



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

April 18, 2012

SUBJECT: FAI Route 94 (I-94/ US 41)  
Section 49-1(HB & HB-1)R  
Lake County  
Contract No. 60L76  
Item No. 137, April 27, 2012 Letting  
Addendum A

## NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Replaced the Schedule of Prices.
2. Revised the Table of Contents to the Special Provisions.
3. Revised page 8 of the Special Provisions.
4. Added pages 265 – 273 to the Special Provisions.
5. Revised sheets 6, 8, 9, 10, 17 & 18 of the Plans.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

John D. Baranzelli, P. E.  
Acting Engineer of Design and Environment

A handwritten signature in cursive script, reading "Ted B. Walschleger P.E.".

By: Ted B. Walschleger, P. E.  
Engineer of Project Management

cc: Diane O'Keefe, Region 1, District 1; Mike Renner; D.Carl Puzey;  
Estimates

TBW/MS/ks

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER -

60L76

State Job # - C-91-019-11

Project Number

Route

County Name - LAKE - -

FAI 94

Code - 97 - -

\*REVISED: APRIL 17, 2012

District - 1 - -

Section Number - 49-1 (HB & HB-1) R

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
XX001249	ORNAMENTAL FENCE	FOOT	555.000				
XX004339	BIKEPATH APP GDRL ADJ	FOOT	93.000				
X0323443	PREC MOD RET WALL	SQ FT	1,142.000				
X0325134	WIRELESS INTERCON COM	EACH	1.000				
X0325598	DRAIN SCUPPR DS-12M10	EACH	12.000				
X0326885	VIDEO DETECT SYS	EACH	2.000				
X0327301	RELOCATE EX MAILBOX	EACH	2.000				
X0327391	WOOD POLE 45 CL 5	EACH	8.000				
X0327392	WOOD POLE 60 CL 4	EACH	1.000				
X0327393	WOOD POLE 100 CL 2	EACH	2.000				
X4021000	TEMP ACCESS- PRIV ENT	EACH	4.000				
X4022000	TEMP ACCESS- COM ENT	EACH	4.000				
X4024100	TEMP ACCESS WINTERIZE	SQ YD	318.000				
X5010522	REM CONC END SEC	EACH	9.000				
X5030272	BR DK SHRNK RED ADMIX	CU YD	265.900				

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X5538200	SS CLEANED 24	FOOT	61.000				
*DELETE X6061902	<del>CONC MED TSM SPL</del>	<del>SQ FT</del>	<del>442.000</del>				
X6062206	STAMP CLRD PCC MED 6	SQ FT	13,386.000				
X6062213	STAMP CLRD PCC MED 13	SQ FT	11,090.000				
X7010216	TRAF CONT & PROT SPL	L SUM	1.000				
X8130370	JUN BX NM ES 08X06X06	EACH	4.000				
X8250060	TEMP LIGHT CONTROLLER	EACH	1.000				
X8570226	FAC T4 CAB SPL	EACH	1.000				
X8570230	FAC T5 CAB SPL	EACH	1.000				
X8620200	UNINTER POWER SUP SPL	EACH	2.000				
X8730255	ELCBL AS 20 3C TW SH	FOOT	830.000				
X8800025	SH LED 1F 3S SWM	EACH	13.000				
X8800046	SH LED 1F 5S SWM	EACH	2.000				
Z0004552	APPROACH SLAB REM	SQ YD	308.000				
Z0005216	HMA STAB 6 AT SPBGR	SQ YD	306.000				

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Z0013798	CONSTRUCTION LAYOUT	L SUM	1.000				
Z0014800	CULVERT TO BE CLEANED	FOOT	647.000				
*DELETE Z0027800	GEO TECH FABRIC	SQ YD	28,412.000				
Z0030250	IMP ATTN TEMP NRD TL3	EACH	7.000				
Z0030260	IMP ATTN TEMP FRN TL3	EACH	6.000				
Z0030332	IMP ATTN REL FRN TL3	EACH	2.000				
Z0030350	IMP ATTN REL NRD TL3	EACH	6.000				
Z0030850	TEMP INFO SIGNING	SQ FT	133.000				
Z0033028	MAINTAIN LIGHTING SYS	CAL MO	10.000				
Z0033056	OPTIM TRAF SIGNAL SYS	EACH	1.000				
Z0034210	MECH ST EARTH RET WL	SQ FT	15,359.000				
Z0042002	POROUS GRAN EMB SUBGR	CU YD	16,465.000				
Z0062456	TEMP PAVEMENT	SQ YD	8,010.000				
Z0065704	BIT CT AG SLOPEWALL 6	SQ YD	1,219.000				
Z0073002	TEMP SOIL RETEN SYSTM	SQ FT	1,140.000				

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Z0073345	SLEEPER SLAB	FOOT	589.000				
Z0073510	TEMP TR SIGNAL TIMING	EACH	4.000				
20100110	TREE REMOV 6-15	UNIT	150.000				
20100210	TREE REMOV OVER 15	UNIT	58.000				
20100500	TREE REMOV ACRES	ACRE	2.000				
20101100	TREE TRUNK PROTECTION	EACH	8.000				
20200100	EARTH EXCAVATION	CU YD	17,515.000				
20201200	REM & DISP UNS MATL	CU YD	3,769.000				
20400800	FURNISHED EXCAVATION	CU YD	82,630.000				
20600200	GRAN EMBANK SPEC	CU YD	5,725.000				
20800150	TRENCH BACKFILL	CU YD	192.000				
*ADD 21001000	GEOTECH FAB F/GR STAB	SQ YD	28,412.000				
21101505	TOPSOIL EXC & PLAC	CU YD	28,035.000				
21101685	TOPSOIL F & P 24	SQ YD	206.000				
21101805	COMPOST F & P 2	SQ YD	1,120.000				

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25000210	SEEDING CL 2A	ACRE	1.250				
25000310	SEEDING CL 4	ACRE	11.500				
25000400	NITROGEN FERT NUTR	POUND	115.000				
25000600	POTASSIUM FERT NUTR	POUND	115.000				
25100105	MULCH METHOD 1	ACRE	12.750				
25100135	MULCH METHOD 4	ACRE	0.500				
25100630	EROSION CONTR BLANKET	SQ YD	66,265.000				
25100900	TURF REINF MAT	SQ YD	319.000				
25200110	SODDING SALT TOLERANT	SQ YD	4,900.000				
25200200	SUPPLE WATERING	UNIT	132.500				
28000250	TEMP EROS CONTR SEED	POUND	1,912.000				
28000305	TEMP DITCH CHECKS	FOOT	37.000				
28000400	PERIMETER EROS BAR	FOOT	12,436.000				
28100101	STONE RIPRAP CL A1	SQ YD	269.000				
30300112	AGG SUBGRADE IMPR 12	SQ YD	28,412.000				

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31200502	STAB SUBBASE HMA 4.5	SQ YD	20,722.000				
35101500	AGG BASE CSE B	CU YD	645.000				
35501308	HMA BASE CSE 6	SQ YD	100.000				
35800100	PREPARATION OF BASE	SQ YD	8,440.000				
35800200	AGG BASE REPAIR	TON	246.000				
40200900	AGG SURF CSE B	CU YD	64.000				
40600100	BIT MATLS PR CT	GALLON	3,029.000				
40603080	HMA BC IL-19.0 N50	TON	1,063.000				
40603335	HMA SC "D" N50	TON	1,153.000				
40701861	HMA PAVT FD 9	SQ YD	2,235.000				
42000521	PCC PVT 11 JOINTED	SQ YD	12,898.000				
42000541	PCC PVT 12 JOINTED	SQ YD	3,736.000				
42001300	PROTECTIVE COAT	SQ YD	10,143.000				
42300400	PCC DRIVEWAY PAVT 8	SQ YD	578.000				
42400200	PC CONC SIDEWALK 5	SQ FT	1,793.000				

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42400800	DETECTABLE WARNINGS	SQ FT	553.000				
44000100	PAVEMENT REM	SQ YD	13,888.000				
44000200	DRIVE PAVEMENT REM	SQ YD	1,200.000				
44000500	COMB CURB GUTTER REM	FOOT	2,292.000				
44004000	PAVED DITCH REMOVAL	FOOT	314.000				
44004250	PAVED SHLD REMOVAL	SQ YD	3,903.000				
48101500	AGGREGATE SHLDS B 6	SQ YD	2,730.000				
48300600	PCC SHOULDERS 11	SQ YD	3,040.000				
48300700	PCC SHOULDERS 12	SQ YD	1,886.000				
50100300	REM EXIST STRUCT N1	EACH	1.000				
50100400	REM EXIST STRUCT N2	EACH	1.000				
50105220	PIPE CULVERT REMOV	FOOT	64.000				
50157300	PROTECTIVE SHIELD	SQ YD	528.000				
50200100	STRUCTURE EXCAVATION	CU YD	4,163.000				
50300225	CONC STRUCT	CU YD	503.200				

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50300255	CONC SUP-STR	CU YD	1,121.900				
50300260	BR DECK GROOVING	SQ YD	2,441.000				
50300300	PROTECTIVE COAT	SQ YD	4,000.000				
50500305	ERECT STRUCT STEEL	L SUM	1.000				
50500505	STUD SHEAR CONNECTORS	EACH	5,148.000				
50800105	REINFORCEMENT BARS	POUND	390.000				
50800205	REINF BARS, EPOXY CTD	POUND	369,580.000				
50800515	BAR SPLICERS	EACH	344.000				
50901735	BR FEN RAIL (SDWALK)	FOOT	393.000				
50901750	PARAPET RAILING	FOOT	387.000				
51200957	FUR M S PILE 12X0.250	FOOT	4,827.000				
51202305	DRIVING PILES	FOOT	4,827.000				
51203200	TEST PILE MET SHELLS	EACH	4.000				
51204650	PILE SHOES	EACH	88.000				
51500100	NAME PLATES	EACH	2.000				

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52000110	PREF JT STRIP SEAL	FOOT	348.000				
52100210	ERECT ELAS BRG ASY T1	EACH	22.000				
52100520	ANCHOR BOLTS 1	EACH	88.000				
542A1060	P CUL CL A 2 15	FOOT	74.000				
542A2761	P CUL CL A 4 36	FOOT	25.000				
542A4663	P CUL CL A 7 48	FOOT	88.000				
54213657	PRC FLAR END SEC 12	EACH	12.000				
54213660	PRC FLAR END SEC 15	EACH	4.000				
54213681	PRC FLAR END SEC 36	EACH	1.000				
54215436	CIP RC END SEC 36	EACH	1.000				
54215448	CIP RC END SEC 48	EACH	2.000				
550A0050	STORM SEW CL A 1 12	FOOT	785.000				
550A0070	STORM SEW CL A 1 15	FOOT	81.000				
550A0340	STORM SEW CL A 2 12	FOOT	412.000				
550A0640	STORM SEW CL A 3 12	FOOT	43.000				

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550A0940	STORM SEW CL A 4 12	FOOT	48.000				
55100200	STORM SEWER REM 6	FOOT	28.000				
55100500	STORM SEWER REM 12	FOOT	305.000				
55101200	STORM SEWER REM 24	FOOT	25.000				
58700300	CONCRETE SEALER	SQ FT	3,175.000				
60100060	CONC HDWL FOR P DRAIN	EACH	24.000				
60107600	PIPE UNDERDRAINS 4	FOOT	8,709.000				
60108100	PIPE UNDERDRAIN 4 SP	FOOT	705.000				
60200105	CB TA 4 DIA T1F OL	EACH	3.000				
60200805	CB TA 4 DIA T8G	EACH	1.000				
60201310	CB TA 4 DIA T20F&G	EACH	27.000				
60218400	MAN TA 4 DIA T1F CL	EACH	4.000				
60219000	MAN TA 4 DIA T8G	EACH	1.000				
60221100	MAN TA 5 DIA T1F CL	EACH	1.000				
60237420	INLETS TA T20F&G	EACH	3.000				

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60500040	REMOV MANHOLES	EACH	1.000				
60500050	REMOV CATCH BAS	EACH	1.000				
60500060	REMOV INLETS	EACH	6.000				
60600095	CLASS SI CONC OUTLET	CU YD	6.000				
60600605	CONC CURB TB	FOOT	196.000				
60602800	CONC GUTTER TB	FOOT	630.000				
60603500	COMB CC&G TB6.06	FOOT	54.000				
60603800	COMB CC&G TB6.12	FOOT	1,495.000				
60605000	COMB CC&G TB6.24	FOOT	3,159.000				
60608300	COMB CC&G TM2.12	FOOT	1,740.000				
*ADD 60621600	CONC MED TSM	SQ FT	412.000				
63000001	SPBGR TY A 6FT POSTS	FOOT	1,564.500				
63100045	TRAF BAR TERM T2	EACH	4.000				
63100070	TRAF BAR TERM T5	EACH	1.000				
63100085	TRAF BAR TERM T6	EACH	2.000				

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63100167	TR BAR TRM T1 SPL TAN	EACH	5.000				
63200310	GUARDRAIL REMOV	FOOT	1,524.000				
63500105	DELINEATORS	EACH	98.000				
66400105	CH LK FENCE 4	FOOT	2,769.000				
66406400	CH LK GATES 4X24 DBL	EACH	1.000				
66900200	NON SPL WASTE DISPOSL	CU YD	16,800.000				
66900450	SPL WASTE PLNS/REPORT	L SUM	1.000				
66900530	SOIL DISPOSAL ANALY	EACH	3.000				
67000400	ENGR FIELD OFFICE A	CAL MO	13.000				
67000600	ENGR FIELD LAB	CAL MO	13.000				
67100100	MOBILIZATION	L SUM	1.000				
70106800	CHANGEABLE MESSAGE SN	CAL MO	56.000				
70300520	PAVT MARK TAPE T3 4	FOOT	28,800.000				
70300550	PAVT MARK TAPE T3 8	FOOT	671.000				
70300570	PAVT MARK TAPE T3 24	FOOT	141.000				

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70301000	WORK ZONE PAVT MK REM	SQ FT	7,225.000				
70400100	TEMP CONC BARRIER	FOOT	4,637.500				
70400200	REL TEMP CONC BARRIER	FOOT	6,075.000				
72000100	SIGN PANEL T1	SQ FT	147.000				
72000200	SIGN PANEL T2	SQ FT	34.000				
72000300	SIGN PANEL T3	SQ FT	258.000				
72400100	REMOV SIN PAN ASSY TA	EACH	16.000				
72400200	REMOV SIN PAN ASSY TB	EACH	16.000				
72400310	REMOV SIGN PANEL T1	SQ FT	27.000				
72400330	REMOV SIGN PANEL T3	SQ FT	203.000				
72700100	STR STL SIN SUP BA	POUND	2,210.000				
72800100	TELES STL SIN SUPPORT	FOOT	18.000				
73000100	WOOD SIN SUPPORT	FOOT	328.000				
73400100	CONC FOUNDATION	CU YD	5.000				
73700100	REM GR MT SIN SUPPORT	EACH	4.000				

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73700200	REM CONC FDN-GR MT	EACH	4.000				
78000200	THPL PVT MK LINE 4	FOOT	15,532.000				
78005140	EPOXY PVT MK LINE 8	FOOT	1,298.000				
78008200	POLYUREA PM T1 LTR-SY	SQ FT	946.000				
78008210	POLYUREA PM T1 LN 4	FOOT	35,001.000				
78008220	POLYUREA PM T1 LN 5	FOOT	11,766.000				
78008230	POLYUREA PM T1 LN 6	FOOT	3,571.000				
78008240	POLYUREA PM T1 LN 8	FOOT	1,234.000				
78008250	POLYUREA PM T1 LN 12	FOOT	2,814.000				
78008270	POLYUREA PM T1 LN 24	FOOT	538.000				
78100100	RAISED REFL PAVT MKR	EACH	89.000				
78100105	RAISED REF PVT MKR BR	EACH	8.000				
78200300	PRISMATIC CURB REFL	EACH	22.000				
78200410	GUARDRAIL MKR TYPE A	EACH	13.000				
78200530	BAR WALL MKR TYPE C	EACH	824.000				

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78201000	TERMINAL MARKER - DA	EACH	4.000				
78300100	PAVT MARKING REMOVAL	SQ FT	2,059.000				
80400100	ELECT SERV INSTALL	EACH	1.000				
80400200	ELECT UTIL SERV CONN	L SUM	1.000		6,000.000		6,000.000
80500020	SERV INSTALL POLE MT	EACH	2.000				
81028200	UNDRGRD C GALVS 2	FOOT	68.000				
81100320	CON AT ST 1 PVC GS	FOOT	40.000				
81100800	CON AT ST 3 GALVS	FOOT	80.000				
81200230	CON EMB STR 2 PVC	FOOT	617.000				
81300610	JUN BX SS AS 14X12X6	EACH	4.000				
81603090	UD 3#4#6GXLP USE 1 1/4	FOOT	502.000				
81702400	EC C XLP USE 3-1C 2	FOOT	96.000				
81702410	EC C XLP USE 3-1C 4	FOOT	695.000				
81800320	A CBL 3-1C4 MESS WIRE	FOOT	4,233.000				
82102400	LUM SV HOR MT 400W	EACH	23.000				

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83050715	LT P A 47.5MH 6DA	EACH	2.000				
83057355	LT P WD 60 CL4 15MA	EACH	21.000				
84100110	REM TEMP LIGHT UNIT	EACH	2.000				
84200500	REM LT UNIT SALV	EACH	8.000				
84200804	REM POLE FDN	EACH	8.000				
85000200	MAIN EX TR SIG INSTAL	EACH	1.000				
86000105	MASTER CONTROLLER SPL	EACH	1.000				
87200400	SPAN WIRE	FOOT	940.000				
87200500	TETHER WIRE	FOOT	940.000				
87302225	ELCBL AS SIGL 14 3C	FOOT	830.000				
87302245	ELCBL AS SIGL 14 5C	FOOT	2,700.000				
87302255	ELCBL AS SIGL 14 7C	FOOT	590.000				
87302505	ELCBL AS SERV 6 2C	FOOT	210.000				
88700200	LIGHT DETECTOR	EACH	5.000				
88700300	LIGHT DETECTOR AMP	EACH	2.000				

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Section Number - 49-1 (HB & HB-1) R

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
89502300	REM ELCBL FR CON	FOOT	5,274.000				

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## **ALLOWABLE LANE CLOSURES (ISTHA)**

The Contractor will provide a proposed master plan schedule for lane closures prior to the Notice to Proceed. On the last day of each month, the Contractor shall provide the Engineer with a listing of all anticipated lane closures for the following month.

Temporary lane closures within the Contract limits will be permitted only with the Tollway's approval. Closures along the Tri-State Tollway shall be in accordance with Tollway Standard Lane Closure Detail E2-00.

Temporary, off-peak hour, lane closures must be requested through the Engineer 24 hour in advance of closure date by 7:00 am of the Tollway working day and eight days prior to the requested closure.

The Contractor shall strictly adhere to the temporary lane closure hours set out under the KEEPING THE EXPRESSWAY OPEN TO TRAFFIC specification above throughout the duration of the contract. Temporary lane closures will not be allowed, or must be removed, if so directed by the Engineer, due to inclement weather or heavy traffic, in accordance with the Standard Specifications.

No lane closure signs shall be erected any earlier than one-half (1/2) hour before the starting hours listed above. Also, these signs should be taken down within one-half (1/2) hour after the closure is removed.

When off-peak hour or weekend closures are required, trailer mounted full matrix portable changeable message signs shall be installed one week prior to the closure. Similarly, the Contractor will provide full matrix portable changeable signs one week in advance of any ramp closings. The wording and location shall be determined by the engineer.

In all cases, the Contractor is expected to be working in the areas closed due to the temporary lane closures. The Contractor shall remove the temporary lane closure when the scheduled work shift is over or when so required by the Contract Documents, whichever occurs first.

Revised 4/18/12

### **SLEEPER SLAB**

Description. This work consists of constructing a sleeper slab (reinforced concrete grade beam) at the locations shown on the plans or as directed by the Engineer. This work shall be performed in accordance with the applicable portions of Section 420 of the Standard Specifications, the details in the plans and as herein specified.

Materials. Concrete shall be Class SI meeting the requirements of Section 1020. Reinforcement bars shall be Grade 60 meeting the requirements of Section 1006.10.

Method of Measurement. This work will be measured in feet along the expansion joint, Reinforcement bars; felt roofing paper bond breaker and preformed joint filler will not be paid for separately, but will be included in the unit price for the sleeper slab. Excavation, except excavation in rock, will be paid as Earth Excavation.

Basis of Payment. This work will be paid for at the contract unit price per foot for SLEEPER SLAB, which price will be payment in full for all materials, labor, tools, equipment and incidentals necessary to complete the work as specified.

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

Effective: April 1, 2001

Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

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

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

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

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

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

Add the following to Article 402.12 of the Standard Specifications:

Added 4/18/12

“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.”

#### **PRECAST MODULAR RETAINING WALL**

Effective: March 19, 2001

Revised: October 15, 2011

Description. This work shall consist of preparing the design, furnishing the materials, and constructing the precast modular retaining walls to the lines, grades and dimensions shown in the contract plans and as directed by the Engineer.

General. The precast modular wall shall consist of precast concrete modules, select fill and a leveling pad. The precast concrete modules shall be sized to have sufficient external stability resistance at each module course to satisfy the design criteria. The material, fabrication and construction shall comply with this Special Provision and the requirements specified by the supplier of the wall system selected by the Contractor for use on the project.

The precast modular retaining wall shall be one of the following pre-approved wall systems:

T-Wall      The Neel Company  
Stepwall    Prestress Engineering Corporation  
Doublewal   Doublewal Corporation  
Stone Strong\*   Stone Strong, LLC.  
Recon Wall System\*   Recon Retaining Wall Systems, Inc  
Redi-Rock Wall\*   Redi-Rock International, LLC

\* These systems may have designs utilizing/requiring soil reinforcement.

Added 4/18/12

Submittals. The wall system supplier shall submit complete design calculations and shop drawings to the Engineer according to Article 1042.03(b) of the Standard Specifications no later than 90 days prior to beginning construction of the wall. 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. All submittals shall be sealed by a 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 face of the wall at all changes in horizontal alignment. The plan view shall show the limits of precast modules and stations where changes in length and/or size of modules occur. The centerline shall be shown for all drainage structures or pipes behind or passing through and/or under the wall.
  - (2) An elevation view of the wall indicating the elevations of the top of the modules. These elevations shall be at or above the top of exposed module line shown on the contract plans. This view shall show the elevations of the top of the leveling pads, all steps in the leveling pads and the finished grade line shown in the contract plans. Each module type, size and embedded length shall be designated.
  - (3) A listing of the summary of quantities shall be provided on the elevation sheet of each wall.
  - (4) Typical cross section(s) showing the precast modules, select fill within the modules, porous granular backfill, leveling pad, right-of-way limits, including excavation cut slopes and elevation relationship between existing ground conditions and the finished grade line.
  - (5) All general notes required for constructing the wall as well as the locations of lifting devices and/or support points in the precast modules shall be indicated.
- (b) The leveling pads may be precast or cast in place concrete, or compacted coarse aggregate. All details for the leveling pads, including the steps, shall be shown. The top of the leveling pad shall be located at or below the theoretical top of the leveling pad line shown on the contract plans. The theoretical top of leveling pad line shall be 3.5 ft.(1.1 m) below finished grade line at the front face of the wall, unless otherwise shown on the contract plans.
- (c) Where concrete coping or barrier is specified, the modules shall extend up into the coping or barrier a minimum of 2 in. (50 mm). The top of the modules may be level or sloped to satisfy the top of module line shown on the contract plans. Cast-in-place concrete will not be an acceptable replacement for module areas below the top of module line. Precast coping may be substituted for the CIP coping if approved by the Engineer.
- (d) All module types shall be detailed. The details shall show all dimensions necessary to cast and construct each type of module, all reinforcing steel in the module, and the location of any shear key or connection devices.
- (e) All details of the wall module placement around all appurtenances located behind, on top of, or passing through the wall modules and select fill such as traffic barriers, coping, foundations, and utilities etc. shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular system shall also be submitted.
- (f) When specified on the contract plans, all details of architectural treatment for the exposed surfaces of the module, including color, texture and form liners shall be shown.

Added 4/18/12

- (g) The details of bearing pads, joint filler or other materials used to prevent concrete to concrete contact on the front face as well as any pins, groves or other alignment mechanisms shall be indicated.

The initial submittal shall include three sets of shop drawings and one set of calculations. One set of drawings will be returned to the Contractor with any corrections indicated. After approval, the Contractor shall furnish the Engineer with eight sets of corrected prints and one mylar set for distribution by the Department. No work or ordering of materials for the structure shall be done until the submittal has been approved by the Engineer.

Materials. The precast modular retaining walls shall conform to the supplier's standards as previously approved by the Department, AASHTO Specifications for prefabricated modular walls and the following:

- (a) Steel connection hardware shall be galvanized according to AASHTO M 232 or AASHTO M 111 as applicable.
- (b) All precast modules shall be manufactured with Class PC concrete according to Section 504, Article 1042.02, Article 1042.03, and the following requirements:
- (1) The minimum panel thickness shall be 3 1/2 in. (90 mm).
  - (2) The minimum reinforcement bar cover shall be 1 1/2 in. (38 mm).
  - (3) The panel reinforcement shall be epoxy coated according to Article 1006.10 (a)(2).
  - (4) All dimensions shall be within 3/16 in. (5 mm).
  - (5) Angular distortion with regard to the height of the panel shall not exceed 0.2 in. (5 mm) in 5 ft. (1.5 m).
  - (6) Surface defects on formed surfaces measured on a length of 5 ft. (1.5 m) shall not be more than 0.1 in. (2.5 mm).

Concrete surfaces exposed to view in the completed wall shall be finished according to Article 503.15(a) of the Standard Specifications.

- (c) Reinforcing steel shall be according to Article 1006.10(a). Welded steel wire fabric for concrete reinforcement shall be according to Article 1006.10(b)(1).
- (d) Soil Reinforcement: If soil reinforcement is required by the approved design, the Contractor shall submit a manufacturer's certification for the soil reinforcement properties which equals or exceeds those required in the design computations. The soil reinforcement shall be manufactured from high density polyethylene (HDPE) uniaxial or polypropylene biaxial resins or high tenacity polyester fibers with a PVC coating, stored between -20 and 140° F (-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

Added 4/18/12

(e) 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.

Other aggregate gradations may be used provided the maximum aggregate size is 1 1/2 in. (38 mm), the maximum material passing the #40 (425  $\mu$ m) sieve is 60 percent, and the maximum material passing the #200 (75  $\mu$ m) sieve is 15 percent.

(2) Select Fill Quality. The coarse or fine aggregate shall be Class B quality or better, except that a maximum of 15 percent of the material may be finer than the #200 (75  $\mu$ m) sieve.

(3) Select Fill Internal Friction Angle. The effective internal friction angle for the coarse or fine aggregate shall be a minimum 34 degrees according to AASHTO T 236 on samples compacted to 95 percent density according to Illinois Modified AASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236. If the vendor's design uses a friction angle higher than 34 degrees, as indicated on the approved shop drawings, this higher value shall be taken as the minimum required.

Test Frequency. Prior to start of construction, the Contractor shall provide an internal friction angle test result to show the select fill material meets the specification requirement. This test result shall be no more than 12 months old. In addition, a sample of select fill material will be obtained for testing and approval by the Department. Thereafter, the minimum frequency of sampling and testing at the jobsite will be one per 20,000 cubic yards (15,500 cubic meters) of select fill.

(f) The porous granular embankment, behind the precast modules, shall be according to Section 207 of the Standard Specifications.

(g) The geotextile filter material used across the module joints shall be either a non-woven needle punch polyester or polypropylene or a woven monofilament polypropylene.

(h) The bearing pads shall be rubber, neoprene, polyvinyl chloride, or polyethylene material of the type and grade as recommended by the wall supplier. Other material recommended by the wall supplier may be used if approved by the Engineer.

(i) 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.

Design Criteria. The design shall be according to the AASHTO Design Specifications for Prefabricated Modular Walls except as modified herein. The wall supplier shall be responsible for all external stability aspects of the wall design (including sliding, overturning, bearing pressure and stability of temporary construction slopes). The analyses of settlement and overall slope stability will be the responsibility of the Department.

Typical design procedures and details, once accepted by the Department, shall be followed. All wall system changes shall be submitted in advance to the Department for approval.

External loads, such as those applied through structure foundations, from traffic or railroads, slope surcharge etc., shall be accounted for in the external 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 external stability design of the wall.

Added 4/18/12

Coulomb's lateral earth pressure theory shall be used to calculate the vertical and horizontal forces acting on the rear face of the precast modules.

The overturning calculations shall assume no more than 80 percent of the soil dead load within the precast modules available to resist overturning forces. Sliding calculations shall consider sliding both across the base and of the base across the foundation soils. The factors of safety against sliding and overturning must be no less than 1.5 and 2.0, respectively, and the computations shall confirm these factors of safety occur at each module level.

The maximum applied equivalent uniform bearing pressure under each module width shall be clearly indicated on the shop drawings submitted and shall be less than the allowable bearing pressure of the soil shown on the contract plans. Footings or other treatments to satisfy the bearing pressure requirements will be designed by the wall supplier and included in the wall bid price.

If the wall supplier needs additional information to complete the design, the Contractor shall be responsible for obtaining the information at no additional cost to the Department.

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

The foundation soils for the structure shall be graded for a width equal to or exceeding the module width. Prior to wall construction, the foundation shall be compacted with a smooth wheel vibratory roller. Any foundation soils found to be unsuitable shall be removed and replaced, as directed by the Engineer, and shall be paid for separately according to Section 202 of the Standard Specifications.

The modules may not be loaded or shipped to the project site until they have obtained a minimum compressive strength of 3500 psi (24 MPa) and no sooner than seven days after casting. Precast modules shall be lifted and supported at the points indicated on the shop plans. They shall be stored off the ground. Stacked modules shall be separated by battens across the full width of each bearing point as recommended by the supplier to prevent concrete to concrete contact.

The first course of modules must be erected with particular care and adjustment as required to in correct the vertical, horizontal and transverse alignment. Poor alignment of the base course will magnify tolerance problems in upper modules and require dismantling and re-erection of the wall. A ¼ in. (6 mm) minimum and ¾ in. (18 mm) maximum joint separation shall be provided between adjacent modules at the face to prevent direct concrete to concrete contact. Vertical tolerances and horizontal alignment tolerances shall not exceed ¾ in. (19 mm) when measured along a 10 ft. (3 m) straight edge. The overall vertical tolerance of the wall, (plumbness from top to bottom) shall not exceed 1/2 in. per 10 ft. (13 mm per 3 m) of wall height.

The rear face of all vertical and horizontal module joints shall be covered by a geotextile filter fabric, attached to the modules with a suitable adhesive. No adhesive will be allowed on this material directly over the joints to maintain fabric permeability. The minimum fabric width shall

be 12 in. (300 mm) and where laps must be used, a non-sewn lap of 6 in. (150 mm) shall be used as a minimum.

The select fill and porous granular embankment placement shall closely follow the erection of each lift of modules. The maximum lift thickness shall be placed according to the supplier's recommended procedures except, the lifts shall not exceed 10 in. (255 mm) loose measurement or as approved by the Engineer.

At the end of each day's operations, the Contractor shall shape the last level of select fill to permit runoff of rainwater away from the wall face. Select fill shall be compacted according to the project specifications for embankment except the minimum required compaction shall be 95 percent of maximum density as determined by AASHTO T 99. The Engineer will perform one density test per 5000 cu yd (3800 cu m) and not less than one test per 2 ft (0.6 m) of lift.

Method of Measurement. Precast Modular Retaining Wall will be measured for payment in square feet (square meters). The retaining wall will be measured from the "top of exposed module line" to the theoretical top of leveling pad line for the length of the wall as shown on the contract plans.

Basis of Payment. This work, including furnishing and placement of the precast modules, select fill, joint separation material, geotextile and other accessories will be paid for at the contract unit price per square foot (square meter) for PRECAST MODULAR RETAINING WALL.

Porous Granular Embankment placed outside of the select fill volume will be measured and paid for according to Section 207 of the Standard Specifications.

Concrete coping when specified on the contract plans will not be included for payment in this work but shall be included for payment as specified elsewhere in this contract.

### **AGGREGATE SUBGRADE IMPROVEMENT (D-1)**

Effective: February 22, 2012

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 RAP shall be less than 4 in. (100 mm) and well graded.

Added 4/18/12

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.

**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 lift 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. Gap graded, single size, maximum size of 5/8 in, 1/2 in. or 3/8 in. will not be permitted.

**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 square yard (square meter) or cubic yard (cubic 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.

Added 4/18/12

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	#200
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20	5 ± 5
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	75 µm
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20	5 ± 5
CS 02		100	80 ± 10	25 ± 15		

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

Added 4/18/12