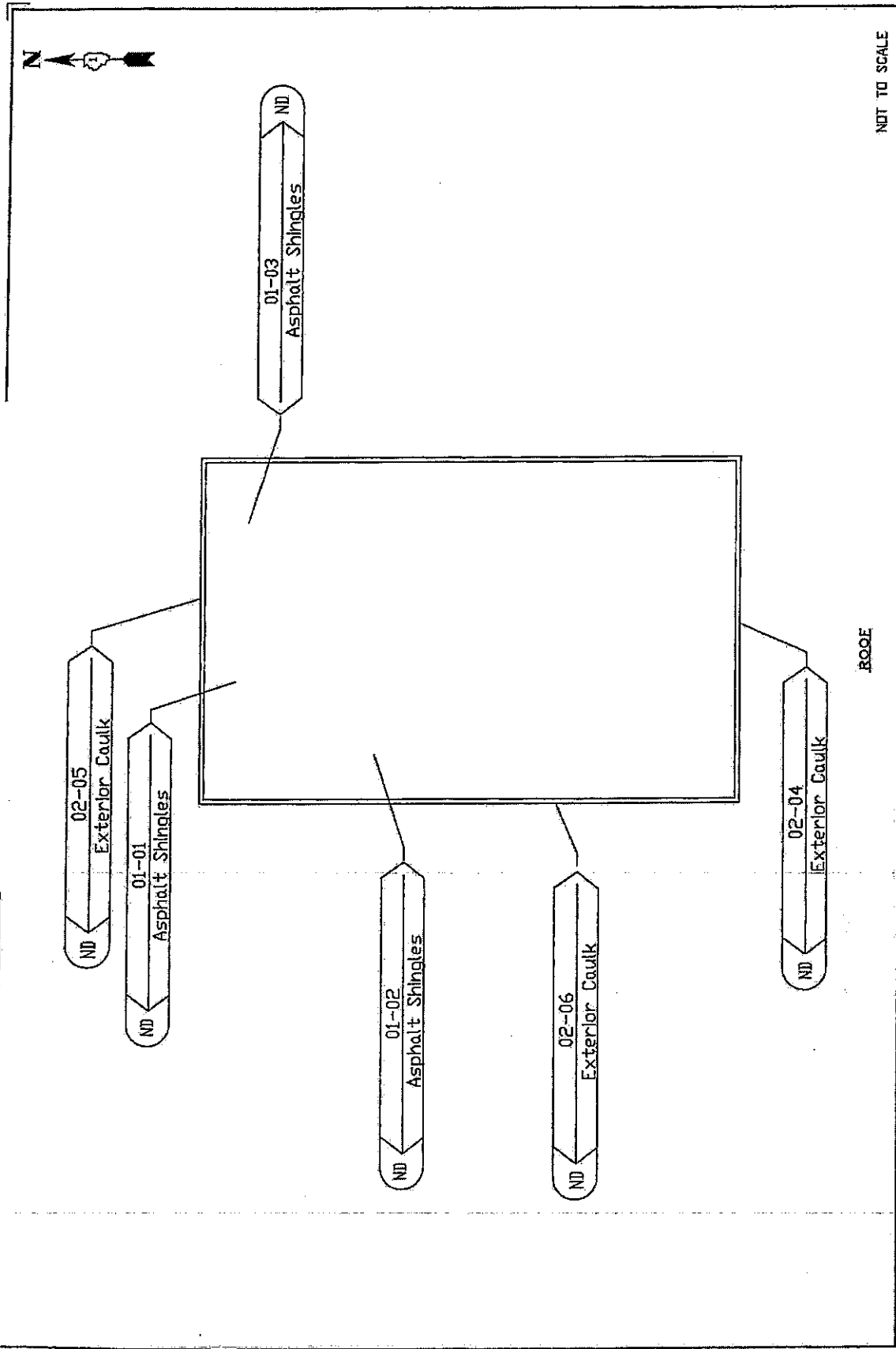
	ASBESTOS GROUP BI-SOXY EDGE THICKNESS MATERIAL DESCRIPTION SAMPLE RESULT N/TR		SAMPLE LEGEND NEG = NEGATIVE POS = POSITIVE TR = TRACE		LEAD SAMPLE NUMBER NEG = NEGATIVE POS = POSITIVE TR = TRACE		209 PRAIRIE LANE LAKE ZURICH, ILLINOIS PARCEL NO. 1E70045		DRAWN R.M.	CHECKED D.M.	DATE 05/10/04	FIG. 6
	HY-ASBESTOS_04\DOT_1173_011_80\F-1E70045\BASEMENT		EDI PROJECT NO. 1173.011.80		ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		SCALE NTS					



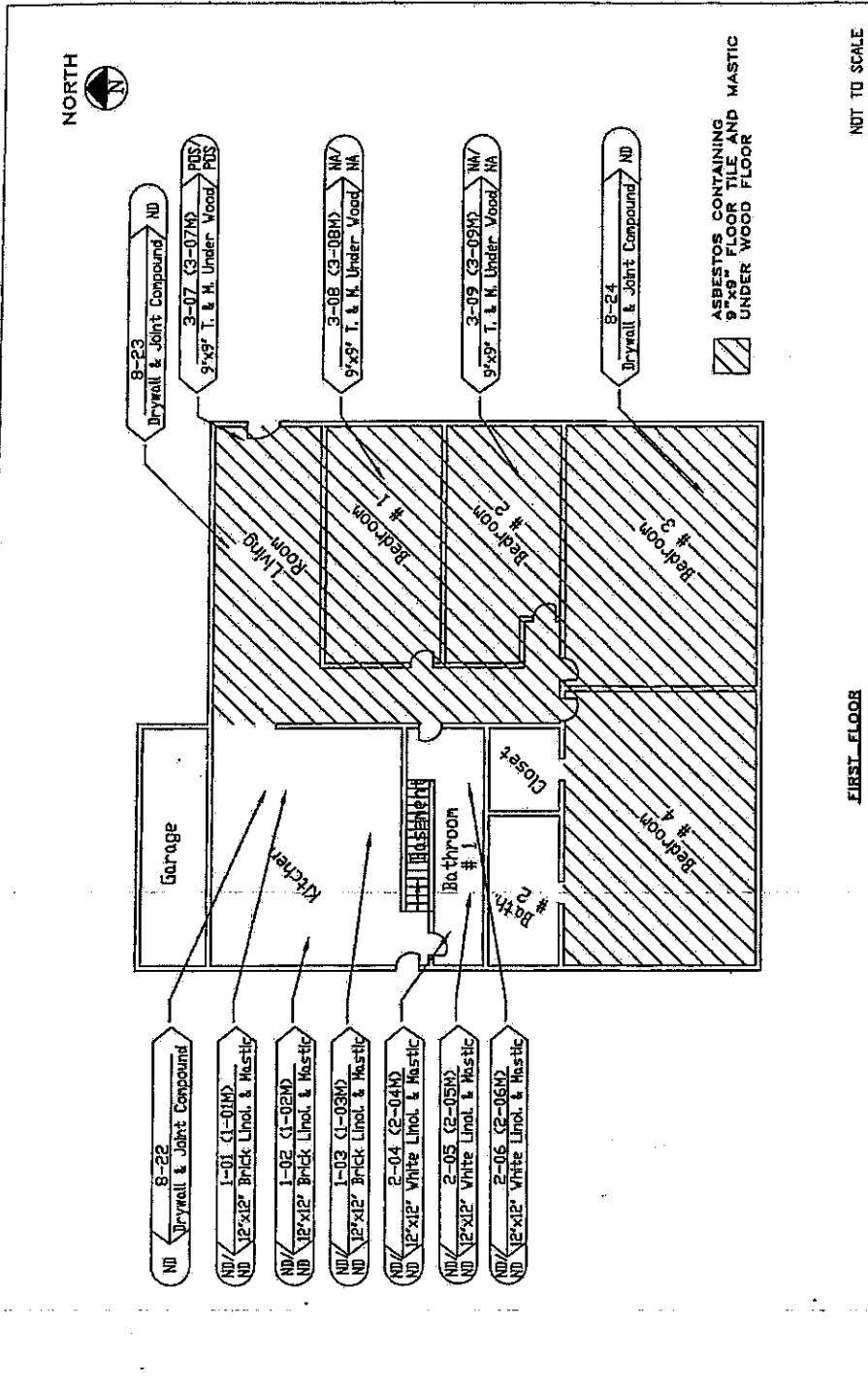
<b>EDI</b> <small>EDWARDS INDUSTRIAL HYDROLOGICAL &amp; ENVIRONMENTAL INC.        200 S. WASHINGTON ST., SUITE 200        SPRINGFIELD, ILLINOIS 62704</small>	<b>ASBESTOS</b> <small>ED - SWAY        (EDUC. TELEPHONE) N/TR</small>	<b>SAMPLE LEGEND</b> <small>NA=NOT ANALYZED        N or ND = NONE DETECTED        P or PB = POSITIVE        TR = TRACE</small>	<b>LEAD</b> <small>PH - SAMPLE NUMBER        PS - SAMPLE RESULT        NEG - NEGATIVE        POS - POSITIVE</small>	208 PRAIRIE LANE LAKE ZURICH, ILLINOIS PARCEL NO. 1E70045	DRAWN R.M.	CHECKED D.M.	DATE 03/10/04	FIG. 7
	<b>EDUC. TELEPHONE</b> <small>EDUC. TELEPHONE</small>	<b>SAMPLE</b> <small>SAMPLE RESULT</small>	<b>FILE</b> <small>FILE</small>	<b>SCALE:</b> 1173.011.80 NTS	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	EDI PROJECT NO. 1173.011.80	SCALE: NTS	NTS

SERVER\INDUSTRIAL\_HYDROLOGICAL\_IDOT\_1173\_011\1173\_011\_80\PA-1E70045\ATIIC

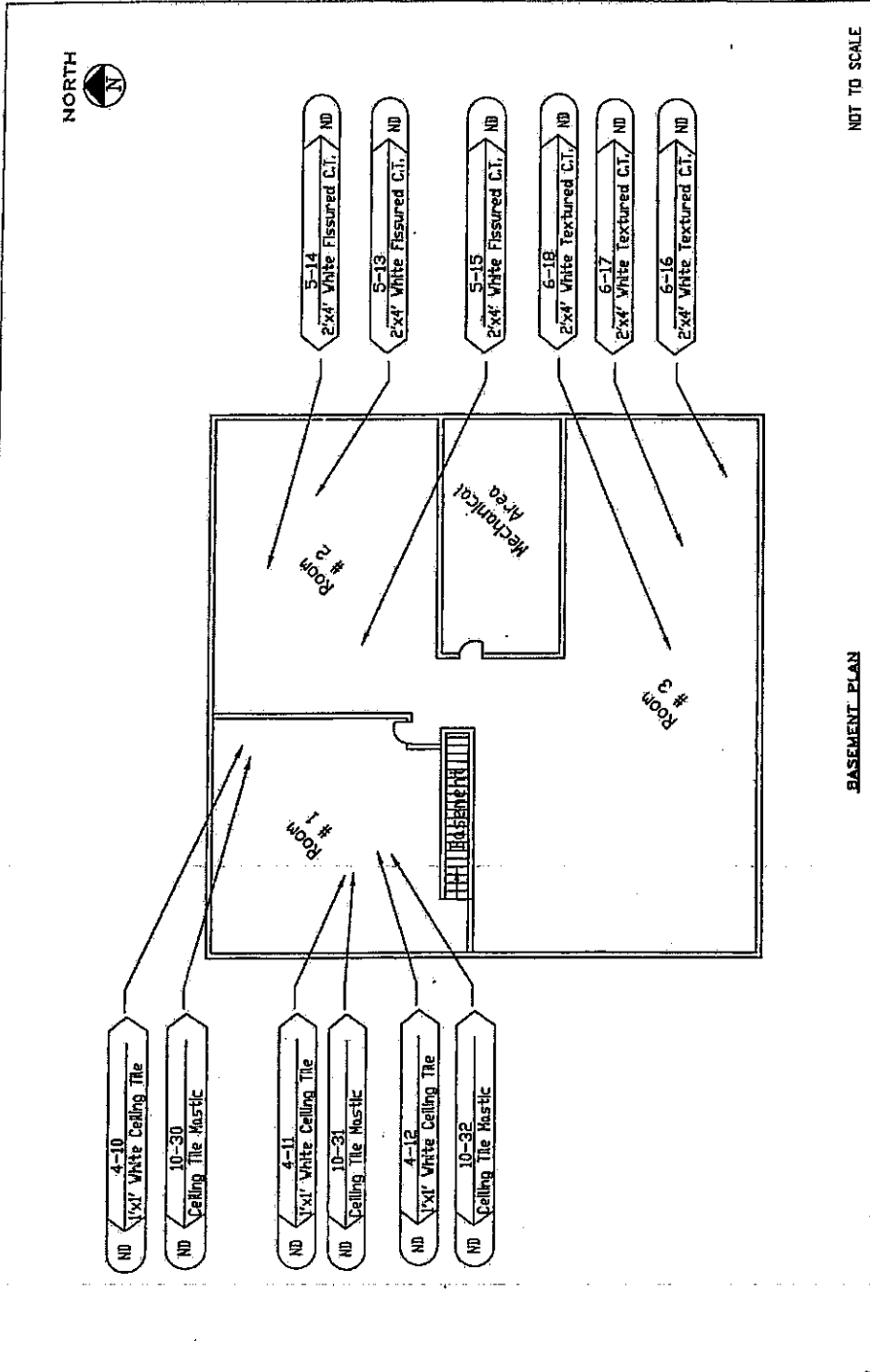




	ASBESTOS SAMPLE GROUP		SAMPLE LEGEND LEAD		SAMPLE NUMBER NEG.		DATE 03/10/04		FIG. 8		
	BI-23AV / WTR FUSE-114/ASTSC MATERIAL DESCRIPTION		NA-NOT ANALYZED N or ND = NONE DETECTED P or PS = POSITIVE T or TR = TRACE		SAMPLE RESULT NEG = NEGATIVE POS = POSITIVE		DRAWN R.M.		CHECKED D.M.		SCALE: NTS
EDI ENVIRONMENTAL RESEARCH INTERNATIONAL, INC. 200 S. WISCONSIN AVENUE, SUITE 700 DEERFIELD, IL 60015, PHONE (847) 952-4100		208 PRAIRIE LANE LAKE ZURICH, ILLINOIS PARCEL NO. 1E70045		ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		EDI PROJECT NO. 1173.011.80		NTS		NTS	



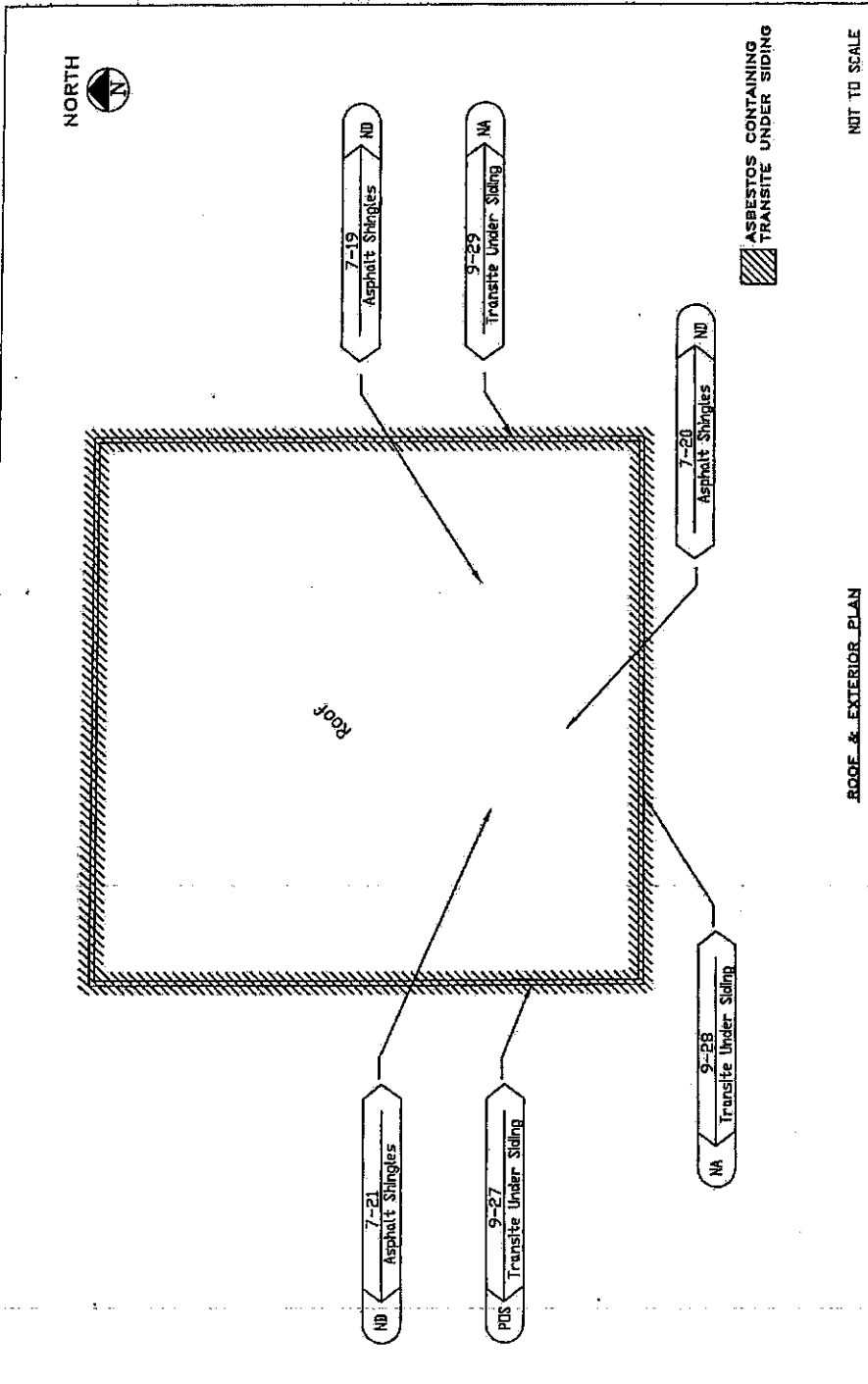
ASBESTOS		SAMPLE LEGEND		LEAD		DRAWN		CHECKED		DATE		FIG.	
EDU	HYDROLYZABLE ASBESTOS IN SOIL & SURFACE MATERIALS PERIOD 1980-1989	MATERIAL	WTR	MATERIAL	MATERIAL	SV	AM	11/09/03	11/09/03	11/09/03	11/09/03	3	3
21 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1478104 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		SAMPLE ANALYZED FOR LEAD RESULT NEG = NEGATIVE POS = POSITIVE		PROJECT NO. 1173-011.48		SCALE: NTS							



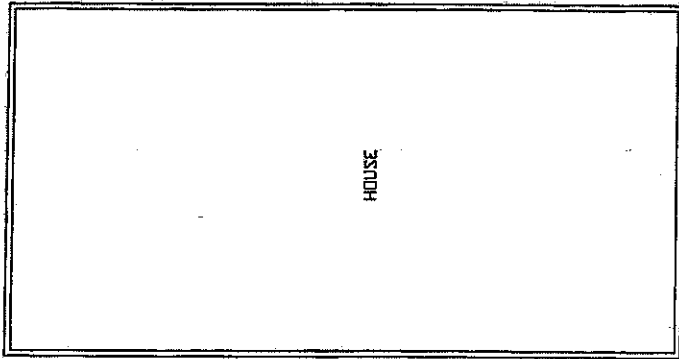
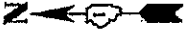
NOT TO SCALE

BASEMENT PLAN

	ASBESTOS SAMPLE GROUP	SAMPLE NUMBER 4-10-30-31-32-11-12-13-14-15-16-17-18	ANALYZED # OF NO. IN SAMPLE # OF POS. RESULTS # OF NEG. RESULTS	LEAD ANALYZED # OF NO. IN SAMPLE # OF POS. RESULTS # OF NEG. RESULTS	DRAWN B.Y.	CHECKED A.L.	DATE 11/08/03	PROJ. 4
	81 MORNING TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70104		ILLINOIS DEPARTMENT OF TRANSPORTATION 2500 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		EDJ PROJECT NO. 1173.011.48	SCALE: NTS		



	<b>ASBESTOS</b> ANALYSIS REPORT	<b>SAMPLE LEGEND</b> NA = NOT ANALYZED POS = POSITIVE P = P TR = TRACE	<b>LEAD</b> ANALYSIS REPORT	<b>DATE</b> 11/06/03	<b>FIG.</b> 5
<b>PROJECT NO.</b> 1173.011.4B		<b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b> 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704			



SITE PLAN

NOT TO SCALE



EDITION: 0001  
 200 S. MICHIGAN AVENUE  
 CHICAGO, IL 60604  
 PHONE: 312-467-4400  
 FAX: 312-467-4401  
 WWW.EDI-INC.COM

ASBESTOS

SAMPLE GROUP: 01-SUBV  
 01-173-011-173-011-80-PA-1E70106-SITE PLAN

SAMPLE LEGEND

ASBESTOS ANALYSIS  
 N = NOT ANALYZED  
 H = POSITIVE  
 P = POSITIVE  
 TR = TRACE

LEAD

SAMPLE NUMBER: 01-173-011-173-011-80-PA-1E70106-SITE PLAN  
 SAMPLE RESULT: NEG

17 CHEROKEE ROAD  
 LAKE ZURICH, ILLINOIS  
 PARCEL NO. 1E70106

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 2300 SOUTH DIRKSEN PARKWAY  
 SPRINGFIELD, ILLINOIS 62704

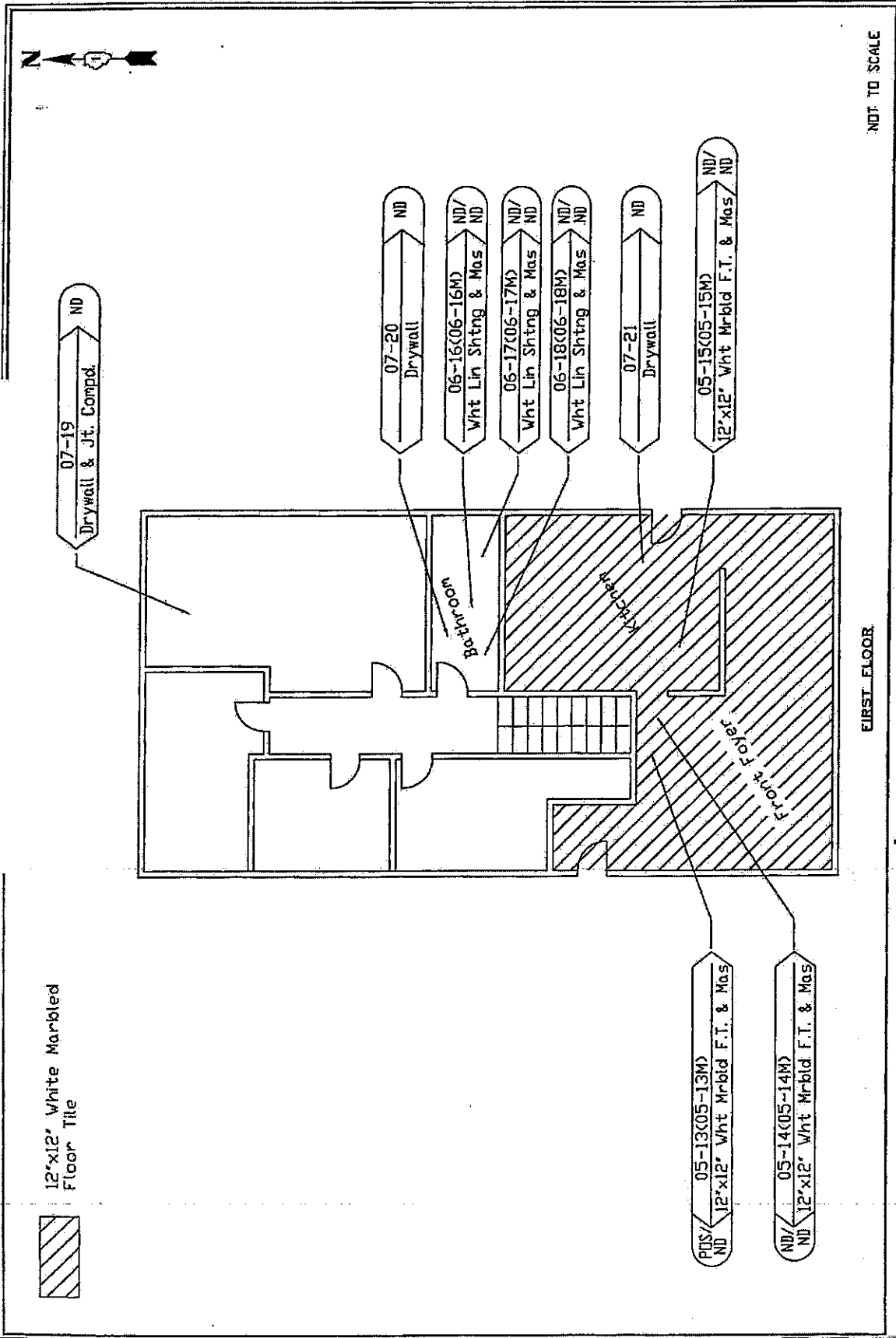
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CHECKED: D.M.  
 DATE: 03/10/04

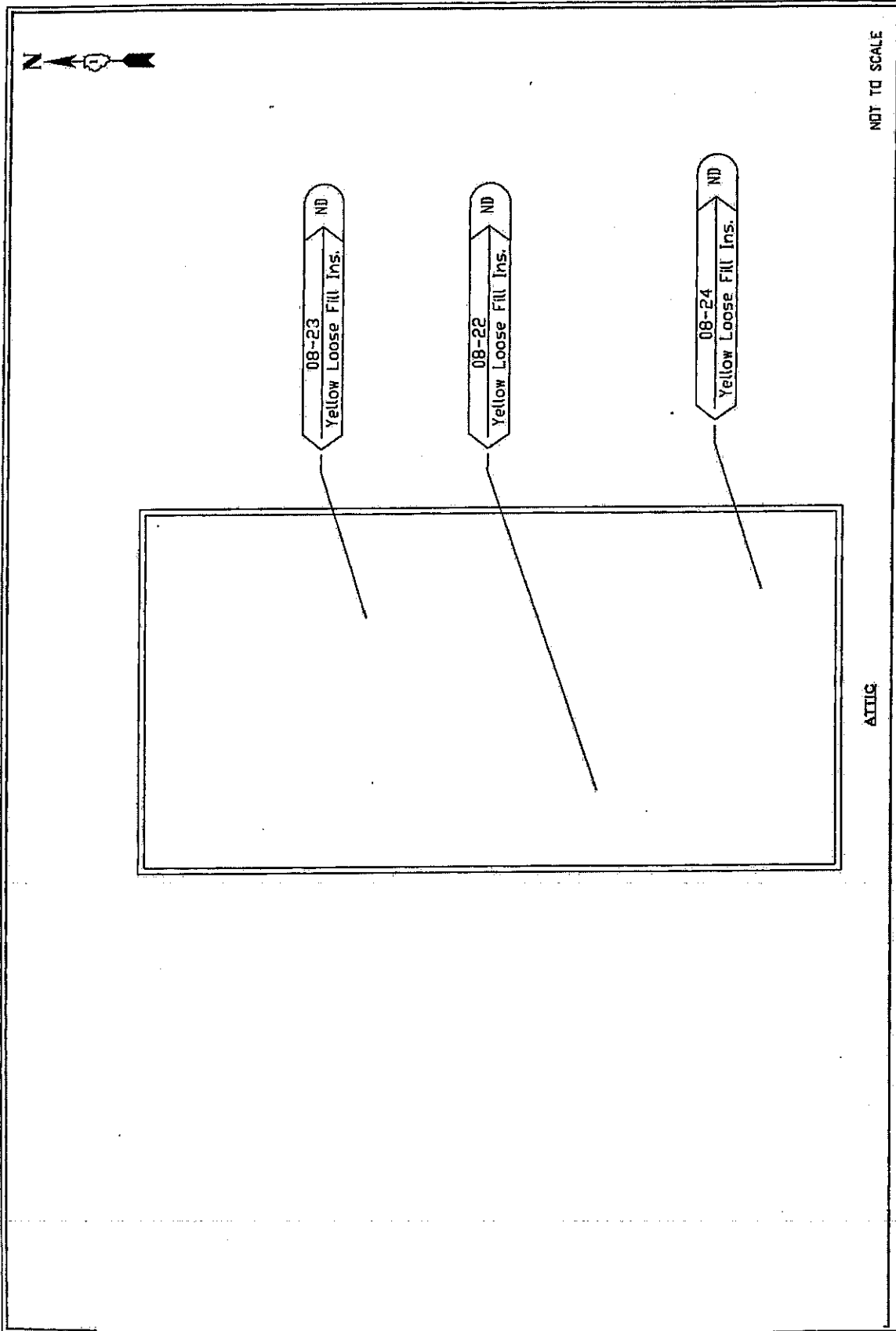
PROJECT NO. 1173.011.80

SCALE: NTS

FIG. 9



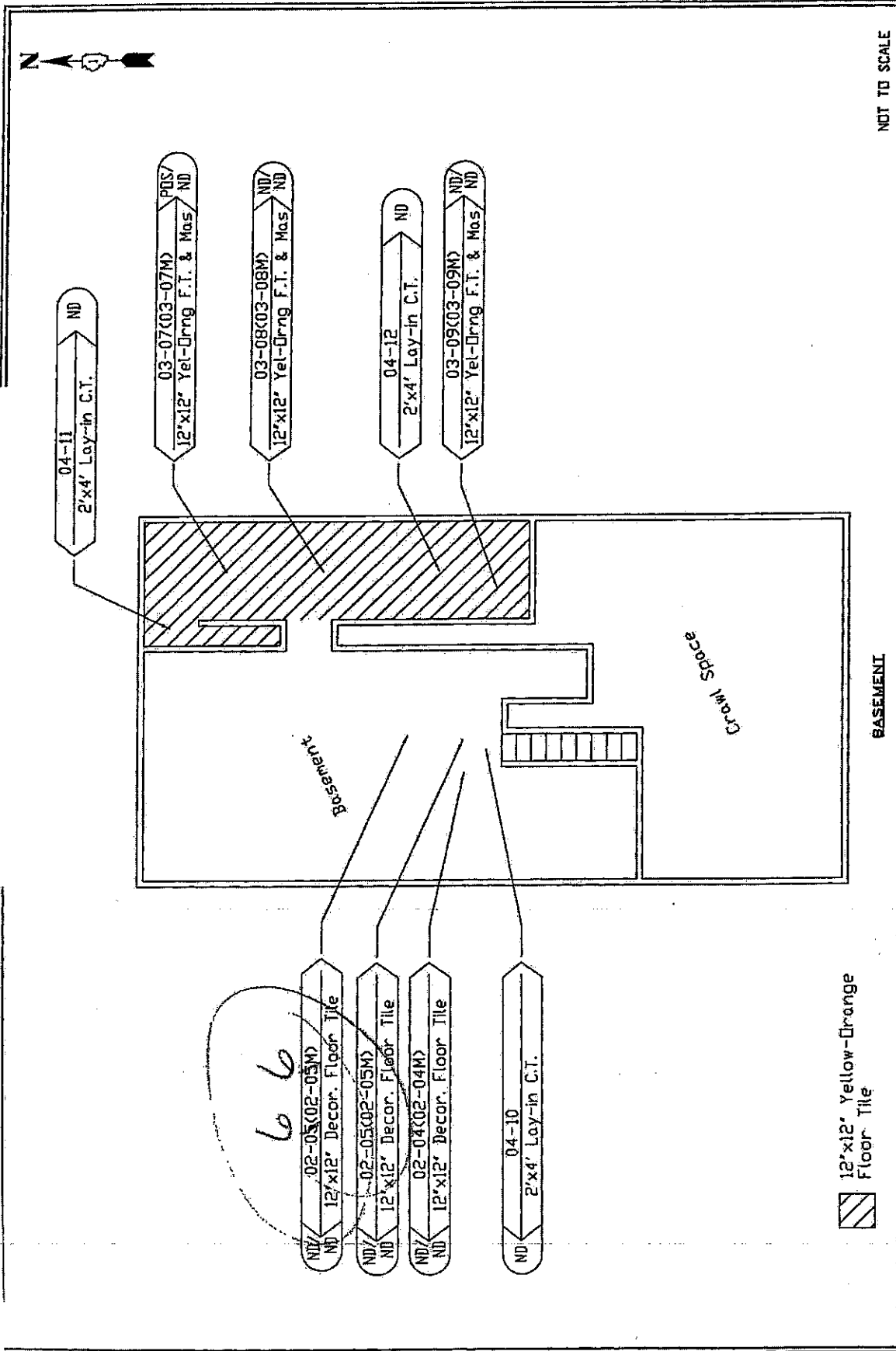
<b>EDI</b> <small>ENVIRONMENTAL PACIFIC INTERNATIONAL, INC.        590 S. VICTORIAN AVENUE, SUITE 700        CHICAGO, IL 60606 PHONE (773) 591-5100</small>		<b>ASBESTOS</b> <small>91-338V        FLOOR TILE/ASBESTOS        MATERIAL DESCRIPTION</small>		<b>SAMPLE LEGEND</b> <small>W-H-M-T ANALYZED        N or ND = NONE DETECTED        PR = POS. + POSITIVE        FR = TRACE</small>		<b>LEAD</b> <small>W-H-M-T ANALYZED        N or ND = NONE DETECTED        PR = POS. + POSITIVE        FR = TRACE</small>		<b>FILE</b> <small>04\1007_1173_011_1173_011_80_PA-1E70106\FIRST_FLOOR</small>		<b>PROJECT NO.</b> 1173.011.80		<b>SCALE:</b> NTS	
<b>17 CHEROKEE ROAD        LAKE ZURICH, ILLINOIS        PARCEL NO. 1E70106</b>				<b>ILLINOIS DEPARTMENT OF TRANSPORTATION        2300 SOUTH DIRKSEN PARKWAY        SPRINGFIELD, ILLINOIS 62704</b>				<b>ED1</b>		<b>DATE</b> 03/10/04		<b>FIG.</b> 10	



NOT TO SCALE

ATTIG

 ENVIRONMENTAL DESIGN INTERNATIONAL, INC. 300 S. MICHIGAN AVE., SUITE 700 CHICAGO, IL 60604 PHONE (312) 387-4100 \\SERVER1\INDUSTRIAL\HYDRO\ASBESTOS_04\DOT_1173_011\1173_011_80\F#-1E70106\ATTIG	ASBESTOS SAMPLE GROUP BI-SWAY FLOOR MATERIAL IDENTIFICATION DATE H/TE SAMPLE RESULT	SAMPLE LEGEND LEAD SAMPLE NUMBER NEG. POS. SAMPLE ANALYZED N or ND = NONE DETECTED P or POS = POSITIVE R or TRACE	SAMPLE RESULT NEG. POS. SAMPLE RESULT POS = POSITIVE FILE	DRAWN R.M. EDI PROJECT NO. 1173.011.80	CHECKED D.M. SCALE: NTS	DATE 03/10/04	FIG. 11
	17 CHEROKEE ROAD LAKE ZURICH, ILLINOIS PARCEL NO. 1E70106 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704						



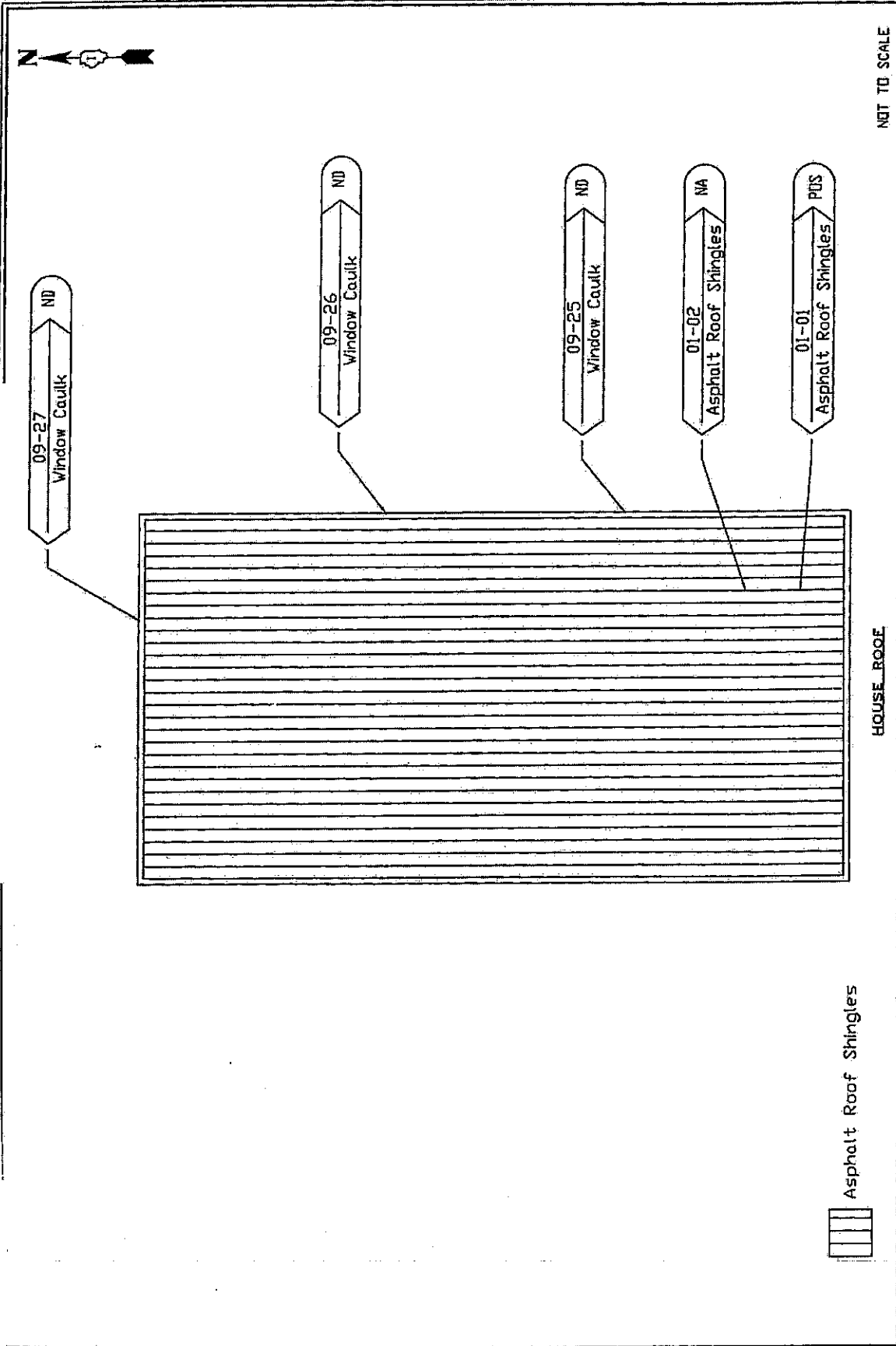
NOT TO SCALE

BASEMENT

<p>ENVIRONMENTAL DESIGN INTERNATIONAL, INC.        2000 N. WISCONSIN AVENUE        SUITE 200        GAITHERSBURG, MD 20878-4000        TEL: 301-941-8800 FAX: 301-941-8801        WWW.EDI-INTL.COM</p>	<p>ASBESTOS GROUP</p> <p>BT-SLVY        (FIBR. DEF/ANALYZE) M/TR</p> <p>MATERIAL DESCRIPTION</p> <p>SAMPLE RESULT</p>	<p>SAMPLE LEGEND</p> <p>LEAD</p> <p>SAMPLE NUMBER</p> <p>NEG = NEGATIVE        POS = POSITIVE        TR = TRACE</p> <p>FILE</p>	<p>DRAWN</p> <p>R.K.</p> <p>EDJ</p> <p>PROJECT NO.        1173.011.80</p>	<p>CHECKED</p> <p>D.M.</p> <p>SCALE:        NTS</p>	<p>DATE</p> <p>03/10/04</p>	<p>FIG.</p> <p>12</p>
	<p>17 CHEROKEE ROAD          LAKE ZURICH, ILLINOIS          PARCEL NO. 1E70106</p> <p>ILLINOIS DEPARTMENT OF TRANSPORTATION          2300 SOUTH DIRKSEN PARKWAY          SPRINGFIELD, ILLINOIS 62704</p>		<p>1173_011_80_A.P.#-1E70106\BASEMENT</p>			

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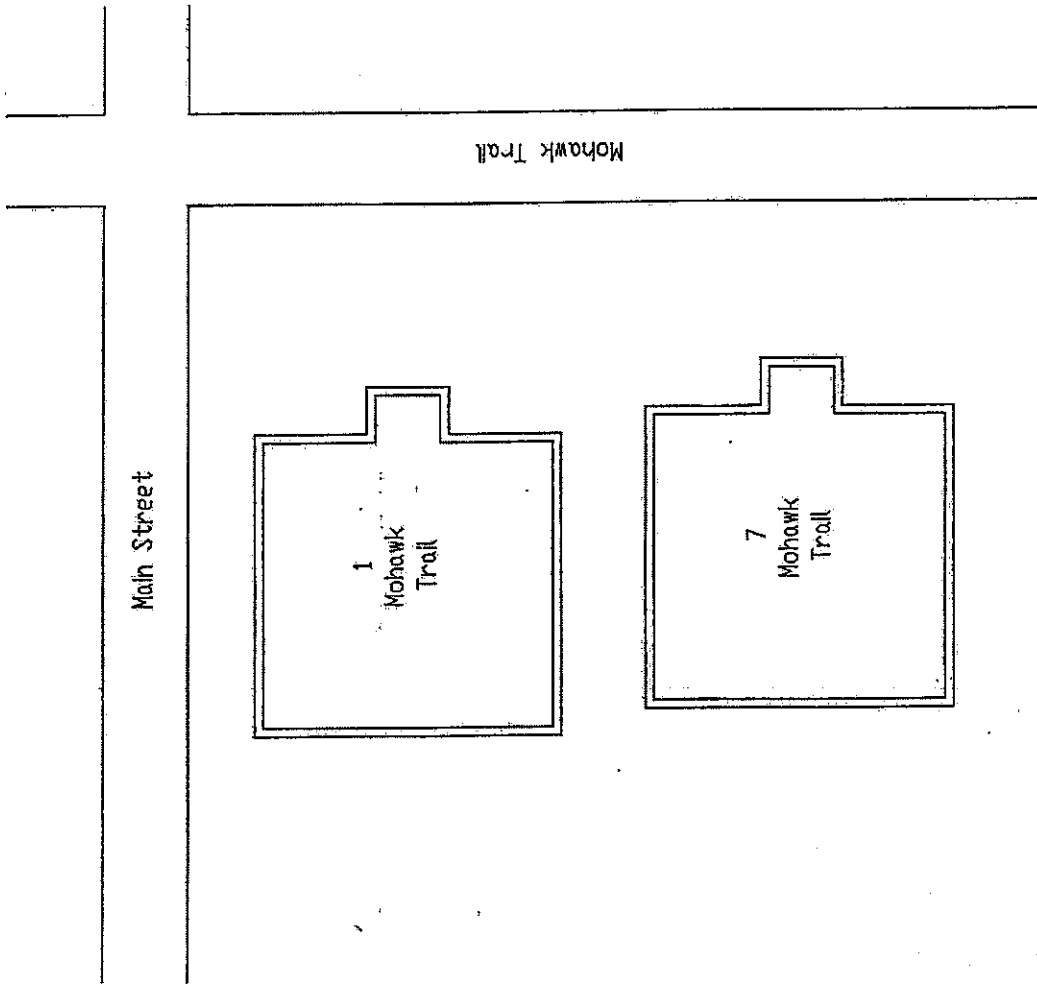




NOT TO SCALE


	ENVIRONMENTAL SCIENCE INTERNATIONAL, LLC 10000 W. 111TH AVENUE, SUITE 200 OVERLAND PARK, MISSOURI 66213-4400	ASBESTOS ANALYSIS	SAMPLE NUMBER B1-5547	SAMPLE N/18	IMPACT ANALYSIS N = NO ASB. * NEG. DETECTED P = POS. * POSITIVE TR = TRACE	SAMPLE RESULT FILE	SAMPLE NUMBER P-1	17 CHEROKEE ROAD LAKE ZURICH, ILLINOIS PARCEL NO. 1E70106	DRAWN R.M.	CHECKED D.M.	DATE 03/10/04	FIG. 13
	... \P#-1E70106\House Roof.dwg 3/30/2004 9:34:14 AM	MATERIAL DESCRIPTION 04\ROOF-1173-011-80\	LEGAL DESCRIPTION 1173-011-80\	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	PROJECT NO. 1173.011.80	SCALES NTS						





NET TO SCALE

SITE PLAN

 ENVIRONMENTAL TOXIC INDUSTRIES, INC. 200 S. MICHIGAN AVENUE, SUITE 500 CHICAGO, IL 60604 PHONE (312) 565-5400	ASBESTOS SAMPLE GROUP EGOT: 1173/011/2 HTR ANALYSIS DESCRIPTION RESULT	SAMPLE LEGEND LEAD SAMPLE NUMBER NEG = NEGATIVE POS = POSITIVE TR = TRACE FILE	DRAWN S.V. EDI PROJECT NO. 1173.011.88	CHECKED D.M. SCALE: NTS	DATE 05/12/04	PIC 6
	1 & 7 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704					

\\SERVER1\INDUSTRIAL\_HY\ASBESTOS\_04\DOT\_1173\_011\1173\_011\_88\BLOG\_NO\_1\SITE\_PLAN\_1




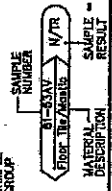
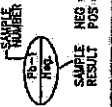
MAIN STREET

MOHAWK TRAIL

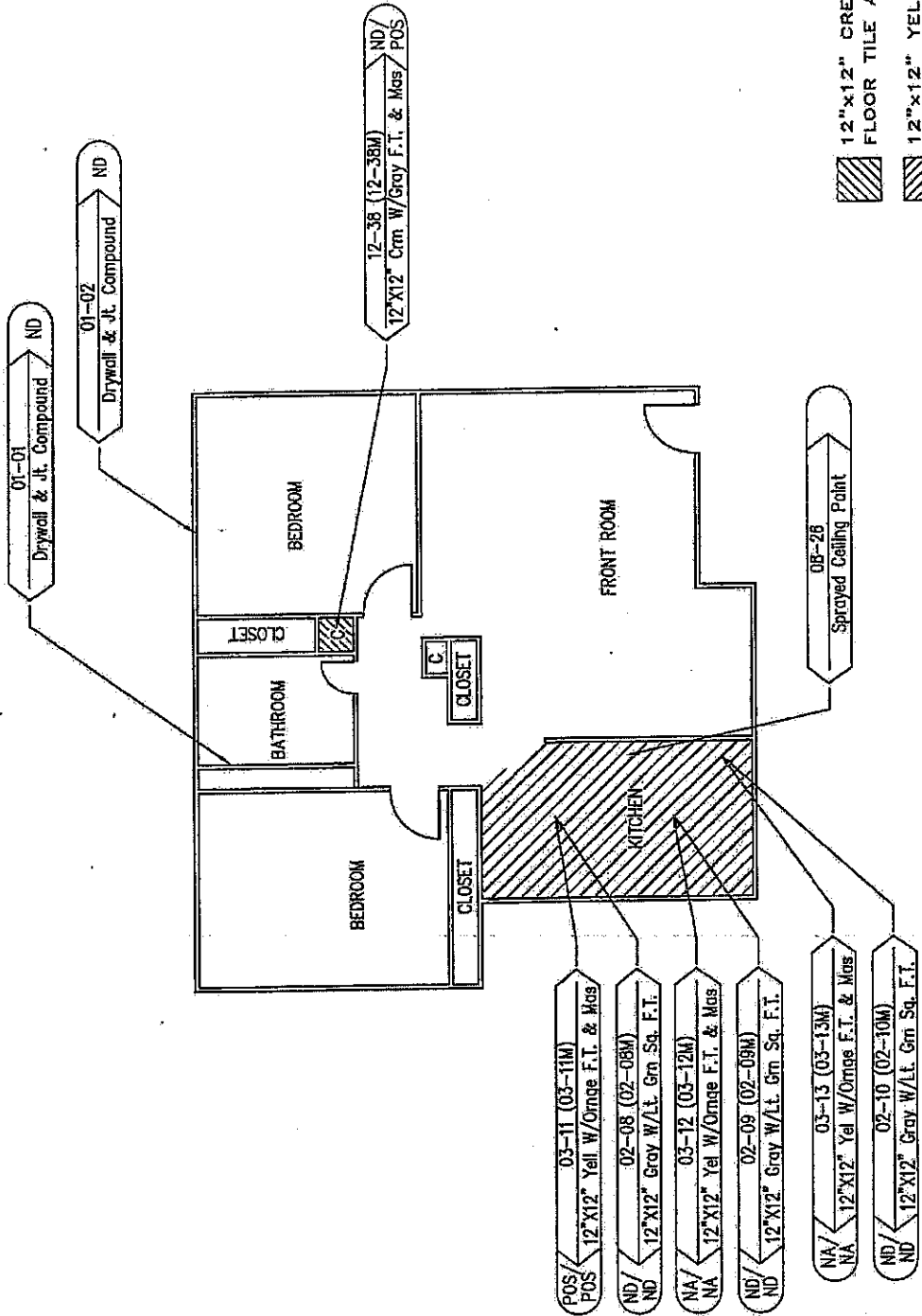
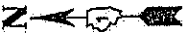
1  
Mohawk  
Trail

SITE PLAN

NOT TO SCALE

 <small>ENVIRONMENTAL ENGINEERING INTERNATIONAL, INC.        200 S. MICHIGAN AVENUE, SUITE 700        CHICAGO, IL 60604 PHONE: (312) 467-6444</small>	<b>ASBESTOS</b> <small>SAMPLE GROUP</small> 	<b>SAMPLE LEGEND</b> <small>ANALYZED</small> <small>NEG = NEGATIVE</small> <small>POS = POSITIVE</small> <small>TR = TRACE</small>	<b>LEAD</b> 	1 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117	<b>DRAWN</b> <small>R.A.M.</small> EDI PROJECT NO. 1173.011.BB	<b>CHECKED</b> <small>D.M.</small> SCALE: NTS	<b>DATE</b> 04/27/04	<b>FIG</b> 7
	<small>GT-ASSAY</small> <small>GT = GROSS TONNAGE</small> <small>N/TR</small> <small>NONE DETECTED</small>	<small>NEG = NEGATIVE</small> <small>POS = POSITIVE</small> <small>TR = TRACE</small>	<small>FILE</small>	<small>FILE</small>	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	EDI PROJECT NO. 1173.011.BB	SCALE: NTS	DATE 04/27/04

SERVER\INDUSTRIAL\_HY.ASBESTOS\_04\1001\_1173\_011\_BB\BLD\_1\SITE\_PLAN

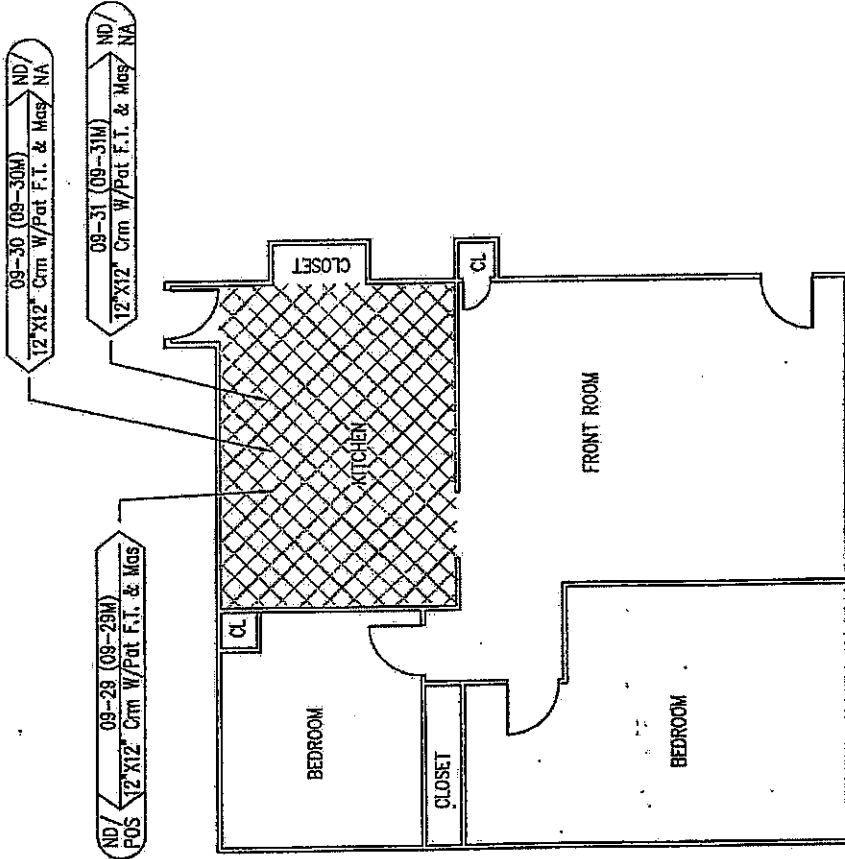


12"x12" CREAM WITH GRAY FLOOR TILE AND MASTIC  
 12"x12" YELLOW WITH ORANGE FLOOR TILE AND MASTIC

APARTMENT ONE NORTH FLOOR PLAN

NOT TO SCALE

 ENVIRONMENTAL RESEARCH INTERNATIONAL, INC. 800 S. WASHINGTON AVENUE, SUITE 700 CHICAGO, IL 60605 PHONE (312) 366-5500	<b>ASBESTOS</b> SAMPLE GROUP: 81-EXAY FIRST TEST/ANALYSIS: N/TR MATERIAL DESCRIPTION: SAMPLE = RESULT:		<b>LEAD</b> SAMPLE NUMBER: 81-TR TEST: 81-TR SAMPLE NO. - NEGATIVE RESULT POS - POSITIVE TR - TRACE		I. MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117 ILLINOIS DEPARTMENT OF TRANSPORTATION 2500 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		CHECKED: D.M. DATE: 04/27/04	FIG: 8
	<b>SAMPLE LEGEND</b>		EDI PROJECT NO. 1173.011.88 SCALE: NTS		DRAWN: R.M.		PROJECT NO. 1173.011.88 SCALE: NTS	

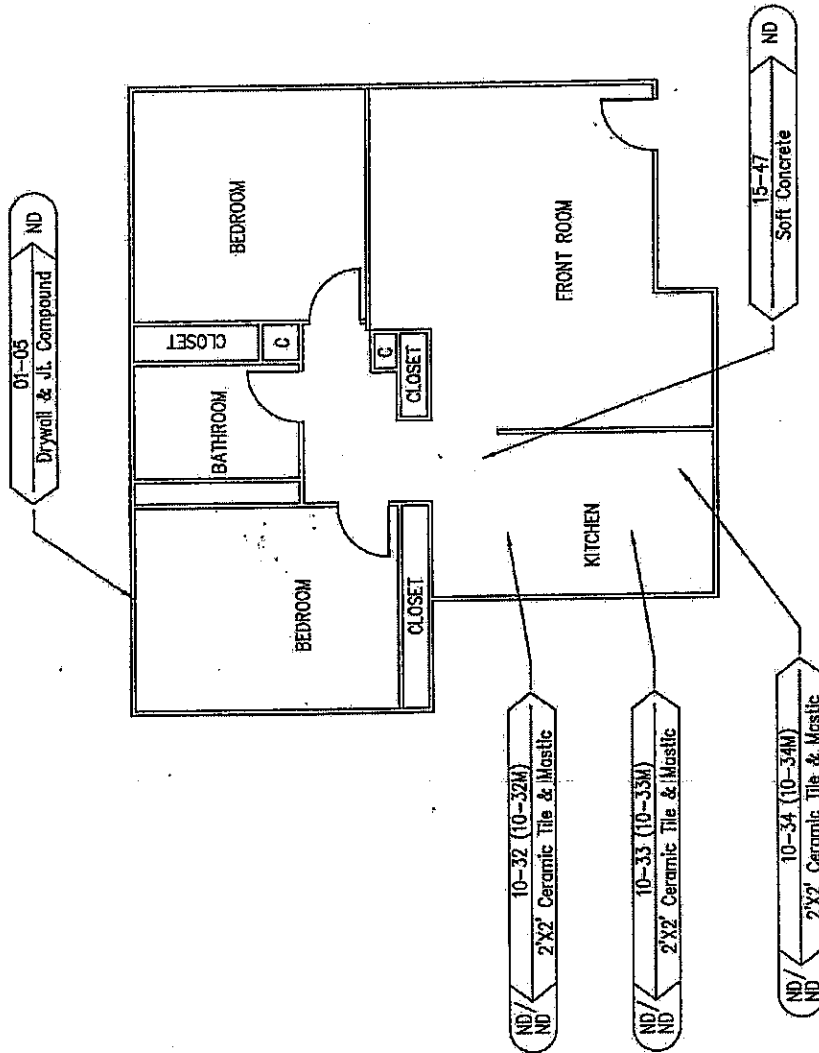
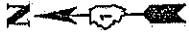


12"X12" CREAM WITH PATTERNS  
 FLOOR TILE AND MASTIC

APARTMENT ONE SOUTH FLOOR PLAN

NOT TO SCALE

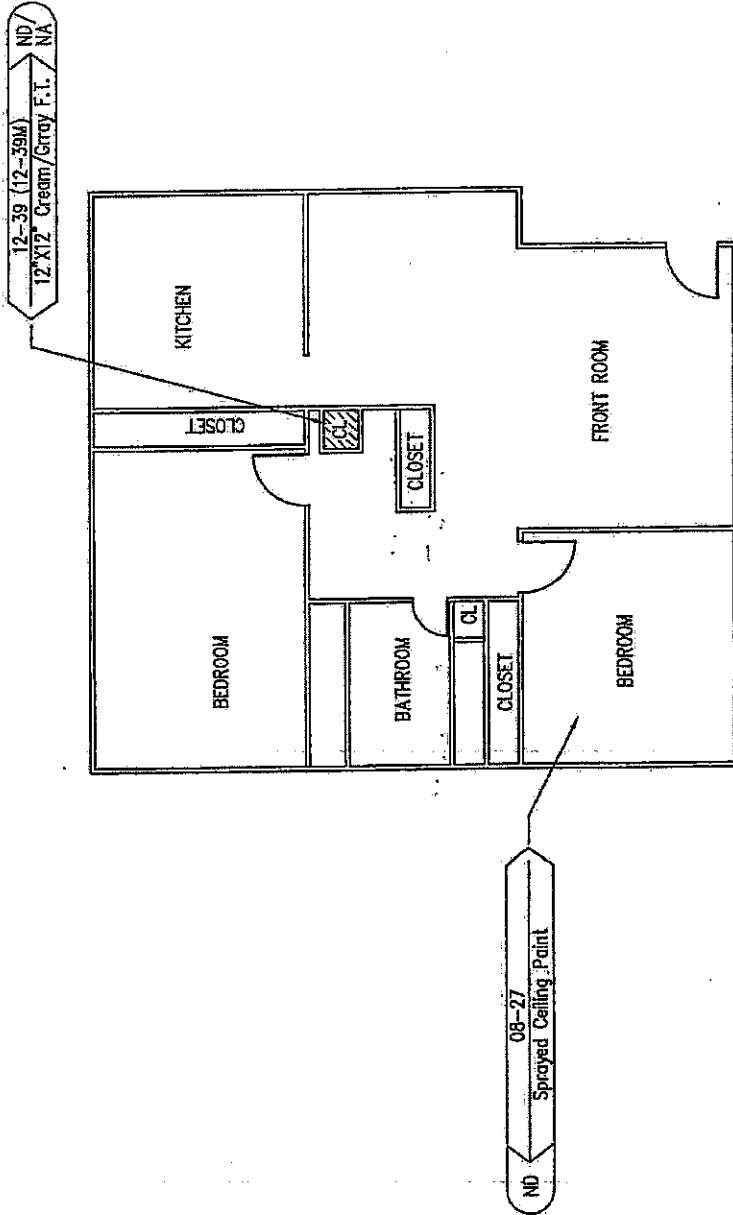
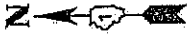
 EDI <small>INTERNATIONAL PROCESS INTERNATIONAL, INC.          200 S. MICHIGAN AVENUE, SUITE 200          CHICAGO, IL 60604 PHONE (312) 467-4466</small>	<b>ASBESTOS</b> SAMPLE GROUP BI-SSAY Floor Tile/Grout MATERIAL DESCRIPTION N/TR SAMPLE RESULT	<b>LEAD</b> SAMPLE NUMBER N/P SAMPLE RESULT NEG = NEGATIVE POS = POSITIVE TR = TRACE	1 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	DRAWN R.M. EDI PROJECT NO. 1173.011.BB	CHECKED D.M. SCALE: NTS	DATE 04/27/04	FIG 9
	SERVER\INDUSTRIAL_HY-ASBESTOS_04\DOT_1173_01\1173_01_BB\APARTMENT ONE SOUTH_FLOOR_PLAN						



APARTMENT TWO NORTH FLOOR PLAN

NOT TO SCALE

 ENVIRONMENTAL DESIGN INTERNATIONAL, INC. 280 S. MICHIGAN AVENUE, SUITE 700 CHICAGO, IL 60604 PHONE (312) 366-0400	ASBESTOS SAMPLE GROUP	SAMPLE NUMBER 81-83AY 81-83AY/83AY → N/TR MATERIAL DESCRIPTION ND/ND	LEAD SAMPLE NUMBER 81-83AY 81-83AY/83AY → N/TR SAMPLE RESULT ND/ND	SAMPLE LEGEND NA=NOT ANALYZED N or ND = NONE DETECTED P or POS = POSITIVE TR = TRACE FILE	1 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117	DRAWN R.M.	CHECKED D.M.	DATE 04/27/04	PROJECT NO. 1173.011.88	SCALE: NTS
	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704					EDI PROJECT NO. 1173.011.88	SCALE: NTS	1C		



12"x12" CREAM WITH GRAY  
 FLOOR TILE AND MASTIC

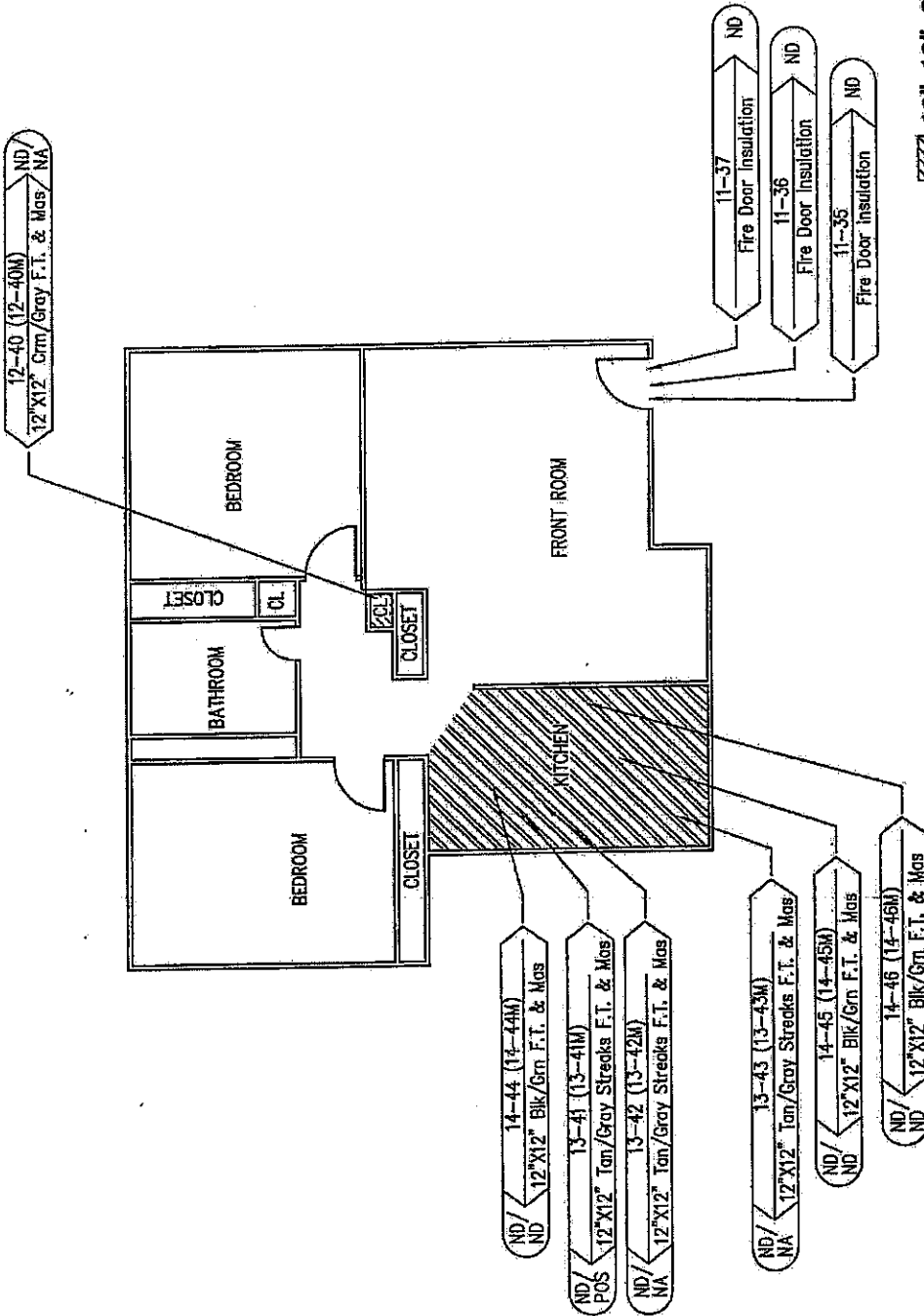
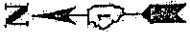
APARTMENT TWO SOUTH FLOOR PLAN

NOT TO SCALE

<p>EDWARDS &amp; KELCEY ASSOCIATES, INC.                  201 S. WISCONSIN AVENUE, SUITE 400                  CHICAGO, IL 60604 PHONE (312) 555-5500</p>	<p><b>ASBESTOS</b></p> <p>SAMPLE GROUP</p> <p>SI - XRAY                  Floor, Tsz/Analiso N/TN</p> <p>MATERIAL DESCRIPTION SAMPLE RESULT</p>	<p><b>SAMPLE LEGEND</b></p> <p>NA=NOT ANALYZED                  N or ND = NONE DETECTED                  TR = TRACE                  POS = POSITIVE</p>	<p><b>LEAD</b></p> <p>PS-1 NUMBER</p> <p>SAMPLE NUMBER</p> <p>PS-1 NUMBER</p> <p>SAMPLE - NEG - NEGATIVE                  RESULT POS = POSITIVE</p>	<p>1 MOHAWK TRAIL                  LAKE ZURICH, ILLINOIS                  PARCEL NO. 1E70117</p>	<p>DRAWN                  R.M.</p>	<p>CHECKED                  D.M.</p>	<p>DATE                  04/27/04</p>	<p>FIG.                  11</p>
	<p>EDS                  EDI PROJECT NO.                  1173.011.88</p>	<p>SCALE:                  NTS</p>	<p>ILLINOIS DEPARTMENT OF TRANSPORTATION                  2300 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704</p>	<p>PROJECT NO.                  1173.011.88</p>	<p>EDS                  EDI PROJECT NO.                  1173.011.88</p>	<p>SCALE:                  NTS</p>	<p>DATE                  04/27/04</p>	<p>FIG.                  11</p>

SERVERY INDUSTRIAL HY-ASBESTOS\_04\DOT\_1173\_011\1173\_011\_88\APARTMENT TWO SOUTH\_FLOOR\_PLAN





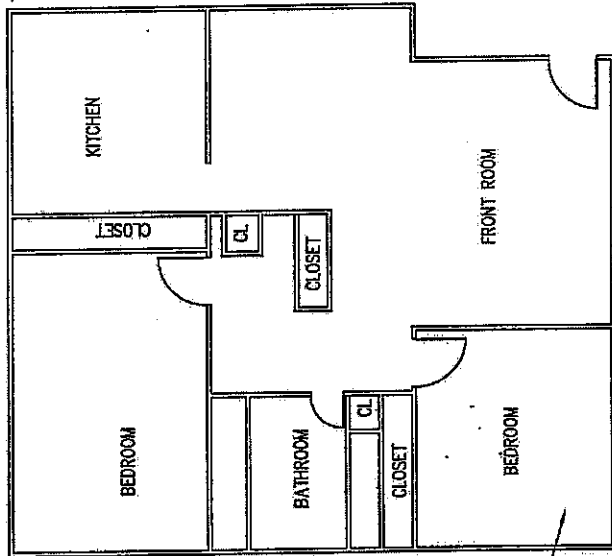
12"x12" CREAM WITH GRAY  
 FLOOR TILE AND MASTIC

12"x12" TAN WITH GRAY  
 STREAKS FLOOR TILE AND MASTIC

APARTMENT THREE NORTH FLOOR PLAN

NOT TO SCALE

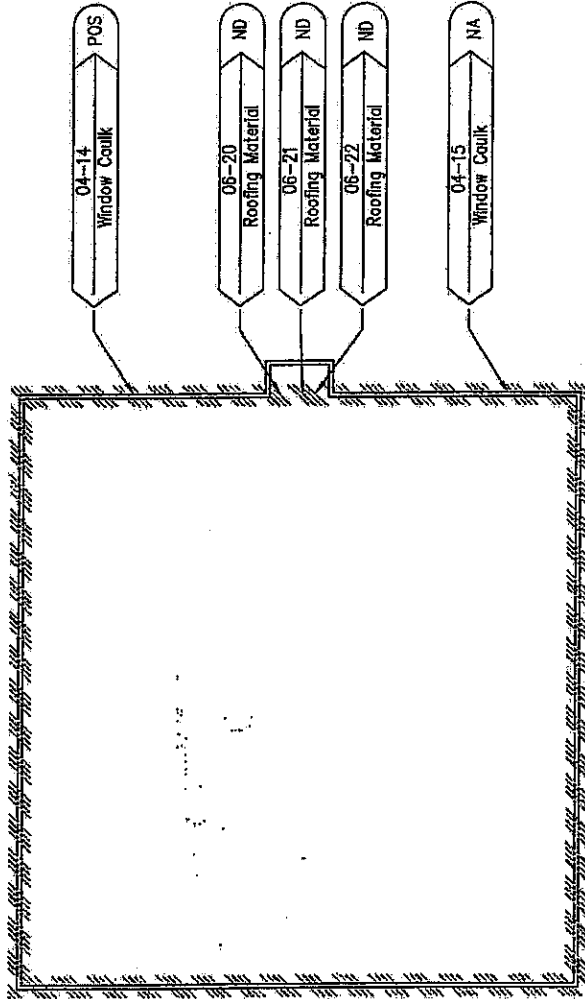
 ENVIRONMENTAL DESIGN INTERNATIONAL, INC. 290 S. BERTHOUD AVENUE, SUITE 700 CHICAGO, IL 60606 PHONE (773) 586-5400	ASBESTOS GROUP BI-CRAY Floor Tile/Grout MATERIAL DESCRIPTION	SAMPLE NUMBER BI-CRAY N/R SAMPLE RESULT	SAMPLE LEGEND ANALYZED N = ND = NONE DETECTED P = POS = POSITIVE TR = TRACE FILE	LEAD SAMPLE NUMBER NEG = NEGATIVE POS = POSITIVE TR = TRACE	DRAWN R.M. EDI PROJECT NO. 1173.011.88	CHECKED D.M. SCALE NTS	DATE 04/27/04	FIG 12
	1 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704			APARTMENT THREE NORTH_FLOOR_PLAN				



APARTMENT THREE SOUTH FLOOR PLAN

NOT TO SCALE

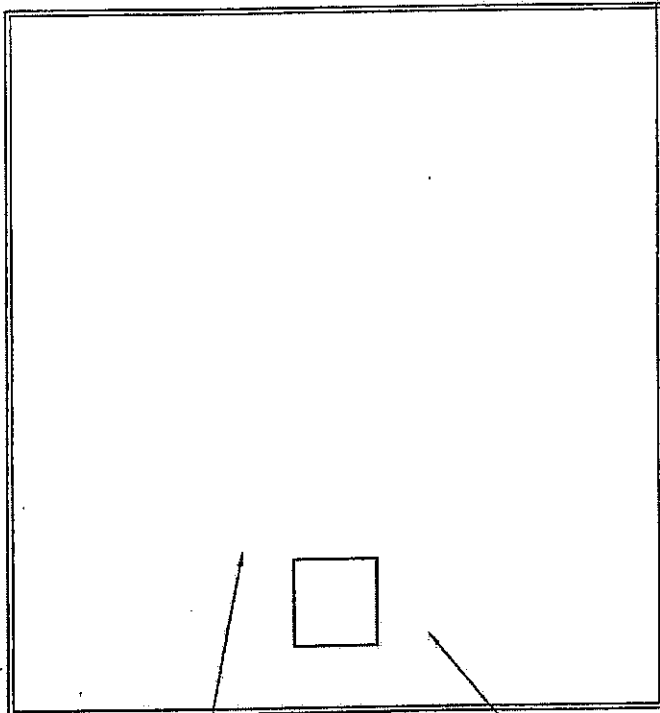
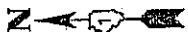
 EDI ENVIRONMENTAL INVESTMENT SERVICES, INC. 800 S. MICHIGAN AVENUE, SUITE 700 CHICAGO, IL 60605 PHONE: (312) 466-6000	<b>ASBESTOS</b> SAMPLE GROUP 31 - EAV 1000 - 1000 MATERIAL DESCRIPTION SAMPLE NUMBER 15-48 RESULT = ND	<b>SAMPLE LEGEND</b> LEAD ND - NOT ANALYZED N - NO - NOT DETECTED P - POSITIVE TR - TRACE	SAMPLE NUMBER PR - POSITIVE ND - NOT DETECTED TR - TRACE	1 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	DRAWN R.M. EDI PROJECT NO. 1173.011.BB	CHECKED D.M. SCALE: NTS	DATE 04/27/04	FIG 13
	\\SERVER\INDUSTRIAL_HY\ASBESTOS_04\DOT_1173_011\1173_011_08\APARTMENT THREE SOUTH_FLOOR_PLAN							



ROOF PLAN

NOT TO SCALE

 <small>EDWARDS &amp; KELCEY INDUSTRIAL, INC.          200 E. BOSTON AVENUE, SUITE 700          CHICAGO, IL 60611 (312) 467-4600</small>	<b>ASBESTOS</b> <small>ST-SAY          (SEE TR/DIR) N/TR          MATERIAL DESCRIPTION          SAMPLE RESULT</small>	<b>SAMPLE LEGEND</b> LEAD <small>HA=NOT ANALYZED          P=POSITIVE DETECTED          TR=TRACE          NEG=NEGATIVE          POS=POSITIVE          RESULT</small>	<small>SAMPLE NUMBER</small> PS- <small>NEGATIVE          POSITIVE          RESULT</small>	1 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117	DRAWN R.M. EDI	CHECKED D.M. NYS	DATE 04/27/04	FIG 14
	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		PROJECT NO. 1173.011.8B	SCALE: NYS	\\SERVER\INDUSTRIAL_HY\ASBESTOS_04\DOT_1173_011_8B\ROOF_PLAN			

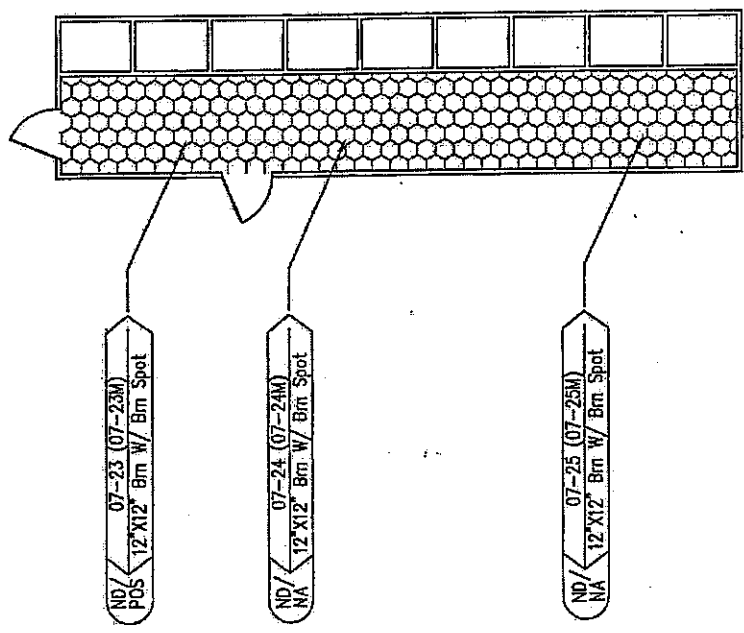


ATTIC PLAN

NOT TO SCALE

 <small>ENVIRONMENTAL DESIGN INTERNATIONAL, INC.        200 S. MICHIGAN AVENUE, SUITE 200        CHICAGO, IL 60604 PHONE (312) 567-4100</small>	<b>ASBESTOS</b> <small>SAMPLE GROUP</small>  <small>BI-SIXTY SAMPLE</small> <small>FIG. 18/ASB/05</small> <small>MATERIAL DESCRIPTION</small> <small>SAMPLE RESULT</small> <small>N/TR</small>	<b>SAMPLE LEGEND</b> <small>LEAD</small> <small>NY=NOT ANALYZED</small> <small>N or ND = NONE DETECTED</small> <small>P or POS = POSITIVE</small> <small>TR = TRACE</small> <small>FILE</small>	<small>SAMPLE NUMBER</small>  <small>SAMPLE RESULT</small> <small>NEG = NEGATIVE</small> <small>POS = POSITIVE</small>	<b>1 MOHAWK TRAIL</b> <b>LAKE ZURICH, ILLINOIS</b> <b>PARCEL NO. 1E70117</b>	<b>DRAWN</b> <small>R.M.</small>	<b>CHECKED</b> <small>D.H.</small>	<b>DATE</b> 05/11/04	<b>FIG</b> 15
	<b>ILLINOIS DEPARTMENT OF TRANSPORTATION</b> <b>2300 SOUTH DIRKSEN PARKWAY</b> <b>SPRINGFIELD, ILLINOIS 62704</b>		<b>PROJECT NO.</b> 1173.011.88	<b>SCALE:</b> NTS				

SERVER1\INDUSTRIAL\_HY-ASBESTOS\_04\DOT\_1173\_011\1173\_011\_88\ATTIC\_PLAN



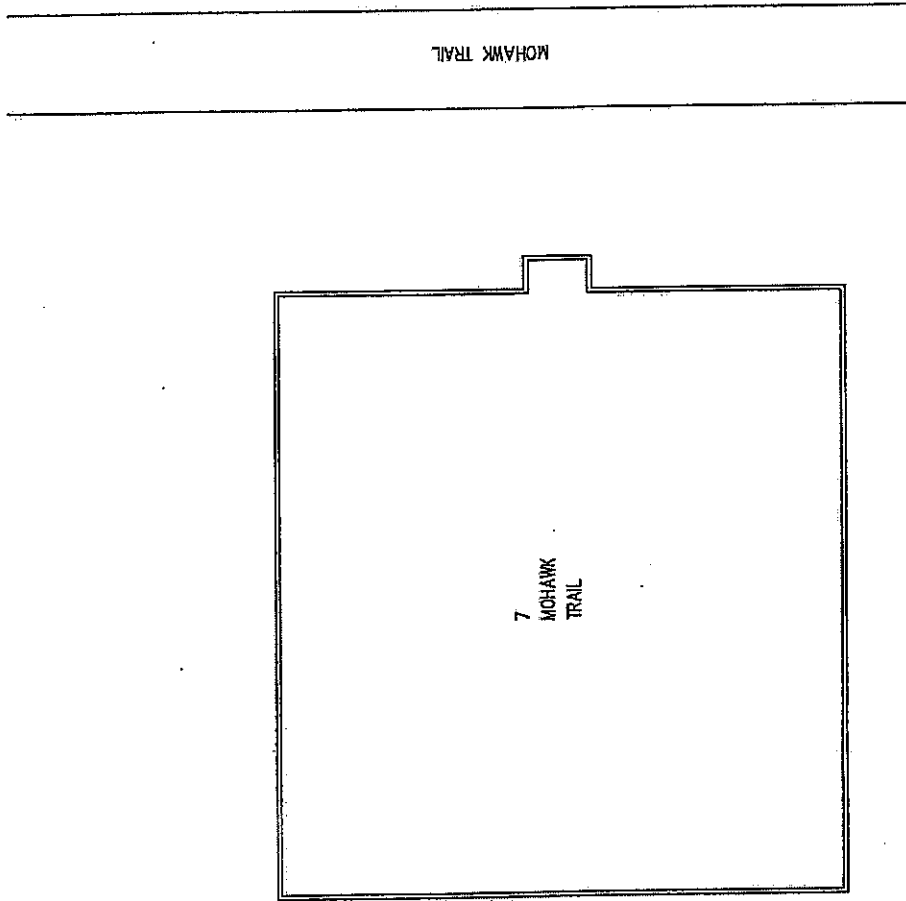
12"x12" BROWN WITH BROWN SPOT FLOOR TILE

STORAGE AREA PLAN

NOT TO SCALE

 ENVIRONMENTAL SERVICES INTERNATIONAL, INC. 655 S. WASHINGTON AVENUE, SUITE 700 CHICAGO, IL 60605, PHONE (312) 265-4400	<b>ASBESTOS</b> SAMPLE GROUP		<b>SAMPLE LEGEND</b>		<b>LEAD</b>		1 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117		DRAWN R.M.	CHECKED D.M.	DATE 05/11/04	FIG 16
	NA - NOT ANALYZED N or ND - NONE DETECTED POS - POSITIVE TR - TRACE FILE		BI - BIVALENT NI - TR N/A - NOT ANALYZED POS - POSITIVE TR - TRACE FILE		SAMPLE NUMBER (circle)		SAMPLE NUMBER (circle)		EPI PROJECT NO. 1173.011.88	SCALE: NTS		

SERVER\INDUSTRIAL\_HY.ASBESTOS\_04\DOT\_1173\_011\_88\STORAGE AREA\_FLOOR\_PLAN



SITE PLAN

NOT TO SCALE

 <small>ENVIRONMENTAL ASSESSMENT INTERNATIONAL, INC.          200 S. MICHIGAN AVENUE, SUITE 700          CHICAGO, IL 60604 PHONE (312) 999-3400</small>	<b>ASBESTOS</b> SAMPLE GROUP	<b>SAMPLE LEGEND</b>	<b>LEAD</b>	DRAWN P.M.	CHECKED D.H.	DATE 04/27/04	FIG 17
	7 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	EDI PROJECT NO. 1173.011.BB	SCALE: NTS			

ASBESTOS SAMPLE GROUP:
 

- BT - 33AY
- EDC - TIM/AGRID
- N/TR

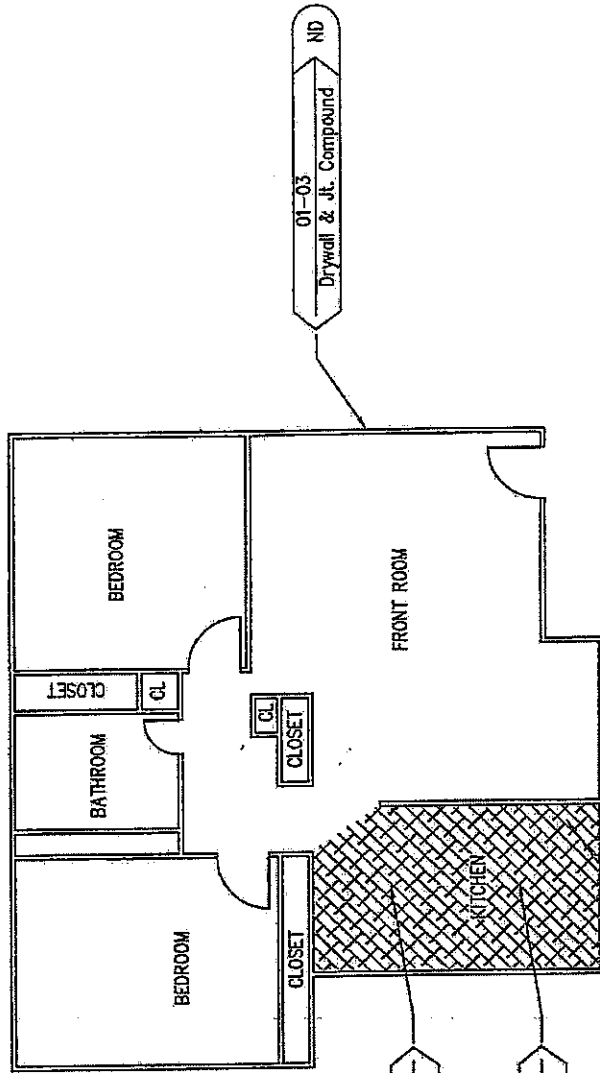
 SAMPLE NUMBER:
 

- FR - 1
- IMP - 2

 SAMPLE RESULT:
 

- NA - NOT ANALYZED
- P - POS - MORE DETECTED
- TR - TRACE
- POS - POSITIVE
- NEG - NEGATIVE
- FILE

SERVER\INDUSTRIAL\_HY-ASBESTOS\_04\DOT\_1173\_011\_BB\BLOG\_NO\_7\SITE\_PLAN



ND/  
 POS 21-65 (21-65M)  
 12"x12" Yel Marbled F.T. & Mos

ND/  
 NA 21-66 (21-66M)  
 12"x12" Yel Marbled F.T. & Mos

ND/  
 NA 21-67 (21-67M)  
 12"x12" Yel Marbled F.T. & Mos

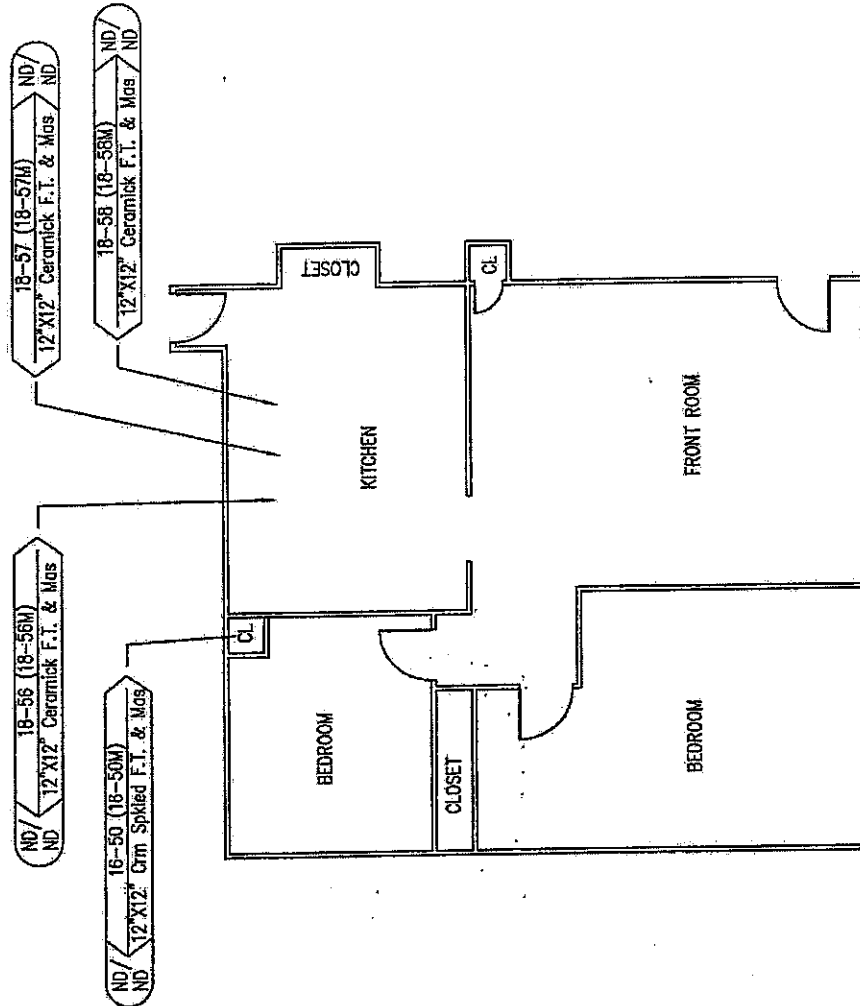
01-03  
 Drywall & Jt. Compound  
 ND

12"x12" YELLOW MARBLED  
 FLOOR TILE AND MASTIC

APARTMENT ONE NORTH FLOOR PLAN

NOT TO SCALE

<p>ENVIRONMENTAL SERVICES INTERNATIONAL, INC.                  1000 N. WILSON AVENUE, SUITE 100                  DEERFIELD, IL 60015 (708) 444-4444</p>	<p>ASBESTOS                  SAMPLE GROUP</p> <p>EDOT-1173-011-1173-011-35-BLDG_NO-7-APARTMENT ONE NORTH FLOOR PLAN</p>	<p>SAMPLE LEGEND</p> <p>NA - NOT ANALYZED                  N or NR - NONE DETECTED                  P or POS - POSITIVE                  TR - TRACE</p>	<p>LEAD</p> <p>SAMPLE NUMBER                  PS-1173-011-1173-011-35-BLDG_NO-7-APARTMENT ONE NORTH FLOOR PLAN</p>	<p>7 MOHAWK TRAIL                  LAKE ZURICH, ILLINOIS                  PARCEL NO. 1E70117</p>	<p>DRAWN                  R.M.</p>	<p>CHECKED                  D.M.</p>	<p>DATE                  04/27/04</p>	<p>FIG NO                  18</p>
	<p>EDT                  PROJECT NO.                  1173.011.68</p>	<p>SCALE:                  NTS</p>	<p>ILLINOIS DEPARTMENT OF TRANSPORTATION                  2300 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704</p>	<p>SAMPLE RESULT                  NEG = NEGATIVE                  POS = POSITIVE</p>	<p>EDT                  PROJECT NO.                  1173.011.68</p>	<p>SCALE:                  NTS</p>	<p>DATE                  04/27/04</p>	<p>FIG NO                  18</p>

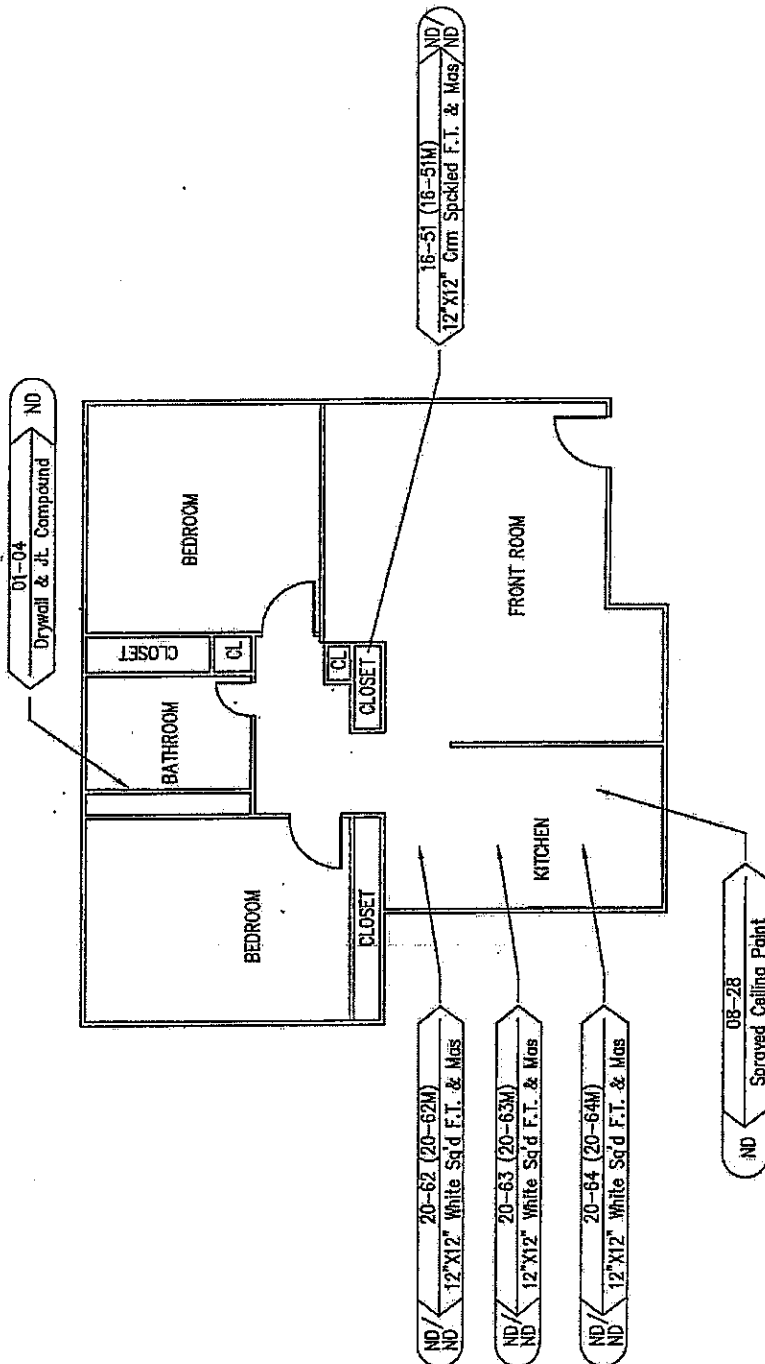
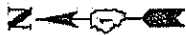


APARTMENT ONE SOUTH FLOOR PLAN

NOT TO SCALE

<p>ED I                  ENVIRONMENTAL DESIGN INTERNATIONAL, INC.                  205 S. WASHINGTON AVENUE, SUITE 200                  CHICAGO, IL 60604 PHONE (312) 564-5100</p>	<p>ASBESTOS                  SAMPLE GROUP</p> <p>EXAM. TR. ALIAS: N/TE                  FILE NO. / SAMPLE NO. / RESULT</p>	<p>SAMPLE LEGEND</p> <p>NA = NOT ANALYZED                  N = NEGATIVE                  P = POSITIVE                  TR = TRACE</p>	<p>LEAD</p> <p>SAMPLE NUMBER</p> <p>FILE</p>	<p>7 McHAWK TRAIL                  LAKE ZURICH, ILLINOIS                  PARCEL NO. 1E70117</p>	<p>DRAWN                  R.M.</p>	<p>CHECKED                  D.M.</p>	<p>DATE                  04/27/04</p>	<p>FIG                  19</p>
	<p>SCALE:                  NTS</p>	<p>PROJECT NO.                  1173.011.88</p>	<p>ED I                  ILLINOIS DEPARTMENT OF TRANSPORTATION                  2300 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704</p>	<p>APARTMENT ONE SOUTH FLOOR PLAN</p>	<p>ILLINOIS DEPARTMENT OF TRANSPORTATION                  2300 SOUTH DIRKSEN PARKWAY                  SPRINGFIELD, ILLINOIS 62704</p>	<p>SCALE:                  NTS</p>	<p>DATE                  04/27/04</p>	<p>FIG                  19</p>

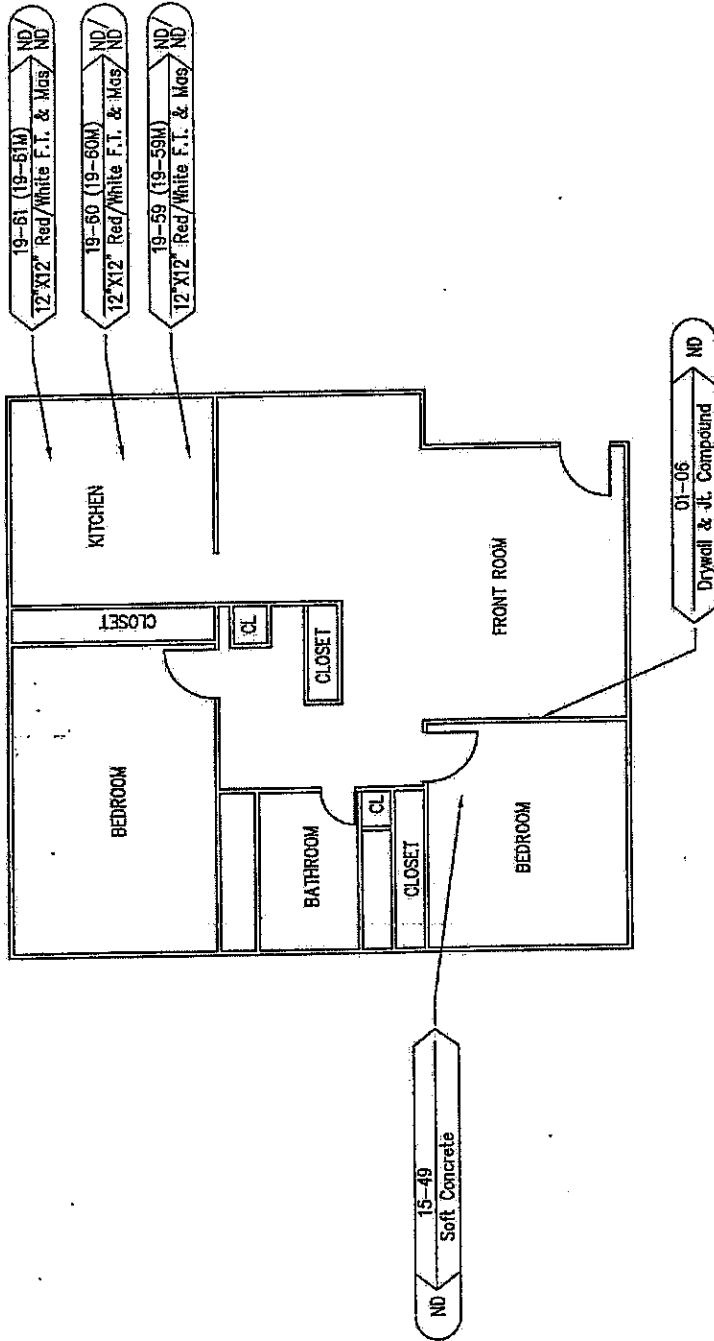




APARTMENT TWO NORTH FLOOR PLAN

NOT TO SCALE

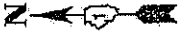
<p>EDITIONAL ASBESTOS INTERNATIONAL, INC.          200 S. MICHIGAN AVENUE, SUITE 700          CHICAGO, IL 60604-3444</p>	<p>ASBESTOS GROUP</p> <p>BI-GAY NUMBER</p> <p>ESB: TR/AE/IE</p> <p>MATERIAL DESCRIPTION</p>	<p>SAMPLE LEGEND</p> <p>LEAD</p> <p>MA NOT ANALYZED          N = ND = NONE DETECTED          P = POS = POSITIVE          TR = TRACE</p>	<p>SAMPLE NUMBER</p> <p>NEG - NEGATIVE          POS - POSITIVE          TR - TRACE</p>	<p>7 MOHAWK TRAIL          LAKE ZURICH, ILLINOIS          PARCEL NO. 1E70117</p>	<p>DRAWN</p> <p>R.M.</p>	<p>CHECKED</p> <p>D.M.</p>	<p>DATE</p> <p>04/27/04</p>	<p>FIG</p> <p>20</p>
	<p>INDUSTRIAL_HY-ASBESTOS_04\DOT_1173_01\1173_01_08\BLDG_NO_7\APARTMENT TWO NORTH_FLOOR_PLAN</p>	<p>EDITIONAL ASBESTOS INTERNATIONAL, INC.          200 S. MICHIGAN AVENUE, SUITE 700          CHICAGO, IL 60604-3444</p>	<p>FILE</p>	<p>FILE</p>	<p>ILLINOIS DEPARTMENT OF TRANSPORTATION          2300 SOUTH DIRKSEN PARKWAY          SPRINGFIELD, ILLINOIS 62704</p>	<p>PROJECT NO.</p> <p>1173.011.BB</p>	<p>SCALE:</p> <p>NTS</p>	



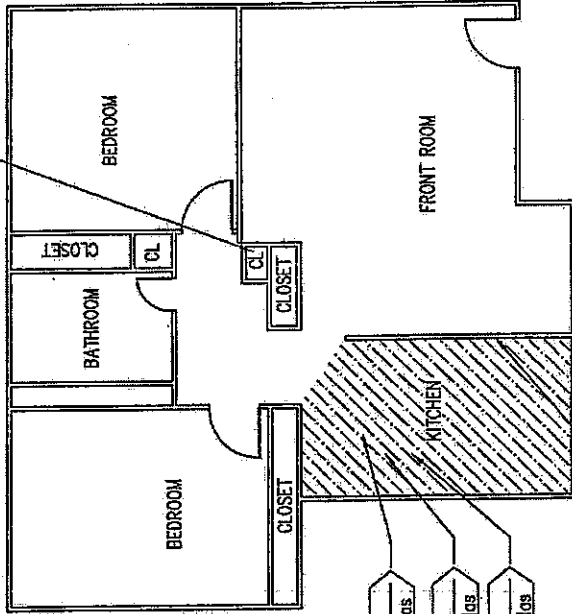
APARTMENT TWO SOUTH FLOOR PLAN

NOT TO SCALE

	EDI ENVIRONMENTAL SERVICES CORPORATION 200 S. WASHINGTON AVENUE, SUITE 200 SPRINGFIELD, ILLINOIS 62704	ASBESTOS SAMPLE GROUP 01-06 Drywall & Lt. Compound ND	SAMPLE LEGEND NA - NOT ANALYZED N or ND - NONE DETECTED P or PS - POSITIVE TR - TRUE	LEAD SAMPLE NUMBER 01-06 Drywall & Lt. Compound ND	7 MORAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117	DRAWN R.M. EDI	CHECKED D.M. NTS	DATE 04/27/04	FIG 21
		15-49 Soft Concrete ND	NA - NOT ANALYZED N or ND - NONE DETECTED P or PS - POSITIVE TR - TRUE	SAMPLE NUMBER 01-06 Drywall & Lt. Compound ND	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	PROJECT NO. 1173.011.BB	SCALE: NTS		



16-52 (16-52M)  
 12 X12 Cream, Speckled F.T. ND/ND



- ND/ POS 23-71 (23-71M)  
12 X12 Off White Patmd F.T. & Mts
- ND/ NA 23-72 (23-72M)  
12 X12 Off White Patmd F.T. & Mts
- ND/ NA 23-73 (23-73M)  
12 X12 Off White Patmd F.T. & Mts

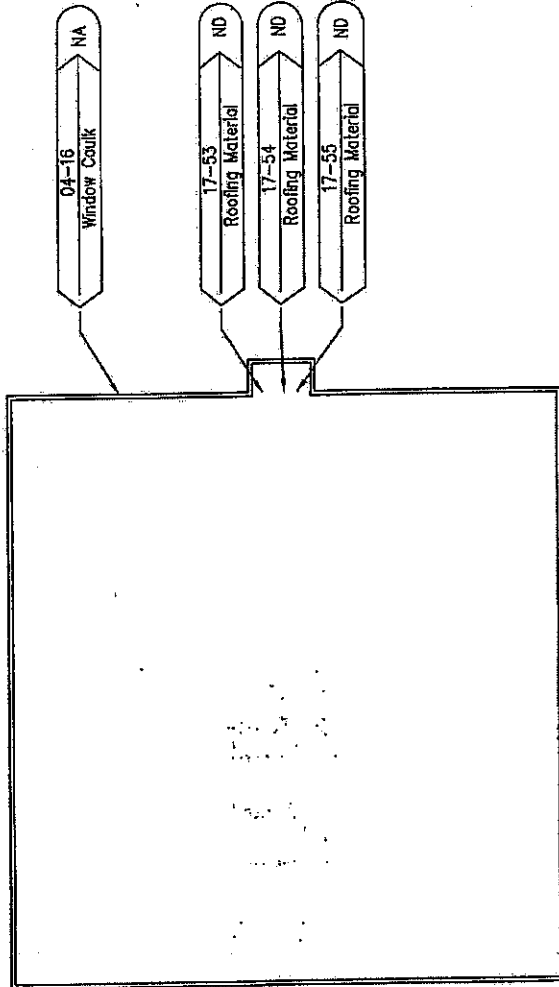
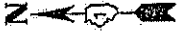
ND 01-07  
 Drywall & Jt. Compound

12"x12" OFF WHITE PATTERNED  
 FLOOR TILE AND MASTIC

APARTMENT THREE NORTH FLOOR PLAN

NOT TO SCALE

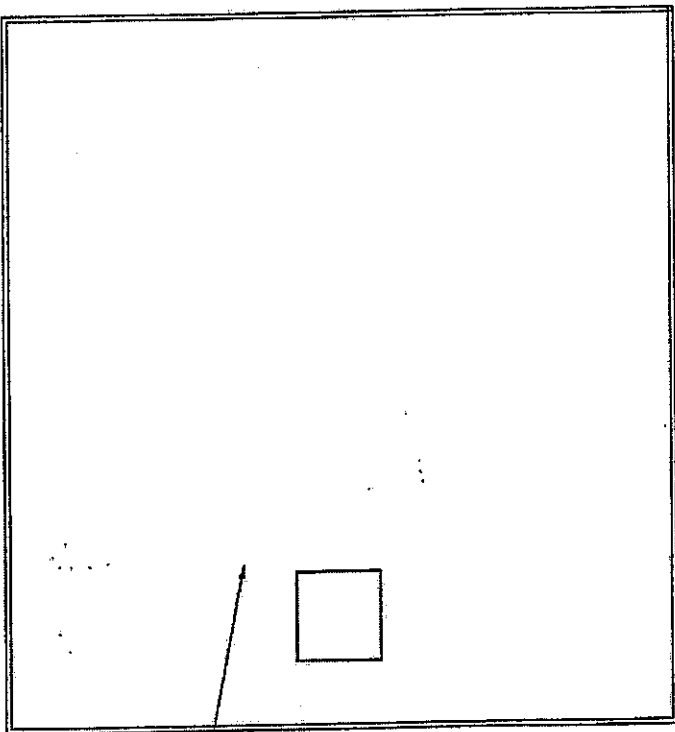
<p>ENVIRONMENTAL ENERGY INTERNATIONAL, INC.        200 S. WASHINGTON AVENUE, SUITE 700        CHICAGO, IL 60606 (312) 567-5160</p>	<p>ASBESTOS SAMPLE GROUP</p> <p>BI-DAY SAMPLE NUMBER</p> <p>Floor, Tile/Mastic N/TR</p> <p>MATERIAL DESCRIPTION</p>	<p>SAMPLE LEGEND</p> <p>FILE</p> <p>NA = NOT ANALYZED        ND = NO MINE DETECTED        P or POS = POSITIVE        TR = TRACE</p>	<p>LEAD</p> <p>PS-1 SAMPLE NUMBER</p> <p>NA = NOT ANALYZED        ND = NO MINE DETECTED        P or POS = POSITIVE        TR = TRACE</p>	<p>7. MOHAWK TRAIL        LAKE ZURICH, ILLINOIS        PARCEL NO. 1E70117</p>	<p>DRAWN R.M.</p> <p>CHECKED D.M.</p> <p>DATE 04/27/04</p>	<p>FIG 22</p>
	<p>EDU</p>	<p>1173.011.BB</p>	<p>1173.011.BB</p>	<p>EDU PROJECT NO. 1173.011.BB</p>	<p>ILLINOIS DEPARTMENT OF TRANSPORTATION        2300 SOUTH DIRKSEN PARKWAY        SPRINGFIELD, ILLINOIS 62704</p>	<p>SCALE: NTS</p>



ROOF PLAN

NOT TO SCALE

 ENVIRONMENTAL DESIGN INTERNATIONAL, INC. 200 S. MICHIGAN AVENUE, SUITE 700 CHICAGO, IL 60604 PHONE (312) 285-5500	<b>ASBESTOS</b> SAMPLE GROUP BT - SOY / Mastic Roof TR / Mastic N / TR MATERIAL - DESCRIPTION RESULT	<b>SAMPLE LEGEND</b> NA - NOT ANALYZED P - POSITIVE TR - TRADE FILE	<b>LEAD</b> SAMPLE NUMBER TR - TRADE FILE	7 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117  ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	DRAWN R.L.	CHECKED D.M.	DATE 04/27/04	SCALE NTS	PROJECT NO. 1173.011.88	FI 2
	EDI 1173.011.88		EDI 1173.011.88		EDI 1173.011.88		EDI 1173.011.88		EDI 1173.011.88	

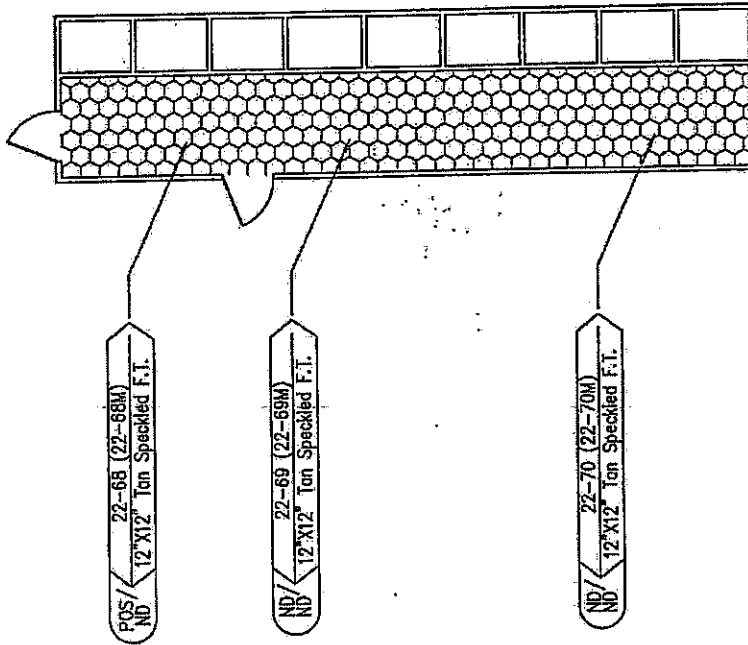


NA 05-19  
 Fiberglass Insulation

ATTIC PLAN

NOT TO SCALE

 <small>EDWARDS ENGINEERING DESIGN INC.        2175 W. MORTON ST. DEERFIELD, ILL. 60015        TEL: 847-938-4400 FAX: 847-938-4404</small>	<b>ASBESTOS</b> <small>SAMPLE GROUP</small> BI-33AV Fiberglass <small>MATERIAL DESCRIPTION</small>	<b>SAMPLE LEGEND</b> <small>NA - NOT ANALYZED          N or NO - NONE DETECTED          P or POS - POSITIVE          TR - TRACE</small>	<b>LEAD</b> <small>PP-1 SAMPLE NUMBER</small> NEG. SAMPLE RESULT POS. SAMPLE RESULT	7 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117	DRAWN R.M. EDI	CHECKED D.M. PROJECT NO. 1173.011.BB	DATE 05/11/04 SCALE: NTS	FI 2
	ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704		FILE ILLINOIS INDUSTRIAL HYDROLYSIS ASBESTOS 04 IDOT 1173_011 1173_011_99 BLDG_NO ATTIC_PLAN					



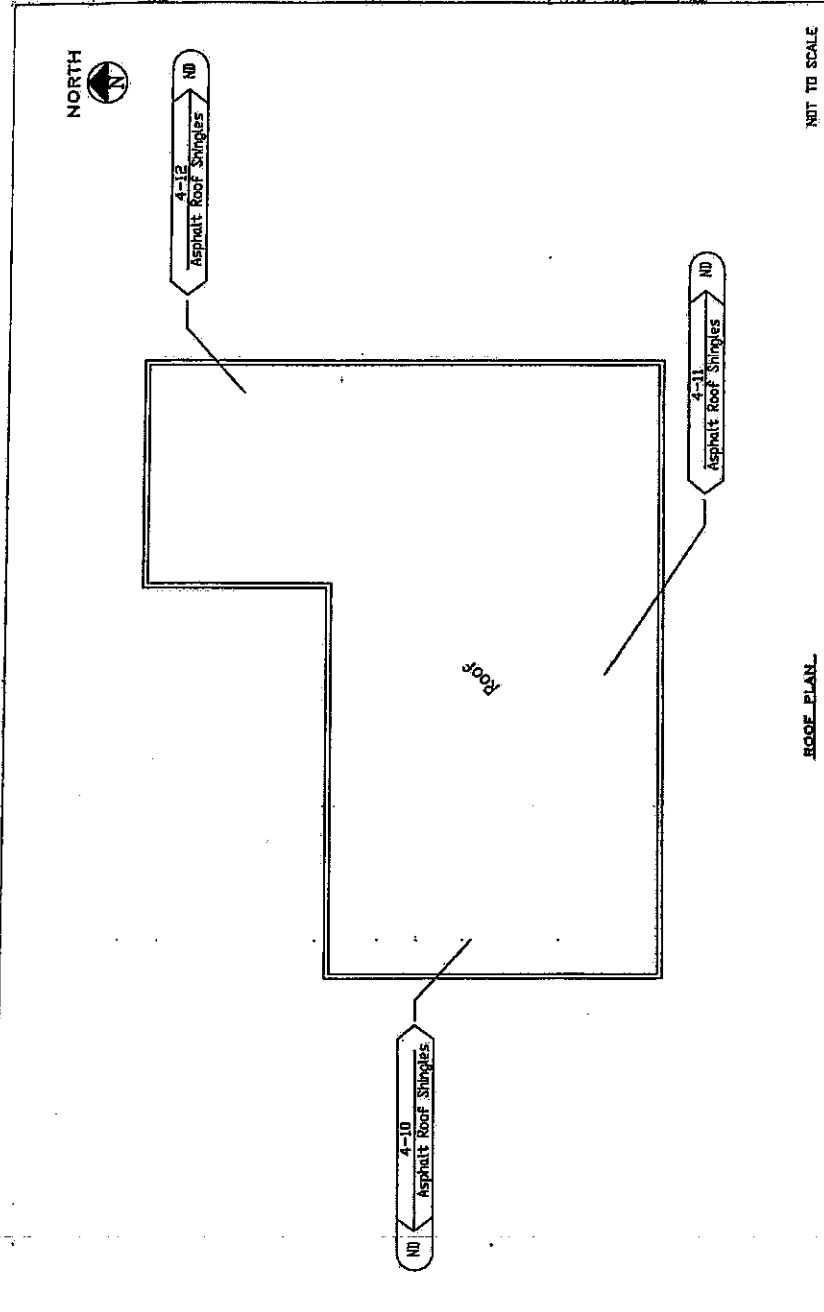
12"x12" TAN SPECKLED  
 FLOOR TILE AND MASTIC

STORAGE AREA PLAN

NOT TO SCALE

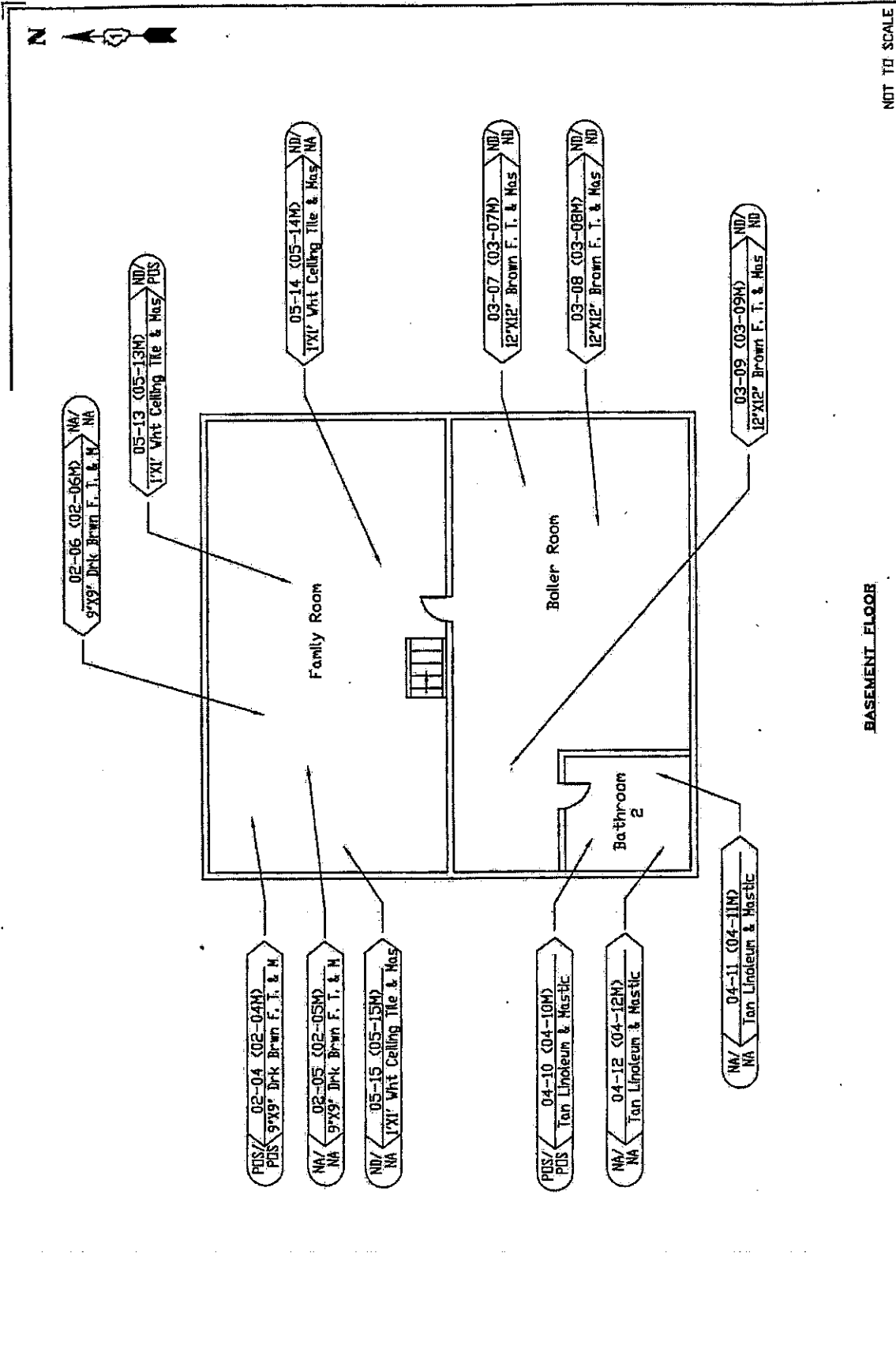
 EDI ENVIRONMENTAL SERVICES INTERNATIONAL, INC. 200 S. MICHIGAN AVENUE, SUITE 700 CHICAGO, IL 60604 PHONE (312) 587-4000	<b>ASBESTOS</b> GROUP SAMPLE NUMBER 81-331V TEST TAG/ID# N/TR SAMPLE RESULT MATERIAL DESCRIPTION	<b>SAMPLE LEGEND</b> LEAD SAMPLE NUMBER NEG = NEGATIVE POS = POSITIVE TR = TRACE N or ND = NONE DETECTED P or POS = POSITIVE TR = TRACE	7 MOHAWK TRAIL LAKE ZURICH, ILLINOIS PARCEL NO. 1E70117 ILLINOIS DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	DRAWN R.M. EDI PROJECT NO. 1173.011.88	CHECKED D.M. SCALE: NTS	DATE 05/11/04	FI 25
	SERVER1 INDUSTRIAL_HY-ASBESTOS_04\IDOT_1173_01\1173_011_88\BLDG_NO_7\STORAGE AREA_FLOOR_PLAN						





	<b>ASBESTOS</b> SAMPLE ANALYSIS REPORT	<b>SAMPLE LEGEND</b> LEAD (SEE SAMPLE REPORT FOR DETAILS) W - WORK ANALYZED P - PRELIMINARY N - NOT ANALYZED R - RE-TESTED T - TESTED F - FIELD TESTED PLE - FIELD TESTED		211 E. MAIN STREET LAKE ZURICH, ILLINOIS PARCEL NO. 1E70119	DRAWN S.V.	CHECKED A.L.	DATE 11/09/05	FIG. 7

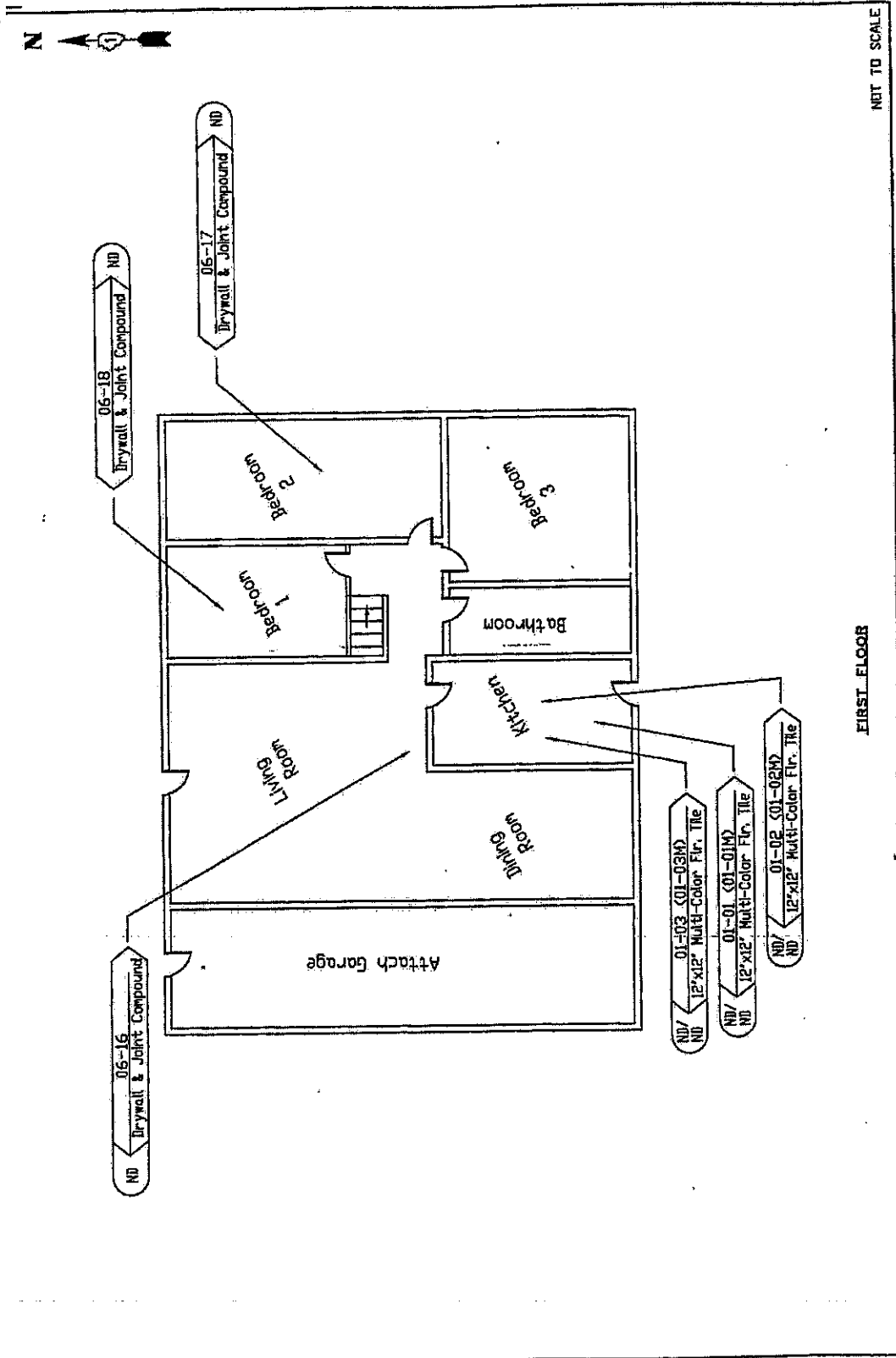




NOT TO SCALE

BASEMENT FLOOR

	EDI ENVIRONMENTAL & INDUSTRIAL HYGIENE 200 S. MICHIGAN AVE., SUITE 200 CHICAGO, IL 60604	ASBESTOS SAMPLE GROUP	SAMPLE NUMBER 04-11 (04-11M)	LEAD SAMPLE NUMBER 04-11 (04-11M)	SAMPLE NUMBER 04-11 (04-11M)	DRAWN S.V.	CHECKED D.M.	DATE 09/21/04	FIG. 6
		221 E. MAIN STREET LAKE ZURICH, ILLINOIS PARCEL NO. 1E70128	ILLINOIS DEPARTMENT OF TRANSPORTATION 3500 SOUTH DIRKSEN PARKWAY SPRINGFIELD, ILLINOIS 62704	PROJECT NO. 1173.011.82	SCALE: NTS	EDI	N/A NA	N/A NA	N/A NA



FIRST FLOOR

<p>ED INDUSTRIAL HY. ASBESTOS DATA 1173_011_92\FIRST_FLOOR</p>	<p>ASBESTOS</p> <p>DATE: 06/21/04</p> <p>SCALE: NTS</p>	<p>PROJECT NO. 1173.011.92</p>	<p>DATE 06/21/04</p>	<p>FIG. 5</p>
	<p>231 E. MAIN STREET          LAKE ZURICH, ILLINOIS          PARCEL NO. 1670125</p>	<p>ILLINOIS DEPARTMENT OF TRANSPORTATION          2300 SOUTH DIRKSEH PARKWAY          SPRINGFIELD, ILLINOIS 62704</p>	<p>ED I          PROJECT NO.          1173.011.92</p>	<p>CHECKED          S.V.          S.M.</p>
<p>ASBESTOS</p> <p>DATE: 06/21/04</p> <p>SCALE: NTS</p>	<p>ASBESTOS</p> <p>DATE: 06/21/04</p> <p>SCALE: NTS</p>	<p>ASBESTOS</p> <p>DATE: 06/21/04</p> <p>SCALE: NTS</p>	<p>ASBESTOS</p> <p>DATE: 06/21/04</p> <p>SCALE: NTS</p>	<p>ASBESTOS</p> <p>DATE: 06/21/04</p> <p>SCALE: NTS</p>

**APPENDIX B**

Material Description Table & Material Quantities Table

**SECTION 1**  
**1.2 Results Summary**

**ACM SURVEY RESULTS – PARCEL NO.: 1E70043**  
**218 Meadow Lane, Lake Zurich, Illinois**

The following homogeneous building material types were sampled as part of this survey and their results are summarized in the table below:

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
01-01	Brown 9"x9" Floor Tile	Living Room	NF	Fair	*1-5%	3	330 Sq. Ft.
01-02		Living Room	NF	Fair	ND		30.66 m <sup>2</sup>
01-03		Living Room	NF	Fair	ND		
01-01M	Brown 9"x9" Floor Tile Mastic	Living Room	NF	Fair	ND	3	330 Sq. Ft.
01-02M		Living Room	NF	Fair	ND		30.66 m <sup>2</sup>
01-03M		Living Room	NF	Fair	ND		
02-04	Yellow Multi-Layer 12"x12" Floor Tile	Boiler Room	NF	Fair	1-6%	3	66 Sq. Ft.
02-05			NF	Fair	NA		6.13 m <sup>2</sup>
02-06			NF	Fair	NA		
02-04M	Yellow Multi-Layer 12"x12" Floor Tile Mastic	Boiler Room	NF	Fair	ND	3	66 Sq. Ft.
02-05M			NF	Fair	ND		6.13 m <sup>2</sup>
02-06M			NF	Fair	ND		
03-07	Multi-Color 9"x9" Floor Tile	Bed Room 1	NF	Fair	1%-5%	3	100 Sq. Ft.
03-08			NF	Fair	NA		9.29 m <sup>2</sup>
03-09			NF	Fair	NA		
03-07M	Multi-Color 9"x9" Floor Tile Mastic	Bed Room 1	NF	Fair	ND	3	100 Sq. Ft.
03-08M			NF	Fair	ND		9.29 m <sup>2</sup>
03-09M			NF	Fair	ND		
04-10	Blue 9"x9" Floor Tile	Bed Room 2	NF	Fair	*1-5%	3	100 Sq. Ft.
04-11			NF	Fair	ND		9.29 m <sup>2</sup>
04-12			NF	Fair	ND		
04-10m	Blue 9"x9" Floor Tile Mastic	Bed Room 2	NF	Fair	ND	3	100 Sq. Ft.
04-11m			NF	Fair	ND		9.29 m <sup>2</sup>
04-12m			NF	Fair	ND		
05-13	Gray 9"x9" Floor Tile	Bed Room 3	NF	Fair	*1-5%	3	121 Sq. Ft.
05-14			NF	Fair	ND		11.24 m <sup>2</sup>
05-15			NF	Fair	ND		
05-13m	Gray 9"x9" Floor Tile Mastic	Bed Room 3	NF	Fair	ND	3	121 Sq. Ft.
05-14m			NF	Fair	ND		11.24 m <sup>2</sup>
05-15m			NF	Fair	ND		
06-16	Off White 12"x12" Floor Tile	Bath Room 2	NF	Fair	* ND	3	37 Sq. Ft.
06-17			NF	Fair	ND		3.43 m <sup>2</sup>
06-18			NF	Fair	ND		
06-16m	Off White 12"x12" Floor Tile Mastic	Bath Room 2	NF	Fair	ND	3	37 Sq. Ft.
06-17m			NF	Fair	ND		11.43 m <sup>2</sup>
06-18m			NF	Fair	ND		
07-19	Light Brown 12"x12" Floor Tile	Ent. To Living Room	NF	Fair	* ND	3	9 Sq. Ft.
07-20			NF	Fair	ND		0.84 m <sup>2</sup>
07-21			NF	Fair	ND		
07-19m	Light Brown 12"x12" Floor Tile Mastic	Ent. To Living Room	NF	Fair	ND	3	9 Sq. Ft.
07-20m			NF	Fair	ND		0.84 m <sup>2</sup>
07-21m			NF	Fair	ND		
08-22	Brown 12"x12" Floor Tile	Ent. To Family Room	NF	Fair	* ND	3	40 Sq. Ft.
08-23		Bath Room 1	NF	Fair	ND		3.72m <sup>2</sup>
08-24		Bath Room 1	NF	Fair	ND		
08-22m	Brown 12"x12" Floor Tile Mastic	Ent. To Family Room	NF	Fair	ND	3	40Sq. Ft.
08-23m		Bath Room 1	NF	Fair	ND		3.72 m <sup>2</sup>
08-24m		Bath Room 1	NF	Fair	ND		
09-25	Tan 12"x12" Floor Tile	Kitchen	NF	Fair	* ND	3	110 Sq. Ft.
09-26			NF	Fair	ND		10.22 m <sup>2</sup>
09-27			NF	Fair	ND		

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
09-25m 09-26m 09-27m	Tan 12"x12" Floor Tile Mastic	Kitchen	NF NF NF	Fair Fair Fair	ND ND ND	3	110 Sq. Ft. 10.22 m <sup>2</sup>
10-28 10-29 10-30	Drywall/Joint Comp.	Living Room S. Wall Bed Room 2 N. Wall Living Room W. Wall	NF NF NF	Fair Fair Fair	ND ND ND	3	3696 Sq. Ft. 343.37 m <sup>2</sup>
11-31 11-32 11-33	Roof Shingle	House- Roof	NF NF NF	Fair Fair Fair	ND ND ND	3	2024 Sq. Ft. 188.04 m <sup>2</sup>
12-34 12-35 12-36	Roof Shingle	Garage- Roof	NF NF NF	Fair Fair Fair	ND ND ND	3	440 Sq. Ft. 40.88 m <sup>2</sup>
13-37 13-38 13-39	Drywall/Joint Comp.	Garage N. Wall Garage N. Wall Garage S. Wall	NF NF NF	Fair Fair Fair	ND ND ND	3	115 Sq. Ft. 10.68 m <sup>2</sup>
<b>TOTAL QUANTITY OF ACM</b>							<b>717 Sq. Ft. 66.69 m<sup>2</sup></b>

<sup>1</sup> F = Friable; NF = Nonfriable      Friability is further defined in section 4.  
<sup>2</sup> Cond. = Condition Of Materials      Either good, fair or poor.  
<sup>3</sup> ND = None Detected  
 NA = Not Analyzed  
 \*TEM = Electron Microscopy

**SECTION 1**  
**1.2 Results Summary**

**ACM SURVEY RESULTS – PARCEL NO.: 1E70045**  
**209 Prairie Lane, Lake Zurich, Illinois**

The following homogeneous building material types were sampled as part of this survey and their results are summarized in the table below:

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/ METRIC
01-01 01-02 01-03	Asphalt Roof Shingles	Roof Roof Roof	NF NF NF	Good Good Good	ND ND ND	3	1,000 Sq. Ft. 93 m <sup>2</sup>
02-04 02-05 02-06	Exterior Caulk	Around Doors and Windows	NF NF NF	Fair Fair Fair	ND ND ND	3	300 Sq. Ft. 27.9 m <sup>2</sup>
03-07 03-08 03-09	12"x 12" Floor Tile	Kitchen Kitchen Kitchen	NF NF NF	Good Good Good	ND ND ND	3	156 Sq. Ft. 14.51 m <sup>2</sup>
03-07m 03-08m 03-09m	12"x 12" Floor Tile-Mastic	Kitchen Kitchen Kitchen	NF NF NF	Good Good Good	ND ND ND	3	156 Sq. Ft. 14.51 m <sup>2</sup>
04-10 04-11 04-12	12"x 12" Brown Streaks Floor Tile	Living Room Bedrooms Hallway	NF NF NF	Good Good Good	*1-5% ND ND	3	625 Sq. Ft. 58.13 m <sup>2</sup>
04-10m 04-11m 04-12m	12"x 12" Brown Streaks Floor Tile-Mastic	Living Room Bedrooms Hallway	NF NF NF	Good Good Good	ND ND ND	3	625 Sq. Ft. 58.13 m <sup>2</sup>
05-13 05-14 05-15	12"x 12" Decorative Floor Tile	Bathroom Bathroom Bathroom	NF NF NF	Good Good Good	ND ND ND	3	36 Sq. Ft. 3.35 m <sup>2</sup>
05-13m 05-14m 05-15m	12"x 12" Decorative Floor Tile-Mastic	Bathroom Bathroom Bathroom	NF NF NF	Good Good Good	ND ND ND	3	36 Sq. Ft. 3.35 m <sup>2</sup>
06-16 06-17 06-18	Drywall and Compound	Living Room Bathroom Bedroom	F F F	Good Good Good	ND ND ND	3	1,900 Sq. Ft. 344.1m <sup>2</sup>
07-19 07-20 07-21	Duct Wrap Insulation	Basement Basement Basement	NF NF NF	Good Good Good	ND ND ND	3	80 Lin. Ft. 24.38 m <sup>2</sup>
08-22 08-23 08-24	Loose Fill Insulation	Attic Attic Attic	NF NF NF	Good Good Good	ND ND ND	3	1,000 Sq. Ft. 93 m <sup>2</sup>
<b>TOTAL QUANTITY OF ACM</b>							<b>625 Sq. Ft. 58.13 m<sup>2</sup></b>

<sup>1</sup> F = Friable; NF = Non-friable      Friability is further defined in section 4.  
<sup>2</sup> Cond. = Condition Of Materials      Either good, fair or poor.  
<sup>3</sup> ND = None Detected  
 NA = Not Analyzed  
 \*TEM = Electron Microscopy

**SECTION 1**  
**1.2 Results Summary**

**ACM SURVEY RESULTS – PARCEL NO.: 1E70106**  
**17 Cherokee Road, Lake Zurich, Illinois**

The following homogeneous building material types were sampled as part of this survey and their results are summarized in the table below:

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
01-01 01-02 01-03	Asphalt Roof Shingles	House Roof House Roof Garage Roof	NF NF NF	Good Good Good	5-10% NA NA	3	1,200 Sq. Ft. 111.6 m <sup>2</sup>
02-04 02-05 02-06	12"x 12" Decorative Floor Tile	Basement Basement Basement	NF NF NF	Good Good Good	ND ND ND	3	315 Sq. Ft. 29.3 m <sup>2</sup>
02-04m 02-05m 02-06m	12"x 12" Decorative Floor Tile-Mastic	Basement Basement Basement	NF NF NF	Good Good Good	ND ND ND	3	315 Sq. Ft. 29.3 m <sup>2</sup>
03-07 03-08 03-09	12"x 12" Yellow/ Orange Floor Tile	Laundry Room Laundry Room Laundry Room	NF NF NF	Good Good Good	*1-5% ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>
03-07m 03-08m 03-09m	12"x 12" Yellow/ Orange Floor Tile-Mastic	Laundry Room Laundry Room Laundry Room	NF NF NF	Good Good Good	ND ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>
04-10 04-11 04-12	2'x 4' Lay In Ceiling Tile	Basement Laundry Room Laundry Room	NF NF NF	Good Good Good	ND ND ND	3	330 Sq. Ft. 30.69 m <sup>2</sup>
05-13 05-14 05-15	12"x 12" White Marbled Floor Tile	Front Foyer and Kitchen Front Foyer and Kitchen Front Foyer and Kitchen	NF NF NF	Good Good Good	*1-5% ND ND	3	250 Sq. Ft. 23.25 m <sup>2</sup>
05-13m 05-14m 05-15m	12"x 12" White Marbled Floor Tile-Mastic	Front Foyer and Kitchen Front Foyer and Kitchen Front Foyer and Kitchen	NF NF NF	Good Good Good	ND ND ND	3	250 Sq. Ft. 23.25 m <sup>2</sup>
06-16 06-17 06-18	White Linoleum Sheeting	Bathroom Bathroom Bathroom	NF NF NF	Good Good Good	ND ND ND	3	115 Sq. Ft. 10.7 m <sup>2</sup>
06-16m 06-17m 06-18m	White Linoleum Sheeting Mastic	Bathroom Bathroom Bathroom	NF NF NF	Good Good Good	ND ND ND	3	115 Sq. Ft. 10.7 m <sup>2</sup>
07-19 07-20 07-21	Drywall and Joint Compound	Bedroom Bathroom Kitchen	NF NF NF	Good Good Good	ND ND ND	3	4,600 Sq. Ft. 427.8 m <sup>2</sup>
08-22 08-23 08-24	Yellow Loose Fill Insulation	Attic Attic Attic	NF NF NF	Good Good Good	ND ND ND	3	1,000 Sq. Ft. 93 m <sup>2</sup>
09-25 09-26 09-27	Window Caulk	Exterior Windows Exterior Windows Exterior Windows	NF NF NF	Fair Fair Fair	ND ND ND	3	150 Lin. Ft. 45.72 m <sup>2</sup>
<b>TOTAL QUANTITY OF ACM</b>							<b>1,650 Sq. Ft. 153.45 m<sup>2</sup></b>

Bella Donna Labs, Inc.

NVLAP Accredited# 101868-0

200 S. Michigan Ave.  
 Chicago, IL 60604

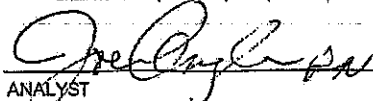
BATCH# 500631

**LABORATORY ANALYSIS REPORT**

*Bulk Asbestos Identification*

Client				Site 21 Mohawk Trail, Lake Zurich, IL				
Client Reference 1173.011.48				Sender Doug McCormick				
Date Received 10/24/2003 by Joseph Anzlovar				Date Analyzed 10/25/2003 by Joseph Anzlovar				
Date Collected 10/24/2003 by Doug McCormick				Date Reported 11/05/2003 by Melissa Gilmore				
Method EPA-600/R-93/116, using Polarized Light Microscopy								
Field #	Lab #	Asb Detected	% Asbestos	% Fibrous Material	% NonFibrous Material	Ho-mo-gen.	Color	Description, Location
01-01 Layer1	1	No			Binder 100	Yes	Orange	12"x12" Brick Patter Linoleum Tile
01-02 layer 1	2	No			Binder 100	Yes	Orange	12"x12" Brick Patter Linoleum Tile
01-03 layer 1	3	No			Binder 100	Yes	Orange	12"x12" Brick Patter Linoleum Tile
01-01m layer1	4	No			Binder 100	Yes	White	12"x12" Brick Patter Linoleum tile mastic
01-02m layer1	5	No			Binder 100	Yes	White	12"x12" Brick Patter Linoleum tile mastic
01-03m layer 1	6	No			Binder 100	Yes	White	12"x12" Brick Patter Linoleum tile mastic
02-04	7	No			Binder 100		White	12"x12" White lino t
02-05	8	No			Binder 100		White	12"x12" White lino t
02-06	9	No			Binder 100		White	12"x12" White lino t
02-04m	10	No			Binder 100	Yes	White	12"x12" white lino tile mastic
02-05m	11	No			Binder 100	Yes	White	12"x12" white lino tile mastic
02-06m	12	No			Binder 100	Yes	White	12"x12" white lino tile mastic
03-07	13	Yes	Chrysotile 10 - 15		Binder 85	Yes	Brown	9"x9" Tile under woo
03-07m	16	Yes	Chrysotile 1 - 5		Binder 95	Yes	Black	9"x9" tile under wood mastic
04-10	19	No		Cellulose 90 - 95	Binder 5		White Brown	1'x1' white ceiling
04-11	20	No		Cellulose 90 - 95	Binder 5		White Brown	1'x1' white ceiling
04-12	21	No		Cellulose 90 - 95	Binder 5		White Brown	1'x1' white ceiling
05-13	22	No		Cellulose 90 - 95	Binder 5		White	2x4 white fissure C.T.

**Note** This report summarizes the analytical results for the bulk material samples submitted for asbestos identification. Analysis of sample was performed in accordance with the Method #EPA-600/R-93/116 utilizing polarized light microscopy with dispersion staining. This report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced, except in full, and only with written approval of the laboratory.

  
 ANALYST

BATCH# 500631

**LABORATORY ANALYSIS REPORT**

*Bulk Asbestos Identification*

Client Site 21 Mohawk Trail, Lake Zurich, IL  
 Client Reference 1173.011.48 Sender Doug McCormick

Date Received 10/24/2003 by Joseph Anzlovar Date Analyzed 10/25/2003 by Joseph Anzlovar  
 Date Collected 10/24/2003 by Doug McCormick Date Reported 11/05/2003 by Melissa Gilmore  
 Method EPA-600/R-93/116, using Polarized Light Microscopy

Field #	Lab #	Asb Detected	% Asbestos	% Fibrous Material	% NonFibrous Material	Ho-mo-gen.	Color	Description, Location
							Brown	
05-14	23	No		Cellulose 90 - 95	Binder 5		White Brown	2x4' white fissure C.T.
05-15	24	No		Cellulose 90 - 95	Binder 5		White Brown	2x4' white fissure C.T.
06-16	25	No		Cellulose 90 - 95	Binder 5		White Brown	2x4' white textured C.T.
06-17	26	No		Cellulose 90 - 95	Binder 5		White Brown	2x4' white textured C.T.
06-18	27	No		Cellulose 90 - 95	Binder 5		White Brown	2x4' white textured C.T.
07-19	28	No		Fibrous Glass 10 - 15 Cellulose 10 - 15	Binder 70		White Black	Asphalt Shingles
07-20	29	No		Fibrous Glass 10 - 15 Cellulose 10 - 15	Binder 70		White Black	Asphalt Shingles
07-21	30	No		Fibrous Glass 10 - 15 Cellulose 10 - 15	Binder 70		White Black	Asphalt Shingles
08-22 dw	31	No		Cellulose 25 - 30	Binder 70		White Brown	Drywall
08-23 dw	32	No		Cellulose 25 - 30	Binder 70		White Brown	Drywall
08-24 dw	33	No		Cellulose 25 - 30	Binder 70		White Brown	Drywall
09-27	34	Yes	Chrysotile 65 - 70		Binder 30		Gray	Transite under skin
10-30	37	No		Cellulose 100		Yes	Brown	Ceiling Tile
10-31	38	No		Cellulose 100		Yes	Brown	Ceiling Tile
10-32	39	No		Cellulose 100		Yes	Brown	Ceiling Tile
10-30m	40	No		Cellulose 1 - 5	Binder 95	Yes	Brown	Ceiling Tile Mastic

**Note** This report summarizes the analytical results for the bulk material samples submitted for asbestos identification. Analysis of sample was performed in accordance with the Method #EPA-600/R-93/116 utilizing polarized light microscopy with dispersion staining. This report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced, except in full, and only with written approval of the laboratory.

ANALYST



BATCH# 500631

**LABORATORY ANALYSIS REPORT**

*Bulk Asbestos Identification*

Client				Site 21 Mohawk Trail, Lake Zurich, IL				
Client Reference 1173.011.48				Sender Doug McCormick				
Date Received 10/24/2003 by Joseph Anzlovar				Date Analyzed 10/25/2003 by Joseph Anzlovar				
Date Collected 10/24/2003 by Doug McCormick				Date Reported 11/05/2003 by Melissa Gilmore				
Method EPA-600/R-93/116, using Polarized Light Microscopy								
Field #	Lab #	Asb Detected	% Asbestos	% Fibrous Material	% NonFibrous Material	Ho-mo-gen.	Color	Description, Location
10-31m	41	No		Cellulose 1 - 5	Binder 95	Yes	Brown	Ceiling Tile Mastic
10-32m	42	No		Cellulose 1 - 5	Binder 95	Yes	Brown	Ceiling Tile Mastic
08-22 j.c.	43	No			Binder 100		White Blue	Joint Comp
08-23 j.c.	44	No			Binder 100		White Blue	Joint Comp
08-24 j.c.	45	No			Binder 100		White Blue	Joint Comp
01-01 layer 2	46	No			Binder 100	Yes	Black	12"x12" Brick Patter Linoleum under tile
01-02 layer 2	47	No			Binder 100	Yes	Black	12"x12" Brick Patter Linoleum tile
01-03 layer 2	48	No			Binder 100	Yes	Black	12"x12" Brick Patter Linoleum tile
01-01m Layer 2	49	No			Binder 100	Yes	White	12"x12" Brick Patter Linoleum Tile Mastic
01-02m Layer 2	50	No			Binder 100	Yes	White	12"x12" Brick Patter Linoleum Tile Mastic
01-03m Layer 2	51	No			Binder 100	Yes	White	12"x12" Brick Patter Linoleum Tile Mastic

**Note** This report summarizes the analytical results for the bulk material samples submitted for asbestos identification. Analysis of sample was performed in accordance with the Method #EPA-600/R-93/116 utilizing polarized light microscopy with dispersion staining. This report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced, except in full, and only with written approval of the laboratory.

ANALYST

**SECTION 1**  
 1.2 Results Summary

**ACM SURVEY RESULTS – PARCEL NO.: 1E70117**  
 1&7 Mohawk Trail, Lake Zurich, Illinois

The following homogeneous building material types were sampled as part of this survey and their results are summarized in the table below:

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
01-01 01-02 01-03 01-04 01-05 01-06 01-07	Drywall and Joint Compound	Bldg. 1 Apt.1N Bathroom Bldg. 1 Apt.1N Bedroom Bldg. 7 Apt.1N Living Rm. Bldg. 7 Apt.2N Bathroom Bldg. 1 Apt.2N Bedroom Bldg. 7 Apt.2S Front Rm. Bldg. 7 Apt. 3N Kitchen	NF NF NF NF NF NF NF	Good Good Good Good Good Good Good	ND ND ND ND ND ND ND	7	7,500 Sq. Ft. 697.5 m <sup>2</sup>
02-08 02-09 02-10	12"x12" Gray w/ Light Green Squares Floor Tile	Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
02-08m 02-09m 02-10m	12"x12" Gray w/ Light Green Squares Floor Tile – Mastic	Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
03-11 03-12 03-13	12"x12" Yellow w/Orange Floor Tile	Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen	NF NF NF	Good Good Good	5-10% NA NA	3	170 Sq. Ft. 15.81 m <sup>2</sup>
03-11m 03-12m 03-13m	12"x12" Yellow w/Orange Floor Tile – Mastic	Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen Bldg. 1 Apt. 1N Kitchen	NF NF NF	Good Good Good	1-5% NA NA	3	170 Sq. Ft. 15.81 m <sup>2</sup>
04-14 04-15 04-16	Window Caulk	Building 1 Building 1 Building 7	NF NF NF	Good Good Good	1-5% NA NA	3	300 Lin. Ft 91.44 m
05-17 05-18 05-19	Roofing Material	Building 1 Building 1 Building 7	NF NF NF	Good Good Good	ND ND ND	3	1,100 Sq. Ft 102.3 m <sup>2</sup>
06-20 06-21 06-22	Roofing Material	Building 1 Building 1 Building 1	NF NF NF	Good Good Good	ND ND ND	3	1,500 Sq. Ft 139.5 m <sup>2</sup>
07-23 07-24 07-25	12"x 12" Brown w/Brown Spots Floor Tile	Building 1 Storage Area Building 1 Storage Area Building 1 Storage Area	NF NF NF	Good Good Good	ND ND ND	3	145 Sq. Ft. 13.49 m <sup>2</sup>
07-23m 07-24m 07-25m	12"x 12" Brown w/Brown Spots Floor Tile -Mastic	Building 1 Storage Area Building 1 Storage Area Building 1 Storage Area	NF NF NF	Good Good Good	1-5% NA NA	3	145 Sq. Ft. 13.49 m <sup>2</sup>
08-26 08-27 08-28	Sprayed Ceiling Paint	Bldg. 1 Apt.1N Kitchen Bldg. 1 Apt.2S Bedroom Bldg. 7 Apt.2N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	4,000 Sq. Ft. 372 m <sup>2</sup>
09-29 09-30 09-31	12"x 12" Crème w/Patterns Floor Tile	Bldg. 1 Apt. 1S Kitchen Bldg. 1 Apt. 1S Kitchen Bldg. 1 Apt. 1S Kitchen	NF NF NF	Good Good Good	ND ND ND	3	180 Sq. Ft. 16.74 m <sup>2</sup>
09-29m 09-30m 09-31m	12"x 12" Crème w/Patterns Floor Tile – Mastic	Bldg. 1 Apt. 1S Kitchen Bldg. 1 Apt. 1S Kitchen Bldg. 1 Apt. 1S Kitchen	NF NF NF	Good Good Good	1-5% NA NA	3	180 Sq. Ft. 16.74 m <sup>2</sup>
10-32 10-33 10-34	2'x 2' Ceramic Floor Tile	Bldg. 1 Apt. 2N Kitchen Bldg. 1 Apt. 2N Kitchen Bldg. 1 Apt. 2N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
10-32m 10-33m 10-34m	2'x 2' Ceramic Floor Tile – Mastic	Bldg. 1 Apt. 2N Kitchen Bldg. 1 Apt. 2N Kitchen Bldg. 1 Apt. 2N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
11-35 11-36 11-37	Fire Door Insulation	Building 1 Apt. 3N Building 1 Apt. 3N Building 1 Apt. 3N	NF NF NF	Good Good Good	ND ND ND	3	20 Ea.

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
12-38 12-39 12-40	12"x 12" Crème/Grey Floor Tile	Bldg. 1 Apt. 1N Util. Clos. Bldg. 1 Apt. 2S Util. Clos. Bldg. 1 Apt. 3N Util. Clos.	NF NF NF	Good Good Good	ND ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>
12-38m 12-39m 12-40m	12"x 12" Crème/Grey Floor Tile - Mastic	Bldg. 1 Apt. 1N Util. Clos. Bldg. 1 Apt. 2S Util. Clos. Bldg. 1 Apt. 3N Util. Clos.	NF NF NF	Good Good Good	1-5% NA NA	3	200 Sq. Ft. 18.6 m <sup>2</sup>
13-41 13-42 13-43	12"x 12" Tan w/Grey Streaks Floor Tile	Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	115 Sq. Ft. 10.7 m <sup>2</sup>
13-41m 13-42m 13-43m	12"x 12" Tan w/Grey Streaks Floor Tile - Mastic	Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen	NF NF NF	Good Good Good	1-5% NA NA	3	115 Sq. Ft. 10.7 m <sup>2</sup>
14-44 14-45 14-46	12"x 12" Black/Green Floor Tile	Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	20 Sq. Ft. 1.86 m <sup>2</sup>
14-44M 14-45M 14-46M	12"x 12" Black/Green Floor Tile Mastic	Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen Bldg. 1 Apt. 3N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	20 Sq. Ft. 1.86 m <sup>2</sup>
15-47 15-48 15-49	Soft Concrete	Bldg. 1 Apt. 2N Bldg. 1 Apt. 3S Bldg. 7 Apt. 2S	NF NF NF	Good Good Good	ND ND ND	3	7,500 Sq. Ft. 697.5 m <sup>2</sup>
16-50 16-51 16-52	12"x 12" Crème Speckled Floor Tile	Bldg. 7 Apt. 1S Util. Clos. Bldg. 7 Apt. 2N Util. Clos. Bldg. 7 Apt. 3N Util. Clos.	NF NF NF	Good Good Good	ND ND ND	3	180 Sq. Ft. 16.74 m <sup>2</sup>
16-50m 16-51m 16-52m	12"x 12" Crème Speckled Floor Tile - Mastic	Bldg. 7 Apt. 1S Util. Clos. Bldg. 7 Apt. 2N Util. Clos. Bldg. 7 Apt. 3N Util. Clos.	NF NF NF	Good Good Good	ND ND ND	3	180 Sq. Ft. 16.74 m <sup>2</sup>
17-53 17-54 17-55	Roofing Material	Building 7 Building 7 Building 7	NF NF NF	Good Good Good	ND ND ND	3	1,500 Sq. Ft. 139.5 m <sup>2</sup>
18-56 18-57 18-58	12"x 12" Ceramic Floor Tile	Bldg. 7 Apt. 1S Kitchen Bldg. 7 Apt. 1S Kitchen Bldg. 7 Apt. 1S Kitchen	NF NF NF	Good Good Good	ND ND ND	3	180 Sq. Ft. 16.74 m <sup>2</sup>
18-56m 18-57m 18-58m	12"x 12" Ceramic Floor Tile - Mastic	Bldg. 7 Apt. 1S Kitchen Bldg. 7 Apt. 1S Kitchen Bldg. 7 Apt. 1S Kitchen	NF NF NF	Good Good Good	ND ND ND	3	180 Sq. Ft. 16.74 m <sup>2</sup>
19-59 19-60 19-61	12"x 12" Red/White Floor Tile	Bldg. 7 Apt. 2S Kitchen Bldg. 7 Apt. 2S Kitchen Bldg. 7 Apt. 2S Kitchen	NF NF NF	Good Good Good	ND ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>
19-59m 19-60m 19-61m	12"x 12" Red/White Floor Tile - Mastic	Bldg. 7 Apt. 2S Kitchen Bldg. 7 Apt. 2S Kitchen Bldg. 7 Apt. 2S Kitchen	NF NF NF	Good Good Good	ND ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>
20-62 20-63 20-64	12"x 12" White Squared Floor Tile	Bldg. 7 Apt 2N Kitchen Bldg. 7 Apt 2N Kitchen Bldg. 7 Apt 2N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
20-62m 20-63m 20-64m	12"x 12" White Squared Floor Tile - Mastic	Bldg. 7 Apt 2N Kitchen Bldg. 7 Apt 2N Kitchen Bldg. 7 Apt 2N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
21-65 21-66 21-67	12"x 12" Yellow Marbled Floor Tile	Bldg. 7 Apt. 1N Kitchen Bldg. 7 Apt. 1N Kitchen Bldg. 7 Apt. 1N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
21-65m 21-66m 21-67m	12"x 12" Yellow Marbled Floor Tile - Mastic	Bldg. 7 Apt. 1N Kitchen Bldg. 7 Apt. 1N Kitchen Bldg. 7 Apt. 1N Kitchen	NF NF NF	Good Good Good	1-5% NA NA	3	170 Sq. Ft. 15.81 m <sup>2</sup>
22-68 22-69 22-70	12"x 12" Tan Speckled Floor Tile	Bldg. 7 Walkway Storage Bldg. 7 Walkway Storage Bldg. 7 Walkway Storage	NF NF NF	Good Good Good	1-5%* ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
22-68m 22-69m 22-70m	12"x 12" Tan Speckled Floor Tile - Mastic	Bldg. 7 Walkway Storage Bldg. 7 Walkway Storage Bldg. 7 Walkway Storage	NF NF NF	Good Good Good	ND ND ND	3	200 Sq. Ft. 18.6 m <sup>2</sup>
23-71 23-72 23-73	12"x 12" Off-White Patterned Floor Tile	Bldg. 7 Apt. 3N Kitchen Bldg. 7 Apt. 3N Kitchen Bldg. 7 Apt. 3N Kitchen	NF NF NF	Good Good Good	ND ND ND	3	170 Sq. Ft. 15.81 m <sup>2</sup>
23-71m 23-72m 23-73m	12"x 12" Off-White Patterned Floor Tile - Mastic	Bldg. 7 Apt. 3N Kitchen Bldg. 7 Apt. 3N Kitchen Bldg. 7 Apt. 3N Kitchen	NF NF NF	Good Good Good	1-5% NA NA	3	170 Sq. Ft. 15.81 m <sup>2</sup>
TOTAL QUANTITY OF ACM							1,350 Sq. Ft. 125.55 m <sup>2</sup> 300 Lin. Ft. 91.44 M

<sup>1</sup> F = Friable; NF = Nonfriable      Friability is further defined in section 4.  
<sup>2</sup> Cond. = Condition Of Materials      Either good, fair or poor.  
<sup>3</sup> ND = None Detected  
 NA = Not Analyzed  
 \*TEM = Electron Microscopy

Bella Donna Labs, Inc.

NVLAP Accredited# 101868-0

200 S. Michigan Ave.  
 Chicago, IL 60604

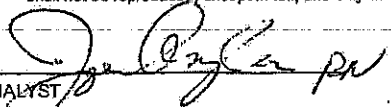
BATCH# 500633

**LABORATORY ANALYSIS REPORT**

*Bulk Asbestos Identification*

Client				Site 211 E. Main, Lake Zurich, IL				
Client Reference 1173.011.48				Sender Doug McCormick				
Date Received 10/24/2003 by Joseph Anziovar				Date Analyzed 10/25/2003 by Joseph Anziovar				
Date Collected 10/24/2003 by Doug McCormick				Date Reported 11/05/2003 by Melissa Gilmore				
Method EPA-600/R-93/116, using Polarized Light Microscopy								
Field #	Lab #	Asb Detected	% Asbestos	% Fibrous Material	% NonFibrous Material	Ho-mo-gen.	Color	Description, Location
01-01 layer 1	1	No			Binder 100		White	Linoleum tile Multiple layers
01-02 layer 1	2	No			Binder 100		White	Linoleum tile Multiple layers
01-03 layer 1	3	No			Binder 100		White	Linoleum tile Multiple layers
01-01 layer 2	4	No			Binder 100	Yes	Gray	Linoleum tile Multiple layers
01-02 layer 2	5	No			Binder 100	Yes	Gray	Linoleum tile Multiple layers
01-03 layer 2	6	No			Binder 100	Yes	Gray	Linoleum tile Multiple layers
01-01m layer 1	7	No			Binder 100	Yes	White	Multiple layers Linoleum tile mastic
01-02m layer 1	8	No			Binder 100	Yes	White	Multiple layers Linoleum tile mastic
01-03m layer 1	9	No			Binder 100	Yes	White Black	Multiple layers Linoleum tile mastic
01-01m layer 2	10	Yes	Chrysotile 1 - 5	Cellulose 1 - 5	Binder 90	Yes	Black	Multiple Layers Linoleum tile mastic
02-04	13	No		Cellulose 1 - 5	Binder 95		Brown Black	under carpet black mastic
02-05	14	No		Cellulose 1 - 5	Binder 95		Brown Black	under carpet black mastic
02-06	15	No		Cellulose 1 - 5	Binder 95		Brown Black	under carpet black mastic
03-07	16	No		Cellulose 25 - 30	Binder 70		White Brown	Drywall & joint comp
03-08	17	No		Cellulose 25 - 30	Binder 70		White Brown	Drywall & joint comp
03-09	18	No		Cellulose 25 - 30	Binder 70		White Brown	Drywall & joint comp
04-10	19	No		Fibrous Glass 10 - 15 Cellulose 10 - 15	Binder 70		White Black	Roof Asphalt shingles

**Note** This report summarizes the analytical results for the bulk material samples submitted for asbestos identification. Analysis of sample was performed in accordance with the Method #EPA-600/R-93/116 utilizing polarized light microscopy with dispersion staining. This report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced, except in full, and only with written approval of the laboratory.

ANALYST 

**LABORATORY ANALYSIS REPORT**  
*Bulk Asbestos Identification*

BATCH# 500633

Client				Site 211 E. Main, Lake Zurich, IL				
Client Reference 1173.011.48				Sender Doug McCormick				
Date Received 10/24/2003 by Joseph Anzlovar				Date Analyzed 10/25/2003 by Joseph Anzlovar				
Date Collected 10/24/2003 by Doug McCormick				Date Reported 11/05/2003 by Melissa Gilmore				
Method EPA-600/R-93/116, using Polarized Light Microscopy								
Field #	Lab #	Asb Date-cted	% Asbestos	% Fibrous Material	% NonFibrous Material	Ho-mo-gen.	Color	Description, Location
04-11	20	No		Fibrous Glass 10 - 15 Cellulose 10 - 15	Binder 70		White Black	Roof Asphalt shingles
04-12	21	No		Fibrous Glass 10 - 15 Cellulose 10 - 15	Binder 70		White Black	Roof Asphalt shingles
05-13	22	Yes	Chrysotile 1 - 5		Binder 95		White	9'x9' Floor Tile
05-13m	25	Yes	Chrysotile 1 - 5	Cellulose 1 - 5	Binder 90	Yes	Black	12'x12' Floor Tile mastic

**Note** This report summarizes the analytical results for the bulk material samples submitted for asbestos identification. Analysis of sample was performed in accordance with the Method #EPA-600/R-93/116 utilizing polarized light microscopy with dispersion staining. This report relates only to the items tested and must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced, except in full, and only with written approval of the laboratory.

ANALYST

Page 2

**SECTION 1**  
**1.2 Results Summary**

**ACM SURVEY RESULTS – PARCEL NO.: 1E70125**

**221 E. Main Street, Lake Zurich, Illinois**

The following homogeneous building material types were sampled as part of this survey and their results are summarized in the table below:

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
01-01 01-02 01-03	Multi-color 12"x12" Floor Tile	Kitchen Kitchen Kitchen	NF NF NF	Fair Fair Fair	* ND ND ND	3	80 Sq. Ft. 7.43 m <sup>2</sup>
01-01M 01-02M 01-03M	Multi-color 12"x12" Floor Tile Mastic	Kitchen Kitchen Kitchen	NF NF NF	Fair Fair Fair	ND ND ND	3	80 Sq. Ft. 7.43 m <sup>2</sup>
02-04 02-05 02-06	Dark Brown 9"x9" Floor Tile	Basement Family Rm. Basement Family Rm. Basement Family Rm.	NF NF NF	Fair Fair Fair	10-15% NA NA	3	285 Sq. Ft. 26.48 m <sup>2</sup>
02-04M 02-05M 02-06M	Dark Brown 9"x9" Floor Tile Mastic	Basement Family Rm. Basement Family Rm. Basement Family Rm.	NF NF NF	Fair Fair Fair	1-5% NA NA	3	285 Sq. Ft. 26.48 m <sup>2</sup>
03-07 03-08 03-09	Brown 12"x12" Floor Tile	Boiler Room Boiler Room Boiler Room	NF NF NF	Fair Fair Fair	* ND ND ND	3	170 Sq. Ft. 15.79 m <sup>2</sup>
03-07M 03-08M 03-09M	Brown 12"x12" Floor Tile Mastic	Boiler Room Boiler Room. Boiler Room	NF NF NF	Fair Fair Fair	ND ND ND	3	170 Sq. Ft. 15.49 m <sup>2</sup>
04-10 04-11 04-12	Tan Linoleum Tile	Basement Bathroom 2	NF NF NF	Fair Fair Fair	15-20% NA NA	3	15 Sq. Ft. 1.39 m <sup>2</sup>
04-10m 04-11m 04-12m	Tan Linoleum Tile Mastic	Basement Bathroom 2	NF NF NF	Fair Fair Fair	1-5% NA NA	3	15 Sq. Ft. 1.39 m <sup>2</sup>
05-13 05-14 05-15	White 1'x1' Ceiling tile	Basement Family Room	F F F	Fair Fair Fair	ND ND ND	3	285 Sq. Ft. 26.48 m <sup>2</sup>
05-13m 05-14m 05-15m	White 1'x1' Ceiling tile Mastic	Basement Family Room	NF NF NF	Fair Fair Fair	5-10% NA NA	3	285 Sq. Ft. 26.48 m <sup>2</sup>
06-16 06-17 06-18	Drywall/Joint comp.	1st Floor Liv. Rm, S. Wall Bed Rm, 2 E. Wall Bed Rm, 1 N. Wall	NF NF NF	Fair Fair Fair	ND ND ND	3	3004 Sq. Ft. 279.08 m <sup>2</sup>
07-19 07-20 07-21	Roof Shingle	Roof- House	NF NF NF	Good Good Good	ND ND ND	3	1200 Sq. Ft. 111.48 m <sup>2</sup>
<b>TOTAL QUANTITY OF ACM</b>							<b>585 Sq. Ft. 54.41 m<sup>2</sup></b>

<sup>1</sup> F = Friable; NF = Nonfriable      Friability is further defined in section 4.  
<sup>2</sup> Cond. = Condition Of Materials      Either good, fair or poor.  
<sup>3</sup> ND = None Detected  
 NA = Not Analyzed  
 \*TEM = Electron Microscopy

MTL #	MATERIAL DESCRIPTION	LOCATION	F/NF <sup>1</sup>	COND. <sup>2</sup>	% ACM <sup>3</sup>	# SAMP.	QUANTITY ENGLISH/METRIC
09-25m 09-26m 09-27m	Tan 12"x12" Floor Tile Mastic	Kitchen	NF NF NF	Fair Fair Fair	ND ND ND	3	110 Sq. Ft. 10.22 m <sup>2</sup>
10-28 10-29 10-30	Drywall/Joint Comp.	Living Room S. Wall Bed Room 2 N. Wall Living Room W. Wall	NF NF NF	Fair Fair Fair	ND ND ND	3	3696 Sq. Ft. 343.37 m <sup>2</sup>
11-31 11-32 11-33	Roof Shingle	House- Roof	NF NF NF	Fair Fair Fair	ND ND ND	3	2024 Sq. Ft. 188.04 m <sup>2</sup>
12-34 12-35 12-36	Roof Shingle	Garage- Roof	NF NF NF	Fair Fair Fair	ND ND ND	3	440 Sq. Ft. 40.88 m <sup>2</sup>
13-37 13-38 13-39	Drywall/Joint Comp.	Garage N. Wall Garage N. Wall Garage S. Wall	NF NF NF	Fair Fair Fair	ND ND ND	3	115 Sq. Ft. 10.68 m <sup>2</sup>
<b>TOTAL QUANTITY OF ACM</b>							<b>717 Sq. Ft. 66.69 m<sup>2</sup></b>

<sup>1</sup> F = Friable; NF = Nonfriable      Friability is further defined in section 4.  
<sup>2</sup> Cond. = Condition Of Materials      Either good, fair or poor.  
<sup>3</sup> ND = None Detected  
 NA = Not Analyzed  
 \*TEM = Electron Microscopy



**APPENDIX C**

Shipping Manifest & Instructions

APPENDIX C  
 SHIPPING MANIFEST  
 Generator

1. Work Site Name and Mailing Address		Owner's Name		Owner's Telephone No.
2. Operator's Name and Address				Operator's Telephone No
3. Waste Disposal Site (WDS) Name Mailing Address, and Physical Site Location				WDS Telephone No.
4. Name and Address of Responsible Agency				
5. Description of Materials				
6. Containers		No.	Type	
7. Total Quantity		M <sup>3</sup>	(Yd <sup>3</sup> )	
8. Special Handling Instructions and Additional Information				
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.				
Printed/Typed Name & Title		Signature		Month Day Year
Transporter				
10. Transporter 1 (Acknowledgement of Receipt of Materials)				
Printed/Typed Name & Title		Signature		Month Day Year
Address and Telephone No.				
11. Transporter 2 (Acknowledgement of Receipt of Materials)				
Printed/Typed Name & Title		Signature		Month Day Year
Address and Telephone No.				
Disposal Site				
12. Discrepancy Indication Space				
13. Waste Disposal Site Owner or Operator: Certification of Receipt of Asbestos Materials Covered By This Manifest Except As Noted in Item 12				
Printed/Typed Name & Title		Signature		Month Day Year

APPENDIX C

INSTRUCTIONS

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the Company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional Office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
  - Friable asbestos material
  - Nonfriable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
  - DM - Metal drums, barrels
  - DP - Plastic drums, barrels
  - BA - 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).
8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator shall read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator shall retain a copy of this form.

APPENDIX C

INSTRUCTIONS

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport.

NOTE: The transporter shall retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS shall note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.
13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS shall retain a completed copy of this form. The WDS shall also send a completed copy to the operator listed in Item 2.

**BUILDING REMOVAL - CASE IV (NO ASBESTOS) (BDE)**

Effective: September 1, 1990

Revised: August 1, 2001

**BUILDING REMOVAL:** This item shall consist of the removal and disposal of 5 building(s), together with all foundations, retaining walls, and piers, down to a plane 300 mm (1 ft.) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

<u>Bldg. No.</u>	<u>Parcel No.</u>	<u>Location</u>	<u>Description</u>
9	1E70048	35 Genesee	Once Commercial Building
12 & 13	1E70105	19 Mohawk	Single Family Residential
16	1E70108	157-159 Main	Once Commercial Building
17 & 18	1E70107	155 E. Main	One Single Family Residence
22	1E70123	215 E. Main	Single Family Residential

**Discontinuance of Utilities:** The Contractor shall arrange for the discontinuance of all utility services that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs:** Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

**Basis of Payment:** This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition. Any salvage value shall be reflected in the contract unit price for this item.

**Notifications:** The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least 10 days prior to commencement of any demolition activity.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276  
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.
- B. Prior to starting work, the Contractor shall submit proof of written notification and compliance with the "Notifications" paragraph.

**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."

**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.

### **STEEL COST ADJUSTMENT**

Effective: April 2, 2004

Revised: July 1, 2004

Description. At the bidder's option, a steel cost adjustment will be made to provide additional compensation to the Contractor or a credit to the Department for fluctuations in steel prices. The bidder must indicate on the attached form whether or not steel cost adjustments will be part of this contract. This attached form shall be submitted with the bid. Failure to submit the form shall make this contract exempt of steel cost adjustments.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

- Metal Piling (excluding temporary sheet piling)
- Structural Steel
- Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), frames and grates, and other miscellaneous items will be subject to a steel cost adjustment when the pay item they are used in has a contract value of \$10,000 or greater.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

- (a) Evidence that increased or decreased steel costs have been passed on to the Contractor.
- (b) The dates and quantity of steel, in kg (lb), shipped from the mill to the fabricator.
- (c) The quantity of steel, in kg (lb), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$$SCA = Q \times D$$

Where: SCA = steel cost adjustment, in dollars  
Q = quantity of steel incorporated into the work, in kg (lb)  
D = price factor, in dollars per kg (lb)

$$D = CBP_M - CBP_L$$

Where:  $CBP_M$  = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the American Metal Market (AMM) for the day the steel is shipped from the mill. The indices will be converted from dollars per ton to dollars per kg (lb).

$CBP_L$  = The average of the Consumer Buying Price indices for Shredded Auto Scrap (Chicago) and No. 1 Heavy Melt (Chicago) as published by the AMM for the day the contract is let. The indices will be converted from dollars per ton to dollars per kg (lb).

The unit masses (weights) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the  $CBP_M$  will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the  $CBP_L$  and  $CBP_M$  in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(CBP_L - CBP_M) \div CBP_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the steel items are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

**Attachment**

Item	Unit Mass (Weight)
Metal Piling (excluding temporary sheet piling)	
Furnishing Metal Pile Shells 305 mm (12 in.), 3.80 mm (0.179 in.) wall thickness)	34 kg/m (23 lb/ft)
Furnishing Metal Pile Shells 305 mm (12 in.), 6.35 mm (0.250 in.) wall thickness)	48 kg/m (32 lb/ft)
Furnishing Metal Pile Shells 356 mm (14 in.), 6.35 mm (0.250 in.) wall thickness)	55 kg/m (37 lb/ft)
Other piling	See plans
Structural Steel	See plans for weights
Reinforcing Steel	See plans for weights
Dowel Bars and Tie Bars	3 kg (6 lb) each
Mesh Reinforcement	310 kg/sq m (63 lb/100 sq ft)
Guardrail	
Steel Plate Beam Guardrail, Type A w/steel posts	30 kg/m (20 lb/ft)
Steel Plate Beam Guardrail, Type B w/steel posts	45 kg/m (30 lb/ft)
Steel Plate Beam Guardrail, Types A and B w/wood posts	12 kg/m (8 lb/ft)
Steel Plate Beam Guardrail, Type 2	140 kg (305 lb) each
Steel Plate Beam Guardrail, Type 6	570 kg (1260 lb) each
Traffic Barrier Terminal, Type 1 Special (Tangent)	330 kg (730 lb) each
Traffic Barrier Terminal, Type 1 Special (Flared)	185 kg (410 lb) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms	
Traffic Signal Post	16 kg/m (11 lb/ft)
Light Pole, Tenon Mount and Twin Mount, 9 m – 12 m (30 - 40 ft)	21 kg/m (14 lb/ft)
Light Pole, Tenon Mount and Twin Mount, 13.5 m – 16.5 m (45 - 55 ft)	31 kg/m (21 lb/ft)
Light Pole w/Mast Arm, 9 m – 15.2 m (30 - 50 ft)	19 kg/m (13 lb/ft)
Light Pole w/Mast Arm, 16.5 m – 18 m (55 - 60 ft)	28 kg/m (19 lb/ft)
Light Tower w/Luminaire Mount, 24 m – 33.5 m (80 - 110 ft)	46 kg/m (31 lb/ft)
Light Tower w/Luminaire Mount, 36.5 m – 42.5 m (120 - 140 ft)	97 kg/m (65 lb/ft)
Light Tower w/Luminaire Mount, 45.5 m – 48.5 m (150 – 160 ft)	119 kg/m (80 lb/ft)
Metal Railings (excluding wire fence)	
Steel Railing, Type SM	95 kg/m (64 lb/ft)
Steel Railing, Type S-1	58 kg/m (39 lb/ft)
Steel Railing, Type T-1	79 kg/m (53 lb/ft)
Steel Bridge Rail	77 kg/m (52 lb/ft)
Frames and Grates	
Frame	115 kg (250 lb)
Lids and Grates	70 kg (150 lb)



## Return With Bid

### ILLINOIS DEPARTMENT OF TRANSPORTATION

### OPTION FOR STEEL COST ADJUSTMENT

The bidder shall submit this form with his/her bid. Failure to submit the form shall make this contract exempt of steel cost adjustments. After award, this form, when submitted shall become part of the contract.

**Contract No.:** \_\_\_\_\_

**Company Name:** \_\_\_\_\_

**Contractor's Option:**

Is your company opting to include this special provision as part of the contract plans?

Yes                       No

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_



### Storm Water Pollution Prevention Plan

Route F.A.P. 337 (W. of Route 12 to E. of Beusching)  
Section 19R - 1  
County LAKE

Marked ILLINOIS ROUTE 22 (Half Day Road)  
Contract # 60997

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

John P. Kue  
Signature  
District Engineer  
Title

March 4 2003  
Date

#### 1. Site Description

- a. The following is a description of the construction activity which is the subject of this plan (use additional pages, as necessary):

The Proposed Improvement consists of Widening and Reconstruction of Existing Roadway (including new alignment) to provide two lanes in each direction separated by a barrier median. Combination concrete curb and gutter will be provided including an enclosed drainage system. The modernization and installation of new traffic signals at eight intersections will be provided. The traffic signals will be interconnected throughout the project corridor. The project also includes the construction of a new bridge structure carrying the E.J.&E. Railroad over realigned Route 22.

- b. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading (use additional pages, as necessary):

1. Stage 1 A : Construct Final Roadway Sta 8+300 - Sta 8+500 (EB) ; Sta 8+ 360 - Sta 8 + 550 (WB) ; Sta 8 + 650 - Sta 8 + 900 & Sta 9 + 325 - Sta 9 + 675 (EB & WB) ; (Traffic uses existing roadway); Construct partial detention areas; Construct temporary pavement on north side of Rand Road; construct railroad runaround and permanent bridge.
2. Stage 1 B : Construct Temporary Pavement Widening along South side (Traffic shifted to North side)
3. Stage 2A : Construct Final Pavement Widening (North side) Sta 6 + 930 - Sta 7 + 250 & Temporary Pavement Widening Sta 9 + 700 - Sta 10 + 000 (North side) & Sta 10 + 000 to 10 + 200 (South side)
4. Stage 3A : Construct Final Roadway Sta 8 + 900 - Sta 9 + 275 (WB) & Sta 9 + 675 - Sta 10 + 200 (EB)
5. Stage 3B : Construct Final Roadway Sta 7 + 250 - Sta 9 + 300 (EB) ; (3A & 3B Traffic uses South side of the roadway).
6. Stage 4A : Construct Final Roadway Sta 7 + 250 - Sta 8 + 360 & Sta 8 + 550 - Sta 8 + 650 (EB); (Traffic uses North & South sides of the roadway and Temporary Detour ).

7. Stage 5A : Construct Final Roadway Sta 8 + 500 – Sta 8 + 600 (WB); Sta 8 + 950 – Sta 9 + 275 (EB); Sta 9 + 700 – Sta 10 + 200 (WB); (Traffic uses new E & W Bound Lanes to Sta 8 + 250 & then South and North sides of the roadway).

c. The total area of the construction site is estimated to be 18.39 Hectars

The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is 18.39 Hectars

- d. The estimated runoff coefficients of the various areas of the site after construction activities are completed are contained in the project drainage study which is hereby incorporated by reference in this plan. Information describing the soils at the site is contained either in the Soils Report for the project, which is hereby incorporated by reference, or in an attachment to this plan.
- e. The design/project report, hydraulic report, or plan documents, hereby incorporated by reference, contain site map(s) indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of major soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water.
- f. The names of receiving water(s) and areal extent of wetland acreage at the site are in the design/project report or plan documents which are incorporated by reference as a part of this plan.  
Lake Zurich municipal storm sewers.

### Controls

This section of the plan addresses the various controls that will be implemented for each of the major construction activities described in 1.b. above. For each measure discussed, the contractor that will be responsible for its implementation is indicated. Each such contractor has signed the required certification on forms which are attached to, and a part of, this plan:

#### a. Erosion and Sediment Controls

- (i) **Stabilization Practices.** Provided below is a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided in 2.a.(i).(A) and 2.b., stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased on all disturbed portions of the site where construction activity will not occur for a period of 21 or more calendar days.
- (A) Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

Description of Stabilization Practices (use additional pages, as necessary):

1. Temporary ditches/swales (during staging construction) shall be seeded with Class 7 Temporary Turf Cover Mixture.
2. Permanent seeding Class 2A shall be treated following IDOT Method 2.
- 3 All areas receiving sod will be placed on 100mm of topsoil.
4. Earth stockpiles shall be temporary seeded if they are to remain unused for more than fourteen days.

(ii) **Structural Practices.** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

**Description of Structural Practices :**

In the effort to contain silt and runoff from leaving the site, silt filter fence shall be placed along areas that drain away from proposed improvement. Inlet and pipe protection will be provided for storm sewers. Stone riprap will be provided at outlets as necessary.

Sediment control structure inlet filters will be provided at all existing and proposed inlets. The filter assembly, consisting of a frame and filter bag, will collect sediment in surface water runoff at locations shown on drainage plan. Sediment control structure inlet filter cleaning will also be provided at all existing and proposed inlets. This work shall consist of cleaning sediment out of drainage structure inlet filters when directed by the Engineer.

Temporary Ditch checks— Rolled Excelsior urethane foam/geotextile ditch checks shall be used in swales where the runoff velocity is greater than 1(one)m.p.s. or as directed by the Engineer in order to prevent downstream erosion.

Temporary Perimeter Erosion Barrier – a silt filter fence shall be placed adjacent to the areas of construction to intercept waterborn silt and prevent it from leaving the site.

b. **Storm Water Management**

Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

(i) Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on site; and sequential systems (which combine several practices). **The practices selected for implementation were determined on the basis of the technical guidance in Section 10-300 (Design Considerations) in Chapter 10 (Erosion and Sedimentation Control) of the Illinois Department of Transportation Drainage Manual. If practices other than those discussed in Section 10-300 are selected for implementation or if practices are applied to situations different from those covered in Section 10-300, the technical basis for such decisions will be explained below.**

(ii) Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions, such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of Storm Water Management Controls (use additional pages, as necessary):

1. Detention Storage Ponds are proposed on the north side of Route 22 west of Rand Road, on the south side of realigned Route 22 between Ela Road and Main Street West, and at the northeast corner of realigned Route 22 and the E.J.&E. Railroad. Detention is provided in proposed storm sewers at other locations to reduce the outflow from the proposed project.
2. Manholes with restrictors are proposed for detention storage purposes.

**c. Other Controls:**

- (i) **Waste Disposal.** No solid materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.
- (ii) The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

**d. Approved State or Local Plans**

The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

All management practices, controls, and others provisions provided in this project are in accordance with IDOT Standard Specifications for Road and Bridge Construction adopted January 1, 2002.

### 3. Maintenance

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, erosion and sediment control measures and other protective measures identified in this plan (use additional pages, as necessary):

All erosion and sediment control measures will be checked weekly and after each significant rainfall (0.5 inches or greater in a 24 hour period). The following items will be checked.

1. Seeding – all exposed areas with the potential for erosion will be temporary seeded on a weekly basis.
2. Silt Filter Fence.
3. Sediment Control, Drainage Structure Inlet Filter.
4. Ditch Checks.

All maintenance of erosion control system will be responsibility of contractor. All locations where vehicles enter or exit the construction site and all other areas subject to erosion should also be inspected periodically.

### 4. Inspections

Qualified personnel shall inspect disturbed areas of the construction site which have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

- a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.
- b. Based on the results of the inspection, the description of potential pollutant sources identified in section 1 above and pollution prevention measures identified in section 2 above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within 7 calendar days following the inspection.
- c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section 4.b. shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.
- d. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer or Resident Technician shall complete and file an "Incidence of Noncompliance" (ION) report for the identified violation. The Resident Engineer or Resident Technician shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The report of noncompliance shall be mailed to the following address:

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Attn: Compliance Assurance Section  
1021 North Grand East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

### **Non-Storm Water Discharges**

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge. (Use additional pages as necessary to describe non-storm water discharges and applicable pollution control measures).

The only source of non storm water discharge within the project limits will be from watering of seeding and/or sodding for erosion control or landscaping purposes.

An additional source of non-storm water discharge during construction is the slurry from washing out redi-mix concrete trucks. Redi-mix concrete trucks should wash out in designated areas surrounded by silt fence. After all PCC items have been constructed, the dried concrete wash material should be cleaned up and properly disposed of. It will be the contractor's responsibility to secure these designated areas for the duration of their use. The Engineer must approve the locations.

On site maintenance of equipment must be performed in accordance with environmental law, such as proper storage and no dumping of old engine oil or other fluids on site.

### **Good Housekeeping**

1. An effort will be made to store only enough product required to do the job.
2. All materials stored on site will be stored in a neat, orderly manner in their appropriate containers, and if possible, under a roof or other enclosure.
3. Products will be kept in their original containers with the original manufacturer's label.
4. Substances will not be mixed with one another unless recommended by the manufacturer.
5. The site superintendent will inspect daily to ensure proper use and disposal of materials on the site.
6. Whenever possible, all of a product will be used up before disposing of the container.
7. Follow manufacturer's recommended practices for use and disposal.





**Illinois Department  
of Transportation**

**Contractor Certification Statement**

This certification statement is a part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with NPDES Permit No. ILR10, issued by the Illinois Environmental Protection Agency on May 14, 1998.

**Project Information:**

Route	<u>F.A.P. Route 337 (W. of Route 12 to E. of Beushing</u>	Marked	<u>Illinois Route 22 (Half Day Road)</u>
Section	<u>19R-1</u>	Contract #	<u>60997</u>
County	<u>Lake</u>		

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Signature

Date

Title

Name of Firm

Street Address

City

State

Zip Code

Telephone Number



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
111 NORTH CANAL STREET  
CHICAGO, ILLINOIS 60606-7206

REPLY TO  
ATTENTION OF:

FEB 04 2004

Technical Services Division  
Regulatory Branch  
200300518

SUBJECT: Proposed Road Improvements to IL Rt 22 from US Rt 12 to  
Quentin Road in Lake Zurich, Lake County, IL (NW 1/4 Sec 22 T43N  
R10E 3rd P.M.)

John P. Kos  
Illinois Department of Transportation  
201 West Center Court  
Schaumburg, Illinois 60196

Dear Mr. Kos:

The U.S. Army Corps of Engineers, Chicago District, has authorized the above-referenced project under the Regional Permit Program (RPP). Enclosed is your copy of the executed RPP Permit authorization.

This determination covers only your project as described in your notification. If the design, location, or purpose of the project is changed, you should contact this office to determine the need for further authorization.

Once you have completed the authorized activity, please sign and return the enclosed compliance certification. If you have any questions, please contact Ron Abrant of my staff by telephone at (312) 846-5536 or email at ron.j.abrant@usace.army.mil.

Sincerely,

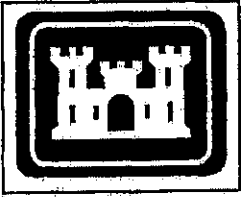
A handwritten signature in black ink, appearing to read "Keith L. Wozniak".

Keith L. Wozniak  
Chief, West Section  
Regulatory Branch

Enclosures

Copy furnished (w/o authorization):

United States Fish & Wildlife Service (Rogner)  
Illinois Environmental Protection Agency (Yurdin)  
Illinois Department of Natural Resources (Schanzle)  
Illinois Department of Natural Resources/OWR (Jereb)



## REGIONAL PERMIT PROGRAM

### AUTHORIZATION

PERMITTEE: Illinois Department of Transportation  
APPLICATION: 200300518  
ISSUING OFFICE: U.S. Army Corps of Engineers, Chicago District  
DATE: 4 Feb 04

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You are hereby authorized to perform work in accordance with the terms and conditions specified below. This verification expires three (3) years from the date indicated above.

Note: The term "you" and its derivatives, as used in this authorization, means the permittee or any future transferee. The term "this office" refers to the U.S. Army Corps of Engineers, Chicago District.

**PROJECT DESCRIPTION:** Proposed Road Improvements to IL Rt 22 from US Rt 12 to Quentin Road in Lake Zurich, Lake County, IL (NW 1/4 Sec 22 T43N R10E 3rd P.M.), as described in your notification and as shown on the plans titled Illinois Route 22 from US Rt 12 Beusching Road dated January 30, 2003.

**PROJECT LOCATION:** Culvert Replacement at IL RT 22 and Quentin Road at Killdeer Creek in Lake Zurich, Lake County, Illinois. (NW 1/4 Sec 22 T43N R10E)

**GENERAL CONDITIONS:** The above described work is authorized under the terms, conditions and requirements of Regional Permit RP03 (Transportation Projects) and shall follow the **General Conditions** outlined in the Regional Permit Program dated March 1, 2001.

**SPECIAL CONDITIONS:** To ensure that the activity has minimal individual and cumulative impacts, the following special conditions are required:

1. This authorization is based on the materials submitted as part of application number 200300518. Failure to comply with the terms and conditions of this authorization may result in suspension and revocation of your authorization.

-2-

2. This permit does not authorize temporarily stockpiling material within waters of the U.S.

3. You shall undertake and complete the project as described in the plans titled Illinois Route 22 from US Rt 12 Beusching Road dated January 30, 2003, including all relevant documentation to the project plans as proposed.

4. You shall comply with the water quality certification issued under Section 401 of the Clean Water Act by the Illinois Environmental Protection Agency for the project.

5. Throughout the duration of construction activities, you shall adhere to all soil erosion and sediment control measures determined to meet technical standards by the Lake County Stormwater Management Commission.

6. You are responsible for all work authorized herein and for ensuring that all contractors are aware of the terms and conditions of this authorization. A copy of this authorization must be present at the project site during all phases of construction.

7. You shall notify this office of any proposed modifications to the project, including revisions to any of the plans or documents cited in this authorization. You must receive approval from this office before work affected by the proposed modification is performed.

8. You shall notify this office prior to the transfer of this authorization and liabilities associated with compliance with its terms and conditions. The transferee must sign the authorization in the space provided and forward a copy of the authorization to this office.

**OTHER INFORMATION:**

1. This office has authority to determine if an activity complies with the terms and conditions of the Regional Permit Program (RPP).

2. Limits of RPP authorization:

a. This authorization does not obviate the need to obtain other federal, state, or local authorizations required by law.

b. This authorization does not grant any property rights or exclusive privileges.

c. This authorization does not authorize any injury to the property or rights of others.

d. This authorization does not permit interference with any existing or proposed Federal project.

3. Limits of Federal Liability. The Federal Government does not assume any liability for the following:

a. Damages to the authorized project or uses thereof as a result of other authorized activities or from natural causes.

b. Damages to the authorized project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by this authorized activity.

d. Design or construction deficiencies associated with the authorized work.

e. Damage claims associated with any future modifications, suspension, or revocation of this authorization.

4. Reliance on Applicant's Data. The determination by the issuing office that this activity complies with the terms and conditions of the RPP was made in the reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this authorization at any time the circumstances warrant. In addition, this office may reevaluate the determination that the project qualifies under a RPP. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this authorization.

b. The information provided by you in support of your application proves to have been false, incomplete or inaccurate (see 4 above).

c. Significant new information surfaces which was not considered in reaching the original interest decision.

Such a reevaluation may result in a determination that it is appropriate to suspend, modify or revoke your authorization.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this authorization.

John P. Kos / AP 2/2/04  
PERMITTEE DATE  
John P. Kos  
Illinois Department of Transportation  
Division Of Highways/District One  
201 West Center Court  
Schaumburg, Illinois 60196-1096

This authorization becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Mitchell Esso 4 Feb 04  
For and on behalf of DATE  
Gary E. Johnston  
Colonel, U.S. Army  
District Engineer

When the structures or work authorized by this authorization are still in existence at the time the property is transferred, the terms and conditions of this authorization will continue to be binding on the new owner(s) of the property. To validate the transfer of this authorization and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

\_\_\_\_\_  
TRANSFEEEE DATE

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
TELEPHONE



## U.S. Army Corps of Engineers

Chicago District

### General Conditions Applicable to all Regional Permits

Permittees must comply with the terms and conditions of the Regional Permits and the following general conditions for all activities authorized under the RPP:

1. State 401 Water Quality Certification. Water quality certification under Section 401 of the Clean Water Act is required from the Illinois Environmental Protection Agency (IEPA). The District may consider water quality, among other factors, in determining whether to exercise discretionary authority and require an individual permit.

On October 27, 1999, the IEPA granted Section 401 certification, with conditions, for all Regional Permits except RP13 and activities in certain waterways under RPs 4 and 8 (see Appendix D). The following conditions of the certification are conditions of the RPP:

- a. The permittee shall not cause:
  - 1) violation of applicable water quality standards of the Illinois Pollution Control Board Title 35, Subtitle C: Water Pollution Rules and Regulations;
  - 2) water pollution defined and prohibited by the Illinois Environmental Protection Act; or
  - 3) interference with water use practices near public recreation areas or water supply intakes.
- b. The permittee shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.
- c. Any spoil material excavated, dredged or otherwise produced must not be returned to the waterway but must be deposited in a self-contained area in compliance with all State statutes, regulations and permit requirements with no discharge to waters of the State unless a permit has been issued by the IEPA. Any backfilling must be done with clean material placed in a manner to prevent violation of applicable water quality standards.
- d. All areas affected by construction shall be mulched and seeded as soon after construction as possible. The permittee shall undertake necessary measures and procedures to reduce erosion during construction. Interim measures to prevent soil erosion during construction shall be taken and may include the installation of staked straw bales, sedimentation basins and temporary mulching. All construction within the waterway shall be conducted during zero to low flow conditions. The permittee shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activity associated with the project will result in the disturbance of five (5) or more acres, total land area. An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the IEPA's Division of Water Pollution Control, Permit Section.
- e. The permittee shall implement erosion control measures consistent with the Illinois Urban Manual (IEPA/USDA, NRCS; latest version).

- f. The permittee is advised that the following permits(s) must be obtained from the IEPA: the permittee must obtain permits to construct sanitary sewers, water mains, and related facilities prior to construction.
- g. Backfill used in the stream crossing trench shall be predominantly sand or larger size material, with <20% passing a #230 U.S. sieve.
- h. Channel relocation shall be constructed under dry conditions and stabilized to prevent erosion prior to the diversion of flow. [Applicable only to projects which involve relocating stream channels.]
- i. The work shall be constructed with adequate erosion control measures (i.e., silt fences, straw bales, etc.) to prevent transport of sediment and materials to the adjoining wetlands and/or streams.
- j. Backfill used within trenches passing through surface waters of the State, except wetland areas, shall be clean course aggregate, gravel or other material which will not cause siltation, pipe damage during placement, or chemical corrosion in place. Excavated material may be used only if:
- 1) particle size analysis is conducted and demonstrates the material to be at least 80% sand or larger size material, using #230 U.S. sieve; or
  - 2) excavation and backfilling are done under dry conditions.
- k. Backfill used within trenches passing through wetland areas shall be clean material that will not cause siltation, pipe damage during placement, or chemical corrosion in place. Excavated material shall be used to the extent practicable, with the upper six (6) to twelve (12) inches backfilled with the topsoil obtained during trench excavation.
1. Any permittee proposing activities in a mined area or previously mined area shall provide determination on sediment and materials used which are considered "acid-producing material" as defined in 35 Il. Adm. Code, Subtitle D. If considered "acid-producing material," the permittee shall obtain a permit to construct pursuant to 35 Il. Adm. Code 404.101.
2. Threatened and Endangered Species. No activity is authorized under the RPP if the activity is likely to jeopardize the continued existence of a threatened or endangered species listed or proposed for listing under the Federal Endangered Species Act (ESA) or destroy, or adversely modify, the critical habitat of such species. Federal agencies should follow their own procedures for complying with the requirements of the ESA. Non-federal applicants shall notify the District if any Federally listed (or proposed for listing) endangered or threatened species or critical habitat might be affected by the activity or is located in the project area. If the District determines that the activity may affect Federally listed species or critical habitat, the activity shall not be authorized under the RPP. An individual permit will be required and the District will initiate Section 7 consultation in accordance with the ESA. If all issues pertaining to endangered and threatened species have been resolved through the consultation process to the satisfaction of the District and U.S. Fish and Wildlife Service (USFWS), the District may, at its discretion, authorize the activity under the RPP instead of an individual permit. Applicants are encouraged to obtain information on threatened or endangered species and their critical habitats from the USFWS at the earliest stages of project planning. For information, contact:
- U.S. Fish and Wildlife Service  
Chicago Field Office  
1250 South Grove Avenue, Suite 103  
Barrington, Illinois 60010  
(847) 381-2253
3. Historic Properties. No activity is authorized under the RPP if the activity will affect properties listed, or properties eligible for listing, in the National Register of Historic Places, in accordance with the provisions of 33 CFR Part 325, Appendix C and Section 106 of the National Historic Preservation Act. Federal agencies should follow their own procedures for compliance with the requirements of the National Historic Preservation Act and other Federal historic preservation laws. Non-federal applicants should notify the District if the activity may affect historic properties which are listed, determined eligible for listing, or which the



applicant has reason to believe may be eligible for listing, on the National Register of Historic Places in the project area. If the District determines that the activity may potentially affect a historic property, or a property eligible for listing, the activity shall not be authorized under the RPP and an individual permit will be required. The District will take into account the effects on such properties in accordance with 33 CFR Part 325, Appendix C. If all issues pertaining to historic properties have been resolved through the consultation process to the satisfaction of the District, Illinois Historic Preservation Agency (IHPA) and Advisory Council on Historic Preservation, the District may, at its discretion, authorize the activity under the RPP instead of an individual permit. Applicants are encouraged to obtain information on historic properties from the IHPA and the National Register of Historic Places at the earliest stages of project planning. For information, contact:

Illinois Historic Preservation Agency  
1 Old State Capitol Plaza  
Springfield, Illinois 62701-1507  
(217) 782-4836

4. Soil Erosion and Sediment Control. Measures must be taken to control soil erosion and sedimentation at the project site to ensure that sediment is not transported to waters of the U.S. during construction. Soil erosion and sediment control measures must be constructed before initiating any clearing, grading, excavating or filling activities. All temporary and permanent soil erosion and sediment control measures must be maintained during the construction period and until the site is stabilized. All exposed soil and other fills, and any work below the ordinary high water mark must be permanently stabilized at the earliest practicable date.

Applicants are required to prepare a soil erosion and sediment control (SESC) plan. The plan must be designed in accordance with the Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control ("Green Book", latest version, except chapter 6). Practice standards and specifications for measures outlined in the soil erosion and sediment control plans will follow the latest edition of the "Illinois Urban Manual: A Technical Manual Designed for Urban Ecosystem Protection and Enhancement."

At the District's discretion, an applicant may be required to submit the SESC plan to the local Soil and Water Conservation District (for activities in Cook, DuPage, Kane, McHenry and Will Counties), or the Stormwater Management Commission (for activities in Lake County) for review. When the District does require submission of a SESC plan, the following applies. An activity may not be commenced until the SESC plan for the project site has been reviewed. The SWCD/SMC will review the plan and provide a written evaluation of its adequacy. A SESC plan is considered acceptable when the SWCD/SMC has found it meets technical standards. Once this determination has been made, the authorized work may commence. The SWCD/SMC may attend pre-construction meetings with the permittee and conduct inspections during construction to determine compliance with the plans. Applicants are encouraged to begin coordinating with the appropriate SWCD/SMC office at the earliest stages of project planning. For information, contact:

Kane/DuPage SWCD  
545 S. Randall Road  
St. Charles, IL 60174  
(630) 584-7961

Will/South Cook SWCD  
1201 Gougar Road  
New Lenox, IL 60451  
(815) 462-3106

McHenry County SWCD  
1143 N. Seminary Road  
Woodstock, IL 60098  
(815) 338-0049

North Cook SWCD  
899 Jay Street  
Streamwood, IL 60120  
(847) 608-8302

Lake County SMC  
333-B Peterson Road  
Libertyville, IL 60048  
(847) 918-5260

5. Floodplain. Discharges of dredged or fill material into waters of the United States within the 100-year floodplain (as defined by the Federal Emergency Management Agency) resulting in permanent above-grade fills must be avoided and minimized to the maximum extent practicable. When such an above-grade fill would occur, the applicant may need to obtain approval from the Illinois Department of Natural Resources, Office of Water Resources, (IDNR-OWR) which regulates activities affecting the floodway and local government (e.g., Village or County) with jurisdiction over activities in the floodplain. Compensatory storage may be required for fill within the floodplain. Applicants are encouraged to obtain

information from the IDNR-OWR and local government with jurisdiction at the earliest stages of project planning. For information on floodway construction, contact:

IDNR-OWR  
Northeastern Illinois Regulatory Programs Section  
201 W. Center Court, 3<sup>rd</sup> Floor  
Schaumburg, Illinois 60196  
(847) 705-4341

For information on floodplain construction, please contact the local government and/or the Federal Emergency Management Agency. Pursuant to 33 CFR 320.4 (j), the District will consider the likelihood of the applicant obtaining approval for above-ground permanent fills in floodplains in determining whether to issue authorization under the RPP.

6. Navigation. No activity may cause more than minimal adverse effects on navigation.

7. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including that necessary to ensure public safety.

8. Aquatic Life Movements. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including species that normally migrate through the area, unless the activity's primary purpose is to impound water.

9. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures, such as low-ground pressure equipment, must be taken to minimize soil disturbance.

10. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status. Information on Wild and Scenic Rivers may be obtained from the appropriate land management agency in the area, such as the National Park Service and the U.S. Forest Service.

11. Tribal Rights. No activity or its operation may impair reserved tribal rights, such as reserved water rights, treaty fishing and hunting rights.

12. Water supply intakes. No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.

13. Shellfish production. No discharge of dredged or fill material may occur in areas of concentrated shellfish production.

14. Suitable material. No discharge of dredged or fill material may consist of unsuitable material and material discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act). Unsuitable material includes trash, debris, car bodies, and asphalt.

15. Spawning areas. Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.

16. Obstruction of high flows. Discharges must not permanently restrict or impede the passage of normal or expected high flows. All crossings must be culverted, bridged or otherwise designed to prevent the restriction of expected high water flows, and must be designed so as not to impede low water flows or the movement of aquatic organisms.

17. Impacts from impoundments. If the discharge creates an impoundment of water, adverse impacts on aquatic resources caused by the accelerated passage of water and/or the restriction of its flow must be avoided to the maximum extent practicable.

18. Waterfowl breeding areas. Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

19. Removal of temporary fills. Any temporary fill material must be removed in its

entirety and the affected area returned to its pre-existing condition.

20. Mitigation. Impacts to waters of the U.S. must be avoided and minimized to the maximum extent practicable at the project site. Avoidance and minimization must be attempted before compensatory wetland mitigation is considered. Compensatory mitigation will be accomplished by establishing 1.5 acres for every 1.0 acre of waters of the U.S. impacted by the project (a mitigation ratio of 1.5:1). However, if the project involves impacts to high-quality aquatic resources or is the subject of an enforcement action, the mitigation ratio will generally be greater than 1.5:1. Mitigation shall be consistent with the Memorandum of Agreement (MOA) between the Department of the Army and the Environmental Protection Agency Concerning the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines. Mitigation may consist of the following, listed in order of preference: restoration of historic wetlands that are currently non-wetlands because of drainage or other alterations; enhancement of existing aquatic resources through various actions such as modification of hydrology, introduction of appropriate native species, invasive species removal, and other management measures; creation of aquatic resources in historically upland areas; and, preservation of existing aquatic resources through real estate acquisition strategies. Careful consideration must be given to the likelihood of sustainability, practicability, availability, and reliability of compensatory mitigation. Off-site wetland mitigation may be considered where the long-term success of on-site mitigation is uncertain.

21. Notification. The applicant must provide written notification (i.e., a complete application) for a proposed activity to be authorized under the RPP prior to commencing a proposed activity. The District's receipt of the complete application is the date when the District receives all required notification information (see below) from the applicant. If the District does not provide a written response to the applicant within 45 calendar days following receipt of a complete application, the applicant may presume the proposed activity qualifies for the requested Regional Permit(s), provided the activity complies with the terms and conditions of the RPP. If the District informs the applicant within 45 calendar days that the notification is incomplete (i.e., not a complete application), the applicant must submit the requested information to be considered for authorization. A new 45-day review period will commence when the District receives the requested information. Applications that involve unauthorized activities that are completed or partially completed by the applicant are not subject to the 45-day review period. For a Category I activity, notification must include:

a. A cover letter which provides a clear project purpose and need statement, a brief description of the proposed activity, the Regional Permit(s) to be used for the activity, the area (in acres) of waters of the U.S. to be impacted, and a statement that the terms and conditions of the RPP will be followed;

b. A completed joint application form (NCR Form 426, *Protecting Illinois Waters*) signed by the applicant or agent. If the agent signs, notification must include a signed, written statement from the applicant designating the agent as its representative;

c. A delineation of waters of the U.S., including wetlands, for the project site, prepared in accordance with the current Corps of Engineers methodology and generally conducted during the growing season.\* The delineation must include information on the occurrence of any high-quality aquatic resources. For sites supporting wetlands, the delineation must include a Floristic Quality Assessment (Swink and Wilhelm, 1994 (latest edition), *Plants of the Chicago Region*);

d. A map showing the location of the project site;

\* If a wetland delineation is conducted during the non-growing season, the District will determine on a case-by-case basis whether sufficient evidence is available to make an accurate determination. If the District finds that a delineation lacks sufficient evidence, the application will not be considered complete until such time the information is provided. This may involve re-delineating the project site during the growing season.

e. Construction drawings (full- and reduced-sized) showing all aspects of the proposed activity and the location of waters of the U.S. to be impacted and not impacted. The drawings must include a detailed plan view and profile view. The drawings should also depict buffer areas, outlots, best management practices, deed restriction areas, and restoration areas, if required under the specific RP in Appendix A;

f. A preliminary soil erosion and sediment control plan;

g. Evidence that USFWS was contacted regarding the presence of any Federally listed (or proposed for listing) endangered or threatened species or critical habitat in the area that may be affected by the proposed activity;

h. Other items listed under the specific RP(s) in Appendix A.

For a Category II activity, the notification must include all materials listed for notification for Category I above, plus:

i. A detailed description of the proposed activity;

j. A discussion of the measures taken to avoid and minimize impacts to aquatic resources on the project site;

k. A compensatory mitigation plan for all impacts to waters of the U.S., if compensatory mitigation is required under the specific RP.

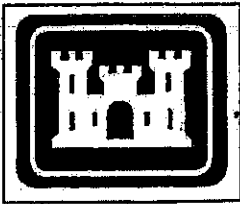
For Category II activities, the District will, upon receipt of a complete application, provide (by facsimile transmission, email or other expeditious means), a pre-construction notice (PCN) which describes the proposed activity to the USFWS, USEPA, Illinois Department of Natural Resources, IEPA, IHPA and U.S. Coast Guard (Section 10 activities only). These agencies will then have ten (10) calendar days from the date the PCN is transmitted to contact the District if they intend to provide substantive, site-specific comments. If so contacted by an agency, the District will wait an additional fifteen (15) calendar days for agency written comments before making a decision on the notification. The District will fully consider agency comments received within the specified time frame. If the District determines the activity complies with the terms and conditions of the RPP and impacts on aquatic resources are minimal, the District will notify the applicant in writing and include any special conditions deemed necessary. If the District determines that the impacts of the proposed activity are more than minimal, the District will notify the applicant that the project does not qualify for authorization under the RPP and instruct the applicant on the procedures to seek authorization under an individual permit.

22. Multiple use of Regional Permits. In any case where a Regional Permit is combined with any other Regional Permit to cover a single and complete project (except where prohibited under specific Regional Permits), the applicant must notify the District in accordance with Category II. If multiple Regional Permits are used, the total impact may not exceed the maximum allowed by the Regional Permit with the greatest impact threshold.

23. Other Restrictions. Authorization under the RPP does not obviate the need to obtain other Federal, State or local permits, approvals, or authorizations required by law nor does it grant any property rights or exclusive privileges, authorize any injury to the property or rights of others or authorize interference with any existing or proposed Federal project.

PERMIT COMPLIANCE

CERTIFICATION



Permit Number: 200300518

Permittee: Illinois Department of Transportation

Date of Issuance: 4 Feb 04

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of said permit and if applicable, compensatory wetland mitigation was completed in accordance with the approved mitigation plan.<sup>1</sup>

PERMITTEE

DATE

Upon completion of the activity authorized by this permit and any mitigation required by the permit, this certification must be signed and returned to the following address:

U.S. Army Corps of Engineers  
Chicago District, Regulatory Branch  
111 North Canal Street, 6th Floor  
Chicago, Illinois 60606-7206

Please note that your permitted activity is subject to compliance inspections by Corps of Engineers representatives. If you fail to comply with this permit, you may be subject to permit suspension, modification, or revocation.

<sup>1</sup> If compensatory mitigation was required as part of your authorization, you are certifying that the mitigation area has been graded and planted in accordance with the approved plan. You are acknowledging that the maintenance and monitoring period will begin after a site inspection by a Corps of Engineers representative or after thirty days of the Corps' receipt of this certification. You agree to comply with all permit terms and conditions, including additional reporting requirements, for the duration of the maintenance and monitoring period.

**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

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**ATTACHMENTS**

- A. Employment Preference for Appalachian Contracts  
(included in Appalachian contracts only)

**I. GENERAL**

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4 and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

- a. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or
- b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

**II. NONDISCRIMINATION**

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60 (and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job-training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above

agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employees referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish which such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any

evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to

the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or quailifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

### III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

### IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

#### 1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the



contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

## 2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or

disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the question, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

## 3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any cost reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## 4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

### a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not

be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits

Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which cases such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV. 2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainee's and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall; upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

**V. STATEMENTS AND PAYROLLS**

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan

or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period).

The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V.

This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U/S. C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for

inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

## **VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR**

1. On all federal-aid contracts on the national highway system, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

- a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.
- b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.
- c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

## **VII. SUBLETTING OR ASSIGNING THE CONTRACT**

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

- a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a

whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract.

Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

## **VIII. SAFETY: ACCIDENT PREVENTION**

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S. C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

## **IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification,

distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

#### **NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS**

18 U.S.C. 1020 reads as follows:

*"Whoever, being an officer, agent or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or*

*Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or*

*Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;*

*Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."*

#### **X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more).

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of

any communication from the Director, Office of Federal Activities, EPA indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

#### **XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled

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"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.

### **2. Instructions for Certification - Lower Tier Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealing.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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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.