



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

June 9, 2005

SUBJECT: FAI Route 74  
Project ACIM-ACBRI-074-4 (233) 089  
Section (72-7) R-3  
Peoria County  
Contract No. 68200  
Item No. 1P, June 17, 2005 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. Revised pages 1 & 15 of the Schedule of Prices.
2. Revised sheets 13, 15, 19, 20, 23-30A, 34, 35, 37, 41, 45, 46, 48, 102-104, 151, 172, 177, 182, 191, 219, 244, 246, 250, 254, 255, 290, 325, 346, 348, 500, 501, 510, 520, 528, 532, 533, 535, 699, 798, 840-842, 857A, 857B, 859A, 859B, 860A, 882-885, 909, 916, 950, 964, 965, 1040, 1044, 1052, 1053, 1055, 1183, 1184, 1186, 1202, 1204, 1205, 1208, 1209, 1212, 1215, 1221, 1224, 1227, 1235, 1337.
3. Revised the entire Table of Contents to the Special Provisions.
4. Revised pages 4, 5, 27, 54, 70, 75, 79-83, 173 & 309 – 316 of the Special Provisions.
5. Added pages 317 - 345 to the Special Provisions.

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,

Michael L. Hine  
Engineer of Design  
and Environment

A handwritten signature in black ink, reading "Ted B. Walschleger, P.E." with a stylized flourish at the end.

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

cc: J. E. Crowe, Region 3, District 4; N. R. Stoner; Roger Driskell; R. E. Anderson; Jim White; Design & Environment File

TBW:MS:jc

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 SCHEDULE OF PRICES  
 CONTRACT  
 NUMBER - 68200

State Job # - C-94-009-02  
 PPS NBR - 4-01814-0200  
 County Name - PEORIA- -  
 Code - 143 - -  
 District - 4 - -  
 Section Number - (72-7)R-3

Project Number  
 ACIM-ACBRI-0744/233/089

Route  
 FAI 74

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price	
MX030199	TEMP PAVEMENT	SQ M	207.000					
MX030471	FORM LINER LMSTN SURF	SQ M	993.000					
MX030472	FORM LINER G & F SURF	SQ M	1,988.500					
MX030473	FORM LINER PARPT SURF	SQ M	140.000					
MX032083	GDRL AGG EROS CONT	M TON	1,433.000					
* MX032646	TREE REM AND CLEARING	HA	0.420					
MX032657	R&D TEMP CONC BAR	METER	4,484.000					
MX032894	SLOTTED VANE DRAIN	METER	81.500					
MX032929	ENGINEERED FILL C4	CU M	332.000					
MX033089	ENGINEERED FILL C2	CU M	1,899.000					
MX033109	DRILL/SET SOLDIER PIL	CU M	81.400					
MX033181	WATER (DUST CONTROL)	UNIT	1,649.000					
MX033182	APPLY DUST SUP AGENTS	UNIT	1,625.000					
MX033183	SOIL STABILIZERS	KG	110,993.000					
MX033192	AGGREGATE SUBBASE	M TON	96,131.000					
MX033194	WHITEWASH	SQ M	122,189.000					
			* REVISED : JUNE 7, 2005					

ILLINOIS DEPARTMENT OF TRANSPORTATION  
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Project Number  
 ACIM-ACBRI-0744/233/089

Route  
 FAI 74

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price	
M7030240	TEMP PVT MK LINE 150	METER	500.000					
M7030520	PAVT MARK TAPE T3 100	METER	58,141.000					
M7030540	PAVT MARK TAPE T3 150	METER	2,541.000					
M7030550	PAVT MARK TAPE T3 200	METER	1,088.000					
M7031000	WORK ZONE PAVT MK REM	SQ M	7,186.000					
M7040300	REL TEMP CONC BAR SO	METER	2,134.850					
* M7040400	TEMP CON BAR (ST OWN)	METER	3,670.000					
M7200100	SIGN PANEL T1	SQ M	14.000					
M7200200	SIGN PANEL T2	SQ M	20.000					
M7200300	SIGN PANEL T3	SQ M	262.000					
M7210105	SIGN PANEL OVERLAY SP	SQ M	51.060					
M7270100	STR STL SIN SUP BA	KG	3,450.000					
M7290100	METAL POST TY A	METER	8.500					
M7290200	METAL POST TY B	METER	17.000					
M7300100	WOOD SIN SUPPORT	METER	265.500					
			* REVISED : JUNE 7, 2005					

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- \* The Completion Date specified in the contract.
- \*\* The liquidated damages shall be charged until work is completed.

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

Should the Contractor be delayed in the commencement, prosecution or completion of the work for any reason, there shall be no extension of the cooperative incentive payment completion date even though there may be granted an extension of time for completion of the work.

No cooperative incentive will be paid if the Contractor of this contract or Contractors of the other Department contracts specified fails to complete the work and open the roadways before the specified completion date.

Failure by the Contractor to complete all work as specified above before November 17, 2006 shall release and discharge the State, the Department and all of its officers, agents and employees from any and all claims and demands for payment of any incentive amount or damages arising from the refusal to pay an incentive amount.

#### **I-74 MAINLINE PEAK TRAFFIC PERIODS**

Effective January 27, 2005

At the time Contract 68200 is awarded, Contracts 68195, 68196, 68197, 68198, and 68199 will already be in progress to reconstruct the eastbound I-74 pavement. References to Stage 2 in these specifications refer to work within these contracts pursuant to the constraints of their individual and collective special provisions that will limit the nature and timing of work within Contract 68200 that can be concurrently performed before November 18, 2005. References to Stage 3 of these specifications shall refer to concurrent work being performed within Contracts 68198, 68200, and 68201 to reconstruct the westbound I-74 pavement.

Due to the high traffic volumes on the I-74 mainline two eastbound lanes or two westbound lanes shall be open to traffic during the defined applicable I-74 mainline peak traffic period . The peak traffic period for eastbound I-74 traffic is defined as Monday through Friday except legal holidays between the hours of 6:00 a.m. to 8:30 a.m. The peak traffic period for westbound I-74 traffic is defined as Monday through Friday except legal holidays between the hours of 2:30 p.m. to 6:00 p.m.. Legal holidays shall be as defined in Article 107.09 of the Standard Specifications. Any lane less than 3.3 m wide shall be considered obstructed.

The I-74 Mainline Peak Traffic Period restriction that requires two lanes (as opposed to just one lane) in the direction of travel during the defined applicable peak traffic period shall not apply to the following locations for the indicated construction period:

- I-74 eastbound traffic from the approach taper for the western project cross-over to Ramp B-4 during Stage 2 construction while the eastbound lanes and Ramp A-2 are closed to traffic;
- I-74 eastbound traffic from the approach taper for the western project cross-over to Ramp A-2 during Stage 2 construction while the eastbound lanes are closed to traffic and Ramp A-2 is open to traffic;

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- I-74 westbound traffic from Ramp B-2 (I-74 westbound exit ramp to War Memorial Drive) to beyond the western project cross-over during Stage 2 construction while the eastbound lanes are closed to traffic;
- I-74 eastbound traffic from Ramp A-1 to Ramp A-2 during Stage 3 construction while the westbound lanes are closed to traffic;
- I-74 westbound traffic from the Ramp A-3 temporary connection (I-74 westbound exit ramp to Sterling Avenue) to across the western project cross-over during Stage 3 construction while the westbound lanes are closed to traffic;
- I-74 westbound traffic from Ramps B-2/B-3/A-3 (I-74 westbound exit ramp to War Memorial Drive/Sterling) to Ramp A-4 during Sub-stage 3-4 construction after I-74 westbound traffic is shifted to the I-74 westbound pavement;
- I-74 eastbound and westbound traffic from the west end of the project to Station 142+050 (WB) while the existing pavement is being patched (Note: I-74 Mainline Peak Traffic Period restrictions apply for all work except patching operations).
- Westbound I-74 Traffic may be reduced to one lane for a period of 40 consecutive calendar days during stage 3-1 from Station 143+550 to Station 143+650. This closure shall be used for removal and replacement of the B-1/B-4 pier and construction of the adjacent PCC shoulder.

Failure to Open Traffic Lanes to Traffic: Should the Contractor fail to completely open traffic lanes to traffic in accordance with the limitations specified above, the Contractor shall be liable to the Department in the amount of \$10,000 for any portion of the first hour lanes are closed or obstructed and \$2,500 every 15 minutes thereafter not as a penalty but as liquidated and ascertained damages. Such damages will be deducted by the Department from the monies due the Contractor. These damages shall apply during the contract time including any extensions of the contract time.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work because the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of use of the roadway if the project is delayed in completion. The Department shall not be required to provide any actual loss to recover these liquidated damages provided herein, as these damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

## **WORKING RESTRICTIONS – I-74 AND INTERCHANGE RAMPS**

Effective January 27, 2005

### **GENERAL**

The stage construction and traffic control for this contract and other concurrent corridor construction contracts are designed to function as a single unit. The implementation and removal of traffic control must occur simultaneously at times. Any proposed changes to staging must be considered carefully as they may affect the overall project traffic control. Any proposed traffic control changes must be submitted to the Engineer in writing along with documentation of coordination with other contractors. Any request for changes which have not been coordinated with all other project contractors will be rejected. All changes must be approved by the Engineer prior to implementation.

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### **REMOVAL OF EXISTING STRUCTURES NO. 1**

Effective November 12, 2004

Revised May 17, 2005

Description. This Work shall consist of the removal of existing superstructure, substructure and all its appurtenances for SN 072-0027 (Structure No. 1). The structure is a four span bridge consisting of steel beams with a non-composite concrete deck, three five-column piers on piles and two pile bent abutments. Removal shall be accomplished in accordance with Section 501 of the Standard Specifications and as described in the Plans. Slope walls for this structure shall be removed as part of this item and no additional compensation will be allowed.

Basis of Payment. This Work will be paid for at the contract unit price each for REMOVAL OF EXISTING STRUCTURES NO 1, the cost of which shall include all preparation, labor, equipment, tools, materials, disposal, cleanup and all necessary work specified and included to complete the item and no additional compensation will be allowed.

### **REMOVAL OF EXISTING STRUCTURES NO. 3**

Effective November 12, 2004

Description. This Work shall consist of the removal of existing superstructure and substructure for SN 072-0026 (Structure No. 3). The structure is a four span bridge consisting of steel beams with a non-composite concrete deck, three six-column piers on spread footings and two pile bent abutments. Removal shall be accomplished in accordance with Section 501 of the Standard Specifications and as described in the Plans. Slope walls for this structure shall be removed as part of this item and no additional compensation will be allowed.

Basis of Payment. This work will be paid for at the contract unit price each for REMOVAL OF EXISTING STRUCTURES NO 3, the cost of which shall include all preparation, labor, equipment, tools, materials, disposal, cleanup and all necessary work specified and included to complete the Item and no additional compensation will be allowed.

### **CONCRETE HEADWALL REMOVAL**

Effective November 12, 2004

Description. This Work shall consist of the complete and removal and satisfactory disposal of concrete headwalls, including wing walls, footings, aprons and other items not considered included with the barrel of the existing box culverts (Structure Number 072-2032), near Station 143+300 as shown on the plans. The work also includes the removal of similar headwalls near Station 142+242m, 55 Lt; and Station 39+847, 66m Lt (War Memorial Drive). All works shall be done in accordance with the applicable portions of Section 501 of the Standard Specifications, unless otherwise modified herein.

The Contractor shall dispose of the removed portions in a manner approved by the Engineer, and shall not damage any portions of the existing culvert to remain in place. Any damage to the existing culvert shall be repaired or replaced by the Contractor at his/her expense.

Method of Measurement. Concrete headwall removal will be measured in cubic meter, removed and disposed.

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## **SUBGRADE TREATMENT**

Effective July 1, 1990

Revised May 16, 2005

Delete the third paragraph (including subparagraphs a, b, and c) of Article 301.03 of the Standard Specifications and replace it with the following:

In cut sections the contractor responsible for the rough grading shall obtain not less than 95% of the standard laboratory density and not more than 110% of the optimum moisture for the top 300mm (1 ft.) of the subgrade.

The Contractor may, at his/her option, add a drying agent to lower the moisture content as specified. The drying agent must be approved by the Engineer prior to use. Additional compensation will not be allowed for the use of a drying agent, but will be considered as included in the cost of the various earthwork items.

In the first sentence of the fourth paragraph delete "listed in the steps".

## **SUBBASE GRANULAR MATERIAL**

Effective: November 5, 2004

This work shall be in accordance with Section 311 of the Standard Specifications and as specified herein.

All Subbase Granular Material shall have a minimum IBR of 40.

## **PROTECTION OF FRAMES AND LIDS OF UTILITY STRUCTURES**

Effective March 6, 1991

Revised September 29, 2000

This work shall consist of protecting frames and lids of utility structures in the pavement after the adjacent bituminous surface has been removed to the required depth by cold milling or by hand methods.

After the area has been swept clean and before the lane is opened to traffic, a hot bituminous mixture shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 1.2 m (4 feet) around the entire surface of the casting. Cold mix or milled material will not be permitted. This mixture shall remain in place until the day surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary bituminous mixture shall be removed and disposed of by the Contractor as specified in Article 202.03 of the Standard Specifications.

The temporary bituminous tapers and their removal shall be considered included in the contract unit price per square meter (square yard) for BITUMINOUS SURFACE REMOVAL of the depth specified, and no additional compensation will be allowed.

## **REFLECTIVE CRACK CONTROL TREATMENT**

Effective March 1, 1996

Revised March 1, 1997

Revise the 2nd and 3rd sentences of Article 443.01 to read as follows:

"Area reflective crack control treatment shall be System A. Strip reflective crack control treatment shall be System A."

Add the following paragraph to Article 443.04:

Revised 06-09-2005

## **EQUIPMENT OPERATIONS**

Effective July 10, 2002

The Contractor is advised that the Federal Aviation Administration (FAA) has guidelines related to the height of objects in the vicinity of airport runways. Due to the proximity of the Greater Peoria Airport, booms for cranes and similar equipment that are utilized on the project shall not exceed the maximum allowable heights stipulated by the FAA.

When performance of the work requires such equipment, the contractor shall comply with all applicable FAA requirements. The contractor shall submit completed [FAA Form 7460-1, "Notice of Proposed Construction or Alteration"](#) to the [Air Traffic Division of the FAA Regional Office](#) if the height of the equipment exceeds the limitations outlined in Title 14 of the Code of Federal Regulations CFR [Part 77](#).

For additional information and copies of Form 7460-1, the contractor may contact:

Federal Aviation Administration  
Great Lakes Regional Office  
Air Traffic Division, AGL-520  
2300 East Devon Avenue  
Des Plaines, IL 60018  
847-294-7568

Forms are also available on the FAA website: [www.faa.gov/ats/ata/ata400/oeaaa.html](http://www.faa.gov/ats/ata/ata400/oeaaa.html)

A listing of the documents which may be applicable is as follows:

- Title 14 of the Code of Federal Regulations CFR [Part 77](#)
- [FAA Form 7460-1, Notice of Proposed Construction or Alteration](#)
- [Instructions for completing the FAA Form 7460-1](#)

## **COORDINATION MEETINGS**

Effective April 19, 2002

Revised November 19, 2002

The Contractor will be required to participate in weekly coordination meetings with Department staff and other attendees deemed appropriate by the Department.

## **RIGHT OF WAY RESTRICTIONS**

Effective February 5, 2002

The Contractor will be required to secure and provide parking off the public right-of-way for worker's vehicles. Access to these areas shall be in accordance with Article 701.04 (b) (4). No existing trees may be removed. The cost of constructing, maintaining and restoring these areas shall be at the contractor's expense.

- Southeast War Memorial Dr./I-74 infield will be available after December 1<sup>st</sup>, 2005.
- Northwest I-74/I 6/I-474 infield will be available after June 1<sup>st</sup>, 2006.

## **NOISE RESTRICTIONS (RESIDENTIAL ONLY)**

Effective January 31, 2002

Revised March 15, 2002

Special attention is called to Article 107.35 of the Standard Specifications. Several residences are located in close proximity to the work site. Construction will be permitted 24 hours a day.

Revised 06-09-2005



## **REPLACEMENT OF UNSUITABLE MATERIAL**

Effective June 21, 2002

Revised August 22, 2002

Delete the third sentence of the last paragraph of Article 202.03 of the Standard Specifications and insert:

If unsuitable material is present at or below the finished grade on I-74 mainline and ramp PCC pavements, it shall be removed and replaced with Aggregate Subbase, according to the special provision entitled "Extended Life Pavement (30 Year)".

If unsuitable material is present at or below the finished grade on the roadways other than the I-74 mainline and ramp PCC pavements, it shall be removed and replaced with subbase granular material Type A or Type B, according to Section 311 of the Standard Specifications.

## **TRENCH BACKFILL, SPECIAL**

Effective January 1, 2002

Revised July 24, 2003

Description. This work shall consist of furnishing fine aggregate or controlled low-strength material (CLSM) at the contractor's option, except when CLSM is specified in the plans, for backfilling material for all trenches made in the subgrade of the proposed improvement and all trenches outside of the subgrade where the inner edge of the trench is closer than 600 mm (2 ft) to the edge of the proposed pavement, stabilized sub-base, shoulder, curb, or sidewalk.

Revised 06-09-2005

Basis of Payment. This work will be paid for at the contract unit price per cubic meter (cubic yard) for TRENCH BACKFILL, SPECIAL

### **GEOTECHNICAL FABRIC FOR GROUND STABILIZATION**

Effective March 1, 2002

The fabric shall be a woven geotextile fabric conforming to Article 1080.02 of the Standard Specifications.

### **SUB-BASE GRANULAR MATERIAL, TYPE A AND SUB-BASE GRANULAR MATERIAL, TYPE B**

Effective October 15, 2001 Revised June 10, 2002

This work shall consist of the construction of Sub-Base Granular Material, Type A or Sub-Base Granular Material, Type B of depths specified in the plans in accordance with applicable portions of Section 311 of the Standard Specifications with the following exception: The three-day drying period specified in Article 301.03(b) will be waived under the conditions outlined herein.

To avoid project delays due to wet subgrade, the Engineer will determine the depth of removal and replacement prior to excavation of the work area. In addition, the Contractor shall only excavate in one day the same area, which can be replaced with Sub-Base Granular Material, to finish grade, in the same day.

This work will be paid for at the contract unit price per metric ton for SUB-BASE GRANULAR MATERIAL, TYPE A or SUB-BASE GRANULAR MATERIAL, TYPE B for which the price shall be payment in full for all material, labor and equipment necessary to complete the work.

### **EXISTING BITUMINOUS MIXES CONTAINING STEEL SLAG**

Effective April 21, 2004

The Contractor is reminded to verify the existence of bituminous surface course mixes that may contain steel slag prior to removal and recycling. Much of the bituminous to be milled or otherwise removed within the project limits contains steel slag. The use of RAP containing steel slag shall be in accordance with the Standard Specifications and Special Provisions.

### **EXTENDED LIFE PAVEMENT (30 YEAR)**

Effective June 21, 2001 Revised February 4, 2003

The requirements of this special provision are only applicable to I-74 mainline and ramp Portland Cement Concrete pavements.

Revised 06-09-2005

Description. This work shall consist of constructing an extended life Portland cement concrete pavement, shoulders, and gutter, curb, and median, according to Section 420 for Portland Cement Concrete Pavement (PCCP), Section 421 for Continuously Reinforced Portland Cement Concrete Pavement (CRCP), Section 483 for Portland Cement Concrete Shoulders, and Section 606 for Concrete Gutter, Curb, Median, and Paved Ditch, of the Standard Specifications for Road and Bridge Construction, except as follows:

Definitions.

Aggregate Subbase – The aggregate above the subgrade and below the aggregate subbase cap.

Aggregate Subbase Cap – The 75 mm (3 in.) of aggregate above the aggregate subbase and below the base.

Base – The Superpave IL-19.0L placed over the aggregate subbase cap and immediately below the pavement.

Materials. Materials shall be according to Article 420.02 for PCCP, 421.02 for CRCP, and 483.02 for PCC Shoulders, of the Standard Specifications except:

The freeze-thaw rating expansion limit for coarse aggregate shall be a maximum 0.040 percent according to Illinois Modified AASHTO T 161, Procedure B.

Equipment. Equipment shall be according to Article 420.03 for PCCP, 421.03 for CRCP, and 483.03 for PCC Shoulders, of the Standard Specifications, except:

The Contractor shall submit to the Engineer, for approval before paving, the proposed internal type vibrator spacing for the paver. The Contractor shall also provide the proposed operating frequencies for a paving speed greater than or equal to 0.9 m (3 ft.) per minute, and for a paving speed less than 0.9 m (3 ft.) per minute.

Base. The base shall be constructed according to Section 312 of the Standard Specification, except that the material used shall be Superpave IL-19.0L.

When the surface temperature, as measured on the surface with a device as approved by the Engineer, of the Stabilized Sub-Base is 115 °F or greater the Contractor shall spray the Stabilized Sub-base with a water mist with equipment that meets the approval of the Engineer. The Stabilized Sub-base shall be cooled below 115 °F prior to paving on top. The water spray shall not produce excessive water runoff or leave puddles on the Stabilized Sub-base at the time of paving. All cooling shall be completed a minimum of 10 minutes prior to paving. The surface temperature shall be monitored during the paving operation to determine the stabilized Sub-base required re-spraying. The water used shall meet the requirements of Section 1002.

Embankment. The embankment shall be constructed according to Section 205 of the Standard Specifications, except that the embankment shall be compacted to not less than 95 percent of the maximum dry density determined according to AASHTO T 99. The embankment shall not be compacted at a moisture content in excess of 110 percent of the optimum moisture content determined according to AASHTO T 99.

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All material that is proposed for use in embankment construction must be approved by the Engineer. The proposed material shall have a Standard Dry Density of not less than 1450 kg/m<sup>3</sup> (90 lb./ft<sup>3</sup>) when tested according to AASHTO T 99 and shall not have an organic content greater than 10 percent when tested according to AASHTO T 194. Soils that demonstrate the following properties shall be restricted to the interior of the embankment:

- a. A grain size distribution with less than 35% passing the 75 µm (#200) sieve.
- b. A plasticity index (PI) of less than 12.
- c. A liquid limit (LL) in excess of 50.

Such soils shall be covered on the sides and top of the embankment by a minimum of 900 mm (3 ft.) of soil not characterized by any of the items a, b or c above. Other materials which may be considered by the Engineer as having the potential for erosion or excess volume change shall not be used in the 3 ft. (900 mm) cover on the sides or the top of the embankment.

Subgrade. The subgrade shall be constructed according to Section 301 of the Standard Specifications.

Delete the third paragraph (including subparagraphs a, b, and c) of Article 301.03 of the Standard Specifications and replace it with the following:

In cut sections the contractor responsible for the rough grading shall obtain not less than 95% of the standard laboratory density and not more than 110% of the optimum moisture for the top 300mm (1 ft.) of the subgrade.

The Contractor may, at his/her option, add a drying agent to lower the moisture content as specified. The drying agent must be approved by the Engineer prior to use. Additional compensation will not be allowed for the use of a drying agent, but will be considered as included in the cost of the various earthwork items.

In the first sentence of the fourth paragraph delete "listed in the steps".

Aggregate Subbase. This work shall consist of furnishing, transporting, and placing Aggregate Subbase, Type C, as specified in Section 311 of the Standard Specifications, except:

The quality requirement in Article 1004.04(b) shall not apply.

The material shall be classified as Category III in the Aggregate Gradation Control System (AGCS), and shall meet the following gradation requirements:

1. Crushed Stone, Crushed Slag, and Crushed Concrete

<u>Sieve Size</u>	<u>Percent Passing</u>
200 mm (8 in.)	100
150 mm (6 in.)	97±3
100 mm (4 in.)	90±10
50 mm (2 in.)	45±25
75 µm (#200)	3±3

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## 2. Crushed Gravel

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

The aggregate subbase shall be well-graded from coarse to fine. Aggregate subbase that is gap-graded or single-sized will not be accepted.

The material finer than the 75 µm (No. 200) sieve shall consist of the dust from fracture and shall be essentially free of clay or silt.

The aggregate shall be placed to the thickness specified in one lift. When aggregate meeting the Aggregate Subbase requirements is used to replace unstable material, the Aggregate Subbase may be placed simultaneously with the material for subgrade replacement, when the total thickness to be placed is 600 mm (24 in.) or less. The Aggregate Subbase (and subgrade replacement material, if any) shall be rolled with a vibratory roller meeting the requirements of Article 1101.01 of the Standard Specifications to obtain the desired keying or interlock and compaction. The Engineer shall verify that adequate keying has been obtained.

Aggregate Subbase Cap. This work shall consist of furnishing, transporting, and placing an Aggregate Subbase, Type C, as a cap as specified in Section 311 of the Standard Specifications, except the material gradation shall be CA 6. The lift thickness shall be 75 mm (3 in.), nominal. Reclaimed Asphalt Pavement (RAP) meeting Article 1004.07 of the Standard Specifications and having 100% passing the 37.5mm (1-1/2inches) sieve and well graded down through the fines may also be used as capping aggregate. RAP shall not contain steel slag or other expansive material. The results of the Department's tests on the RAP material will be the determining factor for consideration as expansive.

Placing Concrete Pavement. Placement shall be according to Article 421.05 of the Standard Specifications except that, if the shoulder and mainline pavements are of different reinforcement designs, they shall not be placed in a single operation.

Concrete Mixture Temperature. Article 1020.14 of the Standard Specifications shall apply except that, prior to paving, the Contractor shall indicate to the Engineer how the concrete mixture temperature will be controlled. If the mixture temperature exceeds the value stated in Article 1020.14, production of additional mix shall stop until action to reduce mixture temperature is taken or conditions causing elevated temperatures change. The Engineer will allow the Contractor to deliver concrete mixture en route to the paving site.

Curing. Curing of the pavement shall be according to Article 1020.13 of the Standard Specifications, except:

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Method 4 shall be completed within 10 minutes after tining.

The curing period shall be 7 days minimum.

Opening to Traffic. The pavement shall not be opened to public traffic or construction vehicles before the minimum curing period is completed.

Method of Measurement. The method of measurement for aggregate subbase shall be as follows:

(a) Contract Quantities. Contract quantities shall be in accordance with Article 202.07(a).

(b) Measured Quantities. Aggregate subbase will be measured for payment in metric tons (tons) according to Article 311.08 (b).

Basis of Payment. This work will be paid for at the contract unit price per metric ton (ton) for AGGREGATE SUBBASE, including the Aggregate Subbase Cap.

All other items will be measured and paid for according to the appropriate section of the Standard Specifications.

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The lid shall be marked with the legend "ELECTRIC".

Pre-cast handholes are not allowed.

All surplus materials shall be disposed of by the Contractor outside the job limits.

Basis of Payment: This work will be paid for at the contract unit price each for CONCRETE HANDHOLE, which price shall be payment in full for all labor, materials, and equipment required to provide the handhole described above as well as any necessary excavating, backfilling, disposal of unsuitable materials, and furnishing all materials within the limits of the handhole.

### **ELECTRICAL SERVICE INSTALLATION, TYPE B**

Effective January May 17, 2005

Revised May 17, 2005

This work shall be in accordance with Section 805 804 and 1086 of the Standard Specifications except as modified herein.

The service installation shall include furnishing and installing a wood service pole or post and associated appurtenances.

Galvanized steel conduit shall be used for the service riser. The use of PVC conduit will not be allowed.

A rain tight hub assembly (myers type) shall be used when conduit enters the switch from the top of the disconnect.

The service disconnect enclosed enclosure shall be a stainless steel, weatherproof NEMA 4X enclosure that meets the following specifications:

The service disconnect switch shall be enclosed in a NEMA 4X Stainless Steel Enclosure.

60-Ampere (250 V) Minimum Fused Disconnect Switch: Unless indicated otherwise on the plan sheets, the fused disconnect switch shall be single-throw, three-wire (two poles, two fuses, and solid neutral). The switch shall provide for locking the blades in either the "On" or "Off" position with one or two padlocks and for locking the cover in the closed position. The disconnect switch and fuse rating shall be rated The fuses shall be cartridge fuses and contacts shall be rated 60 amperes, 240 volts at the voltage and amperage required to comply with utility company and equipment requirements. All fuses shall be and included provided with the disconnect installation.

The Department will furnish all padlocks.

#### Basis Of Payment:

This work will be paid for at the contract unit price each for ELECTRIC SERVICE INSTALLATION, TYPE B which shall be payment in full for all labor, equipment, and materials required to provide the electrical service installation described above, complete.

Revised 06-09-2005

## **SIGN FACE**

Effective July 3, 2002

Revised April 28, 2005

### Materials

Use of sign face materials shall conform with Section 1091 of the Standard Specifications except as follows:

On fully access-controlled sections of highway (freeways or expressways) all reflectorized signs and supplemental panels, except green and yellow guide signs and blue general service signs shall be fabricated using faces of Type A or AP retroreflective sheeting. Green guide sign faces and blue general service sign faces shall be Type AA full cube prismatic retroreflective sheeting.

All borders, legends, shields and such features on supplemental panels which may be attached to the green and yellow guide signs and blue general service signs shall be fabricated with Type AA full cube prismatic retroreflective sheeting produced by the same manufacturer of the sign facing. This shall apply to the mainline, ramp, crossroad interchange approach directional signing, route markers, and all signs within the interchange.

Type A retroreflective sheeting shall be used on the face, border, and legend of new bridge-mounted street name signs.

All Type A retroreflective sheeting shall be in accordance with IDOT material specifications T-14-01.

Type AA full cube prismatic retroreflective sheeting shall be in accordance with the Standard Specifications and as included herein.

This provisional specification covers flexible white or colored, Super-High Efficiency Full Cube Retroreflective Sheeting (hereinafter called sheeting), tape and related processing materials designed to enhance nighttime visibility of traffic control signs and objects. The sheeting shall consist of full cube prismatic lens elements with a distinctive interlocking diamond seal pattern visible from the face of a smooth surface. The sheeting shall have a precoated adhesive protected by an easily removable liner.

The sheeting shall conform to ASTM D 4956-04 as modified by this special provision and proposed amendments to include Type XI.

For all Type AA prismatic retroreflective sheeting replace table 1091.02 of the Standards Specifications with the following:

The observation angles shall be 0.2°, 0.5°, 1.0°.

The entrance angles shall be -4° and 30°.

For screen printed transparent colored areas or transparent colored overlay films on white sheeting, the coefficients of retroreflection shall not be less than 70% of the values for corresponding color in Table I.

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Table I – Extracted from ASTM D 4956 Proposed Type XI  
 Minimum Coefficient of Retroreflection  
 (cd/lux/m<sup>2</sup>)

White	-4	30
0.2	570	215
0.5	400	150
1.0	120	45

Blue	-4	30
0.2	45	28
0.5	32	16
1.0	9	6

Yellow	-4	30
0.2	425	160
0.5	300	112
1.0	90	34

FYG	-4	30
0.2	455	170
0.5	320	120
1.0	96	36

Red	-4	30
0.2	114	43
0.5	80	30
1.0	24	9

FY	-4	30
0.2	340	130
0.5	240	90
1.0	72	27

Green	-4	30
0.2	57	21
0.5	40	15
1.0	12	4.5

FO	-4	30
0.2	200	75
0.5	140	52
1.0	42	16

Three samples of retroreflective sheeting applied to test panels and conditioned in accordance with ASTM D 4956-04 sec. 7.1 and 7.2 shall each first have their photometric properties characterized by measuring the coefficients of retroreflection in accordance with ASTM E 810 at all test geometries shown in Table I. These panels shall then be exposed in an air circulating oven at 160 ± 5°F (71 ± 3°C) for a period of 24 hours. After exposure the panels shall be allowed to condition in accordance with ASTM D 4956-04 sec. 7.1 and 7.2. These panels will again be characterized for photometric properties by measuring the coefficients of retroreflection at all test geometries measured before exposure.

The coefficients of retroreflection measured after exposure shall be between 85% and 115% of the values measured before exposure for each of the three samples.

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## **CLEANING AND PAINTING NEW METAL STRUCTURES**

Effective Date: September 13, 1994

Revised Date: March 30, 2005

Description. The material and construction requirements that apply to cleaning and painting new structural steel shall be according to the applicable portion of Sections 506 of the Standard Specifications except as modified herein. The three coat paint system shall be the system as specified on the plans and as defined herein.

Materials. All materials to be used on an individual structure shall be produced by the same manufacturer. The Bureau of Materials and Physical Research has established a list of all products that have met preliminary requirements. Each batch of material must be tested and approved by that bureau before use.

The paint materials shall meet the requirements of the following articles of the Standard Specification:

<u>Item</u>	<u>Article</u>
(a) Inorganic Zinc-Rich Primer	1008.22
(b) Waterborne Acrylic	1008.24
(c) Aluminum Epoxy Mastic	1008.25
(d) Organic Zinc-Rich Primer (Note 1)	
(e) Epoxy Intermediate (Note 1)	
(f) Aliphatic Urethane (Note 1)	

Note 1: These material requirements shall be according to the Special Provision for the Organic Zinc-Rich Paint System.

Submittals. At least 30 days prior to beginning field painting, the Contractor shall submit for the Engineer's review and acceptance, the following applicable plans, certifications and information for completing the field work. Field painting can not proceed until the submittals are accepted by the Engineer. Qualifications, certifications and QC plans for shop cleaning and painting shall be available for review by the QA Inspector.

- a) Contractor/Personnel Qualifications. Except for miscellaneous steel items such as bearings, side retainers, expansion joint devices, and other items allowed by the Engineer, or unless stated otherwise in the contract, the shop painting Contractors shall be certified to perform the work as follows: the shop painting Contractor shall possess AISC Sophisticated Paint Endorsement or SSPC-QP3 certification. Evidence of current qualifications shall be provided.

Personnel managing the shop and field Quality Control program(s) for this work shall possess a minimum classification as a National Association of Corrosion Engineers (NACE) Coating Inspector Technician, or shall provide evidence of successful inspection of 3 projects of similar or greater complexity and scope that have been completed in the last 2 years. Copies of the certification and/or experience shall be provided.

The personnel performing the QC tests for this work shall be trained in coatings inspection and the use of the testing instruments. Documentation of training shall be provided.

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- b) Quality Control (QC) Program. The shop and field QC Programs shall identify the following; the instrumentation that will be used, a schedule of required measurements and observations, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings. The field program shall incorporate the IDOT Quality Control Daily Report form, as supplied by the Engineer.
- c) Field Cleaning and Painting Inspection Access Plan. The inspection access plan for use by Contractor QC personnel for ongoing inspections and by the Engineer during Quality Assurance (QA) observations.
- d) Surface Preparation/Painting Plan. The surface preparation/painting plan shall include the methods of surface preparation and type of equipment to be utilized for solvent cleaning, abrasive blast cleaning, washing, and power tool cleaning. The plan shall include the manufacturer's names of the materials that will be used, including Product Data Sheets and Material Safety Data Sheets (MSDS).

A letter or written instructions from the coating manufacturer shall be included, indicating the required drying time for each coat at the minimum, normal, and maximum application temperatures before the coating can be exposed to temperatures or moisture conditions that are outside of the published application parameters.

Field Quality Control (QC) Inspections. The Contractor shall perform first line, in process QC inspections of each phase of the work. The Contractor shall implement the submitted and accepted QC Program to insure that the work accomplished complies with these specifications. The Contractor shall use the IDOT Quality Control Daily Report form supplied by the Engineer to record the results of quality control tests. The completed reports shall be turned into the Engineer before work resumes the following day.

The Contractor shall have available at the shop or on the field site, all of the necessary inspection and testing equipment. The equipment shall be available for the Engineer's use when requested.

Field Quality Assurance (QA) Observations. The Engineer will conduct QA observations of any or all phases of the work. The Engineer's observations in no way relieve the Contractor of the responsibility to provide all necessary daily QC inspections of his/her own and to comply with all requirements of this Specification.

The Engineer has the right to reject any work that was performed without adequate provision for QA observations.

The Engineer will issue a Non-Conformance Report when cleaning and painting work is found to be in violation of the specification requirements, and is not corrected to bring it into compliance before proceeding with the next phase of work.

Inspection Access and Lighting. The Contractor shall facilitate the Engineer's observations as required, including allowing ample time to view the work. The Contractor shall furnish, erect and

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move scaffolding or other mechanical equipment to permit close observation of all surfaces to be cleaned and painted. This equipment shall be provided during all phases of the work. Examples of acceptable access structures include:

- Mechanical lifting equipment, such as, scissor trucks, hydraulic booms, etc.
- Platforms suspended from the structure comprised of trusses or other stiff supporting members and including rails and kick boards.
- Simple catenary supports are permitted only if independent life lines for attaching a fall arrest system according to Occupational Safety and Health Administration (OSHA) regulations are provided.

When the surface to be inspected is more than 1.8 m (6 ft) above the ground or water surface, the Contractor shall provide the Engineer with a safety harness and a lifeline according to OSHA regulations. The lifeline and attachment shall not direct the fall into oncoming traffic. The Contractor shall provide a method of attaching the lifeline to the structure independent of the inspection facility or any support of the platform. When the inspection facility is more than 800 mm (2 1/2 ft) above the ground, the Contractor shall provide an approved means of access onto the platform.

The Contractor shall provide artificial lighting in areas where natural light is inadequate, as determined by the Engineer, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 325 LUX (30 foot candles). Illumination for cleaning and painting, including the working platforms, access, and entryways shall be at least 215 LUX (20 foot candles).

**Construction Requirements.** The Contractor shall be responsible for any damage caused to persons, vehicles, or property, except as indemnified by the Response Action Contractor Indemnification Act. Whenever the intended purposes of the protective devices are not being accomplished, as determined by the Engineer, work shall be immediately suspended until corrections are made. Painted surfaces damaged by any Contractor's operation shall be removed and repainted, as directed by the Engineer, at the Contractor's expense.

The Contractor shall comply with the provisions of the Illinois Environmental Protection Act. Paint drips, spills, and overspray are not permitted to escape into the air or onto any other surfaces or surrounding property not intended to be painted. Containment shall be used to control paint drips, spills, and overspray, and shall be dropped and all equipment secured when sustained wind speeds of 64 kph (40 mph) or greater occur, unless the containment design necessitates action at lower wind speeds. The contractor shall evaluate project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a plan for containing or controlling paint debris (droplets, spills, overspray, etc.) to the Engineer for approval prior to starting the work. Approval shall not relieve the Contractor of their ultimate responsibility for controlling paint debris from escaping the work zone.

**Surface and Weather Conditions.** Surfaces to be painted after cleaning shall remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt, or moisture does not come in contact with surfaces cleaned or painted that day.

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The surface temperature shall be at least 3°C (5°F) above the dew point during final surface preparation operations. The paint manufacturers' published literature shall be followed for specific temperature, dew point, and humidity restrictions during the application of each coat.

The Contractor shall monitor temperature, dew point, and humidity every 4 hours during surface preparation and coating application in the specific areas where the work is being performed. The frequency of monitoring shall increase if weather conditions are changing. The Engineer has the right to reject any work that was performed under unfavorable weather conditions. Rejected work shall be removed, recleaned, and repainted at the Contractor's expense.

Seasonal Restrictions on Field Cleaning and Painting. Field cleaning and painting work shall be accomplished between April 15 and October 31 unless authorized otherwise by the Engineer in writing.

**Inorganic Zinc-rich/ Waterborne Acrylic Paint system.** This system shall be for shop and field application of the coating system, shop application of the intermediate and top coats will not be allowed.

In the shop, all structural steel designated to be painted shall be given one coat of inorganic zinc rich primer. In the field, before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 7 MPa (1000 psi) and 34 MPa (5000 psi) and according to "Low Pressure Water Cleaning" of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3 and spot primed with aluminum epoxy mastic. The structural steel shall then receive one full intermediate coat and one full topcoat of waterborne acrylic paint.

- a) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 64 kph (40 mph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.
- b) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:
  - Zinc Primer: 75 microns (3 mils) min., 150 microns (6 mils) max.
  - Epoxy Mastic: 125 microns (5 mils) min., 180 microns (7 mils) max.
  - Intermediate Coat: 50 microns (2 mils) min., 100 microns (4 mils) max.
  - Topcoat: 50 microns (2 mils) min., 100 microns (4 mils) max.

The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 180 and 355 microns (7 and 14 mils).

- c) The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.

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- d) Damage to the paint system shall be spot cleaned using SSPC-SP3. The cleaned areas shall be spot painted with a penetrating sealer as recommended by the manufacturer, which shall overlap onto the existing topcoat. Then the aluminum epoxy mastic shall be spot applied not to go beyond the area painted with the sealer. The acrylic intermediate and topcoat shall be spot applied to the mastic with at least a 150 mm (6 inch) overlap onto the existing topcoat.

**Organic Zinc-Rich/ Epoxy/ Urethane Paint System.** This system shall be for full shop application of the coating system, all contact surfaces shall be masked off prior to application of the intermediate and top coats.

Additional Surface Preparation. In addition to the requirements of Section 3.2.9 of the AASHTO/AWS D1.5M/D1.5:2002 Bridge Welding Code (breaking thermal cut corners of stress carrying members), rolled and thermal cut corners to be painted with organic zinc primer shall be broken if they are sharper than a 1.5 mm (1/16 in.) radius. Corners shall be broken by a single pass of a grinder or other suitable device at a 45° angle to each adjoining surface prior to final blast cleaning, so the resulting corner approximates a 1.5 mm (1/16 in.) or larger radius after blasting. Surface anomalies (burrs, fins, deformations) shall also be treated to meet this criteria before priming.

In the shop, all structural steel designated to be painted shall be given one coat of organic zinc rich primer. Before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 7 MPa (1000 psi) and 34 MPa (5000 psi) and according to “Low Pressure Water Cleaning” of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3, and the structural steel shall then receive one full intermediate coat of epoxy and one full topcoat of aliphatic urethane.

- (a) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 64 kph (40 mph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.
- (b) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:  
organic Zinc Primer: 75 microns (3 mils) min., 125 microns (5 mils) max.  
Aluminum Epoxy Mastic: 125 microns (5 mils) min., 180 microns (7 mils) max.  
Epoxy Intermediate Coat: 75 microns (3 mils) min., 150 microns (6 mils) max.  
Aliphatic Urethane Top Coat: 65 microns (2.5 mils) min., 100 microns (4 mils) max.
- (c) The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 215 and 375 microns (8.5 and 15 mils).
- (d) When specified on the plans or as requested by the Contractor, and approved by the Engineer, the epoxy intermediate and aliphatic urethane top coats shall be applied in the

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shop. All faying surfaces of field connections shall be masked off after priming and shall not receive the intermediate or top coats in the shop. The intermediate and top coats for field connections shall be applied, in the field, after erection of the structural steel is completed. The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.

- (e) Erection and handling damage to the shop applied system shall be spot cleaned using SSPC-SP3. The surrounding coating at each repair location shall be feathered for a minimum distance of 40 mm (1 1/2 in.) to achieve a smooth transition between the prepared areas and the existing coating. The existing coating in the feathered area shall be roughened to insure proper adhesion of the repair coats. The areas cleaned to bare metal shall be spot painted with aluminum epoxy mastic. The intermediate and finish coat shall be spot applied to with at least a 150 mm (6 inch) overlap onto the existing finish coat.

**Aluminum Epoxy Mastic/ Waterborne Acrylic Paint system.** This system shall be for shop or field application of the entire coating system.

Before priming with aluminum epoxy mastic the steel the surfaces to be primed shall be prepared according to SSPC SP6 for Commercial Blast Cleaning. In the field, before the application of the intermediate coat, the prime coat and any newly installed fasteners shall be spot solvent cleaned per SSPC-SP 1 and all surfaces pressure washed to remove dirt, oil, lubricants, oxidation products, and foreign substances. Washing shall involve the use of potable water at a pressure between 7 MPa (1000 psi) and 34 MPa (5000 psi) and according to "Low Pressure Water Cleaning" of SSPC-SP12. Paint spray equipment shall not be used to perform the water cleaning. All damaged shop primed areas shall then be spot cleaned per SSPC-SP3 and spot primed with aluminum epoxy mastic. The structural steel shall then receive one full intermediate coat of aluminum epoxy mastic and one full topcoat of waterborne acrylic paint.

- d) Paint drips, spills, and overspray must be controlled. If containment is used to control paint drips, spills, and overspray, the containment shall be dropped and all equipment secured when sustained wind speeds of 64 kph (40 mph) or greater occur. When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.
- e) Coating Dry Film Thickness (dft), measured according to SSPC-PA2:  
Epoxy Mastic Primer: 125 microns (5 mils) min., 180 microns (7 mils) max.  
Epoxy Mastic Intermediate Coat: 125 microns (5 mils) min., 180 microns (7 mils) max.  
Acrylic Topcoat: 50 microns (2 mils) min., 100 microns (4 mils) max.

The total dry film thickness, excluding the spot areas touched up with epoxy mastic, shall be between 300 and 460 microns (12 and 18 mils).

- f) The pressure washing requirement above may be waived if the QC and QA Inspectors verify the primed surfaces have not been contaminated.

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- d) Damage to the paint system shall be spot cleaned using SSPC-SP3. The cleaned areas shall be spot painted with a penetrating sealer as recommended by the manufacturer, which shall overlap onto the existing topcoat. Then the aluminum epoxy mastic shall be spot applied not to go beyond the area painted with the sealer. The acrylic topcoat shall be spot applied to the mastic with at least a 150 mm (6 inch) overlap onto the existing topcoat.

The paint manufacturer's product data sheets shall be available for QA review in the shop and submitted to the Engineer prior to start of field work and the requirements as outlined in the data sheets shall be followed.

### Special Instructions.

**Painting Date/System Code.** At the completion of the work, the Contractor shall stencil in contrasting color paint the date of painting the bridge, the painting Contractors name, and the paint type code from the Structure Information and Procedure Manual for the system used. The letters shall be capitals, not less than 50 mm (2 in.) and not more than 75 mm (3 in.) in height.

The stencil shall contain the following wording "PAINTED BY (insert the name of the painting Contractor)" and shall show the month and year in which the painting was completed, followed by "CODE S" for the Inorganic Zinc/ Acrylic System, "CODE X" for the Organic Zinc/ Epoxy/ Urethane System and "CODE U" for the Aluminum Epoxy Mastic/ Acrylic System all stenciled on successive lines. This information shall be stenciled on the cover plate of a truss end post near the top of the railing, or on the outside face of an outside stringer near both ends of the bridge facing traffic, or at some equally visible surface designated by the Engineer.

**Method of Measurement.** Shop cleaning and painting new structures will not be measured for payment. Field cleaning and painting will not be measured for payment except when performed under a contract that contains a separate pay item for this work.

**Basis of Payment.** This work will be paid for according to Article 506.07.

## **MECHANICALLY STABILIZED EARTH RETAINING WALLS**

Effective: February 3, 1999

Revised: February 7, 2005

**Description.** This work shall consist of preparing the design, furnishing the materials, and constructing the mechanically stabilized earth (MSE) retaining wall to the lines, grades and dimensions shown in the contract plans and as directed by the Engineer.

**General.** The MSE wall consists of a concrete leveling pad, precast concrete face panels, a soil reinforcing system, select fill and concrete coping (when specified). The soil reinforcement shall have sufficient strength, quantity, and pullout resistance, beyond the failure surface within the select fill, as required by design. 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 MSE retaining wall shall be one of the following pre-approved wall systems:

Added 06-09-2005



Advanced Reinforced Soil: Tensar Earth Technologies, Inc.  
Hilfiker 5x5 Panel Wall: T & B Structural Systems, Inc.  
MSE Plus 5x6 Panel System: SSL Construction Products  
Reinforced Earth: The Reinforced Earth Company  
Retained Earth: Foster Geotechnical  
Strengthened Soil: Shaw Technologies, Inc.  
Tricon Retained Soil Wall System: Tricon Precast LTD.

Pre-approval of the wall system does not include material acceptance at the jobsite.

**Submittals.** The wall system supplier shall submit complete design calculations and shop drawings to the Department for review and approval no later than 90 days prior to beginning construction of the wall. All submittals 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 face of the wall at all changes in horizontal alignment. The plan view shall show the limits of soil reinforcement and stations where changes in length and/or size of reinforcement 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 panels. These elevations shall be at or above the top of exposed panel 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. Each panel type, the number, size and length of soil reinforcement connected to the panel shall be designated. The equivalent uniform applied bearing pressure shall be shown for each designed wall section.
  - (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 limits of the reinforced select fill volume included within the wall system, soil reinforcement, embankment material placed behind the select fill, precast face panels, and their relationship to the right-of-way limits, excavation cut slopes, existing ground conditions and the finished grade line.
  - (5) All general notes required for constructing the wall.
- (b) All details for the concrete 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 1.1 m ( 3.5 ft) below finished grade line at the front face of the wall, unless otherwise shown on the plans.

Added 06-09-2005

- (c) Where concrete coping or barrier is specified, the panels shall extend up into the coping or barrier a minimum of 50 mm (2 in.). The top of the panels may be level or sloped to satisfy the top of exposed panel line shown on the contract plans. Cast-in-place concrete will not be an acceptable replacement for panel areas below the top of exposed panel line. As an alternative to cast in place coping, the Contractor may substitute a precast coping, the details of which must be included in the shop drawings and approved by the Engineer.
- (d) All panel types shall be detailed. The details shall show all dimensions necessary to cast and construct each type of panel, all reinforcing steel in the panel, and the location of soil reinforcement connection devices embedded in the panels. These panel embed devices shall not be in contact with the panel reinforcement steel.
- (e) All details of the wall panels and soil reinforcement placement around all appurtenances located behind, on top of, or passing through the soil reinforced wall volume such as parapets with anchorage slabs, 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 panel treatment, including color, texture and form liners shall be shown.
- (g) The details for the connection between concrete panels, embed devices, and soil reinforcement shall be shown.

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 plan prints and one mylar set of plans 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 MSE walls shall conform to the supplier's standards as previously approved by the Department, and the following:

- (a) The soil reinforcing system, which includes the soil reinforcement, panel embeds and all connection devices, shall be according to the following:

Inextensible Soil Reinforcement. Steel reinforcement shall be either epoxy coated or galvanized. Epoxy coatings shall be according to Article 1006.10(b)(2), except the minimum thickness of epoxy coating shall be 457 microns (18 mils). No bend test will be required. Galvanizing shall be according to AASHTO M 232 or AASHTO M 111 as applicable.

Mesh and Loop Panel Embeds	AASHTO M 32M /M 32 and M 55M/M 55
Strips	AASHTO M 223M/M 223 Grade 450 (65)
Tie Strip Panel Embeds	AASHTO M 270M/M 270 Grade 345 (50)

Added 06-09-2005

Extensible Soil Reinforcement. Geosynthetic reinforcement shall be monolithically fabricated from virgin high density polyethylene (HDPE) resins having the following properties verified by mill certifications:

<u>Property</u>	<u>Value</u>	<u>Test</u>
Melt Flow Rate (g/cm)	0.060 – 0.150	ASTM D 1238, Procedure B
Density (g/cu m)	0.941 – 0.965	ASTM D 792
Carbon Black	2% (min)	ASTM D 4218

Panel embed/connection devices used with geosynthetic soil reinforcement shall be manufactured from virgin or recycled polyvinyl chloride having the following properties:

<u>Property</u>	<u>Value</u>	<u>Test</u>
Heat Deflection Temperature (°F)	155 - 164	ASTM D 1896
Notched IZOD 1/8 inch @ 73°F (ft-lb/in)	4 – 12	ASTM D 256
Coefficient of Linear Exp. (in/in/°F)	3.5 – 4.5	ASTM D 696
Hardness, Shore D	79	ASTM D 2240

(e) The select fill, defined as the material placed in the reinforced volume behind the wall, shall be according to the following:

(7) Select Fill Gradation. Either a coarse aggregate or a fine aggregate may be used. For coarse aggregate, gradations CA 6 thru CA 16 may be used. If an epoxy coated or geosynthetic reinforcing is used, the coarse aggregate gradations shall be limited to CA 12 thru CA 16. For fine aggregate, gradations FA 1, FA 2, or FA 20 may be used.

Other aggregate gradations may be used provided the maximum aggregate size is 38 mm (1 ½ in.), the maximum material passing the 425 µm (#40) sieve is 60 percent, and the maximum material passing the 75 µm (#200) sieve is 15 percent.

(8) Select Fill Quality. The coarse or fine aggregate shall be Class C quality or better, except that a maximum of 15 percent of the material can be finer than the #200 sieve.

(9) 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 ASHTO T 99. The AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236.

(10) Select Fill and Steel Reinforcing. When steel reinforcing is used, the select fill shall meet the following requirements.

f. The pH shall be 5.0 to 10.0 according to AASHTO T 289.

g. The resistivity shall be greater than 3000 ohm centimeters according to AASHTO T 288.

h. The chlorides shall be less than 100 parts per million according to AASHTO T 291 or ASTM D 4327. For either test, the sample shall be prepared according to AASHTO T 291.

Added 06-09-2005

i. The sulfates shall be less than 200 parts per million according to AASHTO T 290 or ASTM D 4327. For either test, the sample shall be prepared according to AASHTO T 290.

j. The organic content shall be a maximum 1.0 percent according to ASHTO T 267.

(11) Select Fill and Geosynthetic Reinforcing. When geosynthetic reinforcing is used, the select fill pH shall be 4.5 to 9.0 according to AASHTO T 289.

(12) Test Frequency. Prior to start of construction, a sample of select fill material shall be submitted to the Department for testing and approval. Thereafter, the minimum frequency of sampling and testing at the jobsite will be one per 15,500 cubic meters (20,000 cubic yards) of select fill material.

(f) The embankment material behind the select fill shall be according to Section 202 and/or Section 204. An embankment unit weight of 1921 kg/cubic meter (120 lbs/cubic foot) and an effective friction angle of 30 degrees shall be used in the wall system design, unless otherwise indicated on the plans.

(g) The geosynthetic filter material used across the panel joints shall be either a non-woven needle punch polyester or polypropylene or a woven monofilament polypropylene with a minimum width of 300 mm (12 in.) and a minimum non-sewn lap of 150 mm (6 in.) where necessary.

(h) The bearing pads shall be rubber, neoprene, polyvinyl chloride, or polyethylene of the type and grade as recommended by the wall supplier.

(i) All precast panels shall be manufactured with Class PC concrete, and shall be according to Section 504 and the following requirements:

(1) The minimum panel thickness shall be 140 mm (5 1/2 in.).

(2) The minimum reinforcement bar cover shall be 38 mm (1 1/2 in.).

(3) The panels shall have a ship lap or tongue and groove system of overlapping joints between panels designed to conceal joints and bearing pads.

(4) The panel reinforcement shall be epoxy coated.

(5) All dimensions shall be within 5 mm (3/16 in.).

(6) Angular distortion with regard to the height of the panel shall not exceed 5 mm (0.2 in.) in 1.5 m (5 ft).

(7) Surface defects on formed surfaces measured on a length of 1.5 m (5 ft.) shall not be more than 2.5 mm (0.1 in.).

Added 06-09-2005

- (8) The panel embed/connection devices shall be cast into the facing panels with a tolerance not to exceed 25 mm (1 in.) from the locations specified on the approved shop drawings.

Unless specified otherwise, concrete surfaces exposed to view in the completed wall shall be finished according to Article 503.16. The back face of the panel shall be roughly screeded to eliminate open pockets of aggregate and surface distortions in excess of 6 mm (1/4 in.).

The precast panels shall be produced according to the latest Department's Policy Memorandum for "Quality Control/Quality Assurance Program for Precast Concrete Products."

**Design Criteria.** The design shall be according to the AASHTO Design Specifications for Mechanically Stabilized Earth Walls except as modified herein. The wall supplier shall be responsible for all internal stability aspects of the wall design and shall supply the Department with computations for each designed wall section. The analyses of settlement, bearing capacity and overall slope stability will be 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.

The design of the soil reinforcing system shall be according to the applicable AASHTO Design Specifications for "Inextensible" steel or "Extensible" geosynthetic reinforcement criteria. The reduced section of the soil reinforcing system shall be sized to allowable stress levels at the end of a 75 year design life.

Steel soil reinforcing systems shall be protected by either galvanizing or epoxy coating. The design life for epoxy shall be 16 years. The corrosion protection for the balance of the 75 year total design life shall be provided using a sacrificial steel thickness computed for all exposed surfaces according to the applicable AASHTO Design Specifications.

Geosynthetic soil reinforcing systems shall be designed to account for the strength reduction due to long-term creep, chemical and biological degradation, as well as installation damage.

To prevent out of plane panel rotations, the soil reinforcement shall be connected to the standard panels in at least two different elevations, vertically spaced no more than 760 mm (30 in.) apart.

The panel embed/soil reinforcement connection capacity shall be determined according to the applicable AASHTO Design Specifications.

The factor of safety for pullout resistance in the select fill shall not be less than 1.5, based on the pullout resistance at 13 mm (1/2 in.) deformation. 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.

Added 06-09-2005

For aesthetic considerations and differential settlement concerns, the panels shall be erected in such a pattern that the horizontal panel joint line is discontinuous at every other panel. This shall be accomplished by alternating standard height and half height panel placement along the leveling pad. Panels above the lowest level shall be standard size except as required to satisfy the top of exposed panel line shown on the contract plans.

At locations where the plans specify a change of panel alignment creating an included angle of  $150^\circ$  or less, precast corner joint elements will be required. This element shall separate the adjacent panels by creating a vertical joint secured by means of separate soil reinforcement.

Isolation or slip joints, which are similar to corner joints in design and function, may be required to assist in differential settlements at locations indicated on the plans or as recommended by the wall supplier. Wall panels with areas greater than 2.8 sq m (30 sq ft) may require additional slip joints to account for differential settlements. The maximum standard panel area shall not exceed 5.6 sq m (60 sq ft).

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

The foundation soils supporting the structure shall be graded for a width equal to or exceeding the length of the soil reinforcement. 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.

When structure excavation is necessary, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the rear limits of the soil reinforcement to a vertical plane 600 mm (2 ft) from the finished face of the wall. The depth shall be from the top of the original ground surface to the top of the leveling pad. The additional excavation necessary to place the concrete leveling pad will not be measured for payment but shall be included in this work.

The concrete leveling pads shall have a minimum thickness of 150 mm (6 in.) and shall be placed according to Section 503.

As select fill material is placed behind a panel, the panel shall be maintained in its proper inclined position according to the supplier specifications and as approved by the Engineer. Vertical tolerances and horizontal alignment tolerances shall not exceed 19 mm (3/4 in.) when measured along a 3 m (10 ft) straight edge. The maximum allowable offset in any panel joint shall be 19 mm (3/4 in.). The overall vertical tolerance of the wall, (plumbness from top to bottom) shall not exceed 13 mm per 3 m (1/2 in. per 10 ft) of wall height. The precast face panels shall be erected to insure that they are located within 25 mm (1 in.) from the contract plan offset at any location to insure proper wall location at the top of the wall. Failure to meet this tolerance may cause the Engineer to require the Contractor to disassemble and re-erect the affected portions of the wall. A 19 mm (3/4 in.) joint separation shall be provided between all adjacent face panels to prevent direct concrete to concrete contact. This gap shall be maintained by the use of bearing pads and/or alignment pins.

Added 06-09-2005

The back of all panel joints shall be covered by a geotextile filter material attached to the panels with a suitable adhesive. No adhesive will be allowed directly over the joints.

The select fill and embankment placement shall closely follow the erection of each lift of panels. At each soil reinforcement level, the fill material should be roughly leveled and compacted before placing and attaching the soil reinforcing system. The soil reinforcement and the maximum lift thickness shall be placed according to the supplier's recommended procedures except, the lifts for select fill shall not exceed 255 mm (10 in.) loose measurement or as approved by the Engineer. Embankment shall be constructed according to Section 205.

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. Select fill compaction shall be accomplished without disturbance or distortion of soil reinforcing system and panels. Compaction in a strip 1 m (3 ft) wide adjacent to the backside of the panels shall be achieved using a minimum of 3 passes of a light weight mechanical tamper, roller or vibratory system.

**Method of Measurement.** Mechanically Stabilized Earth Retaining Wall will be measured for payment in square meters (square feet). The MSE retaining wall will be measured from the top of exposed panel 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 placement of the select fill within the soil reinforced wall volume shown on the approved shop drawings, precast face panels, soil reinforcing system, concrete leveling pad and accessories will be paid for at the contract unit price per square meter (square foot) for MECHANICALLY STABILIZED EARTH RETAINING WALL.

Concrete coping when specified on the contract plans will be included for payment in this work. Other concrete appurtenances such as anchorage slabs, parapets, abutment caps, etc. will not be included in this work, but will be paid for as specified elsewhere in this contract, unless otherwise noted on the plans.

Excavation necessary to place the select fill for the MSE wall shall be paid for as STRUCTURE EXCAVATION and/or ROCK EXCAVATION FOR STRUCTURES as applicable, according to Section 502.

Embankment placed outside of the select fill volume will be measured and paid for according to Sections 202 and/or 204 as applicable.

### **REMOVAL OF EXISTING NON COMPOSITE BRIDGE DECKS**

Effective: June 21, 2004

Revised: February 7, 2005

Revise the fifth sentence of the third paragraph of Article 501.03 of the Standard Specifications to read:

Added 06-09-2005

“Saw cutting directly over the top of beam or girder flanges may be permitted only if shown on the plans. The maximum saw cut depth allowed directly over a flange shall be to the bottom of the top mat of reinforcing steel but shall not exceed half the deck thickness. The Contractor shall provide positive control for controlling the depth of cut into the slab. The Contractor shall provide sawing equipment adequate in size and horsepower to complete the sawing operation.”

### **DRILLED SOLDIER PILE RETAINING WALL**

Effective: September 20, 2001

Revised: March 30, 2005

Description. This work shall consist of providing all labor, materials, and equipment necessary to fabricate and furnish the soldier piles, create and maintain the shaft excavations, set and brace the soldier piles into position and encase the soldier piles in concrete to the specified elevation. Also included in this work is the backfilling of the remainder of the shaft excavation with Controlled Low-Strength Material (CLSM), the furnishing and installation of the timber lagging, and the furnishing and installation of CLSM secant lagging. All work shall be according to the details shown on the plans and as directed by the Engineer.

The remainder of the retaining wall components as shown on the plans, such as concrete facing, shear studs, reinforcement bars, tie backs, hand rails, and various drainage items etc., are not included in this Special Provision but are paid for as specified elsewhere in this Contract.

Materials. The materials used for the soldier piles and lagging shall satisfy the following requirements:

- (a) The structural steel components for the soldier piles shall conform to the requirements of AASHTO M270, Grade 250 (36), unless otherwise designated on the plans.
- (b) The soldier pile encasement concrete shall be portland cement concrete according to Section 1020, except the mix design shall be as follows:
  - (1) A Type I or II cement shall be used at 395 kg/cu m (665 lb/cu yd). When the plans specify that soil and ground water sulfate contaminates exceed 500 parts per million, a Type V cement shall be required. The cement shall be increased 35 kg/cu m (60 lb/cu yd) if the concrete is to be placed under water.
  - (2) Class C or F fly ash may replace Type I or II cement. The cement replacement shall not exceed 15 percent by mass (weight) at a minimum replacement ratio of 1.5:1. The fly ash shall not be used in combination with ground granulated blast-furnace slag.
  - (3) Grade 100 or 120 ground granulated blast-furnace slag may replace Type I or II cement. The cement replacement shall not exceed 25 percent by mass (weight) at a minimum replacement ratio of 1:1. The ground granulated blast-furnace slag shall not be used in combination with fly ash.
  - (4) The maximum water/cement ratio shall be 0.44.

Added 06-09-2005



- (5) The mortar factor shall be a value which produces a coarse aggregate content comprising between 55 and 65 percent of total aggregate by mass (weight).
  - (6) The slump at point of placement shall be 175 mm  $\pm$  25 mm (7  $\pm$  1 in.). If concrete is placed to displace drilling fluid or against temporary casing, the slump shall be 200 mm  $\pm$  25 mm (8  $\pm$  1 in.) at point of placement. The concrete mix shall be designed to remain fluid throughout the anticipated duration of the pour plus 1 hour.
  - (7) An air entraining admixture shall be required and the air content range shall be 4.0 to 7.0 percent.
  - (8) The minimum compressive strength shall be 27,500 kPa (4000 psi) at 14 days. The minimum flexural strength shall be 4,650 kPa (675 psi) at 14 days.
  - (9) A retarding admixture shall be required.
  - (10) A water-reducing or high range water-reducing admixture shall be required.
  - (11) An accelerating admixture may be used with the permission of the Engineer in extraordinary situations.
  - (12) The coarse aggregate shall be CA 13, CA 14, CA 16 or a blend of these gradations. The fine aggregate shall consist of sand only according to Article 1003.01(a).
- (c) The Controlled Low-Strength Material (CLSM), used for backfilling shaft excavations above the soldier pile encasement concrete and for backfilling secant lagging excavations, to the existing ground surface, shall be according to the Recurring Special Provisions for CLSM.
  - (d) Temporary casing shall be produced by electric seam, butt, or spiral welding to produce a smooth wall surface, fabricated from steel satisfying ASTM A252 Grade 2. The minimum wall thickness shall be as required to resist the anticipated installation and dewatering stresses, as determined by the Contractor, but in no case less than 6 mm (1/4 in.).
  - (e) Drilling slurry shall consist of a polymer or mineral base material. Mineral slurry shall have both a mineral grain size that will remain in suspension with sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. The percentage and specific gravity of the material used to make the suspension shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement. For polymer slurry, the calcium hardness of the mixing water shall not exceed 100 mg/L.
  - (f) Timber Lagging. The minimum tabulated unit stress in bending ( $F_b$ ), used for the design of the timber lagging, shall be 6.9 MPa (1000 psi) unless otherwise specified on the plans. When treated timber lagging is specified on the plans, the method of treatment shall be according to Article 1007.12.

Equipment. The drilling equipment shall have adequate capacity, including power, torque and down thrust, to create a shaft excavation of the maximum diameter specified to a depth of 20 percent beyond the depths shown on the plans. Concrete equipment shall be according to Article 1020.03.

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Construction Requirements. The shaft excavation for each soldier pile shall extend to the tip elevation indicated on the plans for soldier piles terminating in soil or to the required embedment in rock when rock is indicated on the contract plans. The Contractor shall satisfy the following requirements:

(a) Drilling Methods. The soldier pile installation may involve the use of one or more of the following drilling methods to maintain excavation side wall stability during the various phases of shaft excavation and concrete placement, dependent on the site conditions encountered:

(1) Dry Method. The dry method consists of drilling the shaft excavation, removing accumulated water and loose material from the excavation, placing the soldier pile and concrete in a predominately dry excavation. This method shall be used only at sites where the groundwater and soil conditions are suitable to permit the drilling and dewatering of the excavation without causing excessive water infiltration, boiling, squeezing, or caving of the excavation side walls. This method allows the concrete placement by tremie or concrete pumps, or if the excavation can be dewatered, the concrete can be placed by free fall.

(2) Wet Method. The wet construction method may be used at sites where dewatering the excavation would cause collapse of the excavation sidewalls or when the volume and head of water flowing into the shaft excavation is likely to contaminate the concrete during placement. This method uses water or slurry to maintain stability of the shaft perimeter while advancing the excavation. After the excavation is completed, the water level in the shaft is allowed to seek equilibrium, the base is cleaned, the soldier pile is set and the concrete is discharged at the base using a tremie pipe or concrete pump, displacing the drilling fluid upward.

(3) Temporary Casing Method. Temporary casing shall be used when either the wet or dry methods provide inadequate support to prevent sidewall caving or to ensure there is not excessive deformation of the hole. Temporary casing may also be used to reduce the flow of water into the excavation to allow dewatering, adequate cleaning, or to ensure proper concrete placement.

Temporary casing will not be allowed to remain permanently in place without the approval of the Engineer. Before the temporary casing is broken loose, the level of soldier pile encasement concrete in the casing shall be a minimum of 1.5 m (5 ft) above the bottom of the casing. After being broken loose, and as the casing is withdrawn, additional concrete shall be added to maintain sufficient head so that water and soil trapped behind the casing can be displaced upward and discharged at the ground surface.

No shaft excavation shall be made adjacent to a soldier pile with encasement concrete that has a compressive strength less than 10.35 MPa (1500 psi), nor adjacent to secant lagging until the CLSM has reach sufficient strength to maintain it's position and shape unless otherwise approved by the Engineer. Materials removed or generated from the shaft excavations shall be disposed of by the Contractor according to Article 202.03. Excavation by blasting will not be permitted.

(b) Drilling Slurry. During construction, the level of the slurry shall be maintained at a height sufficient to prevent caving of the hole. In the event of a sudden or significant loss of slurry to the hole, the construction of that shaft shall be stopped and the shaft excavation backfilled or supported by

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temporary casing until a method to stop slurry loss, or an alternate construction procedure, has been developed and approved by the Engineer.

- (c) Obstructions. Obstructions shall be defined as any object (such as but not limited to, boulders, logs, old foundations, etc.) that cannot be removed with normal earth drilling procedures, but requires special augers, tooling, core barrels or rock augers to remove the obstruction. When obstructions are encountered, the Contractor shall notify the Engineer and upon concurrence of the Engineer, the Contractor shall begin working to core, break up, push aside, or remove the obstruction. Lost tools or equipment in the excavation, as a result of the Contractor's operation, shall not be defined as obstructions and shall be removed at the Contractor's expense.
- (d) Top of Rock. The actual top of rock will be defined as the point where material is encountered which can not be drilled with a conventional earth auger and/or under-reaming tool, and requires the use of special rock augers, core barrels, air tools or other methods of hand excavation.
- (e) Design Modifications. If the top of rock elevation encountered is below that estimated on the plans, such that the soldier pile length above rock is increased by more than 10 percent, the Engineer shall be contacted to determine if any soldier pile design changes are required. In addition, if the type of soil or rock encountered is not similar to that shown in the subsurface exploration data, the Engineer shall be contacted to determine if revisions are necessary.
- (f) Soldier Pile Fabrication and Placement. The soldier pile is defined as the structural steel section(s) shown on the plans as well as any connecting plates used to join multiple sections. Cleaning and painting of all steel components, when specified, shall be as shown on the plans and accomplished according to the special provision for "Cleaning and Painting New Metal Structures". This work will not be paid for separately, but shall be considered included in the cost of Furnishing Soldier Piles of the type specified.

The soldier pile shall be shop fabricated such that no field welding is required. The Contractor shall attach suitable bracing or support to maintain the position of the soldier pile within the shaft excavation such that the final location will satisfy the Construction Tolerances portion of this Special Provision. The bracing or supports shall remain in place until the concrete for encasement has reached a minimum compressive strength of 10.35 MPa (1500 psi).

When embedment in rock is indicated on the plans, modification to the length of a soldier pile may be required to satisfy the required embedment. The modification shall be made to the top of the soldier pile unless otherwise approved by the Engineer. When the top of rock encountered is above the estimated elevation indicated on the plans, the soldier piles shall be cut to the required length. If the top of rock encountered is below that estimated on the plans, the Contractor shall either furnish longer soldier piles or splice on additional length of soldier pile per Article 512.05(b) to satisfy the required embedment in rock. In order to avoid delays, the Contractor may have additional soldier pile sections fabricated as necessary to make the required adjustments. Additional soldier pile quantities, above those shown on the plans, shall not be furnished without prior written approval by the Engineer.

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(g) Concrete Placement. Concrete work shall be performed according to the applicable portions of Section 503 and as specified herein.

The soldier pile encasement concrete pour shall be made in a continuous manner from the bottom of the shaft excavation to the elevation indicated on the plans. Concrete shall be placed as soon as possible after the excavation is completed and the soldier pile is secured in the proper position. Uneven levels of concrete placed in front, behind, and on the sides of the soldier pile shall be minimized to avoid soldier pile movement, and to ensure complete encasement. Concrete shall be placed either by free fall, or through a tremie or concrete pump subject to the following conditions:

- (1) The free fall placement shall only be permitted in shaft excavations that can be dewatered without causing side wall instability and where no more than 75 mm (3 in.) of standing water exists at the time of concrete placement. The maximum height of free fall placement shall not exceed 18.3 m (60 ft.) and the concrete shall be directed to the base to minimize contact with either the soldier pile or the shaft excavation side wall. Drop chutes may be used to direct concrete to the base during free fall placement.
- (2) Tremies shall be according to Article 503.08 and contain no aluminum parts that may have contact with the concrete. The inside and outside surfaces of the tremie shall be clean and smooth to permit both flow of the concrete and unimpeded withdrawal during concrete placement.
- (3) Concrete pumps. Pumps and lines may be used for concrete placement and shall have a minimum 100 mm (4 in.) diameter.

The tremie or pump lines used for wet method concrete placement shall be watertight and shall not begin discharge until placed within 250 mm (10 in.) of the base of the excavation. Valves, bottom plates or plugs may be used only when they can be removed from the excavation unless approved by the Engineer. The discharge end shall be immersed at least 1.5 m (5 ft.) in concrete at all times after starting the pour.

Following the soldier pile encasement concrete pour, the remaining portion of the shaft excavation shall be backfilled with CLSM.

CLSM Secant lagging placement shall be placed as soon as practical after the shaft excavation is cleared.

(h) Construction Tolerances. The soldier piles shall be drilled and located within the excavation to satisfy the following tolerances:

- (1) The center of the soldier pile shall be within 38 mm (1 1/2 in.) of plan station and 13 mm (1/2 in.) offset at the top of the shaft.
- (2) The out of vertical plumbness of the soldier pile shall not exceed 0.83 percent.
- (3) The top of the soldier pile shall be within  $\pm 25$  mm ( $\pm 1$  in.) of the plan elevation.

(i) Timber Lagging. Timber lagging, when required by the plans, installed below the original ground surface, shall be placed from the top down as the excavation proceeds. Lagging shown above grade shall be installed and backfilled against prior to installing any permanent facing to minimize post construction deflections. Over-excavation required to place the timber lagging behind the flanges of the soldier piles shall be the minimum necessary to

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install the lagging. When the plans require the Contractor to design the timber lagging, the design shall be based on established practices published in FHWA or AASHTO documents considering lateral earth pressure, construction loading, traffic surcharges and the lagging span length(s). The nominal thickness of the lagging selected shall not be less than 75 mm (3 in.) and shall satisfy the minimum tabulated unit stress in bending ( $F_b$ ) stated elsewhere in this Special Provision. The Contractor shall be responsible for the successful performance of the lagging system until the concrete facing is installed. When the nominal timber lagging thickness(s) and allowable stress are specified on the plans, the timber shall be rough cut or surfaced and in accordance with Article 1007.03.

- (j) Structure Excavation. When structure excavation is necessary to place a concrete facing, it shall be made and paid for according to Section 502 except that the horizontal limits for structure excavation shall be from the face of the soldier pile to a vertical plane 600 mm (2 ft) from the finished face of the wall. The depth shall be from the top of the original ground surface to the bottom of the concrete facing. The additional excavation necessary to place the lagging whether through soil or CLSM shall be included in this work.
- (k) Geocomposite Wall Drain. When required by the plans, the geocomposite wall drain shall be installed and paid for according to Section 591 except that, in the case where a concrete facing is specified on the plans, the wall drain shall be installed on the concrete facing side of the timber lagging with the pervious (fabric) side of the drain installed to face the timber. When a concrete facing is not specified on the plans, the pervious (fabric) side of the drain shall be installed to face the soil. In this case, the drain shall be installed in stages as the timber lagging is installed. The wall drain shall be placed in sections and spliced, or kept on a continuous roll, so that as each timber is placed, the drain can be properly located as the excavation proceeds.

Method of Measurement. The furnishing of soldier piles will be measured for payment in meters (feet) along the centerline of the soldier pile for each of the types specified. The length shall be determined as the difference between the plan top of soldier pile and the final as built shaft excavation bottom.

The drilling and setting of soldier piles in soil and rock, will be measured for payment and the volumes computed in cubic meters (cubic feet) for the shaft excavation required to set the soldier piles according to the plans and specifications, and accepted by the Engineer. These volumes shall be the theoretical volumes computed using the diameter(s) of the shaft(s) shown in the plans and the depth of the excavation in soil and/or rock as appropriate. The depth in soil will be defined as the difference in elevation between the ground surface at the time of concrete placement and the bottom of the shaft excavation or the top of rock (when present), whichever is encountered first. The depth in rock will be defined as the difference in elevation between the measured top of rock and the bottom of the shaft excavation.

Drilling and placing CLSM secant lagging shall be measured for payment in cubic meters (cubic feet) of the shaft excavation required to install the secant lagging as shown in the plans. This volume shall be the theoretical volume computed using the diameter(s) shown on the plans and the difference in elevation between the as built shaft excavation bottom and the ground surface at the time of the CLSM placement.

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Timber lagging shall be measured for payment in square meters (square feet) of timber lagging installed to the limits as shown on the plans. The quantity shall be calculated using the minimum lagging length required on the plans multiplied by the as installed height of timbers, for each bay of timber lagging spanning between the soldier piles.

Basis of Payment. The furnishing of soldier piles will be paid for at the contract unit price per meter (foot) for FURNISHING SOLDIER PILES, of the type specified, for the total number of meters (feet) furnished to the job site. The cost of any field splices required due to changes in top of rock elevation shall be paid for according to Article 109.04.

The drilling and setting of soldier piles will be paid for at the contract unit price per cubic meter (cubic foot) for DRILLING AND SETTING SOLDIER PILES (IN SOIL) and DRILLING AND SETTING SOLDIER PILES (IN ROCK). The required shaft excavation, soldier pile encasement concrete and any CLSM backfill required around each soldier pile will not be paid for separately but shall be included in this item.

The timber lagging will be paid for at the contract unit price per square meter (square foot) for UNTREATED TIMBER LAGGING, or TREATED TIMBER LAGGING as detailed on the plans.

The secant lagging will be paid for at the contract unit price per cubic meter (cubic foot) for SECANT LAGGING. The required shaft excavation and CLSM backfill required to fill that excavation shall be included in this item.

Obstruction mitigation shall be paid for according to Article 109.04.

No additional compensation, other than noted above, will be allowed for removing and disposing of excavated materials, for furnishing and placing concrete, bracing, lining, temporary casings placed and removed or left in place, or for any excavation made or concrete placed outside of the plan diameter(s) of the shaft(s) specified.

## **ORGANIC ZINC RICH PAINT SYSTEM**

Effective: November 1, 2001

Revised: August 1, 2003

Add the following to Section 1008 of the Standard Specifications:

“ **1008.26 Organic Zinc-Rich Paint System.** The organic zinc-rich paint system shall consist of an organic zinc-rich primer, an epoxy or urethane intermediate coat, and aliphatic urethane finish coats. It is intended for use over blast-cleaned steel when three-coat shop applications are specified. The system is also suitable for field painting blast-cleaned existing structures.

(a) General Requirements.

(1) Compatibility. Each coating in the system shall be supplied by the same paint manufacturer.

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(2) Toxicity. Each coating shall contain less than 0.01 percent lead in the dry film and no more than trace amounts of hexavalent chromium, cadmium, mercury or other toxic heavy metals.

(3) Volatile Organics. The volatile organic compounds of each coating shall not exceed 420 g/L (3.5 lb/gal) as applied.

(b) Test Panel Preparation.

(1) Substrate and Surface Preparation. Test panels shall be AASHTO M 270M, Grade 250 (M 270 Grade 36), hot-rolled steel measuring 100 mm x 150 mm (4 in. x 6 in.). Panels shall be blast-cleaned per SSPC-SP5 white metal condition using metallic abrasive. The abrasive shall be a 60/40 mix of shot and grit. The shot shall be an SAE shot number S230 and the grit an SAE number G40. Hardness of the shot and grit shall be Rockwell C45. The anchor profile shall be 40-65 microns (1.5-2.5 mils) measured according to ASTM D 4417, Method C.

(2) Application and Curing. All coatings shall be spray applied at the manufacturer's recommended film thickness. The coated panels shall be cured at least 14 days at 24 °C ± 1 °C (75 °F ± 2 °F) and 50 ± 5 percent relative humidity.

(3) Scribing. The test panels shall be scribed according to ASTM D 1654 with a single "X" mark centered on the panel. The rectangular dimensions of the scribe shall have a top width of 50 mm (2 in.) and a height of 100 mm (4 in.). The scribe cut shall expose the steel substrate as verified with a microscope.

(4) Number of Panels. All testing shall be performed on triplicate panels.

(c) Zinc-Rich Primer Requirements.

(1) Generic Type. This material shall be an organic zinc-rich epoxy or urethane primer. It shall be suitable for topcoating with epoxies, urethanes, and acrylics.

(2) Zinc Dust. The zinc dust pigment shall comply with ASTM D 520, Type II.

(3) Slip Coefficient. The organic zinc coating shall meet a Class B AASHTO slip coefficient (0.50 or greater) for structural steel joints using ASTM A 325M (A 325) or A 490M (A 490) bolts.

(4) Salt Fog. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 5,000 hours of salt fog exposure when tested according to ASTM B 117 and evaluated according to AASHTO R 31.

(5) Cyclic Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 5,000 hours of cyclic exposure when tested according to ASTM D 5894 and evaluated according to AASHTO R 31.

(6) Humidity Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 4,000 hours of humidity exposure when tested according to ASTM D 2247 and evaluated according to AASHTO R 31.

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(7) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 6200 kPa (900 psi) when tested according to ASTM D 4541 Annex A4.

(8) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24-hour cycle shall consist of 16 hours of approximately  $-30\text{ }^{\circ}\text{C}$  ( $-22\text{ }^{\circ}\text{F}$ ) followed by 4 hours of thawing at  $50\text{ }^{\circ}\text{C}$  ( $122\text{ }^{\circ}\text{F}$ ) and 4 hours tap water immersion at  $25\text{ }^{\circ}\text{C}$  ( $77\text{ }^{\circ}\text{F}$ ). The test panels shall remain in the freezer on weekends and holidays.

(d) Intermediate Coat Requirements.

(1) Generic Type. This material shall be an epoxy or urethane. It shall be suitable as an intermediate coat over inorganic and organic zinc primers and compatible with acrylic, epoxy, and polyurethane topcoats.

(2) Color. The color of the intermediate coat shall be white or off-white.

(e) Urethane Finish Coat Requirements.

(1) Generic Type. This material shall be an aliphatic urethane. It shall be suitable as a topcoat over epoxies and urethanes.

(2) Color and Hiding Power. The finish coat shall match Munsell Glossy Color 7.5G 4/8 Interstate Green, 2.5YR 3/4 Reddish Brown, 10B 3/6 Blue, or 5B 7/1 Gray. The color difference shall not exceed 3.0 Hunter Delta E Units. Color difference shall be measured by instrumental comparison of the designated Munsell standard to a minimum dry film thickness of 75 microns (3 mils) of sample coating produced on a test panel according to ASTM D 823, Practice E, Hand-Held, Blade Film Application. Color measurements shall be determined on a spectrophotometer with 45 degrees circumferential/zero degrees geometry, illuminant C, and two degrees observer angle. The spectrophotometer shall measure the visible spectrum from 380-720 nanometers with a wavelength interval and spectral bandpass of 10 nanometers.

The contrast ratio of the finish coat at 75 microns (3 mils) dry film thickness shall not be less than 0.99 when tested according to ASTM D 2805.

(3) Weathering Resistance. Test panels shall be aluminum alloy measuring 300 mm x 100 mm (12 in. x 4 in.) prepared according to ASTM D 1730 Type A, Method 1 Solvent Cleaning. A minimum dry film thickness of 75 microns (3 mils) of finish coat shall be applied to three test panels according to ASTM D 823, Practice E, Hand Held Blade Film Application. The coated panels shall be cured at least 14 days at  $24\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  ( $75\text{ }^{\circ}\text{F} \pm 2\text{ }^{\circ}\text{F}$ ) and  $50 \pm 5$  percent relative humidity. The panels shall be subjected to 300 hours of accelerated weathering using the light and water exposure apparatus (fluorescent UV - condensation type) as specified in ASTM G 53-96 and ASTM G 154 (equipped with UVB-313 lamps). The cycle shall consist of 8 hours UV exposure at  $60\text{ }^{\circ}\text{C}$  ( $140\text{ }^{\circ}\text{F}$ ) followed by 4 hours of condensation at  $40\text{ }^{\circ}\text{C}$  ( $104\text{ }^{\circ}\text{F}$ ). After exposure, rinse the panel with clean water; allow to dry at room temperature for one hour. The exposed panels shall not show a color change of more than 3 Hunter Delta E Units.

(f) Three Coat System Requirements.

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(1) Finish Coat Color. For testing purposes, the color of the finish coat shall match Federal Standard No 595, color chip 14062 (green).

(2) Salt Fog. When tested according to ASTM B 117 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of salt fog exposure:

Salt Fog Acceptance Criteria (max)			
Blister Criteria	Rust Criteria		
Size/Frequency	Maximum Creep	Average Creep	% Rusting at Scribed Edges
#8 Few	4mm	1mm	1

(3) Cyclic Exposure. When tested according to ASTM D 5894 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of cyclic exposure:

Cyclic Exposure Acceptance Criteria (max)			
Blister Criteria	Rust Criteria		
Size/Frequency	Maximum Creep	Average Creep	% Rusting at Scribed Edges
#8 Few	2mm	1mm	1

(4) Humidity Exposure. There shall be no delamination, blistering, rust creepage at the scribe, or rusting at the scribe edges after 4,000 hours of humidity exposure when tested according to ASTM D 2247 and evaluated according to AASHTO R 31.

(5) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 6200 kPa (900 psi) when tested according to ASTM D 4541 Annex A4.

(6) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24 hour cycle shall consist of 16 hours of approximately -30 °C (-22 °F) followed by 4 hours of thawing at 50 °C (122 °F) and 4 hours tap water immersion at 25 °C (77 °F). The test panels shall remain in the freezer mode on weekends and holidays.

(g) Qualification Samples and Tests. The manufacturer shall supply, to an independent test laboratory and to the Department, samples of the organic zinc-rich primer, epoxy or urethane intermediate coat, and aliphatic urethane finish coats for evaluation. Prior to approval and use, the manufacturer shall submit a notarized certification of the independent laboratory, together with results of all tests, stating that these materials meet the requirements as set forth herein. The certified test report shall state lots tested, manufacturer's name, product names, and dates of manufacture. New certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing, other than tests conducted by the Department, shall be borne by the manufacturer.

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(h) Acceptance Samples and Certification. A 1 L (1 qt) sample of each lot of paint produced for use on state or local agency projects shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state that the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be witnessed by a representative of the Illinois Department of Transportation. The organic zinc-rich primer, epoxy or urethane intermediate coat, and aliphatic urethane finish coats shall not be used until tests are completed and they have met the requirements as set forth herein."

## **TREE REMOVAL AND CLEARING**

Effective June 1, 2005

**Description:** This Work shall consist of the tree removal and brush clearing in and around the Dry Run Creek channel to improve channel flow characteristics during normal and high-water events. Removal materials includes dead and fallen tree trunks, tree limbs and tree roots that have accumulated or been deposited in the channel as well as all living trees and brush within the defined channel or on the adjacent channel banks. Specific locations for the removal are as shown on the plans and as identified herein.

It is not the intent of this item to change the cross section of the drainage channel but to only to clear the channel of brush and trees. It is the contractor's responsibility to restore the channel to its existing cross section should it be damaged or altered during removal operations. Contractor should use care not to damage established turf or otherwise destabilize the existing stream bank.

Stump removal areas and other areas where turf may have been damaged due to Contractor operations should be seeded at the discretion of the Engineer.

**Removal locations:** Tree and brush removal should begin just south of the existing concrete confluence structure at approximately station 144+350.00 WB and continue south to station 144+718 WB. Lateral removal limits should include all trees and brush on the west bank from the centerline of the channel to the roadway embankment. Plan information indicates that the heaviest growth is concentrated within 10m of the channel centerline. Lateral removal limits on the east bank are 6m from the channel centerline.

All work performed under this item shall be in accordance with applicable portions of Section 201 of the standard and specifications for road and bridge construction, unless otherwise modified herein.

**Method of Measurement:** All work under this item should be paid for in accordance with the contract unit price per Hectare.

**Basis of Payment:** This Work shall be paid for at the contract unit price per Hectare for TREE REMOVAL AND CLEARING at the location specified on the plans and identified herein. This price shall include all preparation, labor, equipment, tools, materials, disposal, seeding, cleanup and all necessary work specified and included to complete the Item.

Added 06-09-2005

## **TEMPORARY SOIL RETENTION SYSTEM REMOVAL**

Description. This work shall consist of removal of the temporary soil retention system constructed in conjunction with S.N. 072-2032 as part of Contract No. 68197, to the limits indicated herein.

The temporary soil retention system consists of a soldier pile and lagging system with a maximum exposed height of 35 feet (during construction), total width of 117 feet and approximate retained soil area of 320 sq. yd. Based on information provided by the Contract 68197 contractor, the system consists of the following items:

- 2 – HP 12 x 53 soldier piles, 11 ft long, 10 ft embedment
- 4 – W 24 x 68 soldier piles, approx. 20-25 ft long. Two piles are embedded 10 ft, two are used as vertical elements.
- 7 – W 24 x 162 soldier piles, approx. 30-45 ft long. Embedment 8-10 ft.
- 1 – W 24 x 229 soldier pile, approx 45 ft long. Embedment 8 ft.
- 1 – C 15 x 50 wale, approx 90 ft long. El 625.0
- 1 – HP 12 x 53 wale, approx 40 ft long. El 614.0.
- 17 – 0.6" dia. wire strand tiebacks, Gr. 270 (or 1 ¼" bar, Gr. 150), approx 60 ft long. Lock off load = 105.9 k per tieback. El. 625.0.
- 4" hardwood timber lagging, 9' sections. 300 sq. yd.

Construction. The temporary soil retention system constructed in conjunction with S.N. 072-2032 as part of Contract No. 68197 shall be removed and disposed of by the Contractor. When allowed, the Contractor may elect to cut off a portion of the temporary soil retention system leaving the remainder in place. The remaining temporary soil retention system shall be removed to a depth which will not interfere with the new construction, and as a minimum, to a depth of 300 mm (12 in.) below the bottom of excavation, or as directed by the Engineer. Any tie-backs to remain in place shall be cut. Removed system components shall become the property of the Contractor.

Method of Measurement. The temporary soil retention system removed shall not be measured for payment, but instead shall be considered included with TEMPORARY SOIL RETENTION SYSTEM REMOVAL.

Basis of Payment. This work will be paid as TEMPORARY SOIL RETENTION SYSTEM REMOVAL, lump sum, the price for which includes all excavation of the temporary soil retention system, cutting, demolition, offsite disposal and all labor and materials required to complete this work.

Obstruction mitigation shall be paid for according to Article 109.04 of the Standard Specifications.

## **UNDERPASS LUMINAIRE EMBEDDED CONCRETE INSERTS**

In addition to the Embedded Concrete Inserts shown in the Miscellaneous Underpass Lighting Details a second Embedded Concrete Insert will be installed in the bridge deck at each

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proposed underpass luminaire location. The additional embedded concrete insert material will be provided by Springfield Electric as part of the Luminaire Supply Contract 68408. Prior to forming the bridge deck the Contractor shall coordinate with the Resident Engineer and Jack Felts of Springfield Electric to obtain the inserts and exact offset from the proposed inserts shown on the Miscellaneous Underpass Lighting Detail sheet of the contract plans. This work will not be paid for separately, but shall be included in the cost of the related items.

### **LIGHT TOWER FOUNDATIONS**

Effective May 17, 2005

The anchor bolt lengths shown on the sheet titled "Light Tower Foundation Notes and Anchor Bolt Details" are revised as followed:

Light Tower Anchor Bolt Requirements (Type 1 and Type 2 Foundations): Anchor Bolt Diameter: 2.25" (60mm), Anchor Bolt Length: 114.0" (2.90m)

The Contractor, at his option, may choose to utilize a steel ring (as shown on the detailed labeled "Bolt Cage Top") in place of the welded steel bar cross bracing shown in the detail labeled "Bolt Cage Bottom" to secure the anchor bolts in the cage assembly. If the Contractor chooses to exercise this option, there will be additional compensation.

### **ELECTRICAL SERVICE INSTALLATION**

Effective May 17, 2005

This work shall be in accordance with Section 804 and 1086 of the Standard Specifications except as modified herein.

The service disconnect switch shall be enclosed in a NEMA 4X Stainless Steel Enclosure.

#### Basis of Payment:

This work will be paid for at the contract unit price each for ELECTRIC SERVICE INSTALLATION which shall be payment in full for all labor, equipment, and materials required to provide the electrical service installation described above, complete.

Added 06-09-2005



### Storm Water Pollution Prevention Plan

Route FAI Route 74  
Section (72-7)R-3  
County Peoria

Marked I-74  
Project No. D-94-009-02

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

*John E. Brown*  
Signature  
REGIONAL ENGINEER  
Title

2-10-05  
Date

#### 1. Site Description

a. The following is a description of the construction activity which is the subject of this plan (use additional pages, as necessary):

The work consists of reconstructing the Westbound FAI I-74 pavement at locations shown in the plans. War Memorial Drive will be widened and resurfaced. Access ramps will be constructed at Sterling Avenue and the War Memorial Drive and Gale Avenue interchanges will be reconstructed. In addition to pavement reconstruction, the improvements include earth excavation and embankment, the construction of retaining walls (SN 072-8618, 072-8619), removal and replacement of existing SN 072-2032 (twin box culverts beneath I-74), removal and replacement of existing SN 072-2030 (twin box culverts beneath ramp B-3), the extension of an existing box culvert, construction of parallel culverts beneath War memorial Drive, the removal and replacement of a box culvert (SN 072-2005), construction of noise walls, removal and replacement of pavement underdrain system, realignment of Dry Run Creek, pipe culverts, storm sewers, drainage ditch construction and realignment, construction of median and ramp crossovers, guardrail, tree removal, lighting, traffic control signals, signing, and miscellaneous items pertaining to this work.

b. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading (use additional pages, as necessary):

- Sequence of Construction as follows:
1. Clearing and Tree Removal
  3. Removal and Demolition
  5. Excavation and Rough Grading
  7. Final Grading and Seeding

2. Erosion Control and Inlet Protection
4. Underground Utilities and Storm Sewer
6. Roadway, Ramp and Structure Construction

c. The total area of the construction site is estimated to be 208.1 acres.

The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is 88.0 acres.

- d. The estimated runoff coefficients of the various areas of the site after construction activities are completed are contained in the project drainage study which is hereby incorporated by reference in this plan. Information describing the soils at the site is contained either in the Soils Report for the project, which is hereby incorporated by reference, or in an attachment to this plan.
- e. The design/project report, hydraulic report, or plan documents, hereby incorporated by reference, contain site map(s) indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of major soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water.
- f. The names of receiving water(s) and areal extent of wetland acreage at the site are in the design/project report or plan documents which are incorporated by reference as a part of this plan.

## 2. Controls

This section of the plan addresses the various controls that will be implemented for each of the major construction activities described in 1.b. above. For each measure discussed, the contractor that will be responsible for its implementation is indicated. Each such contractor has signed the required certification on forms which are attached to, and a part of, this plan:

### a. Erosion and Sediment Controls

- (i) Stabilization Practices. Provided below is a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided in 2.a.(i).(A) and 2.b., stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased on all disturbed portions of the site where construction activity will not occur for a period of 21 or more calendar days.
  - (A) where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

Description of Stabilization Practices (use additional pages, as necessary):

The intent of the stabilization practices is to provide permanent seeding, erosion control blanket, and mulch on areas disturbed as soon as possible. Temporary seeding for erosion control will be placed as soon as possible on disturbed areas, and enhanced with temporary seeding, until permanent controls can be installed. Articulated Block Mat and temporary ditch checks will be constructed in ditch bottoms to stabilize ditch bottoms and prevent erosion.

- (ii) **Structural Practices.** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

Description of Structural Practices (use additional pages, as necessary):

Perimeter Erosion Barrier (silt fence) will be used in all areas where runoff from disturbed areas has the potential to travel offsite or into swales, ditches, ponds, wetlands, or other natural water bodies. Temporary ditch checks will be placed within proposed drainage swales and ditches as shown on the plans.

Inlet and Pipe Protection will be used on all drainage structures where runoff from disturbed areas is collected.

Perimeter Erosion Barrier (silt fence) shall be constructed at the toes of all temporary stockpiles.

Temporary measures to remain in place until permanent measures are taken and/or vegetation has been established.

**b. Storm Water Management**

Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

(i) Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on site; and sequential systems (which combine several practices). **The practices selected for implementation were determined on the basis of the technical guidance in Section 10-300 (Design Considerations) in Chapter 10 (Erosion and Sedimentation Control) of the Illinois Department of Transportation Drainage Manual. If practices other than those discussed in Section 10-300 are selected for implementation or if practices are applied to situations different from those covered in Section 10-300, the technical basis for such decisions will be explained below.**

(ii) Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions, such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of Storm Water Management Controls (use additional pages, as necessary):

Riprap will be placed at culvert inlets and outlets at the locations shown on the plans to dissipate velocity and provide channel and storm sewer stability. Riprap will be placed in ditches at the locations shown on the plans to provide channel stability.

Where feasible, infield areas of ramps will be used as vegetated swales and infiltration areas for storm water prior to being collected by subsurface drainage system.

The Engineer may add additional temporary measures to fit field conditions.



- (i) **Waste Disposal.** No solid materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.
- (ii) The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

**d. Approved State or Local Plans**

The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

Not Applicable.

### 3. Maintenance

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, erosion and sediment control measures and other protective measures identified in this plan (use additional pages, as necessary):

Maintenance of erosion control items will be as described in Section 280 of the Standard Specifications, including additional temporary seeding for erosion control when necessary and cleaning of silt as required due to field conditions and repairing damage as it occurs.

### 4. Inspections

Qualified personnel shall inspect disturbed areas of the construction site which have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

- a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.
- b. Based on the results of the inspection, the description of potential pollutant sources identified in section 1 above and pollution prevention measures identified in section 2 above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within 7 calendar days following the inspection.
- c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section 4.b. shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.
- d. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer or Resident Technician shall complete and file an "Incidence of Noncompliance" (ION) report for the identified violation. The Resident Engineer or Resident Technician shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The report of noncompliance shall be mailed to the following address:

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Attn: Compliance Assurance Section  
1021 North Grand East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

**5. Non-Storm Water Discharges**

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge. (Use additional pages as necessary to describe non-storm water discharges and applicable pollution control measures).

Non-storm water discharges shall be directed to erosion control facilities prior to discharging from the site. Erosion control facilities shall be perimeter erosion barrier, inlet and pipe protection, ditch checks or sediment basins. If existing erosion control facilities are not present at the proposed point of non-storm water discharge, then erosion facilities shall be constructed, as approved by the engineer, prior to the release of a non-storm water discharge.

Erosion control facilities are required for the following non-storm water discharges:

- Vehicle Wash Down Water
- Pavement Cleaning
- Water for Dust Control
- Water for Seeding and Landscaping Purposes



**Illinois Department  
of Transportation**

**Contractor Certification Statement**

This certification statement is a part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with NPDES Permit No. ILR10, issued by the Illinois Environmental Protection Agency on May 14, 1998.

**Project Information:**

Route FAI Route 74 Marked I-74  
Section (72-7)R-3 Project No. D-94-009-02  
County Peoria

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City State

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Zip Code

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Telephone Number