

INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals are potential bidding proposals. Each proposal contains all certifications and affidavits, a proposal signature sheet and a proposal bid bond.

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.

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.

REQUESTS FOR AUTHORIZATION TO BID

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

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

ABOUT AUTHORIZATION TO BID: Firms that have not received an Authorization to Bid or Not For Bid Report within a reasonable time of complete and correct original document submittal should contact the department as to the status. 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. These documents must be received three days before the letting date.

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

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

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

IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL FAILURES.

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

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

BID SUBMITTAL GUIDELINES AND CHECKLIST

In an effort to eliminate confusion and standardize the bid submission process the Contracts Office has created the following guidelines and checklist for submitting bids.

This information has been compiled from questions received from contractors and from inconsistencies noted on submitted bids. If you have additional questions please refer to the contact information listed below.

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

STANDARD GUIDELINES FOR SUBMITTING BIDS

- All pages should be single sided.
- Use the Cover Page that is provided in the Bid Proposal (posted on the IDOT Web Site) as the first page of your submitted bid. This page has the Item number in the upper left-hand corner and lines provided for your company name and address in the upper right-hand corner.
- Do not use report covers, presentation folders or special bindings and do not staple multiple times on left side like a book. Use only 1 staple in the upper left hand corner. Make sure all elements of your bid are stapled together including the bid bond or guaranty check (if required).
- Do not include any certificates of eligibility, your authorization to bid, Addendum Letters or affidavit of availability.
- Do not include the Subcontractor Documentation with your bid (pages i – iii and pages a – g). This documentation is required only after you are awarded the contract.
- Use the envelope cover sheet (provided with the proposal) as the cover for the proposal envelope.
- Do not rely on overnight services to deliver your proposal prior to 10 AM on letting day. It will not be read if it is delivered after 10 AM.
- Do not submit your Substance Abuse Prevention Program (SAPP) with your bid. If you are awarded the contract this form is to be submitted to the district engineer at the pre-construction conference.

Use the following checklist to ensure completeness and the correct order in assembling your bid

Illinois Office Affidavit (Not applicable to federally funded projects) insert your affidavit after page 4 along with your Cost Adjustments for Steel, Bituminous and Fuel (if applicable).

Cover page (the sheet that has the item number on it) **followed by your bid (the Pay Items)**. If you are using special software or CBID to generate your schedule of prices, do not include the blank pages of the schedule of prices that came with the proposal package.

Page 4 (Item 9) – Check “YES” if you will use a subcontractor(s). Include the subcontractor(s) name, address, general type of work to be performed and the dollar amount (if over \$50,000). If you will use subcontractor(s) but are uncertain who or the dollar amount; check “YES” but leave the lines blank.

Page 10 (Paragraph J) – Check “YES” or “NO” whether your company has any business in Iran.

Page 10 (Paragraph K) – (Not applicable to federally funded projects) List the Union Local Name and number or certified training programs that you have in place. **Your bid will not be read if this is not completed.** Do not include certificates with your bid. Keep the certificates in your office in case they are requested by IDOT.

Page 11 (Paragraph L) - A copy of your State Board of Elections certificate of registration is no longer required with your bid.

Page 11 (Paragraph M) – Indicate if your company has hired a lobbyist in connection with the job for which you are submitting the bid proposal.

Page 12 (Paragraph C) – This is a work sheet to determine if a completed Form A is required. It is not part of the form and you do not need to make copies for each Form A that is filled out.

Pages 14-17 (Form A) – One Form A (4 pages) is required for each applicable person in your company. Copies of the Forms can be used and only need to be changed when the financial information changes. The certification signature and date must be original for each letting. Do not staple the forms together.

If you answered “NO” to all of the questions in Paragraph C (page 12), complete the first section (page 14) with your company information and then sign and date the Not Applicable statement on page 17.

Page 18 (Form B) - If you check “YES” to having other current or pending contracts it is acceptable to use the phrase, “See Affidavit of Availability on file”. **Ownership Certification** (at the bottom of the page) - Check N/A if the Form A you submitted accounts for 100 percent of the company ownership. Check YES if any percentage of ownership falls outside of the parameters that require reporting on the Form A. Checking NO indicates that the Form A you submitted is not correct and you will be required to submit a revised Form A.

Page 20 (Workforce Projection) – Be sure to include the Duration of the Project. It is acceptable to use the phrase “Per Contract Specifications”.

Bid Bond – Submit your bid bond using the current Bid Bond Form provided in the proposal package. The Power of Attorney page should be stapled to the Bid Bond. If you are using an electronic bond, include your bid bond number on the form and attach the Proof of Insurance printed from the electronic bond Web Site.

Disadvantaged Business Utilization Plan and/or Good Faith Effort – The last item in your bid should be the DBE Utilization Plan (SBE 2026), followed by the DBE Participation Statement (SBE 2025) and supporting paperwork. If you have documentation for a Good Faith Effort, it should follow the SBE Forms.

The Bid Letting is now available in streaming Audio/Video from the IDOT Web Site. A link to the stream will be placed on the main page of the current letting on the day of the Letting. The stream will not begin until 10 AM. The actual reading of the bids does not begin until approximately 10:20 AM.

Following the Letting, the As-Read Tabulation of Bids will be posted by the end of the day. You will find the link on the main page of the current letting.

QUESTIONS: pre-letting up to execution of the contract

Contractor/Subcontractor pre-qualification -----217-782-3413
Small Business, Disadvantaged Business Enterprise (DBE) -----217-785-4611
Contracts, Bids, Letting process or Internet downloads-----217-782-7806
Estimates Unit -----217-785-3483
Aeronautics -----217-785-8515
IDNR (Land Reclamation, Water Resources, Natural Resources) -----217-782-6302

QUESTIONS: following contract execution

Including Subcontractor documentation, payments -----217-782-3413
Railroad Insurance -----217-785-0275

RETURN WITH BID

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Proposal Submitted By
Name
Address
City

Letting April 26, 2013

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.

BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL

**Notice to Bidders,
Specifications,
Proposal, Contract
and Contract Bond**



**Illinois Department
of Transportation**

Springfield, Illinois 62764

**Contract No. 63765
LAKE County
Section 05-00121-07-WR
Route FAU 187 (Washington Street)
Project M-TE-00D1(888)
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)

Page intentionally left blank

RETURN WITH BID



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

Taxpayer Identification Number (Mandatory) _____

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

**Contract No. 63765
LAKE County
Section 05-00121-07-WR
Project M-TE-00D1(888)
Route FAU 187 (Washington Street)
District 1 Construction Funds**

Widen and reconstruct Washington Street, the addition of a right-turn lane, storm sewer, sidewalks and traffic signals, from Cedar Lake Road to just west of Hainesville Road and the resurfacing of Cedar Lake Road at Washington Street, located in the Villages of Hainesville, Roand Lake Park and Roand Lake.

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

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

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

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

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

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

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

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

Check box Yes
 Check box No

For known subcontractors with subcontracts with an annual value of more than \$50,000, the contract shall include their name, address, general type of work to be performed, and the dollar allocation for each subcontractor.
 (30 ILCS 500/20-120)

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

STATE JOB #- C-91-029-07
 PPS NBR -

COUNTY NAME	CODE	DIST	SECTION NUMBER	PROJECT NUMBER	ROUTE
LAKE	097	01	05-00121-07-WR	M-TE-00D1/888/000	FAU 187

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
A2000616	T-ACER PLAT 2	EACH	2.000 X	=			
A2002916	T-CELTIS OCCID 2	EACH	1.000 X	=			
A2005016	T-GYMNOCOLA DIO 2	EACH	3.000 X	=			
A2006716	T-QUERCUS MACR 2	EACH	5.000 X	=			
A2007116	T-QUERCUS RUBRA 2	EACH	5.000 X	=			
XX001249	ORNAMENTAL FENCE	FOOT	512.000 X	=			
XX001877	SUMP PUMP LINE CONN	EACH	5.000 X	=			
XX003536	CONN EX W MN NP	EACH	22.000 X	=			
XX003668	PRECONSTRUCT VID TAP	L SUM	1.000 X	=			
XX004913	REMOV FOC FR CONDUIT	FOOT	1,412.000 X	=			
XX005855	WATERMAIN CASING PIPE	FOOT	659.000 X	=			
XX005931	TRAF SIGL P 16FT SPL	EACH	3.000 X	=			
XX005937	LED INT IL S-NAME SGN	EACH	4.000 X	=			
XX005940	REMOTE CONTR VIDEO SY	EACH	1.000 X	=			
XX006655	LYR II DATALINK SWITCH	EACH	2.000 X	=			

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
XX006658	FLOCCULATION LOGS	EACH	200.000 X				
XX006659	FLOCCULATION POWDER	POUND	25.000 X				
XX006660	WETLAND PLANTS	EACH	40.000 X				
XX006698	TREE PROTECT & PRESER	EACH	90.000 X				
XX007776	REM & ABAND VALVE BOX	EACH	48.000 X				
XX008131	ELCBL C VIDEO 18 3C	FOOT	1,047.000 X				
XX008246	FIB OPT CBL C 24 SM	FOOT	2,542.000 X				
XX008253	VIDEO ENCODER	EACH	1.000 X				
XX008288	SED COL CHAM SYS TEMP	EACH	1.000 X				
XX008392	OUTDR RTD NTRK CABLE	FOOT	110.000 X				
X0324878	ADJ SAN SEW SERV LINE	EACH	5.000 X				
X0325318	LT WT CELL CONC FILL	CU YD	57.000 X				
X0325462	MEDIA CONVERTER	EACH	1.000 X				
X0326885	VIDEO DETECT SYS	EACH	1.000 X				
X0327566	ROADSIDE DETECTOR	EACH	1.000 X				

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 05-00121-07-WR
 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63765

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 RUN DATE - 03/27/13
 RUN TIME - 183116

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X0426200	DEWATERING	L SUM	1.000 X	=		=	
X2130010	EXPLOR TRENCH SPL	FOOT	200.000 X	=		=	
X2500910	SEEDING CL 1 MOD	ACRE	0.250 X	=		=	
X2510635	HD EROS CONT BLANK SP	SQ YD	100.000 X	=		=	
X2800302	TEMP DITCH CHECKS SPL	FOOT	84.000 X	=		=	
X4021000	TEMP ACCESS- PRIV ENT	EACH	53.000 X	=		=	
X4022000	TEMP ACCESS- COM ENT	EACH	26.000 X	=		=	
X4023000	TEMP ACCESS- ROAD	EACH	25.000 X	=		=	
X5610004	D I WTR MN FITTINGS	POUND	24,327.000 X	=		=	
X5610651	ABAN EX WM FILL CLSM	FOOT	4,518.000 X	=		=	
X5620116	WATER SER CONN (SHRT)	EACH	16.000 X	=		=	
X5620118	WATER SER CONN (LONG)	EACH	23.000 X	=		=	
X5630006	CUT & CAP EX 6 WM	EACH	7.000 X	=		=	
X5630008	CUT & CAP EX 8 WM	EACH	7.000 X	=		=	
X5630012	CUT & CAP EX 12 WM	EACH	2.000 X	=		=	

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 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63765

ECMS002 DTGECM03 ECMR003 PAGE 4
 RUN DATE - 03/27/13
 RUN TIME - 183116

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
X6013600	PIPE UNDERDRAIN 4 MOD	FOOT	11,251.000				
X6030310	FR & LIDS ADJUST SPL	EACH	4.000				
X6640550	CH LK FENCE 4 SPL	FOOT	923.000				
X6700405	ENGR FLD OFF A MOD	CAL MO	15.000				
X7010216	TRAF CONT & PROT SPL	L SUM	1.000				
X7800100	PT PVT MK- RAISED MED	SQ FT	81.000				
X8570226	FAC T4 CAB SPL	EACH	1.000				
X8620200	UNINTER POWER SUP SPL	EACH	1.000				
X8730250	ELCBL C 20 3C TW SH	FOOT	533.000				
X8730571	EC C COAXIAL	FOOT	165.000				
X8730800	ELCBL C VIDEO 20 4C	FOOT	165.000				
X8770125	S C MAA&P 28 SPL	EACH	1.000				
X8770137	S C MAA&P 38 SPL	EACH	1.000				
X8770141	S C MAA&P 48 SPL	EACH	1.000				
X8772930	STL COMB MAA&P 40 SPL	EACH	1.000				

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
Z0010600	CLEAN DRAINAGE SYSTEM	FOOT	300.000	X	=		
Z0013302	SEGMENT CONC BLK WALL	SQ FT	3,420.000	X	=		
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000	X	=		
Z0018500	DRAINAGE STR CLEANED	EACH	5.000	X	=		
Z0019400	DRY RUB ST/BR CON T W	CU YD	1.000	X	=		
Z0019600	DUST CONTROL WATERING	UNIT	10.000	X	=		
Z0022800	FENCE REMOVAL	FOOT	1,139.000	X	=		
Z0030850	TEMP INFO SIGNING	SQ FT	210.000	X	=		
Z0033046	RE-OPTIMIZE SIG SYS 2	EACH	1.000	X	=		
Z0046304	P UNDR FOR STRUCT 4	FOOT	621.000	X	=		
Z0056604	STORM SEW WM REQ 8	FOOT	6.000	X	=		
Z0056608	STORM SEW WM REQ 12	FOOT	1,535.000	X	=		
Z0056610	STORM SEW WM REQ 15	FOOT	857.000	X	=		
Z0056612	STORM SEW WM REQ 18	FOOT	147.000	X	=		
Z0056616	STORM SEW WM REQ 24	FOOT	71.000	X	=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
Z0056620	STORM SEW WM REQ 30	FOOT	80.000 X	=	=	=	=
Z0056622	STORM SEW WM REQ 36	FOOT	84.000 X	=	=	=	=
Z0070200	SURVEY MONUMENTS	EACH	21.000 X	=	=	=	=
Z0073510	TEMP TR SIGNAL TIMING	EACH	1.000 X	=	=	=	=
Z0076600	TRAINEES	HOUR	1,000.000 X	=	0.80	=	800.00
Z0076604	TRAINEES TPG	HOUR	1,000.000 X	=	10.00	=	10,000.00
20100110	TREE REMOV 6-15	UNIT	524.000 X	=	=	=	=
20100210	TREE REMOV OVER 15	UNIT	262.000 X	=	=	=	=
20101000	TEMPORARY FENCE	FOOT	12,132.000 X	=	=	=	=
20101200	TREE ROOT PRUNING	EACH	25.000 X	=	=	=	=
20101300	TREE PRUN 1-10	EACH	25.000 X	=	=	=	=
20101350	TREE PRUN OVER 10	EACH	25.000 X	=	=	=	=
20200100	EARTH EXCAVATION	CU YD	19,462.000 X	=	=	=	=
20201200	REM & DISP UNS MATL	CU YD	5,559.000 X	=	=	=	=
20400800	FURNISHED EXCAVATION	CU YD	4,763.000 X	=	=	=	=

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
20800150	TRENCH BACKFILL	CU YD	4,993.000 X	=			
21001000	GEOTECH FAB F/GR STAB	SQ YD	37,470.000 X	=			
21101615	TOPSOIL F & P 4	SQ YD	16,080.000 X	=			
25000400	NITROGEN FERT NUTR	POUND	45.000 X	=			
25000600	POTASSIUM FERT NUTR	POUND	45.000 X	=			
25100630	EROSION CONTR BLANKET	SQ YD	16,080.000 X	=			
25200100	SODDING	SQ YD	15,743.000 X	=			
25200200	SUPPLE WATERING	UNIT	20.000 X	=			
28000200	EARTH EXC - EROS CONT	CU YD	50.000 X	=			
28000250	TEMP EROS CONTR SEED	POUND	336.000 X	=			
28000305	TEMP DITCH CHECKS	FOOT	84.000 X	=			
28000400	PERIMETER EROS BAR	FOOT	4,394.000 X	=			
28000500	INLET & PIPE PROTECT	EACH	3.000 X	=			
28000510	INLET FILTERS	EACH	130.000 X	=			
28100203	STONE RIPRAP CL A2	TON	67.000 X	=			

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
28100207	STONE RIPRAP CL A4	TON	54.000 X	=		=	
28200200	FILTER FABRIC	SQ YD	12.000 X	=		=	
30300001	AGG SUBGRADE IMPROVE	CU YD	944.000 X	=		=	
30300112	AGG SUBGRADE IMPR 12	SQ YD	35,194.000 X	=		=	
35100110	AGG BASE CSE A	CU YD	1,825.000 X	=		=	
40600100	BIT MATLS PR CT	GALLON	20,048.000 X	=		=	
40600300	AGG PR CT	TON	36.000 X	=		=	
40600400	MIX CR JTS FLANGEWYS	TON	1.000 X	=		=	
40600895	CONSTRUC TEST STRIP	EACH	1.000 X	=		=	
40600982	HMA SURF REM BUTT JT	SQ YD	63.000 X	=		=	
40600990	TEMPORARY RAMP	SQ YD	462.000 X	=		=	
40603085	HMA BC IL-19.0 N70	TON	13,998.000 X	=		=	
40603335	HMA SC "D" N50	TON	431.000 X	=		=	
40603340	HMA SC "D" N70	TON	4,388.000 X	=		=	
42001300	PROTECTIVE COAT	SQ YD	9,131.000 X	=		=	

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 LAKE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - 63765

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
42300200	PCC DRIVEWAY PAVT 6	SQ YD	171.000 X	=		=	
42400200	PC CONC SIDEWALK 5	SQ FT	53,922.000 X	=		=	
42400800	DETECTABLE WARNINGS	SQ FT	1,170.000 X	=		=	
44000100	PAVEMENT REM	SQ YD	22,646.000 X	=		=	
44000158	HMA SURF REM 2 1/4	SQ YD	5,594.000 X	=		=	
44000200	DRIVE PAVEMENT REM	SQ YD	5,831.000 X	=		=	
44000500	COMB CURB GUTTER REM	FOOT	2,892.000 X	=		=	
44000600	SIDEWALK REM	SQ FT	9,575.000 X	=		=	
44003100	MEDIAN REMOVAL	SQ FT	1,764.000 X	=		=	
44004250	PAVED SHLD REMOVAL	SQ YD	197.000 X	=		=	
44201725	CL D PATCH T1 7	SQ YD	5.000 X	=		=	
44201729	CL D PATCH T2 7	SQ YD	74.000 X	=		=	
44201733	CL D PATCH T3 7	SQ YD	18.000 X	=		=	
44201735	CL D PATCH T4 7	SQ YD	121.000 X	=		=	
44201777	CL D PATCH T2 11	SQ YD	6.000 X	=		=	

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
44201781	CL D PATCH T3 11	SQ YD	25.000				
44300200	STRIP REF CR CON TR	FOOT	2,568.000				
48100500	AGGREGATE SHLDS A 6	SQ YD	136.000				
50300225	CONC STRUCT	CU YD	16.400				
50800105	REINFORCEMENT BARS	POUND	1,380.000				
50800205	REINF BARS, EPOXY CTD	POUND	560.000				
54213450	END SECTIONS 15	EACH	1.000				
54213459	END SECTIONS 24	EACH	1.000				
54213657	PRC FLAR END SEC 12	EACH	2.000				
550A0050	STORM SEW CL A 1 12	FOOT	2,967.000				
550A0070	STORM SEW CL A 1 15	FOOT	613.000				
550A0090	STORM SEW CL A 1 18	FOOT	125.000				
550A0120	STORM SEW CL A 1 24	FOOT	180.000				
550A0140	STORM SEW CL A 1 30	FOOT	65.000				
550A0160	STORM SEW CL A 1 36	FOOT	345.000				

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				DOLLARS	CENTS	DOLLARS	CTS
550B0070	STORM SEW CL B 1 15	FOOT	266.000	X	=		
55100100	STORM SEWER REM 4	FOOT	30.000	X	=		
55100200	STORM SEWER REM 6	FOOT	182.000	X	=		
55100300	STORM SEWER REM 8	FOOT	77.000	X	=		
55100400	STORM SEWER REM 10	FOOT	242.000	X	=		
55100500	STORM SEWER REM 12	FOOT	2,143.000	X	=		
55100700	STORM SEWER REM 15	FOOT	109.000	X	=		
55100900	STORM SEWER REM 18	FOOT	36.000	X	=		
55101200	STORM SEWER REM 24	FOOT	67.000	X	=		
55101400	STORM SEWER REM 30	FOOT	341.000	X	=		
56103000	D I. WATER MAIN 6	FOOT	196.000	X	=		
56103100	D I. WATER MAIN 8	FOOT	3,744.000	X	=		
56103300	D I. WATER MAIN 12	FOOT	826.000	X	=		
56105000	WATER VALVES 8	EACH	22.000	X	=		
56105200	WATER VALVES 12	EACH	2.000	X	=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
56106400	ADJ WATER MAIN 8	FOOT	50.000 X	=		=	
56106600	ADJ WATER MAIN 12	FOOT	50.000 X	=		=	
56400100	FIRE HYDNTS TO BE MVD	EACH	3.000 X	=		=	
56400300	FIRE HYDNTS TO BE ADJ	EACH	1.000 X	=		=	
56400500	FIRE HYDNTS TO BE REM	EACH	11.000 X	=		=	
56400820	FIRE HYD W/AUX V & VB	EACH	13.000 X	=		=	
60200805	CB TA 4 DIA T8G	EACH	9.000 X	=		=	
60201110	CB TA 4 DIA T11V F&G	EACH	61.000 X	=		=	
60201305	CB TA 4 DIA T15F&L	EACH	1.000 X	=		=	
60201340	CB TA 4 DIA T24F&G	EACH	1.000 X	=		=	
60204505	CB TA 5 DIA T8G	EACH	3.000 X	=		=	
60204825	CB TA 5 DIA T11V F&G	EACH	4.000 X	=		=	
60205040	CB TA 5 DIA T24F&G	EACH	1.000 X	=		=	
60207605	CB TC T8G	EACH	3.000 X	=		=	
60218400	MAN TA 4 DIA T1F CL	EACH	19.000 X	=		=	

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
60221100	MAN TA 5 DIA T1F CL	EACH	4.000		X	=	
60221700	MAN TA 5 DIA T8G	EACH	1.000		X	=	
60236200	INLETS TA T8G	EACH	5.000		X	=	
60236825	INLETS TA T11V F&G	EACH	36.000		X	=	
60237470	INLETS TA T24F&G	EACH	2.000		X	=	
60248700	VV TA 4 DIA T1F CL	EACH	22.000		X	=	
60248900	VV TA 5 DIA T1F CL	EACH	2.000		X	=	
60250200	CB ADJUST	EACH	2.000		X	=	
60252800	CB RECONST	EACH	5.000		X	=	
60255500	MAN ADJUST	EACH	36.000		X	=	
60257900	MAN RECONST	EACH	8.000		X	=	
60260100	INLETS ADJUST	EACH	3.000		X	=	
60262700	INLETS RECONST	EACH	5.000		X	=	
60265700	VV ADJUST	EACH	9.000		X	=	
60266600	VALVE BOX ADJ	EACH	3.000		X	=	

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ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
60402210	GRATES T8	EACH	2.000	X	=	=	
60404950	FR & GRATES T24	EACH	2.000	X	=	=	
60406000	FR & LIDS T1 OL	EACH	2.000	X	=	=	
60406100	FR & LIDS T1 CL	EACH	48.000	X	=	=	
60500040	REMOV MANHOLES	EACH	2.000	X	=	=	
60500050	REMOV CATCH BAS	EACH	16.000	X	=	=	
60500060	REMOV INLETS	EACH	15.000	X	=	=	
60500405	FILL VALVE VLTS	EACH	9.000	X	=	=	
60600605	CONC CURB TB	FOOT	827.000	X	=	=	
60603800	COMB CC&G TB6.12	FOOT	10,974.000	X	=	=	
60605000	COMB CC&G TB6.24	FOOT	816.000	X	=	=	
60618300	CONC MEDIAN SURF 4	SQ FT	270.000	X	=	=	
66900205	SPL WASTE DISPOSAL	CU YD	2,331.000	X	=	=	
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000	X	=	=	
66900530	SOIL DISPOSAL ANALY	EACH	2.000	X	=	=	

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
67100100	MOBILIZATION	L SUM	1.000 X	=		=	
70106800	CHANGEABLE MESSAGE SN	CAL MO	16.000 X	=		=	
70300100	SHORT TERM PAVT MKING	FOOT	522.000 X	=		=	
70300210	TEMP PVT MK LTR & SYM	SQ FT	36.000 X	=		=	
70300220	TEMP PVT MK LINE 4	FOOT	24,629.000 X	=		=	
70300520	PAVT MARK TAPE T3 4	FOOT	200.000 X	=		=	
70301000	WORK ZONE PAVT MK REM	SQ FT	200.000 X	=		=	
72400100	REMOV SIN PAN ASSY TA	EACH	2.000 X	=		=	
78000100	THPL PVT MK LTR & SYM	SQ FT	1,574.000 X	=		=	
78000200	THPL PVT MK LINE 4	FOOT	12,309.000 X	=		=	
78000400	THPL PVT MK LINE 6	FOOT	1,159.000 X	=		=	
78000500	THPL PVT MK LINE 8	FOOT	8,368.000 X	=		=	
78000600	THPL PVT MK LINE 12	FOOT	1,330.000 X	=		=	
78000650	THPL PVT MK LINE 24	FOOT	130.000 X	=		=	
78100100	RAISED REFL PAVT MKR	EACH	67.000 X	=		=	

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
78300100	PAVT MARKING REMOVAL	SQ FT	226.000 X	=		=	
78300200	RAISED REF PVT MK REM	EACH	67.000 X	=		=	
80500020	SERV INSTALL POLE MT	EACH	1.000 X	=		=	
81028200	UNDRGRD C GALVS 2	FOOT	5,906.000 X	=		=	
81028210	UNDRGRD C GALVS 2 1/2	FOOT	48.000 X	=		=	
81028230	UNDRGRD C GALVS 3 1/2	FOOT	36.000 X	=		=	
81028240	UNDRGRD C GALVS 4	FOOT	531.000 X	=		=	
81400100	HANDHOLE	EACH	12.000 X	=		=	
81400300	DBL HANDHOLE	EACH	3.000 X	=		=	
85000200	MAIN EX TR SIG INSTAL	EACH	2.000 X	=		=	
87300925	ELCBL C TRACER 14 1C	FOOT	2,496.000 X	=		=	
87301215	ELCBL C SIGNAL 14 2C	FOOT	2,694.000 X	=		=	
87301225	ELCBL C SIGNAL 14 3C	FOOT	2,563.000 X	=		=	
87301245	ELCBL C SIGNAL 14 5C	FOOT	1,675.000 X	=		=	
87301255	ELCBL C SIGNAL 14 7C	FOOT	2,835.000 X	=		=	

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				DOLLARS	CENTS	DOLLARS	CTS
87301805	ELCBL C SERV 6 2C	FOOT	69.000 X	=		=	
87301900	ELCBL C EGRDC 6 1C	FOOT	861.000 X	=		=	
87800100	CONC FDN TY A	FOOT	12.000 X	=		=	
87800150	CONC FDN TY C	FOOT	4.000 X	=		=	
87800415	CONC FDN TY E 36D	FOOT	60.000 X	=		=	
87900200	DRILL EX HANDHOLE	EACH	2.000 X	=		=	
88030020	SH LED 1F 3S MAM	EACH	5.000 X	=		=	
88030050	SH LED 1F 3S BM	EACH	1.000 X	=		=	
88030070	SH LED 1F 4S BM	EACH	2.000 X	=		=	
88030080	SH LED 1F 4S MAM	EACH	2.000 X	=		=	
88030100	SH LED 1F 5S BM	EACH	2.000 X	=		=	
88030110	SH LED 1F 5S MAM	EACH	4.000 X	=		=	
88030240	SH LED 2F 1-3 1-5 BM	EACH	1.000 X	=		=	
88030250	SH LED 2F 1-4 1-5 BM	EACH	1.000 X	=		=	
88102717	PED SH LED 1F BM CDT	EACH	3.000 X	=		=	

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
88102747	PED SH LED 2F BM CDT	EACH	2.000 X				
88102757	PED SH LED 3F BM CDT	EACH	1.000 X				
88200210	TS BACKPLATE LOU ALUM	EACH	11.000 X				
88700200	LIGHT DETECTOR	EACH	3.000 X				
88700300	LIGHT DETECTOR AMP	EACH	1.000 X				
88800100	PED PUSH-BUTTON	EACH	10.000 X				
89000100	TEMP TR SIG INSTALL	EACH	1.000 X				
89502300	REM ELCBL FR CON	FOOT	1,303.000 X				
89502375	REMOV EX TS EQUIP	EACH	1.000 X				
89502380	REMOV EX HANDHOLE	EACH	11.000 X				
89502382	REMOV EX DBL HANDHOLE	EACH	1.000 X				
89502385	REMOV EX CONC FDN	EACH	9.000 X				

TOTAL \$

NOTE:
*** PLEASE TURN PAGE FOR IMPORTANT NOTES ***

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NOTE:

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

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

I. GENERAL

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

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

C. In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for the CPO to void the contract, and may result in the suspension or debarment of the bidder or subcontractor. If a false certification is made by a subcontractor the contractor's submitted bid and the executed contract may not be declared void unless the contractor refuses to terminate the subcontract upon the State's request after a finding that the subcontractor's certification was false.

II. ASSURANCES

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

A. Conflicts of Interest

1. The Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

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

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

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

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

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

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

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

B. Negotiations

1. The Code provides in pertinent part:

Section 50-15. Negotiations.

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

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

C. Inducements

1. The Code provides:

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

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

D. Revolving Door Prohibition

1. The Code provides:

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

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

E. Reporting Anticompetitive Practices

1. The Code provides:

Section 50-40. Reporting anticompetitive practices. When, for any reason, any vendor, bidder, contractor, CPO, SPO, 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 CPO.

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

F. Confidentiality

1. The Code provides:

Section 50-45. Confidentiality. Any CPO, SPO, 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.

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G. Insider Information

1. The Code provides:

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

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

III. CERTIFICATIONS

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

A. Bribery

1. The Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

B. Felons

1. The Code provides:

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

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

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C. Debt Delinquency

1. The Code provides:

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

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

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

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-14 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the CPO may declare the contract void if this certification is false.

F. Educational Loan

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

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

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

G. Bid-Rigging/Bid Rotating

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

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

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

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

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

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

H. International Anti-Boycott

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

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

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

I. Drug Free Workplace

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

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

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

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

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

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

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

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

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

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J. Disclosure of Business Operations in Iran

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

- (1) More than 10% of the Company's revenues produced in or assets located in Iran involve oil-related activities or mineral-extraction activities; less than 75% of the Company's revenues produced in or assets located in Iran involve contracts with or provision of oil-related or mineral-extraction products or services to the Government of Iran or a project or consortium created exclusively by that government; and the Company has failed to take substantial action.
- (2) The Company has, on or after August 5, 1996, made an investment of \$20 million or more, or any combination of investments of at least \$10 million each that in the aggregate equals or exceeds \$20 million in any 12-month period, which directly or significantly contributes to the enhancement of Iran's ability to develop petroleum resources of Iran.

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

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

Check the appropriate statement:

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

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

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

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

NA-FEDERAL

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

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

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

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

The undersigned business entity certifies that it has registered as a business with the State Board of Elections and acknowledges a continuing duty to update the registration in accordance with the above referenced statutes. If the business entity is required to register, the CPO shall verify that it is in compliance on the date the bid or proposal is due. The CPO shall not accept a bid or proposal if the business entity is not in compliance with the registration requirements.

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

M. Lobbyist Disclosure

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

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

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

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

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

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

Or

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

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

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IV. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

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

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form. **The current annual salary of the Governor is \$177,412.00.**

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on Form A must be signed and dated by a person that is authorized to execute contracts for the bidding company. Note: These questions are for assistance only and are not required to be completed.

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

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

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

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

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

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

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

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

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

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Financial Information & Potential Conflicts of Interest Disclosure

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

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

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)
NAME:
ADDRESS
Type of ownership/distributable income share:
stock sole proprietorship Partnership other: (explain on separate sheet):
% or \$ value of ownership/distributable income share:

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

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

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

- 1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor provide the name the State agency for which you are employed and your annual salary.

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3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes ___ No ___
4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15% in aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___ No ___

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

Yes ___ No ___

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

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority? Yes ___ No ___
2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of the spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____
-
3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess 100% of the annual salary of the Governor? Yes ___ No ___
4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or any minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income from your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes ___ No ___

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes ___ No ___

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

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

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

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

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

3. Communication Disclosure.

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

Name and address of person(s): _____

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

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

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

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

NOT APPLICABLE STATEMENT

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

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

_____ Date _____
Signature of Authorized Representative

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

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B Other Contracts & Financial 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 Code (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of \$25,000, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

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

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

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

THE FOLLOWING STATEMENT MUST BE CHECKED

Signature of Authorized Representative, Date

OWNERSHIP CERTIFICATION

Please certify that the following statement is true if the individuals for all submitted Form A disclosures do not total 100% of ownership.

Any remaining ownership interest is held by individuals receiving less than \$106,447.20 of the bidding entity's or parent entity's distributive income or holding less than a 5% ownership interest.

Yes No N/A (Form A disclosure(s) established 100% ownership)

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SPECIAL NOTICE TO CONTRACTORS

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

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

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

RETURN WITH BID

**Contract No. 63765
LAKE County
Section 05-00121-07-WR
Project M-TE-00D1(888)
Route FAU 187 (Washington Street)
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. 63765
LAKE County
Section 05-00121-07-WR
Project M-TE-00D1(888)
Route FAU 187 (Washington Street)
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 _____
Attest _____
Signature _____
(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW)
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.



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 the bid proposal under "Proposal Guaranty" in effect on the date of the Invitation for Bids, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

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

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

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

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

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

PRINCIPAL

SURETY

(Company Name)

(Company Name)

By _____
(Signature & Title)

By: _____
(Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
County of _____

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

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

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

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

My commission expires _____

Notary Public

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

Electronic Bid Bond ID#

Company / Bidder Name



Signature and Title



(1) Policy

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

(2) Obligation

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

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route _____	Total Bid _____
Section _____	Contract DBE Goal _____
Project _____	(Percent) (Dollar Amount)
County _____	
Letting Date _____	
Contract No. _____	
Letting Item No. _____	

(4) Assurance

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

- Meets or exceeds contract award goals and has provided documented participation as follows:
Disadvantaged Business Participation _____ percent

Attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.
- Failed to meet contract award goals and has included good faith effort documentation to meet the goals and that my company has provided participation as follows:

Disadvantaged Business Participation _____ percent

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

Company

By _____

Title _____

Date _____

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

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

Bureau of Small Business Enterprises 2300 South Dirksen Parkway Springfield, Illinois 62764	Local Let Projects Submit forms to the Local Agency
---	--

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

PROPOSAL ENVELOPE



PROPOSALS

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

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

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

Engineer of Design and Environment - Room 326
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

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

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

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

**Contract No. 63765
LAKE County
Section 05-00121-07-WR
Project M-TE-00D1(888)
Route FAU 187 (Washington Street)
District 1 Construction Funds**



Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

Public Acts 96-0795, 96-0920, and 97-0895 enacted substantial changes to the provisions of the Code (30 ILCS 500). Among the changes are provisions affecting subcontractors. The Contractor awarded this contract will be required as a material condition of the contract to implement and enforce the contract requirements applicable to subcontractors that entered into a contractual agreement with a total value of \$50,000 or more with a person or entity who has a contract subject to the Code and approved in accordance with article 108.01 of the Standard Specifications for Road and Bridge Construction.

If the Contractor seeks approval of subcontractors to perform a portion of the work, and approval is granted by the Department, the Contractor shall provide a copy of the subcontract to the Illinois Department of Transportation's CPO upon request within 15 calendar days after execution of the subcontract.

Financial disclosures required pursuant to Sec. 50-35 of the Code must be submitted for all applicable subcontractors. The subcontract shall contain the certifications required to be made by subcontractors pursuant to Article 50 of the Code. This Notice to Bidders includes a document incorporating all required subcontractor certifications and disclosures for use by the Contractor in compliance with this mandate. The document is entitled State Required Ethical Standards Governing Subcontractors.

RETURN WITH SUBCONTRACT

STATE ETHICAL STANDARDS GOVERNING SUBCONTRACTORS

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

The certifications hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed should the Department approve the subcontractor. The CPO may terminate or void the contract approval if it is later determined that the bidder or subcontractor rendered a false or erroneous certification. If a false certification is made by a subcontractor the contractor's submitted bid and the executed contract may not be declared void unless the contractor refuses to terminate the subcontract upon the State's request after a finding that the subcontractor's certification was false.

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

A. Bribery

1. The Code provides:

Section 50-5. Bribery.

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

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

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

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

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

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

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

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

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

B. Felons

1. The Code provides:

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

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

RETURN WITH SUBCONTRACT

C. Debt Delinquency

1. The Code provides:

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

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

D. Prohibited Bidders, Contractors and Subcontractors

1. The Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

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

E. Section 42 of the Environmental Protection Act

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

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

Name of Subcontracting Company

Authorized Officer

Date

RETURN WITH SUBCONTRACT
SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

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

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

B. Financial Interests and Conflicts of Interest

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

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the subcontracting entity or its parent entity, whichever is less, unless the subcontractor is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

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

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

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

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the subcontractor is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 200 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a subcontractor is not subject to Federal 10K reporting, the subcontractor must determine if any individuals are required by law to complete a financial disclosure form. To do this, the subcontractor should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the **NOT APPLICABLE STATEMENT** on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the subcontracting company. Note: These questions are for assistance only and are not required to be completed.

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

(Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.)

4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES ___ NO ___

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

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

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

RETURN WITH SUBCONTRACT

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

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

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

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

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

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

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

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

DISCLOSURE OF FINANCIAL INFORMATION

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

FOR INDIVIDUAL (type or print information)	
NAME:	_____
ADDRESS	_____
Type of ownership/distributable income share:	
stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):	
% or \$ value of ownership/distributable income share:	_____

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

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

Yes ___ No ___

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

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

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

RETURN WITH SUBCONTRACT

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

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

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

Yes ___ No ___

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

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority?
Yes ___ No ___

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

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

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

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years.
Yes ___ No ___

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

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years.
Yes ___ No ___

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

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

RETURN WITH SUBCONTRACT

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

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

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

3 Communication Disclosure.

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

Name and address of person(s): _____

RETURN WITH SUBCONTRACT

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

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

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

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

NOT APPLICABLE STATEMENT

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

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

_____ Date _____
Signature of Authorized Officer

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Subcontractor: Other Contracts & Financial Related Information Disclosure

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

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

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

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

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

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

THE FOLLOWING STATEMENT MUST BE CHECKED

Signature box with fields for Signature of Authorized Officer and Date

OWNERSHIP CERTIFICATION

Please certify that the following statement is true if the individuals for all submitted Form A disclosures do not total 100% of ownership

Any remaining ownership interest is held by individuals receiving less than \$106,447.20 of the bidding entity's or parent entity's distributive income or holding less than a 5% ownership interest.

Yes No N/A (Form A disclosure(s) established 100% ownership)



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 April 26, 2013. 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. 63765
LAKE County
Section 05-00121-07-WR
Project M-TE-00D1(888)
Route FAU 187 (Washington Street)
District 1 Construction Funds**

Widen and reconstruct Washington Street, the addition of a right-turn lane, storm sewer, sidewalks and traffic signals, from Cedar Lake Road to just west of Hainesville Road and the resurfacing of Cedar Lake Road at Washington Street, located in the Villages of Hainesville, Roand Lake Park and Roand Lake.

- 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

Ann L. Schneider,
Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2013

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS, frequently used RECURRING SPECIAL PROVISIONS, and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-12) (Revised 1-1-13)

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

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15 PCC Partial Depth Hot-Mix Asphalt Patching (Eff. 1-1-98) (Rev. 1-1-07)	77
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USACE Permit

IEPA Watermain Permits for Village of Round Lake and Village of Round Lake Park

Soils Report

Soils Report

Supplemental Soils Report

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET
Effective as of the: April 26, 2013 Letting

<u>Pg #</u>	<u>√</u>	<u>File Name</u>	<u>Title</u>	<u>Effective</u>	<u>Revised</u>
		GBSP 4	Polymer Modified Portland Cement Mortar	June 7, 1994	Feb 6, 2013
		GBSP 11	Permanent Steel Sheet Piling	Dec 15, 1993	Jan 1, 2007
		GBSP 12	Drainage System	June 10, 1994	Jan 1, 2007
		GBSP 13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Oct 30, 2012
		GBSP 14	Jack and Remove Existing Bearings	April 20, 1994	Jan 1, 2007
		GBSP 15	Three Sided Precast Concrete Structure	July 12, 1994	Oct 15, 2011
		GBSP 16	Jacking Existing Superstructure	Jan 11, 1993	Jan 1, 2007
		GBSP 17	Bonded Preformed Joint Seal	July 12, 1994	Jan 1, 2007
		GBSP 18	Modular Expansion Joint	May 19, 1994	Jan 1, 2007
		GBSP 21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	May 18, 2011
		GBSP 25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	April 19, 2012
		GBSP 26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	April 30, 2010
		GBSP 28	Deck Slab Repair	May 15, 1995	Oct 15, 2011
		GBSP 29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	Oct 30, 2012
		GBSP 30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Jan 18, 2011
		GBSP 31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	Oct 30, 2012
		GBSP 32	Temporary Sheet Piling	Sept 2, 1994	Jan 31, 2012
		GBSP 33	Pedestrian Truss Superstructure	Jan 13, 1998	Aug 17, 2012
		GBSP 34	Concrete Wearing Surface	June 23, 1994	Feb 6, 2013
		GBSP 35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct 15, 2011
		GBSP 38	Mechanically Stabilized Earth Retaining Walls	Feb 3, 1999	Feb 6, 2013
		GBSP 42	Drilled Soldier Pile Retaining Wall	Sept 20, 2001	Aug 17, 2012
		GBSP 43	Driven Soldier Pile Retaining Wall	Nov 13, 2002	Aug 17, 2012
		GBSP 44	Temporary Soil Retention System	Dec 30, 2002	May 11, 2009
		GBSP 45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
		GBSP 46	Geotextile Retaining Walls	Sept 19, 2003	Oct 30, 2012
		GBSP 47	High Performance Concrete Structures	Aug 5, 2002	Jan 1, 2007
280	X	GBSP 51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
		GBSP 52	Porous Granular Embankment (Special)	Sept 28, 2005	Nov 14, 2008
		GBSP 53	Structural Repair of Concrete	Mar 15, 2006	Feb 6, 2013
		GBSP 55	Erection of Curved Steel Structures	June 1, 2007	
		GBSP 56	Setting Piles in Rock	Nov 14, 1996	April 19, 2012
		GBSP 57	Temporary Mechanically Stabilized Earth Retaining Walls	Jan 6, 2003	Feb 6, 2013
		GBSP 59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	July 9, 2008
		GBSP 60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Mar 6, 2009
		GBSP 61	Slipform Parapet	June 1, 2007	Aug 17, 2012
		GBSP 62	Concrete Deck Beams	June 13, 2008	Oct 9, 2009
281	X	GBSP 64	Segmental Concrete Block Wall	Jan 7, 1999	Oct 30, 2012
		GBSP 65	Precast Modular Retaining Walls	Mar 19, 2001	Oct 30, 2012
		GBSP 66	Wave Equation Analysis of Piles	Nov 14, 2008	
		GBSP 67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	
		GBSP 70	Braced Excavation	Aug 9, 1995	May 18, 2011
		GBSP 71	Aggregate Column Ground Improvement	Jan 15, 2009	Oct 15, 2011

	GBSP 72	Bridge Deck Fly Ash or GGBF Slag Concrete Overlay	Jan 18, 2011	Oct 15, 2011
	GBSP 73	Cofferdams	Oct 15, 2011	
	GBSP 74	Permanent Steel Sheet Piling (LRFD)	Jan 31, 2012	Aug 17, 2012
	GBSP 75	Bond Breaker for Prestressed Concrete Bulb-T-Beams	April 19, 2012	
	GBSP 76	Granular Backfill for Structures	April 19, 2012	Oct 30, 2012
	GBSP 77	Weep Hole Drains for Abutments, Wingwalls, Retaining Walls And Culverts	April 19, 2012	

LIST ANY ADDITIONAL SPECIAL PROVISIONS BELOW

The following Guide Bridge Special Provisions have been incorporated into the 2012 Standard Specifications:

File Name	Title	Std Spec Location
GBSP22	Cleaning and Painting New Metal Structures	506
GBSP36	Surface Preparation and Painting Req. for Weathering Steel	506
GBSP50	Removal of Existing Non-composite Bridge Decks	501
GBSP58	Mechanical Splicers	508
GBSP63	Demolition Plans for Removal of Existing Structures	501
GBSP68	Piling	512
GBSP69	Freeze-Thaw Aggregates for Concrete Superstructures Poured on Grade	1004

The following Guide Bridge Special Provisions have been discontinued or have been superseded:

File Name	Title	Disposition:
GBSP37	Underwater Structure Excavation Protection	Replaced by GBSP73

INDEX LOCAL ROADS AND STREETS SPECIAL PROVISIONS

<u>LR #</u>	<u>Pg #</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
LR SD12		<input type="checkbox"/> Slab Movement Detection Device	Nov. 11, 1984	Jan. 1, 2007
LR SD13		<input type="checkbox"/> Required Cold Milled Surface Texture	Nov. 1, 1987	Jan. 1, 2007
LR SD406		<input type="checkbox"/> Safety Edge	April 1, 2011	
LR 105	286	<input checked="" type="checkbox"/> Cooperation with Utilities	Jan. 1, 1999	Jan. 1, 2007
LR 107-2		<input type="checkbox"/> Railroad Protective Liability Insurance for Local Lettings	Mar. 1, 2005	Jan. 1, 2006
LR 107-4	289	<input checked="" type="checkbox"/> Insurance	Feb. 1, 2007	Aug. 1, 2007
LR 107-7		<input type="checkbox"/> Wages of Employees on Public Works	Jan. 1, 1999	Jan. 2, 2013
LR 108		<input type="checkbox"/> Combination Bids	Jan. 1, 1994	Mar. 1, 2005
LR 109		<input type="checkbox"/> Equipment Rental Rates	Jan. 1, 2012	
LR 212		<input type="checkbox"/> Shaping Roadway	Aug. 1, 1969	Jan. 1, 2002
LR 355-1		<input type="checkbox"/> Bituminous Stabilized Base Course, Road Mix or Traveling Plant Mix	Oct. 1, 1973	Jan. 1, 2007
LR 355-2		<input type="checkbox"/> Bituminous Stabilized Base Course, Plant Mix	Feb. 20, 1963	Jan. 1, 2007
LR 400-1		<input type="checkbox"/> Bituminous Treated Earth Surface	Jan. 1, 2007	Apr. 1, 2012
LR 400-2		<input type="checkbox"/> Bituminous Surface Plant Mix (Class B)	Jan. 1, 2008	
LR 400-3		<input type="checkbox"/> Hot In-Place Recycling (HIR) – Surface Recycling	Jan. 1, 2012	
LR 400-4		<input type="checkbox"/> Full-Depth Reclamation (FDR) with Emulsified Asphalt	Apr. 1, 2012	Jun. 1, 2012
LR 400-5		<input type="checkbox"/> Cold In-Place Recycling (CIR) With Emulsified Asphalt	Apr. 1, 2012	Jun. 1, 2012
LR 400-6		<input type="checkbox"/> Cold In Place Recycling (CIR) with Foamed Asphalt	June 1, 2012	
LR 400-7		<input type="checkbox"/> Full-Depth Reclamation (FDR) with Foamed Asphalt	June 1, 2012	
LR 402		<input type="checkbox"/> Salt Stabilized Surface Course	Feb. 20, 1963	Jan. 1, 2007
LR 403-1		<input type="checkbox"/> Surface Profile Milling of Existing, Recycled or Reclaimed Flexible Pavement	Apr. 1, 2012	Jun. 1, 2012
LR 403-2		<input type="checkbox"/> Bituminous Hot Mix Sand Seal Coat	Aug. 1, 1969	Jan. 1, 2007
LR 406		<input type="checkbox"/> Filling HMA Core Holes with Non-shrink Grout	Jan. 1, 2008	
LR 420		<input type="checkbox"/> PCC Pavement (Special)	May 12, 1964	Jan. 2, 2007
LR 442		<input type="checkbox"/> Bituminous Patching Mixtures for Maintenance Use	Jan. 1, 2004	Jun. 1, 2007
LR 451		<input type="checkbox"/> Crack Filling Bituminous Pavement with Fiber-Asphalt	Oct. 1, 1991	Jan. 1, 2007
LR 503-1		<input type="checkbox"/> Furnishing Class SI Concrete	Oct. 1, 1973	Jan. 1, 2002
LR 503-2		<input type="checkbox"/> Furnishing Class SI Concrete (Short Load)	Jan. 1, 1989	Jan. 1, 2002
LR 542		<input type="checkbox"/> Pipe Culverts, Type _____ (Furnished)	Sep. 1, 1964	Jan. 1, 2007
LR 663		<input type="checkbox"/> Calcium Chloride Applied	Jun. 1, 1958	Jan. 1, 2007
LR 702		<input type="checkbox"/> Construction and Maintenance Signs	Jan. 1, 2004	Jun. 1, 2007
LR 1000-1		<input type="checkbox"/> Cold In-Place Recycling (CIR) and Full Depth Reclamation (FDR) with Emulsified Asphalt Mix Design Procedures	Apr. 1, 2012	Jun. 1, 2012
LR 1000-2		<input type="checkbox"/> Cold In-Place Recycling (CIR) and Full Depth Reclamation (FDR) with Foamed Asphalt Mix Design Procedures	June 1, 2012	
LR 1004		<input type="checkbox"/> Coarse Aggregate for Bituminous Surface Treatment	Jan. 1, 2002	Jan. 1, 2007
LR 1030		<input type="checkbox"/> Growth Curve	Mar. 1, 2008	Jan. 1, 2010
LR 1032-1		<input type="checkbox"/> Emulsified Asphalts	Jan. 1, 2007	Feb. 7, 2008
LR 1102		<input type="checkbox"/> Road Mix or Traveling Plan Mix Equipment	Jan. 1, 2007	

BDE SPECIAL PROVISIONS
For the April 26 and June 14, 2013 Lettings

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

<u>File Name</u>	<u>Pg.</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80240			Above Grade Inlet Protection	July 1, 2009	Jan. 1, 2012
80099			Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2007
80274			Aggregate Subgrade Improvement	April 1, 2012	Jan. 1, 2013
80309	290	X	Anchor Bolts	Jan. 1, 2013	
80192			Automated Flagger Assistance Device	Jan. 1, 2008	
80173	291	X	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Jan. 1, 2012
80241			Bridge Demolition Debris	July 1, 2009	
80276			Bridge Relief Joint Sealer	Jan. 1, 2012	Aug. 1, 2012
50261			Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50481			Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50491			Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50531			Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
* 80292			Coarse Aggregate in Bridge Approach Slabs/Footings	April 1, 2012	April 1, 2013
80310	294	X	Coated Galvanized Steel Conduit	Jan. 1, 2013	
80198			Completion Date (via calendar days)	April 1, 2008	
80199			Completion Date (via calendar days) Plus Working Days	April 1, 2008	
80293			Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	
80294			Concrete Box Culverts with Skews ≤ 30 Degrees Regardless of Design Fill and Skews > 30 Degrees with Design Fills > 5 Feet	April 1, 2012	
80311			Concrete End Sections for Pipe Culverts	Jan. 1, 2013	
80277			Concrete Mix Design – Department Provided	Jan. 1, 2012	
80261	295	X	Construction Air Quality – Diesel Retrofit	June 1, 2010	
80029	298	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Aug. 2, 2011
80312	308	X	Drain Pipe, Tile, Drainage Mat, and Wall Drain	Jan. 1, 2013	
80313			Fabric Bearing Pads	Jan. 1, 2013	
80265			Friction Aggregate	Jan. 1, 2011	
80229			Fuel Cost Adjustment	April 1, 2009	July 1, 2009
80303	309	X	Granular Materials	Nov. 1, 2012	
80304			Grooving for Recessed Pavement Markings	Nov. 1, 2012	Jan. 1, 2013
80169			High Tension Cable Median Barrier	Jan. 1, 2007	Jan. 1, 2013
80246	310	X	Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	April 1, 2012
80315			Insertion Lining of Culverts	Jan. 1, 2013	
* 80320	312	X	Liquidated Damages	April 1, 2013	
80045			Material Transfer Device	June 15, 1999	Jan. 1, 2009
80297			Modified Urethane Pavement Marking	April 1, 2012	
80165			Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
80253			Movable Traffic Barrier	Jan. 1, 2010	Jan. 1, 2013
80231	313	X	Pavement Marking Removal	April 1, 2009	
80298			Pavement Marking Tape Type IV	April 1, 2012	
80254	314	X	Pavement Patching	Jan. 1, 2010	
* 80321	315	X	Pavement Removal	April 1, 2013	
80022	316	X	Payments to Subcontractors	June 1, 2000	Jan. 1, 2006
80316	318	X	Placing and Consolidating Concrete	Jan. 1, 2013	
80278	321	X	Planting Woody Plants	Jan. 1, 2012	Aug. 1, 2012
80305			Polyurea Pavement Markings	Nov. 1, 2012	Jan. 1, 2013
80279	323	X	Portland Cement Concrete	Jan. 1, 2012	Jan. 1, 2013
80300			Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	

<u>File Name</u>	<u>Pg.</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80218			Preventive Maintenance – Bituminous Surface Treatment	Jan. 1, 2009	April 1, 2012
80219			Preventive Maintenance – Cape Seal	Jan. 1, 2009	April 1, 2012
80220			Preventive Maintenance – Micro-Surfacing	Jan. 1, 2009	April 1, 2012
80221			Preventive Maintenance – Slurry Seal	Jan. 1, 2009	April 1, 2012
80281	366	X	Quality Control/Quality Assurance of Concrete Mixtures	Jan. 1, 2012	Jan. 1, 2013
34261			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157			Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306			Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	Jan. 1, 2013
* 80283	382	X	Removal and Disposal of Regulated Substances	Jan. 1, 2012	Nov. 2, 2012
* 80319	386	X	Removal and Disposal of Surplus Materials	Nov. 2, 2012	
80224			Restoring Bridge Approach Pavements Using High-Density Foam	Jan. 1, 2009	Jan. 1, 2012
80271			Safety Edge	April 1, 2011	
80307			Seeding	Nov. 1, 2012	
80127			Steel Cost Adjustment	April 2, 2004	April 1, 2009
80255			Stone Matrix Asphalt	Jan. 1, 2010	Jan. 1, 2012
80143	387	X	Subcontractor Mobilization Payments	April 2, 2005	April 1, 2011
80317			Surface Testing of Hot-Mix Asphalt Overlays (NOTE: This special provision was previously named "Surface Testing of Pavements".)	Jan. 1, 2013	
80308			Synthetic Fibers in Concrete Gutter, Curb, Median and Paved Ditch	Nov. 1, 2012	
80286	388	X	Temporary Erosion and Sediment Control	Jan. 1, 2012	
80225			Temporary Raised Pavement Marker	Jan. 1, 2009	
80256			Temporary Water Filled Barrier	Jan. 1, 2010	Jan. 1, 2013
80301			Tracking the Use of Pesticides	Aug. 1, 2012	
80273	389	X	Traffic Control Deficiency Deduction	Aug. 1, 2011	
20338	390	X	Training Special Provisions	Oct. 15, 1975	
* 80318			Traversable Pipe Grate	Jan. 1, 2013	April 1, 2013
80270			Utility Coordination and Conflicts	April 1, 2011	Jan. 1, 2012
80288	393	X	Warm Mix Asphalt	Jan. 1, 2012	Nov. 1, 2012
80302	399	X	Weekly DBE Trucking Reports	June 2, 2012	
80289			Wet Reflective Thermoplastic Pavement Marking	Jan. 1, 2012	
80071	400	X	Working Days	Jan. 1, 2002	

The following special provisions are either in the 2013 Standard Specifications, the 2013 Recurring Special Provisions, or the special provisions Portland Cement Concrete, QC/QA of Concrete Mixtures, or Placing and Consolidating Concrete:

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80275	Agreement to Plan Quantity	Article 202.07	Jan. 1, 2012	
80291	Calcium Chloride Accelerator for Class PP-2 Concrete	Recurring CS #28	April 1, 2012	
80237	Construction Air Quality – Diesel Vehicle Emissions Control	Articles 105.03 and 107.41	April 1, 2009	Jan. 2, 2012
80239	Construction Air Quality – Idling Restrictions	Articles 105.03 and 107.41	April 1, 2009	
80177	Digital Terrain Modeling for Earthwork Calculations	Recurring CS #32	April 1, 2007	
80272	Drainage and Inlet Protection Under Traffic	Articles 603.02 and 603.07	April 1, 2011	Jan. 1, 2012
80228	Flagger at Side Roads and Entrances	Articles 701.13 and 701.20	April 1, 2009	
80109	Impact Attenuators	Section 643	Nov. 1, 2003	Jan. 1, 2012
80110	Impact Attenuators, Temporary	Section 706	Nov. 1, 2003	Jan. 1, 2012
80203	Metal Hardware Cast into Concrete	Articles 503.02, 504.02, and 1006.13	April 1, 2008	Jan. 1, 2012
80290	Payrolls and Payroll Records	Recurring CS #5	Jan. 2, 2012	
80299	Portland Cement Concrete Inlay or Overlay	Recurring CS #29	April 1, 2012	
80280	Portland Cement Concrete Sidewalk	Article 424.07	Jan. 1, 2012	

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80152	Self-Consolidating Concrete for Cast-In-Place Construction	The following special provisions: Portland Cement Concrete, QC/QA of Concrete Mixtures and Placing and Consolidating Concrete	Nov. 1, 2005	April 1, 2012
80132	Self-Consolidating Concrete for Precast and Precast Prestressed Products	The following special provisions: Portland Cement Concrete, QC/QA of Concrete Mixtures and Placing and Consolidating Concrete	July 1, 2004	April 1, 2012
80284	Shoulder Rumble Strips	Article 642.05	Jan. 1, 2012	
80285	Sidewalk, Corner or Crosswalk Closure	Articles 701.03, 701.15, and 1106.02	Jan. 1, 2012	
80075	Surface Testing of Pavements (Section 406 overlay portion will remain a special provision and will now be called "Surface Testing of HMA Overlays".)	Articles 407.09, 407.12, 420.10, 420.20, and 1101.10	April 1, 2002	Jan. 1, 2007
80287	Type G Inlet Box	Article 610.09	Jan. 1, 2012	

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

- Bridge Demolition Debris
- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- Completion Date
- Completion Date Plus Working Days
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

STATE OF ILLINOIS **SPECIAL PROVISIONS**

The following Special Provisions supplement the specifications listed in the table below, which apply to and govern the proposed improvement designated as FAU Route 0187 (Washington Street) Cedar Lake Road to Hainesville Road, Section Number 05-00121-07-WR, Project Number M-TE-00D1 (888), Job Number C-91-029-07 in Lake County and in case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and govern.

SPECIFICATION	ADOPTED/DATED
Standard Specifications for Road and Bridge Construction	January 1, 2012
Manual on Uniform Traffic Control Devices for Streets and Highways Illinois Supplement	Latest Edition
Supplemental Specifications, Recurring Special Provisions, and BDE Special Provisions (indicated on sheets included herein)	January 2013
Standard Specifications for Water & Sewer main Construction in Illinois	Latest Edition
Manual of Test Procedures for Materials	Latest Edition

Contract No. 63765

LOCATION OF IMPROVEMENT

This improvement is located at Washington Street from Cedar Lake Road to just west of Hainesville Road, in Section 20, 21 and 28 of Avon Township, Lake County, Illinois. The total gross length of improvement is 6,460.87 feet (1.22 miles) and net length is 6,091.07 feet (1.15 miles).

DESCRIPTION OF IMPROVEMENT

The work consists of widening and reconstructing of Washington Street and adding a right-turn lane and resurfacing of Cedar Lake Road.

The work consists of earth excavation, storm sewers, drainage structures, HMA pavements, pavement milling, sidewalk construction, pavement marking, temporary traffic control, landscaping, and erosion control.

CONCRETE WASHOUT FACILITY

Description: The Contractor shall take sufficient precautions to prevent pollution of streams, lakes, reservoirs, and wetlands with fuels, oils, bitumens, calcium chloride, or other harmful materials according to Article 107.23 of the “Standard Specifications”.

General: To prevent pollution by residual concrete and/or the by product of washing out the concrete trucks, concrete washout facilities shall be constructed and maintained. The concrete washout shall be constructed, maintained, and removed according to this special provision and details included in these plans. Concrete washout facilities shall be required regardless of the need for NPDES permitting. On projects requiring NPDES permitting, concrete washout facilities shall also be addressed in the Storm Water Pollution Prevention Plan.

The concrete washout facility shall be constructed on the job site according to details included in these plans. The Contractor may elect to use a pre-fabricated portable concrete washout structure. The Contractor shall submit a plan for the concrete washout facility, to the Engineer for approval, a minimum of 10 calendar days before the first concrete pour. The working concrete washout facility shall be in place before any delivery of concrete to the site. The Contractor shall limit all concrete washout activities to the designated area.

The concrete washout facility shall be located no closer than 50 feet from any environmentally sensitive areas, such as water bodies, wetlands, and/or other areas indicated on the plans. Adequate signage shall be placed at the washout facility and elsewhere as necessary to clearly indicate the location of the concrete washout facility to the operators of concrete trucks.

The concrete washout facility shall be adequately sized to fully contain the concrete washout needs of the project. The contents of the concrete washout facility shall not exceed 75% of the facility capacity. Once the 75% capacity is reached, concrete placement shall be discontinued until the facility is cleaned out. Hardened concrete shall be removed and properly disposed of outside the right-of-way. Slurry shall be allowed to evaporate, or shall be removed and properly disposed of outside the right-of-way. The Contractor shall immediately replace damaged basin liners or other washout facility components to prevent leakage of concrete waste from the washout facility. Concrete washout facilities shall be inspected by the Contractor after each use. Any and all spills shall be reported to the Engineer and cleaned up immediately. The Contractor shall remove the concrete washout facility when it is no longer needed.

Basis of Payment: The cost of all materials required and all labor necessary to comply with the above will not be paid for separately, but shall be considered as included in the cost of MOBILIZATION, and no additional compensation will be allowed.

COOPERATION WITH ADJACENT CONTRACTS

The intent of this provision is to inform the Contractor that the Department is aware of adjacent contracts that are currently scheduled during the same time period as this contract.

CONTRACT NO. – WASHINGTON STREET, HAINESVILLE ROAD TO HARYAN WAY

The Contractor is required to cooperate with these adjacent contracts in accordance with Section 105.08 of the Standard Specifications and may be required to modify his staging operations in order to meet these requirements.

SURFACE TESTS

The completed surface course will be tested for smoothness in the wheel paths with a 16 ft straightedge according to Article 406.11 of the “Standard Specifications” and the following:

The Contractor shall furnish the appropriate personnel and equipment required to perform the surface course testing according to Article 406.11 of the “Standard Specifications”. The testing shall be performed to the satisfaction of the Engineer. The testing shall be performed at a time and date chosen by the Engineer, which may or may not be the day of paving. Traffic control and protection for the testing shall be included. The testing, including all required personnel and equipment, will be considered included in the cost of the contract and provided at no additional cost to the Department. No additional compensation will be allowed for testing not performed on the day of paving.

At the Engineer’s discretion the surface testing may include sections of the highway repaired with partial depth or full depth pavement patching and/or areas of pavement replacement.

SURVEY CONTROL POINTS

The Contractor shall furnish the Engineer with the materials required to establish survey control points according to Article 105.09 of the “Standard Specifications” and the following:

Paint: The Contractor shall furnish, at their expense, white, pink or purple pavement marking paint in aerosol cans, for use by the Engineer. The quality of the marking paint shall be as manufactured by Aervoe-Pacific Co. (distributed by Municipal Marking Distributors, Inc., Dundee, IL) or approved equal.

The Contractor and subcontractors shall only use white, pink or purple colors for their own markings. At no time will the Contractor use any of the J.U.L.I.E. utility colors listed in Article 107.31 of the “Standard Specifications”.

Hubs: The Contractor shall furnish, at their expense, hubs for use by the Engineer according to the following:

1. Shall be 1 3/8" x 7/8" x 18" (actual dimension).
2. Shall be furnished in securely banded (on each end) bundles of 25 pieces.
3. The material shall be kiln dried Douglas fir, oak or maple and surfaced on the 2 larger sides and without splits, pitch pockets, wane, knots or decayed wood.
4. The tapered end on each hub shall be pencil point tapered.

Lath: The Contractor shall furnish, at their expense, lath for use by the Engineer according to the following:

1. Shall be 1 1/8" x 1/2" x 48" (actual dimension).
2. Shall be furnished in securely banded (on each end) bundles of 50 pieces.
3. The material shall be kiln dried Douglas fir, oak or maple and surfaced on the 2 larger sides and without splits, pitch pockets, wane, knots or decayed wood.
4. The tapered end may be saw-cut tapered or pencil tapered.

The cost of this work shall be considered as included in the cost of MOBILIZATION, and no additional compensation will be allowed.

PUBLIC CONVENIENCE AND SAFETY

The Contractor shall limit public inconveniences safety conflicts according to Article 107.09 of the "Standard Specifications" and the following:

Keeping Roads Open to Traffic: All roads shall remain open to traffic. The Contractor may close one (through traffic) lane because of construction only between the hours of 9:00 AM and 3:00 PM. The Contractor shall maintain one-way traffic during these restricted hours on two lane highways with the use of signs and flaggers as shown on the Traffic Control Standard. On multi-lane highways the Contractor shall maintain at least one (through traffic) lane in each direction with the use of signs, barricades, and arrow boards as shown on the Traffic Control Standards. All lanes of traffic will be maintained between 3:00 PM and 9:00 AM and when no construction activities are being carried out.

The restricted lane closure time may be adjusted by the Resident Engineer. The Contractor shall provide a start and end time and a procedure plan 48 hours prior to the lane(s) to be closed. The Resident Engineer will notify the Contractor 24 hours in advance with the decision.

If the Contractor fails to provide notification or disregards the decision by the Resident Engineer the Traffic Control Deficiency Charge will be applied as stated in the Special Provisions for Traffic Control and Protection.

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

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

PROTECTION AND RESTORATION OF PROPERTY

The Contractor shall protect and restore property according to Article 107.20 of the "Standard Specifications" and the following:

Trees and Shrubs: Extra care shall be exercised when operating equipment around trees or shrubs. Injured branches or roots shall be pruned in a manner satisfactory to the Engineer and shall be painted where the cut was made. Roots exposed during excavating operations shall be neatly pruned and covered with topsoil. This work shall be done as soon as possible and shall be considered as included in the cost of the contract, and no additional compensation will be allowed.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

This work shall be according to Article 669 of the Standard Specifications and the following:

Qualifications. The term environmental firm shall mean an environmental firm with at least five (5) documented leaking underground storage tank (LUST) cleanups or that is pre-qualified in hazardous waste by the Department. Documentation includes but not limited to verifying remediation and special waste operations for sites contaminated with gasoline, diesel, or waste oil in accordance with all Federal, State, or local regulatory requirements and shall be provided to the Engineer for approval. The environmental firm selected shall not be a former or current consultant or have any ties with any of the properties contained within and/or adjacent to this construction project.

General. This Special Provision will likely require the Contractor to subcontract for the execution of certain activities.

All contaminated materials shall be managed as special waste. This work shall include monitoring and potential sampling, analytical testing, and management of a material contaminated by regulated substances. This work shall not be paid for separately but shall be included in the cost of the contract.

A) The Environmental Firm shall continuously monitor for worker protection and the Contractor shall manage any excavated soil **within the construction limits of this project as fill**. Any waste generated as special waste from this project should be manifested off-site using the generator number associated with Lake County. **The generator number for Lake County is 0978995044.**

1. 615 North Cedar Lake Road - special waste. Possible Contaminants of concern: VOC and PNA.
2. 229 West Washington Street - special waste. Possible Contaminants of concern: VOC and PNA. VOC contaminants detected in the groundwater.
3. 233 West Washington Street - special waste. Possible Contaminants of concern: VOC and PNA.

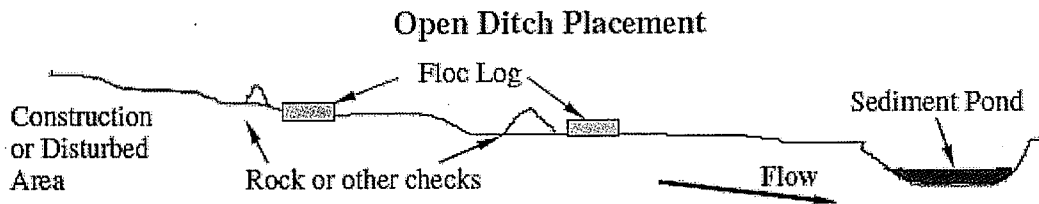
STORMWATER TREATMENT: DEWATERING/TREATMENT DITCHES

The Floc Logs are designed for use in flowing conditions for treating turbid water to remove suspended sediment. Stormwater Treatment Ditches are used to introduce site-specific polymers to turbid waters in such a manner to facilitate mixing and reaction between the polymer and the suspended particles. Collection of the flocculated particulate that forms will greatly reduce turbidity in stormwater.

A ditch is created, either by digging out the bed or building up the walls, and lined with plastic or geosynthetic fabric to prevent erosion. Floc Logs are secured along the ditch, allowing the water to mix with the site-specific polymer blend and begin reacting with the suspended sediment. Checks can be placed along the ditch, forcing the water to flow over and around them, to increase turbulence and mixing with the Floc Logs. The ditch is lined with jute or similar matting to provide surface area for the flocculated sediment to adhere to and help remove fine particulate from the water.

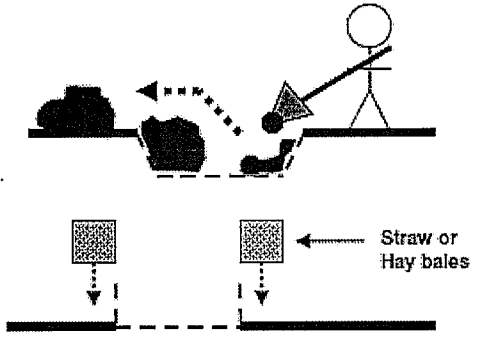
- i. This application can be used for dewatering applications, recirculation treatment, or continuous flow treatment systems.
- ii. Cover the exposed soil with jute matting and apply Silt Stop powder to prevent erosion. With highly erosive soils protection with geotextile or plastic sheeting may be necessary.
- iii. Ensure only turbid water is entering the ditch. The turbidity of the water flowing through the system should not exceed 4% solids. If the sediment load of the water is above this limit, a grit pit or settling tank may need to be installed to encourage primary settling before treatment.
- iv. Make sure that the logs are not resting in mud or buried by sediment; drive rebar or wooden "feet" into the logs to raise them slightly if needed.

- v. Logs should be placed in a series, one after another. The number of logs is determined by the flow rate of the water and the length of the mixing ditch is determined by the reaction time required for the polymer.
- vi. Particle collection can be accomplished using jute matting in the ditch, as outlined here, or by using another method of particle collection as outlined in the next section.

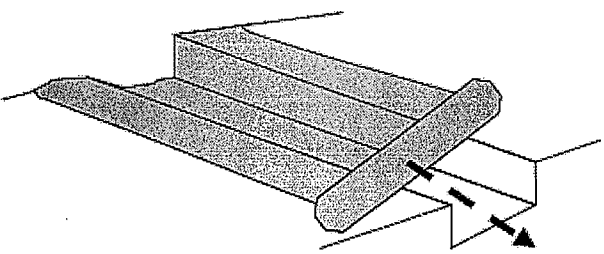


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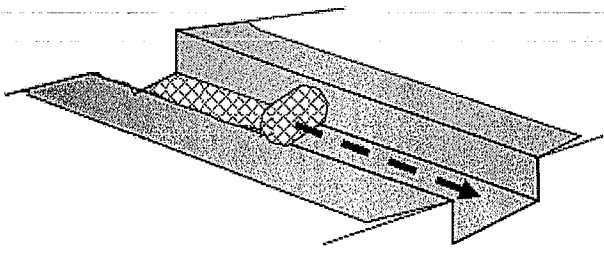
Step-by-Step Dewatering / Treatment Ditch



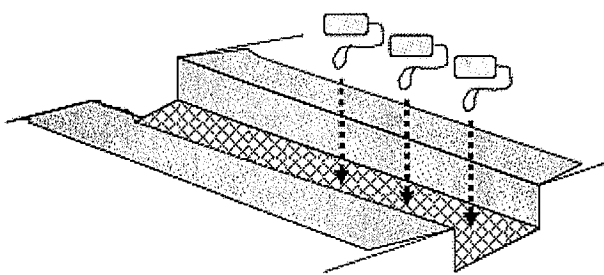
Step 1: Create ditch.
The ditch can be dug into the ground, or created by building up the walls.



Step 2: Line with Plastic.
The plastic sheeting is used to prevent the water being treated from picking up sediment and causing erosion.

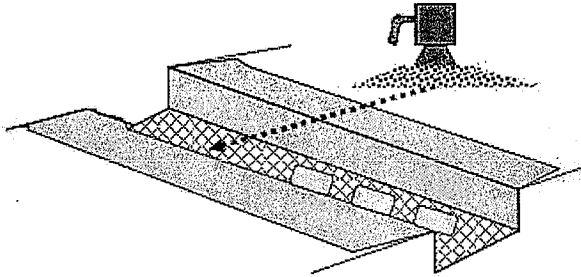


Step 3: Lay Jute Matting.
The jute matting provides a surface for the particulate formed during treatment to adhere onto.



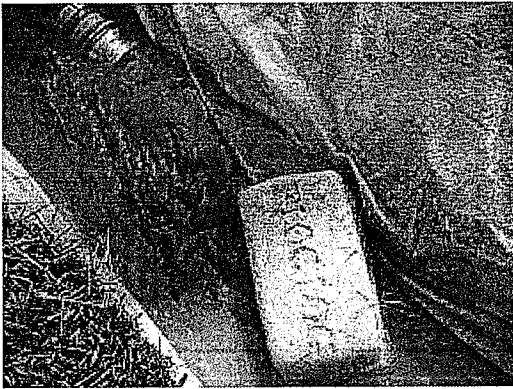
Step 4: Place Floc Logs.
The Floc Logs are positioned in a line at the top of the ditch, allowing the water to flow over and around them.

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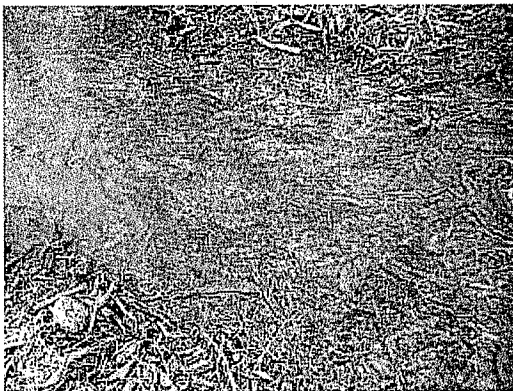


Step 5: Apply Silt Stop powder.

Sprinkling the correct site-specific Silt Stop powder over the jute matting in the bottom portion of the ditch will assist in final water clarification.



Here is the water being pumped into the treatment ditch. Note the light brown color and turbidity.



The clarified water as it is leaving the site can be discharged directly to riparian waters.

Polymer Enhanced BMP Application Guide

**Application Example: Treatment Ditch
Dewatering Operation**

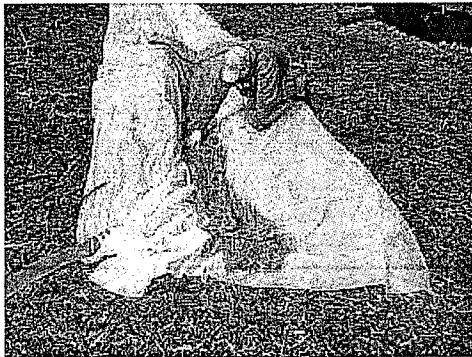
1) Dig ditch



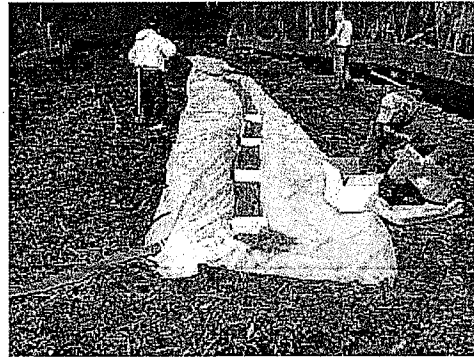
2) Line with plastic



3) Lay jute matting



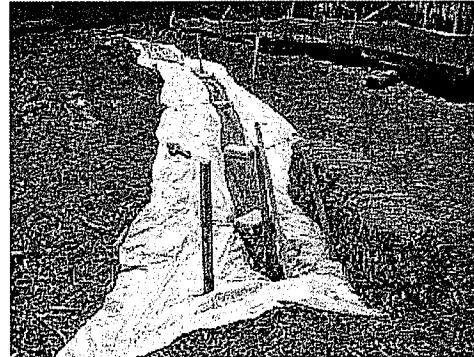
4) Place Flocc Logs (upstream end)



5) Apply Silt Stop (downstream end)



6) Ready for pumping



ABANDON EXISTING WATER MAIN, FILL WITH CLSM; CUT AND CAP EXISTING WATER MAIN

Description: This work shall consist of abandonment of existing water main only after all requirements for testing and disinfection have been satisfied on the new main and all existing services have been connected to the new main. All exposed ends of existing water main to be abandoned and filled with CLSM at the limits of trench excavation and shall be plugged with mortar to the satisfaction of the Engineer or Village.

Provide ductile iron plugs, caps, or other fittings and thrust blocking on ends of the portions of existing mains that are to remain in service.

The plugging of the ends of the pipe shall be done in accordance with Section 31 of the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition.

Method of Measurement: The work will be measured for payment in place for each abandoned water main and each cut and cap provided.

Basis of Payment: This work will be paid for at the contract unit price per each for CUT AND CAP EXISTING WATER MAIN of the size specified and per foot for ABANDON EXISTING WATER MAIN, FILL WITH CLSM which price shall include all materials, labor and equipment necessary to perform the work as here in specified, except for CLSM material which shall be paid for separately as LIGHTWEIGHT CELLULAR CONCRETE FILL.

ADJUSTING SANITARY SEWER SERVICE LINE

Description: This work shall be performed in accordance with Section 563 of the Standard Specifications and with applicable portions of Sections 33 of the Water and Sewer Specifications with the following alterations.

563.02 Materials. Sanitary sewer shall be polyvinyl chloride (PVC) pipe conforming to ASTM D2241 with gasket joints conforming to ASTM 3212. All supplied pipes must be from the same manufacturer. All supplied fittings must be from the same manufacturer. The Standard Dimension Ratio (SDR) shall be 26. Connections to existing sewer lines shall be made using Fernco couplings (RC Series Repair Coupling with stainless steel sheer ring), DFW non-shear couplings as manufactured by NDS company, or an approved equal.

Method of Measurement: The work will be measured for payment in place for each sanitary sewer service line being adjusted.

Basis of Payment: This work will be paid for at the contract unit price per each for ADJUSTING SANITARY SEWER SERVICE LINE regardless of the pipe material.

CHAIN LINK FENCE, 4' (SPECIAL)

Description: This work shall consist of furnishing and installing a new fence and gates at the locations shown on the plans and/or designated by the Engineer.

General: Chain Link fences shall be constructed according to Section 664 of the “Standard Specifications” except that it shall be coated with black vinyl.

Method of Measurement: This work will be measured for payment in feet, along the top of the new installed fence, from center to center of end posts, including the length occupied by gates.

Basis of Payment: This work will be paid for at the contract unit price per foot for CHAIN LINK FENCE, 4' (SPECIAL), which shall include chain link gates of the opening sizes and types as directed by the resident engineer and as coordinated with each property owner. The unit price shall include all equipment, materials and labor required to furnish and erect the fence.

CONNECTION TO EXISTING WATER MAINS (NON PRESSURE)

Description. This work shall consist of the connection of new water main and fire hydrant leads to existing water main. It shall be performed in accordance with applicable portions of Section 41 of the Water and Sewer Specifications with the following clarifications.

Materials. Water main and fittings shall conform to the special provisions for Ductile Iron Water Main and Ductile Iron Water Main Fittings. The work includes a material allowance of 15 linear feet of ductile iron pipe (of the necessary diameter) and 500 pounds of fittings. Trench backfill shall meet the requirements for CA-6 listed in Article 1004.01.

Construction Requirements. New water main shall be connected to existing water main after the new main has passed hydrostatic testing and disinfection. Connections shall be accomplished by the use of mechanical joint fittings and lengths of pipe to make the most direct vertical and horizontal adjustments necessary to complete the connection. This may include cut-ins to the existing main or connections to existing valves or fittings. This work will require water to be shut off, which shall be coordinated with the Village’s maintenance personnel. The new main shall be disinfected in accordance with Article 561.03(h) of the Ductile Iron Water Main special provision.

Basis of Payment. This work will be measured and paid for at the contract unit price per each for CONNECTION TO EXISTING WATER MAINS (NON PRESSURE) which price shall include all labor, equipment, ductile iron pipe water main (up to 15 linear feet), water main fittings (up to 500 pounds), polyethylene wrapping, disinfection, testing, backfill and thrust blocking required to make the connection. If the quantity allowance for ductile iron water main and/or water main fittings are exceeded, quantities in excess of the allowance will be paid for under the items for DUCTILE IRON WATER MAIN and DUCTILE IRON WATER MAIN FITTINGS.

DETECTABLE WARNINGS

Effective: February 13, 2007
 Revised: November 22, 2011

Description: This work shall consist of furnishing and installing detectable warnings in accessibility ramps.

Materials: The detectable warnings shall be cast iron panels of the sizes shown on the plans and shall meet the following material specification:

The detectable warning plate shall be constructed of gray iron meeting the requirements of Article 1006.14 of the "Standard Specifications" and ASTM A48, CLASS 35B; or cast ductile iron meeting the requirements of Article 1006.15 of the "Standard Specifications".

The coating system shall consist of a rust inhibiting epoxy primer and a finish coat.

The epoxy primer shall have the following properties:

Property	Test Method	Performance
Humidity	ASTM D1735	1000 Hours Minimum
Water Immersion	ASTM D870	250 Hours Minimum
Corrosion Resistance (Salt Spray)	ASTM B117	1000 Hours Minimum

Cold Rolled Steel Lab Panels

The finish coat shall be a powder coat and shall have the following properties:

Property	Test Method	Performance
Color	---	Federal Yellow
Corrosion Resistance (Salt Spray)	ASTM B117	1000 Hours Minimum

Cold Rolled Steel Lab Panels

The gray iron plate (concrete ramps only) shall be supplied from one of the following manufacturers, or an approved equal:

Neenah Foundry
 545 Kimberly Drive
 Carol Stream, IL 60188
 Phone # 630-653-5440
<http://www.neenahfoundry.com/>

East Jordan Iron Works
 310 Garnet Drive
 New Lenox, IL 60451-3502
 Phone # 1-800-626-4653
<http://www.ejiw.com>

The ductile iron plate (concrete or HMA ramps) shall be supplied from the following manufacturer, or an approved equal:

Pioneer Detectable, LLC

N8060 Maple Street
Ixonia, WI 53036
Phone # 262-370-5355
<http://www.pioneerdetectable.com>

General: The installation of detectable warnings shall meet the requirements of Article 424.09 of the "Standard Specifications". Grey iron plates shall be installed in concrete accessibility ramps only. Ductile iron plates may be installed in either concrete or hot-mix asphalt (HMA) accessibility ramps.

Method of Measurement: This work will be measured for payment in place installed, in square feet. The concrete area under the detectable warnings will be measured for payment as PORTLAND CEMENT CONCRETE SIDEWALK of the thickness specified, with no deductions made for the detectable warnings panels located within the ramp.

Basis of Payment: This work will be paid for at the contract unit price per square foot of DETECTABLE WARNINGS. The unit price shall include all equipment, materials and labor required to install the panels.

DEWATERING

Description. This work shall consist of providing labor, tools, equipment, and materials necessary for dewatering (regardless of the water source) work areas to relatively dry conditions as determined by the Engineer and maintain suitable working conditions and sediment control so that the improvements are constructed in the dry.

Materials. The Contractor shall be solely responsible for the choice of products and equipment; for the design, installation, and operation; as well as "means and methods" of performing the work; and subsequent removal of dewatering systems and their safety and conformity with local codes, regulations and these Specifications. All products, equipment and "means and methods" selected shall be adequate for the intended use/application. Review by Engineer does not relieve Contractor from compliance with the requirements specified herein.

Contractor shall submit to Engineer for review a description of dewatering techniques and equipment to be used, together with detail drawings showing lengths of discharge piping and points of discharge including erosion control procedures.

Methods. The Contractor shall select the pumps he/she desires to use and the rate at which the pumps discharge, but adequate protection at the pump discharge shall be provided by the Contractor, subject to review by the Engineer. The Contractor shall ensure that downstream water quality shall not be impaired which includes but not limited to collection and disposal of sediment and floatables. Contingency quantities for erosion control mat, flocculation logs and flocculation powder have been provided which Contractor can use in conjunction with other dewatering or sediment collection means to remove sediment from water discharge.

At all times during the excavation period and until completion and acceptance of work at Final Inspection, ample means and equipment shall be provided with which to remove promptly and dispose of properly all water (including ground water, river water, storm sewer water and storm runoff) entering any excavation or any other parts of the work.

Water pumped or drained from the work required for this Contract shall be disposed of in a safe and suitable manner without damage to the nearby bodies of water, adjacent property or streets or to other work under construction. Water shall not be discharged without adequate protection of the surface at the point of discharge. No water shall be discharged into sanitary sewers. No water shall be discharged into storm sewers. Any and all damages caused by dewatering the work shall be promptly repaired by the Contractor. The Contractor is responsible for providing any and all labor, materials and equipment needed for DEWATERING in order to meet the scheduled completion of the project.

Basis of Payment. This work shall be paid for at the contract unit price per lump sum for DEWATERING which price shall include all equipment, materials and labor necessary to dewater the job as necessary, except for the portable water cleaning system used at Dave's channel which shall be paid for separately as SEDIMENT COLLECTION CHAMBER SYSTEM, TEMPORARY.

DRAINAGE STRUCTURES TO BE CLEANED; CLEANING DRAINAGE SYSTEM

Description. This work shall consist of cleaning drainage structures of all types and sizes as designated on the plans or as directed by the Engineer.

Materials. Equipment for cleaning pipe lines includes hoses, rodding machines, balls, hydraulic cleaners, root cutters, small clam shell buckets, steel porcupines, pumps, or other suitable and approved means. Water used for cleaning and flushing pipes shall be fresh and free of oils, acid, salt, alkali, organic matter, or any other deleterious substances. The Contractor shall provide all water for the cleaning operation.

Methods. The Contractor shall be responsible for the proper operation of the drainage system during the cleaning operations. The safe control of flows shall be accomplished by the Contractor such as to preclude an injury to persons or property due to flooding. The Contractor shall clean and flush those drain lines designated on the plans or as designated by the Engineer by use of pressure hoses, suction pumps, and/or any other methods required to perform this work. A suitable weir or dam shall be constructed in the nearest downstream manhole or catch basin in such a manner that debris material will be trapped. Under no circumstances shall such material be passed on from one section to the next.

Each manhole or catch basin shall be cleaned independently of other portions of the drainage system, and shall be cleaned to the satisfaction of the Engineer.

Method of Measurement. DRAINAGE STRUCTURES TO BE CLEANED will be measured per each for such drainages structures actually cleaned, regardless of type or size, in accordance with the plans and/or as directed by the Engineer. CLEANING DRAINAGE SYSTEM will be measured in linear feet from center-to-center of drainage structures for all pipe lines actually cleaned, regardless of the sizes of pipe, in accordance with the plans and/or as directed by the Engineer.

Basis of Payment. DRAINAGE STRUCTURES TO BE CLEANED will be paid for at the contract unit price per each for such drainages structures actually cleaned, regardless of type or size, in accordance with the plans and/or as directed by the Engineer. CLEANING DRAINAGE SYSTEM will be paid for at the contract unit price per foot for all pipe lines actually cleaned, regardless of the sizes of pipe, in accordance with the plans and/or as directed by the Engineer.

DRY RUBBLE STONE OR BROKEN CONCRETE TREE WELLS

Effective: January 1, 2007

Revised: August 1, 2011

Description: This work shall consist of furnishing and constructing rubble stone or broken concrete tree wells in sections of proposed embankment for the purpose of preserving existing trees.

Materials: The dry rubble stone and/or broken concrete shall have a minimum size of 6" x 6" x 4" [length x width x thickness].

The bedding stone shall meet the requirements of Article 1005.01 of the "Standard Specifications" except that:

The bedding stone shall be limited to class A-3. Limestone shall not be allowed.

The vents and drains shall meet the requirements of Section 601 of the "Standard Specifications" except that:

The pipes shall be limited to:

- (m) Perforated Polyvinyl Chloride (PVC) pipe [1040.03 (b)]
- (n) Perforated Corrugated Polyvinyl Chloride (PVC) pipe with a smooth interior [1040.03 (c)]

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

Construction Requirements: The work shall be performed according to the LCDOT Standard Drawing LC1015 and the following:

The outside limit of the 8” lift of bedding stone, the limit of the filter fabric, and the placement of the lateral drain and the vent drains shall be to the drip line of the tree or to limits set by the Engineer. To assist the Contractor in estimating quantities, a table comparing the approximate diameter of the drip line to the diameter of the tree trunk is included on LC1015.

The 8” lift of bedding stone is placed on top of the existing ground area under the crown of the tree as shown on LC1015. The bedding stone and filter fabric shall extend from the outside edge of the stone out to the drip line or to limits set by the Engineer. The bedding stone shall be placed in a like manner to the bedding under riprap as described in Section 281 of the “Standard Specifications”.

The 4” diameter perforated lateral vents and drains shall be installed according to Section 601 of the “Standard Specifications”.

Method of Measurement: The tree well will be measured in place and an average height of the stone determined. For payment, the inside diameter of the well will be the diameter of the tree plus 2’. For payment, the thickness of the stone shall be 12”. The volume of the well shall be calculated, as the average height times the calculated area of the 12” thick stone, in cubic yards.

Basis of Payment: This work will be paid for at the contract unit price per cubic yard for DRY RUBBLE STONE OR BROKEN CONCRETE TREE WELLS. The work shall include all equipment, materials and labor necessary to install the tree well according to LC1015 and this Special Provision. All pipe vents, drains, caps, and filter fabric shall be included in unit price.

DUCTILE IRON WATER MAIN

This work shall be performed in accordance with Section 561 of the Standard Specifications and Section 41 of the Water and Sewer Specifications with the following alterations.

561.01 Description. This work shall also consist of adjusting existing water mains where they are in conflict with new improvements and as shown on the plans. All adjustment in the line or grade of the existing water main shall be approved by the Engineer.

561.02 Materials. Water mains and fittings shall be Class 52 ductile iron, cement lined, with push-on joints conforming to AWWA Standards C104, C111, C150, C151, and C600. Polyethylene encasement shall be manufactured in accordance with ASTM D1248 size and strength as specified in AWWA C105.

561.03 General. Add the following:

- c) All main, fittings, fire hydrant legs and barrels sections shall be wrapped with polyethylene film in accordance with ANSI/AWWA Standard C105/A21.5.05. Method A (Sec. 4.4.2.1) is the approved method. Method B or C, may only be used at the discretion of the ENGINEER. The

- CONTRACTOR must have the prior written approval of the ENGINEER prior to installation of the water main. All seams shall be secured by black vinyl pipe wrapping tape meeting ASTM specification D-1000.
- d) All mechanical joint fittings shall be installed with “cor ten” bolts.
 - e) A canvas strap shall be used to lift the main before and after it has been wrapped.
 - f) Excluding the joints of any valve, bend, cross or tee, the first two joints before and beyond any valve, bend, cross or tee shall be restrained with Field-Lok by U.S. Pipe, Mega Lugs by EBAA Iron, or approved equal.
 - g) Adjusting Water Main. All materials, labor, and equipment necessary to adjust the water main shall be on hand before shutdown and cutting of the existing main. The Contractor shall take every precaution to hold the interruption of service to a minimum. A minimum clearance of 18 in. shall be maintained between the adjusted main and improvement for which the adjustment was made. A downward adjustment will be required unless 5 ft of cover can be maintained for an upward adjustment or as approved by the Engineer. Adequate precautions shall be taken to prevent contaminants from entering the existing main. The inside surface of all materials (including but not limited to pipe and fittings) used in the adjustment shall be cleaned of all foreign materials and swabbed with a solution of efficient bactericide before assembly. The adjusted section shall then be flushed with potable water. Thrust blocking of Class SI concrete shall be placed where necessary and as directed by the Engineer.

Hydrostatic Tests. Add the following: The Engineer shall be given 24 hours notice prior to the beginning of testing. The testing procedure shall be as outlined in Section 41-2.13 with the following modifications. Before testing, the Engineer shall verify that all fire hydrant auxiliary valves are open. The test pressure shall be 150 psig with a minimum duration of 4 hours. **The Village may exercise the right to continue the test to the maximum 6 hour duration. Test pressure shall not vary by more than ± 5 psi for the duration of the test.** The Resident Engineer or a Village Inspector must be present and witness the duration of the test. **If the water main being tested fails, the line shall be disassembled and reassembled at the point of failure. Repair clamps shall not be allowed on the newly placed water main as a means to correct any leaks. The Village may also exercise the right to supply to the Contractor a Village owned pressure gauge which shall be used for any pre-tests and/or during the actual pressure test.**

Disinfection of Water Main. Add the following: The Engineer shall be given 24 hours notice prior to the beginning of disinfection. The Resident Engineer or a Village Inspector must be present during the disinfection procedure. The procedure shall be as outlined in Section 41-2.14 with the following modifications:

41-2.14 DISINFECTION OF WATER MAINS Delete in entirety and replace with the following: Any of the methods stated in AWWA Standard C651-99 are accepted as a means of disinfection of water mains. Note: AWWA C651-99, Sec. 4.6 Final Connections to Existing

Water Mains (Optional), All procedures will be required. Requirements for AWWA C651-99, Section 4.6 are listed below:

Sec. 4.6 Final Connections to Existing Mains

Water mains and appurtenances must be completely installed, flushed, disinfected, and satisfactory bacteriological sample results received prior to permanent connections being made to the active distribution system. Sanitary construction practices must be followed during installation of the final connection, so that there is no contamination of the new or existing water main with foreign material or groundwater.

4.6.1 Connections equal to or less than one pipe length (<18 ft [5.5 m]). new pipe, fittings, and valve(s) required for the connection may be spray-disinfected or swabbed with a minimum 1-5% solution of chlorine just prior to being installed, if the total length of the connection from the end of a new main to the existing main is equal to or less than 18 ft (5.5 m).

4.6.2 Connections greater than one pipe length (>18 ft [5.5 m]). pipe required for the connection must be set up aboveground, disinfected, and bacteriological samples taken, as described in Sec. 5, of AWWA C651-99 if the total length of the connection from the end of a new main to the existing main is greater than 18 ft (5.5 m). After satisfactory bacteriological sample results have been received for the "pre-disinfected" pipe, the pipe can be used in connecting the new main to the active distribution system. Between the time the satisfactory bacteriological sample results are received and the time that the connection piping is installed, the ends of the piping must be sealed with plastic wraps, watertight plugs, or caps.

41-2.14B REQUIREMENT OF CHLORINE Delete the entire section and replace with the following: Before being placed into service, all new mains and repaired portions of, or extensions to existing mains shall be chlorinated so that the initial chlorine residual is between 50 and 400 ppm at all points within the main. After 24 hours has passed, the chlorine residual shall be no less than 25 ppm or 50% of the initial residual, whichever is greater.

41-2.14C FORM OF APPLIED CHLORINE Delete subsections (2) and (3).

561.04 Method of Measurement. Delete Section 41-3.

561.05 Basis of Payment. Delete Section 41-4. This work will be paid for at the contract unit price per lineal foot for DUCTILE IRON WATER MAIN, of the diameter specified or ADJUSTING WATER MAIN, of the size specified, which price shall include all pipe; joint materials and joint restraints; thrust blocks; polyethylene encasement; testing and disinfection, (including fittings, meters, pumps, gauges, laboratory fees); labor; equipment; excavation; and removal of spoil required to complete the work as specified herein. Trench backfill and fittings will be paid for separately.

DUCTILE IRON WATER MAIN FITTINGS

Description. This work shall consist of furnishing and installing all tees, wyes, crosses, bends, plugs and reducers necessary to complete the water main installation as shown on the plans. It shall be done in accordance with the applicable portions of Section 46 of the Water and Sewer Specifications, and the following.

Materials. Fittings shall be ductile iron meeting requirements of ANSI/AWWA C153/A21.10 and ANSI/AWWA C111/A21.11.

Manufacturers. Fittings shall be manufactured by United States Pipe and Foundry Co or approved equal.

Construction Requirements. All fittings shall be wrapped in a polyethylene film as specified in the special provision for Ductile Iron Water Main. All fittings shall be installed using “cor-ten” bolts. Testing and disinfecting of fittings shall be as specified elsewhere herein. Any fittings not shown on the plans, but which in the opinion of the Engineer, are necessary, will also be measured for payment. The Contractor will be required to maintain a list of all items used and provide an invoiced weight for payment purposes.

Method of Measurement. Water main fittings will be measured by weight in pounds of actual fittings installed including glands, gaskets and bolts. In lieu of weighing the fittings at the job site, the fittings may be delivered with a letter from the manufacturer certifying the weight of each type and size of fitting, subject to the review of the ENGINEER. In any case, the weight per fitting allowable for payment shall not exceed the following:

Bends	Tees & Crosses	Miscellaneous
90° bend, 6” – 85 lbs.	Tee, 6”x 6” – 125 lbs.	Cut-In-Sleeve, 6” – 65 lbs.
90° bend, 8” – 125 lbs.	Tee, 8”x 6” – 175 lbs.	Cut-In-Sleeve, 8” – 85 lbs.
45° bend, 6” – 75 lbs.	Tee, 8”x 8” – 185 lbs.	Cut-In-Sleeve, 10” – 115 lbs.
45° bend, 8” – 110 lbs.	Tee, 10”x6” – 250 lbs.	Cut-In-Sleeve, 12” – 235 lbs.
45° bend, 10” – 155 lbs.	Tee, 10”x10” – 310 lbs.	Reducer, 8”x4” – 80 lbs.
45° bend, 12” – 215 lbs.	Tee, 12” x 6” – 325 lbs.	Reducer, 8”x6” – 95 lbs.
22.5° bend, 6” – 75 lbs.	Tee, 12” x 8” – 340 lbs.	Reducer, 10”x6” – 115 lbs.
22.5° bend, 8” – 110 lbs.	Tee, 12” x 10” – 390 lbs.	Reducer, 10”x8” – 135 lbs.
22.5° bend, 10” – 160 lbs.	Cross, 8” x 8” – 235 lbs.	Reducer, 12”x8” – 165 lbs.
11.25° bend, 6” – 75 lbs.	Cross, 12” x 12” – 495 lbs.	Reducer, 12”x10” – 190 lbs.
11.25° bend, 8” – 110 lbs.	Cross, 10”x8” – 310 lbs.	Cap, 4” – 20 lbs.
11.25° bend, 10” – 160 lbs.	Cross, 12”x8” – 385 lbs.	Cap, 6” – 30 lbs.
		Cap, 8” – 45 lbs.
		Cap, 10” – 60 lbs.
		Cap, 12” – 80 lbs.

Basis of Payment. This work will be paid for at the contract unit price per pound for DUCTILE IRON WATER MAIN FITTINGS, which price shall be payment in full for all labor, equipment, and material, including polyethylene wrapping, testing and disinfecting, to complete the work as specified herein.

DUST CONTROL WATERING

Description: This work shall consist of applying a dust retardant to the project roadways at the request of the Engineer.

General: This work shall be done in accordance with Article 107.36 of the “Standard Specifications” except as modified herein.

Materials: The Contractor may use any dust retardant he so chooses as long as the specified dust retardant has been approved by the Engineer. Should the Contractor choose to use dust retardant to aid in the prosecution of his/her work, the product used must be approved by the Engineer. If applied at the discretion of the Contractor, no additional compensation shall be allowed.

The dust retardant shall consist of a non-toxic, non-hazardous, and non-flammable material.

Method of Measurement: For this pay item, one unit of DUST CONTROL WATERING is considered to be 1000 gallons of the approved dust retardant used. The Contractor shall ensure that any piece of equipment used for the applying of the dust retardant shall be equipped with a metering device to account for the quantity of dust retardant used. For each day that dust retardant is applied, the Contractor and the Engineer shall agree on the volume of dust retardant used.

Basis of Payment: This work shall be paid for at the contract unit price per unit for DUST CONTROL WATERING, which price shall include all labor, materials, and equipment necessary to perform the work herein.

ENGINEER’S FIELD OFFICE, TYPE A (MODIFIED)

Effective: January 1, 2007

Revised: January 1, 2012

Description: This work shall consist of furnishing and maintaining in good condition, for the exclusive use of the Engineer, a weatherproof building at a location approved by the Engineer.

General: The field office shall meet the requirements of Article 670.02 of the “Standard Specifications”, and the following:

- The field office and the required equipment, supplies and services shall meet the approval of the Engineer.
- An electric pencil sharpener shall be included in the field office equipment.
- A hand sanitizer shall be included in the restroom facilities.

Penalty: Failure by the Contractor to meet the specified occupancy date for any field office shall be grounds for assessment of a penalty of **\$100** per day for each calendar day thereafter that such facility remains incomplete in any respect. Failure by the Contractor to equip, heat, cool, power, supply or clean the field office shall be grounds for assessment of a penalty of **\$100** per day for each calendar day that the field office remains incomplete after receipt of written notification from the Engineer. Such penalty shall be deducted from monies due or to become due the Contractor under the Contract.

Basis of Payment: This item will be paid for at the contract unit price per calendar month for ENGINEER'S FIELD OFFICE, TYPE A (MODIFIED). The unit price shall include all supplies, equipment, materials and labor required to furnish and maintain the field office.

EXPLORATION TRENCH , SPECIAL

Description: This work shall be done in accordance with Section 213 of the Standard Specifications except as modified herein. This item shall consist of excavating a trench at the locations directed by the Engineer for the purpose of locating existing TILE LINES, GAS LINES, and other UTILITIES within the construction limits of the proposed improvement.

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

The exploration trench shall be backfilled with trench backfill at the direction of the Engineer meeting the requirements of the Standard Specifications. This shall be paid for at the contract unit price for trench backfill.

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

Basis of Payment: This work shall be paid for at the contract unit price per foot (regardless of depth) for EXPLORATION TRENCH, SPECIAL, and no extra compensation will be allowed for any delays, inconveniences or damage sustained by the Contractor in performing the work.

FENCE REMOVAL

Description: This work shall consist of the removal and disposal of an existing fence from the project site regardless of the fence type.

General: The Contractor shall remove all components of the existing fence including any concrete used to anchor fence posts, bracing, guy wires, posts, and/or gates. All removed materials shall be disposed of outside the limits of the right-of-way according to Article 202.03 of the "Standard Specifications" and/or as directed by the Engineer.

Method of Measurement: This work will be measured for payment in feet, along the top of the existing fence, from center to center of end posts, including the length occupied by gates.

Basis of Payment: This work will be paid for at the contract unit price per foot for FENCE REMOVAL. The unit price shall include all equipment, materials and labor required to remove and dispose of the fence.

FILLING VALVE VAULTS

This work shall be performed in accordance with Section 605 of the Standard Specifications with the following alterations.

605.04 Filling Existing Manholes, Catch Basins, and Inlets. Add the words “Valve Vaults” after the word “Basins” in the title. Add the following: The operating nuts of valves which are to remain in place shall be removed from the valve body.

605.06 Basis of Payment. Replace paragraph 3 with the following: The work of filling existing manholes, catch basins, inlets and valve vaults will be paid for at the contract unit price per each for FILLING MANHOLES, FILLING CATCH BASINS, FILLING INLETS or FILLING VALVE VAULTS.

FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX

General: This work shall be performed in accordance with Section 564 of the Standard Specifications and with applicable portions of Section 45 of the Water and Sewer Specifications.

45-2.01 MATERIALS FOR HYDRANTS AND APPURTENANCES. Add the following: New fire hydrants shall be Mueller (model to be approved by the Village). The auxiliary valve shall be attached by the manufacturer at the factory. All trim bolts shall be stainless steel. Chains and collars must be removed from hydrant nozzles prior to Village acceptance. Drain field material shall conform to CA-7 gradation. **Hydrants must come from a northeast Illinois authorized American Flow Control Distributor** (Ziebell Water Service, Mid-American Water, Water Products Company and National Waterworks).

45-2.02 HYDRANT DETAILS Add the following to paragraph 2: When new water main cannot be placed at plan elevation due to conflicts with other utilities, hydrant extensions may be authorized by the Engineer. If, for any other reason, the Contractor places new water main lower than plan elevation, fire hydrant extensions shall be installed at the Contractor’s expense.

45-2.04 PAINTING Add the following:

Containment/Disposal Requirements

Existing paint systems containing lead and/or other heavy metals may require compliance with certain environmental safety and health regulations during surface preparation procedures. Refer to applicable federal, state, and local regulations prior to proceeding.

When required by federal, state or local regulations, the entire hydrant shall be enclosed and surface preparation debris contained. Refer to SSPC-GUIDE 6 (CON), "Guide for Containing Debris Generated During Paint Removal Operations". Refer to SSPC-GUIDE 7 (DIS). All surface preparation debris must be disposed of in accordance with federal, state and local regulations.

The Village is the generator of and is responsible for the proper containment and disposal of all waste resulting from the surface preparation of these hydrants. As part of this contract, the CONTRACTOR shall arrange and pay for all containment, tests, permits, transportation and disposal of all waste resulting from the surface preparation of these hydrants in strict accordance with Illinois Environmental Protection Agency (IEPA) regulations. Copies of all documentation required by IEPA regulations shall be submitted to the Village for verification. The cost of implementing all federal, state and local regulations pertaining to this section are incidental to the contract and will not be paid for separately.

45-3 CONSTRUCTION DETAILS The Contractor shall use a canvas strap when transporting or installing a fire hydrant. The Contractor shall take all necessary precautions so as to not have trench backfill fall directly upon on the fire hydrant. The Contractor should use a 32-gallon plastic garbage can to protect the fire hydrant during the backfilling procedure. An equivalent method as approved by Engineer will also be acceptable. The Contractor will be responsible for repainting any fire hydrant that is chipped, scraped or otherwise cosmetically damaged before, during or after installation. The process and painting subcontractor will be subject to the review and approval of the Village, **prior to repainting.**

564.04 Basis of Payment. Delete the first sentence. Add the following: New fire hydrants will be paid for at the contract unit price each for FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX, which price shall include all excavation; furnishing all appurtenances, including thrust blocks and extensions authorized by the Engineer; backfilling, including coarse aggregate; and disposal of excavated materials. Connections to new water mains shall be included in the price of the water main. Connections to existing water mains will be paid for as defined and specified elsewhere in these special provisions.

FIRE HYDRANTS TO BE ADJUSTED

Effective: January 1, 2007

Revised: August 1, 2011

Description: This work shall consist of adjusting existing fire hydrants to the proposed ground elevations shown on the plans.

General: The work shall be performed according to Section 564 of the “Standard Specifications”.

Basis of Payment: This work will be paid for at the contract unit price per each for FIRE HYDRANTS TO BE ADJUSTED. The unit price shall include all equipment, materials and labor required to adjust the fire hydrant.

FIRE HYDRANTS TO BE REMOVED

General: This work shall be performed in accordance with Section 564 of the Standard Specifications and with applicable portions of Section 45 of the Water and Sewer Specifications.

Add the following:

Removal. This work shall consist of the removal of existing fire hydrants and auxiliary valves, thrust blocks, lead-in mains, and fittings. The lead-in main shall be removed from the fitting on the existing main (elbow, tee or cross) which shall be capped using a mechanical plug.

564.04 Basis of Payment. The removal of fire hydrants will be paid for at the contract unit price each for FIRE HYDRANTS TO BE REMOVED, which price shall include all labor, material, disposal and equipment necessary to complete the work. Trench backfill shall be paid for separately.

FLOCCULATION LOGS; FLOCCULATION POWDER

Effective: January 1, 2007

Revised: August 1, 2011

Description: This work shall consist of furnishing and applying Flocculation Logs and/or Flocculation Powder on the project site to minimize soil erosion, bind soil particles, remove suspended particles, and act as a construction aide.

Materials: The polymer shall be a water soluble anionic polyacrylamide (PAM). PAMs are manufactured in various forms to be used on specific soil types. Using the wrong PAM may result in performance failures. All site specific soils shall be tested by a Certified Professional in Erosion and Sediment Control (CPESC) each time a PAM is used. The following measures shall be adhered to:

- a) Toxicity: All vendors and suppliers of PAM, PAM mix, or PAM blends, shall supply a written toxicity report, which verifies that the PAM, PAM mix or PAM blends, exhibits acceptable toxicity parameters which meet or exceed the requirements for the State and Federal Water Quality Standards. **Cationic formulations of PAM, PAM blends, polymers or Chitosan are not allowed.**

- b) Performance: All vendors and suppliers of PAM, PAM mix or PAM blends shall supply written "site specific" testing results, demonstrating that a performance of 95% or greater of nephelometric turbidity units (NTU) or total suspended solids (TSS) is achieved from samples taken. In addition to soil testing, a CPESC shall design the installation plan for the polymers based on mix time and point of entry.
- c) Safety: PAM shall be mixed and/or applied in according to all Occupational Safety and Health Administration (OSHA) material safety data sheet (MSDS) requirements and the manufacturer's recommendations for the specified use.

Construction Requirements:

Flocculation Powder Dry Form Application: Dry form powder may be applied by hand spreader or mechanical spreader. Pre-mixing of dry form PAM into fertilizer, seed or other soil amendments is allowed when approved by the CPESC. The application method shall insure uniform coverage of the target area. Application rates typically range from 10 – 18 pounds per acre.

Flocculation Powder Hydraulically Applied Application: PAM is typically used as part of hydraulically applied slurry containing at least mulch and seed to quickly establish vegetation (temporary or permanent). When used without seed, PAM provides temporary erosion protection for cut & fill surfaces. Application rates typically range from 10 - 18 pounds per acre.

Flocculation Powder Installation constraints: Flocculation Powder shall be applied to non-frozen soil surfaces, only. An unfrozen soil surface is defined as any exposed soil surface free of snow, standing water, ice crystals, etc., which is comprised of discrete soil particles unbound to one another by surface or interstacy ice. The temperature shall be at least 40° F, when hydraulically applying the Flocculation Powder

Flocculation Log Installation: A Flocculation Log is a semi-hydrated polyacrylamide block that is placed within storm water and/or construction site drainage to remove fine particles and reduce NTU values. Placement of Flocculation Logs should be as close to the source of particle suspension as possible. Ideal performance of the Flocculation Logs occurs when the product is used in conjunction with other best management practices (BMPs). Each Flocculation Log is specifically formulated for the soil and water chemistry at the site. Soil and water samples will determine which formula Flocculation Log is needed. The samples will also aid in determining proper placement.

Flocculation Products Maintenance plan: As with any other BMP, this system will need to have a maintenance plan in place. The Contractor shall perform the following items as directed by the Engineer:

1. Reapplication of Flocculation Powder to disturbed areas
2. Reapplication of Flocculation Powder to temporary areas
3. Replacement of Flocculation Logs

4. Adjustments to the Storm Water Pollution Prevention Plan

Method of Measurement: An estimated quantity of Flocculation Logs is included in the summary of quantities to establish a unit price only. A typical dry log weighs about 10 pounds and is approximately 5" x 4" x 12". Payment will be made based on the actual number of logs used. An estimated quantity of Flocculation Powder is included in the summary of quantities to establish a unit price only. Payment will be made based on the actual quantity (weight) of powder applied.

Basis of Payment: FLOCCULATION LOGS will be paid for at the contract unit price per each. FLOCCULATION POWDER will be paid for at the contract unit price per pound. Payment will be based on the actual number of logs and/or the actual weight of the powder used without a change in unit price because of adjustment in plan quantities, and no extra compensation will be allowed for any delays, inconveniences or damage sustained by the Contractor in performing the work. The unit price shall include all equipment, materials and labor required to furnish and apply flocculation logs and/or flocculation powder.

FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)

Description: This work shall consist of adjusting existing structures at locations indicated on the plans. This work shall be performed in accordance with the Bureau of Design Standard for Frames and Lids Adjustment with Milling (BD-8) and applicable portions of the Standard Specifications.

Basis of Payment: This work shall be measured and paid for at the contract unit price per each for FRAMES AND LIDS TO BE ADJUSTED (SPECIAL) which price shall include all labor, equipment, and materials necessary to perform said work.

HEAVY DUTY EROSION CONTROL BLANKET, SPECIAL

Description. This work shall consist of furnishing, placing and removing erosion control mat along with a flocculation powder application as a temporary erosion control measure along the project limits at ditch outfalls.

Materials: The erosion control mat shall be limited to jute fabric according to the following:

The erosion control mat shall be a woven fabric of a uniform open weave of single jute yarn. The jute yarn shall be of loosely twisted construction with an average twist of not less than 1½ turns per 1". The average size of the warp and weft yarns shall be approximately the same. The woven fabric shall be supplied in rolled strips with a certificate of compliance certifying that the jute fabric erosion mat conforms to the following:

- That the erosion control mat is a minimum 48" wide with a tolerance of minus 1".

- That the erosion control mat has 78 warp ends, +/- 1 for each 48" of width.
- That the erosion control mat has 45 weft yarns, +/- 2, per linear yard of length.
- That the erosion control mat weighs 92 pounds per 100 square yards +/- 10 percent, measured under average atmospheric conditions.
- That the erosion control mat is non-toxic to vegetation.

General: The work shall be performed according to Article 251.04 of the "Standard Specifications" and the manufacturer's recommendations.

Method of Measurement: This work will be measured for payment per square yard of material placed. Each installation of the erosion control mat shall be measured for payment. The flocculation powder will be measured separately according to the special provision for FLOCCULATION POWDER contained herein.

Basis of Payment: This work will be paid for at the contract unit price per square yard for HEAVY DUTY EROSION CONTROL BLANKET, SPECIAL. The unit price shall include all labor, equipment and materials necessary for installation, removal and disposal of the erosion control mat. The flocculation powder will be paid for separately according to the special provision for FLOCCULATION POWDER contained herein.

ORNAMENTAL FENCE

Effective: January 1, 2007

Revised: August 1, 2012

Description: This work shall consist of furnishing and installing a steel fence, gates and accessories as shown on the plans.

Materials:

- A. The steel material for the fence framework (i.e., tubular pickets, rails and posts) shall meet the following:
 - I. Galvanized after forming:
 - a. Conform to the requirements of ASTM A1011/1011M
 - b. Minimum yield strength of 50,000 psi.
 - c. The exterior shall be hot-dip galvanized with a 0.45 oz/ft² minimum zinc weight.
 - d. The interior surface shall be coated with a minimum 81% normal zinc pigmented coating, 0.3 mils minimum thickness.
 - II. Galvanized prior forming
 - a. Conform to the requirements of ASTM A924/A924M
 - b. Minimum yield strength of 50,000 psi.
 - c. The steel shall be hot-dip galvanized to meet the requirements of ASTM

A653/A653M with a minimum zinc coating weight of 0.90 oz/ft², Coating Designation G-90.

- B. The manufactured galvanized framework shall be subjected to a thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including as a minimum, a six-stage pretreatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a zinc-rich thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils. The topcoat shall be a “no-mar” TGIC polyester powder coat finish with a minimum thickness of 2 mils. The color shall be as specified on the standard drawing included in the plans. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in the following table.

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117 & D1654	Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822, D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 1 – Coating Performance Requirements

- C. The material for the fence pickets shall be 1” square x 16 gauge tubing. The cross-sectional shape of the rails shall conform to the manufacturer’s design with outside cross section dimensions of 1.75” square and a minimum thickness of 14 gauge. Picket holes in the horizontal rail shall be spaced 4.98” on center. The picket retaining rods shall be made of 0.125” diameter galvanized steel. The minimum post size shall be 2½” square x 12 gauge. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections.

The manufacturer's literature (or shop drawings and specifications) shall be submitted to the Engineer prior to ordering the fence. The ornamental fence, as shown on LCDOT standards LC6600, LC6601 and LC6602, and as specified herein, is an industrial quality ornamental steel fence system. The drawings and dimensions were furnished by one manufacturer. An equivalent fence system may be proposed for substitution. The Engineer is the sole judge of what is an equivalent substitution.

General: Installation of the fence shall be according to the applicable portions of Section 664 [Chain Link Fence] of the “Standard Specifications”, except as follows:

1. Dimensions and design details are as shown on the plans.
2. At some locations, the fencing shall be attached to concrete retaining walls. The attachment methods shall conform to the requirements of the "AASHTO LRFD (Load and Resistance Factor Design) Bridge Design Specifications" (AASHTO 2007) Section 13, "Railings". The allowable attachment methods include coring the concrete to 9" depth and grouting the fence posts in the holes or using mounting brackets and anchors.
3. Fence post installation in soil shall be done using concrete footings as shown on the plans.

Fence Fabrication:

- A. The pickets, rails and posts shall be pre-cut to specified lengths. The horizontal rails shall be pre-punched to accept the pickets.
- B. The grommets shall be inserted into the pre-punched holes in the rails and the pickets shall be inserted through the grommets so that the pre-drilled picket holes align with the internal upper raceway of the horizontal rails. (Note: This can best be accomplished by using an alignment template.) Retaining rods shall be inserted into each horizontal rail so that they pass through the predrilled holes in each picket completing the panel assembly.
- C. The completed panels shall be capable of supporting a 600lb load (applied at midspan) without any permanent deformation. Panels with rings shall be biasable to a 12.5% change in grade. Panels without rings shall be biasable to a 25% change in grade.
- D. Gates shall be fabricated using the same components as the fence system. The panel material and gate ends will have the same outside cross section dimensions as the horizontal rail. All rail and upright intersections shall be joined by welding. Picket and rail intersections shall be joined by welding or the same retaining rod used for the panel assembly.

Installation:

The fence posts shall be set according to the spacing shown in Table 2, $\pm 1/2"$, depending on the nominal span specified.

Span	6' Nominal (67 $\frac{3}{4}$ " Rail)				8' Nominal (92 $\frac{5}{8}$ " Rail)			
Post Size	2 $\frac{1}{2}$ "	3"	2 $\frac{1}{2}$ "	3"	2 $\frac{1}{2}$ "	3"	2 $\frac{1}{2}$ "	3"
Bracket Type	Standard (BB301)		Angle (BB304)		Standard (BB301)		Angle (BB304)	
Post Settings $\pm 1/2"$ o.c.	71 $\frac{1}{2}$ "	72"	73"	73 $\frac{1}{2}$ "	96"	96 $\frac{1}{2}$ "	97 $\frac{1}{2}$ "	98"

Table 2 – Post Spacing Requirements

For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence panels shall be attached to posts with brackets supplied by the manufacturer. For fencing installed in soil, posts shall be set in concrete footings having a minimum depth of 36" as shown on LCDOT standards LC6000, LC6601 or LC6602 included in the plans.

For fence installed on top of a concrete retaining wall, posts shall be set by methods such as plated posts or grouted core-drilled footings. The anchor method shall conform to the requirements of the "AASHTO LRFD (Load and Resistance Factor Design) Bridge Design Specifications" (AASHTO 2007), Section 13, "Railings". The Contractor shall provide shop drawings of the anchor method to the Engineer for review and approval.

FENCE INSTALLATION MAINTENANCE

When cutting/drilling rails or posts adhere to the following steps to seal the exposed surfaces:

- 1) Remove all metal shavings from cut area.
- 2) Apply custom finish paint matching fence color.

GATE INSTALLATION

Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out to out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations

Gate posts shall be spaced according to the gate openings specified in the construction plans. The fence panels shall be attached to the posts using mechanically fastened panel brackets supplied by the manufacturer.

Method of Measurement: Ornamental Fence will be measured for payment in feet along the top of the fence from center to center of the end posts.

Basis of Payment: This work will be paid for at the contract unit price per foot for ORNAMENTAL FENCE. The unit price shall include furnishing and installing the fence, including all fence connections, connection to a retaining wall (where required), concrete foundations, fence openings and gates (where indicated) and electric grounding. The unit price shall also include all equipment, materials and labor required to install the fence.

PAINT PAVEMENT MARKING – RAISED MEDIAN

This work shall be done in accordance with Section 780 of the Standard Specifications and the Lake County Standard Pavement Marking Details included in the plans.

This work will be paid for at the contract unit price per square foot for PAINT PAVEMENT MARKING – RAISED MEDIAN.

PERIMETER EROSION BARRIER

Description: This work shall consist of constructing, removing and disposing of perimeter erosion barrier as part of the project’s temporary erosion control system.

General: The work shall be performed according to Section 280 of the “Standard Specifications” and the following:

The perimeter erosion barrier shall be limited to temporary silt filter fence meeting the requirements of AASHTO Standard M 288-00. This specification is applicable to the use of a geotextile as a vertical, permeable interceptor designed to remove suspended soil from overland water flow. The function of a temporary silt fence is to filter and allow settlement of soil particles from sediment-laden water. The purpose is to prevent the eroded soil from being transported off the construction site by water runoff.

All removed materials shall be disposed of outside the right-of-way according to Article 202.03 of the “Standard Specifications”.

Materials:

Geotextile Requirements: The geotextile used for the temporary silt fence shall be classified as supported (with a wire or polymeric mesh backing) or unsupported (no backing). The temporary silt fence geotextile shall meet the requirements of Table 6 included below. All numeric values except Apparent Opening Size (AOS) represent Minimum Average Roll Values (MARV as defined in ASTM D4439). The values for AOS are the Maximum Average Roll Values.

Table 6 – Temporary Silt Fence Requirements

Requirements	Test Methods	Wire Backed Supported Silt Fence ^a	Unsupported Silt Fence	
			Geotextile Elongation $\geq 50\%$ ^b	Geotextile Elongation $< 50\%$ ^b
Maximum Post Spacing		4 feet	4 feet	6 feet
Grab Strength	ASTM D 4632			
Machine direction		90 lbs	124 lbs	124 lbs
X-Machine direction		90 lbs	100 lbs	100lbs
Permittivity ^c	ASTM D 4491	0.05 sec ⁻¹	0.05 sec ⁻¹	0.05 sec ⁻¹
Apparent Opening Size	ASTM D 4751	0.024in maximum average roll value		
Ultraviolet stability (retained strength)	ASTM D 4355	70% after 500 hours of exposure		

Notes:

Silt fence support shall consist of 14-gauge steel wire with a mesh backing of 6" x 6" or prefabricated polymeric mesh of equivalent strength.

As measured according to ASTM D 4632.

These default filtration property values are based on empirical evidence with a variety of sediments. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests should be performed by the agency to confirm suitability of these requirements.

Support Posts: The support posts may be composed of wood, steel or a synthetic material. The posts shall be a minimum length of 3 feet plus the buried depth. They shall have sufficient strength to resist damage during installation and to support the applied loads due to material build up behind the silt fence.

Hardwood posts shall be a minimum of 1.2" x 1.2"

No. 2 southern pine posts shall be a minimum of 2.6" x 2.6"

Steel posts may be U, T, L, or C shape, weighing 1.3 lbs per foot.

Fence Support: The wire or polymer support fence shall be at least 30" high and strong enough to support the applied loads. Polymer support fences shall meet the same ultraviolet degradation requirements as the geotextile material (see table 6).

The wire support fence shall:

Be a minimum of 14-gauge.

Have a minimum of six horizontal wires.

The maximum vertical wire spacing shall be 6".

Construction:

The silt fence shall be installed with a minimum height above ground of 30". The geotextile at the bottom of the fence shall be buried, in a "J" configuration to a minimum depth of 6", in a trench so that no flow can pass under the silt fence. The trench shall be backfilled and the soil compacted over the geotextile.

The geotextile shall be spliced together with a sewn seam or two sections of fence may be overlapped instead. The sewn seam shall be positioned only at a support post.

The Contractor must demonstrate to the satisfaction of the Engineer that the geotextile can withstand the anticipated sediment loading.

The posts shall be placed at the spacing shown on the project plans. The posts shall be driven or placed a minimum of 20" into the ground. The depth shall be increased to 24" if the fence is placed on a slope of 3:1 or greater. If the 20" depth is impossible to obtain, the posts shall be adequately secured to prevent overturning of the fence due to sediment loading.

The support fence shall be securely fastened to the upslope side of the fence post. The support fence shall extend from the ground surface to the top of the geotextile.

When un-supported fence is used, the geotextile shall be securely fastened to the fence posts.

Field monitoring shall be performed to verify that the placement of an armor system does not damage the geotextile.

Silt fences should be continuous and transverse to the flow. The silt fence should follow the contours of the site as closely as possible. The fence shall also be placed such that run off cannot flow around the end(s) of the fence.

The silt fence should be located so that the drainage area is limited to an area equivalent to 1000 square feet for each 10 feet of fence length. Caution should be used where the site slope is greater than 1:1, and/or water flow rates exceed 0.1 cubic feet per second for each 10 feet of fence length.

Maintenance:

The Contractor shall inspect all temporary silt fences immediately after each rainfall and at least daily during prolonged rainfall. The Contractor shall immediately correct any deficiencies.

The Contractor shall also make a daily review of the location of silt fences in areas where construction activities have altered the natural contour and drainage runoff to ensure that the silt fences area properly located for effectiveness. Where deficiencies exist as determined by the Engineer, additional silt fence shall be installed as directed by the Engineer.

Damaged or otherwise ineffective silt fences shall be repaired or replaced promptly.

Sediment deposits shall either be removed when the deposit reaches half the height of the fence or a second silt fence shall be installed as directed by the Engineer.

The silt fence shall remain in place until the Engineer directs it to be removed. After the fence removal, the Contractor shall remove and dispose of any excess sediment accumulations, dress the area to give it a pleasing appearance, and cover with vegetation all bare areas according to the contract requirements.

The removed silt fence may be used at other locations provided the geotextile and other material requirements continue to be met to the satisfaction of the Engineer.

Method of Measurement: This work will be measured for payment in place in feet.

Basis of Payment: This work will be paid for at the contract unit price per foot for PERIMETER EROSION BARRIER. The unit price shall include all work and materials necessary to properly install and maintain the barrier and to remove and dispose of the used materials at the completion of the project.

PIPE UNDERDRAINS 4"(MODIFIED)

Effective: January 1, 2007
Revised: August 1, 2011

Description: This work shall consist of constructing pipe underdrains.

Materials: The pipe underdrain materials shall meet the requirements of Article 601.02 of the "Standard Specifications" except that:

The pipe shall be limited to:

- (m) Perforated Polyvinyl Chloride (PVC) Pipe [1040.03(b)]
- (n) Perforated Corrugated Polyvinyl Chloride (PVC) Pipe with a Smooth Interior [1040.03(c)]
- (r) Perforated Corrugated Polyethylene (PE) Pipe with a Smooth Interior [1040.04(a)]

General: The work shall be performed according to Section 601 of the "Standard Specifications" and the following:

Rodent shields and square concrete collars (where required) as shown on LCDOT standard drawing LC6020, shall be included in PIPE UNDERDRAINS 4" (MODIFIED).

Method of Measurement: Pipe underdrains shall be measured in place, in feet, of actual pipe installed.

Basis of Payment: This work will be paid for at the contract unit price per foot for PIPE UNDERDRAINS 4" (MODIFIED). The unit price shall include furnishing and placing all pipe, fittings, connecting pipes, rodent shields, bedding and concrete collars. The unit price shall also include all equipment, materials and labor required to furnish and construct the pipe underdrains.

PRECONSTRUCTION VIDEO TAPING

Effective: September 25, 2009

Description: This work shall consist of videotaping the project site prior to commencing construction activities in order to provide a basis to determine whether visible damage occurred during construction.

General: The work shall include videotaping on all streets within the project limits. The videotaping shall encompass the entire area between the right-of-way lines. Prior to videotaping the Contractor shall coordinate with the Engineer to insure that any areas of special emphasis are noted and sufficiently covered during the videotaping process.

The videotaping shall consist of a minimum of two passes. The videotaping shall be performed at a traversing speed not to exceed 50 feet per minute.

The recording shall include an audio track. The accompanying narrative shall note the condition of existing facilities and project site objects. The narrative shall also include address information.

The Contractor shall provide one copy of the recording in DVD format to the Engineer. The recording shall be of suitable photographic clarity to serve as a basis for establishing whether visible damage occurred during construction. The Contractor may not begin construction activities until the Engineer has approved the recording.

Basis of Payment: This work will be paid for at the contract lump sum price for PRECONSTRUCTION VIDEO TAPING. The contract lump sum price shall be payment in full for all materials, labor and equipment required to perform the videotaping as described herein.

PROTECTIVE PLANTING ENCLOSURES

Description: This work shall consist of furnishing, installing, and removing Protective Planting Enclosures within the emergent plug planting zones and according to the special provisions, plan details, and the Engineer's recommendation.

General: Protective Planting Enclosures shall consist of four foot long steel "U" posts, 18 gauge chicken wire, and monofilament line (minimum 30 lb test) as detailed on Lake County Standard LC2102. The Contractor shall not use snow fence.

Protective Planting Enclosures shall be installed around the floating aquatics and emergent & aquatic plugs planted material at the direction of the Engineer.

The Contractor shall monitor the condition of the fence and string monthly, making any repairs or replacements as necessary. Additionally, the Contractor shall make repairs and/or replace the enclosure when notified by the Engineer that such action is necessary. LCDOT will monitor the fencing via LCDOT maintenance patrols.

The Protective Planting Enclosures shall remain in place for the duration of the Three Year Maintenance and Monitoring Period. Maintenance shall continue until the acceptance criteria are met, at which time all fencing shall be removed unless directed to remain by the Engineer. The Enclosures shall be removed and disposed of without damage to the protected plants or the surrounding area. The removed materials shall be disposed of, outside the right-of-way, according to Article 202.03 of the "Standard Specifications".

Method of Measurement and Basis of Payment: PROTECTIVE PLANTING ENCLOSURES shall not be measured for payment separately, but shall be included in the contract unit price for

WETLAND PLANTS. Repairs/replacement (maintenance) as are necessary shall not be paid for separately, but shall be included in the contract unit price for WETLAND PLANTS.

REMOVE AND ABANDON VALVE BOX

Description. This work shall consist of the removal and disposal of existing water valve boxes.

Method of Measurement. This work shall be measured for payment for each valve box removed.

Basis of Payment. This work shall be paid for at the contract unit price each for REMOVE AND ABANDON VALVE BOX, regardless of the size of the valve, price shall include all labor, equipment, excavation, backfilling, compacting, and removal of appurtenances and spoil required to complete the work as specified herein.

SEDIMENT COLLECTION CHAMBER SYSTEM, TEMPORARY

Description. This work shall consist of removing and properly disposing the sediment and floatables from the water pumped as part of DEWATERING during the construction before discharging into the Round Lake by means of providing sediment treatment systems.

Materials. The sediment tanks shall be supplied from one of the following manufacturers, or an approved equal:

Rain for Rent
P.O. Box 2248
Bakersfield, CA 93303
Phone # 800-742-7246
www.rainforrent.com

Fluid Process Equipment, Inc.
4797 Campus Drive
Kalamazoo, MI 49008
Phone # 269-345-1923
<http://www.fpepumps.com>

Methods. All products, equipment and "means and methods" shall be up to the contractor, but shall be adequate for the intended use/application. Sediment treatment system shall have enough capacity to process all dewatering. The resultant water that is to be discharged into the Round Lake shall be clean of all sediment, oils or floatables, and the Engineer shall be the sole judge of the water's cleanliness.

Method of Measurement. SEDIMENT COLLECTION CHAMBER SYSTEM, TEMPORARY will be measured for payment per each location where sediment removal system will be provided.

Basis of Payment. This work shall be measured and paid for at the contract unit price per each for SEDIMENT COLLECTION CHAMBER SYSTEM, TEMPORARY, which price shall include all materials, labor and equipment as specified herein.

SEEDING, CLASS 1 (MODIFIED)

Description: This work shall consist of the preparation of the area to be seeded and placing the seed and other materials required in seeding operations in the areas indicated on the plans for this Contract or as directed by the Engineer.

This work shall be done in accordance with Section 250 of the “Standard Specifications for Road and Bridge Construction” except as modified by this Special Provision.

The seeding mixes shall be as follows:

<u>Species or Mix</u> <u>(Notes)</u>	<u>lbs. / A</u>	<u>% +/-</u>
Kentucky Bluegrass Mix (1)	110	50%
Improved Creeping Red Fescue (2)	70	30%
Perennial Rye Mix (3)	40	20%
TOTAL	220 lbs.	100%

Notes:

- 1) A blend of at least three improved Kentucky bluegrass cultivars selected for low maintenance applications.
- 2) An improved cultivar or blend of cultivars.
- 3) A blend of at least three improved cultivars selected for disease resistance.

Method of Measurement: Seeding, Class 1 (Modified) will be measured for payment in acres of the surface area seeded.

Basis of Payment: This work will be paid for at the contract unit price per acre for SEEDING, CLASS 1 (MODIFIED). The unit price shall include all labor, equipment and materials necessary to complete the work as specified.

STORM SEWER (WATER MAIN REQUIREMENTS)

Effective: November 1, 2011

Description: This work shall consist of constructing storm sewer in areas where the minimum horizontal separation from water main and/or water service lines cannot be maintained. The separation requirements are defined in the Standard Specifications for Water & Sewer Main Construction in Illinois.

Materials: The storm sewer materials shall be limited to the following:

- Concrete Pressure Pipe: The concrete pressure pipe shall meet the requirements of the latest AWWA Standards C300, C301, and C303. The structural design of pre-stressed concrete cylinder pipe shall be according to the latest addition of AWWA Standard C304.
- Ductile Iron Pipe: The ductile iron pipe shall meet the requirements of ANSI A 21.51 (AWWA C151). The class or thickness design shall be according to ANSI A 21.50 (AWWA C150). The ductile iron pipe shall be seal coated and/or cement lined according to ANSI A 21.4 (AWWA C104). The ductile iron pipe shall have mechanical or rubber (slip seal or push on) joints.
- Plastic Pipe: The plastic pipe may be composed of Polyvinyl Chloride (PVC) or Polyethylene (PE) pipe. The PVC or PE material shall meet the requirements of NSF (National Sanitation Foundation) standard 14 and the AWWA or ASTM designated standard shown in the following table. The dimension ratio shall be less than the maximum value shown in the table below:

AWWA Standard	Material (Material Code)	Dimension Ratio Maximum
C900	PVC	25
C905	PVC	26
C906	PE (PE 3048)	17
	PE (PE 2406)	13.5
	PE (PE 3406)	
ASTM D 1785	PVC (PVC 1120) PVC (PVC 1220)	26
ASTM D 2241	PVC (PVC 1120) PVC (PVC 1220)	26

- ASTM D 1785 and ASTM D 2241 PVC pipe shall be rated at 160 psi or greater at 73.4°F.
 - Additional guidance is available in the Standard Specifications for Water & Sewer Construction in Illinois.
- **Steel Pipe:** The steel water pipe shall meet the requirements of the latest AWWA Standard C200. The structural design shall be according to the latest edition of C200 and AWWA Manual M-11 shall serve as the standard of practice for design and installation.

General: The work shall be performed according to Section 550 of the “Standard Specifications” and 35 Illinois Administrative Code 653.119, which requires the storm sewer to be pressure tested (for storm sewers where 10’ horizontal separation from water main is not met) to the maximum expected surcharge pressure before backfilling.

For this project the maximum expected surcharge pressure is 58 psi.

Method of Measurement: Storm Sewer (Water Main Requirements) will be measured for payment in place in feet. The measurement shall be according to Article 550.09 of the “Standard Specifications”.

Basis of Payment: This work will be paid for at the contract unit price per foot for STORM SEWERS (WATER MAIN REQUIREMENTS) of the diameter specified. The unit price shall include all equipment, materials and labor necessary to complete the work as specified. The cost of pressure testing the storm sewer included in the unit price for STORM SEWERS (WATER MAIN REQUIREMENTS).

SUMP PUMP LINE CONNECTION

Description: This work shall consist of providing sump pump line connections to the storm sewer system.

General: This work shall consist of connecting the existing sump pump line, roof downspout, or pipe drain discharge to the storm sewer or drainage structure. This work shall be constructed in accordance with the plans, and shall include excavation and backfilling with granular trench backfill, all necessary pipe, fittings, connectors, transition couplings, bends, saddles, and tees to connect the discharge to the storm sewer or drainage structure.

Basis of Payment: This work shall be paid for at the contract unit price each for SUMP PUMP LINE CONNECTION.

SURVEY MONUMENTS

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

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

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

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

TEMPORARY DITCH CHECKS

Description: This work shall consist of constructing, maintaining, and removing temporary ditch checks.

Materials: The ditch checks shall be constructed with products from the following:

The temporary ditch checks shall be limited to Triangular Silt Dikes™, or an approved equal.

<u>Manufacturer</u>	<u>Area Representative/Dealer</u>
Triangular Silt Dike Company, Inc. 608 Greenwood Midwest City, OK 73110-1632 (405)741-7406	GSI Geosynthetics, Inc. 428 N. Pewaukee Road Waukesha, WI 53188 (800) 444-5523

General: The work shall be performed according to Section 280 of the “Standard Specifications”, LCDOT Standard Drawing LC2050 and the following:

Each silt dike section shall consist of an approximately 7 foot long triangular section of urethane foam covered with a geotextile fabric, and installed on a geotextile fabric apron. The base of the triangle shall be 16” – 20” wide and have a minimum height of 8” – 10”. Triangular Silt Dikes™ shall be installed at the locations specified on the Erosion Control Plan, and/or as directed by the Engineer. In general two silt dike sections will be used at each ditch check location. Their installation shall be according to the detail shown on the plans and the manufacturer’s recommendations.

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

The temporary ditch checks shall be remain in place until just before placing the erosion control blanket and performing the seeding operations in the ditch area. The Contractor shall not remove the temporary ditch checks if it is raining and/or rain is in the immediate forecast.

The ditch checks shall become the property of the Contractor upon their removal.

Method of Measurement: Temporary Ditch Checks will be measured in place and the length calculated in feet for each ditch check section actually installed.

Basis of Payment: This work will be paid for at the contract unit price per foot for TEMPORARY DITCH CHECKS. The unit price shall include all labor, equipment and materials necessary for their installation and removal.

TEMPORARY DITCH CHECKS (SPECIAL)

Description: This work shall consist of furnishing, installing, and removing a permeable plastic berm. The plastic berm may be used in conjunction with erosion control mat, sediment bags and other components of a water treatment train and/or as a temporary ditch check while establishing final landscaping.

For this project the Permeable Plastic Berms shall be used for:

- A component of a water treatment train
- A temporary ditch check while establishing final landscaping

Materials: The permeable plastic berm shall be limited to GeoRidge[®], as manufactured by Nilex, or an approved equal.

Manufacturer
NILEX
Civil Environmental Group
15171 East Fremont Drive
Centennial, CO 80112
Ph: (303) 766-2000
Fax: (303) 766-1110
e-mail: denver@nilex.com

General: The work shall be performed according to Section 280 of the “Standard Specifications”, Detail LC2050, and the manufacturer’s recommendations.

Water Treatment Train:

The permeable plastic berm shall be used in conjunction with the erosion control mat, flocculation powder and other components to form a water treatment train as directed by the Engineer. The permeable plastic berm shall become the property of the Contractor upon the dismantling and removal of the water treatment train.

Temporary Ditch Check:

The permeable plastic berm shall be used as a temporary ditch check in ditch lines where the erosion control blanket has been placed and the seeding operations performed. The permeable plastic berms shall be placed in the locations of the Temporary Ditch Checks and/or as directed by the Engineer. Their installation shall be according to the detail shown on the plans and the manufacturer’s recommendations. After the final landscaping has been established to the satisfaction of the Engineer the permeable plastic berm shall be removed by the Contractor. The permeable plastic berm shall become the property of the Contractor upon removal.

Method of Measurement:

Water Treatment Train: A contingency quantity of permeable plastic berm is included in the summary of quantities to establish a unit price only. The permeable plastic berm will be measured for payment in feet for the actual length used in a water treatment train.

Temporary Ditch Check: The Permeable Plastic Berm will be measured in place and the length calculated in feet for each permeable plastic berm actually installed.

Basis of Payment: This work will be paid for at the contract unit price per foot for TEMPORARY DITCH CHECKS (SPECIAL). The unit price shall include all labor, equipment and materials necessary for the installation, maintenance, and removal of the plastic berm regardless of use.

TREE PROTECTION AND PRESERVATION

Construction:

1. The Contractor shall erect a temporary fence around all trees within the construction area to establish a “tree protection zone” before any work begins or any material is delivered to the jobsite. No work is to be performed (other than root pruning), materials stored, or vehicles driven or parked within the “tree protection zone” at any time during the course of construction.
2. The exact location and establishment of the “tree protection zone” fence shall be approved by the County Arborist prior to setting the fence. The fence shall be 48 inches high, plastic poly-type or any other type of highly visible barrier in an open-weave type pattern with large openings. The type, color and pattern of the fence shall be approved by the Engineer prior to erection. This fence shall be properly maintained in an upright manner and shall remain up until final restoration, unless the Engineer directs removal otherwise. Tree fence shall be supported using T-Post style fence posts with a maximum of 8’ spacing. T-posts must be at least six feet in length, two feet of which must be set in the ground. The fence shall be attached to posts and secured with a minimum of three nylon locking ties per post. **Utilizing re-bar as a fence post will not be permitted.**
3. The fence shall be installed parallel to the curb and between the curb and sidewalk unless otherwise directed by the Engineer. Fence shall be erected on a minimum of three sides with the fourth sidewalk side being optional. Fence shall be installed at the drip-line of the tree or as listed in the following guidelines:
 - a. Establish the diameter of the tree at a point four and a half feet above the ground, (referred to as diameter breast height or DBH)

- i.. Trees with diameters 10 inches and under require root zone protection a minimum of five feet in all directions from the center of the tree.
 - ii. Trees 10 to 19 inches in diameter shall have a minimum root zone protection of 10 feet in all directions from the center of the tree.
 - iii. Trees greater than 19 inches in diameter shall have a minimum root zone protection of 15 feet in all directions from the center of the tree.
4. Parking or maneuvering of machinery, stockpiling of materials or any other use will not be allowed upon unpaved areas within 3 m (10 ft) of the root protection zone of trees or plants designated to be protected.
5. Construction area is defined as all areas within 20 feet each side of water or sewer main location.
6. All work within the “tree protection zone” shall have the Engineer’s prior approval. All slopes and other areas not re-graded should be avoided so that unnecessary damage is not done to the existing turf, tree root system or ground cover.
7. The grade within the “tree protection zone” shall not be changed unless approved by the Engineer prior to making said changes or performing the work.

Basis of Payment: Tree Protection and Preservation will be paid for at the contract unit price per each for TREE PROTECTION AND PRESERVATION, which price shall include furnishing, installing, maintaining, and removal.

WATER MAIN CASING PIPE

Description: This work shall consist of installing a polyvinyl chloride water main quality casing pipe (ASTM 0-2241) PVC SDR-26 class 160 psi with ASTM 0-3139 joints and gaskets at locations indicated on the plans or at the direction of the Engineer. The Contractor shall seal the ends of the casing pipe with concrete masonry and mortar. Mortar shall conform to ASTM C270, Type M, with Type II Portland cement and Type S lime. The annular space shall be filled with pea gravel or as required by permitting agency, and provisions shall be made so that no voids are left to prevent flotation. The Casing pipe shall be used when the proposed water main is to be placed beneath a non water main quality sewer or as required by the Water and Sewer Main Specifications.

Manufactured cascade spacers with polyethylene adjustable runners, or cradles shall be used to support the pipe in the casing. A minimum of three supports shall be used per pipe, or per manufacturer’s recommendation. Water main installed within casing pipes shall have field

locking gaskets restrained joint construction the entire length of the casing pipe for future removal if necessary. This work will not be paid for separately but included in this item.

Basis of Payment: This work shall be paid for at the contract unit price per foot for WATER MAIN CASING PIPE, regardless of the pipe diameter, which price shall include any spacers, cradles, sealing of casing ends, trench backfill, and all labor, materials, and equipment necessary to complete this work.

WATER SERVICE CONNECTION

This work shall be performed in accordance with Section 562 of the Standard Specifications and with applicable portions of Section 41 of the Water and Sewer Specifications with the following alterations.

562.02 Materials. Water service line shall be Type K copper manufactured in accordance with ASTM B88 and B251 or approved equal. For 1" service lines corporation stops shall be either Mueller H-15008 or Ford F600 or approved equal. For 1 ½" and 2" service lines corporation stops shall be either, Mueller B-25008, or Ford FB600 or approved equal. Service lines greater than 1" in diameter shall have a stainless steel banded ductile iron saddle (Ford Style FC202 or Smith Blair 317 Service Saddle).

562.03 General. Add the following: Service taps into polywrapped pipe will be done according to the procedure outlined in the DIPRA handout "Polyethylene Encasement Installation Guide". The publication is available online at <http://www.dipra.org>. Service lines shall be placed through the curb stop to the property line. Existing service lines may be a different size or material (e.g. lead or galvanized steel). The Contractor shall provide acceptable couplings or fittings between the new service line and the existing line. Couplings will only be permitted if the service line exceeds 100 feet for a 1" line or 60 feet for a 1½ or 2" line. No couplings shall be permitted under any paved surface, including sidewalks, driveways, driveway aprons, and roadways.

565.01 Description Add the following: Connection to the existing private service line shall be accomplished by utilizing a 1 to 2 ft piece of Type K copper (matching the size of the existing service) from the curb stop. Mueller H-15403 series compression fittings shall be used as necessary. Curb stops shall be placed at locations determined by the Engineer. They shall rest upon a concrete brick or block. Within 2 ft of any existing or proposed paved surfaces, the excavation shall be backfilled with CA-6 and properly compacted.

Removal. Removal shall consist of service box and curb stop.

Materials. Domestic water service boxes shall be Mueller H-10302 or approved equal including the pentagon nut. Curb stops shall be Mueller B-25155, Ford B22-444M or approved equal.

562.04 Method of Measurement. Delete Section 41-3. Each water service connection established on the same side of the centerline as the water main will be measured for payment as WATER SERVICE CONNECTION (SHORT). Each water service connection that requires crossing the roadway centerline will be measured for payment as WATER SERVICE CONNECTION (LONG).

562.05 Basis of Payment. Delete Section 41-4. Add the following: Add the word “couplings,” after the word “fittings.” Removal and abandonment of the existing domestic water service boxes, providing new corporation stops, domestic water service boxes, service lines, service line insulation (if required as directed by the Engineer), curb stops and couplings, pavement patching, and all other work associated with reestablishing water service connections shall not be paid for separately but shall be included in the unit bid price of WATER SERVICE CONNECTION (SHORT) or (LONG), which price shall include labor, equipment, excavation, materials, backfilling, compacting, and removal of spoil required to complete the work as specified herein.

WATER VALVES

This work shall be performed in accordance with the applicable portions of Section 561 of the Standard Specifications and Section 42 of the Water and Sewer Specifications with the following alterations.

42-2.01 MANUFACTURE AND MARKING Add the following: Valves shall be Mueller A-2360 resilient wedge valve with stainless steel trim, or Waterous 2500 resilient wedge gate valve with stainless steel trim bolts or approved equal.

42-2.02 TYPE AND MOUNTING Add the following: All accessory bolts, studs and nuts shall be “cor-ten”.

42-2.03 END CONNECTIONS Delete subsections (B), (C), (D) and (E).

42-2.09 PAINTING AT FACTORY Delete the entire section and replace with the following: Valve bodies, bonnets and gates shall be epoxy impregnated in conformance with AWWA C550.

561.07 Basis of Payment. Add the following: Valves will be paid for at the contract unit price each for WATER VALVES, of the size specified, which price shall include all labor, materials and equipment required to complete the work as specified herein.

WETLAND PLANTS

Description: This work shall consist of the installation and maintenance of all native perennials, wetland plugs, tubers and/or rootstock. At a minimum, maintenance shall consist of watering, weeding, and plant replacement when determined necessary by the Engineer.

Materials:

1. General:

- a. Containerized plant materials shall be inoculated with vesicular arbuscular mycorrhizae endomycorrhizal fungi.
- b. All plants shall have a native source within 150 miles of the project site and shall be of straight species; no horticultural varieties shall be acceptable.
- c. The plants shall meet the requirements of Article 1081.02 of the "Standard Specifications" and the applicable section(s) of the following references:
 - i. American Association of Nurserymen, Inc. (AAN) Standard; American Standard for Nursery Stock (ANSI Z60.1-1990).
 - ii. American Joint Committee on Horticultural Nomenclature "Standardized Plant Names," second edition, 1942.
 - iii. F. Swink and G. Wilhelm, *Plants of the Chicago Region*, 1994.
- d. In the event there is a discrepancy between these reference standards and this special provision, the more restrictive requirement shall govern.
- e. The planting stock shall be nursery propagated according to good horticultural practices. Collected stock or nursery grown wild plants will not be permitted. Planting stocks from which plant propagation is taken may have been wild collected.
- f. All live plugs shall be legibly tagged with the scientific name and shall be true to the species specified in the plans.

2. Delivery, Handling, and Temporary Storage:

- a. Plant materials provided by the Contractor shall be subject to approval by the Engineer at the project site prior to installation.
- b. All planting stock shall be alive, healthy, properly hydrated, and free of all fungi (except arbuscular mycorrhizae endomycorrhizal fungi), bacterial discoloration; and deformities. Containerized materials shall have well-developed root systems.
- c. On-site storage of live plugs shall be at the Contractor's own risk. Any damage to plant stock while stored onsite shall not relieve the Contractor of his/her responsibility to furnish and install native herbaceous plant material according to the contract documents, nor will any additional compensation be allowed.

- d. Live plugs shall be protected from grazing animals (e.g., geese) and from frost during temporary storage.
 - e. Live plugs may require regular watering and supplemental nutrition while in temporary storage. The Contractor shall ensure that live plugs are in a healthy, vigorous state upon inspection.
 - f. All flower buds, seed heads, and dead leaves shall be removed from the transplants to ensure the plant's energies go to producing roots and new leaves.
 - g. To provide prompt stabilization in areas that will experience more frequent flood events, the containerized plant materials shall be installed at the density shown on the plans in year one of the installation.
3. Plant Lists: The areas to be planted are shown on the plans as wetland plants. The mixture of plants shall be as follows: plant names, scientific and common, from the USDA website, <http://plants.usda.gov/index.html>.
- a. **Wetland Type Mixes:** Plant on 18" centers (4 plugs per square yard), an even distribution of each species. Use at least 6 of the 13 species (min 3 grasses/sedges and 3 forbs). Plugs to be 2.25" diameter by 5" deep plugs.

b. Wetland Plants

Botanical Name	Common Name	Type
<i>Carex vulpinoidea</i>	Brown Fox Sedge	Sedge
<i>Glyceria striata</i>	Fowl Manna Grass	Grass
<i>Juncus canadensis</i>	Common Rush	Grass
<i>Scirpus atrovirens</i>	Dark Green Rush	Grass
<i>Scirpus cyperinus</i>	Wool Grass	Grass
<i>Spartina pectinata</i>	Prairie Cord Grass	Grass
<i>Eupatorium perfoliatum</i>	Boneset	Forb
<i>Helenium autumnale</i>	Sneezeweed	Forb
<i>Iris virginica</i>	Blue Flag	Forb
<i>Liatris spicata</i>	Marsh Blazing Star	Forb
<i>Physostegia virginiana</i>	Obedient Plant	Forb
<i>Verbena hastata</i>	Blue Vervain	Forb
<i>Zizia aurea</i>	Golden Alexanders	Forb

4. Accessories:

- a. Herbivory Protection: Protective Planting Enclosures, described herein and detailed on Lake County Standard LC2102, shall be installed for protection against herbivores.
- b. Erosion Control Blanket (Special): The erosion control blanket will be installed as shown on the plans.

Construction Requirements:

1. Planting Time:

- a. Plugs, tubers, and rootstock shall be installed during the last week of March through June 15. With written approval from the Engineer, plug installation may also occur from August 15 through September 30.
- b. Plugs will be installed within one week of seeding, unless an alternate planting time is approved by the Engineer.
- c. Delivery and Storage of Plants:
 - i. The Contractor shall provide the Engineer 48 hours notice prior to delivery of the plantings to the site. If, following delivery, delays occur in planting, the Contractor shall be responsible for storing the plants on site. The plants shall be kept appropriately watered and protected from sun, wind and mechanical damage. Dormant materials shall be stored in refrigerated compartments or environmentally controlled structures, approved by the Engineer, until the plants can be installed.
 - ii. The plants shall be handled at all times according to best horticultural practices. Plants shall not be bent, stacked or bound in a manner that deforms roots or destroys the natural shape of the plants. Mishandled plants may be subject to rejection by the Engineer. The Contractor shall replace rejected plants at his/her own expense.
 - iii. The plants shall be shipped with legible labels stating the scientific name and the size of the plant. The labels shall be securely attached to the individual plants or plant bundles of like variety and size. Containers of plant tubers and rootstock shall be individually labeled, as specified.
 - iv. The Contractor shall schedule shipping so as to minimize on site storage of plants. Planting stock shall not be shipped until the planting preparations have been completed. The Engineer shall be notified at least 48 hours prior to shipping.

2. Planting:

- a. Plants will be installed by species in full flats, creating groupings (pods) of 32, 38, or 49 plants of the same species. Plant spacing within each grouping will depend on the species being planted. Plug spacing will average two feet on center.
- b. Plug holes may be drilled with an auger or dug by hand with a trowel, spade, planting bar or other implement approved by the Engineer. Holes shall have the same diameter and depth to accommodate the live plug's root massing without damage (within +0.75"/-0.25").
- c. To plant the plugs, cut an "X" into the erosion control blanket with shears or utility knife slightly larger than the size of the plug. Peel back erosion control blanket and install plants, tucking the excess 'flaps' of blanket underneath.
- d. Plugs will be set such that the final position of the root crown following planting, soil settlement, and initial watering is slightly ($\frac{1}{8}$ " to $\frac{1}{4}$ ") below the soil surface. The crown shall be covered with native soil.
- e. The Contractor shall ensure that live plugs are not loose after planting. If frost is a possibility, each plug shall be secured with a biodegradable stake like those used for the installation of the erosion control blanket.
- f. Plant tubers and rootstocks shall be installed by hand. For spring installation, these materials will be planted under one inch of soil or mud. For early fall installation, the materials will be placed three to four inches below the soil surface. Once planted, the holes shall be backfilled with soil.
- g. The planting area shall be watered upon completion if dry conditions exist.
- h. When the planting of an area has been completed, the area shall be cleared of all debris, soil piles, and containers within 24 hours.

Method of Measurement: This work will be measured for payment per each wetland plant planted.

Basis of Payment: This work will be paid for at the contract unit price per each for WETLAND PLANTS. The unit price shall include the cost of handling, storing, preparation, and planting; watering before and after planting; constructing protective planting enclosures; plant care and all labor, tools, and incidentals necessary to complete the work specified.

ADJUSTMENTS AND RECONSTRUCTIONS

Effective: March 15, 2011

Revise the first paragraph of Article 602.04 to read:

“602.04 Concrete. Cast-in-place concrete for structures shall be constructed of Class SI concrete according to the applicable portions of Section 503. Cast-in-place concrete for pavement patching around adjustments and reconstructions shall be constructed of Class PP-1 concrete, unless otherwise noted in the plans, according to the applicable portions of Section 1020.”

Revise the third, fourth and fifth sentences of the second paragraph of Article 602.11(c) to read:

“Castings shall be set to the finished pavement elevation so that no subsequent adjustment will be necessary, and the space around the casting shall be filled with Class PP-1 concrete, unless otherwise noted in the plans, to the elevation of the surface of the base course or binder course. HMA surface or binder course material shall not be allowed. The pavement may be opened to traffic according to Article 701.17(e)(3)b.”

Revise Article 603.05 to read:

“603.05 Replacement of Existing Flexible Pavement. After the castings have been adjusted, the surrounding space shall be filled with Class PP-1 concrete, unless otherwise noted in the plans, to the elevation of the surface of the base course or binder course. HMA surface or binder course material shall not be allowed. The pavement may be opened to traffic according to Article 701.17(e)(3)b.”

Revise Article 603.06 to read:

“603.06 Replacement of Existing Rigid Pavement. After the castings have been adjusted, the pavement and HMA that was removed, shall be replaced with Class PP-1 concrete, unless otherwise noted in the plans, not less than 9 in. (225 mm) thick. The pavement may be opened to traffic according to Article 701.17(e)(3)b.

The surface of the Class PP concrete shall be constructed flush with the adjacent surface.”

Revise the first sentence of Article 603.07 to read:

“603.07 Protection Under Traffic. After the casting has been adjusted and the Class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b.”

AGGREGATE SUBGRADE IMPROVEMENT (D-1)

Effective: February 22, 2012
Revised: January 1, 2013

Add the following Section to the Standard Specifications:

“SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement.

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.06
(b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2)	1031

Note 1. Crushed RAP, from either full depth or single lift removal, may be mechanically blended with aggregate gradations CS 01 or CS 02 but shall not exceed 40 percent of the total product. The top size of the Coarse RAP shall be less than 4 in. (100 mm) and well graded.

Note 2. RAP having 100 percent passing the 1 1/2 in. (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradations CS 01 or CS 02 are used in lower lifts. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders.

303.03 Equipment. The vibratory machine shall be according to Article 1101.01, or as approved by the Engineer.

303.04 Soil Preparation. The stability of the soil shall be according to the Department’s Subgrade Stability Manual for the aggregate thickness specified.

303.05 Placing Aggregate. The maximum nominal lift thickness of aggregate gradations CS 01 or CS 02 shall be 24 in. (600 mm).

303.06 Capping Aggregate. The top surface of the aggregate subgrade shall consist of a minimum 3 in. (75 mm) of aggregate gradations CA 06 or CA 10. When Reclaimed Asphalt Pavement (RAP) is used, it shall be crushed and screened where 100 percent is passing the 1 1/2 in. (37.5 mm) sieve and being well graded. RAP that has been fractionated to size will not be permitted for use in capping. Capping aggregate will not be required when the aggregate subgrade improvement is used as a cubic yard pay item for undercut applications. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders.

303.07 Compaction. All aggregate lifts shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.08 Finishing and Maintenance of Aggregate Subgrade Improvement. The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.09 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.10 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified.

Add the following to Section 1004 of the Standard Specifications:

“ **1004.06 Coarse Aggregate for Aggregate Subgrade Improvement.** The aggregate shall be according to Article 1004.01 and the following.

- (a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete.
- (b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.

(c) Gradation.

- (1) The coarse aggregate gradation for total subgrade thickness less than or equal to 12 in. (300 mm) shall be CS 01.

The coarse aggregate gradation for total subgrade thickness more than 12 in. (300 mm) shall be CS 01 or CS 02.

COARSE AGGREGATE SUBGRADE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)	
Grad No.	Sieve Size and Percent Passing

	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 02		100	80 ± 10	25 ± 15	

(2) The 3 in. (75 mm) capping aggregate shall be gradation CA 6 or CA 10.”

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS

Effective: April 1, 2001

Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

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

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

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

Maintaining the temporary access shall include relocating and/or regrading the aggregate surface 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.”

BITUMINOUS PRIME COAT FOR HOT-MIX ASPHALT PAVEMENT (FULL DEPTH)
(D-1)

Effective: May 1, 2007

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

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

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

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

COARSE AGGREGATE FOR BACKFILL, TRENCH BACKFILL AND BEDDING (D-1)

Effective: November 1, 2011

This work shall be according to Section 1004.05 of the Standard Specifications except for the following:

Reclaimed Asphalt Pavement (RAP) maybe blended with gravel, crushed gravel, crushed stone crushed concrete, crushed slag, chats, crushed sand stone or wet bottom boiler slag. The RAP materials shall be crushed and screened. Unprocessed RAP grindings will not be permitted. The RAP shall be uniformly graded and shall pass the 1.0 in. (25 mm) screen. When RAP is blended with any of the coarse aggregate listed above, the blending shall be done mechanically with calibrated feeders. The feeders shall have an accuracy of ± 2.0 percent of the actual quantity of material delivered. The final blended product shall not contain more than 40 percent by weight RAP.

The coarse aggregate listed above shall meet CA 6 and CA 10 gradations prior to being blended with the processed and uniformly graded RAP.

DRAINAGE AND INLET PROTECTION UNDER TRAFFIC (DISTRICT 1)

Effective: April 1, 2011
 Revised: April 2, 2011

Add the following to Article 603.02 of the Standard Specifications:

- “ (i)..... Temporary Hot-Mix Asphalt (HMA) Ramp (Note 1) 1030
 (j) Temporary Rubber Ramps (Note 2)

Note 1. The HMA shall have maximum aggregate size of 3/8 in. (95 mm).

Note 2. The rubber material shall be according to the following.

Property	Test Method	Requirement
Durometer Hardness, Shore A	ASTM D 2240	75 ±15
Tensile Strength, psi (kPa)	ASTM D 412	300 (2000) min
Elongation, percent	ASTM D 412	90 min
Specific Gravity	ASTM D 792	1.0 - 1.3
Brittleness, °F (°C)	ASTM D 746	-40 (-40)”

Revise Article 603.07 of the Standard Specifications to read:

“603.07 Protection Under Traffic. After the casting has been adjusted and the Class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b.

When castings are under traffic before the final surfacing operation has been started, properly sized temporary ramps shall be placed around the drainage and/or utility castings according to the following methods.

- (a) Temporary Asphalt Ramps. Temporary hot-mix asphalt ramps shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 2 ft (600 mm) around the entire surface of the casting.
- (b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 40 mph or less and when the height of the casting to be protected meets the proper sizing requirements for the rubber ramps as shown below.

Dimension	Requirement

Inside Opening	Outside dimensions of casting + 1 in. (25 mm)
Thickness at inside edge	Height of casting \pm 1/4 in. (6 mm)
Thickness at outside edge	1/4 in. (6 mm) max.
Width, measured from inside opening to outside edge	8 1/2 in. (215 mm) min

Placement shall be according to the manufacturer's specifications.

Temporary ramps for castings shall remain in place until surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary ramp shall be removed. Excess material shall be disposed of according to Article 202.03."

FINE AGGREGATE FOR HOT- MIX ASPHALT (HMA) (D-1)

Effective: May 1, 2007

Revised: January 1, 2012

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

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

FRICITION SURFACE AGGREGATE (D1)

Effective: January 1, 2011
 Revised: January 24, 2013

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

- “ (4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.
- a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).
 - b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase.”

Revise Article 1004.03(a) of the Standard Specifications to read:

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

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

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete

Use	Mixture	Aggregates Allowed	
HMA All Other	Shoulders	<u>Allowed Alone or in Combination:</u> Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{1/} Crushed Steel Slag ^{1/} Crushed Concrete	
HMA High ESAL Low ESAL	C Surface IL-12.5,IL-9.5, or IL-9.5L	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{1/} Crushed Steel Slag ^{1/} Crushed Concrete	
HMA High ESAL	D Surface IL-12.5 or IL-9.5	<u>Allowed Alone or in Combination:</u> Crushed Gravel Carbonate Crushed Stone (other than Limestone) Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{1/} Crushed Steel Slag ^{1/} Crushed Concrete	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		25% Limestone	Dolomite
50% Limestone	Any Mixture D aggregate other than Dolomite		

Use	Mixture	Aggregates Allowed					
		75% Limestone	Crushed Slag (ACBF) ^{1/} or Crushed Sandstone				
HMA High ESAL	F Surface IL-12.5 or IL-9.5	<u>Allowed Alone or in Combination:</u> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) ^{1/} Crushed Steel Slag ^{1/} No Limestone or no Crushed Gravel alone.					
		<u>Other Combinations Allowed:</u> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"><i>Up to...</i></td> <td style="width: 50%; text-align: center;"><i>With...</i></td> </tr> <tr> <td style="text-align: center;">50% Crushed Gravel, or Dolomite</td> <td style="text-align: center;">Crushed Sandstone, Crushed Slag (ACBF)^{1/}, Crushed Steel Slag^{1/}, or Crystalline Crushed Stone</td> </tr> </table>		<i>Up to...</i>	<i>With...</i>	50% Crushed Gravel, or Dolomite	Crushed Sandstone, Crushed Slag (ACBF) ^{1/} , Crushed Steel Slag ^{1/} , or Crystalline Crushed Stone
		<i>Up to...</i>	<i>With...</i>				
50% Crushed Gravel, or Dolomite	Crushed Sandstone, Crushed Slag (ACBF) ^{1/} , Crushed Steel Slag ^{1/} , or Crystalline Crushed Stone						
HMA High ESAL	SMA Ndesign 80 Surface	Crystalline Crushed Stone Crushed Sandstone Crushed Steel Slag ^{1/}					

1/ When either slag is used, the blend percentages listed shall be by volume.

Add to Article 1004.03 (b) of the Standard Specifications to read:

“ When using Crushed Concrete, the quality shall be determined as follows. The Contractor shall obtain a representative sample from the stockpile, witnessed by the Engineer, at a frequency of 2500 tons (2300 metric tons). The sample shall be a minimum of 50 lb (25 kg). The Contractor shall submit the sample to the District Office. The District will forward the sample to the BMPR.

~~Aggregate Lab for MicroDeval Testing; according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent by weight will be applied for acceptance. The stockpile shall be sealed until test results are complete and found to meet the specifications above.~~

HMA MIXTURE DESIGN REQUIREMENTS (D-1)

Effective: January 1, 2013.

Revised: January 16, 2013

1) Design Composition and Volumetric Requirements

Revise Article 1030.04(a)(1) of the Standard Specifications to read.

“(1) High ESAL Mixtures. The Job Mix Formula (JMF) shall fall within the following limits.

High ESAL, MIXTURE COMPOSITION (% PASSING) ^{1/}										
Sieve Size	IL-25.0 mm		IL-19.0 mm		IL-12.5 mm		IL-9.5 mm		IL-4.75 mm	
	min	max	min	max	min	max	min	max	min	max
1 1/2 in. (37.5 mm)		100								
1 in. (25 mm)	90	100		100						
3/4 in. (19 mm)		90	82	100		100				
1/2 in. (12.5 mm)	45	75	50	85	90	100		100		100
3/8 in. (9.5 mm)						89	90	100		100
#4 (4.75 mm)	24	42 ^{2/}	24	50 ^{2/}	28	65	28	65	90	100
#8 (2.36 mm)	16	31	20	36	28	48 ^{3/}	32	52 ^{3/}	70	90
#16 (1.18 mm)	10	22	10	25	10	32	10	32	50	65
#50 (300 μm)	4	12	4	12	4	15	4	15	15	30
#100 (150 μm)	3	9	3	9	3	10	3	10	10	18
#200 (75 μm)	3	6	3	6	4	6	4	6	7	9
Ratio Dust/Asphalt Binder		1.0		1.0		1.0		1.0		1.0 ^{4/}

1/ Based on percent of total aggregate weight.

2/ The mixture composition shall not exceed 40 percent passing the #4 (4.75 mm) sieve for binder courses with Ndesign ≥ 90.

3/ The mixture composition shall not exceed 44 percent passing the #8 (2.36 mm) sieve for surface courses with Ndesign ≥ 90.

4/ Additional minus No. 200 (0.075 mm) material required by the mix design shall be mineral filler, unless otherwise approved by the Engineer.”

Delete Article 1030.04(a)(4) of the Standard Specifications.

Revise Article 1030.04(b)(1) of the Standard Specifications to read.

“(1) High ESAL Mixtures. The target value for the air voids of the HMA shall be 4.0 percent and for IL-4.75 it shall be 3.5 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 following requirements.

VOLUMETRIC REQUIREMENTS						
High ESAL						
Ndesign	Voids in the Mineral Aggregate (VMA), % minimum					Voids Filled with Asphalt Binder (VFA), %
	IL-25.0	IL-19.0	IL-12.5	IL-9.5	IL-4.75 ^{1/}	
50	12.0	13.0	14.0	15	18.5	65 – 78 ^{2/}
70					65 - 75	
90						
105						

1/ Maximum Draindown for IL-4.75 shall be 0.3%

2/ VFA for IL-4.75 shall be 72-85%”

Delete Article 1030.04(b)(4) of the Standard Specifications.

Revise the Control Limits Table in Article 1030.05(d)(4) of the Standard Specifications to read.

“CONTROL LIMITS					
Parameter	High ESAL Low ESAL	High ESAL Low ESAL	All Other	IL-4.75	IL-4.75
	Individual Test	Moving Avg. of 4	Individual Test	Individual Test	Moving Avg. of 4
% Passing: ^{1/}					
1/2 in. (12.5 mm)	± 6 %	± 4 %	± 15 %		
No. 4 (4.75 mm)	± 5 %	± 4 %	± 10 %		
No. 8 (2.36 mm)	± 5 %	± 3 %			
No. 16 (1.18 mm)				± 4 %	± 3 %
No. 30 (600 µm)	± 4 %	± 2.5 %			
Total Dust Content No. 200 (75 µm)	± 1.5 %	± 1.0 %	± 2.5 %	± 1.5 %	± 1.0 %
Asphalt Binder Content	± 0.3 %	± 0.2 %	± 0.5 %	± 0.3 %	± 0.2 %
Voids	± 1.2 %	± 1.0 %	± 1.2 %	± 1.2 %	± 1.0 %
VMA	-0.7 % ^{2/}	-0.5 % ^{2/}		-0.7 % ^{2/}	-0.5 % ^{2/}

1/ Based on washed ignition oven

2/ Allowable limit below minimum design VMA requirement”

2) Design Verification and Production

Description. The following states the requirements for Hamburg Wheel and Tensile Strength testing for High ESAL, IL-4.75, and SMA hot mix asphalt (HMA) mixes during mix design verification and production.

When the options of Warm Mix Asphalt, Reclaimed Asphalt Shingles, or Reclaimed Asphalt Pavement are used by the Contractor, the Hamburg Wheel and tensile strength requirements in this special provision will be superseded by the special provisions for Warm Mix Asphalt, Reclaimed Asphalt Shingles, or Reclaimed Asphalt Pavement as applicable.

Mix Design Testing. Add the following to Article 1030.04 of the Standard Specifications:

- “ (d) Verification Testing. High ESAL, IL-4.75, and SMA mix designs submitted for verification will be tested to ensure that the resulting mix designs will pass the required criteria for the Hamburg Wheel Test (IL mod AASHTO T-324) and the Tensile Strength Test (IL mod AASHTO T-283). The Department will perform a verification test on gyratory specimens compacted by the Contractor. If the mix fails the Department’s verification test, the Contractor shall make the necessary changes to the mix and resubmit compacted specimens to the Department for verification. If the mix fails again, the mix design will be rejected.

All new and renewal mix designs will be required to be tested, prior to submittal for Department verification meeting the following requirements:

(1) Hamburg Wheel Test criteria.

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG 70 -XX (or higher)	20,000	12.5
PG 64 -XX (or lower)	10,000	12.5

Note: For SMA Designs (N-80) the maximum rut depth is 6.0 mm at 20,000 repetitions. For IL 4.75mm Designs (N-50) the maximum rut depth is 9.0mm at 15,000 repetitions.

(2) Tensile Strength Criteria. The minimum allowable conditioned tensile strength shall be 415 kPa (60 psi) for non-polymer modified performance graded (PG) asphalt binder and 550 kPa (80 psi) for polymer modified PG asphalt binder. The maximum allowable unconditioned tensile strength shall be 1380 kPa (200 psi).”

Production Testing. Add the following to Article 1030.06 of the Standard Specifications:

~~“(c) Hamburg Wheel Test. All HMA mixtures shall be sampled within the first 500 tons (450 metric tons) on the first day of production or during start up with a split reserved for the Department. The mix sample shall be tested according to the Illinois Modified AASHTO T 324 and shall meet the requirements specified herein. Mix production shall not exceed 1500 tons (1350 metric tons) or one day’s production, whichever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the plant produced mixture demonstrates conformance prior to start of mix production for a contract.~~

The Department may conduct additional Hamburg Wheel Tests on production material as determined by the Engineer. If the mixture fails to meet the Hamburg Wheel criteria, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria”

Basis of Payment. Revise the seventh paragraph of Article 406.14 of the Standard Specifications to read:

“For all mixes designed and verified under the Hamburg Wheel criteria, the cost of furnishing and introducing anti-stripping additives in the HMA will not be paid for separately, but shall be considered as included in the contract unit price of the HMA item involved.

No additional compensation will be awarded to the Contractor because of reduced production rates associated with the addition of the anti-stripping additive.”

LIGHTWEIGHT CELLULAR CONCRETE FILL (DISTRICT ONE)

Effective: November 11, 2001
 Revised: January 20, 2010

DESCRIPTION

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

MATERIALS

The materials shall meet the following requirements:

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

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

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

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

CELLULAR CONCRETE

The cellular concrete shall have the following properties:

	<u>Class II</u>	<u>Class IV</u>
Cast Density ASTM C138	24-30 pcf (384-480 kg/m ³)	36-42 pcf (577-673 kg/m ³)
Minimum Compressive Strength ASTM C495-Modified		
@7 days	30 psi (207 kpa)	90 psi (620 kpa)
@28 days	40 psi (276 kpa)	120 psi (827 kpa)
Freeze-thaw Resistance (min cycles @ relative Pc=70%) per ASTM C666-Modified	N/A	300 cycles
Coefficient Permeability (cm/sec) per ASTM D2434		

@17 kpa (2.5 psi)	1.3×10^{-3}	4.4×10^{-6}
@124 kpa (18 psi)	1.2×10^{-4}	3.1×10^{-7}

Water Absorption

Long term immersion

As % of cast density

(120) days per ASTM

C796-Modified

20% max.

14% max.

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

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

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

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

EQUIPMENT

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

CONSTRUCTION REQUIREMENTS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

METHOD OF MEASUREMENT

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

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

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

BASIS OF PAYMENT

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

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.

RECLAIMED ASPHALT PAVEMENT AND SHINGLES (D-1)

Effective: November 1, 2012

Revise: January 1, 2013

Revise Section 1031 of the Standard Specifications to read:

“SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES

1031.01 Description. Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

- (a) Reclaimed Asphalt Pavement (RAP). RAP is the material resulting by cold milling or crushing an existing hot-mix asphalt (HMA) pavement. RAP will be considered processed FRAP after completion of both crushing and screening to size. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.
- (b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Bureau of Materials and Physical Research Policy Memorandum “Reclaimed Asphalt Shingle (RAS) Sources”, by weight of RAS. All RAS used shall come from a Bureau of Materials and Physical Research approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 90 percent passing the #4 (4.75 mm) sieve . RAS shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.
 - (1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.
 - (2) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

1031.02 Stockpiles. RAP and RAS stockpiles shall be according to the following.

- (a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. All stockpiles (including unprocessed RAP and Processed FRAP) shall be identified by signs indicating the type as listed below (i.e. “Non- Quality, FRAP -#4 or Type 2 RAS”, etc...).

- (1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. All FRAP shall be processed prior to testing sized into fractions with the separation occurring on or between the #4 (4.75 mm) and 1/2 in. (12.5 mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP in the coarse fraction shall pass the maximum sieve size specified for the mix the RAP will be used in.
- (2) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, Superpave (High ESAL), or HMA (High ESAL). If approved by the Engineer, the aggregate from a maximum 3.0 inch single combined pass of surface/binder milling will be classified as B quality. All millings from this application will be processed into FRAP as described previously.
- (3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed (FRAP) prior to testing. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (4) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from from HMA shoulders, bituminous stabilized subbases or Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture. The coarse aggregate in this RAP may be crushed or round but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (5) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

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

- (b) RAS Stockpiles. The Contractor shall construct individual, sealed RAS stockpiles meeting one of the following definitions. No additional RAS shall be added to the pile after the pile has been sealed. Type 1 and Type 2 RAS shall be stockpiled separately and shall be sufficiently separated to prevent intermingling at the base. Each stockpile shall be signed indicating what type of RAS is present.

However, a RAS source may submit a written request to the Department for approval to blend mechanically a specified ratio of type 1 RAS with type 2 RAS. The source will not be permitted to change the ratio of the blend without the Department prior written approval. The Engineer's written approval will be required, to mechanically blend RAS with any fine aggregate produced under the AGCS, up to an equal weight of RAS, to improve workability. The fine aggregate shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The fine aggregate shall be one that is approved for use in the HMA mixture and accounted for in the mix design and during HMA production.

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

1031.03 Testing. RAP/FRAP and RAS testing shall be according to the following.

- (a) RAP/FRAP Testing. When used in HMA, the RAP/FRAP shall be sampled and tested either during processing or after stockpiling.
- (1) During Stockpiling. For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).
 - (2) After Stockpiling. For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

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

- (b) RAS Testing. RAS shall be sampled and tested either during or after stockpiling.

During stockpiling, washed extraction, and testing for unacceptable materials shall be run at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 1000 tons (900 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a ≤ 1000 ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS shall be stockpiled in a

~~separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.~~

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

1031.04 Evaluation of Tests. Evaluation of tests results shall be according to the following.

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

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

1/ The tolerance for FRAP shall be ± 0.3 %.

2/ For slag and steel slag

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

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

- (b) Evaluation of RAS Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and

gradation. Individual test results, when compared to the averages, will be accepted if within the tolerances listed below.

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

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, the RAS shall not be used in Department projects unless the RAS, RAP or FRAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

1031.05 Quality Designation of Aggregate in RAP/FRAP.

(a) RAP. The aggregate quality of the RAP for homogenous, conglomerate, and conglomerate “D” quality stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

- (1) RAP from Class I, Superpave (High ESAL)/HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.
- (2) RAP from Superpave (High ESAL)/HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.
- (3) RAP from Class I, Superpave (High ESAL)/HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
- (4) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

(b) FRAP. If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer.

If the quality is not known, the quality shall be determined as follows. Fractionated RAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5,000 tons (4,500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant prequalified by the Department for the specified testing. The consultant shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the

BMPR Aggregate Lab for MicroDeval Testing, according to Illinois Modified AASHTO T 327. A maximum loss of 15.0 percent will be applied for all HMA applications. The fine aggregate portion of the fractionated RAP shall not be used in any HMA mixtures that require a minimum of "B" quality aggregate or better, until the coarse aggregate fraction has been determined to be acceptable thru a MicroDeval Testing.

1031.06 Use of RAS, RAP or FRAP in HMA. The use of RAS, RAP or FRAP shall be a Contractor's option when constructing HMA in all contracts.

(a) RAP/FRAP. The use of RAP/FRAP in HMA shall be as follows.

- (1) Coarse Aggregate Size (after extraction). The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
- (2) Steel Slag Stockpiles. RAP/FRAP stockpiles containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in HMA (High ESAL and Low ESAL) mixtures regardless of lift or mix type.
- (3) Use in HMA Surface Mixtures (High and Low ESAL). RAP/FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall have coarse aggregate that is Class B quality or better. RAP/FRAP shall be considered equivalent to limestone for frictional considerations unless produced/screened to minus 3/8 inch.
- (4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP/FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP in which the coarse aggregate is Class C quality or better.
- (5) Use in Shoulders and Subbase. RAP/FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be RAP, Restricted FRAP, conglomerate, or conglomerate DQ.

(b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.

(c) RAP/FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with RAP or FRAP in HMA mixtures up to a maximum of 5.0% by weight of the total mix.

When the Contractor chooses the RAP option, the percentage of the percentage of virgin asphalt binder replaced by the asphalt binder from the RAP shall not exceed the percentages indicated in the table below for a given N Design:

Max Asphalt Binder Replacement RAP Only
 Table 1

HMA Mixtures ^{1/, 2/}	Maximum % Asphalt Binder replacement (ABR)		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30L	25	15	10
50	25	15	10
70	15	10	10
90	10	10	10
105	10	10	10
4.75 mm N-50			15
SMA N-80			10

1/ For HMA “All Other” (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the asphalt binder replacement exceeds 15 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement would require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 percent, the required virgin asphalt binder grade shall be PG64-28.

When the Contractor chooses either the RAS or FRAP option, the percent binder replacement shall not exceed the amounts indicated in the tables below for a given N Design.

Max Asphalt Binder Replacement RAS or FRAP
 Table 2

HMA Mixtures ^{1/, 2/}	Level 1 - Maximum % ABR		
Ndesign	Binder/Leveling Binder	Surface	Polymer ^{3/, 4/} Modified
30L	35	30	15
50	30	25	15
70	30	20	15
90	20	15	15
105	20	15	15
4.75 mm N-50			25

SMA N-80		15
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1/ For HMA “All Other” (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the asphalt binder replacement exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent binder replacement will require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 percent, the required virgin asphalt binder grade shall be PG64-28.

3/ When the ABR for SMA is 15 percent or less, the required virgin asphalt binder grade shall be SBS PG76-22.

4/ When the ABR for IL-4.75 mix is 15 percent or less, the required virgin asphalt binder grade shall be SBS PG76-22. When the ABR for the IL-4.75 mix exceeds 15 percent, the virgin asphalt binder grade shall be SBS PG70-28.

When the Contractor chooses the RAS with FRAP combination, the percent asphalt binder replacement shall split equally between the RAS and the FRAP, and the total replacement shall not exceed the amounts indicated in the tables below for a given Design. N

Max Asphalt Binder Replacement RAS and FRAP Combination
 Table 3

HMA Mixtures ^{1/, 2/}	Level 2 - Maximum % ABR		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified ^{3/, 4/}
30L	50	40	30
50	40	35	30
70	40	30	30
90	40	30	30
105	40	30	30
4.75 mm N-50			40
SMA N-80			30

1/ For HMA “All Other” (shoulder and stabilized subbase) N-30, the percent asphalt binder replacement shall not exceed 50% of the total asphalt binder in the mixture.

2/ When the binder replacement exceeds 15 percent for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced

by one grade (i.e. 25 percent binder replacement will require a virgin asphalt binder grade of PG64-22 to be reduced to a PG58-28).

3/ When the ABR for SMA is 15 percent or less, the required virgin asphalt binder shall be SBS PG76-22. When the ABR for SMA exceeds 15%, the virgin asphalt binder grade shall be SBS PG70-28.

4/ When the ABR for IL-4.75 mix is 15 percent or less, the required virgin asphalt binder grade shall be SBS PG76-22. When the ABR for the IL-4.75 mix exceeds 15 percent, the virgin asphalt binder grade shall be SBS PG70-28.

1031.07 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the above detailed requirements.

All HMA mixtures will be required to be tested, prior to submittal for Department verification, according to Illinois Modified AASHTO T324 (Hamburg Wheel) and shall meet the following requirements:

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG76-XX	20,000	12.5
PG70-XX	20,000	12.5
PG64-XX	10,000	12.5
PG58-XX	10,000	12.5
PG52-XX	10,000	12.5
PG46-XX	10,000	12.5

Note: For SMA Designs (N-80) the maximum rut depth is 6.0 mm at 20,000 repetitions.

For IL 4.75 mm Designs (N-50) the maximum rut depth is 9.0 mm at 15,000 repetitions.

1031.08 HMA Production. All HMA mixtures shall be sampled within the first 500 tons (450 metric tons) on the first day of production or during start up with a split reserved for the Department. The mix sample shall be tested according to the Illinois Modified AASHTO T 324 and shall meet the requirements specified herein. Mix production shall not exceed 1500 tons (1350 metric tons) or one day's production, whichever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the plant produced mixture demonstrates conformance prior to start of mix production for a contract.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAS, RAP and FRAP 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 RAS, RAP and FRAP control-tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAS, RAP or FRAP and either switch to the virgin aggregate design or submit a new RAS, RAP or FRAP design.

- (a) RAP/FRAP. The coarse aggregate in all RAP/FRAP used shall be equal to or less than the maximum size requirement for the HMA mixture being produced.
- (b) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.
- (c) RAS, RAP and FRAP. HMA plants utilizing RAS, RAP and FRAP shall be capable of automatically recording and printing the following information.
 - (1) Dryer Drum Plants.
 - a. Date, month, year, and time to the nearest minute for each print.
 - b. HMA mix number assigned by the Department.
 - c. Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
 - d. Accumulated dry weight of RAS, RAP and FRAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
 - e. Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
 - f. Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
 - g. Residual asphalt binder in the RAS, RAP and FRAP material as a percent of the total mix to the nearest 0.1 percent.
 - h. Aggregate RAS, RAP and FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS, RAP and FRAP are printed in wet condition.)
 - i. When producing mixtures with FRAP and/or RAS, a positive dust control system shall be utilized.

- j. Accumulated mixture tonnage.
- k. Dust Removed (accumulated to the nearest 0.1 ton)
- (2) Batch Plants.
- a. Date, month, year, and time to the nearest minute for each print.
 - b. HMA mix number assigned by the Department.
 - c. Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
 - d. Mineral filler weight to the nearest pound (kilogram).
 - f. RAS, RAP and FRAP weight to the nearest pound (kilogram).
 - g. Virgin asphalt binder weight to the nearest pound (kilogram).
 - h. Residual asphalt binder in the RAS, RAP and FRAP material as a percent of the total mix to the nearest 0.1 percent.

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

1031.09 RAP in Aggregate Surface Course and Aggregate Shoulders. The use of RAP or FRAP in aggregate surface course and aggregate shoulders shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Non-Quality" and "FRAP". The testing requirements of Article 1031.03 shall not apply.
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded, FRAP, or single sized will not be accepted for use as Aggregate Surface Course and Aggregate Shoulders."

STATUS OF UTILITIES TO BE ADJUSTED

Effective: January 30, 1987

Revised: January 24, 2013

Utilities companies involved in this project have provided the following estimated durations:

Name of Utility	Type	Location	Estimated Duration of Time for the Completion of Relocation or Adjustments
<p>ComEd Ms. Terri Bleck Manager, Public Relocation Group - Northeast Region 1500 Franklin Blvd. Libertyville, IL 60048 PH: (847) 816-5239 FAX: (847) 816-5348 terri.bleck@ComEd.com</p>	Electric	Along Washington Street	<p>Plans are under review by the utility. Schedule to be addressed by each utility at precon or joint meeting.</p> <p>Work is currently scheduled to be complete by June 2013.</p>
<p>Comcast Mr. Robert Schulter Manager 688 Industrial Drive Elmhurst, IL 60126 PH: (630) 600-6347 FAX: (630) 600-6390 bob_schulter@cable.comcast.com</p>	Cable TV	Along Washington Street	<p>Plans are under review by the utility. Schedule to be addressed by each utility at precon or joint meeting.</p> <p>Work is currently scheduled to be complete by June 2013.</p>
<p>AT&T Legal Mandate Engineering Mr. Hector Garcia 1000 Commerce Drive, Floor 2 Oak Brook, IL 60523 PH: (630) 573-5703 FAX: (630) 573-5567 hg2929@att.com</p>	Telephone	Along Washington Street	<p>Plans are under review by the utility. Schedule to be addressed by each utility at precon or joint meeting.</p> <p>Work is currently scheduled to be complete by June 2013.</p>
<p>Nicor Gas Ms. Constance Lane Utility Consultant P.O. BOX 190 Aurora, IL 60507-0190 PH: (630) 388-3830 FAX: (630) 983-4028</p>	Gas	Along Washington Street	<p>Plans are under review by the utility. Schedule to be addressed by each utility at precon or joint meeting.</p> <p>Work is currently scheduled to be complete</p>

clane@nicor.com Central Lake County Joint Action Water Agency (JAWA) Mr. Bill Soucie Operations Director 200 Rockland Road Lake Bluff, IL 60044 PH: (847) 582-9215 FAX: (847) 295-6853 soucie@lcljawa.com	Water	Along Washington Street	by June 2013. Plans are under review by the utility. Schedule to be addressed by each utility at precon or joint meeting. Work is currently scheduled to be complete by June 2013.
Village of Round Lake Public Works Department Mr. Mark Kilarski Supervisor 751 Townline Road Round Lake, IL 60073 PH: (847) 546-0962 FAX: (847) 740-3576 mkilarski@eroundlake. com	Storm, Sanitary and Water Mains	Along Washington Street	Storm Sewer, Sanitary, and Water Mains are included as part of the contract work.
Village of Round Lake Park Public Works Department Mr. George Johnson Superintendent 37 Porter Drive Round Lake Park, IL 60073 PH: (847) 812-9171 dcessna@roundlakepark. us	Storm, Sanitary and Water Mains	Along Washington Street	Storm Sewer, Sanitary, and Water Mains are included as part of the contract work.

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.

In accordance with 605 ILCS 5/9-113 of the Illinois Compiled Statutes, utility companies have 90 days to complete the relocation of their facilities after receipt of written notice from the Department. The 90-day written notice will be sent to the utility companies after the following occurs:

- 1) Proposed right of way is clear for contract award.

- 2) Final plans have been sent to and received by the utility company.
- 3) Utility permit is received by the Department and the Department is ready to issue said permit.
- 4) If a permit has not been submitted, a 15 day letter is sent to the utility company notifying them they have 15 days to provide their permit application. After allowing 15 days for submission of the permit the 90 day notice is sent to the utility company.
- 5) Any time within the 90 day relocation period the utility company may request a waiver for additional time to complete their relocation. The Department has 10 days to review and respond to a waiver request.

TEMPORARY INFORMATION SIGNING

Effective: November 13, 1996

Revised: January 2, 2007

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

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

	<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)	1090.02

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

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

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

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

GENERAL CONSTRUCTION REQUIRMENTS

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

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

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

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

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

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

TRAFFIC CONTROL AND PROTECTION (ARTERIALS)

Effective: February 1, 1996

Revised: March 1, 2011

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

When traffic is to be directed over a detour route, the Contractor shall furnish, erect, maintain and remove all applicable traffic control devices along the detour route according to the details shown in the plans.

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

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

Temporary pavement markings will be paid for separately unless shown on a Standard.

TRAFFIC CONTROL PLAN

Effective: September 30, 1985

Revised: January 1, 2007

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

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

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

STANDARDS:

701006-04	Off-Rd Operations - 2L 2W 15 ft to 24 ft from Pavement Edge
701301-04	Lane Closure, 2L, 2W, Short Time Operation
701306-03	Lane Closure, 2L, 2W, Slow Move Operations Day Only, for Speeds \geq 45 Mph
701311-03	Lane Closure, 2L, 2W, Moving Operations - Day Only
701326-04	Lane Closure, 2L, 2W, Pavement Widening, for Speeds \geq 45 Mph
701501-06	Urban Lane Closure, 2L, 2W, Undivided
701602-06	Urban Lane Closure, Multilane, 2W with Bidirectional Left Turn Lane
701901-02	Traffic Control Devices
780001-03	Typical Pavement Markings
LC7000	Modified Standard 701011-01
LC7001	Modified Standard 701501-03
LC7003	Urban Lane Closure Multilane Intersection
LC7004	Modified District One Side Road Detail
LC7005	Typical Lane Closure 3 Lane Road Section
LC7201	Temporary Construction Information Signs
LC7800	Typical Pavement Markings for County Highways
LC7801	On Street Bicycle Lane Pavement Markings and Signing Details
LC7802	Short Term Pavement Markings

DETAILS:

TC-10	Traffic Control and Protection for Side Roads, Intersections and Driveways
TC-14	Traffic Control and Protection at Turn Bays
TC-18	Signing for Flagging Operations at Work Zone Openings
TC-21	Detour Signing for Closing State Highways
TC-22	Arterial Road Information Signing

SPECIAL PROVISIONS:

BDE #80228 Flagger at Side Roads and Entrances

BDE #80231 Pavement Marking Removal
BDE #80254 Pavement Patching
BDE #80273 Traffic Control Deficiency Deduction
LRS #3 Work Zone Traffic Control Surveillance
LRS #4 Flaggers at Work Zones
Maintenance of Roadways
Public Convenience and Safety
Temporary Information Signing
Traffic Control Plan
Traffic Control and Protection (Arterials)

**LAKE COUNTY DIVISION OF TRANSPORTATION
 TRAFFIC SIGNAL SPECIAL PROVISIONS**

Effective: January 1, 2012

All work and equipment performed and installed under this Contract:

County Highway Name: Washington Street
 County Highway Number: A22
 County Highway Section: 05-00121-07-WR

shall be governed by and shall comply with:

SPECIFICATION	ADOPTED/DATED
The State of Illinois "Standard Specifications for Road and Bridge Construction" referred to as "Standard Specifications"	Latest Edition
The State of Illinois "Manual on Uniform Traffic Control Devices for Streets and Highways," referred to as "MUTCD"	Latest Edition
The National Electrical Code referred to as "NEC"	Latest Edition
The National Electrical Manufacturers Association (All publications for traffic control items) referred to as "NEMA"	Latest Edition
The International Municipal Signal Association ("Official Wire & Cable Specifications Manual,") referred to as "IMSA"	Latest Edition
The Institute of Transportation Engineers Technical Report No. 1, (A Standard for Adjustable Face Vehicular Traffic Control Heads) referred to as "ITE"	Latest Edition
AASHTO "Standard Specifications" Structural Supports for Highway Signs, Luminaires, and Traffic Signals	Latest Edition
Supplemental Specifications and Recurring Special Provisions	Latest Edition

The following Traffic Signal Special Provisions supplement the above specifications, manuals, and codes. In case of conflict with any part or parts of said documents, these Special Provisions shall take precedence and shall govern.

The following terms and acronyms are used:

IDOT	Illinois Department of Transportation
District 1	IDOT District 1
LCDOT	The Lake County Division of Transportation
Engineer	The Resident Engineer
Traffic Engineer	The County Traffic Engineer – LCDOT

The construction, installation, modification and/or removal work shall be accomplished at the following intersection(s):

Washington Street at Cedar Lake Road
Cedar Lake Road at Rosedale Court
Cedar Lake Road at Hart Road

The intent of these Special Provisions is to prescribe the materials and construction methods commonly used in traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be indicated on the plans or as directed by the Engineer.

The work performed under this contract shall consist of furnishing and installing all traffic signal work as specified on the plans and as specified herein in a manner acceptable and approved by the Engineer.

SUBMITTALS

Revise Article 801.05 of the "Standard Specifications" to read:

The Contractor shall provide:

- a. Seven (7) copies of material catalog cuts which shall include a letter listing the manufacturer's name and model numbers of the proposed equipment to be supplied are to be provided.
- b. The catalog cuts shall include manufacturer's descriptive literature, drawings and specifications of the traffic signal equipment, handholes, cable, conduit and all associated items, as well as complete shop drawings of the mast arm assemblies and poles.
- c. 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.
- d. Partial or incomplete submittals will be returned without review.
- e. All material approval requests shall be submitted a minimum of seven (7) days prior to the delivery of equipment to the job site, or within thirty (30) calendar days after the contract is awarded, or within fifteen (15) calendar days after the preconstruction meeting, whichever is earliest
- 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.

INSPECTION OF ELECTRICAL SYSTEMS

Add the following to Article 801:10 of the "Standard Specifications":

All cabinets, including temporary traffic signal cabinets, shall be assembled by an approved equipment supplier in IDOT District 1. LCDOT reserves the right to request that any controller and cabinet be tested at an IDOT District 1 approved equipment supplier's facility prior to field installation. Such testing will be at no extra cost to the contract. All permanent or temporary "railroad interconnected" controllers and cabinets, shall be new, built, tested and approved by the controller equipment vendor, in the vendor's IDOT District 1 approved facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

MAINTENANCE AND RESPONSIBILITY

Revise Article 801.11 of the "Standard Specifications" to read:

- a. Existing traffic signal installations and/or any electrical facilities at locations included in this contract may be altered or reconstructed totally or partially as part of the work on this contract. The Contractor is hereby advised that all traffic control equipment presently installed at these locations may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which it is located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the pay item MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, and/or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION, shall become the full responsibility of the Contractor. The Contractor shall supply the Engineer and the County's Traffic Signal Maintenance Contractor two 24-hour emergency contact names and telephone numbers. The Contractor shall provide sufficient qualified personnel to respond to all notifications of malfunctions on a round-the-clock basis (24 hours a day, 7 days a week). The Contractor is required to keep a time and date log of all maintenance items, including the time of the initial report, the response time, and the time of final permanent repair. The Contractor shall provide this information to the Engineer, upon request.
- b. When the project has a pay item for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, and/or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION, the Contractor must notify the Traffic Engineer at **(847) 377-7000** of their intent to begin any physical construction work on the project or any portion thereof. This notification must be a minimum of seven (7) working days prior to the start of construction to allow sufficient time for an inspection of the existing traffic signal installation(s) and the transfer of maintenance to the Contractor. If work is started prior to the inspection, maintenance of the traffic signal installation(s) will be immediately transferred to the Contractor without an inspection. The Contractor shall then become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs to or the replacement of damaged equipment must meet the approval of the Engineer at the time of final inspection or the traffic signal installation will not be accepted.

- c. ~~Contracts that don't include traffic signal installations or modifications, but do include pay items for milling or pavement patching which may result in the destruction of traffic signal loops, do not require maintenance transfer. These contracts do require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Traffic Engineer at (847) 377-7000, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection.~~
- d. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most unavoidable down time. Any plan to shutdown the traffic signal installation for a period exceeding fifteen (15) minutes must receive prior approval from the Engineer. Approval to shutdown the traffic signal installation will only be granted during the hours of 9:00 A.M. to 3:00 P.M. on weekdays. Shutdowns will not be allowed during inclement weather, weekends or holiday periods.
- e. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Division, the County's Traffic Signal Maintenance Contractor or the public, shall be investigated and repairs started. The Contractor shall restore service and complete permanent repairs in accordance with the following Repair Timetable. Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. The Traffic Engineer reserves the right to assign any work not completed within this timeframe to the County's Traffic Signal Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Traffic Signal Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The County's Traffic Signal Maintenance Contractor may inspect any signaling device on the Division's highway system at any time without notification.

Immediately after performing any work related to a signal maintenance item (troubleshooting, temporary repair, permanent repair, etc.) the Contractor shall contact the Lake County PASSAGE Transportation Management Center (TMC) at **(847) 377-7000**.

Unless specifically stated to the contrary, all items shall be repaired within the time frame described in the Repair Timetable. The times listed are noncumulative. Any repairs not specifically covered in the Repair Timetable, or described elsewhere, shall be completed within a time frame matching the most similar line item in the Repair Timetable.

REPAIR TIMETABLE
 (non cumulative)

<u>ITEM</u>	<u>RESPONSE TIME</u>	<u>SERVICE RESTORATION</u>	<u>PERMANENT REPAIRS</u>
KNOCKDOWNS/FAILURE/DAMAGE:			
Cabinet	1 hr	24hrs	2 wks
Controller (Local or Master)	1 hr	24hrs	2 wks
Detector Loop	1 hr	n.a.	3 wks
Loop Detector/Amplifier	1 hr	4 hrs	2 wks
MVP Sensor	1 hr	4 hrs	2 wks
PTZ Camera	2 hrs	48 hrs	2 wks
Detector Interface Card/Mini Hub	1 hr	4 hrs	2 wks
Modem	2 hrs	NWD	2 wks
Load Switch	1 hr	2 hrs	2 hrs
Signal Head/Lenses	1 hr	2 hrs	NWD
Pole/Mast Arm	1 hr	2 hrs	ENG
Cabling/Conduit	1 hr	4 hrs	ENG
Interconnect/Communication	1 hr	NWD	ENG
Graffiti/Advertising	NWD	NWD	NWD
Telemetry, Electrical	1 hr	2 hrs	NWD
Ethernet Switches/Video Encoders	1 hr	48 hrs	2 wks
Highway Advisory Radio (HAR)	1 hr	48 hrs	2 wks
Indicators/switches/LEDs/displays	NWD	n.a.	2 wks
Outages not covered elsewhere	1 hr	2 hrs	NWD
Filter/Cleanliness/fans/thermostat	NWD	NWD	n.a.
Misalignment (conflicting)	1 hr	2 hrs	NWD
Misalignment (non-conflicting)	2 hrs	4 hrs	NWD
COMPLAINTS/CALLS/ALARMS:			
Timing/Phasing/Programming	1 hr	2 hrs	ENG
Coordination Alarm/Cycle Fail	NWD	ENG	ENG
Controller Alarm/Status Change	1 hr	NWD	1 wk
Detector Alarm/Status change	NWD	NWD	ENG
CMU Flash/Local Flash	1 hr	2 hrs	1 wk
Door Open/Maint. Req.	2 hrs	4 hrs	NWD

LEGEND: hr=hour, hrs=hours, NWD=next working day, wk=week, wks=weeks, ENG=acceptable to Engineer, days=calendar days, n.a.=not applicable

LIQUIDATED DAMAGES FOR UNTIMELY WORK

A primary concern of LCDOT is to maintain a safe and efficient roadway for the public. Therefore, the Contractor shall proceed with the traffic signal work as soon as conditions and project staging permit. If in the opinion of the Engineer construction conditions are suitable for traffic signal work, and the Contractor has not yet begun the traffic signal work, the Engineer shall notify the Contractor to proceed. The Contractor shall begin the traffic signal work within seven (7) calendar days after notification to proceed. The Contractor shall continue to prosecute the traffic signal work until completion, or until he can no longer proceed due to conditions beyond his control. The Contractor shall notify the Engineer of any conditions

impeding and/or delaying his prosecution of the work. Failure by the Contractor to proceed with the traffic signal work as specified herein shall result in liquidated damages of \$500.00 per calendar day per occurrence.

DAMAGE TO TRAFFIC SIGNAL SYSTEM

Revise Article 801.12(b) of the "Standard Specifications" to read:

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

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause whatsoever, shall be the responsibility of the municipality or the Automatic Traffic Enforcement company per Permit agreement.

TRAFFIC SIGNAL INSPECTION (TURN-ON)

Revise Article 801.15(b) of the "Standard Specifications" to read:

It is LCDOT's intent to have all electric work completed and the equipment field-tested by the vendor, prior to LCDOT's "turn-on" field inspection. The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and "turn-on" of the traffic signal installation. In the event the Traffic Engineer determines that the work is not complete and that the inspection will require more than two (2) hours to complete, the inspection shall be canceled and the Contractor will be required to reschedule at another date.

The Contractor may request a "turn-on" and inspection of the completed traffic signal installation at each separate location. This request must be made to the Traffic Engineer at **(847) 377-7000** a minimum of seven (7) working days prior to the time of the requested inspection. LCDOT will not grant a field inspection until the Contractor provides notification that the equipment has been field tested, and the intersection is operating according to contract requirements.

Signal indications being tested shall match the lane configurations and markings at the intersection. If any conflicting signal indications are visible to motorist or pedestrians while testing, the Contractor shall be responsible to provide police officer(s) to direct traffic. In addition, the Contractor shall provide a representative from the control equipment vendor's office to attend the traffic signal inspection for both permanent and temporary traffic signal "turn-ons".

Upon demonstration that the signals are operating properly and that all work has been completed in accordance with the contract and to the satisfaction of the Traffic Engineer, the Traffic Engineer will then allow the signals to be placed in continuous operation. The Agency that is responsible for the maintenance of each traffic signal installation will reassume the traffic

signal maintenance upon acceptance by the Traffic Engineer.

The Lake County Division of Transportation requires the following from the Contractor at Traffic Signal "turn-ons":

1. One (1) set of as-built signal plans.
2. One (1) letter from the electrical contractor certifying that all material and equipment provided and installed as part of the project is in accordance with the approved catalog cuts and shop drawings.
3. A knowledgeable representative of the controller equipment supplier shall be present at the traffic signal "turn-on". The representative shall be knowledgeable concerning the cabinet design and the controller functions.
4. One (1) CD or electronic version of the cabinet box prints.
5. One (1) copy of the operation and service manuals for the signal controller and the associated control equipment.
6. Five (5) copies (11" x 17") of the cabinet wiring diagrams.
7. Five (5) copies of the traffic signal installation cable log.
8. All manufacturer and contractor warranties and guarantees required by Article 801.14.

Acceptance of the traffic signal equipment by LCDOT shall be based on the inspection results at the traffic signal "turn-on". If approved, the traffic signal acceptance shall be given verbally at the "turn-on" inspection, followed by written correspondence from the Traffic Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until LCDOT acceptance is granted. Any "punch list" work remaining after the installation is accepted shall be completed within thirty (30) calendar days of the acceptance date. If this work is not completed within thirty days, LCDOT reserves the right to have the work completed by others at the Contractor's expense. This cost will be in addition to Liquidated Damages for Untimely Work.

The Contractor shall furnish all equipment and/or parts to keep the traffic signal installation operating.

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

LOCATING UNDERGROUND FACILITIES

Revise Section 803 of the "Standard Specifications" to read:

Contractor requests for equipment locates will be granted only once prior to the start of the contract. ~~Additional requests shall be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any item(s) damaged during the construction, at his/her own expense.~~

Locate requests should be directed to LCDOT's Traffic Signal Maintenance Contractor or to the LCDOT Traffic Engineering Department at (847) 377-7000.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities call J.U.L.I.E. at **1-800-892-0123**. For the locations of some utilities, other Agencies or Municipalities may need to be contacted.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

Revise Section 850 of the "Standard Specifications" to read:

The Contractor shall not be required to pay the energy charges for the operation of the existing traffic signal installation. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof.

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

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

The maintenance shall be according to Article 850 of the "Standard Specifications", and the following contained herein.

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

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two (2) far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place at least 1 STOP sign (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. At approaches where a yellow flashing indication is necessary, as directed by the Engineer, STOP signs will not be required. The Contractor shall furnish and equip all their signal maintenance vehicles with a sufficient number of STOP signs as specified herein. The Contractor shall maintain a sufficient number of spare STOP signs in stock at all times to replace those which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24-hour telephone number for traffic signal maintenance. ~~The Contractor, or his representative, shall be available on a 24-hour basis to respond to emergency calls by the Traffic Engineer or other parties.~~

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

The Contractor shall respond to all emergency calls from the County or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the County. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the County's Traffic Signal Maintenance Contractor perform the maintenance work required. The County's Traffic Signal Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the County's Traffic Signal Maintenance Contractor to make reviews of the existing traffic signal installation that has been transferred to the Contractor for maintenance.

The Engineer may require the Contractor to transfer maintenance of a signal back to the County's Traffic Signal Maintenance Contractor (or other electrical contractor) for a short time. This may become necessary due to other signal projects in the area, or if the County needs to perform work at the signal. Any costs incurred by the Contractor for maintenance transfer inspections of this type shall be included in cost of pay item MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.

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

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Add the following to Section 890 of the "Standard Specifications":

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

Only controllers compatible with "*Centracs*" software (NTCIP) or "*Aries*" software, currently in use by LCDOT, will be approved for use at temporary signal locations. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. All controllers used for temporary traffic signals shall be fully-actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software, installed in NEMA TS-1 or TS-2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary bridge signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the "Standard Specifications" with regards to internal time base coordination and preemption.

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

The stand which supports the temporary traffic signal cabinet shall be constructed of lumber and plywood that has been pressure-treated to protect against rot, mold, and insects.

Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 806 of the "Standard Specifications" and the "Grounding of Traffic Signal Systems" section of these special provisions.

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

All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. All approaches shall have vehicular detection provided by vehicle detection system as shown on the plans or as directed by the Engineer. The Contractor shall install, wire, and adjust the alignment of the video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the 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 video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.

When called for in the plans, the UPS cabinet shall be mounted to the temporary traffic signal cabinet and meet the requirements of UNINTERRUPTIBLE POWER SUPPLY of these Special Provisions.

~~For temporary traffic signal installations within closed loop system(s), the controller shall be compatible with the existing traffic signal system master controller. The existing system interconnect is to be maintained as part of the Temporary Traffic Signal Installation specified on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. Refer to the INTERRUPTION OF COMMUNICATION requirements described earlier. All labor and equipment required to install and maintain the existing interconnect shall be included in the cost of the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.~~

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

All temporary traffic signal installations shall have approved vehicular detection and approved pedestrian push buttons installed as shown on the plans or as directed by the Engineer. Vehicular detection shall be provided by video sensors, microwave sensors, or detector loops, and shall be paid for separately. The Contractor shall install, wire, and adjust the alignment of the vehicular detection system in accordance with the manufacturer's recommendations and requirements. When directed by the Engineer, this item shall also include operational items such as: controller database changes, timing changes, activation/deactivation of phases, relocation of signal heads, relocation / reconfiguration of detectors (microwave and/or video), and bagging / unbagging signal heads. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up the vehicular detection system. On temporary traffic signal installations with detector loops, coilable non-metallic conduit shall be used for detector loop raceways from the saw-cut to 10 feet up the wood pole, unless otherwise shown on the plans. Coilable non-metallic conduit shall meet the requirements of NEC Article 343. All coilable non-Metallic conduit used for traffic signal loop detector runs shall be included in the cost of to the price of the detector loop.

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

The Contractor shall not be required to pay the energy charges for the operation of the existing traffic signal installation. If the installation replaces an existing signal, the Contractor shall not be required to pay the energy charges for the operation of the temporary traffic signal. The Contractor shall pay the energy charges for all other temporary traffic signal installations.

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

Maintenance shall meet the requirements of the "Standard Specifications" and the ~~"Maintenance of Existing Traffic Signal Installation"~~ section of these special provisions. Maintenance of temporary signals and of the existing signals shall be included in the cost of this item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on any portion of the project. Maintenance responsibility of the existing signals shall be incidental to the item TEMPORARY TRAFFIC SIGNAL INSTALLATION. In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this contract, the Contractor shall contact the Traffic Engineer (847) 377-7000 to request an inspection of the installation(s).

Temporary Traffic Signals for bridge projects shall follow the State Standards, "Standard Specifications", LCDOT Traffic Signal Special Provisions, and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the above requirements for TEMPORARY TRAFFIC SIGNAL INSTALLATION. In addition, all electric cable shall be aerially suspended, at a minimum height of 18 feet, on temporary wood poles (Class 5 or better) of 45 feet minimum height. The signal heads shall be span-wire-mounted or bracket-mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole or as directed by the Engineer. All approaches for temporary traffic signals for bridge projects shall have microwave vehicle sensors or video vehicle detection, as shown on the plans or as approved by the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION which shall include all costs for the installation, vehicular detection system, modification, maintenance, operational items, complete removal of the temporary traffic signal, and all material required to complete the work.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Add the following to Article 895.05 of the "Standard Specifications":

The traffic signal equipment, which is to be removed and will become the property of the Contractor, shall be disposed of by the Contractor outside the right-of-way at his/her own expense.

The Contractor shall safely store and arrange for delivery of all equipment that will remain the property of LCDOT. The Contractor shall deliver, unload and stack the equipment at the owner's facility, as directed by the Engineer, within 30 days of removing it from the traffic signal installation. The Contractor shall provide three (3) copies of a list of equipment that is to remain the property of LCDOT including model and serial numbers where applicable. The Contractor shall also provide a copy of the contract plan or special provisions showing the quantities and type of equipment to be delivered. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. The Contractor shall be responsible for the condition of the traffic signal equipment from the time of removal until the acceptance of a receipt written by the owner indicating that the items have been returned in good condition.

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

RESTORATION OF WORK AREA

Add to Section 801 of the "Standard Specifications":

Restoration of the traffic signal work area shall be included in the related pay item such as foundation, conduit, handhole, trench and backfill, etc. and no extra compensation shall be allowed. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be restored to match the previously existing conditions. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded, in accordance with Section 250 and 252 of the "Standard Specifications" respectively.

CABINET NEATNESS

The Contractor shall assure that all wiring and peripheral equipment in any new traffic signal cabinet is in a neat and orderly fashion that is acceptable to the Engineer. This applies to controller cabinets, master cabinets, railroad cabinets, communication cabinets, electrical service cabinets, or any other new cabinet called for in the project plans.

All conduit entrances into the cabinet shall be sealed with a pliable waterproof material. Electrical cables inside the cabinet shall be neatly trained along the base and back of the cabinet. Each conductor shall be connected individually to the proper terminal, and the spare conductors shall be bound into a neat bundle. All cables, including those for signals, vehicle detection, pushbuttons, emergency vehicle preemption, video transmission, and communication shall be neatly arranged and bundled within the cabinet to the satisfaction of the Engineer. Each cable shall be marked with an identification number which corresponds to the number and description on the cabinet cable log.

In the case of an existing cabinet that is being modernized or modified, the new cables being installed shall be trained, bundled and labeled to the satisfaction of the Engineer. When working inside an existing cabinet, the Contractor shall minimize disturbance to existing cables and cabinet wiring. Any existing cables and cabinet wiring disturbed by the Contractor shall be re-trained, bundled, and/or labeled to the satisfaction of the Engineer.

The County shall not accept maintenance of the traffic signal installations until the requirements of this specification are satisfied.

VENDOR REPRESENTATION

Under this provision, the Engineer reserves the right to request the equipment vendor be present at the activation of new traffic equipment. Equipment covered under this provision includes signal heads, cabinets, controllers, amplifiers, preemption, video detection/monitoring, communication/transmission, fiber-optic/telemetry, radio, microwave, infrared, illuminated signs, streetlights, push buttons, lighted crosswalks, uninterruptible power supplies, and any other new equipment being installed and activated.

This provision is in addition to the requirement contained herein that the Contractor provide a representative from the control equipment vendor to attend the traffic signal inspection for both permanent and temporary traffic signal "turn-ons".

Any costs associated with equipment vendor representation shall not be paid for separately, but shall be included in the cost of the associated traffic equipment being activated. Any unforeseen costs incurred by the Contractor to provide this representation shall not be the responsibility of the County.

INTERRUPTION OF COMMUNICATION

The interruption of communication with County equipment shall be kept to an absolute minimum. This includes communication such as controller telemetry, video transmission, camera control signals, Highway Advisory Radio, wireless interconnect, telephone (POTS/ISDN/DSL), high speed Internet, or any other County communication equipment. This provision applies to cable types including copper, multimode fiber optic, singlemode fiber optic, telephone cables, Internet cables, or any other cable used by the County to monitor and maintain its various signal and ITS equipment.

The contractor shall plan ahead, and shall stage his construction work accordingly, so that he can interrupt communication, and then restore communication, with as little down time as possible. For example, when a section of existing interconnect is being relocated, the new handholes and conduits should be installed prior to disconnecting the interconnect cable. The interconnect cable can then be disconnected, pulled out of the existing conduit, pulled through the new conduit, and re-connected. In addition, when an existing fiber optic cable is to be re-used, the contractor shall be prepared to immediately replace any fiber splices and/or terminations that become damaged.

Prior to disconnecting any LCDOT communication link, the contractor shall contact the Traffic Engineer for approval of his planned construction method.

ELECTRIC SERVICE INSTALLATION

Revise Section 805 of the "Standard Specifications" to read:

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

General. The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company to the Engineer of Traffic.

Materials.

- a. General. The completed control panel shall be constructed in accordance with UL Std. 508, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

- b. Enclosures. All electrical service enclosures shall be UL 50, single door design, fabricated from ~~Type 5052-H-32 aluminum or stainless steel~~. All seams shall be continuous welded and ground smooth, and the cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. Enclosures shall meet the following additional requirements:
1. Pole Mounted Cabinet. The cabinet shall be NEMA Type 4X. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. A minimum size of 14-inches high, 9-inches wide and 8-inches deep is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.
 2. Ground Mounted Cabinet. The cabinet shall be NEMA Type 3R with back panel. The cabinet frame and door shall be 0.125-inch thick, the top 0.250-inch thick, and the bottom 0.500-inch thick. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full-length tamperproof stainless steel .075-inch thick hinge bolted to the cabinet with stainless steel carriage bolts and nylock nuts. The locking mechanism shall be slam-latch type with a keyhole cover. A minimum size of 40-inches high, 16-inches wide, and 15-inches deep is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.
- c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120-volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of -40C to +85C. The surge protector shall be UL 1449 Listed.
- d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type, with trip-free indicating handles. 120-volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.
- e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.
- f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

- g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30-day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.
- h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10-feet in length, and 3/4-inch in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation

- a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the Engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.
- b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.
- c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

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

GROUNDING OF TRAFFIC SIGNAL SYSTEMS

Revise Section 806 of the "Standard Specifications" to read:

General. All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See "IDOT District One Standard Traffic Signal Design Details" for additional information.

The grounding electrode system shall include a ground rod installed in all foundations, and the service installation. An additional ground rod will be required at locations where measured resistance to ground exceeds 25 ohms. Ground rods are included in the associated pay items and will not be paid for separately. Testing shall be according to Article 801.13.

- a) The grounded conductor (neutral conductor) shall be white color-coded. This conductor shall be bonded to the equipment-grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.

- b) The equipment-grounding conductor shall be green color-coded. The following is in addition to Article 1087.01 of the "Standard Specifications".
- 1) Equipment-grounding conductors shall be XLP insulated No. 6, unless otherwise noted on the plans, and bonded to the grounded conductor (neutral conductor) only at the electric service installation. The Earth shall not be used as the equipment-grounding conductor, and no splices shall be allowed in the cable between ground rods. The equipment-grounding conductor is paid for separately.
 - 2) Equipment-grounding conductors shall be bonded, using a UL 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 UL listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points.
 - 3) All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment-grounding conductor, with the following exceptions: Raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment-grounding conductor.
- c) The grounding electrode conductor shall be similar to the equipment-grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the equipment-grounding conductor and is bonded to ground rods via exothermic welding, UL listed pressure connectors, UL listed clamps or other UL approved listed means.

GROUNDING EXISTING HANDHOLE FRAME AND COVER

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 "IDOT District One Standard Traffic Signal Design Details" and applicable portions of the Specifications.

The equipment-grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (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 contaminants. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

The grounding cable shall be paid for separately.

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 one handhole complete, regardless of the type of handhole or its location.

UNDERGROUND CONDUIT

The conduit shall meet the requirements of Section 810 of the "Standard Specifications", except for the following:

Delete Article 810.01 of the "Standard Specifications" and add the following:

Description. This item shall consist of furnishing and installing galvanized steel conduit, fittings and accessories in the ground, either pushed, trenched, plowed, or directionally bored, with fittings complete as specified herein and as shown on the Contract drawings.

Add the following to Article 810.04 of the "Standard Specifications":

Pavement, driveways, and curbs shall not be removed to install electrical conduits. All buried conduits shall be placed at a minimum depth of 30 inches, except under railroad tracks, where the minimum depth shall meet the written requirements of the railroad company. All conduit couplings shall be threaded. Conduits terminating in junction and pull boxes shall be terminated with galvanized steel bushings.

When empty conduit is installed for future traffic signal interconnects(s), the Contractor shall provide a pull line within the conduit.

Revise Article 810.07 of the "Standard Specifications" to read:

Basis of Payment: This work will be paid for at the contract unit price per foot for UNDERGROUND CONDUIT of the type and size specified, which price shall be payment in full for furnishing and installing the conduit either pushed, trenched, plowed, or directionally bored with fittings, complete. Trenching, backfilling and area restoration are incidental to the cost of this item.

CONCRETE FOUNDATIONS

Add the following to Article 878.03 of the "Standard Specifications":

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

Concrete Foundations, Type A for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "IDOT District 1 Standards Traffic Signal Design Details". All Type A foundations shall be a minimum depth of forty-eight (48) inches.

Concrete Foundations, Type C (Special) for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS / Battery Back-Up) cabinet installations shall be constructed a minimum of forty-eight (48) inches long by thirty-one (31) inches wide, and shall have a minimum depth of forty-eight (48) inches. An integral concrete pad foundation for the UPS cabinet shall be constructed a minimum of thirty-one (31) inches long by twenty (20) inches wide by ten (10) inches deep. The UPS cabinet pad foundation shall be integral to the side of the signal cabinet foundation, and shall be constructed on the same side as the signal cabinet power panel. An L-Shaped concrete apron shall be constructed along the entire front of the signal cabinet foundation, the entire side of the UPS cabinet foundation, and the entire front of the UPS cabinet foundation. This concrete apron shall be a minimum of thirty-six (36) inches wide by four (4) inches deep.

Anchor bolts shall be provided and spaced according to the cabinet manufacturer's specifications.

Concrete Foundations, Type D for Traffic Signal Cabinets shall be constructed a minimum of forty-eight (48) inches long by thirty-one (31) inches wide, and shall have a minimum depth of forty-eight (48) inches. The concrete apron at the signal cabinet shall be constructed a minimum of thirty-six (36) inches wide by forty-eight (48) inches long by four (4) inches deep. Anchor bolts shall be provided and spaced according to the cabinet manufacturer's specifications.

Concrete Foundations, Type E for Mast Arm and Combination Mast Arm Poles shall be 15 ft. minimum depth and in accordance with the latest edition of IDOT standard 878001.

The Resident Engineer shall approve the foundation excavation prior to placing any concrete.

HANDHOLES

Add the following to Section 814 of the "Standard Specifications":

All handholes shall be cast-in-place concrete, with a minimum inside dimension of 21-1/2 inches. Frames and lid openings shall match this dimension. The minimum wall thickness for heavy-duty hand holes shall be 12 inches. The handhole cover shall be labeled "Traffic Signals" with legible raised letters.

All conduits shall enter the handhole at a minimum depth of thirty (30) inches. However, the depth of conduit from detector loops located less than five (5) feet from the handhole may be less than thirty (30) inches.

All cable hooks shall be hot-dipped galvanized in accordance with AASHTO Specification M111. Hooks shall be a minimum of 3/8-inch diameter and extend into the handhole at least 6 inches. Hooks shall be placed a minimum of 12 inches below the lid, or lower if additional space is required. All cable hooks shall be secured with a retaining nut tightened against the handhole concrete.

COILABLE NON-METALLIC CONDUIT

Description. This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC) for detector loop raceways.

General. The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans

Basis of Payment. All installations of CNC for loop detection shall be included in the contract and not paid for separately.

DETECTOR LOOP

Revise Section 886 of the "Standard Specifications" to read:

A minimum of seven (7) working days prior to the Contractor cutting loops, the Engineer shall mark the location of the proposed loops and contact the Traffic Engineer (847) 377-7000 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the placement of the concrete surface, using the same notification process as above.

Loop detectors shall be installed according to the requirements of the "IDOT District 1 Standard Traffic Signal Design Details". Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement in order to minimize the length of the saw cut (homerun), unless otherwise directed by the Engineer or as shown on the plans. Polyethylene unit duct shall be used for detector loop raceways to the handholes. Coilable non-metallic conduit shall meet the requirements of NEC Article 343. All coilable non-metallic conduit used for traffic signal loop detector runs shall be included in cost of the detector loop.

The detector loop cable insulation shall be labeled with the cable specifications. Each detector loop lead-in wire shall be labeled in the handhole using a Panduit 250W175C waterproof tag or approved equal. The tag will be secured to each wire with nylon ties.

The resistance to ground for new detector loops shall be a minimum of 500 megaohms under any conditions of weather or moisture. Inductance shall be more than 50 microhenries and less than 700 microhenries. Quality readings shall be more than 5. All new or replacement lead-in cables shall be connected to the loop interface panel using appropriate crimp-on, spade type connectors. Detector loop measurements shall include the saw cut and the length of the loop lead-in to the edge of pavement. The lead-in wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the cost of the detector loop. Coilable non-metallic conduit, trench and backfill, and drilling of pavement or handholes shall be incidental to detector loop quantities.

The location of each dive hole shall be marked on the face of the curb, the edge of pavement or the handhole, with a saw cut 1/4 inch deep by 4 inches long.

- (a) Type I: Each detector loop, which is to be installed in new asphalt pavement, must be placed in the pavement below the surface course. Each detector loop, which is to be installed in an existing asphalt or concrete pavement, shall be located to miss existing pavement cracks, if possible. Loop sealant used to seal new loops shall consist of a two-component thixotropic, chemically-cured polyurethane. The sealant will be Chemque Q-Seal 295, Perol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 1/8 inch below the pavement surface. Excess sealant, which accumulates on the surface, shall be removed immediately. Loop sealant used to reseal

existing loops shall be composed of an asphalt-based compound. The sealant will be Doseal 230 or an approved equal.

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

Preformed detector loops shall be installed in new pavement constructed of portland cement concrete and shall be placed in the substrate. Loop lead-ins shall be protected to the satisfaction of the Engineer.

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

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

To minimize the length of time that a signal operates without vehicle detection, detector loops for active traffic signal installations shall be installed in a timely manner as follows:

If in the opinion of the Engineer construction conditions are suitable for loop installation(s), the Engineer shall notify the Contractor to proceed. The detector loops shall be installed and fully operational within fourteen (14) calendar days following notification to proceed by the Engineer. This 14-day period shall be in effect throughout the entire year, including the off season, regardless of the Contractor's working day status. Failure by the Contractor to complete the loop installation(s) within the specified timeframe shall result in liquidated damages in the amount of **\$500.00** per calendar day, per occurrence.

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

ELECTRIC CABLE

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

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

The electric service cable shall have an XLP jacket. All other cable jackets shall be polyvinyl chloride, meeting the requirements of IMSA 19-1 or IMSA 20-1. The jacket color for signal cable shall be black. The jacket color for lead-in and communications cable shall be gray. All cabling between the signal cabinet and the signal heads shall be solid copper, not multi-stranded. Heat shrink splices shall be used according to the IDOT District 1 "Standard Traffic Signal Design Details".

GROUNDING CABLE

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

Add to Article 817.02 of the "Standard Specifications":

Unless otherwise noted on the Plans, the system grounding cable shall be one conductor, #6 gauge copper, with an XLP jacket.

The traffic signal grounding conductor (system grounding cable) shall be bonded, using a Listed grounding connector (Burdny type KC/K2C, as applicable, or approved equal), to all new and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding conductor shall be bonded to all new 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.

Add the following to Article 817.05 of the "Standard Specifications":

Basis of Payment. Payment shall be at the Contract unit price, per foot, for ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds/other UL Listed connectors and hardware.

RAILROAD INTERCONNECT CABLE

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

Add the following to Article 817.02 of the "Standard Specifications":

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

Revise Article 817.05 of the "Standard Specifications" to read:

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

ELECTRIC CABLE IN CONDUIT, COAXIAL

This work shall consist of furnishing and installing a Belden 1694A RG-6/U Type Digital Coaxial Cable or approved equal. The cable shall be a 75-ohm coaxial cable with 18 AWG solid bare copper conductor, tinned copper braided shield (95% min), and black polyvinyl chloride jacket. The nominal outside diameter shall be 0.274 inches. Amphenol 31-71032 (or equivalent) BNC plug connectors shall be used at both the PTZ camera and traffic signal cabinet ends of the cable. An Amphenol CLT-2 crimping tool is required for the termination. No splices shall be allowed in the cable between the PTZ camera and the traffic signal cabinet.

Basis of payment. This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, COAXIAL, which price shall be payment in full for furnishing the material, making all electrical connections and installing the cable complete, measured as specified herein.

ELECTRICAL CABLE IN CONDUIT, VIDEO NO 20 4 C

This work shall consist of furnishing and installing a Belden 5402 FE Cable or approved equal. No splices shall be allowed in the cable between the PTZ camera and the traffic signal cabinet.

Basis of payment. This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, VIDEO NO. 20 4C, which price shall be payment in full for furnishing the material, making all electrical connections and installing the cable complete, measured as specified herein.

ELECTRIC CABLE, NO. 18 3/C VIDEO

This work shall consist of furnishing and installing a Lake Cable 18AWG 3C 600V cable with black LLDPE jacket (Part # S800183WB(19)T) or approved equal. This cable connects an Autoscope Terra camera (Machine Vision Processor) to the Terra Interface Panel in the traffic signal cabinet.

The insulation of the individual conductors shall be color coded black, green, and white.

A HARTING Han 3 A connector, or approved equal, shall be used to connect the cable to the camera. To minimize maintenance issues, the supplier of the video detection system shall install the connector, in a controlled shop environment, on to an appropriate length of this cable. The HARTING connector shall not be installed on to the cable by the contractor.

Splices in this cable shall only be allowed at the handhole access near the base of the mast arm assembly, according to the following. Each of the three (3) individual conductors shall be butt spliced, soldered, and covered with heat-shrink tubing. Then the entire splice assembly (all three conductors) shall be covered with a minimum 6-inch piece of heavy-wall, adhesive lined, 3:1 shrink ratio shrinkable tubing.

Basis of payment. This work will be paid for at the contract unit price per foot for ELECTRIC CABLE; NO. 18 3/C VIDEO. The unit price shall include furnishing the material, installation, and making all electrical connections necessary for proper operation.

OUTDOOR RATED NETWORK CABLE

This work shall consist of furnishing and installing a network cable from the traffic signal cabinet to the associated field device shown on the plans.

The outdoor rated network cable shall be a black Category 5e cable, meeting the TIA/EIA 568-B.2 telecommunication standards. The cable shall be composed of 24 AWG solid bare copper conductors, twisted pairs, polyolefin insulation, inner LLPE jacket, overall shield (100% coverage), 24 AWG stranded TC drain wire, industrial grade sunlight- and oil-resistant LLPE jacket. The cable shall be capable of performing from -40 °C to 70 °C.

Each end of the cable shall be terminated with an RJ-45 connector installed according to the TIA/EIA 568B standard. The drain wire at each end shall be terminated with a ring lug and attached to a suitable ground point.

The cable shall be Belden 7937A or approved equivalent.

The work shall be performed according to the applicable portions of Section 873 of the "Standard Specifications", and details as shown on the plans.

Basis of payment. This work will be paid for at the contract unit price per foot for OUTDOOR RATED NETWORK CABLE. The unit price shall include furnishing and installing the cable, and making all connections necessary for proper operation. Furnishing and installing the RJ-45 connectors, ring terminals and grounding the OUTDOOR RATED NETWORK CABLE shall be included in the cost of this pay item.

TRAFFIC-ACTUATED CONTROLLER

Add the following to Section 857 of the "Standard Specifications":

The controller shall be the latest model available that is compatible with "Centrac" software or "Aries" software, currently in use by LCDOT, and shall be NEMA TS2 Type 1 compatible, unless specified otherwise on the plans. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. The controller shall have the latest version of NTCIP software installed, and be equipped with an Ethernet port and a removable data key to save the controller database. Only controllers supplied by approved IDOT District 1 closed-loop equipment manufacturers will be allowed. The traffic signal controller shall provide features to inhibit simultaneous display of circular yellow and yellow arrow indications.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT

Add the following to Article 1074.03 of the "Standard Specifications":

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

overlap operation. Individual load switches shall be provided for each vehicle, pedestrian and right turn-overlap phase.

- Cabinets – Controller cabinets shall have a footprint of approximately 44 inches wide by 26 inches deep. Type IV cabinets shall be 65 inches high, and shall provide a third shelf for mounting additional equipment. Type V cabinets shall be 77 inches high. Cabinets shall be fabricated of 1/8" thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- Cabinet Doors – Provide front and rear doors of NEMA type 3R construction with cellular neoprene gasket that is rain tight. Door hinges shall be continuous 14-gauge stainless steel and shall be secured with 1/4"-20 stainless steel carriage bolts. Standard equipment shall include a three-point locking system that secures the door at the top, bottom and center. A corbin lock with two keys shall also be furnished. The door shall be equipped with a two-position doorstop, one at 90° and one at 120°.
- Controller Harness – Provide a TS2 Type 2 "A" harness in addition to the TS2 Type 1 harness.
- Surge Protection – Atlantic Scientific ZoneIT Model 91391 base station, Model 91375 ZoneIT pluggable module (50kA rating) with LED status indicators, or approved equivalent.
- BIU – Containment screw required.
- Switch Guards – All switches shall be guarded.
- Back Panel – The back panel wiring shall be securely covered with a piece of plexiglass, minimum thickness 1/8-inch.
- Heating – One (1) 200-watt, thermostatically-controlled, Hoffman electric heater, or approved equivalent.
- Lighting – Four (4) GE Tetra PowerGrid LED light assemblies, or approved equivalent.
- Plan & Wiring Diagrams – 12" x 16" moisture sealed container attached to door.
- The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 1/2 inch deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lbs. in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 24 inches wide.
- Detector Racks –

Configuration #1, Half-size rack, to be used when few, if any, detector loops are required. Fully wired to support one BIU, eight channels of vehicle detection, and four channels of Emergency Vehicle Preemption (EVP).

Configuration #2, Full-size rack, to be used when the required detector loops cannot be accommodated by the half-size rack. Fully wired to support one BIU, sixteen channels of vehicle detection, and four channels of EVP.

- Field Wiring Labels – All field wiring shall be labeled.
- Field Wiring Termination – Approved channel lugs required.
- Power Supply – Provide a nonconductive shield.
- Circuit Breaker – The signal circuit breaker shall be sized for the proposed load, but shall not be rated less than thirty (30) amps.
- Police Door – Provide wiring and termination for plug-in manual phase advance switch.

- Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or approved equivalent.
- MMU – 16 Channel; LCD display, IP addressable (ethernet) Malfunction Management Unit. The MMU shall be connected to the ethernet switch with a CAT 5 cable, and configured for proper communication.

FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL

This item shall comply with Sections 857 and 863 of the "Standard Specifications" for Road and Bridge Construction, and shall also comply with the following requirements:

The controller shall meet the requirements for NEMA-TS2 standards for a Type 1 Cabinet.

The controller shall be the latest model available that is compatible with "Centracs" software or "Aries" software, currently in use by LCDOT. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. The controller shall have the latest version of NTCIP and TSP (Transit Signal Priority) software installed, and be equipped with an Ethernet port and a removable data key to save the controller database.

The cabinet shall be NEMA TS2 Type 1 design, meeting the requirements of CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Basis of payment. This item will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL which price shall be payment in full for furnishing and installing the cabinet and controller, complete with necessary connections and equipment for proper operation, at a location designated by the Engineer.

TRAFFIC ACTUATED CONTROLLER AND CABINET INTERCONNECTED WITH RAILROADS

Add the following to Articles 1073.01 (c) (2) and 1074.03 (a) (5) (e) of the Standard Specifications:

Controllers and cabinets shall be new and NEMA TS2 Type 1 design.

A method of monitoring and/or providing redundancy to the railroad preemptor input to the controller shall be included as a component of the Railroad, Full Actuated Controller and Cabinet installation and be verified by the traffic signal equipment supplier prior to installation. The cabinet shall be NEMA TS2 Type 1 design, meeting the requirements of CONTROLLER CABINET AND PERIPHERAL EQUIPMENT and FULL ACTUATED CONTROLLER, IN TYPE IV CABINET, (SPECIAL).

Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment supplier. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be new, built, tested and approved by the controller equipment vendor, in the vendor's IDOT District 1 facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

MASTER CONTROLLER

Revise Articles 860.02 and 860.03 of the "Standard Specifications" to read:

The Master Controller shall be the latest model available that is compatible with "Aries" software, currently in use by LCDOT. The minimum baud rate for fiber optic interconnected signal systems shall be 9600 bps.

This item shall also include the installation of an outdoor network interface for termination of the telephone service and a US Robotics 56k modem. The outdoor network interface shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service. The outdoor network interface shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor.

INTERSECTION MONITOR

This item shall consist of furnishing and installing an Intersection Monitor at a new or existing traffic signal controller. This item is necessary at isolated (non-interconnected) traffic signals in order to monitor the intersection and controller operations. The Intersection Monitor shall be either an internal module installed in the controller, or an external data key, and shall be the latest model available. The Intersection Monitor shall be fully compatible with "Aries" traffic signal management software, currently in use by LCDOT.

This item shall also include the installation of an outdoor network interface for termination of the telephone service and a US Robotics 56k modem. The outdoor network interface shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service. The outdoor network interface shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor.

Basis of payment. This item will be paid for at the contract unit price each for INTERSECTION MONITOR, which price shall be payment in full for furnishing and installing the Intersection Monitor (module or data key) complete with all necessary connections and equipment for proper operations.

INDUCTIVE LOOP DETECTOR

Add the following to Article 1079.01 of the "Standard Specifications":

All new inductive loop detectors (amplifiers) shall have a liquid crystal display to view all detector operation, loop diagnostics, loop frequency, inductance, change of inductance readings, and programmable features. When rack space allows, new amplifiers shall be rack-mounted. When the detector rack is full, shelf-mounted amplifiers may be allowed. Shelf-mounted amplifiers shall utilize multi channels to minimize the required shelf space.

UNINTERRUPTIBLE POWER SUPPLY (UPS)

This specification sets forth the minimum requirements for an uninterruptible power system with battery back-up, for a traffic signal. The system is comprised of the UPS or Inverter unit, bypass switch, batteries, cabinet, and related wiring harnesses.

Revise Article 1074.04(a) (1) of the Standard Specifications to read:

The UPS shall be line interactive and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection's normal traffic signal operating connected load, plus 20 percent (20%). The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 700 W/1000VA active output capacity, with 90 percent minimum inverter efficiency).

Revise the first paragraph of Article 1074.04(a) (3) of the Standard Specifications to read:

The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.

Revise Article 1074.04(a) (10) of the Standard Specifications to read:

The UPS shall be compatible with the County's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

Revise Article 1074.04(a) (17) of the Standard Specifications to read:

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

Revise Article 1074.04(b) (2)b of the Standard Specifications to read:

Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish.

Revise Article 1074.04(b) (2)c of the Standard Specifications to read:

No more than three batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

Revise Article 1074.04(b) (2)e of the Standard Specifications to read:

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm). The door shall be equipped with a two-position doorstop, one at 90° and one at 120°.

Revise Article 1074.04(b) (2)g of the Standard Specifications to read:

The door shall open to the entire cabinet and have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

Add the following to Article 1074.04(b) (2) of the Standard Specifications:

- j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

- (8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.
- (9) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate (Hubbell model HBL4716C or approved equal). Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.

Battery System.

Revise Article 1074.04(d) (3) of the Standard Specifications to read:

All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic lead calcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.

Revise Article 1074.04(d) (4) of the Standard Specifications to read:

Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.

Add the following to Article 1074.04(d) of the Standard Specifications:

- (9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four batteries shall be provided.

Add the following to the Article 1074.04 of the Standard Specifications:

- (e) Warranty. The warranty for an uninterruptible power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years from the date the traffic signal and UPS are placed into service.

Basis of payment. This item shall be paid for at the contract unit price, each, for furnishing and installing the UNINTERRUPTIBLE POWER SUPPLY, SPECIAL. The price shall include the UPS/Inverter unit, Bypass Switch, Batteries, Cabinet, wiring harnesses, and all associated equipment and materials necessary for proper operation.

EMERGENCY VEHICLE PRIORITY SYSTEM

Revise Section 887 of the "Standard Specifications" to read:

If not marked in the Contract plans, it shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be of the latest type manufactured and must be completely compatible with all components of signal equipment currently in use by the County.

All new installations shall be equipped with confirmation beacons as shown on the IDOT District 1 "Standard Traffic Signal Design Details". The confirmation beacon shall consist of a PAR 38 white LED flood lamp (90 watt equivalent, approved by the Engineer) for each direction of traffic. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the preemption signal. The preemption movement shall be signaled by a flashing indication at the rate specified by Section 4L.01 of "MUTCD". The stopped preempted 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 hz, or as otherwise required by the Traffic Engineer, and provide compatible operation with other light systems currently being operated in the County.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

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

STEEL MAST ARM ASSEMBLY AND POLE

STEEL COMBINATION MAST ARM ASSEMBLY AND POLE

Add the following to Article 1077.03 of the "Standard Specifications":

Traffic signal mast arms shall be one-piece construction, unless otherwise approved by the Engineer. All mast arms, mast arm poles, luminaire arms, cast iron bases, and any exposed steel hardware shall be hot-dipped galvanized.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Luminaire arms shall be steel, and of the length shown on the plans. Luminaire arms over fifteen (15) feet in length shall be tapered, monotube style, with AASHTO 2001 wrap-around, gusset style connection.

Luminaires shall be "cobra head" style, with a minimum mounting height of forty-five (45) feet, and shall be paid for separately.

Stainless steel mesh screening shall be stainless steel banded to the anchor bolts, with a minimum 2-inch lap, to enclose the void between the top of the foundation and the base plate. The mesh screening shall have ¼-inch maximum opening and a minimum wire diameter of AWG NO. 16.

The base of the mast arm pole shall be protected by a bolt-on galvanized metal shroud or an approved equal. The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall be constructed and designed to allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet. All mounting hardware shall be stainless steel.

STEEL MAST ARM ASSEMBLY AND POLE (SPECIAL)
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE (SPECIAL)

Add the following to Article 1077.03 of the "Standard Specifications":

Ornamental base covers for mast arm poles shall be cast aluminum. All mast arms, mast arm poles, luminaire arms, and any exposed steel hardware shall be hot-dipped galvanized, and then powder-coated black by the supplier/manufacturer, as described below or an approved alternative finishing method. Cast aluminum base covers shall be powder-coated black by the supplier/manufacturer, as described below or an approved alternative finishing method.

All galvanized and aluminum exterior surfaces shall be coated with chip resistive epoxy resin primer applied via electrostatic spray equipment. The primer is to be applied at a minimum dry film thickness (DFT) of 3.0 mils with a minimum DFT of 6.0 mils applied to the lower 8 feet of the pole. The primer coat must be energy absorptive, and capable of achieving a rating of 10A under testing per ASTM (American Society for Testing and Materials) Procedure D3170, Standard Test Method for Chipping Resistance of Coatings. The primed surfaces shall then be coated with a black semi-gloss TGIC Super Durable Polyester topcoat to a minimum dry film thickness of 3.0 mils. The topcoat must meet the requirements of AAMA (American Architectural Manufacturer's Association) 2604 for color and gloss retention properties.

All chips, scrapes, scratches, etc. in the paint shall be touched-up by the Contractor according to the manufacturer's recommendations, with matching paint supplied by the manufacturer.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Stainless steel mesh screening shall be stainless steel banded to the anchor bolts, with a minimum 2-inch lap, to enclose the void between the top of the foundation and the base plate. The mesh screening shall have ¼-inch maximum opening and a minimum wire diameter of AWG NO. 16.

All ornamental bases shall fit tightly around the poles, with little or no gap at the top of the ornamental base. Two-piece ornamental bases shall fit together tightly, with little or no gap between the two pieces. All bases shall fit securely on top of the foundation, and shall not easily move or wobble. All ornamental bases shall have an access hand hole, with a removable cover, and a minimum opening size of 200 square inches.

Pedestrian pushbutton stations shall be mounted to ornamental mast arm bases according to the following: The top and bottom of the station shall be secured by drilling, tapping, and installing a 3/8-inch stainless steel threaded bolt, lock washer, and hex nut. Do not use self-tapping screws. Spacers made of 3/4-inch aluminum conduit shall be installed behind the pushbutton station, to level and plumb the station.

Luminaire arms shall be steel, and of the length shown on the plans. Luminaire arms over fifteen (15) feet in length shall be tapered, monotube style, with AASHTO 2001 wrap-around, gusset style connection.

Luminaires shall be "cobra head" style, powder-coated black by the supplier/manufacturer, minimum mounting height shall be forty-five (45) feet, and shall be paid for separately.

All (Special) steel mast arm assemblies and poles (including combination mast arm assemblies) shall be manufactured and/or supplied by Sternberg Vintage Lighting, Union Metal, Valmont, or approved equal, according to the following:

- Round, tapered, 16-sharp fluted pole.
- Round, tapered, smooth, standard-curved, flange-connected, traffic signal mast arm

The two-piece mast arm base cover shall be cast aluminum, and shall be manufactured and/or supplied by the same company as the mast arm assembly and pole. Manufacturer designations for the two-piece mast arm base cover to be used with (SPECIAL) MAST ARM ASSEMBLIES include the following:

- Lake County AC1 base cover (Valmont)

TRAFFIC SIGNAL POST

Add the following to Article 1077.01 (d) of the "Standard Specifications":

Steel posts and cast iron bases shall be hot-dipped galvanized.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

TRAFFIC SIGNAL POST (SPECIAL)

Add the following to Article 1077.01 (d) of the "Standard Specifications":

All Traffic Signal Posts (Special) shall be sixteen (16) feet in height, extruded aluminum, unless otherwise specified on the plans. All ornamental bases for Traffic Signal Post (Special) shall be cast aluminum.

All Traffic Signal Posts (Special) and associated ornamental bases shall be assembled and powder-coated black at the factory. The powder-coated finish shall meet the requirements of STEEL MAST ARM ASSEMBLY AND POLE (SPECIAL). All exposed steel hardware shall be hot-dipped galvanized, and then powder-coated black.

All chips, scrapes, scratches, etc. in the paint shall be touched-up by the Contractor according

to the manufacturer's recommendations, with matching paint supplied by the manufacturer.
All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Pedestrian pushbutton stations shall be mounted to ornamental signal posts according to the following: The top and bottom of the station shall be secured by drilling, tapping, and installing a 3/8-inch stainless steel threaded bolt. Do not use self-tapping screws. Spacers made of 3/4-inch aluminum conduit shall be installed behind the pushbutton station, to level and plumb the station.

All Traffic Signal Posts (Special) and associated ornamental bases shall be manufactured and/or supplied by Beacon, Sternberg Vintage Lighting, Union Metal, Valmont, or approved equal, according to the following:

- Round, straight (non-tapered), five (5)-inch diameter, 12-flat fluted post.
- A ball center cap for the top of the post, instead of a tenon.
- The ornamental base section of the post shall be approximately forty-three (43) inches tall.

Manufacturer designations for TRAFFIC SIGNAL POST (SPECIAL) include the following:

- MainStreet Series (100SJ) ornamental base (Beacon)
- Hamilton Series (5400D) ornamental base (Sternberg)

PEDESTRIAN PUSH-BUTTON

Replace Article 1074.02 of the "Standard Specifications" with the following:

Pedestrian Push-button assembly shall be ADA compliant, 3-inch round style, highly vandal resistant, non-moving, pressure activated, with a solid-state Piezo switch actuator that cannot be stuck in an "on" or constant call position. A latching red LED and audible tone shall be provided to confirm an actuation. The housing, or bezel, of the assembly shall be solid aluminum and powder coated yellow. The button shall be stainless steel or nickel-plated aluminum.

Pedestrian Push-button assembly shall be a Campbell Company 4 EVR CL with Enlightened Interface Module (ENIM), a Polara Bulldog BDLL2-Y with Latching Push Button Control Unit (LPBCU), or approved equivalent.

The pedestrian station shall be a Campbell Company 912H Station, or approved equivalent.

The station shall be installed with a 9inch by 12-inch Campbell Company vandal resistant sign, according to the following: Where pedestrian signal heads are used, pedestrian signs shall provide the "Push Button for" legend, with the Walking Man symbol and arrow (R10-3). Where no pedestrian signal heads are used, pedestrian signs shall provide the "Push Button for Green Light" legend with arrow (R10-4 with arrow), or as specified on the plans.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Refer to STEEL MAST ARM ASSEMBLY AND POLE (SPECIAL), STEEL COMBINATION MAST ARM ASSEMBLY AND POLE (SPECIAL), and/or TRAFFIC SIGNAL POST (SPECIAL) for additional installation requirements.

Basis of Payment. This work shall be paid for at the contract unit price each for PEDESTRIAN PUSH BUTTON. The unit price shall include furnishing and installing the pedestrian station, push button, sign, and all necessary equipment and connections for proper operations. Electric cable in conduit shall be paid for separately.

ILLUMINATED SIGN, LIGHT EMITTING DIODE

Delete last sentence of Article 1084.01(a) and add "Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and bracket specified herein and shall provide tool free access to the interior."

Revise the second paragraph of Article 1084.01(a) to read:

The exterior surface of the housing shall be acid-etched and shop painted with one coat of zinc-chromate primer and two coats of exterior enamel. The housing shall be the same color (yellow or black) to match the existing or proposed signal heads. The painting shall be according to Section 851.

Add the following to Article 1084.01 (b) of the Standard Specifications:

The message shall be formed by rows of LEDs. The sign face shall be 24 inches by 24 inches .

Add the following to Article 1084.01 of the Standard Specifications:

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

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This work shall be paid for at the unit price each for ILLUMINATED SIGN, LIGHT EMITTING DIODE.

LED INTERNALLY ILLUMINATED STREET NAME SIGN

This work shall consist of furnishing a street name sign which is internally illuminated with light emitting diodes, and installing the sign on a traffic signal mast arm or span wire.

The sign shall be manufactured by Traffic Signs, Inc., standard model, with a Sylvania LED Light Engine, or approved equivalent.

The sign shall display the designated street name clearly and legibly in the daylight hours without being energized. When energized, the entire surface of the sign panel shall be evenly illuminated, and the light transmission factor shall provide a letter to background brightness ratio adequate for nighttime legibility. The sign face/panels shall be 0.125-inch translucent, high-impact, UV resistant polycarbonate. All surfaces shall be free of blemishes in the plastics or coating that might impair the service or detract from the general appearance of the sign. The sign frame shall be painted black with a durable powder coated process.

Street name signs shall have double-sided message, with the following exception: At locations where one side of a particular sign will not be visible to vehicular traffic, such as a "T" intersection, that sign shall be single-sided. The street name/legend and border shall be as shown on the plans. The font shall be ClearviewHwy 5-W.

Both sides of each sign shall have legend and border made of 3M/Scotchlite Series 4090T translucent white diamond grade sheeting (DG³T), overlaid by 3M/Scotchlite Series 1177 transparent green, electronically cuttable film, or approved equivalent.

The sign shall be mounted on the mast arm three feet to the right of the furthest right signal head, as viewed by the approaching traffic.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Each sign shall be activated by a photocell mounted/installed on the side of the sign frame.

The Manufacturer/Vendor shall supply shop drawings of the fixtures, sign, sign message and mounting hardware for approval. All hardware used to install the sign shall be in accordance with the manufacturer's recommendations.

Basis of Payment. This work will be paid for at the contract unit price each for furnishing and installing LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the size specified, complete in place, including photocell and all related hardware, wiring, and connections required for proper operations. The #14 2/C cable from the signal cabinet to the sign shall be paid for separately.

MAST ARM SIGN PANELS

Add the following to Article 720.02 of the "Standard Specifications":

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by LCDOT. All aluminum signs shall have a white reflectorized legend and border on a green reflectorized background, DG³ type sheeting. The sign face shall not have any holes. 3M Scotch Joining Systems bonding tape or an approved equal shall be used in place of screws or rivets. The Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware or bonding tape may be acceptable based upon LCDOT approval.

SIGNAL HEADS

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

All vehicle signal and pedestrian signal heads shall provide 12-inch displays, with glossy black polycarbonate housings, with the following exception: At locations where existing yellow polycarbonate heads will remain, all new signal heads shall be yellow to match the existing ones. Connecting hardware and mounting brackets shall be polycarbonate, the same color as the heads, or galvanized. A corrosive resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Where required, incandescent bulbs shall be manufactured by Duratest, Sylvania or an

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

SIGNAL HEAD, LIGHT EMITTING DIODE (LED)

This work shall consist of furnishing and installing a traffic signal head or pedestrian signal head with light emitting diodes (LED) of the type specified in the plan or retrofitting an existing traffic signal head with a traffic signal module or pedestrian signal module with LEDs as specified in the plans.

LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Sections 880 and 881 and Articles 1078.01 and 1078.02 of the "Standard Specifications" for Road and Bridge Construction," and amended herein:

The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (VTCSH) or show signs of entrance of moisture or contaminants within the first 60 months of the date of delivery shall be replaced or repaired. The manufacturer's written warranty for the LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the County.

The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face, and shall not affect chromaticity.

Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch in diameter. Additionally, the color shall be written out in ½-inch letters next to the symbol.

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. Maximum power consumption for LED modules is per Table 1.

Retrofit Traffic Signal Module:

All other specifications apply unless specifically superseded in this section.

1. Each Retrofit module (12-inch circular or 12-inch arrow indications) 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.
2. 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.
3. 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 weatherproof after installation and connection.

12-Inch Arrow Module:

All other specifications apply unless specifically superseded in this section.

1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers, Chapter 2 (Vehicle Traffic

Control Signal Heads) for arrow indications.

2. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.

12-inch Programmed Visibility (PV) Module:

All other specifications apply unless specifically superseded in this section.

1. The module shall be designed and constructed to be installed in a PV signal housing without modification to the housing.
2. The LEDs shall be spread evenly across the module

12-inch Pedestrian Module:

All other specifications apply unless specifically superseded in this section.

1. Each pedestrian signal LED module shall provide the ability to actuate the solid upraised hand and the solid walking person on one 12-inch section.
2. Two (2) pedestrian sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man.
3. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches in height and easily identified from a distance of 120-feet.
4. All pedestrian signals at an intersection shall be the same type and have the same display. No mixing of multiple types of pedestrian traffic signals will be permitted.

Basis of Payment. This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, of the type specified, or PEDESTRIAN 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.

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, or 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 signal faces, the number of signal sections, and the method of mounting.

Table 1 Maximum Power Consumption (in Watts)

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

Table 2 Minimum Initial & Maintained Intensities for Arrow and Pedestrian Indications (in cd/m²)

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

PEDESTRIAN COUNTDOWN SIGNAL HEAD, LIGHT EMITTING DIODE (LED)

This work shall consist of furnishing and installing a pedestrian countdown signal head, with

light emitting diodes (LED) of the type specified in the plan or retrofitting an existing pedestrian traffic signal head with a pedestrian countdown signal module with LEDs as specified in the plan.

PEDESTRIAN COUNTDOWN SIGNAL HEAD, LIGHT EMITTING DIODE, shall conform fully to the SIGNAL HEAD, LIGHT EMITTING DIODE specification, with the following modifications:

Pedestrian Countdown Signal Heads, including Retrofit type, shall not be used at signalized intersections where traffic signals and railroad warning devices are interconnected.

Pedestrian Countdown Signal Heads, including Retrofit type, shall measure 12 inches x 12 inches, with 9-inch high countdown numerals, and form the time display utilizing two rows of LEDs.

Pedestrian Countdown Signal Heads shall consist of two (2) 12-inch by 12-inch modules aligned vertically. The top module of the unit shall be an LED message-bearing surface supplied with overlapping full "HAND" and full "MAN" symbols that comply with the ITE Pedestrian Traffic Control Signal Indications (PTCSI) standard for these symbols. The bottom module of the unit shall house a LED countdown traffic signal consisting of a two digit numerical display ("00" to "99") a minimum of nine (9) inches in height. The counter shall begin countdown at the beginning of the pedestrian clearance interval as the pictogram of the hand starts flashing. The counter shall execute a countdown of the time, in seconds, of the pedestrian clearance interval synchronized with the controller and ending at (0) at the expiration of the clearance interval. The counter shall be blank at all other times.

Retrofit Pedestrian Countdown Signal Module:

The Retrofit module shall be applicable where two (2) LED pedestrian signal sections exist, each with the Upraised Hand and Walking Person overlaid with the top section wired to illuminate only the Upraised Hand and the bottom section wired to illuminate only the Walking Person. The top section shall be re-wired to provide illumination of either of the displays, depending on the interval or phase. The contractor shall remove the existing bottom pedestrian overlay module and install a new countdown module.

Basis of Payment. This item shall be paid for at the contract unit price each for PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, of the type specified, which 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.

When installed in an existing signal head, this item shall be paid for at the contract unit price each for PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, and 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.

TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM

Replace the first sentence of Article 1078.03 of the "Standard Specifications" with "All backplates shall be aluminum" and louvered".

Add the following to the third paragraph of Article 1078.03 of the Standard Specifications. The reflective backplate shall not contain louvers.

Delete second sentence of the fourth paragraph of Article 1078.03 of the Standard Specifications.

Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

When retro reflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the manufacturer's recommendations. The retro reflective sheeting shall be installed under a controlled environment at the manufacturer/supplier before shipment to the contractor. The aluminum backplate shall be prepared and cleaned, following recommendations of the retro reflective sheeting manufacturer.

VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION)

This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device. This work shall consist of furnishing and installing an Autoscope Terra or approved equal video vehicle detection system at one signalized intersection. This item includes the Machine Vision Processor (MVP) sensors, a Terra Interface Panel (TIP), a Terra Access Point (TAP), and all necessary hardware, cable and accessories necessary to complete the installation in accordance with the manufacturer's specifications. The system shall also include a LCD monitor with BNC connector for video input.

The Autoscope Machine Vision Processor (MVP) is normally installed on top of the luminaire arm. However, occasionally overhead utility wires obstruct the camera's field of view and prevent proper detector placement. When this occurs, the camera shall be installed on a J-hook below the luminaire arm, instead of the normal mounting bracket. The cost of the J-hook shall be included in the cost of this item.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

To protect the video detection cameras from electrical surges, the Terra Interface Panel chassis shall be connected to the cabinet ground rod with a #10 1/C green wire.

In order for the Traffic Engineer to manipulate detection zones and view the video signal over a high-speed connection, the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) must be connected to either the LCDOT Gigabit Ethernet network or a VIDEO TRANSMISSION SYSTEM.

If the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) is being connected to the Gigabit Ethernet network, then a LAYER II (DATA LINK) SWITCH and/or a LAYER III (NETWORK) SWITCH will be required. Layer II and Layer III switches shall be installed according to the plans, and shall be paid for separately.

If the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) is being connected to a new or existing VIDEO TRANSMISSION SYSTEM, then fiber-optic video/data transmitters and receivers may be required. Fiber-optic video/data transmitters and receivers are necessary whenever the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) and the VIDEO TRANSMISSION SYSTEM are installed at separate signalized intersections. When required, fiber-optic video/data transmitters and receivers shall be installed according to the plans, and

shall be included in the cost of this item. The VIDEO TRANSMISSION SYSTEM shall be paid for separately.

Basis of Payment. This item will be paid for at the contract unit price each for VIDEO DETECTION SYSTEM, which price shall be payment in full for furnishing all associated equipment required, installing the system at one signalized intersection, and placing the system in operation to the satisfaction of the Engineer.

REMOTE-CONTROLLED VIDEO SYSTEM

This pay item shall include providing and installing a remote-controlled video system at a location designated by the Engineer. The remote-controlled video system shall be a PELCO Spectra IV SE Series Discreet Dome System or approved equal. This pay item shall include a color camera (minimum 35x optical zoom), dome assembly, all mounting hardware, connectors, cables, and related equipment necessary to complete the installation in accordance with the manufacturer's specifications.

The PTZ control, power, and coax cables from the traffic signal cabinet shall be paid for separately.

The camera shall be installed as shown on the plans, either on the luminaire arm near the luminaire, or on the combination mast arm assembly pole, angled toward the center of the intersection. When installed on the pole, the camera shall be mounted with a 14-inch pendant arm with integral transformer / power supply (Pelco IWM24-GY or approved equal). When installed on the luminaire arm, the camera shall be installed with a 30-degree tilt-adjustable bracket, and the external power supply (Pelco WCS1-4 or approved equal) shall be installed on the pole. Cameras and external power supplies shall be installed with stainless steel straps.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The contractor shall contact the Traffic Engineer prior to installing the Pelco camera and associated wiring, to receive final approval on the camera location.

In order for the Traffic Engineer to control the camera remotely and view the video signal over a high-speed connection, the REMOTE-CONTROLLED VIDEO SYSTEM must be connected to either the LCDOT Gigabit Ethernet network or a VIDEO TRANSMISSION SYSTEM.

If the REMOTE-CONTROLLED VIDEO SYSTEM is being connected to the Gigabit Ethernet network, then a LAYER II (DATA LINK) SWITCH and/or a LAYER III (NETWORK) SWITCH will be required. Layer II and Layer III switches shall be installed according to the plans, and shall be paid for separately.

If the REMOTE-CONTROLLED VIDEO SYSTEM is being connected to a new or existing VIDEO TRANSMISSION SYSTEM, then fiber-optic video/data transmitters and receivers may be required. Fiber-optic video/data transmitters and receivers are necessary whenever the REMOTE-CONTROLLED VIDEO SYSTEM and the VIDEO TRANSMISSION SYSTEM are installed at separate signalized intersections. When required, fiber-optic video/data transmitters and receivers shall be installed according to the plans, and shall be included in the cost of this item. The VIDEO TRANSMISSION SYSTEM shall be paid for separately.

Basis of Payment. This item will be paid for at the contract unit price each for REMOTE-CONTROLLED VIDEO SYSTEM, which price shall be payment in full for furnishing all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Engineer.

CAMERA MOUNTING ASSEMBLY

This work shall consist of modifying an existing traffic signal mast arm pole to accommodate an extension pole suitable for mounting a CCTV Camera. The pole extension shall be a 20-foot long, 4-inch diameter, Schedule 80 galvanized steel pipe and fastened to the existing mast arm pole with adjustable, galvanized steel clamps as indicated in the plans. The galvanized clamps shall fit securely around the tapered mast arm and shall be modified as required to maintain a true vertical alignment of the camera mounting assembly pole. The exposed wires shall be trained into a drip loop and protected with black plastic spiral cable wrap.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This work shall be paid for at the contract unit price each for CAMERA MOUNTING ASSEMBLY, which shall include all necessary mounting hardware, labor, and incidentals necessary to securely fasten the assembly to an existing pole and placing the camera in operation to the satisfaction of the Engineer. The camera, cables, connectors, and related equipment shall be paid for separately as part of REMOTE-CONTROLLED VIDEO SYSTEM.

VIDEO TRANSMISSION SYSTEM

This specification sets forth the minimum requirements for a video transmission system that allows a user to transmit video output from multiple cameras to a remote location, via video transmitter(s) and a high-speed communication link.

The high-speed communication link will be either an ISDN phone line or DSL connection as indicated on the plans.

The VIDEO TRANSMISSION SYSTEM may be installed in either the intersection traffic signal cabinet or in the VIDEO COMMUNICATIONS CABINET. The Cabinet shall be paid for separately.

The VIDEO TRANSMISSION SYSTEM may include the relocation of existing video transmitter(s), ISDN modems, Cisco router, and/or high-speed Internet modem(s) to a new traffic signal cabinet. The relocation of such existing equipment to a new traffic signal cabinet shall be performed as directed by the Engineer and included in the cost of the VIDEO TRANSMISSION SYSTEM. Any item damaged during removal, storage, or reinstallation shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

System Components:

The system shall consist of video transmitter(s) (ADPRO Fast Tx or approved equal) or a high-speed Internet modem(s), a Cisco Router, and related connection cables.

High-Speed Internet Modem:

The high-speed Internet modem shall be provided by the County or the Internet Service Provider.

The Cisco Router shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for VIDEO TRANSMISSION SYSTEM, which price shall be payment in full for furnishing and/or relocating all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Engineer

COMMUNICATIONS CABINET

This specification sets forth the minimum requirements for a communications cabinet to be installed at the location(s) shown in the plans.

The Communications Cabinet shall be a Model 332 (Type 170) Controller Cabinet, with heat exchanger, or approved equal. The heat exchanger shall be thermostatically controlled to maintain the temperature between 32°F and 122°F within the enclosure. The cabinet shall be constructed of 0.125"-thickness, alloy-5052 sheet aluminum. The surface shall have a smooth, natural aluminum mill finish. The cabinet shall measure 24" wide x 30" deep x 55" high.

The communications cabinet shall have front and rear doors of NEMA type 3R construction with cellular neoprene gasket that is rain tight. Door hinges shall be continuous 14-gauge stainless steel and shall be secured with ¼-20 stainless steel carriage bolts. Standard equipment shall include a three-point locking system that secures the door at the top, bottom and center. A corbin lock with two keys shall also be furnished. The front and rear doors shall be equipped with a two-position doorstop, one at 90° and one at 120°. Door locking rods are ¼" x ¾" aluminum turned edgeways with 1" nylon rollers. Door handles shall be cast aluminum.

The communications cabinet shall be base mounted and equipped with inside flanges and anchoring holes in the front and back of the cabinet for anchoring to a base.

The communications cabinet shall be equipped with a 19" Electronic Industries Association (EIA) rack using 1.75" hole spacing for the purpose of mounting rack-mountable cabinet equipment. The cabinet shall include a fiber optic connector housing, Corning Cable Systems CCH-04U, or approved equal, and a splice housing, Corning Cable Systems CSH-03U, or approved equal, mounted on the 19" rack.

The communications cabinet shall also be equipped with a 15A rackmount power distribution unit and a pull-out drawer/ shelf assembly.

The heat exchanger handles the air inside the communication cabinet, as necessary, to maintain the equipment within the desired temperature range. Therefore, the cabinet shall be fully enclosed, with no louvers in any doors or side panels. No fans or thermostats shall be installed in the communication cabinet.

A power panel shall be included with the cabinet and shall include the following:

- 50-amp circuit breaker. This circuit breaker shall supply power to all devices in the cabinet.
- The main breaker shall be thermal magnetic type, U.L. listed for HACR service, with a minimum of 20,000 amp interrupting capacity.
- Two 15-amp load breakers with minimum 10,000 amp interrupting capacity.
- Two 20-amp load breakers with minimum 10,000 amp interrupting capacity.
- Atlantic Scientific ZoneIT Model 91391 base station, Model 91375 ZoneIT pluggable module (50kA rating) surge arrestor, with LED status indicators, or approved equivalent.
- A 15-position neutral bus bar capable of connecting three #12 wires per position.
- A 7-position ground bus bar capable of connecting three #12 wires per position.
- A NEMA type 5-15R GFI convenience outlet.

The heat exchanger shall be mounted on the side of the communications cabinet and conform to the following specifications.

- Maximum dimensions of 47 inches high x 15 inches wide x 11 inches deep
- The unit shall provide closed-loop system cooling and heating. (Heater option shall be included with the unit.)
- Unit shall be fully gasketed and maintain the NEMA 3R enclosure rating
- Shall utilize a high efficiency, convoluted, refrigerant-free, aluminum heat transfer element
- Shall operate under maximum enclosure temperature of 150°F and maximum ambient temperature of 131°F
- The unit shall dissipate a minimum of 54 Watts per °F
- Shall operate on 115 VAC, 60 Hz
- The heat exchanger shall be hard-wired to the communications cabinet power supply.
- Unit shall be UL listed

Basis of payment. This item will be paid for at the contract unit price each for COMMUNICATIONS CABINET, which price shall be payment in full for furnishing all associated equipment and labor, and installing the cabinet as shown on the plans and to the satisfaction of the Engineer. The Layer III switch, fiber optic splices and terminations, the video transmission system, if applicable, and the concrete foundation for the cabinet shall be paid for separately.

LAYER II (DATA LINK) SWITCH

This specification sets forth the minimum requirements for a layer II Ethernet switch that will transmit data from one traffic signal cabinet to another traffic signal cabinet containing a layer II switch or a layer III (Network) switch. The layer II switch shall be a Cisco Catalyst 2955 Series Intelligent Ethernet Switch, or approved equal.

The Layer II (Data Link) Switch shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

The layer II switch and its power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Basis of Payment. This item will be paid for at the contract unit price each for LAYER II (DATA LINK) SWITCH, which price shall be payment in full for furnishing and installing the switch, and all necessary connectors, cables, fiber optic jumpers, hardware, software, other peripheral

equipment, and placing it in operation to the satisfaction of the Engineer. The VIDEO ENCODER, MEDIA CONVERTERS, and TERMINAL SERVERS shall be paid for separately.

LAYER III (NETWORK) SWITCH

This specification sets forth the minimum requirements for a layer III switch that will transmit video data from one traffic signal cabinet to another traffic signal cabinet or to another location having a layer III switch. The layer III switch shall be a Cisco Catalyst 3560 Series Intelligent Ethernet Switch, or approved equal.

The Layer III (Network) Switch shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

The layer III switch shall be mounted to the 19-inch equipment rack inside the cabinet. The layer III switch shall be plugged into the 15A power distribution unit inside the cabinet.

Basis of Payment. This item will be paid for at the contract unit price each for LAYER III (NETWORK) SWITCH, which price shall be payment in full for furnishing and installing the switch, and all necessary connectors, cables, fiber optic jumpers, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The VIDEO ENCODER, LAYER III FIBER OPTIC TRANSCEIVER MODULES, MEDIA CONVERTERS, and TERMINAL SERVERS shall be paid for separately.

FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit ethernet switch. The module shall be a small form pluggable (SFP), long distance, single mode transceiver, Cisco GLC-LH-SM, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, EXTRA LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit ethernet switch. The module shall be a small form pluggable (SFP), extra-long distance, single mode transceiver, Cisco GLC-ZX-SM, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, EXTRA LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit ethernet switch. The module shall be a Gigabit Interface Converter (GBIC) type, long distance, single mode transceiver, Cisco WS-G5486, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans. This type of transceiver module is intended for use with earlier models of Cisco layer III switches.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, EXTRA LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit Ethernet switch. The module shall be a Gigabit Interface Converter (GBIC) type, extra long distance, single mode transceiver, Cisco WS-G5487, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans. This type of transceiver module is intended for use with earlier models of Cisco layer III switches.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, EXTRA LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

VIDEO ENCODER

This specification sets forth the minimum requirements for a video encoder that will transmit video data from one traffic signal cabinet to another traffic signal cabinet or to another location having a layer three switch.

The video encoder shall be an Optelecom Model C-50e MPEG-4 video encoder/decoder, or an Optelecom Model C-54e E-MC 4-channel MPEG-4 encoder, as shown on the plans, or approved equivalent. Other video encoder/decoders submitted for approval must be compatible with the Lake County Passage Advanced Traffic Management System (ATMS) software and VideoLAN VLC Media Player Release 0.8.6D or later.

The VIDEO ENCODER shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

The video encoder shall be mounted on a 16 gauge (min.) aluminum plate, and the plate shall be mounted to the cabinet side rails.

The power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Basis of payment. This item will be paid for at the contract unit price each for VIDEO ENCODER, which price shall be payment in full for furnishing and installing the encoder, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

MEDIA CONVERTER

This specification sets forth the minimum requirements for an unmanaged Ethernet switch that performs copper-to-fiber media conversion at 10/100Mbps speeds.

The media converter shall be a Ruggedcom RMC40 Series, (Model RMC40-HI-C200) four-port, unmanaged Ethernet switch, or approved equivalent. The power supply shall be the HI voltage type (85-264VAC) and ports 3 and 4 shall be for single-mode fiber with SC connectors.

The media converter shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the traffic signal cabinet power, not plugged into one of the traffic signal cabinet power outlets. When the media converter is mounted within a communications cabinet, the power supply shall be connected to the power distribution center.

Basis of payment. This item will be paid for at the contract unit price each for MEDIA CONVERTER, which price shall be payment in full for furnishing and installing the media converter, and all necessary connectors, cables, fiber optic jumpers, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

TERMINAL SERVER

This specification sets forth the minimum requirements for a terminal server that will transmit signal controller data from one or more traffic signal controllers onto the Lake County PASSAGE Gigabit Ethernet network.

The terminal server shall be a Digi PortServer TS Hcc 4 four-port serial-to-Ethernet device, or approved equivalent, installed at the location shown on the plans. The terminal server shall be properly configured for its location within the Lake County PASSAGE Network, and for proper communication with the signal equipment being connected to it.

Basis of payment. This item will be paid for at the contract unit price each for TERMINAL SERVER, which price shall be payment in full for furnishing, installing, and configuring the terminal server, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC CABLE

Revise Section 871 of the "Standard Specifications" to read:

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

The distribution enclosure shall be a Corning Model WIC-04P Wall-Mountable Interconnect Center, or approved equivalent, capable of accommodating the required number of fibers. The distribution enclosure shall be included in the cost of the fiber optic cable, including connections to any existing cables.

All fibers being terminated shall be connected to the distribution enclosure and labeled at the connector and also at the enclosure bulkhead. The label shall include the direction and also the fiber number (e.g. S1, S2, N11, N12).

All splices and terminations on the installed fiber optic cable shall be included in the cost of the fiber optic cable. The splicing of the installed fiber optic cable to any existing fiber optic cable shall be included in the cost of this pay item.

All terminations and splices required only on existing fiber optic cable shall be paid for separately in accordance with the pay item TERMINATE FIBER IN CABINET or SPLICE FIBER IN CABINET.

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 802.08(b) of the "Standard Specifications", to the satisfaction of the Engineer.

Multimode: The contractor shall coordinate with the equipment vendor, and shall terminate as many multimode fibers as are necessary to establish proper communications with signal controllers and/or video transmission equipment. In addition, the contractor shall terminate four unused multimode fibers and attach them to the distribution enclosure. All multimode terminations shall be ST compatible connectors with ceramic ferrules.

Singlemode: The contractor shall splice and/or terminate the number of singlemode fibers shown on the project plans, if any. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated pigtails fusion spliced to bare fibers. All fusion splices shall be secured on Corning splice trays, Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. All single-mode connectors shall be SC compatible, with ceramic ferrules.

A minimum of 13 feet of slack cable shall be provided for the controller cabinet. The controller cabinet slack cable shall be stored as directed by the Engineer.

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

Basis of Payment. The work shall be paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 24 FIBER (12 MULTIMODE AND 12 SINGLEMODE), (FIBER OPTIC CABLE IN CONDUIT, 24 SINGLEMODE) or as specified in plans for the cable in place, including distribution enclosure(s), all connectors, pigtails, splice trays, connector bulkheads, and the required number of fiber splices and terminations described in the plans. Additional fiber terminations and/or splices required by the Engineer, (not included in this item), shall be paid for as TERMINATE FIBER IN CABINET and/or SPLICE FIBER IN CABINET.

TERMINATE FIBER IN CABINET

This work shall consist of terminating existing or new fibers in field cabinets or buildings as indicated on the plans or as directed by the Engineer.

All multi-mode connectors shall be ST compatible, with ceramic ferrules. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated (SC compatible) pigtails fusion spliced to bare fibers. All fusion splices shall be secured on Corning splice trays, Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Splice trays and connector bulkheads shall be included in the cost of TERMINATE FIBER IN CABINET, and shall not be paid for separately. Connector bulkheads shall be the proper type for the fiber enclosure at the location, and shall be properly secured to the enclosure.

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 802.08(b) of the "Standard Specifications", to the satisfaction of the Engineer.

Basis of payment. This work shall be paid for at the contract unit price each for each fiber terminated in a field cabinet or inside a building as TERMINATE FIBER IN CABINET, which will be payment in full for terminating each required multimode or singlemode fiber, including all connectors, pigtails, splice trays, bulkheads, testing and documentation. The splicing of pigtails for singlemode fibers is included in the cost of TERMINATE FIBER IN CABINET, and shall not be paid for separately. This pay item shall not be used to pay for fiber terminations and/or splices completed to meet the requirements of FIBER OPTIC CABLE IN CONDUIT.

SPLICE FIBER IN CABINET

This work shall consist of fusion splicing singlemode fibers in a field cabinet or inside a building as indicated on the plans and as directed by the Engineer. Splices shall be secured in fiber optic splice trays within fiber optic distribution enclosures. The splice trays shall be Corning Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Splice trays shall be included in the cost of SPLICE FIBER IN CABINET and shall not be paid for separately.

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 802.08(b) of the "Standard Specifications", to the satisfaction of the Engineer.

All optical fibers shall be spliced to provide continuous runs. Splices shall only be allowed in equipment cabinets except where otherwise shown on the Plans.

All splices shall be made using a fusion splicer that automatically positions the fibers using a system of light injection and detection. The Contractor shall provide all equipment and consumable supplies.

Basis of payment. This work shall be paid for at the contract unit price each for SPLICE FIBER IN CABINET, which will be payment in full for all fusion splicing, fiber optic splice trays, testing and documentation, at a cabinet or building location shown on the plans and as directed by the Engineer. This pay item shall not be used to pay for fiber terminations and/or splices completed to meet the requirements of FIBER OPTIC CABLE IN CONDUIT.

FIBER OPTIC TRACER CABLE

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

In order to trace the fiber optic cable after installation, an XLP black insulated copper cable No.

14 shall be pulled in the same conduit as the fiber optic cable. The tracer cable shall be continuous, and extend a minimum of 3 feet into the controller cabinet. The tracer cable shall be clearly marked and identified. In order to minimize the number of splices required, the tracer cable shall incorporate maximum lengths of cable supplied by the manufacturer. Splicing of the tracer cable will be allowed at the handholes only. The tracer cable splice shall use a Western Union splice soldered with resin core flux. All exposed surfaces of the solder shall be smooth. Splices shall be soldered using a soldering iron. Blowtorches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with underwater grade WCSMW 30/100 heat shrink tube, minimum length four (4) inches and with a minimum one (1) inch coverage over the XLP insulation.

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

WIRELESS TRANSMISSION SYSTEM SHORT RANGE

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM SHORT RANGE includes:

- One (1) Proxim TsunamiMP.11 5054-R Subscriber unit with Integrated 23dBi Antenna (Model 5054-SUR-US) or approved equivalent.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at a sector antenna on a water tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM SHORT RANGE electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM SHORT RANGE, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM LONG RANGE

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM LONG RANGE includes:

- One (1) Proxim TsunamiMP.11 5054-R-LR Subscriber unit for extended range with Integrated 23dBi Antenna (Model 5054-SUR-LR-US) or approved equivalent.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at a sector antenna on a water tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM LONG RANGE electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM LONG RANGE, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the radio, directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE includes:

- One (1) Proxim TsunamiMP.11 (Model 5054-SUA-LR-US) Subscriber unit for extended range with type N connector
- One (1) RadioWaves 28dBi Antenna (Model FP2-5-28) or approved equivalent.
- One (1) low loss RF coaxial cable, 3 foot, N to N
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at a

sector antenna on a water tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the radio to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM POINT TO POINT

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM POINT TO POINT includes:

- One (1) Proxim Tsunami Quick Bridge unit with Integrated 23dBi Antenna (Model QB-8150-LINK-US) or approved equivalent.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at corresponding antenna at other intersection), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM POINT TO POINT electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM POINT TO POINT, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM BACKHAUL

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM BACKHAUL includes:

- One (1) Proxim Tsunami licensed backhaul radio (Model **GX-800**) or approved equivalent.
- One (1) 2 foot dish antenna or other as specified on plans
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole or tower as shown on plans. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at corresponding antenna at other intersection / tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal / grade level cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM BACKHAUL electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM BACKHAUL, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM BASE STATION

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM BASE STATION includes:

- One (1) Proxim Tsunami base station long range unit (Model 5054-BSU-R-LR) or approved equivalent.
- One (1) 60 degree sector antenna or other as shown on the plans.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware and poles.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed on a new mounting pole or other as shown on the plans. The

antenna shall be directed / aimed according to the azimuth settings listed in the plans and as directed by the Engineer. The power injector shall be installed inside the cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM BASE STATION electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM BASE STATION, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the cabinet shall be paid for separately.

RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION)

This work shall consist of the removal, storage, and relocation of an existing video detection system (complete intersection) from one traffic signal installation (temporary or permanent) to another traffic signal installation (temporary or permanent). This item shall also include the relocation of the remote-controlled video system according to the plans.

The video detection system (complete intersection) shall be removed and relocated as shown in the plans. Any damage sustained to the video detection system during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION), which price shall be payment in full for disconnecting the existing video detection system, remote-controlled video system, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer.

RELOCATE EXISTING REMOTE-CONTROLLED VIDEO SYSTEM

This work shall consist of the removal, storage, and relocation of an existing remote-controlled video system from one traffic signal installation (temporary or permanent) to another traffic signal installation (temporary or permanent). This pay item shall be used when only the remote-controlled video system is being relocated. This pay item shall not be used when the remote-controlled video system is being relocated as part of RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION).

The remote-controlled video system shall be removed and relocated as shown in the plans. Any damage sustained to the remote-controlled video system during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING REMOTE-CONTROLLED VIDEO SYSTEM, which price shall be payment in full for disconnecting the existing remote-controlled video system, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer.

RELOCATE EXISTING SWITCH

This work shall consist of the removal, storage, and relocation of an existing layer two or layer three switch from one traffic signal installation to another traffic signal installation.

The switch shall be removed and relocated as shown in the plans. Any damage sustained to the switch during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

Basis of payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING SWITCH, which price shall be payment in full for disconnecting the existing switch, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer. This item shall also include the relocation and reinstallation of the switch power supply, and all fiber optic jumper cables necessary for proper operation.

TEMPORARY TRAFFIC SIGNAL TIMINGS

Description. This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused by detours or other temporary conditions.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Closed Loop Traffic signal Systems for District 1 of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 377-7000 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMINGS.

- (a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings. Make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
- (b) Consultant shall provide monthly observation of traffic signal operations in the field.
- (c) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.
- (d) Consultant shall make timing adjustments and prepare comment responses as directed by the Traffic Signal Engineer.

Basis of Payment. The work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMINGS, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on and/or detour implemented, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation and/or detour.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

Description. This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 377-7000 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the County, if available and as appropriate. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
 - a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.

- b. Proposed signal timing plan for the new or modified intersection(s) shall be forwarded to the County for review prior to implementation.
 - c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.
 - d. All patterns associated with Transit Signal Priority and Incident Response Plans are to be reviewed and adjusted as required.
2. The following deliverables shall be provided for LEVEL I Re-Optimization.
 - a. Consultant shall furnish to the County a cover letter describing the extent of the re-optimization work performed.
- (b) LEVEL II Re-Optimization
1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
 - a. Traffic counts shall be taken at the subject intersection after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
 - b. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.
 - c. All patterns associated with Transit Signal Priority and Incident Response Plans are to be reviewed and adjusted as required.
 2. The following deliverables shall be provided for LEVEL II Re-Optimization.
 - a. Consultant shall furnish to the County one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
 1. Brief description of the project
 2. Printed copies of the analysis output from Synchro (or other appropriate approved optimization software file)
 3. Printed copies of the traffic counts conducted at the subject intersection
 - b. Consultant shall furnish to the County two (2) CDs for the optimized system. The CDs shall include the following elements:
 1. Electronic copy of the technical memorandum in PDF format
 2. Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system or as identified by the Engineer
 3. Traffic counts conducted at the subject intersection
 4. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

Basis of Payment. This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL

II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

OPTIMIZE TRAFFIC SIGNAL SYSTEM

Description. This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 377-7000 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the County, if available and as appropriate. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system or as identified by Engineer.
2. All patterns associated with Transit Signal Priority and Incident Response Plans are to be developed as required.
3. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.
4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.
5. Proposed signal timing plan for the new or modified intersection shall be forwarded to the County for review prior to implementation.
6. Consultant shall conduct on-site implementation of the timings and make fine-tuning

adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations:

7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.

(b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Consultant shall furnish to the County one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

Cover Page in color showing a System Map
Figures <ol style="list-style-type: none"> 1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion. 2. General location map in color – showing signal system location in the metropolitan area. 3. Detail system location map in color – showing cross street names and local controller addresses. 4. Controller sequence – showing controller phase sequence diagrams.
Table of Contents
Tab 1: Final Report <ol style="list-style-type: none"> 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation <ol style="list-style-type: none"> a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) 7. Evaluation <ol style="list-style-type: none"> a. Speed and Delay runs
Tab 2. Turning Movement Counts <ol style="list-style-type: none"> 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)
Tab 3. Synchro Analysis <ol style="list-style-type: none"> 1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM
Tab 4: Speed, Delay Studies <ol style="list-style-type: none"> 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period.
Tab 5: Environmental Report <ol style="list-style-type: none"> 1. Environmental impact report including gas consumption, NO2, HCCO, improvements.
Tab 6: Electronic Files <ol style="list-style-type: none"> 1. Two (2) CDs for the optimized system. The CDs shall include the following elements: <ol style="list-style-type: none"> a. Electronic copy of the SCAT Report in PDF format b. Copies of the Synchro files for the optimized system c. Traffic counts for the optimized system d. New or updated intersection graphic display files for each of the system intersections and the system graphic display file including system detector locations and addresses.

Basis of Payment. The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

FULL-ACTUATED CONTROLLER AND CABINET (SPECIAL)

Effective: January 1, 2002

Revised: January 1, 2007

This work shall consist of furnishing and installing a(n) "Econolite" brand traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of the current District One Traffic Signal Special Provisions including conflict monitor, load switches and flasher relays, with all necessary connections for proper operation.

Basis of Payment. This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET (SPECIAL) or FULL-ACTUATED CONTROLLER AND TYPE V CABINET (SPECIAL).

REMOVE FIBER OPTIC CABLE FROM CONDUIT

This work shall consist of removing the existing fiber optic interconnect cable from the intersection of Cedar Lake Road/Hart Road to the intersection of Cedar Lake Road/S. Rosedale Court. The existing fiber optic cable shall be disconnected from the traffic signal controllers and removed from the existing conduits that will be reused in the permanent interconnect installation.

Basis of Payment. This work will be paid for at the contract unit price per foot for REMOVE FIBER OPTIC CABLE FROM CONDUIT which price shall be payment in full for disconnecting the existing fiber optic cable from the controllers and removing the existing fiber optic cable from the existing conduits to be reused.

ELECTRIC CABLE IN CONDUIT, NO. 20 3/C, TWISTED, SHIELDED

This work shall consist of furnishing and installing lead-in cable for light detectors installed at existing and/or proposed traffic signal installations as part of an emergency vehicle priority system. The work includes installation of the lead-in cables in existing and/or new conduit. The electric cable shall be shielded and have three (3) stranded conductors colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the manufacturer of the Emergency Vehicle Priority System Equipment.

Basis of Payment. This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, NO. 20 3/C, TWISTED, SHIELDED, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operation.

ROADSIDE DETECTOR

This work shall consist of furnishing and installing a complete, permanent Bluetooth Roadside Detector system, connected by Ethernet to the Layer II Switch, operating in Power over Ethernet (PoE) configuration. The Bluetooth Roadside Detector must be compatible with the Lake County PASSAGE central traffic signal management system. The Bluetooth Roadside Detector shall be BlueTOAD Roadside Bluetooth Sensor Equipment or approved equal. The equipment shall be mounted at the location shown in the plans and shall be in accordance with the manufacturer's recommendations or as directed by the engineer. The minimum allowable mounting height shall be 10 feet above the finished grade.

The Bluetooth Roadside Detector shall be installed in a NEMA 4 type enclosure with weatherproof openings for installation of the Bluetooth Antenna and the Outdoor-Rated Network Cable.

The Bluetooth Roadside Detector shall collect data, store, and transmit data for the purpose of calculating travel times dynamically. The Bluetooth Roadside Detector must include algorithms to process the data and generate travel times in a consistent format and capable of integration with the existing TrafficCast system currently used by Lake County to provide travel times through the PASSAGE network.

Basis of Payment. This work shall be paid for at the contract unit price each for ROADSIDE DETECTOR which shall include all necessary hardware, firmware, software, and accessories, necessary to achieve proper operation. The required mounting hardware, labor, and incidentals necessary to securely fasten the assembly to an existing pole shall be included in the cost of ROADSIDE DETECTOR. The Ethernet cable required to provide PoE and data connectivity shall be paid for separately as OUTDOOR RATED NETWORK CABLE.



A. Submittal _____ Requesting _____ DOH DOA Local Other: _____
 Previous survey request(s) submitted for Yes No Addendum # _____
 Date(s) of prior submittal(s): _____

B. Route: _____ Marked: _____ County(ies): _____ District: _____
 Section: _____ Project No.: _____
 Job No.: P- _____ C- _____ Contract No.: _____

C. Borrow Location:
 Legal Description – indicate section, sub-section, township, range:

 Limits staked in field: Yes No
 GPS/UTM Coordinates:
 NAD Zone _____ Easting _____ Northing _____
 Specify if Staked Corners Approximate Center

D. _____ yds³ (0.00 m³) borrow from this area. Borrow Area Size: _____ acres (0.00 ha)
 Current Land Use (Check each which applies.): Timber Row Crops Pasture Other (Describe): _____

E. Name of Contractor: _____ Phone: _____
 Contact Person: _____
 Address: _____
 Name of District/Local Resident Engineer: _____ Phone: _____
 E-mail: _____

F. Has the site been cleared by IDOT for cultural resources within the past 5 years?
 Yes No Unknown

G. This request is number _____ of _____ requests for this project.

(LEAVE THIS SPACE BLANK)

- ATTACHMENTS REQUIRED:**
1. Ground Level Color Photos
 2. U.S.G.S. 7.5' Topo. Quad. Map
 3. Aerial Photo
 4. Landowner Agreement (See page 2)
 5. Sketched Map with Landmarks

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To whom it may concern:

I (we), said property owner(s), _____ (Name and Address of Property Owner)

do hereby grant to the Illinois State Archeological Survey (ISAS), or their agents acting on behalf of Illinois Department of Transportation, permission to survey and/or test excavate said property, located:

(Indicate location of property by county, section, sub-section, township, range)

(Signature of Property Owner)

(Name of Property Owner)

(Address of Property Owner)

I (we), _____ owner(s) of said property, do hereby grant
(Name)

permission for ISAS, or their agents, acting on behalf of the Illinois Department of Transportation, to remove artifacts and scientific samples from said property and agree that all artifacts and samples shall remain in public ownership, in the custody of ISAS at the University of Illinois, Urbana-Champaign.

(Signature of Property Owner)

(Name of Property Owner)

(Address of Property Owner)

(Phone number of Owner)

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Route FAU (0187)
Section 05-00121-07-WR
County Lake

Marked Rte. Washington Street
Project No. M-TE-00D1 (888)
Contract No. 63765

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issued by the Illinois Environmental Protection Agency (IEPA) 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.

PAULA J. TRIGG
Print Name
DIRECTOR OF TRANSPORTATION/ COUNTY ENG.
Title
LAKE COUNTY DIVISION OF TRANSPORTATION
Agency

Paula J. Trigg
Signature
10/17/12
Date

I. Site Description:

- A. Provide a description of the project location (include latitude and longitude):
The improvement is located at Washington Street from Cedar Lake Road to just west of Hainesville Road, in Section 20, 21 and 28 of Avon Township, Lake County, Illinois. The total gross length of improvement is 6,250.87 feet and net length is 5,881.07 feet. Approximate latitude of the project location is 42D 21' 34", and the longitude is -88D 5' 25".

B. Provide a description of the construction activity which is the subject of this plan:
The proposed improvement consists of widening and reconstructing of Washington Street and adding a right-turn lane and resurfacing of Cedar Lake Road.
The work consists of earth excavation, storm sewers, drainage structures, HMA pavements, pavement milling, sidewalk construction, HMA bikepath construction, pavement marking, temporary traffic control, landscaping, and erosion control.

C. Provide the estimated duration of this project:
Estimated construction duration is one construction year.

D. The total area of the construction site is estimated to be 15.3 acres.
The total area of the site estimated to be disturbed by excavation, grading or other activities is 15.3 acres.

E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:
0.74

F. List all soils found within project boundaries. Include map unit name, slope information, and erosivity:

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List the attached NRCS Soils Map. The Erosivity Index of 131 has been determined for a construction period of March-November.

G. Provide an aerial extent of wetland acreage at the site:

There are wetlands located in the vicinity of the project. Wetland 2 is 0.002 acre in size and is located northeast of the Washington Street and Park Road. Wetland 4 is 0.146 acre in size and is located south of Washington Street, approximately 400 feet west of the intersection with the Hainesville Road. The total area of impacted wetland is 0.09 acre.

H. Provide a description of potentially erosive areas associated with this project:

Area where proposed walls are to be constructed can be susceptible to erosion during the construction.

I. The following is a description of soil disturbing activities by stages, their locations, and their erosive factors (e.g. steepness of slopes, length of slopes, etc):

The soil disturbing activities include pavement widening, sidewalk of bike path construction, wall construction, and utility work. Slopes of 4:1 are shown where attainable and no extensive slopes sharper than 3:1 anticipated during this project.

J. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) and locations where storm water is discharged to surface water including wetlands.

K. Identify who owns the drainage system (municipality or agency) this project will drain into:

The drainage system throughout the project belongs to the Village of Round Lake and the Village of Round Lake Park.

L. The following is a list of receiving water(s) and the ultimate receiving water(s) for this site. The location of the receiving waters can be found on the erosion and sediment control plans:

All the water from the site is tributary to the Round Lake which is a part of the Fox River Watershed.

M. Describe areas of the site that are to be protected or remain undisturbed. These areas may include steep slopes, highly erodible soils, streams, stream buffers, specimen trees, natural vegetation, nature preserves, etc.

There shall not be any impacts to the banks and the water flow of the Dave's Channel except as shown on the plans.

N. The following sensitive environmental resources are associated with this project, and may have the potential to be impacted by the proposed development:

- Floodplain
- Wetland Riparian
- Threatened and Endangered Species
- Historic Preservation
- 303(d) Listed receiving waters for suspended solids, turbidity, or siltation
- Receiving waters with Total Maximum Daily Load (TMDL) for sediment, total suspended solids, turbidity or siltation
- Applicable Federal, Tribal, State or Local Programs
- Other

1. 303(d) Listed receiving waters (fill out this section if checked above):

a. The name(s) of the listed water body, and identification of all pollutants causing impairment:

b. Provide a description of how erosion and sediment control practices will prevent a discharge of sediment resulting from a storm event equal to or greater than a twenty-five (25) year, twenty-four (24) hour rainfall event:

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c. Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:

d. Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

2. TMDL (fill out this section if checked above)

a. The name(s) of the listed water body:

b. Provide a description of the erosion and sediment control strategy that will be incorporated into the site design that is consistent with the assumptions and requirements of the TMDL:

c. If a specific numeric waste load allocation has been established that would apply to the project's discharges, provide a description of the necessary steps to meet that allocation:

O. The following pollutants of concern will be associated with this construction project:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Soil Sediment | <input checked="" type="checkbox"/> Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids) |
| <input checked="" type="checkbox"/> Concrete | <input checked="" type="checkbox"/> Antifreeze / Coolants |
| <input checked="" type="checkbox"/> Concrete Truck Waste | <input checked="" type="checkbox"/> Waste water from cleaning construction equipment |
| <input checked="" type="checkbox"/> Concrete Curing Compounds | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Solid Waste Debris | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Paints | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Solvents | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Fertilizers / Pesticides | <input type="checkbox"/> Other (specify) |

II. Controls:

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in I.C. above and for all use areas, borrow sites, and waste sites. For each measure discussed, the Contractor will be responsible for its implementation as indicated. The Contractor shall provide to the Resident Engineer a plan for the implementation of the measures indicated. The Contractor, and subcontractors, will notify the Resident Engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the Permit ILR10. Each such Contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

A. Erosion and Sediment Controls

1. **Stabilized Practices:** Provided below is a description of interim and permanent stabilization practices, including site specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to: temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided below in II(A)(1)(a) and II(A)(3), stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceases on all disturbed portions of the site where construction will not occur for a period of fourteen (14) or more calendar days.

Where the initiation of stabilization measures by the seventh day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

The following stabilization practices will be used for this project:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Preservation of Mature Vegetation | <input checked="" type="checkbox"/> Erosion Control Blanket / Mulching |
| <input type="checkbox"/> Vegetated Buffer Strips | <input checked="" type="checkbox"/> Sodding |
| <input checked="" type="checkbox"/> Protection of Trees | <input checked="" type="checkbox"/> Geotextiles |

- | | |
|---|--|
| <input checked="" type="checkbox"/> Temporary Erosion Control Seeding | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Temporary Turf (Seeding, Class 7) | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Temporary Mulching | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Permanent Seeding | <input type="checkbox"/> Other (specify) |

Describe how the stabilization practices listed above will be utilized during construction:

Preservation of Mature Vegetation and Protection of Trees will be utilized where applicable, Tree Root Pruning and Tree Pruning in accordance with Section 201 of the IDOT "Section Specifications" for Road and Bridge Construction" shall be used to preserve existing trees.

Temporary Erosion Control Seeding with Erosion Control Blanket shall be used to protect bare earth while construction is continuing elsewhere.

Sodding shall be applied to all areas shown in the Erosion Control and Landscaping Plans.

Geotextiles will be placed in all areas with unsuitable soils under the Porous Granular Embankment.

Describe how the stabilization practices listed above will be utilized after construction activities have been completed:

2. **Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

The following structural practices will be used for this project:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Perimeter Erosion Barrier | <input type="checkbox"/> Rock Outlet Protection |
| <input checked="" type="checkbox"/> Temporary Ditch Check | <input checked="" type="checkbox"/> Riprap |
| <input checked="" type="checkbox"/> Storm Drain Inlet Protection | <input type="checkbox"/> Gabions |
| <input checked="" type="checkbox"/> Sediment Trap | <input type="checkbox"/> Slope Mattress |
| <input type="checkbox"/> Temporary Pipe Slope Drain | <input checked="" type="checkbox"/> Retaining Walls |
| <input type="checkbox"/> Temporary Sediment Basin | <input type="checkbox"/> Slope Walls |
| <input type="checkbox"/> Temporary Stream Crossing | <input type="checkbox"/> Concrete Revetment Mats |
| <input type="checkbox"/> Stabilized Construction Exits | <input type="checkbox"/> Level Spreaders |
| <input type="checkbox"/> Turf Reinforcement Mats | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Permanent Check Dams | <input type="checkbox"/> Other (specify) |
| <input checked="" type="checkbox"/> Permanent Sediment Basin | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Aggregate Ditch | <input type="checkbox"/> Other (specify) |
| <input type="checkbox"/> Paved Ditch | <input type="checkbox"/> Other (specify) |

Describe how the structural practices listed above will be utilized during construction:

Perimeter Erosion Barrier will be provided along the project construction limits to minimize potential erosion sediment runoff where indicated in the plans or as approved by the Engineer.

Temporary Ditch Check will be placed a ditch line or as approved by the Engineer to minimize erosion sediment runoff.

Storm Drain Inlet Protection will be placed at storm sewer structures per the Erosion Control Plans to reduce sediment infiltration and downstream erosion.

Permanent Sediment Basin will be constructed and perennial and native plant species will be planted along it to eliminate the sediment from the job site in both temporary and permanent condition.

Riprap will be used at the location where storm water will flow into or out of the enclosed drainage system. It has also been placed at potentially erosive areas inside the detention pond including outfalls and the overtopping weir.

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Describe how the structural practices listed above will be utilized after construction activities have been completed:

Permanent Sediment Basin will be constructed at Dave's Channel and cattails planted along it to eliminate the sediment from the job site in both temporary and permanent condition.

Retaining walls will be constructed to retain soil where a reasonable tie-in slope could not be achievable within Right-of-Way constraints.

3. **Storm Water Management:** Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

a. Such practices may include but are not limited to: storm water detention structures (including wet ponds), storm water retention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff on site, and sequential systems (which combine several practices).

The practices selected for implementation were determined on the basis of the technical guidance in Chapter 41 (Construction Site Storm Water Pollution Control) of the IDOT Bureau of Design and Environment Manual. If practices other than those discussed in Chapter 41 are selected for implementation or if practices are applied to situations different from those covered in Chapter 41, the technical basis for such decisions will be explained below.

b. Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. maintenance of hydrologic conditions such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of storm water management controls:

4. **Approved State or Local Laws:** The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under the 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:

See Erosion Control and Landscaping Plans.

5. **Contractor Required Submittals:** Prior to conducting any professional services at the site covered by this plan, the Contractor and each subcontractor responsible for compliance with the permit shall submit to the Resident Engineer a Contractor Certification Statement, BDE 2342a.

a. The Contractor shall provide a construction schedule containing an adequate level of detail to show major activities with implementation of pollution prevention BMPs, including the following items:

- Approximate duration of the project, including each stage of the project
- Rainy season, dry season, and winter shutdown dates
- Temporary stabilization measures to be employed by contract phases
- Mobilization timeframe
- Mass clearing and grubbing/roadside clearing dates
- Deployment of Erosion Control Practices
- Deployment of Sediment Control Practices (including stabilized construction entrances/exits)

- Deployment of Construction Site Management Practices (including concrete washout facilities, chemical storage, refueling locations, etc.)
 - Paving, saw-cutting, and any other pavement related operations
 - Major planned stockpiling operations
 - Timeframe for other significant long-term operations or activities that may plan non-storm water discharges such as dewatering, grinding, etc.
 - Permanent stabilization activities for each area of the project
- b. The Contractor and each subcontractor shall provide, as an attachment to their signed Contractor Certification Statement, a discussion of how they will comply with the requirements of the permit in regard to the following items and provide a graphical representation showing location and type of BMPs to be used when applicable:
- Vehicle Entrances and Exits – Identify type and location of stabilized construction entrances and exits to be used and how they will be maintained.
 - Material Delivery, Storage and Use – Discuss where and how materials including chemicals, concrete curing compounds, petroleum products, etc. will be stored for this project.
 - Stockpile Management – Discuss what BMPs will be used to prevent pollution of storm water from stockpiles.
 - Waste Disposal – Discuss methods of waste disposal that will be used for this project.
 - Spill Prevention and Control – Discuss steps that will be taken in the event of a material spill (chemicals, concrete curing compounds, petroleum, etc.)
 - Concrete Residuals and Washout Wastes – Discuss the location and type of concrete washout facilities to be used on this project and how they will be signed and maintained.
 - Litter Management – Discuss how litter will be maintained for this project (education of employees, number of dumpsters, frequency of dumpster pick-up, etc.).
 - Vehicle and Equipment Fueling – Identify equipment fueling locations for this project and what BMPs will be used to ensure containment and spill prevention.
 - Vehicle and Equipment Cleaning and Maintenance – Identify where equipment cleaning and maintenance locations for this project and what BMPs will be used to ensure containment and spill prevention.
 - Additional measures indicated in the plan.

III. Maintenance:

When requested by the Contractor, the Resident Engineer will provide general maintenance guides to the Contractor for the practices associated with this project. The following additional procedures will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. It will be the Contractor's responsibility to attain maintenance guidelines for any manufactured BMPs which are to be installed and maintained per manufacture's specifications.

IV Inspections:

Qualified personnel shall inspect disturbed areas of the construction site which have not yet been finally stabilized, structural control measures, and locations where vehicles and equipment enter and exit the site using IDOT Storm Water Pollution Prevention Plan Erosion Control Inspection Report (BC 2259). Such inspections shall be conducted at least once every seven (7) calendar days and within twenty-four (24) hours of the end of a storm that is 0.5 inch or greater or equivalent snowfall.

If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer shall notify the appropriate IEPA Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within twenty-four (24) hours of the incident. The Resident Engineer shall then complete and submit an "Incidence of Non-Compliance" (ION) report for the identified violation within five (5) days of the incident. The Resident Engineer shall use forms provided by IEPA 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 non-compliance shall be signed by a responsible authority in accordance with Part VI. G of the Permit ILR10.

The Incidence of Non-Compliance shall be mailed to the following address:

Illinois Environmental Protection Agency
 Division of Water Pollution Control
 Attn: Compliance Assurance Section
 1021 North Grand East
 Post Office Box 19276
 Springfield, Illinois 62794-9276

V. Failure to Comply:

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of a National Pollutant Discharge Elimination System/Erosion and Sediment Control Deficiency Deduction against the Contractor and/or penalties under the Permit ILR10 which could be passed on to the Contractor.

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















Map Scale: 1:10,900 if printed on A size (8.5" x 11") sheet.



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MAP LEGEND

- Area of Interest (AOI) 
- Area of Interest (AOI) 
- Soils 
- Soil Map Units 
- Special Point Features
 - Blowout 
 - Borrow Pit 
 - Clay Spot 
 - Closed Depression 
 - Gravel Pit 
 - Gravelly Spot 
 - Landfill 
 - Lava Flow 
 - Marsh or swamp 
 - Mine or Quarry 
 - Miscellaneous Water 
 - Perennial Water 
 - Rock Outcrop 
 - Saline Spot 
 - Sandy Spot 
 - Severely Eroded Spot 
 - Sinkhole 
 - Slide or Slip 
 - Sodic Spot 
 - Spoil Area 
 - Stony Spot 

- Very Stony Spot 
- Wet Spot 
- Other 
- Special Line Features
 - Gully 
 - Short Steep Slope 
 - Other 
- Political Features
 - Cities 
- Water Features
 - Streams and Canals 
- Transportation
 - Rails 
 - Interstate Highways 
 - US Routes 
 - Major Roads 
 - Local Roads 

MAP INFORMATION

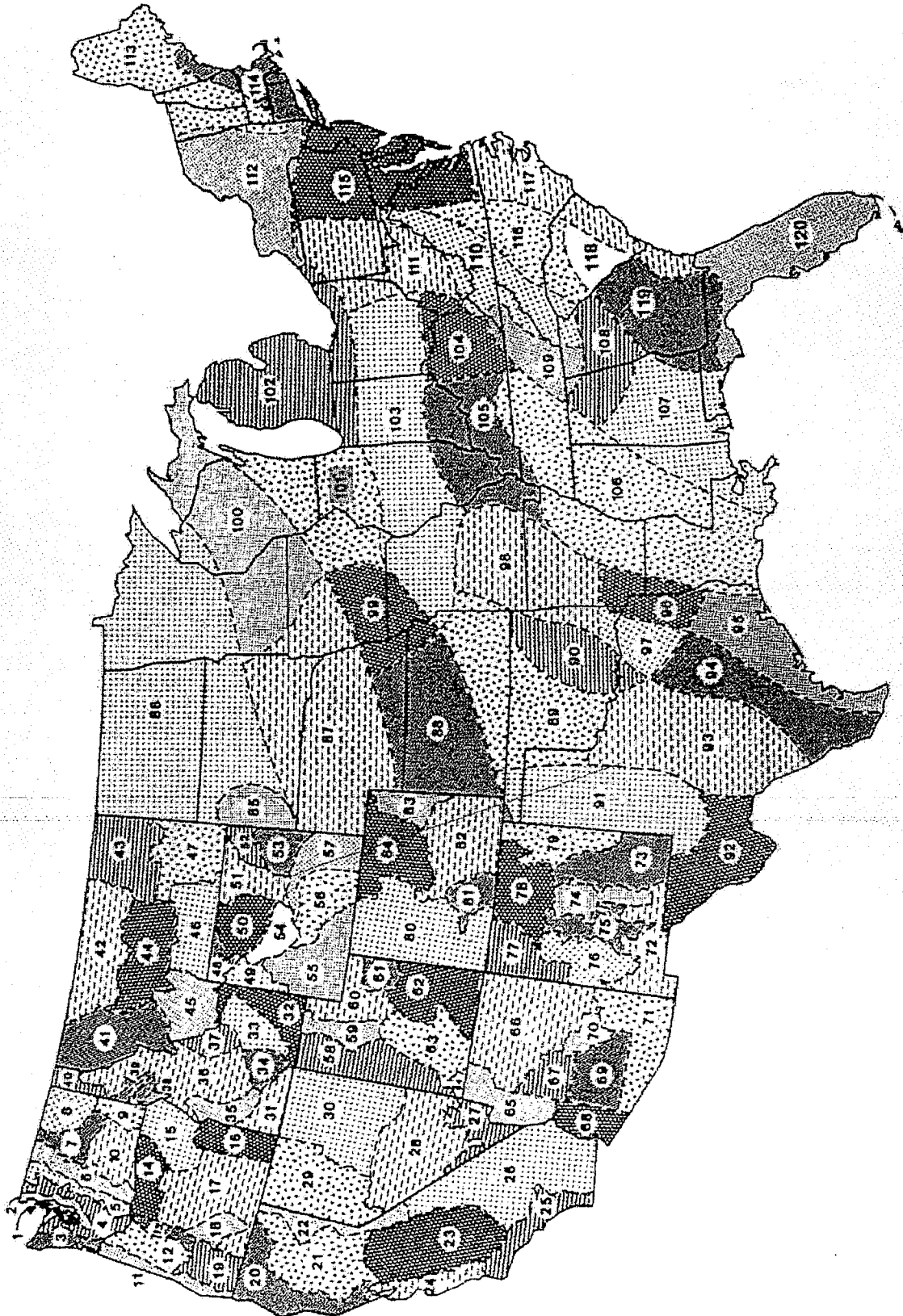
Map Scale: 1:11,000 if printed on A size (8.5" x 11") sheet.
 The soil surveys that comprise your AOI were mapped at 1:12,000.
 Please rely on the bar scale on each map sheet for accurate map measurements.
 Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 16N NAD83
 This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
 Soil Survey Area: Lake County, Illinois
 Survey Area Data: Version 6, Jan 20, 2012
 Date(s) aerial images were photographed: 7/21/2007
 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend

Lake County, Illinois (IL097)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
23A	Blount silt loam, 0 to 2 percent slopes	0.6	1.5%
103A	Houghton muck, 0 to 2 percent slopes	0.5	1.3%
232A	Ashkum silty clay loam, 0 to 2 percent slopes	0.9	2.3%
298A	Beecher silt loam, 0 to 2 percent slopes	4.0	10.1%
530B	Ozaukee silt loam, 2 to 4 percent slopes	14.5	36.4%
530C	Ozaukee silt loam, 4 to 6 percent slopes	3.5	8.7%
530C2	Ozaukee silt loam, 4 to 6 percent slopes, eroded	0.0	0.0%
530D	Ozaukee silt loam, 6 to 12 percent slopes	2.1	5.4%
531B	Markham silt loam, 2 to 4 percent slopes	2.1	5.3%
805B	Orthents, clayey, undulating	4.2	10.6%
978A	Wauconda and Beecher silt loams, 0 to 2 percent slopes	0.3	0.6%
979B	Grays and Markham silt loams, 2 to 4 percent slopes	6.0	15.1%
1330A	Peotone silty clay loam, undrained, 0 to 2 percent slopes	1.0	2.6%
Totals for Area of Interest		39.7	100.0%

Figure 1. Erosivity Index Zone Map

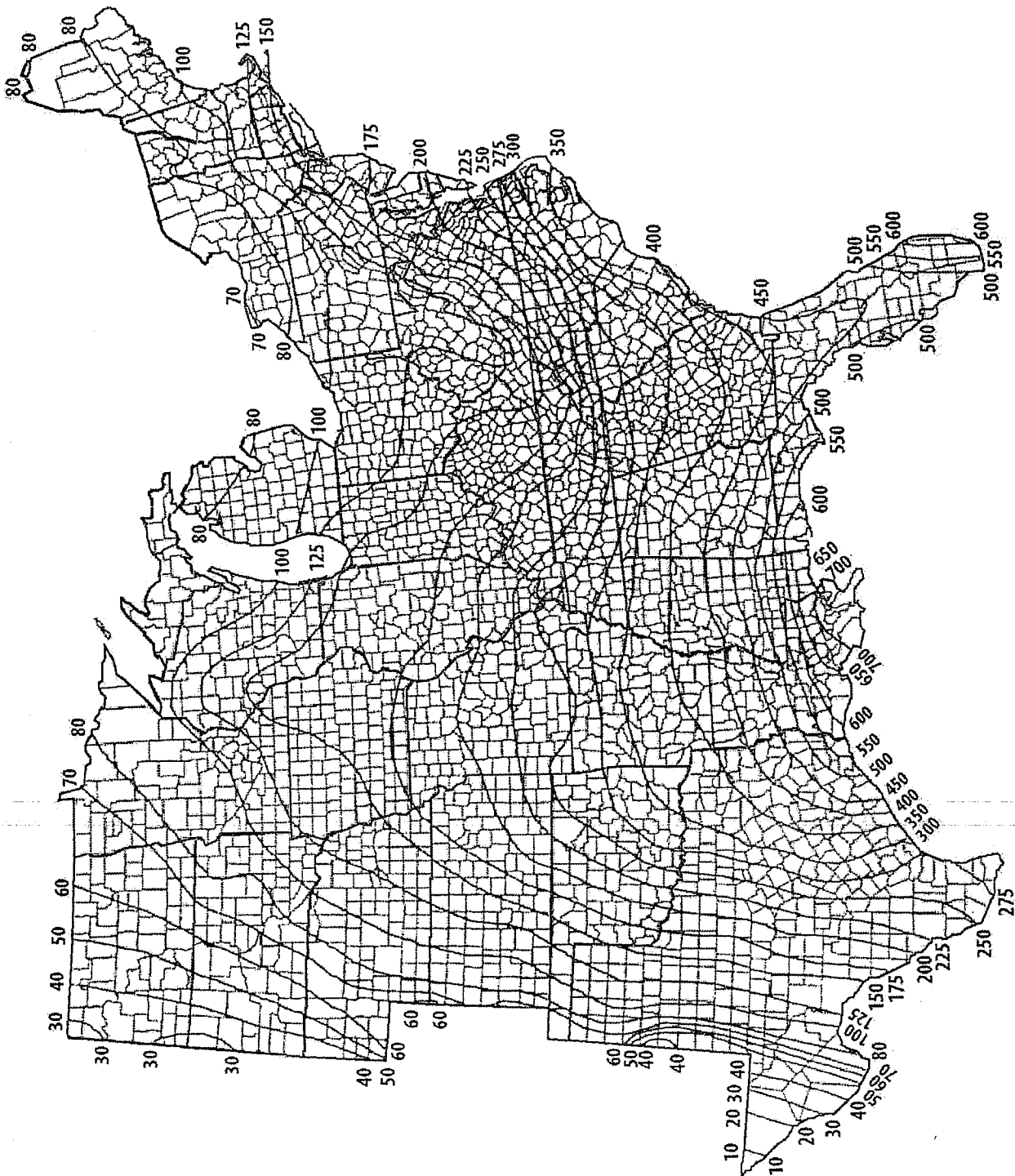


Month	Jan 1	Jan 16	Jan 31	Feb 15	Mar 1	Mar 16	Mar 31	Apr 15	Apr 30	May 15	May 30	Jun 14	Jun 29	Jul 14	Jul 29	Aug 13	Aug 28	Sept 12	Sept 27	Oct 12	Oct 27	Nov 11	Nov 26	Dec 11	Dec 31
76	0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	1.3	2.0	3.5	4.9	8.4	17.4	37.3	57.5	72.9	83.7	89.5	95.8	98.4	99.6	100.0	100.0	100
77	0	0.2	0.3	0.3	0.4	0.8	1.5	2.0	2.8	3.9	5.9	7.2	10.3	21.5	46.5	66.3	78.3	86.5	90.8	96.0	98.2	99.1	99.5	99.8	100
78	0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.6	3.8	8.9	13.2	21.8	35.8	56.6	75.4	86.0	92.9	95.9	98.2	99.2	99.8	100.0	100.0	100
79	0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	2.7	5.8	12.7	18.8	28.8	41.6	58.4	75.7	86.5	94.2	97.3	98.9	99.5	99.9	100.0	100.0	100
80	0	0.6	1.2	1.6	2.1	2.5	3.3	4.5	6.9	10.1	15.5	19.7	26.6	36.4	51.7	67.5	79.4	88.8	93.2	96.1	97.3	98.2	98.7	99.3	100
81	0	0.1	0.1	0.2	0.4	0.5	0.8	0.9	1.5	3.9	9.9	12.8	18.2	30.7	54.1	77.1	89.0	94.9	97.2	98.7	99.3	99.6	99.7	99.9	100
82	0	0.0	0.1	0.1	0.2	0.2	0.5	1.2	3.1	6.7	14.4	20.1	29.8	44.5	64.2	83.1	92.2	96.4	98.1	99.3	99.7	99.8	99.8	99.9	100
83	0	0.0	0.1	0.1	0.1	0.3	0.9	1.6	3.5	8.3	19.4	30.0	44.0	59.2	72.4	84.6	91.2	96.5	98.6	99.5	99.8	99.9	100.0	100.0	100
84	0	0.0	0.1	0.1	0.2	0.3	0.6	1.7	4.9	9.9	19.5	27.2	38.3	52.8	68.8	83.9	91.6	96.4	98.2	99.2	99.6	99.8	99.8	99.9	100
85	0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	3.0	6.0	11.0	23.0	36.0	49.0	63.0	77.0	90.0	95.0	98.0	99.0	100.0	100.0	100.0	100.0	100
86	0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	3.0	6.0	11.0	23.0	36.0	49.0	63.0	77.0	90.0	95.0	98.0	99.0	100.0	100.0	100.0	100.0	100
87	0	0.0	0.0	0.0	0.0	1.0	2.0	3.0	6.0	10.0	17.0	29.0	43.0	55.0	67.0	77.0	85.0	91.0	96.0	98.0	99.0	99.0	100.0	100.0	100
88	0	0.0	0.0	0.0	0.0	1.0	2.0	3.0	6.0	13.0	23.0	37.0	51.0	61.0	69.0	76.0	83.0	85.0	91.0	94.0	96.0	98.0	99.0	100.0	100
89	0	1.0	1.0	2.0	3.0	4.0	7.0	12.0	18.0	27.0	38.0	48.0	55.0	62.0	69.0	76.0	83.0	90.0	94.0	97.0	98.0	99.0	100.0	100.0	100
90	0	1.0	2.0	3.0	4.0	6.0	8.0	13.0	21.0	29.0	37.0	46.0	54.0	60.0	65.0	69.0	74.0	81.0	87.0	92.0	95.0	97.0	98.0	99.0	100
91	0	0.0	0.0	0.0	0.0	1.0	1.0	2.0	6.0	16.0	29.0	39.0	46.0	53.0	60.0	67.0	74.0	81.0	88.0	95.0	99.0	99.0	100.0	100.0	100
92	0	0.0	0.0	0.0	0.0	1.0	1.0	2.0	6.0	16.0	29.0	39.0	46.0	53.0	60.0	67.0	74.0	81.0	88.0	95.0	99.0	99.0	100.0	100.0	100
93	0	1.0	1.0	2.0	3.0	4.0	6.0	8.0	13.0	25.0	40.0	49.0	56.0	62.0	67.0	72.0	76.0	80.0	85.0	91.0	97.0	98.0	99.0	99.0	100
94	0	1.0	2.0	4.0	6.0	8.0	10.0	15.0	21.0	29.0	38.0	47.0	53.0	57.0	61.0	65.0	70.0	76.0	83.0	88.0	91.0	94.0	96.0	98.0	100
95	0	1.0	3.0	5.0	7.0	9.0	11.0	14.0	18.0	27.0	35.0	41.0	46.0	51.0	57.0	62.0	68.0	73.0	79.0	84.0	89.0	93.0	96.0	98.0	100
96	0	2.0	4.0	6.0	9.0	12.0	17.0	23.0	30.0	37.0	43.0	49.0	54.0	58.0	62.0	66.0	70.0	74.0	78.0	82.0	86.0	90.0	94.0	97.0	100
97	0	1.0	3.0	5.0	7.0	10.0	14.0	20.0	28.0	37.0	48.0	56.0	61.0	64.0	68.0	72.0	77.0	81.0	86.0	89.0	92.0	95.0	98.0	99.0	100
98	0	1.0	2.0	4.0	6.0	8.0	10.0	13.0	19.0	26.0	34.0	42.0	50.0	58.0	63.0	68.0	74.0	79.0	84.0	89.0	93.0	95.0	97.0	99.0	100
99	0	0.0	0.0	1.0	1.0	2.0	3.0	5.0	7.0	12.0	19.0	33.0	48.0	57.0	65.0	72.0	82.0	88.0	93.0	96.0	98.0	99.0	100.0	100.0	100
100	0	0.0	0.0	0.0	1.0	1.0	2.0	3.0	5.0	9.0	15.0	27.0	38.0	50.0	62.0	74.0	84.0	91.0	95.0	97.0	98.0	99.0	99.0	100.0	100
101	0	0.0	0.0	1.0	2.0	3.0	4.0	6.0	9.0	14.0	20.0	28.0	39.0	52.0	63.0	72.0	80.0	87.0	91.0	94.0	97.0	98.0	99.0	99.0	100
102	0	0.0	1.0	2.0	3.0	4.0	6.0	8.0	11.0	15.0	22.0	31.0	40.0	49.0	59.0	69.0	78.0	85.0	91.0	94.0	96.0	98.0	99.0	99.0	100
103	0	1.0	2.0	3.0	4.0	6.0	8.0	10.0	14.0	18.0	25.0	34.0	45.0	56.0	64.0	72.0	79.0	84.0	89.0	92.0	95.0	97.0	98.0	99.0	100
104	0	2.0	3.0	5.0	7.0	10.0	13.0	16.0	19.0	23.0	27.0	34.0	44.0	54.0	63.0	72.0	80.0	85.0	89.0	91.0	93.0	95.0	96.0	98.0	100
105	0	1.0	3.0	6.0	9.0	12.0	16.0	21.0	26.0	31.0	37.0	43.0	50.0	57.0	64.0	71.0	77.0	81.0	85.0	88.0	91.0	93.0	95.0	97.0	100
106	0	3.0	6.0	9.0	13.0	17.0	21.0	27.0	33.0	38.0	44.0	49.0	55.0	61.0	67.0	71.0	75.0	78.0	81.0	84.0	86.0	90.0	94.0	97.0	100
107	0	3.0	5.0	7.0	10.0	14.0	18.0	23.0	27.0	31.0	35.0	39.0	45.0	53.0	60.0	67.0	74.0	80.0	84.0	86.0	88.0	90.0	93.0	95.0	100
108	0	3.0	6.0	9.0	12.0	16.0	20.0	24.0	28.0	33.0	38.0	43.0	50.0	59.0	69.0	75.0	80.0	84.0	87.0	90.0	92.0	94.0	96.0	98.0	100
109	0	3.0	6.0	10.0	13.0	16.0	19.0	23.0	26.0	29.0	33.0	39.0	47.0	58.0	68.0	75.0	80.0	83.0	86.0	88.0	90.0	92.0	95.0	97.0	100
110	0	1.0	3.0	5.0	7.0	9.0	12.0	15.0	18.0	21.0	25.0	29.0	36.0	45.0	56.0	68.0	77.0	83.0	88.0	91.0	93.0	95.0	97.0	99.0	100
111	0	1.0	2.0	3.0	4.0	5.0	6.0	8.0	11.0	15.0	20.0	28.0	41.0	54.0	65.0	74.0	82.0	87.0	92.0	94.0	96.0	97.0	98.0	99.0	100
112	0	0.0	0.0	1.0	2.0	3.0	4.0	5.0	7.0	12.0	17.0	24.0	33.0	42.0	55.0	67.0	76.0	83.0	89.0	92.0	94.0	96.0	98.0	99.0	100
113	0	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	13.0	17.0	22.0	31.0	42.0	52.0	60.0	68.0	75.0	80.0	85.0	89.0	92.0	96.0	98.0	100
114	0	1.0	2.0	4.0	6.0	8.0	11.0	13.0	15.0	18.0	21.0	26.0	32.0	38.0	46.0	55.0	64.0	71.0	77.0	81.0	85.0	89.0	93.0	97.0	100
115	0	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	14.0	19.0	26.0	34.0	45.0	56.0	66.0	76.0	82.0	86.0	90.0	93.0	95.0	97.0	99.0	100

Use 99-2 = 97

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Figure 2. Isoerodent Map of the Eastern U.S.



Note: Units for all maps on this page are hundreds ft•tonf•in(ac•h•yr)⁻¹

Annual iserodent value (from this map) = 135
Erosivity index = 0.97 * 135 = 131



1. a. Phase I & II NPDES Storm Water Permit Requirements (Applicable to all projects involving soil disturbance of 1 acre (0.4 hectares) or more.

Will the project involve soil disturbance of 1 acre (0.4 hectares) or more?

- Yes The project must comply with the Phase II NPDES Storm Water Permit Requirements.
- No

2. Identify, by station, the known location of bridges and culverts. Indicate the anticipated size of each and the nature of the soil disturbance activity (ies) that each will involve (e.g., slope grading, channel shaping, watercourse realignment.)

10+80 24-inch culvert extension with Sediment Trap Basin on the downstream end, involves slope grading and channel shaping.

3. Indicate the type and identify the location, by station, of any resources requiring special consideration for protection from sedimentation, such as wetlands, endangered and threatened species locations, or other resources involving special commitments for protection.
Resources such as wetlands & special consideration areas are reflected within the contract plans. See Erosion Control and Landscaping, Plan and Profiles, Drainage and Utilities, and Stormwater Management Plans for protective measures.

4. When possible, graphically indicate on a map or plan drawing the drainage areas, and soil types (via. County Soils Maps) in locations of the project to be affected by clearing and grubbing, excavation or placement of embankment. Also describe or indicate any locations in which known soil disturbance by others (e.g., for agricultural crop production) could introduce additional sediment within the project limits. Highly erodible soils will affect the complexity needed in the ESC plan.

See the attached Soils Map and Erosion Control and Landscaping Plans for locations and additional information.

5. When possible, graphically indicate on a map or plan drawing the locations in which routine practices such as ditch checks and perimeter silt fence will be used and indicate the type and location of other, non-routine practices recommended to use.
See Erosion Control and Landscaping Plans.

*Note: This form is NOT to take the place of the SWPPP, but is to provide information to go into the project report for the benefit of the R.E.



Date of Inspection: _____ County: Lake

Name of Inspector: _____ Section: 05-00121-07-WR

Type of Inspection: Weekly Route: FAU (0187)

>0.5" Precip. Precip. Amt: _____ " District: 1

Contractor: _____ Contract No: 63765

Subs: _____ Job No. C-91-029-07

Project: M-TE-00D1 (888)

NPDES/ESC Deficiency Deduction: \$ _____ NPDES Permit No: _____

Total Disturbed Area: _____ acre Ready for Final Cover: _____ acre

Final Cover Established: _____ acre

Erosion and Sediment Control Practices

Item # / BMP		YES	NO	N/A
1.	Slopes: Do all slopes and exposed areas where soil disturbing activities have temporarily or permanently ceased, and not permanently stabilized, have adequate temporary seed or other stabilization in accordance with the NPDES permitted 7 and 14 day rule?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Ditches Are all ditches (existing and temporary) clear of sediment and/or debris? Do all ditches have adequate stabilization and structural practices in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Perimeter Erosion Barrier: Are all perimeter erosion barriers in good working order? Has perimeter barrier no longer needed been removed and the area stabilized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Temporary Ditch Checks: Are all temporary ditch checks in good working order? Are the current ditch checks adequate to control erosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Temp Diversions/ Slope Drains: Are all Temporary Diversions and Slope Drains functioning properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Inlet Protection: Are ALL inlet protection devices in good working order? Are ALL inlet filters less than 25% full and fabric unobstructed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Sediment Basins/Traps: Are ALL sediment basins/traps in good working order? Does sufficient capacity exist for the design stormwater event?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Areas of Interest – Wetland/Prairie/Tree Preservation: Has the contractor remained clear of all designated "no entry" areas? Are all "no intrusion" areas adequately marked to prevent accidental entry?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Stock Piles: Are all stockpiles properly situated and maintained to prevent runoff and protected to minimize discharge of materials or residue in case of erosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Borrow/Waste Sites: Are all borrow and waste locations, including those located offsite, in compliance with NPDES requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Other Installations: Are all other BMP installations shown in the plans properly functioning? (note in comments)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

General Site Maintenance Required of the Permit

12.	Vehicle Tracking: Is the site free from mud, sediment and debris from the vehicles entering/leaving off road areas throughout the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Are Stabilized Construction field entrances properly located?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Are Stabilized Construction field entrances in good working condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Illinois Environmental Protection Agency

Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control Notice of Intent (NOI) for General Permit to Discharge Storm Water Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

For Office Use Only

OWNER INFORMATION

Permit No. ILR10 _____

Company/Owner Name: LAKE COUNTY DIVISION OF TRANSPORTATION

Mailing Address: 600 WINCHESTER ROAD Phone: (847) 377-7400

City: LIBERTYVILLE State: IL Zip: 60048 Fax: (847) 362-5290

Contact Person: MS. PAULA TRIGG E-mail: PTRIGG@LAKECOUNTYIL.GOV

Owner Type (select one) County

MS4 Community: Yes No

CONTRACTOR INFORMATION

Contractor Name: _____

Mailing Address: _____ Phone: _____

City: _____ State: _____ Zip: _____ Fax: _____

CONSTRUCTION SITE INFORMATION

Select One: New Change of information for: ILR40 0517

Project Name: WASHINGTON STREET RECONSTRUCTION County: Lake

Street Address: WASHINGTON AND CEDAR LAKE City: ROUND LAKE IL Zip: 60073

Latitude: 42 21 34 Longitude: -88 5 25 15 45N 10E
(Deg) (Min) (Sec) (Deg) (Min) (Sec) Section Township Range

Approximate Construction Start Date Apr 1, 2013 Approximate Construction End Date Nov 30, 2013

Total size of construction site in acres: 15.3

If less than 1 acre, is the site part of a larger common plan of development?
 Yes No

Fee Schedule for Construction Sites:
Less than 5 acres - \$250
5 or more acres - \$750

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency? Yes No

(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: _____ City: _____

SWPPP contact information: _____ Inspector qualifications: _____

Contact Name: _____

Phone: _____ Fax: _____ E-mail: _____

Project inspector, if different from above _____ Inspector qualifications: _____

Inspector's Name: _____

Phone: _____ Fax: _____ E-mail: _____

IL 532 2104 WPC 623 Rev 5/10
This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed \$50,000 for the violation and an additional civil penalty of not to exceed \$10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

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TYPE OF CONSTRUCTION (select one)

Construction Type Reconstruction

SIC Code: _____

Type a detailed description of the project:

The proposed improvement consists of widening and reconstructing of Washington Street from Cedar Lake Road to just west of Hainesville Road and adding a right-turn lane and resurfacing of Cedar Lake Road.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency Yes No

Endangered Species Yes No

RECEIVING WATER INFORMATION

Does your storm water discharge directly to: Waters of the State or Storm Sewer

Owner of storm sewer system: VILLAGE OF ROUND LAKE AND VILLAGE OF ROUND LAKE PARK

Name of closest receiving water body to which you discharge: TRIBUTARY TO ROUND LAKE

Mail completed form to: Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constit10swppp@illinois.gov

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Paula Trigg
Owner Signature:

PAULA J. TRIGG
Printed Name:

10/17/12

Date:

Dir. of Transportation/County Engineer
Title:

INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610
FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is \$250.

Construction sites with 5 or more acres of land disturbance - fee is \$750.

SWPPP should be submitted electronically to: epa.constilr10swppp@illinois.gov When submitting electronically, use Project Name and City as indicated on NOI form.

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STORMWATER MANAGEMENT COMMISSION

February 15, 2012

Dan Helgren
Lake County Division of Transportation
600 West Winchester Road
Libertyville, IL 60048

Subject: Watershed Development Permit Application #C10-83-001
Washington Street Improvements
Cedar Lake Road to Hainesville Road
PERMIT ISSUANCE

Dear Mr. Helgren:

Accompanying this letter is the required Watershed Development Permit. This approval is subject to the conditions on the back of the permit including the following:

- Providing prior notification to Tim Cook (of the SMC) of the pre-construction meeting at least 5 calendar days in advance to enable SMC attendance
- The following items will be requested at the preconstruction meeting:
 - Resident Engineer contact information
 - NPDES permit number
 - Reduced copy of the permitted plan set that has been signed and sealed by a professional engineer

This approval is based on the plans entitled:

STATE OF ILLINOIS, DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, PLANS FOR PROPOSED FEDERAL AID HIGHWAY, F.A.U. RTE. 0187 (WASHINGTON STREET), CEDAR LAKE ROAD TO HAINESVILLE ROAD, WIDENING, BICYCLE AND PEDESTRIAN ACCOMMODATIONS, SECTION 05-00121-07-WR, PROJECT NO. M-TE-00D1 (888), LAKE COUNTY, C-91-029-07, prepared by Civiltech, received by SMC 12/17/12, 223-sheets (electronic format).

We would like to be of assistance. Do not hesitate to contact Tim Cook at (847)377-7703 if you have questions or would like to set up the pre-construction meeting.

If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountylil.gov or Executive Director Michael Warner mwarner@lakecountylil.gov at (847) 377-7700.

500 W. Winchester Road • Libertyville, Illinois 60048 • 847/377-7700 • FAX 847/984-5747

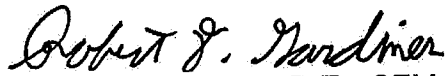
If you would like to provide feedback regarding the SMC permit/inspection process please go to: (password – survey)

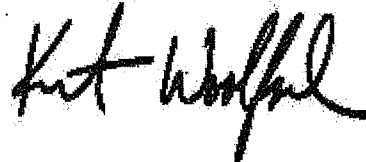
www.lakecountyil.gov/Stormwater/Pages/permit-process-survey.aspx

www.lakecountyil.gov/Stormwater/Pages/inspection-process-survey.aspx

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION


Robert D. Gardiner, P.E., CFM
Permit Engineer


Kurt Woolford, P.E., CFM
Chief Engineer

C: Mike Murphy – USACE (LRC-2011-739)
Barry Stuedemann – Cardno ENTRIX
Reid Magner – Civiltech



STORMWATER MANAGEMENT COMMISSION

**WATERSHED DEVELOPMENT PERMIT NUMBER
Permit #C10-83-001
HAS BEEN SECURED**

**Project: Washington Street Improvements
Cedar Lake Road to Hainesville Road**

Date Issued: 02/15/2013

Lat/Long: 42.3595, -88.0905 to 42.3570, -88.0680

PIN No.: 0620416006 to 0621415037

Conditions:

- Install and maintain all SE/SC measures
- Minimize environmental impacts

Issued By: Robert D. Gardiner, PE, CFM
Permit Engineer

Kurt A. Woolford, PE, CFM, LEED AP
Chief Engineer

Notice to Contractors and Owners

Post this card at the site, visible from the street and so located as to permit the inspector to record the indicated inspections on the placard. Do not post in the interior of a building.

Inspectors and sheriff's deputies are instructed to stop all work where this permit card is not displayed.

Always mention the Watershed Development Permit number when referring to this project. If this card becomes mislaid or lost please contact Lake County Stormwater Management Commission for a replacement.

Lake County Stormwater Management Commission (847) 377-7705

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DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7206

REPLY TO
ATTENTION OF:

January 25, 2013

Technical Services Division
Regulatory Branch
LRC-2011-739

SUBJECT: Discharge of Fill into 0.09 acres of Jurisdictional Waters of the United States for Road Improvements to Washington Street between Cedar Lake Road and Hainesville Road in the Fox River Watershed of the Villages of Round Lake, Round Lake Park, and Hainesville, Lake County, Illinois (42.35968, -88.0868)

Paula Trigg
Lake County Department of Transportation
600 West Winchester Road
Libertyville, Illinois 60048

Dear Ms. Trigg:

The U.S. Army Corps of Engineers, Chicago District, has completed its review of your notification for authorization under the Regional Permit Program (RPP), submitted on your behalf by Cardno ENTRIX. This office has verified that your proposed activity complies with the terms and conditions of Regional Permit 3 (Transportation Projects) and the overall RPP under Category I of the Regional Permit Program dated April 1, 2012. The activity may be performed without further authorization from this office provided the activity is conducted in compliance with the terms and conditions of the RPP.

This verification expires three (3) years from the date of this letter and covers only your activity as described in your notification and as shown on the plans entitled "F.A.U. Rte. 187 (Washington Street) Cedar Lake Road to Hainesville Road" dated June 18, 2012, prepared by Civiltech, Inc. Caution must be taken to prevent construction materials and activities from impacting waters of the United States beyond the scope of this authorization. If you anticipate changing the design or location of the activity, you should contact this office to determine the need for further authorization.

This authorization is contingent upon implementing and maintaining soil erosion and sediment controls in a serviceable condition throughout the duration of the project. You shall comply with the Lake County Stormwater Management Commission (LCSMC)'s written and verbal recommendations regarding the soil erosion and sediment control (SESC) plan and the installation and maintenance requirements of the SESC practices on-site. You shall notify this office and the SMC of any changes or modifications to the approved plan set. Please be aware that field conditions during project construction may require the implementation of additional

SESC measures for further protection of aquatic resources. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable.

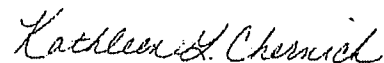
You shall complete the following requirements:

1. You shall schedule a preconstruction meeting with LCSMC to discuss the SESC plan and the installation and maintenance requirements of the SESC practices on the site.
2. You shall notify the LCSMC of any changes or modifications to the approved plan set. Field conditions during project construction may require the implementation of additional SESC measures. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable.

This verification does not obviate the need to obtain all other required Federal, state, or local approvals before starting work. Please note that Section 401 Water Quality Certification has been issued by IEPA for this RP. Enclosed are the IEPA Section 401 Water Quality Certification conditions. If you have any questions regarding Section 401 certification, please contact Mr. Dan Heacock at IEPA Division of Water Pollution Control, Permit Section #15, by telephone at (217) 782-3362.

For a complete copy of the RPP program or any additional information on the RPP program, please access our website: www.lrc.usace.army.mil/co-r. Once you have completed the authorized activity, please sign and return the enclosed compliance certification. If you have any questions, please contact Michael Murphy of my staff by telephone at 312-846-5538, or email at Michael.J.Murphy@usace.army.mil.

Sincerely,

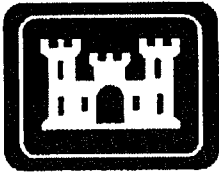


Kathleen G. Chernich
Chief, East Section
Regulatory Branch

Enclosures

Copy Furnished w/out Enclosures:

Illinois Department of Natural Resources/OWR (Gary Jereb)
Lake County Stormwater Management Commission (Kurt Woolford)
Cardno ENTRIZ (Barry Studemann)



**PERMIT COMPLIANCE
CERTIFICATION**

Permit Number: LRC-2011-739
Permittee: Lake County Division of Transportation
Date: January 25, 2013

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.¹

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.

¹ 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.



US Army Corps of Engineers®
Chicago District

**GENERAL CONDITIONS
APPLICABLE TO THE 2012
REGIONAL PERMIT PROGRAM**

The permittee shall 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 may be 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. Please note that Section 401 Water Quality Certification is a requirement for projects carried out in accordance with Section 404 of the Clean Water Act. Projects carried out in accordance with Section 10 of the Rivers and Harbors Act of 1899 do not require Section 401 Water Quality Certification

On March 2, 2012, the IEPA granted Section 401 certification, with conditions, for all Regional Permits, except for activities in certain waterways noted under RPs 4 and 8. The following conditions of the certification are hereby made conditions of the RPP:

1. The applicant shall not cause:
 - a) a violation of applicable water quality standards of the Illinois Pollution Control Board Title 35, Subtitle C: Water Pollution Rules and Regulations;
 - b) water pollution defined and prohibited by the Illinois Environmental Protection Act;
 - c) interference with water use practices near public recreation areas or water supply intakes;
 - d) a violation of applicable provisions of the Illinois Environmental Protection Act.
2. The applicant 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.
3. Except as allowed under condition 9, 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 Illinois EPA. Any backfilling must be done with clean material placed in a manner to prevent violation of applicable water quality standards.
4. All areas affected by construction shall be mulched and seeded as soon after construction as possible. The applicant 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 sedimentation basins and temporary mulching. All construction within the waterway shall be conducted during zero or low flow conditions. The applicant shall be responsible for obtaining a NPDES Stormwater Permit prior to initiating construction if the construction activity associated with the project will result in the disturbance of (1) one or more acres, total land area. A NPDES Stormwater Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Illinois EPA's Division of Water Pollution Control, Permit Section.
5. The applicant shall implement erosion control measures consistent with the Illinois Urban Manual (IEPA/USDA, NRCS; 2011, <http://aiswcd.org/IUM/index.html>).
6. The applicant is advised that the following permits(s) must be obtained from the Illinois EPA: The applicant must obtain permits to construct sanitary sewers, water mains, and related facilities prior to construction.
7. Backfill used in the stream-crossing trench shall be predominantly sand or larger size material, with less than 20% passing a #230 U.S. sieve.
8. Any channel relocation shall be constructed under dry conditions and stabilized to prevent erosion prior to the diversion of flow.
9. 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:
 - a) 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
 - b) excavation and backfilling are done under dry conditions.
10. Backfill used within trenches passing through wetland areas shall consist of clean material which 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.
11. Any applicant proposing activities in a mined area or previously mined area shall provide to the IEPA a written determination regarding the sediment and materials used which are considered "acid-producing material" as defined in 35 Il. Adm. Code,

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Subtitle D. If considered "acid-producing material," the applicant shall obtain a permit to construct pursuant to 35 Il. Adm. Code 404.101.

12. Asphalt, bituminous material and concrete with protruding material such as reinforcing bar or mesh shall not be 1) used for backfill, 2) placed on shorelines/stream banks, or 3) placed in waters of the State.
13. Applicants that use site dewatering techniques in order to perform work in waterways for construction activities approved under Regional Permits 1 (Residential, Commercial and Institutional Developments), 2 (Recreation Projects), 3 (Transportation Projects), 7 (Temporary Construction Activities), 9 (Maintenance) or 12 (Bridge Scour Protection) shall maintain flow in the stream during such construction activity by utilizing dam and pumping, fluming, culverts or other such techniques.
14. In addition to any action required of the Regional Permit 13 (Cleanup of Toxic and Hazardous Materials Projects) applicant with respect to the "Notification" General Condition 22, the applicant shall notify the Illinois EPA Bureau of Water, of the specific activity. This notification shall include information concerning the orders and approvals that have been or will be obtained from the Illinois EPA Bureau of Land (BOL) for all cleanup activities under BOL jurisdiction, or for which authorization or approval is sought from BOL for no further remediation. This Regional Permit is not valid for activities that do not require or will not receive authorization or approval from the BOL.

2. Threatened and Endangered Species - If the District determines that the activity may affect Federally listed species or critical habitat, the District will initiate section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) in accordance with the Endangered Species Act of 1973, as amended (Act). Applicants shall provide additional information that would enable the District to conclude that the proposed action will have no effect on federally listed species.

The application packet shall indicate whether resources (species, their suitable habitats, or critical habitat) listed or designated under the Act, may be present within areas affected (directly or indirectly) by the proposed project. Applicants shall provide a section 7 species list for the action area using the on-line process at the USFWS website. You can access "U.S. Fish and Wildlife Service Endangered Species Program of the Upper Midwest" website at www.fws.gov/midwest/Endangered. Click on the section 7 Technical Assistance green shaded box in the lower right portion of the screen and follow the instructions to completion. Review all documentation pertaining to the species list, provide the rationale for your effects determination for each species, and send the information to this office for review.

If no species, their suitable habitats, or critical habitat are listed, then a "no effect" determination can be made, and section 7 consultation is not warranted. If species or critical habitat appear on the list or suitable habitat is present within the action area, then a biological assessment or biological evaluation will need to be completed to determine if the proposed action will have "no effect" or "may effect" the species or suitable habitat. The District will request initiation of section 7 consultation with the USFWS upon agreement with the applicant on the effect determinations in the biological assessment or biological evaluation. If the issues are not resolved, the analysis of the situation is complicated, or impacts to listed species or critical habitat are found to be greater than minimal, the District will consider reviewing the project under the Individual Permit process.

Projects in Will, DuPage, or Cook Counties that are located in the recharge zones for Hine's emerald dragonfly critical habitat units may be reviewed under the RPP, with careful consideration due to the potential impacts to the species. All projects reviewed that are located within 3.25 miles of a critical habitat unit will be reviewed under Category II of the RPP. Please visit the following website for the locations of the Hine's emerald dragonfly critical habitat units in Illinois.
<http://www.fws.gov/midwest/endangered/insects/hed/FRHinesFinalRevisedCH.html>

3. Historic Properties - In cases where the District determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity may require an Individual Permit. A determination of whether the activity may be authorized under the RPP instead of an Individual Permit will not be made until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the District with the appropriate documentation to demonstrate compliance with those requirements.

Non-Federal permittees must include notification to the District if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the permit application must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing permit submittals, the District will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. Based on the information submitted and these efforts, the District shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the District, the non-Federal applicant shall not begin the activity until notified by the District either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

The District will take into account the effects on such properties in accordance with 33 CFR Part 325, Appendix C, and 36 CFR 800. 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, IL 62701-1507
(217) 782-4836
www.illinoishistory.gov

If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity, you must immediately notify this office of what you have found, and to the maximum extent practicable, stop activities that would adversely affect those remains and artifacts until the required coordination has been completed. We will initiate the Federal, Tribal and State coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. Soil Erosion and Sediment Control - Measures shall 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 shall be implemented before initiating any clearing, grading, excavating or filling activities. All temporary and permanent soil erosion and sediment control measures shall be maintained throughout the construction period and until the site is stabilized. All exposed soil and other fills, and any work below the ordinary high water mark shall be permanently stabilized at the earliest practicable date.

Applicants are required to prepare a soil erosion and sediment control (SESC) plan including temporary BMPs. The plan shall be designed in accordance with the Illinois Urban Manual, 2011 (<http://aiswcd.org/IUM/index.html>). 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." Additional Soil Erosion and Sediment Control (SESC) measures not identified in the Illinois Urban Manual may also be utilized upon District approval.

At the District's discretion, an applicant may be required to submit the SESC plan to the local Soil and Water Conservation District (SWCD), or the Lake County Stormwater Management Commission (SMC) for review. When the District requires submission of an SESC plan, the following applies: An activity may not commence until the SESC plan for the project site has been approved; 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 that it meets technical standards. Once a determination has been made, the authorized work may commence unless the SWCD/SMC has requested that they be notified prior to commencement of the approved plans. 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
2315 Dean Street, Suite 100
St. Charles, IL 60174
(630) 584-7961 ext.3
www.kanedupageswcd.org

McHenry-Lake County SWCD
1648 South Eastwood Dr.
Woodstock, IL 60098
(815) 338-0099 ext.3
www.mchenryswcd.org

North Cook SWCD
899 Jay Street
Elgin, IL 60120
(847) 468-0071
www.northcookswcd.org

Lake County SMC
500 W. Winchester Rd, Suite 201
Libertyville, IL 60048
(847) 377-7700
www.lakecountyil.gov/stormwater

5. Total Maximum Daily Load - For projects that include a discharge of pollutant(s) to waters for which there is an approved Total Maximum Daily Load (TMDL) allocation for any parameter, the applicant shall develop plans and BMPs that are consistent with the assumptions and requirements in the approved TMDL. The applicant must incorporate into their plans and BMPs any conditions applicable to their discharges necessary for consistency with the assumptions and requirements of the TMDL within any timeframes established in the TMDL. The applicant must carefully document the justifications for all BMPs and plans, and install, implement and maintain practices and BMPs that are consistent with all relevant TMDL allocations and with all relevant conditions in an implementation plan. Information regarding the TMDL program, including approved TMDL allocations, can be found at the following website: www.epa.state.il.us/water/tmdl/

6. 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 shall 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 the local governing agency (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 the local governing agency with jurisdiction at the earliest stages of project planning. For information on floodway construction, contact:

IDNR/OWR
2050 Stearns Road
Bartlett, IL 60103
(847) 608-3100
<http://dnr.state.il.us/owr/>

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.

7. Navigation - No activity may cause more than a minimal adverse effect on navigation. Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
8. Proper Maintenance - Any authorized structure or fill shall be properly maintained, including that necessary to ensure public safety.
9. 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.
10. Equipment - Soil disturbance and compaction shall be minimized through the use of matting for heavy equipment, low ground pressure equipment, or other measures as approved by the District.
11. 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.
12. Tribal Rights - No activity or its operation may impair reserved tribal rights, such as reserved water rights, treaty fishing and hunting rights.
13. 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.
14. Shellfish Production - No discharge of dredged or fill material may occur in areas of concentrated shellfish production.
15. Suitable Material - No discharge of dredged or fill material may consist of unsuitable material and material discharged shall be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act). Unsuitable material includes trash, debris, car bodies, asphalt, and creosote treated wood.
16. Spawning Areas - Discharges in spawning areas during spawning seasons shall be avoided to the maximum extent practicable.
17. Obstruction of High Flows - Discharges shall not permanently restrict or impede the passage of normal or expected high flows. All crossings shall be culverted, bridged or otherwise designed to prevent the restriction of expected high water flows, and shall be designed so as not to impede low water flows or the movement of aquatic organisms.
18. 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 shall be avoided to the maximum extent practicable.
19. Waterfowl Breeding Areas - Discharges into breeding areas for migratory waterfowl shall be avoided to the maximum extent practicable.
20. Removal of Temporary Fills - Any temporary fill material shall be removed in its entirety and the affected area returned to its pre-existing condition.
21. Mitigation - All appropriate and practicable steps must first be taken to avoid and minimize impacts to aquatic resources. For unavoidable impacts, compensatory mitigation is required to replace the loss of wetland, stream, and/or other aquatic resource functions (33 CFR 332). The proposed compensatory mitigation shall utilize a watershed approach and fully consider the ecological needs of the watershed. Where an appropriate watershed plan is available, mitigation site selection should consider recommendations in the plan. The applicant shall describe in detail how the mitigation site was chosen and will be developed, based on the specific

resource need of the impacted watershed. Permit applicants are responsible for proposing an appropriate compensatory mitigation option to offset unavoidable impacts. However, the District is responsible for determining the appropriate form and amount of compensatory mitigation required when evaluating compensatory mitigation options, and determining the type of mitigation that would be environmentally preferable. In making this determination, the District will assess the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed. Methods of providing compensatory mitigation include aquatic resource restoration, establishment, enhancement, and in certain circumstances, preservation. Compensatory mitigation will be accomplished by establishing a minimum ratio of 1.5 acres of mitigation for every 1.0 acre of impact to waters of the U.S. Furthermore, the District has the discretion to require additional mitigation to ensure that the impacts are no more than minimal. Further information is available at www.lrc.usace.army.mil/Missions/Regulatory/Illinois/Mitigation.aspx

22. Notification - The applicant shall 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 from the applicant (see below). If the District informs the applicant within 60 calendar days that the notification is incomplete (i.e., not a complete application), the applicant shall submit to the District, in writing, the requested information to be considered for review under the Regional Permit Program. A new 60 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 60-day review period.

For all activities, notification shall include:

- a. A cover letter providing a detailed narrative of the proposed activity describing all work to be performed, a clear project purpose and need statement, the Regional Permit(s) to be used for the activity, the area (in acres) of waters of the U.S. to be impacted (be sure to specify if the impact is permanent or temporary, and identify which area it affects), and a statement that the terms and conditions of the RPP will be followed.
- b. A completed joint application form for Illinois signed by the applicant or agent. The application form is available at www.lrc.usace.army.mil/Portals/36/docs/regulatory/forms/appform.pdf. If the applicant does not sign the joint application form, notification shall include a signed, written statement from the applicant designating the agent as their representative.
- c. A delineation of waters of the U.S., including wetlands, for the project area, and for areas adjacent to the project site (off-site wetlands shall be identified through the use of reference materials including review of local wetland inventories, soil surveys and the most recent available aerial photography), shall be prepared in accordance with the current U.S. Army Corps of Engineers methodology (www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/reg_supp.aspx) and generally conducted during the growing season.* Our wetland delineation standards are available at www.lrc.usace.army.mil/Portals/36/docs/regulatory/pdf/Delineations.pdf. For sites supporting wetlands, the delineation shall include a Floristic Quality Assessment (Swink and Wilhelm. 1994, latest edition, Plants of the Chicago Region). The delineation shall also include information on the occurrence of any high-quality aquatic resources (see Appendix A), and a listing of waterfowl, reptile and amphibian species observed while at the project area. The District reserves the right to exercise judgment when reviewing submitted wetland delineations. Flexibility of the requirements may be determined by the District on a case-by-case basis only.
- d. A street map showing the location of the project area.
- e. Latitude and longitude for the project in decimal degrees format (i.e. 41.88377N, -87.63960W).
- f. Preliminary engineering drawings sized 11" by 17" (full-sized may be requested by the project manager and you may also submit plans in PDF format on a disc) showing all aspects of the proposed activity and the location of waters of the U.S. to be impacted and not impacted. The plans shall include grading contours, proposed and existing structures such as buildings footprints, roadways, road crossings, stormwater management facilities, utilities, construction access areas and details of water conveyance structures. The plans shall also depict buffer areas, outlots or open space designations, best management practices, deed restricted areas and restoration areas, if required under the specific RP.
- g. Submittal of soil erosion and sediment control (SESC) plans that identify all SESC measures to be utilized during construction of the project.
- h. The application packet shall indicate whether resources (species, their suitable habitats, or critical habitat) listed or designated under the Endangered Species Act of 1973, as amended, may be present within areas affected (directly or indirectly) by the proposed project. Applicants shall provide a section 7 species list for the action area using the on-line process at the USFWS website. You can access "U.S. Fish and Wildlife Service Endangered Species Program of the Upper Midwest" website at www.fws.gov/midwest/Endangered. Click on the section 7 Technical Assistance green shaded box in the lower right portion of the screen and follow the instructions to completion. Print all documentation pertaining to the species list, include the rationale for your effects determination for each species, and forward the information to this office for review.

* If a wetland delineation is conducted outside of the 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 the delineation lacks sufficient evidence, the application will not be considered complete until the information is provided. This may involve re-delineating the project site during the growing season.

In the event there are no species, their suitable habitats, or critical habitat, then a "no effect" determination can be made and section 7 consultation is not warranted. If species or critical habitat appear on the list, or suitable habitat is present within the action area, then a biological assessment or biological evaluation will need to be completed to determine if the proposed action will have "no effect" or "may effect" on the species or suitable habitat. The District will request initiation of section 7 consultation with the USFWS upon agreement with the applicant on the effect determinations in the biological assessment or biological evaluation. If the issues are not resolved, the analysis of the situation is complicated, or impacts to listed species or critical habitat are found to be greater than minimal, the District will consider reviewing the project under the Individual Permit process.

- i. A determination of the presence or absence of any State threatened or endangered species. Please contact the Illinois Department of Natural Resources (IDNR) to determine if any State threatened and endangered species could be in the project area. You can access the IDNR's Ecological Compliance Assessment Tool (EcoCAT) at the following website: <http://dnrecocat.state.il.us/ecopublic/>. Once you complete the EcoCAT and consultation process, forward all resulting information to this office for consideration. The report shall also include recommended methods as required by the IDNR for minimizing potential adverse effects of the project.
- j. A statement about the knowledge of the presence or absence of Historic Properties, which includes properties listed, or properties eligible to be listed in the National Register of Historic Places. A letter from the Illinois Historic Preservation Agency (IHPA) can be obtained indicating whether your project is in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. The permittee shall provide all pertinent correspondence with the IHPA documenting compliance. The IHPA has a checklist of documentation required for their review located here: www.illinoishistory.gov/PS/rcdocument.htm.
- k. Where an appropriate watershed plan is available, the applicant shall address in writing how the proposed activity is aligned with the relevant water quality, hydrologic, and aquatic resource protection recommendations in the watershed plan.
- l. A discussion of measures taken to avoid and/or minimize impacts to aquatic resources on the project site.
- m. A compensatory mitigation plan for all impacts to waters of the U.S. (if compensatory mitigation is required under the specific RP).
- n. A written narrative addressing all items listed under the specific RP.

For Category II activities, the District will provide an Agency Request for Comments (ARC) which describes the proposed activity. The ARC will be sent to the following agencies: United States Fish & Wildlife Service (USFWS), United States Environmental Protection Agency (USEPA), Illinois Department of Natural Resources (IDNR), Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR), Illinois Environmental Protection Agency (IEPA), Illinois Historic Preservation Agency (IHPA), Illinois Nature Preserves Commission (INPC) and U.S. Coast Guard (Section 10 activities only). Additional entities may also be notified as needed. These agencies have ten (10) calendar days from the date of the ARC to contact the District and either provide comments or request an extension not to exceed fifteen (15) calendar days. 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 special conditions if 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.

23. Compliance Certification - Any permittee who has received authorization under the RPP from the District shall submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the District with the authorization letter and will include: a) a statement that the authorized work was done in accordance with the District's authorization, including any general or specific conditions; b) a statement that any required mitigation was completed in accordance with the permit conditions and; c) the signature of the permittee certifying the completion of the work and mitigation.

24. 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 shall notify the District in accordance with General Condition 22. If multiple Regional Permits are used, the total impact may not exceed the maximum allowed by the Regional Permit with the greatest impact threshold.

25. 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.

Approved by:

//ORIGINAL SIGNED//
Frederic A. Drummond, Jr.
Colonel, U.S. Army
District Commander

February 24, 2012
Date

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 North Grand Avenue, East; Post Office Box 19276; Springfield, IL 62794-9276

Division of Public Water Supplies

Telephone 217/782-1724

PUBLIC WATER SUPPLY CONSTRUCTION PERMIT

SUBJECT: ROUND LAKE (Lake County-0971500)

Permit Issued to:
Village President and Board of Trustees
442 N. Cedar Lake Road
Round Lake, IL 60073

100 - 6 2012

PERMIT NUMBER: 0401-FY2013

DATE ISSUED: November 29, 2012

PERMIT TYPE: Water Main

The issuance of this permit is based on plans and specifications prepared by the engineers/architects indicated, and are identified as follows. This permit is issued for the construction and/or installation of the public water supply improvements described in this document, in accordance with the provisions of the "Environmental Protection Act", Title IV, Sections 14 through 17, and Title X, Sections 39 and 40, and is subject to the conditions printed on the last page of this permit and the ADDITIONAL CONDITIONS listed below.

FIRM: Civiltech Engineering, Inc.
NUMBER OF PLAN SHEETS: 27
TITLE OF PLANS: "Washington Street-Cedar Lake Road to Hainesville Road Reconstruction **SR**"

PROPOSED IMPROVEMENTS:


Install 151 lineal feet of 6-inch water main and 3,636 lineal feet of 8-inch water main

ADDITIONAL CONDITIONS:

1. All water mains shall be satisfactorily disinfected prior to use. In accordance with the requirements of AWWA C651-99, at least one set of samples shall be collected from every 1,200 feet of new water main, plus one set from the end of the line and at least one set from each branch. Satisfactory disinfection shall be demonstrated in accordance with the requirements of 35 Ill. Adm. Code 652.203.
2. There are no further conditions to this permit.

DCC:ECA: dsa

cc: Civiltech Engineering, Inc.
Elgin Region
Lake County Health Department



David C. Cook, P.E.
Acting Manager Permit Section
Division of Public Water Supplies

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue, East; Post Office Box 19276; Springfield, IL 62794-9276

Division of Public Water Supplies

Telephone 217/782-1724

PUBLIC WATER SUPPLY CONSTRUCTION PERMIT

SUBJECT: ROUND LAKE PARK (Lake County-0971600)

Permit Issued to:

Village President and Board of Trustees
203 E. Lakeshore Drive
Round Lake Park, IL 60073

PERMIT NUMBER: 0400-FY2013

DATE ISSUED: November 29, 2012

PERMIT TYPE: Water Main

The issuance of this permit is based on plans and specifications prepared by the engineers/architects indicated, and are identified as follows. This permit is issued for the construction and/or installation of the public water supply improvements described in this document, in accordance with the provisions of the "Environmental Protection Act", Title IV, Sections 14 through 17, and Title X, Sections 39 and 40, and is subject to the conditions printed on the last page of this permit and the ADDITIONAL CONDITIONS listed below.

FIRM: Civiltech Engineering, Inc.

NUMBER OF PLAN SHEETS: 27

TITLE OF PLANS: "Washington Street-Cedar Lake Road to Hainesville Road Reconstruction"

PROPOSED IMPROVEMENTS:

Install 45 lineal feet of 6-inch water main, 108 lineal feet of 8-inch water main, and 826 lineal feet of 12-inch water main

ADDITIONAL CONDITIONS:

1. There are no further conditions to this permit.

DCC:ECA: dsa

cc: Civiltech Engineering, Inc.
Elgin Region
Lake County Health Department



David C. Cook, P.E.
Acting Manager Permit Section
Division of Public Water Supplies

MIDLAND STANDARD ENGINEERING & TESTING, INC.

26575 West Commerce Drive, Unit 607 Volo, Illinois 60073

(847) 270-0832 f(847) 270-0836

November 21, 2008

Ms. Mary Young, P.E.
Civiltech Engineering, Inc.
450 East Devon Avenue
Suite 300
Itasca, Illinois 60143


Re: Roadway Soils Survey
Washington Street Improvements
Cedar Lake to Hainesville Road
Lake County, Illinois
MSET File No. 88279

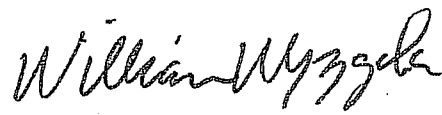
We have completed the exploration and analysis requested for the referenced project. Our findings and recommendations are presented in the attached report. We are transmitting three (3) copies for your use and further distribution.

The report represents our preliminary recommendations based on the information available at this time. As the design progresses, we would be happy to review the soil conditions relevant to the proposed site development and structures.

If you have any questions regarding this report, please feel free to call.

Sincerely,
MIDLAND STANDARD ENGINEERING & TESTING, INC.


Clay Disney, E.I.T.
Staff Engineer


William J. Wyzgala, P.E.
Principal Engineer

CJD/WJW/rlm

Enclosures

SOIL EXPLORATION AND ANALYSIS
WASHINGTON STREET IMPROVEMENTS
LAKE COUNTY, ILLINOIS

PREPARED FOR
CIVILTECH ENGINEERING, INC.
ITASCA, ILLINOIS



MIDLAND STANDARD ENGINEERING & TESTING
26575 WEST COMMERCE STREET - UNIT 607 - VOLO, ILLINOIS - 60073

NOVEMBER, 2008

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INTRODUCTION

Purpose

The purpose of this exploration was to determine the types of soil encountered at the proposed subgrade elevation and to determine the presence of problem subgrade materials that may require special treatments. Using this information along with the project data provided, design criteria and recommendations for earthwork and subgrade treatment have been prepared for use by the Design Engineers in preparing the plans and specifications.

Scope

The scope of this exploration and analysis included review of available information from previous work conducted in the area, subsurface exploration, field and laboratory testing, analysis of the data obtained, formulation of our recommendations, and preparation of this report. The field exploration included twenty (20) soil borings, labeled B-1 through B-20, seven (7) structure borings labeled SB-1 through SB-7, and four (4) pavement cores, labeled C-1 through C-4, to determine the subgrade and subsurface soil conditions and existing pavement sections along the alignment and for the proposed retaining wall.

This report was prepared on the basis of the project information supplied by the client and is only intended for use on this project. Changes in the grades or alignment of the project should be submitted for our review since changes of this kind may cause changes in our recommendations. The report was prepared by interpreting the data from the test borings and field tests made along the proposed improvements and from the results of the laboratory tests on the subsoil samples taken from there. The report gives a representative, but not exhaustive, picture of the project subsoil make-up. The soil engineer warrants findings, recommendations, specifications, and/or professional advice to have been promulgated with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology.

Reference Documents

This soils exploration and survey was performed in general accordance with the State of Illinois, 'Geotechnical Manual' dated January 1, 1999.

PROJECT LOCATION AND DESCRIPTION

Project Location

The project is located in Lake County Illinois. The proposed Washington Street improvements extend from Cedar Lake Road, east to Hainesville Road. Refer to the Project Vicinity Map that is appended, for the project location details.

Project Site Description

The project consists of the reconstruction of Washington Street from Cedar Lake Road, east to Hainesville Road.

Climatological Data

The fieldwork for the proposed construction was accomplished at the end of October and into November 2008. The tables below lists the actual precipitation as measured at O'Hare International Airport by NOAA prior to the time of our fieldwork.

<u>Month</u>	<u>Actual Precipitation</u>	<u>Departure From Normal</u>
May, 2008	4.10"	+0.72"
June, 2008	4.18"	+0.55"
July, 2008	4.76"	+1.25"
August, 2008	3.73"	-0.89"
September, 2008	13.63"	+10.36"
October, 2008	2.07"	-0.64"

In the three months prior to the completion of our fieldwork, the actual precipitation was 8.83 inches more than normal conditions. The year-to-date precipitation prior to completing our borings in the field in October 2008 was recorded as 12.10 inches more than normal.

Site Geology

Geologically, the project lies within the Pleistocene Series of the Quaternary System. More specifically, this project lies within the Valparaiso Morainic System within the Woodfordian Substage of the Wisconsin Period Glaciation. The geology of the Valparaiso Morainic System in this area is generally characterized by somewhat rough topography consisting of knobs, kettles, and swamps with light brownish grey to grey clayey till composing the majority of the subsurface materials.

Soil Conservation Survey

The available surficial soils mapping for the project area indicates that the Ozaukee Silt LOAM (530B, 530C, 530C2) is the predominant natural soil type encountered along the proposed alignment with areas of Grays, Markham, and Beecher Silt LOAMs (979B, 298A) also encountered along the alignment. These moderately drained soil types commonly form in thin loess deposits on ground moraines and till plains and typically have A horizons that are 5 to 9 inches in thickness and dark grey to dark greyish brown in coloration.

FIELD EXPLORATION

General

The procedures for this exploration were conducted in general accordance with the appropriate Illinois Department of Transportation Standards. The borings were supervised at all times by a field engineer from Midland Standard Engineering & Testing, Inc. The soil specimens obtained were transported to our laboratory for testing and analysis. Our project engineer has directed all phases of this investigation.

Soil Drilling and Sampling Procedures

The soil borings were performed with a truck mounted drilling rig equipped with a rotary head. Solid stem augers were used to advance the boreholes. Representative samples of the profile soils were obtained by the use of split-spoon sampling methods in accordance with the ASTM procedure D 1586.

Strength Tests

A calibrated hand penetrometer was used to aid in determining the strength and consistency of cohesive soil samples (Qp) in the field. Split spoon samples were subjected to unconfined compressive strength testing (Qu) by the Rimac Method as modified by IDOT.

Water Level Measurements

Water level observations were made during and after the boring operations and are noted on the boring logs, presented herewith. In relatively pervious, sandy soils, the water level elevations would be considered reliable. In relatively impervious, clayey soils, the accurate determination of the groundwater elevation may not be possible, even after several days of observation. Seasonal variations, temperature and recent rainfall conditions may influence the levels of the groundwater table, and volumes of water will depend on the permeability of the soils.

LABORATORY TESTING

Scope

A supplemental testing program was conducted to ascertain additional pertinent engineering characteristics of the subgrade and foundation materials. The soils laboratory work was performed in accordance with applicable ASTM and IDOT standards. The laboratory testing program included visual classification, moisture content determination for each sample obtained, and unconfined compression testing for applicable samples. Representative samples of the various soil strata encountered were subjected to Atterberg Limit Tests, Grain Size Analysis, and Organic Content Testing. The laboratory compaction characteristics of the predominant subgrade soils were determined and the recompacted materials were subjected to Illinois Bearing Ratio (IBR) testing.

The results of testing are presented on the Soil Test Data Sheet BD-508A and individual laboratory data sheets provided in the Appendix to this report.

The soils encountered in the borings have been classified using both the IDOT Textural Classification System, and the AASHTO Engineering Soil Classification System (AASHTO, M-145).

SUBSURFACE AND SUBGRADE CONDITIONS

Subsurface Conditions

Most of the soil borings were located in the current roadway shoulder, with some locations in the bituminous shoulder. Where encountered, the bituminous shoulder measured from 2-1/2 to 5-1/2 inches thick with an underlying granular base of 4 to 6-1/2 inches. Other locations drilled through the aggregate shoulder encountered thicknesses of 4 to 14 inches on the west two thirds of the alignment and 2 to 6 inches to the east.

Underlying the pavement materials described above at most boring locations is a layer of Clayey FILL and at four boring locations Silty CLAY Topsoil. The FILL is mostly composed of Silty CLAY and Silty Clay LOAM and it extends to depths of 1.0 to 5.5 feet below the surface. Underlying the FILL and Topsoil the natural soil profile consists of intermittent stiff Silty CLAY A-6 to A-7-6 over very stiff to very hard brown to brown and grey CLAY, A-6 glacial till. Occasional layers and pockets of sand or silty Gravel is present in the clayey till mass.

Details of the materials encountered and laboratory test results are presented on the "Soil Profile Drawings" and the boring logs included in the Appendix to this report.

Groundwater Conditions

Groundwater measurements were made during and immediately after the drilling operations. All of the ten foot deep soil borings made for the roadway subgrade were found to be dry except for boring B-17 which had perched ground water at a depth of 3.5 feet, in a sand layer. The deeper borings made for the retaining wall encountered water at depths of 15.5 to 18 feet below the surface. Details of the groundwater measurements at each boring are presented on the "Soil Profile Drawings" and boring logs which are appended.

Existing Pavement Materials

A total of four (4) pavement core were made for the investigation. Cores C-1 and C-2 are located on Cedar Lake Road to determine pavement section materials. Please note that the section of Cedar Lake Road, just north and south of Washington Street was overlaid with new bituminous materials during our fieldwork in October. Core C-1 located on southbound Cedar Lake Road in the middle of the outside (west lane) encountered four layers of bit. concrete surface and binder course to a depth of 8-1/2 inches followed by 13 inches of granular base course. Core C-2, located for northbound Cedar Lake Road, encountered six layer of bit. concrete surface, binder and possible base course material to a depth of 12-3/4 inches over a 11-1/4 inch thick layer of GBC. Note that a PetroMat crack control fabric was used over the pavement prior to placement of the upper two bituminous layers.

Pavement cores C-3 and C-4 were located on Washington Street to provide information for removal during road reconstruction. These cores encountered four layers of bituminous concrete to a depth of 6-1/4 to 6-1/2 inches overlying a Sand and Gravel granular base course that is 8-3/4 to 14-1/2 inches thick at the core locations.

Details of the pavement materials encountered are presented on the appended Boring Logs and Pavement Core Measurement Logs.

Pavement Design Criteria

In general, soils encountered as the predominant subgrade materials are considered to have a Subgrade Support Rating (SSR) of 'FAIR' to 'POOR' for full depth Bituminous and Rigid Pavement Design. Refer to Subgrade Support Rating (SSR) diagram located in the Appendix of this report. An Illinois Bearing ratio of 3.7 is considered appropriate for pavement design.

Frost Susceptibility of Subgrade Soils

The susceptibility of the subgrade soils to excessive frost action has been reviewed. The fine sand and silt contents in the soils subjected to soil classification testing range from 31 to 69 percent with plasticity indexes (PI) of 15 to 21. The soil

parameters tested and the groundwater conditions encountered in the borings are not considered to be susceptible to the detrimental effects of frost.

Earthwork and Roadway Subgrade Preparation

All earthwork excavation, backfill, embankment and subgrade preparation should be conducted in accordance with the requirements of Sections 200 and 300 of the current IDOT "Standard Specifications for Road and Bridge Construction".

Moisture-density relationships should be developed from materials obtained from the site excavations and from off-site borrow sources. These relationships should be used to monitor FILL and backfill placement and compaction. A standard earthwork shrinkage factor of ten percent should be used for the clayey borrow soils on this site that are used for fill.

Remedial Treatment Areas

All undercuts must be verified by cone penetrometer tests on the subgrade during construction in accordance with the guidelines in the Illinois Department of Transportation "Subgrade Stability Manual". Areas that were identified by the borings as needing additional treatment are summarized on the following tabulation. The treatments identified below should be incorporated into the plan details and quantities. The actual need for removal of unstable or weak subgrade soil will be determined in the field at the time of construction by the geotechnical engineer. If unstable and/or unsuitable soil is not encountered, then the quantity for subgrade treatment shall be deducted and no additional compensation will be due the contractor.

Summary of Earthwork Remedial Treatment Areas

<u>Location</u>	<u>Replacement Indicated By:</u>	<u>Depth¹</u>	<u>Treatment Width</u>	<u>Material or Treatment</u>
Boring B-1 Sta. 0+40 to Sta. 3+00	Brown Clay LOAM, A-6(8) Mc=16%, Qp=1.24tsf	10"	Full Width	Note 2
Boring B-6 Sta. 15+00 to Sta. 18+00	Dark Brown and Brown Silty Clay LOAM, A-6: FILL Mc=23%, Qp=0.75tsf	16"	Full Width	Note 2
Boring B-13 Sta. 39+00 to Sta. 42+00	Dark Brown Sandy LOAM, A-6(3): FILL Mc=10%, Qp=1.5tsf over Brown and Black Silty CLAY, A-6 Mc=28%, Qp=1.25tsf	12"	Full Width	Note 2

Note 1= Undercut depth refers to depth below Design Subgrade Elevation, assuming a design pavement thickness of 18 inches. If a Mechanistic pavement design is planned, which includes 12 inches of mandatory subgrade improvement, the remedial treatment depth given in the table can be reduced by 12 inches.

Note 2= Undercut unstable or low strength soil and replace with PGES-Porous Granular Embankment Subgrade. A transverse or short, say 50 foot, longitudinal pipe under drain should be placed at the low point of each undercut replaced with PGES in order to drain the PGES and maintain stability. The under drains should be placed at a depth of three feet below the bottom of proposed pavement or as deep as possible and practical and in accordance with the Standard Specifications and Check Sheet #25 of the Supplemental Specifications and Recurring Special Provisions. FA-1 or FA-02 backfill should be used.

RETAINING WALL CONSIDERATIONS

Retaining Wall Description

It is our understanding that two retaining wall structures are being designed for the proposed alignment. Both are located on the north side of the street with one from Sta. 17+00 to Sta. 20+25, and the other from Sta. 28+00 to Sta. 29+00. These structures are assumed to be less than ten (10) feet in total height and to be constructed as either a cantilevered, reinforced concrete wall or a modular block wall with geogrid tiebacks.

Reinforced Concrete Retaining Wall

The footings for the retaining wall are expected to be located in the naturally occurring stiff to hard, brown and grey Silty CLAY, encountered across the wall alignments at the approximate depths of 1.5 to 4.5 feet from the top of existing ground surface as summarized in the following table:

Boring No.	Ground Surface Elevation	Depth to 3000 psf Bearing Capacity	Elevation of 3,000 psf Bearing Capacity
SB-1	776.0 ±	3.5'	772.5 ±
SB-2	777.0 ±	4.5'	772.5 ±
SB-3	778.5 ±	4.0'	774.5 ±
SB-4	780.5 ±	3.5'	777.0 ±
SB-5	783.5 ±	1.5'	782.0 ±
SB-6	801.5 ±	2.0'	799.5 ±
SB-7	800.0 ±	2.5'	797.5 ±

Some areas along the alignment may require minor undercuts and replacement with compacted Engineered Structural FILL, depending on the designed footing elevations for the two retaining walls.

The footings can be designed and built using one or a combination of the following methods:

1. The footings can be designed and built at a standard frost depth on suitable bearing materials.
2. If poor footing subgrade conditions are encountered, the footings can be founded on a pad of Engineered Structural FILL built by removing unsuitable soils encountered and constructing the FILL to the design footing elevation, or the footings can be stepped down to suitable bearing soil.

The retaining wall footings should be located at a minimum depth of 3.5 feet below final exterior grade to eliminate the affects of frost action and alleviate the effects of seasonal variation in moisture content on the behavior of the foundation system. All footings should be founded a minimum depth of 0.5 feet below the bottom any unsuitable support material encountered. Suitable bearing soil is expected to be encountered at the depths/elevations provided in the table above, in natural, stiff to hard, brown and grey Silty CLAY or on Engineered Structural FILL materials.

A net allowable soil bearing pressure up to **3000 pounds per square foot** may be used to dimension continuous and spread footings founded at the recommended depth on approved properly prepared natural profile soils or a properly constructed Engineered Structural FILL. For retaining wall design soil parameters, refer to the "Lateral Earth Pressures" section below.

Concrete Wall Backfill and Drainage

To reduce the amount of additional pressure applied to the wall by high groundwater, swelling of backfill soils, and in cold weather conditions, the formation of ice lenses behind the wall, proper drainage of the backfill is essential. Free draining granular soil with a silt and clay content of less than 6 percent, such as IDOT Porous Granular Backfill, Section 209 of the "Standard Specification for Road and Bridge Construction" is recommended for backfill behind the wall. The granular backfill should extend a minimum of two feet out from the face of the wall and an outlet for water should be provided at the base of the back fill in the form of properly spaced weep holes through the wall or a perforated, continuous drain pipe. The backfill should be placed in uniform 9" lifts and compacted to 95 percent of ASTM D-698, standard proctor. The backfill should be compacted with appropriate sized equipment so that the wall is not damaged or moved.

Modular Block Wall With Geogrid Tiebacks

A modular block wall with geogrid tiebacks may also be used in the design. The design of a block/geogrid wall is dependant on proper backfill material, backfill placement, and drainage of the backfill. A free draining granular material with a silt and clay content of less that ten percent is recommended. Illinois Department of Transportation CA-06 gravel or stone or FA-02 sand is well suited for this application. All backfill material should have an internal friction angle of 34 degrees or greater. If the vendor's final design requires an internal friction angle higher than 34 degrees, this higher angle becomes the required minimum. The backfill material is typically placed in lifts and compacted in conjunction with placement of the tiebacks. Drainage behind the wall should be provided using a continuous perforated drain pipe or other methods. The active or Rankine pressures are typically mobilized for design of these wall types. For retaining wall design soil parameters, refer to the "Lateral Earth Pressures" section below.

These wall types are typically founded on compacted gravel base pads. The base pad on this site should extend a minimum of one foot into natural, stiff to hard, Silty CLAY, A-6, materials .

Lateral Earth Pressures

The lateral earth pressure used to design retaining walls is dependent on the soil used to backfill the wall. IDOT Select FILL should be used to backfill the wall. The effects of surcharge loads and live loads on the ground surface behind the wall must then also be added to these earth pressures. Wall backfill drainage conditions and groundwater levels must also be considered in calculations. Most wall designs utilize active lateral earth pressures, assuming that the wall is allowed to yield enough to allow an active pressure state to develop. If a particular wall is rigidly restrained, then an at-rest earth pressure condition is more appropriate. For sliding resistance calculations, the appropriate Coefficient of Sliding Friction between the soil and the base of the wall should be used, and a minimum factor of safety against sliding of 1.5 should be provided.

The following table outlines the recommended lateral earth pressure coefficients, the sliding friction coefficients, and the saturated soil unit weights that can be applied to determine earth pressures. The given values do not include a factor of safety.

Earth Pressure Coefficients

Soil Type	Moist Unit Weight, pcf	Earth Pressures			Sliding Friction Factor, tan δ
		At Rest, K_o	Active, K_a	Passive, K_p	
A-6 (<1.0tsf)	130	0.70	0.55	1.8	0.30
A-6 (1.0 \leq 8.0tsf)	130	0.53	0.36	2.8	0.45
A-2-4 (round)	130	0.55	0.38	2.7	0.30
A-2 (coarse)	120	0.50	0.33	3.0	0.50
Select FILL Sands	125	0.44	0.28	3.5	0.50
Select FILL Angular Stone	145	0.40	0.25	4.0	0.60

GENERAL CONSTRUCTION REQUIREMENTS

Ground and Surface Water Control

Groundwater, when encountered was relatively deep at depths of 15.5 to 18 feet below the existing ground surface. Perched groundwater was encountered in boring location B-7 and may be possible in other areas of the site. Therefore, most excavations will only require sloping of the ground surface to protect the underlying subgrade. However, the contractor should be prepared with a system of sumps and pumps if needed.

Excavation and Trench Support

Soil and groundwater conditions are such that open cut excavations will likely stand vertical for a period of time. However, some excavations may require sloping back or bracing of the sidewalls. Please note that OSHA and local codes require the use of shoring and bracing in the excavations during utility installation, the contractor should be well versed in these requirements.

Protection of Adjacent Utilities and Roadways

Excavations extending below any existing utility components and the adjacent roadway may cause future settlement problems if not protected. Procedures for the protection of any existing utilities and roadway should be reviewed and presented to the supervising engineer, prior to the start of work.

Embankment Construction

All embankments should be constructed in accordance with Section 200 of the current IDOT "Standard Specifications for Road and Bridge Construction".

Summary

The recommendations presented herein are based on the information available at the time of this writing. After plans and specifications are more complete, we welcome the opportunity to review them with respect to the prevailing soil and groundwater conditions. It may be necessary to conduct further analysis and submit supplementary recommendations at that time. If required, more specific construction recommendations can also be provided.

APPENDIX

Project Vicinity Map

Plan Profile Drawings

Soil Survey Map of Lake County

Soil Survey Map Legend

Soil Survey Map Unit Legend

Record of Subsurface Exploration (B-1 through B-20 and
SB-1 through SB-7)

Pavement Core Measurement Log (C-1 through C-4)

Soil Test Data Sheet BD-508A

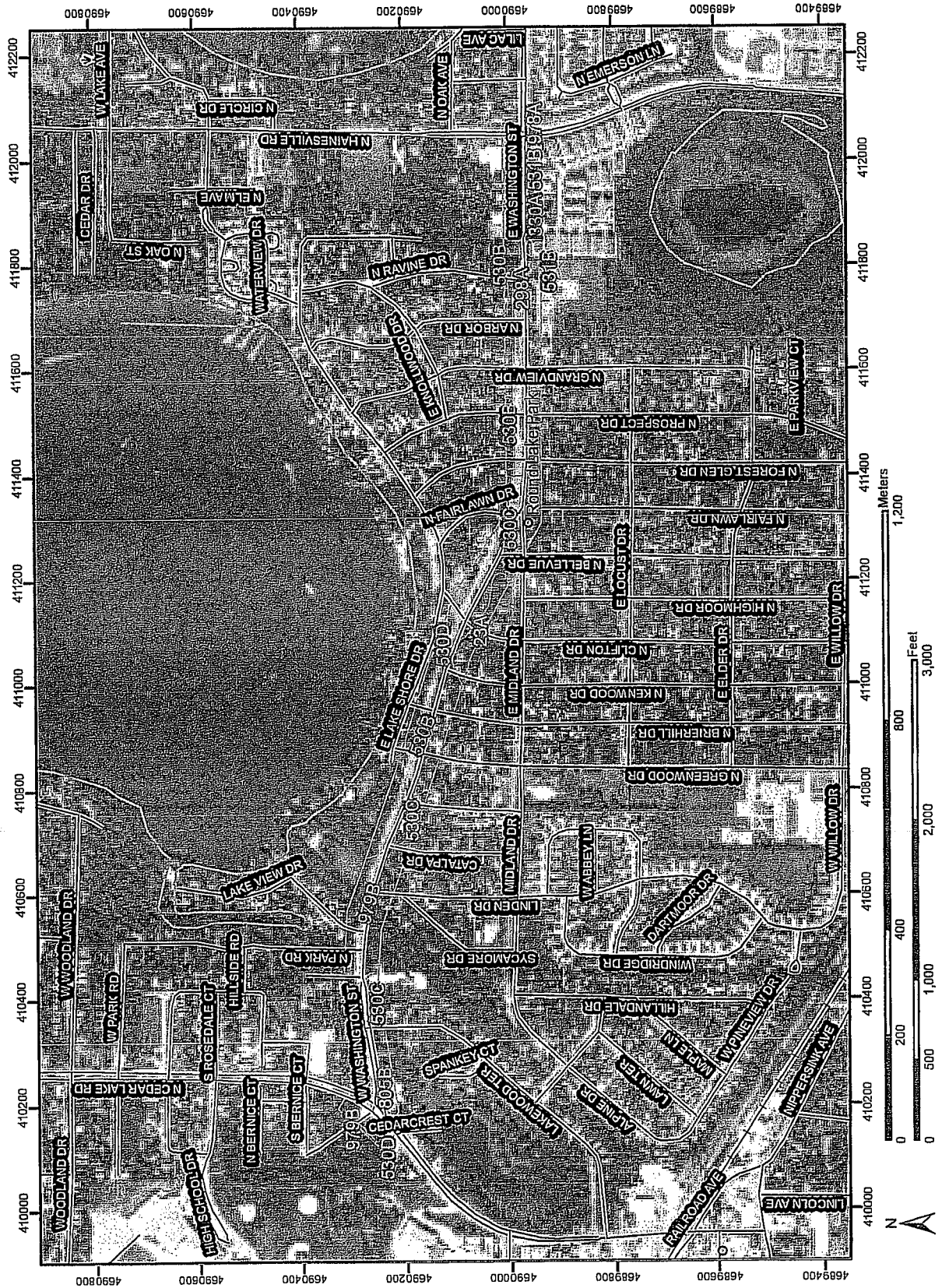
Subgrade Support Rating Diagram

IBR Data Sheets

Compaction Test Reports (Curve No. 1 and Curve No.2)

Soil Classification Data

Soil Map—Lake County, Illinois
(88279 Washington Street Improvements)



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MAP LEGEND

	Area of Interest (AOI)		Very Stony Spot
	Soils		Wet Spot
	Soil Map Units		Other
	Special Point Features		Special Line Features
	Blowout		Gully
	Borrow Pit		Short Steep Slope
	Clay Spot		Other
	Closed Depression		Political Features
	Gravel Pit		Municipalities
	Gravelly Spot		Cities
	Landfill		Urban Areas
	Lava Flow		Water Features
	Marsh		Oceans
	Mine or Quarry		Streams and Canals
	Miscellaneous Water		Transportation
	Perennial Water		Rails
	Rock Outcrop		Roads
	Saline Spot		Interstate Highways
	Sandy Spot		US Routes
	Severely Eroded Spot		State Highways
	Sinkhole		Local Roads
	Slide or Slip		Other Roads
	Sodic Spot		
	Spoil Area		
	Stony Spot		

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 16N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lake County, Illinois
Survey Area Data: Version 4, Dec 29, 2006

Date(s) aerial images were photographed: 1998

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend

Lake County, Illinois (IL097)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
23A	Blount silt loam, 0 to 2 percent slopes	1.3	3.8%
232A	Ashkum silty clay loam, 0 to 2 percent slopes	1.0	2.9%
298A	Beecher silt loam, 0 to 2 percent slopes	4.0	11.3%
530B	Ozaukee silt loam, 2 to 4 percent slopes	13.3	37.7%
530C	Ozaukee silt loam, 4 to 6 percent slopes	3.7	10.5%
530C2	Ozaukee silt loam, 4 to 6 percent slopes, eroded	0.0	0.0%
530D	Ozaukee silt loam, 6 to 12 percent slopes	0.2	0.7%
531B	Markham silt loam, 2 to 4 percent slopes	2.1	6.1%
805B	Orthents, clayey, undulating	3.5	10.1%
978A	Wauconda and Beecher silt loams, 0 to 2 percent slopes	0.4	1.0%
979B	Grays and Markham silt loams, 2 to 4 percent slopes	4.6	13.0%
1330A	Peotone silty clay loam, undrained, 0 to 2 percent slopes	1.0	2.9%
Totals for Area of Interest (AOI)		35.2	100.0%

PROJECT: Washington Street
 BORING LOCATION: Sta. 1+45, 32' N of CL

SITE LOCATION: Lake County, Illinois
 CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	765.6							
		2-3/4" Asphalt over 6-1/2" Gravel Base Course	764.7							
		Black Clay LOAM, A-6								
		Brown Clay LOAM, A-6(8)*	764.1	SS	1	7	16	-	1.24 1.71	
		Brown and Grey CLAY, A-6	761.8	SS	2	17	18	-	3.76	
5										
				SS	3	17	17	-	6.59	
				SS	4	19	18	-	7.13	
10		End of Boring @ 10.0'	755.6							

* = Lab Results on attached BD-508A

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



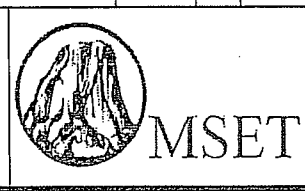
BORING STARTED: 10/22/08
 BORING COMPLETED: 10/22/08
 LOGGED BY: SPE
 BORING METHOD: CFA

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PROJECT: Washington Street SITE LOCATION: Lake County, Illinois
 BORING LOCATION: Sta. 4+50, 22' S of CL CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	770.3							
		14" Asphalt								
		Brown Gravelly LOAM, A-2-4: FILL	769.1 768.6	SS	1	18	5	-	-	
		Recycled Asphalt FILL								
		Black Clay LOAM, A-7-6	767.3							
5		Olive-Grey Silty Clay LOAM, A-6	765.8	SS	2	7	25	-	2.25	
		Brown Gravelly LOAM, A-4	763.8	SS	3	10	22	-	1.5 (Op)	
		Brown CLAY, A-6	762.3							
10		End of Boring @ 10.0'	760.3	SS	4	22	16	-	8.33	

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



BORING STARTED: 10/13/08
 BORING COMPLETED: 10/13/08
 LOGGED BY: SPE
 BORING METHOD: HSA

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PROJECT: Washington Street

SITE LOCATION: Lake County, Illinois

BORING LOCATION: Sta. 8+00, 20' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	771.1						
		9" Dark Brown Shoulder Gravel							
		Recycled Asphalt FILL	770.3						
		Black Clay LOAM, A-7-6*	769.1	SS	1	13	-	-	1.5 (Qp)
		Yellow-Brown Silty Clay LOAM, A-6	768.1						
5		Brown and Grey CLAY, A-6	765.6	SS	2	18	19	-	2.75 (Qp)
		Brown-Grey		SS	3	12	15	-	4.50
10		End of Boring @ 10.0'	761.1	SS	4	23	16	-	7.29

* = Lab Results on attached BD-508A

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/13/08
 BORING COMPLETED: 10/13/08
 LOGGED BY: SPE
 BORING METHOD: HSA

216

PROJECT: Washington Street




SITE LOCATION: Lake County, Illinois

BORING LOCATION: Sta. 10+50, 22' S of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS	
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf		Unconfined Compressive Strength, tsf
		Ground Surface	769.7							
		5" Shoulder Gravel								
		Black Gravelly LOAM, A-2-4 to Black, Grey, and Brown Clay LOAM, A-7-6 to A-6: FILL	769.3	SS	1	10	14	-	2.71	TRENCH BACKFILL
5				SS	2	6	22	-	1.0 (Qp)	
				SS	3	9	20	-	1.0 (Qp)	
		Brown and Grey CLAY, A-6	761.7	SS	4	22	19	-	5.93	
10		End of Boring @ 10.0'	759.7							

WATER LEVEL OBSERVATIONS, ft.

During Drilling:  none
 Immediately After Drilling:  dry
 Delayed Reading After - Days  -



MSET

BORING STARTED: 10/15/08
 BORING COMPLETED: 10/15/08
 LOGGED BY: SPE
 BORING METHOD: HSA

217

PROJECT: Washington Street | SITE LOCATION: Lake County, Illinois
 BORING LOCATION: Sta. 13+50, 19' N of CL | CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	771.0						
		7" Black Clay LOAM, A-7-6							
		Dark Brown Clay LOAM, A-6	770.4	SS	1	6	9	-	1.75 (Op) 3.75 (Qp)
		Brown and Grey CLAY, A-6	769.0						
				SS	2	14	17	-	5.93
5		Brown-Grey		SS	3	18	17	-	6.59
		Grey Silty CLAY, A-6	762.5	SS	4	18	16	-	4.46
10		End of Boring @ 10.0'	761.0						

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



BORING STARTED: 10/13/08
 BORING COMPLETED: 10/13/08
 LOGGED BY: SPE
 BORING METHOD: HSA

218

PROJECT: Washington Street

SITE LOCATION: Lake County, Illinois

BORING LOCATION: Sta. 16+50, 18' S of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	775.7						
		4" Shoulder Gravel	775.4						
		Dark Brown and Brown Silty Clay LOAM, A-6: FILL	775.4	SS	1	7	23	-	0.75 (Qp)
		Brown and Grey CLAY, A-6	772.0	SS	2	11	18	-	2.83
5									
				SS	3	20	16	-	7.52
				SS	4	20	16	-	9.03
10		End of Boring @ 10.0'	765.7						

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none

Immediately After Drilling: dry

Delayed Reading After - Days -



BORING STARTED: 10/17/08

BORING COMPLETED: 10/17/08

LOGGED BY: SPE

BORING METHOD: HSA

PROJECT: Washington Street
 BORING LOCATION: Sta. 22+70, 18' S of CL

SITE LOCATION: Lake County, Illinois
 CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	790.0						
		Dark Brown Silty Clay LOAM, A-6: FILL							
		Brown and Grey CLAY, A-6(15)*	789.0	SS	1	13	13	-	3.50
5				SS	2	17	18	-	4.46
				SS	3	22	17	-	8.06
				SS	4	22	17	-	9.03
10		End of Boring @ 10.0'	780.0						

* = Lab Results on attached BD-508A

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET


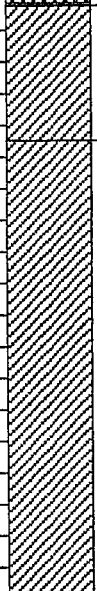
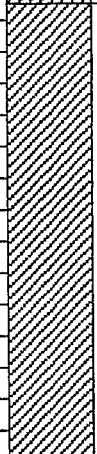
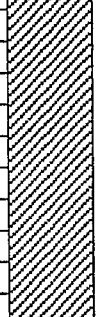
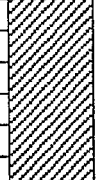
BORING STARTED: 10/17/08
 BORING COMPLETED: 10/17/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street




SITE LOCATION: Lake County, Illinois

BORING LOCATION: Sta. 25+60, 17' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	793.0							
		8" Dark Brown Shoulder Gravel								
		Brown and Dark Brown Silty Clay LOAM, A-6	792.3	SS	1	6	19	-	3.5 (Qp)	
		Brown and Grey CLAY, A-6	790.2	SS	2	15	15	-	6.59	
5				SS	3	23	17	-	8.33	
		Brown-Grey		SS	4	26	14	-	11.82	
10		End of Boring @ 10.0'	783.0							

WATER LEVEL OBSERVATIONS, ft.

During Drilling:  none
 Immediately After Drilling:  dry
 Delayed Reading After - Days  -



MSET

BORING STARTED: 10/13/08
 BORING COMPLETED: 10/13/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street

SITE LOCATION: Lake County, Illinois

BORING LOCATION: Sta. 28+50, 22' S of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	798.7							
		2-1/4" AC, 6-3/4" Crushed Limestone Base Course								
		Brown and Grey CLAY, A-6	797.9	SS	1	10	13	-	4.57	
5		Brown		SS	2	24	14	-	6.32	
		Grey-Brown		SS	3	26	13	-	10.08	
10		Grey-Brown		SS	4	25	13	-	5.54	
		End of Boring @ 10.0'	788.7							

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none

Immediately After Drilling: dry

Delayed Reading After - Days -



MSET

BORING STARTED: 10/21/08

BORING COMPLETED: 10/21/08

LOGGED BY: CD

BORING METHOD: HSA

222

PROJECT: Washington Street

SITE LOCATION: Lake County, Illinois

BORING LOCATION: Sta. 31+50, 26' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	790.8							
		Asphalt over Brown Crushed Gravel, A-1 Brown Silty CLAY, A-6: FILL								
		Brown SAND, A-2	788.8	SS	1	5	13	-	2.5 (Qp)	
		Grey and Yellow-Brown Silty CLAY, A-7-6 to A-6	787.8							
5				SS	2	7	31	-	1.78	
		Brown and Grey CLAY, A-6	784.3	SS	3	14	25	-	2.5 (Qp) 4.79	
10		End of Boring @ 10.0'	780.8	SS	4	18	17	-	7.75	

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/10/08
 BORING COMPLETED: 1/10/08
 LOGGED BY: SPE
 BORING METHOD: HSA

223

PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 34+40, 19' S of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	791.7							
		9" Shoulder Gravel								
		Brown and Grey CLAY, A-6	790.9	SS	1	12	20	-	3.37	
5				SS	2	23	15	-	4.81	
				SS	3	19	12	-	3.84	
				SS	4	21	14	-	6.59	
10		End of Boring @ 10.0'	781.7							

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none

Immediately After Drilling: dry

Delayed Reading After - Days -



MSET

BORING STARTED: 10/21/08

BORING COMPLETED: 10/21/08

LOGGED BY: CD

BORING METHOD: HSA

PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 37+50, 21' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	791.0							
		7" Brown Shoulder Gravel								
		Dark Brown Sandy LOAM, A-6(3)*: FILL	790.4	SS	1	7	16	-	2.0 (Qp)	
		mixed with Gravel		SS	2	5	13	-	2.0 (Qp)	
5		Yellow-Brown and Grey Silty CLAY, A-6	785.5	SS	3	6	26	-	0.85	
		Brown-Grey to Grey CLAY, A-6	783.0	SS	4	22	16	-	8.14	
10		End of Boring @ 10.0'	781.0							

* = Lab Results on attached BD-508A

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/10/08
 BORING COMPLETED: 10/10/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 40+50, 20' S of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	796.1							
		5-1/2" AC over 4" Crushed Limestone								
		Brown Silty CLAY, A-6: FILL	795.3	SS	1	8	10	-	1.5 (Qp)	
		Dark Brown-Black Silty CLAY, A-6	793.6	SS	2	7	28	-	1.25 (Qp)	
5		Brown Silty CLAY, A-6	790.1	SS	3	11	14	-	3.26	
				SS	4	11	14	-	2.83	
10		End of Boring @ 10.0'	786.1							

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/21/08
 BORING COMPLETED: 10/21/08
 LOGGED BY: CD
 BORING METHOD: HSA

226

PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 43+40, 18' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	807.5							
		3" Shoulder Gravel	807.2							
		Brown and Dark Brown CLAY, A-6		SS	1	11	20	-	4.5 (Qp)	
		Brown and Grey		SS	2	26	14	-	11.04	
5				SS	3	30	15	-	11.82	
		Brown-Grey		SS	4	30	16	-	10.35	
10		End of Boring @ 10.0'	797.5							

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/10/08
 BORING COMPLETED: 10/10/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street




SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 46+50, 18' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	809.2						
		6" Shoulder Gravel							
		Brown Silty CLAY, A-6	808.7						
				SS	1	18	18	-	3.49
				SS	2	21	15	-	9.42
				SS	3	23	15	-	11.90
				SS	4	23	13	-	4.5+ (Qp)
10		End of Boring @ 10.0'	799.2						

WATER LEVEL OBSERVATIONS, ft.

During Drilling:  none
 Immediately After Drilling:  dry
 Delayed Reading After - Days  -



MSET

BORING STARTED: 10/10/08
 BORING COMPLETED: 10/10/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 49+30, 17' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	807.4							
		6" Shoulder Gravel								
		Brown CLAY, A-6	806.9							
				SS	1	16	28	-	3.5 (Qp)	
				SS	2	19	21	-	3.29	
				SS	3	22	16	-	6.51	
				SS	4	22	16	-	5.46	
10		End of Boring @ 10.0'	797.4							

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/10/08
 BORING COMPLETED: 10/10/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 52+40, 17' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	805.2							
		5" Shoulder Gravel								
		Brown CLAY, A-6	804.8	SS	1	9	17	-	2.87	
		▽ Brown SAND, A-2, very moist	802.2	SS	2	4	13	-	-	
5		Brown and Grey CLAY, A-6	799.7	SS	3	18	20	-	9.88	
		Brown-Grey		SS	4	18	20	-	7.25	
10		End of Boring @ 10.0'	795.2							

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: ▽ 3.5'
 Immediately After Drilling: ▽ dry
 Delayed Reading After - Days ▽ -



MSET

BORING STARTED: 10/10/08
 BORING COMPLETED: 10/10/08
 LOGGED BY: SPE
 BORING METHOD: HSA

230

PROJECT: Washington Street
 BORING LOCATION: Sta. 55+60, 18' S of CL

SITE LOCATION: Round Lake, Illinois
 CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	802.0						
		4" Shoulder Gravel	801.7						
		Brown and Grey CLAY, A-6		SS	1	9	19	-	6.05
5		Brown-Grey		SS	2	17	19	-	10.35
				SS	3	21	18	-	8.76
				SS	4	23	15	-	8.80
10		End of Boring @ 10.0'	792.0						

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/21/08
 BORING COMPLETED: 10/21/08
 LOGGED BY: CD
 BORING METHOD: HSA

231

PROJECT: Washington Street
 BORING LOCATION: Sta. 57+65, 19' N of CL

SITE LOCATION: Round Lake, Illinois
 CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	799.0						
		2" Shoulder Gravel	798.8						
		Dark Grey, Brown, and Black CLAY, A-6(15)*: FILL		SS	1	13	29	-	2.5 (Qp)
5				SS	2	13	23	-	2.05
		Brown and Grey CLAY, A-6	793.5						
				SS	3	17	17	-	6.74
				SS	4	17	17	-	5.23
10		End of Boring @ 10.0'	789.0						

* = Lab Results on attached BD-508A

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/21/08
 BORING COMPLETED: 10/21/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street **SITE LOCATION:** Round Lake, Illinois
BORING LOCATION: Sta. 204+65, 33' S of CL **CLIENT:** Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	764.1							
		4" Concrete Sidewalk over 5-1/2" Brown Gravel Base Course	763.3							
		Brown and Dark Brown Silty Clay LOAM, A-6: FILL		SS	1	11	15	-	2.0 (Qp)	
5		Dark Grey and Black Silty CLAY, A-7-6	760.1	SS	2	12	21	-	3.45	
				SS	3	4	27	-	0.85	
10		Brown and Grey End of Boring @ 10.0'	754.1	SS	4	9	27	-	1.0 (Qp)	

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



BORING STARTED: 10/22/08
 BORING COMPLETED: 10/22/08
 LOGGED BY: SPE
 BORING METHOD: CFA

233

PROJECT: Washington Street




SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 17+00, 22' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	±776.0							
		4" Concrete Sidewalk								
		Brown and Dark Brown Silty Clay LOAM, A-6: FILL	775.7	SS	1	12	15	-	2.5 (Qp)	
		Dark Brown Clay LOAM, A-6	773.5							
		Brown and Grey CLAY, A-6	772.5	SS	2	16	19	-	4.11	
5				SS	3	19	17	-	6.12	
				SS	4	23	17	-	7.29	
				SS	5	22	17	-	8.53	
				SS	6	21	17	-	9.49	
15										
		Grey CLAY, A-6	760.5	SS	7	18	19	-	3.41	
				SS	8	18	22	-	5.19	
20		End of Boring @ 20.0'	756.0							

WATER LEVEL OBSERVATIONS, ft.

During Drilling:  none
 Immediately After Drilling:  dry
 Delayed Reading After - Days  -



MSET

BORING STARTED: 10/17/08
 BORING COMPLETED: 10/17/08
 LOGGED BY: SPE
 BORING METHOD: HSA

234

PROJECT: Washington Street SITE LOCATION: Round Lake, Illinois
 BORING LOCATION: Sta. 17+80, 20' N of CL CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	±777.0						
		Dark Brown Clay LOAM, A-6(10)*		SS	1	5	15	-	1.36
		Brown Clay LOAM, A-6	774.0	SS	2	7	23	-	1.78
5		Brown and Grey CLAY, A-6	771.5	SS	3	21	17	-	8.45
				SS	4	22	17	-	9.22
10				SS	5	20	17	-	9.26
				SS	6	21	18	-	7.44
15				SS	7	21	17	-	5.70
		Grey CLAY, A-6	759.0	SS	8	19	17	-	4.57
20		End of Boring @ 20.0'	757.0						

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



BORING STARTED: 10/17/08
 BORING COMPLETED: 10/17/08
 LOGGED BY: SPE
 BORING METHOD: HSA




235

PROJECT: Washington Street
 BORING LOCATION: Sta. 18+75, 20' N of CL

SITE LOCATION: Round Lake, Illinois
 CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	±778.5							
		4" Concrete Sidewalk								
		Brown and Dark Brown Clay LOAM, A-6: FILL	778.2	SS	1	7	14		1.74	
		Olive-Grey Clay LOAM, trace Roots, A-6	775.5	SS	2	9	19		2.05	
5		wet Sand seam @ 6.0'								
		Brown and Grey CLAY, A-6	772.0	SS	3	14	15		9.03	
				SS	4	23	16	-	9.11	
10				SS	5	29	16	-	9.11	
				SS	6	32	18	-	6.78	
15		Grey CLAY, A-6	763.0	SS	7	18	17	-	4.46	
				SS	8	19	21	-	4.01	
20		End of Boring @ 20.0'	758.5							

WATER LEVEL OBSERVATIONS, ft.

During Drilling:  none
 Immediately After Drilling:  dry
 Delayed Reading After - Days  -



MSET

BORING STARTED: 10/17/08
 BORING COMPLETED: 10/17/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street
 BORING LOCATION: Sta. 19+50, 20' N of CL

SITE LOCATION: Round Lake, Illinois
 CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	±780.5							
		5" Concrete Shoulder								
		Brown and Black Clay LOAM, A-6: FILL	780.1	SS	1	8	14	-	2.48	
		Black Clay LOAM, A-6	778.0							
		Brown CLAY, A-6	777.5	SS	2	10	26	-	3.76	
5		Brown and Grey		SS	3	16	18	-	5.31	
				SS	4	25	16	-	9.30	
				SS	5	25	17	-	9.57	
10		Brown-Grey		SS	6	24	21	-	6.28	
				SS	7	16	21	-	3.48	
15		Grey CLAY, A-6	765.0	SS	8	21	19	-	3.55	
20		End of Boring @ 20.0'	760.5							

WATER LEVEL OBSERVATIONS, ft.

During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/17/08
 BORING COMPLETED: 10/17/08
 LOGGED BY: SPE
 BORING METHOD: HSA

PROJECT: Washington Street SITE LOCATION: Round Lake, Illinois
 BORING LOCATION: Sta. 20+25, 18' N of CL CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS		REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
		Ground Surface	±783.5						
		4" Dark Brown Silty CLAY/ TOPSOIL	783.2						
		Brown CLAY, A-6		SS	1	11	18	-	3.5 (Qp)
		Brown and Grey							
				SS	2	23	15	-	4.15
5									
				SS	3	22	16	-	7.48
				SS	4	25	16	-	7.21
10									
		Brown-Grey		SS	5	22	17	-	8.29
				SS	6	22	22	-	6.51
15									
		Grey CLAY, A-6	768.0	SS	7	11	15	-	2.40
				SS	8	11	15	-	2.05
20		End of Boring @ 20.0'	763.5						

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: ∇ 15.5'
 Immediately After Drilling: ∇ 14.1'
 Delayed Reading After - Days ∇ -



BORING STARTED: 10/17/08
 BORING COMPLETED: 10/17/08
 LOGGED BY: SPE
 BORING METHOD: HSA



238




PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 28+00, 20' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	±801.5							
		Silty CLAY/TOPSOIL, mixed FILL								
		Brown and Grey CLAY, A-6	800.0	SS	1	14	13	-	2.5 (Qp)	
5		Brown		SS	2	20	13	-	12.40	
				SS	3	24	16	-	5.93	
		Brown-Grey		SS	4	20	15	-	11.12	
10				SS	5	20	15	-	4.81	
				SS	6	15	13	-	3.49	
15				SS	7	13	15	-	3.49	
		Grey CLAY, A-6	784.0							
				SS	8	11	14	-	2.36	
20		End of Boring @ 20.0'	781.5							

WATER LEVEL OBSERVATIONS, ft.
 During Drilling:  none
 Immediately After Drilling:  dry
 Delayed Reading After - Days  -



MSET

BORING STARTED: 10/21/08
 BORING COMPLETED: 10/21/08
 LOGGED BY: CD
 BORING METHOD: HSA

239

PROJECT: Washington Street

SITE LOCATION: Round Lake, Illinois

BORING LOCATION: Sta. 29+00, 20' N of CL

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	MATERIAL DESCRIPTION	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	No.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
		Ground Surface	±800.0							
		Dark Brown and Orange-Brown Sandy CLAY/TOPSOIL								
		Brown and Grey CLAY, A-6	798.0	SS	1	9	15	-	-	5.43
5				SS	2	17	14	-	4.5+ (Qp)	
				SS	3	16	17	-		6.32
10				SS	4	23	17	-		3.14
				SS	5	22	16	-		6.47
15				SS	6	22	16	-		6.08
		Brown-Grey		SS	7	18	15	-		6.05
				SS	8	18	15	-		6.01
20		End of Boring @ 20.0'	780.0							

WATER LEVEL OBSERVATIONS, ft.
 During Drilling: none
 Immediately After Drilling: dry
 Delayed Reading After - Days -



MSET

BORING STARTED: 10/21/08
 BORING COMPLETED: 10/21/08
 LOGGED BY: CD
 BORING METHOD: HSA

PAVEMENT CORE MEASUREMENT LOG

Washington Street Improvements
Round Lake, Illinois

<u>Core No. C-1</u>	<u>Location</u>	<u>Material</u>	<u>Depth(in.)</u>	<u>Thickness(in.)</u>	<u>Remarks/Condition</u>
	Cedar Lake Road, N of Washington, 25' N of Stoplight Line, 5' E of Back of Curb, Southbound Lane				
		Bituminous Surface	0 to 1- 1/2	1- 1/2	Fair condition
		Bituminous Surface	1- 1/2 to 2- 3/4	1- 1/4	Good condition
		Petro-mat	2- 3/4 to 2- 3/4	0	
		Bituminous Binder	2- 3/4 to 4- 3/4	2	Fair condition
		Bituminous Binder	4- 3/4 to 8- 1/2	3- 3/4	Good condition
		Base Course	8- 1/2 to 21- 1/2	13	Brown SAND and GRAVEL
		Subgrade	21- 1/2 +		Dark Brown Silty SAND and GRAVEL

<u>Core No. C-2</u>	<u>Location</u>	<u>Material</u>	<u>Depth(in.)</u>	<u>Thickness(in.)</u>	<u>Remarks/Condition</u>
	Cedar Lake Road, S of Washington, 145' S of Stoplight Line, 21' W of Back of Curb, Northbound Lane				
		Bituminous Surface	0 to 2	2	Fair condition
		Bituminous Binder	2 to 3- 1/2	1- 1/2	Good condition
		Petro-mat	3- 1/2 to 3- 1/2	0	
		Bituminous Surface	3- 1/2 to 4- 1/2	1	Fair condition
		Bituminous Binder	4- 1/2 to 5- 1/4	3/4	Good condition
		Bituminous Binder	5- 1/4 to 10- 1/2	5- 1/4	Good condition
		BBC	10- 1/2 to 12- 3/4	2- 1/4	Good condition
		Base Course	12- 3/4 to 24	11- 1/4	Brown SAND and GRAVEL
		Subgrade	24 +		Grey Silty CLAY

<u>Core No. C-3</u>	<u>Location</u>	<u>Material</u>	<u>Depth(in.)</u>	<u>Thickness(in.)</u>	<u>Remarks/Condition</u>
	Washington Street, Just E of Cedar Lake Road, 131' E of E Corner of Stoplight Island, 8' N of Centerline of Westbound Lane				
		Bituminous Surface	0 to 1	1	Fair condition
		Bituminous Binder	1 to 2	1	Good condition
		Bituminous Surface	2 to 4	2	Good condition
		Bituminous Binder	4 to 6- 1/2	2- 1/2	Good condition
		Base Course	6- 1/2 to 21	14- 1/2	Brown SAND and GRAVEL
		Subgrade	21 +		Grey Silty CLAY

PAVEMENT CORE MEASUREMENT LOG

Washington Street Improvements
Round Lake, Illinois

<u>Core No.</u>	<u>Location</u>	<u>Depth(in.)</u>	<u>Thickness(in.)</u>	<u>Remarks/Condition</u>
C-4	Washington Street, 20' E of Fairlawn Drive, 11.5' S of Edge of Pavement, Westbound Lane			
	Bituminous Surface	0 to 1- 1/2	1- 1/2	Good condition
	Bituminous Surface	1- 1/2 to 2- 1/2	1	Good condition
	Bituminous Binder	2- 1/2 to 3- 3/4	1- 1/4	Good condition
	Bituminous Binder	3- 3/4 to 6- 1/4	2- 1/2	Good condition
	Base Course	6- 1/4 to 15	8- 3/4	Brown SAND and GRAVEL
	Subgrade	15 +		Brown Silty CLAY

STATE OF ILLINOIS
Department of Public Works and Buildings
Division of Highways

SOIL TEST DATA

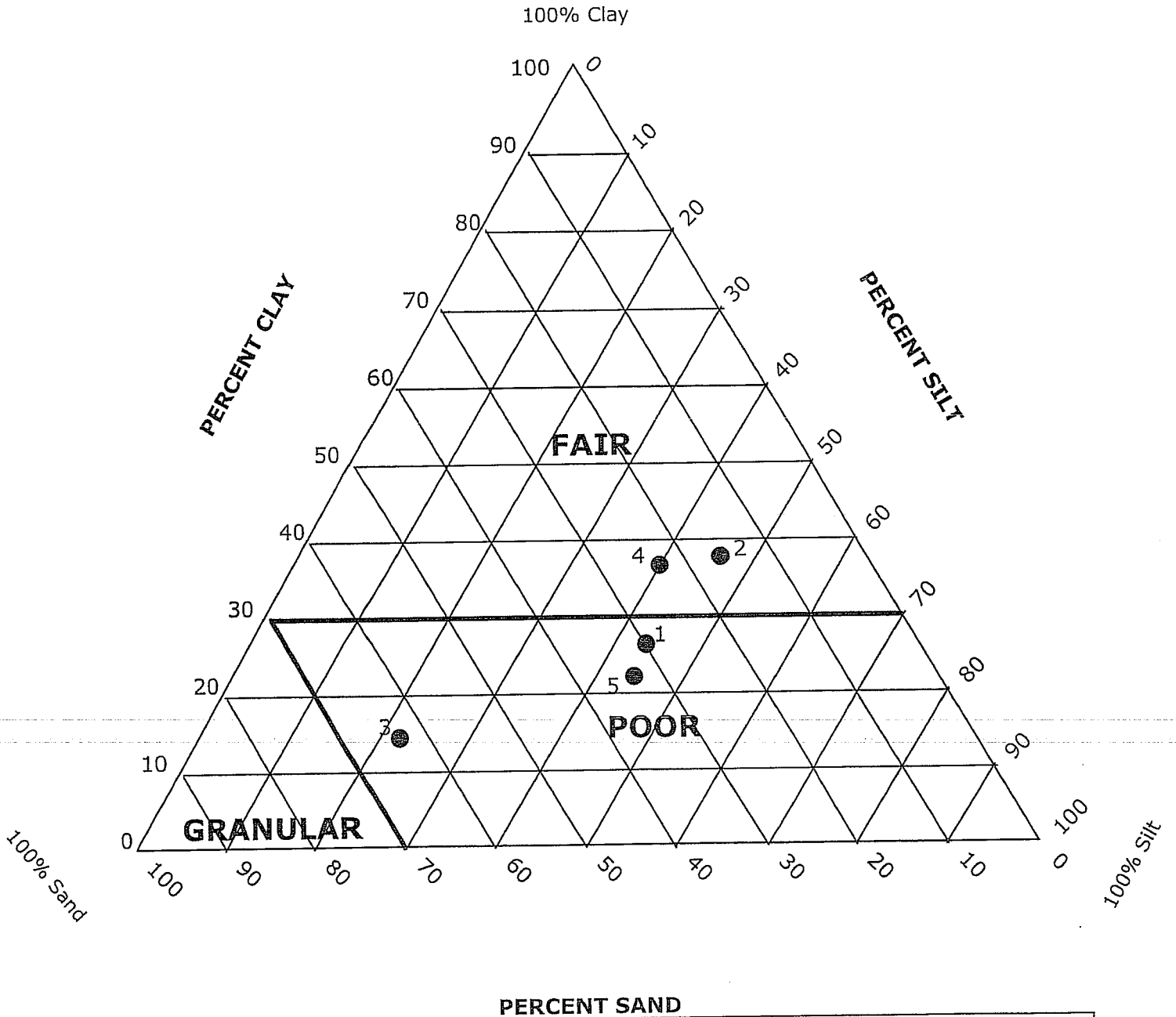
MSET JOB NUMBER: 88279 ROUTE: - PROJECT: Washington Street
SECTION: - CITY OR COUNTY: Lake

LAB. NO.	B-1	B-3	B-7	B-12	B-19	SB-2
STATION	1+45	8+00	22+70	37+50	57+65	17+80
LOCATION	32' N of CL	20' N of CL	18' S of CL	21' N of CL	19' N of CL	20' N of CL
DEPTH	1.5'-2.5'	2.0'-3.0'	1.0'-2.5'	3.5'-5.0'	1.0'-5.0'	1.0'-3.0'
AASHTO M 145 Classification and Group Index	A-6(8)	A-7-6	A-6(15)	A-6(3)	A-6(15)	A-6(10)
Illinois Textural Classification (Illinois Method)	Clay LOAM	Clay LOAM	CLAY	Sandy LOAM	CLAY	Clay LOAM
GRADATION-PASSING 1" SIEVE %	100.0	-	100.0	100.0	100.0	100.0
" 3/4" " %	100.0	-	100.0	100.0	100.0	100.0
" 1/2" " %	100.0	-	100.0	87.6	100.0	99.7
" NO. 4 " %	99.9	-	97.0	63.1	97.2	97.4
" NO. 10 " %	99.0	-	95.7	55.7	93.8	93.9
" NO. 40 " %	95.7	-	92.2	47.0	88.2	86.4
" NO. 100 " %	83.9	-	87.3	40.0	80.9	73.3
" NO. 200 " %	70.1	-	84.2	36.9	77.2	67.1
SAND %	29	-	12	19	17	27
SILT %	43	-	46	22	40	45
CLAY %	27	-	38	15	37	22
LIQUID LIMIT %	29	-	34	37	38	34
PLASTICITY INDEX %	15	-	19	21	21	19
BEARING RATIO %	-	-	-	-	3.7	5.2
STD. DRY DENSITY AASHTO T99 pcf	-	-	-	-	111.1	114.2
OPTIMUM MOISTURE %	-	-	-	-	16.1	14.4
ORGANIC CONTENT T-194 %	4.7					

REMARKS:

Np = Non-plastic

SUBGRADE SUPPORT RATING DIAGRAM



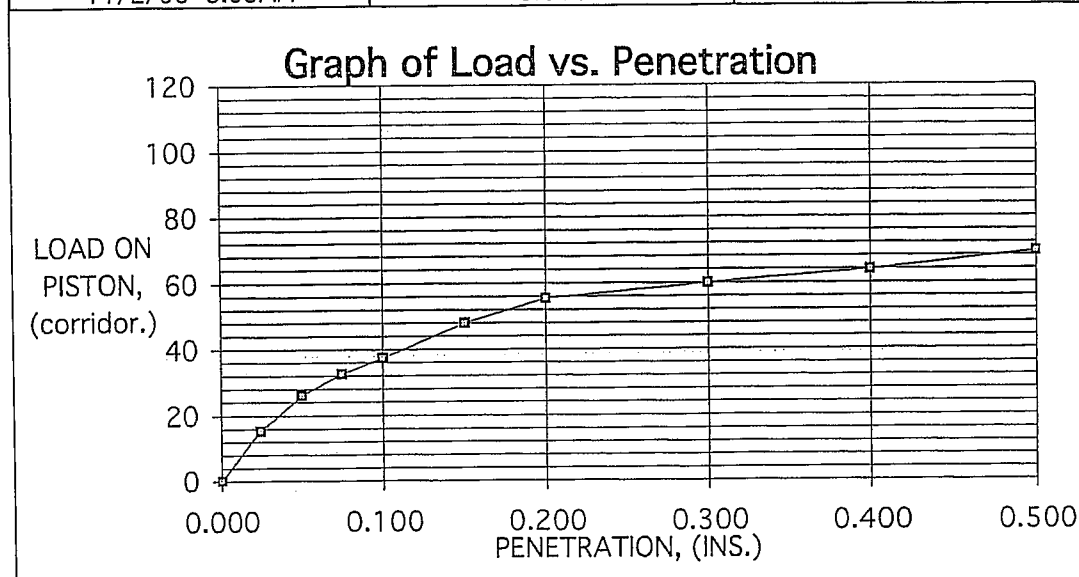
	PERCENT SAND				
	Boring	Station	Offset	Depth	Classification
1.	B-1	1+45	32' N of CL	1.5'-2.5'	Clay LOAM, A-6(8)
2.	B-7	22+70	18' S of CL	1.0'-2.5'	CLAY, A-6(15)
3.	B-12	37+50	21' N of CL	3.5'-5.0'	Sandy LOAM, A-6(3)
4.	B-19	57+65	19' N of CL	0.0'-5.5'	CLAY, A-6(15)
5.	SB-2	17+80	20' N of CL	0.0'-3.0'	Clay LOAM, A-6(10)

FILE NO.:	88279
PROJECT NAME:	Washington Street
SAMPLE I.D.:	B-19, 0.0' to 5.5'
CLASSIFICATION:	Dark grey brown and black CLAY A-6(15)
MAX.UNIT WT.:	111.1 P.C.F.
OPT. M.C.:	16.1 %
TEST UNIT WT.:	109.1 P.C.F.
TEST INIT. M.C.:	18.5 %
TEST% of MAX.	98.2 %

RAW LOAD/PENETRATION DATA		
Penetration, (INS.)		Load,lbs
0	8.0	8.0
0.025	46.0	46.0
0.05	78.0	78.0
0.075	98.0	98.0
0.1	112.0	112.0
0.15	144.0	144.0
0.2	166.0	166.0
0.3	180.0	180.0
0.4	191.5	191.5
0.5	207.5	207.5

BEARING RATIO RESULTS TO GRAPH		
Penetration, (INS.)	Load on Piston, (PSI)	IBR,@penetration
0.000	0	
0.025	15	
0.050	26	
0.075	33	
0.100	37	3.7%
0.150	48	
0.200	55	3.7%
0.300	60	
0.400	64	
0.500	69	

SWELL DATA		
DATE/TIME	READING, INCHES	SWELL, %
10/31/08 3:20PM	0.000	0.00
11/1/08 3:30PM	0.005	0.11
11/2/08 1:10PM	0.005	0.11
11/2/08 8:00AM	0.005	0.11

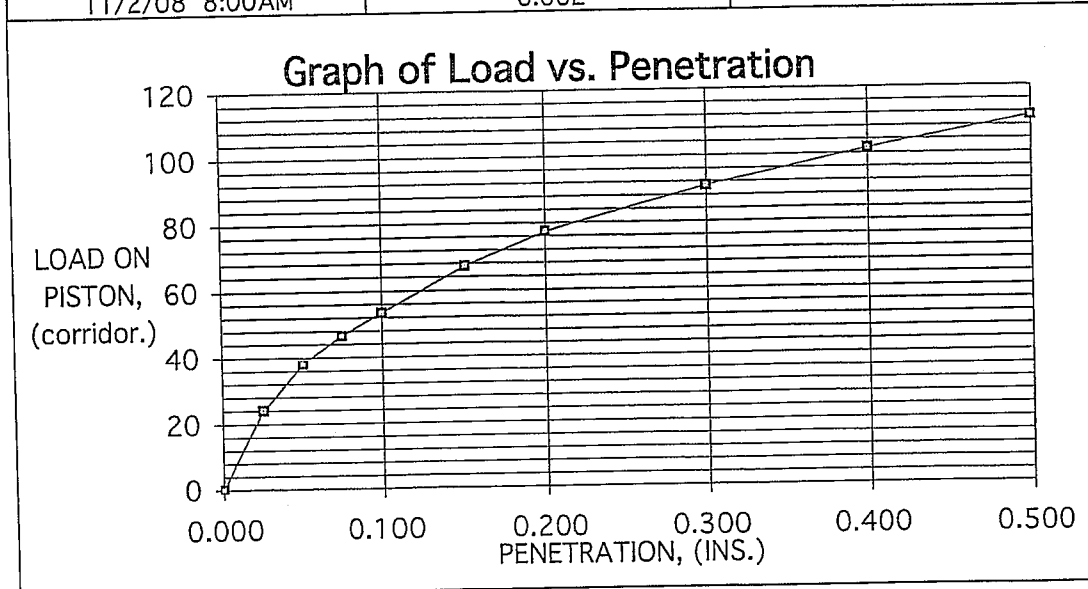


FILE NO.:	88279
PROJECT NAME:	Washington Street
SAMPLE I.D.:	SB-2 0'-3'
CLASSIFICATION:	Dark brown Clay LOAM, A-6(10)
MAX.UNIT WT.:	114.2 P.C.F.
OPT. M.C.:	14.4 %
TEST UNIT WT.:	110.8 P.C.F.
TEST INIT. M.C.:	16.5 %
TEST% of MAX.	97.0 %

RAW LOAD/PENETRATION DATA		
Penetration, (INS.)		Load, lbs
0	8.0	8.0
0.025	72.0	72.0
0.05	114.5	114.5
0.075	140.0	140.0
0.1	160.0	160.0
0.15	201.5	201.5
0.2	232.0	232.0
0.3	272.5	272.5
0.4	304.5	304.5
0.5	332.5	332.5

BEARING RATIO RESULTS TO GRAPH		
Penetration, (INS.)	Load on Piston, (PSI)	IBR,@penetration
0.000	0	
0.025	24	
0.050	38	
0.075	47	
0.100	53	5.3%
0.150	67	
0.200	77	5.2%
0.300	91	
0.400	102	
0.500	111	

SWELL DATA		
DATE/TIME	READING, INCHES	SWELL, %
10/31/08 3:20PM	0.000	0.00
11/1/08 3:30PM	0.002	0.04
11/2/08 1:10PM	0.002	0.04
11/2/08 8:00AM	0.002	0.04

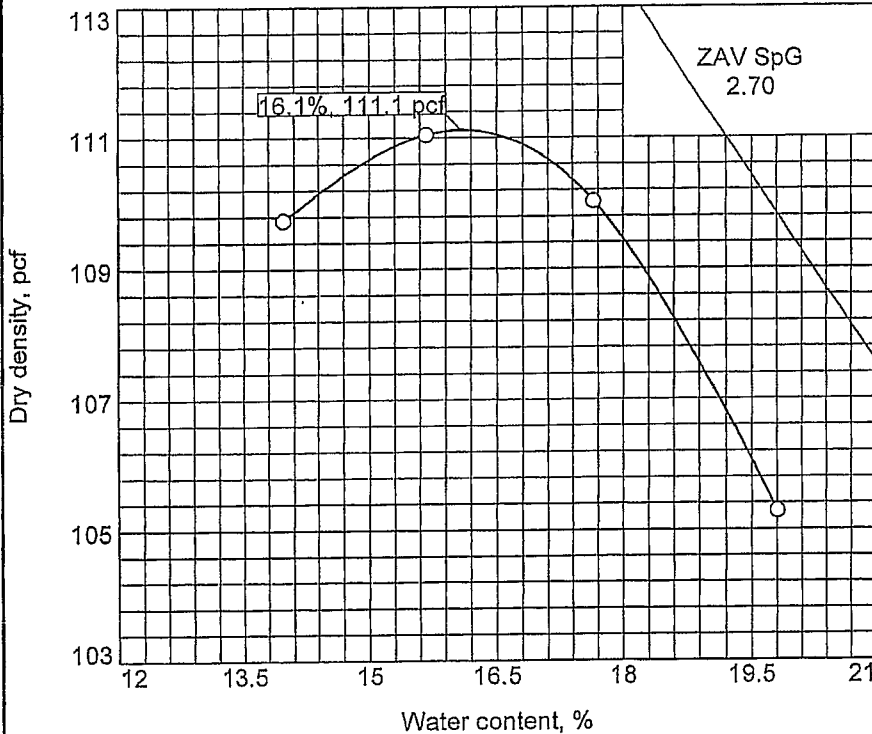


246

COMPACTION TEST REPORT

Curve No.

1



Test Specification:
ASTM D 698-07 Method A Standard

Preparation Method ASTM D-698
 Hammer Wt. 5.5 lb.
 Hammer Drop 12 in.
 Number of Layers three
 Blows per Layer 25
 Mold Size 0.03333 cu. ft.
 Test Performed on Material
 Passing #4 Sieve
 NM 23 LL 38 PI 21
 Sp.G. (ASTM D 854) 2.70
 %>#4 2.8 %<No.200 77.2
 USCS CL AASHTO A-6(15)
 Date Sampled 10/28/08
 Date Tested 10/28/08
 Tested By JDS

TESTING DATA

	1	2	3	4	5	6
WM + WS	6135.00	6186.00	6201.00	6151.00		
WM	4244.00	4244.00	4244.00	4244.00		
WW + T #1	752.00	697.00	758.00	763.00		
WD + T #1	662.00	605.00	647.00	640.00		
TARE #1	18.00	18.00	18.00	19.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	14.0	15.7	17.6	19.8		
DRY DENSITY	109.7	111.0	110.0	105.3		

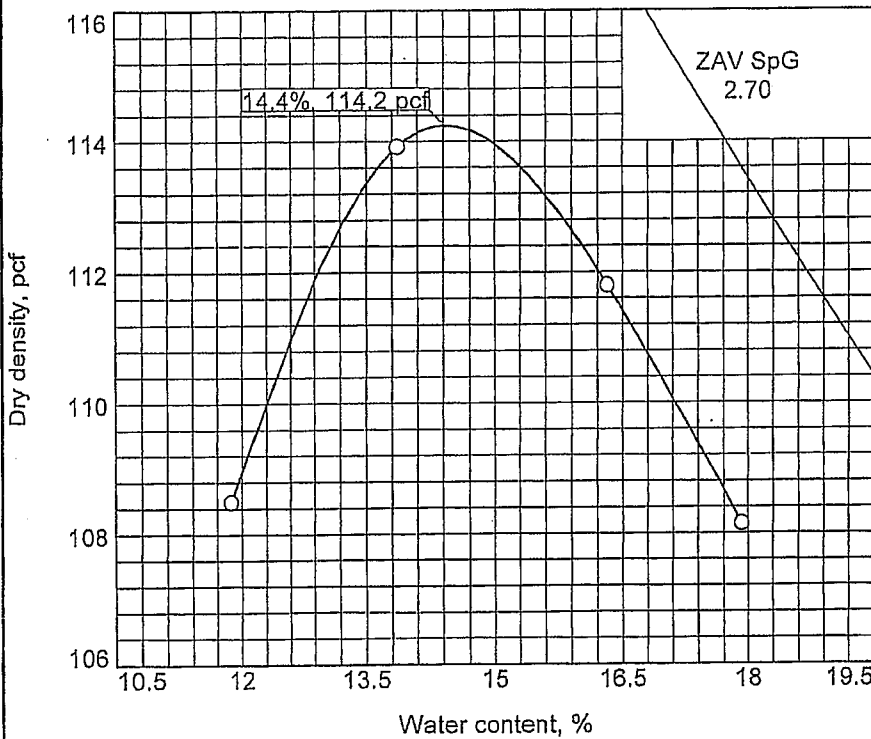
TEST RESULTS	Material Description
Maximum dry density = 111.1 pcf	Dark Grey, Brown, and Black CLAY
Optimum moisture = 16.1 %	
Project No. 88279 Client: Civiltech Project: Washington Street Improvements	Remarks:
o Depth: 0.0'-5.5' Sample Number: B-19	Checked by: CJD
Midland Standard Engineering & Testing	Title:
East Dundee, IL	Figure

247

COMPACTION TEST REPORT

Curve No.

2



Test Specification:
ASTM D 698-07 Method A Standard

Preparation Method ASTM D-698
 Hammer Wt. 5.5 lb.
 Hammer Drop 12 in.
 Number of Layers three
 Blows per Layer 25
 Mold Size 0.03333 cu. ft.

Test Performed on Material
 Passing #4 Sieve

NM 14 LL 34 PI 19
 Sp.G. (ASTM D 854) 2.70
 %>#4 2.6 %<No.200 67.1
 USCS CL AASHTO A-6(10)

Date Sampled 10/28/08

Date Tested _____

Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	6079.00	6205.00	6210.00	6172.00		
WM	4244.00	4244.00	4244.00	4244.00		
WW + T #1	593.00	708.00	631.00	676.00		
WD + T #1	532.00	624.00	545.00	576.00		
TARE #1	18.00	18.00	18.00	18.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	11.9	13.9	16.3	17.9		
DRY DENSITY	108.5	113.9	111.8	108.1		

TEST RESULTS

Maximum dry density = 114.2 pcf

Optimum moisture = 14.4 %

Project No. 88279 Client: Civiltech
 Project: Washington Street Improvements

o Depth: 0.0'-3.0' Sample Number: SB-2
Midland Standard Engineering & Testing
 East Dundee, IL

Material Description

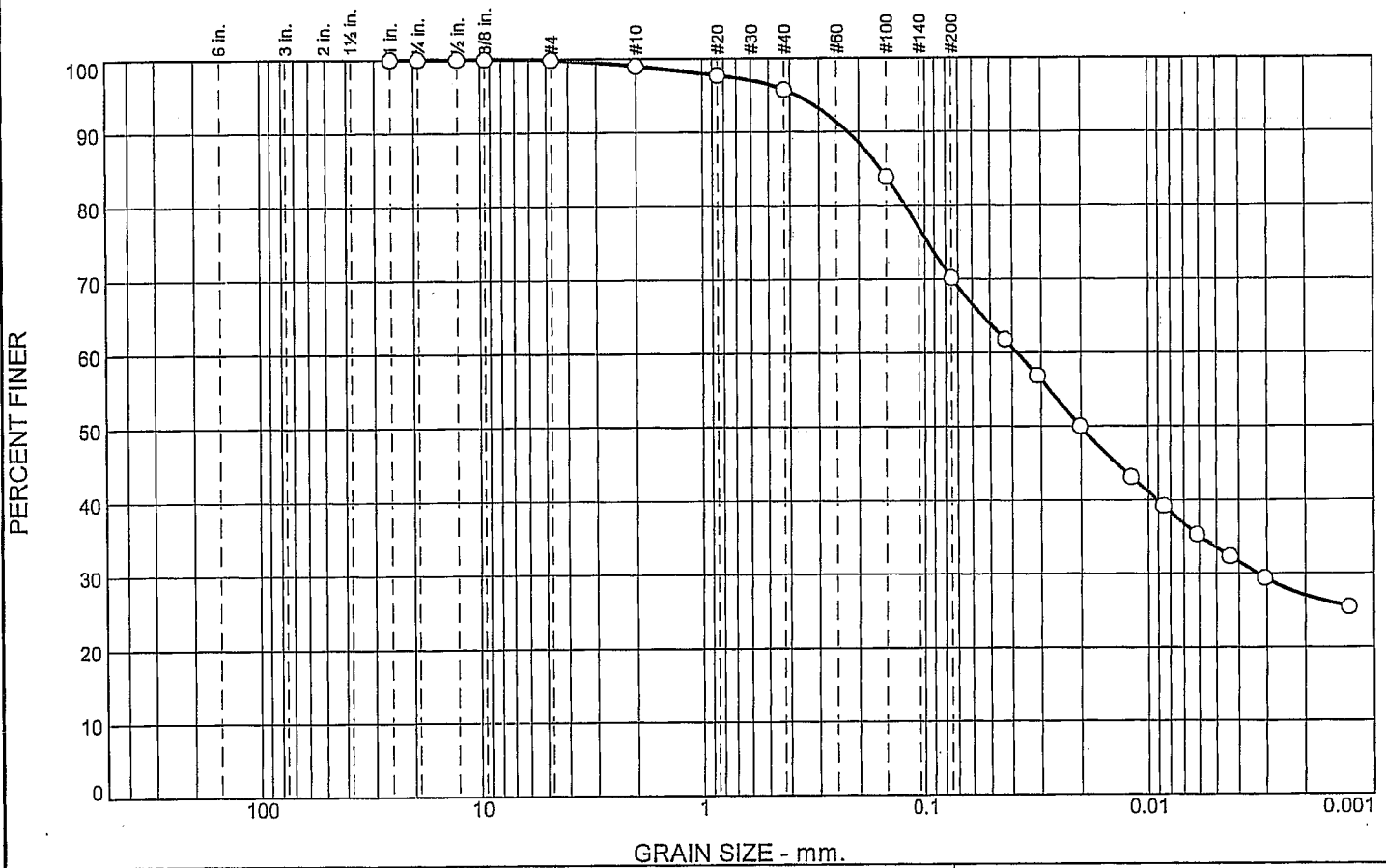
Dark Brown Sandy Lean CLAY

Remarks:

Checked by:
 Title:

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.9	3.3	25.6	43.1	27.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.50	100.0		
.375	100.0		
#4	99.9		
#10	99.0		
#20	97.7		
#40	95.7		
#100	83.9		
#200	70.1		

Material Description

Brown Clay LOAM

Atterberg Limits
 PL= 14 LL= 29 PI= 15

Coefficients
 D₈₅= 0.1596 D₆₀= 0.0379 D₅₀= 0.0201
 D₃₀= 0.0033 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= CL AASHTO= A-6(8)

Remarks

* (no specification provided)

Sample Number: B-1, SS-1B Depth: 1.5'-2.5'

Date: 10/28/08

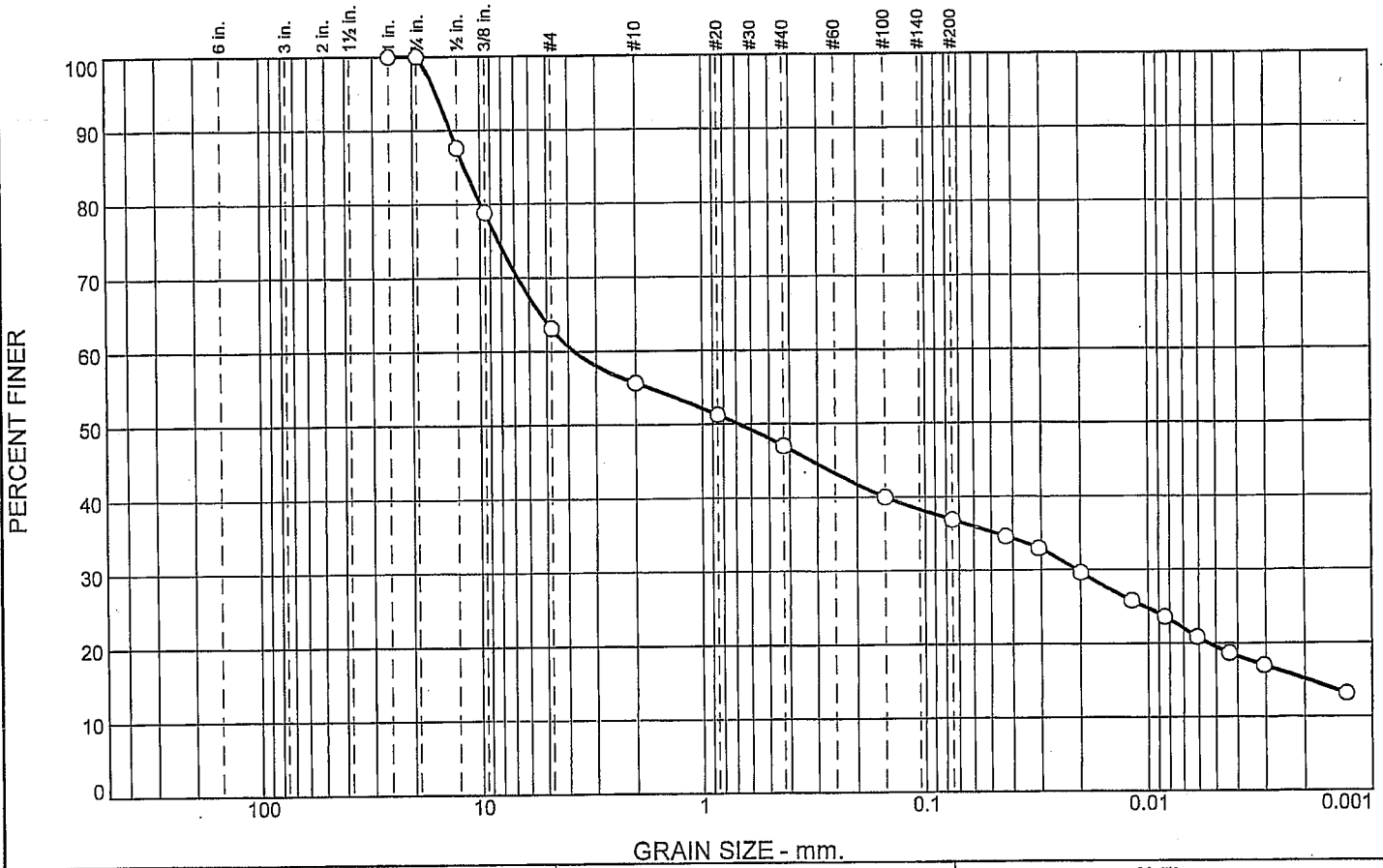
Midland Standard Engineering & Testing East Dundee, IL	Client: Civiltech Project: Washington Street Improvements Project No: 88279
Figure	

Tested By: JDS

Checked By: CJD

249

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	36.9	7.4	8.7	10.1	21.8	15.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.50	87.6		
.375	78.8		
#4	63.1		
#10	55.7		
#20	51.3		
#40	47.0		
#100	40.0		
#200	36.9		

Material Description
Dark Brown Sandy LOAM

Atterberg Limits
PL= 16 LL= 37 PI= 21

Coefficients
D₈₅= 11.7442 D₆₀= 3.7379 D₅₀= 0.6748
D₃₀= 0.0207 D₁₅= 0.0019 D₁₀=
C_u= C_c=

Classification
USCS= GC AASHTO= A-6(3)

Remarks

* (no specification provided)

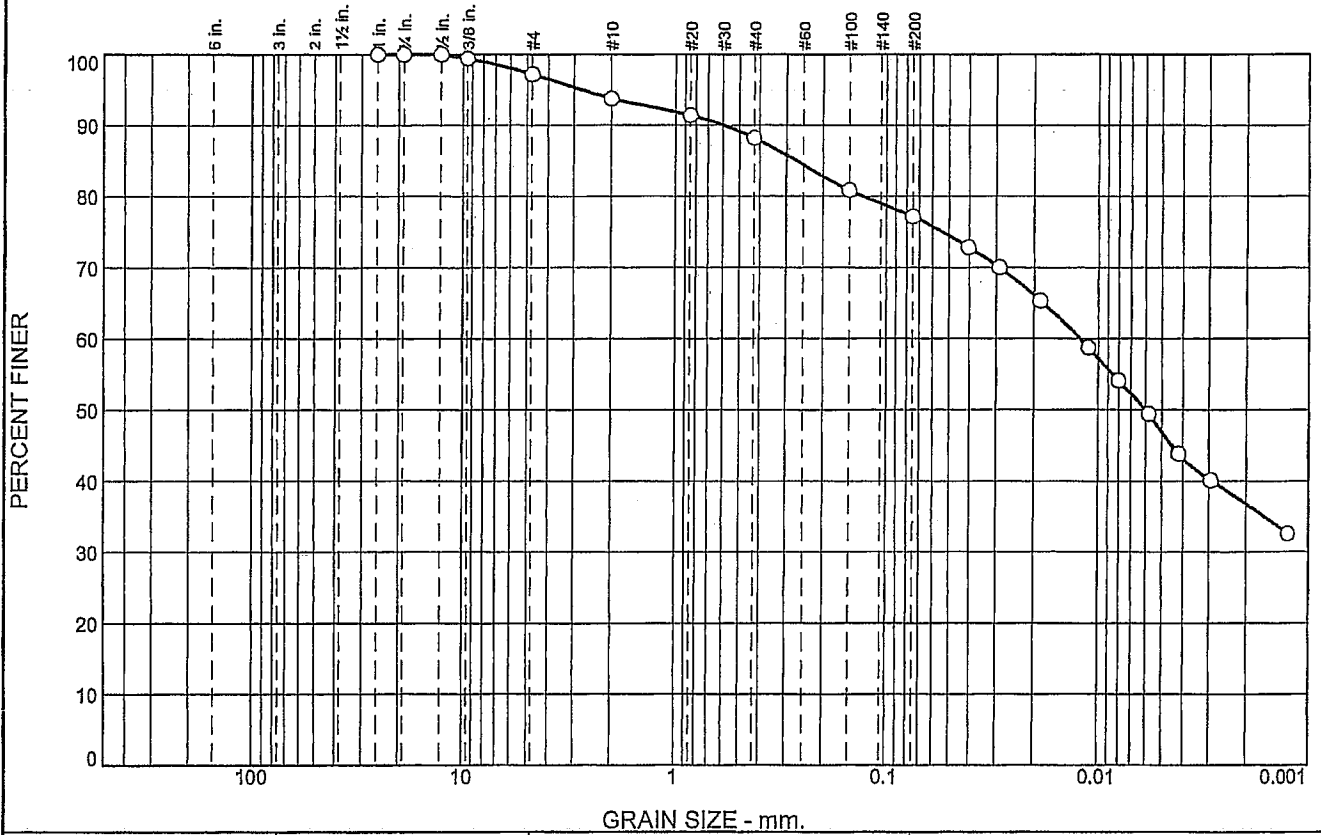
Sample Number: B-12, SS-2 Depth: 3.5'-5.0' Date: 10/28/08

Midland Standard Engineering & Testing East Dundee, IL	Client: Civiltech Project: Washington Street Improvements Project No: 88279	Figure
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Tested By: JDS Checked By: CJD

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Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.8	3.4	5.6	11.0	40.4	36.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.50	100.0		
.375	99.4		
#4	97.2		
#10	93.8		
#20	91.4		
#40	88.2		
#100	80.9		
#200	77.2		

Material Description

Dark Grey, Brown, and Black CLAY

Atterberg Limits

PL= 17 LL= 38 PI= 21

Coefficients

D₈₅= 0.2681 D₆₀= 0.0121 D₅₀= 0.0060
 D₃₀= D₁₅= D₁₀=
 C_u= C_c=

Classification

USCS= CL AASHTO= A-6(15)

Remarks

* (no specification provided)

Sample Number: B-19 Depth: 0.0'-5.5'

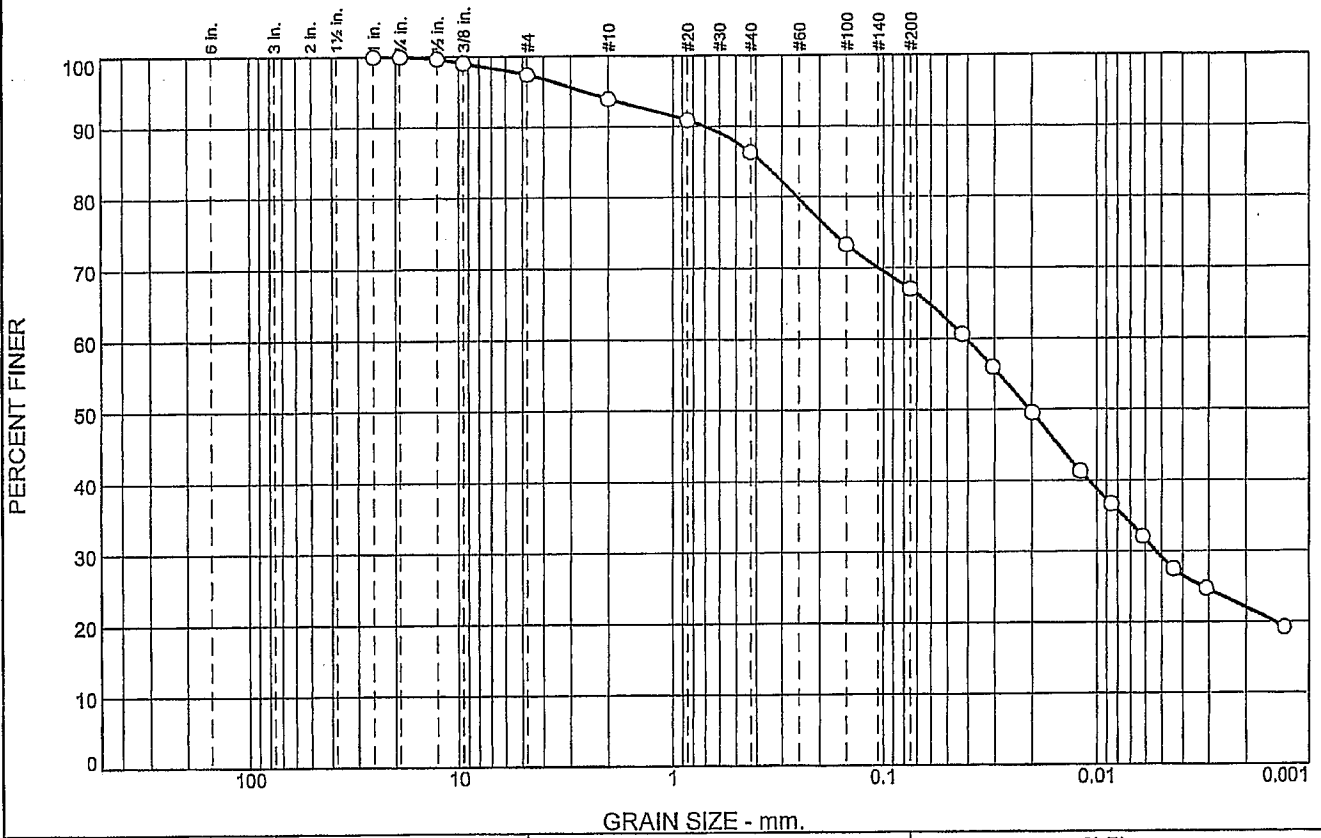
Date: 10/28/08

Midland Standard Engineering & Testing East Dundee, IL	Client: Civiltech Project: Washington Street Improvements Project No: 88279
Figure	

Tested By: JDS

Checked By: CJD

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	3.5	7.5	19.3	45.1	22.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	100.0		
.50	99.7		
.375	99.1		
#4	97.4		
#10	93.9		
#20	90.9		
#40	86.4		
#100	73.3		
#200	67.1		

Material Description

Dark Brown Clay LOAM

Atterberg Limits

PL= 15 LL= 34 PI= 19

Coefficients

D₈₅= 0.3733 D₆₀= 0.0405 D₅₀= 0.0204
D₃₀= 0.0053 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(10)

Remarks

* (no specification provided)

Sample Number: SB-2 Depth: 0.0'-3.0' Date: 10/28/08

Midland Standard Engineering & Testing East Dundee, IL	Client: Civiltech Project: Washington Street Improvements Project No: 88279 Figure
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Tested By: JDS Checked By: CJD

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MIDLAND STANDARD ENGINEERING & TESTING, INC.

558 Plate Drive, Unit 6 East Dundee, Illinois
(847) 844-1895 f(847) 844-3875

June 24, 2011

Mr. Reid T. Magner, P.E.
Civiltech Engineering, Inc.
450 East Devon, Suite 300
Itasca, Illinois 60143

Re: Soil Exploration and Analysis
Washington Street Phase II
Retaining Wall and Culvert Headwall
Lake County, Illinois
MSET File No. 11207

Dear Mr. Magner:

We have completed the exploration and analysis requested for the referenced project. Our findings and recommendations are presented in the attached report. We are transmitting three (3) copies for your use and further distribution.

If you have any questions regarding this report, please feel free to call.

Sincerely,
MIDLAND STANDARD ENGINEERING & TESTING, INC.

William J. Wyzgala, P.E.
Principal Engineer

WJW

Enclosures

SOIL EXPLORATION AND ANALYSIS

WASHINGTON STREET PHASE II, STRUCTURES
CEDAR LAKE ROAD TO HAINESVILLE ROAD
LAKE COUNTY, ILLINOIS

PREPARED FOR:
REID T. MAGNER, P.E.
CIVILTECH ENGINEERING, INC.
ITASCA, ILLINOIS
(630) 773-3975



MSET

PREPARED BY:
WILLIAM J. WYZGALA, P.E.
MIDLAND STANDARD ENGINEERING & TESTING
558 PLATE DRIVE, UNIT 6 EAST DUNDEE, ILLINOIS 60118

JUNE 2011

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INTRODUCTION

Purpose

The purpose of this exploration was to determine the types of soil encountered at the proposed culvert extension and along the proposed retaining wall alignment and to determine the presence of poor support materials that may require special treatments. Using this information, along with the project data provided, design criteria and recommendations for the earthwork and foundations have been prepared for use by the Design Engineers in preparing the project's plans and specifications.

Scope

The scope of this exploration and analysis included review of available information from previous work conducted in the area, subsurface exploration, field and laboratory testing, analysis of the data obtained, formulation of our recommendations, and preparation of this report. The field exploration included five (5) structure borings, labeled B-1 through B-5 and one hand auger boring labeled HA-3A.

This report was prepared on the basis of the project information supplied by the client and is only intended for use on this project. Changes in the grades or alignment of the project should be submitted for our review since changes of this kind may cause changes in our recommendations. The report was prepared by interpreting the data from the test borings and field tests made for the structures and from the results of the laboratory tests on the subsoil samples taken from there. The report gives a representative, but not exhaustive, picture of the project subsoil make-up. The soil engineer warrants findings, recommendations, specifications, and/or professional advice to have been promulgated with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology.

Reference Documents

This soils exploration and survey was performed in general accordance with the State of Illinois, 'Geotechnical Manual' dated January 1, 1999 and annual updates to present.

PROJECT LOCATION AND DESCRIPTION

Project Description and Location

The structure borings made for this investigation are part of a roadway reconstruction project for Washington Street from Cedar Lake Road to Hainesville Road in Lake County, Illinois. The two structures address in this report consist of the extension of an existing cross culvert pipe located at on the east side of Park Road, mainline Station 10+75 and a 350 foot long retaining wall on the south side of Washington Street, west of Hainesville Road Station 56+50 to 60+00. Refer to the Project Vicinity Map that is appended, for the project location details.

The work for the culvert extension is expected to consist of adding additional pipe to the north end of the existing culverts and constructing a new concrete headwall. The retaining wall at the east end of the project will be constructed to hold back embankment widening necessary for the roadway improvements and for a bike path alignment.

FIELD EXPLORATION

General

The procedures for this exploration were conducted in accordance with the appropriate Illinois Department of Transportation Standards. The borings were supervised at all times by a field engineer from Midland Standard Engineering & Testing, Inc. The soil specimens obtained were transported to our laboratory for testing and analysis. Our project engineer has directed all phases of this investigation.

Soil Drilling and Sampling Procedures

The soil borings were performed with a truck mounted drilling rig equipped with a rotary head. Hollow stem augers were used to advance the boreholes. Representative samples of the profile soils were obtained by the use of split-spoon sampling methods in accordance with the ASTM procedure D 1586.

Strength Tests

A calibrated hand penetrometer was used to aid in determining the strength and consistency of cohesive soil samples (Q_p) in the field. Split spoon samples were subjected to unconfined compressive strength testing (Q_u) by the Rimac Method as modified by IDOT.

Water Level Measurements

Water level observations were made during and after the boring operations and are noted on the boring logs, presented herewith. In relatively pervious, sandy soils, the water level elevations would be considered reliable. In relatively impervious, clayey soils, the accurate determination of the groundwater elevation may not be possible, even after several days of observation. Seasonal variations, temperature and recent rainfall conditions may influence the levels of the groundwater table, and volumes of water will depend on the permeability of the soils.

LABORATORY TESTING

Scope

A supplemental testing program was conducted to ascertain additional pertinent engineering characteristics of the subsurface and foundation materials. The soils laboratory work was performed in accordance with applicable ASTM and IDOT standards. The laboratory testing program included visual classification, moisture content determination for each sample obtained, and unconfined compression testing for applicable samples. The soils encountered in the borings have been classified using both the IDOT Textural Classification System, and the AASHTO Engineering Soil Classification System (AASHTO, M-145).

SUBSURFACE CONDITIONS

Subsurface Conditions

The subsurface soil profile encountered in the retaining wall borings B-1 through B-4 consists of 0 to 8 feet of Silty CLAY, A-6 Fill directly overlying hard to very hard brown and grey over grey Silty CLAY, A-6 glacial till at borings B-1 and B-4. In the center borings B-2 and B-3, the Fill overlies weaker soil deposits including black CLAY, A-7-6 former topsoil and firm dark grey to grey and yellow brown CLAY, A-7-6 extending to a depth of 8 feet at B-2. At B-3, drilled in the existing road shoulder, 8 feet of clay fill overlies black Organic CLAY, A-8 and fibrous PEAT, A-8 to a depth of 14 feet. These soil deposits have moisture content over 100 percent and are considered very compressible.

The subsurface soil profile encountered in the headwall soil boring B-5 consists of 6.5 feet of stiff Silty CLAY, A-6 Fill overlying hard to very stiff brown and grey over grey Silty CLAY, A-6 glacial till to a depth of twenty-feet.

Details of the materials encountered and laboratory test results are presented on the boring logs included in the Appendix to this report.

Groundwater Conditions

Groundwater measurements were made during and immediately after the drilling operations. Ground water did not enter the borehole during any drilling operations, presumably because of the tight clay soil profile. Long term ground water levels are expected to stabilize at or after wet weather periods, slightly above the soil coloration to all grey. This occurs at elevation 757 +/- at boring B-5 and at elevation 785 +/- at the retaining wall borings.

CULVERT PIPE/HEADWALL EXTENSION, STATION 10+75

Culvert Pipe Subgrade and Footing Conditions

The existing culvert pipes, an 18-inch RCP and a 24-inch CMP have north end inverts of 762.6 and 761.9, respectively. Hard brown and grey Silty CLAY, A-6 was encountered in boring B-5 at and 3.5 feet below this invert depth.

The cast-in-place concrete headwalls or wing walls footings should be located at frost depth below the creek channel and below future scour depth. A net allowable soil bearing pressure up to 4000 pounds per square foot may be used to dimension the footings. A minimum of eight inches of IDOT CA-7 bedding stone should be used to stabilize the subgrade at the culvert locations.

Excavations and Water Control During Construction

The excavations for the proposed construction are expected to extend below the water level in the creek and into saturated materials. Measures to control the channel water flow during construction will be required, such as temporarily re-routing the creek, using sheet piles to cut off the flow and working on one side at a time, utilizing pumps, or a combination of these procedures. Therefore, the contractor should be prepared to control/reroute significant groundwater and creek water during the construction.

The integrity of exposed bearing soil should be protected from loosening and disturbance from ground water and creek water flow. This can be accomplished by placing a mud mat, 3 inches thick, of lean concrete or by installing an 8-inch thick layer of open graded aggregate, such as crushed IDOT CA-07. The subgrade soil protection layer should be placed soon after excavation and approval of bearing soil.

Lateral Earth Pressures for Retaining Wall Design

If the culvert headwall/wing walls are designed as a retaining wall and not cantilevered, the following soil parameters can be used. The lateral earth pressure used to design headwalls/wing walls is dependent on the soil used to backfill the wall. The effects of surcharge loads and live loads on the ground surface behind the wall must then also be added to these earth pressures. Wall backfill drainage conditions and groundwater levels must also be considered in calculations. Most wall designs utilize active lateral earth pressures, assuming that the wall is allowed to yield enough to allow an active pressure state to develop. If a particular wall is rigidly restrained, then an at-rest earth pressure condition is more appropriate. For sliding resistance calculations, the appropriate Coefficient of Sliding Friction between the soil and the base of the wall should be used, and a minimum factor of safety against sliding of 1.5 should be provided.

The following table outlines the recommended lateral earth pressure coefficients, the sliding friction coefficients, and the saturated soil unit weights that can be applied to determine earth pressures. The given values do not include a factor of safety.

Earth Pressure Coefficients

Soil Type	Moist Unit Weight, pcf	Earth Pressures			Sliding Friction Factor, tan δ
		At Rest, K_o	Active, K_a	Passive, K_p	
Compacted CLAY	130	0.53	0.36	2.8	0.45
Compacted FA-02	130	0.44	0.28	3.5	0.50
Compacted CA-06	145	0.36	0.22	4.6	0.60
Exist. Clay Fill	130	0.56	0.39	2.6	0.45

EMBANKMENT RETAINING WALL, STATION 56+50 TO 60+00

General Wall Description and Use

The retaining wall for this project is planned along the south side of Washington Street as it approaches Hainesville Road from the west. Significant roadway widening both for intersection turn lanes and for a proposed bike path call for a 3 to 9.5 high retaining wall to hold back the widened embankment from adjacent lower ground.

Mechanically Stabilized Earth, modular block, or cantilevered concrete walls are commonly used for this type of fill retention.

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Poor Soil Undercut Recommendations

Soil boring B-3 and subsequent hand auger boring HA-3A identified very soft soil deposits including organic CLAY and fibrous PEAT. Boring B-2, appear to be on the fringe of the low strength deposits. Borings B-1 and B-4 did not encounter the weak soil types. Because of these conditions the start of earthwork in this area should included measures to remove the weak soil deposits to the depth and extent encountered and the soil removed should be replaced with suitable embankment fill, placed and compacted in lifts per Section 205 of the Standard Specifications. Undercut depths are expected to range from 3 to 7 feet below current surface along the wall alignment, 10 to 14 feet below the existing road shoulder. Wet excavation conditions are anticipated because of the nearby detention basin/pond and a two-foot thick minimum layer of PGE can be placed on the undercut subgrade prior to the start of embankment FILL placement so that proper compaction of the FILL can be achieved. Along the retaining wall alignment, the undercut excavation should be wide enough so that no compressible soil remains in a zone defined as down ward and outward at an angle of 1 vertical to 1 horizontal from the outside edge of the base pad or footing. For earthwork quantity estimates, the poor support soils appear to be centered at boring B-3, Station 58+75 and may extend 50 feet in either direction. The poor soil probably extends to the north under the existing pavement, however this soil has been compressed over the years by the embankment fill and the north limit of removal can be taken as the south edge of existing pavement.

Also, the location of existing utilities should be reviewed relative to the poor support soil, as these items may have to be relocated, or permanent support must be planned and implemented, prior to the undercut excavation work.

Mechanically Stabilized Earth (MSE) Wall

Discussion and Soil Conditions at the Base of the MSE Wall

The boring made for the retaining wall encountered hard Silty CLAY soil and very weak Organic deposits at the base of the proposed wall. The weak organic deposits are recommended for removal during the earthwork phase to widen the roadway embankment as outlined in the section above. Considering the removal and replacement of the low strength soil, the retaining wall will be supported on competent natural soil deposits and fill placed and compacted during the embankment widening.

Preliminary MSE Wall Analysis

A Mechanically Stabilized Earth retaining wall should be designed for both internal and external stability. A specialty vendor is typically responsible for the wall type design and internal stability. Final design for the overall system is the responsibility of the contractor.

A preliminary external stability calculation was conducted for an MSE wall using the following assumptions and design parameters:

Soil Strength Parameters

Foundation Soil	$\gamma = 130$ pcf, $c = 270$ psf, $\phi = 28^\circ$
Reinforced Soil Mass/Backfill	$\gamma = 120$ pcf, $c = 0$ psf, $\phi = 34^\circ$
Retained Embankment (clay fill)	$\gamma = 130$ pcf, $c = 270$ psf, $\phi = 28^\circ$

Loading and Dimensions

Traffic Surcharge	250 psf
Other Surcharges	None
Seismic Loading	None
Maximum Wall Height	9.5 feet
Embedment Depth	1 foot
Ground Slope Behind Wall	0 %

The results of the analysis are:

FOS Against Sliding Failure	1.82
FOS Against Overturning	3.31
FOS Against Bearing Capacity Failure	4.83
Allowable Foundation Soil Pressure	3200 psf
Required Reinforcement Length	7.0 feet

Wall Backfill and Drainage

The reinforced soil mass, typically designated as Select Fill, directly behind the wall should be in accordance with the IDOT Special Provision for MSE walls, which incorporates free draining granular material with a minimum compacted angle of internal friction of $\phi = 34^\circ$. The Select Fill should have a top particle size of 1-1/2 inches and the maximum material passing the #200 sieve should be 15 percent. The coarse and fine aggregate shall be Class C or better. The construction of the Select Fill should closely follow the erection of the wall panels and placement of the reinforcement/wall tiebacks. The select Fill should be placed in 10-inch lifts, loose measure, and compacted to 95 percent of the maximum density as determined by AASHTO T-99 (standard proctor). Prior to placement of the first lift of backfill the exposed subgrade should be inspected and tested for soil strength. The foundation subgrade soil should have a minimum strength of $Q_u = 1.5$ tons per square foot for cohesive soil, or $\phi = 30^\circ$ for granular soil.

Modular Block Wall with Geogrid Tiebacks

Modular Block Wall Discussion and Design Criteria

These wall types are typically founded on compacted gravel base pads. The base pad on this site should extend a minimum of one foot into natural, very stiff to hard, Silty CLAY, A-6, materials or Engineered Structural Fill placed and compacted during the site grading and removal of low strength soil deposits.

The design of a block/geogrid wall is dependant on proper backfill material, backfill placement, and drainage of the backfill. A free draining granular material with a silt and clay content of less than ten percent is recommended. Illinois Department of Transportation CA-06 gravel or stone or FA-02 sand is well suited for this application. All backfill material should have an internal friction angle of 34 degrees or greater. If the vendor's final design requires an internal friction angle higher than 34 degrees, this higher angle becomes the required minimum. The backfill material is typically placed in lifts and compacted in conjunction with placement of the tiebacks. Drainage behind the wall should be provided using a continuous perforated drainpipe or other methods. The active or Rankine pressures are typically mobilized for design of these wall types. An active earth pressure of 45 pounds per

square foot per foot depth/equivalent fluid pressure can be used for design analysis in all cases where drained conditions are provided behind the walls to prevent the accumulation of hydrostatic pressures.

Cantilevered Concrete 'T' or 'L' Wall

Cast In-Place Concrete Wall Design Criteria

A concrete cast in place cantilevered 'T' or 'L' type of retaining wall may still be a viable option for this site. If utilized, the concrete wall should be designed to resist sliding and overturning, as well as a bearing capacity failure. The footing should be located at a depth of four (4) feet below final grade for frost protection. Design loading should include any construction loading from equipment or materials, and long-term traffic loads.

The boring made for the retaining wall encountered hard Silty CLAY soil and very weak Organic deposits at the base of the proposed wall. The weak organic deposits are recommended for removal during the earthwork phase to widen the roadway embankment as outlined in the section above. Considering the removal and replacement of the low strength soil, the retaining wall will be supported on competent natural soil deposits and fill placed and compacted during the embankment widening. An allowable soil bearing pressure of 3000 psf can be used for the design of the concrete wall.

Earth Pressures for a Reinforced Concrete Wall

An active earth pressure of 45 pounds per square foot per foot depth/equivalent fluid pressure can be used for design analysis in all cases where drained conditions are provided behind the walls to prevent the accumulation of hydrostatic pressures. An increased design lateral pressure of 85 pounds per square foot per foot depth/equivalent fluid pressure, should be used for undrained walls below the design water level. It is emphasized that these active pressures assume that the wall is allowed to yield, enough to allow an active pressure state to develop. The effects of surcharge loads and live loads on the ground surface behind the wall must then also be added to these earth pressures.

If a particular wall is rigidly restrained, then an at-rest earth pressure condition is more appropriate. Equivalent fluid pressures of 95 and 110 pounds per square foot per foot depth for the drained and undrained cases, respectively, should be used. Permanent retaining structures or subsurface walls may be designed to develop a lateral passive earth pressure of 250 pounds per square foot, per foot depth/equivalent fluid pressure.

Considering the subgrade treatment, a friction factor ($\tan \delta$) = 0.4 between the soil and the base of wall should be used, and a minimum sliding stability factor of safety of 2.0 should be provided.

Wall Backfill & Drainage

To reduce the amount of additional pressure applied to the wall by high groundwater, swelling of backfill soils, and in cold climates, the formation of ice lenses behind the wall, proper drainage of the backfill is essential. Free draining granular soil with a silt and clay content of less than 6 percent, such as IDOT Porous Granular Backfill, Section 209 of the "Standard Specification for Road and Bridge Construction" or IDOT CA-7 gradation is recommended for backfill behind the wall. The granular backfill should extend a minimum of two (2) feet out from the back of the wall, and an outlet for water should be provided at the base of the back fill in the form of properly spaced weep holes

through the wall or a perforated, continuous drain pipe. The backfill should be placed in uniform 10" lifts and compacted to 95 percent of ASTM D-698, standard proctor. The backfill should be compacted with appropriate sized equipment so that the wall is not damaged or moved.

General Construction Recommendations

Wall Excavation

Excavations for the wall will be made into existing and new embankment fill. The existing fill was found to be relatively loose. Compacted new embankment cohesive materials will likely stay vertical for a short period of time. However, all excavations greater than four (4) feet require shoring and bracing, or sloping back of the excavation sidewalls. Note that OSHA requirements dictate the use of sloping back or shoring and bracing of the excavation during utility installation. All work should be done in accordance with OSHA and local requirements.

Bridge footing excavations made below the ground water level may require a subgrade protection layer to provide a working platform for installation of reinforcing steel and concrete. This subgrade protection layer can be eight inches of IDOT CA-7 crushed stone or can be a lean concrete mix or mud slab three inches thick. This procedure will prevent excessive loosening of foundation bearing soil prior to concrete placement.

The base of the footing excavations should be free of all water and loose material prior to placing concrete. Concrete should be placed as soon as possible after excavation to avoid excessive disturbance of surrounding materials. The foundation excavation should be inspected by the project geotechnical engineer prior to concrete placement. All foundation elements should be backfilled in accordance with Division 500 - Structures, of the Standard Specifications for Road and Bridge Construction.

Summary

The recommendations presented herein are based on the information available at the time of this writing. After plans and specifications are more complete, we welcome the opportunity to review them with respect to the prevailing soil and groundwater conditions. It may be necessary to conduct further analysis and submit supplementary recommendations at that time. If required, more specific construction recommendations can also be provided.

APPENDIX

Boring Location Diagrams

Roadway Cross Sections

Boring Logs, B-1 through B-5

Preliminary Analysis of External Stability of an MSE Wall

1 OF 2
BORING LOCATION DIAGRAM
MIDLAND STANDARD ENGINEERING & TESTING, INC.
WASHINGTON STREET PHASE II
LAKE COUNTY, IL
MSET PROJECT NO.: 11207
JUNE 2011

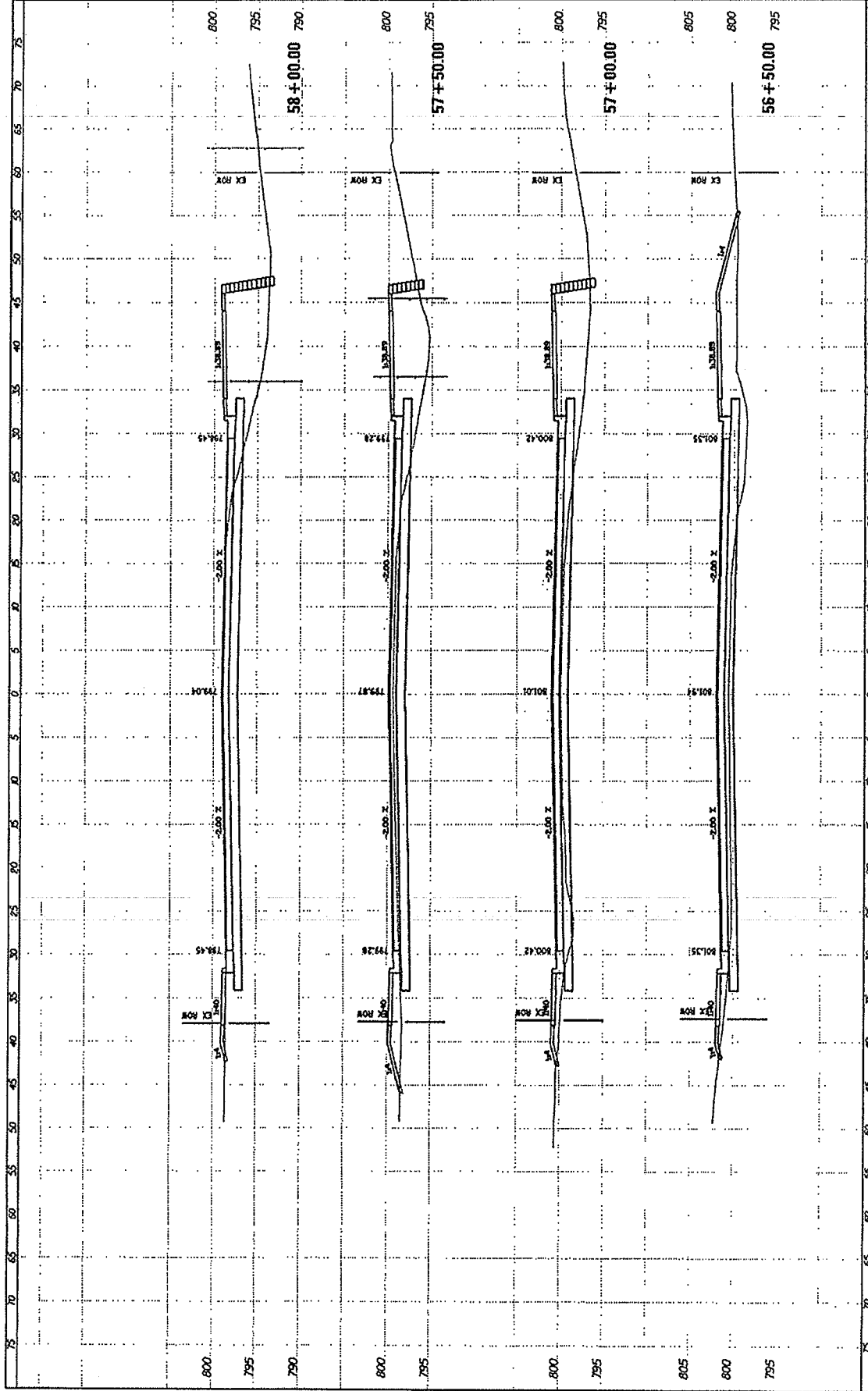


60+00

55+00



266

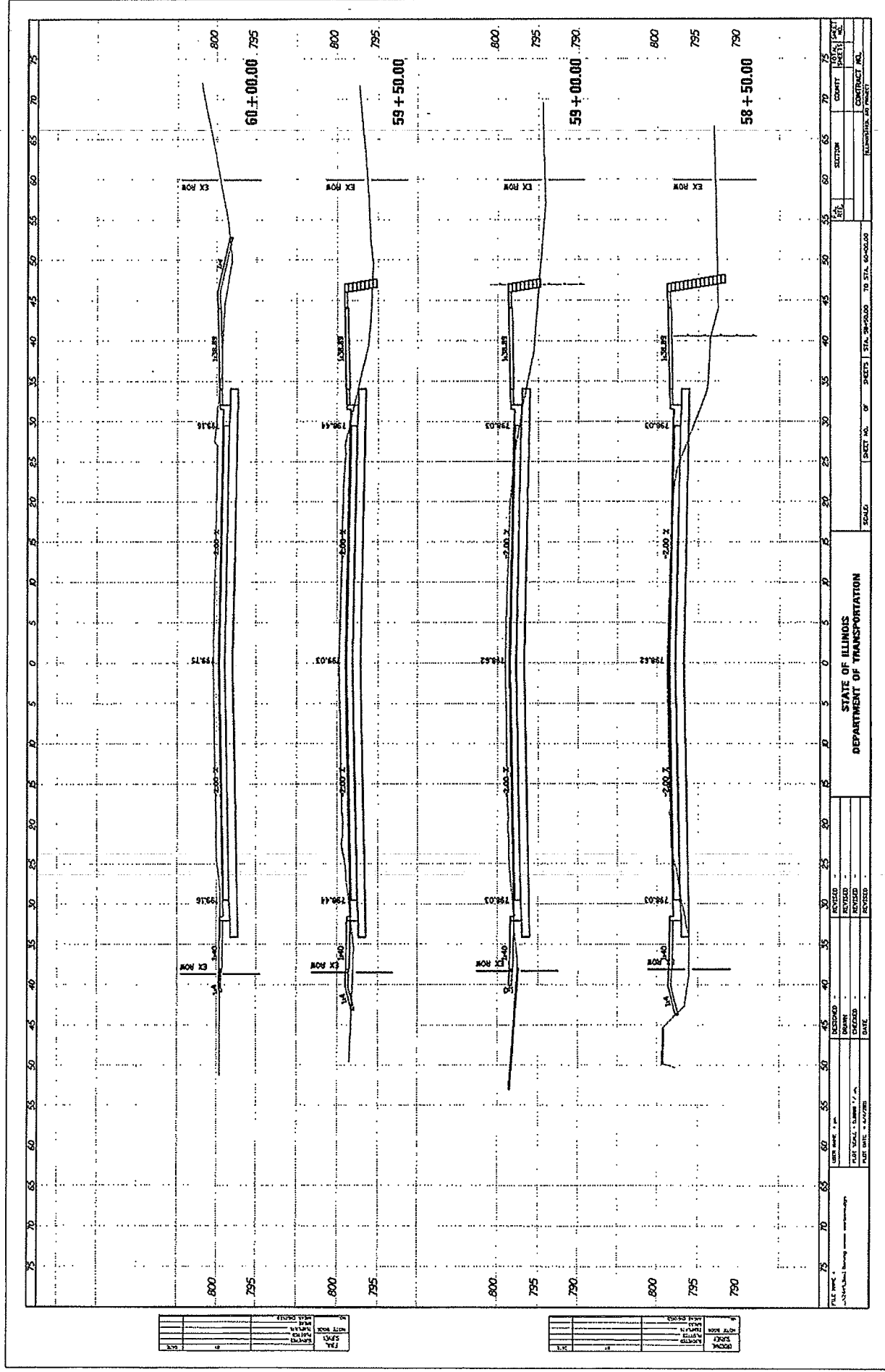


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PROJECT NO.		SECTION		DATE		DRAWN BY	
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DATE	5/13
BY	...
CHECKED	...
APPROVED	...

267



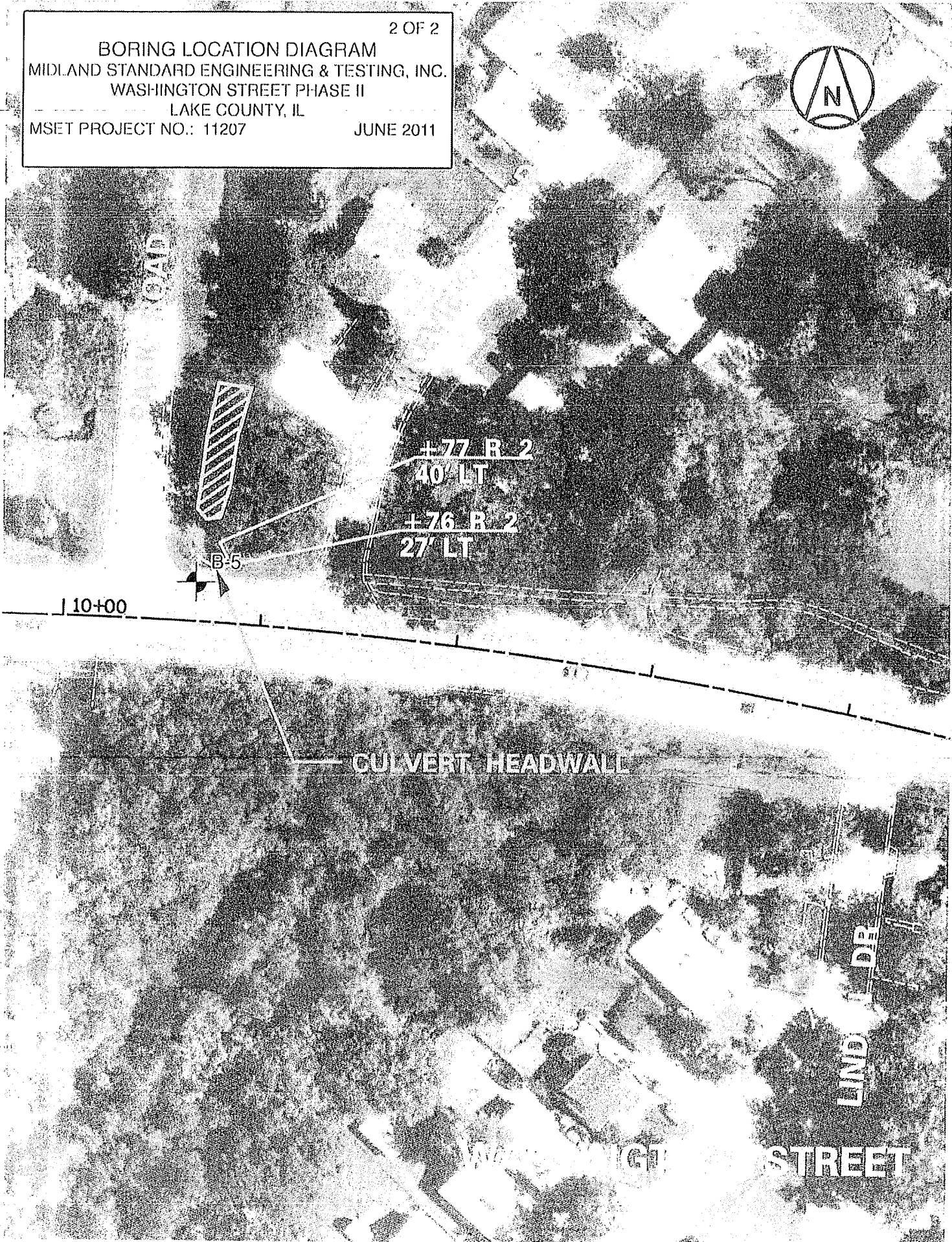
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DATE		DATE		DATE		DATE		DATE	

DATE	BY	CHKD	APP'D

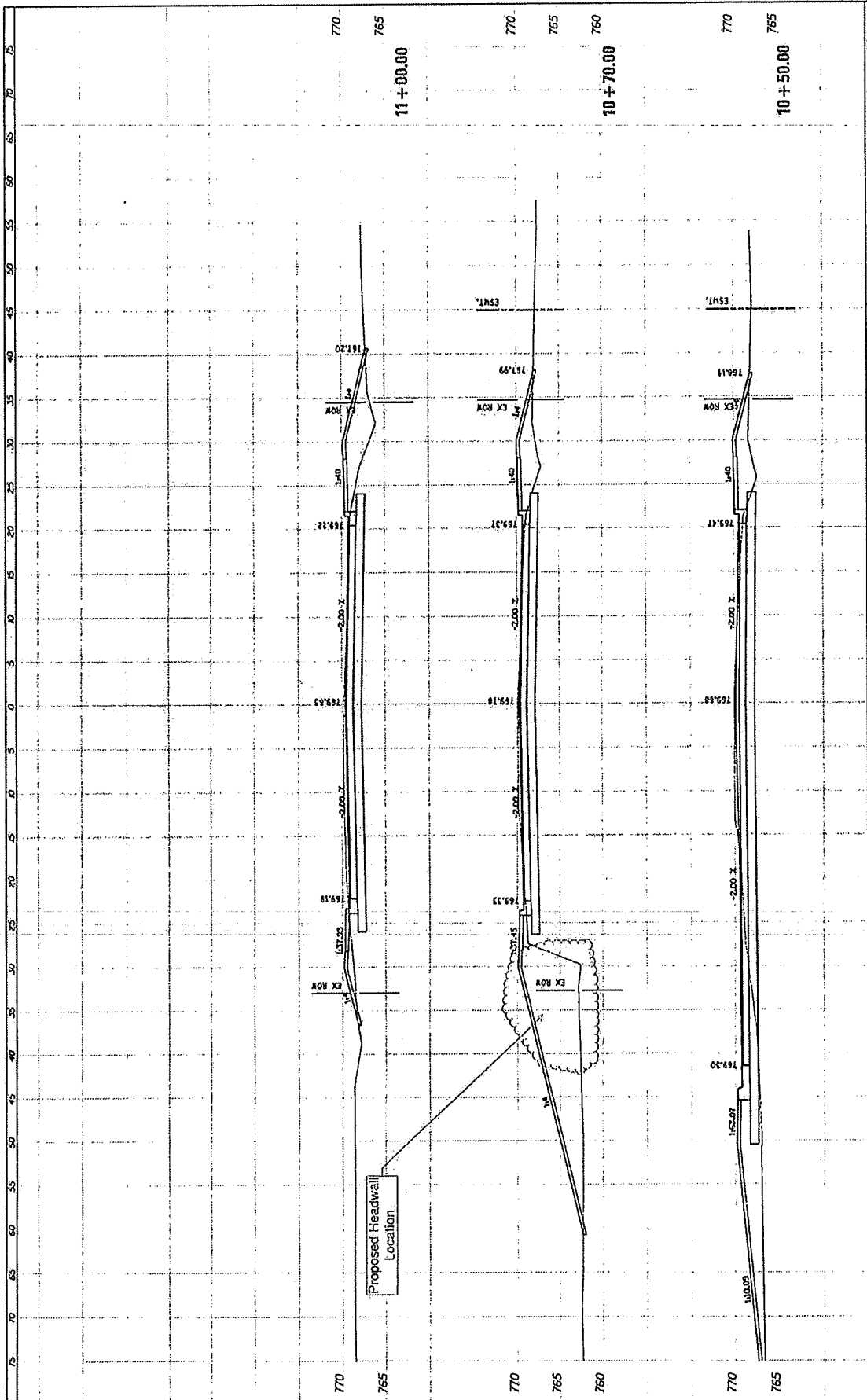
DATE	BY	CHKD	APP'D

872

BORING LOCATION DIAGRAM
MIDLAND STANDARD ENGINEERING & TESTING, INC.
WASHINGTON STREET PHASE II
LAKE COUNTY, IL
MSET PROJECT NO.: 11207 JUNE 2011



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FILE NO.	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
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CONTRACT NO.																																
PROJECT																																
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION																																

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270

PROJECT: Washington Street - Phase II

SITE LOCATION: Lake County, IL

BORING LOCATION: STA. 56+75, 46' R

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	Material Description	Elevation	SAMPLE			TESTS			REMARKS	
				TYPE/ INTERVAL	NO.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf		
0	[Cross-hatched pattern]	Black and Brown Silty CLAY, little Sand, trace Gravel, A-6 to A-7-6: FILL, stiff	798.5	SS	1	5	25	88	1.36		
3											
			Brown and Grey Silty CLAY, little Sand, trace Gravel, A-6, hard to very hard	794.5	SS	2	13	17	106	5.15	
6											
					SS	3	20	16	114	7.22	
9											
					SS	4	25	19	106	9.08	
12			to hard								
				SS	5	25	20	107	7.76		
15	[Diagonal hatched pattern]	Grey Silty CLAY, trace Sand and Gravel, A-6, very stiff	785.5	SS	6	21	17	110	3.72		
			few thin Yellow-Brown Silt Seams								
18					SS	7	13	19	105	3.30	
				SS	8	11	12	122	3.38		
		End of Boring @ 20'	778.5								

WATER LEVEL OBSERVATIONS, ft.
 DURING DRILLING: none
 IMMEDIATELY AFTER DRILLING: dry
 DELAYED READING AFTER



BORING STARTED: 6/6/11
 BORING COMPLETED: 6/6/11
 LOGGED BY: SPE
 BORING METHOD: CFA

271

PROJECT: Washington Street - Phase II

SITE LOCATION: Lake County, IL

BORING LOCATION: STA. 57+75, 46' R

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	Material Description	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	NO.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
0		Dark Brown Silty CLAY Topsoil	795.0							
		Brown, Grey and Black Silty CLAY, A-6 to A-7-6; FILL, very stiff to stiff	794.2	SS	1	8	19	--	2.5 (p)	
3		mostly Black		SS	2	4	29	82	1.16	
6		Black Silty CLAY, A-7-6	790.0							
		Dark Grey to Grey and Yellow-Brown Silty CLAY, A-7-6, firm	788.6	SS	3	7	21	89	0.93	
9		Brown and Grey Silty CLAY, little Sand, trace Gravel, A-6, very stiff	787.0	SS	4	7	19	107	3.03	
12				SS	5	14	18	113	3.30	
		Grey Silty CLAY, little Sand, trace Gravel, A-6, hard	782.0	SS	6	18	16	113	5.35	
15		very stiff to hard		SS	7	16	19	107	3.96	
18				SS	8	12	16	113	5.24	
		End of Boring @ 20'	775.0							

WATER LEVEL OBSERVATIONS, ft.

DURING DRILLING:

IMMEDIATELY AFTER DRILLING:

DELAYED READING AFTER



MSET

BORING STARTED:

BORING COMPLETED:

LOGGED BY:

BORING METHOD:

6/6/11

6/6/11

SPE

CFA





272

PROJECT: Washington Street - Phase II

SITE LOCATION: Lake County, IL

BORING LOCATION: STA. 58+75, 20' R

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	Material Description	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	NO.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
0		Crushed Gravel (Shoulder)	798.5							
3		Dark Brown Silty CLAY, little Sand and Gravel, A-6: FILL to Dark Brown and Grey, stiff	797.3	SS	1	4	14	--	1.0 (p)	
6		Dark Grey Silty CLAY, A-7-6, trace Organics: FILL, very stiff		SS	2	4	15	109	1.09	
9		Black Organic CLAY, A-8, to Olive-Brown. Fiberous Peat, A-8, soft to very soft. trace Wood	790.5	SS	4	4	167	--	--	
12				SS	5	1	159	--	--	
15		Grey Silty CLAY, trace Sand and Gravel, A-6, stiff to very stiff	784.5	SS	6	4	21	--	1.25 (p)	
18				SS	7	9	20	107	1.90	
				SS	8	14	18	108	3.49	
		End of Boring @ 20'	778.5							

WATER LEVEL OBSERVATIONS, ft.

DURING DRILLING:

IMMEDIATELY AFTER DRILLING:

DELAYED READING AFTER



none

dry



MSET

BORING STARTED:

BORING COMPLETED:

LOGGED BY:

BORING METHOD:

6/6/11

6/6/11

SPE


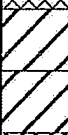


CFA




PROJECT: Washington Street - Phase II

SITE LOCATION: Lake County, IL

BORING LOCATION: STA. 58+75, 46' R

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	Material Description	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	NO.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
0		Grey to Dark Grey Silty CLAY, trace Sand, A-6: FILL	791.0	AU	1	--	19	--	--	
				AU	2	--	28	--	--	
3		Black Silty CLAY, A- 7-6	788.0	AU	3	--	37	--	--	
		Dark Grey trace Brown Silty CLAY, A- 7-6	787.0	AU	4	--	47	--	--	
6		Grey Organic CLAY to Organic SILT, A-8	786.0	AU	5	--	74	--	--	
				AU	6	--	96	--	--	
9		Grey Clayey SILT, A-4 to A-6	783.5	AU	7	--	20	--	--	
		End of Boring @ 11.5'	779.5							

WATER LEVEL OBSERVATIONS, ft.
 DURING DRILLING:  none
 IMMEDIATELY AFTER DRILLING:  dry
 DELAYED READING AFTER 





BORING STARTED: 6/21/11
 BORING COMPLETED: 6/21/11
 LOGGED BY: MHP
 BORING METHOD: Hand Auger




PROJECT: Washington Street - Phase II

SITE LOCATION: Lake County, IL

BORING LOCATION: STA. 59+75, 46' R

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	Material Description	Elevation	SAMPLE			TESTS			REMARKS
				TYPE/ INTERVAL	NO.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	Unconfined Compressive Strength, tsf	
0		Dark Brown Silty CLAY Topsoil	798.0							
3		Brown and Yellow-Brown Silty CLAY, little Sand, trace Gravel, A-6, very stiff	797.0	SS	1	7	17	--	2.0 (p)	
6		to Brown and Grey; hard to very hard		SS	2	9	17	111	5.66	
9				SS	3	18	16	112	6.83	
12				SS	4	26	15	116	7.88	
15		Grey Silty CLAY, little Sand, trace Gravel, A-6, very stiff to hard	785.0	SS	5	25	18	108	8.14	
18		to very stiff		SS	6	20	22	104	3.92	
				SS	7	20	19	110	4.27	
				SS	8	15	18	111	3.69	
		End of Boring @ 20'	778.0							

WATER LEVEL OBSERVATIONS, ft.
 DURING DRILLING:  none
 IMMEDIATELY AFTER DRILLING:  dry
 DELAYED READING AFTER 



BORING STARTED: 6/6/11
 BORING COMPLETED: 6/6/11
 LOGGED BY: SPE
 BORING METHOD: CFA

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


PROJECT: Washington Street - Phase II

SITE LOCATION: Lake County, IL

BORING LOCATION: STA. 10+75, 25' L

CLIENT: Civiltech Engineering, Inc.

DEPTH (feet)	SOIL TYPE	Material Description	Elevation	SAMPLE		TESTS			REMARKS
				TYPE/INTERVAL	NO.	N-VALUE Blows per ft.	Wc%	Dry Unit Weight, pcf	
0		PCC Sidewalk	770.0						
		Brown and Grey Silty CLAY, A-6: FILL, stiff	769.6	SS	1	6	18	--	1.5 (p)
3									
		little to some Sand, little Gravel, moist		SS	2	8	19	--	1.75 (p)
6									
		Brown and Grey Silty CLAY, trace Sand and Gravel, A-6, hard	763.5	SS	3	10	16	108	7.95
9									
				SS	4	20	18	102	4.11
12									
				SS	5	17	17	110	5.51
15									
		Grey Silty CLAY, trace to little Sand, trace Gravel, A-6, hard to very stiff	757.0	SS	6	18	18	106	4.85
18									
				SS	7	16	18	108	3.49
				SS	8	13	19	106	2.72
		End of Boring @ 20'	750.0						

WATER LEVEL OBSERVATIONS, ft.
 DURING DRILLING:  7.0'
 IMMEDIATELY AFTER DRILLING:  17.9'
 DELAYED READING AFTER 



MSET

BORING STARTED: 6/6/11
 BORING COMPLETED: 6/6/11
 LOGGED BY: SPE
 BORING METHOD: CFA

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PRELIMINARY ANALYSIS OF EXTERNAL STABILITY OF AN MSE WALL

PROJECT INFORMATION

Project Name: Washinton Street Sta 56+50 to 60+00, 46' Right

Project No.: 11207

Wall Description: MSE/Block Wall

INPUT PARAMETERS

WALL DIMENSIONS:

Design Height, H	9.50 feet	Maximum wall height
Wall Face Slope Angle, θ	90 degrees	Vertical wall
Backfill Slope Angle, β	0 degrees	
Wall Embedment Depth, D	1.00 feet	Minimum embedment depth
Reinforcement Length, L	7.00 feet	Usually 0.7 of H, minimum
Ratio Reinforcement Length to Wall Height	0.74	

LOADS:

Traffic Surcharge, q	250.00 psf	
Surcharge Height of Fill & Pavement above MSE Backfill, H _{pf}	0.00 feet	
Surcharge Weight of Fill & Pavement above MSE, Q	0.00 kips/ft of wall	
Horizontal Seismic Coefficient, k _h	0.00	k _h = 1/2 PGE (AASHTO, 1992)
Vertical Seismic Coefficient, k _v	0.00	

FOUNDATION SOIL:

Friction Angle, ϕ_b	28.00 degrees	
Cohesion, c _b	100.00 psf	
Total Unit Weight, γ_b	130.00 pcf	

REINFORCED SOIL MASS:

Friction Angle, ϕ_r	34.00 degrees	To be specified as a minimum
Cohesion, c _r	0.00 psf	imported structural backfill
Total Unit Weight, γ_r	120.00 pcf	

RETAINED BACKFILL:

Friction Angle, ϕ_f	28.00 degrees	To be specified as a minimum
Cohesion, c _f	270.00 psf	imported structural backfill
Total Unit Weight, γ_f	130.00 pcf	

CALCULATED PARAMETERS

Static (Active) Earth Pressure Coefficient, K _a	0.283	Based on General Coulomb equation
Dynamic (Active) Earth Pressure Coefficient, K _{ae}		From Monobe-Okabe equation
Effective Wall Height for Static Active Thrust Force, H ₁	9.50 feet	H ₁ = H + L tan β + H _{pf}
Effective Wall Height for Dynamic Active Thrust Force, H ₂	9.50 feet	H ₂ = H + (0.5 H tan β) / (1 - 0.5 tan β) + H _{pf}
Static Active Thrust Force From Retained FILL, F _T	1.66 kips/ft of wall	F _T = 1/2 γ_f K _a (H ₁) ²
Dynamic Active Thrust Force From Retained FILL, P _{ae}	-1.66 kips/ft of wall	P _{ae} = 1/2 γ_r (K _{ae} - K _a) (H ₂) ²
Horizontal Component of Static Active Thrust Force, F ₁	1.66 kips/ft of wall	F ₁ = F _T cos β
Horizontal Force From Traffic Surcharge, F ₂	0.67 kips/ft of wall	F ₂ = q H K _a
Horizontal Inertial Force From Reinforced Soil Mass, P _{ir}	0.00 kips/ft of wall	P _{ir} = 0.5 k _h γ_f H ₂ H
Horizontal Inertial Force From Sloping Soil Surcharge, P _{is}	0.00 kips/ft of wall	P _{is} = 0.125 k _h γ_f (H ₂) ² tan β
Weight of Reinforced Soil Mass, V ₁	7.98 kips/ft of wall	V ₁ = γ_r H L
Weight of Sloping Backfill, V ₂	0.00 kips/ft of wall	V ₂ = 1/2 γ_f L (L tan β) + Q
Sum of Resisting Moments, M _R	27.93 kip-ft/ft of wall	M _R = V ₁ (L/2) + V ₂ (2/3 L)
Sum of Overturning Moments (Static), M _{OS}	8.44 kip-ft/ft of wall	M _{OS} = F ₁ (H/3) + F ₂ (2/3 L)
Sum of Overturning Moments (Dynamic), M _{OD}	3.71 kip-ft/ft of wall	M _{OD} = M _{OS} + P _{ir} (H/2) + P _{is} [H + 1/3(H ₂ -H)] + 0.5 P _{ae} cos β (0.6 H ₂)
Sum of Vertical Forces, V _T	7.98 kips/ft of wall	V _T = V ₁ + V ₂ + F _T sin β
Sum of Horizontal Resisting Forces, P _R	4.24 kips/ft of wall	P _R = V _T tan [min (ϕ_r , ϕ_b)]
Sum of Horizontal Driving Forces (Static), P _{DS}	2.33 kips/ft of wall	P _{DS} = F ₁ + F ₂
Sum of Horizontal Driving Forces (Dynamic), P _{DD}	1.50 kips/ft of wall	P _{DD} = P _{DS} + P _{ir} + P _{is} + 0.5 P _{ae}

CHECK SLIDING FAILURE:

Static Sliding Factor of Safety, FS _(static sliding) = P _R /P _{DS}	1.82 ≥ 1.5	OK
Dynamic Sliding Factor of Safety, FS _(dynamic sliding) = P _R /P _{DD}	≥ 1.1	

CHECK OVERTURNING FAILURE:

Static Overturning Factor of Safety, FS _(static overturning) = M _R /M _{OS}	3.31 ≥ 2.0	OK
Dynamic Overturning Factor of Safety, FS _(dyn overturning) = M _R /M _{OD}	≥ 1.5	
Eccentricity, e _s = [L/2 - (M _R -M _{OS})/V _T]	1.06 < (L/6)	OK

CHECK BEARING FAILURE:

Bearing Capacity Factor, N _c	25.80	Based on AASHTO (1996)
Bearing Capacity Factor, N _y	16.72	Based on AASHTO (1996)
Max. Applied Bearing Pressure at the Base of Wall, α_v	1.63 ksf	α_v = V _T / (L - 2e _s)
Ultimate Bearing Capacity, q _{ult}	7.89 ksf	q _{ult} = c _b N _c + 0.5 γ_b N _y (L - 2e _s)
Bearing Capacity Factory of Safety, FS _(bearing capacity)	4.83 ≥ 2.5	OK
allowable bearing pressure is	3200 psf	Ult. Bearing Capacity / FOS (2.5)

Prepared By: MSET

MSEWALL

6/24/11

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IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION (TPG)

Effective: August 1, 2012

In addition to the Contractor's equal employment opportunity affirmative action efforts undertaken as elsewhere required by this Contract, the Contractor is encouraged to participate in the incentive program to provide additional on-the-job training to certified graduates of IDOT's community college pre-apprenticeship programs outlined by this Special Provision.

It is the policy of IDOT to fund IDOT pre-apprenticeship training programs based at Illinois Community Colleges throughout Illinois, by Intergovernmental Agreement with the Illinois Community College Board, to provide training and skill-improvement opportunities to assure the increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The intent of this IDOT Training Program Graduate (TPG) Special Provision is to place certified graduates of these IDOT funded pre-apprentice training programs on IDOT project sites when feasible, and provide the graduates with meaningful on-the-job training intended to lead to journey-level employment. IDOT and its sub-recipients, in carrying out the responsibilities of a state contract, shall determine which state funded construction contracts shall include "Training Program Graduate (TPG) Special Provisions." To benefit from the incentives to encourage the participation in the additional on-the-job training under this Training Program Graduate (TPG) Special Provision, the Contractor shall make every reasonable effort to employ certified graduates of the IDOT funded Pre-apprenticeship Training Program to the extent such persons are available within a reasonable recruitment area.

Participation pursuant to IDOT's requirements by the Contractor or subcontractor in this Training Program Graduate (TPG) Special Provision entitles the Contractor or subcontractor to be reimbursed at \$10.00 per hour for training given a certified graduate trainee on this contract. As approved by the Department, reimbursement will be made for training persons as specified herein. This reimbursement will be made even though the Contractor or subcontractor may receive additional training program funds from other sources for other trainees, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving other reimbursement. For purposes of this Special Provision the Contractor is not relieved of requirements under the Illinois Prevailing Wage Act and is not eligible for other training fund reimbursements in addition to the Training Program Graduate (TPG) Special Provision reimbursement.

No payment shall be made to the Contractor if the Contractor or subcontractor fails to provide the required training. It is normally expected that a TPG will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project through completion of the contract, so long as training opportunities exist in his work classification or until he has completed his training program. Should the TPG's employment end in advance of the completion of the contract, the Contractor shall promptly notify the designated IDOT staff member under this Special Provision that the TPG's involvement in the contract has ended and supply a written report of the reason for the end of the involvement, the hours completed by the

TPG under the Contract and the number of hours for which the incentive payment provided under this Special Provision will be or has been claimed for one TPG.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting its performance under this 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 \$10.00 per hour for TRAINEES TRAINING PROGRAM GRADUATE. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

The Contractor shall provide training opportunities aimed at developing full journeyworker in the type of trade or job classification involved. The initial number of TPGs for which the incentive is available under this contract is **2**. During the course of performance of the Contract the Contractor may seek approval from the Department for additional incentive eligible TPGs. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the TPGs 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 Program Graduate Special Provision is made applicable to such subcontract if the TPGs are to be trained by a subcontractor and that the incentive payment is passed on to each subcontractor.

For the Contractor to meet the obligations for participation in this TPG incentive program under this Special Provision, the Department has contracted by Intergovernmental Agreement with the Illinois Community College Board to provide screening, tutoring and pre-training to individuals interested in working in the applicable construction classification and has certified those students who have successfully completed the program and are eligible to be TPGs. A designated IDOT staff member, the Director of the Office of Business and Workforce Diversity (OBWD), will be responsible for providing assistance and referrals to the Contractor for the applicable TPGs. For this contract, the Director of OBWD is designated as the responsible IDOT staff member to provide the assistance and referral services related to the placement for this Special Provision. For purposes of this Contract, contacting the Director of OBWD and interviewing each candidate he/she recommends constitutes reasonable recruitment.

Prior to commencing construction, the Contractor shall submit to the Department for approval the TPGs to be trained in each selected classification. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. No employee shall be employed as a TPG in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. Notwithstanding the on-the-job training purpose of this TPG Special Provision, some offsite training is permissible as long as the offsite training is an integral part of the work of the contract and does not comprise a significant part of the overall training.

Training and upgrading of TPGs of IDOT pre-apprentice training programs is intended to move said TPGs toward journeyman status and is the primary objective of this Training Program

Graduate Special Provision. Accordingly, the Contractor shall make every effort to enroll TPGs by recruitment through the IDOT Illinois Community College Program to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance and entitled to the Training Program Graduate TPG Special Provision \$10,00 an hour incentive.

The Contractor or subcontractor shall provide each TPG with a certification showing the type and length of training satisfactorily completed.

PIPE UNDERDRAINS FOR STRUCTURES

Effective: May 17, 2000

Revised: January 22, 2010

Description. This work shall consist of furnishing and installing a pipe underdrain system as shown on the plans, as specified herein, and as directed by the Engineer.

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

The perforated pipe underdrain shall be according to Article 601.02 of the Standard Specifications. Outlet pipes or pipes connecting to a separate storm sewer system shall not be perforated.

The drainage aggregate shall be a combination of one or more of the following gradations, FA1, FA2, CA5, CA7, CA8, CA11, or CA13 thru 16, according to Sections 1003 and 1004 of the Standard Specifications.

The fabric surrounding the drainage aggregate shall be Geotechnical Fabric for French Drains according to Article 1080.05 of the Standard Specifications.

Construction Requirements. All work shall be according to the applicable requirements of Section 601 of the Standard Specifications except as modified below.

The pipe underdrains shall consist of a perforated pipe drain situated at the bottom of an area of drainage aggregate wrapped completely in geotechnical fabric and shall be installed to the lines and gradients as shown on the plans.

Method of Measurement. Pipe Underdrains for Structures shall be measured for payment in feet (meters), in place. Measurement shall be along the centerline of the pipe underdrains. All connectors, outlet pipes, elbows, and all other miscellaneous items shall be included in the measurement. Concrete headwalls shall be included in the cost of Pipe Underdrains for Structures, but shall not be included in the measurement for payment.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for PIPE UNDERDRAINS FOR STRUCTURES of the diameter specified. Furnishing and installation of the drainage aggregate, geotechnical fabric, forming holes in structural elements and any excavation required, will not be paid for separately, but shall be included in the cost of the pipe underdrains for structures.

SEGMENTAL CONCRETE BLOCK WALL

Effective: January 7, 1999

Revised: October 30, 2012

Description. This work shall consist of furnishing the design computations, shop plans, materials, equipment and labor to construct a Segmental Concrete Block Retaining Wall to the limits shown on the plans.

General. The wall shall consist of a leveling pad, precast concrete blocks (either dry-cast or wet cast), select fill and, if required by the design, soil reinforcement. The wall shall be designed and constructed according to the lines, grades, and dimensions shown on the contract plans and approved shop plans.

Submittals. The wall supplier shall submit design computations and shop plans to the Engineer according to Article 1042.03(b) of the Standard Specifications. No work or ordering of materials for the structure shall be done by the Contractor until the submittal has been approved in writing by the Engineer. The shop plans shall be sealed by an Illinois Licensed Structural Engineer and shall include all details, dimensions, quantities, and cross sections necessary to construct the wall and shall include, but not be limited to, the following items:

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

- (1) A plan view of the wall indicating the offsets from the construction centerline to the first course of blocks at all changes in horizontal alignment. These shall be calculated using the offsets to the front face of the block shown on the contract plans and the suppliers proposed wall batter. The plan view shall indicate bottom (and top course of block when battered), the excavation and select fill limits as well as any soil reinforcing required by the design. The centerline of any drainage structure or pipe behind or passing through/under the wall shall also be shown.
- (2) An elevation view of the wall, indicating the elevation and all steps in the top course of blocks along the length of the wall. The top of these blocks shall be at or above the theoretical top of block line shown on the contract plans. This view shall also show the steps and proposed top of leveling pad elevations as well as the finished grade line at the wall face specified on the contract plans. These leveling pad elevations shall be located at or below the theoretical top of leveling line shown on the contract plans. The location, size, and length of any soil reinforcing connected to the blocks shall be indicated.
- (3) Typical cross section(s) showing the limits of the select fill, soil reinforcement if used in the design. The right-of-way limits shall be indicated as well as the proposed excavation, cut slopes, and the elevation relationship between existing ground conditions and proposed grades.
- (4) All general notes required for constructing the wall.

- (b) All details for the leveling pads, including the steps, shall be shown. The theoretical top of the leveling pad shall either be below the anticipated frost depth or 1.5 ft. (450 mm) below the finished grade line at the wall face, whichever is greater; unless otherwise shown on the plans. The minimum leveling pad thickness shall be 6 in. (152 mm)
- (c) Cap blocks shall be used to cover the top of the standard block units. The top course of blocks and cap blocks shall be stepped to satisfy the top of block line shown on the contract plans.
- (d) All details of the block and/or soil reinforcement placement around all appurtenances located behind, on top of, or passing through the wall shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular design arrangement shall also be submitted.
- (e) All details of the blocks, including color and texture shall be shown. The exterior face shall preferably be straight, textured with a "split rock face" pattern, and dark gray in color unless otherwise stated on the plans.
- (f) All block types (standard, cap, corner, and radius turning blocks) shall be detailed showing all dimensions.
- (g) All blocks shall have alignment/connection devices such as shear keys, leading/trailing lips, or pins. The details for the connection devices between adjacent blocks and the block to soil reinforcement shall be shown. The block set back or face batter shall be limited to 20 degrees from vertical, unless otherwise shown by the plans.

Materials. The materials shall meet the following requirements:

- (a) Dry-Cast Concrete Block: Dry-cast concrete block proposed for use shall be pre-cast and produced according Article 1042.02 and the requirements of ASTM C1372 except as follows:
 - 1. Fly ash shall be according to Articles 1010.01 and 1010.02(b).
 - 2. Ground granulated blast-furnace slag shall be according to Articles 1010.01 and 1010.05.
 - 3. Aggregate shall be according to Articles 1003.02 and 1004.02, with the exception of gradation.
 - 4. Water shall be according to Section 1002.
 - 5. Testing for freeze-thaw durability will not be required. However, unsatisfactory field performance as determined by the Department will be cause to prohibit the use of the block on Department projects.

- (b) Wet-cast Concrete Block: Wet-cast concrete block proposed for use shall be pre-cast and produced according to Section 1020 and Article 1042.02. The concrete shall be Class PC with a minimum compressive strength of at least 3000 psi (31 MPa) at 28 days.
- (c) Select fill: The select fill, defined as the material placed in the reinforced volume behind the wall, shall be according to Sections 1003 and 1004 of the Standard Specifications and the following:
- (1) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 6 thru CA 16 may be used. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.
 - (2) Select Fill Quality. The coarse or fine aggregate shall have a maximum sodium sulfate (Na_2SO_4) loss of 15 percent according to Illinois Modified AASHTO T 104.
 - (3) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to Illinois Modified AASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236. If the vendor's design uses a friction angle higher than 34 degrees, as indicated on the approved shop drawings, this higher value shall be taken as the minimum required.
 - (4) Select Fill and Geosynthetic Reinforcing. When geosynthetic reinforcing is used, the select fill pH shall be 4.5 to 9.0 according to Illinois Modified AASHTO T 289.
 - (5) Test Frequency. Prior to start of construction, the Contractor shall provide internal friction angle and pH test results to show the select fill material meets the specification requirements. However, the pH will be required only when geosynthetic reinforcing is used. All test results shall not be older than 12 months. In addition, a sample of select fill material will be obtained for testing and approval by the Department. Thereafter, the minimum frequency of sampling and testing at the jobsite will be one per 40,000 tons (36,300 metric tons) of select fill material. Testing to verify the internal friction angle will only be required when the wall design utilizes a minimum effective internal friction angle greater than 34 degrees, or when crushed coarse aggregate is not used.

When a fine aggregate is selected, the rear of all block joints shall be covered by a non-woven needle punch geotextile filter material according to Article 1080.05 of the Standard Specifications and shall have a minimum permeability according to ASTM D4491 of 0.008 cm/sec. All fabric overlaps shall be 6 in. (150 mm) and non-sewn. As an alternative to the geotextile, a coarse aggregate shall be placed against the back face of the blocks to create a minimum 12 in. (300 mm) wide continuous gradation filter to prevent the select fill material from passing through the block joints.

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

(e) Soil Reinforcement: If soil reinforcement is required by the approved design, the Contractor shall submit a manufacturer's certification for the soil reinforcement properties which equals or exceeds those required in the design computations. The soil reinforcement shall be manufactured from high density polyethylene (HDPE) uniaxial or polypropylene biaxial resins or high tenacity polyester fibers with a PVC coating, stored between -20 and 140° F (-29 and 60° C). The following standards shall be used in determining and demonstrating the soil reinforcement capacities:

ASTM D638 Test Method for Tensile Properties of Plastic
ASTM D1248 Specification for Polyethylene Plastics Molding and Extrusion Materials
ASTM D4218 Test Method for Carbon Black Content in Polyethylene Compounds
ASTM D5262 Test Method for Evaluating the Unconfined Tension Creep Behavior of Geosynthetics
GG1-Standard Test Method for Geogrid Rib Tensile Strength
GG2-Standard Test Method for Geogrid Junction Strength
GG4-Standard Practice for Determination of the Long Term Design Strength of Geogrid
GG5-Standard Practice for Evaluating Geogrid Pullout Behavior

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

Internal stability design shall insure that adequate factors of safety against overturning and sliding are present at each level of block. If required by design, soil reinforcement shall be utilized and the loading at the block/soil reinforcement connection as well as the failure surface must be indicated. The calculations to determine the allowable load of the soil reinforcement and the factor of safety against pullout shall also be included. The analysis of settlement, bearing capacity, and overall slope stability are the responsibility of the Department.

External loads such as those applied through structure foundations, from traffic or railroads, slope surcharge etc., shall be accounted for in the internal stability design. The presence of all appurtenances behind, in front of, mounted upon, or passing through the wall volume such as drainage structures, utilities, structure foundation elements, or other items shall be accounted for in the internal stability design of the wall.

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

The foundation material for the leveling pad and select fill volume shall be graded to the design elevation and compacted according to Article 205.05, except the minimum required compaction shall be 95 percent of the standard laboratory density. The Engineer will perform one density test per 1500 ft (450 m) of the entire length of foundation material through both cut and fill areas. Any foundation soils found to be unsuitable shall be removed and replaced as directed by the Engineer and shall be paid for according to Article 109.04.

The select fill lift placement shall closely follow the erection of each course of blocks. All aggregate shall be swept from the top of the block prior to placing the next block lift. If soil reinforcement is used, the select fill material shall be leveled and compacted before placing and attaching the soil reinforcement to the blocks. The soil reinforcement shall be pulled taut, staked in place, and select fill placed from the rear face of the blocks outward. The lift thickness shall be the lesser of 10 in. (255 mm) loose measurement or the proposed block height.

The select fill shall be compacted according to Article 205.05, except the minimum required compaction shall be 95 percent of the standard laboratory density. Compaction shall be achieved using a minimum of 3 passes of a lightweight mechanical tamper, roller, or vibratory system. The Engineer will perform one density test per 5000 cu yd (3800 cu m) and not less than one test per 2 ft (0.6m) of lift. The top 12 in. (300 mm) of backfill shall be a cohesive, impervious material capable of supporting vegetation, unless other details are specified on the plans.

The blocks shall be maintained in position as successive lifts are compacted along the rear face of the block. Vertical, horizontal, and rotational alignment tolerances shall not exceed 0.5 in. (12 mm) when measured along a 10 ft. (3 m) straight edge.

Method of Measurement. Segmental Concrete Block Wall will be measured by the square foot (square meter) of wall face from the top of block line to the theoretical top of the leveling pad for the length of the wall in a vertical plane, as shown on the contract plans.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for SEGMENTAL CONCRETE BLOCK WALL.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
COOPERATION WITH UTILITIES

Effective: January 1, 1999
Revised: January 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

Replace Article 105.07 of the Standard Specifications with the following:

"105.07 Cooperation with Utilities. The adjustment of utilities consists of the relocation, removal, replacement, rearrangements, reconstruction, improvement, disconnection, connection, shifting, new installation or altering of an existing utility facility in any manner.

When the plans or special provisions include information pertaining to the location of underground utility facilities, such information represents only the opinion of the Department as to the location of such utilities and is only included for the convenience of the bidder. The Department assumes no responsibility in respect to the sufficiency or the accuracy of the information shown on the plans relative to the location of the underground utility facilities.

Utilities which are to be adjusted shall be adjusted by the utility owner or the owner's representative or by the Contractor as a contract item. Generally, arrangements for adjusting existing utilities will be made by the Department prior to project construction; however, utilities will not necessarily be adjusted in advance of project construction and, in some cases, utilities will not be removed from the proposed construction limits. When utility adjustments must be performed in conjunction with construction, the utility adjustment work will be shown on the plans and/or covered by Special Provisions.

When the Contractor discovers a utility has not been adjusted by the owner or the owner's representative as indicated in the contract documents, or the utility is not shown on the plans or described in the Special Provisions as to be adjusted in conjunction with construction, the Contractor shall not interfere with said utility, and shall take proper precautions to prevent damage or interruption of the utility and shall promptly notify the Engineer of the nature and location of said utility.

All necessary adjustments, as determined by the Engineer, of utilities not shown on the plans or not identified by markers, will be made at no cost to the Contractor except traffic structures, light poles, etc., that are normally located within the proposed construction limits as hereinafter defined will not be adjusted unless required by the proposed improvement.

(a) Limits of Proposed Construction for Utilities Paralleling the Roadway. For the purpose of this Article, limits of proposed construction for utilities extending in the same longitudinal direction as the roadway, shall be defined as follows:

(1) The horizontal limits shall be a vertical plane, outside of, parallel to, and 600 mm (2 ft) distant at right angles from the plan or revised slope limits.

In cases where the limits of excavation for structures are not shown on the plans, the horizontal limits shall be a vertical plane 1.2 m (4 ft) outside the edges of structure footings or the structure where no footings are required.

(2) The upper vertical limits shall be the regulations governing the roadbed clearance for the specific utility involved.

(3) The lower vertical limits shall be the top of the utility at the depth below the proposed grade as prescribed by the governing agency or the limits of excavation, whichever is less.

(b) Limits of Proposed Construction for Utilities Crossing the Roadway. For the purpose of this Article, limits of proposed construction for utilities crossing the roadway in a generally transverse direction shall be defined as follows:

(1) Utilities crossing excavations for structures that are normally made by trenching such as sewers, underdrains, etc. and all minor structures such as manholes, inlets, foundations for signs, foundations for traffic signals, etc., the limits shall be the space to be occupied by the proposed permanent construction unless otherwise required by the regulations governing the specific utility involved.

(2) For utilities crossing the proposed site of major structures such as bridges, sign trusses, etc., the limits shall be as defined above for utilities extending in the same general direction as the roadway.

The Contractor may make arrangements for adjustment of utilities outside of the limits of proposed construction provided the Contractor furnishes the Department with a signed agreement with the utility owner covering the adjustments to be made. The cost of any adjustments made outside the limits of proposed construction shall be the responsibility of the Contractor unless otherwise provided.

The Contractor shall request all utility owners to field locate their facilities according to Article 107.31. The Engineer may make the request for location from the utility after receipt of notice from the Contractor. On request, the Engineer will make an inspection to verify that the utility company has field located its facilities, but will not assume responsibility for the accuracy of such work. The Contractor shall be responsible for maintaining the excavations or markers provided by the utility owners. This field location procedure may be waived if the utility owner has stated in writing to the Department it is satisfied the construction plans are sufficiently accurate. If the utility owner does not submit such statement to the Department, and they do not field locate their facilities in both horizontal and vertical alignment, the Engineer will authorize the Contractor in writing to proceed to locate the facilities in the most economical and reasonable manner, subject to the approval of the Engineer, and be paid according to Article 109.04.

The Contractor shall coordinate with any planned utility adjustment or new installation and the Contractor shall take all precautions to prevent disturbance or damage to utility facilities. Any failure on the part of the utility owner, or their representative, to proceed with any planned utility adjustment or new installation shall be reported promptly by the Contractor to the Engineer orally and in writing.

The Contractor shall take all necessary precautions for the protection of the utility facilities. The Contractor shall be responsible for any damage or destruction of utility facilities resulting from neglect, misconduct, or omission in the Contractor's manner or method of execution or nonexecution of the work, or caused by defective work or the use of unsatisfactory materials. Whenever any damage or destruction of a utility facility occurs as a result of work performed by the Contractor, the utility company will be immediately notified. The utility company will make arrangements to restore such facility to a condition equal to that existing before any such damage or destruction was done.

It is understood and agreed that the Contractor has considered in the bid all of the permanent and temporary utilities in their present and/or adjusted positions.

No additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from the said utility facilities or the operation of relocating the said utility facilities.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
INSURANCE

Effective: February 1, 2007
Revised: August 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

The Contractor shall name the following entities as additional insured under the Contractor's general liability insurance policy in accordance with Article 107.27:

Lake County Division of Transportation

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

ANCHOR BOLTS (BDE)

Effective: January 1, 2013

Revise the fourth sentence of the first paragraph of Article 1006.09 of the Standard Specifications to read:

“Stud bolts or fully threaded rods shall be according to either ASTM A 354 Grade BC, ASTM A 193 Grade B7, or ASTM F 1554 Grade 105.”

Revise the second paragraph of Article 1006.09 of the Standard Specifications to read:

“Washers and nuts shall match with the hardness of the anchor bolt, stud, or rod. For ASTM F 1554 Grade 36 (Grade 250) or Grade 55 (Grade 380) anchor rods or bolts, washers shall be according to ASTM F 844 or ASTM F 436, and nuts shall be according to AASHTO M 291 Grade A. For ASTM F 1554 Grade 105 (Grade 725) bolts, ASTM A 354, or ASTM A 193 stud bolts, washers shall be according to AASHTO M 293 Type 1 or Type 3, and nuts shall be according to AASHTO M 291 Grade DH or DH3.”

Revise the seventh paragraph of Article 1006.09 of the Standard Specifications to read:

“Anchor bolts, rods, studs, nuts, and washers requiring galvanizing shall be hot dipped, with zinc coatings conforming to the requirements of ASTM F 2329.”

Revise the fourth paragraph of Article 1070.01 of the Standard Specifications to read:

“Fully threaded and galvanized anchor rods or stud bolts with washers and nuts shall be furnished with the foundations and shall be according to Article 1006.09. Anchors furnished according to ASTM F 1554 shall be Grade 105 (Grade 725).”

Revise the second paragraph of Article 1070.03 of the Standard Specifications to read:

“Top anchor rod nuts for all towers shall be the self-locking type with nylon or steel inserts.”

80309

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)

Effective: November 2, 2006

Revised: January 1, 2012

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$$

- Where: CA = Cost Adjustment, \$.
- BPI_P = Bituminous Price Index, as published by the Department for the month the work is performed, \$/ton (\$/metric ton).
- BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting, \$/ton (\$/metric ton).
- %AC_V = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.
- Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: $Q, \text{ tons} = A \times D \times (G_{mb} \times 46.8) / 2000$. For HMA mixtures measured in square meters: $Q, \text{ metric tons} = A \times D \times (G_{mb} \times 24.99) / 1000$. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different G_{mb} and % AC_V.

For bituminous materials measured in gallons: $Q, \text{ tons} = V \times 8.33 \text{ lb/gal} \times SG / 2000$
For bituminous materials measured in liters: $Q, \text{ metric tons} = V \times 1.0 \text{ kg/L} \times SG / 1000$

- Where: A = Area of the HMA mixture, sq yd (sq m).
D = Depth of the HMA mixture, in. (mm).
G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
V = Volume of the bituminous material, gal (L).

SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(BPI_L - BPI_P) \div BPI_L\} \times 100$$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**OPTION FOR
BITUMINOUS MATERIALS COST ADJUSTMENTS**

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract?

Yes

No

Signature: _____ **Date:** _____

80173

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COATED GALVANIZED STEEL CONDUIT (BDE)

Effective: January 1, 2013

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

“(3) Coated Galvanized Steel Conduit. The conduit prior to coating shall meet the requirements for rigid metal conduit and be manufactured according to NEMA Standard No. RN1.

The coating shall have the following characteristics.

Hardness	85+ Shore A Durometer
Dielectric Strength	400 V/mil @ 60 Hz
Aging	1,000 Hours Atlas Weatherometer
Brittleness Temperature	0 °F (-18 °C) when tested according to ASTM D 746
Elongation	200 percent

The exterior galvanized surfaces shall be coated with a primer before the coating to ensure a bond between the zinc substrate and the coating. The bond strength created shall be greater than the tensile strength of the plastic coating. The nominal thickness of the coating shall be 40 mils (1 mm). The coating shall pass the following bonding test.

Two parallel cuts 1/2 in. (13 mm) apart and 1 1/2 in. (38 mm) in length shall be made with a sharp knife along the longitudinal axis. A third cut shall be made perpendicular to and crossing the longitudinal cuts at one end. The knife shall then be worked under the coating for 1/2 in. (13 mm) to free the coating from the metal.

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

A two part urethane coating shall be applied to the interior of the conduit. The internal coating shall have a nominal thickness of 2 mils (50 µm). The interior coating shall be applied in a manner so there are no runs, drips, or pinholes at any point. The coating shall not peel, flake, or chip off after a cut is made in the conduit or a scratch is made in the coating. The urethane interior coating applied shall afford sufficient flexibility to permit field bending without cracking or flaking of the interior coating.

All conduit fittings and couplings shall be as specified and recommended by the conduit manufacturer. All conduit fitting covers shall be furnished with stainless steel screws which have been encapsulated with a polyester material on the head to ensure maximum corrosion protection.”

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term “equipment” refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment’s respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 ^{1/}	600-749	2002
	750 and up	2006
June 1, 2011 ^{2/}	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 ^{2/}	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<http://www.epa.gov/otaq/retrofit/verif-list.htm>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verde/verdev.htm>); or
- b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.

Such a shutdown will not be grounds for any extension of the contract time; waiver of penalties, or be grounds for any claim.

80261

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (DBE)

Effective: September 1, 2000

Revised: August 2, 2011

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The 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 17.00% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

- (a) The bidder documents that enough DBE participation has been obtained to meet the goal: or
- (b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's website at www.dot.il.gov.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement. The failure of the bidder to comply will render the bid not responsive.

- (a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.
- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:
 - (1) The names and addresses of DBE firms that will participate in the contract;

- (2) A description, including pay item numbers, of the work each DBE will perform;
- (3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
- (4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;
- (5) if the bidder is a joint venture comprised of DBE companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,
- (6) If the contract goal is not met, evidence of good faith efforts.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work performance to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

- (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
- (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
 - b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.
- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

- (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
 - (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
 - (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination.
- (c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for consideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is

generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.
- (c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.
- (d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:
 - (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
 - (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement.
- (e) DBE as a material supplier:
 - (1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
 - (2) 100 percent goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
 - (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement.

- (a) NO AMENDMENT. 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) TERMINATION OR REPLACEMENT. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in the Special Provision.
- (c) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, then a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.
- (d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

- (1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or
- (2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
- (3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

- (1) The listed DBE subcontractor fails or refuses to execute a written contract;
- (2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;

- (4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1,200 or applicable state law.
- (6) You have determined that the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice of its withdrawal;
- (8) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (9) A DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract;
- (10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated, or fails to complete its work on the Contract for any reason the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal.

- (f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the BDE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative

reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(g) ENFORCEMENT. 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.

(h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department.

80029

DRAIN PIPE, TILE, DRAINAGE MAT, AND WALL DRAIN (BDE)

Effective: January 1, 2013

Add the following to Article 101.01 of the Standard Specifications.

“NTPEP National Transportation Product Evaluation Program”

Revise Article 1040.03(f) of the Standard Specifications to read:

“(f) Profile Wall Pipe-304. The manufacturer shall be listed as compliant through the NTPEP program and the pipe shall be according to AASHTO M 304.”

Revise the first sentence of the first paragraph of Article 1040.04(a) of the Standard Specifications to read:

“The manufacturer shall be listed as compliant through the NTPEP program and the pipe shall be according to AASHTO M 252 (nominal size – 3 to 10 in. (75 to 250 mm)).”

Revise Article 1040.04(b) of the Standard Specifications to read:

“(b) Corrugated PE Pipe with a Smooth Interior. The manufacturer shall be listed as compliant through the NTPEP program and the pipe shall be according to AASHTO M 294 (nominal size – 12 to 48 in. (300 to 1200 mm)). The pipe shall be Type S or D.”

80312

GRANULAR MATERIALS (BDE)

Effective: November 1, 2012

Revise the title of Article 1003.04 of the Standard Specifications to read:

“1003.04 Fine Aggregate for Bedding, Trench Backfill, Embankment, Porous Granular Backfill, Sand Backfill for Underdrains, and French Drains.”

Revise Article 1003.04(c) of the Standard Specifications to read:

“(c) Gradation. The fine aggregate gradations for granular embankment, granular backfill, bedding, and trench backfill for pipe culverts and storm sewers shall be FA 1, FA 2, or FA 6 through FA 21.

The fine aggregate gradation for porous granular embankment, porous granular backfill, french drains, and sand backfill for underdrains shall be FA 1, FA 2, or FA 20, except the percent passing the No. 200 (75 µm) sieve shall be 2±2.”

Revise Article 1004.05(c) of the Standard Specifications to read:

“(c) Gradation. The coarse aggregate gradations shall be as follows.

Application	Gradation
Blotter	CA 15
Granular Embankment, Granular Backfill, Bedding, and Trench Backfill for Pipe Culverts and Storm Sewers	CA 6, CA 9, CA 10, CA 12, CA17, CA18, and CA 19
Porous Granular Embankment, Porous Granular Backfill, and French Drains	CA 7, CA 8, CA 11, CA 15, CA 16 and CA 18”

80303

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Revised: April 1, 2012

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

“Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4 in. (100 mm), from each pavement edge. (i.e. for a 5 in. (125 mm) lift the near edge of the density gauge or core barrel shall be within 5 in. (125 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

- a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.
- b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced ten feet apart longitudinally along the unconfined pavement edge and centered at the random density test location.”

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

"Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-4.75	Ndesign = 50	93.0 – 97.4%	91.0%
IL-9.5, IL-12.5	Ndesign ≥ 90	92.0 – 96.0%	90.0%
IL-9.5, IL-9.5L, IL-12.5	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0, IL-25.0	Ndesign ≥ 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L, IL-25.0	Ndesign < 90	93.0 – 97.4%	90.0%

SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%
All Other	Ndesign = 30	93.0 - 97.4%	90.0%”

80246

LIQUIDATED DAMAGES (BDE)

Effective: April 1, 2013

Revise the table in Article 108.09 of the Standard Specifications to read:

"Schedule of Deductions for Each Day of Overrun in Contract Time"			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
\$ 0	\$ 100,000	\$ 475	\$ 675
100,000	500,000	750	1,050
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,275	1,725
3,000,000	6,000,000	1,425	2,000
6,000,000	12,000,000	2,300	3,450
12,000,000	And over	6,775	9,525"

80320

PAVEMENT MARKING REMOVAL (BDE)

Effective: April 1, 2009

Add the following to the end of the first paragraph of Article 783.03(a) of the Standard Specifications:

“The use of grinders will not be allowed on new surface courses.”

80231

PAVEMENT PATCHING (BDE)

Effective: January 1, 2010

Revise the first sentence of the second paragraph of Article 701.17(e)(1) of the Standard Specifications to read:

“In addition to the traffic control and protection shown elsewhere in the contract for pavement, two devices shall be placed immediately in front of each open patch, open hole, and broken pavement where temporary concrete barriers are not used to separate traffic from the work area.”

80254

PAVEMENT REMOVAL (BDE)

Effective: April 1, 2013

Revise Article 440.07(c) of the Standard Specifications to read:

“(c) Adjustment of Quantities. The quantity of pavement removal will be adjusted if the thickness of the existing pavement varies more than 15 percent from that shown on the plans. The quantity will be either increased or decreased according to the following table.

% change of thickness	% change of quantity
0 to less than 15	0
15 to less than 20	10
20 to less than 30	15
30 to less than 50	20

If the thickness of the existing pavement varies by 50 percent or more from that shown on the plans, the character of the work will be considered significantly changed and an adjustment to the contract will be made according to Article 104.02.

When an adjustment is made for variations in pavement thickness a resulting adjustment will also be made in the earthwork quantities when applicable.

No adjustment will be made for variations in the amount of reinforcement.”

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: June 1, 2000

Revised: January 1, 2006

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section

| 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

80022

PLACING AND CONSOLIDATING CONCRETE (BDE)

Effective: January 1, 2013

Revise the first paragraph of Article 503.06 of the Standard Specifications to read:

"503.06 Forms. Forms shall be set and maintained to the lines and grades shown on the plans, and shall be tight to prevent concrete leakage."

Revise Article 503.07 of the Standard Specifications to read:

"503.07 Placing and Consolidating. No concrete shall be placed on ice, snow, or frozen foundation material.

The method and manner of placing concrete shall be such as to avoid segregation or separation of the aggregates or the displacement of the reinforcement. The external surface of all concrete shall be thoroughly worked during the operations of placing in such a manner as to work the mortar against the forms to produce a smooth finish free of honeycomb and with a minimum of water and air pockets.

Open troughs and chutes shall extend as nearly as practicable to the point of deposit. Dropping the concrete a distance of more than 5 ft (1.5 m) or depositing a large quantity at any point and running or working it along the forms will not be permitted. The concrete for walls with an average thickness of 12 in. (300 mm) or less shall be placed with tubes so that the drop is not greater than 5 ft (1.5 m).

For self-consolidating concrete, the maximum distance of horizontal flow from the point of deposit shall be 15 ft (4.6 m). The distance may be increased if the dynamic segregation index (DSI) at the maximum flow distance is 10.0 percent or less according to Illinois Test Procedure SCC-8 (Option C). The maximum distance using the DSI shall be 25 ft (7.6 m). In addition, this specified horizontal flow distance shall apply to precast products. In the case of precast prestressed concrete products, refer to the Department's "Manual of Fabrication for Precast Prestressed Concrete Products" for the specified horizontal flow distance requirements.

When the form height for placing the self-consolidating concrete is greater than 10 ft (3.0 m), direct monitoring of form pressure shall be performed by the Contractor according to Illinois Test Procedure SCC-10. The monitoring requirement is a minimum, and the Contractor shall remain responsible for adequate design of the falsework and forms. The Contractor shall record the formwork pressure during concrete placement. This information shall be used by the Contractor to prevent the placement rate from exceeding the maximum formwork pressure allowed, to monitor the thixotropic change in the concrete during the pour, and to make appropriate adjustments to the mix design. This information shall be provided to the Engineer during the pour.

When concrete is pumped, the equipment shall be suitable in kind and adequate in capacity for the work and arranged so that vibrations will not damage freshly placed concrete. Aluminum

pipe or conduit will not be permitted in pumping or placing concrete. Mixed concrete shall be supplied to maintain continuous operation of the pumping equipment.

When air entrained concrete is pumped, an accessory or accessories shall be incorporated in the discharge components to minimize air loss. The maximum allowable air loss caused by the pumping operation shall be 3.0 percent with the minimum air content at the point of discharge meeting the requirements of Article 1020.04.

Placing of concrete shall be regulated so that the pressures caused by the wet concrete will not exceed those used in the design of the forms. Special care shall be taken to fill each part of the forms by depositing the concrete as near its final position as possible, to work the coarser aggregates back from the face, and to force the concrete under and around the reinforcement bars without displacing them. Leakage through forms onto beams or girders shall not be allowed to harden and shall be removed while in a plastic state.

The concrete shall be consolidated by internal vibration unless self-consolidating concrete is used. Self-consolidating concrete may be used for inaccessible locations where consolidation by internal vibration is not practicable. The self consolidating concrete shall be rodded with a piece of lumber, conduit, or vibrator if the material has lost its fluidity prior to placement of additional concrete. The vibrator may only be permitted if it can be used in a manner that does not cause segregation as determined by the Engineer. Any other method for restoring the fluidity of the concrete shall be approved by the Engineer.

The Contractor shall provide and use a sufficient number of vibrators to ensure that consolidation can be started immediately after the concrete has been deposited in the forms.

The vibrators shall be inserted into the concrete immediately after it is deposited and shall be moved throughout the mass so as to thoroughly work the concrete around the reinforcement, embedded fixtures, and into the corners and angles of the forms. Vibrators shall not be attached to the forms, reinforcement bars, or the surface of the concrete.

Application of vibrators shall be at points uniformly spaced and not farther apart than twice the radius over which the vibration is visibly effective. The duration of the vibration at the points of insertion shall be sufficient to thoroughly consolidate the concrete into place but shall not be continued so as to cause segregation. When consolidating concrete in bridge decks, the vibrator shall be vertically inserted into the concrete for 3 - 5 seconds or for a period of time determined by the Engineer. Vibration shall be supplemented by spading when required by the Engineer. In addition to the internal vibration required herein, formed surfaces which will be exposed to view after completion of the work shall be spaded with a spading tool approved by the Engineer.

Concrete shall be placed in continuous horizontal layers. When it is necessary by reason of an emergency to place less than a complete horizontal layer in one operation, such layer shall terminate in a vertical bulkhead. Separate batches shall follow each other closely and in no case shall the interval of time between the placing of successive batches be greater than 20 minutes.

If mix foaming or detrimental material is observed during placement or at the completion of a pour, the material shall be removed while the concrete is still plastic

After the concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.”

Revise Article 516.12(a) of the Standard Specifications to read:

“(a) Free Fall Placement. The free fall placement shall only be permitted in shafts that can be dewatered to ensure less than 3 in. (75 mm) of standing water exist at the time of placement without causing side wall instability. The height of free fall placement shall be a maximum of 60 ft (18.3 m) as measured from the discharge end, but it shall be reduced to a maximum of 30 ft (9.1 m) when self-consolidating concrete is used. The Contractor shall obtain approval from the Engineer to place self-consolidating concrete by free fall.

Concrete placed by free fall shall fall directly to the base without contacting either the rebar cage or shaft sidewall. Drop chutes may be used to direct concrete to the base during free fall placement.

Drop chutes used to direct placement of free fall concrete shall consist of a smooth tube of either one continuous section or multiple pieces that can be added and removed. Concrete may be placed through either a hopper at the top of the tube or side openings as the drop chute is retrieved during concrete placement. The drop chute shall be supported so that free fall does not exceed the specified maximum 60 ft (18.3 m) or 30 ft (9.1 m) at all times from the discharge end, and to ensure the concrete does not strike the rebar cage. If placement cannot be satisfactorily accomplished by free fall in the opinion of the Engineer, either a tremie or pump shall be used to accomplish the pour.”

80316

PLANTING WOODY PLANTS (BDE)

Effective: January 1, 2012

Revised: August 1, 2012

Revise the second sentence of Article 253.01 of the Standard Specifications to read:

“This work shall consist of furnishing, transporting, and planting woody plants such as trees, shrubs, evergreens, vines, and seedlings.”

Revise Article 253.02(a) of the Standard Specifications to read:

“(a) Trees, Shrubs, Evergreens, Vines and Seedlings 1081.01”

Revise the first sentence of Article 253.08(a) of the Standard Specifications to read:

“(a) Excavation for Deciduous Trees and Evergreen Trees.”

Revise the first sentence of Article 253.08(b) of the Standard Specifications to read:

“(b) Excavation for Deciduous Shrubs, Evergreen Shrubs, Vines, and Seedlings.”

Revise the first sentence of Article 253.13 of the Standard Specifications to read:

“All deciduous and evergreen trees, with the exception of multi-stem or clump form specimens, over 8 ft (2.5 m) in height shall require three 6 ft (2 m) long steel posts so placed that they are equidistant from each other and adjacent to the outside of the ball.”

Revise the first sentence of the second paragraph of Article 253.14 of the Standard Specifications to read:

“This period of establishment for the plants shall not delay acceptance of the entire project and final payment due if the contractor requires and receives from the subcontractor a third party performance bond naming the Department as obligee in the full amount of the planting quantities subject to this period of establishment, multiplied by their contract unit prices.”

Revise the third sentence of Article 253.16 of the Standard Specifications to read:

“Trees, shrubs, evergreens, and vines will be measured as each individual plant.”

Revise Article 253.17 of the Standard Specifications to read:

“**253.17 Basis of Payment.** This work will be paid for at the contract unit price per each for TREES, SHRUBS, EVERGREENS, or VINES, of the species, root type, and plant size specified; and per unit for SEEDLINGS. Payment will be made according to the following schedule.

(a) Initial Payment. Upon completion of planting, mulch covering, wrapping, and bracing, 90 percent of the pay item(s) will be paid.

(b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third party bond, the remaining ten percent of the pay item(s) will be paid.”

Revise the first paragraph of Article 1081.01 of the Standard Specifications to read:

“1081.01 Trees, Shrubs, Evergreens, Vines, and Seedlings. Trees, shrubs, evergreens, vines, and seedlings shall be according to the current standards adopted by the ANLA.”

80278

PORTLAND CEMENT CONCRETE (BDE)

Effective: January 1, 2012

Revised: January 1, 2013

Revise Notes 1 and 2 of Article 312.24 of the Standard Specifications to read:

"Note 1. Coarse aggregate shall be gradation CA 6, CA 7, CA 9, CA 10, or CA 11, Class D quality or better. Article 1020.05(d) shall apply.

Note 2. Fine aggregate shall be FA 1 or FA 2. Article 1020.05(d) shall apply."

Revise the first paragraph of Article 312.26 of the Standard Specifications to read:

312.26 Proportioning and Mix Design. At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials for proportioning and testing. The mixture shall contain a minimum of 200 lb (90 kg) of cement per cubic yard (cubic meter). Portland cement may be replaced with fly ash according to Article 1020.05(c)(1), however the minimum portland cement content in the mixture shall be 170 lbs/cu yd (101 kg/cu m). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design."

Revise the second paragraph of Article 503.22 of the Standard Specifications to read:

Other cast-in-place concrete for structures will be paid for at the contract unit price per cubic yard (cubic meter) for CONCRETE HANDRAIL, CONCRETE ENCASEMENT, and SEAL COAT CONCRETE."

Add the following to Article 1003.02 of the Standard Specifications:

(e) Alkali Reaction.

- (1) ASTM C 1260. Each fine aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.03 percent will be assigned to limestone or dolomite fine

aggregates (manufactured stone sand). However, the Department reserves the right to perform the ASTM C 1260 test.

- (2) ASTM C 1293 by Department. In some instances, such as chert natural sand or other fine aggregates, testing according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.
- (3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor to evaluate the Department's ASTM C 1260 test result. The laboratory performing the ASTM C 1293 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing".

The ASTM C 1293 test shall be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.80 percent or greater. The interior vertical wall of the ASTM C 1293 recommended container (pail) shall be half covered with a wick of absorbent material consisting of blotting paper. If the testing laboratory desires to use an alternate container, wick of absorbent material, or amount of coverage inside the container with blotting paper, ASTM C 1293 test results with an alkali-reactive aggregate of known expansion characteristics shall be provided to the Engineer for review and approval. If the expansion is less than 0.040 percent after one year, the aggregate will be assigned an ASTM C 1260 expansion value of 0.08 percent that will be valid for two years, unless the Engineer determines the aggregate has changed significantly. If the aggregate is manufactured into multiple gradation numbers, and the other gradation numbers have the same or lower ASTM C 1260 value, the ASTM C 1293 test result may apply to multiple gradation numbers.

The Engineer reserves the right to verify a Contractor's ASTM C 1293 test result. When the Contractor performs the test, a split sample shall be provided to the Engineer. The Engineer may also independently obtain a sample at any time. The aggregate will be considered reactive if the Contractor or Engineer obtains an expansion value of 0.040 percent or greater.

Revise the first paragraph of Article 1004.01(e)(5) of the Standard Specifications to read:

"Crushed concrete, crushed slag, or lightweight aggregate for portland cement concrete shall be stockpiled in a moist condition (saturated surface dry or greater) and the moisture content shall be maintained uniformly throughout the stockpile by periodic sprinkling."

Revise Article 1004.02(d) of the Standard Specifications to read:

"(d) Combining Sizes. Each size shall be stored separately and care shall be taken to prevent them from being mixed until they are ready to be proportioned. Separate compartments shall be provided to proportion each size.

- (1) When Class BS concrete is to be pumped, the coarse aggregate gradation shall have a minimum of 45 percent passing the 1/2 in. (12.5 mm) sieve. The Contractor may combine two or more coarse aggregate sizes, consisting of CA 7, CA 11, CA 13, CA 14, and CA 16, provided a CA 7 or CA 11 is included in the blend.
- (2) If the coarse aggregate is furnished in separate sizes, they shall be combined in proportions to provide a uniformly graded coarse aggregate grading within the following limits.

Class of Concrete ^{1/}	Combined Sizes	Sieve Size and Percent Passing						
		2 1/2 in.	2 in.	1 3/4 in.	1 1/2 in.	1 in.	1/2 in.	No. 4
PV ^{2/}	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC ^{2/}	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

Class of Concrete ^{1/}	Combined Sizes	Sieve Size (metric) and Percent Passing						
		63 mm	50 mm	45 mm	37.5 mm	25 mm	12.5 mm	4.75 mm
PV ^{2/}	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3
SI and SC ^{2/}	CA 3 & CA 7	100	95±5	---	---	55±25	20±10	3±3
	CA 3 & CA 11	100	95±5	---	---	55±25	20±10	3±3
	CA 5 & CA 7	---	---	100	98±2	72±22	22±12	3±3
	CA 5 & CA 11	---	---	100	98±2	72±22	22±12	3±3

1/ See Table 1 of Article 1020.04.

2/ Any of the listed combination of sizes may be used."

Add the following to Article 1004.02 of the Standard Specifications:

(g) Alkali Reaction.

- (1) ASTM C 1260. Each coarse aggregate will be tested by the Department for alkali reaction according to ASTM C 1260. The test will be performed with Type I or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater. The Engineer will determine the assigned expansion value for each aggregate, and these values will be made available on the Department's Alkali-Silica Potential Reactivity Rating List. The Engineer may differentiate aggregate based on ledge, production method, gradation number, or other factors. An expansion value of 0.05 percent will be assigned to limestone or dolomite coarse aggregates. However, the Department reserves the right to perform the ASTM C 1260 test.
- (2) ASTM C 1293 by Department. In some instances testing a coarse aggregate according to ASTM C 1260 may not provide accurate test results. In this case, the Department may only test according to ASTM C 1293.
- (3) ASTM C 1293 by Contractor. If an individual aggregate has an ASTM C 1260 expansion value that is unacceptable to the Contractor, an ASTM C 1293 test may be performed by the Contractor according to Article 1003.02(e)(3).

Revise the first paragraph of Article 1019.06 of the Standard Specifications to read:

“1019.06 Contractor Mix Design. A Contractor may submit their own mix design and may propose alternate fine aggregate materials, fine aggregate gradations, or material proportions. Article 1020.05(a) shall apply and a Level III PCC Technician shall develop the mix design.”

Revise Section 1020 of the Standard Specifications to read:

“SECTION 1020. PORTLAND CEMENT CONCRETE

1020.01 Description. This item shall consist of the materials, mix design, production, testing, curing, low air temperature protection, and temperature control of concrete.

1020.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003
(d) Coarse Aggregate	1004

(e) Concrete Admixtures	1021
(f) Finely Divided Minerals	1010
(g) Concrete Curing Materials	1022
(h) Straw	1081.06(a)(1)
(i) Calcium Chloride	1013.01

1020.03 Equipment. Equipment shall be according to the following.

Item	Article/Section
(a) Concrete Mixers and Trucks	1103.01
(b) Batching and Weighing Equipment	1103.02
(c) Automatic and Semi-Automatic Batching Equipment	1103.03
(d) Water Supply Equipment	1103.11
(e) Membrane Curing Equipment	1101.09
(f) Mobile Portland Cement Concrete Plants	1103.04

1020.04 Concrete Classes and General Mix Design Criteria. The classes of concrete shown in Table 1 identify the various mixtures by the general uses and mix design criteria. If the class of concrete for a specific item of construction is not specified, Class SI concrete shall be used.

For the minimum cement factor in Table 1, it shall apply to portland cement, portland-pozzolan cement, and portland blast-furnace slag except when a particular cement is specified in the Table.

The Contractor shall not assume that the minimum cement factor indicated in Table 1 will produce a mixture that will meet the specified strength. In addition, the Contractor shall not assume that the maximum finely divided mineral allowed in a mix design according to Article 1020.05(c) will produce a mixture that will meet the specified strength. The Contractor shall select a cement factor within the allowable range that will obtain the specified strength. The Contractor shall take into consideration materials selected, seasonal temperatures, and other factors which may require the Contractor to submit multiple mix designs.

For a portland-pozzolan cement, portland blast-furnace slag cement, or when replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the portland cement content in the mixture shall be a minimum of 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). When calculating the portland cement portion in the portland-pozzolan or portland blast-furnace slag cement, the AASHTO M 240 tolerance may be ignored.

Special classifications may be made for the purpose of including the concrete for a particular use or location as a separate pay item in the contract. The concrete used in such cases shall conform to this section.

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA

Class of Conc.	Use	Specification Section Reference	Cement Factor cw/cu yd (3)		Water / Cement Ratio lb/lb	Sump in. (4)	Mix Design Compressive Strength (Flexural Strength) psi. minimum			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max.			Days				
							3	14	28		
DS	Drilled Shaft (12)	516	6.65	7.05	0.32 - 0.44	6 - 8 (6)	4000 (675)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.	
	Metal Shell Piles (12)	512									
	Sign Structures Drilled Shaft (12) Light Tower Foundation (12)	734 837									
SC	Seal Coat	503	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	3 - 5	3500 (650)		Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, or CA 11	
SI	Structures (except Superstructure)	503	5.65 (1) 6.05 (2)	7.05	0.32 - 0.44	2 - 4 (5)	3500 (650)		5.0 - 8.0 (5)	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)	
	Sidewalk	424									
	Slope Wall	511									
	Encasement	512									
	Box Culverts	540									
	End Section and Collar	542									
	Curb, Gutter, Curb & Gutter, Median, and Paved Ditch	606									
	Concrete Barrier	637									
	Sign Structures	734									
	Spread Footing										
	Concrete Foundation										
	Pole Foundation (12)	836									
	Traffic Signal Foundation	878									
Drilled Shaft (12)											
Square or Rectangular											

- Notes:
- (1) Central-mixed.
 - (2) Truck-mixed or shrink-mixed.
 - (3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.
 - (4) The maximum slump may be increased to 7 in. when a high range water-reducing admixture is used for all classes of concrete, except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 8 in. For Class PP-1, the maximum slump may be increased to 6 in. For Class PS, the 7 in. maximum slump may be increased to 8 1/2 in. if the high range water-reducing admixture is the polycarboxylate type.
 - (5) The slump range for slipform construction shall be 1/2 to 2 1/2 in. and the air content range shall be 5.5 to 8.0 percent.
 - (6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 8 - 10 in. at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 2 - 4 in.
 - (7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.
 - (8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 °F, the Type III portland cement may be replaced with Type I or II portland cement.
 - (9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.
 - (10) For Class PP concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 4,000 psi compressive or 675 psi flexural strength for all PP mix designs.
 - (11) The nominal maximum size permitted is 3/4 in. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
 - (12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 2 cu yd trial batch to verify the mix design.
 - (13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.
 - (14) Alternate combinations of gradation sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Sump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum			Air Content %	Coarse Aggregate Gradations (14)	
			Min.	Max			Days	3	14			28
PV	Pavement	420 or 421										
	Base Course	353										
	Base Course Widening	354	335 (1)	418	0.32 - 0.42	50 - 100 (5)	Ty III 24,000 (4500)	24,000 (4500)	5.0 - 8.0 (5)	CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, or CA 14		
	Driveway Pavement	423	360 (2)									
	Shoulders	483										
PP	Shoulder Curb	682										
	Pavement Patching											
	Bridge Deck Patching (10)	442					22,100 (4150)	Article 701.17(e)(3)b.				
	PP-1		385 (Ty III)	445 (Ty III)	0.32 - 0.44	50 - 100	at 48 hours		4.0 - 7.0	CA 7, CA 11, CA 13, CA 14, or CA 16		
	PP-2		435	485	0.32 - 0.38	50 - 150	at 24 hours		4.0 - 6.0			
	PP-3		435 (Ty III) (8)	435 (Ty III) (8)	0.32 - 0.35	50 - 100	at 16 hours		4.0 - 6.0			
	PP-4		355 (9)	370 (9)	0.32 - 0.50	50 - 150	at 8 hours		4.0 - 6.0			
	PP-5		400 (9)	400 (9)	0.32 - 0.40	50 - 200	at 4 hours		4.0 - 6.0			
	RR	Railroad Crossing	422	385 (Ty III)	445 (Ty III)	0.32 - 0.44	50 - 100	24,000 (4500) at 48 hours		4.0 - 7.0	CA 7, CA 11, or CA 14	
	BS	Bridge Superstructure		365 (Ty III)	425 (Ty III)	0.32 - 0.44	50 - 100	27,500 (4650)		5.0 - 8.0 (5)	CA 7, CA 11, or CA 14 (7)	
Bridge Approach Slab		503	360	418		50 - 100 (5)						
PC	Various Precast Concrete Items	1042	335 (Ty III)	418 (Ty III)	0.32 - 0.44	25 - 100	See Section 1042		5.0 - 8.0	CA 7, CA 11, CA 13, CA 14, CA 16, or CA 7 & CA 16		
	Wet Cast Dry Cast		335 (Ty III)	418 (Ty III)	0.25 - 0.40	0 - 25			N/A			
PS	Precast Prestressed Members	504	335 (Ty III)	418 (Ty III)	0.32 - 0.44	25 - 100			5.0 - 8.0	CA 11 (11), CA 13, CA 14 (11), or CA 16		
	Precast Prestressed Piles and Extensions	512						Plans 34,500				
	Precast Prestressed Sight Screen	639						24,000				

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA (metric)

Class of Conc.	Use	Specification Section Reference	Cement Factor kg/cu m (3)		Water / Cement Ratio kg/kg	Sump mm (4)	Mix Design Compressive Strength (Flexural Strength) kPa, minimum			Air Content %	Coarse Aggregate Gradations (14)
			Min.	Max			3	14	28		
DS	Drilled Shaft (12) Metal Shell Piles (12) Sign Structures Drilled Shaft (12) Light Tower Foundation (12)	516	395	418	0.32 - 0.44	150 - 200 (6)	27,500 (4650)		5.0 - 8.0	CA 13, CA 14, CA 16, or a blend of these gradations.	
		512									
		734									
SC	Seal Coat	837			0.32 - 0.44	75 - 125	24,000 (4500)		Optional 6.0 max.	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, or CA 11	
		503	335 (1) 360 (2)	418							
SI	Structures (except Superstructure) Sidewalk Slope Wall Encasement Box Culverts End Section and Collar Curb, Gutter, Curb & Gutter, Median, and Paved Ditch Concrete Barrier Sign Structures Spread Footing Concrete Foundation Pole Foundation (12) Traffic Signal Foundation Drilled Shaft (12) Square or Rectangular	503			0.32 - 0.44	50 - 100 (5)	24,000 (4500)		5.0 - 8.0 (5)	CA 3 & CA 7, CA 3 & CA 11, CA 5 & CA 7, CA 5 & CA 11, CA 7, CA 11, CA 13, CA 14, or CA 16 (13)	
		424									
		511									
		512									
		540									
		542									
		606									
		637									
		734									
		836									
		878									

- Notes:
- (1) Central-mixed.
 - (2) Truck-mixed or shrink-mixed.
 - (3) For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the cement factor shall be increased by ten percent.
 - (4) The maximum slump may be increased to 175 mm when a high range water-reducing admixture is used for all classes of concrete except Class PV, SC, and PP. For Class SC, the maximum slump may be increased to 200 mm. For Class PP-1, the maximum slump may be increased to 150 mm. For Class PS, the 175 mm maximum slump may be increased to 215 mm if the high range water-reducing admixture is the polycarboxylate type.
 - (5) The slump range for slipform construction shall be 13 to 64 mm and the air content range shall be 5.5 to 8.0 percent.
 - (6) If concrete is placed to displace drilling fluid, or against temporary casing, the slump shall be 200 - 250 mm at the point of placement. If a water-reducing admixture is used in lieu of a high range water-reducing admixture according to Article 1020.05(b)(7), the slump shall be 50 - 100 mm.
 - (7) For Class BS concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching.
 - (8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 °C, the Type III portland cement may be replaced with Type I or II portland cement.
 - (9) The cement shall be a rapid hardening cement from the Department's "Approved List of Packaged, Dry, Rapid Hardening Cementitious Materials for Concrete Repairs" for PP-4 and calcium aluminate cement for PP-5.
 - (10) For Class PP concrete used in bridge deck patching, the coarse aggregate gradation shall be CA 13, CA 14, or CA 16, except CA 11 may be used for full-depth patching. In addition, the mix design shall have 72 hours to obtain a 27,500 kPa compressive or 4,650 kPa flexural.
 - (11) The nominal maximum size permitted is 19 mm. Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
 - (12) The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus one hour. At the Engineer's discretion, the Contractor may be required to conduct a minimum 1.5 cu m trial batch to verify the mix design.
 - (13) CA 3 or CA 5 may be used when the nominal maximum size does not exceed two-thirds the clear distance between parallel reinforcement bars, or between the reinforcement bar and the form. Nominal maximum size is defined in Note 11.
 - (14) Alternate combinations of gradation sizes may be used with the approval of the Engineer. Refer also to Article 1004.02(d) for additional information on combining sizes.

Self-consolidating concrete is a flowable mixture that does not require mechanical vibration for consolidation. Self-consolidating concrete mix designs may be developed for Class BS, PC, PS, DS, and SI concrete. Self-consolidating concrete mix designs may also be developed for precast concrete products that are not subjected to Class PC concrete requirements according to Section 1042. The mix design criteria for the concrete mixture shall be according to Article 1020.04 with the following exceptions.

- (a) The slump requirements shall not apply.
- (b) The concrete mixture should be uniformly graded, and information in the "Portland Cement Concrete Level III Technician Course – Manual of Instructions for Design of Concrete Mixtures" may be used to develop the uniformly graded mix design. The coarse aggregate gradations shall be CA 11, CA 13, CA 14, CA 16, or a blend of these gradations. However, the final gradation when using a single coarse aggregate or combination of coarse aggregates shall have 100 percent pass the 1 in. (25 mm) sieve, and minimum 95 percent pass the 3/4 in. (19 mm) sieve. The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used.
- (c) The slump flow range shall be 22 in. (560 mm) minimum to 28 in. (710 mm) maximum and tested according to Illinois Test Procedure SCC-2.
- (d) The visual stability index shall be a maximum of 1 and tested according to Illinois Test Procedure SCC-2.
- (e) The J-Ring value shall be a maximum of 2 in. (50 mm) and tested according to Illinois Test Procedure SCC-3. The L-Box blocking ratio shall be a minimum of 80 percent and tested according to Illinois Test Procedure SCC-3. The Contractor has the option to select either test.
- (f) The hardened visual stability index shall be a maximum of 1 and tested according to Illinois Test Procedure SCC-6.
- (g) If Class PC concrete requirements do not apply to the precast concrete product according to Section 1042, the maximum cement factor shall be 7.05 cwt/cu yd (418 kg/cu m) and the maximum allowable water/cement ratio shall be 0.44.
- (h) If the measured slump flow, visual stability index, J-Ring value, or L-Box blocking ratio fall outside the limits specified, a check test will be made. In the event of a second failure, the Engineer may refuse to permit the use of the batch of concrete represented.

The Contractor may use water or self-consolidating admixtures at the jobsite to obtain the specified slump flow, visual stability index, J-ring value, or L-box blocking ratio. The maximum design water/cement ratio shall not be exceeded.

1020.05 Other Concrete Criteria. The concrete shall be according to the following.

- (a) Proportioning and Mix Design. For all Classes of concrete, it shall be the Contractor's responsibility to determine mix design material proportions and to proportion each batch of concrete. A Level III PCC Technician shall develop the mix design for all Classes of concrete, except Classes PC and PS. The mix design, submittal information, trial batch, and Engineer verification shall be according to the "Portland Cement Concrete Level III Technician" course material.

The Contractor shall provide the mix designs a minimum of 45 calendar days prior to production. More than one mix design may be submitted for each class of concrete.

The Engineer will verify the mix design submitted by the Contractor. Verification of a mix design shall in no manner be construed as acceptance of any mixture produced. Once a mix design has been verified, the Engineer shall be notified of any proposed changes.

Tests performed at the jobsite will determine if a mix design can meet specifications. If the tests indicate it cannot, the Contractor shall make adjustments to a mix design, or submit a new mix design if necessary, to comply with the specifications.

- (b) Admixtures. The Contractor shall be responsible for using admixtures and determining dosages for all Classes of concrete, cement aggregate mixture II, and controlled low-strength material that will produce a mixture with suitable workability, consistency, and plasticity. In addition, admixture dosages shall result in the mixture meeting the specified plastic and hardened properties. The Contractor shall obtain approval from the Engineer to use an accelerator when the concrete temperature is greater than 60 °F (16 °C). However, this accelerator approval by the Engineer will not be required for Class PP, RR, PC, and PS concrete. The accelerator shall be the non-chloride type unless otherwise specified in the contract plans.

The Department will maintain an Approved List of Corrosion Inhibitors. Corrosion inhibitor dosage rates shall be according to Article 1020.05(b)(10). For information on approved controlled low-strength material air-entraining admixtures, refer to Article 1019.02. The Department will also maintain an Approved List of Concrete Admixtures, and an admixture technical representative shall be consulted by the Contractor prior to the pour when determining an admixture dosage from this list or when making minor admixture dosage adjustments at the jobsite. The dosage shall be within the range indicated on the approved list unless the influence by other admixtures, jobsite conditions (such as a very short haul time), or other circumstances warrant a dosage outside the range. The Engineer shall be notified when a dosage is proposed outside the range. To determine an admixture dosage, air temperature, concrete temperature, cement source and quantity, finely divided mineral sources and quantity, influence of other admixtures, haul time, placement conditions, and other factors as appropriate shall be considered. The Engineer may request the Contractor to have a batch of concrete mixed in the lab or field to verify the admixture dosage is correct. An admixture dosage or combination of admixture dosages shall not delay the initial set of concrete by more than one hour. When a retarding admixture is required or appropriate for a bridge deck or bridge deck overlay pour, the initial set time shall be delayed until the deflections due

to the concrete dead load are no longer a concern for inducing cracks in the completed work. However, a retarding admixture shall not be used to further extend the pour time and justify the alteration of a bridge deck pour sequence.

When determining water in admixtures for water/cement ratio, the Contractor shall calculate 70 percent of the admixture dosage as water, except a value of 50 percent shall be used for a latex admixture used in bridge deck latex concrete overlays.

The sequence, method, and equipment for adding the admixtures shall be approved by the Engineer. Admixtures shall be added to the concrete separately. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

Admixture use shall be according to the following.

- (1) When the atmosphere or concrete temperature is 65 °F (18 °C) or higher, a retarding admixture shall be used in the Class BS concrete and concrete bridge deck overlays. 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 bridge deck concrete. At the option of the Contractor, a water-reducing admixture may be used with the high range water-reducing admixture in Class BS concrete.
- (2) At the Contractor's option, admixtures in addition to an air-entraining admixture may be used for Class PP-1 or RR concrete. When the air temperature is less than 55 °F (13 °C) and an accelerator is used, the non-chloride accelerator shall be calcium nitrite.
- (3) When Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 or RR concrete, a water-reducing or high range water-reducing admixture shall be used.
- (4) 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. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite. For Class PP-2 concrete, the non-chloride accelerator shall be calcium nitrite when the air temperature is less than 55 °F (13 °C).
- (5) 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 with the high range 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, but a retarding admixture shall not be used unless approved by the Engineer.

For PP-5 concrete, a non-chloride accelerator, high range water-reducing admixture, and air-entraining admixture shall be used. The accelerator, high range water-reducing admixture, and air-entraining admixture shall be per the Contractor's recommendation and dosage. The approved list of concrete admixtures shall not apply. A mobile portland cement concrete plant shall be used to produce the patching mixture.

- (6) When a calcium chloride accelerator is specified in the contract, the maximum chloride dosage shall be 1.0 quart (1.0 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.0 quarts (2.0 L) per 100 lb (45 kg) of cement if approved by the Engineer. When a calcium chloride accelerator for Class PP-2 concrete is specified in the contract, the maximum chloride dosage shall be 1.3 quarts (1.3 L) of solution per 100 lb (45 kg) of cement. The dosage may be increased to a maximum 2.6 quarts (2.6 L) per 100 lb (45 kg) of cement if approved by the Engineer.
- (7) For Class DS concrete a retarding admixture and a high range water-reducing admixture shall be used. For dry excavations that are 10 ft (3 m) or less, the high range water-reducing admixture may be replaced with a water-reducing admixture if the concrete is vibrated. The use of admixtures shall take into consideration the slump loss limits specified in Article 516.12 and the fluidity requirement in Article 1020.04 (Note 12).
- (8) At the Contractor's option, when a water-reducing admixture or a high range water-reducing admixture is used for Class PV, PP-1, RR, SC, and SI concrete, the cement factor may be reduced a maximum 0.30 hundredweight/cu yd (18 kg/cu m). However, a cement factor reduction will not be allowed for concrete placed underwater.
- (9) When Type F or Type G high range water-reducing admixtures are used, the initial slump shall be a minimum of 1 1/2 in. (40 mm) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.
- (10) When specified, a corrosion inhibitor shall be added to the concrete mixture utilized in the manufacture of precast, prestressed concrete members and/or other applications. It shall be added, at the same rate, to all grout around post-tensioning steel when specified.

When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m), and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch.

When Rheocrete 222+ is used, it shall be added at the rate of 1.0 gal/cu yd (5.0 L/cu m), and the batching sequence shall be according to the manufacturer's instructions.

(c) Finely Divided Minerals. Use of finely divided minerals shall be according to the following.

(1) Fly Ash. At the Contractor's option, fly ash from approved sources may partially replace portland cement in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete.

The use of fly ash shall be according to the following.

- a. Measurements of fly ash and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).
- b. When Class F fly ash is used in cement aggregate mixture II, Class PV, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 25 percent by weight (mass).
- c. When Class C fly ash is used in cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, the amount of portland cement replaced shall not exceed 30 percent by weight (mass).
- d. Fly ash may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

(2) Ground Granulated Blast-Furnace (GGBF) Slag. At the Contractor's option, GGBF slag may partially replace portland cement in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete. For Class PP-3 concrete, GGBF slag shall be used according to Article 1020.04.

The use of GGBF slag shall be according to the following.

- a. Measurements of GGBF slag and portland cement shall be rounded up to the nearest 5 lb (2.5 kg).
- b. When GGBF slag is used in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC and SI concrete, the amount of portland cement replaced shall not exceed 35 percent by weight (mass).
- c. GGBF slag may be used in concrete mixtures when the air temperature is below 40 °F (4 °C), but the Engineer may request a trial batch of the concrete mixture to show the mix design strength requirement will be met.

- (3) Microsilica. At the Contractor's option, microsilica may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

Microsilica shall be used in Class PP-3 concrete according to Article 1020.04.

- (4) High Reactivity Metakaolin (HRM). At the Contractor's option, HRM may be added at a maximum of 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.
- (5) Mixtures with Multiple Finely Divided Minerals. Except as specified for Class PP-3 concrete, the Contractor has the option to use more than one finely divided mineral in Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete as follows.
- a. The mixture shall contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 35.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 30.0 percent for Class C fly ash or 25.0 percent for Class F fly ash. The Class C and F fly ash combination shall not exceed 30.0 percent. The ground granulated blast-furnace slag portion shall not exceed 35.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed ten percent. The finely divided mineral in the portland-pozzolan cement or portland blast-furnace slag blended cement shall apply to the maximum 35.0 percent.
 - b. Central Mixed. For Class PV, SC, and SI concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 535 lbs/cu yd (320 kg/cu m).
 - c. Truck-Mixed or Shrink-Mixed. For Class PV, SC, and SI concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used, the Contractor has the option to use a minimum of 575 lbs/cu yd (345 kg/cu m).
 - d. Central-Mixed, Truck-Mixed or Shrink-Mixed. For Class PP-1 and RR concrete, the mixture shall contain a minimum of 650 lbs/cu yd (385 kg/cu m) of cement and finely divided minerals summed together. For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a minimum of 620 lbs/cu yd (365 kg/cu m).

For Class PP-2 concrete, the mixture shall contain a minimum of 735 lbs/cu yd (435 kg/cu m) of cement and finely divided minerals summed together. For Class BS concrete, the mixture shall contain a minimum of 605 lbs/cu yd (360 kg/cu m). For Class DS concrete, the mixture shall contain a minimum of 665 lbs/cu yd (395 kg/cu m).

If a water-reducing or high range water-reducing admixture is used in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 620 lbs/cu yd (365 kg/cu m) of cement and finely divided minerals summed together. If a water-reducing or high-range water-reducing admixture is used with Type III portland cement in Class PP-1 and RR concrete, the Contractor has the option to use a minimum of 590 lbs/cu yd (350 kg/cu m).

- e. Central-Mixed or Truck-Mixed. For Class PC and PS concrete, the mixture shall contain a minimum of 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.
 - f. The mixture shall contain a maximum of 705 lbs/cu yd (418 kg/cu m) of cement and finely divided mineral(s) summed together for Class PV, BS, PC, PS, DS, SC, and SI concrete. For Class PP-1 and RR concrete, the mixture shall contain a maximum of 750 lbs/cu yd (445 kg/cu m). For Class PP-1 and RR concrete using Type III portland cement, the mixture shall contain a maximum of 720 lbs/cu yd (425 kg/cu m). For Class PP-2 concrete, the mixture shall contain a maximum of 820 lbs/cu yd (485 kg/cu m).
 - g. For Class SC concrete and for any other class of concrete that is to be placed underwater, except Class DS concrete, the allowable cement and finely divided minerals summed together shall be increased by ten percent.
 - h. The combination of cement and finely divided minerals shall comply with Article 1020.05(d).
- (d) Alkali-Silica Reaction. For cast-in-place (includes cement aggregate mixture II and latex mixtures), precast, and precast prestressed concrete, one of the mixture options provided in Article 1020.05(d)(2) shall be used to reduce the risk of a deleterious alkali-silica reaction in concrete exposed to humid or wet conditions. The mixture options are not intended or adequate for concrete exposed to potassium acetate, potassium formate, sodium acetate, or sodium formate. The mixture options will not be required for the dry environment (humidity less than 60 percent) found inside buildings for residential or commercial occupancy.

The mixture options shall not apply to concrete revetment mats, insertion lining of pipe culverts, portland cement mortar fairing course, controlled low-strength material, miscellaneous grouts that are not prepackaged, Class PP-3 concrete, Class PP-4 concrete, and Class PP-5 concrete.

- (1) Aggregate Groups. Each combination of aggregates used in a mixture will be assigned to an aggregate group. The point at which the coarse aggregate and fine aggregate expansion values intersect in the following table will determine the group.

Aggregate Groups			
Coarse Aggregate or Coarse Aggregate Blend	Fine Aggregate Or Fine Aggregate Blend		
	ASTM C 1260 Expansion		
ASTM C 1260 Expansion	≤0.16%	>0.16% - 0.27%	>0.27%
≤0.16%	Group I	Group II	Group III
>0.16% - 0.27%	Group II	Group II	Group III
>0.27%	Group III	Group III	Group IV

- (2) Mixture Options. Based upon the aggregate group, the following mixture options shall be used. However, the Department may prohibit a mixture option if field performance shows a deleterious alkali-silica reaction or Department testing indicates the mixture may experience a deleterious alkali-silica reaction.

Reduction of Risk for Deleterious Alkali-Silica Reaction					
Aggregate Groups	Mixture Options				
	Option 1	Option 2	Option 3	Option 4	Option 5
Group I	Mixture options are not applicable. Use any cement or finely divided mineral.				
Group II	X	X	X	X	X
Group III	X	Combine Option 2 with Option 3	Combine Option 2 with Option 3	X	X
Group IV	X	Combine Option 2 with Option 4	Invalid Option	Combine Option 2 with Option 4	X

"X" denotes valid mixture option for aggregate group.

- a. Mixture Option 1. The coarse or fine aggregates shall be blended to place the material in a group that will allow the selected cement or finely divided mineral to be used. Coarse aggregate may only be blended with another coarse aggregate. Fine aggregate may only be blended with another fine aggregate. Blending of

coarse with fine aggregate to place the material in another group will not be permitted.

When a coarse or fine aggregate is blended, the weighted expansion value shall be calculated separately for the coarse and fine aggregate as follows:

$$\text{Weighted Expansion Value} = (a/100 \times A) + (b/100 \times B) + (c/100 \times C) + \dots$$

Where: a, b, c... = percentage of aggregate in the blend;
A, B, C... = expansion value for that aggregate.

- b. Mixture Option 2. A finely divided mineral shall be used as described in 1), 2), 3), or 4) that follow. In addition, a blended cement with a finely divided mineral may be added to a separate finely divided mineral to meet the following requirements, provided the finely divided minerals are the same material. However, adding together two different finely divided minerals to obtain the specified minimum percentage of one material will not be permitted for 1), 2), 3), and 4). Refer to Mixture Option 5 to address this situation.

1. Class F Fly Ash. For cement aggregate mixture II, Class PV, BS, PC, PS, MS, DS, SC and SI concrete, the Class F fly ash shall be a minimum 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the Class F fly ash, it may be used only if it complies with Mixture Option 5.

2. Class C Fly Ash. For cement aggregate mixture II, Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, Class C fly ash shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent or the calcium oxide exceeds 26.50 percent for the Class C fly ash, it may be used only per Mixture Option 5.

3. Ground Granulated Blast-Furnace Slag. For Class PV, PP-1, PP-2, RR, BS, PC, PS, DS, SC, and SI concrete, ground granulated blast-furnace slag shall be a minimum of 25.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 1.00 percent for the ground granulated blast-furnace slag, it may be used only per Mixture Option 5.

4. Microsilica or High Reactivity Metakaolin, Microsilica solids or high reactivity metakaolin shall be a minimum 5.0 percent by weight (mass) of the cement and finely divided minerals summed together.

If the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 1.00 percent for the Microsilica or High Reactivity Metakaolin, it may be used only if it complies with Mixture Option 5.

- c. Mixture Option 3. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.60 percent. When aggregate in Group II is involved and the Contractor desires to use a finely divided mineral; any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.
- d. Mixture Option 4. The cement used shall have a maximum total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.45 percent. When aggregate in Group II or III is involved and the Contractor desires to use a finely divided mineral, any finely divided mineral may be used with the cement unless the maximum total equivalent available alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) exceeds 4.50 percent for the fly ash; or 1.00 percent for the ground granulated blast-furnace slag, microsilica, or high reactivity metakaolin. If the alkali content is exceeded, the finely divided mineral may be used only per Mixture Option 5.
- e. Mixture Option 5. The proposed cement or finely divided mineral may be used if the ASTM C 1567 expansion value is ≤ 0.16 percent when performed on the aggregate in the concrete mixture with the highest ASTM C 1260 test result. The laboratory performing the ASTM C 1567 test shall be approved by the Department according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Laboratory Requirements for Alkali-Silica Reactivity (ASR) Testing". The ASTM C 1567 test will be valid for two years, unless the Engineer determines the materials have changed significantly.

For latex concrete, the ASTM C 1567 test shall be performed without the latex.

The 0.20 percent autoclave expansion limit in ASTM C 1567 shall not apply.

If during the two year time period the Contractor needs to replace the cement, and the replacement cement has an equal or lower total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$), a new ASTM C 1567 test will not be required.

The Engineer reserved the right to verify a Contractor's ASTM C 1567 test result. When the Contractor performs the test, a split sample may be requested by the Engineer. The Engineer may also independently obtain a sample at any time.

The proposed cement or finely divided mineral will not be allowed for use if the Contractor or Engineer obtains an expansion value greater than 0.16 percent.

1020.06 Water/Cement Ratio. The water/cement ratio shall be determined on a weight (mass) basis. When a maximum water/cement ratio is specified, the water shall include mixing water, water in admixtures, free moisture on the aggregates, and water added at the jobsite. The quantity of water may be adjusted within the limit specified to meet slump requirements.

When fly ash, ground granulated blast-furnace slag, high-reactivity metakaolin, or microsilica (silica fume) are used in a concrete mix, the water/cement ratio will be based on the total cement and finely divided minerals contained in the mixture.

1020.07 Slump. The slump shall be determined according to Illinois Modified AASHTO T 119.

If the measured slump falls outside the limits specified, a check test will be made. In the event of a second failure, the Engineer may refuse to permit the use of the batch of concrete represented.

If the Contractor is unable to add water to prepare concrete of the specified slump without exceeding the maximum design water/cement ratio, a water-reducing admixture shall be added.

1020.08 Air Content. The air content shall be determined according to Illinois Modified AASHTO T 152 or Illinois Modified AASHTO T 196. The air-entrainment shall be obtained by the use of cement with an approved air-entraining admixture added during the mixing of the concrete or the use of air-entraining cement.

If the air-entraining cement furnished is found to produce concrete having air content outside the limits specified, its use shall be discontinued immediately and the Contractor shall provide other air-entraining cement which will produce air contents within the specified limits.

If the air content obtained is above the specified maximum limit at the jobsite, the Contractor may have the concrete further mixed, within the limits of time and revolutions specified, to reduce the air content. If the air content obtained is below the specified minimum limit, the Contractor may add to the concrete a sufficient quantity of an approved air-entraining admixture at the jobsite to bring the air content within the specified limits.

1020.09 Strength Tests. The specimens shall be molded and cured according to Illinois Modified AASHTO T 23. Specimens shall be field cured with the construction item as specified in Illinois Modified AASHTO T 23. The compressive strength shall be determined according to Illinois Modified AASHTO T 22. The flexural strength shall be determined according to Illinois Modified AASHTO T 177.

Except for Class PC and PS concrete, the Contractor shall transport the strength specimens from the site of the work to the field laboratory or other location as instructed by the Engineer. During transportation in a suitable light truck, the specimens shall be embedded in straw,

burlap, or other acceptable material in a manner meeting with the approval of the Engineer to protect them from damage; care shall be taken to avoid impacts during hauling and handling. For strength specimens, the Contractor shall provide a field curing box for initial curing and a water storage tank for final curing. The field curing box will be required when an air temperature below 60 °F (16 °C) is expected during the initial curing period. The device shall maintain the initial curing temperature range specified in Illinois Modified AASHTO T 23, and may be insulated or power operated as appropriate.

1020.10 Handling, Measuring, and Batching Materials. Aggregates shall be handled in a manner to prevent mixing with soil and other foreign material.

Aggregates shall be handled in a manner which produces a uniform gradation, before placement in the plant bins. Aggregates delivered to the plant in a nonuniform gradation condition shall be stockpiled. The stockpiled aggregate shall be mixed uniformly before placement in the plant bins.

Aggregates shall have a uniform moisture content before placement in the plant bins. This may require aggregates to be stockpiled for 12 hours or more to allow drainage, or water added to the stockpile, or other methods approved by the Engineer. Moisture content requirements for crushed concrete, crushed slag or lightweight aggregate shall be according to Article 1004.01(e)(5).

Aggregates, cement, and finely divided minerals shall be measured by weight (mass). Water and admixtures shall be measured by volume or weight (mass).

The Engineer may permit aggregates, cement, and finely divided minerals to be measured by volume for small isolated structures and for miscellaneous items. Aggregates, cement, and finely divided minerals shall be measured individually. The volume shall be based upon dry, loose materials.

1020.11 Mixing Portland Cement Concrete. The mixing of concrete shall be according to the following.

(a) Ready-Mixed Concrete. Ready-mixed concrete is central-mixed, truck-mixed, or shrink-mixed concrete transported and delivered in a plastic state ready for placement in the work and shall be according to the following.

(1) Central-Mixed Concrete. Central-mixed concrete is concrete which has been completely mixed in a stationary mixer and delivered in a truck agitator, a truck mixer operating at agitating speed, or a nonagitator truck.

The stationary mixer shall operate at the drum speed for which it was designed. The batch shall be charged into the drum so that some of the water shall enter in advance of the cement, finely divided minerals, and aggregates. The flow of the water shall be uniform and all water shall be in the drum by the end of the first 15 seconds of the mixing period. Water shall begin to enter the drum from zero to

two seconds in advance of solid material and shall stop flowing within two seconds of the beginning of mixing time.

Some coarse aggregate shall enter in advance of other solid materials. For the balance of the charging time for solid materials, the aggregates, finely divided minerals, and cement (to assure thorough blending) shall each flow at acceptably uniform rates, as determined by visual observation. Coarse aggregate shall enter two seconds in advance of other solid materials and a uniform rate of flow shall continue to within two seconds of the completion of charging time.

The entire contents of the drum, or of each single compartment of a multiple-drum mixer, shall be discharged before the succeeding batch is introduced.

The volume of concrete mixed per batch shall not exceed the mixer's rated capacity as shown on the standard rating plate on the mixer by more than ten percent.

The minimum mixing time shall be 75 seconds for a stationary mixer having a capacity greater than 2 cu yd (1.5 cu m). For a mixer with a capacity equal to or less than 2 cu yd (1.5 cu m) the mixing time shall be 60 seconds. Transfer time in multiple drum mixers is included in the mixing time. Mixing time shall begin when all materials are in the mixing compartment and shall end when the discharge of any part of the batch is started. The required mixing times will be established by the Engineer for all types of stationary mixers.

When central-mixed concrete is to be transported in a truck agitator or a truck mixer, the stationary-mixed batch shall be transferred to the agitating unit without delay and without loss of any portion of the batch. Agitating shall start immediately thereafter and shall continue without interruption until the batch is discharged from the agitator. The ingredients of the batch shall be completely discharged from the agitator before the succeeding batch is introduced. Drums and auxiliary parts of the equipment shall be kept free from accumulations of materials.

The vehicles used for transporting the mixed concrete shall be of such capacity, or the batches shall be so proportioned, that the entire contents of the mixer drum can be discharged into each vehicle load.

- (2) Truck-Mixed Concrete. Truck-mixed concrete is completely mixed and delivered in a truck mixer. When the mixer is charged with fine and coarse aggregates simultaneously, not less than 60 nor more than 100 revolutions of the drum or blades at mixing speed shall be required, after all of the ingredients including water are in the drum. When fine and coarse aggregates are charged separately, not less than 70 revolutions will be required. For self-consolidating concrete, a minimum of 100 revolutions is required in all cases. Additional mixing beyond 100 revolutions shall be at agitating speed unless additions of water, admixtures, or other materials are made at the jobsite. The mixing operation shall begin immediately after the cement and water, or the cement and wet aggregates, come in contact. The

ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.

- (3) Shrink-Mixed Concrete. Shrink-mixed concrete is mixed partially in a stationary mixer and completed in a truck mixer for delivery. The mixing time of the stationary mixer may be reduced to a minimum of 30 seconds to intermingle the ingredients, before transferring to the truck mixer. All ingredients for the batch shall be in the stationary mixer and partially mixed before any of the mixture is discharged into the truck mixer. The partially mixed batch shall be transferred to the truck mixer without delay and without loss of any portion of the batch, and mixing in the truck mixer shall start immediately. The mixing time in the truck mixer shall be not less than 50 nor more than 100 revolutions of the drum or blades at mixing speed. For self-consolidating concrete, a minimum of 100 revolutions is required in the truck mixer. Additional mixing beyond 100 revolutions shall be at agitating speed, unless additions of water, admixtures, or other materials are made at the jobsite. Units designed as agitators shall not be used for shrink mixing. The ingredients of the batch shall be completely discharged from the drum before the succeeding batch is introduced. The drum and auxiliary parts of the equipment shall be kept free from accumulations of materials. If additional water or an admixture is added at the jobsite, the concrete batch shall be mixed a minimum of 40 additional revolutions after each addition.
- (4) Mixing Water. Wash water shall be completely discharged from the drum or container before a batch is introduced. All mixing water shall be added at the plant and any adjustment of water at the jobsite by the Contractor shall not exceed the specified maximum water/cement ratio or slump. If strength specimens have been made for a batch of concrete, and subsequently during discharge there is more water added, additional strength specimens shall be made for the batch of concrete. No additional water may be added at the jobsite to central-mixed concrete if the mix design has less than 565 lbs/cu yd (335 kg/cu m) of cement and finely divided minerals summed together.
- (5) Mixing and Agitating Speeds. The mixing or agitating speeds used for truck mixers or truck agitators shall be per the manufacturer's rating plate.
- (6) Capacities. The volume of plastic concrete in a given batch will be determined according to AASHTO T 121, based on the total weight (mass) of the batch, determined either from the weight (masses) of all materials, including water, entering the batch or directly from the net weight (mass) of the concrete in the batch as delivered.

The volume of mixed concrete in truck mixers or truck agitators shall in no case be greater than the rated capacity determined according to the Truck Mixer, Agitator,

and Front Discharge Concrete Carrier Standards of the Truck Mixer Manufacturer's Bureau, as shown by the rating plate attached to the truck. If the truck mixer does not have a rating plate, the volume of mixed concrete shall not exceed 63 percent of the gross volume of the drum or container, disregarding the blades. For truck agitators, the value is 80 percent.

- (7) Time of Haul. Haul time shall begin when the delivery ticket is stamped. The delivery ticket shall be stamped no later than five minutes after the addition of the mixing water to the cement, or after the addition of the cement to the aggregate when the combined aggregates contain free moisture in excess of two percent by weight (mass). If more than one batch is required for charging a truck using a stationary mixer, the time of haul shall start with mixing of the first batch. Haul time shall end when the truck is emptied for incorporation of the concrete into the work.

The time elapsing from when water is added to the mix until it is deposited in place at the site of the work shall not exceed 30 minutes when the concrete is transported in nonagitating trucks.

The maximum haul time for concrete transported in truck mixers or truck agitators shall be according to the following.

Concrete Temperature at Point of Discharge °F (°C)	Haul Time	
	Hours	Minutes
50-64 (10-17.5)	1	30
>64 (>17.5) - without retarder	1	0
>64 (>17.5) - with retarder	1	30

To encourage start-up testing for mix adjustments at the plant, the first two trucks will be allowed an additional 15 minutes haul time whenever such testing is performed.

For a mixture which is not mixed on the jobsite, a delivery ticket shall be required for each load. The following information shall be recorded on each delivery ticket: (1) ticket number; (2) name of producer and plant location; (3) contract number; (4) name of Contractor; (5) stamped date and time batched; (6) truck number; (7) quantity batched; (8) amount of admixture(s) in the batch; (9) amount of water in the batch; and (10) Department mix design number.

For concrete mixed in jobsite stationary mixers, the above delivery ticket may be waived, but a method of verifying the haul time shall be established to the satisfaction of the Engineer.

- (8) Production and Delivery. The production of ready-mixed concrete shall be such that the operations of placing and finishing will be continuous insofar as the job operations require. The Contractor shall be responsible for producing concrete that will have the required workability, consistency, and plasticity when delivered to the work. Concrete which is unsuitable for placement as delivered will be rejected. The

Contractor shall minimize the need to adjust the mixture at the jobsite, such as adding water and admixtures prior to discharging.

- (9) Use of Multiple Plants in the Same Construction Item. The Contractor may simultaneously use central-mixed, truck-mixed, and shrink-mixed concrete from more than one plant, for the same construction item, on the same day, and in the same pour. However, the following criteria shall be met.
- a. Each plant shall use the same cement, finely divided minerals, aggregates, admixtures, and fibers.
 - b. Each plant shall use the same mix design. However, material proportions may be altered slightly in the field to meet slump and air content criteria. Field water adjustments shall not result in a difference that exceeds 0.02 between plants for water/cement ratio. The required cement factor for central-mixed concrete shall be increased to match truck-mixed or shrink-mixed concrete, if the latter two types of mixed concrete are used in the same pour.
 - c. The maximum slump difference between deliveries of concrete shall be 3/4 in. (19 mm) when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the slump difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for slump by the Contractor. Thereafter, when a specified test frequency for slump is to be performed, it shall be conducted for each plant at the same time.
 - d. The maximum air content difference between deliveries of concrete shall be 1.5 percent when tested at the jobsite. If the difference is exceeded, but test results are within specification limits, the concrete may be used. The Contractor shall take immediate corrective action and shall test subsequent deliveries of concrete until the air content difference is corrected. For each day, the first three truck loads of delivered concrete from each plant shall be tested for air content by the Contractor. Thereafter, when a specified test frequency for air content is to be performed, it shall be conducted for each plant at the same time.
 - e. Strength tests shall be performed and taken at the jobsite for each plant. When a specified strength test is to be performed, it shall be conducted for each plant at the same time. The difference between plants for strength shall not exceed 900 psi (6200 kPa) compressive and 90 psi (620 kPa) flexural. If the strength difference requirements are exceeded, the Contractor shall take corrective action.
 - f. The maximum haul time difference between deliveries of concrete shall be 15 minutes. If the difference is exceeded, but haul time is within specification

limits, the concrete may be used. The Contractor shall take immediate corrective action and check subsequent deliveries of concrete.

(b) Class PC Concrete. The concrete shall be central-mixed or truck-mixed. Variations in plastic concrete properties shall be minimized between batches.

(c) Class PV Concrete. The concrete shall be central-mixed, truck-mixed, or shrink-mixed.

The required mixing time for stationary mixers with a capacity greater than 2 cu yd (1.5 cu m) may be less than 75 seconds upon satisfactory completion of a mixer performance test. Mixer performance tests may be requested by the Contractor when the quantity of concrete to be placed exceeds 50,000 sq yd (42,000 sq m). The testing shall be conducted according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

The Contractor will be allowed to test two mixing times within a range of 50 to 75 seconds. If satisfactory results are not obtained from the required tests, the mixing time shall continue to be 75 seconds for the remainder of the contract. If satisfactory results are obtained, the mixing time may be reduced. In no event will mixing time be less than 50 seconds.

The Contractor shall furnish the labor, equipment, and material required to perform the testing according to the current Bureau of Materials and Physical Research's Policy Memorandum, "Field Test Procedures for Mixer Performance and Concrete Uniformity Tests".

A contract which has 12 ft (3.6 m) wide pavement or base course, and a continuous length of 1/2 mile (0.8 km) or more, shall have the following additional requirements:

(1) The plant and truck delivery operation shall be able to provide a minimum of 50 cu yd (38 cu m) of concrete per hour.

(2) The plant shall have automatic or semi-automatic batching equipment.

(d) All Other Classes of Concrete. The concrete shall be central-mixed, truck-mixed, or shrink-mixed concrete.

1020.12 Mobile Portland Cement Concrete Plants. The use of a mobile portland cement concrete plant may be approved under the provisions of Article 1020.10 for volumetric proportioning in small isolated structures, thin overlays, and for miscellaneous and incidental concrete items.

The first 1 cu ft (0.03 cu m) of concrete produced may not contain sufficient mortar and shall not be incorporated in the work. The side plate on the cement feeder shall be removed

periodically (normally the first time the mixer is used each day) to see if cement is building up on the feed drum.

Sufficient mixing capacity of mixers shall be provided to enable continuous placing and finishing insofar as the job operations and the specifications require.

Slump and air tests made immediately after discharge of the mix may be misleading, since the aggregates may absorb a significant amount of water for four or five minutes after mixing.

1020.13 Curing and Protection. The method of curing, curing period, and method of protection for each type of concrete construction is included in the following Index Table.

INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Cast-in-Place Concrete ^{11/}			
Pavement Shoulder	1020.13(a)(1)(2)(3)(4)(5) ^{3/ 5/}	3	1020.13(c)
Base Course			
Base Course Widening	1020.13(a)(1)(2)(3)(4)(5) ^{2/}	3	1020.13(c)
Driveway			
Median			
Barrier			
Curb			
Gutter	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 5/}	3	1020.13(c) ^{16/}
Curb & Gutter			
Sidewalk			
Slope Wall			
Paved Ditch			
Catch Basin			
Manhole	1020.13(a)(1)(2)(3)(4)(5) ^{4/}	3	1020.13(c)
Inlet			
Valve Vault			
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5) ^{2/}	3 ^{12/}	1020.13(c)
Bridge Deck Patching	1020.13(a)(3)(5)	3 or 7 ^{12/}	1020.13(c)
Railroad Crossing	1020.13(a)(3)(5)	1	1020.13(c)
Piles and Drilled Shafts	1020.13(a)(3)(5)	7	1020.13(d)(1)(2)(3)
Foundations & Footings			
Seal Coat	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 6/}	7	1020.13(d)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5) ^{1/ 7/}	7	1020.13(d)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) ^{8/}	7	1020.13(d)(1)(2)
Deck			
Bridge Approach Slab	1020.13(a)(5)	7	1020.13(d)(1)(2) ^{17/}
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5) ^{1/ 7/}	7	1020.13(d)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5) ^{1/}	7	1020.13(d)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5) ^{4/ 6/}	7	1020.13(d)(1)(2) ^{18/}
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)
Precast Concrete ^{11/}			
Bridge Slabs			
Piles and Pile Caps	1020.13(a)(3)(5) ^{9/ 10/}	As ^{13/}	9/
Other Structural Members		Required	
All Other Precast Items	1020.13(a)(3)(4)(5) ^{2/ 9/ 10/}	As ^{14/}	9/
		Required	
Precast, Prestressed Concrete ^{11/}			
All Items	1020(a)(3)(5) ^{9/ 10/}	Until Strand Tensioning is Released ^{15/}	9/

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 foundations and footings, seal coats or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 45 °F (7 °C) 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 oil 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).
- 9/ Steam, supplemental heat, or insulated blankets (with or without steam/supplemental heat) are acceptable and shall be according to the Bureau of Materials and Physical Research's Policy Memorandum "Quality Control/Quality Assurance Program for Precast Concrete Products" and the "Manual for Fabrication of Precast, Prestressed Concrete Products".
- 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 for pavement patching, with a maximum curing period of three days. For bridge deck patching the curing period shall be three days if Class PP concrete is used and 7 days if Class BS concrete is used.
- 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(d)(1).
- 17/ When Article 1020.13(d)(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(d)(1).
- 18/ For culverts having a waterway opening of 10 sq ft (1 sq m) or less, the culverts may be protected according to Article 1020.13(d)(3).
- (a) Methods of Curing. Except as provided for in the Index Table of Curing and Protection of Concrete Construction, curing shall be accomplished by one of the following described methods. When water is required to wet the surface, it shall be applied as a fine spray so that it will not mar or pond on the surface. Except where otherwise specified, the curing period shall be at least 72 hours.
- (1) Waterproof Paper Method. The surface of the concrete shall be covered with waterproof paper as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the paper is placed. The blankets shall be lapped at least 12 in. (300 mm) end to end, and these laps shall be securely weighted with a windrow of earth, or other approved method, to form a closed joint. The same requirements shall apply to the longitudinal laps where separate strips are used for curing edges, except the lap shall be at least 9 in. (225 mm). The edges of the blanket shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Any torn places or holes in the paper shall be repaired immediately by patches cemented over the openings, using a bituminous cement having a melting point of not less than 180 °F (82 °C). The blankets may be reused, provided they are air-tight and kept serviceable by proper repairs.
- A longitudinal pleat shall be provided in the blanket to permit shrinkage where the width of the blanket is sufficient to cover the entire surface. The pleat will not be required where separate strips are used for the edges. Joints in the blanket shall be sewn or cemented together in such a manner that they will not separate during use.
- (2) Polyethylene Sheeting Method. The surface of the concrete shall be covered with white polyethylene sheeting as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before the sheeting is placed. The edges of the sheeting shall be weighted securely with a continuous windrow of earth or any other means satisfactory to the Engineer to provide an air-tight cover. Adjoining sheets shall overlap not less than 12 in. (300 mm) and the laps shall be securely weighted with earth, or any other means satisfactory to the Engineer, to provide an air tight cover.

For surface and base course concrete, the polyethylene sheets shall be not less than 100 ft (30 m) in length nor longer than can be conveniently handled, and shall be of such width that, when in place, they will cover the full width of the surface, including the edges, except that separate strips may be used to cover the edges. Any tears or holes in the sheeting shall be repaired. When sheets are no longer serviceable as a single unit, the Contractor may select from such sheets and reuse those which will serve for further applications, provided two sheets are used as a single unit; however, the double sheet units will be rejected when the Engineer deems that they no longer provide an air tight cover.

- (3) Wetted Burlap Method. The surface of the concrete shall be covered with wetted burlap blankets as soon as the concrete has hardened sufficiently to prevent marring the surface. The blankets shall overlap 6 in. (150 mm). At least two layers of wetted burlap shall be placed on the finished surface. The burlap shall be kept saturated by means of a mechanically operated sprinkling system. In place of the sprinkling system, at the Contractor's option, two layers of burlap covered with impermeable covering shall be used. The burlap shall be kept saturated with water. Plastic coated burlap may be substituted for one layer of burlap and impermeable covering.

The blankets shall be placed so that they are in contact with the edges of the concrete, and that portion of the material in contact with the edges shall be kept saturated with water.

- (4) Membrane Curing Method. Membrane curing will not be permitted where a protective coat, concrete sealer, or waterproofing is to be applied, or at areas where rubbing or a normal finish is required, or at construction joints other than those necessary in pavement or base course. Concrete at these locations shall be cured by another method specified in Article 1020.13(a).

After all finishing work to the concrete surface has been completed, it shall be sealed with membrane curing compound of the type specified within ten minutes. The seal shall be maintained for the specified curing period. The edges of the concrete shall, likewise, be sealed within ten minutes after the forms are removed. Two separate applications, applied at least one minute apart, each at the rate of not less than 1 gal/250 sq ft (0.16 L/sq m) will be required upon the surfaces and edges of the concrete. These applications shall be made with the mechanical equipment specified. Type III compound shall be agitated immediately before and during the application.

At locations where the coating is discontinuous or where pin holes show or where the coating is damaged due to any cause and on areas adjacent to sawed joints, immediately after sawing is completed, an additional coating of membrane curing compound shall be applied at the above specified rate. The equipment used may be of the same type as that used for coating variable widths of pavement. Before the additional coating is applied adjacent to sawed joints, the cut faces of the joint shall be protected by inserting a suitable flexible material in the joint, or placing an

adhesive width of impermeable material over the joint, or by placing the permanent sealing compound in the joint. Material, other than the permanent sealing compound, used to protect cut faces of the joint, shall remain in place for the duration of the curing period. In lieu of applying the additional coating, the area of the sawed joint may be cured according to any other method permitted.

When rain occurs before an application of membrane curing compound has dried, and the coating is damaged, the Engineer may require another application be made in the same manner and at the same rate as the original coat. The Engineer may order curing by another method specified, if unsatisfactory results are obtained with membrane curing compound.

- (5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry or damp 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 4 ft (1.2 m) 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).

- (b) Removing and Replacing Curing Covering. When curing methods specified above in Article 1020.13(a), (1), (2), or (3) are used for concrete pavement, the curing covering for each day's paving shall be removed to permit testing of the pavement surface with a profilograph or straightedge, as directed by the Engineer.

Immediately after testing, the surface of the pavement shall be wetted thoroughly and the curing coverings replaced. The top surface and the edges of the concrete shall not be left unprotected for a period of more than 1/2 hour.

- (c) Protection of Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 32 °F (0 °C), or lower, or if the actual temperature drops to 32 °F (0 °C), or lower, concrete less than 72 hours old shall be provided at least the following protection.

Minimum Temperature	Protection
25 – 32 °F (-4 – 0 °C)	Two layers of polyethylene sheeting, one layer of polyethylene and one layer of burlap, or two layers of waterproof paper.
Below 25 °F (-4 °C)	6 in. (150 mm) of straw covered with one layer of polyethylene sheeting or waterproof paper.

These protective covers shall remain in place until the concrete is at least 96 hours old. When straw is required on pavement cured with membrane curing compound, the compound shall be covered with a layer of burlap, polyethylene sheeting or waterproof paper before the straw is applied.

After September 15, there shall be available to the work within four hours, sufficient clean, dry straw to cover at least two days production. Additional straw shall be provided as needed to afford the protection required. 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.

- (d) Protection of Concrete Structures From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low below 45 °F (7 °C), or if the actual temperature drops below 45 °F (7 °C), 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. When winter construction is specified, the Contractor shall proceed with the construction, including excavation, pile driving, concrete, 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.

- (1) Protection Method I. The concrete shall be completely covered with insulating material such as fiberglass, rock wool, or other approved commercial insulating material having the minimum thermal resistance R, as defined in ASTM C 168, for

the corresponding minimum dimension of the concrete unit being protected as shown in the following table.

Minimum Pour Dimension		Thermal Resistance R
in.	(mm)	
6 or less	(150 or less)	R=16
> 6 to 12	(> 150 to 300)	R=10
> 12 to 18	(> 300 to 450)	R=6
> 18	(> 450)	R=4

The insulating material manufacturer shall clearly mark the insulating material with the thermal resistance R value.

The insulating material shall be completely enclosed on sides and edges with an approved waterproof liner and shall be maintained in a serviceable condition. Any tears in the liner shall be repaired in a manner approved by the Engineer. The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period.

On formed surfaces, the insulating material shall be attached to the outside of the forms with wood cleats or other suitable means to prevent any circulation of air under the insulation and shall be in place before the concrete is placed. The blanket insulation shall be applied tightly against the forms. The edges and ends shall be attached so as to exclude air and moisture. If the blankets are provided with nailing flanges, the flanges shall be attached to the studs with cleats. Where tie rods or reinforcement bars protrude, the areas adjacent to the rods or bars shall be adequately protected in a manner satisfactory to the Engineer. Where practicable, the insulation shall overlap any previously placed concrete by at least 1 ft (300 mm). Insulation on the underside of floors on steel members shall cover the top flanges of supporting members. On horizontal surfaces, the insulating material shall be placed as soon as the concrete has set, so that the surface will not be marred and shall be covered with canvas or other waterproof covering. The insulating material shall remain in place for a period of seven days after the concrete is placed.

The Contractor may remove the forms, providing the temperature is 35 °F (2 °C) and rising and the Contractor is able to wrap the particular section within two hours from the time of the start of the form removal. The insulation shall remain in place for the remainder of the seven days curing period.

- (2) Protection Method II. The concrete shall be enclosed in adequate housing and the air surrounding the concrete kept at a temperature of not less than 50 °F (10 °C) nor more than 80 °F (27 °C) for a period of seven days after the concrete is placed. 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. All exposed surfaces within the housing shall be cured according to the Index Table.

The Contractor shall provide adequate fire protection where heating is in progress and such protection shall be accessible at all times. The Contractor shall maintain labor to keep the heating equipment in continuous operation.

At the close of the heating period, the temperature shall be decreased to the approximate temperature of the outside air at a rate not to exceed 15 °F (8 °C) per 12 hour period, after which the housing maybe removed. The surface of the concrete shall be permitted to dry during the cooling period.

- (3) Protection Method III. As soon as the surface is sufficiently set to prevent marring, the concrete shall be covered with 12 in. (300 mm) of loose, dry straw followed by a layer of impermeable covering. The edges of the covering shall be sealed to prevent circulation of air and prevent the cover from flapping or blowing. The protection shall remain in place until the concrete is seven days old. If construction operations require removal, the protection removed shall be replaced immediately after completion or suspension of such operations.

1020.14 Temperature Control for Placement. Temperature control for concrete placement shall be according to the following.

- (a) Concrete other than Structures. Concrete may be placed when the air temperature is above 35 °F (2 °C) and rising, and concrete placement shall stop when the falling temperature reaches 40 °F (4 °C) or below, unless otherwise approved by the Engineer.

The temperature of concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete at point of placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). A maximum concrete temperature shall not apply to Class PP concrete.

- (b) Concrete in Structures. Concrete may be placed when the air temperature is above 40 °F (4 °C) and rising, and concrete placement shall stop when the falling temperature reaches 45 °F (7 °C) or below, unless otherwise approved by the Engineer.

The temperature of the concrete immediately before placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C). If concrete is pumped, the temperature of the concrete at point of placement shall be a minimum of 50 °F (10 °C) and a maximum of 90 °F (32 °C).

When insulated forms are used according to Article 1020.13(d)(1), the maximum temperature of the concrete mixture immediately before placement shall be 80 °F (25 °C).

When concrete is placed in contact with previously placed concrete, the temperature of the freshly mixed concrete may be increased to 80 °F (25 °C) by the Contractor to offset anticipated heat loss.

- (c) All Classes of Concrete. Aggregates and water shall be heated or cooled uniformly and as necessary to produce concrete within the specified temperature limits. No frozen aggregates shall be used in the concrete.
- (d) Temperature. The concrete temperature shall be determined according to Illinois Modified AASHTO T 309.

1020.15 Heat of Hydration Control for Concrete Structures. The Contractor shall control the heat of hydration for concrete structures when the least dimension for a drilled shaft, foundation, footing, substructure, or superstructure concrete pour exceeds 5.0 ft (1.5 m). The work shall be according to the following.

- (a) Temperature Restrictions. The maximum temperature of the concrete after placement shall not exceed 150 °F (66 °C). The maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface shall not exceed 35 °F (19 °C). The Contractor shall perform temperature monitoring to ensure compliance with the temperature restrictions.
- (b) Thermal Control Plan. The Contractor shall provide a thermal control plan a minimum of 28 calendar days prior to concrete placement for review by the Engineer. Acceptance of the thermal control plan by the Engineer shall not preclude the Contractor from specification compliance, and from preventing cracks in the concrete. At a minimum, the thermal control plan shall provide detailed information on the following requested items and shall comply with the specific specifications indicated for each item.
 - (1) Concrete mix design(s) to be used. Grout mix design if post-cooling with embedded pipe.

The mix design requirements in Articles 1020.04 and 1020.05 shall be revised to include the following additional requirements to control the heat of hydration.

- a. The concrete mixture should be uniformly graded and preference for larger size aggregate should be used in the mix design. Article 1004.02(d)(2) shall apply and information in the "Portland Cement Concrete Level III Technician Course – Manual of Instructions for Design of Concrete Mixtures" may be used to develop the uniformly graded mixture.
- b. The following shall apply to all concrete except Class DS concrete or when self-consolidating concrete is desired. For central-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 520 lbs/cu yd (309 kg/cu m) of cement and finely divided minerals summed together. For truck-mixed or shrink-mixed concrete, the Contractor shall have the option to develop a mixture with a minimum of 550 lbs/cu yd (326 kg/cu m) of cement and finely divided minerals summed together. A water-reducing or high range water-reducing admixture shall be used in the central mixed, truck-mixed or shrink-

mixed concrete mixture. For any mixture to be placed underwater, the minimum cement and finely divided minerals shall be 550 lbs/cu yd (326 kg/cu m) for central-mixed concrete, and 580 lbs/cu yd (344 kg/cu m) for truck-mixed or shrink-mixed concrete.

For Class DS concrete, CA 11 may be used. If CA 11 is used, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 605 lbs/cu yd (360 kg/cu m) summed together. If CA 11 is used and either Class DS concrete is placed underwater or a self-consolidating concrete mixture is desired, the Contractor shall have the option to develop a mixture with a minimum cement and finely divided minerals of 635 lbs/cu yd (378 kg/cu m) summed together.

- c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161 Procedure A or B, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.
- d. The maximum cement replacement with fly ash shall be 40.0 percent. The maximum cement replacement with ground granulated blast-furnace slag shall be 65.0 percent. When cement replacement with ground granulated blast-furnace slag exceeds 35.0 percent, only Grade 100 shall be used.
- e. The mixture may contain a maximum of two finely divided minerals. The finely divided mineral in portland-pozzolan cement or portland blast-furnace slag cement shall count toward the total number of finely divided minerals allowed. The finely divided minerals shall constitute a maximum of 65.0 percent of the total cement plus finely divided minerals. The fly ash portion shall not exceed 40.0 percent. The ground granulated blast-furnace slag portion shall not exceed 65.0 percent. The microsilica or high-reactivity metakaolin portion used together or separately shall not exceed 5.0 percent.
- f. The time to obtain the specified strength may be increased to a maximum 56 days, provided the curing period specified in Article 1020.13 is increased to a minimum of 14 days.

The minimum grout strength for filling embedded pipe shall be as specified for the concrete, and testing shall be according to AASHTO T 106.

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- (2) The selected mathematical method for evaluating heat of hydration thermal effects, which shall include the calculated adiabatic temperature rise, calculated maximum concrete temperature, and calculated maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface. The time when the maximum concrete temperature and maximum temperature differential will occur is required.

Acceptable mathematical methods include ACI 207.2R "Report on Thermal and Volume Change Effects on Cracking of Mass Concrete" as well as other proprietary methods. The Contractor shall perform heat of hydration testing on the cement and finely divided minerals to be used in the concrete mixture. The test shall be according to ASTM C 186 or other applicable test methods, and the result for heat shall be used in the equation to calculate adiabatic temperature rise. Other required test parameters for the mathematical model may be assumed if appropriate.

The Contractor has the option to propose a higher maximum temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface, but the proposed value shall not exceed 50 °F (28 °C). In addition, based on strength gain of the concrete, multiple maximum temperature differentials at different times may be proposed. The proposed value shall be justified through a mathematical method.

- (3) Proposed maximum concrete temperature or temperature range prior to placement.

Article 1020.14 shall apply except a minimum 40 °F (4 °C) concrete temperature will be permitted.

- (4) Pre-cooling, post-cooling, and surface insulation methods that will be used to ensure the concrete will comply with the specified maximum temperature and specified or proposed temperature differential. For reinforcement that extends beyond the limits of the pour, the Contractor shall indicate if the reinforcement is required to be covered with insulation.

Refer to ACI 207.4R "Cooling and Insulating Systems for Mass Concrete" for acceptable methods that will be permitted. If embedded pipe is used for post-cooling, the material shall be polyvinyl chloride or polyethylene. The embedded pipe system shall be properly supported, and the Contractor shall subsequently inspect glued joints to ensure they are able to withstand free falling concrete. The embedded pipe system shall be leak tested after inspection of the glued joints, and prior to the concrete placement. The leak test shall be performed at maximum service pressure or higher for a minimum of 15 minutes. All leaks shall be repaired. The embedded pipe cooling water may be from natural sources such as streams and rivers, but shall be filtered to prevent system stoppages. When the embedded pipe is no longer needed, the surface connections to the pipe shall be removed to a depth of 4 in. (100 mm) below the surface of the concrete. The remaining pipe shall be

completely filled with grout. The 4 in. (100 mm) deep concrete hole shall be filled with nonshrink grout. Form and insulation removal shall be done in a manner to prevent cracking and ensure the maximum temperature differential is maintained. Insulation shall be in good condition as determined by the Engineer and properly attached.

- (5) Dimensions of each concrete pour, location of construction joints, placement operations, pour pattern, lift heights, and time delays between lifts.

Refer to ACI 207.1R "Guide to Mass Concrete" for acceptable placement operations that will be permitted.

- (6) Type of temperature monitoring system, the number of temperature sensors, and location of sensors.

A minimum of two independent temperature monitoring systems and corresponding sensors shall be used.

The temperature monitoring system shall have a minimum temperature range of 32 °F (0 °C) to 212 °F (100 °C), an accuracy of ± 2 °F (± 1 °C), and be able to automatically record temperatures without external power. Temperature monitoring shall begin once the sensor is encased in concrete, and with a maximum interval of one hour. Temperature monitoring may be discontinued after the maximum concrete temperature has been reached, post-cooling is no longer required, and the maximum temperature differential between the internal concrete core and the ambient air temperature does not exceed 35 °F (19 °C). The Contractor has the option to select a higher maximum temperature differential, but the proposed value shall not exceed 50 °F (28 °C). The proposed value shall be justified through a mathematical method.

At a minimum, a temperature sensor shall be located at the theoretical hottest portion of the concrete, normally the geometric center, and at the exterior face that will provide the maximum temperature differential. At the exterior face, the sensor shall be located 2 to 3 in. (50 to 75 mm) from the surface of the concrete. Sensors shall also be located a minimum of 1 in. (25 mm) away from reinforcement, and equidistant between cooling pipes if either applies. A sensor will also be required to measure ambient air temperature. The entrant/exit cooling water temperature for embedded pipe shall also be monitored.

Temperature monitoring results shall be provided to the Engineer a minimum of once each day and whenever requested by the Engineer. The report may be electronic or hard copy. The report shall indicate the location of each sensor, the temperature recorded, and the time recorded. The report shall be for all sensors and shall include ambient air temperature and entrant/exit cooling water temperatures. The temperature data in the report may be provided in tabular or graphical format, and the report shall indicate any corrective actions during the monitoring period. At the

completion of the monitoring period, the Contractor shall provide the Engineer a final report that includes all temperature data and corrective actions.

(7) Indicate contingency operations to be used if the maximum temperature or temperature differential of the concrete is reached after placement.

(c) Temperature Restriction Violations. If the maximum temperature of the concrete after placement exceeds 150 °F (66 °C), but is equal to or less than 158 °F (70 °C), the concrete will be accepted if no cracking or other unacceptable defects are identified. If cracking or unacceptable defects are identified, Article 105.03 shall apply. If the concrete temperature exceeds 158 °F (70 °C), Article 105.03 shall apply.

If a temperature differential between the internal concrete core and concrete 2 to 3 in. (50 to 75 mm) from the exposed surface exceeds the specified or proposed maximum value allowed, the concrete will be accepted if no cracking or other unacceptable defects are identified. If unacceptable defects are identified, Article 105.03 shall apply.

When the maximum 150 °F (66 °C) concrete temperature or the maximum allowed temperature differential is violated, the Contractor shall implement corrective action prior to the next pour. In addition, the Engineer reserves the right to request a new thermal control plan for acceptance before the Contractor is allowed to pour again.

(d) Inspection and Repair of Cracks. The Engineer will inspect the concrete for cracks after the temperature monitoring is discontinued, and the Contractor shall provide access for the Engineer to do the inspection. A crack may require repair by the Contractor as determined by the Engineer. The Contractor shall be responsible for the repair of all cracks. Protective coat or a concrete sealer shall be applied to a crack less than 0.007 in. (0.18 mm) in width. A crack that is 0.007 in. (0.18 mm) or greater shall be pressure injected with epoxy according to Section 590.

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QUALITY CONTROL/QUALITY ASSURANCE OF CONCRETE MIXTURES (BDE)

Effective: January 1, 2012

Revised: January 1, 2013

Add the following to Section 1020 of the Standard Specifications:

“1020.16 Quality Control/Quality Assurance of Concrete Mixtures. This Article specifies the quality control responsibilities of the Contractor for concrete mixtures (except Class PC and PS concrete), cement aggregate mixture II, and controlled low-strength material incorporated in the project, and defines the quality assurance and acceptance responsibilities of the Engineer.

A list of quality control/quality assurance (QC/QA) documents is provided in Article 1020.16(g), Schedule D.

A Level I Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department’s training for concrete testing.

A Level II Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department’s training for concrete proportioning.

A Level III Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department’s training for concrete mix design.

A Concrete Tester shall be defined as an individual who has successfully completed the Department’s training to assist with concrete testing and is monitored on a daily basis.

Aggregate Technician shall be defined as an individual who has successfully completed the Department’s training for gradation testing involving aggregate production and mixtures.

Mixture Aggregate Technician shall be defined as an individual who has successfully completed the Department’s training for gradation testing involving mixtures.

Gradation Technician shall be defined as an individual who has successfully completed the Department’s training to assist with gradation testing and is monitored on a daily basis.

- (a) Equipment/Laboratory. The Contractor shall provide a laboratory and test equipment to perform their quality control testing.

The laboratory shall be of sufficient size and be furnished with the necessary equipment, supplies, and current published test methods for adequately and safely performing all required tests. The laboratory will be approved by the Engineer according to the current Bureau of Materials and Physical Research Policy Memorandum “Minimum Private Laboratory Requirements for Construction Materials Testing or Mix Design”. Production of a mixture shall not begin until the Engineer provides written approval of the laboratory.

The Contractor shall refer to the Department's "Required Sampling and Testing Equipment for Concrete" for equipment requirements.

Test equipment shall be maintained and calibrated as required by the appropriate test method, and when required by the Engineer. This information shall be documented on the Department's "Calibration of Concrete Testing Equipment" form.

Test equipment used to determine compressive or flexural strength shall be calibrated each 12 month period by an independent agency, using calibration equipment traceable to the National Institute of Standards and Technology (NIST). The Contractor shall have the calibration documentation available at the test equipment location.

The Engineer will have unrestricted access to the plant and laboratory at any time to inspect measuring and testing equipment, and will notify the Contractor of any deficiencies. Defective equipment shall be immediately repaired or replaced by the Contractor.

- (b) Quality Control Plan. The Contractor shall submit, in writing, a proposed Quality Control (QC) Plan to the Engineer. The QC Plan shall be submitted a minimum of 45 calendar days prior to the production of a mixture. The QC Plan shall address the quality control of the concrete, cement aggregate mixture II, and controlled low-strength material incorporated in the project. The Contractor shall refer to the Department's "Model Quality Control Plan for Concrete Production" to prepare a QC Plan. The Engineer will respond in writing to the Contractor's proposed QC Plan within 15 calendar days of receipt.

Production of a mixture shall not begin until the Engineer provides written approval of the QC Plan. The approved QC Plan shall become a part of the contract between the Department and the Contractor, but shall not be construed as acceptance of any mixture produced.

The QC Plan may be amended during the progress of the work, by either party, subject to mutual agreement. The Engineer will respond in writing to a Contractor's proposed QC Plan amendment within 15 calendar days of receipt. The response will indicate the approval or denial of the Contractor's proposed QC Plan amendment.

- (c) Quality Control by Contractor. The Contractor shall perform quality control inspection, sampling, testing, and documentation to meet contract requirements. Quality control includes the recognition of obvious defects and their immediate correction. Quality control also includes appropriate action when passing test results are near specification limits, or to resolve test result differences with the Engineer. Quality control may require increased testing, communication of test results to the plant or the jobsite, modification of operations, suspension of mixture production, rejection of material, or other actions as appropriate. The Engineer shall be immediately notified of any failing tests and subsequent remedial action. Passing tests shall be reported no later than the start of the next work day.

When a mixture does not comply with specifications, the Contractor shall reject the material; unless the Engineer accepts the material for incorporation in the work, according to Article 105.03.

- (1) Personnel Requirements. The Contractor shall provide a Quality Control (QC) Manager who will have overall responsibility and authority for quality control. The jobsite and plant personnel shall be able to contact the QC Manager by cellular phone, two-way radio or other methods approved by the Engineer.

The QC Manager shall visit the jobsite a minimum of once a week. A visit shall be performed the day of a bridge deck pour, the day a non-routine mixture is placed as determined by the Engineer, or the day a plant is anticipated to produce more than 1000 cu yd (765 cu m). Any of the three required visits may be used to meet the once per week minimum requirement.

The Contractor shall provide personnel to perform the required inspections, sampling, testing and documentation in a timely manner. The Contractor shall refer to the Department's "Qualifications and Duties of Concrete Quality Control Personnel" document.

A Level I PCC Technician shall be provided at the jobsite during mixture production and placement, and may supervise concurrent pours on the project. For concurrent pours, a minimum of one Concrete Tester shall be required at each pour location. If the Level I PCC Technician is at one of the pour locations, a Concrete Tester is still required at the same location. Each Concrete Tester shall be able to contact the Level I PCC Technician by cellular phone, two-way radio or other methods approved by the Engineer. A single Level I PCC Technician shall not supervise concurrent pours for multiple contracts.

A Level II PCC Technician shall be provided at the plant, or shall be available, during mixture production and placement. A Level II PCC Technician may supervise a maximum of three plants. Whenever the Level II PCC Technician is not at the plant during mixture production and placement, a Concrete Tester or Level I PCC Technician shall be present at the plant to perform any necessary concrete tests. The Concrete Tester, Level I PCC Technician, or other individual shall also be trained to perform any necessary aggregate moisture tests, if the Level II PCC Technician is not at the plant during mixture production and placement. The Concrete Tester, Level I PCC Technician, plant personnel, and jobsite personnel shall have the ability to contact the Level II PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer.

For a mixture which is produced and placed with a mobile portland cement concrete plant as defined in Article 1103.04, a Level II PCC Technician shall be provided. The Level II PCC Technician shall be present at all times during mixture production and placement. However, the Level II PCC Technician may request to be available if

operations are satisfactory. Approval shall be obtained from the Engineer, and jobsite personnel shall have the ability to contact the Level II PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer.

A Concrete Tester, Mixture Aggregate Technician, and Aggregate Technician may provide assistance with sampling and testing. A Gradation Technician may provide assistance with testing. A Concrete Tester shall be supervised by a Level I or Level II PCC Technician. A Gradation Technician shall be supervised by a Level II PCC Technician, Mixture Aggregate Technician, or Aggregate Technician.

- (2) Required Plant Tests. Sampling and testing shall be performed at the plant, or at a location approved by the Engineer, to control the production of a mixture. The required minimum Contractor plant sampling and testing is indicated in Article 1020.16(g) Schedule A.
 - (3) Required Field Tests. Sampling and testing shall be performed at the jobsite to control the production of a mixture, and to comply with specifications for placement. For standard curing, after initial curing, and for strength testing; the location shall be approved by the Engineer. The required minimum Contractor jobsite sampling and testing is indicated in Article 1020.16(g), Schedule B.
- (d) Quality Assurance by Engineer. The Engineer will perform quality assurance tests on independent samples and split samples. An independent sample is a field sample obtained and tested by only one party. A split sample is one of two equal portions of a field sample, where two parties each receive one portion for testing. The Engineer may request the Contractor to obtain a split sample. Aggregate split samples and any failing strength specimen shall be retained until permission is given by the Engineer for disposal. The results of all quality assurance tests by the Engineer will be made available to the Contractor. However, Contractor split sample test results shall be provided to the Engineer before Department test results are revealed. The Engineer's quality assurance independent sample and split sample testing is indicated in Article 1020.16(g), Schedule C.
- (1) Strength Testing. For strength testing, Article 1020.09 shall apply, except the Contractor and Engineer strength specimens may be placed in the same field curing box for initial curing and may be cured in the same water storage tank for final curing.
 - (2) Comparing Test Results. Differences between the Engineer's and the Contractor's split sample test results will be considered reasonable if within the following limits:

Test Parameter	Acceptable Limits of Precision
Slump	0.75 in. (20 mm)
Air Content	0.9%
Compressive Strength	900 psi (6200 kPa)

Flexural Strength	90 psi (620 kPa)
Slump Flow (Self-Consolidating Concrete (SCC))	1.5 in. (40 mm)
Visual Stability Index (SCC)	Not Applicable
J-Ring (SCC)	1.5 in. (40 mm)
L-Box (SCC)	10 %
Hardened Visual Stability Index (SCC)	Not Applicable
Dynamic Segregation Index (SCC)	1.0 %
Flow (Controlled Low-Strength Material (CLSM))	1.5 in. (40 mm)
Strength (Controlled Low-Strength Material (CLSM))	40 psi (275 kPa)
Aggregate Gradation	See "Guideline for Sample Comparison" in Appendix "A" of the Manual of Test Procedures for Materials.

When acceptable limits of precision have been met, but only one party is within specification limits, the failing test shall be resolved before the material may be considered for acceptance.

(3) Test Results and Specification Limits.

a. Split Sample Testing. If either the Engineer's or the Contractor's split sample test result is not within specification limits, and the other party is within specification limits; immediate retests on a split sample shall be performed for slump, air content, slump flow, visual stability index, J-Ring, L-Box, dynamic segregation index, flow (CLSM), or aggregate gradation. A passing retest result by each party will require no further action. If either the Engineer's or Contractor's slump, air content, slump flow, visual stability index, J-Ring, L-Box, dynamic segregation index, flow (CLSM), or aggregate gradation split sample retest result is a failure; or if either the Engineer's or Contractor's strength or hardened visual stability index test result is a failure, and the other party is within specification limits; the following actions shall be initiated to investigate the test failure:

1. The Engineer and the Contractor shall investigate the sampling method, test procedure, equipment condition, equipment calibration, and other factors.
2. The Engineer or the Contractor shall replace test equipment, as determined by the Engineer.
3. The Engineer and the Contractor shall perform additional testing on split samples, as determined by the Engineer.

For aggregate gradation, jobsite slump, jobsite air content, jobsite slump flow, jobsite visual stability index, jobsite J-Ring, jobsite L-Box, jobsite dynamic segregation index, and jobsite flow (CLSM); if the failing split sample test result is not resolved according to 1., 2., or 3., and the mixture has not been placed, the Contractor shall reject the material; unless the Engineer accepts the material for

incorporation in the work according to Article 105.03. If the mixture has already been placed, or if a failing strength or hardened visual stability index test result is not resolved according to 1., 2., or 3., the material will be considered unacceptable.

If a continued trend of difference exists between the Engineer's and the Contractor's split sample test results, or if split sample test results exceed the acceptable limits of precision, the Engineer and the Contractor shall investigate according to items 1., 2., and 3.

b. Independent Sample Testing. For aggregate gradation, jobsite slump, jobsite air content jobsite slump flow, jobsite visual stability index, jobsite J-Ring, jobsite L-Box, jobsite dynamic segregation index, jobsite flow (CLSM); if the result of a quality assurance test on a sample independently obtained by the Engineer is not within specification limits, and the mixture has not been placed, the Contractor shall reject the material, unless the Engineer accepts the material for incorporation in the work according to Article 105.03. If the mixture has already been placed or the Engineer obtains a failing strength or hardened visual stability index test result, the material will be considered unacceptable.

(e) Acceptance by the Engineer. Final acceptance will be based on the Standard Specifications and the following:

(1) The Contractor's compliance with all contract documents for quality control.

(2) Validation of Contractor quality control test results by comparison with the Engineer's quality assurance test results using split samples. Any quality control or quality assurance test determined to be flawed may be declared invalid only when reviewed and approved by the Engineer. The Engineer will declare a test result invalid only if it is proven that improper sampling or testing occurred. The test result is to be recorded and the reason for declaring the test invalid will be provided by the Engineer.

(3) Comparison of the Engineer's quality assurance test results with specification limits using samples independently obtained by the Engineer.

The Engineer may suspend mixture production, reject materials, or take other appropriate action if the Contractor does not control the quality of concrete, cement aggregate mixture II, or controlled low-strength material for acceptance. The decision will be determined according to (1), (2), or (3).

(f) Documentation.

(1) Records. The Contractor shall be responsible for documenting all observations, inspections, adjustments to the mix design, test results, retest results, and corrective actions in a bound hardback field book, bound hardback diary, or appropriate

Department form, which shall become the property of the Department. The documentation shall include a method to compare the Engineer's test results with the Contractor's results. The Contractor shall be responsible for the maintenance of all permanent records whether obtained by the Contractor, the consultants, the subcontractors, or the producer of the mixture. The Contractor shall provide the Engineer full access to all documentation throughout the progress of the work.

The Department's form MI 504M, form BMPR MI654, and form BMPR MI655 shall be completed by the Contractor, and shall be submitted to the Engineer weekly or as required by the Engineer. A correctly completed form MI 504M, form BMPR MI654, and form BMPR MI655 are required to authorize payment by the Engineer, for applicable pay items.

- (2) Delivery Truck Ticket. The following information shall be recorded on each delivery ticket or in a bound hardback field book: initial revolution counter reading (final reading optional) at the jobsite, if the mixture is truck-mixed; time discharged at the jobsite; total amount of each admixture added at the jobsite; and total amount of water added at the jobsite.
- (g) Basis of Payment and Schedules. Quality Control/Quality Assurance of portland cement concrete mixtures will not be paid for separately, but shall be considered as included in the cost of the various concrete contract items.

SCHEDULE A

CONTRACTOR PLANT SAMPLING AND TESTING			
Item	Test	Frequency	IL Modified AASHTO or Department Test Method ^{1/}
Aggregates (Arriving at Plant)	Gradation ^{2/}	As needed to check source for each gradation number	2, 11, 27, and 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Gradation ^{2/}	2,500 cu yd (1,900 cu m) for each gradation number ^{3/}	2, 11, 27, and 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Moisture ^{4/} : Fine Aggregate	Once per week for moisture sensor, otherwise daily for each gradation number	Flask, Dunagan, Pycnometer Jar, or 255
	Moisture ^{4/} : Coarse Aggregate	As needed to control production for each gradation number	Dunagan, Pycnometer Jar, or 255
Mixture ^{5/}	Slump Air Content Unit Weight / Yield Slump Flow (SCC) Visual Stability Index (SCC) J-Ring (SCC) ^{6/} L-Box (SCC) ^{6/} Temperature	As needed to control production	T 141 and T 119 T 141 and T 152 or T 196 T 141 and T 121 SCC-1 and SCC-2 SCC-1 and SCC-2 SCC-1 and SCC-3 SCC-1 and SCC-4 T 141 and T 309
Mixture (CLSM) ^{7/}	Flow Air Content Temperature	As needed to control production	Illinois Test Procedure 307

1/ Refer to the Department's "Manual of Test Procedures for Materials".

2/ All gradation tests shall be washed. Testing shall be completed no later than 24 hours after the aggregate has been sampled.

3/ One per week (Sunday through Saturday) minimum unless the stockpile has not received additional aggregate material since the previous test.

One per day minimum for a bridge deck pour unless the stockpile has not received additional aggregate material since the previous test. The sample shall be taken and testing completed prior to the pour. The bridge deck aggregate sample may be taken the day before the pour or as approved by the Engineer.

4/ If the moisture test and moisture sensor disagree by more than 0.5 percent, retest. If the difference remains, adjust the moisture sensor to an average of two or more moisture tests. The Department's "Water/Cement Ratio Worksheet" form shall be completed when applicable.

5/ The Contractor may also perform strength testing according to Illinois Modified AASHTO T 141, T 23, and T 22 or T 177; or water content testing according to Illinois Modified AASHTO T 318.

The Contractor may also perform other available self-consolidating concrete (SCC) tests at the plant to control mixture production.

6/ The Contractor shall select the J-Ring or L-Box test for plant sampling and testing.

7/ The Contractor may also perform strength testing according to Illinois Test Procedure 307.

SCHEDULE B

CONTRACTOR JOBSITE SAMPLING & TESTING ^{1/}			
Item	Measured Property	Random Sample Testing Frequency per Mix Design and per Plant ^{2/}	IL Modified AASHTO Test Method
Pavement, Shoulder, Base Course, Base Course Widening, Driveway Pavement, Railroad Crossing, Cement Aggregate Mixture II	Slump ^{3/ 4/}	1 per 500 cu yd (400 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 100 cu yd (80 cu m) or minimum 1/day	T 141 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 1250 cu yd (1000 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23
Bridge Approach Slab ^{9/} , Bridge Deck ^{9/} , Bridge Deck Overlay ^{9/} , Superstructure ^{9/} , Substructure, Culvert, Miscellaneous Drainage Structures, Retaining Wall, Building Wall, Drilled Shaft Pile & Encasement Footing, Foundation, Pavement Patching, Structural Repairs	Slump ^{3/ 4/}	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23
Seal Coat	Slump ^{3/}	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 250 cu yd (200 cu m) or minimum 1/day when air is entrained	T 141 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 250 cu yd (200 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23

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CONTRACTOR JOBSITE SAMPLING & TESTING ^{1/}			
Curb, Gutter, Median, Barrier, Sidewalk, Slope Wall, Paved Ditch, Fabric Formed Concrete Revetment Mat ^{10/} , Miscellaneous Items, Incidental Items	Slump ^{3/ 4/}	1 per 100 cu yd (80 cu m) or minimum 1/day	T 141 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 50 cu yd (40 cu m) or minimum 1/day	T 141 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 400 cu yd (300 cu m) or minimum 1/day	T 141, T 22 and T 23 or T 141, T 177 and T 23
The Item will use a Self-Consolidating Concrete Mixture	Slump Flow ^{3/} VSI ^{3/} J-Ring ^{3/ 11/} L-Box ^{3/ 11/}	Perform at same frequency that is specified for the Item's slump	SCC-1 & SCC-2 SCC-1 & SCC-2 SCC-1 & SCC-3 SCC-1 & SCC-4
The Item will use a Self-Consolidating Concrete Mixture	HVSI ^{12/}	Minimum 1/day at start of production for that day	SCC-1 and SCC-6
The Item will use a Self-Consolidating Concrete Mixture	Dynamic Segregation Index (DSI)	Minimum 1/week at start of production for that week	SCC-1 and SCC-8 (Option C)
The Item will use a Self-Consolidating Concrete Mixture	Air Content ^{3/ 5/ 6/}	Perform at same frequency that is specified for the Item's air content	SCC-1 and T 152 or T 196
The Item will use a Self-Consolidating Concrete Mixture	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	Perform at same frequency that is specified for the Item's strength	SCC-1, T 22 and T 23 or SCC-1, T 177 and T 23
All	Temperature ^{3/}	As needed to control production	T 141 and T 309
Controlled Low-Strength Material (CLSM)	Flow, Air Content, Compressive Strength (28-day) ^{13/} , and Temperature	First truck load delivered and as needed to control production thereafter	Illinois Test Procedure 307

1/ Sampling and testing of small quantities of curb, gutter, median, barrier, sidewalk, slope wall, paved ditch, miscellaneous items, and incidental items may be waived by the Engineer if requested by the Contractor. However, quality control personnel are still required according to Article 1020.16(c)(1) The Contractor shall also provide recent evidence that similar material has been found to be satisfactory under normal sampling and testing procedures. The total quantity that may be waived for testing shall not exceed 100 cu yd (76 cu m) per contract.

If the Contractor's or Engineer's test result for any jobsite mixture test is not within the specification limits, all subsequent truck loads delivered shall be tested by the Contractor until the problem is corrected.

- 2/ If one mix design is being used for several construction items during a day's production, one testing frequency may be selected to include all items. The construction items shall have the same slump, air content, and water/cement ratio specifications. For self-consolidating concrete, the construction items shall have the same slump flow, visual stability index, J-Ring, L-Box, air content, and water/cement ratio specifications. The frequency selected shall equal or exceed the testing required for the construction item.

One sufficiently sized sample shall be taken to perform the required test(s). Random numbers shall be determined according to the Department's "Method for Obtaining Random Samples for Concrete". The Engineer will provide random sample locations.

- 3/ The temperature, slump, and air content tests shall be performed on the first truck load delivered, for each pour. For self consolidating concrete, the temperature, slump flow, visual stability index, J-Ring or L-Box, and air content tests shall be performed on the first truck load delivered, for each pour. Unless a random sample is required for the first truck load, testing the first truck load does not satisfy random sampling requirements.
- 4/ The slump random sample testing frequency shall be a minimum 1/day for a construction item which is slipformed.
- 5/ If a pump or conveyor is used for placement, a correction factor shall be established to allow for a loss of air content during transport. The first three truck loads delivered shall be tested, before and after transport by the pump or conveyor, to establish the correction factor. Once the correction is determined, it shall be re-checked after an additional 50 cu yd (40 cu m) is pumped, or an additional 100 cu yd (80 cu m) is conveyed. This shall continue throughout the pour. If the re-check indicates the correction factor has changed, a minimum of two truckloads is required to re-establish the correction factor. The correction factor shall also be re-established when significant changes in temperature, distance, pump or conveyor arrangement, and other factors have occurred. If the correction factor is >3.0 percent, the Contractor shall take corrective action to reduce the loss of air content during transport by the pump or conveyor. The Contractor shall record all air content test results, correction factors and corrected air contents. The corrected air content shall be reported on form BMPR MI654.
- 6/ If the Contractor's or Engineer's air content test result is within the specification limits, and 0.2 percent or closer to either limit, the next truck load delivered shall be tested by the Contractor. For example, if the specified air content range is 5.0 to 8.0 percent and the test result is 5.0, 5.1, 5.2, 7.8, 7.9 or 8.0 percent, the next truck shall be tested by the Contractor.
- 7/ The test of record for strength shall be the day indicated in Article 1020.04. For cement aggregate mixture II, a strength requirement is not specified and testing is not required. Additional strength testing to determine early falsework and form removal, early pavement or bridge opening to traffic, or to monitor strengths is at the discretion of the Contractor. Strength shall be defined as the average of at least two cylinder or two beam breaks for field tests.

- 8/ In addition to the strength test, a slump test, air content test, and temperature test shall be performed on the same sample. For self-consolidating concrete, a slump flow test, visual stability index test, J-Ring or L-Box test, air content test, and temperature test shall be performed on the same sample as the strength test. For mixtures pumped or conveyed, the Contractor shall sample according to Illinois Modified AASHTO T 141.
- 9/ The air content test will be required for each delivered truck load.
- 10/ For fabric formed concrete revetment mat, the slump test is not required and the flexural strength test is not applicable.
- 11/ The Contractor shall select the J-Ring or L-Box test for jobsite sampling and testing.
- 12/ In addition to the hardened visual stability index (HVSI) test, a slump flow test, visual stability index (VSI) test, J-Ring or L-Box test, air content test, and temperature test shall be performed on the same sample. The Contractor shall retain all hardened visual stability index cut cylinder specimens until the Engineer notifies the Contractor that the specimens may be discarded.
- 13/ The test of record for strength shall be the day indicated in Article 1019.04. In addition to the strength test, a flow test, air content test, and temperature test shall be performed on the same sample. The strength test may be waived by the Engineer if future removal of the material is not a concern.

SCHEDULE C

ENGINEER QUALITY ASSURANCE INDEPENDENT SAMPLE TESTING		
Location	Measured Property	Testing Frequency ^{1/}
Plant	Gradation of aggregates stored in stockpiles or bins, Slump and Air Content	As determined by the Engineer.
Jobsite	Slump, Air Content, Slump Flow, Visual Stability Index, J-Ring, L-Box, Hardened Visual Stability Index, Dynamic Segregation Index and Strength	As determined by the Engineer.
	Flow, Air Content, Strength (28-day), and Dynamic Cone Penetration for Controlled Low-Strength Material (CLSM)	As determined by the Engineer

ENGINEER QUALITY ASSURANCE SPLIT SAMPLE TESTING		
Location	Measured Property	Testing Frequency ^{1/}
Plant	Gradation of aggregates stored in stockpiles or bins ^{2/}	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 10% of total tests required of the Contractor will be performed per aggregate gradation number and per plant.
	Slump and Air Content	As determined by the Engineer.
Jobsite	Slump ^{2/} , Air Content ^{2/3/} , Slump Flow ^{2/} , Visual Stability Index ^{2/} , J-Ring ^{2/} and L-box ^{2/}	At the beginning of the project, the first three tests performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.
	Hardened Visual Stability Index ^{2/}	As determined by the Engineer.
	Dynamic Segregation Index ^{2/}	As determined by the Engineer.
	Strength ^{2/}	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.
	Flow, Air Content, and Strength (28-day) for Controlled Low-Strength Material (CLSM)	As determined by the Engineer.

- 1/ The Engineer will perform the testing throughout the period of quality control testing by the Contractor.
- 2/ The Engineer will witness and take immediate possession of or otherwise secure the Department's split sample obtained by the Contractor.
- 3/ Before transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant. After transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant.

SCHEDULE D

CONCRETE QUALITY CONTROL AND QUALITY ASSURANCE DOCUMENTS

- (a) Model Quality Control Plan for Concrete Production (*)
- (b) Qualifications and Duties of Concrete Quality Control Personnel (*)
- (c) Development of Gradation Bands on Incoming Aggregate at Mix Plants (*)
- (d) Required Sampling and Testing Equipment for Concrete (*)
- (e) Method for Obtaining Random Samples for Concrete (*)
- (f) Calibration of Concrete Testing Equipment (BMPR PCCQ01 through BMPR PCCQ09) (*)
- (g) Water/Cement Ratio Worksheet (BMPR PCCW01) (*)
- (h) Field/Lab Gradations (MI 504M) (*)
- (i) Concrete Air, Slump and Quantity (BMPR MI654) (*)
- (j) P.C. Concrete Strengths (BMPR MI655) (*)
- (k) Aggregate Technician Course or Mixture Aggregate Technician Course (*)
- (l) Portland Cement Concrete Tester Course (*)
- (m) Portland Cement Concrete Level I Technician Course - Manual of Instructions for Concrete Testing (*)
- (n) Portland Cement Concrete Level II Technician Course - Manual of Instructions for Concrete Proportioning (*)
- (o) Portland Cement Concrete Level III Technician Course - Manual of Instructions for Design of Concrete Mixtures (*)
- (p) Manual of Test Procedures for Materials

* Refer to Appendix C of the Manual of Test Procedures for Materials for more information."

80281

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2012

Revised: November 2, 2012

Revise Article 669.01 of the Standard Specifications to read:

“669.01 Description. This work shall consist of the transportation and proper disposal of contaminated soil and water. This work shall also consist of the removal, transportation, and proper disposal of underground storage tanks (UST), their content and associated underground piping to the point where the piping is above the ground, including determining the content types and estimated quantities.”

Revise Article 669.08 of the Standard Specifications to read:

“669.08 Contaminated Soil and/or Groundwater Monitoring. The Contractor shall hire a qualified environmental firm to monitor the area containing the regulated substances. The affected area shall be monitored with a photoionization detector (PID) utilizing a lamp of 10.6eV or greater or a flame ionization detector (FID). Any field screen reading on the PID or FID in excess of background levels indicates the potential presence of contaminated material requiring handling as a non-special waste, special waste, or hazardous waste. No excavated soils can be taken to a clean construction and demolition debris (CCDD) facility or an uncontaminated soil fill operation with detectable PID or FID meter readings that are above background. The PID or FID meter shall be calibrated on-site and background level readings taken and recorded daily. All testing shall be done by a qualified engineer/technician. Such testing and monitoring shall be included in the work. The Contractor shall identify the exact limits of removal of non-special waste, special waste, or hazardous waste. All limits shall be approved by the Engineer prior to excavation. The Contractor shall take all necessary precautions.

Based upon the land use history of the subject property and/or PID or FID readings indicating contamination, a soil or groundwater sample shall be taken from the same location and submitted to an approved laboratory. Soil or groundwater samples shall be analyzed for the contaminants of concern, including pH, based on the property's land use history or the parameters listed in the maximum allowable concentration (MAC) for chemical constituents in uncontaminated soil established pursuant to Subpart F of 35 Illinois Administrative Code 1100.605. The analytical results shall serve to document the level of soil contamination. Soil and groundwater samples may be required at the discretion of the Engineer to verify the level of soil and groundwater contamination.

Samples shall be grab samples (not combined with other locations). The samples shall be taken with decontaminated or disposable instruments. The samples shall be placed in sealed containers and transported in an insulated container to the laboratory. The container shall maintain a temperature of 39 °F (4 °C). All samples shall be clearly labeled. The labels shall indicate the sample number, date sampled, location and elevation, and any other observations.

The laboratory shall use analytical methods which are able to meet the lowest appropriate practical quantitation limits (PQL) or estimated quantitation limit (EQL) specified in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846 and "Methods for the Determination of Organic Compounds in Drinking Water", EPA, EMSL, EPA-600/4-88/039. For parameters where the specified cleanup objective is below the acceptable detection limit (ADL), the ADL shall serve as the cleanup objective. For other parameters the ADL shall be equal to or below the specified cleanup objective."

Replace the first two paragraphs of Article 669.09 of the Standard Specifications with the following:

"669.09 Contaminated Soil and/or Groundwater Management and Disposal. The management and disposal of contaminated soil and/or groundwater shall be according to the following:

(a) Soil Analytical Results Exceed Most Stringent MAC. When the soil analytical results indicate that detected levels exceed the most stringent maximum allowable concentration (MAC) for chemical constituents in uncontaminated soil established pursuant to Subpart F of 35 Illinois Administrative Code 1100.605, the soil shall be managed as follows:

- (1) When analytical results indicate inorganic chemical constituents exceed the most stringent MAC but they are still considered within area background levels by the Engineer, the excavated soil can be utilized within the construction limits as fill, when suitable. Such soil excavated for storm sewers can be placed back into the excavated trench as backfill, when suitable, unless trench backfill is specified. If the soils cannot be utilized within the construction limits, they shall be managed and disposed of off-site as a non-special waste, special waste, or hazardous waste as applicable.
- (2) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for a Metropolitan Statistical Area (MSA) County, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as "uncontaminated soil" at a CCDD facility or an uncontaminated soil fill operation within an MSA County provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.
- (3) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, or the MAC within the Chicago corporate limits, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as "uncontaminated soil" at a CCDD facility or an uncontaminated soil fill operation within an MSA County excluding Chicago or within the Chicago corporate limits provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.

- (4) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, the excavated soil can be utilized within the construction limits as fill, when suitable, or managed and disposed of off-site as "uncontaminated soil" at a CCDD facility or an uncontaminated soil fill operation within an MSA County excluding Chicago provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.
- (5) When the Engineer determines soil cannot be managed according to Articles 669.09(a)(1) through (a)(4) above, the soil shall be managed and disposed of off-site as a non-special waste, special waste, or hazardous waste as applicable.
- (b) Soil Analytical Results Do Not Exceed Most Stringent MAC. When the soil analytical results indicate that detected levels do not exceed the most stringent MAC but the pH of the soil is less than 6.25 or greater than 9.0, the excavated soil can be utilized within the construction limits or managed and disposed of off-site as "uncontaminated soil" according to Article 202.03. However the excavated soil cannot be taken to a CCDD facility or an uncontaminated soil fill operation.
- (c) Groundwater. When groundwater analytical results indicate the detected levels are above Appendix B, Table E of 35 Illinois Administrative Code 742, the most stringent Tier 1 Groundwater Remediation Objectives for Groundwater Component of the Groundwater Ingestion Route for Class 1 groundwater, the groundwater shall be managed off-site as a special waste.

All groundwater encountered within lateral trenches may be managed within the trench and allowed to infiltrate back into the ground. If the groundwater cannot be managed within the trench it must be removed as a special or hazardous waste. The Contractor is prohibited from managing groundwater within the trench by discharging it through any existing or new storm sewer. The Contractor shall install backfill plugs within the area of groundwater contamination.

One backfill plug shall be placed down gradient to the area of groundwater contamination. Backfill plugs shall be installed at intervals not to exceed 50 ft (15 m). Backfill plugs are to be 4 ft (1.2 m) long, measured parallel to the trench, full trench width and depth. Backfill plugs shall not have any fine aggregate bedding or backfill, but shall be entirely cohesive soil or any class of concrete. The Contractor shall provide test data that the material has a permeability of less than 10^{-7} cm/sec according to ASTM D 5084, Method A or per another test method approved by the Engineer."

Revise Article 669.14 of the Standard Specifications to read:

"669.14 Final Environmental Construction Report. At the end of the project, the Contractor will prepare and submit three copies of the Environmental Construction Report on the activities conducted during the life of the project, one copy shall be submitted to the Resident Engineer, one copy shall be submitted to the District's Environmental Studies Unit, and one copy shall be submitted with an electronic copy in Adode.pdf format to the Geologic

and Waste Assessment Unit, Bureau of Design and Environment, IDOT, 2300 South Dirksen Parkway, Springfield, Illinois 62764. The technical report shall include all pertinent information regarding the project including, but not limited to:

- (a) Measures taken to identify, monitor, handle, and dispose of soil or groundwater containing regulated substances, to prevent further migration of regulated substances, and to protect workers,
- (b) Cost of identifying, monitoring, handling, and disposing of soil or groundwater containing regulated substances, the cost of preventing further migration of regulated substances, and the cost for worker protection from the regulated substances. All cost should be in the format of the contract pay items listed in the contract plans (identified by the preliminary environmental site investigation (PESA) site number),
- (c) Plan sheets showing the areas containing the regulated substances,
- (d) Field sampling and testing results used to identify the nature and extent of the regulated substances,
- (e) Waste manifests (identified by the preliminary environmental site investigation (PESA) site number) for special or hazardous waste disposal, and
- (f) Landfill tickets (identified by the preliminary environmental site investigation (PESA) site number) for non-special waste disposal."

Revise the second paragraph of Article 669.16 of the Standard Specifications to read:

"The transportation and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (cubic meter) for NON-SPECIAL WASTE DISPOSAL, SPECIAL WASTE DISPOSAL, or HAZARDOUS WASTE DISPOSAL."

80283

REMOVAL AND DISPOSAL OF SURPLUS MATERIALS (BDE)

Effective: November 2, 2012

Revise the first four paragraphs of Article 202.03 of the Standard Specifications to read:

“202.03 Removal and Disposal of Surplus, Unstable, Unsuitable, and Organic Materials. Suitable excavated materials shall not be wasted without permission of the Engineer. The Contractor shall dispose of all surplus, unstable, unsuitable, and organic materials, in such a manner that public or private property will not be damaged or endangered.

Suitable earth, stones and boulders naturally occurring within the right-of-way may be placed in fills or embankments in lifts and compacted according to Section 205. Broken concrete without protruding metal bars, bricks, rock, stone, reclaimed asphalt pavement with no expansive aggregate, or uncontaminated dirt and sand generated from construction or demolition activities may be used in embankment or in fill. If used in fills or embankments, these materials shall be placed and compacted to the satisfaction of the Engineer; shall be buried under a minimum of 2 ft (600 mm) of earth cover (except when the materials include only uncontaminated dirt); and shall not create an unsightly appearance or detract from the natural topographic features of an area. Broken concrete without protruding metal bars, bricks, rock, or stone may be used as riprap as approved by the Engineer. If the materials are used for fill in locations within the right-of-way but outside project construction limits, the Contractor must specify to the Engineer, in writing, how the landscape restoration of the fill areas will be accomplished. Placement of fill in such areas shall not commence until the Contractor's landscape restoration plan is approved by the Engineer.

Aside from the materials listed above, all other construction and demolition debris or waste shall be disposed of in a licensed landfill, recycled, reused, or otherwise disposed of as allowed by State or Federal laws and regulations. When the Contractor chooses to dispose of uncontaminated soil at a clean construction and demolition debris (CCDD) facility or at an uncontaminated soil fill operation, it shall be the Contractor's responsibility to have the pH of the material tested to ensure the value is between 6.25 and 9.0, inclusive. A copy of the pH test results shall be provided to the Engineer.

A permit shall be obtained from IEPA and made available to the Engineer prior to open burning of organic materials (i.e., plant refuse resulting from pruning or removal of trees or shrubs) or other construction or demolition debris. Organic materials originating within the right-of-way limits may be chipped or shredded and placed as mulch around landscape plantings within the right-of-way when approved by the Engineer. Chipped or shredded material to be placed as mulch shall not exceed a depth of 6 in. (150 mm).”

80319

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: April 2, 2005

Revised: April 1, 2011

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting according to Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

The mobilization payment to the subcontractor is an advance payment of the reported amount of the subcontract and is not a payment in addition to the amount of the subcontract; therefore, the amount of the advance payment will be deducted from future progress payments.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

80143

TEMPORARY EROSION AND SEDIMENT CONTROL (BDE)

Effective: January 1, 2012

Revise the first paragraph of Article 280.04(f) of the Standard Specifications to read:

“(f) Temporary Erosion Control Seeding. This system consists of seeding all erodible/bare areas to minimize the amount of exposed surface area. Seed bed preparation will not be required if the surface of the soil is uniformly smooth and in a loose condition. Light disking shall be done if the soil is hard packed or caked. Erosion rills greater than 1 in. (25 mm) in depth shall be filled and area blended with the surrounding soil. Fertilizer nutrients will not be required.”

Delete the last sentence of Article 280.08(e) of the Standard Specifications.

80286

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)

Effective: August 1, 2011

Revise the third sentence of the third paragraph of Article 105.03(b) of the Standard Specifications to read:

“The daily monetary deduction will be \$2,500.”

80273

TRAINING SPECIAL PROVISIONS (BDE) This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be **2** . In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

20338

WARM MIX ASPHALT (BDE)

Effective: January 1, 2012

Revised: November 1, 2012

Description. This work shall consist of designing, producing and constructing Warm Mix Asphalt (WMA) in lieu of Hot Mix Asphalt (HMA) at the Contractor's option. Work shall be according to Sections 406, 407, 408, 1030, and 1102 of the Standard Specifications, except as modified herein. In addition, any references to HMA in the Standard Specifications, or the special provisions shall be construed to include WMA.

WMA is an asphalt mixture which can be produced at temperatures lower than allowed for HMA utilizing approved WMA technologies. WMA technologies are defined as the use of additives or processes which allow a reduction in the temperatures at which HMA mixes are produced and placed. WMA is produced by the use of additives, a water foaming process, or combination of both. Additives include minerals, chemicals or organics incorporated into the asphalt binder stream in a dedicated delivery system. The process of foaming injects water into the asphalt binder stream, just prior to incorporation of the asphalt binder with the aggregate.

Approved WMA technologies may also be used in HMA provided all the requirements specified herein, with the exception of temperature, are met. However, asphalt mixtures produced at temperatures in excess of 275 °F (135 °C) will not be considered WMA when determining the grade reduction of the virgin asphalt binder grade.

Materials.

Add the following to Article 1030.02 of the Standard Specifications.

“(h) Warm Mix Asphalt (WMA) Technologies (Note 3)”

Add the following note to Article 1030.02 of the Standard Specifications.

“Note 3. Warm mix additives or foaming processes shall be selected from the current Bureau of Materials and Physical Research Approved List, “Warm-Mix Asphalt Technologies”.”

Equipment.

Revise the first paragraph of Article 1102.01 of the Standard Specifications to read:

“1102.01 Hot-Mix Asphalt Plant. The hot-mix asphalt (HMA) plant shall be the batch-type, continuous-type, or dryer drum plant. The plants shall be evaluated for prequalification rating and approval to produce HMA according to the current Bureau of Materials and Physical Research Policy Memorandum, “Approval of Hot-Mix Asphalt Plants and Equipment”. Once approved, the Contractor shall notify the Bureau of Materials and Physical Research to obtain approval of all plant modifications. The plants shall not be used to produce mixtures concurrently for more than one project or for private work unless permission is granted in writing

by the Engineer. The plant units shall be so designed, coordinated and operated that they will function properly and produce HMA having uniform temperatures and compositions within the tolerances specified. The plant units shall meet the following requirements.”

Add the following to Article 1102.01(a) of the Standard Specifications.

“(13) Equipment for Warm Mix Technologies.

- a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of ± 2 percent of the actual water metered. The foaming control system shall be electronically interfaced with the asphalt binder meter.
- b. Additives. Additives shall be introduced into the plant according to the supplier’s recommendations and shall be approved by the Engineer. The system for introducing the WMA additive shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes.”

Mix Design Verification.

Add the following to Article 1030.04 of the Standard Specifications.

“(d) Warm Mix Technologies.

- (1) Foaming. WMA mix design verification will not be required when foaming technology is used alone (without WMA additives). However, the foaming technology shall only be used on HMA designs previously approved by the Department.
- (2) Additives. WMA mix designs utilizing additives shall be submitted to the Engineer for mix design verification. Additional mixture verification requirements include Hamburg Wheel testing according to Illinois Modified AASHTO T324 and tensile strength testing according to Illinois Modified AASHTO T283 which shall meet the criteria in Tables 1 and 2 respectively herein. The Contractor shall provide the additional material as follows:
 - a. Four gyratory specimens to be prepared in the Contractor’s lab according to Illinois Modified AASHTO T324.
 - b. Sufficient mixture to conduct tensile strength testing according to Illinois Modified AASHTO T283.

Table 1. Illinois Modified AASHTO T324 Requirements ^{1/}

Asphalt Binder Grade	# Wheel Passes	Max Rut Depth in. (mm)
PG 76-XX	20,000	1/2 in. (12.5 mm)
PG 70-XX	15,000	1/2 in. (12.5 mm)

PG 64-XX	7,500	1/2 in. (12.5 mm)
PG 58-XX	5,000	1/2 in. (12.5 mm)

1/ Loose WMA shall be oven aged at 270 ± 5 °F (132 ± 3 °C) for two hours prior to gyratory compaction of Hamburg Wheel specimens.

Table 2. Tensile Strength Requirements

Asphalt Binder Grade	Tensile Strength psi (kPa)	
	Minimum	Maximum
PG 76-XX	80 (552)	200 (1379)
PG 70-XX		
PG 64-XX	60 (414)	200 (1379)"
PG 58-XX		

Production.

Revise the second paragraph of Article 1030.06(a) of the Standard Specifications to read:

“At the start of mix production for HMA, WMA, and HMA using WMA technologies, QC/QA mixture start-up will be required for the following situations; at the beginning of production of a new mix of a new mixture design, at the beginning of each production season, and at every plant utilized to produce mixtures, regardless of the mix.”

Insert the following after the sixth paragraph of Article 1030.06(a) of the Standard Specifications:

“Warm mix technologies shall be as follows.

- (1) Mixture sampled to represent the test strip shall include additional material sufficient for the Department to conduct Hamburg Wheel testing according to Illinois Modified AASHTO T324 and tensile strength testing according to Illinois Modified AASHTO T283 (approximately 110 lb (50 kg) total).
- (2) Upon completion of the start-up, WMA, or HMA using WMA technologies, production shall cease. The Contractor may revert to conventional HMA production provided a start-up has been previously completed for the current construction season for the mix design. WMA, or HMA using WMA technologies, may resume once all the test results, including Hamburg Wheel results are completed and found acceptable by the Engineer.”

Add the following after the first paragraph of Article 1030.05(d)(2)c. of the Standard Specifications:

“During production of each WMA mixture or HMA utilizing WMA technologies, the Engineer will request a minimum of one randomly located sample, identified by

the Engineer, for Hamburg Wheel testing to determine compliance with the requirements specified in Table 1 herein.”

Quality Control/Quality Assurance Testing.

Revise the table in Article 1030.05(d)(2)a. of the Standard Specifications to read:

Parameter	Frequency of Tests	Frequency of Tests	Test Method See Manual of Test Procedures for Materials
	High ESAL Mixture Low ESAL Mixture	All Other Mixtures	
Aggregate Gradation % passing sieves: 1/2 in. (12.5 mm), No. 4 (4.75 mm), No. 8 (2.36 mm), No. 30 (600 μm) No. 200 (75 μm) Note 1.	1 washed ignition oven test on the mix per half day of production Note 4.	1 washed ignition oven test on the mix per day of production Note 4.	Illinois Procedure
Asphalt Binder Content by Ignition Oven Note 2.	1 per half day of production	1 per day	Illinois-Modified AASHTO T 308
VMA Note 3.	Day's production ≥ 1200 tons: 1 per half day of production Day's production < 1200 tons: 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)	N/A	Illinois-Modified AASHTO R 35
Air Voids Bulk Specific Gravity of Gyratory Sample Note 5.	Day's production ≥ 1200 tons: 1 per half day of production Day's production < 1200 tons: 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)	1 per day	Illinois-Modified AASHTO T 312

Parameter	Frequency of Tests	Frequency of Tests	Test Method See Manual of Test Procedures for Materials
	High ESAL Mixture Low ESAL Mixture	All Other Mixtures	
Maximum Specific Gravity of Mixture	Day's production ≥ 1200 tons: 1 per half day of production	1 per day	Illinois-Modified AASHTO T 209
	Day's production < 1200 tons: 1 per half day of production for first 2 days and 1 per day thereafter (first sample of the day)		

Note 1. The No. 8 (2.36 mm) and No. 30 (600 µm) sieves are not required for All Other Mixtures.

Note 2. The Engineer may waive the ignition oven requirement for asphalt binder content if the aggregates to be used are known to have ignition asphalt binder 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 asphalt binder content.

Note 3. The G_{sb} used in the voids in the mineral aggregate (VMA) calculation shall be the same average G_{sb} value listed in the mix design.

Note 4. The Engineer reserves the right to require additional hot bin gradations for batch

Note 5. The WMA compaction temperature for mixture volumetric testing shall be 270 ± 5 °F (132 ± 3 °C) for quality control testing. The WMA compaction temperature for quality assurance testing will be 270 ± 5 °F (132 ± 3 °C) if the mixture is not allowed to cool to room temperature. If the mixture is allowed to cool to room temperature it shall be reheated to standard HMA compaction temperatures."

Construction Requirements.

Revise the second paragraph of Article 406.06(b)(1) of the Standard Specifications to read:

"The HMA shall be delivered at a temperature of 250 to 350 °F (120 to 175 °C). WMA shall be delivered at a minimum temperature of 215 °F (102 °C)."

Basis of Payment.

This work will be paid at the contract unit price bid for the HMA pay items involved. Anti-strip will not be paid for separately, but shall be considered as included in the cost of the work.

80288

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

The Contractor shall provide a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used on the jobsite; or used for the delivery and/or removal of equipment/material to and from the jobsite. The jobsite shall also include offsite locations, such as plant sites or storage sites, when those locations are used solely for this contract.

The report shall be submitted on the form provided by the Department within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur. The report shall be submitted to the Engineer and a copy shall be provided to the district EEO Officer.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

80302

WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within **110** working days.

80071

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, 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.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

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, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) 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 provisions of the Americans with 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 contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program 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 minorities and women.

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 minorities and women 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 employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women 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, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such 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 its 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 their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

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. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

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 employees who are minorities and women 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 good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 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 good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith 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 contracting agency 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 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 qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. 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 contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. 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. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor 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 DOT-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 contracting agency deems appropriate.

11. 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 the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours 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; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency 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](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color,

religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. Davis-Bacon and Related Act Provisions

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics 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 issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, 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 29 CFR 5.5(a)(4). 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. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) 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.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), 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 Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The 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.

(3) In the event the contractor, the laborers or mechanics to be employed in the 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 questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour 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.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. 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 shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs 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.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor 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, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, 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 contracting agency 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.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of 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. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) 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 shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each 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 Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) 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 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, 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 FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action 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.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

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 U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or 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 Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen 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 worker 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 on 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 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's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

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 journeymen 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 determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

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 U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. 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.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor 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. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. 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.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for

debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 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 U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the 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 or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys 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 (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

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 contracting agency. 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 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased 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 or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

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 or propose 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 VI 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 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 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 contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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 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. 3704).

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.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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, Form FHWA-1022 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:

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 under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier 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 first tier 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 first tier 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 contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier 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," "participant," "person," "principal," and "voluntarily excluded,"

as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first 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 entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

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 is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective 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.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-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;

(3) 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 (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective 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 Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

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," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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 exceeding the \$25,000 threshold.

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 is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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 dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

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 participating in covered transactions 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.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is 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 its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**MINIMUM WAGES FOR FEDERAL AND FEDERALLY
ASSISTED CONSTRUCTION CONTRACTS**

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.

NOTICE

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at <http://www.dot.state.il.us/desenv/delett.html>.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at <http://www.dot.state.il.us/desenv/subsc.html>.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.