

INDEX  
FOR  
SUPPLEMENTAL SPECIFICATIONS  
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2017

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

ERRATA    Standard Specifications for Road and Bridge Construction  
              (Adopted 4-1-16) (Revised 1-1-17)

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## LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

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**BDE SPECIAL PROVISIONS**  
For the August 4 and September 22, 2017 Lettings

The following special provisions indicated by an "x" are applicable to this contract and will be included by the Project Development and Implementation Section of the BD&E. An \* indicates a new or revised special provision for the letting.

<u>File Name</u>	<u>#</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80099	1		Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2014
80382	2		Adjusting Frames and Grates	April 1, 2017	
80274	3		Aggregate Subgrade Improvement	April 1, 2012	April 1, 2016
80192	4		Automated Flagger Assistance Device	Jan. 1, 2008	
* 80173	5	X	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2017
80241	6		Bridge Demolition Debris	July 1, 2009	
5026I	7	X	Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
5048I	8		Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
5049I	9		Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
5053I	10		Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
80366	11	X	Butt Joints	July 1, 2016	
* 80384	12	X	Compensable Delay Costs	June 2, 2017	
80198	13		Completion Date (via calendar days)	April 1, 2008	
80199	14		Completion Date (via calendar days) Plus Working Days	April 1, 2008	
80293	15		Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	July 1, 2016
80311	16		Concrete End Sections for Pipe Culverts	Jan. 1, 2013	April 1, 2016
80277	17		Concrete Mix Design – Department Provided	Jan. 1, 2012	April 1, 2016
80261	18	X	Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
80029	19	X	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	July 2, 2016
80378	20	X	Dowel Bar Inserter	Jan. 1, 2017	
* 80229	21	X	Fuel Cost Adjustment	April 1, 2009	Aug. 1, 2017
80304	22		Grooving for Recessed Pavement Markings	Nov. 1, 2012	Aug. 1, 2014
80246	23	X	Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	April 1, 2016
80347	24		Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Jobsite Sampling	Nov. 1, 2014	April 1, 2017
* 80383	25	X	Hot-Mix Asphalt – Quality Control for Performance	April 1, 2017	April 2, 2017
80376	26	X	Hot-Mix Asphalt – Tack Coat	Nov. 1, 2016	
80367	27	X	Light Poles	July 1, 2016	
80368	28		Light Tower	July 1, 2016	
80336	29		Longitudinal Joint and Crack Patching	April 1, 2014	April 1, 2016
80369	30	X	Mast Arm Assembly and Pole	July 1, 2016	
80045	31		Material Transfer Device	June 15, 1999	Aug. 1, 2014
80165	32		Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
80349	33		Pavement Marking Blackout Tape	Nov. 1, 2014	April 1, 2016
80371	34	X	Pavement Marking Removal	July 1, 2016	
80377	35	X	Portable Changeable Message Signs	Nov. 1, 2016	April 1, 2017
80359	36	X	Portland Cement Concrete Bridge Deck Curing	April 1, 2015	Jan. 1, 2017
80338	37		Portland Cement Concrete Partial Depth Hot-Mix Asphalt Patching	April 1, 2014	April 1, 2016
* 80385	38	X	Portland Cement Concrete Sidewalk	Aug. 1, 2017	
80300	39		Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	April 1, 2016
80328	40	X	Progress Payments	Nov. 2, 2013	
3426I	41		Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157	42		Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306	43		Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	April 1, 2016



<u>File Name</u>	<u>#</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80340	44		Speed Display Trailer	April 2, 2014	Jan. 1, 2017
* 80127	45	X	Steel Cost Adjustment	April 2, 2004	Aug. 1, 2017
80379	46	X	Steel Plate Beam Guardrail	Jan. 1, 2017	
80317	47		Surface Testing of Hot-Mix Asphalt Overlays	Jan. 1, 2013	April 1, 2016
80298	48	X	Temporary Pavement Marking (NOTE: This special provision was previously named "Pavement Marking Tape Type IV".)	April 1, 2012	April 1, 2017
20338	49	X	Training Special Provisions	Oct. 15, 1975	
80318	50	X	Traversable Pipe Grate	Jan. 1, 2013	April 1, 2014
80381	51	X	Traffic Barrier Terminal, Type 1 Special	Jan. 1, 2017	
80380	52		Tubular Markers	Jan. 1, 2017	
80288	53	X	Warm Mix Asphalt	Jan. 1, 2012	April 1, 2016
80302	54	X	Weekly DBE Trucking Reports	June 2, 2012	April 2, 2015
80071	55		Working Days	Jan. 1, 2002	

The following special provisions have been deleted from use:

#### 80289 Wet Reflective Thermoplastic Pavement Marking

The following special provisions are in the 2017 Supplemental Specifications and Recurring Special Provisions.

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location</u>	<u>Effective</u>	<u>Revised</u>
80360	Coarse Aggregate Quality	Article 1004.01	July 1, 2015	
80363	Engineer's Field Office	Article 670.07	April 1, 2016	
80358	Equal Employment Opportunity	Recurring CS #1 and #5	April 1, 2015	
80364	Errata for the 2016 Standard Specifications	Supplemental	April 1, 2016	
80342	Mechanical Side Tie Bar Inserter	Articles 420.03, 420.05, and 1103.19	Aug. 1, 2014	April 1, 2016
80370	Mechanical Splicers	Article 1006.10	July 1, 2016	
80361	Overhead Sign Structures Certification of Metal Fabricator	Article 106.08	Nov. 1, 2015	April 1, 2016
80365	Pedestrian Push-Button	Article 888.03	April 1, 2016	
80353	Portland Cement Concrete Inlay or Overlay	Recurring CS #34	Jan. 1, 2015	April 1, 2016
80372	Preventive Maintenance – Bituminous Surface Treatment (A-1)	Recurring CS #28	Jan. 1, 2009	July 1, 2016
80373	Preventive Maintenance – Cape Seal	Recurring CS #29	Jan. 1, 2009	July 1, 2016
80374	Preventive Maintenance – Micro-Surfacing	Recurring CS #30	Jan. 1, 2009	July 1, 2016
80375	Preventive Maintenance – Slurry Seal	Recurring CS #31	Jan. 1, 2009	July 1, 2016
80362	Steel Slag in Trench Backfill	Articles 1003.01 and 1003.04	Jan. 1, 2016	
80355	Temporary Concrete Barrier	Articles 704.02, 704.04, 704.05, and 704.06	Jan. 1, 2015	July 1, 2015

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

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

# GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET

Effective as of the: June 16, 2017 Letting

√	File Name	Title	Effective	Revised
	GBSP4	Polymer Modified Portland Cement Mortar	Jun 7, 1994	Apr 1, 2016
X	GBSP12	Drainage System	Jun 10, 1994	Jun 24, 2015
	GBSP13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Apr 1, 2016
	GBSP14	Jack and Remove Existing Bearings	Apr 20, 1994	Jan 1, 2007
	GBSP15	Three Sided Precast Concrete Structure	Jul 12, 1994	Dec 21, 2016
	GBSP16	Jacking Existing Superstructure	Jan 11, 1993	Jan 1, 2007
	GBSP17	Bonded Preformed Joint Seal	Jul 12, 1994	Jan 1, 2007
	GBSP18	Modular Expansion Joint	May 19, 1994	Dec 29, 2014
	GBSP21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	Jun 30, 2003	May 18, 2011
	GBSP25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	Apr 22, 2016
	GBSP26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	Apr 22, 2016
	GBSP28	Deck Slab Repair	May 15, 1995	Oct 15, 2011
	GBSP29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	Apr 1, 2016
	GBSP30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Jun 24, 2015
	GBSP31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	Apr 1, 2016
	GBSP33	Pedestrian Truss Superstructure	Jan 13, 1998	Dec 29, 2014
	GBSP34	Concrete Wearing Surface	Jun 23, 1994	Oct 4, 2016
	GBSP35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct 15, 2011
X	GBSP45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
X	GBSP51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
	GBSP53	Structural Repair of Concrete	Mar 15, 2006	Apr 1, 2016
	GBSP55	Erection of Curved Steel Structures	Jun 1, 2007	
	GBSP56	Setting Piles in Rock	Nov 14, 1996	Apr 1, 2016
	GBSP59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	Mar 29, 2017
	GBSP60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Apr 22, 2016
	GBSP61	Slipform Parapet	Jun 1, 2007	Apr 22, 2016
	GBSP67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	Oct 5, 2015
X	GBSP71	Aggregate Column Ground Improvement	Jan 15, 2009	Oct 15, 2011
	GBSP72	Bridge Deck Fly Ash or GGBF Slag Concrete Overlay	Jan 18, 2011	Jun 24, 2015
	GBSP75	Bond Breaker for Prestressed Concrete Bulb-T Beams	Apr 19, 2012	
	GBSP77	Weep Hole Drains for Abutments, Wingwalls, Retaining Walls and Culverts	Apr 19, 2012	Oct 22, 2013
	GBSP78	Bridge Deck Construction	Oct 22, 2013	Dec 21, 2016
	GBSP79	Bridge Deck Grooving (Longitudinal)	Dec 29, 2014	Mar 29, 2017
	GBSP81	Membrane Waterproofing for Buried Structures	Oct 4, 2016	
	GBSP82	Metallizing of Structural Steel	Oct 4, 2016	
	GBSP83	Hot Dip Galvanizing For Structural Steel	Oct 4, 2016	
	GBSP85	Micropiles	Apr 19, 1996	Oct 5, 2015
	GBSP86	Drilled Shafts	Oct 5, 2015	Oct 4, 2016
	GBSP87	Lightweight Cellular Concrete Fill	Nov 11, 2001	Apr 1, 2016
	GBSP88	Corrugated Structural Plate Structures	Apr 22, 2016	
	GBSP89	Preformed Pavement Joint Seal	Oct 4, 2016	
	GBSP90	Three Sided Precast Concrete Structure (Special)	Dec 21, 2016	Mar 29, 2017
	GBSP91	Crosshole Sonic Logging Testing of Drilled Shafts	Apr 20, 2016	
	GBSP92	Thermal Integrity Profile Testing of Drilled Shafts	Apr 20, 2016	

√	<u>File Name</u>	<u>Title</u>	<u>Effective</u>	<u>Revised</u>
	GBSP93	Preformed Bridge Joint Seal	Dec 21, 2016	
	GBSP94	Warranty for Cleaning and Painting Steel Structures	Mar 3, 2000	Nov 24, 2004

LIST ADDITIONAL SPECIAL PROVISIONS BELOW


The following Guide Bridge Special Provisions have been incorporated into the 2016 Standard Specifications:

File Name	Title	Std Spec Location
GBSP32	Temporary Sheet Piling	522
GBSP38	Mechanically Stabilized Earth Retaining Walls	522
GBSP42	Drilled Soldier Pile Retaining Wall	522
GBSP43	Driven Soldier Pile Retaining Wall	522
GBSP44	Temporary Soil Retention System	522
GBSP46	Geotextile Retaining Walls	522
GBSP57	Temporary Mechanically Stabilized Earth Retaining Walls	522
GBSP62	Concrete Deck Beams	504
GBSP64	Segmental Concrete Block Wall	522
GBSP65	Precast Modular Retaining Wall	522
GBSP73	Cofferdams	2017 Supp
GBSP74	Permanent Steel Sheet Piling (LRFD)	522
GBSP76	Granular Backfill for Structures	2017 Supp
GBSP80	Fabric Reinforced Elastomeric	1028
GBSP84	Precast, Prestressed Concrete Beams	2017 Supp

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

File Name	Title	Disposition:
GBSP70	Braced Excavation	Use TSRS per Sec 522
GBSP 95	Bridge Deck Concrete Sealer	Use July 1, 2012 version for Repair projects only

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LR107-4 SPECIAL PROVISION FOR INSURANCE

BDE SPECIAL PROVISIONS

GUIDE BRIDGE SPECIAL PROVISIONS

SWPPP

NOTICE OF INTENT

ROADWAY GEOTECHNICAL REPORT – SOIL BORING LOGS

CCDD FORM 662 & CERTIFICATION STATEMENTS

US ARMY CORPS OF ENGINEERS INDIVIDUAL PERMIT AUTHORIZATION

IEPA 401 WATER QUALITY CERTIFICATION AUTHORIZATION



**STATE OF ILLINOIS**

**SPECIAL PROVISIONS**

The following Special Provisions supplement the “Standard Specifications for Road and Bridge Construction”, adopted April 1, 2016, the latest edition of the “Manual on Uniform Traffic Control Devices for Streets and Highways”, and the “Manual of Test Procedures of Materials” in effect on the date of invitation of bids, and the “Supplemental Specifications and Recurring Special Provisions” indicated on the Check Sheet included herein which apply to and govern the Longmeadow Parkway project from (and including) Randall Road Roadway Widening and Reconstruction project, Section 16-00215-11-PV, Contract XXXXX, Project RS-M-4003(847), Job. C-91-109-17 in Kane County Illinois, and in case of conflict with any part or parts of said specifications; the said Special Provisions shall take precedence and shall govern.

**LOCATION OF PROJECT**

The project is located in Kane County, Illinois, in the Village of Algonquin, unincorporated Kane County, and Dundee Township. The project extends through the South Half of Section 4, North Half and Northeast Quarter of Section 9, West Half and South Half of Section 3, and North Half of Section 10, all within Township 42 North and Range 8 East of the 3<sup>rd</sup> Principal Meridian. The proposed corridor improvement begins at White Chapel Lane and continues approximately 0.41 miles east of Illinois Route 31 and is under the jurisdiction of the Kane County Division of Transportation. Illinois Route 31 is under the jurisdiction of the Illinois Department of Transportation. Relative to major arterials, the project is located approximately 2.5 miles north of Illinois Route 72 and 2.0 miles southwest of Illinois Route 62. The total gross and net length of the project is 10,893.00 feet (2.06 mi.).

**DESCRIPTION OF PROJECT**

The work consists of a Longmeadow Parkway, new roadway construction on a new alignment; widening and reconstruction of Illinois Route 31; earthwork moving operations; = pavement and subgrade construction; storm sewer installation; two new traffic signals and associated system interconnect; retaining wall construction; a new bridge construction which carries Longmeadow Parkway over Illinois Route 31; soil erosion and sediment control measures; landscaping and tree removal & replacement; and pavement marking and signing, as well as all incidental and collateral work necessary to complete the project as shown on the plans and described herein.

**COORDINATION WITH ADJACENT AND/OR OVERLAPPING CONTRACTS**

The Longmeadow Parkway Corridor Project encompasses various construction contracts which may be performed concurrently. Contracts may abut and/or overlap others; therefore, each contract includes work items that require close coordination between contractors regarding the sequence and timing for execution of work items.

General Coordination. The contractor is directed and shall comply with Section 105.08 of the Standard Specifications and as herein described.

## AVAILABLE REPORTS

☐ No project specific reports were prepared.

When applicable, the following checked reports and record information is available for Bidders' reference upon request:

- ☐ Record structural plans
- ☒ Preliminary Site Investigation (PSI)
- ☒ Preliminary Environmental Site Assessment (PESA)
- ☒ Soils/Geotechnical Report
- ☒ Boring Logs
- ☒ Pavement Cores
- ☒ Location Drainage Study (LDS)
- ☒ Hydraulic Report
- ☒ Noise Analysis
- ☐ Other: \_\_\_\_\_

Those seeking these reports should request access from:

Michael Zakosek, P.E. – Chief of Design  
Kane County Division of Transportation  
Phone: (630) 406-7346  
Email: [zakosekmike@co.kane.il.us](mailto:zakosekmike@co.kane.il.us)

**MAINTENANCE OF ROADWAYS**

Effective: September 30, 1985

Revised: November 1, 1996

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

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

**STATUS OF UTILITIES (D-1)**

Effective: June 1, 2016

Utility companies and/or municipal owners located within the construction limits of this project have provided the following information in regard to their facilities and the proposed improvements. The tables below contain a description of specific conflicts to be resolved and/or facilities which will require some action on the part of the Department's contractor to proceed with work. Each table entry includes an identification of the action necessary and, if applicable, the estimated duration required for the resolution.

**UTILITIES TO BE ADJUSTED**

Conflicts noted below have been identified by following the suggested staging plan included in the contract. The company has been notified of all conflicts and will be required to obtain the necessary permits to complete their work; in some instances resolution will be a function of the construction staging. The responsible agency must relocate or complete new installations as noted in the action column; this work has been deemed necessary to be complete for the Department's contractor to then work in the stage under which the item has been listed.

Pre-Stage

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	ACTION
IL Route 31 STA 403+42 to STA 416+99	6" Gas Main	The gas main is located along the length of IL 31 and within the roadway between STA 401+26 and 435+07. The depth of this main is not known, and therefore the extent of the conflict is not known. The known conflict is between STA 409+03 and STA 411+22 where the existing roadway culvert	Nicor	Relocate the 6" gas main between STA 409+03 and STA 411+22. More information about depth of the gas main is needed to identify the conflicts, but it is assumed that this will be relocated from STA 401+26 to STA

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		structure will be replaced. This will need to be relocated prior to the Contractor moving into Pre-Stage.		435+07.  X Days to relocate
IL Route 31 STA 408+10 28' RT	Gas vault	The gas vault located at this station and offset is within the proposed pavement as well as the pre-stage temporary pavement, and therefore needs to be relocated prior to the Contractor moving into Pre-Stage.	Nicor	Relocate the Gas Vault outside the roadway.  X Days to relocate
IL Route 31 STA 407+55 LT STA 414+49 RT	Telephone Pedestals	The telephone pedestals located at these stations and offsets are within the proposed pavement as well as the pre-stage temporary pavement, and therefore need to be relocated prior to the Contractor moving into Pre-Stage.	AT&T	Relocate the telephone pedestal outside the roadway.  X Days to relocate
IL Route 31 STA 408+59 RT, STA 411+83 RT, STA 413+44 RT, STA 414+73 RT, STA 415+55 RT	Utility Poles	The utility poles located at these stations and offsets are within the proposed pavement as well as the pre-stage temporary pavement, and therefore need to be relocated prior to the Contractor moving into Pre-Stage.	ComEd	Relocate the utility poles outside the roadway.  X Days to relocate

Stage 1

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	ACTION
Forest Drive 2142+80 to 2156+00 (RT)	2" Gas Main	The gas main is located within the ditch regrading and beneath the existing Forest Drive pavement to be reconstructed.	Nicor	Depending on depth of existing main, relocate existing 2" main. More information about the depth of gas main is needed to identify conflicts but it is assumed that it will be relocated from STA 2142+80 to 2156+00.  X Days to relocate.
Karen Drive	Power Poles & Aerial Cable	The power poles located along Karen Drive along with aerial cabling will need to be relocated at Longmeadow Parkway STA 2153+60 LT & RT as indicated on the plans	ComEd	Relocate the utility poles outside the roadway and ditches.  X Days to relocate
IL Route 31 STA 403+42 to STA 416+99	6" Gas Main	The gas main is located along the length of IL 31 and within the roadway between STA 401+26 and 435+07. The gas main is in conflict with roadway excavation, proposed roadway subbase, and proposed storm sewer. This will need to be relocated prior to the Contractor moving into Stage 1.	Nicor	Relocate the 6" gas main between STA 409+03 and STA 411+22. More information about depth of the gas main is needed to identify the conflicts, but it is assumed that this will be relocated from STA 401+26 to STA 435+07.  X Days to relocate

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IL Route 31 STA 413+82 LT	2" Gas Main	The gas main is located along Forest Drive and within the roadway at this station. This 2" gas main connects with the 6" gas main running along IL 31. This will need to be lengthened and reconnected to the 6" main after the 6" main relocation. This will need to be done prior to the Contractor moving into Stage 1.	Nicor	Relocate the 6" gas main between STA 409+03 and STA 411+22. More information about depth of the gas main is needed to identify the conflicts, but it is assumed that this will be relocated from STA 401+26 to STA 435+07.  X Days to relocate
IL Route 31 STA 419+70 RT, STA 422+94 RT, STA 425+25 RT, STA 426+89 RT, STA 430+08 RT, STA 433+22 RT, STA 436+37 RT, STA 420+02 LT, STA 421+29 LT, STA 422+67 LT, STA 424+06 LT, STA 425+44 LT, STA 426+87 LT, STA 427+93 LT, STA 429+27 LT, STA 430+58 LT, STA 431+85 LT, STA 434+45 LT, STA 435+75 LT, STA 437+04 LT, STA 438+40 LT	Utility Poles	The utility poles located at these stations and offsets are within the proposed pavement, proposed shoulder, proposed ditch, or temporary pavement, and therefore need to be relocated prior to the Contractor moving into Stage 1.	ComEd	Relocate the utility poles outside the roadway and ditches.  X Days to relocate
IL Route 31 STA 419+97 32' LT	Telephone Pedestal	The telephone pedestal located at this station and offset is within the proposed pavement as well as the Stage 1 temporary ditch, and therefore needs to be relocated prior to the Contractor moving into Stage 1.	AT&T	Relocate the telephone pedestal outside the roadway.  X Days to relocate



IL Route 31 STA 420+10 18' RT	Gas vault	The gas vault located at this station and offset is within the proposed pavement, and therefore needs to be relocated prior to the Contractor moving into Stage 1.	Nicor	Relocate the Gas Vault outside the roadway.  X Days to relocate
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Stage 2

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	ACTION
IL Route 31 STA 413+73, 69' LT	Gas Vault for 2" gas main	The gas vault located at this station and offset is within the proposed grading limits, and therefore needs to be either relocated or adjusted to the new grade prior to the Contractor moving into Stage 2.	Nicor	Relocate the Gas Vault outside the grading limits.  X Days to relocate

No conflicts to be resolved (or if there are conflicts they are to be listed as noted above)

**Pre-Stage:   X   Days Total Installation**

**Stage 1:   X   Days Total Installation**

**Stage 2:   X   Days Total Installation**

The following contact information is what was used during the preparation of the plans as provided by the Agency/Company responsible for resolution of the conflict.

Agency/Company Responsible to Resolve Conflict	Name of contact	Address	Phone	e-mail address
ComEd-Electric	Terri Bleck	1500 Franklin Boulevard Libertyville, IL 60048	847-816-5239	terri.bleck@comed.com
AT&T Corporation	Kate Peters	1000 Commerce Drive, Oak Brook, IL 60523	630-573-5759	Kp1296@att.com

Nicor	Bruce Koppang	1844 Ferry Road, Naperville, IL 60563	630-388-3046	bkoppang@aglresources.com
Comcast	Martha Gieras	688 N. Industrial Drive, Elmhurst, IL 60126	630-600-6347	Martha.gieras@cable.comcast.com

#### UTILITIES TO BE WATCHED AND PROTECTED

The areas of concern noted below have been identified by following the suggested staging plan included for the contract. The information provided is not a comprehensive list of all remaining utilities, but those which during coordination were identified as ones which might require the Department's contractor to take into consideration when making the determination of the means and methods that would be required to construct the proposed improvement. In some instances the contractor will be responsible to notify the owner in advance of the work to take place so necessary staffing on the owners part can be secured.

##### Stage 1

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER	ACTION
IL Route 31 STA 438+81 RT, STA 440+74 RT, STA 441+09 LT	Utility Poles	There is no conflict with the proposed improvements, however the Contractor shall ensure that the grading and equipment in this area does not affect the poles and foundations.	ComEd	Utility Poles shall be protected from damage by the contractor during construction.

##### Stage 2

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER	ACTION
IL Route 31 STA 414+17, 86' LT	Utility Pole	There is no conflict with the proposed improvements, however the Contractor shall ensure that the grading and equipment in this area does not affect	ComEd	Utility Pole shall be protected from damage by the contractor during construction.

		the pole and foundation.		
IL Route 31 STA 414+15, 88' LT	Telephone Pedestal	There is no conflict with the proposed improvements, however the Contractor shall ensure that the grading and equipment in this area does not affect the pedestal.	AT&T	Telephone pedestal shall be protected from damage by the contractor during construction.

The following contact information is what was used during the preparation of the plans as provided by the owner of the facility.

Agency/Company Responsible to Resolve Conflict	Name of contact	Address	Phone	e-mail address
ComEd-Electric	Terri Bleck	1500 Franklin Boulevard Libertyville, IL 60048	847-816-5239	terri.bleck@comed.com
AT&T Corporation	Kate Peters	1000 Commerce Drive, Oak Brook, IL 60523	630-573-5759	Kp1296@att.com
Nicor	Bruce Koppang	1844 Ferry Road, Naperville, IL 60563	630-388-3046	bkoppan@aglresources.com
Comcast	Martha Gieras	688 N. Industrial Drive, Elmhurst, IL 60126	630-600-6347	Martha.gieras@cable.comcast.com

The above represents the best information available to the Department and is included for the convenience of the bidder. The days required for conflict resolution should be taken into account in the bid as this information has also been factored into the timeline identified for the project when setting the completion date. The applicable portions of the Standard Specifications for Road and Bridge Construction shall apply.

Estimated duration of time provided in the action column for the first conflicts identified will begin on the date of the executed contract regardless of the status of the utility relocations. The responsible agencies will be working toward resolving subsequent conflicts in conjunction with contractor activities in the number of days noted.

The estimated relocation dates must be part of the progress schedule submitted by the contractor. A utility kickoff meeting will be scheduled between the Department, the Department's contractor and the utility companies. The Department's contractor is responsible for contacting J.U.L.I.E. prior to any and all excavation work.

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

Effective: September 30, 1985

Revised: January 1, 2007

Revise Article 108.05 (b) of the Standard Specifications as follows:

"When a completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 9:00 PM on, **September 1, 2019** except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within 5 working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the working days allowed for clean-up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

Article 108.09 of the Recurring Specifications or the Special Provision for Failure to Complete the Work on Time shall apply to the completion date and the number of working days.

#### **RESTRICTION ON WORKING DAYS AFTER A COMPLETION DATE**

Effective: January 21, 2003

Revised: January 1, 2007

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

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

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

#### **TRAFFIC CONTROL AND PROTECTION (ARTERIALS)**

Effective: February 1, 1996

Revised: March 1, 2011

Specific traffic control plan details and Special Provisions have been prepared for this contract. This work shall include all labor, materials, transportation, handling and incidental work necessary to furnish, install, maintain and remove all traffic control devices required as indicated in the plans and as approved by the Engineer.

When traffic is to be directed over a detour route, the Contractor shall furnish, erect, maintain and remove all applicable traffic control devices along the detour route according to the details shown in the plans.

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

**Basis of Payment:** All traffic control and protection will be paid for at the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

Temporary pavement markings will be paid for separately unless shown on a Standard.

#### **TRAFFIC CONTROL PLAN**

Effective: September 30, 1985

Revised: January 1, 2007

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

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

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

## STANDARDS

Special attention is called to the following State Standards related to traffic control:

701001-02	OFF-ROAD OPS, 2L, 2W, MORE THAN 15' AWAY
701006-05	OFF-ROAD OPS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701011-04	OFF-ROAD OPS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE
701106-02	OFF-ROAD OPS, MULTILANE, MORE THAN 15' AWAY
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701311-03	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS—DAY ONLY
701326-04	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING FOR SPEEDS >45 MPH
701501-06	URBAN LANE CLOSURE, 2L, 2W, UNDIVIDED
701701-10	URBAN LANE CLOSURE, MULTILANE INTERSECTION
701901-06	TRAFFIC CONTROL DEVICES
704001-08	TEMPORARY CONCRETE BARRIER
720001-01	SIGN PANEL MOUNTING DETAILS
720006-04	SIGN PANEL ERECTION DETAILS
720011-01	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
720016-03	MAST ARM MOUNTED STREET NAME SIGNS
720021-02	SIGN PANELS EXTRUDED ALUMINUM TYPE
728001-01	TELESCOPING STEEL SIGN SUPPORT
729001-01	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS & MARKERS)

## DETAILS

Special attention is called to the details included in the Plans related to traffic control:

Traffic Control and Protection for Side Roads, Intersections, and Driveways (TC-10)  
Typical Applications Raised Reflective Pavement Markers (Snow-Plow Resistant) (TC-11)  
District One Typical Pavement Markings (TC-13)  
Pavement Marking Letters and Symbols for Traffic Staging (TC-16)  
Signing for Flagging Operations at Work Zone Openings (TC-18)  
Arterial Road Information Sign (TC-22)  
Driveway Entrance Signing (TC-26)

## SPECIAL PROVISIONS

Special attention is called to the following Special Provisions relating to traffic control:

### BDE SPECIAL PROVISIONS:

Pavement Marking Removal

### IDOT SPECIAL PROVISIONS:

Maintenance of Roadways  
Temporary Information Signing  
Public Convenience and Safety  
Traffic Control and Protection (Arterials)  
Traffic Control Plan



**Method of Measurement:** Traffic Control and Protection shall be measured for payment as Lump Sum, which shall include all labor, materials, and equipment necessary to complete the work described above.

**Basis of Payment:** Traffic Control and Protection shall be paid for at the contract LUMP SUM price for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

### **RESTRICTED DEPTH DRAINAGE STRUCTURES**

**Description:** This work shall consist of constructing restricted depth manholes, catch basins and inlets with a specified frame and grate/lid at locations identified on the plans.

**Materials:** The materials shall meet the requirements of Article 602.02 of the “Standard Specifications”.

**General:** The work shall be performed according to Section 602 of the “Standard Specifications”; the applicable IDOT Highway Standard(s) for the drainage structure type (manhole, catch basin or inlet); the IDOT Highway Standard Drawing 602601 [flat slab top] and the following:

- *The reinforced concrete slab shall be used in lieu of the cone section.*
- *A 24” sump shall be provided in a Catch Basin.*
- *For structures having Type 8 grates, a 24” inside diameter by 4” (minimum) high riser shall be installed on the flat slab to provide earth cover over the slab for vegetation.*

**Method of Measurement:** This work will be measured per each of the type drainage structure installed. Drainage structures of like type, size and frame and grate/lid will be counted under the same pay item regardless of whether a cone section (regular) or flat slab (restricted depth) top is used.

**Basis of Payment:** This work will be paid for at the contract unit price per each for MANHOLES, CATCH BASINS or INLETS, of the type and diameter specified, and with the frame and grate or frame and lid specified. The unit price shall include all equipment, labor and materials to install the drainage structure. No additional compensation will be made for drainage structures constructed as restricted depth.

**PROJECT SPECIAL PROVISIONS**

**25200200 SUPPLEMENTAL WATERING**

**Description:** This work will include watering turf, trees, shrubs, vines and perennial plants at the rates specified and as directed by the Engineer.

**Schedule:** Watering will only begin after the successful completion of all period of establishment requirements and will continue through the construction year growing season as directed by the Engineer.

Watering must be completed in a timely manner. When the Engineer directs the Contractor to do supplemental watering, the Contractor must begin the watering operation within 24 hours of notice. A minimum of 10 units of water per day must be applied until the work is complete.

Damage to plant material that is a result of the Contractor's failure to water in a timely way must be repaired or replaced at the Contractor's expense.

**Source of Water:** The Contractor shall notify the Engineer of the source of water used and provide written certification that the water does not contain chemicals harmful to plant growth.

**Rate of Application:** The normal rates of application for watering are as follows. The Engineer will adjust these rates as needed depending upon weather conditions.

Class 2A Seed:	10 gallons per square yard
All Other Seeded Areas:	3 gallons per square yard

**Method of Application:** A spray nozzle that does not damage small plants must be used when watering perennial plants or turf. Water shall be applied at the base of the plant to keep as much water as possible off plant leaves. An open hose may be used to water trees, shrubs, and vines if mulch and soil are not displaced by watering. Water shall trickle slowly into soil and completely soak the root zone. The Contractor must supply metering equipment as needed to assure the specified application rate of water.

**Method of Measurement:** Supplemental watering will be measured in units of 1000 gallons (3,785 liters) of water applied as directed.

**Basis of Payment:** This work will be paid for at the contract unit price per unit of SUPPLEMENTAL WATERING, measured as specified. Payment will include the cost of all water, equipment and labor needed to complete the work specified herein and to the satisfaction of the Engineer.

**253XXXXX PLANTING WOODY PLANTS**

Add the following to Construction Requirements:

Delete the third sentence of Article 253.07 and substitute the following:

The Contractor shall be responsible for all plant layout. The layout must be performed by qualified personnel. The planting locations must be laid out as shown in the landscape plan. This will require the

use of an engineer's scale to determine some dimensions. Tree locations within each planting area shall be marked with a different color stake/flag and labeled to denote the different tree species. Shrub beds limits must be painted. The Engineer will contact the Roadside Development Unit at (847) 705-4171 to approve the layout prior to installation. Allow a minimum of seven working (7) days prior to installation for approval.

Delete the first paragraph of Article 253.15 Plant Care and substitute the following:

The Contractor is responsible for plant care until receipt of the "Final Acceptance of Landscape Work" memorandum from the Bureau of Maintenance. The Contractor shall properly care for all plants including weeding, watering, adjusting of braces, repair of water saucers, or other work which is necessary to maintain the health, vigor, and satisfactory appearance of the plantings. This may require pruning, cultivating, tightening and repairing supports, repair of wrapping, and furnishing and applying sprays as necessary to keep the plants free of insects and disease. The Contractor shall provide plant care a minimum of every two weeks, or within 3 days following notification by the Engineer. All requirements for plant care shall be considered as included in the cost of the contract.

Delete the first paragraph of Article 253.15 Plant Care (a) and substitute the following:

During plant care watering shall be performed at least every two weeks beginning in May until receipt of the "Final Acceptance of Landscape Work" memorandum from the Bureau of Maintenance. The contractor shall apply a minimum of 35 gallons of water per tree, 25 gallons per large shrub, and 15 gallons per small shrub. The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions. Watering for trees shall not be paid for separately but considered included in the cost per tree or shrub.

Revise Basis of Payment as follows:

**Basis of Payment:** This work will be paid for at the contract unit price per each for TREES and SHRUBS of the species, root type, and plant size specified. Payment will be made according to the following schedule.

(a) Initial Payment. Upon completion of planting, mulch covering, wrapping, and bracing, 90 percent of the pay item(s) will be paid.

(b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third party bond, the remaining ten percent of the pay item(s) will be paid.

#### **28000305      TEMPORARY DITCH CHECKS**

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

**General:** The work shall be performed according to Section 280 of the "Standard Specifications", the details shown in the plans, and the following:

The temporary ditch check shall be triangular shaped, urethane foam covered with a geotextile fabric. The temporary ditch check shall be installed on a geotextile fabric apron. The temporary ditch check shall have a triangle base 16" – 20" wide and a minimum triangle height of 10". The temporary ditch

checks shall be installed at the locations specified on the Erosion Control Plan, and/or as directed by the Engineer. The temporary ditch check installation shall be according to the detail shown on the plans and the manufacturer's recommendations.

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

The temporary ditch checks shall remain in place until just before placing the final landscaping in the ditch area. The Contractor shall not remove the temporary ditch checks if it is raining and/or rain is in the immediate forecast.

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

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

**Basis of Payment:** This work will be paid for at the contract unit price per foot for TEMPORARY DITCH CHECKS. The unit price shall include all labor, equipment and materials necessary for their installation and removal. The maintenance of this item shall be included with and paid for as part of the contract total price for MAINTENANCE OF EROSION CONTROL SYSTEM.

#### **42400800      DETECTABLE WARNINGS**

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

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

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

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

The epoxy primer shall have the following properties:

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

Cold Rolled Steel Lab Panels

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

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

Cold Rolled Steel Lab Panels

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

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

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

#### **50100400      REMOVAL OF EXISTING STRUCTURES NO. 2**

This work shall be performed in accordance with the applicable portions of Section 501 of the Standard Specifications and as described herein.

Work shall include the complete removal a concrete box and arch culvert as shown on the plans. For the location described below, the removal shall include the complete removal of the culvert, the associated headwalls, adjacent retaining wall (about 40 feet) and railing shall be included in this item. The existing concrete culvert is east of IL Rte 31 (approximately between stations 409+00 Rt and 409+78 Rt) and shall be entirely removed.

The top of the box culvert shall be removed and the walls removed to at least one (1) foot below the proposed subgrade. Portions of the structure, headwall or adjacent retaining wall below this elevation that interfere with any of the other proposed construction operations shall also be removed.

Measurement and Payment: This work will be paid for at the contract unit price per each for REMOVAL OF EXISTING STRUCTURES NO. 2 which price shall be payment in full for all labor, materials and equipment necessary excavate, remove the culvert, dispose of any excess and surplus materials and backfill the excavation as shown on the plans and as described herein.

#### **7800XXXX      MODIFIED URETHANE PAVEMENT MARKING (TYPE SPECIFIED)**

This work shall consist of modifying the standard specifications for modified urethane pavement marking as follows:

**Description:** This work shall consist of furnishing and applying a reflectorized modified urethane, plural component, durable liquid pavement marking lines, sizes and colors as shown on the plans.

**Materials:** All materials shall meet the following specifications:

- (a) Modified Urethane Marking: The modified urethane pavement marking material shall consist of a homogeneous blend of modified urethane resins and pigments designed to provide a simple

volumetric mixing ratio of two components (must be two volumes of Part A to one volume of Part B). No volatile solvent or fillers will be allowed.

- (b) Pigmentation: The pigment content by weight of Component A shall be determined by low temperature ashing according to ASTM D 3723. The pigment content shall not vary more than  $\pm$  two percent from the pigment content of the original qualified paint.

White Pigment shall be Titanium Dioxide meeting ASTM D 476 Type II, Rutile.

Yellow Pigment shall be Organic Yellow and contain no heavy metals.

- (c) Environmental: Upon heating to application temperature, the material shall not exude fumes, which are toxic or injurious to persons or property when handled according to manufacturer specifications. The modified urethane pavement marking material compositions shall not contain free isocyanate functionality.
- (d) Daylight Reflectance: The daylight directional reflectance of the cured modified urethane material (without reflective media) shall be a minimum of 80 percent (white) and 50 percent (yellow) relative to magnesium oxide when tested using a color spectrophotometer with a 45 degree circumferential / zero degrees geometry, illuminant C, and two degrees observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm. In addition, the color of the yellow modified urethane shall visually match Color Number 33538 of Federal Standard 595a with chromaticity limits as follows:

x	0.490	0.475	0.485	0.539
y	0.470	0.438	0.425	0.456

- (e) Weathering Resistance: The modified urethane, when mixed in the proper ratio and applied at 0.35 to 0.41 mm (14 to 16 mils) wet film thickness to an aluminum alloy panel (Federal Test Std. No. 141, Method 2013) and allowed to cure for 72 hours at room temperature, shall be subjected to accelerated weathering for 75 hours. The accelerated weathering shall be completed by using the light and water exposure apparatus (fluorescent UV – condensation type) and tested according to ASTM G 53.



The cycle shall consist of four hours UV exposure at 50 °C (122 °F) and four hours of condensation at 40 °C (104 °F). UVB 313 bulbs shall be used. At the end of the exposure period, the material shall show no substantial change in color or gloss.

- (f) Drying Time: The modified urethane material, when mixed in the proper ratio and applied at 0.35 to 0.41 mm (14 to 16 mils) wet film thickness and with the proper saturation of glass spheres, shall exhibit a no-tracking time of three minutes or less when tested according to ASTM D 711.
- (g) Adhesion: The catalyzed modified urethane pavement marking materials when applied to a 100 x 100 x 50 mm (4 x 4 x 2 in) concrete block shall have a degree of adhesion which results in a 100 percent concrete failure in the performance of this test.

The concrete block shall be brushed on one side and have a minimum strength of 24,100 kPa (3,500 psi). A 50 mm (2 in) square film of the mixed modified urethane shall be applied to the brushed surface and allowed to cure for 72 hours at room temperature. A 50 mm (2 in) square cube shall be affixed to the surface of the modified urethane by means of an epoxy glue. After the glue has cured for 24 hours, the modified urethane specimen shall be placed on a dynamic testing machine in such a fashion so that the specimen block is in a fixed position and the 50 mm (2 in) cube (glued to the modified urethane surface) is attached to the dynamometer head. Direct upward pressure shall be slowly applied until the modified urethane system fails. The location of the break and the amount of concrete failure shall be recorded.

- (h) Hardness: The modified urethane marking materials, when tested according to ASTM D-2240, shall have a Shore D Hardness greater than 75. Films shall be cast on a rigid substrate at 0.35 to 0.41 mm (14 to 16 mils) in thickness and allowed to cure at room temperature for 72 hours before testing.
- (i) Abrasion: The abrasion resistance shall be evaluated on a Taber Abrader with a 1,000 gram load and CS-17 wheels. The duration of test shall be 1,000 cycles. The wear index shall be calculated based on ASTM test method D-4060 and the wear index for the catalyzed material shall not be more than 80. The tests shall be run on cured samples of modified urethane material which have been applied at a film thickness of 0.35 to 0.41 (14 to 16 mils) to code S-16 stainless steel plates. The films shall be allowed to cure at room temperature for at least 72 hours and not more than 96 hours before testing.
- (j) Tensile: When tested according to ASTM D-638, the modified urethane pavement marking materials shall have an average tensile strength of not less than 6,000 pounds per square inch. The Type IV Specimens shall be pulled at a rate of 1/4" per minute by a suitable dynamic testing machine. The samples shall be allowed to cure at 75 °F± 2°F for a minimum of 24 hours and a maximum of 72 hours prior to performing the indicated tests.
- (k) Compressive Strength: When tested according to ASTM D-695, the catalyzed modified urethane pavement marking materials shall have a compressive strength of not less than 12,000 pounds per square inch. The cast sample shall be conditioned at 75°F± 2°F for a minimum of 72 hours

before performing the indicated tests. The rate of compression of these samples shall be no more than  $\frac{1}{4}$ " per minute.

- (l) Glass Spheres: The glass spheres shall meet the requirements of Article 1095.04(m) and Article 1095.07 of the Standard Specifications for first drop and second drop glass beads.
- (m) The material shall be shipped to the job site in substantial containers and shall be plainly marked with the manufacturer's name and address, the name and color of the material, date of manufacture and batch number.
- (n) Prior to approval and use of the modified urethane pavement marking materials, the manufacturer shall submit a notarized certification of an independent laboratory, together with the results of all tests, stating these materials meet the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, brand name of modified urethane and date of manufacture. The certification shall be accompanied by one half-liter (one-pint) samples each of Part A and Part B. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B.

After approval by the Department, certification by the modified urethane manufacturer shall be submitted for each batch used. New independent laboratory certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer.

- (o) Acceptance samples shall consist of one half-liter (one-pint) samples of Part A and Part B, of each lot of paint. Samples shall be sent in the appropriate volumes for complete mixing of Part A and Part B. The samples shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be taken by a representative of the Illinois Department of Transportation. The modified urethane pavement marking materials shall not be used until tests are completed and they have met the requirements as set forth herein.
- (p) The manufacturer shall retain the test sample for a minimum of 18 months.

Application Equipment: The modified urethane pavement marking compounds shall be applied through equipment specifically designed to precisely meter the two components in the ratio of 2:1 and approved by the manufacturer of the material. This equipment shall produce the required amount of heat at the mixing head and gun tip and maintain those temperatures within the tolerances specified. This equipment shall also have as an integral part of the gun carriage, a high pressure air spray capable of cleaning the pavement immediately prior to the marking application.

The equipment shall be capable of spraying both yellow and white urethane, according to the manufacturer's recommended proportions and be mounted on a truck of sufficient size and stability with an adequate power source to produce lines of uniform dimensions and prevent application failure. The truck shall have at least two urethane tanks each of 415 L (110 gal) minimum capacity and shall be equipped with hydraulic systems. It shall be capable of placing stripes on the left and right sides and placing two lines on a three-line system simultaneously with either line in a solid or intermittent pattern, in yellow or white, and applying glass beads by the double drop pressurized bead system. The system shall apply both the first drop glass beads and the second drop glass beads at a rate of 1.2 kg per L (10 lb./gal). The equipment shall be equipped with pressure gauges for each proportioning pump. All guns shall be in full view of operators at all times. The equipment shall have a metering device to register the accumulated installed quantities for each gun, each day. Each vehicle shall include at least one operator who shall be a technical expert in equipment operations and urethane application techniques. Certification of equipment shall be provided at the preconstruction conference.

**Application:** The pavement shall be cleaned by a method approved by the Engineer to remove all dirt, grease, glaze or any other material that would reduce the adhesion of the markings with minimum or no damage to the pavement. New PCC pavements shall be blast-cleaned to remove all curing compounds.

Markings shall be applied to the cleaned surfaces on the same calendar day. If this cannot be accomplished, the surface shall be re-cleaned prior to applying the markings. Existing pavement markings shall be at least 90 percent removed. No markings shall be applied until the Engineer approves the cleaning.

Widths, lengths and shapes of the cleaned surface shall be prepared wider than the modified urethane pavement marking material to be applied, such that a prepared area is on all sides of the urethane pavement marking material after application.

New asphalt concrete and seal coated surfaces shall be in place a minimum of two weeks prior to marking applications.

The cleaning operation shall be a continuous moving operation process with minimum interruption to traffic.

The pavement markings shall be applied to the cleaned road surface, during conditions of dry weather and subsequently dry pavement surfaces at a minimum uniform wet thickness of 20 mils in accordance with the manufacturer's installation instructions and at the widths and patterns shown on the contract plans. The application and combination of reflective media (glass beads and/or reflective elements) shall be applied at a rate specified by the manufacturer. At the time of installation the pavement surface temperature shall be 40 ° F and rising and the ambient temperature shall be 35° F and rising. The pavement surface temperature and the ambient temperatures shall be determined and documented before the start of each of marking operation. The pavement markings shall not be applied if the pavement shows any visible signs of moisture or it is anticipated that damage causing moisture, such as rain showers, may occur during the installation and curing periods. The Engineer shall determine the atmospheric conditions and pavement surface conditions that produce satisfactory results.

Unless directed by the Engineer, lines shall not be laid directly over a longitudinal crack or joint. The edge of the center line or lane line shall be offset a minimum distance of 50 mm (2 inches) from a longitudinal crack or joint. Edge lines shall be approximately 50 mm (2 inches) from the edge of pavement. The finished center and lane lines shall be straight, with the lateral deviation of any 3 meter (10-foot) line not to exceed 25 mm (1 inch).

**Notification:** The Contractor shall notify the Engineer 72 hours prior to the placement of the markings in order that an inspector can be present during the operation. At the time of this notification, the Contractor shall indicate the manufacturer and lot numbers of urethane and reflective media that he intends to use. The Engineer will ensure that the approved lot numbers appear on the material package. Failure to comply with this provision may be cause for rejection.

The Contractor shall provide an accurate temperature-measuring device(s) that shall be capable of measuring the pavement temperature prior to application of the material, the material temperature at the gun tip and the material temperature prior to mixing.

The Contractor shall be required to maintain a minimum initial retroreflectivity for all epoxy pavement marking that he/she applies, as follows:

<b>Material</b>	<b>Color</b>	<b>Retro reflectivity</b> (millicandelas/m <sup>2</sup> /lux)
Urethane	White	<b>300</b>
Urethane	Yellow	<b>250</b>

The Engineer will measure the retro reflectivity a minimum of **twelve (12) hours** after and within **fourteen (14) days** of the application. The Engineer will take a minimum of ten (10) readings per color line, evenly spaced, on a 1,000 meter (0.6 mile) roadway section on all roadways specified in the schedule of quantities for epoxy pavement marking or as determined by the Engineer. The Engineer will average all of the readings for each color line within the 1,000 meter section of roadway to determine the retro reflectivity. The Contractor shall be required to replace all epoxy pavement not meeting the minimum retro reflectivity requirements at no additional expense to this contract.

**Inspection:** The urethane pavement markings will be inspected following installation, but no later than December 15, and inspected following a winter performance period that extends 180 days from December 15 in accordance with the provisions of Article 780.10 of the Standard Specification for Road and Bridge Construction.

**Method of Measurement:** The lines will be measured for payment in feet of urethane pavement marking lines applied and accepted, measured in place. Double yellow lines will be measured as two separate lines. Words and symbols shall conform to the size and dimensions specified in the Manual on Uniform Traffic Control Devices and Standard 780001 and will be measured based on total areas indicated in table 1 or as specified in the plans.

**Basis of Payment:** This work will be paid for at the contract unit prices per FOOT of applied line for MODIFIED URETHANE PAVEMENT MARKING - LINE 4, 5, 6, 8, 12, 24 inches or per SQUARE FOOT for MODIFIED URETHANE PAVEMENT MARKING – LETTERS AND SYMBOLS measured as specified herein.

**K0013030 PERENNIAL PLANTS, WETLAND TYPE, 2" DIAMETER BY 4" DEEP PLUG**

**Description:** This work shall consist of providing perennial plants, as noted on the plans, and generally follow the specifications as noted in Section 254 Planting Perennial Plants, in the "Standard Specifications." The work shall consist of delivery and placement of perennial plants as noted and detailed in the plans with the following specific requirements:

1. Plants included are to be herbaceous plants and native grass as noted on the plan.
2. All plants supplied are to be in 2" x 4" rooted plugs.
3. All plants are to follow a layout of spacing of one and one-half feet (1.5 feet) in rows as noted on the plans.

A 3" mulch layer shall be placed between plug plantings. This mulch layer shall not be paid for separately but included in the cost of PERENNIAL PLANTS, WETLAND TYPE, 2" DIAMETER BY 4" DEEP PLUG.

Plug planting material shall be as follows:

<u>Common Name</u>	<u>Botanical Name</u>	<u>% of Plan Unit Quantity</u>
Little Bluestem	Schizachyrium Scoparium	60.0%
Butterfly Milkweed	Aesclepias Tuberosa	5.0%
Purple Coneflower	Echinacea Purpurea	5.0%
Sky Blue Aster	Aster Azureus	5.0%
Prairie Coreopsis	Coreopsis Palmata	5.0%
Prairie Blazing Star	Liaris Pycnostachya	5.0%
Wild Monarda	Monarda Fistulosa	5.0%
Black-Eyed Susan	Rudbekia Hirta	5.0%
Golden Alexander	Zizia Aurea	5.0%

**Method of Measurement:** Perennial plants will be measured for payment per UNIT planted. One hundred (100) perennial plants are equal to one (1) UNIT.

**Basis of Payment:** This work shall be paid for at the contract unit price per UNIT for PERENNIAL PLANTS, WETLAND TYPE, 2" DIAMETER BY 4" DEEP PLUG and shall also

include the 3” mulch layer as described. Payment is incumbent on the health and vigor of the plants after the establishment period, and correction/replacement must be made by the Contractor of those plants not living before full payment is allowed.

**K0029614 WEED CONTROL, AQUATIC**

**Description:** This work shall consist of the application of a non-selective and non-residual herbicide for weed control of *Phragmites species* in wet areas. Applications may only be made for the control of undesirable vegetation in and around standing and flowing water. Equal formulation must be approved to use in or near water.

**Materials:** The herbicide shall have the following formulation and must be labeled for use in wetlands and over water:

Active Ingredient:

*Glyphosate, N-(phosphonomethyl) glycine, in the form of its isopropylamine salt	53.80%
Inert Ingredients	46.20%
TOTAL	100.00%

The Contractor shall submit a certificate, including the following, prior to starting work:

1. The chemical names of the compound and the percentage by weight of the ingredients which must match the above specified formulation.
2. A statement that the material is in a solution which will form a satisfactory emulsion for use when diluted with water for normal spraying conditions.
3. A statement that the herbicide, when mixed with water, will be completely soluble and dispersible and remain in suspension with continuous agitation.
4. A statement describing the products proposed for use when the manufacturer of the herbicide requires that surfactants, drift control agents, or other additives be used with the product. These tank mix additives shall be used as specified by the manufacturer. Required additives will not be paid for separately.

**All material shall be brought to the spray area in the original, unopened containers supplied by the manufacturer.**

Application Rate: The herbicide shall be applied at the rate of 1 gallon per acre. Equal formulation shall be diluted with a minimum of twenty- five (25) gallons of water and applied as a mixture. Water for dilution of the mixture will not be paid for separately.

**Method of Measurement:** Weed Control, Aquatic will be measured for payment in gallons of undiluted herbicide applied as specified. The gallons for payment will be determined based on the gallons specified on the label attached to the original container supplied by the manufacturer.

**Basis of Payment:** Weed Control, Aquatic will be paid for at the contract unit price per GALLON for WEED CONTROL, AQUATIC. Water for dilution of the mixture and additives required for

application will not be paid for as separate items, but the costs shall be considered as included in the contract price for WEED CONTROL, AQUATIC, and no additional compensation will be allowed.

**K0029624 WEED CONTROL, TEASEL**

**Description:** This work shall consist of the application of a broadleaf herbicide for control of teasel and controlling broadleaf weeds in turf.

**Materials:** The broadleaf herbicide shall have the following formulation:

Active Ingredient:	
triclopyr: 3,5,6-trichloro-2-pyridinyloxyacetic acid, triethylamine salt	44.4%
Inert Ingredients	<u>55.6%</u>
TOTAL	100.00%

The Contractor shall submit a certificate, including the following, prior to starting work:

1. The chemical names of the compound and the percentage by weight of the ingredients which must match the above specified formulation.
2. A statement that the material is in a solution which will form a satisfactory emulsion for use when diluted with water for normal spraying conditions.
3. A statement that the herbicide, when mixed with water, will be completely soluble and dispersible and remain in suspension with continuous agitation.
4. A statement describing the products proposed for use when the manufacturer of the herbicide requires that surfactants, drift control agents, or other additives be used with the product. These tank mix additives shall be used as specified by the manufacturer. Required additives will not be paid for separately.

**All material shall be brought to the spray area in the original, unopened containers supplied by the manufacturer.**

**Schedule:** Spraying will not be allowed when temperatures exceed 90° F or under 45° F, when wind velocities exceed fifteen (15) miles per hour, when foliage is wet or rain is eminent, when visibility is poor or during legal holiday periods.

**Application Rate:** The broadleaf herbicide shall be applied at the rate of one (1) gallon per acre. Herbicide shall be diluted with a minimum of twenty-five gallons (25) of water and applied as a mixture. Water for dilution of the mixture will not be paid for separately.

**Method of Measurement:** Weed Control, Teasel will be measured for payment in gallons (liters) of undiluted herbicide or equal applied as specified.

**Basis of Payment:** WEED CONTROL, TEASEL will be paid for at the contract unit price per GALLON. Water for dilution of the mixture and additives required for application will not be paid for as separate items, but the costs shall be considered as included in the contract unit price for Weed Control, Teasel and no additional compensation will be allowed.

**K0029634 WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE**

**Description:** This work shall consist of spreading a pre-emergent granular herbicide in place of weed barrier fabric in areas as shown on the plans or as directed by the Engineer. This item will be used in mulched plant beds and mulch rings.

Delete Article 253.11 and substitute the following:

Within 48 hours after planting, mulch shall be placed around all plants in the entire mulched bed or saucer area specified to a depth of 4 inches (100 mm). No weed barrier fabric will be required for tree and shrub planting. Pre-emergent Herbicide will be used instead of weed barrier fabric. The Pre-emergent Herbicide shall be applied prior to mulching. Mulch shall not be in contact with the base of the trunk.

**Materials:** The pre-emergent granular herbicide shall contain the chemicals Trifluralin 2% active ingredient and Isoxaben with 0.5% active ingredient. The herbicide label shall be submitted to the Engineer for approval at least seventy-two (72) hours prior to application.

**Method:** The pre-emergent granular herbicide shall be used in accordance with the manufacturer's directions on the package. The granules are to be applied prior to mulching.

Apply the granular herbicide using a drop or rotary-type designed to apply granular herbicide or insecticides. Calibrate application equipment to use according to manufacturer's directions. Check frequently to be sure equipment is working properly and distributing granules uniformly. Do not use spreaders that apply material in narrow concentrated bands. Avoid skips or overlaps as poor weed control or crop injury may occur. More uniform application may be achieved by spreading half of the required amount of product over the area and then applying the remaining half in swaths at right angles to the first. Apply the granular herbicide at the rate of 100 lbs/acre (112 kg/ha) or 2.3 lbs/1000 sq. ft. (11.2 kg/1000 sq. meters).

**Method of Measurement:** Pre-emergent granular herbicide will be measured in place in Pounds (Kilograms) of Pre-emergent Granular Herbicide applied. Areas treated after mulch placement shall not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract unit price per POUND for WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE.



**X0301430      PRECAST CONCRETE PARKING BLOCK**

**Description:** This work shall consist of providing precast concrete wheel stops for vehicular parking stalls in parking lots as indicated on the plans per the detail in the plans.

**Materials:**

- Precast concrete parking blocks shall consist of 3.5% minimum air-entrained concrete; 4000 psi minimum compressive strength. Each block shall be reinforced with two No. 3 reinforcing bars, minimum. Provide chamfered corners and drainage slots on underside, and provide holes for dowel-anchoring to substrate. Unless indicated otherwise, provide stops of half octagonal configuration and 36-inch length.
- Adhesive for anchoring stops to at-grade asphalt pavements: Epoxy adhesive manufactured for the purpose, similar and equal to those specified in the Standard Specifications.
- Adhesive for bonding dowel to parking block: As proposed by Contractor and approved by the Engineer, suitable for application.
- Steel bars for Installation: Galvanized 5/8" diameter steel dowels or galvanized No. 5 steel reinforcing bars.

**Installation:**

- Securely attach parking blocks into at-grade asphalt pavement with not less than two galvanized steel dowels embedded in holes cast into parking blocks. Firmly bond each dowel to parking block and to pavement.

**Method of Measurement & Basis of Payment:** This work shall be measured in payment for EACH for PRECAST CONCRETE PARKING BLOCK which shall include all concrete parking blocks, adhesives, bonding materials, steel bars, dowel holes, as well as all time and labor to complete the operation.

**X0301797      GATE REMOVAL**

**Description:** This work shall consist of removal of the swinging tubular barrier access gate at the entrance to the Raging Buffalo Snowboard and Ski Park. Work shall consist of removal of all gates, bollards, locks, concrete foundations, hinges, hinge posts, and signs associated with the existing gate system.

**Method of Measurement & Basis of Payment:** This work shall be measured in payment for EACH for GATE REMOVAL which shall include all time, labor, materials, excavation, disposal, and backfill in order to completely remove the gate and all its appurtenances.

**X0321809      PERMANENT GROUND ANCHOR**

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

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

### **Site Geology and Soils Conditions**

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

### **Submittals**

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

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

The Contractor shall assign an engineer to supervise the work with at least three (3) years of experience in the design and construction of permanently anchored structures. The Contractor may not use consultants or the manufacturer's representatives in order to meet the requirements of this section. Drill operators and on-site supervisors shall have a minimum of one (1) year experience installing permanent ground anchors with the Contractor's organization. Work shall not be started on any ground anchor wall system nor materials ordered until approval of the Contractor's qualifications is given. The Engineer may suspend the ground anchor work if the Contractor substitutes unqualified personnel. The Contractor shall be fully liable for additional costs resulting from the suspension of work and no adjustments to contract time resulting from the suspension will be allowed.

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

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

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

## **Materials**

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

- (1) Uncoated, seven-wire strands, conforming to AASHTO M203 (M203M)
- (2) Indented, seven-wire strands, conforming to ASTM A886 (A886M)
- (3) Epoxy coated, seven-wire strands, conforming to ASTM A882 (A882M)
- (4) Steel Bars conforming to AASHTO M275 (M275M)

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

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

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

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

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

Steel Elements: Anchorage head assemblies, including bearing and wedge plates, shall be fabricated from steel conforming to AASHTO M270 (M270M) Grade 36 (250), or be a ductile iron casting conforming to ASTM A536.

Trumpets used to provide a transition from the anchorage head assembly to the unbonded length corrosion protection shall be fabricated from a steel pipe or tube conforming to the requirements of ASTM A53 (A53M) for pipe or ASTM A500 (A500M) for tubing. Minimum wall thickness shall be 0.20 inch (5 mm).

Anchorage covers used to enclose exposure anchorages shall be fabricated from steel, steel pipe, steel tube, or ductile cast iron conforming to the requirement of AASHTO M270 (M270M) Grade 36 (250) for steel, ASTM A53 (A53M) for pipe, ASTM A500 (A500M) for tubing, and ASTM A536 for ductile cast iron. Minimum thickness shall be 0.10 inch (2.5 mm).

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

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

- (1) Seamless polyethylene (PE) tube having a minimum wall thickness of 60 mils (1525 microns) plus or minus 10 mils (250 microns). The polyethylene shall be cell classifications 334413 by ASTM D3350.
- (2) Seamless polypropylene tube having a minimum wall thickness of 60 mils (1525 microns) plus or minus 10 mils (255 microns). The polypropylene shall be cell classification PP210B55542-11 by ASTM D4101.
- (3) Heat shrinkable tube consisting of a radiation crosslinked polyolefin tube internally coated with an adhesive sealant. The minimum tube wall thickness before shrinking shall be 24 mils (610 microns). The minimum adhesive sealant thickness shall be 20 mils (510 microns).
- (4) A corrugated tube conforming to the requirements of the encapsulation for the tendon bond length.

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

- (1) Corrugated high density polyethylene (HDPE) tube having a minimum wall thickness of 30 mils (760 microns) and conforming to AASHTO M252 requirements.
- (2) Deformed steel tube or pipe having a minimum wall thickness of 25 mils (635 microns).
- (3) Corrugated polyvinyl chloride (PVC) tube having a minimum thickness of 30 mils (760 microns). (ASTM D1784) class 13464-B
- (4) Fusion-bonded epoxy conforming to the requirements of AASHTO M284 (M284M), except that it shall have a fil thickness of 15 mils (380 microns).

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

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

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

### **Fabrication**

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

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

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

Centralizers shall be able to maintain the position of the tendon so that a minimum of 0.75 inches (19 mm) of grout cover is obtained on the tendons at all locations along the tendons. They shall be located at 5 ft (1.5 m) maximum centers with the lower one located 1 ft (305 mm) from the bottom of the bond length. Centralizers are not required on the tendons installed utilizing a hollow-stem auger if it is grouted through the auger and the drill hole is maintained full of a stiff grout 9 inch (320 mm) slump or less during extraction of the auger, or when installed utilizing a pressure injection system in coarse grained soils using grout pressures greater than 150 psi (1035 kPa).

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

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

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

Anchorage and Trumpet: Nonstressable anchorages may be used unless stressable anchorages are designed on the plans.

The trumpet shall be welded to the bearing plate. The trumpet shall have an inside diameter at ¼ inch (6 mm) larger than the hole in the bearing plate. The trumpet shall be long enough to accommodate

movements of the structure during testing and stressing. For strand tendons with encapsulation over the unbonded length, the trumpet shall be long enough to enable the tendons to make a transition from the diameter of the tendon in the unbonded length to the diameter of the tendon at the anchorage head assembly without damaging the encapsulation. Trumpets shall be filled with grout and have temporary seal provided between the trumpet and the unbonded length corrosion protection.

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

### **Installation**

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

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

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

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

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

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

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

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

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

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

After grouting, the tendon shall not be loaded for a minimum of 3 days.

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

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

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

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

### **Testing and Stressing**

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

Testing Equipment: Two dial gauges or vernier scales capable of measuring displacements to 0.001 inch (25 microns) shall be used to measure ground anchor movement on either side of the jack, from two independent points. They shall have adequate travel so total ground anchor movement can be measure without resetting the devices.

A hydraulic jack and pump shall be used to apply the test load. The jack and a calibrated pressure gauge shall be used to measure the applied load. The pressure gauge shall be graduated in 100 psi (690 kPa) increments or less. When the theoretical elastic elongation of the total anchor length at the maximum

test load exceeds the ram travel of the jack, the procedure for recycling the jack ram shall be included in the working drawings. Each increment of test load should be applied in one minute or less.

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

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

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

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

The performance test shall be made by incrementally loading and unloading the ground anchor according to the following schedule unless a different maximum load test and schedule are indicated on the plans. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement, on either side of the jack, shall be measured and recorded to the nearest 0.001 inch (25 microns) with respect to the independent fixed reference points at the alignment load and at each load increment. The load shall be monitored with a pressure gauge. The reference pressure gauge shall be placed in series with the pressure gauge during each performance test. If the load determined by the reference pressure gauge and the load determined by the pressure gauge differ by more than 10 percent, the jack, pressure gauge and reference pressure gauge shall be recalibrated. At load increments other than the maximum test load, the load shall be held just long enough to obtain the movement reading.

Performance Test Schedule

<u>Load</u>	<u>Load (Continued)</u>
AL	AL
0.25DL*	0.25DL
AL	0.50DL
.025DL	0.75DL
0.50DL*	1.00DL
AL	1.20DL*
0.25DL	AL
0.50DL	0.25DL
0.75DL*	0.50DL
AL	0.75DL
0.25DL	1.00DL
0.50DL	1.20DL
0.75DL	1.33DL*
1.00DL*	(Max. test load)
	Reduce to lock-off (1.00DL)



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

The maximum test load in a performance test shall be held for 10 minutes. The jack shall be repumped as necessary in order to maintain a constant load. The load hold period shall start as soon as the maximum test load is applied and the ground anchor movement shall be measured and recorded at 1, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movements between 1 minute and 10 minutes exceed 0.004 inch (1 mm), the maximum test load shall be held for an additional 50 minutes. If the load hold is extended, the ground anchor movement shall be recorded at 15, 20, 25, 30, 45 and 60 minutes.

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

Proof Test: The proof test shall be made by incrementally loading and unloading the ground anchor according to the following schedule unless a different maximum load test and schedule are indicated on the plans. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement, on either side of the jack, shall be measured and recorded to the nearest 0.001 inch (25 microns) with respect to the independent fixed reference points at the alignment load and at each load increment. The load shall be monitored with a pressure gauge. At load increments other than the maximum test load, the load shall be held just long enough to obtain the movement reading.

#### Proof Test Schedule

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

The maximum test load in a proof test shall be held for 10 minutes. The jack shall be repumped as necessary in order to maintain a constant load. The load hold period shall start as soon as the maximum test load is applied and the ground anchor movement shall be measured and recorded at 1, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movements between 1 minute and 10 minutes exceed 0.004 inch (1 mm), the maximum test load shall be held for an additional 50 minutes. If the load hold is extended, the ground anchor movement shall be recorded at 15, 20, 25, 30, 45 and 60 minutes. A graph shall be constructed showing a plot of ground anchor movement versus load for each load increment in the proof test.

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

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

Creep Test Schedule

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

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

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

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

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

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

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

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

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

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

**Lock Off:** Upon successful completion of the load testing, the ground anchor load shall be reduced to the design load indicated on the plans and transferred to the anchorage device. The ground anchor may be completely unloaded prior to lock-off. After transferring the load and prior to removing the jack, a lift-off load reading shall be made. The lift-off load shall be within 10 percent of the specified lock-off load, the anchorage shall be reset and another lift-off load reading shall be made. This process shall be repeated until the desired lock-off load is obtained.

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

**Basis of Payment:** This work will be paid for at the contract price EACH for PERMANENT GROUND ANCHOR and shall be compensation in full for designing, furnishing, installing and testing the permanent ground anchors and anchorage head assemblies.

#### **X0322938      TEMPORARY END SECTION**

**Description:** This work shall consist of providing temporary 24" flared end sections at temporary culverts as shown on the plans during various stages of traffic control. This pay item shall include providing and installing each end section as well as removal and disposal following the need for utilizing the temporary culverts. All time, labor, excavation, materials, fasteners, gaskets, or other materials necessary to complete the operation are considered included in this pay item.

**Method of Measurement/Basis of Payment:** This work shall be paid for at the contract unit price per EACH for TEMPORARY END SECTION placed.

#### **X0323013      TUBULAR STEEL GATE**

**Description:** This work shall be performed in accordance with the applicable portions of Section 664 of the Standard Specifications and in accordance with the locations as shown on the plans per the details in the plans:

- Location 1 – Entrance to Raging Buffalo Snowboard and Ski Park
- Location 2 – Multi-Use Path along IL-31, Approximate Sta. 421+60, 65'RT

The barrier gate will be configured similar to a crash gate, being assembled from galvanized tubular steel and welded as shown on the detail. All open ends of the tubing shall be capped.

Each barrier gate shall consist of 3 bollards—paid for as BOLLARDS—the center of which is the pivot point for the gate. The bollards shall be in accordance with the bollard detail as shown on the plans, but shall be included in the cost of this item. Each gate shall have a minimum of two hinges of sufficient bearing to support the weight of the swing gate structure. When the gate is closed it shall latch onto the one bollard and the latching mechanism shall be configured to both support the weight of the cantilevered gate and be able to lock the gate in the closed position. When the gate is in the open position, it shall latch onto the opposite bollard, with the ability to lock in a similar fashion as the closed gate. The locking mechanism shall be a supplied and shall be an exterior grade padlock, with a minimum of four (4) identical keys. The keys shall be delivered to the Engineer upon acceptance of each gate.

For purposes of this contract, both gates are of different sizes however only one pay item shall be used which shall be factored into the unit price.

**Measurement and Payment:** This work will be paid for at the contract unit price per EACH for TUBULAR STEEL GATE, which shall be payment in full for furnishing, fabricating and installing each gate complete.

**X0323906      CAMERA POLE, 45 FT**

**Description:** The work is furnishing and construction of a ground-mounted galvanized steel CCTV support pole (light pole) structure with a 20-foot davit arm 45-foot mounting height at locations indicated on the plans. If a light pole arm is provided, the opening at the end of the arm shall be capped.

**Materials:** The CCTV pole shall consist of a 45-foot galvanized steel pole that is structurally sound and adheres to Section 1069 of the IDOT Standard Specifications.

Submit design calculations and shop drawings for the support pole for approval by the Engineer. A total of 4 sets of design calculations and 4 sets of detailed construction drawings, signed and sealed by a Professional Engineer licensed in the State of Illinois, to the Engineer for approval. Do not begin fabrication and construction until receiving approval of the submission from the Engineer.

The davit arm as shown on the plans is included in this pay item. Pole foundation and equipment to be mounted on the pole will be paid for separately.

**Construction:** Submit detailed shop drawings for review and acceptance. Material and workmanship not previously inspected will be inspected on the work site. Remove rejected material from the work site. If a disturbance is made to the site during installation, restore the site to its original condition.

Fabricate the pole and arm for the CCTV cameras as indicated on the plan details. The Contractor shall install the pole and davit arm at the orientation as shown on the plans.

Clean threads of anchor bolts and nuts before column installation and lubricate as necessary. Clean, to the satisfaction of the Engineer, the top of the foundation to ensure it is free of dirt or other foreign materials. Install CCTV camera pole atop of base plate. Pole must fit freely on base plate. Do not force pole onto foundation. Make adjustments as necessary to firmly secure the pole to the foundation.

Pole shall provide hand hole access approximately 2 feet from the top and approximately 12” from the base of the foundation. Install the necessary hand holes if not available. Hand holes that are prefabricated with the pole, but do not meet these requirements, may be approved by the Engineer. The Contractor shall note any variance on the shop drawings that are sent for review.

Provide grounding rod, wire, etc. to provide the necessary grounding in accordance with the NEC.

All power, communication, and/or cables are to be installed inside the pole. Ensure that the CCTV camera pole is hollow enough to allow cables to pass through. Cables shall only be exposed at locations shown on the plans or approved by the Engineer. The opening in the metal foundation around the conduits shall be sealed with steel wool and spray foam sealant to prevent the intrusion of insects, rodents, pests, and debris.

**Method of Measurement:** This work will be measured in units if each camera pole furnished and installed.

**Basis of Payment:** This work will be paid for at the contract unit price each for CAMERA POLE, of the height specified, which price shall include materials, labor, mounting hardware, connections, fittings, etc. to installed as shown on the plans and as herein specified.

#### **X0323920      POLE MOUNTED EQUIPMENT CABINET, TYPE B**

**Description:** The pole mounted ITS controller cabinet is used to house the Camera Interface, DTMS Interface, RSS Interface Managed Ethernet Switch, power supplies, and other equipment served from the cabinet per the Plans.

**Materials:** The camera pole mounted ITS controller cabinet shall be constructed of 0.125” Aluminum. The cabinet shall be treated by industry-accepted coatings to withstand exposure to a corrosive environment. The door shall include a lock and a hasp for a pad lock. All door locks shall be keyed the same. The Contractor shall supply the IDOT Standard padlock for each pole mounted ITS controller cabinet. The door shall be ventilated and include a replaceable filter.

The pole mounted ITS controller cabinet shall meet the following requirements:

1. Type 1 TVSS, true sine wave tracking with let through voltage no greater than L-N 70V, L-L 80V, L-G 90, and N-G 90V. Install the Type 1 TVSS per the Plans
2. Temperature controlled heating strip
3. Temperature controlled cooling fan
4. 0.5 inch of insulation
5. Four (4) outlet gangbox
6. Duplex GFCI outlet box
7. Ground stud on floor of the cabinet
8. NEMA CLASS 250 TYPE 4
9. Gasket door seal
10. Cabinet dimensions as per the plans
11. Hinges shall be continuous stainless steel piano hinge and shall both be mounted on the roadway side of the cabinet.
12. Doors shall be provided with catches to hold the doors open at both 90 degrees and 180 degrees, +/- 10 degrees

13. Laptop tray – An adjustable rack mounted slide out aluminum work surface, designed to fully support the weight and size of a portable computer or technician's tool case, shall be installed at a height greater than 24 in (923 mm) but less than 48 in (1219 mm) above the ground. The top of the surface shall be a minimum of 156 square inches and shall accommodate a laptop computer and associated cabling that may plug into the back of the laptop
14. Rack mounted 120V/240V UPS capable of supporting the ITS Ethernet switch, Traffic monitoring camera interface and all equipment essential for communications back to the KDOT traffic control center for a minimum of eight (8) hours.

**Installation:** The Contractor shall install the pole mounted ITS controller cabinet as shown on the plans. The Contractor shall install the pole mounted ITS controller cabinet so that the top of the unit is no higher than six (6) feet above the adjacent grade.

**Basis of Payment:** This work will be paid for at the contract unit price per EACH for POLE MOUNTED EQUIPMENT CABINET, TYPE B which price Labor, mounting hardware, wiring, connections, fittings, etc. will be considered incidental to the installation and no separate payment will be made.

**X0324045 SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE REMOVAL**

**Description:** This work shall consist of the removal of a stabilized construction entrance and all items necessary for removal of the stabilized construction entrance. This includes (but not limited to) excess aggregate for mountable berms, aggregate radii abutting temporary, permanent, or existing pavement; cellular confinement grids; all unnecessary aggregate within 20 feet within the original lines and dimensions in which the original entrance was constructed. All methods of removal shall be approved by the engineer. Material shall be disposed of according to Article 202.03 or as directed by the Engineer.

**Basis of Payment:** This work shall be measured and paid for at the contract unit price per EACH for SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE REMOVAL and shall include all labor, excavation, and disposal of material used for the stabilized construction entrance.

**X0324079 EXISTING FIELD TILE REMOVAL**

**Description:** This work shall consist of the removal and disposal or salvaging of existing field tiles of the various sizes and types, excavation, backfilling (if required) as indicated in locations on the plans or as directed by the Engineer.

This work shall be in accordance with the applicable portions of Section 501 of the Standard Specifications which apply to Pipe Culvert Removal. Trenches resulting from the removal of existing field tile which will be allowed below the final grade shall be backfilled to the applicable requirements of Article 550.07. Any damage made by construction activities to portions of the existing field tile which is to remain shall be repaired with materials matching "in like kind" to the satisfaction of the Engineer at no additional cost to the contract.

With the Engineer's approval, any drain tile deemed not to be in conflict with the proposed improvements can be crushed or broken at 10-foot intervals and may remain in place without removal.

**Basis of Payment:** This work shall be paid for at the contract unit price per FOOT for EXISTING FIELD TILE REMOVAL regardless of size or type. Backfilling (if required) for the removal of the existing field tile will not be paid for separately but will be considered included in the unit price bid for EXISTING FIELD TILE REMOVAL.

**X0324775 SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE MAINTENANCE**

**Description:** This work shall consist of maintaining stabilized construction entrances that have become ineffective as a result of standard operations and natural forces. This work will include the removal of proper disposal of excess materials and the delivery and placing of aggregate in the manner described in SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE.

This pay item shall not be paid for each time maintenance is required but shall consist of maintenance over the life of the project for which the entrance is needed.

**Basis of Payment:** This work shall be measured for payment to the outside dimensions of the material being removed and the area calculated in SQUARE YARDS. All excavation and grading necessary to remove and replace the sediment fill aggregate shall not be paid for separately but included in the cost of SEDIMENT CONTROL, STABILIZED ENTRANCE MAINTENANCE.

**X0325476 RADAR VEHICLE DETECTION SYSTEM**

**Description.** This work shall consist of furnishing and installing a radar/microwave vehicle detection system as specified and/or as shown on the plan. This pay item shall include all necessary work and equipment required to have a fully operational system including but not limited to the detector unit/s, the interface unit and all the necessary hardware, cable and accessories required to complete the installation in accordance with the manufacturer's specifications.

The radar/microwave vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of -34 to 74 degrees Celsius. It shall have a max power output of 75 watts or less. The detection system shall be capable of detecting stopped vehicles, this is often referred to as Frequency-Modulated Continuous Wave (FMCW) or true-presence detection. Each detector system shall be capable of detecting volume, occupancy, classification, and speed while gathering this data for each detection field/travel or turn lane configured in the device.

The radar/microwave vehicle detection system shall be compatible with the County's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The radar/microwave vehicle detection system shall provide a minimum of one interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 4 detector units. In cases where vender utilizes separate detector units between uptight and advance detection, Ethernet connectivity and surge protection shall be capable of connecting to all detector units using one IP address unless otherwise approved by the engineer.

The far back radar/microwave detection shall have a detection range of 400 feet or better.

A representative from the supplier of the radar/microwave vehicle detection system shall supervise the installation and testing of the radar/microwave vehicle detection system and shall be present at the traffic signal turn-on inspection. Once the radar/microwave vehicle detection system is configured, it shall not need reconfiguration to maintain performance, unless the roadway configuration or the application requirements change.

The mounting location/s of the detector unit/s shall be per the manufacturer's recommendations. If an extension mounting assembly is needed, it shall be included in this item. All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The radar/microwave vehicle detection system shall be warrantied, free from material and workmanship defects for a period of two years from final inspection. Warranty shall be furnished and provided to the District at the time of traffic signal turn on and shall include appropriate contact information (Email and direct telephone) to which all warranty concerns may be directed.

**Basis of Payment.** This work shall be paid for at the contract unit price per EACH for RADAR VEHICLE DETECTION SYSTEM, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational radar vehicle detection system.

#### **X0326806      WASHOUT BASIN**

**Description:** The WASHOUT BASIN as identified on the plans is used to contain concrete liquids when the chutes of concrete trucks are rinsed out after the delivery of concrete to the construction site. These washout facilities function to consolidate soils for disposal and prevent runoff liquids associated with concrete. Details of the construction of the non-portable facilities are included within the plans as "temporary concrete washout facilities." Failure to comply with appropriate washout location requirements will result in monetary deficiency deduction against the Contractor.

#### **General Requirements:**

- The Contractor must submit a plan of his/her proposed temporary concrete washout facility to the Engineer for his/her approval at least 10 days prior to the first concrete pour.
- Temporary concrete washout facilities are to be in place prior to any delivery of concrete to the construction site.
- Temporary concrete washout facilities are to be located at least 50 feet from storm drain inlets, open drainage facilities, or water bodies. Each facility is to be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign is to be installed adjacent to each temporary concrete washout facility to inform concrete equipment operations of the designated washout facility.

#### **Design:**

Two types of concrete washout facilities are available for use on this project:

Prefabricated portable facilities (as approved by the Engineer)

#### **Non-portable facilities:**

- **Above Grade:** Constructed using barrier wall & polyethylene sheeting. Barrier walls are constructed to create a berm with a single sheet of 10-mil polyethylene sheeting which is free of holes, tears, or other defects which pay compromise the impermeability of the material.



Sandbags are used to hold the sheeting in place on top of the berm. Sheeting must extend over the entire basin and berm to prevent escape of discharge.

- **Below Grade:** Constructed via excavation and the use of polyethylene sheeting and sandbags. A pit is first excavated in a designated location with a single sheet of 10-mil polyethylene sheeting which is free of holes, tears, or other defects, which may compromise the impermeability of the material. Sandbags are then used to hold the sheeting in place.

**Size of Washouts:**

Number and size of washout facility is to be determined by the Contractor. It is his/her responsibility to provide enough storage for the excess concrete and water produced on the target. Non-portable facilities are to have a minimum length and width of 10’.

**Inspection/Maintenance/Removal:**

- Temporary concrete washout facilities are to be inspected by the Engineer during his/her weekly erosion and sediment control inspection per the requirements of the SWPPP. The inspector is to ensure there are no leaks, spills, and the capacity of the facility has not yet been compromised.
- Any overflowing of the washout facility onto the ground must be cleaned up and removed within 24 hours of discovery.
- If a rain or snow event is forecasted, a non-collapsing, non-water collecting cover shall be placed over the washout facility and secured to prevent accumulation and overflow of precipitation.
- Contents of each facility are not to exceed 75% of design capacity. If contents reach 75% capacity, discontinue pouring concrete into the facility until it has been cleaned out.
- Allow slurry to evaporate or remove the site in a safe manner (i.e. vacuum truck). All hardened material can then be removed or disposed of properly.
- If a lined basin is used, immediately replace the liner if it becomes damaged.
- Remove temporary concrete washout facilities when they are no longer required and restore the disturbed areas to their original condition.
- Note locations of these facilities and any changes to these locations on the SWPPP.

**Basis of Payment:** This work shall be paid for at the contract unit price LUMP SUM for WASHOUT BASIN, which price shall be payment in full for all material, labor, excavation, and disposal of said basin.

**X0327039 TEMPORARY ACCESS ROAD (SPECIAL)**

**Description:** This work includes the construction, maintenance, and removal of a temporary haul road to be constructed on the east side of Illinois Route 31 during earthwork operations necessary to construct the site improvements at the Raging Buffalo Snowboard and Ski Park as seen on the plans. This haul road is largely to be used for transport of excess earth from the Longmeadow Parkway excavation and placed and compacted at the ski hill expansion; however this haul road may be utilized for transporting other material as determined by the Engineer.

**Materials:** Materials provided for construction of the haul road will be selected by the Contractor to provide good stability for the intended use, except as noted below. Any materials that the Contractor may want to re-use in other areas of the project shall meet IDOT standards for the application, and shall be communicated to and approved by the Engineer prior to delivery to the site, to ensure agreement for the re-use and to avoid any additional costs to be incurred.

**Construction:** The Contractor shall locate the haul road in the general area as indicated on the contract plans under the sheets identified as Temporary Haul Road – Pre-Stage. Geotextile fabric may be needed between the stone and the ground line to minimize restoration work after removal. The contractor shall construct the haul road as needed for all vehicles and equipment to the Raging Buffalo Snowboard and Ski Park. The proposed temporary haul road will have a slope and alignment that generally follows the proposed sheets as included in the plans.

Contractor is responsible for the stability and maintenance of the haul road. Benching or other embankment foundation preparation may be required to ensure stability. The Contractor shall take utmost care to minimize disturbance beyond what is necessary for transporting materials. Full compliance with the SWPPP is mandatory for this work. Temporary erosion seeding will be placed in all disturbed areas outside the limits of the haul road and both sides of the haul road lined with PERIMETER EROSION BARRIER, SPECIAL. If the Engineer determines that the Contractor's activities are producing undue erosion of materials beyond the limit of the sediment control items, the Contractor shall stop the work and take corrective action before proceeding.

The contractor shall maintain the haul road throughout its life by adding embankment to the side slopes, as required, and as directed by the Engineer. In the event of flooding, the Contractor shall immediately repair all damage caused by the floodwater after the storm event has passed at no additional cost to the contract.

Temporary facilities may not be constructed using dumped fill or any other erodible material. Crushed concrete or reclaimed asphalt pavement shall be permitted for use of the haul road.

The Contractor shall assume all risk of damage to his equipment and the work caused by any inundation as a result of rainfall events. No extension of time or compensation will be granted as a result of natural occurrences.

Upon completion of relevant Raging Buffalo site construction, the Contractor shall remove all portions of the haul road and restore the area to original grades and conditions, to the satisfaction of the Engineer.

**Method of Measurement:** This work will be paid for payment as a single LUMP SUM item. All materials and appurtenances required for any and all of the proposed and/or required construction stages shall be included in the single LUMP SUM item.

**Basis of Payment:** This work will be paid for at the contract LUMP SUM price for TEMPORARY ACCESS ROAD (SPECIAL), which shall include all labor, equipment, materials, maintenance, cleanup, and restoration. Earth excavation will be paid for separately based on the plan cross sections. Should the contractor elect to use a different profile than the plan profile, no additional compensation shall be provided for the earth excavation required for change in elevation between his plan and the engineering plans.

#### **X0327301 RELOCATE EXISTING MAILBOX**

**Description.** This work shall consist of relocating an existing 5-unit cluster mailbox located at the intersection of Karen Drive and Forest Drive to a suitable alternate location approved by the Engineer and the Postmaster.

**Construction Requirements.** Contractor shall remove the existing cluster mailbox from its current location and set it in concrete with a minimum depth of 2'-0" below finished grade with a casing diameter of 12" centered about the post.

Should the existing wooden post already be set in a concrete foundation, this pay item shall include removal of the existing 4"x4" post from the cluster mailbox and replacing it with a new post. The existing post and foundation shall be fully excavated and disposed of as part of this item.

Alternatively, if the existing mailbox support post does not allow for replacement with a nominal depth of 2'-0" below grade, the 4"x4" shall be replaced with a new post.

Based on the timing of the Contractor's excavation operations, this mailbox may require placement at one or more temporary locations prior to final placement. These temporary locations do not need to be set in concrete but must be anchored in such a way that it is upright and stable for mail delivery. Multiple temporary relocations shall not be paid for separately but considered included in the cost of this pay item.

**Basis of Payment.** This work will be paid for at the contract unit price per EACH for RELOCATE EXISTING MAILBOX which shall include all time, materials, and labor to complete the excavation and relocation including any/all new wooden support posts, concrete, and material disposals.

#### **X0327459 POLE AND CABLE REMOVAL**

**Description.** This work shall consist of removing and disposing of existing wooden light poles, luminaires, aerial wiring attached to and between poles, and all other appurtenances affixed to the light poles within the Raging Buffalo Snowboard and Ski Park parking lot. Existing cable splice, repair splice after removal of aerial cable, and cost of cable splice repair are considered included in the cost of this pay item. This pay item shall also include coordinating shut-offs of electricity at the existing lighting controller.

**Basis of Payment.** This work will be paid for at the contract unit price per EACH for POLE AND CABLE REMOVAL.

#### **X0327979 PAVEMENT MARKING REMOVAL - GRINDING**

**Description.** This work shall consist of removing existing and temporary pavement markings from existing surfaces which will ultimately be removed during later stages of the project.

**Construction Requirements.** Contractor shall follow applicable portions of Article 783 of the Standard Specifications. Grinders must be approved by the Engineer.

Grinding shall only be utilized on TEMPORARY PAVEMENT MARKING as indicated in the plans. Any Wet Reflective Tape shall be removed using PAVEMENT MARKING REMOVAL (SPECIAL).

**Basis of Payment.** This work will be paid for at the contract unit price per each per SQUARE FOOT for PAVEMENT MARKING REMOVAL – GRINDING.

#### **X0426200 DEWATERING**

**Description:** DEWATERING as it pertains to this contract refers to the pumping or bypassing of water which accumulates in excavations during the process of work so that all work can be done in the dry. In addition, dewatering operations shall be conducted to prevent damage to adjacent properties, buildings, structures, utilities, and other existing features as a result of settlement or other groundwater-related effects. Dewatering shall be used in wet locations that may be encountered during construction.

**General Requirements:** At all times, have on the work site sufficient pumping equipment for immediate use, including standby pumps for use in case other pumps become inoperable. Contractor shall dispose of water so as to cause no injury to personnel or the public, damage to public or private property, nor menace to the public health.

Contractor may discharge no water which exceeds regulatory requirements or the County's discharge requirements. Contractor may discharge into a downstream storm sewer manhole, provided an Engineer-approved silt filtration measure is applied beforehand (silt bag, channel with polymerizing agents, etc.).

No well points shall be placed to draw down the water table.

**Basis of Payment:** This work will be paid for at the contract LUMP SUM unit price for DEWATERING for which unit price shall include all equipment, materials and labor required to meet the requirements of this special provision over the duration of the contract at all locations including pumps, silt bags, or other equipment necessary to maintain a dry working environment.

#### **X1400146 HELIX FOUNDATION AND BREAKAWAY DEVICE**

**Description:** This item shall consist of furnishing and installing an 8-inch diameter by 10-foot long helix foundation for a pole mounted camera assembly.

**Materials.** The metal foundation shall comply with Article 1070.01 of the IDOT Standard Specifications for Road and Bridge Construction. The bolt circle shall be a nominal 15 inches in diameter, and shall match the pole base plate.

**Installation.** Foundations shall be installed outside of the clear zone or in areas protected by guardrail. The Plans identify approximate locations for the pole mounted camera assemblies. The Contractor shall stake these locations in the field for approval by the Engineer.

The steel helix foundation shall be installed in accordance with the manufacturer's recommended procedures. The installation shall be accomplished by either a boom type or a bed mounted type digger truck. The maximum torque limit of 13,000 ft.-lb. should not be exceeded since the possible damage to the foundation could occur.

Local soils conditions shall be verified by the Contractor prior to installation of the Metal Helix Foundation, 10 FT. In the case of extremely difficult soils that cause the mechanical limit of the foundation to be exceeded, the helix foundation may be installed at the discretion of the Engineer in one of two methods. Predrilling a hole that is less than the shaft diameter of the foundation or using water as a lubricant. When foundation is installed by either method, minimum torque requirements of 5000 ft.-

lb. are to be followed. The installation torque may be measured by torque measuring devices currently available or by calibrating the hydraulic system of the installing equipment. As an alternative for foundation installation in extremely difficult soils, a concrete foundation may be used. The Contractor shall submit for approval his structural calculations for installation of a concrete foundation for the pole mounted camera arm and assembly.

Ground rod will be included for payment in the contract unit price for pole assembly.

**Method of Measurement:** Metal Helix Foundation will be measured per each for every completed in place and accepted foundation. Relocation of a foundation due to an obstruction and any shaft excavation to that point will not be measured for payment.

**Basis of Payment:** This work will be paid for at the contract unit price per EACH for HELIX FOUNDATION AND BREAKAWAY DEVICE, of the depth shown, which price shall be payment in full for the work described herein.

#### **X2111100 TOPSOIL EXCAVATION AND PLACEMENT, SPECIAL**

**Description.** This work shall consist of stripping the roadway corridor (as defined by the construction limits of the project plans) of topsoil and placing it in a stockpile in a location as depicted on the plans. This topsoil will then be used as respread for final grading operations.

**Construction Requirements.** Work shall follow applicable portions of Article 211 of the Standard Specifications and as follows:

- 1) Topsoil respread has been quantified in terms of depth of respread required in the indicated areas of the project as defined within the project schedules under the “LANDSCAPING” schedule in the plans and the project typical sections.
- 2) Unused topsoil at the end of the project remaining in the stockpile shall be hauled offsite and paid for as REMOVAL AND DISPOSAL OF UNSUITABLE MATERIALS. This quantity has been calculated in the Earthwork Summary Table within the project schedules.
- 3) Temporary stabilization and erosion control blanket to stabilize the stockpile are paid for separately.
- 4) Multiple moving operations per-stage shall be considered included in the unit price for TOPSOIL EXCAVATION AND PLACEMENT, SPECIAL and shall only be paid for what is ultimately respread.
- 5) Any topsoil deemed to be unusable shall be hauled offsite and paid for as REMOVAL AND DISPOSAL OF UNSUITABLE MATERIALS unless an alternate on-site, in-ROW location for respread is specified by the Engineer in which case no additional compensation shall be provided.

**Method of Measurement & Basis of Payment.** This work shall be paid per CUBIC YARD for TOPSOIL EXCAVATION AND PLACEMENT, SPECIAL at the following intervals:

- 1) Initial 50% paid during initial stripping and stockpiling operation.
- 2) Remaining 50% paid once respread.

An alternate pay percentage may be agreed upon with written approval of the Engineer.

**X2510635      HEAVY DUTY EROSION CONTROL BLANKET, SPECIAL**

**Description:** This work shall consist of furnishing and placing heavy-duty erosion control blanket (turf reinforcement mat) over in anticipated heavy drainage flow ditch locations as indicated on the plans. The work shall be performed according to Article 251.04 of the “Standard Specifications”.

**Materials:** The erosion control blanket shall meet the requirements of Article 1081.10 of the “Standard Specifications”, except that:

*The blanket material shall consist of polyolefin fibers positioned between two high-strength, biaxially oriented nets and mechanically bound together by parallel stitching with polyolefin thread. The matrix shall possess strength and elongation properties to limit stretching and shall be maintained in high-flow conditions.*

List of Vendors & Product Name:

- Tensar/North American Green – C350 TRM
- ADS Geosynthetics – PP5-10 TRM
- Western Excelsior Corporation – PP5-10 TRM
- Propex Landlok TRM 1051/1060
- East Coast Erosion Control – ECC-3 Coconut TRM

Each blanket will be secured with a 12” degradable stake. Securing devices are not paid for separately but included in the cost of the pay item.

**Method of Measurement:** This work will be measured for payment in place in square yards of actual area covered.

**Basis of Payment:** This work will be paid for at the contract unit price per SQUARE YARD for HEAVY DUTY EROSION CONTROL BLANKET, SPECIAL. *The unit price shall include all equipment, materials and labor required to furnish and place the erosion control blanket.*

**X2511630      EROSION CONTROL BLANKET (SPECIAL)**

**Description:** This work shall consist of furnishing and placing erosion control blanket over seeded areas on slopes 3:1 or flatter in locations as indicated on the plans. The work shall be performed according to Article 251.04 of the “Standard Specifications”.

**Materials:** The erosion control blanket shall meet the requirements of Article 1081.10 of the “Standard Specifications”, except that:

*The blanket material shall be 100% biodegradable leno-woven agricultural straw.*

List of Vendors & Product Name:

- Tensar/North American Green – S75BN
- ADS Geosynthetics – 00S2AN
- Western Excelsior Corporation – Excel SR-1AN (All-Natural)

- American Excelsior Company – Premier Single Straw
- East Coast Erosion Control – ECS-1B
- Erosion Control Blanket.com – S31 BD “Big Daddy”

Each blanket will be secured with a 12” degradable stake. Securing devices are not paid for separately but included in the cost of the pay item.

**Method of Measurement:** This work will be measured for payment in place in square yards of actual area covered.

**Basis of Payment:** This work will be paid for at the contract unit price per SQUARE YARD for EROSION CONTROL BLANKET (SPECIAL). *The unit price shall include all equipment, materials and labor required to furnish and place the erosion control blanket*

#### **X2511640      EROSION CONTROL BLANKET (MODIFIED)**

**Description:** This work shall consist of furnishing and placing erosion control blanket over seeded areas on slopes 3:1 or flatter, anticipated in low-to-median flow in locations as indicated on the plans. The work shall be performed according to Article 251.04 of the “Standard Specifications”.

**Materials:** The erosion control blanket shall meet the requirements of Article 1081.10 of the “Standard Specifications”, except that:

*Blanket shall consist of double net structure an integration of leno-woven coconut (coir) fiber in matrix of 70% agricultural straw / 30% coconut fiber.*

List of Vendors & Product Name:

- Tensar/North American Green – SC150BN
- ADS Geosynthetics – 0CS2TT
- Western Excelsior Corporation – Excel CS-3
- American Excelsior Company – Premier Straw/Coconut
- East Coast Erosion Control – ECSC-2
- Erosion Control Blanket.com – SC32
- Propex – Landlok ECB-CS2

Each blanket will be secured with a 12” degradable stake. Securing devices are not paid for separately but included in the cost of the pay item.

**Method of Measurement:** This work will be measured for payment in place in square yards of actual area covered.

**Basis of Payment:** This work will be paid for at the contract unit price per SQUARE YARD for EROSION CONTROL BLANKET (MODIFIED). *The unit price shall include all equipment, materials and labor required to furnish and place the erosion control blanket*

**X2800400 PERIMETER EROSION BARRIER, SPECIAL**

**Description:** This work shall consist of constructing, removing, and disposing of perimeter erosion barrier, special as part of the project's temporary erosion control system. Perimeter erosion control barrier, special shall be utilized adjacent to existing wetlands.

General: The work shall be performed according to Section 280 of the "Standard Specifications," special provision 28000400 "PERIMETER EROSION BARRIER" and the following:

Materials:

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

Table – Temporary Silt Fence Requirements

Requirements	Test Methods	Wire Backed Supported Silt Fence <sup>a</sup>
Maximum Post Spacing		4 feet
Grab Strength	ASTM D4632	
Machine Direction		90 lbs
X-Machine Direction		90 lbs
Permittivity <sup>b</sup>	ASTM D4491	0.05 sec <sup>-1</sup>
Apparent Opening Size	ASTM D4751	0.024in maximum average roll value
Ultraviolet Stability	ASTM D4355	70% after 500 hours of exposure

Notes:

1. Silt fence support shall consist of 14-gauge steel wire with a mesh backing of 6"x6" or prefabricated polymeric mesh of equivalent strength.
2. These default filtration property values are based on empirical evidence with a variety of sediments. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests should be performed to confirm the suitability of these requirements.

The wire support fence shall:

- 1) Be a minimum of 14-gauge
- 2) Have a minimum of six horizontal wires
- 3) The maximum vertical wire spacing shall be 6"

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

Basis of Payment: This work will be paid for at the contract unit price per FOOT for PERIMETER EROSION BARRIER, SPECIAL. The unit price shall include all work and materials necessary to



properly install the barrier and to remove and dispose of the used materials at the completion of the project. Maintenance requirements shall be included and paid for according to Section 280 of the “Standard Specifications.”

**X5010205      REMOVAL OF EXISTING STRUCTURES, SPECIAL**

Description: This work shall consist of partial removal and backfilling of the existing 8 foot by 6 foot box culvert under IL Rte 31(approximate station 410+75). Removal of the adjoining existing box culvert wingwalls and retaining wall are included in this item. Removal of the 83” x 57” CMP arch temporary culvert extension and its connection to the existing box culvert is included in this item. This work shall be performed in accordance with the applicable portions of Section 501 of the Standard Specifications.

The existing box culvert and temporary culvert extension shall be removed after the replacement box culvert is placed into operation. Removal shall be completed in stages, according to the roadway construction staging indicated on the plans. Temporary Soil Retention System required for removal at the stage removal line will be paid for separately.

The top slab and headwalls of the existing box culvert shall be completely removed. Walls of the existing box culvert shall be removed according to Article 501.04 of the Standard Specifications. Any protruding reinforcing steel shall be cut off flush with the face of concrete. Depth of box culvert removal shall consider depth of required soil undercut. After each stage of removal is complete, the remaining box culvert and excavation shall be backfilled with a granular material according to the applicable portions of Article 550.07 of the Standard Specifications. This includes the provision that the last 3 ft of backfill be impervious material.

The Temporary Soil Retention System is to serve as a bulkhead for backfill material between removal stages. Limits of granular backfill shall extend from end to end of existing box culvert. Placement of granular material at the ends of the existing box culvert shall be as approved by the Engineer.

Removal of the adjoining box culvert wingwalls and retaining wall shall be according to Article 501.04 of the Standard Specifications. The temporary culvert extension shall be completely removed.

Basis of Payment: This work shall be paid for at the contract unit price per each for REMOVAL OF EXISTING STRUCTURES, SPECIAL, which price shall be payment in full for all material, equipment and labor required to excavate, remove the box culvert as described herein, remove the temporary cmp culvert extension, dispose of excess and surplus material, backfill the box culvert, backfill the box culvert excavation, as shown on the plans and as described herein.

**X6020084      MANHOLE, SPECIAL**

Description. This work shall consist of the design, furnishing and installing a stormwater treatment structure, diversion structure, inlet and outlet piping, and all appurtenances at the location indicated in the Plans. The work under this Section shall be performed in accordance with these provisions, the Plans, and Sections 601 and 604 of the Standard Specifications, as appropriate.

**Materials.**

A. Concrete for precast stormwater treatment systems shall conform to ASTM C 857 and C858 and

meet the following additional requirements:

1. The wall thickness shall not be less than 6 inches or as shown on the dimensional drawings. In all cases the wall thickness shall be no less than the minimum thickness necessary to sustain HS20-44 loading requirements as determined by a Licensed Professional Engineer.
2. Sections shall have tongue and groove or ship-lap joints with a butyl mastic sealant conforming to ASTM C 990.
3. Cement shall be Type III Portland cement conforming to ASTM C 150.
4. Pipe openings shall be sized to accept pipes of the specified size(s) and material(s), and shall be sealed by the Contractor with a hydraulic cement conforming to ASTM C595M.
5. Internal metal components shall be aluminum alloy 5052-H32 in accordance with ASTM B 209.
6. Brick or masonry used to build the manhole frame to grade shall conform to ASTM C32 or ASTM C 139 and the Masonry Section of these Specifications.
7. Casting for manhole frames and covers shall be IDOT type 1 frames with closed lids. Castings shall be placed on the risers placed on top of the structure openings. Risers shall be adjust to ensure the casting be at the final grade elevation.
8. All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi or until 5 days after fabrication and/or repair, whichever is the longer.
9. A bitumen sealant in conformance with ASTM C 990 shall be utilized in affixing the aluminum swirl chamber to the concrete vault.

Inlet and overflow piping shall be as indicated on the drainage details in the Plans.

#### **Design and Manufacturing Requirements.**

The stormwater treatment system shall be capable of accumulating and storing settleable solids, trapping oil and floating contaminants from stormwater runoff, preventing re-suspension of captured particles, and preventing the re-entrainment of trapped oil and floating contaminants into stormwater runoff. The stormwater treatment system shall include a circular vortex separation chamber (or grit chamber) with a tangential inlet to induce a swirling flow pattern, a diversion structure with a weir wall, and inlet and overflow piping. The system shall be self-activating with no mechanical parts or external power requirements.

The stormwater treatment system shall be of a hydraulic design that includes flow controls designed and certified by a Professional Engineer registered in the State of Illinois using accepted principles of fluid mechanics, with an elevated water surface inside the structure at a pre-determined level in order to prevent the re-entrainment of trapped floating contaminants.

A water-lock feature shall be incorporated into the design of the stormwater treatment system to prevent the introduction of trapped oil and floatable contaminants to the downstream piping during routine maintenance and to ensure that no oil escapes the system during the ensuing rain event. Direct access shall be provided to the sediment and floatable contaminant storage chambers to facilitate maintenance. There shall be no appurtenances or restrictions within these chambers.

The treatment device shall be capable of removing 80 percent of the average annual total suspended solids (TSS) load without scouring previously captured pollutants. Design methodologies shall provide calculations substantiating removal efficiencies and correlation to field monitoring results using both particle size and TSS removal efficiency. All manufactures shall provide performance data that the storm water quality treatment system does not scour previously captured pollutants based on the particle

size distribution specified. Performance data should be laboratory testing with an initial sediment load of 50 percent of the unit's sediment capacity at an operating rate of 125% or greater.

Particle size distribution (PSD) shall conform to the following table using (OK-110) and should include site specific calculations for 80% TSS removal of the storm water quality unit.

Percent Distribution	Diameter	Specific Gravity
0.2%	1 micron	2.65
3%	53 micron	2.65
15%	75 micron	2.65
25%	88 micron	2.65
40.8%	106 micron	2.65
15%	125 micron	2.65
1%	150 micron	2.65

The stormwater treatment system supplier shall also submit data on field-testing of a stormwater treatment system similar to the system specified herein which demonstrates at least 80% net annual TSS removal of PSD OK-110. The system shall be designed such that the pump-out volume is less than 1/2 of the total system volume. The system shall be designed to not allow surcharge of the upstream piping network during dry weather conditions.

The stormwater treatment system shall be capable of achieving the 80% net annual TSS removal based on flows indicated in the Plans or as ordered. The stormwater treatment system shall include a bypass component to enable flows in excess of the design capacity indicated in the Plans to bypass the treatment unit.

The separator must be capable of removing 95 percent of the floatable free oil. The first 16 inches of hydrocarbon storage shall be lined with fiberglass to provide a double wall containment of the hydrocarbon materials.

The performance objectives of the Stormwater treatment system shall be able to treat the following capacities:

Location	Treatment Capacity (cfs)	Design Flow (cfs) 10-yr	Tributary Area (acre)	Percent Impervious (%)
Manhole RB-2	11.91	17.68	3.10	95

Stormwater treatment system inverts shall meet the flow lines of the storm sewer as indicated on the Plans. The stormwater treatment system shall provide direct access to all chambers without removal of components for all maintenance operations.

The stormwater treatment system shall be of a type that has been installed and used successfully for a minimum of 5 years. The manufacturer of said system shall have been regularly engaged in the engineering design and production of systems for the physical treatment of stormwater runoff.

**Submittals.** Prior to delivery, the Contractor shall submit to the Engineer Fabrication Drawings in accordance with Article 1042.03 showing details of construction, reinforcing, any cast-in-place appurtenances, materials to be used, all applicable standards for materials, and design assumptions prepared, stamped, and signed by a licensed Professional Engineer registered in the State of Illinois.

Where an external bypass is required, the contractor shall provide manufacturer calculations and designs for all structures, piping and any other required material applicable to the proper functioning of the system, stamped and signed by a licensed Professional Engineer registered in the State of Illinois.

The Contractor shall submit Operation and Maintenance instructions for the stormwater treatment system.

**Construction Requirements.** The stormwater treatment system shall be handled, stored, and installed in strict accordance with the manufacturer's recommendations and instructions.

The Engineer and Manufacturer shall be notified immediately of any material which is damaged during unloading, storage or installation. The damaged material shall be repaired or replaced at the discretion of the Engineer and the Manufacturer and entirely at the Contractor's expense.

The precast base unit shall be placed on a level granular backfill subbase with a minimum thickness of 150 mm (6 inches) after compaction.

All lift holes on precast structures shall be filled with a non-shrink grout. All voids at precast structures around inlet and outlet piping shall be filled with a non-shrink grout. Testing and startup of the stormwater treatment system shall be in accordance with the manufacturer's recommendations.

Backfill material shall be approved by the Engineer and placed in layers not exceeding 150 mm (6 inches) in depth. Each layer shall be thoroughly tamped using mechanical tampers. Special care shall be taken to ensure adequate compaction around the inlet and outlet pipes of the structure.

**Method of Measurement & Basis of Payment.** This work will be paid for at the contract price per EACH for MANHOLE, SPECIAL in which one complete unit shall be defined as the treatment structure, diversion structure, and inlet and outlet piping between these two structures. Payment will be full compensation for furnishing, transporting, handling, and placing the materials specified, including all integral concrete sections, reinforcing steel, sealants, frames, grates, mortar, brick, internal weir wall materials and components, and other accessories and appurtenances required for a complete and functioning system; testing the system; performing any required earth or rock excavation, dewatering, bedding, backfilling, and surface restoration; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

**X6020096      MANHOLES, TYPE A, 6' DIAMETER, W/2 TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE**

**Description:** This work shall consist of constructing a Type A manhole of the diameter specified with restrictor in accordance with Sections 602 and 1006 of the Standard Specifications and the plans and/or as directed by the Engineer.

**Construction Requirements:** Construction shall conform to the details shown in the plans, all applicable Standard Drawings, and all applicable portions of Sections 602 and 1006 of the Standard Specifications.

**Method of Measurement:** This work will be measured for payment, complete in place and accepted, in units of EACH.

**Basis of Payment:** This work will be paid for at the contract unit price per EACH for MANHOLES, TYPE A, 6' DIAMETER, TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE installed. Price shall include but not be limited to all frames, grates, lids, sand cushion, steps, 6" concrete wall, flat slab tops, all excavation and backfilling, and all other labor, materials, and equipment needed to perform the work as specified herein.

**X6300135 STEEL PLATE BEAM GUARDRAIL, TYPE B (SPECIAL)**

This work will consist of furnishing and installing steel plate beam guardrail at reduced post spacing as shown on the plan details and in accordance with Section 630 of the Standard Specifications, the Highway Standards and as described herein.

The post spacing shall be 1'-6 3/4" as shown on the plan detail.

**Method of Measurement:** This work will be measured for payment in accordance with Article 630.07 of the Standard Specifications.

**Basis of Payment:** This work will be paid for at the contract unit price per lineal foot, for STEEL PLATE BEAM GUARDRAIL, TYPE B (SPECIAL), complete in place, accepted, which payment shall constitute full compensation for furnishing and installing the steel plate beam guardrail as described herein.

**X6330725 STEEL PLATE BEAM GUARDRAIL (SHORT RADIUS)**

This work will consist of furnishing and installing Steel Plate Beam Guardrail, Type B at a radial length and wood post spacing as shown on IDOT BLRS Manual Figure 35-4L.

**Method of Measurement:** This work will be measured for payment in accordance with Article 630.07 of the Standard Specifications.

**Basis of Payment:** This work will be paid for at the contract unit price per lineal foot, for STEEL PLATE BEAM GUARDRAIL, (SHORT RADIUS), complete in place, accepted, which payment shall constitute full compensation for furnishing and installing the steel plate beam guardrail as described herein.

**X6640525 CHAIN LINK FENCE, 4' ATTACHED TO STRUCTURE**

**Description.** This work shall consist of all labor, materials and equipment necessary for the mounting of a chain link fence on retaining walls, in accordance with the details and locations shown on the plans and the requirements of Section 664 of the Standard Specifications.

**Construction Requirements.** All posts shall be vertical when erected; the base plate must be welded to the post at the proper angle to account for any slope along the top of the wall. The fence fabric shall be Type I, Class D and shall be in accordance with Article 1006.27 of the Standard Specifications.

The steel base plate shall meet the requirements of AASHTO M183.

**Method of Measurement.** Measurement shall be made along the top of the fence center to center of the end post, in feet, completed in place.

**Basis of Payment.** The work under this item will be paid at the contract unit price per foot for CHAIN LINK FENCE, 4' ATTACHED TO STRUCTURE.

#### **X7030005 TEMPORARY PAVEMENT MARKING REMOVAL**

**Description.** This work shall consist of removing PAVEMENT MARKING TAPE, TYPE III (all sizes) from final wearing surfaces utilized for traffic control during construction.

**Construction Requirements.** Contractor shall follow applicable portions of Article 783 of the Standard Specifications. Temporary Tape must be heated and pulled. Grinding or Water-Blasting shall not be permitted.

**Basis of Payment.** This work will be paid for at the contract unit price per each per SQUARE FOOT for TEMPORARY PAVEMENT MARKING REMOVAL.

#### **X7230400 INSTALL EXTRUDED SIGN PANEL**

**Description:** This work shall include supplying and installation of roundabout diagrammatic signs as indicated on the plans.

**Material:** The sign panel material shall conform to applicable provisions of Section 1091 of the “Standard Specifications” for a Type 3 sign.

#### **Details:**

Cross Section Shape/Slotted Holes shall conform to IDOT Highway Standard 720021-02 “Sign Panels Extruded Aluminum Type” and all applicable bolted aluminum extrusions material properties from Article 1090.03 and all other applicable articles from Section 1090 of the “Standard Specifications.”

#### **Support:**

Steel supports shall be paid for separately as the standard IDOT pay item 72700100 STRUCTURAL STEEL SIGN SUPPORT, BREAKWAY in POUNDS. I-Beam designation shall be W6x15 for this breakaway support.

#### **Foundation:**

Concrete foundation shall be paid for separately as the standard IDOT pay item 73400100 CONCRETE FOUNDATIONS in CUBIC YARDS. Each foundation shall be 2 ½' (W) x 5' (D) to restrain and support the breakaway posts and sign panel.

#### **Installation:**

Installation practices shall follow Section 720 of the “Standard Specifications” except shall follow the Support and Foundation specifications herein.

**Method Of Measurement:** This work shall be measured for payment per SQUARE FOOT of sign panel, edge to edge (horizontally and vertically) as designated on the plans.

**Basis of Payment:** This item will be paid for at the contract unit price per SQUARE FOOT of sign panel as designated on the plans for INSTALL EXTRUDED SIGN PANEL. Supports and Foundation shall be paid for separately as indicated in this Special Provision. The unit price shall include all supplies, equipment, materials and labor required to furnish and install the signs.

**X7800100 PAINT PAVEMENT MARKING – RAISED MEDIAN**

**Description.** This work shall consist of painting raised medians in the locations specified in the plans according to the applicable portions of Article 780 of the Standard Specifications.

**Method of Measurement & Basis of Payment.** This work will be measured for payment in place per SQUARE FOOT for PAINT PAVEMENT MARKING – RAISED MEDIAN.

**X7830050 RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL**

This work shall consist of completely removing and disposing of the existing reflector from the base casting. If the casting has dual reflectors, then both reflectors shall be removed and counted as a single removal.

The Contractor shall take care not to damage the raised reflective pavement marker casting if it is to be left in place. All damaged castings shall be removed at the Contractor's expense.

**Method of Measurement.** This work will be measured for payment for each raised reflective pavement marker casting unit where at least one reflector has been removed.

**Basis of Payment:** This work will be paid for at the contract unit price per each for RAISED REFLECTIVE PAVEMENT MARKER, REFLECTOR REMOVAL, which price shall include all equipment, labor, and materials necessary to remove and dispose of the reflectors.

**X8211190 LUMINAIRE, LED, HORIZONTAL MOUNT, 190 WATT (SPECIAL)**

**Description.** This work shall consist of furnishing and installing Light Emitting Diode (LED) luminaire with photocell at locations shown on the plans. The luminaire will be nominal wattage of 190 watts.

**General.** Luminaires shall be installed in accordance with Sections 821.02, 821.03, and 821.04 of the Standard Specifications except as modified herein.

**Materials.** The material requirements shall be in accordance with Sections 1067.01 and 1067.02 of the Standard Specifications except as modified herein. In the case of any conflicting information, this special provision supersedes the Standard Specifications.

Replace Article 1067.01(e) with the following:

**Housing.** The luminaire shall be gasketed and sealed, and shall be UL listed for wet locations. The luminaire optical assembly shall have a minimum IEC ingress penetration rating of IP65. When furnished with a lens and frame, the lens shall be made of crystal clear, impact and heat resistant flat glass. The lens and frame shall be securely attached to the main housing and be readily removable for servicing the LED assembly. The drivers shall be mounted in the rear of the luminaire on the inside of a hinged removable door or on a removable mounting pad. The removable door or pad shall be secure when fastened in place and all individual components shall be secure upon the removable element. Each component shall be readily removable from the removable element for replacement. The luminaire mounting shall slip fit on a mast arm with a 2-inch tenon (2.375-inch outer diameter), and shall have a barrier to limit the amount of insertion. A tenon guard shall be provided to protect against wildlife intrusion. The luminaire shall be provided with a leveling surface and shall be capable of being tilted by  $\pm 5$  degrees and rotated to any degree with respect to the supporting arm. The housing shall be designed for natural removal of dirt and debris and to ensure maximum heat transfer and long LED life.

Replace Article 1067.01(f) with the following:

**Electrical.** The luminaire shall be suitable for operation at 120 volts. Terminal blocks shall be provided for incoming 10 gauge power wiring. Electronic LED drivers shall be provided for each luminaire. Each electronic driver shall have a power factor of greater than 90% and total harmonic distortion of less than 20%. The wattage of the luminaire shall be not less than 190 watts nor exceed 220 watts. The luminaire shall provide a minimum of 20,000 initial lumens at 4000K. The light distribution shall be Asymmetric Wide, similar to an IES Type III distribution. The electronic drivers shall be installed in a manner to keep them mechanically and thermally separated for the LED array heat sink. Integral surge protection shall be provided for each luminaire. Surge protection shall be tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario 1 Category High Exposure 10kV/10kA waveforms. The luminaire shall be furnished with NEMA twistlock photo control receptacle and photo electric control sensor.

**Basis of Payment.** This item will be paid for at the contract unit price per EACH for LUMINAIRE, LED, HORIZONTAL MOUNT, 190 WATT (SPECIAL), which price shall be payment in full for all materials, labor, and equipment required to perform the work.

#### **X8300001 LIGHT POLE, SPECIAL**

**Description:** The work is furnishing and construction of a ground-mounted square steel support pole (light pole) structure with a 25-foot mounting height at locations indicated on the plans.

**Materials:** The pole shall be a 25-foot steel pole meeting the requirements of ASTM-A500 Grade B 5"x5" 7GA. steel tubing with a 1" thick base plate and base cover. This pole shall also include a 3"x5" handhole with cover located 12" above the base plate.

Contractor shall submit design calculations and shop drawings for the support pole for approval by the Engineer. A total of 4 sets of design calculations and 4 sets of detailed construction drawings, signed and sealed by a Professional Engineer licensed in the State of Illinois, to the Engineer for approval. Do not begin fabrication and construction until receiving approval of the submission from the Engineer.

**Construction:** Submit detailed shop drawings for review and acceptance. Material and workmanship not previously inspected will be inspected on the work site. Remove rejected material from the work site. If a disturbance is made to the site during installation, restore the site to its original condition.



Clean threads of anchor bolts and nuts before column installation and lubricate as necessary. Clean, to the satisfaction of the Engineer, the top of the foundation to ensure it is free of dirt or other foreign materials. Install pole atop of base plate. Pole must fit freely on base plate. Do not force pole onto foundation. Make adjustments as necessary to firmly secure the pole to the foundation.

Provide grounding rod, wire, etc. to provide the necessary grounding in accordance with the NEC.

All power and/or cables are to be installed inside the pole. Ensure that the pole is hollow enough to allow cables to pass through. Cables shall only be exposed at locations shown on the plans or approved by the Engineer. The opening in the metal foundation around the conduits shall be sealed with steel wool and spray foam sealant to prevent the intrusion of insects, rodents, pests, and debris.

**Method of Measurement and Basis of Payment:** This work will be paid for at the contract unit price per EACH for LIGHT POLE, SPECIAL of the height specified, which price shall include materials, labor, mounting hardware, connections, fittings, etc. to installed as shown on the plans and as herein specified.

#### **X8710031 FIBER OPTIC CABLE – SINGLE MODE**

This work shall be in accordance with Sections 871 of the Standard Specifications except as modified herein and shall include furnishing and installing fiber optic cable in conduit and within innerduct as noted on the plans and as herein described.

Add the following to Article 871.01 of the Standard Specifications:  
The Fiber Optic cable shall be installed in conduit or as specified on the plans.

The fibers shall have a 9 micron core and a 125 micron cladding, thus having a type of 9µm/125µm optical fiber.

Add the following to Article 871.04 of the Standard Specifications:  
Single-mode fibers shall be terminated with approved optical connectors. Twelve (12) fibers shall be terminated with ST mechanical connectors and fusion splices shall be used for the remaining 24 fibers at each termination point or as directed by the Engineer.

A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be coiled and stored as approved by the Engineer.

Include in paragraph (b) of Article 1076.02:  
Single mode fiber shall satisfy the criteria of ITU Recommendation. G.652.

All costs associated with the coordination of fiber optic cable termination points shall be included in the price of the fiber optic cable being placed. Should contractor be requested by the Engineer to run fiber optic cable beyond the contract limits in order to terminate at the closest traffic signal cabinet, the cost associated for this additional work shall be at the agreed upon unit price for the fiber optic cable being installed and the associated cost for fiber optic cable terminations (if also requested by the Engineer).

**Measurement and Payment.** This work will be paid for at the contract unit price per foot for FIBER OPTIC CABLE, SINGLE MODE of the number of fibers specified, which shall include all work to furnish and install the fiber optic cable as herein specified.

### **XX005963 ANTI-GRAFFITI COATING**

**Description of Work:** This work shall consist of the furnishing and supplication of an anti-graffiti coating to exposed concrete surfaces as scheduled in the plans.

**General Requirements:** The anti-graffiti coating shall consist of a permanent, color stable, UV, stain, chemical and abrasion resistant coating. The removal of graffiti from the protected surfaces shall be accomplished by applying a separate removal agent as recommended by the manufacturer of the permanent coating. The removal agent shall have the capability of completely removing all types of paints and stains. After graffiti removal there shall be no damage to the anti-graffiti coating or the surface to which it is applied. Additionally, there shall be no evidence of ghosting, shadowing, or staining of the protected surface.

**Qualifications:** The anti-graffiti coating shall be a product that has been commercially available for a period of at least five (5) years. Samples of the proposed material shall be supplied to the Engineer for testing. The Contractor shall apply the material to a test patch following the manufacturer's recommendation. After the manufacturer's recommended curing period, the Engineer will apply various types of graffiti materials to the coating. After three (3) days the removal agent shall be used to remove the graffiti. If after graffiti removal the anti-graffiti coating is clean and undamaged, with no evidence of ghosting, shadowing or staining, then the anti-graffiti coating is approved for use.

**Surface Preparation:** Prior to application of the anti-graffiti coating, all designated surfaces shall be cleaned of loose debris, previous coatings and all foreign matter by a method as recommended by the coating manufacturer and approved by the Engineer. All surfaces shall be thoroughly clean, dry and free of dust that might prevent penetration of the coating. New concrete should be thoroughly cured before application of the coating. Concrete surfaces shall be properly sealed according to the manufacturer's recommendations so the application of the system does not produce any noticeable long-term change in color of the surfaces being treated. A technical representative of the manufacturer shall be present to approve surface preparation and application of the anti-graffiti coating.

**Weather Conditions:** Coatings shall not be applied in the rain, snow, fog or mist, nor shall they be applied if these conditions are expected within twelve (12) hours of application. Coatings shall not be applied when the surface or air temperatures are less than 40<sup>0</sup> F nor greater than 100<sup>0</sup> F, or is expected to exceed these temperatures within twelve (12) hours of application.

**Application:** The manufacturer's product data sheets and application guides shall be submitted to the Engineer prior to coating application. All information contained in the data sheets and application guides shall be strictly followed. All coatings shall be applied in the presence of the Engineer. The wet film thickness will be measured by the Engineer and shall be according to the manufacturer's recommendation. Application of the clear protective coating shall take place after the application and curing of the CONCRETE SEALER, FORM LINER TEXTURED SURFACE or STAINING CONCRETE STRUCTURES items as appropriate for the surface to be treated.

In a contrasting color of the same anti-graffiti system, the name of the system used and the date of application shall be stenciled in letters not to exceed 2 inches high. The location of the stencil shall be near one end of the work at the bottom of the surface to be protected. For projects greater than 3,000 sq. ft. near the bottom at the locations designated by the Engineer.

**Cleaning Agent:** The Contractor shall supply the Engineer with an initial quantity of the removal agent and written instructions for its use, as recommended by the manufacturer for graffiti removal. The amount shall be furnished at a rate of one (1) gallon per 81 sq. yd. of treated surface.

**Method of Measurement:** This work will be measured in place per square feet of surface area upon which the anti-graffiti coating has been applied and accepted by the Engineer. No surface area will be measured for payment for areas below final grade.

**Basis of Payment:** This Work will be paid for at the contract unit price per SQUARE FOOT for ANTI-GRAFFITI COATING which price shall be payment in full for the cleaning of designated surfaces, the application of the anti-graffiti coating, supplying the manufacturer's technical representative and supplying the initial quantity of cleaning agent.

**XX007251 INTERSECTION VIDEO TRAFFIC MONITORING SYSTEM WITH PTZ CAMERA**

**Description:** The Contractor shall furnish and install a video surveillance camera system consisting of a special video camera in a dome, a dome mount to the video monitoring pole, all mounting hardware, brackets, outdoor rated network cable (to be paid for separately) supplied to the required length by the video system manufacturer with fast disconnect at the camera mount, video camera controller and special electronics/cabling for video transmission and pan/tilt/zoom controls, video controller unit to link all electronic components between the controller unit and the camera dome to include heater, fan, PTZ camera, video coax, video decoders with video encoding and decoding software.

**Materials.** The camera shall be designed and optimized for roadway video monitoring. The items shall have a minimum Object Distance: 300mm (wide end), 800mm (tele end) and have a minimum mechanical zoom of thirty (30x) plus a minimum digital zoom of twelve (12x). The camera, joystick controller (required for field adjustments and video verification), camera controller and auxiliary devices necessary for a complete and functional video operation shall utilize the Diamond control protocol for pan/tilt/zoom controls. The camera shall be digital with IP port(s) and a built-in encoder for connection to the central office. A separate encoder shall not be required. The camera shall provide for 360-degree rotation on the horizontal plane and 180-degree rotation within the lower hemisphere of the dome. Video resolution of video feed shall have a minimum image quality of HDTV 720p.

The Contractor shall install an auxiliary cabinet, DT-ST Series, when the distance between the camera and traffic controller cabinet exceeds 300 feet. The use of a DT-ST cabinet shall be considered incidental to the cost of the video traffic monitoring system and no additional compensation shall be provided for the cabinet, cables, additional fiber optic cable, jumpers, etc.

The Contractor shall furnish and install the video software for decoding and encoding.

This item includes furnishing and installing the video monitoring camera, power injector (if required), and an auxiliary DT-ST cabinet as shown on the intersection wiring diagrams, box prints and fiber optic wiring diagram. This item also includes furnishing, installing and testing all auxiliary cabling, connectors, couplers, in-building hardware and software, jacks, splitters, conversion adapters, equipment racks, power supplies, power strips, surge suppressors, etc., necessary for a complete and fully functional system. The cable to be used for connecting the video monitoring camera to the local Ethernet switch shall be paid for separately under the pay item "Outdoor Rated Network Cable."

Cameras shall be mounted onto existing and proposed infrastructure. Proposed poles will be paid separately.

All mounting platforms, connecting hardware and auxiliary devices to test and operate this system to the satisfaction of the Engineer shall be incidental to this pay item and no additional compensation will be allowed.

The contractor shall contact the Kane County Department of Transportation (KDOT), Traffic Division prior to installing the PTZ camera and associated wiring, to receive final approval on the camera location.

**Basis of Payment:** This item will be paid for at the contract unit price each for INTERSECTION VIDEO TRAFFIC MONITORING SYSTEM WITH PTZ CAMERA, which price shall be payment in full for furnishing all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of KDOT Traffic.

#### **XX007797 LUMINAIRE (SPECIAL)**

**Description.** This work shall consist of furnishing and installing 150 Watt Light Emitting Diode (LED) luminaires with photocell at locations shown on the plan, horizontally mounted.

**General.** Luminaires shall be installed in accordance with Sections 821.02, 821.03, and 821.04 of the Standard Specifications except as modified herein.

**Electrical.** The luminaire shall be suitable for operation at 120 volts. Terminal blocks shall be provided for incoming 10 gauge power wiring. Electronic LED drivers shall be provided for each luminaire. Lifespan shall be a minimum of 100,000 hours based on IES LM-80 results and TM-21 calculations. Specified Luminaire shall be consistent with IES Type IV Distribution.

**Basis of Payment.** This item will be paid for at the contract unit price per EACH for LUMINAIRE, (SPECIAL), which price shall be payment in full for all materials, labor, and equipment required to provide each LUMINIARE (SPECIAL) and mount it according to manufacturer's specifications.

#### **XX007879 EROSION CONTROL BLANKET (SPECIAL 2)**

**Description:** This work shall consist of furnishing and placing erosion control blanket over plug plantings and promotion of wetland-type plantings. The work shall be performed according to Article 251.04 of the "Standard Specifications".

**Materials:** The erosion control blanket shall meet the requirements of Article 1081.10 of the "Standard Specifications", except that:

*The blanket material shall be 100% agricultural straw with degradable thread.*

List of Vendors & Product Name:

- Tensar/North American Green – DS75
- Western Excelsior Corporation – Excel SR-1RG (Rapid-Go)

- Erosion Control Blanket.com – S31 UVD
- Propex – Landlok S2-RD

Each blanket will be secured with a 12” degradable stake. Securing devices are not paid for separately but included in the cost of the pay item.

**Method of Measurement:** This work will be measured for payment in place in square yards of actual area covered.

**Basis of Payment:** This work will be paid for at the contract unit price per square yard for EROSION CONTROL BLANKET (SPECIAL 2). *The unit price shall include all equipment, materials and labor required to furnish and place the erosion control blanket*

### **XX007953      NETWORK CONFIGURATION**

**Description:** This work shall consist of installing, configuring and provisioning a fully operational Ethernet Local Area Network (LAN), which provides communication with remote traffic control field devices from the Kane County Division of Transportation (KDOT) traffic office. Field devices include traffic signal controllers, loop detectors, Malfunction Management Units (MMU), Uninterruptable Power Supply (UPS) units, video detection systems and CCTV (PTZ) cameras or other specified Intelligent Transportation System (ITS) field device as shown on the plans. The system shall have the capacity to add additional devices in the future.

**Construction:** Contractor shall include configuring Ethernet switches, terminal servers and media converters, assigning IP addresses to field devices based on KDOT Traffic staff input/standards, troubleshooting and submitting documentation to KDOT Traffic staff. A new, contractor-provided 36-strand single mode KDOT fiber optic cable shall serve as the Local Area Network (LAN) communication backhaul for this project to the traffic cabinet located at Randal Road and through the existing KDOT network to the KDOT Traffic operation Center. This work shall also require coordination with each manufacturer of field end devices, converters, and networking equipment to ensure successful digital video transmissions, serial-over-copper, serial-over-fiber, and serial-over-Ethernet communications between the WAN and field devices. The contractor shall also coordinate final connection to the existing system network with the KDOT network contractor of record. The contractor shall setup a meeting between the contractor, KDOT IT staff, KDOT stakeholders, and the Engineer to coordinate programming requirements for the final network programming prior to final turnover.

The Contractor shall develop a written test plan and submit it to the Engineer and KDOT Traffic for approval. The test plan shall be revised to the satisfaction of the Engineer and KDOT Traffic for approval. The testing plan shall include systematic procedures with anticipated results that demonstrate that the communication network and all of its subsystems are fully operational. Approved testing procedures will be performed in the presence of KDOT and Contractor representatives. The testing plan shall include forms listing itemized functional checks of the system with signature placeholders for KDOT and Contractor representatives.

The test plan will verify the network performance over the extent of this project. The Contractor shall emulate traffic operations over the network by interfacing a laptop computer with the Type 2 Ethernet Switch at Randall Road and Longmeadow Parkway. From this location, the Contractor will control and

exchange data with all ITS and traffic controllers, CCTV cameras, DMS signs and the RWIS. The computer shall also monitor the UPS components and all other alarms.

After satisfactory completion of this work, the existing master controllers shall be returned to KDOT as directed by the Engineer.

**Basis of Payment:** The work shall be paid for at the contract unit price per lump sum for NETWORK CONFIGURATION, which price shall be payment in full for all communication network configuration and coordination necessary to deliver an Ethernet network that provides successful communications between all field devices and the communication backhaul to the KDOT Traffic Office.

### **XX008392 OUTDOOR RATED NETWORK CABLE**

Description: This work shall consist of furnishing an outdoor-rated 24 AWG, 4-pair data cable. Each cable link that is routed to an external device outside of the area serving ITS cabinet shall be protected by a lightning protection device on the switch side of the link cable for equipment protection. Contractor shall also provide an outdoor rated Ethernet extender to power and connect to PTZ CCTV cameras located throughout the project.

#### **Materials:**

Shielded polyolefin cable with four 24 AWG twisted pair conductors.

Jacket Material: PE

Conductor Material: Bare Copper

Drain Wire Material: Tinned Copper

Insulation Material: Polyolefin

Separator Material: Polyolefin

Shield (Tape) Material: Aluminum/Poly

Cable shall meet the following electrical criteria:

ANSI/TIA Category: 6

Maximum dc Resistance Unbalance: 5 percent

Maximum dc Resistance: 9.38 ohms/100 m

Mutual Capacitance: 6.0 nF/100 m @ 1 kHz

Nominal Velocity of Propagation (NVP): 62 percent

Maximum Operating Frequency: 250 MHz

Transmission Standards: ANSI/TIA-568-C.2, CENELEC EN 50288-6-1, ISO/IEC 11801 Class E

Cable shall have an operating temperature from -40 degrees Celsius to 70 degrees Celsius, with an insulation temperature from 0 degrees Celsius to 60 degrees Celsius.

Cable shall be type F/UTP (unshielded) with 4 pairs.

Conductor gauge shall be 24 AWG and of solid type. 8 conductors shall be provided.

Maximum pull tension of cable shall not be less than 25 pounds (11 kg).

Nominal cable diameter over jacket shall be no greater than 8.255 millimeters.

The cable shall satisfy the requirements of OUTDOOR RATED NETWORK CABLE.

RJ-45 grounded lightning protection device, RJ-45 External Ethernet and POE extender with 60W pass thru shall conform to the applicable requirements of the Standard Specifications.

**Basis of Payment:** This work will be paid for at the contract unit price per FOOT for OUTDOOR RATED NETWORK CABLE which price shall include all equipment, labor, and materials necessary to complete this work as specified including mounting hardware and terminating connectors.

**XX008453      ETHERNET SWITCH, TYPE 1**

**Description:** This work shall include all materials and work necessary to install an Ethernet Managed Switch, Type 1 in a traffic signal cabinet. The Ethernet Managed Switch, Type 1 will connect the equipment in the field cabinet to the Kane County ITS data-comm fiber optic network.

**Materials:** The Ethernet Managed Switch, Type 1 is a managed edge switch configured with a minimum of the following ports:

- 8 RJ-45 10/100 Communication ports; a minimum of four (4) ports shall be equipped to provide power over Ethernet (PoE)
- 2 Single-mode 100 base Fiber optic communication ports
- 2 Single-Mode 1000 base fiber optic communication ports

The Ethernet Managed Switch, Type 1 shall satisfy the following:

Dimensions:	6.85" H x 7.5" W x 2.0" D
Power:	88-150 VAC, 47-63 Hz
Power Consumption:	20 W (maximum)
Temperature Range	-40 to +140 degrees F; cooling shall use convection and heat sinking; no fans
Weight:	3 lbs (nominal)

**Performance:**

Filtering / Forwarding Rate:	Ethernet (10Mb): 14,880 pps
Fast Ethernet (100Mb):	148,800 pps
Gigabit Ethernet (1000Mb):	1,488,000 pps
Switching Processing:	Store and Forward with IEEE 802.3x full duplex flow control, non-blocking
Data Rate:	10Mbps, 100Mbps and 1000Mbps
Address Table Capacity:	4K node, self-learning with address aging
Packet buffer size:	240KB for 10/100 and 120KB for 1000Mb
Latency:	5 $\mu$ s + packet time (100 to 100Mbps)
	15 $\mu$ s + packet time (10 to 10 Mbps, and 10 to 100Mbps)
Throughput with	max. - 4.17M pps (Transmit)
	(8 10/100 links and 2 Glinks)
Back plane-	2.66Gb/s per slot

**Network Standards and Compliance, hardware:**

Ethernet V1.0/V2.0 IEEE 802.3: 10BASE-T,  
IEEE 802.3u: 100Base-TX, 100BASE-FX  
IEEE 802.3z: 1000BASE-X Ethernet (Auto-negotiation)

IEEE 802.3ab: 1000BASE-X Ethernet  
IEEE 802.1p: Priority protocol  
IEEE 802.1d: Spanning tree protocol  
IEEE 802.1w: Rapid Spanning tree protocol  
IEEE 802.1q: VLAN Tagging  
IEEE 802.3x: Flow Control  
IEEE 802.3ad: Link Aggregation (Trunking)  
IEEE 802.1x: Port based Network access control  
IEEE 802.3af: Power over Ethernet

**Compatibility:** The switch must be form, fit, and function interchangeable with the legacy Garrettcom 6KQE Ethernet switch. If requested by the Engineer, the Contractor shall provide an off-the-shelf factory model of the proposed switch and demonstrate that the proposed switch will operate transparently and with full functionality in the existing ITS data-comm network. The demonstration will take place prior to ordering any data-comm equipment.

**Construction:** The Contractor shall locate shelf space or other suitable mounting location in the traffic signal cabinets or as identified on the plans. The Contractor shall secure the Ethernet Switch as appropriate and approved by the engineer.

The Contractor shall install all necessary patch cords, optical transceivers, connectors, power supplies, communication transformers, or auxiliary equipment necessary to complete the communication circuits at full functional potential. The Contractor shall connect the switch to the field devices as indicated on the plans.

When requested by the Contractor, the Engineer will provide the necessary IP address assignments and port assignments, including the necessary port provisioning. The contractor shall be responsible for all network programming of the network switches and communicating elements within the traffic signal cabinet.

The Contractor will demonstrate that the switches are correctly installed and configured as specified in other special provisions for this project.

**Basis of Payment:** This work shall be paid for at the contract unit price each for ETHERNET SWITCH, TYPE 1, which price shall be payment in full for furnishing and installing an Ethernet Managed Switch as specified.

#### **XX008454      ETHERNET SWITCH, TYPE 2**

##### **Description**

This work shall include all materials and work necessary to install an Ethernet Managed Switch, Type 2 in a traffic signal cabinet. The Ethernet Managed Switch, Type 2 connects field elements to the Kane County ITS data-comm network; in addition, it acts as an aggregation node and Gigabit Ethernet router.

##### **Materials**

The Ethernet Managed Switch, Type 2 is a managed edge switch configured with a minimum of the following ports:



- |    |  |
|----|--|
| 12 | RJ-45 10/100 Communication ports; a minimum of four (4) ports shall be equipped to provide power over Ethernet (PoE) |
| 2  | Single-mode 100 base Fiber optic communication ports   |
| 4  | Single-Mode 1000 base fiber optic communication ports  |

**The Ethernet Managed Switch, Type 1 shall satisfy the following:**

Dimensions:	6.85" H x 7.5" W x 2.0" D
Power:	88-150 VAC, 47-63 Hz
Power Consumption:	20 W (maximum)
Temperature Range	-40 to +140 degrees F; cooling shall use convection and heat sinking; no fans
Weight:	3 lbs (nominal)

**Performance:**

Filtering / Forwarding Rate:	Ethernet (10Mb): 14,880 pps
Fast Ethernet (100Mb):	148,800 pps
Gigabit Ethernet (1000Mb):	1,488,000 pps
Switching Processing:	Store and Forward with IEEE 802.3x full-duple flow -control, non-blocking
Data Rate:	10Mbps, 100Mbps and 1000Mbps
Address Table Capacity:	4K node, self-learning with address aging
Packet buffer size:	240KB for 10/100 and 120KB for 1000Mb
Latency:	6 $\mu$ s + packet time (100 to 100Mbps)
Throughput with	max.- 8.33M pps (Transmit)
	(8 10/100linls and 4 Glinks)
Back plane-	2.66Gb/s per slot

**Network Standards and Compliance, hardware**

Ethernet V1.0/V2.0 IEEE 802.3: 10BASE-T,  
IEEE 802.3u: 100Base-TX, 100BASE-FX  
IEEE 802.3z: 1000BASE-X Ethernet (Auto-negotiation)  
IEEE 802.3ab: 1000BASE-X Ethernet  
IEEE 802.1p: Priority protocol  
IEEE 802.1d: Spanning tree protocol  
IEEE 802.1w: Rapid Spanning tree protocol  
IEEE 802.1q: VLAN Tagging  
IEEE 802.3x: Flow Control  
IEEE 802.3ad: Link Aggregation (Trunking)  
IEEE 802.1x: Port based Network access control  
IEEE 802.3af: Power over Ethernet

**Compatibility**

The switch must be be form, fit, and function interchangeable with the legacy Garrettcom 6K32 Ethernet switch. If requested by the Engineer, the Contractor shall provide an off-the-shelf factory model and demonstrate that the proposed switch will operate transparently and with full functionality in the existing ITS data-comm network. The demonstration will take place prior to ordering any data-comm equipment.

**Construction**

The Contractor shall locate shelf space or other suitable mounting location in the traffic signal cabinets or as identified on the plans. The Contractor shall secure the Ethernet Switch as appropriate and approved by the engineer.

The Contractor shall install all necessary patch cords, optical transceivers, connectors, power supplies, communication transformers, or auxiliary equipment necessary to complete the communication circuits at full functional potential. The Contractor shall connect the switch to the field devices as indicated on the plans.

When requested by the Contractor, the Engineer will provide the necessary IP address assignments and port assignments, including the necessary port provisioning. The contractor shall be responsible for all network programming of the network switches and communicating elements within the traffic signal cabinet.

The Contractor will demonstrate that the switches are correctly installed and configured as specified in other special provisions for this project.

#### **Basis of Payment**

This work shall be paid for at the contract unit price each for ETHERNET SWITCH, TYPE 2, which price shall be payment in full for furnishing and installing an Ethernet Managed Switch as specified.

#### **XX008594 FIBER OPTIC TERMINATIONS**

**Description:** The Contractor will splice and terminate optical fibers from different cable sheaths at the locations shown on the Plans. Fibers assigned to a cabinet or location will be terminated on ST-connectors in a termination housing or termination panel; fibers not assigned to the location shall be spliced “through” to the next cabinet/location.

Two splices are identified based on the number of potential terminations: 12 terminations and 48 terminations.

**Materials:** Three types of terminations will be provided as summarized in the following table.

<u>Panel Type</u>	<u>Connector Type</u>	<u>Fiber Count</u>	<u>Connector Count</u>	<u>Splices</u>
6-Fiber	ST	24	Up to 12	Up to 30
36-Fiber	ST	36	Up to 48	Up to 36
48-Fiber	ST	48	Up to 48	Up to 48

Fiber optic terminations will consist of three components: the termination panel and housing, a fiber optic pigtail with one fiber for each connector, fusion splices, and a splice closure. Fiber optic interconnect cables will be provided to connect the termination panels to the network equipment or to crosspatch fibers from different cable sheaths.

#### *6-fiber Termination*

The 6-fiber termination is typically used to connect a field cabinet to the backbone cable. It consists of a pre-terminated ITS drop cable equipped with a 6-fiber pigtail and cable splice.

#### *36-fiber Termination*

The 36-fiber termination is typically used to terminate all fibers in a 36-fiber cable at an end point or network node. It consists of a termination box with bulkhead adapters/connectors, a pre-connectorized pigtail, and cable splice.

#### *ITS Drop Cable*

The ITS Drop Cable is a cable assembly consisting of a hermetically-sealed Fiber Termination Box equipped with six ST-type, female optical connectors. These connectors terminate a 6-fiber pigtail, with the same optical and physical characteristics as the cable it is terminating. These drop cables should be functionally equivalent to a GATOR patch™.

#### *Fiber Termination Box*

The Fiber Termination Box shall either rack-mounted or wall-mounted. It will consist of two chambers, one normally used for splicing pigtails to the entrance cable and on used for patch cords used for connecting equipment and cross-patching fibers. The splicing chamber is not required when pre-connectorized, pigtailed entrance cables are used.

#### *Pre-connectorized Pigtail*

The pre-connectorized cable connects the adapters in the termination panel to the splice in the cable vault/double handhole. ST-connectors are factory-installed on one end of a cable pigtail. The other end of the cable is spliced to appropriate fibers in the mainline cable. The cable shall be optically and mechanically equivalent to the fiber optic mainline cable specified for this project. These cables shall contain either 36 fibers for the 36-fiber termination or 48 fibers for the 48-fiber termination. The pigtails shall be factory-tested and shall have loss not exceeding 0.5 dB per connector.

#### *Fusion Splice*

The Contractor shall splice the fibers in the pigtail cable to the mainline cable as indicated in the plans. Additional protection shall be installed on the spliced fibers. The maximum splice loss for the fusion splices shall not exceed 0.1 dB. This splice loss will be measured as part of the fiber optic testing required under the fiber optic cable installation.

#### *Splice Closure*

The splice closure shall be designed for underground applications. It shall be waterproof and re-enterrable using common hand tools. It will provide a chamber tray to house the fiber optic splices. It shall also provide storage space for buffer tubes in the mainline cable that are not accessed at the specific location. The nominal dimensions of the splice closure shall be 6.5" diameter and 17" length.

All tapes and hardware required for the proper installation of the splice closure shall be incidental to this pay item.

**General Requirements.** All mounting hardware and labeling materials are included. Also included are jumper cables with ST connectors on one end and SC (or LC) connectors on the other to match the connectors on the equipment. These jumpers connect the terminated fibers to the ports on the Ethernet switches or other field devices. Each 6-fiber panel shall include five (5) jumpers and each 48-fiber panel shall include ten (10) jumpers. Each jumper will be 72 inches long. Jumpers not used for this project will be stored in plastic pouches as maintenance spares and placed in the controller cabinets. If pigtails are used to attach connectors to the mainline cables, excess pigtails shall be similarly stored in plastic bags and placed in the controller cabinet.

**Construction Requirements.** The cables shall be terminated according to the manufacturer's recommended guidelines. The Contractor shall prepare the cables and fibers in accordance with the

termination panel and cable manufacturers' installation practices. A copy of these practices shall be provided to the Engineer 21 days prior to splicing operations.

Using a fusion splicer, the Contractor shall optimize the alignment of the fibers and fuse them together. The Contractor shall recoat the fused fibers and install mechanical protection over them.

Upon completing all splicing operations for a cable span, the Contractor shall measure the mean bi-directional loss at each splice using an Optical Time Domain Reflectometer. This loss shall not exceed 0.1 dB.

The Contractor shall measure the end-to-end attenuation of each fiber, from connector to connector, using an optical power meter and source. This loss shall be measured at from both directions and shall not exceed 0.5 dB per installed kilometer of single mode cable. For cables less than 1.6 km (1 mile), the measured loss should not exceed 2 dB. Measurements shall be made at both 1300 and 1550 nm for single mode cable.

The splice closure shall be installed using the manufacturer's instructions. It shall be flash tested to 6 psi minimum. The closure should be secured to the wall of the splice vault.

As directed by the Engineer, the Contractor at no additional cost to the Department shall replace any cable splice not satisfying the required objectives.

**Method of Measurement:** Fiber optic termination of the type specified will be measured as each cable terminated, completely installed and tested with all fibers spliced, terminated, or dropped as identified in the plans, and the housing secured to the wall of the controller cabinet or facility.

**Basis of Payment:** These items shall be paid at the contract unit price each for FIBER OPTIC TERMINATION, 6 FIBER or FIBER OPTIC TERMINATION, 36 FIBER, which shall be payment in full for the work, complete, as specified herein.

### **XX008963 THREE CELL FABRIC INNERDUCT**

**Description:** This work shall consist of providing and installing a detectable 3-cell fabric innerduct within existing and proposed conduits as shown on the plans.

**Materials:** Fabric innerduct shall contain three individual cells each capable of housing cables up to 1.3" diameter cables. Fabric innerduct shall be sized to be placed in a 4" or larger conduit. Fabric innerduct shall be constructed of a flexible nylon-6 resin polymer material meeting UL 2024A standards for Optical Fiber Communications raceways. Innerduct material shall be factory lubricated.

**Pull Tape:** Pull tape shall be constructed of synthetic fiber and shall be pre-installed within each innerduct cell. Pull tape shall have sequential footage marks every 5 feet. Pull tape must be color coated to differentiate between cells. Innerduct shall contain an integrated 14-gauge tracer wire for detecting conduit. If the product is not available with a 14-gauge tracer wire then the Contractor shall install a separate 14-gauge copper wire alongside the installed innerduct.

Fabric Innerduct shall be installed in accordance with manufactures guidelines. At each end of a conduit run, the fabric innerduct shall be tied off in accordance with the manufacturer's

recommendations and the opened conduit end sealed or plugged to prevent infiltration of insects, debris or water.

**Basis of Payment:** This work will be paid for at the contract unit price per foot for THREE-CELL FABRIC INNERDUCT which price shall include all material, equipment, labor, and tools necessary to complete this work as specified including mounting hardware and terminating the innerduct and plugging the end of the conduits.

#### **Z0004002      BOLLARDS**

**Description:** This work shall be consist of furnishing and installing welded steel bollards filled with concrete and painted safety yellow in accordance with the details as shown on the plans.

**Materials:**

- Made of Schedule 40 steel tubing (8' in length).
- 8 inches in diameter with a wall thickness of 0.250 inches
- Filled with concrete and painted safety yellow

**Construction:**

1. The Contractor shall dig a post hole, 2'-2" in diameter.
2. Sawcut and weld the steel tubing as required.
3. Set the bollard in the hole on top of a concrete block or brick in a vertical position, plumb and in line to the dimensions shown in the plans.
4. Tamp loose dirt in post holes prior to placing bollards and concrete.
5. Place concrete into the post hole and crown 1" above grade to shed water away from the bollard. Brace the bollard as required to ensure the bollard remains vertical.
6. Fill the bollard with concrete and crown 2" above the top of the post.
7. Paint the bollard safety with a prime coat and a top coat of safety yellow latex. This can be done by brush or spraying. Clean the surface before painting and allow 24 hours of drying time between coats. The Contractor is responsible for damage by overspray.

**Measurement and Payment:** This work will be measured and paid for at the contract unit price per each for BOLLARDS, which shall be payment in full for furnishing, fabricating and installing the bollards.

#### **Z0013796      SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE**

**Description:** This work shall consist of constructing a stabilized construction entrance, including furnishing, installing, maintaining and removing a stabilized pad of aggregate underlain with filter fabric, as shown on the plans or directed by the Engineer.

**Materials:** The materials used shall meet the requirements of the following:

Aggregate: The aggregate shall be limited to IDOT Coarse Aggregate Gradation CA-1.

Filter Fabric: The filter fabric shall be made of synthetic polymers composed of at least 85 percent by weight polypropylene, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene-chlorides.

The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet lights.

**Construction Requirements:** The aggregate shall be at least six inches thick. The aggregate shall not be placed until the entrance area has been inspected and approved by the Engineer.

The aggregate shall be dumped and spread into place in approximately horizontal layers. The layer(s) shall not exceed three feet in thickness. The aggregate shall be placed in such a manner as to produce a reasonably homogeneous stable fill that contains no segregated pockets of larger or smaller fragments or large unfilled space caused by bridging of larger fragments. No compaction shall be required beyond that resulting from the placing and spreading operations.

The construction entrance shall follow the dimensions shown on the plans and/or have a minimum width of 14 feet and a minimum length of 50 feet.

All surface water flowing or diverted toward the construction entrance shall be piped across the entrance. Any pipe used for this will be considered included in the unit price for SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE. The stabilized construction entrance shall have positive drainage away from the roadway.

The entrance shall remain in place and be maintained until the disturbed area is stabilized. Any sediment spilled onto public right-of-way(s) shall be removed immediately. All removed materials shall be disposed of outside the limits of the right-of-way according to Article 202.03 of the “Standard Specifications” and/or as directed by the Engineer.

**Method of Measurement:** The Stabilized Construction Entrance will be measured in place and the area computed in square yards.

**Basis of Payment:** The work will be paid for at the contract unit price per square yard for SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE. The unit price shall include all material, including filter fabric, labor, equipment and any other items required to complete the construction entrance.

## **Z0013798      CONSTRUCTION LAYOUT**

**Description.** The Contractor shall furnish and place construction layout stakes for this project. The Engineer will provide adequate reference points to the centerline of survey including all PI's, PCs, PT's, PRCs, and POT's as indicated on the plans as well as bench marks as described in the plans. Any additional control points set by the Department will be identified in the field to the Contractor and all field notes will be kept in the office of the Engineer.

The Contractor shall provide field forces, equipment, and material to set all additional stakes for this project, which are needed to establish offset stakes, reference points, and any other horizontal or vertical controls, including supplementary bench marks, necessary to secure a correct layout for the roadway portion of the work. Stakes for line and grade of pavement and/or curb shall be set at sufficient station intervals (not to exceed 50 ft (15 m)) to assure substantial conformance to plan line and grade. The Contractor will not be required to set additional stakes to locate a utility line which is not included as a pay item in the contract nor to determine property lines between private properties.

The Contractor shall be responsible for having the finished work conform to the lines, grades, elevations, and dimensions called for in the plans. Any inspection or checking of the Contractor's layout by the Engineer and the acceptance of all or any part of it shall not relieve the Contractor of his/her responsibility to secure the proper dimensions, grades, and elevations of the several parts of the work. The Contractor shall exercise care in the preservation of stakes and bench marks and shall have them reset when any are damaged, lost, displaced, removed, or otherwise obliterated.

Responsibility of the Contractor.

The Contractor shall establish from the given survey points and bench marks all the control points necessary to construct the individual project elements. (S)He shall provide the Engineer adequate control in close proximity to each individual element to allow adequate checking of construction operations. This includes, but is not limited to, line and grade stakes, line and grade nails in form work, and/or filed or etched marks in substantially completed construction work. It is the Contractor's responsibility to tie in centerline control points in order to preserve them during construction operations.

At the completion of the grading operations, the Contractor shall set stakes at 100 ft (25 m) station intervals along each profile grade line. These stakes will be used for final cross sectioning by the Engineer.

The Contractor shall locate the right-of-way points for the installation of right- of-way markers. The Contractor shall set all line stakes for the construction of fences by the Contractor.

All work shall be according to normally accepted self-checking surveying practices. Field notes shall be kept in standard survey field notebooks and those books shall become the property of the Department at the completion of the project. All notes shall be neat, orderly, and in accepted form.

Measurement and Payment. This work will be paid for at the contract LUMP SUM price for CONSTRUCTION LAYOUT.

**Z0019600      DUST CONTROL WATERING**

**Description:** This work shall consist of developing and implementing a detailed Dust Control Plan (DCP). Development of a DCP is required. All construction activities shall be governed by the DCP. The nature and extent of dust generating activities, and specific control techniques appropriate to specific situations shall be discussed at the pre-construction meeting, with subsequent development of the DCP to include but not be limited to the requirements below.

The Contractor is responsible for the control of dust at all times during the duration of the contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays. This work shall be considered complete after the completion of all permanent erosion control measures required for the contract, and after all temporary and permanent seeding is established. Work on this contract shall be conducted in a manner that will not result in generating excessive air borne particulate matter (PM) or nuisance dust conditions as determined by the Engineer.

The DCP shall include legible copies of the product literature and Material Safety Data Sheets for dust suppression agents and stabilizers the contractor proposes to use. The Dust Control Plan shall describe the plan for the implementation of control measures before, during and after conducting any dust generating operation. These controls must be in place on non-working days and after working

hours, not just while work is being done on the site. The Dust Control Plan must contain information specific to the project site, proposed work, and dust control measures to be implemented. A copy of the Dust Control Plan must be available on the project site at all times.

The Dust Control Plan must contain, at a minimum, all of the following information:

- (1) Name, address and phone number of the person(s) responsible for the dust generating operation and for the submittal and implementation of the Dust Control Plan.
- (2) A drawing specifying the site boundaries of the project with the areas to be disturbed, the locations of the nearest public roads, and all planned exit and entrance locations to the site from any paved public roadways.
- (3) Control measures to be applied to all actual and potential fugitive dust sources before, during and after conducting any dust generating operation, including non-work hours and non-work days.
- (4) A list of dust suppressants to be applied, including product specifications, Material Safety Data Sheets, and product label instructions that include the method, frequency and intensity of applications and information on the environmental impacts and approval or certifications related to the appropriate and safe use for ground applications.
- (5) A contingency plan consisting of at least one contingency measure for each activity occurring on the site in case the primary control measure proves inadequate.

The Contractor shall submit two copies of the DCP that outlines in detail the measures to be implemented by the Contractor complying with this section, including prevention, cleanup, and other measures at least 14 days before beginning any dust generating activity. The Contractor shall not begin any dust generating activities until the Engineer approves the DCP in writing.

#### **Materials.**

##### **(1) Dust Suppression Agents**

- a. Dust suppression agents shall be water soluble, non-toxic, non-reactive, and non-volatile, and non-foaming. The use of petroleum for dust control is prohibited.
- b. Calcium Chloride shall conform to the requirements of Article 1013.01 of the standard specifications. Other commercially available dust suppression agents may be substituted for calcium chloride subject to the approval of the Engineer. Material Safety Data Sheets must be reviewed and approved by the Engineer prior to the use of any substances other than Calcium Chloride.
- c. Water shall meet the requirements of Section 1002 of the Standard Specifications.

**Construction Methods.** Dust suppression agents shall be used to provide temporary control of dust on haul roads and other active work areas. Several applications per day may be necessary to control dust depending upon meteorological conditions and work activity. The Contractor shall apply dust suppression on a routine basis as necessary or as directed by the Engineer to control dust. Wet suppression consists of the application of water or a wetting agent in solution with water. Wetting agents shall not be applied directly to live plant material. Wet suppression equipment shall



consist of sprinkler pipelines, tanks, tank trucks or other devices approved by the Engineer, capable of providing a regulated flow, uniform spray and positive shut off.

Calcium chloride dust suppression agents may be used in lieu of wet suppression only when freezing conditions exist. Calcium chloride shall be uniformly applied by a mechanical spreader at a rate of 1 and 1/2 pounds per square yard or its equivalent liquid, unless otherwise directed by the Engineer. Calcium chloride shall not be directly applied to live plant material.

Calcium chloride must not be stored outdoors without an impermeable cover. Storage must be on an impermeable surface such as paved asphalt or appropriately treated concrete of sufficient thickness to avoid ex-filtration. Storage should be as airtight as possible to limit the calcium chloride's absorbing moisture from the air. No storage facilities will be allowed within 100 feet of a storm sewer, or any other drain. Positive drainage must be maintained on all treated surfaces. Ditches, culverts and other structures must be kept clean to ensure proper drainage and to limit the amount of water infiltrating earth surfaces and thereby leeching out chlorides. If calcium chloride is applied dry, or during dry periods, and crystals are seen on the road surface, the road should be wetted sufficiently to dissolve the calcium chloride. Wetting should be limited to an amount that will sufficiently cause the calcium chloride to penetrate the surface but not to the point of causing any runoff from the road surface. Other approved dust suppression agents shall be applied and used as per the manufacturer's instructions.

Haul truck cargo areas shall be securely covered during the transport of materials on public roadways that are prone to cause dust.

Public Roadway Dust Control. Track out, including carryout and spillage of material that adheres to the exterior surfaces of or are spilled from motor vehicles and/or equipment and subsequently fall onto a paved public roadway must be controlled at all times. Clean up of carryout and spillage is required immediately if it extends a cumulative distance of 50 feet or more on a paved public roadway. If the extent of carryout is less than 50 feet, clean up at the end of the day is permissible. Clean up of paved surfaces shall be by wet spray power vacuum street sweeper. Dry power sweeping is prohibited.

Control of Earthwork Dust. During batch drop operations (i.e. earthwork with a front-end loader, clamshell bucket, or backhoe), the free drop height of excavated or aggregate material shall be reduced to minimum heights as necessary to perform the specified task, and to minimize the generation of dust. To prevent spills during transport, a minimum of 2 inches of freeboard space shall be maintained between the material load and the top of the truck cargo bed rail. A maximum drop height of two feet (or minimum height allowed by equipment) will be allowed, or to heights as directed by the Engineer.

Calcium chloride and other approved dust suppression agents shall be mixed with water at the rate specified by the manufacturer and measured for payment in units of 1000 Gallons of solution applied.

All other dust control measures will not be measured for payment.

**Basis of Payment.** This work will be paid for at the contract unit price per UNIT for DUST CONTROL WATERING and shall include all dust suppression agents, water, calcium chloride, and labor to control dust.

**Z0022800 FENCE REMOVAL**

This work shall consist of the removal of fence as shown in the plans or otherwise directed by the Engineer. The removal shall include post foundations, fittings, gates, posts, rails or fabric and any accessories. All holes left by the removal of the fence posts and post foundations shall be filled with crushed stone screenings. The furnishing and placing of the screenings shall be included in the cost of the Fence Removal. The existing fence shall be removed and disposed of off the right-of-way as part of this item. Any part of the fence that is damaged that is not called for to be removed shall be replaced at the Contractor's expense.

**Method of Measurement:** Fence Removal will be measured per lineal foot measured along the base of the fence.

**Basis of Payment:** This work will be paid for at the contract unit price per linear foot for FENCE REMOVAL, which includes all equipment, labor and materials necessary to remove, furnish and place post hole backfill and dispose of the fence, and all miscellaneous accessories.

**Z0023202 SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING**

**Description:** This work shall consist of cleaning sediment out of a drainage structure inlet filter when directed by the Engineer. The Engineer will be the sole judge of the need for cleaning based on the rate that debris and silt is collected at each inlet filter cleaning.

Cleaning of the inlet filter shall consist of inspecting, cleaning (includes removal and proper disposal of debris and silt that has accumulated) by vactoring, removing and dumping, or any other method that has been approved by the engineer. For purposes of this contract, it is anticipated that inlet filter cleaning will be performed one time for all inlet filters on the project. Some filters will require no cleaning, others will require multiple cleanings. The Contractor may use some or all quantity for this pay item.

**Basis of Payment:** This work shall be paid at the contract unit price for EACH for SEDIMENT CONTROL, DRAINAGE STRUCTURE INLET FILTER CLEANING.

**Z0033058 POST-MOUNTED FLASHING BEACON ASSEMBLY INSTALLATION (SPECIAL)**

Description: This work shall consist of furnishing and installing a Rectangular Rapid Flashing Beacon (RRFB) Assembly complete with RRFB; AC power supply; traffic signal post; foundation; pedestrian push button; warning signs and plaques; pedestrian push-button sign; controller and cabinet; and communication equipment as shown on the plans and/or as specified by the Engineer. All equipment and hardware required to mount the RRFB and associated equipment to the assembly shall be included in the unit cost of this item.

**Materials:** All components shall be manufactured and assembled as a complete system and consist of the following:

**Rectangular Rapid Flashing Beacon:** Each RRFB assembly shall satisfy the FHWA Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11), dated July 16, 2008, and all subsequent FHWA Official Interpretation Letters and the 2009 edition of the Manual of Uniform Traffic Control Devices (MUTCD), including the unit size, mounting location, flash rate, and operational parameters unless modified herein by this special provision. The RRFB assembly shall be programmable to allow the County Traffic Engineer to set the duration of the flashing beacon display based on the crossing time requirements established in the MUTCD. The Contractor shall furnish and install two direction RRFB units with far side indicator light mounted to the sign structure as indicated on the plans. The RRFB shall be rated for Class I light intensity output according to the Society of Automotive Engineers (SAE) Standard J595 with a 15 year life expectancy. The minimum size of the LED beacon shall be 7 inches x 3 inches. The RRFB shall be able to be seen at least 1,000 feet in advance of the crossing during the day. The RRFB shall have an operating temperature meeting NEMA specifications.

**Power Supply:** The installation must be an external power supply.

- A. External Power Supply: The external power supply shall meet the following sections of the “Standard Specifications”:
  - a. Section 805, Electrical Service Installation-Traffic Signals
  - b. Section 806, Grounding
  - c. Section 810, Underground Raceways
  - d. Section 870, Multi-Conductor Power Cable
  - e. Section 873, Electric Cable
- B. AC Power service rating shall be 120VAC 10A minimum; 3-wire grounded circuit.
- C. Power feed wire type and gauge shall be per IDOT Standards.

**Controller:** The RRFB controller shall meet the requirements of Section 858 of the “Standard Specifications” and the following:

- A. Power Options: The controller unit shall only be AC powered. Solar powered systems are not acceptable.
- B. Controller to Controller Communication: At each location all installed RRFB assemblies shall communicate by a hard-wired connection per manufacturer’s specifications.
- C. All necessary wiring to connect the RRFB assembly from the power service drop handhole to both assemblies shall follow manufacturer’s recommendations and shall be considered included in the cost of this pay item. Galvanized steel conduit, handhole, and electric service connection shall be paid for separately.
- D. Timing: The controller shall provide the full programmed timing upon all push button activations. This timing coordination shall be acceptable to the County and the Engineer prior to acceptance.

**Traffic Signal Post:** The traffic signal post shall meet the requirements of Section 875 for traffic signal post or traffic signal post, special, as shown on the plans.

**Foundation:** The traffic signal post foundation shall be concrete. Bolt and anchor pattern shall follow manufacturer’s specifications and the following:

- A. Concrete Foundation: The concrete foundation shall meet the requirements of Section 878 of the Standard Specifications.

- B. Anchor bolts for the pole base shall be set in place prior to pouring concrete. Anchors must meet the minimum mechanical requirements of ASTM A36 and have a minimum tensile strength of 58,000 PSI and minimum yield of 36,000 PSI, ASTM F1554 Grade 36.
- C. Must be Hot-Dipped Galvanized in accordance with ASTM F2329.
- D. Nuts and washers shall comply with ASTM A563 Grade A.
- E. Anchors shall be equipped with breakaway bolts and universal couplers to ensure the RRFB Assembly is breakaway-compliant.
- F. Any deviations to the above must be approved by the Engineer prior to installation.

**Pedestrian Push Button:** The pedestrian push button shall meet the requirements of Section 888 of the “Standard Specifications”

**Signs:** Each RRFB assembly shall include two crossing signs (W11-2) 36 inch x 36 inch dimension, two diagonal downward pointing arrow (W16-7P) plaques 24 inch x 12 inch dimension, mounted back-to-back, mounted as part of or above the pedestrian push button. Push button sign shall be (R10-25) 9 inch x12 inch and mounted directly above the ADA-compliant push-button. The W-series sign panels shall be manufactured with fluorescent yellow green type ZZ sheeting meeting the requirements of Section 1091 of the “Standard Specifications. All signs shall meet the latest requirements of the MUTCD. The signs shall have brackets and sign channels which are equal to and completely interchangeable with those used by the KDOT Sign Shop.

**Warranty:** All materials shall be warranted for three years from date of acceptance or turn on by the KDOT Traffic Department.

**Installation:** The RRFB Assembly shall be installed strictly according to the manufacturer’s recommendations, the applicable portions of the “Standard Specifications” and/or as directed by the Engineer. The final elevation and location of the light bar beacons shall be approved by the Engineer prior to the Contractor beginning work.

**Basis of Payment:** This work will be paid at the contract unit price per EACH for POST-MOUNTED FLASHING BEACON ASSEMBLY INSTALLATION (SPECIAL). The unit price shall include all labor, equipment, materials and documentation required to furnish and install the RRFB assembly complete with power supply; traffic signal post; foundation; pedestrian push button; signs and plaques; controller and cabinet; communication equipment; wiring; testing and timing; and mounting hardware.

## **Z0062456      TEMPORARY PAVEMENT**

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

The contractor shall use either Portland cement concrete according to Sections 353 and 354 of the Standard Specifications or HMA according to Sections 355, 356, 406 of the Standard Specifications, and other applicable HMA special provisions as contained herein. The HMA mixtures to be used shall be specified in the plans. The thickness of the Temporary Pavement shall be as described in the plans. The contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans.

Articles 355.08 and 406.11 of the Standard Specifications shall not apply.

For purposes of this contract, temporary pavement aggregate base course of 4" shall be considered included in the cost per square yard of Temporary Pavement and not paid for separately.

The removal of the Temporary Pavement, if required, shall conform to Section 440 of the Standard Specification.

**Basis of Payment.** This work will be paid for at the contract unit price per SQUARE YARD for TEMPORARY PAVEMENT.

Removal of temporary pavement will be paid for at the contract unit price per square yard for PAVEMENT REMOVAL.

### **Z0066600 & Z0066700                      STABILIZED DRIVEWAYS (8",10")**

**Description:** This work shall consist of furnishing, placing and compacting hot-mix asphalt driveway pavement at locations shown on the plans and as directed by the Engineer.

This work shall conform to the applicable Sections of Articles 311, 355 and 406.

Indicated driveways to be stabilized shall be constructed to a nominal thickness of 8 inches for a private entrance and 10" for a commercial entrance. Each shall have a minimum 2" thick surface course (HMA Surface Course, Mix "D", N70) with the balance constructed using hot mix asphalt base course (HMA Base Course, 6" or 8"). Aggregate and bituminous material prime coats shall be applied according to Article 406 and as directed by the Engineer. The driveway shall be constructed on a 4 inch compacted aggregate subbase conforming to the applicable Sections of Article 311 for Subbase Granular Materials Type B.

**Method of Measurement:** Stabilized driveways will be measured in place and the area computed in SQUARE YARDS. Aggregate subbase and aggregate and bituminous material prime coats will not be measured for payment but shall be considered included in payment for Stabilized Driveways of the thickness specified.

**Basis of Payment:** The work will be paid at the contract unit price per square yard for STABILIZED DRIVEWAYS, 8 INCH or 10 INCH.

### **Z0077900                      WOOD POST AND RAIL FENCE**

**Description:** This work shall consist of furnishing and installing a wood post and rail fence in accordance with applicable portions of Sections 507 and 641 of the Standard Specifications, as per the details shown on the plans and as directed by the Engineer.

The posts and rails shall comply with the requirements of Section 1007 of the Standard Specifications for No. 1 Dense SR 1550 F for southern pine or No. 1 Dense 1400 F for Douglas fir. All lumber shall be sound and free from excessive splitting or deterioration. Dimensions shown on the plans are for surfaced (S4S) lumber. All wood used for posts and rails shall be treated with ACA or CCA according to Article 1007.12, Miscellaneous Lumber for Human Contact. After erection of the

fence, the Contractor shall apply two (2) coats of a commercially available water seal for treated lumber meeting the approval of the Engineer.

Hardware shall include all necessary fasteners and appurtenances for construction of the fence and shall be according to Article 1006.17.

Wooden fence construction shall conform to the applicable portions of Sections 507 and 641 of the Standard Specifications. The backfill for posts shall be CA 6, CA 10, or CA 12 aggregate according to Article 1004.01. Backfill shall be thoroughly compacted, meeting the approval of the Engineer.

The wood posts and rail fence will be measured for payment in feet along the top of the fence from center to center of end posts.

**Basis of Payment:** This work shall be paid for at the contract unit price, per foot, for WOOD POST AND RAIL FENCE, of the type and size indicated on the plans which price shall include all equipment and labor required to complete the work as specified.

#### **XXXXXXXXX JUNCTION BOX, STAINLESS STEEL, ATTACHED TO STRUCTURE**

**Description.** This work shall consist of all materials, equipment and labor required to furnish and install stainless steel junction boxes of the size and at the locations shown on the structure plans.

**Materials.** The materials shall meet the requirements of Article 1088.04 of the Standard Specifications.

**Installation:** Junction boxes shall be installed as shown on the plans and according to the applicable requirements of Article 813.03 of the Standard Specifications.

**Method of Measurement.** This work will be measured in place as each at the locations specified.

**Basis of Payment.** This work will be paid for at the contract unit price each for JUNCTION BOX, STAINLESS STEEL, ATTACHED TO STRUCTURE, 60" x 36" x 12", as shown on the plans.

#### **XXXXXXXXX CORRUGATED STRUCTURAL STEEL PIPE ARCHES 17 SQ FT**

**Description.** This work shall consist of providing a temporary culvert extension, 83" x 57" CMP arch in the existing box culvert underneath IL Route 31 and backfilling to a height of 793.0 for purposes of traffic staging. This temporary culvert extension shall be placed within the existing box culvert and reinforced concrete extension beneath the proposed temporary pavement as shown on the structural plans for TEMPORARY CULVERT EXTENSION DETAILS STRUCTURE NO. 045-0112. This culvert shall extend to a temporary earthen channel at the elevations specified on the plans.

Following completion of the need for the temporary steel pipe arch, it shall be removed and disposed of. This shall be paid for according to REMOVAL OF EXISTING STRUCTURES, SPECIAL as indicated in these special provisions.

**Method of Measurement & Basis of Payment.** This work will be paid for at the contract unit price each per FOOT for CORRUGATED STRUCTURAL STEEL PIPE ARCHES 17 SQ FT. This pay item shall include all time, materials, and labor to complete the temporary extension as detailed in the plans and backfill over the pipe.

## **IDOT SPECIAL PROVISIONS**

### **ADJUSTMENTS AND RECONSTRUCTIONS**

Effective: March 15, 2011

Revise the first paragraph of Article 602.04 to read:

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

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

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

Revise Article 603.05 to read:

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

Revise Article 603.06 to read:

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

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

Revise the first sentence of Article 603.07 to read:

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

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

Effective: April 1, 2001

Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:



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

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

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

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

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

Add the following to Article 402.12 of the Standard Specifications:

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

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

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

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

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

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

Effective: February 22, 2012

Revised: April 1, 2016

Add the following Section to the Standard Specifications:

**“SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT**

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

**303.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate .....	1004.07
(b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2 and 3) .....	1031

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

Note 2. RAP having 100 percent passing the 1 1/2 in (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradation CS 01 is used in lower lifts. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders. The final product shall not contain more than 40 percent by weight of RAP.

Note 3. The RAP used for aggregate subgrade improvement shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Pavement (RAP) for Aggregate Applications”.

**303.03 Equipment.** The vibratory machine shall be according to Article 1101.01, or as approved by the Engineer. The calibration for the mechanical feeders shall have an accuracy of  $\pm 2.0$  percent of the actual quantity of material delivered.

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

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

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

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

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

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

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

Add the following to Section 1004 of the Standard Specifications:

“ **1004.07 Coarse Aggregate for Aggregate Subgrade Improvement.** The aggregate shall be according to Article 1004.01 and the following.

- (a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete. The top 12 inches of the aggregate subgrade improvement shall be 3 inches of capping material and 9 inches of crushed gravel, crushed stone or crushed concrete. In applications where greater than 36 inches of subgrade material is required, rounded gravel, meeting the CS01 gradation, may be used beginning at a depth of 12 inches below the bottom of pavement.
- (b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials. Non-mechanically blended RAP may be allowed up to a maximum of 5.0 percent.
- (c) Gradation.
  - (1) The coarse aggregate gradation for total subgrade thicknesses of 12 in. (300 mm) or greater shall be CS 01.

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

Grad No.	COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)				
	Sieve Size and Percent Passing				
	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20

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

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

Effective: November 1, 2011

Revised: November 1, 2013

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

Reclaimed Asphalt Pavement (RAP) maybe blended with gravel, crushed gravel, crushed stone crushed concrete, crushed slag, chats, crushed sand stone or wet bottom boiler slag. The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Pavement (RAP) for Aggregate Applications”. The RAP shall be uniformly graded and shall pass the 1.0 in. (25 mm) screen. When RAP is blended with any of the coarse aggregate listed above, the blending shall be done mechanically with calibrated feeders. The feeders shall have an accuracy of  $\pm 2.0$  percent of the actual quantity of material delivered. The final blended product shall not contain more than 40 percent by weight RAP.

The coarse aggregate listed above shall meet CA 6 and CA 10 gradations prior to being blended with the processed and uniformly graded RAP. Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

**DRAINAGE AND INLET PROTECTION UNDER TRAFFIC (D-1)**

Effective: April 1, 2011

Revised: April 2, 2011

Add the following to Article 603.02 of the Standard Specifications:

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

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

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

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

Revise Article 603.07 of the Standard Specifications to read:

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

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

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

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

Placement shall be according to the manufacturer's specifications.

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

## **EMBANKMENT I**

Effective: March 1, 2011

Revised: November 1, 2013

Description. This work shall be according to Section 205 of the Standard Specifications except for the following.

Material. All material shall be approved by the District Geotechnical Engineer. The proposed material must meet the following requirements.

- a) The laboratory Standard Dry Density shall be a minimum of 90 lb/cu ft (1450 kg/cu m) when determined according to AASHTO T 99 (Method C).
- b) The organic content shall be less than ten percent determined according to AASHTO T 194 (Wet Combustion).
- c) Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 3 ft (900 mm) of soil not considered detrimental in terms of erosion potential or excess volume change.

- 1) A grain size distribution with less than 35 percent passing the number 75 um (#200) sieve.
- 2) A plasticity index (PI) of less than 12.
- 3) A liquid limit (LL) in excess of 50.
- d) Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present.
- e) The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications". Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

## CONSTRUCTION REQUIREMENTS

Samples. Embankment material shall be sampled, tested, and approved before use. The contractor shall identify embankment sources, and provide equipment as the Engineer requires, for the collection of samples from those sources. Samples will be furnished to the Geotechnical Engineer a minimum of three weeks prior to use in order that laboratory tests for approval and compaction can be performed. Embankment material placement cannot begin until tests are completed and approval given.

Placing Material. In addition to Article 202.03, broken concrete, reclaimed asphalt with no expansive aggregate, or uncontaminated dirt and sand generated from construction or demolition activities shall be placed in 6 inches (150 mm) lifts and disked with the underlying lift until a uniform homogenous material is formed. This process also applies to the overlaying lifts. The disk must have a minimum blade diameter of 24 inches (600 mm).

When embankments are to be constructed on hillsides or existing slopes that are steeper than 3H:1V, steps shall be keyed into the existing slope by stepping and benching as shown in the plans or as directed by the engineer.

Compaction. Soils classification for moisture content control will be determined by the Soils Inspector using visual field examination techniques and the IDH Textural Classification Chart. When tested for density in place each lift shall have a maximum moisture content as follows.

- a) A maximum of 110 percent of the optimum moisture for all forms of clay soils.
- b) A maximum of 105 percent of the optimum moisture for all forms of clay loam soils.

Stability. The requirement for embankment stability in Article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches (38 mm) per blow.

Basis of Payment. This work will not be paid separately but will be considered as included in the various items of excavation.

## **EMBANKMENT II**

Effective: March 1, 2011

Revised: November 1, 2013

Description. This work shall be according to Section 205 of the Standard Specifications except for the following.

Material. Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present. The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications". Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

### **CONSTRUCTION REQUIREMENTS**

Samples. Embankment material shall be sampled and tested before use. The contractor shall identify embankment sources, and provide equipment as the Engineer requires, for the collection of samples from those sources. Samples will be furnished to the Geotechnical Engineer a minimum of three weeks prior to use in order that laboratory tests for compaction can be performed. Embankment material placement cannot begin until tests are completed.

Placing Material. In addition to Article 202.03, broken concrete, reclaimed asphalt with no expansive aggregate, or uncontaminated dirt and sand generated from construction or demolition activities shall be placed in 6 inches (150 mm) lifts and disked with the underlying lift until a uniform homogenous material is formed. This process also applies to the overlaying lifts. The disk must have a minimum blade diameter of 24 inches (600 mm).

When embankments are to be constructed on hillsides or existing slopes that are steeper than 3H:1V, steps shall be keyed into the existing slope by stepping and benching as shown in the plans or as directed by the Engineer.

Compaction. Soils classification for moisture content control will be determined by the Soils Inspector using visual field examination techniques and the IDH Textural Classification Chart.

When tested for density in place each lift shall have a maximum moisture content as follows.

- a) A maximum of 110 percent of the optimum moisture for all forms of clay soils.
- b) A maximum of 105 percent of the optimum moisture for all forms of clay loam soils.

Stability. The requirement for embankment stability in article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches (38 mm) per blow.

Basis of Payment. This work will not be paid separately but will be considered as included in the various items of excavation.

**FRICTION AGGREGATE (D-1)**

Effective: January 1, 2011

Revised: April 29, 2016

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

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

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

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	<u>Allowed Alone or in Combination</u> <sup>5/</sup> : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA Low ESAL	Stabilized Subbase or Shoulders	<u>Allowed Alone or in Combination</u> <sup>5/</sup> : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag <sup>1/</sup> Crushed Concrete
HMA High ESAL Low ESAL	Binder IL-19.0 or IL-19.0L  SMA Binder	<u>Allowed Alone or in Combination</u> <sup>5/ 6/</sup> : Crushed Gravel Carbonate Crushed Stone <sup>2/</sup> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete <sup>3/</sup>



Use	Mixture	Aggregates Allowed								
HMA High ESAL Low ESAL	C Surface and Leveling Binder IL-9.5 or IL-9.5L  SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination</u> <sup>5/</sup> :  Crushed Gravel Carbonate Crushed Stone <sup>2/</sup> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag <sup>4/</sup> Crushed Concrete <sup>3/</sup>								
HMA High ESAL	D Surface and Leveling Binder IL-9.5  SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination</u> <sup>5/</sup> :  Crushed Gravel Carbonate Crushed Stone (other than Limestone) <sup>2/</sup> Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag <sup>4/</sup> Crushed Concrete <sup>3/</sup>								
		<u>Other Combinations Allowed:</u>								
		<table><tr><td><i>Up to...</i></td><td><i>With...</i></td></tr><tr><td>25% Limestone</td><td>Dolomite</td></tr><tr><td>50% Limestone</td><td>Any Mixture D aggregate other than Dolomite</td></tr><tr><td>75% Limestone</td><td>Crushed Slag (ACBF) or Crushed Sandstone</td></tr></table>	<i>Up to...</i>	<i>With...</i>	25% Limestone	Dolomite	50% Limestone	Any Mixture D aggregate other than Dolomite	75% Limestone	Crushed Slag (ACBF) or Crushed Sandstone
		<i>Up to...</i>	<i>With...</i>							
		25% Limestone	Dolomite							
		50% Limestone	Any Mixture D aggregate other than Dolomite							
75% Limestone	Crushed Slag (ACBF) or Crushed Sandstone									
HMA High ESAL	E Surface IL-9.5  SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination</u> <sup>5/ 6/</sup> :  Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag  No Limestone.								
		<u>Other Combinations Allowed:</u>								
		<table><tr><td><i>Up to...</i></td><td><i>With...</i></td></tr><tr><td>50% Dolomite<sup>2/</sup></td><td>Any Mixture E aggregate</td></tr></table>	<i>Up to...</i>	<i>With...</i>	50% Dolomite <sup>2/</sup>	Any Mixture E aggregate				
<i>Up to...</i>	<i>With...</i>									
50% Dolomite <sup>2/</sup>	Any Mixture E aggregate									

Use	Mixture	Aggregates Allowed	
		75% Dolomite <sup>2/</sup>	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone
		75% Crushed Gravel <sup>2/</sup> or Crushed Concrete <sup>3/</sup>	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag
HMA High ESAL	F Surface IL-9.5  SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination</u> <sup>5/ 6/</sup> :	
		Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag No Limestone.	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		50% Crushed Gravel <sup>2/</sup> , Crushed Concrete <sup>3/</sup> , or Dolomite <sup>2/</sup>	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone (limestone) and/or crushed gravel shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as leveling binder.
- 5/ When combinations of aggregates are used, the blend percent measurements shall be by volume.”
- 6/ Combining different types of aggregate will not be permitted in SMA Ndesign 80.”

## GENERAL REQUIREMENTS FOR WEED CONTROL SPRAYING

Effective: February 7, 2007

### Experience.

The Contractor shall have previous experience with the use of weed control chemicals. He/she shall have had at least one (1) season’s experience in the use of their chemicals in spraying highway right-of-way or at least three (3) season’s experience in their use in farm or custom spraying. The Contractor shall observe and comply with all sections of the Illinois Custom Spray Law, including licensing.

### Equipment.

The equipment used shall consist of a vehicle-mounted tank, pump, spray bar and handgun, plus any other accessories needed to complete the specified work. Spraying shall be done through multiple low-pressure flooding or broad jet nozzles mounted on spray bars operated not more than 36" above the ground. If different sizes or types of nozzles are used to make up the spray pattern, the pressure, sizes and capacities shall be adjusted to provide a uniform rate of application for each segment of the spray pattern. Hand spray guns may be used for spraying areas around traffic control devices, lighting standard and similar inaccessible areas. Maximum speed of the spray vehicle during application of chemical shall be five (5) miles per hour.

Pumps used shall have a volume and pressure capacity range sufficient to deliver the mixture at a pressure to provide the required coverage and to keep the spray pattern full and steady without pulsation or excessive pressure as to cause fogging. Maximum pressure for application shall be 15 PSI. Quick acting shut-off valves and spring-loaded ball check valves shall be provided to stop the spray pattern with a minimum of nozzle drip. In areas where the spray vehicle must traverse the right-of-way, a four-wheel drive vehicle with flotation tires will be required to minimize damage to the ground surface.

Prior to beginning work, the Contractor shall obtain approval from the Engineer of the spraying equipment proposed for completing this work. The proposed equipment shall be in an operational condition and available for inspection by the Engineer at least two (2) weeks prior to the proposed starting time. If requested by the Engineer, the Contractor shall demonstrate the calibration of the equipment.

The equipment must provide consistently uniform coverage and keep the spray mixture sufficiently agitated or the work will be suspended until the equipment is repaired or replaced.

### Spraying Areas.

This work includes roadsides and other types of right-of-way of various widths and gradients. Spray areas often extend more than thirty (30) feet from the edge of the roadway, requiring both spray bar and hand gun applications.

When the description of work requires weed control of a stated species, such as teasel, the chemical shall be applied only to locations where the stated species is present. When the description of work requires general weed control within a bed or area, such as broadleaf weed control in turf, then the chemical shall be applied to the entire bed or area.

### Exclusion of Spraying Areas.

Areas where weed control spraying is inappropriate or detrimental to the environment, desirable planting, or private property shall be excluded from the spray area.

Spraying will not be permitted over any drainage swales or waterways, or other areas where the chemical label prohibits application. Spraying within 150 feet of a natural area or site where endangered or threatened species occur.

### Responsibility for Prevention of Damage to Private Property.

The Contractor shall, at all times, exercise extreme caution to prevent damage to residential plantings, flower or vegetable gardens, vegetable crops, farm crops, orchard or desirable plants adjacent to the roadside.

The Contractor or Department receives a complaint, the Contractor shall contact a complaint within ten (10) days after receiving a claim for damages, either in person or by letter. The Contractor, or his authorized representative, shall make a personal contact with the complainant within twenty (20) days. The Engineer shall also be notified by the Contractor of all claims for damage he received and shall keep the Engineer informed as to the progress in arriving at a settlement for such claims.

Communication with the Engineer.

The Contractor is required to communicate with the Engineer to receive all required approvals in a timely way and to assure that the Engineer can accurately document the work performed.

It shall be the Contractor's responsibility to assure that all chemical containers are opened and added to the spray mixture in the presence of the Engineer.

The Contractor shall obtain approval from the Engineer to proceed with spraying at each location 24 hours prior to the proposed spray operations.

**GROUND TIRE RUBBER (GTR) MODIFIED ASPHALT BINDER (D-1)**

Effective: June 26, 2006

Revised: April 1, 2016

Add the following to the end of article 1032.05 of the Standard Specifications:

“(c) Ground Tire Rubber (GTR) Modified Asphalt Binder. A quantity of 10.0 to 14.0 percent GTR (Note 1) shall be blended by dry unit weight with a PG 64-28 to make a GTR 70-28 or a PG 58-28 to make a GTR 64-28. The base PG 64-28 and PG 58-28 asphalt binders shall meet the requirements of Article 1032.05(a). Compatible polymers may be added during production. The GTR modified asphalt binder shall meet the requirements of the following table.

Test	Asphalt Grade GTR 70-28	Asphalt Grade GTR 64-28
Flash Point (C.O.C.), AASHTO T 48, °F (°C), min.	450 (232)	450 (232)
Rotational Viscosity, AASHTO T 316 @ 275 °F (135 °C), Poises, Pa·s, max.	30 (3)	30 (3)
Softening Point, AASHTO T 53, °F (°C), min.	135 (57)	130 (54)
Elastic Recovery, ASTM D 6084, Procedure A (sieve waived) @ 77 °F, (25 °C), aged, ss, 100 mm elongation, 5 cm/min., cut immediately, %, min.	65	65

Note 1. GTR shall be produced from processing automobile and/or light truck tires by the ambient grinding method. GTR shall not exceed 1/16 in. (2 mm) in any dimension and shall contain no free metal particles or other materials. A mineral powder (such as talc) meeting the requirements of AASHTO M 17 may be added, up to a maximum of four percent by weight of GTR to reduce sticking and caking of the GTR particles. When tested in accordance with Illinois modified AASHTO T 27, a 50 g sample of the GTR shall conform to the following gradation requirements:

Sieve Size	Percent Passing
No. 16 (1.18 mm)	100
No. 30 (600 µm)	95 ± 5
No. 50 (300 µm)	> 20

Add the following to the end of Note 1. of article 1030.03 of the Standard Specifications:

“A dedicated storage tank for the Ground Tire Rubber (GTR) modified asphalt binder shall be provided. This tank must be capable of providing continuous mechanical mixing throughout by continuous agitation and recirculation of the asphalt binder to provide a uniform mixture. The tank shall be heated and capable of maintaining the temperature of the asphalt binder at 300 °F to 350 °F (149 °C to 177 °C). The asphalt binder metering systems of dryer drum plants shall be calibrated with the actual GTR modified asphalt binder material with an accuracy of ± 0.40 percent.”

Revise 1030.02(c) of the Standard Specifications to read:

“(c) RAP Materials (Note 5) .....1031”

Add the following note to 1030.02 of the Standard Specifications:

Note 5. When using reclaimed asphalt pavement and/or reclaimed asphalt shingles, the maximum asphalt binder replacement percentage shall be according to the most recent special provision for recycled materials.

# **HMA MIXTURE DESIGN REQUIREMENTS (D-1)**

Effective: January 1, 2013

Revised: April 1, 2016

## **1) Design Composition and Volumetric Requirements**

Revise the table in Article 406.06(d) of the Standard Specifications to read:

“MINIMUM COMPACTED LIFT THICKNESS	
Mixture Composition	Thickness, in. (mm)
IL-4.75	3/4 (19)
SMA-9.5, IL-9.5, IL-9.5L	1 1/2 (38)
SMA-12.5	2 (50)
IL-19.0, IL-19.0L	2 1/4 (57)”

Revise the table in Article 1004.03(c) of the Standard Specifications to read:

“Use	Size/Application	Gradation No.
Class A-1, 2, & 3	3/8 in. (10 mm) Seal	CA 16
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & 3	Cover	CA 14
HMA High ESAL	IL-19.0 IL-9.5	CA 11 <sup>1/</sup> CA 16, CA 13 <sup>3/</sup>
HMA Low ESAL	IL-19.0L IL-9.5L Stabilized Subbase or Shoulders	CA 11 <sup>1/</sup> CA 16
SMA <sup>2/</sup>	1/2 in. (12.5mm) Binder & Surface IL 9.5 Surface	CA13 <sup>3/</sup> , CA14 or CA16  CA16, CA 13 <sup>3/</sup>

1/ CA 16 or CA 13 may be blended with the gradations listed.

2/ The coarse aggregates used shall be capable of being combined with stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation and mineral filler to meet the approved mix design and the mix requirements noted herein.

3/ CA 13 shall be 100 percent passing the 1/2 in. (12.5mm) sieve.

Revise Article 1004.03(e) of the Supplemental Specifications to read:

“(e) Absorption. For SMA the coarse aggregate shall also have water absorption ≤ 2.0 percent.”

Revise the last paragraph of Article 1102.01 (a) (5) of the Standard Specifications to read:

“IL-4.75 and Stone Matrix Asphalt (SMA) mixtures which contain aggregate having absorptions greater than or equal to 2.0 percent, or which contain steel slag sand, shall have minimum surge bin storage plus haul time of 1.5 hours.”

Revise the nomenclature table in Article 1030.01 of the Standard Specifications to read:

“High ESAL	IL-19.0 binder; IL-9.5 surface; IL-4.75; SMA-12.5, SMA-9.5
Low ESAL	IL-19.0L binder; IL-9.5L surface; Stabilized Subbase (HMA) <sup>1/</sup> ; HMA Shoulders <sup>2/</sup>

1/ Uses 19.0L binder mix.

2/ Uses 19.0L for lower lifts and 9.5L for surface lift.”

Revise Article 1030.02 of the Standard Specifications and Supplemental Specifications to read:

“**1030.02 Materials.** Materials shall be according to the following.

Item.....	Article/Section
(a) Coarse Aggregate .....	1004.03
(b) Fine Aggregate .....	1003.03
(c) RAP Material .....	1031
(d) Mineral Filler .....	1011
(e) Hydrated Lime .....	1012.01
(f) Slaked Quicklime (Note 1)	
(g) Performance Graded Asphalt Binder (Note 2) .....	1032
(h) Fibers (Note 3)	
(i) Warm Mix Asphalt (WMA) Technologies (Note 4)	

Note 1. Slaked quicklime shall be according to ASTM C 5.

Note 2. The asphalt binder shall be an SBS PG 76-28 when the SMA is used on a full-depth asphalt pavement and SBS PG 76-22 when used as an overlay, except where modified herein. The asphalt binder shall be an Elvaloy or SBS PG 76-22 for IL-4.75, except where modified herein. The elastic recovery shall be a minimum of 80.

Note 3. A stabilizing additive such as cellulose or mineral fiber shall be added to the SMA mixture according to Illinois Modified AASHTO M 325. The stabilizing additive shall meet the Fiber Quality Requirements listed in Illinois Modified AASHTO M 325. Prior to approval and use of fibers, the Contractor shall submit a notarized certification by the producer of these materials stating they meet these requirements. Reclaimed Asphalt Shingles (RAS) may be used in Stone Matrix Asphalt (SMA) mixtures designed with an SBA polymer modifier as a fiber additive if the mix design with RAS included meets AASHTO T305 requirements. The RAS shall be from a certified source that produces either Type I or Type 2. Material shall meet requirements noted herein and the actual dosage rate will be determined by the Engineer.

Note 4. Warm mix additives or foaming processes shall be selected from the current Bureau of Materials and Physical Research Approved List, “Warm Mix Asphalt Technologies”.”

Revise Article 1030.04(a)(1) of the Standard Specifications and the Supplemental Specifications to read:

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

High ESAL, MIXTURE COMPOSITION (% PASSING) <sup>1/</sup>										
Sieve Size	IL-19.0 mm		SMA <sup>4/</sup> IL-12.5 mm		SMA <sup>4/</sup> IL-9.5 mm		IL-9.5 mm		IL-4.75 mm	
	min	max	min	max	min	max	min	max	min	max
1 1/2 in (37.5 mm)										
1 in. (25 mm)		100								
3/4 in. (19 mm)	90	100		100						
1/2 in. (12.5 mm)	75	89	80	100		100		100		100
3/8 in. (9.5 mm)				65	90	100	90	100		100
#4 (4.75 mm)	40	60	20	30	36	50	34	69	90	100
#8 (2.36 mm)	20	42	16	24 <sup>5/</sup>	16	32 <sup>5/</sup>	34 <sup>6/</sup>	52 <sup>2/</sup>	70	90
#16 (1.18 mm)	15	30					10	32	50	65
#30 (600 µm)			12	16	12	18				
#50 (300 µm)	6	15					4	15	15	30
#100 (150 µm)	4	9					3	10	10	18
#200 (75 µm)	3	6	7.0	9.0 <sup>3/</sup>	7.5	9.5 <sup>3/</sup>	4	6	7	9 <sup>3/</sup>
Ratio Dust/Asphalt Binder		1.0		1.5		1.5		1.0		1.0

- 1/ Based on percent of total aggregate weight.
- 2/ The mixture composition shall not exceed 44 percent passing the #8 (2.36 mm) sieve for surface courses with N<sub>design</sub> = 90.
- 3/ Additional minus No. 200 (0.075 mm) material required by the mix design shall be mineral filler, unless otherwise approved by the Engineer.



- 4/ The maximum percent passing the #635 (20 µm) sieve shall be  $\leq 3$  percent.
- 5/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted above the percentage stated on the table.
- 6/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted below 34 percent.

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

- “(1) High ESAL Mixtures. The target value for the air voids of the HMA shall be 4.0 percent and for IL-4.75 it shall be 3.5 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix, and shall conform to the following requirements.

VOLUMETRIC REQUIREMENTS High ESAL				
	Voids in the Mineral Aggregate (VMA), % minimum			Voids Filled with Asphalt Binder (VFA), %
Ndesign	IL-19.0	IL-9.5	IL-4.75 <sup>1/</sup>	
50	13.5	15.0	18.5	65 – 78 <sup>2/</sup>
70				65 - 75
90				

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

2/ VFA for IL-4.75 shall be 72-85 percent”

Replace Article 1030.04(b)(3) of the Standard Specifications with the following:

- “(3) SMA Mixtures.

Volumetric Requirements SMA <sup>1/</sup>			
Ndesign	Design Air Voids Target %	Voids in the Mineral Aggregate (VMA), % min.	Voids Filled with Asphalt (VFA), %
80 <sup>4/</sup>	3.5	17.0 <sup>2/</sup>	75 - 83
		16.0 <sup>3/</sup>	

1/ Maximum draindown shall be 0.3 percent. The draindown shall be determined at the JMF asphalt binder content at the mixing temperature plus 30 °F.

2/ Applies when specific gravity of coarse aggregate is  $\geq 2.760$ .

- 3/ Applies when specific gravity of coarse aggregate is  $< 2.760$ .
- 4/ Blending of different types of aggregate will not be permitted.  
For surface course, the coarse aggregate can be crushed steel slag, crystalline crushed stone or crushed sandstone. For binder course, coarse aggregate shall be crushed stone (dolomite), crushed gravel, crystalline crushed stone, or crushed sandstone.

Add to the end of Article 1030.05 (d) (2) a. of the Standard Specifications:

“During production, the Contractor shall test SMA mixtures for draindown according to AASHTO T305 at a frequency of 1 per day of production.”

Delete last sentence of the second paragraph of Article 1102.01(a) (4) b. 2.

Add to the end of Article 1102.01 (a) (4) b. 2.:

“As an option, collected dust (baghouse) may be used in lieu of manufactured mineral filler according to the following:

- (a.) Sufficient collected dust (baghouse) is available for production of the SMA mix for the entire project.
- (b.) A mix design was prepared based on collected dust (baghouse).

## **2) Design Verification and Production**

Revise Article 1030.04 (d) of the Standard Specifications to read:

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

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

- (1)Hamburg Wheel Test criteria. The maximum allowable rut depth shall be 0.5 in. (12.5 mm). The minimum number of wheel passes at the 0.5 in. (12.5 mm) rut depth criteria shall be based on the high temperature binder grade of the mix as specified in the mix requirements table of the plans.

Illinois Modified AASHTO T 324 Requirements <sup>1/</sup>

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

- 1/ When produced at temperatures of  $275 \pm 5$  °F ( $135 \pm 3$  °C) or less, loose Warm Mix Asphalt shall be oven aged at  $270 \pm 5$  °F ( $132 \pm 3$  °C) for two hours prior to gyratory compaction of Hamburg Wheel specimens.

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

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

Production Testing. Revise first paragraph of Article 1030.06(a) of the Standard Specifications to read:

"(a) High ESAL, IL-4.75, WMA, and SMA Mixtures. For each contract, a 300 ton (275 metric tons) test strip, except for SMA mixtures it will be 400 ton (363 metric ton), will be required at the beginning of HMA production for each mixture with a quantity of 3000 tons (2750 metric tons) or more according to the Manual of Test Procedures for Materials "Hot Mix Asphalt Test Strip Procedures".

Add the following after the sixth paragraph in Article 1030.06 (a) of the Standard Specifications:

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

If the mixture fails to meet the Hamburg Wheel criteria, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria"

Method of Measurement:

Add the following after the fourth paragraph of Article 406.13 (b):

"The plan quantities of SMA mixtures shall be adjusted using the actual approved binder and surface Mix Design's  $G_{mb}$ ."

Basis of Payment.

Replace the fourth paragraph of Article 406.14 of the Standard Specifications with the following:

“Stone matrix asphalt will be paid for at the contract unit price per ton (metric ton) for POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, of the mixture composition and Ndesign specified; and POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, STONE MATRIX ASPHALT, of the mixture composition and Ndesign specified.”

**PUBLIC CONVENIENCE AND SAFETY (DIST 1)**

Effective: May 1, 2012

Revised: July 15, 2012

Add the following to the end of the fourth paragraph of Article 107.09:

“If the holiday is on a Saturday or Sunday, and is legally observed on a Friday or Monday, the length of Holiday Period for Monday or Friday shall apply.”

Add the following sentence after the Holiday Period table in the fourth paragraph of Article 107.09:

“The Length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday After”

Delete the fifth paragraph of Article 107.09 of the Standard Specifications:

“On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical.”

**RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (D-1)**

Effective: November 1, 2012

Revise: April 1, 2017

Revise Section 1031 of the Standard Specifications to read:

**“SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES**

**1031.01 Description.** Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

- (a) Reclaimed Asphalt Pavement (RAP). RAP is the material resulting from cold milling or crushing an existing hot-mix asphalt (HMA) pavement. RAP will be considered processed FRAP after completion of both crushing and screening to size. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.
- (b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Bureau of

Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Shingle (RAS) Sources”, by weight of RAS. All RAS used shall come from a Bureau of Materials and Physical Research approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 90 percent passing the #4 (4.75 mm) sieve. RAS shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.

- (1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.
- (2) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

**1031.02 Stockpiles.** RAP and RAS stockpiles shall be according to the following.

- (a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. Additional processed RAP (FRAP) shall be stockpiled in a separate working pile, as designated in the QC Plan, and only added to the sealed stockpile when test results for the working pile are complete and are found to meet tolerances specified herein for the original sealed FRAP stockpile. Stockpiles shall be sufficiently separated to prevent intermingling at the base. All stockpiles (including unprocessed RAP and FRAP) shall be identified by signs indicating the type as listed below (i.e. “Non- Quality, FRAP -#4 or Type 2 RAS”, etc...).
- (1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. All FRAP shall be processed prior to testing and sized into fractions with the separation occurring on or between the #4 (4.75 mm) and 1/2 in. (12.5 mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP in the coarse fraction shall pass the maximum sieve size specified for the mix the FRAP will be used in.
- (2) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, Superpave (High ESAL), or HMA (High ESAL). If approved by the Engineer, the aggregate from a maximum 3.0 in. (75 mm) single combined pass of surface/binder milling will be classified as B quality. All millings from this application will be processed into FRAP as described previously.
- (3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, Superpave HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed (FRAP) prior to testing. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (4) Conglomerate “D” Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from HMA shoulders, bituminous stabilized subbases or Superpave (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture. The coarse aggregate in this RAP may be crushed

or round but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.

- (5) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as “Non-Quality”.

RAP or FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, plant cleanout etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

- (b) RAS Stockpiles. Type 1 and Type 2 RAS shall be stockpiled separately and shall be sufficiently separated to prevent intermingling at the base. Each stockpile shall be signed indicating what type of RAS is present.

However, a RAS source may submit a written request to the Department for approval to blend mechanically a specified ratio of Type 1 RAS with Type 2 RAS. The source will not be permitted to change the ratio of the blend without the Department prior written approval. The Engineer’s written approval will be required, to mechanically blend RAS with any fine aggregate produced under the AGCS, up to an equal weight of RAS, to improve workability. The fine aggregate shall be “B Quality” or better from an approved Aggregate Gradation Control System source. The fine aggregate shall be one that is approved for use in the HMA mixture and accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type, and lot number shall be maintained by project contract number and kept for a minimum of three years.

**1031.03 Testing.** FRAP and RAS testing shall be according to the following.

- (a) FRAP Testing. When used in HMA, the FRAP shall be sampled and tested either during processing or after stockpiling. It shall also be sampled during HMA production.
- (1) During Stockpiling. For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).
- (2) Incoming Material. For testing as incoming material, washed extraction samples shall be run at a minimum frequency of one sample per 2000 tons (1800 metric tons) or once per week, whichever comes first.
- (3) After Stockpiling. For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Before extraction, each field sample of FRAP, shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

- (b) RAS Testing. RAS shall be sampled and tested during stockpiling according to Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Shingle (RAS) Sources”. The Contractor shall also sample as incoming material at the HMA plant.

(1) During Stockpiling. Washed extraction and testing for unacceptable materials shall be run at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 1000 tons (900 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a  $\leq 1000$  ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS shall be in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

(2) Incoming Material. For testing as incoming material at the HMA plant, washed extraction shall be run at the minimum frequency of one sample per 250 tons (227 metric tons). A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). The incoming material test results shall meet the tolerances specified herein.

The Contractor shall obtain and make available all test results from start of the initial stockpile sampled and tested at the shingle processing facility in accordance with the facility’s QC Plan.

Before extraction, each field sample shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

**1031.04 Evaluation of Tests.** Evaluation of test results shall be according to the following.

- (a) Evaluation of FRAP Test Results. All test results shall be compiled to include asphalt binder content, gradation and, when applicable (for slag),  $G_{mm}$ . A five test average of results from the original pile will be used in the mix designs. Individual extraction test results run thereafter, shall be compared to the average used for the mix design, and will be accepted if within the tolerances listed below.

Parameter	FRAP
No. 4 (4.75 mm)	$\pm 6 \%$
No. 8 (2.36 mm)	$\pm 5 \%$
No. 30 (600 $\mu$ m)	$\pm 5 \%$
No. 200 (75 $\mu$ m)	$\pm 2.0 \%$
Asphalt Binder	$\pm 0.3 \%$
$G_{mm}$	$\pm 0.03^{1/}$

- 1/ For stockpile with slag or steel slag present as determined in the current Manual of Test Procedures Appendix B 21, “Determination of Reclaimed Asphalt Pavement Aggregate Bulk Specific Gravity”.

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the FRAP stockpile shall not be used in Hot-Mix Asphalt unless the FRAP representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

The Contractor shall maintain a representative moving average of five tests to be used for Hot-Mix Asphalt production.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the ITP, “Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)” or Illinois Modified AASHTO T-164-11, Test Method A.

- (b) Evaluation of RAS Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and gradation. A five test average of results from the original pile will be used in the mix designs. Individual test results run thereafter, when compared to the average used for the mix design, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	± 5 %
No. 30 (600 µm)	± 4 %
No. 200 (75 µm)	± 2.5 %
Asphalt Binder Content	± 2.0 %

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the RAS shall not be used in Hot-Mix Asphalt unless the RAS representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

- (c) Quality Assurance by the Engineer. The Engineer may witness the sampling and splitting conduct assurance tests on split samples taken by the Contractor for quality control testing a minimum of once a month.

The overall testing frequency will be performed over the entire range of Contractor samples for asphalt binder content and gradation. The Engineer may select any or all split samples for assurance testing. The test results will be made available to the Contractor as soon as they become available.

The Engineer will notify the Contractor of observed deficiencies.

Differences between the Contractor’s and the Engineer’s split sample test results will be considered acceptable if within the following limits.



Test Parameter	Acceptable Limits of Precision	
% Passing: <sup>1/</sup>	FRAP	RAS
1/2 in.	5.0%	
No. 4	5.0%	
No. 8	3.0%	4.0%
No. 30	2.0%	4.0%
No. 200	2.2%	4.0%
Asphalt Binder Content	0.3%	3.0%
G <sub>mm</sub>	0.030	

1/ Based on washed extraction.

In the event comparisons are outside the above acceptable limits of precision, the Engineer will immediately investigate.

- (d) Acceptance by the Engineer. Acceptable of the material will be based on the validation of the Contractor's quality control by the assurance process.

#### **1031.05 Quality Designation of Aggregate in RAP and FRAP.**

- (a) RAP. The aggregate quality of the RAP for homogeneous, conglomerate, and conglomerate "D" quality stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.
- (1) RAP from Class I, Superpave/HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.
  - (2) RAP from Superpave/HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.
  - (3) RAP from Class I, Superpave/HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
  - (4) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.
- (b) FRAP. If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer.

If the quality is not known, the quality shall be determined as follows. Fractionated RAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5,000 tons (4,500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant laboratory prequalified by the Department for the specified testing. The consultant laboratory shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the Bureau of

Materials and Physical Research Aggregate Lab for MicroDeval Testing, according to ITP 327. A maximum loss of 15.0 percent will be applied for all HMA applications. The fine aggregate portion of the fractionated RAP shall not be used in any HMA mixtures that require a minimum of “B” quality aggregate or better, until the coarse aggregate fraction has been determined to be acceptable thru a MicroDeval Testing.

**1031.06 Use of FRAP and/or RAS in HMA.** The use of FRAP and/or RAS shall be the Contractor’s option when constructing HMA in all contracts.

(a) FRAP. The use of FRAP in HMA shall be as follows.

- (1) Coarse Aggregate Size (after extraction). The coarse aggregate in all FRAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
- (2) Steel Slag Stockpiles. FRAP stockpiles containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in HMA (High ESAL and Low ESAL) mixtures regardless of lift or mix type.
- (3) Use in HMA Surface Mixtures (High and Low ESAL). FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall have coarse aggregate that is Class B quality or better. FRAP shall be considered equivalent to limestone for frictional considerations unless produced/screened to minus 3/8 inch.
- (4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP in which the coarse aggregate is Class C quality or better.
- (5) Use in Shoulders and Subbase. FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, Restricted FRAP, conglomerate, or conglomerate DQ.

(b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.

(c) FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with FRAP in HMA mixtures up to a maximum of 5.0 percent by weight of the total mix.

When FRAP is used alone or FRAP is used in conjunction with RAS, the percent of virgin asphalt binder replacement (ABR) shall not exceed the amounts indicated in the table below for a given N Design.

Max Asphalt Binder Replacement for FRAP with RAS Combination

HMA Mixtures <sup>1/ 2/ 4/</sup>	Maximum % ABR		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified <sup>3/</sup>
30L	50	40	30
50	40	35	30
70	40	30	30

90	40	30	30
4.75 mm N-50			40
SMA N-80			30

- 1/ For Low ESAL HMA shoulder and stabilized subbase, the percent asphalt binder replacement shall not exceed 50 % of the total asphalt binder in the mixture.
- 2/ When the binder replacement exceeds 15 % for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 % binder replacement using a virgin asphalt binder grade of PG64-22 will be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 %, the required virgin asphalt binder grade shall be PG64-28.
- 3/ When the ABR for SMA or IL-4.75 is 15 % or less, the required virgin asphalt binder shall be SBS PG76-22 and the elastic recovery shall be a minimum of 80. When the ABR for SMA or IL-4.75 exceeds 15%, the virgin asphalt binder grade shall be SBS PG70-28 and the elastic recovery shall be a minimum of 80.
- 4/ When FRAP or RAS is used alone, the maximum percent asphalt binder replacement designated on the table shall be reduced by 10 %.

**1031.07 HMA Mix Designs.** At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the detailed requirements specified herein.

- (a) FRAP and/or RAS. FRAP and /or RAS mix designs shall be submitted for verification. If additional FRAP or RAS stockpiles are tested and found to be within tolerance, as defined under "Evaluation of Tests" herein, and meet all requirements herein, the additional FRAP or RAS stockpiles may be used in the original design at the percent previously verified.
- (b) RAS. Type 1 and Type 2 RAS are not interchangeable in a mix design. A RAS stone bulk specific gravity (Gsb) of 2.300 shall be used for mix design purposes.

**1031.08 HMA Production.** HMA production utilizing FRAP and/or RAS shall be as follows.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAS and FRAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If during mix production, corrective actions fail to maintain FRAP, RAS or QC/QA test results within control tolerances or the requirements listed herein the Contractor shall cease production of the mixture containing FRAP or RAS and conduct an investigation that may require a new mix design.

- (a) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within  $\pm 0.5$  percent of the

amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.

- (b) HMA Plant Requirements. HMA plants utilizing FRAP and/or RAS shall be capable of automatically recording and printing the following information.

(1) Dryer Drum Plants.

- a. Date, month, year, and time to the nearest minute for each print.
- b. HMA mix number assigned by the Department.
- c. Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- d. Accumulated dry weight of RAS and FRAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- e. Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
- f. Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
- g. Residual asphalt binder in the RAS and FRAP material as a percent of the total mix to the nearest 0.1 percent.
- h. Aggregate RAS and FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS and FRAP are printed in wet condition.)
- i. When producing mixtures with FRAP and/or RAS, a positive dust control system shall be utilized.
- j. Accumulated mixture tonnage.
- k. Dust Removed (accumulated to the nearest 0.1 ton (0.1 metric ton))

(2) Batch Plants.

- a. Date, month, year, and time to the nearest minute for each print.
- b. HMA mix number assigned by the Department.
- c. Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
- d. Mineral filler weight to the nearest pound (kilogram).
- f. RAS and FRAP weight to the nearest pound (kilogram).

- g. Virgin asphalt binder weight to the nearest pound (kilogram).
- h. Residual asphalt binder in the RAS and FRAP material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

**1031.09 RAP in Aggregate Surface Course and Aggregate Wedge Shoulders, Type B.** The use of RAP or FRAP in aggregate surface course and aggregate shoulders shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except “Non-Quality” and “FRAP”. The testing requirements of Article 1031.03 shall not apply. RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Pavement (RAP) for Aggregate Applications”.
- (b) Gradation. The RAP material shall meet the gradation requirements for CA 6 according to Article 1004.01(c), except the requirements for the minus No. 200 (75 µm) sieve shall not apply. The sample for the RAP material shall be air dried to constant weight prior to being tested for gradation.”

#### **SLIPFORM PAVING (D-1)**

Effective: November 1, 2014

Revise Article 1020.04 Table 1, Note (5) of Standard Specifications to read:

“The slump range for slipform construction shall be 1/2 to 1 1/2 in.”

Revise Article 1020.04 Table 1 (metric), Note (5) of Standard Specifications to read:

“The slump range for slipform construction shall be 13 to 40 mm.”

#### **TEMPORARY INFORMATION SIGNING**

Effective: November 13, 1996

Revised: January 2, 2007

##### **Description.**

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

##### **Materials.**

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

##### **Item**

##### **Article/Section**

a.)	Sign Base (Notes 1 & 2)	1090
b.)	Sign Face ( Note 3)	1091
c.)	Sign Legends	1092
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 4)	1090.02

- Note 1. The Contractor may use 5/8 inch (16 mm) instead of 3/4 inch (19 mm) thick plywood.  
Note 2. Type A sheeting can be used on the plywood base.  
Note 3. All sign faces shall be Type A except all orange signs shall meet the requirements of Article 1106.01.  
Note 4. The overlay panels shall be 0.08 inch (2 mm) thick.

### **GENERAL CONSTRUCTION REQUIREMENTS**

#### **Installation.**

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

Signs which are placed along the roadway and/or within the construction zone shall be installed according to the requirements of Article 701.14 and Article 720.04. The signs shall be 7 ft (2.1 m) above the near edge of the pavement and shall be a minimum of 2 ft (600 mm) beyond the edge of the paved shoulder. A minimum of two (2) posts shall be used.

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

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

#### **Method Of Measurement.**

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

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

#### **Basis Of Payment.**

This work shall be paid for at the contract unit price per square foot (square meter) for TEMPORARY INFORMATION SIGNING.

### **WINTERIZED TEMPORARY ACCESS**

Effective: January 1, 2012

Revised: March 5, 2012

**Description.** This work shall consist of constructing, maintaining and removing winterized temporary access for private and commercial entrances and side roads designed for use throughout the winter months.

**Materials.** Materials shall be according to the following.

ITEM  
Hot-Mix Asphalt

ARTICLE/SECTION  
1030

### **Construction Requirements**

For projects lasting longer than one construction season, the contractor shall construct and maintain temporary access composed of an HMA surface course over an existing aggregate temporary access. The contractor shall install the winterized temporary access prior to winter shut down at the direction of the engineer. The top 2" of the existing aggregate temporary access should be removed and replaced with 2" of Hot-Mix Asphalt. Compensation will be given for the winterized temporary access at the time of the installation of the Hot-Mix Asphalt surface course.

HMA Surface Course. The Hot-Mix Asphalt surface course shall be 2 in. thick when compacted. HMA Surface Course, Mix "D", N50 shall be used except as modified by the plans or as directed by the Engineer. This work shall be constructed in accordance with the applicable portions of Section 406 of the Standard Specifications and as directed by the Engineer. The material shall conform to the applicable portions of Section 1030 of the Standard Specifications.

The winterized temporary access shall be constructed to the dimensions and grades of the existing aggregate temporary access.

Maintaining the winterized temporary access shall include repairing the HMA surface course after any operation that may disturb or remove the winterized temporary access to the satisfaction of the Engineer.

When use of the winterized temporary access is discontinued, the winterized temporary access shall be removed according to Article 440.03 of the Standard Specifications. The material shall be disposed of according to Article 202.03 of the Standard Specifications or may be utilized in the permanent construction with the approval of the Engineer.

**Method of Measurement.** Winterized temporary access for private and commercial entrances and roads will be measured for payment at the contract unit price per square yard for every private entrance, commercial entrance or road constructed for the purpose of winterized temporary access.

**Basis of Payment.** Winterized temporary access for private and commercial entrances and roads will be paid for at the contract unit price per square yard for TEMPORARY ACCESS (WINTERIZE) as specified in the plans.

Partial payment of the square yard amount bid for each winterized temporary access will be paid according to the following schedule:

(a) Upon construction of the winterized temporary access, sixty percent of the contract unit price per square yard will be paid.

(b) Subject to the approval of the Engineer for the adequate maintenance and removal of the winterized temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access.

## **TRAFFIC SIGNAL GENERAL REQUIREMENTS (D1 LR)**

Effective: April 1, 2016

Revised: July 20, 2016

LR800.01TS

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations.

- All material furnished shall be new unless otherwise noted herein.
- Traffic signal construction and maintenance work shall be performed by personnel holding current IMSA Traffic Signal Technician Level II certification. A copy of the certification shall be immediately available upon request of the Engineer.
- The work to be done under this contract consists of furnishing, installing and maintaining all traffic signal work and items as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

### Definitions of Terms.

Add the following to Section 101 of the Standard Specifications:

101.56 Vendor. Company that sells a particular type of product directly to the contractor or the Equipment Supplier.

101.57 Equipment supplier. Company that supplies, represents and provides technical support for IDOT District One approved traffic signal controllers and other related equipment. The Equipment Supplier shall be located within IDOT District One and shall:

- Be full service with on-site facilities to assemble, test and trouble-shoot traffic signal controllers and cabinet assemblies.
- Maintain an inventory of IDOT District One approved controllers and cabinets.
- Be staffed with permanent sales and technical personnel able to provide traffic signal controller and cabinet expertise and support.
- Technical staff shall hold current IMSA Traffic Signal Technician Level III certification and shall attend traffic signal turn-ons and inspections with a minimum 14 calendar day notice.

### Submittals.

Revise Article 801.05 of the Standard Specifications to read:

All material approval requests shall be submitted to the Resident Engineer, who will then forward the submittal on to the IDOT Local Agency Area Engineer and the Local Agency. Electronic material submittals shall follow the District's Traffic Operations Construction Submittals guidelines. General requirements include:

1. All material approval requests shall be made prior to or no later than one week after the date of the preconstruction meeting. A list of major traffic signal items can be found in Article 801.05. Material or equipment which is similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.



2. Product data and shop drawings shall be assembled by pay item. Only the top sheet of each pay item submittal will be stamped by the Department with the review status, except shop drawings for mast arm pole assemblies and the like will be stamped with the review status on each sheet.
3. Original manufacturer published product data and shop drawing sheets with legible dimensions and details shall be submitted for review.
4. When hard copy submittals are requested by the Bureau of Local Roads and Streets, the number of requested sets of the manufacturer's descriptive literatures and technical data for the traffic signal materials shall be submitted.
5. For hard copy or electronic submittals, the descriptive literature and technical data shall be adequate for determining whether the materials meet the requirements of the plans and specifications. If the literature contains more than one item, the Contractor shall indicate which item or items will be furnished.
6. When hard copy submittals are necessary for structural elements, four complete copies of the shop drawings for the mast arm assemblies and poles, and the combination mast arm assemblies and poles showing, in detail, the fabrication thereof and the certified mill analyses of the materials used in the fabrication, anchor rods, and reinforcing materials shall be submitted.
7. Partial or incomplete submittals will be returned without review.
8. Certain non-standard mast arm poles and special structural elements will require additional review from IDOT's Central Office. Examples include ornamental/decorative, non-standard length mast arm pole assemblies and monotube structures. The Contractor shall account for the additional review time in his schedule.
9. The contract number, the name of the lead local agency (as indicated on the cover sheet of the plans), section number, project location/limits and corresponding pay code number must be on each sheet of correspondence, catalog cuts and mast arm poles and assemblies drawings.
10. Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.
11. After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Information Only'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.
12. The Contractor shall secure approved materials in a timely manner to assure construction schedules are not delayed.
13. All submitted items reviewed and marked 'APPROVED AS NOTED' or 'DISAPPROVED' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments or transmittal accompanying the documents, with a disposition of previous comments to verify contract compliance at no additional cost to the contract.
14. Exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

15. The Contractor shall not order major equipment such as mast arm assemblies prior to Engineer approval of the Contractor marked proposed traffic signal equipment locations to assure proper placement of contract required traffic signal displays, push buttons and other facilities. Field adjustments may require changes in proposed mast arm length and other coordination.

Marking Proposed Locations.

Revise “Marking Proposed Locations for Highway Lighting System” of Article 801.09 to read “Marking Proposed Locations for Highway Lighting System and Traffic Signals.”

Add the following to Article 801.09 of the Standard Specifications:

It shall be the contractor's responsibility to verify all dimensions and conditions existing in the field prior to ordering materials and beginning construction. This shall include locating the mast arm foundations and verifying the mast arms lengths.

Inspection of Electrical Systems.

Add the following to Article 801.10 of the Standard Specifications:

- (c) All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier’s facility prior to field installation, at no extra cost to this contract.

Maintenance and Responsibility.

Revise Article 801.11 of the Standard Specifications to read:

- a. Existing traffic signal installations and/or any electrical facilities at all or various locations may be altered or reconstructed totally or partially as part of the work on this Contract. The Contractor is hereby advised that all traffic control equipment, presently installed at these locations, may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, Municipality or Transit Agency in which they are located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the item "Maintenance of Existing Traffic Signal Installation,” “Temporary Traffic Signal Installation(s)” and/or “Maintenance of Existing Flashing Beacon Installation,” shall become the full responsibility of the Contractor. The Contractor shall supply the Resident Engineer, IDOT Local Agency Area Engineer, Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor with two 24-hour emergency contact names and telephone numbers.
- b. Automatic Traffic Enforcement equipment such as red lighting running and railroad crossing camera systems are owned and operated by others and the Contractor shall not be responsible for maintaining this equipment.
- c. Regional transit, County and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as PTZ cameras, switches, transit signal priority (TSP and BRT) servers and other devices that shall be included with traffic signal maintenance at no additional cost to the contract.

- d. When the project has a pay item for “Maintenance of Existing Traffic Signal Installation,” “Temporary Traffic Signal Installation(s)” and/or “Maintenance of Existing Flashing Beacon Installation,” the Contractor must notify the Resident Engineer, the Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. The Department will attempt to fulfill the Contractor’s inspection date request(s); however workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested inspection date(s) cannot be scheduled by the Department. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.
- e. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.
- f. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals and other equipment noted herein. Any inquiry, complaint or request by the Department, the Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor, or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of \$1000 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$1000 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The Department, the Local Agency, the Owner of the traffic signal, and/or their Electrical Maintenance Contractor may inspect any signaling device under their jurisdiction at any time without notification.
- g. Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law

enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.

- h. The Contractor shall be responsible to clear snow, ice, dirt, debris or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.
- i. The Contractor shall maintain the traffic signal in normal operation during short or long term loss of utility or battery back-up power at critical locations designated by the Engineer. Critical locations may include traffic signals interconnected to railroad warning devices, expressway ramps, intersection with an SRA route, critical corridors or other locations identified by the Engineer. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power to critical locations shall not be for separately but shall be included in the contract.

Damage to Traffic Signal System.

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any traffic signal control equipment damaged or not operating properly from any cause shall be replaced with new equipment meeting current District One traffic signal specifications and/or applicable Local Agency traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted. Cable splices are only allowed at the bases of post and mast arms.

Temporary replacement of damaged or knockdown of a mast arm pole assembly shall require construction of a full or partial span wire signal installation or other method approved by the Engineer to assure signal heads are located overhead and over traveled pavement. Temporary replacement of mast arm mount signals with post mount signals will not be permitted.

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause, shall be the responsibility of the municipality or the Automatic Traffic Enforcement company per Permit agreement.

Traffic Signal Inspection (TURN-ON).

Revise Article 801.15(b) of the Standard Specifications to read:

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

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, the Contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Bureau of Local Roads and Streets at (847) 705-4487 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will attempt to fulfill the Contractor's turn-on and inspection date

request(s); however workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested turn-on and inspection date(s) cannot be scheduled by the Department. The Department will not grant a field inspection until written or electronic notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Preemption (EVP) is included in the project. When the contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, or TEMPORARY TRAFFIC SIGNAL TIMINGS, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

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

The Contractor shall provide a representative from the control equipment vendor's office who is knowledgeable of the cabinet design and controller functions to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons.

Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The Agency that is responsible for the maintenance of each traffic signal installation will assume the maintenance upon successful completion of this inspection.

The District requires the following Final Project Documentation from the Contractor at traffic signal turn-ons in electronic format in addition to hard copies where noted. A CD/DVD shall be submitted with separate folders corresponding to each numbered title below. The CD/DVD shall be labelled with date, project location, company and contract or permit number. Record Drawings, Inventory and Material Approvals shall be submitted prior to traffic signal turn-on for review by the Department as described here-in.

**Final Project Documentation:**

1. Record Drawings. Signal plans of record with field revisions marked in red ink. One hard copy set of 11"x17" record drawings shall also be provided.
2. Inventory. Inventory of new and existing traffic signal equipment including cabinet types and devices within cabinets in an Excel spread sheet format. One hard copy shall also be provided.
3. Pictures. Digital pictures of a minimum 12M pixels of each intersection approach showing all traffic signal displays and equipment. Pictures shall include controller cabinet equipment in enough detail to clearly identify manufacture and model of major equipment.
4. Field Testing. Written notification from the Contractor and the equipment vendor of satisfactory field testing with corresponding material performance measurements, such as for detector loops and fiber optic systems (see Article 801.13). One hard copy of all contract required performance measurement testing shall also be provided.
5. Materials Approval. The material approval letter. A hard copy shall also be provided.
6. Manuals. Operation and service manuals of the signal controller and associated control equipment. One hard copy shall also be provided.

7. Cabinet Wiring Diagram and Cable Logs. Five (5) hard copies 11" x 17" of the cabinet wiring diagrams shall be provided along with electronic pdf and dgn files of the cabinet wiring diagram. Five hard copies of the cable logs and electronic excel files shall be provided with cable #, number of conductors and spares, connected device/signal head and intersection location.
8. Controller Programming Settings. The traffic signal controller's timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and Detector Switching; and any other functions programmable from the keyboard. The controller manufacturer shall also supply a printed form, not to exceed 11" x 17" for recording that data noted above. The form shall include a location, date, manufacturer's name, controller model and software version. The form shall be approved by the Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.
9. Warrantees and Guarantees. All manufacturer and contractor warrantees and guarantees required by Article 801.14.
10. GPS coordinate of traffic signal equipment as describe in the Record Drawings section herein.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on", completeness of the required documentation and successful operation during a minimum 72 hour "burn-in" period following activation of the traffic signal. If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

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

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

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

#### Record Drawings.

The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the 2<sup>nd</sup> paragraph of Article 801.16 of the Standard Specifications to read:

"When the work is complete, and seven days before the request for a final inspection, the reduced-size set of contract drawings, stamped "RECORD DRAWINGS", shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor's supervising Engineer or electrician. The record drawings shall be submitted in PDF format on CDROM as well as hardcopy for review and approval. If the contract consists of multiple intersections, each intersection shall be saved as an individual PDF file with TS# and location name in its file name.

In addition to the record drawings, copies of the final catalog cuts which have been Approved or Approved as Noted shall be submitted in PDF format along with the record drawings. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible.”

As part of the record drawings, the Contractor shall inventory all traffic signal equipment, new or existing, on the project and record information in an Excel spreadsheet. The inventory shall include equipment type, model numbers, software manufacturer and version and quantities.

Add the following to Article 801.16 of the Standard Specifications:

“In addition to the specified record drawings, the Contractor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by this contract:

- All Mast Arm Poles and Posts
- Traffic Signal Wood Poles
- Rail Road Bungalow
- UPS
- Handholes
- Conduit roadway crossings
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV Camera installations
- Fiber Optic Splice Locations
- Conduit Crossings

Datum to be used shall be North American 1983.

Data shall be provided electronically and in print form. The electronic format shall be compatible with MS Excel. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

- File shall be named: TSXXX-YY-MM-DD (i.e. TS22157\_15-01-01)
- Each intersection shall have its own file
- Row 1 should have the location name (i.e. IL 31 @ Klausen)
- Row 2 is blank
- Row 3 is the headers for the columns
- Row 4 starts the data
- Column A (Date) – should be in the following format: MM/DD/YYYY
- Column B (Item) – as shown in the table below
- Column C (Description) – as shown in the table below
- Column D and E (GPS Data) – should be in decimal form, per the IDOT special provisions

Examples:

Date	Item	Description	Latitude	Longitude
01/01/2015	MP (Mast Arm Pole)	NEQ, NB, Dual, Combination Pole	41.580493	- 87.793378
01/01/2015	HH (Handhole)	Heavy Duty, Fiber, Intersection, Double	41.558532	- 87.792571
01/01/2015	ES (Electrical Service)	Ground mount, Pole mount	41.765532	- 87.543571
01/01/2015	CC (Controller Cabinet)		41.602248	- 87.794053
01/01/2015	RSC (Rigid Steel Crossing)	IL 31 east side crossing south leg to center HH at Klausen	41.611111	- 87.790222
01/01/2015	PTZ (PTZ)	NEQ extension pole	41.593434	- 87.769876
01/01/2015	POST (Post)		41.651848	- 87.762053
01/01/2015	MCC (Master Controller Cabinet)		41.584593	- 87.793378
01/01/2015	COMC (Communication Cabinet)		41.584600	- 87.793432
01/01/2015	BBS (Battery Backup System)		41.558532	- 87.792571
01/01/2015	CNCR (Conduit Crossing)	4-inch IL 31 n/o of Klausen	41.588888	- 87.794440

Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 1 foot. Upon verification, data collection can begin. Data collection can be made as construction progresses, or can be collected after all items are installed. If the data is unacceptable the contractor shall make corrections to the data collection equipment and or process and submit the data for review and approval as specified.

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have a minimum 1 foot accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years.”

Delete the last sentence of the 3<sup>rd</sup> paragraph of Article 801.16.

#### Locating Underground Facilities.

Revise Section 803 to the Standard Specifications to read:



IDOT traffic signal facilities are not part of any of the one-call locating service such as J.U.L.I.E or Digger. If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. For non-IDOT signals, the Contractor shall coordinate with the agency owning the traffic signals for locating the existing electrical facilities. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

Restoration of Work Area.

Add the following article to Section 801 of the Standard Specifications:

801.17 Restoration of work area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, underground raceways, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

Bagging Signal Heads.

Light tan colored traffic and pedestrian signal reusable covers shall be used to cover dark/un-energized signal sections and visors. Covers shall be made of outdoor fabric with urethane coating for repelling water, have elastic fully sewn around the cover ends for a tight fit over the visor, and have a minimum of two straps with buckles to secure the cover to the backplate. A center mesh strip allows viewing without removal for signal status testing purposes. Covers shall include a message indicating the signal is not in service.

## **OPTIMIZE TRAFFIC SIGNAL SYSTEM**

Effective: May 22, 2002

Revised: July 1, 2015

800.02TS

### **Description.**

This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as noted herein.

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

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system.
2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday and on a Saturday or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.
3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.
5. Proposed signal timing plan for the new or modified intersection shall be forwarded to IDOT for review prior to implementation.

6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations. The consultant shall respond to IDOT comments and public complaints for a minimum period of 90 days from date of timing plan implementation.
  7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.
- (b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.
1. Consultant shall furnish to IDOT one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

<b>Cover Page in color showing a System Map</b>
<b>Figures</b> <ol style="list-style-type: none"> <li>1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion.</li> <li>2. General location map in color – showing signal system location in the metropolitan area.</li> <li>3. Detail system location map in color – showing cross street names and local controller addresses.</li> <li>4. Controller sequence – showing controller phase sequence diagrams.</li> </ol>
<b>Table of Contents</b>
<b>Tab 1: Final Report</b> <ol style="list-style-type: none"> <li>1. Project Overview</li> <li>2. System and Location Description (Project specific)</li> <li>3. Methodology</li> <li>4. Data Collection</li> <li>5. Data Analysis and Timing Plan Development</li> <li>6. Implementation <ol style="list-style-type: none"> <li>a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) with am, md, and pm cycle lengths</li> </ol> </li> <li>7. Evaluation <ol style="list-style-type: none"> <li>a. Speed and Delay runs</li> </ol> </li> </ol>
<b>Tab 2. Turning Movement Counts</b> <ol style="list-style-type: none"> <li>1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)</li> </ol>
<b>Tab 3. Synchro Analysis</b> <ol style="list-style-type: none"> <li>1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings.</li> <li>2. Midday: same as AM</li> <li>3. PM: same as AM</li> <li>4. Special weekend or off-peak traffic generators (shopping centers, educational facilities, arenas, etc.): same as AM</li> </ol>
<b>Tab 4: Speed, Delay Studies</b> <ol style="list-style-type: none"> <li>1. Summary of before and after runs results in two (2) tables showing travel time and delay time.</li> <li>2. Plot of the before and after runs diagram for each direction and time period.</li> </ol>

<b>Tab 5: Environmental Report</b>
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| 1. Environmental impact report including gas consumption, NO <sub>2</sub> , HCCO, improvements. |
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<b>Tab 6: Electronic Files</b>
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| 1. Two (2) CDs for the optimized system. The CDs shall include the following elements: <ul style="list-style-type: none"><li>a. Electronic copy of the SCAT Report in PDF format</li><li>b. Copies of the Synchro files for the optimized system</li><li>c. Traffic counts for the optimized system</li><li>d. New or updated intersection graphic display files for each of the system intersections and the system graphic display file including system detector locations and addresses.</li></ul> |
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Basis of Payment.

The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and an approved report and CD have been submitted.

**RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM**

Effective: May 22, 2002

Revised: July 1, 2015

800.03TS

**Description.**

This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer discs, copies of computer simulation files for the existing optimized system and a timing database will be made for the Consultant. The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
  - a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
  - b. Proposed signal timing plan for the modified intersection(s) shall be forwarded to IDOT for review prior to implementation.

- c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations. The consultant shall respond to IDOT comments and public complaints for a minimum period of 60 days from date of timing plan implementation.
- 2. The following deliverables shall be provided for LEVEL I Re-Optimization.
    - a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
    - b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.
- (b) LEVEL II Re-Optimization
- 1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
    - a. Traffic counts shall be taken at the subject intersection(s) after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday and on a Saturday and/or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
    - b. As necessary, the intersection(s) shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
    - c. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.
  - 2. The following deliverables shall be provided for LEVEL II Re-Optimization.
    - a. Consultant shall furnish to IDOT one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
      - (1) Brief description of the project
      - (2) Printed copies of the analysis output from Synchro (or other appropriate, approved optimization software file)
      - (3) Printed copies of the traffic counts conducted at the subject intersection
    - b. Consultant shall furnish to IDOT two (2) CDs for the optimized system. The CDs shall include the following elements:
      - (1) Electronic copy of the technical memorandum in PDF format
      - (2) Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system
      - (3) Traffic counts conducted at the subject intersection(s)
      - (4) New or updated intersection(s) graphic display file for the subject intersection(s)
      - (5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

Basis of Payment.

Longmeadow Parkway, FAU Route 2298

Section 16-00215-11-PV

Kane County – Contract XXXXX

This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

**MAST ARM SIGN PANELS**

Effective: May 22, 2002

Revised: July 1, 2015

720.01TS

Add the following to Article 720.02 of the Standard Specifications:

Sign stiffening channel systems shall be aluminum and meet the requirements of ASTM 6261-T5. Sign mounting banding, buckles and buckle straps shall be manufactured from AISI 201 stainless steel.



**SERVICE INSTALLATION (traffic signals)**

Effective: May 22, 2002

Revised: June 15, 2016

805.01TS

Revise Section 805 of the Standard Specifications to read:

**Description.**

This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the “District One Standard Traffic Signal Design Details”.

**General.**

The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company to the Engineer and Area Traffic Signal Maintenance and Operations Engineer. The service agreement and sketch shall be submitted for signature to the IDOT’s Traffic Operations Programs Engineer.

**Materials.**

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

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

3. All enclosures shall include a green external power indicator LED light with circuitry as shown in the Electrical Service-Panel Diagram detail sheet. For pole mounted service enclosures, the power indicator light shall be mounted as shown in the detail. For ground mounted enclosures, the power indicator light shall be mounted on the side of the enclosure most visible from the major roadway.
- c. Electric Utility Meter Housing and Riser. The electric meter housing and meter socket shall be supplied and installed by the contractor. The contractor is to coordinate the work to be performed and the materials required with the utility company to make the final connection at the power source. Electric utility required risers, weather/service head and any other materials necessary for connection shall also be included in the pay item. Materials shall be in accordance with the electric utility's requirements. For ground-mounted service, the electric utility meter housing shall be mounted to the enclosure. The meter shall be supplied by the utility company. Metered service shall not be used unless specified in the plans.
- d. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of -40C to +85C. The surge protector shall be UL 1449 Listed.
- e. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.
- f. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.
- g. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.
- h. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up.

This 30 day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.

- i. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 feet (3.0m) in length, and 3/4 inch (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation.

- a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.
- b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.
- c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment.

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

## **GROUNDING OF TRAFFIC SIGNAL SYSTEMS**

Effective: May 22, 2002

Revised: July 1, 2015

806.01TS

Revise Section 806 of the Standard Specifications to read:

### **General.**

All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. This work shall be in accordance with IDOT's District One Traffic Signal Design Details.

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

Testing shall be according to Article 801.13 (a) (4) and (5).

- a) The grounded conductor (neutral conductor) shall be white color coded. This conductor shall be bonded to the equipment grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.
- b) The equipment grounding conductor shall be green color coded. The following is in addition to Article 801.04 of the Standard Specifications.
  - 1) Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.
  - 2) Equipment grounding conductors shall be bonded, using a UL Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A UL listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations including spare or empty conduits.
  - 3) All metallic and non-metallic raceways shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment grounding conductor.
  - 4) Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.
- c) The grounding electrode conductor shall be similar to the equipment grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the ground rod to the

equipment grounding conductor and is bonded to ground rods via exothermic welding, UL listed pressure connectors, and UL listed clamps.

**COILABLE NON-METALLIC CONDUIT**

Effective: May 22, 2002

Revised: July 1, 2015

810.01TS

**Description.**

This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC).

**General.**

The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans

**Basis of Payment.**

All installations of CNC for loop detection shall be included in the contract and not paid for separately.

**UNDERGROUND RACEWAYS**

Effective: May 22, 2002

Revised: July 1, 2015

810.02TS

Revise Article 810.04 of the Standard Specifications to read:

“Installation. All underground conduits shall have a minimum depth of 30-inches (700 mm) below the finished grade.”

Add the following to Article 810.04 of the Standard Specifications:

“All metal conduit installed underground shall be Rigid Steel Conduit unless otherwise indicated on the plans.”

Add the following to Article 810.04 of the Standard Specifications:

“All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum of 300 mm (12”) or the length shown on the plans beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped.

The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap.

The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 3 mm (0.125”) thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring.”

## **HANDHOLES**

Effective: January 01, 2002

Revised: July 1, 2015

814.01TS

### **Description.**

Add the following to Section 814 of the Standard Specifications:

All conduits shall enter the handhole at a depth of 30 inches (762 mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 1/2 inch (13 mm) diameter with two 90 degree bends and extend into the handhole at least 6 inches (152 mm). Hooks shall be placed a minimum of 12 inches (305 mm) below the lid or lower if additional space is required.

Precast round handholes shall not be used unless called out on the plans.

The cover of the handhole frame shall be labeled "Traffic Signals" with legible raised letters.

Revise the third paragraph of Article 814.03 of the Standard Specifications to read:

"Handholes shall be constructed as shown on the plans and shall be cast-in-place, or precast concrete units. Heavy duty handholes shall be either cast-in-place or precast concrete units."

Add the following to Article 814.03 of the Standard Specifications:

"(c) Precast Concrete. Precast concrete handholes shall be fabricated according to Article 1042.17. Where a handhole is contiguous to a sidewalk, preformed joint filler of 1/2 inch (13 mm) thickness shall be placed between the handhole and the sidewalk."

### **Cast-In-Place Handholes.**

All cast-in-place handholes shall be concrete, with inside dimensions of 21-1/2 inches (546 mm) minimum. Frames and lid openings shall match this dimension.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (11 mm) diameter stainless steel bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 12 inches (305mm).

### **Precast Round Handholes.**

All precast handholes shall be concrete, with inside dimensions of 30 inches (762mm) diameter. Frames and covers shall have a minimum opening of 26 inches (660mm) and no larger than the inside diameter of the handhole.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (11 mm) diameter stainless steel bolt cast into the frame. For the purpose of attaching the grounding conductor to the



handhole cover, the covers shall either have a 7/16 inch (11 mm) diameter stainless steel bolt cast into the cover or a stainless steel threaded stint extended from an eye hook assembly. A hole may be drilled for the bolt if one cannot be cast into the frame or cover. The head of the bolt shall be flush or lower than the top surface of the cover.

The minimum wall thickness for precast heavy duty hand holes shall be 6 inches (152 mm).

Precast round handholes shall be only produced by an approved precast vendor.

Materials.

Add the following to Section 1042 of the Standard Specifications:

“1042.17 Precast Concrete Handholes. Precast concrete handholes shall be according to Articles 1042.03(a)(c)(d)(e).”

**GROUNDING CABLE**

Effective: May 22, 2002

Revised: July 1, 2015

817.01TS

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

Add the following to Article 817.02 (b) of the Standard Specifications:

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

The traffic signal grounding conductor shall be bonded, using a UL Listed grounding connector to all proposed and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding conductor shall be bonded to all proposed and existing pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system and noted herein and detailed on the plans. The grounding conductor shall be bonded to conduit terminations using rated grounding bushings. Bonding to existing handhole frames and covers shall be paid for separately.

Add the following to Article 817.05 of the Standard Specifications:

**Basis of Payment.**

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

**FIBER OPTIC TRACER CABLE**

Effective: May 22, 2002

Revised: July 1, 2015

817.02TS

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

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600V, minimum length 4 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

**Basis of Payment.**

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

**FULL-ACTUATED CONTROLLER AND CABINET**

Effective: January 1, 2002

Revised: July 1, 2015

857.02TS

**Description.**

This work shall consist of furnishing and installing a traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications, as modified herein, including malfunction management unit, load switches and flasher relays, with all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing a(n) "ECONOLITE" brand traffic actuated solid state controller.

**Materials.**

Add the following to Article 857.02 of the Standard Specifications:

For installation as a stand-alone traffic signal, connected to a closed loop system or integrated into an advance traffic management system (ATMS), controllers shall be Econolite ASC/3S-1000 or Eagle/Siemens M52 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment suppliers will be allowed. Unless specified otherwise on the plans or these specifications, the controller shall be of the most recent model and software version supplied by the equipment supplier at the time of the traffic signal TURN-ON. A removable controller data key shall also be provided. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being skipped during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications.

For integration into an ATMS such as Centrac, Tactics, or TransSuite, the controller shall have the latest version of NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing close loop management communications.

Add the following to Article 1074.03 of the Standard Specifications:

- (a) (6) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation.
- (b) (1) Revise "conflict monitor" to read "Malfunction Management Unit"
- (b) (5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- (b) (6) Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- (b) (7) Surge Protection – Shall be a 120VAC Single phase Modular filter Plug-in type, supplied from an approved vendor.
- (b) (8) BIU – shall be secured by mechanical means.
- (b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
- (b) (10) Switch Guards – All switches shall be guarded.
- (b) (11) Heating – One (1) 200 watt, thermostatically-controlled, electric heater.

- (b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a door switch. The LED Panels shall be provided from an approved vendor.
- (b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 ½ inch (38mm) deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lbs. (23 kg) in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 inches (610mm) wide.
- (b) (14) Plan & Wiring Diagrams – 12” x 15” (305mm x 406mm) moisture sealed container attached to door.
- (b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
- (b) (16) Field Wiring Labels – All field wiring shall be labeled.
- (b) (17) Field Wiring Termination – Approved channel lugs required.
- (b) (18) Power Panel – Provide a nonconductive shield.
- (b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
- (b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.

Basis of Payment.

This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET; FULL-ACTUATED CONTROLLER AND TYPE V CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER P CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET; FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE SUPER P CABINET (SPECIAL); FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET (SPECIAL).

**UNINTERRUPTABLE POWER SUPPLY, SPECIAL**

Effective: January 1, 2013

Revised: May 19, 2016

862.01TS

This work shall be in accordance with section 862 of the Standard Specification except as modified herein

Add the following to Article 862.01 of the Standard Specifications:

The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of 6 (six) hours.

Add the following to Article 862.02 of the Standard Specifications:

Materials shall be according to Article 1074.04 as modified in UNINTERRUPTABLE POWER SUPPLY, SPECIAL.

Add the following to Article 862.03 of the Standard Specifications:

The UPS shall additionally include, but not be limited to, a battery cabinet, where applicable. For Super-P (Type IV) and Super-R (Type V) cabinets, the battery cabinet is integrated to the traffic signal cabinet, and shall be included in the cost for the traffic signal cabinet of the size and type indicated on the plans.

The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption.

Revise Article 862.04 of the Standard Specifications to read:

**Installation.**

When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and an Emergency Vehicle Priority System is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the contract. A concrete apron shall be provided and be in accordance with Articles 424 and 202 of the Standard Specifications. The concrete apron shall also, follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the UPS including the addition of alarms.

Materials.

Revise Article 1074.04(a)(1) of the Standard Specifications to read:

The UPS shall be line interactive or double conversion and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection(s) normal traffic signal operating load. The UPS must be able to maintain the intersection's normal operating load plus 20 percent (20%) of the intersection's normal operating load. When installed at a railroad-interconnected intersection the UPS must maintain the railroad pre-emption load, plus 20 percent (20%) of the railroad preemption-operating load. The total connected traffic signal load shall not exceed the published ratings for the UPS.

The UPS shall provide a minimum of 6 (six) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 1000 W active output capacity, with 86 percent minimum inverter efficiency).

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.

Revise Article 1074.04(a)(10) of the Standard Specifications to read:

The UPS shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

Revise Article 1074.04(a)(17) of the Standard Specifications to read:

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, luminaires, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

Revise Article 1074.04(b)(2)b of the Standard Specifications to read:

Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish.

Revise Article 1074.04(b)(2)c of the Standard Specifications to read:

No more than three batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

Revise Article 1074.04(b)(2)e of the Standard Specifications to read:

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

End of paragraph 1074.04(b)(2)e

The door shall be equipped with a two position doorstop, one a 90° and one at 120°.

Revise Article 1074.04(b)(2)g of the Standard Specifications to read:

The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

Add the following to Article 1074.04(b)(2) of the Standard Specifications:

j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

- (8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.
- (9) The UPS shall include standard RS-232 and internal Ethernet interface.
- (10) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate. Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.
- (11) The bypass switch shall include an internal power transfer relay that allows removal of the battery back-up unit, while the traffic signal is connected to utility power, without impacting normal traffic signal operation.

Revise Article 1074.04(d)(3) of the Standard Specifications to read:

All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic lead calcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.

Revise Article 1074.04(d)(4) of the Standard Specifications to read:

Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.

Add the following to Article 1074.04(d) of the Standard Specifications:

- (9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of 6 (six) hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four batteries shall be provided.



(10) Battery Heater mats shall be provided, when gel cell type batteries are supplied.

Add the following to the Article 1074.04 of the Standard Specifications:

- (e) Warranty. The warranty for an uninterruptable power supply (UPS) and batteries (full replacement) shall cover a minimum of 5 years from date the equipment is placed in operation.
- (f) Installation. Bypass switch shall completely disconnect the traffic signal cabinet from the utility provider.
- (g) The UPS shall be set-up to run the traffic signal continuously, without going to a red flashing condition, when switched to battery power unless otherwise directed by the Engineer. The Contractor shall confirm set-up with the Engineer. The continuous operation mode when switched to battery may require modification to unit connections and these modifications are included in the unit price for this item.

Revise Article 862.05 of the Standard Specifications to read:

Basis of Payment.

This work will be paid for at the contract unit price per each for UNINTERRUPTABLE POWER SUPPLY, SPECIAL or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL. Replacement of Emergency Vehicle Priority System confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, SPECIAL or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item. The concrete apron and earth excavation required shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item.

**FIBER OPTIC CABLE**

Effective: May 22, 2002

Revised: July 1, 2015

871.01TS

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 871.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be 24 Port Fiber Wall Enclosure, unless otherwise indicated on plans. The fiber optic cable shall provide twelve fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled "spare." Fibers not attached to the distribution enclosure shall be capped.. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

Testing shall be in accordance with Article 801.13(d). Electronic files of OTDR signature traces shall be provided in the Final project documentation with certification from the Contractor that attenuation of each fiber does not exceed 3.5 dB/km nominal at 850nm for multimode fiber and 0.4 bd/km nominal at 1300nm for single mode fiber.

**ELECTRIC CABLE**

Effective: May 22, 2002

Revised: July 1, 2015

873.01TS

Delete “or stranded, and No. 12 or” from the last sentence of Article 1076.04 (a) of the Standard Specifications.

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

**EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C**

Effective: January 1, 2013

Revised: July 1, 2015

873.03TS

This work shall consist of furnishing and installing lead-in cable for light detectors installed at existing and/or proposed traffic signal installations as part of an emergency vehicle priority system. The work includes installation of the lead-in cables in existing and/or new conduit. The electric cable shall be shielded and have (3) stranded conductors, colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the vendor of the Emergency Vehicle Priority System Equipment.

**Basis of Payment.**

This work will be paid for at the contract unit price per foot for EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operations.

**TRAFFIC SIGNAL POST**

Effective: May 22, 2002

Revised: July 01, 2015

875.01TS

Add the following to Article 1077.01 (c) of the Standard Specifications:

Washers for post bases shall be the same size or larger than the nut.

Revise the first sentence of Article 1077.01 (d) of the Standard Specifications to read:

All posts and bases shall be steel and hot dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

**MAST ARM ASSEMBLY AND POLE**

Effective: May 22, 2002

Revised: July 01, 2015

877.01TS

Revise the second sentence of Article 1077.03 (a)(3) of the Standard Specifications to read:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer.

Add the following to Article 1077.03 (a)(3) of the Standard Specifications:

If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

**CONCRETE FOUNDATIONS**

Effective: May 22, 2002

Revised: July 01, 2015

878.01TS

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. (300 mm) at the threaded end.

Foundations used for Combination Mast Arm Poles shall provide an extra 2-1/2 inch (65 mm) raceway.

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation.

Add the following to the first paragraph of Article 878.05 of the Standard Specifications:

The price shall include a concrete apron in front of the cabinet and UPS as shown in the plans or as directed by the engineer.

**LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD**

Materials.

Add the following to Section 1078 of the Standard Specifications:

1. LED modules proposed for use and not previously approved by IDOT District One will require independent testing for compliance to current VTCSH-ITE standards for the product and be Intertek ETL Verified. This would include modules from new vendors and new models from IDOT District One approved vendors.
2. The proposed independent testing facility shall be approved by IDOT District One. Independent testing must include a minimum of two (2) randomly selected modules of each type of module (i.e. ball, arrow, pedestrian, etc.) used in the District and include as a minimum Luminous Intensity and Chromaticity tests. However, complete module performance verification testing may be required by the Engineer to assure the accuracy of the vendor's published data and previous test results. An IDOT representative will select sample modules from the local warehouse and mark the modules for testing. Independent test results shall meet current ITE standards and vendor's published data. Any module failures shall require retesting of the module type. All costs associated with the selection of sample modules, testing, reporting, and retesting, if applicable, shall be the responsibility of the LED module vendor and not be a cost to this contract.
3. All signal heads shall provide 12" (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signals heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.
4. The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 15 years from the date of traffic signal TURN-ON. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants within the first 15 years of the date of traffic signal TURN-ON shall be replaced or repaired. The vendor's written warranty for the LED signal modules shall be dated, signed by a vendor's representative and included in the product submittal to the State.

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:
  - a. 12 inch (300 mm) circular, multi-section
  - b. 12 inch (300 mm) arrow, multi-section



2. The maximum weight of a module shall be 4 lbs. (1.8 kg).
3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
5. The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.
6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.
7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

4. The LEDs utilized in the modules shall be AlInGaP technology for red and InGaN for green and amber indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 °C to +74 °C.

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.
2. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.
3. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).
4. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.
5. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.
6. LED arrows shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

2. Retrofit modules can be manufactured under this specification for the following faces:
    - a. 12 inch (300 mm) circular, multi-section
    - b. 12 inch (300 mm) arrow, multi-section
  3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.
  4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).
  5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.
  6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.
  7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.
- (e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.
1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.
  2. The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.
- (f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.
1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

Basis of Payment.

Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.

Revise the second paragraph of Article 880.04 of the Standard Specifications to read:

If the work consists of retrofitting an existing polycarbonate traffic signal head with light emitting diodes (LEDs), it will be paid for as a SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for removal of the existing module, furnishing the equipment described above including LED modules, all mounting

hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of signal faces, the number of signal sections in each signal face and the method of mounting.

**TRAFFIC SIGNAL BACKPLATE**

Effective: May 22, 2002

Revised: July 1, 2015

882.01TS

Delete 1<sup>st</sup> sentence of Article 1078.03 of the Standard Specifications and add “All backplates shall be louvered, formed ABS plastic”.

Add the following to the third paragraph of Article 1078.03 of the Standard Specifications. The retroreflective backplate shall not contain louvers.

Delete second sentence of the fourth paragraph of Article 1078.03 the Standard Specifications.

Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

When retro reflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the vendor’s recommendations. The retroreflective sheeting shall be installed under a controlled environment at the vendor/equipment supplier before shipment to the contractor. The formed plastic backplate shall be prepared and cleaned, following recommendations of the retroreflective sheeting manufacturer.

**DETECTOR LOOP**

Effective: May 22, 2002  
Revised: January 5, 2016  
886.01TS

**Procedure.**

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall mark the proposed loop locations and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4424 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

**Installation.**

Revise Article 886.04 of the Standard Specifications to read:

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

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

Each loop detector lead-in wire shall be labeled in the handhole using a water proof tag, from an approved vendor, secured to each wire with nylon ties.

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

- (a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb and handhole shall be cut with a 1/4 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark location of each loop cable.
- (b) Loop sealant shall be two-component thixotropic chemically cured polyurethane from an approved vendor. The sealant shall be installed 1/8 inch (3 mm) below the pavement surface. If installed above the surface the excess shall be removed immediately.
- (c) Preformed. This work shall consist of furnishing and installing a rubberized or cross linked polyethylene heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:
- (d) Preformed detector loops shall be installed in new pavement constructed of Portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be extended to a temporary protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.
- (e) Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. CNC, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.

- (f) Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using 11/16 inch (17.2 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating or a similarly sized XLPE cable jacket. Hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in the hose except where necessary to connect homeruns to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections shall be heavy duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum of four turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to insure complete moisture blockage and further protect the wire. The preformed loops shall be constructed to allow a minimum of 6.5 feet of extra cable in the handhole.

Method of Measurement.

Add the following to Article 886.05 of the Standard Specifications:

Preformed detector loops will be measured along the detector loop embedded in the pavement, rather than the actual length of the wire. Detector loop measurements shall include the saw cut and the length of the detector loop wire to the edge of pavement. The detector loop wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. CNC, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.

Basis of Payment.

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

**EMERGENCY VEHICLE PRIORITY SYSTEM**

Effective: May 22, 2002

Revised: July 1, 2015

887.01TS

Revise Section 887 of the Standard Specifications to read:

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

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, or a 7 watt Par 30 LED flood lamp with a 15 degree or greater spread, maximum 7 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signalized by a continuous indication.

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

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

**Basis of Payment.**

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

## **ACCESSIBLE PEDESTRIAN SIGNALS**

Effective: April 1, 2003

Revised: July 1, 2015

888.02TS

### **Description.**

This work shall consist of furnishing and installing pedestrian push button accessible pedestrian signals (APS) type. Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

### **Electrical Requirements.**

The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

### **Audible Indications.**

A pushbutton locator tone shall sound at each pushbutton with volume settings a maximum of 5 dBA louder than ambient sound.

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message.

A clear, verbal message shall be used to communicate the pedestrian walk interval. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: “Street Name.” Walk Sign is on to cross “Street Name.” No other messages shall be used to denote the WALK interval.

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

### **Pedestrian Pushbutton.**

Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED indicator shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street. The recorded messages and roadway designations shall be confirmed with the engineer and included with submitted product data.

### **Signage.**

A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall be one of the following standard MUTCD designs: R10-3b, R10-3d, or R10-3e.

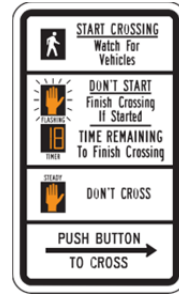




R10-3b



R10-3d



R10-3e

#### Tactile Arrow.

A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided either on the pushbutton or its sign.

#### Vibrotactile Feature.

The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

#### Training.

The Contractor shall provide APS onsite training for Department personnel and person(s) or group that requested the installation of the APS. APS features and operation shall be demonstrated during the training. The training shall be presented by the APS equipment supplier. Time, date, and location of the training and demonstration shall be coordinated with the Engineer.

#### Basis of Payment.

This work will be paid for at the contract unit price each for a pedestrian push button, ACCESSIBLE PEDESTRIAN SIGNALS type and shall include furnishing, installation, mounting hardware, message programming, and training.

## **GENERAL ELECTRICAL REQUIREMENTS**

Effective: June 1, 2016

This special provision replaces Articles 801.01 – 801.07, 801.09 – 801-16 of the Standard Specifications.

**Definition.** Codes, standards, and industry specifications cited for electrical work shall be by definition the latest adopted version thereof, unless indicated otherwise.

Materials by definition shall include electrical equipment, fittings, devices, motors, appliances, fixtures, apparatus, all hardware and appurtenances, and the like, used as part of, or in connection with, electrical installation.

**Standards of Installation.** Materials shall be installed according to the manufacturer's recommendations, the NEC, OSHA, the NESC, and AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.

All like materials shall be from the same manufacturer. Listed and labeled materials shall be used whenever possible. The listing shall be according to UL or an approved equivalent.

**Safety and Protection.** Safety and protection requirements shall be as follows.

**Safety.** Electrical systems shall not be left in an exposed or otherwise hazardous condition. All electrical boxes, cabinets, pole handholes, etc. which contain wiring, either energized or non-energized, shall be closed or shall have covers in place and be locked when possible, during nonworking hours.

**Protection.** Electrical raceway or duct openings shall be capped or otherwise sealed from the entrance of water and dirt. Wiring shall be protected from mechanical injury.

**Equipment Grounding Conductor.** All electrical systems, materials, and appurtenances shall be grounded. Good ground continuity throughout the electrical system shall be assured, even though every detail of the requirements is not specified or shown. Electrical circuits shall have a continuous insulated equipment grounding conductor. When metallic conduit is used, it shall be bonded to the equipment grounding conductor, but shall not be used as the equipment grounding conductor.

Detector loop lead-in circuits, circuits under 50 volts, and runs of fiber optic cable will not require an equipment grounding conductor.

Where connections are made to painted surfaces, the paint shall be scraped to fully expose metal at the connection point. After the connection is completed, the paint system shall be repaired to the satisfaction of the Engineer.

Bonding of all boxes and other metallic enclosures throughout the wiring system to the equipment grounding conductor shall be made using a splice and pigtail connection. Mechanical connectors shall have a serrated washer at the contact surface.

All connections to structural steel or fencing shall be made with exothermic welds. Care shall be taken not to weaken load carrying members. Where connections are made to epoxy coated reinforcing steel, the epoxy coating shall be sufficiently removed to facilitate a mechanical connection. The epoxy coating shall be repaired to the satisfaction of the Engineer. Where connections are made to insulated

conductors, the connection shall be wrapped with at least four layers of electrical tape extended 6 in. (150 mm) onto the conductor insulation.

**Submittals.** At the preconstruction meeting, the Contractor shall submit a written listing of manufacturers for all major electrical and mechanical items. The list of manufacturers shall be binding, except by written request from the Contractor and approval by the Engineer. The request shall include acceptable reasons and documentation for the change.

Major items shall include, but not limited to the following:

Type of Work (discipline)	Item
All Electrical Work	Electric Service Metering Emergency Standby System Transformers Cable Unit Duct Splices Conduit Surge Suppression System
Lighting	Tower Pole Luminaire Foundation Breakaway Device Controllers Control Cabinet and Peripherals
ITS	Controller Cabinet and Peripherals CCTV Cameras Camera Structures Ethernet Switches Detectors Detector Loop Fiber Optic Cable

Within 30 calendar days after contract execution, the Contractor shall submit, for approval, one copy each of the manufacturer's product data (for standard products and components) and detailed shop drawings (for fabricated items). Submittals for the materials for each individual pay item shall be complete in every respect. Submittals which include multiple pay items shall have all submittal material for each item or group of items covered by a particular specification, grouped together and the applicable pay item identified. Various submittals shall, when taken together, form a complete coordinated package. A partial submittal will be returned without review unless prior written permission is obtained from the Engineer.

The submittal shall be properly identified by route, section, county, and contract number.

The Contractor shall have reviewed the submittal material and affixed his/her stamp of approval, with date and signature, for each individual item. In case of subcontractor submittal, both the subcontractor and the Contractor shall review, sign, and stamp their approval on the submittal.

Illegible print, incompleteness, inaccuracy, or lack of coordination will be grounds for rejection.

**Items from multiple disciplines shall not be combined on a single submittal and transmittal. Items for lighting, signals, surveillance and CCTV must be in separate submittals since they may be reviewed by various personnel in various locations.**

The Engineer will review the submittals for conformance with the design concept of the project according to Article 105.04 and the following. The Engineer will stamp the drawings indicating their status as “Approved”, “Approved as Noted”, “Disapproved”, or “Information Only”. Since the Engineer’s review is for conformance with the design concept only, it shall be the Contractor’s responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, or layout drawings by the Engineer’s approval thereof. The Contractor shall still be in full compliance with contract and specification requirements.

All submitted items reviewed and marked “Disapproved” or “Approved as Noted” shall be resubmitted by the Contractor in their entirety, unless otherwise indicated within the submittal comments.

Work shall not begin until the Engineer has approved the submittal. Material installed prior to approval by the Engineer, will be subject to removal and replacement at no additional cost.

Unless otherwise approved by the Engineer, all of the above items shall be submitted to the Engineer at the same time. Each item shall be properly identified by route, section, and contract number.

**Certifications.** When certifications are specified and are available prior to material manufacture, the certification shall be included in the submittal information. When specified and only available after manufacture, the submittal shall include a statement of intent to furnish certification. All certificates shall be complete with all appropriate test dates and data.

**Authorized Project Delay.** See Article 801.08

**Maintenance transfer and Preconstruction Inspection:**

General. Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall request a maintenance transfer and preconstruction site inspection, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting and/or traffic control systems which may be affected by the work. The request for the maintenance transfer and preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

Establish the procedures for formal transfer of maintenance responsibility required for the construction period.

Establish the approximate location and operating condition of lighting and/or traffic control systems which may be affected by the work

Marking of Existing Cable Systems. The party responsible for maintenance of any existing lighting and/or traffic control systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the Village. A project may involve

multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 304.8 mm (one (1) foot) to either side. The request for the cable locations and marking shall be made at the same time the request for the maintenance transfer and preconstruction inspection is made. The Contractor shall exercise extreme caution where existing buried cable runs are involved. The markings of existing systems are made strictly for assistance to the Contractor and this does not relieve the Contractor of responsibility for the repair or replacement of any cable run damaged in the course of his work, as specified elsewhere herein. Note that the contractor shall be entitled to only one request for location marking of existing systems and that multiple requests may only be honored at the contractor's expense. No locates will be made after maintenance is transferred, unless it is at the contractor's expense.

Condition of Existing Systems. The Contractor shall conduct an inventory of all existing electrical system equipment within the project limits, which may be affected by the work, making note of any parts which are found broken or missing, defective or malfunctioning. Megger and load readings shall be taken for all existing circuits which will remain in place or be modified. If a circuit is to be taken out in its entirety, then readings do not have to be taken. The inventory and test data shall be reviewed with and approved by the Engineer and a record of the inventory shall be submitted to the Engineer for the record. Without such a record, all systems transferred to the Contractor for maintenance during construction shall be returned at the end of construction in complete, fully operating condition."

**Marking Proposed Locations for Highway Lighting System.** The Contractor shall mark or stake the proposed locations of all poles, cabinets, junction boxes, pull boxes, handholes, cable routes, pavement crossings, and other items pertinent to the work. A proposed location inspection by the Engineer shall be requested prior to any excavation, construction, or installation work after all proposed installation locations are marked. Any work installed without location approval is subject to corrective action at no additional cost to the Village.

**Inspection of electrical work.** Inspection of electrical work shall be according to Article 105.12 and the following.

Before any splice, tap, or electrical connection is covered in handholes, junction boxes, light poles, or other enclosures, the Contractor shall notify and make available such wiring for the Engineer's inspection.

**Maintenance and Responsibility During Construction.**

Lighting Operation and Maintenance Responsibility. The scope of work shall include the assumption of responsibility for the continuing operation and maintenance of the existing, proposed, temporary, sign and navigation lighting, or other lighting systems and all appurtenances affected by the work as specified elsewhere herein. Maintenance of lighting systems is specified elsewhere and will be paid for separately.

The proposed lighting system must be operational prior to opening the roadway to traffic unless temporary lighting exists which is designed and installed to properly illuminate the roadway.

Energy and Demand Charges. The payment of basic energy and demand charges by the electric utility for existing lighting which remains in service will continue as a responsibility of the Owner, unless otherwise indicated. Unless otherwise indicated or required by the Engineer duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously at the Owner's expense and lighting systems shall not be kept in operation during long daytime periods at the Owner's expense. Upon written authorization from the Engineer to place a proposed new lighting system in

service, whether the system has passed final acceptance or not, (such as to allow temporary lighting to be removed), the Owner will accept responsibility for energy and demand charges for such lighting, effective the date of authorization. All other energy and demand payments to the utility shall be the responsibility of the Contractor until final acceptance.

**Damage to Electrical Systems.** Should damage occur to any existing electrical systems through the Contractor's operations, the Engineer will designate the repairs as emergency or non-emergency in nature.

Emergency repairs shall be made by the Contractor, or as determined by the Engineer, the Village, or its agent. Non-emergency repairs shall be performed by the Contractor within six working days following discovery or notification. All repairs shall be performed in an expeditious manner to assure all electrical systems are operational as soon as possible. The repairs shall be performed at no additional cost to the Village.

**Lighting.** An outage will be considered an emergency when three or more lights on a circuit or three successive lights are not operational. Knocked down materials, which result in a danger to the motoring public, will be considered an emergency repair.

Temporary aerial multi-conductor cable, with grounded messenger cable, will be permitted if it does not interfere with traffic or other operations, and if the Engineer determines it does not require unacceptable modification to existing installations.

**Testing.** Before final inspection, the electrical work shall be tested. Tests may be made progressively as parts of the work are completed, or may be made when the work is complete. Tests shall be made in the presence of the Engineer. Items which fail to test satisfactorily shall be repaired or replaced. Tests shall include checks of control operation, system voltages, cable insulation, and ground resistance and continuity.

The forms for recording test readings will be available from the Engineer in electronic format. The Contractor shall provide the Engineer with a written report of all test data including the following:

- Voltage Tests
- Amperage Tests
- Insulation Resistance Tests
- Continuity tests
- Detector Loop Tests

Lighting systems. The following tests shall be made.

- (1) Voltage Measurements. Voltages in the cabinet from phase to phase and phase to neutral, at no load and at full load, shall be measured and recorded. Voltage readings at the last termination of each circuit shall be measured and recorded.
- (2) Insulation Resistance. Insulation resistance to ground of each circuit at the cabinet, with all loads connected, shall be measured and recorded.

On tests of new cable runs, the readings shall exceed 50 megohms for phase and neutral conductors with a connected load over 20 A, and shall exceed 100 megohms for conductors with a connected load of 20 A or less.

On tests of cable runs which include cables which were existing in service prior to this contract, the resistance readings shall be the same or better than the readings recorded at the maintenance transfer at the beginning of the contract. Measurements shall be taken with a megohm meter approved by the Engineer.

- (3) Loads. The current of each circuit, phase main, and neutral shall be measured and recorded. The Engineer may direct reasonable circuit rearrangement. The current readings shall be within ten percent of the connected load based on material ratings.
- (4) Ground Continuity. Resistance of the system ground as taken from the farthest extension of each circuit run from the controller (i.e. check of equipment ground continuity for each circuit) shall be measured and recorded. Readings shall not exceed 2.0 ohms, regardless of the length of the circuit.
- (5) Resistance of Grounding Electrodes. Resistance to ground of all grounding electrodes shall be measured and recorded. Measurements shall be made with a ground tester during dry soil conditions as approved by the Engineer. Resistance to ground shall not exceed 10 ohms.

All test results shall be furnished to the Engineer seven working days before the date the inspection is scheduled.

**Contract Guarantee.** The Contractor shall provide a written guarantee for all electrical work provided under the contract for a period of six months after the date of acceptance with the following warranties and guarantees.

- (a) The manufacturer's standard written warranty for each piece of electrical material or apparatus furnished under the contract. The warranty for light emitting diode (LED) modules, including the maintained minimum luminance, shall cover a minimum of 60 months from the date of delivery.
- (b) The Contractor's written guarantee that, for a period of six months after the date of final acceptance of the work, all necessary repairs to or replacement of said warranted material or apparatus for reasons not proven to have been caused by negligence on the part of the user or acts of a third party shall be made by the Contractor at no additional cost to the Village.
- (c) The Contractor's written guarantee for satisfactory operation of all electrical systems furnished and constructed under the contract for a period of six months after final acceptance of the work.

**Record Drawings.** Alterations and additions to the electrical installation made during the execution of the work shall be neatly and plainly marked in red by the Contractor on the full-size set of record drawings kept at the Engineer's field office for the project. These drawings shall be updated on a daily basis and shall be available for inspection by the Engineer during the course of the work. The record drawings shall include the following:

- Cover Sheet
- Summary of Quantities, electrical items only
- Legends, Schedules and Notes
- Plan Sheet

- Pertinent Details
- Single Line Diagram
- Other useful information useful to locate and maintain the systems.

Any modifications to the details shall be indicated. Final quantities used shall be indicated on the Summary of Quantities. Foundation depths used shall also be listed.

As part of the record drawings, the Contractor shall inventory all materials, new or existing, on the project and record information on inventory sheets provided by the Engineer.

The inventory shall include:

- Location of Equipment, including rack, chassis, slot as applicable.
- Designation of Equipment
- Equipment manufacturer
- Equipment model number
- Equipment Version Number
- Equipment Configuration
  - Addressing, IP or other
  - Settings, hardware or programmed
- Equipment Serial Number

The following electronic inventory forms are available from the Engineer:

- Lighting Controller Inventory
- Lighting Inventory
- Light Tower Inspection Checklist
- ITS Location Inventory

The information shall be entered in the forms; handwritten entries will not be acceptable; except for signatures. Electronic file shall also be included in the documentation.

When the work is complete, and seven days before the request for a final inspection, the set of contract drawings, stamped “**RECORD DRAWINGS**”, shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor’s supervising Engineer or electrician. The record drawings shall be submitted in PDF format on CDROM as well as hardcopy’s for review and approval.

In addition to the record drawings, PDF copies of the final catalog cuts which have been Approved and Approved as Noted with applicable follow-up shall be submitted along with the record drawings. The PDF files shall clearly indicate either by filename or PDF table of contents the respective pay item number. Specific part or model numbers of items which have been selected shall be clearly visible. Hard copies of the catalog are not required with this submittal.

The Contractor shall provide two sets of electronically produced drawings in a moisture proof pouch to be kept on the inside door of the controller cabinet or other location approved by the Engineer. These drawings shall show the final as-built circuit orientation(s) of the project in the form of a single line diagram with all luminaires numbered and clearly identified for each circuit.



Final documentation shall be submitted as a complete submittal package, i.e. record drawings, test results, inventory, etc. shall be submitted at the same time. Partial piecemeal submittals will be rejected without review. A total of five hardcopies and CDROMs of the final documentation shall be submitted.

GPS Documentation (As required by the Village of Hanover Park). In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following electrical components being installed, modified or being affected in other ways by this contract:

- All light poles and light towers.
- Handholes and vaults.
- Junction Boxes
- Conduit roadway crossings.
- Controllers.

Datum to be used shall be North American 1983.

Data shall be provided electronically and in print form. The electronic format shall be compatible with MS Excel. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

1. District
2. Description of item
3. Designation
4. Use
5. Approximate station
6. Contract Number
7. Date
8. Owner
9. Latitude
10. Longitude
11. Comments

A spreadsheet template will be available from the Engineer for use by the Contractor.

**Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 20 feet.** Upon verification, data collection can begin. Data collection can be made as construction progresses, or can be collected after all items are installed. If the data is unacceptable the contractor shall make corrections to the data collection equipment and or process and submit the data for review and approval as specified. **Data collection prior to the submittal and review of the sample data of existing data points will be unacceptable and rejected.**

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have minimum 5 meter accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years.”

**Acceptance.** Acceptance of electrical work will be given at the time when the Village of Hanover Park assumes the responsibility to protect and maintain the work according to Article 107.30 or at the time of final inspection.

When the electrical work is complete, tested, and fully operational, the Contractor shall schedule an inspection for acceptance with the Engineer no less than seven working days prior to the desired inspection date. The Contractor shall furnish the necessary labor and equipment to make the inspection.

A written record of the test readings taken by the Contractor according to Article 801.13 shall be furnished to the Engineer seven working days before the date the inspection is scheduled. Inspection will not be made until after the delivery of acceptable record drawings, specified certifications, and the required guarantees.

**ELECTRIC UTILITY SERVICE CONNECTION (COMED)**

Effective: January 1, 2012

Description. This item shall consist of payment for work performed by ComEd in providing or modifying electric service as indicated. THIS MAY INVOLVE WORK AT MORE THAN ONE ELECTRIC SERVICE. For summary of the Electrical Service Drop Locations see the schedule contained elsewhere herein.

**CONSTRUCTION REQUIREMENTS**

General. It shall be the Contractor's responsibility to contact ComEd. The Contractor shall coordinate his work fully with the ComEd both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement. **Please contact ComEd, New Business Center Call Center, at 866 NEW ELECTRIC (1-866-639-3532) to begin the service connection process. The Call Center Representatives will create a work order for the service connection. The representative will ask the requestor for information specific to the request. The representative will assign the request based upon the location of project.**

The Contractor should make particular note of the need for the earliest attention to arrangements with ComEd for service. In the event of delay by ComEd, no extension of time will be considered applicable for the delay unless the Contractor can produce written evidence of a request for electric service within 30 days of execution.

Method of Payment. The Contractor will be reimbursed to the exact amount of money as billed by ComEd for its services. Work provided by the Contractor for electric service will be paid separately as described under ELECTRIC SERVICE INSTALLATION. No extra compensation shall be paid to the Contractor for any incidental materials and labor required to fulfill the requirements as shown on the plans and specified herein.

For bidding purposes, this item shall be estimated as **\$22,500**

**Basis of Payment.** This work will be paid for at the contract lump sum price for ELECTRIC UTILITY SERVICE CONNECTION which shall be reimbursement in full for electric utility service charges.

**ELECTRIC SERVICE INSTALLATION**

Effective: January 1, 2012

Description. This item shall consist of all material and labor required to extend, connect or modify the electric services, as indicated or specified, which is over and above the work performed by the utility. Unless otherwise indicated, the cost for the utility work, if any, will be reimbursed to the Contractor separately under ELECTRIC UTILITY SERVICE CONNECTION. This item may apply to the work at more than one service location and each will be paid separately.

Materials. Materials shall be in accordance with the Standard Specifications.

**CONSTRUCTION REQUIREMENTS**

General. The Contractor shall ascertain the work being provided by the electric utility and shall provide all additional material and work not included by other contract pay items required to complete the electric service work in complete compliance with the requirements of the utility.

No additional compensation will be allowed for work required for the electric service, even though not explicitly shown on the Drawings or specified herein

**Method of Measurement.** Electric Service Installation shall be counted, each.

**Basis of Payment.** This work will be paid for at the contract unit price each for ELECTRIC SERVICE INSTALLATION which shall be payment in full for the work specified herein.

**EXPOSED RACEWAYS**

Effective: January 1, 2012

Revise the first paragraph of Article 811.03(a) of the Standard Specifications to read:

“General. Rigid metal conduit installation shall be according to Article 810.05(a). Conduits terminating in junction and pull boxes shall be terminated with insulated and gasketed watertight threaded NEMA 4X conduit hubs. The hubs shall be Listed under UL 514B. The insulated throat shall be rated up to 105° C. When PVC coated conduit is utilized, the aforementioned hubs shall also be PVC coated.”

Add the following to Article 811.03(b) of the Standard Specifications:

“Where PVC coated conduit is utilized, all conduit fittings, couplings and clamps shall be PVC coated. All other mounting hardware and appurtenances shall be stainless steel.”

“The personnel installing the PVC coated conduit must be trained and certified by the PVC coated conduit Manufacturer or Manufacturer’s representative to install PVC coated conduit. Documentation demonstrating this requirement must be submitted for review and approval.”

Add the following to Article 1088.01(a) of the Standard Specifications:

All iron and steel products, which are to be incorporated into the work, including conduit and all conduit fittings, shall be domestically manufactured or produced and fabricated as specified in Article 106.”

Revise Article 1088.01(a)(3) of the Standard Specifications to read:

- “a. PVC Coated Steel Conduit. The PVC coated rigid metal conduit shall be UL Listed (UL 6). The PVC coating must have been investigated by UL as providing the primary corrosion protection for the rigid metal conduit. Ferrous fittings for general service locations shall be UL Listed with PVC as the primary corrosion protection. Hazardous location fittings, prior to plastic coating shall be UL listed.
- b. The PVC coating shall have the following characteristics:

Hardness:	85+ Shore A Durometer
Dielectric Strength:	400V/mil @ 60 Hz
Aging:	1,000 Hours Atlas Weatherometer
Temperature	The PVC compound shall conform at 0° F. to Federal Specifications PL-406b, Method 2051, Amendment 1 of 25 September 1952 (ASTM D 746)
Elongation:	200%

- c. The exterior and interior galvanized conduit surface shall be chemically treated to enhance PVC coating adhesion and shall also be coated with a primer before the PVC coating to ensure a bond between the zinc substrate and the PVC coating. The bond strength created shall be greater than the tensile strength of the plastic coating.
- d. The nominal thickness of the PVC coating shall be 1 mm (40 mils). The PVC exterior and urethane interior coatings applied to the conduit shall afford sufficient flexibility to permit field bending without cracking or flaking at temperatures above -1°C (30°F).
- e. An interior urethane coating shall be uniformly and consistently applied to the interior of all conduit and fittings. This internal coating shall be a nominal 2 mil thickness. The interior coating shall be applied in a manner so there are no runs, drips, or pinholes at any point. The coating shall not peel, flake, or chip off after a cut is made in the conduit or a scratch is made in the coating.
- f. Conduit bodies shall have a tongue-in-groove gasket for maximum sealing capability. The design shall incorporate a positive placement feature to assure proper installation. Certified test results confirming seal performance at 15 psig (positive) and 25 in. of mercury (vacuum) for 72 hours shall be submitted for review when requested by the Engineer.
- g. The PVC conduit shall pass the following tests:

Exterior PVC Bond test RN1:

Two parallel cuts 13 mm (1/2 inch) apart and 40 mm (1 1/2 inches) in length shall be made with a sharp knife along the longitudinal axis. A third cut shall be made perpendicular to and crossing the longitudinal cuts at one end. The knife shall then be worked under the PVC coating for 13 mm (1/2 inch) to free the coating from the metal.

Using pliers, the freed PVC tab shall be pulled with a force applied vertically and away from the conduit. The PVC tab shall tear rather than cause any additional PVC coating to separate from the substrate.

Boil Test:

Acceptable conduit coating bonds (exterior and interior) shall be confirmed if there is no disbondment after a minimum average of 200 hours in boiling water or exposure to steam vapor at one atmosphere. Certified test results from a national recognized independent testing laboratory shall be submitted for review and approval. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D870, a 6" length of conduit test specimen shall be placed in boiling water. The specimen shall be periodically removed, cooled to ambient temperature and immediately tested according to the bond test (RN1). When the PVC coating separates from the substrate, the boil time to failure in hours shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, a 6" conduit test specimen shall be cut in half longitudinally and placed in boiling water or directly above boiling water with the urethane surface facing down. The specimen shall be periodically removed, cooled to ambient temperature and tested in accordance with the Standard Method of Adhesion by Tape Test (ASTM D3359). When the coating disbonds, the time to failure in hours shall be recorded.

Heat/Humidity Test:

Acceptable conduit coating bonds shall be confirmed by a minimum average of 30 days in the Heat and Humidity Test. The RN1 Bond Test and the Standard Method for Measuring Adhesion by Tape Test shall be utilized.

Exterior Adhesion. In accordance with ASTM D1151, D1735, D2247 and D4585, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. The specimens shall be periodically removed and a bond test (RN1) performed. When the PVC coating separates from the substrate, the exposure time to failure in days shall be recorded.

Interior Adhesion. In accordance with ASTM D3359, conduit specimens shall be placed in a heat and humidity environment where the temperature is maintained at 150°F (66°C) and 95% relative humidity. When the coating disbonds, the time to failure in hours shall be recorded.

Add the following to Article 1088.01(a)(4) of the Standard Specifications:

“All liquid tight flexible metal conduit fittings shall have an insulated throat to prevent abrasion of the conductors and shall have a captive sealing O-ring gasket. The fittings shall be Listed under UL 514B. The insulated throat shall be rated up to 105° C.”

Revise the second paragraph of Article 811.04 of the Standard Specifications to read:

“Expansion fittings and LFNC will not be measured for payment.”

Revise Article 811.05 of the Standard Specifications to read:

“811.05 Basis of Payment. This work will be paid for at the contract unit price per meter (foot) for CONDUIT ATTACHED TO STRUCTURE, of the diameter specified, RIGID GALVANIZED STEEL or CONDUIT ATTACHED TO STRUCTURE, of the diameter specified, RIGID GALVANIZED STEEL, PVC COATED.”

**UNIT DUCT**

Effective: January 1, 2012

Revise the first paragraph of Article 810.04 to read:

“The unit duct shall be installed at a minimum depth of 30-inches (760 mm) unless otherwise directed by the Engineer.”

Revise Article 1088.01(c) to read:

“(c) Coilable Nonmetallic Conduit.

General:

The duct shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The duct shall be a plastic duct which is intended for underground use and can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 2447, for schedule 40. The duct shall be composed of black high density polyethylene meeting the requirements of ASTM D 3350, Class C, Grade P33. The wall thickness shall be in accordance with Table 2 for ASTM D 2447.

The duct shall be UL Listed per 651-B for continuous length HDPE coiled conduit. The duct shall also comply with NEC Article 354.100 and 354.120.

Submittal information shall demonstrate compliance with the details of these requirements.

Dimensions:

Duct dimensions shall conform to the standards listed in ASTM D2447. Submittal information shall demonstrate compliance with these requirements.

Nominal Size		Nominal I.D.		Nominal O.D.		Minimum Wall	
mm	in	mm	in	mm	in	mm	in
31.75	1.25	35.05	1.380	42.16	1.660	3.556 +0.51	0.140 +0.020
38.1	1.50	40.89	1.610	48.26	1.900	3.683 +0.51	0.145 +0.020

Nominal Size		Pulled Tensile	
mm	in	N	lbs
31.75	1.25	3322	747
38.1	1.50	3972	893

Marking:



As specified in NEMA Standard Publication No. TC-7, the duct shall be clearly and durably marked at least every 3.05 meters (10 feet) with the material designation (HDPE for high density polyethylene), nominal size of the duct and the name and/or trademark of the manufacturer.

Performance Tests:

Polyethylene Duct testing procedures and test results shall meet the requirements of UL 651. Certified copies of the test report shall be submitted to the Engineer prior to the installation of the duct. Duct crush test results shall meet or exceed the following requirements:

<b>Duct Diameter</b>		<b>Min. force required to deform sample 50%</b>	
mm	in	N	lbs
35	1.25	4937	1110
41	1.5	4559	1025

**WIRE AND CABLE**

Effective: January 1, 2012

Add the following to the first paragraph of Article 1066.02(a):

“The cable shall be rated at a minimum of 90°C dry and 75°C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals.”

Revise the Aerial Electric Cable Properties table of Article 1066.03(a)(3) to read:

Aerial Electric Cable Properties

Phase Conductor			Messenger wire		
Size AWG	Stranding	Average Insulation Thickness		Minimum Size AWG	Stranding
		mm	mils		
6	7	1.1	(45)	6	6/1
4	7	1.1	(45)	4	6/1
2	7	1.1	(45)	2	6/1
1/0	19	1.5	(60)	1/0	6/1
2/0	19	1.5	(60)	2/0	6/1
3/0	19	1.5	(60)	3/0	6/1
4/0	19	1.5	(60)	4/0	6/1

Add the following to Article 1066.03(b) of the Standard Specifications:

“Cable sized No. 2 AWG and smaller shall be U.L. listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be U.L. listed Type RHH/RHW/USE.”

Revise Article 1066.04 to read:

“Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to Section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor. Unless otherwise indicated, the code word designation of this cable assembly is “Palomino”. The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474.”

Revise the second paragraph of Article 1066.05 to read:

“The tape shall have reinforced metallic detection capabilities consisting of a woven reinforced polyethylene tape with a metallic core or backing.”

**ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED**

This work shall consist of furnishing and installing electric cable in conduit of the type, size, and number of conductors specified. The construction performed and materials used shall be in conformance with applicable parts of Sections 873 and 1076 of the Standard Specifications. Physical specifications are as follows:

Conductors: 3-20 awg (7/28) tinned copper .037”

Dielectric: 25 mil wall of color coded polyethylene to a nominal diameter of .191”

Cabling: Cable together three insulated conductors with an overall aluminum/polyester tape, the foil out, and a 20 awg (7/28) tinned copper drain, in a 3” left hand lay to a nominal diameter of .191”

Jacket: 45 mil wall of black moisture resistant sunlight resistant polyvinyl chloride to a nominal diameter of .281” +/- .010”

Basis of Payment. This work will be paid for at the contract unit price foot for ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED, which price shall include all labor, equipment and materials necessary to complete the work.

**ELECTRIC SERVICE DISCONNECT, LIGHTING AND TRAFFIC SIGNAL**

Effective: January 1, 2012

Description:

This item shall consist of furnishing and installing for the Lighting and Traffic Signal System a service disconnect box, 2 or 3 wire mounted on a wood pole as specified below, and as shown on the detail drawings and as directed by the Engineer.

Materials:

The disconnect box shall be NEMA 4X stainless steel, nominally 12" W x 16" H x 8" D with piano hinged door, steel back panel, fast acting stainless steel enclosure clamps, padlock provisions and door stop kit (Hoffman catalog #A-16H1208SS6LP/A-16P12/A-DSTOPK/C-PMK12, or approved equal).

Circuit Breakers shall be thermal magnetic bolt-on type with a minimum interrupt capacity of 25,000 symmetrical amperes at 240 volts. Breakers shall be lockable in the off position for lockout/tag-out compliance.

Bus bars, connectors, and lugs shall be copper, insulated and isolated, and configured to prevent shorted conditions from tightening terminations. Lugs and connectors shall be rated for 75°C. Overall bus sections shall be configured behind an insulating barrier shield which is removable for access to connections. The circuit breakers and bus may be part of an approved panel board assembly.

Disconnect surge protector shall be suitable for 240/120 volt single phase 60Hz, AC electrical service. Protector shall have a surge energy capability of 2160 joules or better at 8/20 microseconds, rate -40 to 60°C., with LED operating indicators and shall be UL listed per UL 1449. The surge protector shall be a Cutler Hammer CMOV230L065XST or approved equal.

Conduit, wire, and ground rods to complete the installation of the disconnect box shall be included as part of this item, as required and as indicated.

Combination ground and neutral bar shall be configured with separate ground and neutral sections and spare terminals as indicated. The heads of grounding screws shall be painted green. The heads of neutral screws shall be painted white.

A plastic laminated layout and circuit diagram shall be affixed to the interior side of the enclosure door.

A 2-color engraved plastic nameplate, attached with screws and engraved as indicated, shall be provided for each main breaker.

The exact mounting height for the Electric Service Disconnect shall be field determined and marked by the Engineer.

Electrical service shall be of the voltage indicated. Where 120 volt service is indicated, service drop cable shall be installed accordingly and lighting main breaker and all other service appurtenances shall be included regardless of the service voltage applied to the installation.

The electric service equipment assembly shall be UL labeled, suitable for use as service equipment.

Steel strut channel shall be provided for proper installation of the disconnect, as shown on the disconnect mounting detail.

Electric Utility charges will be paid separately and are not part of this item.

Installation:

The Electric Service Disconnect shall be installed as indicated in the Electric Service Disconnect detail. All work shall be fully coordinated with the electric utility company by the Contractor.

Method Of Measurement:

Each Electric Service Disconnect, installed complete as specified and as indicated on the plans, shall be counted each for payment.

Basis Of Payment:

This item shall be paid for at the contract unit price, each, for ELECTRIC SERVICE DISCONNECT, LIGHTING AND TRAFFIC SIGNAL, which shall be payment in full for the work.

## **IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION (TPG)**

Effective: August 1, 2012

Revised: February 1, 2014

In addition to the Contractor's equal employment opportunity affirmative action efforts undertaken as elsewhere required by this Contract, the Contractor is encouraged to participate in the incentive program to provide additional on-the-job training to certified graduates of IDOT funded pre-apprenticeship training programs outlined by this Special Provision.

It is the policy of IDOT to fund IDOT pre-apprenticeship training programs throughout Illinois to provide training and skill-improvement opportunities to assure the increased participation of minority groups, disadvantaged persons and women in all phases of the highway construction industry. The intent of this IDOT Training Program Graduate (TPG) Special Provision is to place certified graduates of these IDOT funded pre-apprentice training programs on IDOT project sites when feasible, and provide the graduates with meaningful on-the-job training intended to lead to journey-level employment. IDOT and its sub-recipients, in carrying out the responsibilities of a state contract, shall determine which construction contracts shall include "Training Program Graduate Special Provisions." To benefit from the incentives to encourage the participation in the additional on-the-job training under this Training Program Graduate Special Provision, the Contractor shall make every reasonable effort to employ certified graduates of IDOT funded Pre-apprenticeship Training Programs to the extent such persons are available within a reasonable recruitment area.

Participation pursuant to IDOT's requirements by the Contractor or subcontractor in this Training Program Graduate (TPG) Special Provision entitles the Contractor or subcontractor to be reimbursed at \$15.00 per hour for training given a certified TPG on this contract. As approved by the Department, reimbursement will be made for training persons as specified herein. This reimbursement will be made even though the Contractor or subcontractor may receive additional training program funds from other sources for other trainees, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving other reimbursement. For purposes of this Special Provision the Contractor is not relieved of requirements under applicable federal law, the Illinois Prevailing Wage Act, and is not eligible for other training fund reimbursements in addition to the Training Program Graduate (TPG) Special Provision reimbursement.

No payment shall be made to the Contractor if the Contractor or subcontractor fails to provide the required training. It is normally expected that a TPG will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project through completion of the contract, so long as training opportunities exist in his work classification or until he has completed his training program. Should the TPG's employment end in advance of the completion of the contract, the Contractor shall promptly notify the designated IDOT staff member under this Special Provision that the TPG's involvement in the contract has ended and supply a written report of the reason for the end of the involvement, the hours completed by the TPG under the Contract and the number of hours for which the incentive payment provided under this Special Provision will be or has been claimed for the TPG.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting its performance under this Special Provision.

**METHOD OF MEASUREMENT:** The unit of measurement is in hours.

**BASIS OF PAYMENT:** This work will be paid for at the contract unit price of \$15.00 per hour for certified TRAINEES TRAINING PROGRAM GRADUATE. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

The Contractor shall provide training opportunities aimed at developing full journeyworker in the type of trade or job classification involved. The initial number of TPGs for which the incentive is available under this contract is **2**. During the course of performance of the Contract the Contractor may seek approval from the Department for additional incentive eligible TPGs. In the event the Contractor subcontracts a portion of the contract work, it shall determine how many, if any, of the TPGs are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this Special Provision. The Contractor shall also insure that this Training Program Graduate Special Provision is made applicable to such subcontract if the TPGs are to be trained by a subcontractor and that the incentive payment is passed on to each subcontractor.

For the Contractor to meet the obligations for participation in this TPG incentive program under this Special Provision, the Department has contracted with several entities to provide screening, tutoring and pre-training to individuals interested in working in the applicable construction classification and has certified those students who have successfully completed the program and are eligible to be TPGs. A designated IDOT staff member, the Director of the Office of Business and Workforce Diversity (OBWD), will be responsible for providing assistance and referrals to the Contractor for the applicable TPGs. For this contract, the Director of OBWD is designated as the responsible IDOT staff member to provide the assistance and referral services related to the placement for this Special Provision. For purposes of this Contract, contacting the Director of OBWD and interviewing each candidate he/she recommends constitutes reasonable recruitment.

Prior to commencing construction, the Contractor shall submit to the Department for approval the TPGs to be trained in each selected classification. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. No employee shall be employed as a TPG in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. Notwithstanding the on-the-job training purpose of this TPG Special Provision, some offsite training is permissible as long as the offsite training is an integral part of the work of the contract and does not comprise a significant part of the overall training.

Training and upgrading of TPGs of IDOT pre-apprentice training programs is intended to move said TPGs toward journeyman status and is the primary objective of this Training Program Graduate Special Provision. Accordingly, the Contractor shall make every effort to enroll TPGs by recruitment through the IDOT funded TPG programs to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that it has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance and entitled to the Training Program Graduate Special Provision \$15.00 an hour incentive.

The Contractor or subcontractor shall provide each TPG with a certificate showing the type and length of training satisfactorily completed.

State of Illinois  
Department of Transportation  
Bureau of Local Roads and Streets

SPECIAL PROVISION  
FOR  
INSURANCE

Effective: February 1, 2007  
Revised: August 1, 2007

All references to Sections or Articles in this specification shall be construed to mean specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

The Contractor shall name the following entities as additional insured under the Contractor's general liability insurance policy in accordance with Article 107.27:

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The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.



## **BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE)**

Effective: November 2, 2006

Revised: August 1, 2017

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract.

The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments that are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, joint filling/sealing, or extra work paid for at a lump sum price or by force account.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$$

Where: CA = Cost Adjustment, \$.

BPI<sub>P</sub> = Bituminous Price Index, as published by the Department for the month the work is performed, \$/ton (\$/metric ton).

BPI<sub>L</sub> = Bituminous Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, \$/ton (\$/metric ton).

%AC<sub>V</sub> = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC<sub>V</sub> will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC<sub>V</sub> and undiluted emulsified asphalt will be considered to be 65% AC<sub>V</sub>.

Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards:  $Q, \text{ tons} = A \times D \times (G_{mb} \times 46.8) / 2000$ . For HMA mixtures measured in square meters:  $Q, \text{ metric tons} = A \times D \times (G_{mb} \times 1) / 1000$ . When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different  $G_{mb}$  and % AC<sub>V</sub>.

For bituminous materials measured in gallons:  $Q, \text{ tons} = V \times 8.33 \text{ lb/gal} \times SG / 2000$

For bituminous materials measured in liters:  $Q, \text{ metric tons} = V \times 1.0 \text{ kg/L} \times SG / 1000$

Where: A = Area of the HMA mixture, sq yd (sq m).

D = Depth of the HMA mixture, in. (mm).

$G_{mb}$  = Average bulk specific gravity of the mixture, from the approved mix design.

V = Volume of the bituminous material, gal (L).  
SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the  $BPI_L$  and  $BPI_P$  in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(BPI_L - BPI_P) \div BPI_L\} \times 100$$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

80173

**BUILDING REMOVAL - CASE I (NON-FRIABLE AND FRIABLE ASBESTOS ABATEMENT)  
(BDE)**

Effective: September 1, 1990

Revised: April 1, 2010

**BUILDING REMOVAL:** This work shall consist of the removal and disposal of 1 building(s), together with all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

<u>Bldg. No.</u>	<u>Parcel No.</u>	<u>Location</u>	<u>Description</u>
1	ILN0047	19N054 IL Route 31 Dundee, IL 60118	Multi-story Barn Silo

**Discontinuance of Utilities:** The Contractor shall arrange for the discontinuance of all utility services and the removal of the metering devices that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

**Signs:** Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR  
HIGHWAY CONSTRUCTION  
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

All friable asbestos shall be removed from the building(s) prior to demolition. The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)", "Removal and Disposal of Friable Asbestos Building No. \_\_\_\_\_", and "Removal and Disposal of Non-Friable Asbestos Building No. \_\_\_\_\_" contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all asbestos, friable and non-friable, is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Three separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO. \_\_\_\_\_
2. REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_
3. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of friable and non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provisions for "Removal and Disposal of Friable Asbestos, Building No. \_\_\_\_\_" and "Removal and Disposal of Non-Friable Asbestos, Building No. \_\_\_\_\_", and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages \_\_\_\_\_ thru \_\_\_\_\_. Also refer to the Materials Description Table on page \_\_\_\_\_ for a brief description and location of the various materials. Also included is a Materials Quantities Table on page \_\_\_\_\_. This table states whether the ACM is friable or non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of friable asbestos, and non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page \_\_\_\_\_, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of these permits shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least ten days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator  
Illinois Environmental Protection Agency  
Division of Air Pollution Control  
P. O. Box 19276  
Springfield, Illinois 62794-9276  
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

- A. All submittals and notices shall be made to the Engineer, except where otherwise specified herein.
- B. Submittals that shall be made prior to start of work:
  - 1. Submittals required under Asbestos Abatement Experience.
  - 2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.
  - 3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.

4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.
5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).
6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.
7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.
8. Submit proof of written notification and compliance with Paragraph "Notifications".

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;
2. Submit daily copies of work site entry logbooks with information on worker and visitor access;
3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and
4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

- A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.
- B. The Contractor shall document current Workmen's Compensation Insurance coverage.
- C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

A. Company Experience: Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.

B. Personnel Experience:

1. For Superintendent, the Contractor shall supply:

a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.

b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.

2. For workers involved in the removal of friable and non-friable asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

ABATEMENT AIR MONITORING: The Contractor shall comply with the following:

A. Personal Monitoring: All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the Contractor. Additional personal samples may be required by the Engineer at any time during the project.

B. Contained Work Areas for Removal of Friable Asbestos: Area samples shall be collected for the department within the work area daily. A minimum of one sample shall be taken outside of the abatement area removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

C. Interior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable Transite and floor tile removal

operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

- D. Exterior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

The Contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

E. Air Monitoring Professional

1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the Contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".
2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_: This work consists of the removal and disposal of all friable asbestos from the building(s) prior to demolition. The work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)" and as outlined herein.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_, as shown, which price shall include furnishing all labor, materials, equipment and services required to remove and dispose of the friable asbestos.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_: The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.



2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. \_\_\_\_\_, as shown.

The cost for this work shall be determined as follows:

Option #1 - Actual cost of removal and disposal of non-friable asbestos.

Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

The cost of removing and disposing of the building(s), assuming all asbestos, friable and non-friable is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. \_\_\_\_\_".

Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NO. \_\_\_\_\_ be deleted.

### EXAMPLE

Attached are Appendixes A - D. These appendixes are examples of the information to be included in the proposal and referred to on page 3 of the Special Provision.

Appendix A are the sketches of the building(s) noted on page 1 of the Special Provision. These sketches show the location of asbestos on each floor of the building(s).

Appendix B provides a "Material Description Table" also referred to on page 3 of the Special Provision.

Appendix C is a "Material Quantities Table" and is referred to on page 3 of the Special Provision.

Appendix D is a sample of a Shipping Manifest form referred to on page 3.

Appendix E is a sample of the building(s) identification needed on page 1.

## APPENDIX B

### MATERIAL DESCRIPTION TABLE

Material Description	% And Type Of Asbestos	Location, Description, Sample Number (If Applicable)
<b>I. <u>Ike and Swannies Tap</u></b>		
Pipe Insulation	55% & 60% chrysotile	Typical of all insulated piping in Basement area and in wall on 1st Floor. Fair condition. Some debris present in Basement.
Freezer cork Mastic	10% chrysotile	Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Sample AX656.
Floor tile	10% chrysotile	First floor in west portion of building. Floor tile is located under carpet. Poor condition. Sample AX652.
<b>II. <u>Peoria Hotel Building</u></b>		
Pipe Insulation	20% & 30% chrysotile	Typical of most insulated piping in Basement area. 1st Floor and 2nd Floor. Fair condition. Abundant debris present in Basement. Sample AX660 and Sample AX663.
HW Tank Insulation	55% chrysotile	Tank located in Mechanical Room on the Basement Floor. Tank insulation is in fair condition. ACM debris is throughout Mechanical Room. Sample AX664.
Freezer Cork Mastic	10% chrysotile	Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Same as Sample AX656.

Floor tile	10% chrysotile 12% chrysotile	First floor in the main hotel building. Floor tile is in poor condition. Sample AX561 and Sample AX662.
Transite Siding	25% chrysotile	Located on an out building in back of main hotel, 1st Floor. Debris on ground and in Basement area Sample AX666.

## APPENDIX C

### MATERIAL QUANTITIES TABLE

The following are approximate quantities of ACM to be removed from the building indicated. These material quantities do not indicate the cleaning required to remove asbestos debris and resulting contamination from the work areas.

#### I. Ike and Swanies Tap

<u>Material</u>	<u>Floor</u>	<u>Quantity Present</u>	<u>Friable</u>
Pipe Insulation	Basement	140 L.F.	Yes
Pipe Insulation	1st Floor	20 L.F.	Yes
Cork Mastic	Basement	900 S.F.	No
Floor Tile	1st Floor	1225 S.F.	No
Carpet	1st Floor	1225 S.F.	No

#### II. Peoria Hotel Building

<u>Material</u>	<u>Floor</u>	<u>Quantity Present</u>	<u>Friable</u>
Tank Insulation	Basement Mech RM	115 L.F.	Yes
Pipe Insulation	Basement Mech RM	335 L.F.	Yes
Pipe Insulation	Basement (remaining)	770 L.F.	Yes
Pipe Insulation	1st Floor	120 S.F.	Yes
Pipe Insulation	2nd Floor	40 S.F.	Yes
Cork Mastic	Basement	400 S.F.	No
Floor Tile	1st Floor	1300 S.F.	No
Linoleum	1st Floor	75 S.F.	No
Transite Siding	1st Floor	225 S.F.	No

APPENDIX DSHIPPING MANIFEST  
Generator

1. Work Site Name and Mailing Address	Owner's Name	Owner's Telephone No.
2. Operator's Name and Address		Operator's Telephone No
3. Waste Disposal Site (WDS) Name Mailing Address, and Physical Site Location		WDS Telephone No.
4. Name and Address of Responsible Agency		
5. Description of Materials		
6. Containers	No.	Type
7. Total Quantity	M <sup>3</sup>	(Yd <sup>3</sup> )
8. Special Handling Instructions and Additional Information		
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.		
Printed/Typed Name & Title	Signature	Month Day Year

## Transporter

10. Transporter 1 (Acknowledgement of Receipt of Materials)		
Printed/Typed Name & Title	Signature	Month Day Year
Address and Telephone No.		
11. Transporter 2 (Acknowledgement of Receipt of Materials)		
Printed/Typed Name & Title	Signature	Month Day Year
Address and Telephone No.		

## Disposal Site

12. Discrepancy Indication Space		
13. Waste Disposal Site Owner or Operator: Certification of Receipt of Asbestos Materials Covered By This Manifest Except As Noted in Item 12		
Printed/Typed Name & Title	Signature	Month Day Year

## APPENDIX D

### INSTRUCTIONS

#### Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the Company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional Office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
  - Friable asbestos material
  - Nonfriable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
  - DM - Metal drums, barrels
  - DP - Plastic drums, barrels
  - BA - 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).
8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator shall read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator shall retain a copy of this form.

## APPENDIX D

### INSTRUCTIONS

#### Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport.

NOTE: The transporter shall retain a copy of this form.

#### Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS shall note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.
13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS shall retain a completed copy of this form. The WDS shall also send a completed copy to the operator listed in Item 2.



APPENDIX E

Bldg. No.	Parcel No.	Location	Description
1	408D005	210-212 Franklin, Peoria	2 story 60'x40' brick & masonry, 50% basement 50% crawl space
2	408D010	203-211 Franklin, Peoria	Section 1: 1 story 30'x17'-4" brick & masonry slab  Section 2: 2 story 36'x81' brick & masonry full basement  Section 3: 3 story 50'x72' brick & masonry full basement  Section 4: 2 story 134'x38' brick & masonry, partial basement

## BUTT JOINTS (BDE)

Effective: July 1, 2016

Add the following to Article 406.08 of the Standard Specifications.

- “(c) Temporary Plastic Ramps. Temporary plastic ramps shall be made of high density polyethylene meeting the properties listed below. Temporary plastic ramps shall only be used on roadways with permanent posted speeds of 55 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the plastic ramp shall have a maximum thickness of 1/4 in. (6 mm) and the trailing edge shall match the height of the adjacent pavement  $\pm$  1/4 in. ( $\pm$  6 mm).

The ramp will be accepted by certification. The Contractor shall furnish a certification from the manufacturer stating the temporary plastic ramp meets the following requirements.

Physical Property	Test Method	Requirement
Melt Index	ASTM D 1238	8.2 g/10 minutes
Density	ASTM D 1505	0.965 g/cc
Tensile Strength @ Break	ASTM D 638	2223 psi (15 MPa)
Tensile Strength @ Yield	ASTM D 638	4110 psi (28 MPa)
Elongation @ Yield <sup>1/</sup> , percent	ASTM D 638	7.3 min.
Durometer Hardness, Shore D	ASTM D 2240	65
Heat Deflection Temperature, 66 psi	ASTM D 648	176 °F (80 °C)
Low Temperature Brittleness, F <sub>50</sub>	ASTM D 746	<-105 °F (<-76 °C)

1/ Crosshead speed -2 in./minute

The temporary plastic ramps shall be installed according to the manufacturer's specifications and fastened with anchors meeting the manufacturer's recommendations. Temporary plastic ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary HMA ramps at the Contractor's expense.”

## **COMPENSABLE DELAY COSTS (BDE)**

Effective: June 2, 2017

Revise Article 107.40(b) of the Standard Specifications to read:

“(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

- (1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.
- (2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.
- (3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days.”

Revise Article 107.40(c) of the Standard Specifications to read:

“(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

- (1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

- (2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor's yard or another job and the cost to re-mobilize, whichever is less.

Rental equipment may be paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

- (3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13.”

Revise Article 108.04(b) of the Standard Specifications to read:

“(b) No working day will be charged under the following conditions.

- (1) When adverse weather prevents work on the controlling item.
- (2) When job conditions due to recent weather prevent work on the controlling item.
- (3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.
- (4) When delays caused by utility or railroad adjustments prevent work on the controlling item.
- (5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.
- (6) When any condition over which the Contractor has no control prevents work on the controlling item.”

Revise Article 109.09(f) of the Standard Specifications to read:

- “(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead

other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited.”

Add the following to Section 109 of the Standard Specifications.

**“109.13 Payment for Contract Delay.** Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

Contract Type	Cause of Delay	Length of Delay
Working Days	Article 108.04(b)(3) or Article 108.04(b)(4)	No working days have been charged for two consecutive weeks.
Completion Date	Article 108.08(b)(1) or Article 108.08(b)(7)	The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08.

Payment for each of the various costs will be according to the following.

- (a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.
- (b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.
  - (1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

Original Contract Amount	Supervisory and Administrative Personnel
Up to \$5,000,000	One Project Superintendent
Over \$ 5,000,000 - up to \$25,000,000	One Project Manager, One Project Superintendent or Engineer, and One Clerk
Over \$25,000,000 - up to \$50,000,000	One Project Manager, One Project Superintendent, One Engineer, and

	One Clerk
Over \$50,000,000	One Project Manager, Two Project Superintendents, One Engineer, and One Clerk

(2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

- (c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid. For working day contracts the payment will be made according to Article 109.04. For completion date contracts, an adjustment will be determined as follows.

Extended Traffic Control occurs between April 1 and November 30:

$$\text{ETCP Adjustment (\$)} = \text{TE} \times (\% / 100 \times \text{CUP} / \text{OCT})$$

Extended Traffic Control occurs between December 1 and March 31:

$$\text{ETCP Adjustment (\$)} = \text{TE} \times 1.5 (\% / 100 \times \text{CUP} / \text{OCT})$$

Where: TE = Duration of approved time extension in calendar days.

% = Percent maintenance for the traffic control, % (see table below).

CUP = Contract unit price for the traffic control pay item in place during the delay.

OCT = Original contract time in calendar days.

Original Contract Amount	Percent Maintenance
Up to \$2,000,000	65%
\$2,000,000 to \$10,000,000	75%
\$10,000,000 to \$20,000,000	85%
Over \$20,000,000	90%

When an ETCP adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

## CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

Revised: November 1, 2014

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term “equipment” refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment’s respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 <sup>1/</sup>	600-749	2002
	750 and up	2006
June 1, 2011 <sup>2/</sup>	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 <sup>2/</sup>	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<http://www.epa.gov/cleandiesel/verification/verif-list.htm>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>); or
- b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

### **Diesel Retrofit Deficiency Deduction**

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.



Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

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## **DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)**

Effective: September 1, 2000

| Revised: July 2, 2016

**FEDERAL OBLIGATION.** The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

**STATE OBLIGATION.** This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

**CONTRACTOR ASSURANCE.** The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (a) Withholding progress payments;
- (b) Assessing sanctions;
- (c) Liquidated damages; and/or
- (d) Disqualifying the Contractor from future bidding as non-responsible.

**OVERALL GOAL SET FOR THE DEPARTMENT.** As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a

good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform \_\_\_\_\_% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

- (a) The bidder documents that enough DBE participation has been obtained to meet the goal or,
- (b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:

<http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index>.

BIDDING PROCEDURES. Compliance with this Special Provision is required prior to the award of the contract and the failure of the low bidder to comply will render the bid not responsive.

In order to assure the timely award of the contract, the low bidder shall submit:

- (a) The bidder shall submit a DBE Utilization Plan on completed Department forms SBE 2025 and 2026.
- (1) The final Utilization Plan must be submitted within five calendar days after the date of the letting in accordance with subsection (a)(2) of Bidding Procedures herein.

- (2) To meet the five day requirement, the bidder may send the Utilization Plan electronically by scanning and sending to **DOT.DBE.UP@illinois.gov** or faxing to (217) 785-1524. The subject line must include the bid Item Number and the Letting date. The Utilization Plan should be sent as one .pdf file, rather than multiple files and emails for the same Item Number. It is the responsibility of the bidder to obtain confirmation of email or fax delivery.

Alternatively, the Utilization Plan may be sent by certified mail or delivery service within the five calendar day period. If a question arises concerning the mailing date of a Utilization Plan, the mailing date will be established by the U.S. Postal Service postmark on the certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service when the Utilization Plan is received by the Department. It is the responsibility of the bidder to ensure the postmark or receipt date is affixed within the five days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Utilization Plan is to be submitted to:

Illinois Department of Transportation  
Bureau of Small Business Enterprises  
Contract Compliance Section  
2300 South Dirksen Parkway, Room 319  
Springfield, Illinois 62764

The Department will not accept a Utilization Plan if it does not meet the five day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Utilization Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration.

- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of Utilization Plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and scanned or faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

- (1) The names and addresses of DBE firms that will participate in the contract;
- (2) A description, including pay item numbers, of the work each DBE will perform;
- (3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
- (4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;
- (5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the Utilization Plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,
- (6) If the contract goal is not met, evidence of good faith efforts; the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors

are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

- (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
- (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.  
  
b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with subsection (c)(6) of the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
  - (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
  - (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
  - (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period in order to cure the deficiency.
- (c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217) 785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for consideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration

Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.
- (c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.
- (d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:
  - (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
  - (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement.
- (e) DBE as a material supplier:



- (1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
- (2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.
- (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

- (a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, then a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

- (c) SUBCONTRACT. The Contractor must provide DBE subcontracts to IDOT upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.
- (d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:
- (1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or
  - (2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
  - (3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.
- (e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor,

with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

- (1) The listed DBE subcontractor fails or refuses to execute a written contract;
- (2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;
- (4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.
- (6) You have determined that the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice of its withdrawal;
- (8) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;
- (10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated, or fails to complete its work on the Contract for any reason the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department shall provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

- (f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.
- (g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.
- (h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

## **DOWEL BAR INSERTER (BDE)**

Effective: January 1, 2017

Add the following to Article 420.03 of the Standard Specifications.

“(l) Mechanical Dowel Bar Inserter .....1103.20”

Revise Article 420.05(c) of the Standard Specifications to read:

“(c) Transverse Contraction Joints. Transverse contraction joints shall consist of planes of weakness created by sawing grooves in the surface of the pavement and shall include load transfer devices consisting of dowel bars. Transverse contraction joints shall be according to the following.”

Revise Article 420.05(c)(2) of the Standard Specifications to read:

“(2) Dowel Bars. Dowel Bars shall be installed parallel to the centerline of the pavement and parallel to the proposed pavement surface. Installation shall be according to one of the following methods.

- a. Dowel Bar Assemblies. The assembly shall act as a rigid unit with each component securely held in position relative to the other members of the assembly. The entire assembly shall be held securely in place by means of nails which shall penetrate the stabilized subbase. At least ten nails shall be used for each 10, 11, or 12 ft (3, 3.3, or 3.6 m) section of assembly.

Metal stakes shall be used instead of nails, with soil or granular subbase. The stakes shall loop over or attach to the top parallel spacer bar of the assembly and penetrate the subgrade or subbase at least 12 in. (300 mm).

At the location of each dowel bar assembly, the subgrade or subbase shall be reshaped and re-tamped when necessary.

Prior to placing concrete, any deviation of the dowel bars from the correct horizontal or vertical alignment (horizontal skew or vertical tilt) greater than 3/8 in. in 12 in (9 mm in 300 mm) shall be corrected and a light coating of oil shall be uniformly applied to all dowel bars.

Care shall be exercised in depositing the concrete at the dowel bar assemblies so the horizontal and vertical alignment will be retained.

- b. Dowel Bar Insertion. The dowel bars may be placed in the pavement slab with a mechanical dowel bar inserter (DBI) attached to a formless paver for pavements  $\geq 7.0$  in. (175 mm) in thickness. A light coating of oil shall be uniformly applied to all dowel bars.

The DBI shall insert the dowel bars with vibration into the plastic concrete after the concrete has been struck off and consolidated without deformation of the slab. After the bars have been inserted, the concrete shall be refinished and no voids shall exist around the dowel bars. The forward movement of the paver shall not be interrupted by the inserting of the dowel bars.

The location of each row of dowel bars shall be marked in a manner to facilitate where to insert the bars, and where to saw the transverse joint.

1. Placement Tolerances for Dowel Bars. The DBI shall place the dowel bars in the concrete pavement within the following tolerances.

- (a.) Longitudinal Translation (Mislocation). Longitudinal translation (mislocation) shall be defined as the position of the center of the dowel bar along the longitudinal axis, in relation to the sawed joint.

The quality control tolerance for longitudinal translation shall not exceed 2.0 in. (50 mm). If this tolerance is exceeded, adjustments shall be made to the paving operation.

Any joint having two or more dowel bars with an embedment length less than 4.0 in. (100 mm) within 12 in. (300 mm) of the same wheelpath will be considered unacceptable. Any joint having an average dowel bar embedment length less than 5.25 in. (130 mm) will also be considered unacceptable. Embedment length shall be defined as the length of dowel bar embedded on the short side of the sawed joint. An unacceptable joint shall be replaced with a minimum of 6 ft (1.8 m) of pavement centered over the joint according to Section 442 for Class B patches.

- (b.) Horizontal Translation (Mislocation). Horizontal translation (mislocation) shall be defined as the difference in the actual dowel bar location parallel to the longitudinal or edge joint from its theoretical position as shown on the plans.

The quality control tolerance for horizontal translation shall not exceed 2.0 in. (50 mm). If this tolerance is exceeded, adjustments shall be made to the paving operation.

Any joint having a dowel bar with a translation greater than 4.0 in. (100 mm) will be considered unacceptable, but may remain in place unless the Engineer determines the joint will not function. If the joint is unable to remain in place, the joint shall be replaced with a minimum of 6 ft (1.8 m) of pavement centered over the joint according to Section 442 for Class B patches.

(c.) Vertical Translation (Mislocation). Vertical translation (mislocation) shall be defined as the difference in the vertical position of the dowel bar relative to the theoretical midpoint of the slab.

The quality control tolerance for vertical translation shall be as shown in the following table. If these tolerances are exceeded, adjustments shall be made to the paving operation.

Pavement Thickness	Dowel Bar Diameter	Vertical Translation Tolerance Above Midpoint	Vertical Translation Tolerance Below Midpoint
≥7 in. to <8 in. (≥175 mm to <200 mm)	1.25 in. (31 mm)	0.25 in. (6 mm)	0.5 in. (13 mm)
≥8 in. to <9 in. (≥200 mm to <225 mm)	1.50 in. (38 mm)	0.25 in. (6 mm)	0.5 in. (13 mm)
≥9 in. to <10 in. (≥225 mm to <250 mm)	1.50 in. (38 mm)	0.75 in. (19 mm)	0.75 in. (19 mm)
≥10 in. (≥250 mm)	1.50 in. (38 mm)	0.75 in. (19 mm)	1.0 in. (25 mm)

Any joint having a dowel bar with top concrete cover less than T/3, where T is slab thickness, will be considered unacceptable. Any joint having 2 or more dowel bars with bottom concrete cover less than 2.0 in. (50 mm) will also be considered unacceptable. An unacceptable joint shall be replaced with a minimum of 6 ft (1.8 m) of pavement according to Section 442 for Class B patches.

(d.) Vertical Tilt or Horizontal Skew (Misalignment). Vertical tilt or horizontal skew (misalignment) shall be defined as the difference in position of the dowel bar ends with respect to each other. Vertical tilt is measured in the vertical axis whereas horizontal skew is measured in the horizontal axis. Misalignment shall be measured in terms of a joint score. The joint score shall be defined as the degree of misalignment evaluated for a single transverse joint for each lane of pavement. The joint score shall be determined as follows:

$$\text{Joint Score} = \left( 1 + \left( \frac{x}{x-n} \right) \sum_{i=1}^x W_i \right)$$

where:

$W_i$  = weighting factor (Table 1) for dowel  $i$

$x$  = number of dowels in a single joint

$n$  = number of dowels excluded from the joint score calculation due to measurement interference

*Single Dowel Misalignment* – The degree of misalignment applicable to a single dowel bar, calculated as:

$$\text{Single Dowel Misalignment} = \sqrt{(\text{Horizontal Skew})^2 + (\text{Vertical Tilt})^2}$$

Table 1. Weighting Factors in Joint Score Determination	
Single Dowel Bar Misalignment (SDM)	W, Weighting Factor
SDM ≤ 0.6 in. (15 mm)	0
0.6 in. (15 mm) < SDM ≤ 0.8 in. (20 mm)	2
0.8 in. (20 mm) < SDM ≤ 1 in. (25 mm)	4
1 in. (25 mm) < SDM ≤ 1.5 in. (38 mm)	5
1.5 in. (38 mm) < SDM	10

The quality control tolerance for vertical tilt or horizontal skew shall not exceed 0.6 in. (15 mm). If the tolerance is exceeded for either one, adjustments shall be made to the paving operation.

Any joint having a dowel bar with a vertical tilt or horizontal skew greater than 1.5 in. (38 mm) shall be cut. If more than one dowel bar is required to be cut in the joint, the joint will be considered unacceptable and shall be replaced with a minimum of 6 ft (1.8 m) of pavement centered over the joint according to Section 442 for Class B patches.

Single dowel bar misalignment shall be controlled to provide the joint scores shown in the following table.

Number of Dowel Bars in the Joint	Maximum Joint Score
< 5	4
≥ 5 but ≤ 9	8
> 9	12

A joint score greater than the specified maximum will be considered locked. Three consecutive joints with a score greater than the specified maximum total score will all be considered unacceptable.

Three consecutive locked joints shall be corrected by selecting one joint and cutting a dowel bar. Preference shall be given to cutting a dowel bar within the middle 2.5 ft (0.8 m) of the pavement lane to avoid the wheelpaths. If none of the three locked joints will have a joint score less than or equal to the specified maximum after selecting one dowel bar to cut, one of the joints shall be replaced with a minimum of 6 ft (1.8 m) of



pavement centered over the joint according to Section 442 for Class B patches.

(e.) For unacceptable work, the Contractor may propose alternative repairs for consideration by the Engineer.

2. Testing of Dowel Bar Placement. The placement of the dowel bars shall be tested within 24 hours of paving with a calibrated MIT Scan-2 device according to "Use of Magnetic Tomography Technology to Evaluate Dowel Placement" (Publication No. FHWA-IF-06-006) by the Federal Highway Administration.

A trained operator shall perform the testing, and all testing shall be performed in the presence of the Engineer. The device shall be calibrated to the type and size dowel bar used in the work according to the manufacturer's instructions. Calibration documentation shall be provided to the Engineer prior to construction. The device shall be recalibrated and/or validate readings as required by the Engineer. The device may be utilized as a process control and make necessary adjustments to ensure the dowel bars are placed in the correct location.

(a.) Test Section. Prior to start of production paving, a test section consisting of 30 transverse joints shall be constructed. The test section may be performed on the actual pavement, but production paving shall not begin until an acceptable test section has been constructed. The test section will be considered acceptable when all of the following are met:

- (1.) 90 percent of the dowel bars meet the quality control tolerance for longitudinal, horizontal, or vertical translation (mislocation);
- (2.) 90 percent of the dowel bars meet the quality control tolerance for vertical tilt or horizontal skew deviation (misalignment); and
- (3.) none of the joints are considered unacceptable prior to a corrective measure for mislocation or misalignment.

If the test section fails, another test section consisting of 30 joints shall be constructed.

The test section requirement may be waived by the Engineer if the Contractor has constructed an acceptable test section and successfully used the DBI on a Department contract within the same calendar year.

(b.) Production Paving. After the test section is approved, production paving may begin. The mislocation and misalignment of each dowel bar for the

first ten joints constructed, and every tenth joint thereafter, shall be tested.

If two consecutive days of paving result in 5 percent or more of the joints on each day being unacceptable prior to a corrective measure, production paving shall be discontinued and a new test section shall be constructed.

If any joint is found to be unacceptable prior to a corrective measure, testing of additional joints on each side of the unacceptable joint shall be performed until acceptable joints are found.

(c.) Test Report. Test reports shall be provided to the Engineer within two working days of completing each day's testing. The test report shall include the following.

(1.) Contract number, placement date, county-route-section, direction of traffic, scan date, Contractor, and name of individual performing the tests.

(2.) Provide the standard report generated from the on-board printer of the imaging technology used for every dowel and joint measured.

(3.) For every dowel measured, provide the joint identification number, lane number and station, dowel bar number or x-location, direction of testing and reference joint location/edge location, longitudinal translation, horizontal translation, vertical translation, vertical tilt, and horizontal skew.

(4.) Identify each dowel bar with a maximum longitudinal, horizontal, or vertical translation that has been exceeded. Identify each dowel bar with a maximum vertical tilt or horizontal skew deviation that has been exceeded.

(5.) Joint Score Details: Provide the joint identification number, lane number, station, and calculated joint score for each joint.

(6.) Locked Joint Identification: Identify each joint with a joint score > 12.

(d.) Exclusions. Exclude the following from dowel bar mislocation and misalignment measurements.

(1.) Transverse construction joints (headers).

(2.) Dowel bars within 24 in. (610 mm) of metallic manholes, inlets, metallic castings, or other nearby or underlying steel reinforced objects.

- (3.) The outside dowel bar when tie bars are installed with mechanical equipment in fresh concrete. For tie bar installations involving preformed or drilled holes, installation shall be performed after testing with the MIT Scan-2 device.
- (4.) Joints located directly under high voltage power lines.
- (5.) Subject to the approval of the Engineer, any other contributors to magnetic interference.
- (e.) Deficiency Deduction. When the Contractor has cut 25 dowel bars to correct unacceptable joints, the Contractor shall be liable and shall pay to the Department a deficiency deduction of \$500.00 for the cost of the bars. Thereafter, an additional deficiency deduction of \$20.00 for each additional bar cut will be assessed."

Add the following to Section 1103 of the Standard Specifications.

**"1103.20 Mechanical Dowel Bar Inserter.** The mechanical dowel bar inserter (DBI) shall be self-contained and supported on the formless paver with the ability to move separately from the paver. The DBI shall be equipped with insertion forks along with any other devices necessary for finishing the concrete the full width of the pavement. The insertion forks shall have the ability to vibrate at a minimum frequency of 3000 VPM."

## **FUEL COST ADJUSTMENT (BDE)**

Effective: April 1, 2009

Revised: August 1, 2017

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and extra work paid for by agreed unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Extra work paid for at a lump sum price or by force account will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

### **(a) Categories of Work.**

- (1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.
- (2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any

modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.

- (5) Category E: Structures. Structure items having a cumulative bid price that exceeds \$250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units		
Category	Factor	Units
A - Earthwork	0.34	gal / cu yd
B – Subbase and Aggregate Base courses	0.62	gal / ton
C – HMA Bases, Pavements and Shoulders	1.05	gal / ton
D – PCC Bases, Pavements and Shoulders	2.53	gal / cu yd
E – Structures	8.00	gal / \$1000

Metric Units		
Category	Factor	Units
A - Earthwork	1.68	liters / cu m
B – Subbase and Aggregate Base courses	2.58	liters / metric ton
C – HMA Bases, Pavements and Shoulders	4.37	liters / metric ton
D – PCC Bases, Pavements and Shoulders	12.52	liters / cu m
E – Structures	30.28	liters / \$1000

(c) Quantity Conversion Factors.

Category	Conversion	Factor
B	sq yd to ton	0.057 ton / sq yd / in depth
	sq m to metric ton	0.00243 metric ton / sq m / mm depth
C	sq yd to ton	0.056 ton / sq yd / in depth
	sq m to metric ton	0.00239 m ton / sq m / mm depth
D	sq yd to cu yd	0.028 cu yd / sq yd / in depth
	sq m to cu m	0.001 cu m / sq m / mm depth

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$$CA = (FPI_P - FPI_L) \times FUF \times Q$$

Where: CA = Cost Adjustment, \$  
FPI<sub>P</sub> = Fuel Price Index, as published by the Department for the month the work is performed, \$/gal (\$/liter)  
FPI<sub>L</sub> = Fuel Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, \$/gal (\$/liter)  
FUF = Fuel Usage Factor in the pay item(s) being adjusted  
Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI<sub>L</sub> and FPI<sub>P</sub> in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(FPI_L - FPI_P) \div FPI_L\} \times 100$$

Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

## HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Revised: April 1, 2016

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

“Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4 in. (100 mm), from each pavement edge. (i.e. for a 5 in. (125 mm) lift the near edge of the density gauge or core barrel shall be within 5 in. (125 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

- a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.
- b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced 10 ft (3 m) apart longitudinally along the unconfined pavement edge and centered at the random density test location.”

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

“Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-4.75	Ndesign = 50	93.0 – 97.4% <sup>1/</sup>	91.0%
IL-9.5	Ndesign = 90	92.0 – 96.0%	90.0%
IL-9.5, IL-9.5L	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0	Ndesign = 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L	Ndesign < 90	93.0 <sup>2/</sup> – 97.4%	90.0%
SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%”

## HOT MIX ASPHALT – QUALITY CONTROL FOR PERFORMANCE (BDE)

Effective: April 1, 2017

Revised: April 2, 2017

Description. This special provision describes the procedures for production, placement and payment of hot-mix asphalt (HMA) under the quality control for performance (QCP) program; as well as the requirements for intelligent compaction. This special provision shall apply to the HMA mixtures specified in the plans. This work shall be according to the Standard Specifications except as modified herein.

Delete Articles:	406.06(b)(1), 2 <sup>nd</sup> Paragraph	(Temperature Requirements)
	406.06(b)(2)d.	(Temperature Requirements)
	406.06(b)(3)b.	(Temperature Requirements)
	406.06(e), 3 <sup>rd</sup> Paragraph	(Paver Speed Requirements)
	406.07(b)	(Rolling)
	406.07(c)	(Density)
	1030.05(a)(4, 5, 9,)	(QC/QA Documents)
	1030.05(d)(2)a.	(Plant Tests)
	1030.05(d)(2)b.	(Dust-to-Asphalt and Moisture Content)
	1030.05(d)(2)d.	(Small Tonnage)
	1030.05(d)(2)f.	(HMA Sampling)
	1030.05(d)(3)	(Required Field Tests)
	1030.05(d)(4)	(Control Limits)
	1030.05(d)(5)	(Control Charts)
	1030.05(d)(7)	(Corrective Action for Field Tests (Density))
	1030.05(e)	(Quality Assurance by the Engineer)
	1030.05(f)	(Acceptance by the Engineer)
	1030.06(a), 2 <sup>nd</sup> paragraph	(Before start-up...)

### Definitions.

- (a) Quality Control (QC). All production and construction activities by the Contractor required to achieve the required level of quality.
- (b) Quality Assurance (QA). All monitoring and testing activities by the Engineer required to assess product quality, level of payment, and acceptability of the product.
- (c) Pay Parameters. Pay parameters shall be field voids in the mineral aggregate (Field VMA), voids, and density. Field VMA will be calculated using the combined aggregates bulk specific gravity ( $G_{sb}$ ) from the mix design.
- (d) Mixture Lot. A mixture lot shall begin once an acceptable test strip has been completed and the adjusted job mix formula has been determined. If the test strip is waived, a mixture lot shall begin with the start of production. A mixture lot shall consist of four



sublots unless it is the last or only lot, in which case it may consist of as few as one subplot.

- (e) Mixture Sublot. A mixture subplot for Field VMA, voids, and dust/AC shall be a maximum of 1000 tons (910 metric tons).
  - (1) If the remaining quantity is greater than 200 tons (180 metric tons) but less than 1000 tons (910 metric tons), the last mixture subplot will be that quantity.
  - (2) If the remaining quantity is 200 tons (180 metric tons) or less, the quantity shall be combined with the previous mixture subplot.
- (f) Density Interval. Density intervals shall be every 0.2 miles (320 m) for lift thicknesses of 3 in. (75 mm) or less and 0.1 miles (160 m) for lift thicknesses greater than 3 in. (75 mm). If a density interval is less than 200 ft (60 m), it will be combined with the previous density interval.
- (g) Density Sublot. A density subplot shall be the average of five consecutive density intervals.
  - (1) If less than three density intervals remain outside a density subplot, they shall be included in the previous density subplot.
  - (2) If three or more density intervals remain, they shall be considered a density subplot.
- (h) Density Test. A density test shall consist of a core taken at a random location within each density interval.

When establishing the target density, the HMA maximum theoretical gravity ( $G_{mm}$ ) shall be based on the running average of four Department test results. Initial  $G_{mm}$  shall be based on the average of the first four test results. If less than four  $G_{mm}$  results are available, an average of all available Department  $G_{mm}$  test results shall be used.

Quality Control (QC) by the Contractor. The Contractor's QC plan shall include the schedule of testing for both pay parameters and non-pay parameters required to control the product such as asphalt binder content and mixture gradation. The minimum test frequency shall be according to the following table.

Minimum Quality Control Sampling and Testing Requirements		
Quality Characteristic		Minimum Test Frequency
Mixture Gradation		1 per subplot
Asphalt Binder Content		
Dust/AC Ratio		
Field VMA		
Voids	G <sub>mb</sub>	
	G <sub>mm</sub>	

The Contractor's splits in conjunction with other quality control tests shall be used to control production.

The Contractor shall submit split jobsite mix sample test results to the Engineer within 48 hours of the time of sampling. All QC testing shall be performed in a qualified laboratory by personnel who have successfully completed the Department's HMA Level I training.

Intelligent Compaction. When a "Number of Roller Passes" is specified in the HMA Mixture Requirements table on the plans, the Contractor may opt to use intelligent compaction (IC) in lieu of density testing.

The IC equipment shall be mounted on the breakdown roller(s) and shall record GPS location data, roller pass counts, roller speeds, and HMA mat temperatures. Each day, the accuracy of the GPS and temperature data shall be verified and documented. If the verification fails or is not performed, the IC data will not be used for the affected density sublots.

The IC data for each density subplot shall be analyzed using Veta software to determine the average roller speed, percent roller coverage, and average mat surface temperature for the final roller pass. The Contractor shall submit these summary results, and if requested the raw data from the IC equipment and the data analysis software, to the Engineer within 24 hours of each day of paving using IC.

The required number of roller passes shall be as specified on the plans. The roller speeds shall be according to Article 406.07. The minimum roller coverage shall be 95 percent. The average HMA mat temperature for the final roller pass shall be according to the following table.

Asphalt Mixture Type	Temperature Range (°F (°C))
Warm Mix Asphalt	215-275 °F (102-135 °C)
IL-4.75	310-350 °F (155-175 °C)
HMA using SBS PG76-22	310-350 °F (155-175 °C)
HMA using SBS PG76-28	310-350 °F (155-175 °C)
Other HMA not listed above	260-325 °F (125-165 °C)

Quality Assurance (QA) by the Engineer. Quality Assurance by the Engineer will be as follows.

- (a) Voids, Field VMA and Dust/AC Ratio. The Engineer will determine the random tonnage and the Contractor shall be responsible for obtaining the sample according to the Department's Manual of Test Procedures for Materials "PFP Hot-Mix Asphalt Random Jobsite Sampling Procedure".
- (b) Density: After final rolling, the Engineer will identify the random core locations within each density testing interval according to the Department's Manual of Test Procedures for Materials "PFP and QCP Random Density Procedure".

The Contractor shall cut the 4 in. (100 mm) cores within the same day and prior to opening to traffic unless otherwise approved by the Engineer. All core holes shall be filled immediately upon completion of coring. All water shall be removed from the core holes prior to filling. All core holes shall be filled with a rapid hardening mortar or concrete which shall be mixed in a separate container prior to placement in the hole. Any depressions in the surface of the filled core holes greater than 1/4 in. (6 mm) at the time of final inspection will require removal of the fill material to the depth of the lift thickness and replacement.

The Engineer will witness and secure all mixture and density samples. The Contractor shall transport the secured sample to a location designated by the Engineer.

The Engineer will test one or all of the randomly selected split samples from each lot for voids, Field VMA and dust/AC ratio. The Engineer will test a minimum of one sample per project. The Engineer will test all of the pavement cores for density unless intelligent compaction is used. All QA testing will be performed in a qualified laboratory by personnel who have successfully completed the Department's HMA Level I training. QA test results will be available to the Contractor within ten working days from receipt of secured cores and split mixture samples.

The Engineer will maintain a complete record of all Department test results and copies will be provided to the Contractor with each set of subplot results. The records will contain, at a minimum, the originals of all Department test results and raw data, random numbers used and resulting calculations for sampling locations, and quality level analysis calculations.

If the QA results do not meet the 100 percent subplot pay factor limits or do not compare to QC results within the precision limits listed below, the Engineer will test all split mix samples for the lot.

Test Parameter	Limits of Precision
$G_{mb}$	0.030
$G_{mm}$	0.026
Field VMA	1.0 %

Acceptance by the Engineer. All of the Department's tests shall be within the acceptable limits listed below:

Parameter		Acceptable Limits
Field VMA		-1.0 – +3.0% <sup>1/</sup>
Voids		2.0 – 6.0%
Density	IL-9.5, IL-19.0, IL-4.75, IL-9.5FG <sup>3/</sup>	90.0 – 98.0%
	SMA	92.0 – 98.0%
Dust / AC Ratio		0.4 – 1.6 <sup>2/</sup>

1/ Based on minimum required VMA from mix design

2/ Does not apply to SMA.

3/ Acceptable density limits for IL-9.5FG placed less than 1 1/4 in. (32 mm) shall be 89.0% - 98.0%

In addition, no visible pavement distresses shall be present such as, but not limited to, segregation, excessive coarse aggregate fracturing or flushing.

**Basis of Payment.** Payment will be based on the calculation of the composite pay factor using QA test results for each mixture according to the Department's Manual of Test Procedures for Materials "QCP Pay Calculation" document.

If intelligent compaction is successfully implemented, the Contractor will receive 100 percent for the density pay factor in Equation 1 of the "QCP Pay Calculation" document for each applicable HMA mixture; otherwise, the density tests and pay adjustments will apply. The pay factor for each density subplot will be based upon either intelligent compaction or density tests and the two will not be mixed.

**Dust/AC Ratio.** A monetary deduction will be made using the pay adjustment table below for dust/AC ratios that deviate from the 0.6 to 1.2 range. If the tested mixture subplot is outside of this range, the Department will test the remaining sublots for dust/AC pay adjustment.

Dust/AC Pay Adjustment Table <sup>1/</sup>	
Range	Deduct / subplot
$0.6 \leq X \leq 1.2$	\$0
$0.5 \leq X < 0.6$ or $1.2 < X \leq 1.4$	\$1000
$0.4 \leq X < 0.5$ or $1.4 < X \leq 1.6$	\$3000
$X < 0.4$ or $X > 1.6$	Shall be removed and replaced

1/ Does not apply to SMA.

## **HOT-MIX ASPHALT – TACK COAT (BDE)**

Effective: November 1, 2016

Revise Article 1032.06(a) of the Standard Specifications to read:

“(a) Anionic Emulsified Asphalt. Anionic emulsified asphalts shall be according to AASHTO M 140. SS-1h emulsions used as a tack coat shall have the cement mixing test waived.”

80376

## **LIGHT POLES (BDE)**

Effective: July 1, 2016

Revise the second paragraph of Article 1069.01 of the Standard Specifications to read:

“The detailed design and fabrication of the pole shaft, arms, tenons, and attachments shall be according to AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals” current at the time the project is advertised. Light poles shall be designed for ADT > 10,000 and Risk Category Typical. If Fatigue design is required, light poles shall be designed for Importance Category I.”

Revise the fifth paragraph of Article 1069.01(a) of the Standard Specifications to read:

“Deflection of the pole top as caused by the combined effect of deadload referenced above and wind speed prescribed by AASHTO shall be as required by AASHTO. Pole deflection and loading compliance, certified by the manufacturer, shall be noted on the pole submittal.”

80367

## **MAST ARM ASSEMBLY AND POLE (BDE)**

Effective: July 1, 2016

Revise Article 1077.03(a)(1) of the Standard Specifications to read:

“(1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals” 2015 Edition. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the “fillet welded, ring stiffened box connection” detail as shown in Figure C5.6.7-2. The mast arm and pole shall be designed assuming the ADT > 10,000, Risk Category Typical, and Fatigue Category I Natural Wind Gust only.”

80369

## PAVEMENT MARKING REMOVAL (BDE)

Effective: July 1, 2016

Revise Article 783.02 of the Standard Specifications to read:

**“783.02 Equipment.** Equipment shall be according to the following.

Item	Article/Section
(a) Grinders (Note 1)	
(b) Water Blaster with Vacuum Recovery .....	1101.12

Note 1. Grinding equipment shall be approved by the Engineer.”

Revise the first paragraph of Article 783.03 of the Standard Specifications to read:

**“783.03 Removal of Conflicting Markings.** Existing pavement markings that conflict with revised traffic patterns shall be removed. If darkness or inclement weather prohibits the removal operations, such operations shall be resumed the next morning or when weather permits. In the event of removal equipment failure, such equipment shall be repaired, replaced, or leased so removal operations can be resumed within 24 hours.”

Revise the first and second sentences of the first paragraph of Article 783.03(a) of the Standard Specifications to read:

“The existing pavement markings shall be removed by the method specified and in a manner that does not materially damage the surface or texture of the pavement or surfacing. Small particles of tightly adhering existing markings may remain in place, if in the opinion of the Engineer, complete removal of the small particles will result in pavement surface damage.”

Revise the first paragraph of Article 783.04 of the Standard Specifications to read:

**“783.04 Cleaning.** The roadway surface shall be cleaned of debris or any other deleterious material by the use of compressed air or water blast.”

Revise the first paragraph of Article 783.06 of the Standard Specifications to read:

**“783.06 Basis of Payment.** This work will be paid for at the contract unit price per each for RAISED REFLECTIVE PAVEMENT MARKER REMOVAL, or at the contract unit price per square foot (square meter) for PAVEMENT MARKING REMOVAL – GRINDING and/or PAVEMENT MARKING REMOVAL – WATER BLASTING.”

Delete Article 1101.13 from the Standard Specifications.



## **PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)**

Effective: November 1, 2016

Revised: April 1, 2017

Revise the second paragraph of Article 701.20(h) of the Standard Specifications to read:

“For all other portable changeable message signs, this work will be paid for at the contract unit price per calendar day for each sign as CHANGEABLE MESSAGE SIGN.”

Revise this second sentence of the first paragraph of Article 1106.02(i) of the Standard Specifications to read:

“The message panel shall be a minimum of 7 ft (2.1 m) above the edge of pavement in urban areas and a minimum of 5 ft (1.5 m) above the edge of pavement in rural areas, present a level appearance, and be capable of displaying up to eight characters in each of three lines at a time.”

80377

## PORTLAND CEMENT CONCRETE BRIDGE DECK CURING (BDE)

Effective: April 1, 2015

Revised: January 1, 2017

Revise the following two entries in the table in Article 1020.13 of the Standard Specifications to read:

"INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Superstructure (Approach Slab)	1020.13(a)(5)(6) <sup>19/</sup>	3	1020.13(d)(1)(2) <sup>17/</sup>
Deck	1020.13(a)(5)(6) <sup>19/</sup>	7	1020.13(d)(1)(2) <sup>17/</sup>

Add the following footnote to the end of the Index Table of Curing and Protection of Concrete Construction in Article 1020.13 of the Standard Specifications:

"19/ The cellulose polyethylene or synthetic fiber with polymer polyethylene blanket method shall not be used on latex modified concrete."

Revise Article 1020.13(a)(5) of the Standard Specifications to read:

"(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry or damp cotton mats. Cotton mats in poor condition will not be allowed. The cotton mats shall be placed in a manner which will not create indentations greater than 1/4 in. (6 mm) in the concrete surface. Minor marring of the surface is tolerable and is secondary to the importance of timely curing. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. Thereafter, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets. The cotton mats shall be kept saturated with water.

- a. Bridge Decks. For bridge decks, a foot bridge shall be used to place and wet the cotton mats. The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without indentations to the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 4 ft (1.2 m) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

For areas inaccessible to the cotton mats, curing shall be according to Article 1020.13(a)(3)."

Add the following to Article 1020.13(a) of the Standard Specifications.

“(6) Cellulose Polyethylene Blanket Method and Synthetic Fiber with Polymer Polyethylene Blanket Method. After the surface of concrete has been textured or finished, it shall be covered immediately with a cellulose polyethylene or synthetic fiber with polymer polyethylene blanket. Damaged blankets will not be allowed. The blankets shall be installed with the white perforated polyethylene side facing up. Adjoining blankets shall overlap a minimum of 8 in. (200 mm). Any air bubbles trapped during placement shall be removed. The blankets shall then be wetted immediately and thoroughly soaked with a gentle spray of water. Thereafter, the blankets shall be kept saturated with water. For bridge decks, the blankets shall be placed and kept wet according to Article 1020.13(a)(5)a.”

Revise the first paragraph of Article 1022.03 of the Standard Specifications to read:

**“1022.03 Waterproof Paper Blankets, White Polyethylene Sheeting, Burlap-Polyethylene Blankets, Cellulose Polyethylene Blankets, and Synthetic Fiber with Polymer Polyethylene Blankets.** These materials shall be white and according to ASTM C 171, except moisture loss test specimens shall be made according to Illinois Modified AASHTO T 155.

The cellulose polyethylene blanket shall consist of a white polyethylene sheeting with cellulose fiber backing and shall be limited to single use only. The cellulose polyethylene blankets shall be delivered to the jobsite unused and in the manufacturer's unopened packaging until ready for installation. Each roll shall be clearly labeled with product name, manufacturer, and manufacturer's certification of compliance with ASTM C 171.

The synthetic fiber with polymer polyethylene blanket shall consist of a white polyethylene sheeting with absorbent synthetic fibers and super absorbent polymer backing, and shall be limited to single use only. The synthetic fiber with polymer polyethylene blankets shall be delivered to the jobsite unused and in the manufacturer's unopened packaging until ready for installation. Each roll shall be clearly labeled on the product with product name, manufacturer, and manufacturer's certification of compliance with ASTM C 171.”

## **PORTLAND CEMENT CONCRETE SIDEWALK (BDE)**

Effective: August 1, 2017

Revise the first paragraph of Article 424.12 of the Standard Specifications to read:

**“424.12 Method of Measurement.** This work will be measured for payment in place and the area computed in square feet (square meters). Curb ramps, including side curbs and side flares, will be measured for payment as sidewalk. No deduction will be made for detectable warnings located within the ramp.”

80385

## **PROGRESS PAYMENTS (BDE)**

Effective: November 2, 2013

Revise Article 109.07(a) of the Standard Specifications to read:

“(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the quantity of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1000.00 will be approved for payment other than the final payment.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics' Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610), progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved.”

## **STEEL COST ADJUSTMENT (BDE)**

Effective: April 2, 2004

Revised: August 1, 2017

Description. Steel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in steel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate "Yes" for any item of work will make that item of steel exempt from steel cost adjustment.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

- Metal Piling (excluding temporary sheet piling)
- Structural Steel
- Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), and frames and grates will be subject to a steel cost adjustment when the pay items they are used in have a contract value of \$10,000 or greater.

The adjustments shall apply to the above items when they are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply when the item is added as extra work and paid for at a lump sum price or by force account.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

- (a) The dates and quantity of steel, in lb (kg), shipped from the mill to the fabricator.
- (b) The quantity of steel, in lb (kg), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$$SCA = Q \times D$$

Where: SCA = steel cost adjustment, in dollars  
Q = quantity of steel incorporated into the work, in lb (kg)  
D = price factor, in dollars per lb (kg)

$$D = MPI_M - MPI_L$$

Where:  $MPI_M$  = The Materials Cost Index for steel as published by the Engineering News-Record for the month the steel is shipped from the mill. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

$MPI_L$  = The Materials Cost Index for steel as published by the Engineering News-Record for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price,. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

The unit weights (masses) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the  $MPI_M$  will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the  $MPI_L$  and  $MPI_M$  in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(MPI_L - MPI_M) \div MPI_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

### Attachment

Item	Unit Mass (Weight)
Metal Piling (excluding temporary sheet piling)	
Furnishing Metal Pile Shells 12 in. (305 mm), 0.179 in. (3.80 mm) wall thickness)	23 lb/ft (34 kg/m)
Furnishing Metal Pile Shells 12 in. (305 mm), 0.250 in. (6.35 mm) wall thickness)	32 lb/ft (48 kg/m)
Furnishing Metal Pile Shells 14 in. (356 mm), 0.250 in. (6.35 mm) wall thickness)	37 lb/ft (55 kg/m)
Other piling	See plans
Structural Steel	See plans for weights (masses)
Reinforcing Steel	See plans for weights (masses)
Dowel Bars and Tie Bars	6 lb (3 kg) each
Mesh Reinforcement	63 lb/100 sq ft (310 kg/sq m)
Guardrail	
Steel Plate Beam Guardrail, Type A w/steel posts	20 lb/ft (30 kg/m)
Steel Plate Beam Guardrail, Type B w/steel posts	30 lb/ft (45 kg/m)
Steel Plate Beam Guardrail, Types A and B w/wood posts	8 lb/ft (12 kg/m)
Steel Plate Beam Guardrail, Type 2	305 lb (140 kg) each
Steel Plate Beam Guardrail, Type 6	1260 lb (570 kg) each
Traffic Barrier Terminal, Type 1 Special (Tangent)	730 lb (330 kg) each
Traffic Barrier Terminal, Type 1 Special (Flared)	410 lb (185 kg) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms	
Traffic Signal Post	11 lb/ft (16 kg/m)
Light Pole, Tenon Mount and Twin Mount, 30 - 40 ft (9 - 12 m)	14 lb/ft (21 kg/m)
Light Pole, Tenon Mount and Twin Mount, 45 - 55 ft (13.5 - 16.5 m)	21 lb/ft (31 kg/m)
Light Pole w/Mast Arm, 30 - 50 ft (9 - 15.2 m)	13 lb/ft (19 kg/m)
Light Pole w/Mast Arm, 55 - 60 ft (16.5 - 18 m)	19 lb/ft (28 kg/m)
Light Tower w/Luminaire Mount, 80 - 110 ft (24 - 33.5 m)	31 lb/ft (46 kg/m)
Light Tower w/Luminaire Mount, 120 - 140 ft (36.5 - 42.5 m)	65 lb/ft (97 kg/m)
Light Tower w/Luminaire Mount, 150 - 160 ft (45.5 - 48.5 m)	80 lb/ft (119 kg/m)
Metal Railings (excluding wire fence)	
Steel Railing, Type SM	64 lb/ft (95 kg/m)
Steel Railing, Type S-1	39 lb/ft (58 kg/m)
Steel Railing, Type T-1	53 lb/ft (79 kg/m)
Steel Bridge Rail	52 lb/ft (77 kg/m)
Frames and Grates	
Frame	250 lb (115 kg)
Lids and Grates	150 lb (70 kg)



## STEEL PLATE BEAM GUARDRAIL (BDE)

Effective: January 1, 2017

Revise Article 630.02 of the Standard Specifications to read:

**“630.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Steel Plate Beam Guardrail .....	1006.25
(b) Wood Posts and Wood Block .....	1007.01, 1007.02, 1007.06
(c) Steel Posts, Blockouts, Restraints and Wire Rope for Guardrail .....	1006.23
(d) Preservative Treatment .....	1007.12
(e) Reinforcement Bars .....	1006.10
(f) Plastic Blockouts (Note 1)	
(g) Chemical Adhesive Resin System .....	1027.01
(h) Controlled Low-Strength Material (CLSM) .....	1019

Note 1. Plastic blockouts may be used in lieu of wood blockouts for steel plate beam guardrail. The plastic blockouts shall be the minimum dimensions shown on the plans and shall be on the Department's qualified product list.”

Revise Article 630.05 of the Standard Specifications to read:

**“630.05 Posts.** Posts shall be as follows.

- (a) Wood Posts. Wood posts and blocks shall be treated. The posts and blocks shall be cut to the proper dimensions before treatment. No cutting of the posts or blocks will be permitted after treatment. Posts shall be erected according to Article 634.05.
- (b) Steel Posts. Steel posts may be driven by hand or mechanical methods provided they are protected by a suitable driving cap and the earth around the posts compacted, if necessary, after driving. When steel posts are driven to incorrect alignment or grade, they shall be removed and set according to Article 634.05.

When it is necessary to shorten the posts in the field, the lower portion shall be cut off in a manner to provide a smooth cut with minimum damage to the galvanizing. Cut areas shall be repaired according to the requirements of AASHTO M 36.”

Revise Article 630.06 of the Standard Specifications to read:

**“630.06 Shoulder Stabilization at Guardrail.** Shoulder stabilization shall be constructed at the locations of steel plate beam guardrail installation according to the details shown on the plans. On new construction projects, the material used in the shoulder stabilization shall be the same as that used in the adjacent paved shoulder. On shoulder resurfacing projects, the

material used in the shoulder stabilization shall be the same as that used for the shoulder resurfacing.

When portland cement concrete is used, shoulder stabilization shall be constructed according to the applicable portions of Section 483. The shoulder stabilization shall be constructed simultaneously with the adjacent portland cement concrete shoulder. Guardrail posts shall be driven through leaveouts or holes cored in the completed shoulder stabilization. The void around each post shall be backfilled with earth or aggregate and capped with hot-mix asphalt (HMA) or CLSM.

When HMA is used, shoulder stabilization shall be constructed according to the applicable portions of Section 482. On new construction, the shoulder stabilization shall be constructed simultaneously with the HMA shoulder. On shoulder resurfacing projects, the portion of the shoulder stabilization below the surface of the existing paved shoulder shall be placed and compacted separately. The guardrail posts shall be driven through holes cored in the completed shoulder stabilization. The void around each post shall be backfilled with earth or aggregate and capped with HMA or CLSM.

When driving guardrail posts through existing shoulders, shoulder stabilization, or other paved areas, the posts shall be driven through cored holes. The void around each post shall be backfilled with earth or aggregate and capped with HMA or CLSM.”

Revise Article 630.08 of the Standard Specifications to read:

**“630.08 Basis of Payment.** This work will be paid for at the contract unit price per foot (meter) for NON-BLOCKED STEEL PLATE BEAM GUARDRAIL; STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT (1.83 M) POSTS; STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT (2.74 M) POSTS; STEEL PLATE BEAM GUARDRAIL, TYPE B, 6 FOOT (1.83 M) POSTS; STEEL PLATE BEAM GUARDRAIL, TYPE B, 9 FOOT (2.74 M) POSTS; or STEEL PLATE BEAM GUARDRAIL, TYPE D, 6 FOOT (1.83 M) POSTS.

When end sections are specified, they will not be paid for as a separate item, but shall be considered as included in the unit price for steel plate beam guardrail.

Steel plate beam guardrail mounted on existing culverts will be paid for at the contract unit price per foot (meter) for STRONG POST GUARDRAIL ATTACHED TO CULVERT or WEAK POST GUARDRAIL ATTACHED TO CULVERT, of the case specified.

Portland cement concrete shoulder stabilization at guardrail will be paid for according to Article 483.10.

HMA shoulder stabilization at guardrail will be paid for according to Article 482.08.

Excavation in rock will be paid for according to Article 502.13.

Steel plate beam guardrail incorporating long-span spacing will be paid for at the contract unit price per foot (meter) for LONG-SPAN GUARDRAIL OVER CULVERT, 12 FT 6 IN (3.8 M) SPAN; LONG-SPAN GUARDRAIL OVER CULVERT, 18 FT 9 IN (5.7 M) SPAN; or LONG-SPAN GUARDRAIL OVER CULVERT, 25 FT (7.6 M) SPAN.

Steel plate beam guardrail incorporating treated timber at the back side of the post will be paid for at the contract unit price per foot (meter) for BACK SIDE PROTECTION OF GUARDRAIL."

80379

## TEMPORARY PAVEMENT MARKING (BDE)

Effective: April 1, 2012

Revised: April 1, 2017

Revise Article 703.02 of the Standard Specifications to read:

**“703.02 Materials.** Materials shall be according to the following.

(a) Pavement Marking Tape, Type I and Type III .....	1095.06
(b) Paint Pavement Markings .....	1095.02
(c) Pavement Marking Tape, Type IV .....	1095.11”

Revise the second paragraph of Article 703.05 of the Standard Specifications to read:

“Type I marking tape or paint shall be used at the option of the Contractor, except paint shall not be applied to the final wearing surface unless authorized by the Engineer for late season applications where tape adhesion would be a problem. Type III or Type IV marking tape shall be used on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts.”

Revise Article 703.07 of the Standard Specifications to read:

**“703.07 Basis of Payment.** This work will be paid for as follows.

- a) Short Term Pavement Marking. Short term pavement marking will be paid for at the contract unit price per foot (meter) for SHORT TERM PAVEMENT MARKING. Removal of short term pavement markings will be paid for at the contract unit price per square foot (square meter) for SHORT TERM PAVEMENT MARKING REMOVAL.
- b) Temporary Pavement Marking. Where the Contractor has the option of material type, temporary pavement marking will be paid for at the contract unit price per foot (meter) for TEMPORARY PAVEMENT MARKING of the line width specified, and at the contract unit price per square foot (square meter) for TEMPORARY PAVEMENT MARKING LETTERS AND SYMBOLS.

Where the Department specifies the use of pavement marking tape, the Type III or Type IV temporary pavement marking will be paid for at the contract unit price per foot (meter) for PAVEMENT MARKING TAPE, TYPE III or PAVEMENT MARKING TAPE, TYPE IV of the line width specified and at the contract unit price per square foot (square meter) for PAVEMENT MARKING TAPE, TYPE III - LETTERS AND SYMBOLS or PAVEMENT MARKING TAPE, TYPE IV – LETTERS AND SYMBOLS.

Removal of temporary pavement markings will be paid for at the contract unit price per square foot (square meter) for TEMPORARY PAVEMENT MARKING REMOVAL.

When temporary pavement marking is shown on the Standard, the cost of the temporary pavement marking and its removal will be included in the cost of the Standard.”

Add the following to Section 1095 of the Standard Specifications:

**“1095.11 Pavement Marking Tape, Type IV.** The temporary, preformed, patterned markings shall consist of a white or yellow tape with wet retroreflective media incorporated to provide immediate and continuing retroreflection during both wet and dry conditions. The tape shall be manufactured without the use of heavy metals including lead chromate pigments or other similar, lead-containing chemicals.

The white and yellow Type IV marking tape shall meet the Type III requirements of Article 1095.06 and the following.

- (a) Composition. The retroreflective pliant polymer pavement markings shall consist of a mixture of high-quality polymeric materials, pigments and glass beads distributed throughout its base cross-sectional area, with a layer of wet retroreflective media bonded to a durable polyurethane topcoat surface. The patterned surface shall have approximately 40% ± 10% of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed beads or particles.
- (b) Retroreflectance. The white and yellow markings shall meet the following for initial dry and wet retroreflectance.
  - (1) Dry Retroreflectance. Dry retroreflectance shall be measured under dry conditions according to ASTM D 4061 and meet the values described in Article 1095.06 for Type III tape.
  - (2) Wet Retroreflectance. Wet retroreflectance shall be measured under wet conditions according to ASTM E 2177 and meet the values shown in the following table.

<b>Wet Retroreflectance, Initial R<sub>L</sub></b>	
<b>Color</b>	<b>R<sub>L</sub> 1.05/88.76</b>
White	300
Yellow	200

- (c) Color. The material shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and a two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

<b>Color</b>	<b>Daylight Reflectance %Y</b>
White	65 minimum
*Yellow	36-59

\*Shall match Federal 595 Color No. 33538 and the chromaticity limits as follows.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456

- (d) Skid Resistance. The surface of the markings shall provide an average minimum skid resistance of 50 BPN when tested according to ASTM E 303.
- (e) Sampling, Testing, Acceptance, and Certification. Prior to approval and use of the wet reflective, temporary, removable pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, and date of manufacture.

After approval by the Department, samples and certification by the manufacturer shall be submitted for each batch used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, manufacturer's name, and date of manufacture.

All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer."

## **TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL (BDE)**

Effective: January 1, 2017

Revise Article 631.04 of the Standard Specifications to read:

**“631.04 Traffic Barrier Terminal, Type 1 Special (Tangent) and Traffic Barrier Terminal, Type 1 Special (Flared).** These terminals shall meet the testing criteria contained in either NCHRP Report 350 or MASH. In addition to meeting the criteria in one or both of these references, the terminals shall be on the Department's qualified product list.

The terminal shall be installed according to the manufacturer's specifications. The beginning length of need point of the terminal shall be placed within 12 ft 6 in (3.8 m) of the length of need point shown on the plans.

The terminal shall be delineated with a terminal marker direct applied. No other guardrail delineation shall be attached to the terminal section.”

80381

**TRAINING SPECIAL PROVISIONS (BDE)** This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be . In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.



The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

20338

## TRAVERSABLE PIPE GRATE (BDE)

Effective: January 1, 2013

Revised: April 1, 2014

Description. This work shall consist of constructing a traversable pipe grate on a concrete end section.

Materials. Materials shall be according to the following Articles of Division 1000 – Materials of the Standard Specifications.

Item	Article/Section
(a) Traversable Pipe Grate Components (Note 1)	
(b) Chemical Adhesive Resin System .....	1027
(c) High Strength Steel Bolts, Nuts, and Washers (Note 2) .....	1006.08

Note 1. All steel pipe shall be according to ASTM A 53 (Type E or S), Grade B, or ASTM A 500 Grade B, standard weight (SCH. 40). Structural steel shapes and plates shall be according to AASHTO M270 Grade 50 (M 270M Grade 345) and the requirements of Article 1006.04 of the Standard Specifications. All steel components of the grating system shall be galvanized according to AASHTO M 111 or M 232 as applicable.

Anchor rods shall be according to ASTM F 1554, Grade 36 (Grade 250).

Note 2. Threaded rods conforming to the requirements of ASTM F 1554, Grade 105 (Grade 725) may be used for the thru bolts.

### **CONSTRUCTION REQUIREMENTS**

Fabrication of the traversable pipe grate shall be according to the requirements of Section 505 of the Standard Specifications and as shown on the plans.

Anchor rods shall be set according to Article 509.06 of the Standard Specifications. Bolts and anchor rods shall be snug tightened by a few impacts of an impact wrench or the full force of a worker using an ordinary spud wrench. Thru bolts shall be snug tightened and shall be brought to a snug tight condition followed by an additional 2/3 turn on one of the nuts. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut.

Splicing of pipes shall be made by utilizing full penetration butt welds according to Article 505.04(q) of the Standard Specifications. In lieu of welding, bolted or sleeve type splices may be utilized, provided the splices are located over intermediate supports with no more than one splice per pipe run with the exception that no splice may occur in pipe runs under 30 ft (9 m) in length.

Method of Measurement. This work will be measured for payment in place in feet (meters). The length measured shall be along the pipe grate elements from end to end for both longitudinal and intermediate support pipes.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for TRAVERSABLE PIPE GRATE.

80318

## **WARM MIX ASPHALT (BDE)**

Effective: January 1, 2012

Revised: April 1, 2016

Description. This work shall consist of designing, producing and constructing Warm Mix Asphalt (WMA) in lieu of Hot Mix Asphalt (HMA) at the Contractor's option. Work shall be according to Sections 406, 407, 408, 1030, and 1102 of the Standard Specifications, except as modified herein. In addition, any references to HMA in the Standard Specifications, or the special provisions shall be construed to include WMA.

WMA is an asphalt mixture which can be produced at temperatures lower than allowed for HMA utilizing approved WMA technologies. WMA technologies are defined as the use of additives or processes which allow a reduction in the temperatures at which HMA mixes are produced and placed. WMA is produced by the use of additives, a water foaming process, or combination of both. Additives include minerals, chemicals or organics incorporated into the asphalt binder stream in a dedicated delivery system. The process of foaming injects water into the asphalt binder stream, just prior to incorporation of the asphalt binder with the aggregate.

Approved WMA technologies may also be used in HMA provided all the requirements specified herein, with the exception of temperature, are met. However, asphalt mixtures produced at temperatures in excess of 275 °F (135 °C) will not be considered WMA when determining the grade reduction of the virgin asphalt binder grade.

### Equipment.

Revise the first paragraph of Article 1102.01 of the Standard Specifications to read:

**"1102.01 Hot-Mix Asphalt Plant.** The hot-mix asphalt (HMA) plant shall be the batch-type, continuous-type, or dryer drum plant. The plants shall be evaluated for prequalification rating and approval to produce HMA according to the current Bureau of Materials and Physical Research Policy Memorandum, "Approval of Hot-Mix Asphalt Plants and Equipment". Once approved, the Contractor shall notify the Bureau of Materials and Physical Research to obtain approval of all plant modifications. The plants shall not be used to produce mixtures concurrently for more than one project or for private work unless permission is granted in writing by the Engineer. The plant units shall be so designed, coordinated and operated that they will function properly and produce HMA having uniform temperatures and compositions within the tolerances specified. The plant units shall meet the following requirements."

Add the following to Article 1102.01(a) of the Standard Specifications.

"(11) Equipment for Warm Mix Technologies.

- a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of  $\pm 2$  percent of the actual water metered. The foaming control system shall be electronically interfaced with the asphalt binder meter.

- b. Additives. Additives shall be introduced into the plant according to the supplier's recommendations and shall be approved by the Engineer. The system for introducing the WMA additive shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes."

#### Mix Design Verification.

Add the following to Article 1030.04 of the Standard Specifications.

"(e) Warm Mix Technologies.

- (1) Foaming. WMA mix design verification will not be required when foaming technology is used alone (without WMA additives). However, the foaming technology shall only be used on HMA designs previously approved by the Department.
- (2) Additives. WMA mix designs utilizing additives shall be submitted to the Engineer for mix design verification."

#### Construction Requirements.

Revise the second paragraph of Article 406.06(b)(1) of the Standard Specifications to read:

"The HMA shall be delivered at a temperature of 250 to 350 °F (120 to 175 °C).  
WMA shall be delivered at a minimum temperature of 215 °F (102 °C)."

#### Basis of Payment.

This work will be paid at the contract unit price bid for the HMA pay items involved. Anti-strip will not be paid for separately, but shall be considered as included in the cost of the work.

## **WEEKLY DBE TRUCKING REPORTS (BDE)**

Effective: June 2, 2012

| Revised: April 2, 2015

| The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

| The report shall be submitted to the Engineer on Department form "SBE 723" within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

80302

## **DRAINAGE SYSTEM**

Effective: June 10, 1994

Revised: June 24, 2015

Description. This work shall consist of furnishing and installing a bridge drainage system as shown on the plans, including all piping, fittings, support brackets, inserts, bolts, and splash blocks when specified.

Material. The pipe and fittings shall be reinforced fiberglass according to ASTM D 2996 RTRP with a 30,000 psi (207 MPa) minimum short-time rupture strength hoop tensile stress. The reinforced fiberglass shall also have an apparent stiffness factor at 5 percent deflection exceeding 200 cu in.-lbf/sq. in. (22.6 cu mm-kPa) and a minimum wall thickness of 0.10 in. (2.54 mm). The adhesive for joining pipe and fittings shall be as recommended by the manufacturer. All pipe supports and associated hardware shall be hot dip galvanized according to AASHTO M 232 (M 232M). The fiberglass pipe and fittings furnished shall be pigmented through out, or have a resin-rich pigmented exterior coat, specifically designed for overcoating fiberglass, as recommended by the manufacturer. The color shall be as specified by the Engineer. The resin in either case shall have an ultraviolet absorber designed to prevent ultraviolet degradation. The ultraviolet protection shall be designed to withstand a minimum of 2,500 hours of accelerated weathering when tested in conformance with the requirements in ASTM Designation: G 154. Lamps shall be UV-8 (313 nm wavelength). The resting cycle shall be 4 hours of ultraviolet exposure at 140°F (60°C), and then 4 hours of condensate exposure at 120°F (49°C). After testing, the surface of the pipe shall exhibit no fiber exposure, crazing, or checking, and only a slight chalking or color change. The supplier shall certify the material supplied meets or exceeds these requirements.

Design. The drainage system shall be designed as an open system with allowances for the differential expansion and contraction expected between the superstructure and the substructure to which the drainage system is attached.

Installation. All connections of pipes and fittings shown on the plans to facilitate future removal for maintenance cleanout or flushing shall be made with a threaded, gasketed coupler or a bolted gasketed flange system. Adhesive bonded joints will be permitted for runs of pipe between such connections. The end run connection shall feature a minimum nominal 6 in. (150 mm) female threaded fiberglass outlet. Straight runs may utilize a 45 degree reducing saddle bonded to the pipe. The female outlet shall be filled with a male threaded PVC plug.

Runs of pipe shall be supported at spacings not exceeding those recommended by the manufacturer of the pipe. Supports that have point contact or narrow supporting areas shall be avoided. Standard slings, clamps, clevis hangers and shoe supports designed for use with steel pipe may be used. A minimum strap width for hangers shall be 1 1/2 in. (40 mm) for all pipe under 12 in. (300 mm) in diameter and 2 in. (50 mm) for diameters 12 in. (300 mm) or greater. Straps shall have 120 degrees of contact with the pipe. Pipes supported on less than 120 degrees of contact shall have a split fiberglass pipe protective sleeve bonded in place with adhesive.



All reinforced fiberglass pipe, fittings, and expansion joints shall be handled and installed according to guidelines and procedures recommended by the manufacturer or supplier of the material.

Basis of Payment. This work will be paid for at the contract lump sum price for DRAINAGE SYSTEM.

## BRIDGE DECK THIN POLYMER OVERLAY

Effective: May 7, 1997

Revised: February 6, 2013

**Description.** This work shall consist of furnishing and applying a thin, multiple-layer polymer overlay to the bridge deck as shown on the plans. The total thickness of the overlay system shall not exceed 3/8 inch (10 mm).

This work shall also include the final surface preparation of the existing concrete deck by shotblasting after all repairs have been completed and cured as specified.

The supplier of the material shall furnish a technical representative at the job site at all times during overlay placement.

**Materials.** The manufacturer of the materials shall supply Material Safety Data Sheets (MSDS) detailing the appropriate safety and handling considerations. These MSDS shall be prominently displayed at the storage site and all workers shall be thoroughly familiar with safety precautions prior to handling the material.

(a) Epoxy Binder. The epoxy resin base and hardener shall be composed of a two-component, 100% solids, 100% reactive, thermosetting compound with the following properties:

Property	Requirements <sup>A</sup>	Test Method
Viscosity (Poises)	7 – 35	ASTM D 2393, Brookfield RVT, Spindle No. 3, 20 rpm
Gel Time (Minutes)	15 – 45	ASTM C 881, Paragraph 11.2, Modified <sup>B</sup>
7-day Tensile Strength In psi (kPa)	1,100 – 5,000 (7,600 – 34,500)	ASTM D 638
7-day Elongation (%)	20 – 80	ASTM D 638
7-day Max. Absorption (%)	1.5	ASTM D 570
Shore D Hardness	58 – 75	ASTM D 2240-86
28-day Max. Chloride Permeability (Coulombs)	100	AASHTO T 277
Infrared Spectrum	<sup>C</sup>	AASHTO T 237, Paragraphs 4 and 5

<sup>A</sup>Based on specimens or samples cured or aged and tested at 75°F

<sup>B</sup>Use a 70 ml sample instead of a 60 gram sample.

<sup>C</sup>To be established for each component by each manufacturer.

- (b) Aggregate. The aggregate shall contain less than 0.2 percent moisture and be clean and free of dust. The aggregate shall have a Mohs scale hardness greater than 6 and shall consist of bauxite, crushed porphyry, aluminum oxide, or other similarly hard, durable, angular shaped aggregate, as recommended by the manufacturer and approved by the Engineer. Wet bottom boiler coal slag shall not be used.

The aggregate shall conform to the following gradation:

Sieve Size	% Passing by Weight
No. 4 (4.75 mm)	100
No. 8 (2.36 mm)	30 – 75
No. 16 (1.18 mm)	0 – 5
No. 30 (0.60 mm)	0 – 1

- (c) Polymer Overlay System. The polymer overlay system shall have the following properties:

Property	Requirements <sup>A</sup>	Test Method
Minimum Compressive Strength at 8 Hrs. psi (kPa)	1,000 (6,900)	ASTM C 579 Method B, Modified <sup>B</sup>
Minimum Compressive Strength at 48 Hrs. psi (kPa)	5,000 (34,500)	Same as Above
Thermal Compatibility	No Delaminations	ASTM C 884
Minimum Pull-off Strength at 24 Hours psi (kPa)	250 (1,700)	ACI 503R, Appendix A

<sup>A</sup>Based on specimens or samples cured or aged and tested at 75°F

<sup>B</sup>Plastic inserts that will provide 2 inch by 2 inch (51 mm by 51 mm) cubes shall be placed in the oversized brass molds.

At the pre-construction conference, the Contractor shall provide the Engineer with the source of the material that will be used. The manufacturer shall furnish samples of resin material and aggregate as required by the Engineer.

The Department will maintain an Approved List of Bridge Deck Thin Polymer Overlay Systems, and independent laboratory test results showing the product meets the Department specifications will be required.

Equipment. The equipment used shall be subject to the approval of the Engineer and shall meet the following requirements:

(a) Surface Preparation Equipment. Surface preparation equipment shall be according to the applicable portions of Section 1100 and the following:

- (1) Mechanical Scarifying Equipment. Scarifying equipment shall be a power-operated, mechanical scarifier capable of uniformly scarifying or removing the existing concrete surface and new patches to the depths required in a satisfactory manner. Other types of removal devices may be used if their operation is suitable and they can be demonstrated to the satisfaction of the Engineer.
- (2) Shotblasting Equipment. The blasting medium shall be steel shot. The size and hardness of the shot, the flow of the shot, the forward speed, and the number of passes shall be as recommended by the manufacturer. The shotblasting equipment shall be capable of removing weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification, and shall have oil traps. The cleaning residue shall be contained and removed by the shotblasting equipment.
- (3) Hand-Held Blast Cleaning Equipment. Blast cleaning using hand-held equipment shall be performed by abrasive blasting. Hand-held blast cleaning equipment shall have oil traps.
- (4) Power-Driven Hand Tools. Power driven hand tools will be permitted. Jackhammers shall be lighter than the nominal 45 pound (20 kg) class. Jackhammers or chipping hammers shall not be operated at angles in excess of 45 degrees, measured from the surface of the slab.

(b) Pull-off Test Equipment. Equipment used to perform pull-off testing shall be either approved by the Engineer, or obtained from one of the following approved sources:

James Equipment  
007 Bond Tester  
800-426-6500

Germann Instruments, Inc.  
BOND-TEST Pull-off System  
847-329-9999

SDS Company  
DYNA Pull-off Tester  
805-238-3229

Pull-off test equipment shall include all miscellaneous equipment and materials to perform the test and clean the equipment, as indicated in the Illinois Pull-off Test (Surface or Overlay Method). Prior to the start of testing, the Contractor shall submit to the Engineer a technical

data sheet and material safety data sheet for the epoxy used to perform the testing. For solvents used to clean the equipment, a material safety data sheet shall be submitted.

- (c) **Overlay Application Equipment.** For mechanical applications, the equipment shall consist of an epoxy distribution system, aggregate dispersing equipment, sweeper broom or vacuum truck, and a source of lighting if work is to be performed at night. The epoxy distribution system shall thoroughly blend the epoxy components so that the resulting product has the same material properties as certified in the Materials section. The Engineer reserves the right to sample from the epoxy distribution system at any time during placement operations. The aggregate spreader shall be propelled in such a manner as to uniformly apply the aggregate so that 100 percent of the epoxy material is covered to excess. The sweeper broom or vacuum truck shall be self-propelled. Equipment shall provide compressed air that is free from oil and water.

For hand applications, the equipment shall consist of calibrated containers, a paddle-type mixer, squeegees or rollers, and a broom. All equipment shall be suitable for mixing and placement according to the epoxy manufacturer's recommendations.

**Construction.** All hot-mix asphalt removal and deck repairs shall be performed and cured according to the Special Provision for "Deck Slab Repair" prior to any surface preparation operations. The thin polymer overlay shall not be placed on any concrete surface that is less than 28 days old.

(a) **Surface Preparation.**

- (1) **Bridge Deck Scarification.** When specified, concrete bridge deck scarification shall be performed to the depth noted on the plans. Sidewalks, curbs, drains, reinforcement, and/or existing transverse and longitudinal joints that are to remain in place shall be protected from damage during scarification and cleaning operations. All damage caused by the Contractor shall be corrected at the Contractor's expense, to the satisfaction of the Engineer.

The scarification work shall consist of removing the designated concrete deck surface using mechanical scarifying equipment. In areas of the deck that are not accessible to the scarifying equipment, power-driven hand tools will be permitted.

A trial section located on the existing deck surface will be designated by the Engineer. The Contractor shall demonstrate that the equipment, personnel, and methods of operation are capable of producing results that are satisfactory to the Engineer. The trial section will consist of an area of approximately 30 sq. ft. (3 sq m).

Once the settings are established, they shall not be changed without the permission of the Engineer. The removal shall be verified, as necessary, at least every 16 ft. (5 m) along the cutting path. If concrete is being removed below the desired depth, the equipment shall be reset or recalibrated.

All areas designated to be scarified shall be scarified uniformly to the depth as specified on the plans, but shall not exceed 1 in. (25 mm). Concrete removal below the specified depth shall be replaced at the Contractor's expense, to the satisfaction of the Engineer.

- (2) Deck Patching. After bridge deck scarification, the deck shall be thoroughly cleaned of broken concrete and other debris. The Engineer will sound the scarified deck and all unsound areas will be marked for removal and repairs. All designated patching shall be completed according to the Special Provision for "Deck Slab Repair."

Patching shall be completed prior to final surface preparation. Patches shall be struck off and then roughened with a suitable stiff bristled broom or wire brush to provide a rough texture design to promote bonding to the overlay. Hand finishing of the patch surface shall be kept to a minimum to prevent overworking of the surface.

- (3) Final Surface Preparation. Final surface preparation shall consist of the operation of shotblasting equipment to remove any weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification. Any areas determined by the Engineer to be inaccessible to the shotblasting equipment shall be thoroughly blast cleaned with hand-held equipment.

Final surface preparation shall also include the cleaning of all dust, debris, and concrete fines from the deck surface including vertical faces of curbs and barrier walls up to a height of 1 in. (25 mm) above the overlay. Compressed air shall be used for this operation. When using compressed air, the air stream must be free of oil. Any grease, oil, or other foreign matter that rests on or has absorbed into the concrete shall be removed completely.

After the final surface preparation has been completed and before placement of the overlay, the prepared deck surface will be tested by the Engineer according to the Illinois Pull-off Test (Surface Method). The Contractor shall provide the test equipment.

- a. Start-up Testing. Prior to the first overlay placement, the Engineer will evaluate the shotblasting method. The start-up area shall be a minimum of 600 sq. ft. (56 sq. m). After the area has been prepared, six random test locations will be determined by the Engineer, and tested according to the Illinois Pull-off Test (Surface Method).

The average of the six tests shall be a minimum of 175 psi (1,200 kPa) and each individual test shall have a minimum strength of 160 psi (1,100 kPa). If the criteria are not met, the Contractor shall adjust the shotblasting method. Start-up testing will be repeated until satisfactory results are attained.

Once an acceptable shotblasting procedure (speed, size of shot, etc.) is established, it shall be continued for the balance of the work. The Contractor may, with permission of the Engineer, change the shotblasting procedure or equipment, in which case additional start-up testing will be required.

- b. Lot Testing. After start-up testing has been completed, the following testing frequency will be used. For each structure, each stage will be divided into lots of not more than 4500 sq. ft. (420 sq m). Three random test locations will be determined by the Engineer, and tested according to the Illinois Pull-off Test (Surface Method).

The average of the three tests shall be a minimum of 175 psi (1,200 kPa) and each individual test shall have a minimum strength of 160 psi (1,100 kPa). In the case of a failing individual test or a failing average of three tests, the Engineer will determine the area that requires additional surface preparation by the Contractor. Additional test locations will be determined by the Engineer.

In addition to start-up and lot testing, the Department may require surface pull-off testing of areas inaccessible to shotblasting equipment and blast cleaned with hand-held equipment. The Engineer will determine each test location, and each individual test shall have a minimum strength of 175 psi (1,200 kPa).

(b) Application of Overlay

- (1) Overlay Placement. The handling and mixing of the epoxy resin and hardening agent shall be performed in a safe manner to achieve the desired results according to the manufacturer's written recommendations. Overlay materials shall not be placed when ambient air temperatures are below 55°F (13°C) or above 90°F (32°C), or when deck temperature is below 60°F (16°C). All components shall have a temperature no less than 60°F (16°C) immediately before mixing and placement. Overlay materials shall not be placed when rain is forecast within 24 hours of application.

There shall be no visible moisture present on the surface of the concrete at the time of application of the thin polymer overlay. A plastic sheet left taped in place for a minimum of two hours, according to ASTM D 4263, shall be used to identify moisture in the deck.

Construction traffic shall not be allowed on any portion of the deck that has been shotblasted or on the overlay without approval from the Engineer. Overlay placement shall begin as soon as possible after the surface preparation operation. In no case shall the time between surface preparation and application of the first lift exceed 24 hours.

The polymer overlay shall consist of a two-course application of epoxy and aggregate. Each of the two courses shall consist of a layer of epoxy covered with a layer of aggregate in sufficient quantity to completely cover the epoxy. The total thickness of the overlay shall not be less than 1/4 inch (6 mm). The dry aggregate shall be applied in such a manner as to cover the epoxy mixture completely within five minutes of application. The dry aggregate shall be sprinkled or dropped vertically in a manner such that the level of the epoxy mixture is not disturbed. First course applications that do not receive enough aggregate prior to gel shall be removed and replaced. A second course applied with insufficient aggregate may be left in place, but will require additional applications before opening to traffic.

The preceding course of thin polymer overlay shall be cured until brooming or vacuuming can be performed without tearing or otherwise damaging the surface prior to application of succeeding courses. No traffic or equipment shall be permitted on the overlay surface during the curing period.

After the curing period, all loose aggregate shall be removed by brooming or vacuuming before the next overlay course is applied. This procedure is repeated until the minimum overlay thickness is achieved.

Unless otherwise specified, the thin polymer overlay courses may be applied over the expansion joints and joint seals of the bridge deck. The expansion joints and joint seals shall be protected by a bond breaker. Prior to opening any application to traffic, the overlay over each joint shall be removed.

Before opening to traffic, at least one pull-off test location per lane, per 100 feet (30 m) of bridge length will be designated by the Engineer. Pull-off testing shall be performed according to the Illinois Pull-off Test (Overlay Method). The Contractor shall provide the test equipment. Each individual test shall have a minimum strength of 150 psi (1,000 kPa). Unacceptable test results will require removal and replacement of the overlay at the Contractor's expense, and the locations will be determined by the Engineer.

The thickness of the overlay shall be verified to be at least 1/4 inch (6 mm) thick, as measured from the deck surface to the top of the resin. Cores from pull-off tests shall be used to determine overlay thickness. Thin areas shall be re-coated and re-tested at no additional cost to the Department.

If additional applications are required due to deficient thickness or insufficient aggregate, the Engineer may require additional pull-off strength tests to verify the Contractor's procedures.

Pull-off test locations, thickness test locations, and any debonded areas shall be repaired before final acceptance.

- (2) Curing. The Contractor shall plan and prosecute the work so as to provide at least eight hours of curing or the minimum cure as prescribed by the manufacturer prior to opening that section to public or construction traffic.
- (3) Storage and Handling. Resin materials shall be stored in their original containers inside a heated warehouse in a dry area. Storage temperatures shall be maintained between 60 – 90°F (16 – 32°C)

The resin material shall be stored on the job site in a trailer, protected from moisture, and maintained within a temperature range of 60 – 90°F (16 – 32°C).



Protective gloves and goggles shall be provided by the Contractor to workers that are directly exposed to the resin material. Product Safety Data Sheets from the manufacturer shall be provided for all workers by the Contractor.

All aggregates shall be stored in a dry environment and shall be protected from contaminants on the job site. Aggregate that is exposed to rain or other moisture shall be rejected.

Method of Measurement. The area of scarification on the bridge deck will be measured for payment in square yards (square meters).

The area of thin polymer overlay will be measured in square yards (square meters) of horizontal deck area, completed and accepted.

Basis of Payment. This work shall be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK THIN POLYMER OVERLAY of the thickness specified.

The concrete bridge deck scarification will be paid for at the contract unit price per square yard (square meter) for CONCRETE BRIDGE DECK SCARIFICATION of the thickness specified.

## **PIPE UNDERDRAINS FOR STRUCTURES**

Effective: May 17, 2000

Revised: January 22, 2010

Description. This work shall consist of furnishing and installing a pipe underdrain system as shown on the plans, as specified herein, and as directed by the Engineer.

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

The perforated pipe underdrain shall be according to Article 601.02 of the Standard Specifications. Outlet pipes or pipes connecting to a separate storm sewer system shall not be perforated.

The drainage aggregate shall be a combination of one or more of the following gradations, FA1, FA2, CA5, CA7, CA8, CA11, or CA13 thru 16, according to Sections 1003 and 1004 of the Standard Specifications.

The fabric surrounding the drainage aggregate shall be Geotechnical Fabric for French Drains according to Article 1080.05 of the Standard Specifications.

Construction Requirements. All work shall be according to the applicable requirements of Section 601 of the Standard Specifications except as modified below.

The pipe underdrains shall consist of a perforated pipe drain situated at the bottom of an area of drainage aggregate wrapped completely in geotechnical fabric and shall be installed to the lines and gradients as shown on the plans.

Method of Measurement. Pipe Underdrains for Structures shall be measured for payment in feet (meters), in place. Measurement shall be along the centerline of the pipe underdrains. All connectors, outlet pipes, elbows, and all other miscellaneous items shall be included in the measurement. Concrete headwalls shall be included in the cost of Pipe Underdrains for Structures, but shall not be included in the measurement for payment.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for PIPE UNDERDRAINS FOR STRUCTURES of the diameter specified. Furnishing and installation of the drainage aggregate, geotechnical fabric, forming holes in structural elements and any excavation required, will not be paid for separately, but shall be included in the cost of the pipe underdrains for structures.

## **AGGREGATE COLUMN GROUND IMPROVEMENT**

Effective: January 15, 2009

Revised: October 15, 2011

**Description.** This work shall consist of furnishing design calculations, shop drawings, materials, and labor necessary to construct aggregate column ground improvements, over the approximate horizontal limits below the footing, wall, or embankment as specified on the contract plans, or as modified by the Contractor's approved design.

**Submittals.** No later than thirty (30) days prior to beginning work, the Contractor shall submit to the Engineer for approval the following information:

- (a) Evidence of the selected subcontractor's successful installation of their aggregate column system on five projects under similar site conditions using the same installation technique. The documentation to be submitted shall include a description of the project, aggregate column installation technique, soil conditions and name and phone number of contracting authority.
- (b) Evidence that the proposed project superintendent for the ground improvement installation has a minimum of three years of method specific experience.
- (c) Shop Drawings sealed by an Illinois Licensed Professional Engineer showing aggregate column horizontal limits, locations, pattern, spacing, diameters, top and bottom elevations, and identification numbers. If an aggregate drainage layer is specified on the plans or a working platform proposed by the Contractor, the thickness, aggregate gradation, and plan dimensions shall be shown in addition to any other details needed to describe the work.
- (d) A description of the equipment, installation technique and construction procedures to be used, including a plan to address any water or spoils.
- (e) The source and gradation of the aggregate proposed for the aggregate columns.
- (f) Design computations, sealed by an Illinois Licensed Professional Engineer, demonstrating the proposed ground improvement plan satisfies the minimum global stability, settlement, and bearing capacity performance requirements stated in the Contract Plans and those contained in this Special Provision.
- (g) The proposed verification program methods to monitor and verify the aggregate column installation is satisfying the design and performance requirements. Also required is a sample of the daily report form to be used by the Contractor to documents the adequacy of that day's work.

**Materials.** The aggregate used in the columns shall be Class A quality crushed stone or crushed concrete satisfying the requirements of Section 1004 of the standard specifications. The aggregate for any drainage layer specified in the plans shall be a combination of one or more of the following gradations, FA1, FA2, CA5, CA7, CA8, CA11, or CA13 thru 15, according to Sections 1003 and 1004 of the Standard Specifications. Any fine or coarse aggregate

requested by the Contractor to be used as either a drainage layer or working platform shall be approved by the Engineer.

**Design Criteria.** The subcontractor selected shall provide an aggregate column ground improvement plan with shop drawings, and design computations, using an Allowable Stress Design that meets the performance requirements shown on the Contract Plans. These requirements normally include the global stability factor of safety, tolerable settlement amounts at various times and in the case of walls or structure footings, the equivalent uniform service bearing pressure applied at various locations and the factor of safety required. In the absence of performance requirements shown on the plans, the following Allowable Stress minimum performance requirements shall be used:

- (a) A factor of safety of 1.5 against global slope stability failure.
- (b) A factor of safety of 2.5 against equivalent uniform service bearing pressure failure.
- (c) Total settlement not to exceed 4 inches (100 mm) and settlement after completing wall or pavement construction not to exceed 1 inch (25 mm).

The design shall use short term strength parameters for the soil, obtained from the soil boring logs and any geotechnical laboratory testing data provided in the Contract Plans and specifications for stability and bearing capacity analyses. Settlement shall be assessed using appropriate soil parameters. Any additional subsurface information needed to design the aggregate columns shall be the responsibility of the Contractor.

The aggregate column ground improvement design need not consider seismic loadings unless otherwise required as part of the performance requirements shown on the plans.

**Construction.** The construction procedures shall be determined by the aggregate column installer and submitted for approval with the shop drawings. The following are the minimum requirements that the Contractor will be expected to follow unless otherwise approved in the shop drawings submittal.

- (a) The site shall be graded as needed for proper installation of the aggregate column system. Any grading and excavation below the improvement limits shown on the plans shall be incidental to aggregate column installation.
- (b) Any granular base drainage layer or working platform shall be considered incidental to the improvement. Contractor requested drainage layers or working platforms will only be allowed if approved as part of the shop drawings.
- (c) The aggregate column material shall be placed in a manner that allows measurement of the tonnage or quantity of aggregate placed down the hole.
- (d) Columns shall be installed in a sequence that will minimize ground heave. Any heaving shall be re-compacted or excavated as directed by the Engineer prior to wall or embankment construction and be considered incidental to aggregate column improvement.

- (e) The Contractor shall provide a full-time qualified representative to verify all installation procedures and provide the verification program.
- (f) Disposal of any spoils generated shall be according to Article 202.03.
- (g) If an obstruction is encountered that cannot be penetrated with reasonable effort, the Contractor shall construct the element from the depth of obstruction to its design top elevation. Depending on the depth of the completed column, column location, and design requirements, the Engineer may require the construction of a replacement aggregate column at an adjacent location. Construction of additional columns will be considered extra work and paid for according to Article 109.04.
- (h) Specific Requirements for Vibrator Compacted Aggregate Columns:
  - i. Vibrator compacted aggregate columns shall be constructed with a down-hole vibrator, probe and follower tubes of sufficient size to install the columns to the diameter and bottom elevation(s) shown on the approved shop drawings. Pre-boring is permitted if approved as part of the shop drawing submittal.
  - ii. The probe and follower tubes shall have visible markings at regular increments to enable measurement of penetration and re-penetration depths.
  - iii. Provide methods for supplying to the tip of the probe a sufficient quantity of air or water to widen the probe hole to allow adequate space for aggregate placement around the probe.
  - iv. The vibrator shall be withdrawn in 12 to 36 inch (300 to 900 mm) increments, to allow placement of the aggregate.
  - v. Lift thickness shall not exceed 4 ft (1.2 m). After penetration to the treatment depth, slowly retrieve the vibrator in 12 to 18 inch (300 to 450 mm) increments to allow aggregate placement.
  - vi. Compact the aggregate in each lift by re-penetrating it as needed with the vibrating probe to densify and force the aggregate radially into the surrounding soil. Re-penetrate the aggregate in each increment a sufficient number of times to construct the columns as specified in the approved shop drawings and to meet the verification program requirements.
- (i) Specific Requirements for Tamper Compacted (Rammed) Aggregate Columns:
  - i. Tamper compacted (rammed) aggregate columns shall be installed by either drilling or displacement methods, capable of constructing columns to the diameters and bottom elevation(s) shown on the approved shop drawings.
  - ii. If temporary casing is needed to limit the sloughing of subsurface soils, the casing should be inserted to at least 2 ft (600 mm) beyond any sloughing strata. Upon extraction, the bottom of the casing shall be maintained at not more than 2 feet (600 mm) above the level of aggregate.

- iii. Aggregate placement shall closely follow the excavation of each column. The aggregate shall be placed in 1 to 2 ft (300 to 600 mm) thick lifts. Each lift should be rammed with a high-energy impact tamper as specified in the approved shop drawings and to meet the verification program requirements.

**Construction Tolerances.** The aggregate columns shall be constructed to the following tolerances:

- (a) The horizontal limits and center of each constructed aggregate column shall be within 8 inches (190 mm) of the location specified on the approved the shop drawings.
- (b) The axis of the constructed aggregate columns shall not be inclined more than 1.67 percent from vertical.
- (c) The installed diameter of any aggregate column shall not be more than 10 percent below the effective diameter indicated on the approved shop drawings.
- (d) The average effective diameter of any group of 50 consecutively installed aggregate columns shall not be less than the effective diameter indicated on approved shop drawings.
- (e) The top of the aggregate column ground improvement shall be located within 8 inches (200 mm) of the top elevation shown on the approved shop drawings. When supporting MSE walls, the top elevation may need to be adjusted to the base of the MSE reinforced mass elevation as shown on the approved MSE shop drawings.
- (f) Except where obstructions, hard or very dense soils are encountered, the aggregate column shall be advanced to at least the treatment depth elevation shown on the approved in the Shop Drawings.

Any aggregate column installation not meeting the above stated tolerances, or otherwise deemed unsatisfactory by the Engineer, may require installation of a replacement aggregate column(s) at the discretion of the Engineer and at the Contractor's expense. The Contractor shall submit to the Engineer revised plans and procedures to bring installations in those areas into tolerance.

**Verification Program.** The Contractor shall develop and maintain a monitoring and documentation procedure during the installation of all aggregate columns to verify they satisfy the design and performance requirements. The Contractor shall provide qualified personnel to continuously observe and record the required data. The program shall include, as a minimum, the following:

- (a) Quality control procedures to allow verification that each aggregate column is being installed according to the designer's specifications and the requirements in this Special Provision. This will typically include observations of items such as electrical current or hydraulic pressure, number of high-energy impact tamps, aggregate quantity, etc. that must be obtained to achieve the performance requirements.

- (b) Monitoring methods to evaluate the performance of the global aggregate column improvement system after construction of the overlying embankment or wall. This will typically include installation of settlement plates and may also include monitoring points, inclinometers, piezometers or other instrumentation.
- (c) Proposed means and methods for verification that the installed aggregate columns meet the strength and/or stiffness criteria required by the design. This may include modulus or load tests on individual elements and/or groups, soil borings, and other methods.
- (d) A daily report form shall be completed by the Contactor and provided to the Engineer to document the work performed each day and the adequacy of each aggregate column. The form shall be signed by the Contractor's qualified personnel and include as a minimum the following:
  - i. Aggregate columns installed (identified by location number).
  - ii. Date constructed.
  - iii. Elevation of top and bottom of each aggregate column.
  - iv. Average lift thickness.
  - v. Results of quality control testing such as average power consumption or tamping energy obtained during aggregate column installation.
  - vi. Jetting pressure (air or water) if applicable.
  - vii. Description of soil and groundwater conditions.
  - viii. Details of obstructions, delays and any unusual issues.
  - ix. Amount of water used per aggregate column if applicable.
  - x. Estimated weight or volume of aggregate backfill placed in each column.
  - xi. Average installed diameter of each column.

**Basis of Payment.** This work will be paid at the contract Lump Sum price for AGGREGATE COLUMN GROUND IMPROVEMENT. Any temporary casing, excavation, disposal of water or spoils, drainage layers or working platforms will not be paid for separately, but shall be considered to be included with this work.



Route FAP 361 (Longmeadow Parkway)	Marked Route FAP 361 (Longmeadow Parkway)	Section 16-00215-11-PV
Project Number CMM-4003(847)	County Kane County	Contract Number XXXXX

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issued by the Illinois Environmental Protection Agency (IEPA) for storm water discharges from construction site activities.

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

Print Name Carl Schoedel	Title Director of Trans./County Eng.	Agency Kane County DOT
Signature		Date

## I. Site Description

### A. Provide a description of the project location (include latitude and longitude):

Longmeadow Parkway and IL Route 31 improvements consist of construction of a new roadway on a new alignment with a bridge carrying Longmeadow Parkway over IL Route 31 connected via a Connector Road as well as reconstruction and widening existing IL Route 31 including stormwater improvements, grading improvements, and a multi-use pedestrian path. Total project length is 2.35 miles of improvement; Sections 4, 8, 9, & 10 of T42N, R8E;

begin: 42deg-08'21.02"N, 88deg-18'40.01"W / end: 42deg-08'15.39"N, 88deg-17'19.39"W

### B. Provide a description of the construction activity which is subject of this plan:

Longmeadow Parkway and IL Route 31 improvements consist of construction of a new roadway on a new alignment with a bridge carrying Longmeadow Parkway over IL Route 31 connected via a Connector Road as well as reconstruction and widening existing IL Route 31 including stormwater improvements, grading improvements, and a multi-use pedestrian path. The improvements will use a combination of enclosed drainage with curb and gutter and open swale drainage systems. Stormwater detention is provided in compliance with Kane County & IDOT requirements. Water quality runoff volume retention is also provided in compliance with Kane County requirements. Temporary and permanent soil erosion and sediment control are provided for all phases of construction. Wetland boundaries and wetland disturbances are displayed on the plans sheets.

### C. Provide the estimated duration of this project:

Estimated duration of this project is eighteen (18) months.

### D. The total area of the construction site is estimated to be 108 acres.

The total area of the site estimated to be disturbed by excavation, grading or other activities is 64 acres.



- E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:

Weighted C= 0.60

- F. List all soils found within project boundaries. Include map unit name, slope information and erosivity:

La Rose loam, 5 to 10 percent slopes, eroded  
La Rose loam, 10 to 18 percent slopes, eroded  
Herbert silt loam, 0 to 2 percent slopes  
Harpster silty clay loam, 0 to 2 percent slopes  
Houghton muck, 0 to 2 percent slopes  
Brenton silt loam, 0 to 2 percent slopes  
Drummer silty clay loam, 0 to 2 percent slopes  
Thorp silt loam, 0 to 2 percent slopes  
Varna silt loam, 2 to 4 percent slopes  
Varna silt loam, 4 to 6 percent slopes, eroded  
Peotone silty clay loam, 0 to 2 percent slopes  
Elpaso silty clay loam, 0 to 2 percent slopes  
Mundelein silt loam, 0 to 2 percent slopes  
Kidami silt loam, 2 to 4 percent slopes  
Kidami loam, 4 to 6 percent slopes, eroded  
Kidami loam, 6 to 12 percent slopes, eroded  
Senachwine silt loam, 12 to 20 percent slopes  
Octagon silt loam, 2 to 4 percent slopes  
Octagon silt loam, 4 to 6 percent slopes, eroded  
Octagon silt loam, 6 to 12 percent slopes, eroded  
Barony silt loam, 0 to 2 percent slopes  
Barony silt loam, 2 to 5 percent slopes  
Kaneville silt loam, 0 to 2 percent slopes

Please Refer to Attached Map and Summary

- G. Provide an aerial extent of wetland acreage at the site:

Wetlands are depicted on the project plans. Aerial attached at end of this document.

- H. Provide a description of potentially erosive areas associated with this project:

The area immediately west of IL 31 along the alignment of Longmeadow Parkway is peat and organic material which will be structurally stabilized with aggregate columns.

- I. The following is a description of soil disturbing activities by stages, their locations, and their erosive factors (e.g. steepness of slopes, length of slopes, etc.):

- 1) Installation of construction fencing, sediment control, silt fence and vegetation
- 2) Clearing of the project site as shown in the staging plan
- 3) Grading of detention ponds; this work is to be completed concurrently with the construction of sump pits, sediment basins, and temporary aggregate berms.
- 4) Storm sewer construction.
- 5) Pavement (including curb & gutter, multi-use path, etc.) construction
- 6) Topsoil spreading with temporary or permanent soil stabilization measures and the construction of permanent soil erosion and sediment control measures
- 7) Removal of temporary soil erosion and sediment control measures

J. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent off site sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) and locations where storm water is discharged to surface water including wetlands.

K. Identify who owns the drainage system (municipality or agency) this project will drain into:

Longmeadow Parkway & Connector Road- KDOT; IL Route 31-IDOT

L. The following is a list of General NPDES ILR40 permittees within whose reporting jurisdiction this project is located.

KDOT, IDOT, Dundee Township

M. The following is a list of receiving water(s) and the ultimate receiving water(s) for this site. The location of the receiving waters can be found on the erosion and sediment control plans:

Un-named Tributaries to the Fox River  
Fox River

N. Describe areas of the site that are to be protected or remain undisturbed. These areas may include steep slopes, highly erodible soils, streams, stream buffers, specimen trees, natural vegetation, nature preserves, etc.

All areas outside of the grading limits of the proposed roadway and all areas outside of the proposed ROW shall be protected and remain undisturbed.

O. The following sensitive environmental resources are associated with this project, and may have the potential to be impacted by the proposed development:

☐ Floodplain

☒ Wetland Riparian

☒ Threatened and Endangered Species

☒ Historic Preservation

☐ 303(d) Listed receiving waters for suspended solids, turbidity, or siltation

☐ Receiving waters with Total Maximum Daily Load (TMDL) for sediment, total suspended solids, turbidity, or siltation

☐ Applicable Federal, Tribal, State or Local Programs

☐ Other

1. 303(d) Listed receiving waters (fill out this section if checked above):

NA

a. The name(s) of the listed water body, and identification of all pollutants causing impairment:

NA

b. Provide a description of how erosion and sediment control practices will prevent a discharge of sediment resulting from a storm event equal to or greater than a twenty-five (25) year, twenty-four (24) hour rainfall event:

NA

c. Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:

NA

d. Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

NA

2. TMDL (fill out this section if checked above)

a. The name(s) of the listed water body:

NA

- b. Provide a description of the erosion and sediment control strategy that will be incorporated into the site design that is consistent with the assumptions and requirements of the TMDL:

NA

- c. If a specific numeric waste load allocation has been established that would apply to the project's discharges, provide a description of the necessary steps to meet the allocation:

NA

P. The following pollutants of concern will be associated with this construction project:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Soil Sediment             | <input checked="" type="checkbox"/> Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids) |
| <input checked="" type="checkbox"/> Concrete                  | <input checked="" type="checkbox"/> Antifreeze / Coolants  |
| <input checked="" type="checkbox"/> Concrete Truck waste      | <input checked="" type="checkbox"/> Waste water from cleaning construction equipment               |
| <input checked="" type="checkbox"/> Concrete Curing Compounds | <input type="checkbox"/> Other (specify) _____   |
| <input type="checkbox"/> Solid waste Debris                   | <input type="checkbox"/> Other (specify) _____   |
| <input type="checkbox"/> Paints                               | <input type="checkbox"/> Other (specify) _____   |
| <input type="checkbox"/> Solvents                             | <input type="checkbox"/> Other (specify) _____   |
| <input type="checkbox"/> Fertilizers / Pesticides             | <input type="checkbox"/> Other (specify) _____   |

## II. Controls

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in I.C. above and for all use areas, borrow sites, and waste sites. For each measure discussed, the Contractor will be responsible for its implementation as indicated. The Contractor shall provide to the Resident Engineer a plan for the implementation of the measures indicated. The Contractor and subcontractors, will notify the Resident Engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the Permit ILR10. Each such Contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

- A. **Erosion and Sediment Controls:** At a minimum, controls must be coordinated, installed, and maintained to:
1. Minimize the amount of soil exposed during construction activity;
  2. Minimize the disturbance of steep slopes;
  3. Maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, unless infeasible;
  4. Minimize soil compaction and, unless infeasible, preserve topsoil.
- B. **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 but are not limited to: temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided below in II(B)(1) and II(B)(2), stabilization measures shall be initiated **immediately** where construction activities have temporarily or permanently ceased, but in no case more than **one (1) day** after the construction activity in that portion of the site has temporarily or permanently ceases on all disturbed portions of the site where construction will not occur for a period of fourteen (14) or more calendar days.
1. Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.
  2. On areas where construction activity has temporarily ceased and will resume after fourteen (14) days, a temporary stabilization method can be used.

The following stabilization practices will be used for this project:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Preservation of Mature Vegetation | <input checked="" type="checkbox"/> Erosion Control Blanket / Mulching           |
| <input type="checkbox"/> Vegetated Buffer Strips                      | <input type="checkbox"/> Sodding   |
| <input checked="" type="checkbox"/> Protection of Trees               | <input type="checkbox"/> Geotextiles   |
| <input checked="" type="checkbox"/> Temporary Erosion Control Seeding | <input checked="" type="checkbox"/> Other (specify) <u>DUST CONTROL WATERING</u> |

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Temporary Turf (Seeding, Class 7) | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Temporary Mulching                           | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Permanent Seeding                 | <input type="checkbox"/> Other (specify) _____ |

Describe how the stabilization practices listed above will be utilized during construction:

- 1) Protection of Trees/Temporary Fence: All trees designated to be saved, or outside the limits of construction, shall be protected prior to beginning any clearing or removal work and shall remain protected during subsequent construction work. Protection of trees shall be as shown on the plans or directed by the Engineer and in accordance with Article 201.05 of the Illinois Department of Transportation's Standard Specifications for Road and Bridge, latest edition.
- 2) Temporary Erosion Control Seeding: This item will be applied to all bare areas every seven days to minimize the amount of exposed surface areas. Temporary Erosion Control Seeding shall consist of areas as shown on the plans, areas disturbed during the removal of Soil and Erosion measures, or directed by the Engineer and in accordance with the Illinois Department of Transportation's Standard Specifications for Road and Bridge, latest edition.
- 3) Permanent Seeding: This item will be utilized in small areas where sodding has failed as an interim remedy until sod can be replaced or as designated in rural areas where sod is not a prudent alternative, All disturbed areas, identified to receive seeding, will be stabilized via seeding immediately following final grading.
- 4) Erosion Control Blanket: This item will be used within 24 hours after seeding operations have been completed, in ditches/swales and sloped areas that require protection from erosion. Erosion control blankets shall be installed over fill slopes, high velocity areas and slopes steeper than 3:1 that have been brought to final grade. Erosion Control Blanket will be installed in accordance to IDOT Specification 251.04.
- 5) Dust Control Watering - This item will be provided for areas exposed during the mass grading/excavation to control the discharge of sediment through wind erosion during dry periods of construction, areas that are exposed during excavation shall receive dust control watering to minimize dust.

Describe how the stabilization practices listed above will be utilized after construction activities have been completed:

The erosion control practices listed above shall be removed upon final stabilization or incorporated into the final stabilization of the site.

- C. **Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

The following stabilization practices will be used for this project:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Perimeter Erosion Barrier     | <input checked="" type="checkbox"/> Rock Outlet Protection |
| <input checked="" type="checkbox"/> Temporary Ditch Check         | <input checked="" type="checkbox"/> Riprap                 |
| <input checked="" type="checkbox"/> Storm Drain Inlet Protection  | <input type="checkbox"/> Gabions                           |
| <input type="checkbox"/> Sediment Trap                            | <input type="checkbox"/> Slope Mattress                    |
| <input type="checkbox"/> Temporary Pipe Slope Drain               | <input checked="" type="checkbox"/> Retaining Walls        |
| <input type="checkbox"/> Temporary Sediment Basin                 | <input type="checkbox"/> Slope Walls                       |
| <input type="checkbox"/> Temporary Stream Crossing                | <input type="checkbox"/> Concrete Revetment Mats           |
| <input checked="" type="checkbox"/> Stabilized Construction Exits | <input type="checkbox"/> Level Spreaders                   |

- ☒ Turf Reinforcement Mats
- ☒ Permanent Check Dams
- ☐ Permanent Sediment Basin
- ☒ Aggregate Ditch
- ☐ Paved Ditch

- ☒ Other (specify) CULVERT INLET PROTECTION
- ☐ Other (specify) \_\_\_\_\_
- ☐ Other (specify) \_\_\_\_\_
- ☐ Other (specify) \_\_\_\_\_
- ☐ Other (specify) \_\_\_\_\_

Describe how the structural practices listed above will be utilized during construction:

- 1) Perimeter Erosion Barrier: This item will be used to demarcate the perimeter of the project location and for the prevention of silt/sediment from leaving the site. Perimeter erosion barrier will be modified as necessary to accommodate the construction and repaired/replaced as necessary. This item will remain in place until all remaining items of the project have been completed.
- 2) Temporary Ditch Checks - These items will be used throughout the project limits as shown on the plans to reduce the runoff velocity and to trap silt before drains outside the project limit.
- 3) Storm Drain Inlet Protection: This item will be utilized at all manholes, catch basins and inlets with open grates. Inlet filters will be installed directly on the drainage structure or under the grate of the drainage structure resting on the lip of the frame. Inlet filters will be checked on a regular basis and any sediment/debris will be removed to maintain inlet protection. Storm Drain Inlet Protection will be done in accordance with Article 280.04 of the IDOT Specifications. Pipe protection will be implemented at outfalls.
- 4) Stabilized Construction Exits - Stabilized Construction Exits shall be used at the locations indicated on the plans for all construction traffic entering or exiting the construction site, Stabilized Construction Exits shall be continuously maintained during construction operations.
- 5) Rock Check Dams - This item will be provided for the proposed swales in areas with step slopes. Rock check dams will be placed at regular intervals as shown on the plans during construction and will be cleaned on a regular basis.
- 6) Stone Riprap: Stone Riprap of size and class as indicated on the plans will be placed to prevent erosion and scouring at the flared end sections at the upstream and downstream of storm sewer and culvert systems as shown on the plans and maintained as directed by the engineer.
- 8) Retaining Walls - Retaining Walls shall be used as indicated on the plans to limit the areas of excavation. Please refer to the structural drawings for detail and the plans for general layout of retaining walls
- 9) Culvert Inlet Protection - This item will be provided at locations where surface water is intercepted by a storm sewer culvert as indicated on the plans, this item will consist of stone placed in front of the culvert to prevent the discharge of transported sediment.

Describe how the structural practices listed above will be utilized after construction activities have been completed:

Temporary structural features including perimeter erosion barrier, temporary ditch checks, storm drain inlet protection, culvert inlet protection, and stabilized construction exits shall be removed upon completion of construction and final grade stabilization. Permanent structural features including rock check dams, stone riprap, and retaining walls shall be maintained throughout construction and shall become permanent features of the proposed improvements.

#### D. Treatment Chemicals

Will polymer flocculents or treatment chemicals be utilized on this project: ☒ Yes ☐ No

If yes above, identify where and how polymer flocculents or treatment chemicals will be utilized on this project.

Polymer flocculants may be used in conjunction with dewatering operations. At the discretion of the contractor and the direction of the engineer, polymer flocculants may be used to remove suspended solids from water pumped from excavations as required by construction operations. All pumping/dewatering shall follow the dewatering plan. All treated material resulting from the use of polymer flocculants shall be removed by the contractor.

- E. **Permanent Storm Water Management Controls:** Provided below is a description of measures that will be installed during the construction process to control volume and 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.

1. Such practices may include but are not limited to: storm water detention structures (including wet ponds), storm water retention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff on site, and sequential systems (which combine several practices).

The practices selected for implementation were determined on the basis of the technical guidance in Chapter 41 (Construction Site Storm Water Pollution Control) of the IDOT Bureau of Design & Environment Manual. If practices other than those discussed in Chapter 41 are selected for implementation or if practices are applied to situations different from those covered in Chapter 41, the technical basis for such decisions will be explained below.

2. 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 permanent storm water management controls:

Stormwater management facilities are provided throughout the proposed improvements as required by the Kane County Ordinance. Four (4) separate conventional stormwater facilities are proposed. Stormwater facilities are proposed at Randall Road STA 205+00 RT, Longmeadow Parkway 2065+00 LT, Longmeadow Parkway STA 2081+00 LT, and Longmeadow Parkway STA 2141+00 LT. The detention basins have been designed in compliance with the Kane County Stormwater Ordinance and provide both stormwater detention storage and water quality runoff volume retention. Outlet protection in the form of riprap is proposed at storm sewers outletting to ponds, at discharge points to ponds and at overflow points where flow may be concentrated. Please refer to the plan set for detailed pond plan information.

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

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

The management practices, controls, and other provisions contained in this plan are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual Standards and Specifications which was used as a guide in designing the erosion and sediment control features. Procedures and requirements specified in applicable soil erosion and sediment control plans or storm water management plans approved by local officials shall be described or incorporated by reference below. Requirements specified in soil erosion and sediment control plans, site permits, storm water management site plans, or site permits approved by county, state, or local officials that are applicable to protecting surface water resources are, upon submittal of a Notice of Intent (NOI), incorporated and enforceable under this permit even if they are not specifically included in the plan.

The soil erosion and sediment control for this site must meet the requirements of the following agencies:

Kane-DuPage Soil and Water Conservation District  
Kane County Division of Transportation  
Illinois Department of Transportation  
Illinois Environmental Protection Agency  
U.S. Army Corps of Engineers

G. **Contractor Required Submittals:** Prior to conducting any professional services at the site covered by this plan, the Contractor and each subcontractor responsible for compliance with the permit shall submit to the Resident Engineer a Contractor Certification Statement, BDE 2342a.

1. The Contractor shall provide a construction schedule containing an adequate level of detail to show major activities with implementation of pollution prevention BMPs, including the following items:
  - Approximate duration of the project, including each stage of the project
  - Rainy season, dry season, and winter shutdown dates
  - Temporary stabilization measures to be employed by contract phases
  - Mobilization time frame
  - Mass clearing and grubbing/roadside clearing dates
  - Deployment of Erosion Control Practices
  - Deployment of Sediment Control Practices (including stabilized construction entrances/exits)
  - Deployment of Construction Site Management Practices (including concrete washout facilities, chemical storage, refueling locations, etc.)
  - Paving, saw-cutting, and any other pavement related operations
  - Major planned stockpiling operations
  - Time frame for other significant long-term operations or activities that may plan non-storm water discharges such as dewatering, grinding, etc.
  - Permanent stabilization activities for each area of the project
2. The Contractor and each subcontractor shall provide, as an attachment to their signed Contractor Certification Statement, a discussion of how they will comply with the requirements of the permit in regard to the following items and provide a graphical representation showing location and type of BMPs to be used when applicable:
  - Vehicle Entrances and Exits - Identify type and location of stabilized construction entrances and exits to be used and how they will be maintained.
  - Material delivery, Storage, and Use - Discuss where and how materials including chemicals, concrete curing compounds, petroleum products, etc. will be stored for this project.
  - Stockpile Management - Identify the location of both on-site and off-site stockpiles. Discuss what BMPs will be used to prevent pollution of storm water from stockpiles.
  - Waste Disposal - Discuss methods of waste disposal that will be used for this project.
  - Spill Prevention and Control - Discuss steps that will be taken in the event of a material spill (chemicals, concrete curing compounds, petroleum, etc.).
  - Concrete Residuals and Washout Wastes - Discuss the location and type of concrete washout facilities to be used on this project and how they will be signed and maintained.
  - Litter Management - Discuss how litter will be maintained for this project (education of employees, number of dumpsters, frequency of dumpster pick-up, etc.).
  - Vehicle and Equipment Cleaning and Maintenance - Identify where equipment cleaning and maintenance locations for this project and what BMPs will be used to ensure containment and spill prevention.

- Dewatering Activities - Identify the controls which will be used during dewatering operations to ensure sediments will not leave the construction site.
- Polymer Flocculants and Treatment Chemicals - Identify the use and dosage of treatment chemicals and provide the Resident Engineer with Material Safety Data Sheets. Describe procedures on how the chemicals will be used and identify who will be responsible for the use and application of these chemicals. The selected individual must be trained on the established procedures.
- Additional measures indicated in the plan.

### III. Maintenance

When requested by the Contractor, the Resident Engineer will provide general maintenance guides to the Contractor for the practices associated with this project. The following additional procedures will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. It will be Contractor's responsibility to attain maintenance guidelines for any manufactured BMPs which are to be installed and maintained per manufacture's specifications.

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, soil erosion and sediment control measures, and other protective measures identified in this plan and standard specifications:

The contractor will identify an Erosion Control Representative for the project. His duties will be to supervise the maintenance of the soil erosion and sediment control measures and implementation of this plan.

The following shall be the minimum maintenance required:

- A. Vegetative soil erosion measures - the vegetative growth of temporary and permanent seeding, vegetative filters, etc, shall be maintained periodically and supplied adequate watering and fertilizer. The vegetative cover shall be removed and reseeded as necessary.
- B. Aggregate ditch checks / Rock Check Dams shall be cleaned of sediment when the sediment has reached a depth of 50% of the height of the aggregate berm.
- C. Sediment control, silt fence will be examined regularly and repaired as necessary. Sediment shall be removed when it reaches a height equal to 50% of the height of the barrier.
- D. Temporary seeding for erosion control will be repaired when bare spots and washout occur.
- E. Stabilized construction entrances shall have sediment build up removed as necessary.
- F. Inlet filters shall be cleaned on a regular basis.
- G. Temporary and permanent erosion control measures shall be inspected weekly or after any rainfall event in excess of 0.50".

### IV. Inspections



Qualified personnel shall inspect disturbed areas of the construction site which have not yet been finally stabilized, structural control measures, and locations where vehicles and equipment enter and exit the site using IDOT Storm Water Pollution Prevention Plan Erosion Control Inspection Report (BC 2259). Such inspections shall be conducted at least once every seven (7) calendar days and within twenty-four (24) hours of the end of a storm or by the end of the following business or work day that is 0.5 inch or greater or equivalent snowfall.

Inspections may be reduced to once per month when construction activities have ceased due to frozen conditions. Weekly inspections will recommence when construction activities are conducted, or if there is 0.5" or greater rain event, or a discharge due to snowmelt occurs.

If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer shall notify the appropriate IEPA Field Operations Section office by e-mail at: [epa.swnoncomp@illinois.gov](mailto:epa.swnoncomp@illinois.gov), telephone or fax within twenty-four (24) hours of the incident. The Resident Engineer shall then complete and submit an "Incidence of Non-Compliance" (ION) report for the identified violation within five (5) days of the incident. The Resident Engineer shall use forms provided by IEPA and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of non-compliance shall be signed by a responsible authority in accordance with Part VI. G of the Permit ILR10.

The Incidence of Non-Compliance shall be mailed to the following address:

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

Additional Inspections Required:

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, soil erosion and sediment control measures, and other protective measures identified in this plan and standard specifications:

The contractor will designate an Erosion Control Representative for the project. His duties will be to supervise the maintenance of the soil erosion & sediment control measures and implementation of this plan.

The following shall be the minimum maintenance required:

- A. Vegetative soil erosion measures - the vegetative growth of temporary and permanent seeding, vegetative filters, etc, shall be maintained periodically and supplied adequate watering and fertilizer. The vegetative cover shall be removed and reseeded as necessary.
- B. Pumping basins shall be cleaned of sediment when the sediment has reached a depth of 50% of the height of the aggregate berm.
- C. Sediment control, silt fence will be examined regularly and repaired as necessary. Sediment shall be removed when it reaches a height equal to 50% of the height of the barrier.
- D. Temporary seeding for erosion control will be repaired when bare stops and washout occur.
- E. Stabilized construction entrances shall have sediment build up removed as necessary.<sup>3</sup>
- F. Inlet filters shall be cleaned on a regular basis
- G. Temporary and permanent erosion control measures shall be inspected weekly or after any rainfall event in excess of 0.50".

The engineer will be responsible for conducting soil erosion and sediment control inspections. The contractor's SESCO shall be notified when the inspections are to take place and is expected to be present during the inspections. A maintenance inspection report will be completed after each inspection. A copy of the report is to be completed by the inspector and stored on-site with a copy given to the contractor. The inspection shall include all disturbed areas of the construction site which have not been finally stabilized, the structural control measures, locations where vehicles enter or exit the site and all major outfalls. Such inspection shall be conducted at least once every seven calendar days and within 24 hours of the end of a rain storm (or equivalent snowfall) that is 0.5 inches or greater. Depth of rain fall will be determined by an on-site rain gauge. The engineer shall read the rain gauge daily and after each rain storm.

- 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 and waterways. Soil erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. If repair is necessary, it will be initiated within 24 hours of the completion of the inspection report. Where discharge locations or points are accessible, they shall be inspected to ascertain whether the 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 tracking.
- B. Based on the results of the inspection, the description of potential pollutant sources and pollution prevention measures shall be evaluated. The storm water pollution prevention plan shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspection shall be implemented within seven 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 Stormwater Pollution Prevention Plan, and action taken and retained as part of the plan for at least three years after the date of inspection. The report shall be signed in accordance with the general permit.
- D. If any violations of the provisions of this plan are identified during the conduct of the construction work covered by this plan, the engineer shall complete and file an "incidence of noncompliance" (ion) report for the identified violation. The engineer shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information about 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 non-compliance. All reports of noncompliance shall be signed by a responsible authority in accordance with the general permit. The report of noncompliance shall be mailed to the Incidence of Non-Compliance Address listed above:

## **V. Failure to Comply**

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of a National Pollutant Discharge Elimination System/Erosion and Sediment Control Deficiency Deduction against the Contractor and/or penalties under the Permit ILR10 which could be passed on to the Contractor.

**Contractor Certification Statement**

Prior to conducting any professional services at the site covered by this contract, the Contractor and every subcontractor must complete and return to the Resident Engineer the following certification. A separate certification must be submitted by each firm. Attach to this certification all items required by Section II.G of the Storm Water Pollution Prevention Plan (SWPPP) which will be handled by the Contractors/subcontractor completing this form.

Route FAU2298 (Longmeadow Parkway)	Marked Route FAU2298 (Longmeadow Parkway)	Section 13-00215-10-PV
Project Number RS-M-4003(397)	County Kane County	Contract Number 61C41

This certification statement is a part of SWPPP for the project described above, in accordance with the General NPDES Permit No. ILR10 issued by the Illinois Environmental Protection Agency.

I certify under penalty of law that I understand the terms of the Permit No. ILR10 that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

In addition, I have read and understand all of the information and requirements stated in SWPPP for the above mentioned project; I have received copies of all appropriate maintenance procedures; and, I have provided all documentation required to be in compliance with the Permit ILR10 and SWPPP and will provide timely updates to these documents as necessary.

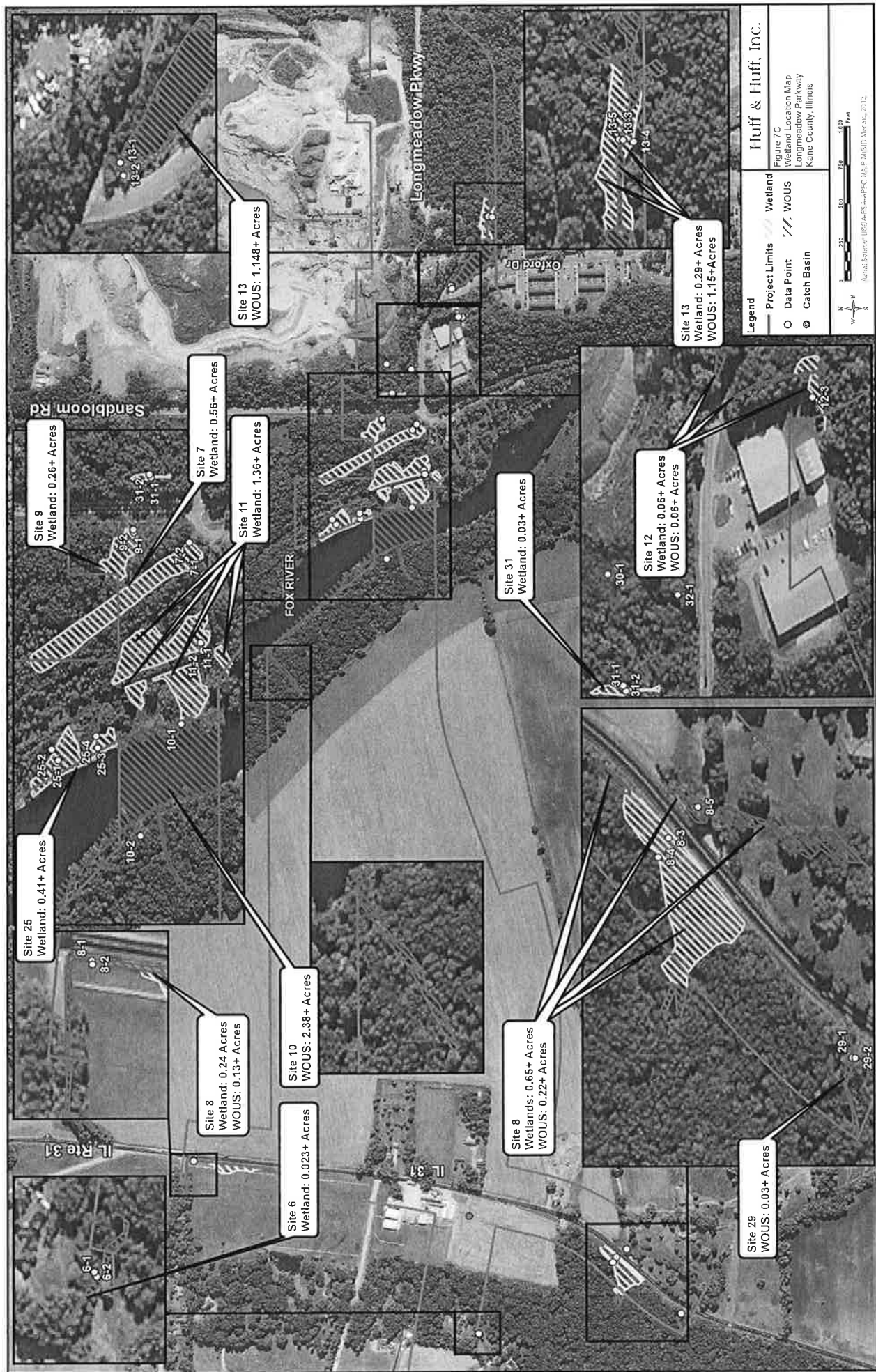
- ☐ Contractor  
☐ Sub-Contractor

Print Name <div></div>	Signature <div></div>
Title <div></div>	Date <div></div>
Name of Firm <div></div>	Telephone <div></div>
Street Address <div></div>	City/State/Zip <div></div>

Items which the Contractor/subcontractor will be responsible for as required in Section II.G. of SWPPP:









# Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

## Division of Water Pollution Control Notice of Intent (NOI) for General Permit to Discharge Storm Water Associated with Construction Site Activities

*This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.*

For Office Use Only

### OWNER INFORMATION

Company/Owner Name: Kane County Division of Transportation

Permit No. ILR10 \_\_\_\_\_

Mailing Address: 41W011 Burlington Road

Phone: 630-584-1170

City: St. Charles

State: IL

Zip: 60175

Fax: 630-584-5265

Contact Person: Carl Schoedel, P.E.

E-mail: schoedelcarl@co.kane.il.us

Owner Type (select one) County

### CONTRACTOR INFORMATION

MS4 Community: ☐ Yes ☒ No

Contractor Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Phone: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Zip: \_\_\_\_\_

Fax: \_\_\_\_\_

### CONSTRUCTION SITE INFORMATION

Select One: ☒ New ☐ Change of information for: ILR10 \_\_\_\_\_

Project Name: Longmeadow Parkway

County: Kane

Street Address: Longmeadow Pkwy & IL Route 31

City: Dundee Township

IL

Zip: 60010

Latitude: 42

08

21.02N

Longitude: 88

18

40.01W

4,8-10

42N

8E

(Deg)

(Min)

(Sec)

(Deg)

(Min)

(Sec)

Section

Township

Range

Approximate Construction Start Date Mar 1, 2018

Approximate Construction End Date Sep 1, 2019

Total size of construction site in acres: 108 acres

If less than 1 acre, is the site part of a larger common plan of development?

☐ Yes ☒ No

Fee Schedule for Construction Sites:

Less than 5 acres - \$250

5 or more acres - \$750

### STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency?

☐ Yes ☒ No

(Submit SWPPP electronically to: [epa.constilr10swppp@illinois.gov](mailto:epa.constilr10swppp@illinois.gov))

Location of SWPPP for viewing: Address: Engineer's Field Office

City: Algonquin

SWPPP contact information:

Inspector qualifications:

Contact Name: Carl Schoedel

P.E.

Phone: 630-584-1170

Fax: 630-584-5265

E-mail: schoedelcarl@co.kane.il.us

Project inspector, if different from above

Inspector qualifications:

Inspector's Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed \$50,000 for the violation and an additional civil penalty of not to exceed \$10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

**TYPE OF CONSTRUCTION (select one)**Construction Type Transportation

SIC Code: \_\_\_\_\_

Type a detailed description of the project:

Construction includes Longmeadow Parkway on a new alignment which includes a bridge over IL Route 31 connected by a Connector Road. Project also includes the widening and reconstruction of IL Route 31 as well as enhancements to the Kane County Forest Preserve's Raging Buffalo Snowboard and Ski Park. A multi-use path will be installed for the length of Longmeadow Parkway. The improvements will use a combination of enclosed drainage with curb and gutter and open swale drainage systems. Stormwater detention is provided in compliance with Kane County & IDOT requirements. Water quality runoff volume retention is also provided in compliance with Kane County requirements.

**HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE**

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency      ☒ Yes      ☐ NoEndangered Species      ☒ Yes      ☐ No**RECEIVING WATER INFORMATION**Does your storm water discharge directly to: ☒ Waters of the State    or    ☒ Storm SewerOwner of storm sewer system: Kane County Division of Transportation, Illinois Department of TransportationName of closest receiving water body to which you discharge: Fox River

Mail completed form to: Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Attn: Permit Section  
Post Office Box 19276  
Springfield, Illinois 62794-9276  
or call (217) 782-0610  
FAX: (217) 782-9891

Or submit electronically to: [epa.constilr10swppp@illinois.gov](mailto:epa.constilr10swppp@illinois.gov)

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a storm water pollution prevention plan and a monitoring program plan, will be complied with.

***Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))***

\_\_\_\_\_  
Owner Signature:\_\_\_\_\_  
Date:\_\_\_\_\_  
Carl Schoedel

Printed Name:

\_\_\_\_\_  
County Engineer

Title:



## INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

***This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:***

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Permit Section  
Post Office Box 19276  
Springfield, Illinois 62794-9276  
or call (217) 782-0610

FAX: (217) 782-9891

Or submit electronically to: [epa.constilr10swppp@illinois.gov](mailto:epa.constilr10swppp@illinois.gov)

### **Reports must be typed or printed legibly and signed.**

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

**NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.**

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is \$250.

Construction sites with 5 or more acres of land disturbance - fee is \$750.

SWPPP should be submitted electronically to: [epa.constilr10swppp@illinois.gov](mailto:epa.constilr10swppp@illinois.gov). When submitting electronically, use Project Name and City as indicated on NOI form.



wangeng@wangeng.com  
1145 N Main St.  
Lombard, IL 60148  
Telephone: 630-953-9928  
Fax: 630-953-9938

# BORING LOG BLA-B03

WEI Job No.: 310-06-01

Client **Crawford, Murphy, & Tilly, Inc.**  
Project **Longmeadow Parkway Corridor**  
Location **Kane County, Illinois**

Datum: NAVD 88  
Elevation: 885.32 ft  
North: 1993530.72 ft  
East: 991776.79 ft  
Station: 2140+00.83  
Offset: 205.59 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	884.0	16-inch thick, brown SILTY LOAM --TOPSOIL-- Stiff to very stiff, brown CLAY LOAM, trace gravel			1	3 3 5	2.00 P	14									
			5		2	3 4 4	1.23 S	13									
					3	3 5 7	2.38 S	13									
			10		4	3 7 8	3.53 B	13									
					5	4 6 12	2.13 B	13									
	871.7	Dense, brown SANDY LOAM, trace gravel			6	5 13 23	NP	12									
	870.3	--Moist-- Boring terminated at 15.00 ft	15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **10-27-2014** Complete Drilling **10-27-2014**  
Drilling Contractor **Wang Testing Services** Drill Rig **D-50 ATV**  
Driller **K&K** Logger **A. Happel** Checked by **B. Wilson**  
Drilling Method **3.25" HSA; boring backfilled upon completion**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



wangeng@wangeng.com  
1145 N Main St.  
Lombard, IL 60148  
Telephone: 630-953-9928  
Fax: 630-953-9938

# BORING LOG BLA-B04

WEI Job No.: 310-06-01

Client **Crawford, Murphy, & Tilly, Inc.**  
Project **Longmeadow Parkway Corridor**  
Location **Kane County, Illinois**

Datum: NAVD 88  
Elevation: 885.29 ft  
North: 1993538.26 ft  
East: 992174.57 ft  
Station: 2144+00.44  
Offset: 200.65 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		15-inch thick, brown SILTY LOAM															
	883.8	--TOPSOIL--															
		Stiff to hard, brown CLAY LOAM to LOAM, trace gravel			1	3 3 4	1.64 S	14									
			5		2	3 5 6	2.30 S	13									
					3	4 5 7	4.18 B	14									
	875.8		10		4	3 4 6	1.39 S	15									
	874.8	--Hard drilling from 10'-11'; possible cobble--															
		Medium dense, brown SANDY LOAM, trace gravel			5	7 4 6	NP	13									
		--Moist--															
	870.3		15		6	4 6 10	NP	15									
		Boring terminated at 15.00 ft															
			20														
			25														

## GENERAL NOTES

Begin Drilling **10-27-2014** Complete Drilling **10-27-2014**  
Drilling Contractor **Wang Testing Services** Drill Rig **D-50 ATV**  
Driller **K&K** Logger **A. Happel** Checked by **B. Wilson**  
Drilling Method **3.25" HSA; boring backfilled upon completion**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

wangeng@wangeng.com  
1145 N Main St.  
Lombard, IL 60148  
Telephone: 630-953-9928  
Fax: 630-953-9938




Client **Crawford, Murphy, & Tilly, Inc.**  
 Project **Longmeadow Parkway Corridor**  
 Location **Kane County, Illinois**

Datum: NAVD 88  
Elevation: 801.26 ft  
North: 1992836.86 ft  
East: 994004.52 ft  
Station: 2163+02.33  
Offset: 359.70 RT

[illegible]

## WATER LEVEL DATA

Begin Drilling	<b>06-17-2014</b>	Complete Drilling	<b>06-17-2014</b>
Drilling Contractor	<b>Wang Testing Services</b>	Drill Rig	<b>B-57 TMR</b>
Driller	<b>R&amp;D</b>	Logger	<b>D. Kolpacki</b>
		Checked by	<b>B. Wilson</b>
Drilling Method	<b>3.25" HSA; boring backfilled upon completion</b>		

While Drilling		10.50 ft
At Completion of Drilling		10.50 ft
Time After Drilling	NA	
Depth to Water		NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG BLA-B06

WEI Job No.: 310-06-01

Client **Crawford, Murphy, & Tilly, Inc.**  
Project **Longmeadow Parkway Corridor**  
Location **Kane County, Illinois**

Datum: NAVD 88  
Elevation: 803.52 ft  
North: 1992995.60 ft  
East: 994026.63 ft  
Station: 2162+95.69  
Offset: 199.56 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	802.4	14-inch thick, dark brown SILTY LOAM --TOPSOIL-- Soft to very stiff, brown SILTY CLAY LOAM			1	2 2 2	2.25 P	19									
			5		2	2 3 2	1.23 B	29									
					3	2 2 3	0.74 B	30									
			10		4	2 2 4	0.33 B	25									
	793.0	Medium dense to dense, brown GRAVELLY SANDY LOAM --Saturated--			5	13 17 23	NP	8									
	788.5		15		6	8 9 6	NP	14									
		Boring terminated at 15.00 ft															
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-17-2014** Complete Drilling **06-17-2014**  
Drilling Contractor **Wang Testing Services** Drill Rig **B-57 TMR**  
Driller **R&D** Logger **D. Kolpacki** Checked by **B. Wilson**  
Drilling Method **3.25" HSA; boring backfilled upon completion**

## WATER LEVEL DATA

While Drilling  $\nabla$  **10.50 ft**  
At Completion of Drilling  $\blacktriangledown$  **11.00 ft**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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Client **Crawford, Murphy, & Tilly, Inc.**  
 Project **Longmeadow Parkway Corridor**  
 Location **Kane County, Illinois**

Datum: NAVD 88  
Elevation: 802.40 ft  
North: 1992874.86 ft  
East: 995183.42 ft  
Station: 2174+42.06  
Offset: 129.06 RT

[illegible]

## WATER LEVEL DATA

Begin Drilling	<b>11-03-2014</b>	Complete Drilling	<b>11-13-2014</b>
Drilling Contractor	<b>Wang Testing Services</b>	Drill Rig	<b>D-50 ATV</b>
Driller	<b>K&amp;K</b>	Logger	<b>A. Happel</b>
		Checked by	<b>B. Wilson</b>
Drilling Method	<b>3.25" HSA; boring backfilled upon completion</b>		

While Drilling		<b>DRY</b>
At Completion of Drilling		<b>DRY</b>
Time After Drilling	<b>NA</b>	
Depth to Water		<b>NA</b>

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# BORING LOG BLA-B08

WEI Job No.: 310-06-01

Client **Crawford, Murphy, & Tilly, Inc.**  
Project **Longmeadow Parkway Corridor**  
Location **Kane County, Illinois**

Datum: NAVD 88  
Elevation: 797.37 ft  
North: 1992937.95 ft  
East: 995910.99 ft  
Station: 2181+45.23  
Offset: 103.23 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	796.9	6-inch thick, black SILTY LOAM --TOPSOIL-- Very stiff, black, brown and gray SILTY CLAY LOAM, trace gravel			1	3 3 4	2.50 P	26									
	792.4	Medium dense, brown, medium to coarse SAND, trace gravel	5		2	2 2 5	2.25 P	24									
	789.4	Medium dense to dense, brown SANDY GRAVEL			3	4 9 12	NP	4									
			10		4	3 15 22	NP	4									
					5	4 10 16	NP	4									
	782.4	Boring terminated at 15.00 ft	15		6	3 7 7	NP	5									
			20														
			25														

## GENERAL NOTES

Begin Drilling **11-03-2014** Complete Drilling **11-13-2014**  
Drilling Contractor **Wang Testing Services** Drill Rig **D-50 ATV**  
Driller **K&K** Logger **A. Happel** Checked by **B. Wilson**  
Drilling Method **3.25" HSA; boring backfilled upon completion**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
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# BORING LOG R-042

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 903.99 ft  
North: 1993331.03 ft  
East: 990075.27 ft  
Station: 2123+00.12  
Offset: 0.14 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	903.4	7-inch thick, dark brown SILTY CLAY LOAM			1	3 3 4 15	1.75 P	13									
		--TOPSOIL--															
		Stiff to very stiff, brown SILTY CLAY LOAM			2	8 10 8 9	1.00 P	10									
		--FILL															
			5		3	4 4 4 6	2.50 P	17									
					4	3 2 3 4	1.50 P	32									
	895.7	Stiff, brown and gray SILTY CLAY LOAM			5	2 2 3 5	1.50 P	24									
	894.0	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-11-2005** Complete Drilling **04-11-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **J&R** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-043

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 905.70 ft  
North: 1993328.72 ft  
East: 990380.78 ft  
Station: 2125+99.90  
Offset: 0.25 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	905.26	6-inch thick, brown CLAY LOAM --TOPSOIL-- Loose, brown LOAM			1	2 2 3 4	NP	22									
	903.5	Loose to medium dense, brown SILT, with interbedded sand lenses			2	1 2 4 8	NP	20									
	900.5	Very stiff to hard, brown and gray SILTY CLAY LOAM, some gravel			3	4 9 11 15	NP	16									
					4	6 7 11 17	2.00 P	10									
					5	6 11 12 15	4.00 P	11									
	895.7	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-12-2005** Complete Drilling **04-12-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K&S** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-044

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 904.68 ft  
North: 1993327.00 ft  
East: 990680.86 ft  
Station: 2128+99.98  
Offset: 0.04 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	904.26	6-inch thick, brown CLAY LOAM --TOPSOIL--															
		Stiff, brown CLAY LOAM			1	2 5 4 5	1.75 P	15									
	902.2	Medium dense, brown SILT				3 5 7 7	NP	17									
	900.7	Very stiff to hard, brown SILTY CLAY LOAM	5		2	3 4 7 6	2.00 P	15									
					3	5 8 11 13	3.50 P	13									
			10		5	7 12 15 14	4.00 P	10									
					6	6 11 12 13	4.00 P	12									
	891.7	Boring terminated at 13.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-12-2005** Complete Drilling **04-12-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K&S** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-045

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 888.11 ft  
North: 1993325.00 ft  
East: 990980.99 ft  
Station: 2132+00.11  
Offset: 0.12 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	887.6	6-inch thick, black CLAY LOAM --TOPSOIL--			1	1 2 3 4	0.50 P	32									
		Stiff to hard, brown SILTY CLAY LOAM			2	2 2 4 5	1.75 P	20									
			5		3	6 7 8 9	4.00 P	13									
	881.6	Medium dense, brown SILT			4	4 7 8 9	> 4.50 P	14									
	880.9	Hard, brown SILTY CLAY															
	879.6	Medium dense, gray LOAM, some gravel			5	8 9 15 16	NP	8									
	878.1	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-13-2005** Complete Drilling **04-13-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K&S** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-046

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 881.33 ft  
North: 1993323.14 ft  
East: 991280.86 ft  
Station: 2134+99.99  
Offset: 0.05 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	880.3	12-inch thick, black CLAY LOAM --TOPSOIL--			1	1 4 4 4	2.50 P	26									
		Very stiff, brown SILTY CLAY			2	1 3 4 4	2.00 P	24									
	877.1				3	2 3 3 4	NP	23									
	875.8	Loose, brown SILTY LOAM	5														
		Stiff, brown and black SILTY CLAY			4	5 5 7 8	1.50 P	23									
	872.3				5	3 6 5 5	4.00 P	13									
	871.8	Medium dense, gray SILT															
	871.3	Hard, gray SILTY CLAY LOAM	10														
		Boring terminated at 10.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-13-2005** Complete Drilling **04-13-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K&S** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-047

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 881.10 ft  
North: 1993324.67 ft  
East: 991717.36 ft  
Station: 2139+36.52  
Offset: 0.83 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	880.6	6-inch thick, brown CLAY LOAM --TOPSOIL-- Stiff to very stiff, brown SILTY CLAY LOAM			1	2 4 4 5	2.25 P	17									
					2	2 4 4 3	1.25 P	16									
			5		3	2 4 3 7	2.25 P	16									
	874.9	Medium dense, brown LOAM			4	5 6 7 13	NP	10									
	872.1	Dense, brown GRAVELLY SAND			5	4 11 23 25	NP	8									
	871.1	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-13-2005** Complete Drilling **04-13-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K&S** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-048

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 885.42 ft  
North: 1993328.06 ft  
East: 991880.74 ft  
Station: 2140+99.94  
Offset: 0.09 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	884.9	6-inch thick, black and brown CLAY LOAM			1	1 4 3 3	1.75 P	20									
	883.7	--TOPSOIL-- Stiff, brown CLAY LOAM			2	2 2 3 2	0.50 B	27									
	880.4	Medium stiff, brown SILTY CLAY	5		3	3 3 3 4	NP	16									
		Loose to medium dense, brown SANDY LOAM			4	3 5 7 8	NP	11									
	877.4	Very stiff, brown SILTY CLAY LOAM			5	6 6 7 7	2.50 P	10									
	875.4	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-13-2005** Complete Drilling **04-13-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K&S** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-049

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 890.20 ft  
North: 1993337.75 ft  
East: 992180.53 ft  
Station: 2143+99.89  
Offset: 0.05 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	889.76	6-inch thick, black LOAM															
		--TOPSOIL--															
		Very loose, brown LOAM			1	0 1 2 2	NP	14									
	888.2	Stiff, brown CLAY LOAM			2	1 3 2 4	1.00 P	18									
			5		3	1 2 3 4	1.50 P	21									
	884.5	Very stiff, brown SILTY CLAY LOAM			4	3 5 7 7	2.25 P	17									
					5	4 7 8 8	2.50 P	12									
	880.2	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **04-13-2005** Complete Drilling **04-13-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K&S** Logger **Y. Shiu** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-055

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 816.45 ft  
North: 1993209.16 ft  
East: 993968.19 ft  
Station: 2162+00.00  
Offset: 0.10 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	815.5	12-inch thick, brown SILTY LOAM			1	3 5 12 12	NP	9									
		--TOPSOIL--															
		Medium stiff to stiff, brown CLAY LOAM			2	6 5 5 6	1.25 P	12									
			5		3	3 3 4 4	0.75 P	21									
	809.0				4	1 2 3 4	NP	15									
	808.0	Loose, brown SANDY LOAM															
		Very soft, brown CLAY LOAM			5	1 2 2 4	0.00 P	25									
			10		6	1 1 1 2	0.00 P	24									
					7	1 1 1 2	0.00 P	21									
	801.5		15		8	1 2 1 2	0.20 P	21									
		Very stiff, brown SILTY CLAY LOAM			9	2 5 8 12	2.75 P	14									
	798.5																
		Boring terminated at 18.00 ft															
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-07-2005** Complete Drilling **06-07-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K** Logger **J. Kosloski** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

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# BORING LOG R-056

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 802.48 ft  
North: 1993155.43 ft  
East: 994263.34 ft  
Station: 2165+00.00  
Offset: 0.03 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	801.5	12-inch thick, brown CLAY LOAM			1	2 5 7 6	3.00 P	12									
		--TOPSOIL--															
		Medium dense, black SILTY LOAM			2	7 6 6 7	NP	28									
	798.0																
		Medium stiff to stiff, brown SILTY CLAY LOAM	5		3	3 4 5 5	1.50 P	27									
					4	2 3 4 4	0.50 P	24									
	794.0																
		Medium dense, brown SANDY LOAM	10		5	3 3 8 11	NP	15									
	791.5																
		Medium dense to dense, brown GRAVELLY SAND			6	7 7 4 5	NP	11									
	788.5																
		Boring terminated at 14.00 ft	15		7	6 16 16 16	NP	9									
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-07-2005** Complete Drilling **06-07-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **K** Logger **J. Kosloski** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-057

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 806.75 ft  
North: 1993160.11 ft  
East: 994576.81 ft  
Station: 2168+06.32  
Offset: 67.59 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	806.1	8-inch thick, dark brown SILTY CLAY			1	1 2 3 4	1.25 P	23									
		--TOPSOIL--															
		Stiff, brown and black SILTY CLAY			2	2 2 5 4	1.50 P	24									
	803.3	Loose, brown SANDY LOAM															
			5		3	1 2 2 1	NP	18									
	801.3	Medium dense, brown GRAVELLY SAND			4	5 9 10 10	NP	5									
					5	4 10 9 11	NP	4									
	796.8	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **05-03-2005** Complete Drilling **05-03-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&D** Logger **W. Wang** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-058

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 800.61 ft  
North: 1993061.01 ft  
East: 994853.80 ft  
Station: 2170+97.83  
Offset: 12.74 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	799.1	18-inch thick, black SILTY CLAY LOAM			1	2 3 3 5	1.25 P	22									
		--TOPSOIL--															
		Stiff, brown SILTY CLAY LOAM			2	2 3 3 5	1.50 P	25									
	795.1		5		3	2 3 2 4	1.00 P	21									
		Loose, brown SANDY LOAM			4	2 3 3 5	NP	13									
	793.1				5	2 1 3 6	2.25 P	14									
		Stiff to very stiff, brown and gray SILTY CLAY LOAM	10		6	2 3 8 6	1.25 P	13									
	788.6																
		Boring terminated at 12.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **05-03-2005** Complete Drilling **05-03-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&D** Logger **W. Wang** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 804.28 ft  
North: 1993007.25 ft  
East: 995150.73 ft  
Station: 2174+00.01  
Offset: 0.36 L

[illegible]

## WATER LEVEL DATA

Begin Drilling	<b>05-02-2005</b>	Complete Drilling	<b>05-02-2005</b>
Drilling Contractor	<b>PRECON DRILLING</b>	Drill Rig	<b>CME-75 ATV</b>
Driller	<b>S&amp;D</b>	Logger	<b>W. Wang</b>
		Checked by	<b>B. Fugiel</b>
Drilling Method	<b>3.25-inch HSA</b>		

While Drilling		<b>DRY</b>
At Completion of Drilling		<b>DRY</b>
Time After Drilling	<b>NA</b>	
Depth to Water		<b>NA</b>

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-060

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 806.17 ft  
North: 1992996.80 ft  
East: 995450.42 ft  
Station: 2177+00.03  
Offset: 0.00 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	805.6	7-inch thick, black and brown SILTY CLAY LOAM --TOPSOIL-- Stiff, brown SILTY CLAY LOAM			1	1 2 3 3	1.25 P	26									
					2	2 3 3 5	1.50 P	23									
	801.7	Medium dense, brown GRAVELLY SAND	5		3	2 6 7 9	NP	6									
					4	9 10 16 16	NP	2									
					5	6 11 16 14	NP	3									
	796.2	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **05-02-2005** Complete Drilling **05-02-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&D** Logger **W. Wang** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-061

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 802.83 ft  
North: 1993018.15 ft  
East: 995749.37 ft  
Station: 2179+99.88  
Offset: 0.07 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	802.3	7-inch thick, black SILTY CLAY LOAM			1	2 2 3 5	1.25 P	26									
		--TOPSOIL--															
		Stiff, brown SILTY CLAY LOAM			2	2 3 4 8	1.50 P	21									
	799.3	Medium dense, brown GRAVELLY SAND			3	4 7 9 11	NP	5									
			5		4	9 15 10 10	NP	4									
					5	16 13 14 11	NP	2									
	792.8	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **05-02-2005** Complete Drilling **05-02-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&D** Logger **W. Wang** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-115

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 794.50 ft  
North: 1992045.64 ft  
East: 993877.14 ft  
Station: 408+13.22  
Offset: 19.32 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		21-inch thick ASPHALT --PAVEMENT--															
	792.7	Medium stiff to stiff, black, brown, and gray CLAY LOAM --FILL--			1	3 2 4 7	1.25 P	22									
			5		2	3 3 4 7	0.75 P	26									
	788.2	Very soft to stiff, brown and gray SILTY CLAY LOAM			3	2 2 3 3	< 0.25 P	29									
					4	2 2 4 4	1.00 P	25									
	784.0	Loose to medium dense, gray GRAVELLY SAND	10		5	3 2 4 2	0.50 P	22									
					6	0 5 15 15	NP	10									
	780.5	Boring terminated at 14.00 ft	15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-29-2005** Complete Drilling **06-29-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **11.50 ft**  
At Completion of Drilling  $\blacktriangledown$   
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-116

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 794.66 ft  
North: 1992246.62 ft  
East: 994042.17 ft  
Station: 410+85.10  
Offset: 23.45 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	793.0	5-inch thick ASPHALT over 15-inch thick CONCRETE --PAVEMENT--															
	791.4	Stiff, brown and black SILTY CLAY --FILL--			1	2 2 3 2	1.50 P	12									
		Loose to medium dense, brown GRAVELLY SAND, with cobbles	5		2	3 5 4 4	NP	4									
					3	5 4 5 8	NP	4									
					4	10 7 5 10	NP	5									
			10		5	6 6 9 8	NP	10									
	782.7	Boring terminated at 12.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-30-2005** Complete Drilling **06-30-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **7.25 ft**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.





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# BORING LOG R-117

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 799.35 ft  
North: 1992517.35 ft  
East: 994226.38 ft  
Station: 413+98.75  
Offset: 17.68 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		11-inch thick ASPHALT over 13-inch thick CONCRETE --PAVEMENT--															
	797.4	Medium stiff to stiff, brown SILTY CLAY LOAM --FILL--			1	4 3 5 7	1.75 P	21									
	794.9	Loose to medium dense, brown GRVELLY SAND	5		2	3 3 5 9	0.75 P	19									
	791.6	Loose, brown, medium SAND			3	5 7 6 7	NP	3									
					4	4 2 5 4	NP	26									
			10		5	1 3 2 4	NP	29									
					6	1 2 4 5	NP	18									
			15		7	4 5 3 9	NP	19									
	783.9	Very dense, brown GRAVELLY SAND			8	5 39 23 11	NP	8									
	782.4	Very stiff, gray CLAY LOAM															
	781.4	Qp = 2.25 tsf															
		Boring terminated at 18.00 ft															
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-29-2005** Complete Drilling **06-29-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **8.50 ft**  
At Completion of Drilling  $\blacktriangledown$   
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-118

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 802.20 ft  
North: 1992811.07 ft  
East: 994305.99 ft  
Station: 416+98.92  
Offset: 18.05 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	800.7	8-inch thick ASPHALT over 10-inch thick CONCRETE --PAVEMENT--															
	799.4	Medium dense, brown SANDY LOAM			1	8 4 8	NP	10									
	798.4	--FILL-- Loose, black and brown SILTY LOAM			2	3 3 4 4	NP	22									
		Stiff, brown SILTY CLAY LOAM	5														
	795.4				3	3 5 5 5	1.25	26									
	793.7	Medium dense, brown SANDY LOAM			4	2 3 8 14	NP	10									
		Medium dense, brown GRAVELLY SAND	10		5	4 9 12 9	NP	6									
	791.2	Boring terminated at 11.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-29-2005** Complete Drilling **06-29-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$   
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-119

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 805.45 ft  
North: 1993127.27 ft  
East: 994373.20 ft  
Station: 420+23.22  
Offset: 17.47 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		16-inch thick ASPHALT --PAVEMENT--															
	804.1																
	803.5	Medium stiff, brown SILTY CLAY LOAM			1	2 2 3	0.75 P	19									
	802.7	--FILL--															
		Loose, brown SANDY LOAM															
		Medium stiff, black and brown CLAY LOAM, with interbedded sand lenses	5		2	3 1 2 2	0.50 P	21									
	800.0																
		Dense, brown GRAVELLY SAND			3	5 14 25 21	NP	5									
					4	8 13 16 21	NP	4									
			10		5	13 8 11 13	NP	3									
	794.5																
		Boring terminated at 11.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-29-2005** Complete Drilling **06-29-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **8.00 ft**  
At Completion of Drilling  $\blacktriangledown$   
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-120

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 806.59 ft  
North: 1993360.94 ft  
East: 994429.62 ft  
Station: 422+64.97  
Offset: 17.33 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	804.8	10-inch thick ASPHALT over 11-inch thick CONCRETE --PAVEMENT--															
		Medium dense to dense, brown GRAVELLY SAND			1	5 6 9 11	NP	8									
			5		2	6 11 20 19	NP	4									
					3	9 8 18 20	NP	5									
					4	8 8 10 8	NP	4									
			10		5	9 9 9 8	NP	3									
	794.6	Boring terminated at 12.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-30-2005** Complete Drilling **06-30-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**  
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



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# BORING LOG R-121

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 808.67 ft  
North: 1993695.87 ft  
East: 994489.46 ft  
Station: 426+02.27  
Offset: 39.05 L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	807.0	8-inch thick ASPHALT over 12-inch thick CONCRETE --PAVEMENT--															
	806.2	Very loose, black and brown SILTY LOAM			1	0 0 1 2	1.00 P	27									
	804.4	Stiff, brown SILTY CLAY LOAM															
	803.2	Loose, brown SANDY LOAM	5		2	2 3 6 9	NP	24									
		Medium dense to very dense, brown GRAVELLY SAND			3	6 8 11 20	NP	4									
					4	16 17 22 32	NP	5									
			10		5	9 31 37 50	NP	5									
	796.7	Boring terminated at 12.00 ft															
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-30-2005** Complete Drilling **06-30-2008**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **DRY**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



wangeng@wangeng.com  
1145 N Main St.  
Lombard, IL 60148  
Telephone: 630-953-9928  
Fax: 630-953-9938

# BORING LOG R-122

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 810.04 ft  
North: 1993993.20 ft  
East: 994477.05 ft  
Station: 428+98.88  
Offset: 21.74 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	809.3	9-inch thick, black and brown SILTY LOAM			1	4 6 5 8	4.00 P	11									
		--TOPSOIL--															
		Stiff to hard, brown SILTY CLAY LOAM			2	6 4 5 9	1.50 P	20									
	806.3	Medium dense, brown GRAVELLY SAND	5		3	7 9 11 12	NP	5									
					4	3 6 9 10	NP	12									
					5	6 8 9 9	NP	13									
	800.0	Boring terminated at 10.00 ft	10														
			15														
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-29-2005** Complete Drilling **06-29-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **5.50 ft**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.



wangeng@wangeng.com  
1145 N Main St.  
Lombard, IL 60148  
Telephone: 630-953-9928  
Fax: 630-953-9938

# BORING LOG R-123

WEI Job No.: 201-23-01

Client **McDonough Associates Inc.**  
Project **Longmeadow Parkway over Fox River**  
Location **Kane County, Illinois**

Datum: NGVD  
Elevation: 811.56 ft  
North: 1994288.70 ft  
East: 994560.87 ft  
Station: 432+00.94  
Offset: 17.19 R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		8-inch thick ASPHALT over 13-inch thick CONCRETE --PAVEMENT--															
	809.8																
		Medium stiff, brown and black SILTY CLAY LOAM --FILL--			1	2 1 3 5	0.50 P	23									
	808.1																
		Medium stiff to stiff, brown and gray SILTY CLAY	5		2	2 2 3 6	1.00 P	31									
					3	1 2 3 4	0.50 P	26									
					4	1 2 2 4	0.50 P	28									
	800.8		10														
		Medium dense, brown GRAVELLY SAND			5	1 1 2 4	0.50 P	26									
					6	2 4 5 7	NP	14									
			15		7	2 5 10 13	NP	12									
	795.6																
		Boring terminated at 16.00 ft															
			20														
			25														

## GENERAL NOTES

Begin Drilling **06-30-2005** Complete Drilling **06-30-2005**  
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**  
Driller **S&J** Logger **J. Kasnick** Checked by **B. Fugiel**  
Drilling Method **3.25-inch HSA**

## WATER LEVEL DATA

While Drilling  $\nabla$  **12.00 ft**  
At Completion of Drilling  $\blacktriangledown$  **DRY**  
Time After Drilling **NA**  
Depth to Water  $\nabla$  **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.





Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

**Source Site Certification  
by Owner or Operator  
for Use of Uncontaminated Soil as Fill in a  
CCDD or Uncontaminated Soil Fill Operation  
LPC-662**

**Revised in accordance with 35 Ill. Adm. Code 1100, as  
amended by PCB R2012-009 (eff. Aug. 27, 2012)**

This certification form is to be used by source site owners and operators to certify, pursuant to 35 Ill. Adm. Code 1100.205(a)(1) (A), that soil (i) was removed from a site that is not potentially impacted property and is presumed to be uncontaminated soil and (ii) is within a pH range of 6.25 to 9.0. If you have questions about this form, please telephone the Bureau of Land Permit Section at 217/524-3300.

This form may be completed online, saved locally, printed and signed, and submitted to prospective clean construction or demolition debris fill operations or uncontaminated soil fill operations.

## I. Source Location Information

(Describe the location of the source of the uncontaminated soil)

Project Name: Longmeadow Parkway Project (Section B-2) Office Phone Number, if available: 630-584-1170

Physical Site Location (Street, Road): Longmeadow Parkway (Sta. 2143+77.78 to 2188+00.00)

City: Algonquin State: IL Zip Code: 60102

County: Kane Township: Dundee

Lat/Long of approximate center of site in decimal degrees (DD.ddddd) to five decimal places (e.g., 40.67890, -90.12345):

Latitude: 42.1387580 Longitude: -88.2960393  
(Decimal Degrees) (-Decimal Degrees)

Identify how the lat/long data were determined:

☐ GPS ☐ Map Interpolation ☐ Photo Interpolation ☐ Survey ☐ Other

SGS Public Land Survey System; lat/long refers to the approximate center of Section B-2 for the Longmeadow Project.

IEPA Site Number(s), if assigned: BOL: \_\_\_\_\_ BOW: \_\_\_\_\_ BOA: \_\_\_\_\_

## II. Owner/Operator Information for Source Site

### Site Owner

Name: Kane County Division of Transportation  
Street Address: 41W011 Burlington Rd  
PO Box: \_\_\_\_\_  
City: St. Charles State: IL  
Zip Code: 60175 Phone: 630-584-1170  
Contact: Carl Schoedel, PE, Dir. of Trans. Co. Eng.  
Email, if available: SchoedelCarl@co.kane.il.us

### Site Operator

Name: Kane County Division of Transportation  
Street Address: 41W011 Burlington Rd  
PO Box: \_\_\_\_\_  
City: St. Charles State: IL  
Zip Code: 60175 Phone: 630-584-1170  
Contact: Carl Schoedel, PE, Dir. of Trans. Co. Eng.  
Email, if available: SchoedelCarl@co.kane.il.us



Project Name: Longmeadow Parkway Project (Section B-2)Latitude: 42.1387580 Longitude: -88.2960393  
(Decimal Degrees) (-Decimal Degrees)**Source Site Certification****III. Descriptions of Current and Past Uses of Source Site**

Describe the current and past uses of the site and nearby properties.\* Attach additional information as needed. The description must take into account, at a minimum, the following for the source site and for nearby property: (1) use of the properties for commercial or industrial purposes; (2) the use, storage or disposal of chemical or petroleum products in individual containers greater than 5 gallons or collectively more than 50 gallons; (3) the current or past presence of any storage tanks (above ground or underground); (4) any waste storage, treatment or disposal at the properties; (5) any reported releases or any environmental cleanup or removal of contaminants; (6) any environmental liens or governmental notification of environmental violations; (7) any contamination in a well that exceeds the Board's groundwater quality standards; (8) the use, storage, or disposal of transformers or capacitors manufactured before 1979; and (9) any fill dirt brought to the properties from an unknown source or site.

Number of pages attached: 64

Based on PESA (Sept. 2014) and PSI (Jan. 2015), no PIPs were identified in Section B-2. A total of 6 borings were completed within Section B-2 of the larger Project Corridor to address soil pH considerations for CCDD disposal. The B-2 Section of the Longmeadow Parkway Project Area consists of sparse residential housing and farmland.

\*The description must be sufficient to demonstrate that the source site is not potentially impacted property, thereby allowing the source site owner or operator to provide this certification.

**IV. Soil pH Testing Results**

Describe the results of soil pH testing showing that the soil pH is within the range of 6.25 to 9.0 and attach any supporting documentation.

Number of pages attached: 64

Eleven soil samples collected from six borings in Section B-2: CCDD-B-01, CCDD-B-02, CCDD-B-03, CCDD-B-04, CCDD-B-05, and CCDD-B-06. Soil pH range of 8.40 to 9.12, with one soil pH result (CCDD-B-06 from 13.5-15 ft) outside of the pH requirement for CCDD. A shallow sample from CCDD-B-06 (6-7.5 ft) achieves the pH requirement (8.69). Therefore, soils above depths of 10.5 ft below ground surface are certified for CCDD disposal, and soils deeper than 10.5 ft in this segment of B-2 are EXCLUDED for CCDD disposal/planned for reuse as fill. The exclusion area is depicted on a map in Attachment A.

**V. Source Site Owner, Operator or Authorized Representative's Certification Statement and Signature**

In accordance with the Illinois Environmental Protection Act [415 ILCS 5/22.51 or 22.51a] and 35 Ill. Adm. Code 1100.205(a), I Jeremy J. Reynolds, P.G. (owner's authorized representative) (owner, operator or authorized representative of source site) certify that this site is not a potentially impacted property and the soil is presumed to be uncontaminated soil. I also certify that the soil pH is within the range of 6.25 to 9.0. I further certify that the soil has not been removed from the site as part of a cleanup or removal of contaminants. Additionally, I certify that I am either the site owner or operator or a duly authorized representative of the site owner or site operator and am authorized to sign this form. Furthermore, I certify that all information submitted, including but not limited to, all attachments and other information, is to the best of my knowledge and belief, true, accurate and complete.

***Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))***

☐ Owner☐ Operator☒ Owner's Duly Authorized Representative☐ Operator's Duly Authorized Representative

Jeremy J. Reynolds, P.G.

Printed Name

Signature

6/28/16

Date



Jeremy J. Reynolds  
915 Harger Rd.  
Suite 330  
Oak Brook, IL 60523

September 12, 2016

RE: Dump Approval

Mr. Reynolds,

This is a letter of approval for disposal of the uncontaminated soil for the Longmeadow Parkway Project (Section B2) located 4,510 feet west of Karen Dr. to 2,160 feet east of Karen Drive (Sta. 2143+77.78 to Sta. 2188+00)

Please use **approval number 416-16** when material is disposed at our facility located at 800 Bolz Rd. Carpentersville, IL or at 1350 S. Virginia Rd. Crystal Lake, IL and coordinate with the scale house the day before by calling 847-658-4342 x 1.

Regards,

A handwritten signature in black ink, appearing to read "Tom Kelecus", is written over a large, light-colored oval shape.

Tom Kelecus  
Consolidated Materials



**BLUFF CITY MATERIALS, INC**

---

**2252 SOUTHWIND BLVD  
BARTLETT, IL 60103**

25 July 2016

Jeremy J. Reynolds, P.G.  
Senior Geologist  
Huff & Huff, Inc.  
A subsidiary of GZA GeoEnvironmental, Inc.  
915 Harger Road, Suite 330  
Oak Brook, IL 60523  
Office: 630-684-9100  
Fax: 630-684-9120  
Cell: 224-423-3489

Re: Letter of Acceptance  
Longmeadow Parkway (Sections B-2 & D)

Dear Mr. Reynolds:

Bluff City Materials has reviewed the Huff & Huff LPC-662s and supporting documents for the project named Longmeadow Parkway (Sections B-2 & D) located in Algonquin, IL. Based on the project information provided in your LPC-662 certifications, Bluff City Materials agrees to accept the following material at our facilities located in Elgin and Lake in the Hills IL. The material from the following sections are approved-

- Section B-2—1,020 feet west of Karen Drive to approximately 2,160 feet east of Karen Drive (With the exception of soils deeper than 10.5 ft. below grade found from Stations 2164+15.00 to 2188+00.00).
- Section D—2,400 feet west of Route 62 to Route 62.

Bluff City Materials is permitted by the IEPA to accept this material and our IEPA Permit number is CCDD2007-028-DE/OP. Our facility complies with all local zoning codes and all applicable local, state and federal rules and regulations.

If you have any questions, please contact me at 630.497.8700 x 289

Sincerely,

Andy Paxson  
Bluff City Materials  
Environmental Assessments



**Beverly Materials, L.L.C.**

1100 Brandt Drive  
Hoffman Estates, Illinois 60192  
847-695-9300  
Fax 847-695-7251

August 4, 2016

Jeremy Reynolds, P.G.  
Huff & Huff, Inc  
915 Harger Rd, Suite 330  
Oak Brook, IL 60523

RE: Approval for Incoming Material from Longmeadow Parkway—Section B-2—LPC 663

Dear Jeremy,

Beverly Materials LLC received the completed LPC-663 form for Section B-2 of the Longmeadow Parkway Corridor it is 4,5100 feet in length, extending from approximately 1,020 feet west of Karen Drive to approximately 2,160 feet east of Karen Drive (Station 2143+77.78 to Station 2188+00.00).

At this time, we approve the LPC-663 for Section B-2 for Incoming Material for final disposition at Beverly Materials LLC. We accept the material coming off of this project with the following conditions:

1. All material from the project will be in compliance with the rules set forth by the CCDD LPC-662 Form Narrative compiled by Huff & Huff Incorporated on June 3, 2016.
2. Prior to material acceptance all corresponding paperwork required by Beverly Materials LLC is properly and completely filled out—please contact me for this paperwork.
3. Prior to material acceptance contractor must submit documentation for account approval with Beverly Materials LLC.
4. Be advised that we will test each incoming load visually and with a PID to ensure compliance with Illinois EPA regulations.

Sincerely,

Karen A Crom  
Environmental Coordinator  
Beverly Materials LLC  
Office 847-628-6130  
[kcrom@plote.com](mailto:kcrom@plote.com)





## DEPARTMENT OF THE ARMY

### PERMIT

**PERMITTEE:** Carl Schoedel, Kane County Division of Transportation

**APPLICATION:** LRC-2013-839

**ISSUING OFFICE:** U.S. Army Corps of Engineers, Chicago District

**DATE:**

You are hereby authorized to perform work in accordance with the terms and conditions specified below.

Note: The term "you" and its derivatives, as used in this authorization, means the permittee or any future transferee. The term "this office" refers to the U.S. Army Corps of Engineers, Chicago District.

**PROJECT DESCRIPTION:** Proposed Longmeadow Parkway corridor, including 5.6 miles of roadway and a new bridge over the Fox River, as described in your notification and as shown on the five sets of plans titled:

Section A-1: "State of Illinois, Department of Transportation, Division of Highways, Volume 1, Plans for Proposed Federal-Aid Highway, F.A.U. 2298 (Longmeadow Parkway), Section 13-00215-00-PV, Project RS-CMM-4003(396), Huntley Road to Randall Road, New Construction, Kane County, C-91-063-15", dated August 10, 2015, prepared by Hampton, Lenzini and Renwick, Inc., and Thomas Engineering Group.

Sections A2-B1: "State of Illinois, Department of Transportation, Plans for Proposed Federal-Aid Highway, FAU 2298 Longmeadow Parkway to Karen Drive, FAP 336 (Randall Road), Section 13-00215-10-PV, Project RS-M-4003(397), Roadway Widening and Reconstruction, Kane County, C-91-064-15", dated October 28, 2016, prepared by Bollinger, Lach & Associates, Inc.

Section B2: "State of Illinois, Department of Transportation, Plans for Proposed Federal-Aid Highway, FAP 361 (Longmeadow Parkway) & FAP 336 (Randall Road), Section 13-00215-10-PV, Roadway Widening and Reconstruction, Kane County, C-91-393-94", dated October 9, 2015, prepared by Bollinger, Lach & Associates, Inc.

Section C: "State of Illinois, Department of Transportation, Division of Highways, Volume 1, Plans for Proposed Federal-Aid Highway, FAP 361 (Longmeadow Parkway),

Section 13-00215-20-BR, Project Number M-0019(008), Roadway Corridor Construction, Kane County, C-91-513-08", dated March 5, 2015, prepared by Crawford, Murphy & Tilly.

Section D: "State of Illinois, Department of Transportation, Division of Highways, Plans for Proposed Federal-Aid Highway, FAU 2298 (Longmeadow Parkway), Section 13-00215-30-PV, IL Route 25 to IL Route 62, Roadway Corridor Construction, Kane County, C-91-066-15", dated April 22, 2016, prepared by Burns McDonnell.

To offset project impacts to jurisdictional wetlands, approximately 12.052 acres of certified credits has been purchased from both Blackberry Creek Headwaters Mitigation Bank (9.45 credits) and Slough Creek Mitigation Bank (2.602 credits), as indicated in the correspondence from V3 (Blackberry Creek, dated September 7, 2016) and Ecologic Planning (Slough Creek, dated August 22, 2016).

**PROJECT LOCATION:** Longmeadow Parkway, From Approximately Huntley Road to Route 62, Located in Algonquin, Barrington Hills, Carpentersville, and unincorporated Kane County, IL, (Sections 1 and 12, T42N, R7E and Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 T42N, R8E, 3<sup>rd</sup> PM)

**GENERAL CONDITIONS:**

1. The time limit for completing the authorized work ends on December 1, 2023. If you find that you need more time to complete the authorized activity(s), submit your request for a time extension to this office for consideration at least 60 days before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archaeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. You shall comply with the water quality certification issued under Section 401 of the

Clean Water Act by the Illinois Environmental Protection Agency for the project. Conditions of the certification are conditions of this authorization. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being accomplished in accordance with the terms and conditions of your permit.

The following special conditions are a requirement of your authorization:

1. This authorization is based on the materials submitted as part of application number LRC-2013-839. Failure to comply with the terms and conditions of this authorization may result in suspension and revocation of your authorization.

2. You shall undertake and complete the project as described in the plans titled:

Section A-1: "State of Illinois, Department of Transportation, Division of Highways, Volume 1, Plans for Proposed Federal-Aid Highway, F.A.U. 2298 (Longmeadow Parkway), Section 13-00215-00-PV, Project RS-CMM-4003(396), Huntley Road to Randall Road, New Construction, Kane County, C-91-063-15", dated August 10, 2015, prepared by Hampton, Lenzini and Renwick, Inc., and Thomas Engineering Group.

Sections A2-B1: "State of Illinois, Department of Transportation, Plans for Proposed Federal-Aid Highway, FAU 2298 Longmeadow Parkway to Karen Drive, FAP 336 (Randall Road), Section 13-00215-10-PV, Project RS-M-4003(397), Roadway Widening and Reconstruction, Kane County, C-91-064-15", dated October 28, 2016, prepared by Bollinger, Lach & Associates, Inc.

Section B2: "State of Illinois, Department of Transportation, Plans for Proposed Federal-Aid Highway, FAP 361 (Longmeadow Parkway) & FAP 336 (Randall Road), Section 13-00215-10-PV, Roadway Widening and Reconstruction, Kane County, C-91-393-94", dated October 9, 2015, prepared by Bollinger, Lach & Associates, Inc.

Section C: "State of Illinois, Department of Transportation, Division of Highways, Volume 1, Plans for Proposed Federal-Aid Highway, FAP 361 (Longmeadow Parkway), Section 13-00215-20-BR, Project Number M-0019(008), Roadway Corridor Construction, Kane County, C-91-513-08", dated March 5, 2015, prepared by Crawford, Murphy & Tilly.

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3. This site is within the aboriginal homelands of several American Indian Tribes. If any human remains, Native American cultural items or archaeological evidence are

discovered during any phase of this project, interested Tribes request immediate consultation with the entity of jurisdiction for the location of discovery. In such case, please contact Ms. Kimberly Kubiak of my staff by telephone at 312-846-5541, or email at kimberly.j.kubiak@usace.army.mil.

4. To avoid potential impacts to the northern long-eared bat (*Myotis septentrionalis*), tree clearing (trees 3" DBH or greater) shall only occur between October 1 and March 31 of any construction year.
5. To avoid any potential impacts to smallmouth bass (*Micropterus dolomieu*) and other fishes, no in-stream work shall occur between April 1 and June 30. Once the causeway is in place, all work in the Fox River shall be contained within the causeway.
6. To mitigate for the removal of approximately 5,765 trees, you shall replace the trees at a 2:1 ratio for a total of 11,530 trees, in accordance with the memo dated March 3, 2016, prepared by Hampton, Lenzini, and Renwick, Inc.
  - a. Trees are to be planted within the road right-of-way and on other nearby public land;
  - b. Any tree plantings on Forest Preserve land shall be coordinated with and approved by the Forest Preserve District of Kane County;
  - c. The final tree mitigation plan must be reviewed and approved by the U.S. Fish and Wildlife Service;
  - d. Planted trees that do not survive shall be replaced according to contract requirements and any agreements with both the Forest Preserve District of Kane County and the U.S. Fish and Wildlife Service.
7. You shall educate construction crews and all on-site personnel about Blanding's turtles (*Emydoidea blandingii*), and discuss the site management plan for responding to turtle encounters. If a turtle is encountered on site, crews must immediately stop construction in the surrounding area and contact appropriate staff at the Illinois Department of Natural Resources.
8. At Sleepy Hollow Road and Highmeadow Lane, work will be limited to late October to late March, when Blanding's turtles are hibernating, to prevent injuring turtles. If work is necessary outside of this window, exclusionary fencing will be installed along the construction limits to prevent turtles from entering the area. Daily inspections will occur daily for the first two weeks and be maintained weekly throughout the construction period, to confirm that fencing is properly installed and to check for the presence of any turtles. Trenches shall be covered at the end of each work day. At the beginning of each day, trenches and excavations shall be inspected to ensure no turtles or other herpetofauna have become trapped within.
9. Prior to the installation of any causeway, the stream substrate shall be inspected for the presence of any mussel species. These animals shall be collected and relocated to a suitable nearby location in accordance with any guidance from the Illinois Department of



Natural Resources (IDNR). If any state threatened or endangered species are encountered, stop work and contact the IDNR.

10. After project construction any disturbed Fox River substrate will be restored to pre-construction conditions.
11. This authorization is contingent upon implementing and maintaining soil erosion and sediment controls in a serviceable condition throughout the duration of the project. You shall comply with the Kane/DuPage Soil and Water Conservation District's (SWCD) written and verbal recommendations regarding the soil erosion and sediment control (SESC) plan and the installation and maintenance requirements of the SESC practices on-site.
  - a. You shall schedule a preconstruction meeting with the SWCD to discuss the SESC plan and the installation and maintenance requirements of the SESC practices on the site.
  - b. You shall notify the SWCD of any changes or modifications to the approved plan set. Field conditions during project construction may require the implementation of additional SESC measures. If you fail to implement corrective measures, this office may require more frequent site inspections to ensure the installed SESC measures are acceptable.
  - c. Prior to commencement of any in-stream work, you shall submit construction plans and a detailed narrative to the SWCD that disclose the contractor's preferred method of cofferdam and dewatering method. Work in the waterway shall NOT commence until the SWCD notifies you, in writing, that the plans have been approved.
12. Ditches near Route 31 shall be lined with clay to reduce the amount of chlorides reaching nearby shallow groundwater and sensitive wetland areas. You shall notify the SWCD prior to backfilling these ditches to field-confirm the presence of cut-off walls within the trench.
13. You shall fully implement the practices identified in the Best Management Practices (BMP) Three-Year Maintenance and Monitoring (M&M) Plan titled, "Best Management Practices (BMP), Management and Monitoring Plan, USACE # LRC-2013-839, Longmeadow Parkway, Algonquin, Barrington Hills, Carpentersville, & Unincorporated Kane County, Illinois" dated December 2016, prepared by Kane County Division of Transportation and Huff & Huff, Inc., within the first year of project construction. All BMP's shall meet performance criteria in accordance with the approved document. Your responsibility to complete the plan will not be considered fulfilled until you have demonstrated BMP success and have received written verification of that success from the U.S. Army Corps of Engineers.
14. You shall provide written notification to this office and to the SWCD at least ten (10) days prior to the commencement of work indicating the start date and estimated end date of construction.

15. You are responsible for all work authorized herein and for ensuring that all contractors are aware of the terms and conditions of this authorization.
16. A copy of this authorization must be present at the project site during all phases of construction.
17. You shall notify this office of any proposed modifications to the project, including revisions to any of the plans or documents cited in this authorization. You must receive approval from this office before work affected by the proposed modification is performed.
18. You shall notify this office prior to the transfer of this authorization and liabilities associated with compliance with its terms and conditions. The transferee must sign the authorization in the space provided and forward a copy of the authorization to this office.
19. The permittee understands and agrees that, if future operations by the United States require removal, relocation, or other alteration of the structure or work authorized herein, or if, in the opinion of the Secretary of the Army or his authorized representative said structure or work shall cause unreasonable obstruction to the free navigation of the navigable water, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
20. Work in the waterway should be timed to take place during low or no-flow conditions. Low flow conditions are flow at or below the normal water elevation.
21. The plan will be designed to allow for the conveyance of the 2-year peak flow past the work area without overtopping the causeway. The Corps has the discretion to reduce this requirement if documented by the applicant to be infeasible or unnecessary.
22. Water shall be isolated from the in-stream work area using a causeway constructed of non-erodible materials (steel sheets, aqua barriers, rip rap and geotextile liner, etc.). Earthen cofferdams or causeways are not permissible.
23. The causeway must be constructed from the upland area and no equipment may enter flowing water at any time. If the installation of the causeway cannot be completed from shore and access is needed to reach the area of the causeway, other measures, such as the construction of a causeway, will be necessary to ensure that equipment does not enter the water.
24. If bypass pumping is necessary, the intake hose shall be placed on a stable surface or floated to prevent sediment from entering the hose. The bypass discharge shall be placed on a non-erodible, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion. Filtering of bypass water is not necessary unless the bypass water has

become sediment-laden as a result of the current construction activities.

25. During dewatering of the coffered work area, all sediment-laden water must be filtered to remove sediment. Possible options for sediment removal include baffle systems, anionic polymers systems, dewatering bags, or other appropriate methods. Water shall have sediment removed prior to being re-introduced to the downstream waterway. A stabilized conveyance from the dewatering device to the waterway must be identified in the plan. Discharge water is considered clean if it does not result in a visually identifiable degradation of water clarity.
26. The portion of the side slope that is above the observed water elevation shall be stabilized as specified in the plans prior to accepting flows. The substrate and toe of slope that has been disturbed due to construction activities shall be restored to proposed or pre-construction conditions and fully stabilized prior to accepting flows.

**Further Information:**

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this Authorization.

a. This permit does not obviate the need to obtain other federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. The Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities

undertaken by or on the behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modifications, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in the reliance on the information you provided.

5. Reevaluation of Permit Decision. The office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

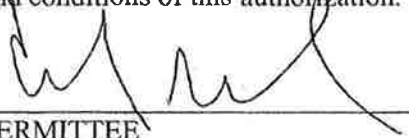
b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 established a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this authorization.


  
\_\_\_\_\_  
PERMITTEE  
Carl Schoedel  
Kane County Division of Transportation

2.6.2017  
\_\_\_\_\_  
DATE

LRC-2013-839

\_\_\_\_\_  
Corps Authorization Number

This authorization becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

  
\_\_\_\_\_  
For and on behalf of  
Christopher T. Drew  
Colonel, U.S. Army  
District Commander

2-7-2017  
\_\_\_\_\_  
DATE

If the structures or work authorized by this authorization are still in existence at the time the property is transferred, the terms and conditions of this authorization will continue to be binding on the new owner(s) of the property. To validate the transfer of this authorization and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below. The document shall be attached to a copy of the permit and submitted to the Corps.

\_\_\_\_\_  
TRANSFEEEE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
TELEPHONE



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397  
BRUCE RAUNER, GOVERNOR ALEC MESSINA, ACTING DIRECTOR

217/782-3362

**JAN 18 2017**

U.S. Army Corps of Engineers, Chicago District  
Regulatory Branch  
231 South LaSalle Street, Suite 1500  
Chicago, IL 60604

Re: Kane County Division of Transportation (Kane County)  
Longmeadow Parkway – Fox River, Tributaries to the Fox River and Unnamed Wetlands  
Log # C-0396-14 [CoE appl. # 2013-00839]

Gentlemen:

This Agency received a request on September 15, 2014 from the Kane County Division of Transportation requesting necessary comments concerning the Longmeadow Parkway impacting the Fox River, tributaries to the Fox River and unnamed wetlands. We offer the following comments.

Based on the information included in this submittal, it is our engineering judgment that the proposed project may be completed without causing water pollution as defined in the Illinois Environmental Protection Act, provided the project is carefully planned and supervised.

These comments are directed at the effect on water quality of the construction procedures involved in the above described project and are not an approval of any discharge resulting from the completed facility, nor an approval of the design of the facility. These comments do not supplant any permit responsibilities of the applicant toward the Agency.

This Agency hereby issues certification under Section 401 of the Clean Water Act (PL 95-217), subject to the applicant's compliance with the following conditions:

1. The applicant shall not cause:
  - a. violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulations;
  - b. water pollution defined and prohibited by the Illinois Environmental Protection Act; or
  - c. interference with water use practices near public recreation areas or water supply intakes.
2. The applicant shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.
3. Any spoil material excavated, dredged or otherwise produced must not be returned to the waterway but must be deposited in a self-contained area in compliance with all state statutes, regulations and permit requirements with no discharge to waters of the State unless a permit has been issued by this Agency. Any backfilling must be done with clean material and placed in a manner to prevent violation of applicable water quality standards. Contaminated soils shall not be placed in waterways.

4302 N. Main St., Rockford, IL 61103 (815)987-7760  
595 S. State, Bpin, IL 60123 (847)608-3131  
2125 S. First St., Champaign, IL 61820 (217)278-5800  
2009 Mall St., Collinsville, IL 62234 (618)346-5120

9511 Harrison St., Des Plaines, IL 60016 (847)294-4000  
412 SW Washington St., Suite D, Peoria, IL 61602 (309)671-3022  
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200  
100 W. Randolph, Suite 10-300, Chicago, IL 60601

4. All areas affected by construction shall be mulched and seeded as soon after construction as possible. The applicant shall undertake necessary measures and procedures to reduce erosion during construction. Interim measures to prevent erosion during construction shall be taken and may include the installation of staked straw bales, sedimentation basins and temporary mulching. All construction within the waterway shall be constructed during zero or low flow conditions. The applicant shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activity associated with the project will result in the disturbance of 1 (one) or more acres, total land area. An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control, Permit Section.
5. The applicant shall implement erosion control measures consistent with the "Illinois Urban Manual" (IEPA/USDA, NRCS; 2016).
6. The proposed work shall be constructed with adequate erosion control measures (i.e., silt fences, straw bales, etc.) to prevent transport of sediment and materials to the adjoining wetlands and downstream.
7. Asphalt, bituminous material and concrete with protruding material such as reinforcing bar or mesh shall not be 1) used for backfill, 2) placed on shorelines/streambanks, or 3) placed in waters of the State.
8. The mitigation plan received by the Agency on January 4, 2017 in an email entitled "Longmeadow Parkway - Wetland Mitigation Questions" shall be implemented. Modifications to the mitigation plan must be submitted to the Agency for approval. The permittee shall submit annual reports by July 1 of each calendar year on the status of the mitigation. The first annual report shall include a hydric soils determination that represents the soils at the completion of initial construction for the wetland mitigation site(s). The permittee shall monitor the mitigation for 5 years after the completion of initial construction. A final report shall be submitted within 90 days after completion of a 5-year monitoring period. Each annual report and the final report shall include the following: IEPA Log No., date of completion of initial construction, representative photographs, floristic quality index, updated topographic maps, description of work in the past year, the performance standards for the mitigation as stated in the mitigation plan, and the activities remaining to complete the mitigation plan. For wetland mitigation sites containing non-hydric soils at the time of initial construction, the final report shall include a hydric soils determination that represents the soils at the end of the 5-year monitoring period. For mitigation provided by purchase of mitigation banking credits, in lieu of the above monitoring and reporting, the permittee shall submit written proof from the mitigation bank that the mitigation credits have been purchased within thirty (30) days of said purchase. The subject reports and proof of purchase of mitigation credits shall be submitted to:

Illinois Environmental Protection Agency  
Bureau of Water  
Permit Section  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

This certification becomes effective when the Department of the Army, Corps of Engineers, includes the above conditions # 1 through # 8 as conditions of the requested permit issued pursuant to Section 404 of PL 95-217.

This certification does not grant immunity from any enforcement action found necessary by this Agency to meet its responsibilities in prevention, abatement, and control of water pollution.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Keller", with a stylized, flowing script.

Alan Keller, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

SAK:TJF:0396-14docx

cc: IEPA, Records Unit  
IEPA, DWPC, FOS, Des Plaines  
IDNR, OWR, Bartlett  
USEPA, Region 5  
Mr. Carl Schoedel, Kane County Division of Transportation, 41W011 Burlington Road, St. Charles, IL 60175  
Ms. Nikki Pisula, Huff & Huff, Inc., 915 Harger Road, Suite 330, Oak Brook, IL 60523  
Ms. Kelly Farley, Crawford Murphy and Tilly, 550 North Commons Drive, Suite 116, Aurora, IL 60504  
Ms. Amy McSwane, Hampton, Lenzini and Renwick, 380 Shepard Drive, Elgin, IL 60123