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Letting July 31, 2020

Notice to Bidders, Specifications and Proposal



**Contract No. 61F92
COOK County
Section 16-00278-00-BR (Evanston)
Route FAU 1301 (Central Street)
Project TNM6-849 ()
District 1 Construction Funds**

Prepared by

Checked by

F

(Printed by authority of the State of Illinois)



- 1. TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. July 31, 2020 at which time the bids will be publicly opened from the iCX SecureVault.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 61F92
COOK County
Section 16-00278-00-BR (Evanston)
Project TNM6-849 ()
Route FAU 1301 (Central Street)
District 1 Construction Funds**

Replace the bridge carrying Central Street over the North Shore Channel in Evanston.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to re-advertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Omer Osman,
Acting Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2020

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 1-1-20)

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BDE SPECIAL PROVISIONS

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

<u>File Name</u>	<u>Pg.</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80099		Accessible Pedestrian Signals (APS)	April 1, 2003	April 1, 2020
80274		Aggregate Subgrade Improvement	April 1, 2012	April 1, 2016
80192		Automated Flagger Assistance Device	Jan. 1, 2008	
80173		Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2017
80246	214	X Bituminous Surface Treatment with Fog Seal	Jan. 1, 2020	
80241		Bridge Demolition Debris	July 1, 2009	
50261		Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50481		Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50491		Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50531		Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
80425		Cape Seal	Jan. 1, 2020	
80384	216	X Compensable Delay Costs	June 2, 2017	April 1, 2019
80198		Completion Date (via calendar days)	April 1, 2008	
80199		Completion Date (via calendar days) Plus Working Days	April 1, 2008	
80293		Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	July 1, 2016
80311		Concrete End Sections for Pipe Culverts	Jan. 1, 2013	April 1, 2016
80277		Concrete Mix Design – Department Provided	Jan. 1, 2012	April 1, 2016
80261	220	X Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
80387		Contrast Preformed Plastic Pavement Marking	Nov. 1, 2017	
80029	223	X Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Mar. 2, 2019
80402	233	X Disposal Fees	Nov. 1, 2018	
80378		Dowel Bar Inserter	Jan. 1, 2017	Jan. 1, 2018
80405		Elastomeric Bearings	Jan. 1, 2019	
80421		Electric Service Installation	Jan. 1, 2020	
80415	235	X Emulsified Asphalts	Aug. 1, 2019	
80423	238	X Engineer's Field Office Laboratory	Jan. 1, 2020	
80388	241	X Equipment Parking and Storage	Nov. 1, 2017	
80229	242	X Fuel Cost Adjustment	April 1, 2009	Aug. 1, 2017
80417	245	X Geotechnical Fabric for Pipe Underdrains and French Drains	Nov. 1, 2019	
80420		Geotextile Retaining Walls	Nov. 1, 2019	
80304		Grooving for Recessed Pavement Markings	Nov. 1, 2012	Nov. 1, 2017
80422		High Tension Cable Median Barrier Reflectors	Jan. 1, 2020	
80416		Hot-Mix Asphalt – Binder and Surface Course	July 2, 2019	Nov. 1, 2019
80398		Hot-Mix Asphalt – Longitudinal Joint Sealant	Aug. 1, 2018	Nov. 1, 2019
80406		Hot-Mix Asphalt – Mixture Design Verification and Production (Modified for I-FIT Data Collection)	Jan. 1, 2019	Jan. 2, 2020
80347		Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Jobsite Sampling	Nov. 1, 2014	July 2, 2019
80383		Hot-Mix Asphalt – Quality Control for Performance	April 1, 2017	July 2, 2019
80411	247	X Luminaires, LED	April 1, 2019	
80393	256	X Manholes, Valve Vaults, and Flat Slab Tops	Jan. 1, 2018	Mar. 1, 2019
80045		Material Transfer Device	June 15, 1999	Aug. 1, 2014
80418		Mechanically Stabilized Earth Retaining Walls	Nov. 1, 2019	
80424		Micro-Surfacing and Slurry Sealing	Jan. 1, 2020	
80428	258	X Mobilization	April 1, 2020	
80165		Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
80412		Obstruction Warning Luminaires, LED	Aug. 1, 2019	
80349		Pavement Marking Blackout Tape	Nov. 1, 2014	April 1, 2016
80371	259	X Pavement Marking Removal	July 1, 2016	
80389	260	X Portland Cement Concrete	Nov. 1, 2017	

<u>File Name</u>	<u>Pg.</u>		<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
* 80430	261	X	Portland Cement Concrete – Haul Time	July 1, 2020	
80359	262	X	Portland Cement Concrete Bridge Deck Curing	April 1, 2015	Nov. 1, 2019
* 80431	264	X	Portland Cement Concrete Pavement Patching	July 1, 2020	
* 80432	265	X	Portland Cement Concrete Pavement Placement	July 1, 2020	
80300			Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	April 1, 2016
34261			Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157			Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306			Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	Jan. 2, 2020
80407	266	X	Removal and Disposal of Regulated Substances	Jan. 1, 2019	Jan. 1, 2020
80419	277	X	Silt Fence, Inlet Filters, Ground Stabilization and Riprap Filter Fabric	Nov. 1, 2019	April 1, 2020
80395			Sloped Metal End Section for Pipe Culverts	Jan. 1, 2018	
80340			Speed Display Trailer	April 2, 2014	Jan. 1, 2017
80127	283	X	Steel Cost Adjustment	April 2, 2014	Aug. 1, 2017
80408	286	X	Steel Plate Beam Guardrail Manufacturing	Jan. 1, 2019	
80413			Structural Timber	Aug. 1, 2019	
80397	287	X	Subcontractor and DBE Payment Reporting	April 2, 2018	
80391	288	X	Subcontractor Mobilization Payments	Nov. 2, 2017	April 1, 2019
80317			Surface Testing of Hot-Mix Asphalt Overlays	Jan. 1, 2013	Aug. 1, 2019
80298	289	X	Temporary Pavement Marking	April 1, 2012	April 1, 2017
80403			Traffic Barrier Terminal, Type 1 Special	Nov. 1, 2018	
80409	292	X	Traffic Control Devices – Cones	Jan. 1, 2019	
80410			Traffic Spotters	Jan. 1, 2019	
20338	293	X	Training Special Provisions	Oct. 15, 1975	
80318			Traversable Pipe Grate for Concrete End Sections	Jan. 1, 2013	Jan. 1, 2018
80429			Ultra-Thin Bonded Wearing Course	April 1, 2020	
80288	296	X	Warm Mix Asphalt	Jan. 1, 2012	April 1, 2016
80302	298	X	Weekly DBE Trucking Reports	June 2, 2012	April 2, 2015
80414			Wood Fence Sight Screen	Aug. 1, 2019	April 1, 2020
80427	299	X	Work Zone Traffic Control Devices	Mar. 2, 2020	
80071			Working Days	Jan. 1, 2002	

The following special provisions are in the 2020 Supplemental Specifications and Recurring Special Provisions.

<u>File Name</u>	<u>Special Provision Title</u>	<u>New Location(s)</u>	<u>Effective</u>	<u>Revised</u>
80404	Coarse Aggregate Quality for Micro-Surfacing and Cape Seals	Article 1004.01(b)	Jan. 1, 2019	
80392	Lights on Barricades	Articles 701.16, 701.17(c)(2) & 603.07	Jan. 1, 2018	
80336	Longitudinal Joint and Crack Patching	Check Sheet #36	April 1, 2014	April 1, 2016
80400	Mast Arm Assembly and Pole	Article 1077.03(b)	Aug. 1, 2018	
80394	Metal Flared End Section for Pipe Culverts	Articles 542.07(c) and 542.11	Jan. 1, 2018	April 1, 2018
80390	Payments to Subcontractors	Article 109.11	Nov. 2, 2017	

The following special provisions have been deleted from use.

<u>File Name</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80328	Progress Payments	Nov. 2, 2013	

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET

Effective as of the: November 8, 2019 Letting

Pg #	√	File Name	Title	Effective	Revised
		GBSP 4	Polymer Modified Portland Cement Mortar	June 7, 1994	Apr 1, 2016
		GBSP 12	Drainage System	June 10, 1994	Jun 24, 2015
		GBSP 13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Apr 1, 2016
		GBSP 14	Jack and Remove Existing Bearings	April 20, 1994	April 13, 2018
		GBSP 15	Three Sided Precast Concrete Structure	July 12, 1994	Dec 21, 2016
		GBSP 16	Jacking Existing Superstructure	Jan 11, 1993	April 13, 2018
		GBSP 17	Bonded Preformed Joint Seal	July 12, 1994	Aug 9, 2019
		GBSP 18	Modular Expansion Joint	May 19, 1994	Aug 9, 2019
		GBSP 21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	Aug 9, 2019
		GBSP 25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	Apr 22, 2016
		GBSP 26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	Apr 22, 2016
		GBSP 28	Deck Slab Repair	May 15, 1995	April 13, 2018
		GBSP 29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	March 1, 2019
		GBSP 30	Bridge Deck Latex Concrete Overlay	May 15, 1995	Oct 20, 2017
		GBSP 31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	March 1, 2019
		GBSP 33	Pedestrian Truss Superstructure	Jan 13, 1998	Dec 29, 2014
		GBSP 34	Concrete Wearing Surface	June 23, 1994	Oct 4, 2016
		GBSP 35	Silicone Bridge Joint Sealer	Aug 1, 1995	Oct 15, 2011
		GBSP 45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
301	X	GBSP 51	Pipe Underdrain for Structures	May 17, 2000	Jan 22, 2010
		GBSP 53	Structural Repair of Concrete	Mar 15, 2006	Aug 9, 2019
		GBSP 55	Erection of Curved Steel Structures	June 1, 2007	
		GBSP 56	Setting Piles in Rock	Nov 14, 1996	Apr 1, 2016
		GBSP 59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	Mar 29, 2017
		GBSP 60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Apr 22, 2016
		GBSP 61	Slipform Parapet	June 1, 2007	March 1, 2019
		GBSP 67	Structural Assessment Reports for Contractor's Means and Methods	Mar 6, 2009	Oct 5, 2015
		GBSP 71	Aggregate Column Ground Improvement	Jan 15, 2009	Oct 15, 2011
		GBSP 72	Bridge Deck Fly Ash or GGBF Slag Concrete Overlay	Jan 18, 2011	March 1, 2019
		GBSP 75	Bond Breaker for Prestressed Concrete Bulb-T Beams	April 19, 2012	
		GBSP 77	Weep Hole Drains for Abutments, Wingwalls, Retaining Walls And Culverts	April 19, 2012	Oct 22, 2013
302	X	GBSP 78	Bridge Deck Construction	Oct 22, 2013	Dec 21, 2016
		GBSP 79	Bridge Deck Grooving (Longitudinal)	Dec 29, 2014	Mar 29, 2017
		GBSP 81	Membrane Waterproofing for Buried Structures	Oct 4, 2016	March 1, 2019
		GBSP 82	Metallizing of Structural Steel	Oct 4, 2016	Oct 20, 2017
		GBSP 83	Hot Dip Galvanizing for Structural Steel	Oct 4, 2016	Oct 20, 2017
		GBSP 85	Micropiles	Apr 19, 1996	Aug 9, 2019
		GBSP 86	Drilled Shafts	Oct 5, 2015	Oct 4, 2016
		GBSP 87	Lightweight Cellular Concrete Fill	Nov 11, 2011	Apr 1, 2016
		GBSP 88	Corrugated Structural Plate Structures	Apr 22, 2016	April 13, 2018
304	X	GBSP 89	Preformed Pavement Joint Seal	Oct 4, 2016	March 1, 2019
		GBSP 90	Three Sided Precast Concrete Structure (Special)	Dec 21, 2016	April 13, 2018
		GBSP 91	Crosshole Sonic Logging Testing of Drilled Shafts	Apr 20, 2016	Aug 9, 2019
		GBSP 92	Thermal Integrity Profile Testing of Drilled Shafts	Apr 20, 2016	

Pg #	√	File Name	Title	Effective	Revised
		GBSP 93	Preformed Bridge Joint Seal	Dec 21, 2016	March 1, 2019
		GBSP 94	Warranty for Cleaning and Painting Steel Structures	Mar 3, 2000	Nov 24, 2004
		GBSP 95	Bituminous Coated Aggregate Slopewall	Mar 21, 1997	Mar 19, 2018
		GBSP 96	Erection of Bridge Girders Over or Adjacent to Railroads	Aug 9, 2019	

LIST ANY 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
GBSP95	Bridge Deck Concrete Sealer	Use July 1, 2012 version for Repair projects only

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted April 1, 2016, (herein after called "the Standard Specifications"), the latest edition of the "Watershed Management Ordinance" of the Metropolitan Water Reclamation District of Greater Chicago, the latest edition of the Standard Specifications for Water and Sewer Construction in Illinois, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of Central Street and the replacement of the bridge spanning the North Shore Channel in the City of Evanston, Cook County; Section#: 16-00278-00-BR; Project TNM6(849) ; Job No. C-91-301-16; and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

Contract Number: 61F92

LOCATION OF PROJECT

The project begins approximately 50' west of the intersection of Bryant Avenue and Central Street and extends east through the City of Evanston in Cook County over the North Shore Channel. The gross and net length of the project is 600 feet (0.11 miles).

DESCRIPTION OF PROJECT

This is a bridge replacement project with roadway resurfacing east and west of the bridge. The work to be performed under this contract consists of bridge demolition and replacement, earth excavation, construction of storm sewer, storm sewer lining, curb and gutter, sidewalk, HMA surface and binder courses, PCC base courses, thermoplastic and epoxy pavement markings, landscaping, temporary traffic signals, replacement of roadway lighting, roadway signing, golf course restoration and landscaping, and all incidental and collateral work necessary to complete the project as shown on the plans and as described herein.

DISPOSAL OF EXISTING EQUIPMENT AND SIGNS

All disposal of existing equipment and signs shall be coordinated with the City. The city shall inspect removed equipment and direct the contractor to deliver it to their specified location within the City limits or dispose of it. All official notices required to be delivered to the City of Evanston under the terms of this Contract shall be sent to the following representative of the City:

Sat Nagar, P.E.
Senior Project Manager, Capital Planning & Engineering
City of Evanston
2100 Ridge Avenue
Evanston, IL 60201
Phone: (847) 866-2967

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 7:00 a.m. and 4:00 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.

FAILURE TO COMPLETE WORK ON TIME

Effective: September 30, 1985 Revised: January 1, 2007

Should the Contractor fail to complete the work on or before the completion date as specified in the Special Provision for "Completion Date Plus Working Days", or within such extended time as may have been allowed by the Department, the Contractor shall be liable to the Department in the amount of \$2,300, not as a penalty but as liquidated damages, for each calendar day or a portion thereof of overrun in the contract time or such extended time as may have been allowed.

In fixing the damages as set out herein, the desire is to establish a certain mode of calculation for the work since the Department's actual loss, in the event of delay, cannot be predetermined, would be difficult of ascertainment, and a matter of argument and unprofitable litigation. This said

mode is an equitable rule for measurement of the Department's actual loss and fairly takes into account the loss of use of the roadway if the project is delayed in completion. The Department shall not be required to provide any actual loss in order to recover these liquidated damages provided herein, as said damages are very difficult to ascertain. Furthermore, no provision of this clause shall be construed as a penalty, as such is not the intention of the parties.

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

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

Revised: January 1, 2020

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 City of Evanston 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 City's contractor to then work in the stage under which the item has been listed.

Pre-Stage

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Southside of bridge	6-duct utility conduit	ComEd contractor to remove/relocate facilities from structure prior to Stage 1 demolition.	ComEd	(30 days for relocation)
Southside of bridge	Street Light	Contractor to remove existing street light prior to Stage 1 demolition.	City of Evanston	(3 days for removal)

Stage 1

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Northside of bridge	Street Light	Contractor to remove existing street light prior to Stage 2 demolition.	City of Evanston	(3 days for removal)
Northside of bridge	6-duct utility conduit	ComEd contractor to remove/relocate facilities from structure prior to Stage 2 demolition.	ComEd	(30 days for relocation)

Stage 2

No conflicts to be resolved.

Pre-Stage: 33 Days Total Installation

Stage 1: 33 Days Total Installation

Stage 2: 0 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 for resolution of the conflict.

Agency/Company Responsible to Resolve Conflict	Name of contact	Phone	E-mail address
AT&T Distribution	Janet Ahern	630-573-6414	Ja1763@att.com
ComEd	Terri Bleck	815-816-5239	Terri.bleck@ComEd.com
Comcast	Robert Schulter	224-229-5849	Bob_schulter@cable.comcast.com
Unite Private Network	George Forbes	478-832-0669	George.forbes@upnfiber.com
MCI (Verizon)	Dean Boyers	469-886-4238	Dean.boyers@verizon.com
MWRD	Joe Schuessler	312-751-3236	Joseph.schuessler@mwrdd.org
Nicor Gas	Bruce Koppang	630-388-2362	bkoppan@aglresources.com
Northwestern University	La Tanya Simms	847-467-6943	Latanya.simms@northwestern.edu
Northwest Water Commission	David Neybert	847-635-0777	dneybert@snorthwestwater.org

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 City'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.

Pre-Stage

No-facilities requiring extra consideration.

Stage 1

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
103+50 to 104+50 RT 107+30 to 108+80 RT	6-duct utility conduit	Electric conduit shall be protected from damage if conduit not relocated in this area.	ComEd
107+18 RT	Existing sewer structure	Structure shall be protected from damage.	MWRD
Northside of bridge	Existing Gas main	Nicor to verify if gas main is abandoned prior to Stage 2 demolition.	Nicor Gas

Stage 2

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
103+35 LT	Water Valve	Water Valve shall be protected from damage	City of Evanston
103+75 LT	Hydrant	Hydrant shall be protected from damage.	City of Evanston
103+85 LT	Watermain	Watermain shall be protected from damage.	City of Evanston
104+45 LT	Water Valve	Water Valve shall be protected from damage.	City of Evanston
107+35 LT	Hydrant	Hydrant shall be protected from damage.	City of Evanston

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
AT&T	Janet Ahern	1000 Commerce Drive Oak Brook, IL 60523	630-573-6414	Ja1763@att.com
ComEd	Terri Bleck	1500 Franklin Blvd. Libertyville, IL	815-816-5239	Terri.Bleck@ComEd.com
ComEd New Business	Larry Shank	1500 Franklin Blvd. Libertyville, IL	847-816-5465 Service #04918925	Larry.Shank@ComEd.com
Comcast	Robert Schulter	688 Industrial Drive Elmhurst, IL 60126	224-229-5849	Bob_schulter@cable.comcast.com
City of Evanston	Sat Nagar	2100 Ridge Ave. Evanston, IL 60201	847-866-2967	snagar@cityofevanston.org
Unite Private Network	George Forbes	7200 NW 86th Street, Ste. M Kansas City, MO 64153	478-832-0669	GEORGE.FORBES@upnfiber.com

MCI (Verizon)	Dean Boyers	400 International Pkwy Richardson, TX 75081	469-886-4238	dean.boyers@verizon.com
MWRD	Steve Whitehead	100 East Erie Street Chicago, IL 60611	708-588-4080	steve.whitehead@mwr.org
Nicor Gas	Bruce Koppang	1844 Ferry Rd. Naperville, IL 60563	630-388-2362	bkoppan@aglresources.com
Northwestern University	La Tanya Simms	2020 Ridge Ave. Suite 200 Evanston, IL 60208	847-467-6943	latanya.simms@northwestern.edu
Northwest Water Commission	David Neybert	1525 N. Wolf Road Des Plaines, IL 60016	847-635-0777	dneybert@northwestwater.org

The above represents the best information available to the City of Evanston 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.

INTERIM COMPLETION DATE PLUS GUARANTEED WORKING DAYS

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

"When interim completion dates plus working days are specified, the Contractor shall complete all contract items and safely open all roadways to traffic on or before the specified dates.

The allowable start dates, interim completion dates and completion dates are as follows:

- **ADVANCE WORK: OCTOBER 15, 2020 to NOVEMBER 15, 2020**
 - Relocate USGA Putting Green

- Coordinate with ComEd to temporarily relocate service facilities to the north bridge parapet.
- PRE-STAGE 1 WORK: **FEBRUARY 1, 2021 to FEBRUARY 29, 2021**
 - Stabilize fire station driveway with Permanent Sheet Piling
 - Install temporary traffic signal at Bryant Avenue
 - Prohibit parking on the southside of Central Street
- STAGE 1 START DATE: **MARCH 1, 2021**
 - Set-up Stage 1 traffic control and protection
 - Perform Stage 1 structure demolition
 - Install Temporary Support System
 - Install Stage 1 Piling
 - Install Perimeter Erosion Barrier, Special
- STAGE 1 INTERIM COMPLETION DATE: **APRIL 30, 2021**
 - To avoid impacts to the Banded Killifish and disturbance during the spawning season, all items listed above must be completed by April 30, 2021. No instream work will be allowed from May 1st through July 15th.
- STAGE 1 COMPLETION DATE: **SEPTEMBER 30, 2021**
 - Stage I bridge construction and all related items of work shall be completed by SEPTEMBER 30, 2021.
 - All traffic must be switched over to the Stage 2 traffic configuration no later than SEPTEMBER 30, 2021
 - Coordinate with ComEd to permanently relocate service facilities to the newly constructed south half of the bridge prior to Stage 2 structure demolition.
- PRE-STAGE 2 WORK: **OCTOBER 1, 2021 to NOVEMBER 15, 2021**
 - Complete structure demolition
- STAGE 2 START DATE: **MARCH 1, 2022**
 - Install Stage 2 Piling
 - Install Perimeter Erosion Barrier, Special
- STAGE 2 INTERIM COMPLETION DATE: **APRIL 30, 2022**
 - To avoid impacts to the Banded Killifish and disturbance during the spawning season, all items listed above must be completed by April 30, 2022. No instream work will be allowed from May 1st through July 15th.
- CONTRACT COMPLETION DATE: **AUGUST 31, 2022**

The Contractor will be allowed to complete all landscaping, clean-up work and punch list items within 20 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 landscaping, cleanup work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

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

No work will be allowed during Northwestern University commencement weekend. The work zone shall be refreshed and free of debris. No construction activities will be allowed during the commencement weekend.

- June 18th, 2021 (Date to be confirmed)
- June 17th, 2022 (Date to be confirmed)

PROSECUTION AND PROGRESS

In addition to the Liquidated Damages specified, the Contractor shall be liable and shall reimburse the Department for construction engineering costs incurred in the amount of \$1000 for each additional calendar day and/or \$1500 for each additional working day of overrun in the contract time or such extended time as may have been allowed.

PUBLIC CLAIMS

If the Contractor receives a claim for property damage allegedly caused by his/her performance of the Work under this Contract, the Contractor shall, within five (5) calendar days of receipt of such claims:

1. Acknowledge the claim to the property owner.
2. Send a copy of the said claim and acknowledgment to Engineer.
3. If the claim is not settled (or the Contractor does not agree to settle the claim) within five (5) calendar days, the Contractor shall:
4. Forward the claim to the Contractor's insurance carrier.

Require his/her insurance company to forward to Engineer an acknowledgment of receipt of the claim. The Contractor and insurance carrier shall either settle or deny claims within sixty (60) calendar days of initial receipt of the claims. The insurance carrier and Contractor shall notify the Engineer of claims settled and denied, including the terms of the settlement or reasons for denial. The Contractor shall advise property owners of the decision to deny their claims and shall include in the Notice of Denial the name and address of the person authorized to accept service of process on behalf of the Contractor.

When a claim is allowed in any amount, Contractor shall, within thirty (30) calendar days of the award, pay to the property owner the amount of the award. If the Contractor does not make these payments to the property owner within the thirty (30) calendar day period, the Owner shall be authorized to make these payments for the Contractor and then deduct the amounts paid from the next payment due the Contractor under this Contract.”

NPDES PERMIT

A Notice of Intent (NOI) will be required for this construction project. On behalf of the City of Evanston, the contractor shall file a Notice of Intent for General Permit to Discharge Storm Water Construction Site Activities under the National Pollutant Discharge Elimination System Phase II. This NOI shall cover all construction activities within the roadway right-of-way. A copy of the NOI shall be provided to the Engineer and will be maintained on file at the City of Evanston.

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

MWRD PERMIT FOR CONSTRUCTION STAGING

A permit for construction and staging for this project will require the Contractor (Permittee) to contact Mr. Roscoe Hardeman, Engineering Technician V, at 847-568-8227 prior to the start of construction. Mr. Roscoe will identify any MWRD infrastructure in the area to avoid or protect. Evanston, or its contractors shall not impede any MWRD personnel's 24/7 access to the District's infrastructure. An annual fee of \$5,000.00 will be required for the permit and it will be necessary to take this permit for 5 consecutive years.

The cost of the permit fee and any administrative costs incurred shall be included in the cost of the contract. The Contractor shall provide the Engineer with receipt or other proof of payment.

The Contractor will be required to provide a Certificate of Insurance as required by Article 5.02 of the General Permit. Prior to accessing the permit premises for construction staging, the contractor shall pay the initial annual permit fee of \$5,000.00. The contractor will make four (4) additional annual payments of \$5,000.00 over the life of the permit.

PUBLIC AND UTILITY COORDINATION

The local police, fire departments and all utilities shall be notified by the contractor prior to the start of construction.

MUNICIPAL CONTACTS

Evanston Fire Department

Brian Scott
Fire Chief
(847) 866-5924

Evanston Police Department

Demitrious Cook
Police Chief
(847) 866-5000

Evanston Public Works Agency

Sat Nagar, P.E.
Senior Project Manager, Capital Planning & Engineering
Phone: (847) 866-2967

CLEARING, TREE REMOVAL AND PROTECTION, CARE AND REPAIR OF EXISTING PLANT MATERIALS

Add the following paragraphs to Article 201.01:

“Trees and shrubs which may be removed for performance of the Work are so designated on the Drawings. It is not anticipated that any other trees or shrubs will need to be removed for performance of the Work. Should the Contractor desire to remove trees or shrubs, the Contractor shall notify the Owner for approval prior to removing any trees or shrubs. Owner will not grant permission for removal of trees or shrubs, unless the Contractor can demonstrate that there is no other practicable way to complete the Work, including auguring or hand-excavation.

The Owner recognizes that some tree branches will need to be pruned to provide clearance for construction equipment. However, the Contractor shall secure the express permission of the Engineer to trim specific overhanging branches of trees. The maximum permitted height of trimming shall be 14 feet. All tree trimming, pruning, and repair of wound surfaces shall be performed by a licensed arborist approved by the Engineer as coordinated with the Owner. The Owner will provide appropriate staff to observe tree trimming operations. The Contractor shall provide at least 72-hour notice to the Engineer of trimming operations. No trimming shall be done unless Owner's staff is available to observe trimming. Trimming shall be performed to the satisfaction of Engineer's staff. The Contractor shall provide proper tree guards to protect trees from damage due to construction equipment and operations.

All tree trunks and limbs to be pruned or removed that are greater than or equal to 6 inches in diameter shall be cut into 18-inch-long sections and trees or limbs less than 6 inches in diameter shall be chipped and delivered to the Canal Shores Maintenance yard.

Trees and shrubs damaged due to construction operations or removed without approval shall be replaced, at Contractor's expense, with trees or shrubs of like species and size, to a maximum trunk size of 6-inches diameter as directed by the Engineer. If trees larger than 6-inches diameter are irreparably damaged or destroyed, the Contractor shall replace these trees with trees of like species 6-inches in diameter. Tree trimming, pruning, repair of wound surfaces, removal of trees and shrubs requested by Contractor, and replacement of trees and shrubs irreparably damaged shall be incidental to the items of work to which they pertain.”

Parkway Tree Protection

It is the express intent of the City of Evanston to minimize trimming of trees in the work corridors and to vigorously protect the quality of the urban forest. The equipment and methods used to perform any and all portions of the work must be the size and nature that results in the least disruption to the existing environment. The Engineer reserves the right to limit the size of the equipment used on the project.

The Contractor shall at all times demonstrate to the satisfaction of the Engineer that suitable precautions and due diligence are being observed to protect the natural and improved features of the area. Special and continuing attention will be paid to the maintenance of tree protection fencing and the appropriate observance of tree protection areas as delineated by the fencing.

To be in compliance with the City of Evanston's intent to minimize area disturbances, the following procedures and actions will be followed: When the Engineer determines that a deficiency exists, the

Contractor will be notified. If the contractor fails to respond to the deficiency immediately, the Engineer will impose a daily monetary deduction for each 24-hour period (or portion thereof) the deficiency exists. This time period will begin with the time of notification to the Contractor and end with the Engineer's acceptance of the corrections. The cost of the daily deduction will be in accordance to Article 105.03 in the Standard Specifications. In addition, the Contractor will be liable and responsible for any and all corrective and remedial actions required to restore the area or item to comparable pre-project conditions as well as any additional fines and fees as stated in the tree protection requirements in these specifications.

Care of Existing Plant Material

If construction is to occur within the root zone of existing plant material, root pruning and special plant care will be required, as hereinafter specified. All pruning shall be performed by a professional arborist (someone whose principal occupation is the care and maintenance of trees).

The Contractor shall be responsible for taking measures to minimize damage to tree limbs, tree trunks, and tree roots at each work site. All such measures shall be included in the contract price for other works except that payment will be made for Temporary Fence and Earth Saw Cut of Tree Roots as separate pay items.

1) Earth Saw Cut of Tree Roots (Tree Root Pruning):

- a. Whenever the proposed excavation falls within the drip-line of a tree, the contractor shall:
 - i. Root prune 6-inches behind and parallel to the proposed edge of trench a neat, clean vertical cut to a minimum depth directed by the Engineer through all the affected tree roots.
 - ii. Root prune to a maximum width of 4 inches using a proprietary wheel matching the following criteria. The root pruner wheel shall be 60" diameter (188" circumference) carrying 28 pair (56 total) stump cutter teeth with tooth spacing at 6.7" on center. The cutting depth shall be 24" and shall utilize a 65hp tractor. Trenching machines will not be permitted.
 - iii. Exercise care not to cut any existing utilities.
 - iv. If during construction it becomes evident that additional tree roots will require root pruning, the City Arborist and the Contractor shall have the root pruning sub-contractor return to the site to properly root prune the tree at the location directed by the Engineer. The contractor will be paid for the additional root pruning as described below; however, no additional compensation will be made for remobilization to the construction site.
 - v. For locations where root pruning is performed for the purpose of curb and gutter removal and replacement, the contractor shall root prune 6-inches behind the curbing so as to neatly cut the tree roots.
 - vi. Depth of cut shall be 12 inches for curb removal and replacement and 24 inches for structural work. Any roots encountered at a greater depth shall be neatly saw-cut at no additional cost.

- vii. The Engineer or City Arborist will mark locations where earth saw cutting of tree roots is required in the field.
- b. All root pruning cuts shall be immediately backfilled with material side cast from the earth-sawing procedure, so that the ground surface is even and no tripping potential exists.
- c. All root pruning work is to be performed through the services of a certified arborist to be approved by the Engineer.

Basis of Payment

TREE ROOT PRUNING shall be used to protect all trees within the project limits as shown on the plans or as directed by the Engineer. This work will be paid for at the Contract unit price per EACH for TREE ROOT PRUNING measured in place.

The Contract unit price per EACH for TREE ROOT PRUNING shall be payment in full for all materials, labor and equipment required for: tree root pruning as shown on plan details; and all related work which is not included under other Payment Items.

2) Temporary Fence:

- a. The Contractor shall erect a temporary fence around all trees as shown on the plans to establish a “tree protection zone”, as established by City Arborist, before any work begins or any material is delivered to the jobsite. No work is to be performed (other than root pruning), materials stored, or vehicles driven or parked within the “tree protection zone” at any time during the course of construction.
- b. The exact location and establishment of the “tree protection zone” fence shall be verified by the City Arborist prior to setting the fence. The fence shall be 48 inches high, plastic poly-type or any other type of highly visible barrier in an open-weave type pattern with large openings. The type, color and pattern of the fence shall be approved by the Engineer prior to erection. This fence shall be properly maintained in an upright manner and shall remain up until final restoration, unless the Engineer directs removal otherwise. Tree fence shall be supported using T-Post style fence posts with a maximum of 8’ spacing. T-posts must be at least six feet in length, two feet of which must be set in the ground. The fence shall be attached to posts and secured with a minimum of three nylon locking ties per post. Utilizing re-bar as a fence post will not be permitted.
- c. The fence shall be installed 18” behind and parallel to the curb and between the curb and sidewalk. Fence shall be erected on a minimum of three sides with the fourth sidewalk side being optional. Fence shall be installed at the drip-line of the tree or as listed in the following guidelines:
 - i. Establish the diameter of the tree at a point four and a half feet above the ground, (referred to as diameter breast height or DBH)
 - ii. Trees with diameters 10 inches and under require root zone protection a minimum of five feet from the center of the tree.
 - iii. Trees 10 to 19 inches in diameter shall have a minimum root zone protection of 10 feet from the center of the tree.

- iv. Trees greater than 19 inches in diameter shall have a minimum root zone protection of 15 feet from the center of the tree.
- d. Parking or maneuvering of machinery, stockpiling of materials or any other use will not be allowed upon unpaved areas within 10 feet of the root protection zone of trees or plants designated to be protected.
- e. All work within the “tree protection zone” shall have the Engineer’s prior approval. All slopes and other areas not re-graded should be avoided so that unnecessary damage is not done to the existing turf, tree root system or ground cover.
- f. The grade within the “tree protection zone” shall not be changed unless approved by the Engineer prior to making said changes or performing the work.

Basis of Payment

TEMPORARY FENCE shall be used to protect all trees within the public right-of-way of the project limits as shown on the plans or as directed by the Engineer. This work will be paid for at the Contract unit price per FOOT for TEMPORARY FENCE measured in place.

The Contract unit price per FOOT for TEMPORARY FENCE shall be payment in full for all materials, labor and equipment required for: providing snow fence as shown on plan details; and all related work which is not included under other Payment Items.

When improvements are required within the “tree protection zone”, tree trunk protection will be required.

3) Tree Trunk Protection:

- a. The Contractor shall provide 2 in. by 8 in. by 8 ft. boards banded continuously around each trunk to prevent scarring of trees shown on the plans or designated by the Engineer. For multi-stem trees, saplings, and shrubs to be protected within the area of construction, temporary fencing may be used for trunk protection

Basis of Payment

TREE TRUNK PROTECTION shall be used to protect all trees within the public right-of-way of the project limits as shown on the plans or as directed by the Engineer. This work will be paid for at the Contract unit price per EACH for TREE TRUNK PROTECTION measured in place.

The Contract unit price per EACH for TREE TRUNK PROTECTION shall be payment in full for all materials, labor and equipment required for: installation of trunk boards in accordance with Supplemental Standard Specifications; and all related work which is not included under other Payment Items.

4) Tree Pruning:

- a. Tree pruning shall consist of pruning branches for aesthetic and structural enhancement or as directed by the Engineer. All pruning shall be done according to the current ANSI A300 (part 1) pruning standard. Trees selected for pruning will be cleaned of dead, diseased, or broken branches, thinned appropriately to reduce density of branches,

raised to provide vertical clearance for pedestrian and vehicular traffic, and if warranted by species tolerance and specimen needs limbs will be reduced to promote a central leader and good structure. Pruning to provide clearance over the street will be allowed up to 14 feet above the pavement. If additional clearance is needed a request in writing shall be submitted to the City Arborist. All branch pruning to American Elms and Oak trees shall be done between October 15 and April 15, when the trees are dormant.

- b. Under pruning to provide clearance over the street will be allowed up to 14 feet above the pavement. If additional clearance is needed a request in writing shall be submitted to the City Arborist.

Method of Measurement

This item shall be measured in accordance with Article 201.10 of the Standard Specifications.

Basis of Payment

TREE PRUNING will be paid for at the contract unit price per EACH for TREE PRUNING (1 TO 10 INCH DIAMETER) or TREE PRUNING (OVER 10 INCH DIAMETER), which price shall include under pruning branches to provide clearance over the street, for aesthetic and structural enhancement, of existing trees.

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.

<u>Item</u>	<u>Article/Section</u>
(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 ± 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.

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

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

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

HOT-MIX ASPHALT BINDER AND SURFACE COURSE (D-1)

Effective: November 1, 2019

Revised: February 2, 2020

Description. This work shall consist of constructing a hot-mix asphalt (HMA) binder and/or surface course on a prepared base. Work shall be according to Sections 406 and 1030 of the Standard Specifications, except as modified herein.

Materials. Revise Article 1004.03(c) to read:

“ (c) Gradation. The coarse aggregate gradations shall be as listed in the following table.

Use	Size/Application	Gradation No.
Class A-1, A-2, & A-3	3/8 in. (10 mm) Seal	CA 16 or CA 20
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & A-3	Cover Coat	CA 14
HMA High ESAL	IL-19.0; Stabilized Subbase IL-19.0	CA 11 ^{1/}
	SMA 12.5 ^{2/}	CA 13 ^{4/} , CA 14, or CA 16
	SMA 9.5 ^{2/}	CA 13 ^{3/4/} or CA 16 ^{3/}

	IL-9.5	CA 16, CM 13 ^{4/}
	IL-9.5FG	CA 16
HMA Low ESAL	IL-19.0L	CA 11 ^{1/}
	IL-9.5L	CA 16

- 1/ CA 16 or CA 13 may be blended with the CA 11.
- 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/ The specified coarse aggregate gradations may be blended.
- 4/ 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.”

HMA Nomenclature. Revise the “High ESAL” portion of the table in Article 1030.01 to read:

“High ESAL	Binder Courses	IL-19.0, IL-9.5, IL-9.5FG, IL-4.75, SMA 12.5, Stabilized Subbase IL-19.0
	Surface Courses	IL-9.5, IL-9.5FG, SMA 12.5, SMA 9.5”

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 a 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 Department's Qualified Producer List, "Technologies for the Production of Warm Mix Asphalt (WMA)".

Mixture Design. Revise Article 1030.04(a)(1) of the Standard Specifications and the Supplemental Specifications to read:

High ESAL, MIXTURE COMPOSITION (% PASSING) ^{1/}										
Sieve Size	IL-19.0 mm		SMA 12.5		SMA 9.5		IL-9.5mm		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 ^{4/}	16	32 ^{4/}	34 ^{5/}	52 ^{2/}	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 ^{3/}	7.5	9.5 ^{3/}	4	6	7	9 ^{3/}
#635 (20 μm)			≤ 3.0		≤ 3.0					
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 Ndesign = 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/ 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.
- 5/ 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, for IL-4.75 it shall be 3.5 percent and for Stabilized Subbase it shall be 3.0 percent at the design number of gyrations. The voids in the mineral aggregate (VMA) and voids filled with asphalt binder (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; Stabilized Subbase IL- 19.0	IL-9.5	IL-4.75 ^{1/}	
50	13.5	15.0	18.5	65 – 78 ^{2/}
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.”

Revise the table in Article 1030.04(b)(3) to read:

“VOLUMETRIC REQUIREMENTS, SMA 12.5 ^{1/} and SMA 9.5 ^{1/}			
Ndesign	Design Air Voids Target %	Voids in the Mineral Aggregate (VMA), % min.	Voids Filled with Asphalt (VFA), %
80 ^{4/}	3.5	17.0 ^{2/}	75 - 83
		16.0 ^{3/}	

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 ≥ 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.”

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.”

Quality Control/Quality Assurance (QC/QA). Revise the third paragraph of Article 1030.05(d)(3) to read:

“If the Contractor and Engineer agree the nuclear density test method is not appropriate for the mixture, cores shall be taken at random locations determined according to the QC/QA document "Determination of Random Density Test Site Locations". Core densities shall be determined using the Illinois Modified AASHTO T 166 or T 275 procedure.”

Add the following paragraphs to the end of Article 1030.05(d)(3):

“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.

When a longitudinal joint sealant (LJS) is applied, longitudinal joint density testing will not be required on the joint(s) sealed.”

Revise the second table in Article 1030.05(d)(4) and its notes to read:

"DENSITY CONTROL LIMITS			
Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density, minimum
IL-4.75	Ndesign = 50	93.0 – 97.4 % ^{1/}	91.0%
IL-9.5FG	Ndesign = 50 - 90	93.0 – 97.4 %	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 ^{2/} – 97.4 %	90.0%
SMA	Ndesign = 80	93.5 – 97.4 %	91.0%

1/ Density shall be determined by cores or by correlated, approved thin lift nuclear gauge.

2/ 92.0 % when placed as first lift on an unimproved subgrade.”

Equipment. Add the following to Article 1101.01 of the Standard Specifications:

“(h) Oscillatory Roller. The oscillatory roller shall be self-propelled and provide a smooth operation when starting, stopping, or reversing directions. The oscillatory roller shall be able to operate in a mode that will provide tangential impact force with or without vertical impact force by using at least one drum. The oscillatory roller shall be equipped with water tanks and sprinkling devices, or other approved methods, which shall be used to wet the drums to prevent material pickup. The drum(s) amplitude and frequency of the tangential and vertical impact force shall be approximately the same in each direction and meet the following requirements:

- (1) The minimum diameter of the drum(s) shall be 42 in. (1070 mm);
- (2) The minimum length of the drum(s) shall be 57 in. (1480 mm);
- (3) The minimum unit static force on the drum(s) shall be 125 lb/in. (22 N/m); and
- (4) The minimum force on the oscillatory drum shall be 18,000 lb (80 kN).”

Construction Requirements.

Add the following to Article 406.03 of the Standard Specifications:

“(j) Oscillatory Roller1101.01”

Revise the third paragraph of Article 406.05(a) to read:

“All depressions of 1 in. (25 mm) or more in the surface of the existing pavement shall be filled with binder. At locations where heavy disintegration and deep spalling exists, the

area shall be cleaned of all loose and unsound material, tacked, and filled with binder (hand method).”

Revise Article 406.05(c) to read.

“(c) Binder (Hand Method). Binder placed other than with a finishing machine will be designated as binder (hand method) and shall be compacted with a roller to the satisfaction of the Engineer. Hand tamping will be permitted when approved by the Engineer.”

Revise the special conditions for mixture IL-4.75 in Article 406.06(b)(2)e. to read:

“e. The mixture shall be overlaid within 5 days of being placed.”

Revise Article 406.06(d) to read:

“(d) Lift Thickness. The minimum compacted lift thickness for HMA binder and surface courses shall be as follows.

MINIMUM COMPACTED LIFT THICKNESS	
Mixture Composition	Thickness, in. (mm)
IL-4.75	3/4 (19) - over HMA surfaces ^{1/} 1 (25) - over PCC surfaces ^{1/}
IL-9.5FG	1 1/4 (32)
IL-9.5, IL-9.5L	1 1/2 (38)
SMA 9.5	1 3/4 (45)
SMA 12.5	2 (51)
IL-19.0, IL-19.0L	2 1/4 (57)

1/ The maximum compacted lift thickness for mixture IL-4.75 shall be 1 1/4 in. (32 mm).”

Revise Table 1 and Note 3/ of Table 1 in Article 406.07(a) of the Standard Specifications to read:

“TABLE 1 - MINIMUM ROLLER REQUIREMENTS FOR HMA				
	Breakdown Roller (one of the following)	Intermediate Roller	Final Roller (one or more of the following)	Density Requirement
Binder and Surface ^{1/}	V _D , P ^{3/} , T _B , 3W, O _T , O _B	P ^{3/} , O _T , O _B	V _S , T _B , T _F , O _T	As specified in Articles: 1030.05(d)(3), (d)(4), and (d)(7).
IL-4.75 and SMA ^{4/ 5/}	T _B , 3W, O _T	- -	T _F , 3W, O _T	

Bridge Decks ^{2/}	T _B	--	T _F	As specified in Articles 582.05 and 582.06.
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3/ A vibratory roller (V_D) or oscillatory roller (O_T or O_B) may be used in lieu of the pneumatic-tired roller on mixtures containing polymer modified asphalt binder.”

Add the following to EQUIPMENT DEFINITION in Article 406.07(a) contained in the Errata of the Supplemental Specifications:

“O_T - Oscillatory roller, tangential impact mode. Maximum speed is 3.0 mph (4.8 km/h) or 264 ft/min (80 m/min).

O_B - Oscillatory roller, tangential and vertical impact mode, operated at a speed to produce not less than 10 vertical impacts/ft (30 impacts/m).”

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).

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 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 ^{1/}

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 ± 5 °F (135 ± 3 °C) or less, loose Warm Mix Asphalt shall be oven aged at 270 ± 5 °F (132 ± 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 at the beginning of each construction year according to the Manual of Test Procedures for Materials “Hot Mix Asphalt Test Strip Procedures”. At the request of the Producer, the Engineer may waive the test strip if previous construction during the current construction year has demonstrated the constructability of the mix using Department test results.”

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 Gmb.”

Basis of Payment. Replace the second through the fifth paragraphs of Article 406.14 with the following:

“HMA binder and surface courses will be paid for at the contract unit price per ton (metric ton) for MIXTURE FOR CRACKS, JOINTS, AND FLANGEWAYS; HOT-MIX ASPHALT BINDER COURSE (HAND METHOD), of the Ndesign specified; HOT-MIX ASPHALT BINDER COURSE, of the mixture composition and Ndesign specified; HOT-MIX ASPHALT SURFACE COURSE, of the mixture composition, friction aggregate, and Ndesign specified; POLYMERIZED HOT-MIX ASPHALT BINDER COURSE (HAND METHOD), of the Ndesign specified; POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, of the mixture composition and Ndesign specified; POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, of the mixture composition, friction aggregate, and Ndesign specified; POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, STONE MATRIX ASPHALT, of the mixture composition and Ndesign specified; POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, of the mixture composition, friction aggregate, and Ndesign specified.”

HOT-MIX ASPHALT REPLACEMENT OVER PATCHES

Description

This work shall consist of furnishing all labor, materials, tools and equipment necessary to construct hot-mix asphalt replacement over Class C patches. This work shall conform to the applicable areas of Article 406 of the Standard Specifications. The HMA course shall be HMA REPLACEMENT OVER PATCHES (HMA Surface Course IL – 9.5, N70, 4” (2 Lifts)) and to a depth such that it mirrors the remaining existing asphalt pavement thickness.

Method of Measurement

This work will be measured for payment in units of ton placed.

Basis of Payment

This work will be paid for at the contract unit price per TON for HOT-MIX ASPHALT REPLACEMENT OVER PATCHES at the specified location on the plans.

HOT-MIX ASPHALT REMOVAL OVER PATCHES, 4”

Description

This work shall consist of furnishing all labor, materials, tools and equipment necessary to remove the top 4 inches of hot-mix asphalt pavement above the proposed Class C patch. The contractor shall take care to not damage and existing PCC and HMA base courses adjacent to the traffic lanes. Removal of the HMA will not be allowed under any traffic lanes.

Method of Measurement

This work will be measured for payment in units of square yards removed.

Basis of Payment

This work will be paid for at the contract unit price per SQUARE YARD for HOT-MIX ASPHALT REMOVAL OVER PATCHES at the specified location on the plans.

TEMPORARY SUPPORT SYSTEM

Description

This work shall consist of furnishing all labor, materials, tools, and equipment necessary to design, construct, install and remove the temporary pier support and hardwood timber blocking as indicated on the plans or as directed by the Engineer, in accordance with the applicable portions of the Standard Specifications.

Method of Measurement

This work will be measured for payment in units of LUMP SUM.

Basis of Payment

This work will be paid for at the contract unit price per LUMP SUM for TEMPORARY SUPPORT SYSTEM of the specified location on the plans.

CONCRETE BRIDGE RAIL, SIDEWALK MOUNTED

Description

This work consists of constructing a sidewalk mounted concrete bridge rail at the locations shown on the plans. This work shall be in accordance with the applicable articles of Section 503 of the Standard Specifications, the details in the plans and the following provisions.

Method of Measurement

Concrete Bridge Rail, Sidewalk Mounted will be measured for payment in place in feet. Reinforcement bars in the concrete bridge rail will not be measured for payment separately.

Basis of Payment

This work will be paid for at the contract unit price per FOOT for CONCRETE BRIDGE RAIL, SIDEWALK MOUNTED. Reinforcement bars in the concrete bridge rail will not be paid for separately, but shall be included in the cost of this item.

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."

FRICION AGGREGATE (D-1)

Effective: January 1, 2011 Revised: November 1, 2019

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> ^{5/} : 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> ^{5/} : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{1/} Crushed Concrete
HMA High ESAL Low ESAL	Binder IL-19.0 or IL-19.0L SMA Binder	<u>Allowed Alone or in Combination</u> ^{5/ 6/} : Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete ^{3/}
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> ^{5/} : Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/}
HMA High ESAL	D Surface and Binder IL-9.5 SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination</u> ^{5/} : Crushed Gravel Carbonate Crushed Stone (other than Limestone) ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/}

Use	Mixture	Aggregates Allowed								
		<u>Other Combinations Allowed:</u> <table border="1"> <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> ^{5/ 6/} : Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag No Limestone. <u>Other Combinations Allowed:</u> <table border="1"> <tr> <td><i>Up to...</i></td> <td><i>With...</i></td> </tr> <tr> <td>50% Dolomite^{2/}</td> <td>Any Mixture E aggregate</td> </tr> <tr> <td>75% Dolomite^{2/}</td> <td>Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone</td> </tr> <tr> <td>75% Crushed Gravel^{2/} or Crushed Concrete^{3/}</td> <td>Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag</td> </tr> </table>	<i>Up to...</i>	<i>With...</i>	50% Dolomite ^{2/}	Any Mixture E aggregate	75% Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone	75% Crushed Gravel ^{2/} or Crushed Concrete ^{3/}	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag
<i>Up to...</i>	<i>With...</i>									
50% Dolomite ^{2/}	Any Mixture E aggregate									
75% Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone									
75% Crushed Gravel ^{2/} or Crushed Concrete ^{3/}	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> ^{5/ 6/} : Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag No Limestone. <u>Other Combinations Allowed:</u>								

Use	Mixture	Aggregates Allowed	
		<i>Up to...</i>	<i>With...</i>
		50% Crushed Gravel ^{2/} , Crushed Concrete ^{3/} , or Dolomite ^{2/}	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.”

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
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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.

TRAFFIC CONTROL PLAN

Description.

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.

Traffic Control shall be according to the applicable sections of the Standard Specifications, the Supplemental Specifications, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", any special details and Highway Standards contained in the plans, and the Special Provisions contained herein. Special attention is called to Article 107.09 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control. The Contractor shall contact the District One Traffic Control Supervisor at 847-705-4470 at least 72 hours in advance of beginning work.

Special attention is called to the following sections of the Standard Specifications, the Highway Standards, and the special provisions relating to traffic control:

Standard Specifications:

- Section 701 - Work Zone Traffic Control and Protection
- Section 703 - Work Zone Pavement Marking
- Section 704 - Temporary Concrete Barrier
- Section 783 - Pavement Marking and Marker Removal
- Section 1106 – Work Zone Traffic Control Devices

Supplemental Specifications:

- Section 643 – Impact Attenuators
- Section 701 – Work Zone Traffic Control and Protection
- Section 706 – Impact Attenuators, Temporary
- Section 780 – Pavement Striping
- Section 1106 – Work Zone Traffic Control Devices

Highway Standards:

- 701006, 701101, 701106, 701301, 701427, 701501, 701502, 701701, 701801, 701901, 704001, TC-10, TC-13, TC-16, TC-22, and TC-26.

In addition, the following also relate to traffic control for this project:

SPECIAL PROVISIONS

- Maintenance of Traffic
- Public Convenience and Safety (D1)
- Temporary Information Signing (D1)
- Equipment Parking and Storage (BDE)
- Work Zone Traffic Control Devices (BDE)
- Pavement Marking Removal (BDE)
- Temporary Pavement Marking (BDE)
- Pavement and Shoulder Resurfacing (BDE Recurring CS#14)
- Traffic Control Devices – Cones (BDE)

Method of Measurement

All traffic control indicated on the traffic control plans, details and specified in the Special Provisions will be measured for payment on a lump sum basis where specific items are not paid for separately.

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 concrete barrier, temporary concrete barrier relocation, and temporary concrete barrier removal will be paid for separately.

Impact attenuators will be paid for separately.

Temporary access will be paid for separately.

Stabilized construction entrance will be paid for separately.

Temporary construction fence will be paid for separately.

Temporary pavement will be paid for separately.

Barrier Wall Reflectors, Type C will be paid for separately.

PERIMETER EROSION BARRIER, SPECIAL

Description

This work shall consist of the furnishing, installation and removal of perimeter erosion barrier, special used for the prevention or control of erosion and sedimentation processes encountered during construction.

This fence consists of the attachment of a double layer of geotextile to a chain link fence.

The Contractor shall furnish, install and remove all specified perimeter erosion barrier in accordance with the plans and as directed by the Engineer.

Materials

All materials shall conform to the applicable requirements of Standard Specifications for Road and Bridge Construction Materials, Division 1000 and specific references as follows:

- FencingArticle 1006.27
- Silt Fence Fabric.....Article 1080.02

Fencing

The perimeter erosion barrier shall be erected as near the location shown on the drawings as possible or on a line established by the Engineer. The chain link fencing shall be constructed in accordance with Section 664 except that the fabric shall be embedded as shown on the Plans and the concrete footing shall not be used. Posts shall be anchored with drive anchor assemblies meeting

Method of Measurement

All perimeter erosion barrier shown on the plans will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per FOOT for PERIMETER EROSION BARRIER, SPECIAL which price shall be payment in full for performing all work described herein.

TEMPORARY PEDESTRIAN RAILING

Description

This work shall consist of installing, maintaining, repairing and removing a 42" temporary railing at locations shown on the plans.

The temporary railing is to be ULINE Model H-6297 in powder coated OSHA safety yellow permanently affixed to bridge deck and curb/sidewalk as applicable using manufacturer recommended installation methods.

Method of Measurement

All temporary pedestrian railing shown on the plans will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per FOOT for TEMPORARY PEDESTRIAN RAILING.

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 ± 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
- (ii) Temporary Rubber Ramps (Note 2)

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

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

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

Revise Article 603.07 of the Standard Specifications to read:

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

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

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

Dimension	Requirement
Inside Opening	Outside dimensions of casting + 1 in. (25 mm)
Thickness at inside edge	Height of casting ± 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."

RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (D-1)

Effective: November 1, 2012

Revise: November 1, 2019

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 Central Bureau of Materials Policy Memorandum, “Reclaimed Asphalt Shingle (RAS) Sources”, by weight of RAS. All RAS used shall come from a Central Bureau of Materials 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, 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 mixture composition of the mix design.
- (2) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, HMA (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, 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 HMA (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 Central Bureau of Materials 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 ≤ 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)	± 6 %
No. 8 (2.36 mm)	± 5 %
No. 30 (600 μm)	± 5 %
No. 200 (75 μm)	± 2.0 %
Asphalt Binder	± 0.3 %
G_{mm}	± 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	
	FRAP	RAS
% Passing: ^{1/}		
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 _{mm}	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, HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.
 - (2) RAP from HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.
 - (3) RAP from Class I, 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 Central Bureau of Materials 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 ^{1/ 2/ 4/}	Maximum % ABR		
Ndesign	Binder ^{5/}	Surface ^{5/}	Polymer Modified ^{3/}
30L	50	40	30
50	40	35	30
70	40	30	30
90	40	30	30
SMA			30
IL-4.75			40

- 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 %.
- 5/ When the mix has Illinois Flexibility Index Test (I-FIT) requirements, the maximum percent asphalt binder replacement designated on the table may be increased by 5%.

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.

The RAP, FRAP and RAS stone specific gravities (G_{sb}) shall be according to the "Determination of Aggregate Bulk (Dry) Specific Gravity (G_{sb}) or Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)" procedure in the Department's Manual of Test Procedures for Materials.

1031.08 HMA Production. HMA production utilizing FRAP and/or RAS shall be as follows.

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 and agglomerated material.

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) FRAP. The coarse aggregate in all FRAP used shall be equal to or less than the nominal maximum size requirement for the HMA mixture being produced.

(b) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within

± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.

(c) 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 Central Bureau of Materials 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."

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."

TEMPORARY INFORMATION SIGNING

Effective: November 13, 1996

Revised: January 29, 2020

Description.

This work shall consist of furnishing, installing, maintaining, relocating for various states of construction and eventually removing temporary informational signs. Included in this item may be ground mount signs, skid mount signs, truss mount signs, bridge mount signs, and overlay sign panels which cover portions of existing signs.

Materials.

Materials shall be according to the following Articles of Section 1000 - Materials:

	<u>Item</u>	<u>Article/Section</u>
a.)	Sign Base (Note 1)	1090
b.)	Sign Face (Note 2)	1091
c.)	Sign Legends	1091
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 3)	1090.02

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

Note 2. The sign face material shall be in accordance with the Department's Fabrication of Highway Signs Policy.

Note 3. 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 bridges, sign structures or sign panels shall be approved by the Engineer. Any damage to the existing signs and/or structures due to the Contractor's operations shall be repaired or signs replaced, as determined by the Engineer, at the Contractor's expense.

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.

KEEPING ARTERIAL ROADWAYS OPEN TO TRAFFIC (WITH 15 MIN FULL STOPS)

Effective: January 22, 2003

Revised: August 10, 2017

The Contractor shall provide the necessary traffic control devices to warn the public and to delineate the work zone as required in these Special Provisions, the Standard Specifications, the State Standards, and the District Details.

Arterial lane closures shall be in accordance with the Standard Specifications, Highway Standards, District Details, and the direction of the Engineer. The Contractor shall request and gain approval from the Engineer seventy-two (72) hours in advance of all long-term (24 hrs. or longer) lane closures.

Arterial lane closures not shown in the staging plans will not be permitted during **peak traffic volume hours**.

Peak traffic volume hours are defined as weekdays (Monday through Friday) from **7:00 AM to 8:00 AM and 4:00 PM to 6:00 PM**.

Full closure of all arterial lanes in one or both directions will only be permitted for a maximum of 15 minutes at a time **Sunday through Thursday between the hours of 9:00 PM and 5:00 AM**. During full roadway closures, the Contractor will be required to reduce the roadway to only one open traffic lane in the affected direction(s) of travel using the appropriate State Standard(s) and District Detail(s). Police forces shall be notified and requested to close the remaining lane to facilitate the necessary work activities, except that a flagger may be substituted for daytime closures with the approval of the Engineer. The Contractor shall notify the District One Arterial Traffic Control Supervisor at 847-705-4470 at least three (3) working days (weekends and holidays DO NOT count into this notification time) in advance of the proposed road closures.

Private vehicles shall not be parked in the work zone. Contractor's equipment and/or vehicles shall not be parked on the shoulders or in the median during non-working hours. The parking of equipment and/or vehicles on State right-of-way will only be permitted at locations approved by the Engineer in accordance with Articles 701.08 and 701.11 of the Standard Specifications.

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 to the Department for the amount of:

One lane or ramp blocked=\$ 1,000

Two lanes blocked = \$2,500

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. Such damages

may be deducted by the Department from any monies due the Contractor. These damages shall apply during the contract time and during any extensions of the contract time.

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Effective: May 22, 2002 Revised: January 1, 2017
890.01TS

Revise Section 890 of the Standard Specifications to read:

Description.

This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptable power supply, and signing. Temporary traffic signal controllers and cabinets interconnected to railroad traffic control devices shall be new. When temporary traffic signals will be operating within a county or local agency Traffic Management System, the equipment must be NTCIP compliant and compatible with the current operating requirements of the Traffic Management System.

General.

Only an approved controller equipment supplier will be allowed to assemble temporary traffic signal and railroad traffic signal cabinet. Traffic signal inspection and TURN-ON shall be according to 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS special provision.

Construction Requirements.

(a) Controllers.

1. Only controllers supplied by one of the District approved closed loop equipment supplier will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the Standard Specifications with regards to internal time base coordination and preemption. All railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications and as modified herein.
2. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved closed loop equipment suppliers will be approved for use at temporary traffic signal locations. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal

installations, all controllers shall be the same manufacturer brand and model number with the latest version software installed at the time of the signal TURN-ON.

- (b) Cabinets. All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4 inch (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.
- (c) Grounding. Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 806 of the Standard Specifications and shall meet the requirements of the 806.01TS GROUNDING OF TRAFFIC SIGNAL SYSTEMS special provision.
- (d) Traffic Signal Heads. All traffic signal sections shall be 12 inches (300 mm). Pedestrian signal sections shall be 16 inch (406mm) x 18 inch (457mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be Light Emitting Diode (LED) Pedestrian Countdown Signal Heads except when a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing. When a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing, Light Emitting Diode (LED) Pedestrian Signal Heads shall be furnished. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. If no traffic staging is in place or will not be staged on the day of the turn on, the temporary traffic signal shall have the signal head displays, signal head placements and controller phasing match the existing traffic signal or shall be as directed by the engineer. The Contractor shall furnish enough extra cable length to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.
- (e) Interconnect.
 - 1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.

2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect, including any required fiber splices and terminations, shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project. Any temporary signal within an existing closed loop traffic signal system shall be interconnected to that system using similar brand control equipment at no additional cost to the contract.

3. Temporary wireless interconnect. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This work shall include all temporary wireless interconnect components, at the adjacent existing traffic signal(s) to provide a completely operational closed loop system. This work shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:
 - a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
 - b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
 - c. Antennas (Omni Directional or Yagi Directional)
 - d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
 - e. Brackets, Mounting Hardware, and Accessories Required for Installation
 - f. RS232 Data Cable for Connection from the radio to the local or master controller
 - g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardware system.

The proposed or existing master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the vendors recommendations.

- (f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz \pm 0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.
- (g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed at all approaches of the intersection and as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. An equipment supplier shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.
- (h) Uninterruptable Power Supply. All temporary traffic signal installations shall have Uninterruptable Power Supply (UPS). The UPS cabinet shall be mounted to the temporary traffic signal cabinet and shall be according to the applicable portions of Section 862 of the Standard Specifications and as modified in 862.01TS UNINTERRUPTABLE POWER SUPPLY, SPECIAL Special Provision.
- (i) Signs. All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost. Any intersection regulatory signs that are required for the temporary traffic signal shall be provided as shown on the plans or as directed by the Engineer. Relocation, removing, bagging and

- installing the regulatory signs for the various construction stages shall be provided as shown on the plans or as directed by the Engineer. If Illuminated Street Name Signs exist they shall be taken down and stored by the contractor and reflecting street name signs shall be installed on the temporary traffic signal installation.
- (j) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.
- (k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and 850.01TS MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION Special Provisions. Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on the Contract or any portion thereof. In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this Contract, the Contractor shall request that the Resident Engineer contact the Bureau of Traffic Operations (847) 705-4424 for an inspection of the installation(s).
- (l) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, Special Provisions and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. In addition all electric cable shall be aerially suspended, at a minimum height of 18 feet (5.5m) on temporary wood poles (Class 5 or better) of 45 feet (13.7 m) minimum height. The signal heads shall be span wire mounted or bracket mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole as shown in the plans, or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.
- (m) Temporary Portable Traffic Signal for Bridge Projects.
1. The controller and cabinet shall be NEMA type designed for NEMA TS2 Type 1 operation. Controller and LED signal displays shall meet the applicable Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION special provision.
 2. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.
 3. General.
 - a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each

unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.

- b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.
- c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.
- d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.
- e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.
- f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV and other applicable portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois MUTCD. The signal system shall be designed to continuously operate over an ambient temperature range between -30 °F (-34 °C) and 120 °F (48 °C). When not being utilized to inform and direct traffic, portable signals shall be treated as non-operating equipment according to Article 701.11.

Basis of Payment.

This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION, the price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, the temporary wireless interconnect system, temporary fiber optic interconnect system, all material required, the installation and complete removal of the temporary traffic signal, and any changes required by the Engineer. Each intersection will be paid for separately.

ELECTRIC SERVICE INSTALLATION, SPECIAL

Description

This item shall consist of all material and labor required to extend, connect or modify the electric services, to the temporary traffic signal, 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. At the completion of the project this item shall be uninstalled and removed to the utility connection.

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, including the removal of the installation at the completion of the project.

ELECTRIC UTILITY SERVICE CONNECTION

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 Representative Larry Schank at 847-816-5465 service request #04918925, 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 \$12,600.

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.

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).”

REBUILD EXISTING HANDHOLE

Effective: January 1, 2002 Revised: July 1, 2015
895.04TS

This item shall consist of rebuilding and bringing to grade a handhole at a location shown on the plans or as directed by the Engineer. The work shall consist of removing the handhole frame and cover and the walls of the handhole to a depth of eight (8) inches below the finished grade.

Upon completion of the above work, four (4) holes, four (4) inches in depth and one half (1/2) inch in diameter, shall be drilled into the remaining concrete; one hole centered on each of the four handhole walls. Four (4) #3 steel dowels, eight (8) inches in length, shall be furnished and shall be installed in the drilled holes with a masonry epoxy.

All concrete debris shall be disposed of outside the right-of-way.

The area adjacent to each side of the handhole shall be excavated to allow forming. All steel hooks, handhole frame, cover, and concrete shall be provided to construct a rebuilt handhole according to applicable portions of Section 814 of the Standard Specification and as modified in 814.01TS HANDHOLES Special Provision. The existing frame and cover shall be replaced if it was damaged during removal or as determined by the Engineer.

Basis of Payment.

This work shall be paid for at the contract unit price EACH for REBUILD EXISTING HANDHOLE, which price shall be payment in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings.

**MAINTENANCE OF EXISTING TRAFFIC SIGNAL AND FLASHING BEACON
INSTALLATION**

Effective: May 22, 2002 Revised: July 1, 2015
850.01TS

General

1. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof. If Contract work is started prior to a traffic signal inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection.
2. The Contractor shall have electricians with IMSA Level II certification on staff to provide signal maintenance. A copy of the certification shall be immediately available upon request of the Engineer.

3. This item shall include maintenance of all traffic signal equipment and other connected and related equipment such as flashing beacons, emergency vehicle pre-emption equipment, master controllers, uninterruptable power supply (UPS and batteries), PTZ cameras, vehicle detection, handholes, lighted signs, telephone service installations, communication cables, conduits to adjacent intersections, and other traffic signal equipment.
4. 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, radios and other devices that shall be included with traffic signal maintenance at no additional cost to the contract.
5. Maintenance shall not include Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, or peripheral equipment. This equipment is operated and maintained by the local municipality and should be de-activated while on contractor maintenance.
6. The energy charges for the operation of the traffic signal installation shall be paid for by the Contractor.

Maintenance

1. The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to ensure that they are functioning properly. The Contractor shall check signal system communications and phone lines to assure proper operation. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs. Prior to the traffic signal maintenance transfer, the contractor shall supply a detailed maintenance schedule that includes dates, locations, names of electricians providing the required checks and inspections along with any other information requested by the Engineer.
2. The Contractor is advised that the existing and/or span wire 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.
3. The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected or otherwise removed from normal operation, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. When the signals operate in flash, the Contractor shall furnish

and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of stop signs as specified herein. The Contractor shall maintain a sufficient number of spare stop signs in stock at all times to replace stop signs which may be damaged or stolen.

4. The Contractor shall provide the Engineer with 2 (two) 24 hour telephone numbers for the maintenance of the traffic signal installation and for emergency calls by the Engineer.
5. Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of the Standard Specifications and these special provisions.
6. The Contractor shall respond to all emergency calls from the Department or others within one (1) hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the contract. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the State's Electrical Maintenance Contractor perform the maintenance work. The Contractor shall be responsible for all of the State's Electrical Maintenance Contractor's costs and liquidated damages of \$1000 per day per occurrence. The State's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.
7. 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.
8. Equipment included in this item that is damaged or not operating properly from any cause shall be replaced with new equipment meeting current District One 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 outside the controller cabinet shall not be allowed.
9. 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.

10. 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.
11. 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 paid for separately but shall be included in the contract.
12. 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.

Basis of Payment

This work will be paid for at the contract unit price per each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION. Each intersection will be paid for separately. Maintenance of a standalone and or not connected flashing beacon shall be paid for at the contract unit price for MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION. Each flashing beacon will be paid for separately.

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.

CONCRETE FOUNDATIONS

Effective: May 22, 2002
878.01TS

Revised: July 01, 2015

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.

FLASHING BEACON INSTALLATION, RELOCATION AND REMOVAL

Effective: January 1, 2007
880.02TS

Revised: July 1, 2015

This work shall consist of furnishing and installing a new flashing beacon installation, solar powered flashing beacon installation, relocation of existing flashing beacon, and/or the removal of the existing flashing beacon installation as shown on the plans and as described herein. The energy charges for the operation of the flashing beacon installation shall be paid for by the Department unless otherwise directed by the Engineer.

The installation, relocation and removal of flashing beacon installation shall be according to the applicable portions of Sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction and District 1 Flashing Beacon Installation Details except as revised herein. LED signal heads shall be as modified in 880.01TS LED SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD Special Provision.

- (a) Flashing Beacon Installation. This item shall consist of installing a post mounted 12 inch (300 mm) L.E.D. single section red or yellow flashing beacon on a new or existing post as shown on the plans or as directed by the Engineer. This item shall include furnishing and installing a flasher controller in an aluminum cabinet, or integrated within the signal head, 12 inch (300 mm) L.E.D. red or yellow signal section with a dimmer if required by the Engineer, and all other hardware necessary to complete the installation.
- (b) Solar Powered Flashing Beacon Installation. This item shall consist of installation of a solar powered flashing beacon, post mounted as shown on the plans or as directed by the Engineer. This item shall consist of furnishing and installing a 12 inch (300 mm) single red or yellow flashing module on a new or existing post as shown on the plans or as directed by the Engineer. This item shall include furnishing and installing a flasher controller that is integrated within the signal head, with discrete solar panels, LED module, battery, electronics, compact housing and be capable of operating 24 hours, 7 days a week. The flasher unit shall be installed on standard wood or metal posts. The flash pattern shall be MUTCD compliant and have alternate flash patterns available. The battery shall have a life span of a minimum of 5 years and be field replaceable. The battery and electronics may be located inside the solar panel housing or signal head. The sections of the flasher unit shall be secured with tamper resistant stainless steel hardware and unless otherwise noted, the housing shall be black in color.
- (c) Relocate Existing Flashing Beacon. Relocation of an existing flashing beacon installation, as shown on the plans or as directed by the Engineer, shall meet the above requirements. This work shall include the complete relocation of the existing flashing beacon installation, the backfilling of the holes created by the removal of the poles, restoration of the surface to match the adjoining area.
- (d) Remove Existing Flashing Beacon Installation Complete. Removal of an existing flashing beacon installation shall be as shown on the plans or as directed by the Engineer and shall be according to applicable portions of Section 895 of the Standard Specifications. This work shall include a complete removal of an existing flashing beacon installation, backfilling of the holes created by the removal of the poles and restoration of the surface to match the adjoining area. The flashing beacon installation will be removed only after the permanent signal installation is accepted for maintenance, or as directed by the Engineer.

Basis of Payment

This work shall be paid for at the contract unit price each for FLASHING BEACON INSTALLATION; SOLAR POWERED FLASHING BEACON INSTALLATION; RELOCATE EXISTING FLASHING BEACON or REMOVE EXISTING FLASHING BEACON INSTALLATION COMPLETE. The price shall be payment in full for all labor and material necessary to complete the work described above.

DETECTOR LOOP REPLACEMENT AND/OR INSTALLATION (ROADWAY GRINDING, RESURFACING, & PATCHING OPERATIONS)

Effective: January 1, 1985
886.02TS

Revised: January 5, 2016

The following Traffic Signal Special Provisions and the "District 1 Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction" Sections 810, 886, 1079 and 1088.

The intent of this Special Provision is to prescribe the materials and construction methods commonly used to replace traffic signal detector loops and replace magnetic signal detectors with detector loops during roadway resurfacing, grinding and patching operations. Loop detector replacement will not require the transfer of traffic signal maintenance from the District Electrical Maintenance Contractor to this contract's electrical contractor. Replacement of magnetic detector will require wiring revisions inside the control cabinet and therefore the transfer of maintenance will be required. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer.

The work to be provided under this contract consists of furnishing and installing all traffic signal work as specified on the Plans and as specified herein in a manner acceptable and approved by the Engineer.

Notification of Intent to Work

Contracts such as pavement grinding or patching which result in the destruction of traffic signal detection require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the detection removal, the Contractor shall notify the:

- Traffic Signal Maintenance and Operations Engineer at (847)705-4424
- IDOT Electrical Maintenance Contractor at (773) 287-7600

at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection.

Failure to provide proper notification may require the District's Electrical Maintenance Contractor to be called to investigate complaints of inadequate traffic signal timing. All costs associated with these expenses will be paid for by the Contractor at no additional expense to the Department according to Section 109 of the "Standard Specifications."

Acceptance of Material

The Contractor shall provide:

1. All material approval requests shall be submitted a minimum of seven (7) days prior to the delivery of equipment to the job site, or within 30 consecutive calendar days after the contract is awarded, or within 15 consecutive calendar days after the preconstruction meeting, whichever is first.
2. Four (4) copies of a letter listing the vendor's name and model numbers of the proposed equipment shall be supplied. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approved. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.
3. One (1) copy of material catalog cuts.
4. The contract number, permit number or intersection location must be on each sheet of the letter and material catalog cuts as required in items 2 and 3.

Inspection of Construction

When the road is open to traffic, except as otherwise provided in Section 801 and 850 of the Standard Specifications, the Contractor must request a turn-on and inspection of the completed detector loop installation at each separate location. This request must be made to the Traffic Signal Maintenance and Operations Engineer at (847)705-4424 a minimum of seven (7) working days prior to the time of the requested inspection.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal “turn on.” If approved, traffic signal acceptance shall be verbal at the “turn on” inspection followed by written correspondence from the Engineer. If this work is not completed in time, the Department reserves the right to have the work completed by others at the Contractor’s expense.

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

Restoration of Work Area

Restoration of the traffic signal work area due to the detector loop installation and/or replacement shall be included in the cost of this item. All roadway surfaces such as shoulders, medians, sidewalks, pavement shall be replaced as shown in the plans or in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded.

Removal, Disposal and Salvage of Existing Traffic Signal Equipment

The removal, disposal, and salvage of existing traffic signal equipment shall be included in the cost of this item. All material and equipment removed shall become the property of the Contractor and disposed of by the Contractor outside the State’s right-of-way. No additional compensation shall be provided to the Contractor for removal, disposal or salvage expense for the work in this contract.

Detector Loop Replacement

This work shall consist of replacing existing detector loops which are destroyed during grinding, resurfacing, or patching operations.

If damage to the detector loop is unavoidable, replacement of the existing detection system will be necessary. This work shall be completed by an approved Electrical Contractor as directed by the Engineer.

Replacement of the loops shall be accomplished in the following manner: The Engineer shall mark the location of the replacement loops. The Traffic Signal Maintenance and Operations Engineer shall be called to approve loop locations prior to the cutting of the pavement. The Contractor may reuse the existing coilable non-metallic conduit (CNC) located between the existing handhole and the pavement if it hasn’t been damaged. CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes. All burrs shall be removed from the edges of the existing conduit which could cause damage to the new detector loop during installation. If the existing conduit is damaged beyond repair, if it cannot be located, or if additional conduits are required for each proposed loop; the Contractor shall be required to drill through the existing pavement into the appropriate handhole, and install 1” (25 mm) CNC. This work and the required materials shall not be paid for separately but shall be included in the pay item Detector Loop Replacement. Once suitable CNC raceways is established, the loop may be cut, installed, sealed and spliced to the twisted-shielded lead-in cable in the handhole.

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

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Traffic Signal Maintenance and Operations Engineer (847)705-4424 to inspect and approve the layout.

Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details." Saw-cuts 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 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. The lead-in wire, including all necessary connections for proper operation, from the edge of pavement to the handhole, shall be included in the detector loop pay item.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane. The sealant shall be installed 1/8" (3 mm) below the pavement surface. If installed above the surface the excess shall be removed immediately.

Round loop(s) 6 ft (1.8 m) diameter may be substituted for 6 ft (1.8 m) by 6 ft (1.8 m) square loop(s) and shall be paid for as 24 feet (7.2 m) of detector loop.

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.

Heat shrink splices shall be used according to the "District 1 Standard Traffic Signal Design Details."

Detector loop replacement shall be measured along the sawed slot in the pavement containing the loop cable up to the edge of pavement, rather than the actual length of the wire in the slot. Drilling handholes, sawing the pavement, furnishing and installing CNC to the appropriate handhole, cable splicing to provide a fully operable detector loop, testing and all trench and backfill shall be included in this item.

Basis of Payment

Detector Loop Replacement shall be paid for at the contract unit price per foot (meter) of DETECTOR LOOP REPLACEMENT.

Magnetic Detector Removal and Detector Loop Installation

This work shall consist of the removal of existing magnetic detectors, magnetic detector lead-in cable and magnetic detection amplifiers and related control equipment wiring, installation of detector lead-in cable, detector loops, detector amplifiers and related equipment wiring. The detector loop, cable, and amplifier shall be installed according to the applicable portions of the "Standard Specifications" and the applicable portions of the Special Provision for "Detector Loop Replacement." All drilling of handholes, furnishing and installing CNC, cable splicing, trench and backfill, removal of equipment, and removing cable from conduit shall be included in this item.

Basis of Payment

Magnetic Detector Removal and Detector Loop Installation shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I, per each for INDUCTIVE LOOP DETECTOR, and foot (meter) for ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR.

TEMPORARY TRAFFIC SIGNAL TIMING

Effective: May 22, 2002 Revised: July 1, 2015
890.02TS

Description

This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused by detours or other temporary conditions.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District 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.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMING.

- (a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings.
- (b) Consultant shall be responsible for making fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
- (c) Consultant shall provide monthly observation of traffic signal operations in the field.
- (d) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.
- (e) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.
- (f) Return original timing plan once construction is complete.

Basis of Payment

The work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMING, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on and/or detour implemented, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation and/or detour.

GENERAL ELECTRICAL REQUIREMENTS

Effective: September 1, 2019

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 to the Department.

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.

Electronic Submittals. Unless otherwise directed, the Contractor shall utilize the **Traffic Operations Construction Submittal (TOCS)** system.

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 fourteen (14) calendar days prior to the desired inspection date. The maintenance transfer and preconstruction inspection shall:

Establish the procedures for formal transfer of maintenance responsibility required for the construction period.

Establish the approximate location and operating condition of lighting and/or traffic control systems which may be affected by the work

Marking of Existing Cable Systems: The party responsible for maintenance of any existing lighting and/or traffic control systems at the project site will, at the Contractor's request, mark and/or stake, once per location, all underground cable routes owned or maintained by the State. A project may involve multiple "locations" where separated electrical systems are involved (i.e. different controllers). The markings shall be taken to have a horizontal tolerance of at least 1 foot (304.8 mm) 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."

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 Department, 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 Department.

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.

ITS. The following test shall be made in addition to the lighting system test above.

Detector Loops. Before and after permanently securing the loop in the pavement, the resistance, inductance, resistance to ground, and quality factor for each loop and lead-in circuit shall be tested. The loop and lead-in circuit shall have an inductance between 20 and 2500 microhenries. The resistance to ground shall be a minimum of 50 megohms under any conditions of weather or moisture. The quality factor (Q) shall be 5 or greater.

Fiber Optic Systems. Fiber optic testing shall be performed as required in the fiber optic cable special provision and the fiber optic splice special provision.

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 Department.

- (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.

The warranty for an uninterruptable power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years.

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. 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.
- Control Buildings.
- Structures with electrical connections, i.e. DMS, lighted signs.
- Electric Service locations.
- CCTV Camera installations.
- Roadway Surveillance installations.
- Fiber Optic Splice Locations.
- Fiber Optic Cables. Coordinates shall be recorded along each fiber optic cable route every 200 feet.
- All fiber optic slack locations shall be identified with quantity of slack cable included. When sequential cable markings are available, those markings shall be documented as cable marking into enclosure and marking out of enclosure.

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.

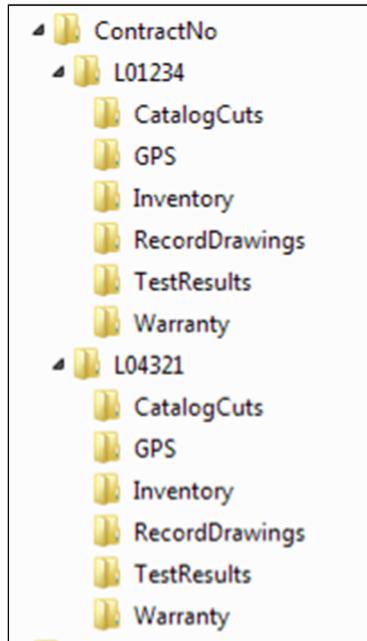
Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 20 feet. Upon verification, data collection can begin. Data collection can be made as construction progresses, 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.”

The documents on the CD shall be organized by the Electrical Maintenance Contract Management System (EMCMS) location designation. If multiple EMCMS locations are within the contract, separate folders shall be utilized for each location as follows:



Extraneous information not pertaining to the specific EMCMS location shall not be included in that particular folder and sub-folder.

The inspection will not be made until after the delivery of acceptable record drawings, specified certifications, and the required guarantees.

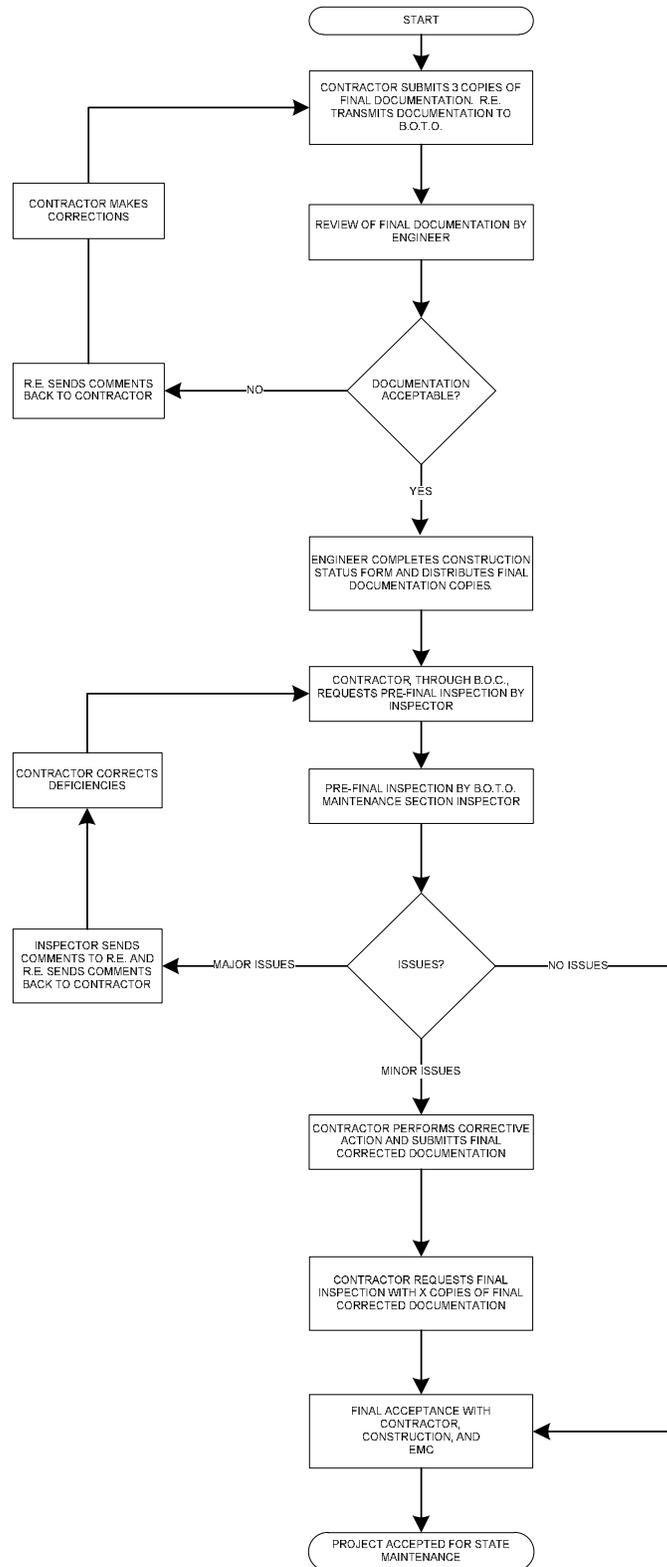
The Final Acceptance Documentation Checklist shall be completed and is contained elsewhere herein.

All CD's shall be labeled as illustrated in the CD Label Template contained herein.

Acceptance. Acceptance of electrical work will be given at the time when the Department 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.



Final Acceptance Documentation Checklist

LOCATION	
Route	Common Name
Limits	Section
Contract #	County
Controller Designation(s)	EMC Database Location Number(s)

ITEM	Contractor (Verify)	Resident Engineer (Verify)
Record Drawings -Four hardcopies (11" x 17") -Scanned to two CD-ROMs	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Field Inspection Tests -Voltage -Amperage -Cable Insulation Resistance -Continuity -Controller Ground Rod Resistance (Four Hardcopies & scanned to two CD's)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
GPS Coordinates -Excel file (Check Special Provisions, Excel file scanned to two CD's)	<input type="checkbox"/>	<input type="checkbox"/>
Job Warranty Letter (Four Hardcopies & scanned to two CD's)	<input type="checkbox"/>	<input type="checkbox"/>
Catalog Cut Submittals -Approved & Approved as Noted (Scanned to two CD's)	<input type="checkbox"/>	<input type="checkbox"/>
Lighting Inventory Form (Four Hardcopies & scanned to two CD's)	<input type="checkbox"/>	<input type="checkbox"/>
Lighting Controller Inventory Form (Four Hardcopies & scanned to two CD's)	<input type="checkbox"/>	<input type="checkbox"/>
Light Tower Inspection Form (If applicable, Four Hardcopies & scanned to two CD's)	<input type="checkbox"/>	<input type="checkbox"/>

Four Hardcopies & scanned to two CD's shall be submitted for all items above. The CD ROM shall be labeled as shown in the example contained herein.

General Notes:

Record Drawings – The record drawings should contain contract cover sheet, summary of quantities showing all lighting pay item sheets, proposed lighting plans and lighting detail sheets. Submit hardcopies 11 x 17 size. Include the original “red-ink” copy. The red-ink markup should be neatly drawn. Record drawings copies should be legible. Blurred copies will not be acceptable. Temporary lighting plans and removal lighting plans should not be part of the set.

Field Inspection Tests – Testing should be done for proposed cables. Testing shall be per standard specifications. Forms shall be neatly filled out.

GPS Coordinates – Check special provisions “General Electrical Requirements”. Submit electronic “EXCEL” file.

Job Warranty Letter – See standard specifications.

Cutsheet Submittal – See special provisions “General Electrical Requirements”. Scan Approved and Approved as Noted cutsheets.

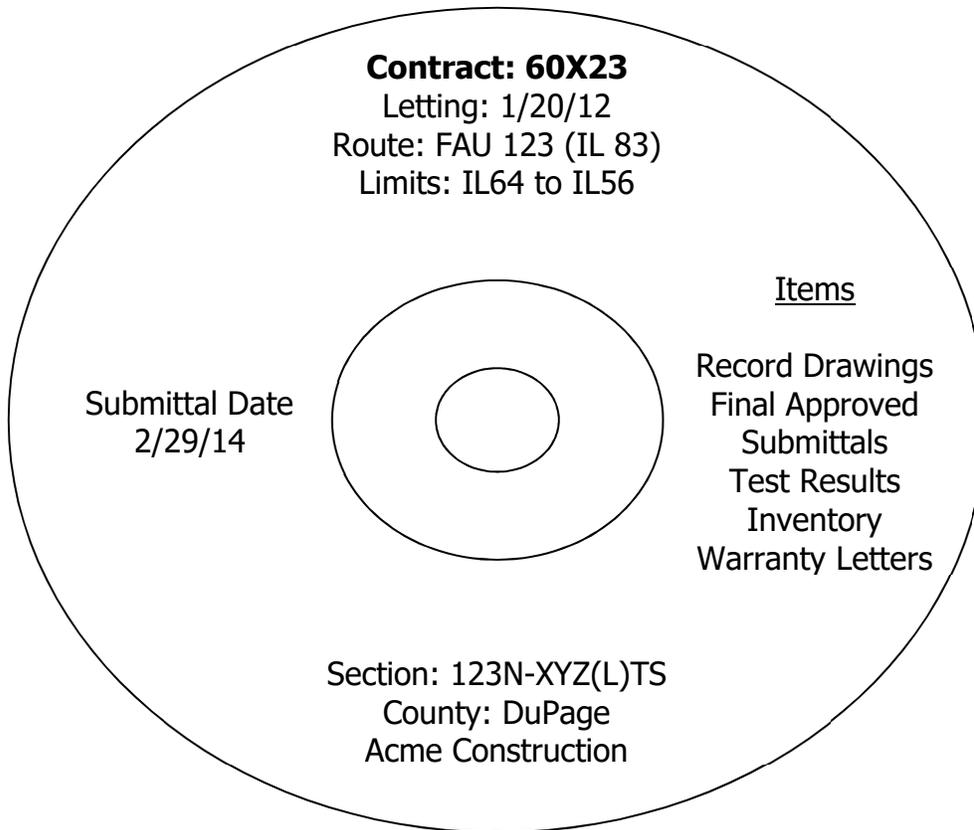
Lighting Inventory Form – Inventory form should include only proposed light poles, proposed light towers, proposed combination (traffic/light pole) lighting and proposed underpass luminaires.

Lighting Controller Inventory Form – Form should be filled out for only proposed lighting controllers.

Light Tower Safety Inspection Form – Form should be filled out for each proposed light tower.

CD LABEL FORMAT TEMPLATE.

Label must be printed; hand written labels are unacceptable and will be rejected.



MAINTENANCE OF LIGHTING SYSTEMS

Effective: March 1, 2017

Replace Article 801.11 and 801.12 of the Standard Specifications with the following:

Effective the date the Contractor's activities (electrical or otherwise) at the job site begin, the Contractor shall be responsible for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by the work until final acceptance or as otherwise determined by the Engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance of any lighting systems which may be affected by the work. During the maintenance preconstruction inspection, the party responsible for existing maintenance shall perform testing of the existing system in accordance with Article 801.13a. The Contractor shall request a date for the preconstruction inspection no less than fourteen (14) days prior to the desired date of the inspection.

The Engineer will document all test results and note deficiencies. All substandard equipment will be repaired or replaced by the existing maintenance contractor, or the Engineer can direct the Contractor to make the necessary repairs under Section 109.04.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained. Contract documents shall indicate the circuit limits.

Maintenance of Existing Lighting Systems

Existing lighting systems. Existing lighting systems shall be defined as any lighting system or part of a lighting system in service at the time of contract Letting. The contract drawings indicate the general extent of any existing lighting, but whether indicated or not, it remains the Contractor's responsibility to ascertain the extent of effort required for compliance with these specifications and failure to do so will not be justification for extra payment or reduced responsibilities.

Extent of Maintenance.

Partial Maintenance. Unless otherwise indicated, if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work, the Contractor needs only to maintain the affected circuits within the project limits. The project limits are defined as those limits indicated in the contract plans. Equipment outside of the project limits, on the affected circuits shall be maintained and paid for under Article 109.04. The affected circuits shall be isolated by means of in-line waterproof fuse holders as specified elsewhere and as approved by the Engineer. The unaffected circuits and the controller will remain under the maintenance of the State.

Full Maintenance. If the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work, the Contractor shall maintain the entire controller and all associated circuits within the project limits. Equipment outside of the project limits shall be maintained and paid for under Article 109.04.

If the existing equipment is damaged by normal vehicular traffic, not contractor operations, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind with payment made for such equipment under Article 109.04. If the equipment damaged by any construction operations, not normal vehicular traffic, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind and the cost of the equipment shall be included in the cost of this pay item and shall not be paid for separately.

Maintenance of Proposed Lighting Systems

Proposed Lighting Systems. Proposed lighting systems shall be defined as any lighting system or part of a lighting system, temporary or permanent, which is to be constructed under this contract regardless of the project limits indicated in the plans.

The Contractor shall be fully responsible for maintenance of all items installed under this contract. Maintenance shall include, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, Contractor operations, vandalism, or other means. The potential cost of replacing or repairing any malfunctioning, damaged, or vandalized equipment shall be included in the bid price of this item and will not be paid for separately.

Lighting System Maintenance Operations

The Contractor's responsibility shall include all applicable responsibilities of the Electrical Maintenance Contract, State of Illinois, Department of Transportation, Division of Highways, District One. These responsibilities shall include the maintenance of lighting units (including sign lighting), cable runs and lighting controls. In the case of a pole knockdown or sign light damage, the Contractor shall promptly clear the lighting unit and circuit discontinuity and restore the system to service. The equipment shall then be re-set by the contractor within the time limits specified herein.

If the existing equipment is damaged by normal vehicular traffic, not contractor operations, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind with payment made for such equipment under Article 109.04. If the equipment damaged by any construction operations, not normal vehicular traffic, is beyond repair and cannot be re-set, the contractor shall replace the equipment in kind and the cost of the equipment shall be included in the cost of this pay item and shall not be paid for separately.

Responsibilities shall also include weekly night-time patrol of the lighting system, with patrol reports filed immediately with the Engineer and with deficiencies corrected within 24 hours of the patrol. Patrol reports shall be presented on standard forms as designated by the Engineer. Uncorrected deficiencies may be designated by the Engineer as necessitating emergency repairs as described elsewhere herein.

The following chart lists the maximum response, service restoration, and permanent repair time the Contractor will be allowed to perform corrective action on specific lighting system equipment.

INCIDENT OR PROBLEM	SERVICE RESPONSE TIME	SERVICE RESTORATION TIME	PERMANENT REPAIR TIME
Control cabinet out	1 hour	4 hours	7 Calendar days
Hanging mast arm	1 hour to clear	na	7 Calendar days
Radio problem	1 hour	4 hours	7 Calendar days
Motorist caused damage or leaning light pole 10 degrees or more	1 hour to clear	4 hours	7 Calendar days
Circuit out – Needs to reset breaker	1 hour	4 hours	na
Circuit out – Cable trouble	1 hour	24 hours	21 Calendar days
Outage of 3 or more successive lights	1 hour	4 hours	na
Outage of 75% of lights on one tower	1 hour	4 hours	na
Outage of light nearest RR crossing approach, Islands and gores	1 hour	4 hours	na
Outage (single or multiple) found on night outage survey or reported to EMC	na	na	7 Calendar days
Navigation light outage	na	na	24 hours

- **Service Response Time** -- amount of time from the initial notification to the Contractor until a patrolman physically arrives at the location.
- **Service Restoration Time** – amount of time from the initial notification to the Contractor until the time the system is fully operational again (In cases of motorist caused damage the undamaged portions of the system are operational.)
- **Permanent Repair Time** – amount of time from initial notification to the Contractor until the time permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

Failure to provide this service will result in liquidated damages of \$500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of \$500 per month per occurrence. Unpaid bills will be deducted from any monies owed to the Contractor. Repeated failures and/or a gross failure of maintenance shall result in the State's Electrical Maintenance Contractor being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

Damage caused by the Contractor's operations shall be repaired at no additional cost to the Contract.

Operation of Lighting

The lighting shall be operational every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Lighting systems shall not be kept in operation during long daytime periods.

Method of Measurement

The contractor shall demonstrate to the satisfaction of the Engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request. Months in which the lighting systems are not maintained and not operational will not be paid. Payment shall not be made retroactively for months in which lighting systems were not operational.

Basis of Payment

Maintenance of lighting systems shall be paid for at the contract unit price per calendar month for MAINTENANCE OF LIGHTING SYSTEM.

LIGHT POLE, SPECIAL

Description

This item shall consist of furnishing and installing a light pole with davit arm and horizontal arm and LED luminaire (Structure Mounted) as directed by the Engineer and specified herein. Basis of design: Holophane Lighting Poles with Autobahn Luminaires. (Manufacturer Local Contact: Bryan Bolin, bryan.bolin@Holophane.com, 630-276-6575)

Material

Holophane Pole: RTA30RFD201894 (Custom 26FT Pole)

26FT (30FT fixture mounting height on Bridge Pilasters) Round Tapered Aluminum Davit Arm Pole With 6FT Davit Arm for American Electric Lighting ATB2-60BLED85-MVOLT-R3 Fixture, Black Paint Finish, Anchor Bolts, Designed For 90 MPH AASHTO 2009.

Roadway – ATB2-60BLED85-MVOLT-R3

Autobahn LED Roadway – Large (ATB2): ATB2, 60B Chips, 850Ma Driver, Multi-Volt (120-277V), Roadway Type III, Black, NEMA Label, Shorting cap in place of Solid-State Lighting Photocontrol.

Guarantee. The Vendor shall provide a written guarantee for materials, and workmanship for a period of 6 months after final acceptance of the lighting system.

Documentation. All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operation of the equipment shall be delivered to the Engineer.

The manufacturer shall have been incorporated for at least five years and shall have at least five years in the design and manufacturing of roadway underpass lighting. The manufacturer shall provide evidence of financial strength to finance the production of the project by submitting the name of at least three projects completed in the previous calendar year of greater than \$250,000 each. All steel used in the project shall be certified to be provided domestically, and all fixture components used shall be manufactured domestically.

Method of Measurement

This work will be measured for payment in units of EACH.

Basis of Payment

This work shall be paid at the contract unit price EACH for LIGHT POLE, SPECIAL.

LIGHT POLE, SPECIAL (MATERIAL ONLY)

This item shall consist of furnishing to the City of Evanston a light pole with a davit arm and LED luminaire as directed by the Engineer, and specified herein. Basis of design: Holophane Lighting Poles with Autobahn Luminaires. (Manufacturer Local Contact: Bryan Bolin, bryan.bolin@Holophane.com, 630-276-6575). These materials should be delivered to the Evanston Service Center at 2020 Asbury Avenue, Evanston, IL.

Material

Holophane Pole: RTA30RFD201894 (Custom 26FT Pole)

26FT (30FT fixture mounting height on Structure Pilasters) Round Tapered Aluminum Davit Arm Pole With 6FT Davit Arm for American Electric Lighting ATB2-60BLED85-MVOLT-R3 Fixture, Black Paint Finish, Anchor Bolts, Designed For 90 MPH AASHTO 2009.

Roadway – ATB2-60BLED85-MVOLT-R3

Autobahn LED Roadway – Large (ATB2): ATB2, 60B Chips, 850Ma Driver, Multi-Volt (120-277V), Roadway Type III, Black, NEMA Label, Shorting cap in place of Solid-State Lighting Photocontrol.

Method of Measurement

This work will be measured for payment in units of EACH.

Basis of Payment.

This work shall be paid at the contract unit price EACH for LIGHT POLE, SPECIAL, FURNISH.

LIGHTING UNIT COMPLETE, SPECIAL

This item shall consist of furnishing and installing a light pole with davit arm and horizontal arm and LED luminaires (roadway and pedestrian) as directed by the Engineer and specified herein. Basis of design: Holophane Lighting Poles with Autobahn Luminaires. (Manufacturer Local Contact: Bryan Bolin, bryan.bolin@Holophane.com, 630-276-6575)

Material

Holophane Pole With Pedestrian Fixture: RTA30RFD201894

30FT (30FT fixture mounting height) Round Tapered Aluminum Davit Arm Pole With 6FT Davit Arm for American Electric Lighting ATB2-60BLED85-MVOLT-R3 Fixture And With Horizontal Pipe Arm At 16FT And 180 Degrees From Davit Arm for American Electric Lighting ATB0-20BLED53-MVOLT-R2 Fixture, Black Paint Finish, Anchor Bolts, Designed For 90 MPH AASHTO 2009.

Roadway – ATB2-60BLED85-MVOLT-R3

Autobahn LED Roadway – Large (ATB2): ATB2, 60B Chips, 850Ma Driver, Multi-Volt (120-277V), Roadway Type III, Black, NEMA Label, Shorting cap in place of Solid-State Lighting Photocontrol.

Ped – ATB0-20BLED53-MVOLT-R2

Autobahn LED Roadway – Small (ATB0): ATB0, 20B Chips, 525mA Driver, Multi-Volt (120-277V), Roadway Type II, 4000K (Standard), Black, Terminal Block (Standard), 3 Pin NEMA Photocontrol Receptacle (Standard), Shorting cap in place of Solid-State Lighting Photocontrol.

Guarantee. The Vendor shall provide a written guarantee for materials, and workmanship for a period of 6 months after final acceptance of the lighting system.

Documentation. All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operation of the equipment shall be delivered to the Engineer.

The manufacturer shall have been incorporated for at least five years and shall have at least five years in the design and manufacturing of roadway underpass lighting. The manufacturer shall provide evidence of financial strength to finance the production of the project by submitting the name of at least three projects completed in the previous calendar year of greater than \$250,000 each. All steel used in the project shall be certified to be provided domestically, and all fixture components used shall be manufactured domestically.

Method of Measurement

This work will be measured for payment in units of EACH.

Basis of Payment.

This work shall be paid at the contract unit price EACH for LIGHTING UNIT COMPLETE, SPECIAL.

LIGHTING UNIT COMPLETE, SPECIAL, (MATERIAL ONLY)

This item shall consist of furnishing to the City a light pole with davit arm and horizontal arm and LED luminaires (roadway and pedestrian) as directed by the Engineer, and specified herein. Basis of design: Holophane Lighting Poles with Autobahn Luminaires. (Manufacturer Local Contact: Bryan Bolin, bryan.bolin@Holophane.com, 630-276-6575). These materials should be delivered to the Evanston Service Center at 2020 Asbury Avenue, Evanston, IL.

Material

Holophane Pole With Pedestrian Fixture: RTA30RFD201894

30FT (30FT fixture mounting height) Round Tapered Aluminum Davit Arm Pole With 6FT Davit Arm for American Electric Lighting ATB2-60BLED85-MVOLT-R3 Fixture And With Horizontal Pipe Arm At 16FT And 180 Degrees From Davit Arm for American Electric Lighting ATB0-20BLED53-MVOLT-R2 Fixture, Black Paint Finish, Anchor Bolts, Designed For 90 MPH AASHTO 2009.

Roadway – ATB2-60BLED85-MVOLT-R3

Autobahn LED Roadway – Large (ATB2): ATB2, 60B Chips, 850Ma Driver, Multi-Volt (120-277V), Roadway Type III, Black, NEMA Label, Shorting cap in place of Solid-State Lighting Photocontrol..

Ped – ATB0-20BLED53-MVOLT-R2

Autobahn LED Roadway – Small (ATB0): ATB0, 20B Chips, 525mA Driver, Multi-Volt (120-277V), Roadway Type II, 4000K (Standard), Black, Terminal Block (Standard), 3 Pin NEMA Photocontrol Receptacle (Standard), Shorting cap in place of Solid-State Lighting Photocontrol..

Method of Measurement

This work will be measured for payment in units of EACH.

Basis of Payment.

This work shall be paid at the contract unit price EACH for LIGHTING UNIT COMPLETE, SPECIAL, FURNISH.

ARCHITECTURAL LIGHTING UNIT, SPECIAL

This item shall consist of furnishing and installing impact resistant LED wall luminaires in the bridge pilasters in accordance with the manufacturers specifications and as directed by the Engineer. Basis of design: BEGA 22 378 Wall Mounted Luminaire and LED Lamp.

Material

Bega LED Recessed Wall Mounted Luminaires – 22 378

Bega LED Recessed Wall - Wide Spread: 120V – 277V electronic LED Drive, 0-10V, TRIAC, and ELV Dimmable. LED color temperature 4000K.

Guarantee. The Vendor shall provide a written guarantee for materials, and workmanship for a period of 6 months after final acceptance of the lighting system.

Documentation. All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operation of the equipment shall be delivered to the Engineer.

Method of Measurement

This work will be measured for payment in units of EACH.

Basis of Payment. This work shall be paid at the contract unit price EACH for ARCHITECTURAL LIGHTING UNIT, SPECIAL. Payment shall include the cost of furnishing, transporting and installing the lighting units as depicted in the plans.

ARCHITECTURAL LIGHTING UNIT, SPECIAL, (MATERIAL ONLY)

This item shall consist of furnishing impact resistant LED wall luminaires to the City. Basis of design: BEGA 22 378 Wall Mounted Luminaire and LED Lamp. These materials should be delivered to the Evanston Service Center at 2020 Asbury Avenue, Evanston, IL.

Material

Bega LED Recessed Wall Mounted Luminaires – 22 378

Bega LED Recessed Wall - Wide Spread: 120V – 277V electronic LED Drive, 0-10V, TRIAC, and ELV Dimmable. LED color temperature 4000K.

Guarantee. The Vendor shall provide a written guarantee for materials, and workmanship for a period of 6 months after final acceptance of the lighting system.

Documentation. All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operation of the equipment shall be delivered to the Engineer.

Method of Measurement

This work will be measured for payment in units of EACH.

Basis of Payment

This work shall be paid at the contract unit price EACH for ARCHITECTURAL LIGHTING UNIT, SPECIAL, FURNISH.

LUMINAIRE SAFETY CABLE ASSEMBLY

Effective: January 1, 2012

Description

This item shall consist of providing a luminaire safety cable assembly as specified herein and as indicated in the plans.

Materials

Materials shall be according to the following:

Wire Rope. Cables (wire rope) shall be manufactured from Type 304 or Type 316 stainless steel having a maximum carbon content of 0.08 % and shall be a stranded assembly. Cables shall be 3.18 mm (0.125") diameter, 7x19 Class strand core and shall have no strand joints or strand splices.

Cable terminals shall be stainless steel compatible with the cable and as recommended by the cable manufacturer. Terminations and clips shall be the same stainless steel grade as the wire rope they are connected to.

U-Bolts. U-Bolts and associated nuts, lock washers, and mounting plates shall be manufactured from Type 304 or Type 316 stainless steel.

CONSTRUCTION REQUIREMENTS

General. The safety cable assembly shall be installed as indicated in the plan details. One end of the cable assembly shall have a loop fabricated from a stainless steel compression sleeve. The other end of the cable assembly shall be connected with stainless steel wire rope clips as indicated. Slack shall be kept to a minimum to prevent the luminaire from creeping off the end of the mast arm. Unless otherwise indicated in the plans, the luminaire safety cable shall only be used in conjunction with luminaires which are directly above the traveled pavement.

Method of Measurement

This work will be measured for payment in units of EACH.

Basis of Payment

This work shall be paid for at the contract price EACH for LUMINAIRE SAFETY CABLE ASSEMBLY, which shall be payment for the work as described herein and as indicated in the plans.

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	mm	ln
31.75	1.25	31.75	1.25
38.10	1.50	38.10	1.50

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:

Duct Diameter		Min. force required to deform sample 50%	
mm	in	N	lbs
35	1.25	4937	1110
41	1.5	4559	1025

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

Description. This work shall consist of the removal and disposal of regulated substances according to Section 669 of the Standard Specifications as revised below.

Contract Specific Sites. The excavated soil and groundwater within the areas listed below shall be managed as either “uncontaminated soil”, hazardous waste, special waste or non-special waste. For stationing, the lateral distance is measured from centerline and the farthest distance is the offset distance or construction limit, whichever is less.

Site #: CENTRAL STREET

- Station 103+00 to Station 109+00 from 200 feet RT to 200 feet LT. This material meets the criteria of Article 669.05(b)(1) and shall be managed in accordance to Article 669.05. Potential contaminants of concern sampling parameters: Ph of soil is greater than 9.0.

Work Zones

Three distinct OSHA HAZWOPER work zones (exclusion, decontamination, and support) shall apply to projects adjacent to or within sites documents leaking underground storage tank (LUST) incidents, or site under management in accordance with the requirements of the Site Remediant Program (SRP), Resource Conservation and Recovery Act (RCRA), or Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or as deemed necessary. For this project, the work zones apply for the following ISGS PESA Sites: **NONE.**

USGA PUTTING GREEN

This work shall be done in accordance with the applicable portion of Sections 252 and 1081 of the Standard Specifications for Road and Bridge Construction and *A Guide to Constructing the USGA Putting Green (Updated on 02/22/2018)* by the United States Golf Association (USGA). The contractor shall have been incorporated for at least five years and shall have at least five years of experience in the design and construction of golf course putting greens.

Description

This work shall consist of constructing a USGA putting green just south of Central Street as shown in the plans. Prior to beginning any work, the USGA putting green area shall be laid out by the contractor for approval by the Engineer and Canal Shores.

Material

Materials shall be according to *A Guide to Constructing the USGA Putting Green (Updated on 02/22/2018)* and to applicable sections of 1081.

Method

The USGA Putting Green shall be constructed in accordance with *A Guide to Constructing the USGA Putting Green (Updated on 02/22/2018)*:

- Step 1 – Team: Prior to each step the layout and materials shall be approved by the Engineer.

- Step 2 – Subgrade: The subgrade should be established approximately 16 inches below the proposed surface grade and shall be thoroughly compacted.
- Step 3 – Drainage: Pipe Underdrains 4” shall be constructed as shown on the plans. The Pipe Underdrains 4” shall maintain a consistent slope to the outlet of at least 0.5%. The pipe shall be perforated polyvinyl chloride (PVC) or corrugated polyethylene (PE) pipe minimally conforming to ASTM D2729 or ASTM F667, respectively.
- Step 4 – Gravel Layer: Once the underdrain is installed, the entire subgrade shall be covered in a 4-inch gravel layer including over the underdrains. The gravel shall meet the size recommendations of Table 1 of the USGA-PG.
- Step 5 – Root Zone Mix: The particle size distribution of USGA Root Zone Mix shall meet the requirements of Table 3 and the physical properties of Table 4 of the USGA-PG. The root zone components shall be mixed off-site.
- Step 6 – Rootzone Installation: The thoroughly mixed root zone material shall be placed on the green site and firmed to a uniform depth of 12 inches. To discourage migration into the gravel layer the root zone mix should be moist when spread.
- Step 7 – Plant Establishment: The Contractor shall utilize a “Creeping Bent Grass” seed mixture. To ensure better coverage the seed mixture shall be panted in two directions. After Seeding, leaf rakes shall be utilized to work the seed into the upper 0.5-inch of the rootzone mixture.
- Step 8 – Grow In: Since sand-based rootzones are prone to drying out at the surface, proper irrigation is critical. The contractor shall gently “hand water” the green to ensure proper germination of the seed while reducing the risk of disrupting the surface.

Surplus and waste materials resulting from the construction of the USGA Putting green shall be disposed of according to Article 202.03.

Method of Measurement

USGA PUTTING GREEN will be measured in place and the area computed in square yards (square meters). To be acceptable for final payment, the sod shall be growing in place for a minimum of 60 days in a live, healthy condition. PIPE UNDERDRAINS, TYPE 3 will be measured in linear feet installed.

Basis of Payment

This work will be paid for at the contract unit price per square yard (square meter) for USGA PUTTING GREEN. Payment shall include the cost of excavation, subgrade preparation, construction of the gravel layer, preparation and placement of the root zone mixture, seed bed preparation, fertilization, watering and disposal of any debris.

Installation of the pipe underdrains and headwall will be paid for at the contract unit price per FOOT (meter) installed for PIPE UNDERDRAINS 4” and at the contract unit price per each for CONCRETE HEADWALL FOR PIPE UNDERDRAIN.

USGA GREEN RELOCATION

This work shall be done in accordance with the applicable portion of Sections 252 and 1081 of the Standard Specifications for Road and Bridge Construction and *A Guide to Constructing the USGA Putting Green (Updated on 02/22/2018)* by the United States Golf Association (USGA). This work shall be constructed between October 1st, 2019 to November 15th, 2019 prior to the

equipment storage area being constructed and set up. The contractor shall have been incorporated for at least five years and shall have at least five years of experience in the design and construction of golf course putting greens.

Description

This work shall consist of salvaging existing putting green sod from the proposed construction equipment storage area and relocating the salvaged putting green sod to expand an existing putting green located just north of Lincoln Street as shown in the plans.

Material

The relocated putting green sod to be salvaged shall be cut from the existing practice green just south of Central Street as depicted in the plans.

Method

The destination site of the relocated green shall be prepared prior to cutting the existing green turf. Prior to beginning any work, the green relocation area shall be laid out by the contractor for approval by the Engineer and Canal Shores. Taking care not to damage the existing green at the relocation site, the relocation site preparation will include removal of the existing turf, topsoil and subgrade down to a level approximately 14-inches below the proposed finished grade. The grade, depth, and condition of the area must be approved by the Engineer prior to placement of the Root Zone Mixture.

The contractor will then install the Root Zone Mixture in accordance with Step 5 of the USGA-PG. The thoroughly mixed root zone material shall be placed on the relocation site and firmed to a uniform depth of 12 inches. The Contractor shall contact the regional USGA Green Section office for fertilizer recommendations. The salvaged green turf shall be placed in the prepared surface with the edges in close contact and alternate courses staggered. Within two hours after the sod has been placed, water shall be applied in accordance with Article 252.08.

Surplus and waste materials resulting from sodding operations shall be disposed of according to Article 202.03.

Method of Measurement

USGA GREEN RELOCATION will be measured in place and the area computed in square yards (square meters). To be acceptable for final payment, the sod shall be growing in place for a minimum of 30 days in a live, healthy condition.

Basis of Payment

This work will be paid for at the contract unit price per square yard (square meter) for USGA GREEN RELOCATION. Payment shall include the cost of cutting and salvaging existing green sod, transporting excavated material, relocation site preparation and root zone mixture preparation, fertilization, placement of salvaged putting green sod, watering and disposal of any debris.

FENCE (SPECIAL)

This work shall be constructed in accordance with the manufacturer's specifications.

Description

This work shall consist of constructing Round Rail Fence (3-Rail) at locations shown in the plans. Prior to beginning any work, the proposed fence location shall be laid out by the contractor for approval by the Engineer and Canal Shores.

Material

The fence shall be constructed of Natural Michigan White Cedar.

Method

- Step 1 – Layout: Prior to beginning any work, the proposed fence location shall be laid out by the contractor for approval by the Engineer and Canal Shores. The contractor shall space the posts for 8' long rails.
- Step 2 – Posts: Posts for 3-Rail Fence shall be 7' tall. The post hole shall be excavated to 42". A 6" layer of gravel shall be placed at the bottom of the hole to allow water to drain from the bottom of the post. The resulting fence height should be 4' above the finished ground.
- Step 3 – End Posts: The end posts should be back filled with cement to provide structural stability to the fence line.
- Step 4 – Post Rails: Round 8' long Natural Michigan White Cedar wood rails shall be utilized. The post installation should start from the lowest hole first, the middle hole and then the top hole. The rails should be symmetrical and evenly spaced.

Surplus and waste materials resulting from the construction of the Split rail fencing shall be disposed of according to Article 202.03.

Method of Measurement

This item will be measured for payment along the top of the fence from center to center of the posts. The unit of measure will be in FOOT.

Basis of Payment

This work will be paid for at the contract unit price per FOOT for FENCE (SPECIAL).

STREET SWEEPING

Add the following paragraphs to Article 107.15:

"The Contractor shall utilize a mechanical street sweeper to clean streets affected by the Contractor's operations, including haul routes, at least twice per week and additionally as directed by the Engineer. The street-sweeper shall be a full-sized, municipal-type sweeper having dust collection and street washing capabilities. If, in the opinion of the Engineer, dust becomes a problem despite the normal cleanup measures of street sweeping, the Contractor shall use DUST CONTROL WATERING to wash down the pavement, spread calcium chloride as a palliative, or re-sweep streets as necessary, all at no additional cost. The Contractor shall keep sufficient quantities of calcium chloride on site, for use as directed by

the Engineer for dust control. The contractor shall provide cleanings twice per week and additionally as directed by the Engineer.

When requested by the Engineer the contractor shall provide street sweeping or a water tanker truck within 4 hours of being requested and by 3 P.M. each day requested for the street locations he/she has previously worked and/or the locations as directed by the Engineer. This work shall include all labor, material & equipments necessary to complete the work. If the contractor fails to meet these requirements a penalty in accordance with Article 105.03 in the Standard Specification shall be applied.

Method of Measurement

This work shall be measured per HOUR for STREET SWEEPING.

Basis of Payment

This work will be paid for at the Contract unit price per HOUR for STREET SWEEPING, which price shall be payment in full for labor, equipment and materials required to complete the work.

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 Gradations CA-1, CA-2 CA-3, or CA-4.

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 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 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.

Construction entrances crossing curb & gutter, sidewalks, and/or other roadway appurtenances shall include protection for these items. The cost of such protection shall be included in the unit price for STABILIZED CONSTRUCTION ENTRANCE. If any of these appurtenances are damaged by the Contractor, they shall be repaired or replaced to the Engineer's satisfaction at the Contractor's cost.

Method of Measurement

The Stabilized Construction Entrance will be measured in place and the area computed in SQUARE YARDS.

Basis of Payment

This work shall be paid for at the contract unit price per SQUARE YARD for STABILIZED CONSTRUCTION ENTRANCE, which includes all equipment, labor and materials necessary to construct, maintain and remove the entrance.

DUST CONTROL WATERING

Description

This work shall consist of furnishing and applying water to control dust and air-borne dirt generated by construction activities.

General

This work shall be performed according to Article 107.36 of the "Standard Specifications" and the following:

Revise Article 107.36 of the "Standard Specifications" as follows:

Replace sub-paragraph (d) of under the third paragraph with the following:

(d) Dust shall be controlled by the uniform application of sprinkled water and shall be applied only when directed and in a manner approved by the Engineer. All equipment used for this work shall meet with the Engineer's approval and shall be equipped with adequate measuring devices for determining the exact amount of water discharged. All water used shall be properly documented by ticket or other approved means.

The Contractor is reminded of the provisions of Article 107.18 of the Standard Specifications regarding the procurement of water from fire hydrants.

Method of Measurement

This work will be measured in UNIT of gallons of water applied. One UNIT is equivalent to 1,000 gallons of water applied.

Basis of Payment

This work will be paid for at the contract unit price per unit for DUST CONTROL WATERING. The unit price shall include all equipment, materials and labor required to control dust.

PLUG EXISTING DRAINS

Description

This work shall consist of plugging existing drain(s).

The work shall be performed using a mechanical plug or an alternative method which provides a watertight seal for the full inside circumference of the pipe.

Method of Measurement

All plugged existing drains shown on the plans will be measured for payment on an EACH basis.

Basis of Payment

The work shall be paid for at the contract unit price EACH for PLUG EXISTING DRAINS, which price shall be payment in full for performing all work described herein.

PROPOSED STORM SEWER CONNECTION TO EXISTING MANHOLE

Description

This work shall consist of connecting proposed storm sewer as shown on the plans to an existing manhole.

The work shall be performed using a coring device and comply with specifications outlined in ASTM Standard C923.

Method of Measurement

All proposed storm sewer connection to existing manhole shown on the plans will be measured for payment on an EACH basis.

Basis of Payment

The work shall be paid for at the contract unit price each for PROPOSED STORM SEWER CONNECTION TO EXISTING MANHOLE, which price shall be payment in full for performing all work described herein.

DUCTILE IRON SLEEVE, 12"

Description

This work shall consist of installing ductile iron sleeves as shown and detailed on the plans.

Materials and installation methods are to meet or exceed the following requirements:

Ductile Iron Pipe

- A. Minimum Thickness Class: 1. 4 inch (100 mm) through 24 inch (600 mm) sizes: Class 53 per AWWA C151.
- B. Cement-mortar lined: per AWWA C104 with asphalt seal coat.
- C. External coating: asphalt per AWWA C 151.

Joint Type

Use push-on type, except as otherwise required in the contract documents.

1. Push-on: per AWWA C111.
2. Mechanical: per AWWA C111.
3. Restrained, buried: Pipe manufacturer's standard field removable system.
4. Restrained, in structures: Restraining gland, flanged or grooved.
5. Flanged: AWWA C111.
6. Grooved: AWWA C606.
7. Gaskets: Per AWWA C111.

Spacers

Use manufactured casing spacers to position carrier pipe in casing. Wood skids will not be allowed.

Use the following material requirements for casing spacers:

1. HDPE Band/Panel and Riser: ASTM D 638.
2. Stainless Steel or Carbon Steel Band/Panel and Riser: Type 304 stainless steel per ASTM A 240 or carbon steel per ASTM 36.
 - a. Liner: Elastomeric PVC per ASTM D 149.
 - b. Spacer Skid/Runner: Abrasion resistant polymer with a low coefficient of friction.
 - c. Fasteners: Type 304 (18-8) stainless steel per ASTM A 193.

End Seal

Manufactured synthetic rubber casing end seal with a minimum 1/8 inch (3 mm) thickness and stainless steel bands and fasteners.

Ductile Iron Sleeve Installation Through Abutments And Piers

Clean dirt and debris from the casing pipe after installation.

Install casing spacers to pipe sections as necessary to support pipe barrel according to the pipe manufacturer's recommendation. Space according to the pipe manufacturer's recommendation. As a minimum, place a spacer at each opening in abutments and piers. Do not allow pipe to be supported by joint bells. Lubricate casing spacers with drilling mud or flax soap. Do not use petroleum-based lubricants or oils.

Method of Measurement

All ductile iron sleeve, 12" shown on the plans will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per FOOT for DUCTILE IRON SLEEVE, 12", which price shall be payment in full for performing all work described herein.

SANITARY SEWER 15"

MANHOLES, SANITARY, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID
SANITARY SEWER REMOVAL 15"

Description

Work includes furnishing and installing ASTM Specification C76 Class V Wall B or C Reinforced Concrete Pipe with Circular Reinforcement Pipe Joint with Recessed Groove as specified in ASTM C-361. The Gasket shall be as specified in MWRDGC Section 33-0504 Precast Concrete Gravity The work shall also include making a sealed connection between the proposed sewer and an existing sewer or existing or new manhole/ junction box.

Manhole construction to meet or exceed MWRDGC Standard Drawing No. 39 - TYPICAL SANITARY MANHOLE "A" AND "B" DETAIL and all applicable standard specifications of MWRDGC.

Construction

Cutting of pipe to facilitate construction shall be considered included in the unit price per foot of sanitary sewer. All jointing materials shall be as furnished by manufacturer of pipe and fittings and as specified above. Bedding, haunching, and initial backfill to a height of 4.0 inches above the pipe, excavation, hauling, and disposal of excess material is included in the cost of this item. In areas where the sanitary sewer is in non-paved areas, backfilling the trench with native materials is included in the cost of this pay item. Sanitary sewer shall follow lines and grades per the plan.

Sheeting and bracing may be placed in the trench. Sheeting and/or bracing shall be progressively removed as the backfill is placed in such a manner as to prevent the caving-in of the sides of the trench or excavation and to prevent damage to the work. Sheeting which is placed shall not be removed until the backfill has been placed and thoroughly compacted. While being pulled, all vacancies left by the sheeting shall be carefully filled with sand free from silt, rammed into place, puddled or otherwise firmly compacted.

Testing shall be performed according to the requirements set forth in these specifications and as directed by the Engineer. All testing and fittings shall be included in the unit price of SANITARY SEWER of the size specified.

For connection to existing sewers or manholes. A concrete collar shall be used for connection of dissimilar materials. When tying into existing manhole, all existing leaks must be sealed. When connections are made, special care must be taken that no part of the work is built under water. A flume or dam must be installed and bypass pumping maintained if necessary, to keep the new work dry until completed and concrete or mortar has properly cured.

All sewer pipe installations must be inspected by the MWRD. This means that no backfilling or closing of a sewer pipe trench can be accomplished until specific permission to do so has been given by authorized personnel representing MWRD. Upon approval, backfilling or closing of trenches will be completed immediately.

MWRD Sanitary Sewer Specifications

This work shall consist of furnishing and installing underground sanitary sewers and manholes of the required material and dimensions complete with necessary fittings. All sewers, manholes and appurtenances shall be constructed and tested in accordance with the Manual of Procedures for the Administration of the MWRDGC Sewer Permit Ordinance, latest edition, the requirements of the Standard Specifications for Water and Sewer Construction in Illinois, 2014, Seventh Edition and the Recommended Standards for Sewage Works, latest edition. The more stringent requirements contained in the above documents cited shall apply. The Contractor shall furnish the specified materials per the details included in the plans.

The Contractor shall provide all labor, material and equipment required to furnish and install sanitary sewers, manholes and appurtenances, and all other improvements shown on the plans as required to perform the work and as specified herein.

This work shall also be done according to the specifications and Special Provisions of the MWRDGC.

The extent of sanitary sewer work as shown shall include the following: Trench excavation, augering, backfill and cleanup, pipe installation, manholes, fittings, connecting to existing sanitary sewers, connection to proposed manholes, cut offs and plugs if required, bedding, testing, shoring and bracing. Fittings such as couplers and boots shall be included in the Contractors unit prices for sanitary sewer.

MWRDGC will have a representative present during stages of construction to approve sanitary materials, handling and installation. **No sanitary sewer work shall commence until the MWRDGC has been notified and a MWRDGC representative is on site.**

Existing Conditions

1. The location of underground utilities shown on the drawings represents the best information of the MWRDGC. The Contractor shall determine the location of underground utilities and perform his work in a manner which will avoid damage.

- a. Should unidentified or incorrectly located piping or other utilities be encountered during the performance of the work, the Contractor shall consult the Engineer immediately for instructions on how to proceed.
- b. If existing utilities are to remain in place, the Contractor shall provide adequate means of protecting such utilities from any damage which may be caused by his construction operations. Contractor shall repair any such damage to the satisfaction of the Engineer at no additional cost to the Utility Owner.
- c. If existing utilities are to be removed, they shall be demolished and completely removed from site. Contractor shall consult with the Engineer and Utility Owner / City before any utility services are shut-off or disconnected.

Sanitary Sewer Inspection And Testing Cleaning

All sewers and appurtenances shall be cleaned prior to inspection and tested as required by these standards.

Visual Inspection

1. All sewer and appurtenances shall be laid with the use of a laser and visually inspected by representatives of the contractor during and following construction.
2. Sewers designed to be straight between manholes will be tested for straightness by flashing a light from manhole to manhole, lamping or by other suitable means.
3. Contractor shall verify sanitary sewer grades with a surveying level.

T.V. Inspection – Internal Televising Inspection Of Pipe

1. Upon completion of construction but prior to initiation of the maintenance guarantee period, or as deemed necessary during the construction of the sanitary sewer, an internal inspection of the sewer shall be performed. A digital video file and a written report of all television inspections shall be provided to the City prior to connecting individual services and prior to the initial acceptance required by these Standards. The form of the report and type and format of the digital video file shall be approved by the MWRDGC representative. The digital file shall be high quality and resolution, and the attached report shall indicate all sags, connections, leaks and defects.
2. Fees and costs connected with such inspections including televising shall be at the expense of the contractor.
3. All dips, cracks, leaks, improperly sealed joints, and departures from approved grades and alignment detected by such inspections shall be repaired by the contractor.
4. All defects and corrective work required as the result of such inspection shall be performed by the contractor without delay. Upon completion thereof, the sewer shall be retested and further inspection made as deemed necessary by the Engineer and City.

Infiltration Testing

1. It is the intent of these Standards to obtain a sanitary sewer system with a minimum amount of infiltration. The maximum allowable infiltration shall not exceed one hundred (100) gallons per inch of diameter of sewer per mile per twenty-four (24) hour day at any time for any section of the system. The manhole and sewer joints shall be tight and any joint with visible leakage or leakage in excess of that specified above, shall be repaired at the contractor's expense.
2. The repair must be of a permanent nature and of a quality equal to the initial work which was constructed in conformance with the applicable specifications.
3. Immediately after backfilling, the entire length of the sewer trench, including stubs, shall be inundated to normal ground water level or eighteen (18) inches above the top of the sewer pipe, whichever is higher. Permission for using metered hydrant water must be obtained from the City of Evanston Public Works Department. At that time infiltration tests will be made to determine compliance with the allowable infiltration criteria. To measure the amount of infiltration, the contractor shall furnish, install, and maintain a V-notch crested weir in a metal frame tightly secured at the lower end of each sewer test section as directed by the MWRDGC representative. The MWRDGC representative will check the infiltration by measuring the flow over such weirs. When infiltration is demonstrated to be within the allowable limits, the contractor shall remove such weirs only after the MWRDGC has approved the sewer line.

Exfiltration Testing

If during the construction of the sewer system, the MWRDGC representative shall determine that it is impractical to obtain a proper infiltration test or that an alternate test is preferable, then a test for watertightness shall be made by bulkheading the sewer at the manhole at the lower end of the section under test and filling the sewer trench with water to eighteen (18) inches above the top of the sewer in the manhole at the upper end of the section. Leakage will then be the measured amount of water added to maintain the above described level at a maximum allowable exfiltration rate of one hundred (100) gallons per inch of diameter of sewer per mile per twenty-four (24) hour day at any time for any section of the system.

Air Testing

In lieu of infiltration or exfiltration testing, the MWRDGC representative may permit or require air testing in accordance with ASTM C828.

Completion Of Work

When the work is completed, all surplus material, earth, rubbish, etc., shall be removed from the construction area by the contractor and that portion of the surface of each street disturbed by construction shall be left in as good a condition as it was before commencement of the work. The sanitary sewer work shall be accepted by the MWRD representative.

Record Drawings

Prior to acceptance of the sewer, record drawings shall be submitted to MWRDGC. The record drawings shall indicate all manhole and individual service locations, length, slope, and material of all sewers and shall be certified as to accuracy by an Illinois Licensed Professional Engineer or Professional Licensed Surveyor. As record drawings with GPS coordinates of the new MWRD facilities, including the manhole(s) shall be provided to MWRD.

Method of Measurement

All work shown on the plans will be measured for payment for each of the various items of water main on the following basis:

SANITARY SEWER 15" – per FOOT

MANHOLES, SANITARY, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID - EACH

SANITARY SEWER REMOVAL 15" – per FOOT

Basis of Payment

The work shall be paid for at the contract unit price for

SANITARY SEWER 15"

MANHOLES, SANITARY, 6'-DIAMETER, TYPE 1 FRAME, CLOSED LID

SANITARY SEWER REMOVAL 15"

which price shall be payment in full for performing all work described herein.

STORM SEWERS, TYPE 1, WATER MAIN QUALITY PIPE, 10"

Description

This work shall consist of installing storm sewers of water main quality at locations indicated on the plans.

All items covered under this work shall meet or exceed requirements set forth in the specifications for DI WATER MAIN 8", SPECIAL.

Method of Measurement

All storm sewers, type 1, water main quality pipe, 10" on the plans will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per foot for STORM SEWERS, TYPE 1, WATER MAIN QUALITY PIPE, 10", which price shall be payment in full for performing all work described herein.

STORM SEWERS, TYPE 1, WATER MAIN QUALITY PIPE, 15"

Description

This work shall consist of installing storm sewers of water main quality at locations indicated on the plans.

All items covered under this work shall meet or exceed requirements set forth in the specifications for DI WATER MAIN 8", SPECIAL.

Method of Measurement

All storm sewers, type 1, water main quality pipe, 15" on the plans will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per foot for STORM SEWERS, TYPE 1, WATER MAIN QUALITY PIPE, 15", which price shall be payment in full for performing all work described herein.

**DI WATER MAIN 8", SPECIAL
DUCTILE IRON WATER MAIN 8"
VALVE VAULTS, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID
FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX
FIRE HYDRANTS TO BE REMOVED
CORPORATION STOPS 2"
WATER VALVES 8"
CUT AND CAP EXISTING 8" WATER MAIN
CONNECTION TO EXISTING WATER MAIN 8"
WATER MAIN REMOVAL 8"**

Description

All water main work associated with this item shall comply with Illinois Department of Transportation Standard Specifications for Road and Bridge Construction sections 561 through 565 and Standard Specifications for Water & Sewer Construction in Illinois 7th Edition other than as modified in this special provision.

Add the following to Article 561.01:

"Where shown on the Drawings, Line Stopping shall be performed. This work shall involve the placement of a self-contained hydraulic unit within an operating water main for the

purpose of installation of a valve and/or other connection with the existing system without interruption of service."

Add the following to Article 561.02:

- (a) Line Stops. The line-stop unit shall be a self-contained hydraulic (hand pump operated) ram. The line-stopping device shall be of such a design that, when hydraulic pressure is applied, the bladder will expand and conform to the I.D. of the pipe and tuberculation inside the main (if any) will be moved outside of the sealing area.

The line-stop shall be of the 'Short Stop' variety, which will require removing only the top of the pipe during the operation. All fittings shall employ an I.D. thread, screw-type engagement together with O-Ring seal for bubble-tight completion. After insertion of plug, a screw-on cap will be used and bolted down. The system shall be capable of containing a water pressure of 150 psi. The line-stopping system shall be Hydro-Stop. Line-stop sleeves shall be Style "Evanston Sleeve Total Seal" Extra Heavy Duty as manufactured by Hydro Stop.

- (b) Fittings. All fittings furnished shall be ductile iron conforming to AWWA Standard for Ductile Iron Compact Fittings C153, 350 psi rating. Fittings shall be mechanical joint and shall be equipped with Mega-Lug joint restraining glands. Restraining glands which rely on the bearing of screw-points on the water main wall shall not be utilized. All fittings shall be cement-mortar lined inside and bituminous-coated outside, in accordance with Sec. 51-8 - ANSI A21.51 (AWWA C104 and C151).

- (c) Valves. Gate valves and tapping valves with sleeve and cut in-valves 24-inches and smaller in size shall be resilient wedge mechanical joint type, manufactured to meet or exceed the requirements of AWWA C515, latest revision. Gate valves larger than 24-inches in size shall be of double disc type to meet AWWA C500 requirements and shall be in accordance with the following specifications:

- i. Valves shall be Waterous Series 2500 and shall have the manufacturer and year cast on the body with raised letters.
- ii. Valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve. The sealing mechanism shall consist of a cast iron gate having a vulcanized synthetic rubber coating. The resilient sealing mechanism shall provide zero leakage at the design water pressure of 150 psi when installed with the line flow in either direction. All valves are to be tested in strict accordance with AWWA C515 or AWWA C500.
- iii. Valves shall have non-rising stems made of cast, forged, or rolled bronze shown in AWWA C515. Two stem seals shall be provided and shall be of the O-ring type.
- iv. Valves shall be equipped with cast iron operating nuts and shall be secured to the stem with stainless steel bolts. Valves shall turn counterclockwise, or left (looking downward at the operating nut) to open.

- v. The valve body, bonnet and cover shall be cast iron ASTM A126, Class B. All internal and external surfaces shall be coated with epoxy to a minimum thickness of 4 mils. Bonnet bolts shall be stainless steel.
- (d) Fire hydrant with auxiliary valve and valve box. Hydrants shall conform in all respects to the American Water Works Association Standard C502 latest revision and shall meet the following specifications:
- i. Hydrants shall be Waterous Pacer. The hydrant shall have a breakaway flange at the ground line and shall be for five and one-half (5-½) or six (6) feet of cover as appropriate. Hydrant size shall be 5-¼ inch valve opening with a 6-inch mechanical joint inlet connection. Stem seals shall be "O-Ring" type. Hydrants shall be equipped with drain outlets. Finish color above the ground line shall be red. Note red color shall extend at least 6-inches below the intended ground line. Hydrant shall be installed such that the breakaway flange is installed within two (2) inches of the finished grade. The breakaway flange must not be buried. All buried bolts shall be stainless steel. Hydrant extension is allowed to adjust to minimum grade requirements.
 - ii. Hydrants furnished shall be for buried installation with two 2 ½ inch hose connections and one 4-inch pumper nozzle, National Standard Threads. Operating and outlet nozzle cap nuts shall be of pentagon shape in conformance with Section 3.2.9.8 of AWWA Standard. Suitable nozzle caps, gaskets, and chains shall be provided.
 - iii. All auxiliary valves used for hydrant installation shall be in conformance with the specifications of AWWA C515. Valve boxes used for auxiliary hydrant valves shall be 5-¼-inch shaft diameter with cover marked "WATER". All boxes shall be F-2450 as manufactured by CLOW CORP or Tyler 6850-664S. The auxiliary valve shall be installed 2 feet from the fire hydrant or as specified by the Engineer.
 - iv. Where existing fire hydrants are being replaced, the replacement shall include removal of all existing hydrant components, including: the existing connection to the water main, the water main to the hydrant, hydrant valve, valve box and hydrant. Care shall be exercised in the removal of the existing hydrant and valve such that they are not damaged. The existing valve and hydrant shall be stored by the Contractor to the end of the Project or other time during the Project designated by the Engineer, at which time it shall be delivered to the Owner.

Installation of New or Replacement Fire Hydrant shall include all new components, including: tee fitting equipped with Mega-Lug joint restraining glands at the water main, extensions or reduction in height, 6-inch DIP hydrant water supply main from the tee, auxiliary hydrant valve, valve box and hydrant. Replacement components shall conform to all applicable specifications presented in Section 561. In order to achieve the required hydrant height from the ground surface shown on the drawings for replacement hydrants, a Gradelok, adjustable pipe offset shall be used, if necessary.

- v. All new fire hydrants installed mid-block shall be installed on the property line between two adjacent properties. New fire hydrants shall be covered with a burlap bag until they are placed in service. Existing fire hydrants which are taken out of service with the existing water main shall be covered with a burlap bag until they are removed.”
 - vi. Use of same class pipe material with main line is required on each proposed hydrant location. (If water main line is class 52, use class 52 for hydrant run).
- (e) Ductile Iron Pipe Water Main. All ductile iron pipe shall be thickness class 52 in accordance with AWWA Standard Specifications for Ductile Iron Pipe, External Zinc-Based Coated, centrifugally cast in Metal Molds for water or other Liquids - AWWA - C151 latest revision. Coating: The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m² of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The mean dry film thickness of the finishing layer shall not be less than 3 mils with a local minimum not less than 2 mils. The coating system shall conform in every respect to ISO 8179-1 "Ductile iron pipes - External zinc-based coating - Part 1: Metallic zinc with finishing layer. Second edition 2004-06-01." The whole of the above Specifications shall apply. The pipe shall be furnished with push-on joints. All pipe shall be cement-mortar lined inside and bituminous-coated outside, in accordance with Sec. 51-8 - ANSI A21.51 (AWWA C104 and C151). All ductile iron pipe must be clearly marked by the manufacturer to indicate pipe classification or pipe thickness. Unmarked pipe will not be accepted.
- (f) Tapping Sleeves and Valves. For water main extensions and water services greater than 2-inch, tapping sleeves are required which shall be CST-EX "Total Seal" Extra Heavy Duty all stainless steel tapping sleeve with drop-in stainless steel bolts and nuts as manufactured by Cascade Waterworks Manufacturing. Tapping valves shall be as specified under Article 561.02 Subparagraph (c.) and shall be secured using stainless steel T-bolts and nuts. Tapping sleeves shall be located a minimum of two feet clear distance from any existing joint or fitting.
- (g) Foster Adaptor. The device shall be Infact Corporation FOSTER ADAPTOR, which is included in the cost of the pay items listed above if required. Mechanical joint (MJ) valves and fittings shall be connected using a bolt-through positive restraint mechanism manufactured of U. S. A. ductile iron conforming to ASTM A536, 65-45-12. The positive restraint device shall connect the valves and/or fittings at a linear distance not to exceed three (3) inches and without attachment to pipe. The device shall come complete with all accessories, including standard styrene butadiene rubber (SBR) MJ gaskets conforming to the latest revision of AWWA C111/ASTM F-477 and weathering steel (Corten) bolts conforming to AWWA C111/A21.11 and ASTM A242. Nuts for 3 through 12-inch sizes shall be SAE Grade 5 steel with black oxide coating. Nuts for 14-inch and larger adaptors shall be heavy hex Corten steel conforming to ASTM A242. Sizes 3-12-inch of the bolt-through MJ positive restraining device shall be supplied with an NSF 61 asphaltic seal coating in accordance with ANSI/AWWA C104/A21.4. Sizes 14-36-inch shall be supplied with NSF 61, 7-mil. fusion bonded epoxy conforming to AWWA C116/

A21.16-09 as well as the coating, surface preparation and application requirements of ANSI/AWWA C550. For sewer installations, the device shall be supplied with 40-mil Protecto 401 epoxy. [Epoxy coating, blue Teflon® coated, and stainless steel hardware are available for all sizes.] The device shall be used with standard mechanical joint fittings (AWWA C110 or C153) and valves.

Shop drawings for water system components shall be submitted for approval as soon as possible, but not less than thirty (30) calendar days prior to the time when the components are intended to be installed."

Add the following additional sentences to Subparagraph (a) of Article 561.03:

"The trench shall have a flat bottom conforming to the grade to which the pipe is to be laid, and provided with a minimum of 5-feet, 6-inches of cover. Provide pipe insulation if cover is less than 5-feet or as outlined on the plans. Along the proposed pipe alignments indicated on the plans, the Contractor shall remove the surface materials only to such widths as will permit a trench to be excavated, which will afford sufficient room for efficient and proper construction. Where sidewalks, driveways, pavements, and curb/gutter are encountered, care shall be taken to protect such against fracture or disturbance beyond these working limits.

Prior to the placement of all pipes, bedding shall be placed on the trench bottom, compacted and shaped to receive the pipe. The pipe shall be placed as shown in the plans. Any part of the trench excavated below the grade shall be corrected with approved material, firmly compacted. Where the Contractor must excavate below the plan grade indicated because of unforeseen conditions, all additional excavation and backfilling will be considered incidental to the Contract. In some instances, trees, shrubs, utilities, sidewalks and other obstructions may be encountered, the proximity of which may be a hindrance to open-cut excavation for installation of water mains and appurtenances. In such cases, the Contractor shall excavate by means of auger in order to protect such obstructions against damage. Augering work shall be performed in accordance with the clearances and procedures specified in Article 550.04."

The trench shall be excavated to the alignment and depth required and may be advanced up to 50 feet ahead of the pipe laying operation during working periods and up to 10 feet ahead of pipe laying operations during non-work periods. Trenching operations shall be terminated at the end of each day's work in locations that do not obstruct roadways, alleys or driveways. In general, the length of open trench shall not exceed 70 feet from the forward cut to the completely backfilled trench nor shall more than one street crossing be obstructed by the same trench at any one time. Open cut excavations shall be reduced to a maximum length of 30 feet for overnight protection.

Open-cut trenches shall be supported as required to fully protect life, existing utilities, adjacent structures, pavements, and the Work. Trench support is an integral part of the Contractor's means and methods. The Contractor shall employ the services of a registered (Illinois) Structural Engineer, registered (Illinois) Professional Engineer, Geotechnical Engineer, and other professionals as necessary to prepare designs of support systems. The support systems shall conform to Federal laws, State laws and municipal ordinances. The minimum protection shall conform to the recommendations in O.S.H.A. Safety and Health Standards for Construction. A sand box or trench shield may be used as permitted by O.S.H.A.

Add the following subparagraphs to Article 561.03:

- (c) Notification. Wherever construction activities will disrupt water mains and/or individual water services, the Contractor shall develop a work plan for limiting the extent and duration of the disruption. This work plan shall be submitted to the City of Evanston Utilities Department for review and approval not less than two weeks before the planned disruption. No disruption will be permitted until said work plan has been reviewed and approved.

In addition, it is the responsibility of the Contractor to directly notify the City of Evanston Utilities Department, affected customers, and, if fire hydrants are affected, the City of Evanston Fire Department not less than 48-hours in advance of the start of the disruption, advising them of the planned time and duration of the disruption. Each disruption to the mainline system; an individual service; or, group of services, when they are being transferred to a new water main in a single, staged construction operation, shall be considered a separate occurrence, for which notification shall be provided. The Contractor shall also directly notify the City of Evanston Utilities Division not less than 48-hours in advance of mainline pressure-testing and disinfection operations. In cases where construction activities will require operation of water main valves, the City of Evanston Utilities Department will be responsible for the operation of the valves.

- (d) Installation. All pipe laying and the making of all joints shall be done strictly in accordance with manufacturer's directions and in accordance with AWWA C600 "Installation of Ductile Iron Water Mains and Their Appurtenances". Mechanical joint fittings shall be spaced a minimum of 2 feet apart. The Contractor shall be responsible for achieving the water-tightness specified. The method of handling and of placing pipe in the trench shall not damage the pipe. Pipe interiors shall be kept clean and the exposed ends of the pipe in the trench shall be closed by suitable watertight bulkheads at all times when pipe-laying is not actually in progress. Abrupt changes in pipe alignment shall be accomplished by use of appropriate fittings as shown on the Drawings. Wherever long horizontal or vertical curves are shown on the drawings, the pipe may be laid to such curves by uniformly deflecting the pipe joints along the arc of the curve to form a smooth radius. Pipe deflection shall not exceed one-half the maximum allowable joint deflection recommended by the pipe manufacturer. A temporary plug/cap or watertight protection is required for the end of pipe at the end of any working days and is considered incidental.

All required valve box extensions shall be made so that the top section is a minimum 2 feet in length. Blocking at bends, tees, caps, hydrants and valves shall be of poured Class SI concrete, a minimum of 12" thick, placed between solid ground and the fitting, and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs.

New and relocated fire hydrants shall be placed a minimum of three feet from the back of the curb unless otherwise directed by the Engineer. All fire hydrants on new mains shall be covered with burlap bags until such time that the Engineer notifies the Contractor that the burlap bags shall be removed."

Add Article 561.06, which shall read as follows:

Hydrostatic Tests. Hydrostatic tests will be performed according to Section 13 of the American Water Works Association Specifications, Designation: AWWA C600. The water main will be subjected to the hydrostatic pressure and leakage tests specified in the Special Provisions. Water for making the hydrostatic and leakage tests shall be furnished by the Contractor at his/her own expense and shall be of satisfactory bacteriological quality for drinking purposes.

"Only one connection of the new pipeline, as approved by the Engineer, shall be made to the present system prior to pressure-testing the new pipeline. Contractor shall provide all temporary bulkheads/plugs required for testing. Contractor shall test the pipeline in sections as approved by Engineer. The test shall be made by closing valves and filling the lines slowly with water. Care shall be used to see that all air is released during the filling of the pipeline. After the line or section thereof, has been completely filled, it shall be allowed to stand under a slight pressure for sufficient time to allow the escape of air from any air pockets. During this period the hydrants, valves, and other connections shall be examined for leaks. If any are found, they shall be stopped prior to the pressure test.

Pressure / Leak Test

Only one connection to the new water main, as approved by the Engineer and the City of Evanston Water and Sewer Division, shall be made to the present system prior to pressure testing the new water main. The Contractor shall provide all temporary bulkheads / plugs required for testing.

The Contractor shall test the water main in sections as approved by the Engineer and the City of Evanston Water and Sewer Division. The test shall be made by closing valves and filling the lines slowly with water, care shall be used to see that all air is released during the filling of the water main. After the line or section has been completely filled, it shall be allowed to stand under slight pressure for sufficient time to allow the escape of air from any air pockets. During this period, the hydrants, valves and other connections shall be examined for leaks. If any are found, they shall be repaired prior to the start of the pressure / leak test.

The test shall consist of holding a pressure on the water main of 150 pounds per square inch (psi) for a period of at least two (2) hours. The pressure during the two hour test cannot vary by more than 5 psi for the duration of the test.

Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe or any valve section thereof to maintain pressure within 5 psi of the specified test pressure after the water main has been filled with water and the air has been expelled. This leakage will be calculated after the 2-hour test has been completed. The water necessary to bring the pressure up to 150 psi from a measured container shall be the amount of leakage. Leakage will equal the amount of water used from the container.

No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$L = (S \times D \times \text{SQRT } P) / 133,200$ in inch-pound units:

Where:

L = allowable leakage, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = average test pressure during the leakage test, in psi (gauge)

Where it is not practical to pressure test the final connections to an existing water main, a visual inspection shall be carried out under normal working pressure before backfilling the trench. Any noticeable leakage shall be stopped and any defective pipe shall be replaced with new sections.

Add Article 561.07, which shall read as follows:

Disinfection of Water Main. Upon completion of the newly laid water main, the water main shall be disinfected according to the American Water Works Association, Procedure Designation: AWWA C651, except as modified herein. Bacteriological Tests shall follow AWWA C651 Option A, modified for sampling at 24 hour intervals as noted below.

Disinfection of Water Main

The basic disinfection procedure consists of:

1. Preventing contaminated materials from entering the water main during storage, construction or repair.
2. Removing, by flushing **at a velocity of 3.0 ft. /sec** those materials that may have entered the water main.
3. Chlorinating any residual contamination that may remain, and flushing the chlorinated water from the main.
4. Protecting the existing distribution system from backflow due to hydrostatic pressure test and disinfection procedures.
5. Determining the bacteriological quality by laboratory test after disinfection.
6. Final connection of the approved new water main to the active distribution system.

The Contractor shall provide all corporation cocks necessary for disinfection of the new water main. These corporation cocks shall be placed as necessary to facilitate testing and disinfection of the new water main, including chlorine application points and sample collecting points. These corporation cocks shall be located in valve vaults only, unless otherwise approved by the Engineer.

The new pipe shall be thoroughly flushed clean, at a velocity of 3.0 ft. /sec and pressure tested before disinfection is attempted. All disinfecting work shall be done by the Contractor with the approval of the Engineer. Heavy particulates generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing such organisms. It is therefore essential that the water main be thoroughly flushed before the final disinfection by chlorination is performed.

The method to be used for disinfecting the water main is referred to as the **Continuous-Feed Method using Chlorine Gas**. At a point not more than 10 feet downstream from the beginning of the new water main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 50 milligrams per liter (mg/l) free chlorine at the discharge end. The chlorine solution must be distributed uniformly throughout the length of the water main being disinfected.

After the contact period of not less than 24 hours, the water main shall be flushed until chlorine concentration of the water leaving the new water main is no higher than that generally prevailing in the distribution system (under one milligram per liter (mg/l)).

If there is any possibility that the chlorinated water will cause damage to the environment, then a neutralizing chemical shall be applied to the water to be wasted to neutralize thoroughly the chlorine residual remaining in the water. This neutralizing chemical must be approved for that purpose.

After final flushing and before the new water main is connected to the City's water distribution system, two consecutive sets of acceptable samples (no bacteria growth), taken at least 24 hours apart, shall be collected from the new water main. The second days' sample will be collected using only the water main pressure, no water main valves will be open for this sample and no flushing will be permitted. At least one set of samples shall be collected from every 1,200 feet of the new water main, plus one set from the end of the line, and at least one set from each branch or as required by the Engineer.

Sampling for bacteriological analysis shall be collected in sterile bottles treated with sodium thiosulfate as required by Standard Methods for the Examination of Water and Wastewater. No hose or fire hydrant shall be used to collect samples. Corporation cocks may be installed in the water main with a copper tube gooseneck assembly to obtain samples. After samples have been collected, the gooseneck assemblies must be removed.

The City of Evanston will take the samples and perform the lab testing. For acceptance, two consecutive sets of samples, taken at 24 hour intervals, shall indicate bacteriologically satisfactory water.

If the initial disinfection fails to produce satisfactory bacteriological results, the new water main may be reflashed and shall be resampled. For each time the City must resample, the Contractor shall be assessed fees to cover City costs as outlined below. If these samples also fail to produce acceptable results, the water main shall be rechlorinated by the continuous feed method until satisfactory results are obtained.

Failure to follow this procedure during pressure and chlorination testing may result in unacceptable results and may require the Contractor to incur additional costs in re-testing and cause project completion delays.

The interior of all mainline pipe, service pipe, fittings, valves, corporation stops, curb stops, and other water main or water service components which are likely to come in contact with potable water immediately after their installation or before chlorine-gas disinfection can be accomplished, shall be swabbed, soaked, or sprayed with a 2 percent hypochlorite solution before they are installed.

The Contractor shall provide all corporation cocks necessary for disinfecting the new pipeline. These corporation cocks shall be placed as necessary to facilitate testing and disinfection of the new water

main, including chlorine application points and sample collecting points. These corporation cocks shall be located in valve vaults. The new pipeline shall be flushed clean before disinfection is attempted. All disinfecting work shall be done by the Contractor under the direction and with the cooperation of the Engineer."

Contractors will be charged for each of the following additional tests when necessary because of Contractor's failure to pass the initial test:

Each Additional Pressure Test	\$167.00
Each Additional Chlorination	\$167.00
Each Additional Flushing and Sample Collection	\$167.00
Each Additional Sample Analysis (laboratory fee)	\$25.00

Add Article 561.08, which shall read as follows:

"561.08 Sequence of Work. Contractor shall submit a work plan indicating the sequence of water main installation not less than ten (10) calendar days prior to the planned start of work. This work plan shall include information as to where and how the flushing, pressure testing, and disinfection of the new pipeline will be carried out in such manner that will cause the least amount of water service interruption to the water customers. The work plan must be approved by the Engineer prior to installation of any water mains and shall conform to the following general sequences of installation listed.

Items of Work shall be completed in the following sequence unless otherwise approved in writing by the Engineer:

- 1) Placement of Temporary Traffic Control and Protection
- 2) Posting of No Parking Sign
- 3) Tree Protection Measures (Tree Canopy Pruning, Tree Root Pruning, Temporary Fencing)
- 4) Exploration Trenches as needed
- 5) Water Main Installation and Patching of Trench with temporary Hot-Mix Asphalt (To be completed as the end of each day)
- 6) Water Main Testing
- 7) Water Service Installation and Transfers, Final Interconnection, and Sewer Work
- 8) Permanent Trench Pavement Patching and Concrete Curb and Sidewalk Repairs where applicable or needed.
- 9) Initial Parkway Restoration (Final Grading of Topsoil) – Partial Completion Met
- 10) Paving Operations where needed.
- 11) Pavement Marking

12) Final Parkway Restoration (Installation of Sodding)

13) Punch List Work

Water Services

Residents affected by the installation of new water services must be notified **24 hours in advance and 15 minutes prior to the shutoff**. The Contractor must flush the new water service and make every effort to assure debris does not enter the existing portion of the water service as the new installation takes place. All water services shall be perpendicular to the new water main to the new round way and B Box. Provide pipe insulation if cover is less than 5-feet or as outlined on the plans.

Final Interconnections

After all of the water services have been installed and are in service the Contractor will make the connection(s) to the existing water main(s) as indicated in the plans.

The Contractor shall notify the Utilities Department 48 hours in advance of initiating these connections to allow the Utilities Department sufficient time to notify residents of the water service interruption and schedule the necessary valve closures. Only Utilities Department personnel may operate existing valves in the distribution system.

The Contractor must be prepared to make these connections in a timely fashion. A maximum of four (4) hours will be allowed per shutdown to complete the connections to existing water mains. Because these connections cannot be pressure tested or chlorinated, the Contractor must swab all pipe and fittings with a 2% hypochlorite solution using a new, clean long-string mop and the new section of main must be pressurized prior to backfilling. The Contractor shall also swab and chlorinate water main sections as outlined above that branch off the "main line" water main that may be difficult to properly flush.

Prior to back filling the Contractor must install the appropriate sized MJ end cap on the open end of all of the abandoned water main. Concrete blocks shall be installed beneath all of the connection points between the old and new water mains.

THE CONTRACTOR SHALL SUBMIT, FOR REVIEW BY THE CITY, A DETAILED CONSTRUCTION SCHEDULE AT THE PRE-CONSTRUCTION MEETING IN ACCORDANCE WITH THE FOLLOWING GUIDELINES.

"NO PARKING" SIGNS REQUIRED BY THE CITY INDICATE CONSTRUCTION ZONE NO PARKING MONDAY THROUGH FRIDAY BETWEEN THE HOURS OF 7:00AM TO 5:00PM.

The City will furnish temporary fire hydrants which are to be installed by the Contractor at the locations designated on the plans for the purpose of flushing the newly installed water main clean at a velocity of 3.0 ft. /sec. Prior to the final water main interconnections, the Contractor shall remove the temporary fire hydrant, store it in a safe location, and contact the City for pick up. This work shall be incidental to the water main construction, and no separate payment shall be made.

Method of Measurement

All work shown on the plans will be measured for payment for each of the various items of water main on the following basis:

DI WATER MAIN 8", SPECIAL – per FOOT
VALVE VAULTS, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID - EACH
FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX - EACH
FIRE HYDRANTS TO BE REMOVED - EACH
CORPORATION STOPS 2" - EACH
WATER VALVES 8" - EACH
CUT AND CAP EXISTING 8" WATER MAIN - EACH
CONNECTION TO EXISTING WATER MAIN 8" – EACH
WATER MAIN REMOVAL, 8" – per FOOT

Basis of Payment

Payment shall be made at the Contract unit price for each of the various items of water main, installed as specified, measured in place. These Contract unit prices shall be payment in full for all materials, labor, and equipment required but not paid for separately such as but not limited to: support of trench walls; shoring and bracing; dewatering of trenches; pipe; bends; fittings; restraining glands; installation and removal of temporary fire hydrants, which will be provided by the City; thrust blocks; support of pipe at water main connections; joint materials; hydrostatic testing; disinfection; bedding; backfill placement, compaction and compaction testing; testing; correction of defects; and, other work required to complete the installation which is not included under other pay items.

The work shall be paid for at the contract unit price for:

DI WATER MAIN 8", SPECIAL
VALVE VAULTS, TYPE A, 5'-DIAMETER, TYPE 1 FRAME, CLOSED LID
FIRE HYDRANT WITH AUXILIARY VALVE AND VALVE BOX
FIRE HYDRANTS TO BE REMOVED
CORPORATION STOPS 2"
WATER VALVES 8"
CUT AND CAP EXISTING 8" WATER MAIN
CONNECTION TO EXISTING WATER MAIN 8"
WATER MAIN REMOVAL, 8"

which price shall be payment in full for performing all work described herein.

WATER MAIN 8", SPECIAL

Description

This work shall consist of installing and connecting a water main suspended from the bridge as shown and detailed on the plans.

The steel pipe support system components such as steel pipe hangers and supports shall have the manufacturers name, part number, and applicable size stamped in the part itself for identification.

The following submittals are required as a part of this work item:

1. Product data on all hanger and support devices, including shields and attachment methods. Product data to include, but not limited to: materials, finishes, approvals, load ratings, and dimensional information for proposed hanger configuration. The design of the hangers shall be provided and sealed by a Profession Engineer licensed in the State of Illinois.
2. Design of hanger system shall be performed with accordance to all applicable standards and codes and account for any loads required by code or particular product application including but not limited to: live, dead, horizontal, vertical, thrust, and static. All loads used in the design shall be clearly listed on the submittal for approval of the hanger system.
3. Product data on pipe (if suspended water main pipe difference from other water main pipe types used for other pay items in this contract).

The work shall be performed according to the manufacturer's specifications and meet all special provisions outlined in the specifications for various items for water main construction.

Method of Measurement

All water main 8", suspended shown on the plans will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per FOOT for WATER MAIN 8", SPECIAL, which price shall be payment in full for performing all work described herein.

WATER MAIN INSULATION

Description

This work shall consist of installing water main insulation as shown on the plans.

Use the following manufactured pipe insulation to enclose the pipe hanging under the bridge:

1. Fiber Glass Pipe Insulation: ASTM C 547 Type I
2. Weather Protective Insulation Jacket: ASTM C1136

Method of Measurement

All water main insulation shown on the plans will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per FOOT for WATER MAIN INSULATION, which price shall be payment in full for performing all work described herein.

WATER MAIN EXPANSION JOINT 8"

Description

This work shall consist of installing and connecting a water main expansion joint model EBAA FLEX-TEND® Flexible Expansion Joint, at the location shown on the plans.

The work shall be performed according to the manufacturer's specifications and meet all special provisions outlined in the specifications for various items for water main construction.

Method of Measurement

All water main expansion joints shown on the plans will be measured for payment on an EACH basis.

Basis of Payment

The work shall be paid for at the contract unit price EACH for WATER MAIN EXPANSION JOINT 8", which price shall be payment in full for performing all work described herein.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT

Effective: January 1, 2002

Revised: July 1, 2015

887.02TS

This item shall consist of relocating the existing emergency vehicle priority system, detector unit (single channel or dual channel) from its existing location to a new traffic signal post or mast arm assembly and pole, and connecting it to an emergency vehicle priority system, phasing unit. If the existing Emergency Vehicle Priority System, Detector Unit Assembly includes a Confirmation Beacon, the Confirmation Beacon shall also be relocated and connected to the Emergency Vehicle Priority System, Detector Unit and shall be included at no cost in this item.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment.

Basis of Payment

This item will be paid for at the contract unit price EACH for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT.

REMOVE AND RELOCATE EXISTING FLAG POLE

This item shall consist of the removal of an existing flag pole, flag pole fixtures, and foundation. Storage and security of the flagpole and fixtures during construction, installing a new concrete foundation and re-erecting the flagpole at the end of the job. The contractor shall coordinate the final location with the Engineer in coordination with Canal Shores. If the flagpole is damaged during the removal or while in storage it will be replaced at no additional cost to the contract.

The flag pole foundation shall be constructed in accordance with the manufactures recommended specifications to the depth and circumference specified.

The removal of the flag pole and foundation shall be in accordance with Article 841.02.

Basis of Payment

This work shall be paid at the contract unit price EACH for REMOVE AND RELOCATE EXISTING FLAG POLE.

REMOVE AND RELOCATE SIGN (SPECIAL)

This item shall consist of the removal and relocation of existing sign panels and their assemblies according to Article 724.02 and 724.03 of the standard specifications. The contractor shall store the removed signs for the duration construction and maintain their condition. Any damage to the signs that occurs while being stored shall be replaced at no additional cost to the project.

Basis of Payment. This work shall be paid at the contract unit price EACH for REMOVE AND RELOCATE SIGN (SPECIAL).

New telescoping steel sign supports and bases, metal posts and wood posts when required will be paid for according to Articles 728.06, 731.04, 729.05 and 730.06 respectively.

REMOVE TEMPORARY CONCRETE BARRIER

Description

This work shall consist of removing temporary concrete barrier used to secure bridge access during extended work shutdowns and during winter shutdown.

Existing temporary concrete barrier shall be removed from the site by the Contractor in accordance with Article 704.04 of the Standard Specifications.

Method of Measurement

This work will be measured for payment in feet removed along the centerline of the barrier. The unit of payment will be per FOOT.

Basis of Payment

This work will be paid for at the Contract unit price per foot for REMOVE TEMPORARY CONCRETE BARRIER, which shall be payment in full for all labor, equipment, and materials necessary to complete the work.

BARRICADES, TYPE I

Description

This work shall consist of providing additional barricades for purposes of traffic control , not outlined in the Maintenance of Traffic plans, for use during substaging, cross street traffic control and any other applicable use in accordance with Standard Specifications and Details.

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

Special Provisions contained herein.

Method of Measurement

All barricades, type I will be measured for payment on a per EACH basis.

Basis of Payment

The work shall be paid for at the contract unit price per EACH for BARRICADES, TYPE I, which price shall be payment in full for performing all work described herein.

CONNECTION TO EXISTING SEWER

Description

This item shall consist of the construction of proposed storm sewer connection to existing storm sewers or existing drainage structures at locations shown on the plans and as directed by the Engineer.

Construction

The new opening in the existing drainage structure or storm sewer shall be made in a manner to minimize any structural damage to the storm sewer. Any damage to the existing drainage structure or storm sewer shall be repaired to the Engineer's satisfaction at no additional cost to the City of Evanston.

A storm sewer connection to an existing drainage structure shall be sealed with class SI concrete or brick and suitable mortar to the satisfaction of the Engineer.

The storm sewer structure connection to the existing storm sewer shall be sealed with class SI concrete or brick and suitable mortar, per the plan details or to the satisfaction of the Engineer.

Method of Measurement

All connections to existing sewer shown on the plans will be measured for payment on an EACH basis.

Basis of Payment

This work will be paid for at the contract unit price EACH for CONNECTION TO EXISTING SEWER, as specified, regardless of material class, type and size, which price shall include all excavation and backfilling, and removing and disposing of structure as necessary.

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 re-grading the aggregate surface course for any operation that may disturb or remove the temporary access. The same type and gradation of material used to construct the temporary access shall be used to maintain it.

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

Add the following to Article 402.12 of the Standard Specifications:

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

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

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

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

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

LIMESTONE SCREENING SURFACE

Description

This item shall include all labor, material, and equipment necessary to furnish, install, grade and compact limestone screenings to the width and depth necessary to cover the existing multiuse golf cart path south of Central Street or to be used in other areas as directed by the Engineer. The depth of the screenings shall facilitate positive drainage to the North Shore Channel. The stone shall meet IDOT gradation FA-21.

Basis of Payment

This work will be paid for at the Contract unit price per TON for LIMESTONE SCREENING SURFACE. Payment also includes water for compaction and dust control measures.

SHREDDED BARK MULCH 3"

Description

This item shall include all labor, material, and equipment necessary to furnish, install and grade 3" of shredded bark mulch 3-inches deep as shown on the plans or as directed by the Engineer. Care must be taken to place mulch in a way that does not smother the plants. All bed edges shall be spade edged. The spade edge shall be a maximum of 2 ½ inches deep and a minimum of 1 ½ inch deep.

Material

The mulch shall be six-month-old, well-rotted, shredded native hardwood bark mulch. The mulch shall be a maximum of 4 inches long by ½ inch wide. The mulch shall be free of wood chips and sawdust.

Method of Measurement

This item will be paid based on the square yard of mulch placed.

Basis of Payment

This work will be paid for at the Contract unit price per SQUARE YARD for SHREDDED BARK MULCH 3".

SEEDING (SPECIAL)

Description

This item shall be constructed in accordance with Section 250 of the Standard Specifications. The seed shall be the "Savanna Seed Mix (Mesic Soil)" procured from Pizzo Native Plant Nursery, LLC. Supplemental PERENNIAL PLANTS, PRAIRIE TYPE, 2" DIAMETER BY 4" DEEP PLUGS shall be added to the embankment, with 1 foot square spacing, of the channel and should be listed on the "Recommended Plug Species to Supplement Savanna Seed Mix" and per the "% of total plug" listed therein.

Material



Pizzo Native Plant Nursery, LLC • 10729 Pine Road • Leland, IL 60531 • P: 815.981.8000 • F: 815-498-4406 • www.pizzonursery.com

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Savanna Seed Mix (Mesic Soils)

MIX STATISTICS

Base Mix Without Supplemental Plugs

Average Mix Height	3.1
Median Mix Height	3.0
Mix Height Mode (# of Occurrences in Mix)	3.0' (1), 2.0' (9), 4.0' (4), 5.0' (3), 3.5' (3), 6.0' (2), 2.5' (2), 1.5' (2)
Number of Native Species in Mix	36
Lbs/Acre of Native Seed	26.1
Propagules per Square Foot	0.0
Native FQI	3.17
Native Mean C Value	5.3
Native Mean W Value	3.4
National Wetland Category	Facultative Upland - Facultative Upland - Usually occur in non-wetlands (estimated probability 67 - 99 %), but occasionally found in wetlands (estimated probability 1 - 33 %)

Mix Description: Pizzo's Savanna Seed Mix is designed for areas with scattered native trees (typically 5-7 mature trees/acre) that provide light - part shade and have soils that remain mesic - dry for most of the growing season. This mix will help establish a historic native ground cover when re-creating the picturesque open tree native savannas that were so heavily sought after by the pioneers as they made their way west. Over 47% of this mix is composed of wildflowers that will provide an array of blooms from April through October. This is a short - medium height prairie with over 71% of seeds typically averaging 3.0' high or less at maturity. Pizzo highly recommends that this seed mix be supplemented with the recommended plug list provided below to add diversity, color, and resilience to the long-term health of your savanna, especially in order to establish many of the spring ephemeral wildflowers historically associated with the savanna ecosystem.

Grasses, Sedges, & Rushes

ACRONYM	SCIENTIFIC NAME	COMMON NAME	C-Value	W-Value	WETNESS	HEIGHT Min-Max (Typical)	COLOR	BLOOM TIME A M J J A S O	SEEDS/OZ	OZ/ACRE	LB/ACRE	% OF MIX by Seed Count	
ELYCAN	<i>Elymus canadensis</i>	CANADA WILD RYE	4	3	FACU	2-3' (3.5')	N/A		5,200	80,000.00	5.00	19.13%	
ELYHYS	<i>Elymus hystrix</i>	BOTTLEBRUSH GRASS	5	3	FACU	2-5' (3.5')	N/A		7,600	16,000.00	1.00	3.83%	
ELYVIR	<i>Elymus virginicus</i>	VIRGINIA WILD RYE	4	-3	FACW	3-5' (4')	N/A		4,200	48,000.00	3.00	11.48%	
SCHSCO	<i>Schizachyrium scoparium</i>	LITTLE BLUESTEM GRASS	5	3	FACU	2-3' (3')	N/A		15,000	160,000.00	10.00	38.25%	
											Grass/Sedge Subtotals	19.00	72.68%

Flowers & Other Broadleaves

ACRONYM	SCIENTIFIC NAME	COMMON NAME	C-Value	W-Value	WETNESS	HEIGHT Min-Max (Typical)	COLOR	BLOOM TIME A M J J A S O	SEEDS/OZ	OZ/ACRE	LB/ACRE	% OF MIX by Seed Count	
ALLCER	<i>Allium cernuum</i>	NODDING WILD ONION	7	3	FACU	1-2' (1.5')	Pink		7,600	4,000.00	0.25	0.96%	
ANECYL	<i>Anemone cylindrica</i>	THIMBLEWEED	6	5	UJPL	1-3' (2')	White		26,000	1,500.00	0.08	0.36%	
AQUCAN	<i>Aquilegia canadensis</i>	WILD COLUMBINE	6	3	FACU	2-4' (3')	Red		38,000	2,000.00	0.13	0.48%	
ARNATR	<i>Arnoglossum atriplicifolium</i>	PALE INDIAN PLANTAIN	8	5	UJPL	4-8' (6')	White		6,000	1,000.00	0.06	0.24%	
ASCOTUB	<i>Asclepias tuberosa</i>	BOTTLEFLY WEED	7	5	UJPL	1-3.5' (2.5')	Orange		4,300	8,000.00	0.50	1.91%	
CORPAL	<i>Coreopsis palmata</i>	PRAIRIE COREOPSIS	6	5	UJPL	1-2.5' (2')	Yellow		10,000	4,000.00	0.25	0.96%	
DESGLU	<i>Desmodium glutinosum</i>	POINTED TICK TREFOIL	5	5	UJPL	1-3' (2')	Pink		840	8,000.00	0.50	1.91%	
ECHPUR	<i>Echinacea purpurea</i>	PURPLE CONEFLOWER	3	5	UJPL	2-5' (4')	Purple		6,600	6,000.00	0.38	1.43%	
EUPCOR	<i>Euphorbia corollata</i>	FLOWERING SPURGE	2	5	UJPL	1-4' (3')	White		8,000	2,000.00	0.13	0.48%	
GERMAC	<i>Geranium maculatum</i>	WILD GERANIUM	4	3	FACU	1-3' (2')	Purple		5,000	4,000.00	0.25	0.96%	
HELSTR	<i>Helianthus strumosus</i>	PALE-LEAVED SUNFLOWER	5	3	FACU	2-4' (3')	Yellow		4,200	3,000.00	0.13	0.48%	
LESQAP	<i>Lespedeza capitata</i>	ROUND-HEADED BUSH CLOVER	4	3	FACU	2-4' (3')	Green		4,200	2,000.00	0.13	0.48%	
LIASPP	<i>Liatris aspera</i>	ROUGH BLAZING STAR	6	5	UJPL	2.5-5' (3')	Purple		16,000	2,000.00	0.13	0.48%	
MAIRAC	<i>Maianthemum racemosum</i>	FATHERLY FALSE SOLOMON'S SEAL	3	3	FACU	1-3' (2')	White		400	16,000.00	1.00	3.83%	
MONHIS	<i>Monarda fistulosa</i>	WILD BERGAMOT	4	3	FACU	3-5' (4')	Peary		70,000	2,000.00	0.13	0.48%	
MONPUN	<i>Monarda punctata</i>	HORSE MINT	5	5	UJPL	1-3' (2')	Purple		90,000	1,000.00	0.08	0.24%	
PENDIG	<i>Penstemon digitalis</i>	FOXGLOVE BEARD TONGUE	4	0	FAC	2.5-5' (3.5')	White		130,000	1,500.00	0.09	0.36%	
RATPIN	<i>Ratibida pinnata</i>	YELLOW CONEFLOWER	4	5	UJPL	3-6' (5')	Yellow		30,000	6,000.00	0.38	1.43%	
RUDHIR	<i>Rudbeckia hirta</i>	BLACK-EYED SUSAN	1	3	FACU	2-3' (2.5')	Yellow		92,000	8,000.00	0.50	1.91%	
RUDSUB	<i>Rudbeckia subtomentosa</i>	SWEET BLACK-EYED SUSAN	9	3	FACU	3-6' (5')	Yellow		43,000	2,000.00	0.13	0.48%	
SISSTE	<i>Sisene stellata</i>	STARRY CAMPION	6	5	UJPL	2-4' (3')	White		30,000	1,500.00	0.09	0.36%	
SOLLIN	<i>Solidago luncea</i>	EARLY GOLDENROD	5	5	UJPL	2-4' (3')	Yellow		290,000	1,000.00	0.08	0.24%	
SOLSPE	<i>Solidago speciosa</i>	SHOWY GOLDENROD	7	5	UJPL	3-6' (5')	Yellow		95,000	1,000.00	0.06	0.24%	
SOLLUM	<i>Solidago ulmifolia</i>	ELM-LEAVED GOLDENROD	5	5	UJPL	1-3' (2.5')	Yellow		130,000	0.7500	0.05	0.18%	
SYMCOO	<i>Symphoricarpon cordifolium</i>	ARROW-LEAVED ASTER	5	5	UJPL	2-4' (3')	Blue		135,000	0.5000	0.03	0.12%	
SYMLEA	<i>Symphoricarpon laeve</i>	SMOOTH BLUE ASTER	9	3	FACU	2-5' (4')	Blue		35,000	2,000.00	0.13	0.48%	
SYMNOV	<i>Symphoricarpon novae-angliae</i>	NEW ENGLAND ASTER	4	-3	FACW	4-6' (5')	Purple		65,000	2,500.00	0.18	0.69%	
SYMMOO	<i>Symphoricarpon oolentangiense</i>	SKY-BLUE ASTER	8	5	UJPL	2-5' (3')	Blue		80,000	2,000.00	0.13	0.48%	
SYMSHO	<i>Symphoricarpon shortii</i>	SHORT'S ASTER	8	5	UJPL	2-4' (3')	Blue		60,000	1,000.00	0.06	0.24%	
THADIO	<i>Thalictrum dioicum</i>	EARLY MEADOW RUE	7	3	FACU	1-3' (2')	Green		7,300	4,000.00	0.25	0.96%	
TRAOHI	<i>Tradescantia ohioensis</i>	COMMON SPIDERWORT	2	3	FACU	2-4' (3')	Blue		8,000	6,000.00	0.38	1.43%	
ZIZAUR	<i>Zizia aurea</i>	GOLDEN ALEXANDERS	7	0	FAC	2-4' (3')	Yellow		11,000	8,000.00	0.50	1.91%	
											Broadleaf Subtotals	7.14	27.32%
											SEED MIX TOTALS	26.14	100.00%

Recommended Plug Species to Supplement Savanna Seed Mix

ACRONYM	SCIENTIFIC NAME	COMMON NAME	C-Value	W-Value	WETNESS	HEIGHT Min-Max (Typical)	COLOR	BLOOM TIME A M J J A S O	PLUGS/FLAT	FLATS/ACRE	PLUGS/ACRE	PLUGS/SF	% OF TOTAL PLUGS	
ALLCAN	<i>Allium canadense</i>	WILD GARLIC (3)	2	3	FACU	1-2' (1.5')	Pink		38	20.0	760.00	0.02	2.10%	
ANEVIR	<i>Anemone virginiana</i>	TALL ANEMONE (2, 3)	5	3	FACU	2-4' (3')	White		38	20.0	760.00	0.02	2.10%	
CXBLAN	<i>Carex blanda</i>	COMMON WOOD SEDGE (2, 5)	1	0	FAC	2-3' (2.5')	N/A		38	43.0	1,634.00	0.04	4.52%	
CXPENS	<i>Carex pensylvanica</i>	COMMON OAK SEDGE (1, 2, 5)	5	5	UJPL	6-12' (8')	N/A		38	86.0	3,268.00	0.08	9.05%	
CXROSE	<i>Carex rosea</i>	CURLY-STYLED WOOD SEDGE (2, 5)	4	3	FACU	1-2' (1')	N/A		38	43.0	1,634.00	0.04	4.52%	
CEAAME	<i>Ceanothus americanus</i>	NEW JERSEY TEA (1, 3)	6	5	UJPL	1-3' (2')	White		38	10.0	380.00	0.01	1.05%	
DODMEA	<i>Dodecatheon meadia</i>	SHOOTING STAR (1, 2)	6	3	FACU	1-2' (1.5')	Pink		38	86.0	3,268.00	0.08	9.05%	
ERYALB	<i>Erythronium albidum</i>	WHITE TROUT LILY (5)	5	3	FACU	4-8' (6')	White		38	86.0	3,268.00	0.08	9.05%	
GENAND	<i>Gentiana andrewsii</i>	BOTTLE GENTIAN (1, 2, 4)	8	-3	FACW	1-3' (2')	Blue		38	20.0	760.00	0.02	2.10%	
HELDIV	<i>Helianthus divaricatus</i>	WOODLAND SUNFLOWER (3, 5)	5	5	UJPL	4-7' (6')	Yellow		38	43.0	1,634.00	0.04	4.52%	
HESSPA	<i>Hesperis matronalis</i>	PORCUPINE GRASS (1, 3)	7	5	UJPL	3-5' (4')	N/A		38	43.0	1,634.00	0.04	4.52%	
HEURIC	<i>Heuchera richardsonii</i>	PRAIRIE ALUM ROOT (1, 2)	8	3	FACU	1-3' (2')	Purple		38	15.0	570.00	0.01	1.58%	
IONLIN	<i>Ionactis linifolia</i>	FLAX-LEAVED ASTER (2, 3, 5)	10	5	UJPL	1-2' (1')	Green		38	20.0	760.00	0.02	2.10%	
MAISTE	<i>Maianthemum stellatum</i>	STARRY FALSE SOLOMON'S SEAL (2, 3, 5)	5	0	FAC	1-3' (2')	White		38	20.0	760.00	0.02	2.10%	
PEDCAN	<i>Pedicularis canadensis</i>	WOOD BETONY (1, 5)	9	3	FACU	1-2' (1')	Yellow		38	20.0	760.00	0.02	2.10%	
PENPAL	<i>Penstemon pallidus</i>	PALE BEARD TONGUE (5)	6	5	UJPL	1-2' (1')	Cream		38	20.0	760.00	0.02	2.10%	
PHLDIV	<i>Phlox divaricata</i>	WOODLAND PHLOX (1, 2, 5)	5	3	FACU	1-2' (1')	Blue		38	86.0	3,268.00	0.08	9.05%	
PHLPIP	<i>Phlox pilosa</i>	SAND PRAIRIE PHLOX (2)	7	3	FACU	1-3' (2')	Pink		38	86.0	3,268.00	0.08	9.05%	
POLREP	<i>Polemonium reptans</i>	JACOB'S LADDER (2, 3)	5	0	FAC	1-2' (1')	Blue		38	86.0	3,268.00	0.08	9.05%	
POLBIC	<i>Polygonatum biflorum var. commutatum</i>	SMOOTH SOLOMON'S SEAL (3)	3	3	FACU	2-4' (3')	Green		1	100.0	100.00	0.00	0.28%	
ROSCAR	<i>Rosa carolina</i>	PASTURE ROSE (1, 3)	5	3	FACU	1-3' (2')	Pink		1	25.0	25.00	0.00	0.07%	
ROSSET	<i>Rosa setigera</i>	ILLINOIS ROSE (1, 2, 3, 5)	7	3	FACU	5-8' (6')	Pink		1	15.0	15.00	0.00	0.04%	
SOLCAE	<i>Solidago caesia</i>	BLUE-STEMMED GOLDENROD (5)	7	3	FACU	1-3' (2')	Yellow		1	150.0	150.00	0.00	0.42%	
TRIRIC	<i>Trillium recurvatum</i>	RED TRILLIUM (5)	5	3	FACU	1-2' (1.5')	Red		1	150.0	150.00	0.00	0.42%	
VIOPEL	<i>Viola pedata lineariloba</i>	BIRD'S FOOT VIOLET (1, 5)	9	5	UJPL	2-6' (3')	Purple		38	86.0	3,268.00	0.08	9.05%	
											1379.0	36,122.00	0.83	100.00%

SUPPLEMENTED MIX STATISTICS

Base Seed Mix Including Supplemental Plugs

Number of Native Species in Mix	61
Native FQI	42.9
Native Mean C Value	5.5
Native Mean W Value	3.2
National Wetland Category	Facultative Upland - Usually occur in non-wetlands (estimated probability 67 - 99 %), but occasionally found in wetlands (estimated probability 1 - 33 %)

Some species are not appropriate for inclusion into a seed mix, however they may be very desirable to have as part of the permanent plant matrix because of their ecological, habitat, and/or aesthetic value. The plug species listed above are appropriate for supplementing this seed mix. Following are the common reasons for not including these species within the seed mix: 1-Does not germinate well from seed in the field, 2-Seed is very expensive, 3-Low number of seeds per ounce, 4-Requires specialized microclimate, 5-Seed is not commercially available or is only available in small quantities

Method of Measurement

The work will be paid per article 250.09 of the Standard Specifications. Payment for perennial plants will be in units where 1 unit = 100 plugs.

Basis of Payment

This work will be paid for at the contract unit price per acre for SEEDING (SPECIAL) of the type specified herein; at the contract unit price for PERENNIAL PLANTS, PRAIRIE TYPE, 2" DIAMETER BY 4" DEEP PLUGS.

PLANTING SOIL MIX FURNISH AND PLACE, 6"

Description

This item shall include all labor, material, and equipment necessary to furnish, install and grade 6 inches of planting mix soil over the berm areas north and south of Central Street as shown in the plans or as directed by the Engineer.

Material

The planting mixture shall be a graded planting mix of 1/3 topsoil, 1/3 sand and 1/3 composted manure or "mushroom compost". The planting soil mix shall have a pH value of 5.5 to 7.0. If the soil does not fall within the required pH range, limestone or aluminum sulfate shall be added to bring the soil to the pH within the specified limit. The plant bed shall be tested by the materials consultant and approved by the Engineer prior to planting.

Method of Measurement

This item will be paid based on the square yard of soil placed.

Basis of Payment

This work will be paid for at the Contract unit price per SQUARE YARD for PLANTING SOIL MIX FURNISH AND PLACE, 6".

IRRIGATION SYSTEM SPECIAL

Description

This work shall consist of furnishing and installing landscape irrigation as shown on the Contract Drawings or as directed by the Engineer. This work shall include all material and labor required to install a complete functioning, automatic controlled irrigation system, including but not limited to connection to existing irrigation system, sprinkler piping/sleeves, controller, sensor, backflow preventer, electric/manual valves, boxes, wiring, drip tubing, etc. The irrigation system materials and equipment should be procured through The Torro Company. The Installer shall have five (5) years minimum experience on comparable irrigation system projects.

System Layout

Location of Sprinklers and Specialties: Design location is approximate and may change based on final USGA Putting Green layout or by the Engineer.

Delivery, Storage, And Handling

Deliver semi-rigid piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture. Deliver flexible piping in factory-assembled rolls. Maintain protective wrap or packaging through shipping, storage and handling. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

Warranty

All components and equipment shall be warranted per the manufacturer's reference.

General

Provide minimum cover over top of underground piping according to the following:

- Irrigation Main Piping: Minimum depth of 30 inches below finished grade
- Circuit Piping (including drip headers): 24 inches
- Sleeves: 24 inches

Preparation

Stake layout of system in the field, utilizing appropriate materials and notify Engineer to obtain approval prior to beginning installation activities.

Point of Connection

Construct connection to existing irrigation system. The existing system will need to be field located with the assistance of the Owner.

Installation

All equipment and materials shall be installed per the manufactures recommendations and conforming to local and state codes.

Field Quality Control

A field test shall be performed for approval from the Engineer upon system completion. Remove and replace faulty/malfunctioning system components and retest until final approval.

Startup Service

The Contractor shall provide the following as a startup service:

- Verify that controllers are installed and connected.
- Verify that electrical wiring installation complies with manufacturer's submittal and installation requirements.
- Complete startup checks according to manufacturer's written instructions.

System Adjustments

The following system adjustments shall be made upon installation of the irrigation system:

- Adjust settings of controllers and provide initial watering schedule per Owner's requirements.
- Adjust valve boxes so they will be flush with finished grade.

Cleaning

The contractor shall flush dirt and debris from piping before installing sprinklers and other devices.

Documentation

The Contractor shall provide a complete operations and maintenance manual to the Engineer in a three-ring binder with the following items, separated by tabbed dividers for clear organization:

- Provide a label on the spine of the binder clearly stating "IRRIGATION SYSTEM OPERATION AND MAINTENANCE".
- Table of Contents
- Cut-sheets or manufacturer's data for all installed equipment
- Operations Data from manufacturers documenting diagnostic, repair and replacement procedures for all items "a" through "f" identified above.
- Complete description of spring start-up operations.
- Complete description of fall shut-down operations.

Provide a copy of the Maintenance/Operations Manual and As-Built Drawing to the Engineer for review and approval:

- Contractor shall make all revisions noted and required by the Engineer.
- Contractor is required to demonstrate completion of all revisions, which may include providing a revised copy for additional review at the discretion of the Engineer.

Maintenance/Operations Manual and As-Built Drawing shall be completed and turned over to the Owner before Final Payment will be made to the Contractor.

Measurement and Payment

The work shall be paid for at the contract LUMP SUM PRICE for IRRIGATION SYSTEM, SPECIAL which shall be payment in full for all work listed herein and as directed by the Engineer.

ENTRANCE SIGN

Description

This item shall include all labor, material, and equipment necessary to furnish and install a custom entrance sign south of Central Street as shown on the plans. The Contractor shall submit a shop drawing prior to sign fabrication per the sign design provided in the contract plans for approval by the Engineer in coordination with Canal Shores.

Installation

The wood sign supports shall be installed in a vertical hole not exceeding 18" in diameter and no less than 5.5 feet deep. The support shall be centered in the hole and plum. 6 inches of CA-6 shall be installed at the bottom of the hole. The concrete foundation and sign assembly shall be installed per the sign manufactures recommendations.

Method of Measurement

This item will be paid based on a LUMP SUM.

Basis of Payment

This work will be paid for at the Contract unit price LUMP SUM for ENTRANCE SIGN.

LIGHTING CONTROLLER, SPECIAL

Description

This item shall include all labor, material, and equipment necessary to furnish and install a lighting controller cabinet and lighting controller equipment on the existing lighting controller's concrete foundation. The controller shall be installed per the applicable sections of Section 825 of the Standard Specifications.

Material

The controller cabinet shall be procured from apx-enclosures. The cabinet shall be model LS503017. The controller equipment shall be per the bill of materials as listed in the plans and procured from Excel Ltd. Inc.

Method of Measurement

This item will be paid as EACH.

Basis of Payment

This work will be paid for at the Contract unit price EACH for LIGHTING CONTROLLER, SPECIAL.

DRAINAGE STRUCTURE ADJUSTMENT (SPECIAL)

Description

This work shall consist of furnishing all labor, materials, tools, and equipment necessary to construct the shaft raise as shown on the plans or as directed by the Engineer, in accordance with the applicable portions of Sections 501, 503, 508, and 602 of the Standard Specifications, the details in the plans and the following provisions.

Included in this work is removing, storing, and reinstalling the existing grate, saw cutting the existing structure, drilling and grouting bars, reinforcement bars, concrete structures, and all other incidental materials as specified and detailed on the plans.

Method of Measurement

This item will be paid as EACH.

Basis of Payment

This work will be paid for at the contract unit price per each for DRAINAGE STRUCTURE ADJUSTMENT (SPECIAL) of the specified location on the plans including the type of frames, grates or lids specified. Concrete Structures and Reinforcement bars in the shaft rise will not be paid for separately but shall be included in the cost of this item.

DRAINAGE STRUCTURE LINING

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. This work shall include the rehabilitation of selected combined sewer and relief sewer structures by the application of a cementitious structural lining system, including cleaning of the structure prior to rehabilitation, and cleaning and surface preparation of existing concrete and brickwork.
- B. Structures to be lined are listed in Appendix A and shown on the exhibits provided as Appendix B. Additional information for each structure and photos are included in Appendix C.
- C. The Contractor shall be responsible for providing all labor, material, and equipment required for rehabilitation of structures from below the structure frame to, and including, the bench of the structure.
- D. The Contractor shall be responsible for restoring the sites, which have been used for liner installation operations, to their original condition.

1.02 SUBMITTALS

- A. Manufacturer's certification that the materials to be used meet the applicable standards and these specifications.
- B. License or certificate verifying Manufacturer's approval of the installer.
- C. Manufacturer's data sheets, including the equipment to be used and the installation procedure for the structure lining system.

1.03 QUALITY ASSURANCE

- A. Applicators of structural lining systems must be certified by the manufacturer in handling, mixing, and applying the manufacturer's product. The manufacturer must certify that:
 - 1. The manufacturer has properly trained and/or observed the Contractor's applications of the manufacturer 's product specifically being used on this Project and is satisfied that the Contractor is capable of completing a successful application.
 - 2. The manufacturer has inspected the Contractor 's equipment to confirm it is the proper equipment for applying the specific material to be used on this Project and will apply at the proper rate, mixture, etc.
 - 3. The manufacturer has confirmed that the applicator has the properly trained and experienced personnel specifically with the product to be

applied on this Project, including at least the crew leader and nozzle operator.

PART 2: PRODUCT

2.01 GENERAL

- A. The finished lining in place shall be fabricated from materials which will be chemically resistant to withstand internal exposure to domestic sewage.

2.02 LINING AND COATING MATERIALS

- A. Concrete and Cement Stabilized Sand: All concrete must conform to Class SI.
- B. Rapid Setting Liquid Accelerator: Liquid accelerator shall be Anit-Hydro as manufactured by Anti-Hydro Co., 269 Badger Avenue, Newark, NJ; Ipanex-R as manufactured by IPA Systems, Inc. 2745 N. Amber Street, Philadelphia, PA.
- C. Mortar: Mortar must be composed of one part Portland cement, one part masonry cement (or $\frac{1}{4}$ part hydrated lime), and masonry sand equal to $2\frac{1}{2}$ to 3 times the sum of the volumes of the cements and lime used. The sand must meet the requirements for "fine aggregate " per the IDOT state specifications.
- D. Non-Shrinking Grout: Unless otherwise specified, all grouting must be done with non-shrinking grout. Grouting of the structures may include ring and seal areas, cone section, wall, pipe seals and penetrations, and/or bench and trough areas. Other areas of the structure to be grouted shall be designated by the Engineer. Non-shrinking grout must be furnished factory premixed so only water is added at the job site. Grout must be mixed in a mechanical mixer. No more water shall be used than is necessary to produce a flowable grout. All proportioning and mixing of the components must be in accordance with manufacturer's recommendations.
- E. Infiltration Control Products: All fast setting products furnished shall be designed specifically for leak control, to be applied in dry powder form, with no prior mixing of water, directly to active leaks under hydrostatic pressure in structures, in accordance with the manufacturer 's recommendations. Products shall be Strong-Seal Strong- Plug as manufactured by The Strong Company, Inc., Pine Bluff, AR; Quadex Quad- Plug as manufactured by Quadex , Inc, N. Little Rock, AR.
- F. Patching and Invert Repair Products: A quick setting, corrosion-resistant, cementitious material must be used as a patching material and must be mixed and applied according to the manufacturer's recommendations. The product shall be Strong-Seal QSR as manufactured by The Strong Company Inc., Pine Bluff, AR.
- G. Cementitious Lining Systems
 - 1. Cementitious structure lining materials shall exhibit the following properties:

- a. Cementitious restoration products shall be specifically designed for the rehabilitation of wastewater structures.
 - b. Liner products shall be mixed with water per manufacturer's written specifications and applied using equipment specifically designed for troweling, low-pressure spray, or centrifugal spin casting application.
 - c. All cementitious liners shall be troweled to densify and smooth out surfaces.
 - d. Liner shall be one inch minimum thickness.
2. Cementitious Structure Lining Materials shall be:
- a. Strong-Seal Systems High Performance Mix, as manufactured by The Strong Company, Inc., Pine Bluff, AR; or
 - b. Quadex Aluminaliner as manufactured by Quadex Inc., N. Little Rock, AR
3. Testing
- a. All structures shall be visually inspected by the Contractor. Any leakage into the structure where lining was installed by the Contractor shall be identified and eliminated.
 - b. Samples (2 x 2 inch cubes) of cementitious lining material shall be collected on a daily basis. Samples shall be collected by an independent test laboratory for compression strength testing as described in ASTM C109.
 - c. Test results shall be submitted to the Engineer as a condition for final payment.
- H. Epoxy Coating Products
1. Epoxy Coating products shall be applied to structures specified to receive a corrosion protective coating sufficiently thick to totally protect the existing host structure from further corrosion and deterioration. Epoxy coating materials must be compatible with the structure cementitious rehabilitation system. Substrate and surface preparation, application conditions, application equipment, material preparation, and curing shall be in strict accordance with the manufacturer's written recommendations.
 2. Epoxy Coating Products shall be:
 - a. Raven 405 High Build Epoxy Lining System, 100 mil. Minimum thickness, to be applied in two coats as manufactured by Raven Chemicals, Broken Arrow, OK.

3. Testing

- a. All structures shall be visually inspected by the Contractor. The coating shall be free of pinholes and hollow spots/voids and other defects that will reduce the life expectancy of the coating.
- b. The Contractor is responsible for providing equipment and labor to perform wet film thickness measurements in accordance with ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages. Measurements shall be taken at every structure during application of the coating, documented and attested to by the Contractor for submission to the Engineer.
- c. Test results shall be submitted to the Engineer as a condition for final payment.

PART 3: EXECUTION

3.01 GENERAL

- A. In accordance with City ordinance, work hours for normal operations are 7:00 am to 4:00 pm.
- B. Within ten days after receiving a fully executed copy of the Purchase Order, the Contractor must submit to the Engineer a proposed schedule of the Work. The Contractor must work closely with the City and Engineer in preparing this schedule and completing this work. The Contractor and the City may visit each job site to discuss and confirm the scope of work required.
- C. The Contractor should be aware that the City may not allow water usage on the following holidays: New Year 's Day, Martin Luther King Day, Passover, Good Friday, Memorial Day, July 4th, Labor Day, Rosh Hashanah, Yom Kippur, Election Day, Thanksgiving Day, Hanukkah, and Christmas.
- D. The City will distribute a newsletter to the properties affected by the proposed work based on the Contractor 's proposed schedule. The Contractor must notify any property owner whose egress is within 50 feet of the work area 24 hours in advance of the work. The Contractor must submit their proposed notice to the City and Engineer for approval prior to distributing them to the property owners.
- E. The Contractor may purchase "No Parking" signs from the City (\$0.35 each) necessary to complete the project. The "No Parking" signs must be posted 48 hours in advance of the date when they become effective. The Contractor shall keep a log of the locations of the posted "No Parking" signs. The Contractor shall take a picture of each site where a sign is posted. The "No Parking" signs must be removed by the Contractor immediately after the completion of the work.

- F. The City will provide the Contractor with a fire hydrant permit and the water necessary to carry out the specified work. The Contractor must use the City-provided cart assembly whenever obtaining water from a City hydrant. The cart assembly includes a hydrant meter, an RPZ, isolation valves on either side of RPZ, a hydrant wrench, and a 5' length of flexible 2" hose for making cart to hydrant connection. Note that hoses attached to fire hydrants may not be run across the road pavement without proper protection as approved by the CITY, to prevent damage to the water mains. A total of \$3,050 is due at the time of the permit issuance, which includes a \$500 refundable damage deposit against all hydrants listed on permit, \$2,500 refundable damage deposit against each cart assembly on loan, \$50 monthly non-refundable rental fee on each cart assembly on each Meter/RPZ Cart. Additional monthly rental fees can be collected at time of permit issuance, paid when the cart is returned, or credited against deposits to be refunded. This cost shall be included in the unit price of Drainage Structure Lining.
- G. The Contractor is responsible for any backup that occurs as part of this Work. All restoration work to property damaged by a backup shall be completed at the sole expense of the Contractor.
- H. All work areas within traffic must be properly protected with arrow boards directing traffic. Traffic must be maintained in both directions at every site. Where flaggers will be needed to maintain two-way traffic, a traffic control plan must be submitted. A traffic control plan meeting IDOT standards must be provided for all work on Central Street.
- I. The Contractor shall work to minimize disruption to businesses when working within the downtown area. Work areas shall be clearly marked and barricaded from pedestrians and traffic. Sidewalks and bike lanes will only be disrupted where needed for structure access. Parking restrictions shall be minimized as practical. Traffic flow shall be maintained and access to parking lots and businesses must be maintained at all times.
- J. Schedules for work at sites adjacent to Northwestern University (NU) property may need to be adjusted to account for the university academic schedule, athletic events, and commencement events. The contractor will need to visit the NU website when this information is released.
- K. Contractor submittals must be received and approved by the Engineer prior to commencing work.

3.02 SAFETY REQUIREMENTS

- A. The Contractor shall provide all traffic control in accordance with applicable Department of Transportation regulations. The Contractor shall carry out their operations in strict accordance with local, state, federal, and OSHA safety regulations. Particular attention is drawn to those safety requirements involving working with scaffolding and entering confined spaces.

3.03 STRUCTURE/SURFACE PREPARATION

- A. The Contractor is responsible for the setup, installation, operation and maintenance of by-pass pumping operations, as required.
- B. The Contractor must cover all drain openings and appurtenances (i.e. restrictors and orifices) to protect from liner materials.
- C. Applicator must inspect all surfaces specified to receive a lining/coating prior to surface preparation. Applicator must notify the Engineer and City of any noticeable disparities in the surfaces that may interfere with the proper preparation or application of the repair lining and /or coating.
- D. Whenever a structure is found to have debris, vacuum machines shall be used to remove the major portion of the material before hydraulic equipment is used for final cleaning. The debris removed from the structure shall be disposed of by the Contractor. Other types of cleaning may be utilized by the Contractor if they are capable of producing the specified results and are approved by the Engineer.
- E. Pressure water cleaning with a minimum of 5,000 psi at 5 gpm, using a rotating pencil nozzle, shall be used to clean and free all foreign material within the structure.
- F. All contaminants, including oils, grease, incompatible and/or damaged existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts or other contaminants, must be completely removed prior to any surface applications. Contaminant removal and surface preparation methods must be based upon the conditions of the substrate and the requirements of the lining/coating to be applied.
- G. Detergent or steam cleaning must be used when grease and/or oils are present. All residues and materials resulting from the process of cleaning the structure must be removed from the structure prior to application of coatings.
- H. All voids and other observed structural deficiencies must be filled and repaired by the Contractor with materials that are compatible with the cementitious liner in accordance with the manufacturer's recommendations.
- I. All active water infiltration must be stopped by using a cementitious water plug or hydroactive grout that is compatible with the substrate and specified lining/coating system.
- J. Prepared surfaces must be tested after cleaning, but prior to application of the coating, if a specified pH or moisture content is required according to manufacturer's recommendations.
- K. Surfaces cleaned with detergents or nonsolvent-emulsifying agents must be tested for pH in accordance with ASTM 04262 Test Method.

3.04 CEMENTITIOUS RESTORATION

A. General

1. Provide all materials, labor, and equipment required to perform the work as recommended by the manufacturer and as required by the contract documents.
2. Inspect each structure to determine methods of stopping leaks and applying patch repairs.
3. Install all products in accordance with manufacturer's instructions regarding surface preparation, product application, and curing.
4. Confirm that all materials to be used for the rehabilitation of the structure are compatible with each other. Do not use any materials that have not been verified for compatibility by the manufacturer.

B. Sealing Active Leaks

1. The work on some structures will include hand applying a dry quick-setting cementitious mix designed to instantly stop running water or seepage. The applicator shall apply material in accordance with the manufacturer's recommendations and the following minimum specifications:
 - a. The area to be repaired must be clean and free of all debris.
 - b. Once cleaned, prepare the crack or hole by chipping out loose material to a minimum depth of two inches.
 - c. Apply the quick-setting cementitious material to the active leak, per the manufacturer's recommendations.
 - d. Proper application should not require any special mixing of product or special curing requirements after application.

C. Patching, Invert, and Bench Repair

1. The work consists of hand mixing and applying rapid setting, high early strength, non-shrink patching material to fill all large voids and repair structure channels prior to installing the structure lining. For invert repairs, flow must be temporarily restricted by inflatable flow thru plugs prior to cleaning. Plugs must be secured by heavy cable or chain to prevent loss. If non-flow thru plugs are used, then by-pass pumping must be setup. Plugging influent lines and allowing flow to backup will not be allowed.
 - a. The area to be repaired must be cleaned and free of all debris.
 - b. Mix water shall be clean potable water and require no additives or admixtures for use with cementitious patching materials.

- c. Cementitious material shall be mixed with water per manufacturer's specifications. Material should be mixed in small quantities, to avoid setting prior to placement.
- d. Once mixed to proper consistency, the materials shall be applied to the invert or void areas by hand or trowel. In invert applications, care should be taken to not apply excessive materials in the channel, which would restrict flow. Once applied, materials should be smoothed either by hand or trowel in order to facilitate flow.
- e. Flows in channels shall be re-established when material has cured enough to withstand the flow as determined by the manufacturer.

D. Application of Cementitious Structure Liner

- 1. The work consists of troweling, spray applying, and/or centrifugally spin-casting a cementitious based liner to the inside of the existing structure. The necessary equipment and application methods to apply the cementitious based liner materials shall be only as recommended and approved by the material manufacturer.
- 2. Material shall be mixed with water in accordance with the manufacturer's specifications. The equipment shall be as recommended by the manufacturer, matched for the material being applied. Pumping equipment shall be capable of applying the lining material to structures up to 25 feet in depth.
- 3. Material application shall be performed by starting at the structure invert and progressing upward.
- 4. During application, a depth gage shall be used to ensure a uniform thickness of one inch. Material shall be troweled smooth to compact material into voids. Finish with a light brush or broom finish.
- 5. Curing and the use of curing compounds shall follow the manufacturer's specific requirements for the cementitious lining materials applied. Material failures due to improper curing will be repaired by the Contractor at no additional expense to the Owner.
- 6. Material shall not be applied during freezing weather conditions. Material shall not be placed when the ambient temperature is 37 degrees Fahrenheit and falling or when the temperature is anticipated to fall below 32 degrees Fahrenheit during the next 24 hours.

3.05 APPLICATION OF EPOXY COATING PRODUCT

A. General

1. The Contractor shall comply with local, state and federal regulatory and other applicable agencies with regard to environment, health, and safety during work.
2. Cementitious lining materials shall be properly cured according to manufacturer's requirements prior to epoxy coating application. Coating material must be compatible with the cementitious lining material.
3. Temperature of the surface to be epoxy coated should be maintained between 40 degrees and 120 degrees Fahrenheit, or as recommended by the manufacturer.
4. Surfaces to be epoxy coated should be shielded to avoid exposure of direct sunlight or other intense heat sources. Where varying surface temperatures do exist, coating application shall be scheduled when the temperature is falling and not rising, or as recommended by the manufacturer.

B. Application of Coating Product

1. Application procedures shall conform to the recommendations of the epoxy coating product manufacturer, including environmental controls, product handling, mixing, application equipment, and methods.
2. Spray equipment shall be specifically designed to accurately ratio and apply the coating product. Equipment shall be in proper working order and shall be as recommended by the product manufacturer.
3. Contractors qualified in accordance with these specifications shall perform all aspects of the coating application.
4. Prepared surfaces shall be coated by spray application of the coating product described herein to the thickness specified, or as recommended by the manufacturer.
5. Subsequent top coating or additional coats shall occur within the product's recoat time. Additional surface preparation procedures will be required if this recoat time is exceeded. The product manufacturer's re-coat time for the specific application, based on temperature and project conditions, shall be strictly followed by the Contractor .
6. The coating product shall mechanically bond with adjoining construction materials throughout the structure to effectively seal and protect concrete or masonry substrates from infiltration and attack by corrosive elements. Procedures and materials necessary to effect this bond shall be as

recommended by the polymer coating product manufacturer. No hollow spots will be accepted.

3.06 RESTORATION

- A. Restore the operating area for structure lining work to its original condition .

3.07 WARRANTY

- A. The Manufacturer must warrant all work against defects in materials for a period of one year.
- B. Manufacturer must, within 30 calendar days after receipt of written notice thereof, replace defects in materials which may develop during said one (1) year period, and any damage to other work caused by such defects, at its own expense and without cost to the Owner.

Areas where the sanitary sewer is in non-paved areas, backfilling the trench with native materials is included in the cost of this pay item. Sanitary sewer shall follow lines and grades per the plan.

Sheeting and bracing may be placed in the trench. Sheeting and/or bracing shall be progressively removed as the backfill is placed in such a manner as to prevent the caving-in of the sides of the trench or excavation and to prevent damage to the work. Sheeting which is placed shall not be removed until the backfill has been placed and thoroughly compacted. While being pulled, all vacancies left by the sheeting shall be carefully filled with sand free from silt, rammed into place, puddled or otherwise firmly compacted.

Testing shall be performed according to the requirements set forth in these specifications and as directed by the Engineer. All testing and fittings shall be included in the unit price of SANITARY SEWER of the size specified.

For connection to existing sewers or manholes. A concrete collar shall be used for connection of dissimilar materials. When tying into existing manhole, all existing leaks must be sealed. When connections are made, special care must be taken that no part of the work is built under water. A flume or dam must be installed and bypass pumping maintained if necessary, to keep the new work dry until completed and concrete or mortar has properly cured.

All sewer pipe installations must be inspected by the MWRD. This means that no backfilling or closing of a sewer pipe trench can be accomplished until specific permission to do so has been given by authorized personnel representing MWRD. Upon approval, backfilling or closing of trenches will be completed immediately.

MWRD Sanitary Sewer Specifications

This work shall consist of furnishing and installing underground sanitary sewers and manholes of the required material and dimensions complete with necessary fittings. All sewers, manholes and appurtenances shall be constructed and tested in accordance with the Manual of Procedures for the Administration of the MWRDGC Sewer Permit Ordinance, latest edition, the requirements of the Standard Specifications for Water and Sewer Construction in Illinois, 2014, Seventh Edition and the Recommended Standards for Sewage Works, latest edition. The more stringent

requirements contained in the above documents cited shall apply. The Contractor shall furnish the specified materials per the details included in the plans.

The Contractor shall provide all labor, material and equipment required to furnish and install sanitary sewers, manholes and appurtenances, and all other improvements shown on the plans as required to perform the work and as specified herein.

This work shall also be done according to the specifications and Special Provisions of the MWRDGC and all herein.

The extent of sanitary sewer work as shown shall include the following: Trench excavation, auguring, backfill and cleanup, pipe installation, manholes, fittings, connecting to existing sanitary sewers, connection to proposed manholes, cut offs and plugs if required, bedding, testing, shoring and bracing. Fittings such as couplers and boots shall be included in the Contractors unit prices for sanitary sewer.

MWRDGC will have a representative present during stages of construction to approve sanitary materials, handling and installation. No sanitary sewer work shall commence until the MWRDGC has been notified and a MWRDGC representative is on site.

Existing Conditions

1. The location of underground utilities shown on the drawings represents the best information of the MWRDGC. The Contractor shall determine the location of underground utilities and perform his/her work in a manner which will avoid damage.
 - a. Should unidentified or incorrectly located piping or other utilities be encountered during the performance of the work, the Contractor shall consult the Engineer immediately for instructions on how to proceed.
 - b. If existing utilities are to remain in place, the Contractor shall provide adequate means of protecting such utilities from any damage which may be caused by his/her construction operations. Contractor shall repair any such damage to the satisfaction of the Engineer at no additional cost to the Utility Owner.
 - c. If existing utilities are to be removed, they shall be demolished and completely removed from site. Contractor shall consult with the Engineer and Utility Owner/City before any utility services are shut-off or disconnected.

Sanitary Sewer Inspection And Testing Cleaning

All sewers and appurtenances shall be cleaned prior to inspection and tested as required by these standards.

Visual Inspection

1. All sewer and appurtenances shall be laid with the use of a laser and visually inspected by representatives of the contractor during and following construction.

2. Sewers designed to be straight between manholes will be tested for straightness by flashing a light from manhole to manhole, lamping or by other suitable means.
3. Contractor shall verify sanitary sewer grades with a surveying level.

T.V. Inspection - Internal Televising Inspection Of Pipe

1. Upon completion of construction but prior to initiation of the maintenance guarantee period, or as deemed necessary during the construction of the sanitary sewer, an internal inspection of the sewer shall be performed. A digital video file and a written report of all television inspections shall be provided to the City and Engineer prior to connecting individual services and prior to the initial acceptance required by these Standards. The form of the report and type and format of the digital video file shall be approved by the MWRDGC representative. The digital file shall be high quality and resolution, and the attached report shall indicate all sags, connections, leaks and defects.
2. Fees and costs connected with such inspections including televising shall be included in the cost of Drainage Structure Lining.
3. All dips, cracks, leaks, improperly sealed joints, and departures from approved grades and alignment detected by such inspections shall be repaired by the contractor.
4. All defects and corrective work required as the result of such inspection shall be performed by the contractor without delay. Upon completion thereof, the sewer shall be retested and further inspection made as deemed necessary by the City and Engineer.

Infiltration Testing

1. It is the intent of these Standards to obtain a sanitary sewer system with a minimum amount of infiltration. The maximum allowable infiltration shall not exceed one hundred (100) gallons per inch of diameter of sewer per mile per twenty-four (24) hour day at any time for any section of the system. The manhole and sewer joints shall be tight and any joint with visible leakage or leakage in excess of that specified above, shall be repaired at the contractor's expense.
2. The repair must be of a permanent nature and of a quality equal to the initial work which was constructed in conformance with the applicable specifications.
3. Immediately after backfilling, the entire length of the sewer trench, including stubs, shall be inundated to normal ground water level or eighteen (18) inches above the top of the sewer pipe, whichever is higher. Permission for using metered hydrant water must be obtained from the City of Evanston Public Works Department. At that time infiltration tests will be made to determine compliance with the allowable infiltration criteria. To measure the amount of infiltration, the contractor shall furnish, install, and maintain a V-notch crested weir in a metal frame tightly secured at the lower end of each sewer test section as directed by the MWRDGC representative. The MWRDGC representative will check the infiltration by measuring the flow over such weirs. When infiltration is demonstrated

to be within the allowable limits, the contractor shall remove such weirs only after the MWRDGC and Engineer have approved the sewer line.

Exfiltration Testing

If during the construction of the sewer system, the MWRDGC representative shall determine that it is impractical to obtain a proper infiltration test or that an alternate test is preferable, then a test for water tightness shall be made by bulkheading the sewer at the manhole at the lower end of the section under test and filling the sewer trench with water to eighteen (18) inches above the top of the sewer in the manhole at the upper end of the section. Leakage will then be the measured amount of water added to maintain the above described level at a maximum allowable exfiltration rate of one hundred (100) gallons per inch of diameter of sewer per mile per twenty-four (24) hour day at any time for any section of the system.

Air Tresting

In lieu of infiltration or exfiltration testing, the MWRDGC representative may permit or require air testing in accordance with ASTM C828.

Completion Of Work

When the work is completed, all surplus material, earth, rubbish, etc., shall be removed from the construction area by the contractor and that portion of the surface of each street disturbed by construction shall be left in as good a condition as it was before commencement of the work. The sanitary sewer work accepted by MWRD shall be guaranteed for one (1) year as to items of the materials.

Record Drawings

Prior to acceptance of the sewer, record drawings shall be submitted to MWRDGC. The record drawings shall indicate all manhole and individual service locations, length, slope, and material of all sewers and shall be certified as to accuracy by an Illinois Licensed Professional Engineer or Professional Licensed Surveyor. As record drawings with GPS coordinates of the new MWRD facilities, including the manhole(s) shall be provided to MWRD.

Method of Measurement

DRAINAGE STRUCTURE LINING will be measured for payment on a per FOOT basis from the bottom of the drainage structure to the bottom of the frame.

Basis of Payment

The work shall be paid for at the contract unit price for:
DRAINAGE STRUCTURE LINING per FOOT
which price shall be payment in full for performing all work described herein.

TEMPORARY PAVEMENT (VARIABLE DEPTH)

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 hot-mix asphalt (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 or variable in order to meet existing or interim conditions.

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

Method of Measurement. TEMPORARY PAVEMENT (VARIABLE DEPTH) will be measured in place at the equivalent weight in tons based upon the area and average depth placed.

Basis of Payment. This work will be paid for at the contract unit price per ton for TEMPORARY PAVEMENT (VARIABLE DEPTH). Removal of temporary pavement will be paid for at the contract unit price per square yard for PAVEMENT REMOVAL.

REMOVE AND RE-ERECT BOULDERS

Description

This work shall consist of the removal, secure storage and relocation of large landscaping boulders from their current positions to their proposed locations as shown in the plans. This includes all labor and equipment required for the relocation.

Method of Measurement

This item shall be measured for payment per LUMP SUM boulder relocated.

Basis of Payment

This work shall be paid for at the contract unit price LUMP SUM for REMOVE AND RE-ERECT BOULDERS.

BOULDERS

Description

This work shall include all labor, materials and equipment necessary for furnishing and placing large landscaping boulders at the locations as shown on the plans. These boulders shall be similar to those already located on the existing landscape berm on the north side of Central Street.

Method of Measurement

This item shall be measured for payment per EACH boulder placed.

Basis of Payment

This work shall be paid for at the contract unit price EACH for BOULDERS.

CHAIN LINK FENCE REMOVAL

Description

This work shall consist of the removal and disposal of all existing chain link fence as shown on the plans or as directed by the Engineer. This work shall also include the removal of the 4 foot and 6 foot chain link with sight screen upon the completion of construction and as part of the work zone restoration.

Method of Measurement

All chain link fence removal will be measured for payment on a per FOOT basis.

Basis of Payment

The work shall be paid for at the contract unit price per FOOT for CHAIN LINK FENCE REMOVAL which price shall be payment in full for performing all work described herein.

CATCH BASINS TO BE ADJUSTED WITH NEW TYPE 22 FRAME AND GRATE

Description

This work shall consist of the removal and disposal of the existing frame and grate, furnishing, installing and any other such adjustments required to properly install the new frame and grate on the existing inlet or catch basin. This work shall be done in accordance with the relevant portions of Section 603 and 604 of the standard specifications.

Method of Measurement

All chain link fence removal will be measured for payment on a per EACH basis.

Basis of Payment

The work shall be paid for at the contract unit price per EACH for CATCH BASINS TO BE ADJUSTED WITH NEW TYPE 22 FRAME AND GRATE which price shall be payment in full for performing all work described herein.

CONSTRUCTION VIBRATION MONITORING

Description

This work consists of monitoring vibrations at North Shore University Evanston Hospital and Medical Office Building. The hospital is a level 1 trauma center that conducts sensitive medical procedures throughout the day that are susceptible to vibration from construction activities.

The Contractor shall furnish monitoring equipment, all equipment and labor necessary to install and monitor adjacent buildings and structures for vibration. The Contractor shall designate a minimum of three monitoring point locations for each of the structures located at the following addresses, at a minimum:

- 2650 Ridge Avenue – North Shore University Evanston Hospital
- 1000 Central Street – Graham Medical Office Building

A background vibration report should be developed prior to construction to document the range of existing vibrations caused by CTA trains and other potential sources.

The Contractor is solely responsible for determining the means, methods and sequences of construction, and may identify additional locations beyond those listed above for monitoring vibration. The cost for monitoring the additional locations identified by the Contractor is included in the lump sum contract unit price for CONSTRUCTION VIBRATION MONITORING.

The Contractor shall coordinate with the Engineer and building/structure owners to verify the proposed monitoring locations are acceptable to the building owners and accessible to both the Contractor and the Engineer at all times. The proposed locations of building vibration points are to be submitted to the Engineer for approval prior to the start of construction. Selection of the building vibration monitoring points shall be coordinated with the building owner prior to construction.

Vibration Monitoring

The Contractor shall employ the services of a qualified vibration monitoring consultant. Monitoring point locations and frequency of data collection shall be as determined by the Contractor's Consultant and are subject to the approval of the Engineer. All vibration monitors shall be attached to the floor of the buildings or structures being monitored. Vibration monitoring shall be a continuous and uninterrupted process and must be in place prior to the start of any construction activity. All vibration monitors for the project shall be programmed to actuate an alarm when the Threshold Value or Limiting Value is reached. The alarm notification protocol shall consist of the immediate dialing of mobile telephone numbers of the Engineer (or his/her authorized representative) and the Prime Contractor.

Response Values

The North Shore University Evanston Hospital in coordination with the Engineer and Contractor shall establish the response values, including both the Threshold Value and the Limiting Value, for each building and structure.

- **Threshold Value:** A Threshold Value is a warning value. If Threshold Values are achieved, the Contractor must stop the work, determine the best course of action to reduce the vibrations and implement corrective actions to the design and/or construction methods to avoid reaching Limiting Values.
- **Limiting Value:** A Limiting Value is an alarm value. If Limiting Values are achieved, construction work shall stop immediately and corrective action shall be taken to revise the design and/or construction methods.

If the Threshold Value or Limiting Value is reached, all vibration inducing work shall be stopped. The Contractor shall establish the horizontal/vertical distance limit requirements between the vibration monitoring point location and the source of the vibration-inducing work to determine which construction operations must be stopped. Work may resume upon implementation of the action plan and with the approval of the Engineer.

If the work is stopped because the Threshold Value or Limiting Value is reached there will be no additional compensation nor any additional time extensions granted. Any change in construction methods to avoid reaching the Limiting Value will not be grounds for additional compensation.

The Contractor must devise means and methods of construction that will not reach the established vibration response values. The Contractor is advised that particularly careful

demolition/construction requirements may be required at locations where the property line is immediately adjacent to the area of construction.

Action Plans

Upon reaching or exceeding Response Values, the Contractor shall immediately notify the Engineer, and perform the following:

- **Threshold Values:** If Threshold Values are achieved, the Contractor must stop the work and evaluate the means, methods, and sequences of construction and data collection/reporting frequency. The Contractor shall provide a submittal within 24 hours of the Threshold Values being reached that summarizes the means, methods and sequences of construction to be used to preclude reaching Limiting Values, and that identifies modifications to the data collection and data reporting frequencies. Provide a summary report to the Engineer for review and approval.

- **Limiting Values:** Immediately stop construction work in the zone of influence of the instrument, and coordinate a meeting with the Engineer to evaluate distress, discuss corrective actions, develop alternate means, methods, and sequences of construction, and identify modifications to data collection and reporting frequencies. The Contractor shall provide an action plan submittal within 24 hours of the Limiting Values being reached providing a summary report to the Engineer for review and approval.

Corrective Measures

If, at any time, resulting vibrations meet or exceed the established response values, the Contractor shall stop work immediately and initiate the necessary corrective measures as approved by the Engineer. The Contractor shall not be entitled to any claim of damages or delay for stopping the project construction activities to make corrective measures.

Submittals

Submit the following items in a timely manner to allow for review and approval by the Engineer before ordering materials or starting work.

- **Vibration Control Plan shall include:**
 - Locations of all vibration monitoring points, including property address and property contact information.
 - Procedure and outline for how the data will be provided to the Engineer.
 - Product Data: Type of vibration monitor to be used. Include construction details, material descriptions, performance properties, dimensions of individual components and profiles.
 - List of the Contractor's equipment to be used during demolition and construction operations.
 - Contact information for the Vibration Monitoring consultant and their staff.
 - Instrumentation plans, schedules, and details, including:
 - An instrumentation plan showing the type, location, and installation details of all instruments to be installed.
 - Monitoring and reporting frequency.
 - Timetable that outlines the duration that each monitoring point will be maintained and checked.

- Reports of all monitoring (at the required frequencies listed above) including a description of the associated construction activity. The reports shall include a tabular and graphical summary of all readings to date.
 - Submit at least fourteen (14) calendar days before ground disturbing activity begins.
- Qualification Data for the following:
 - Firm(s) installing instrumentation and collecting readings. Firms shall have experience installing and reading similar instrumentation on at least five projects over the last five years.
- Response Value Report establishing the response values for the Threshold Value and the Limiting Value for each building and structure. Submit at least fourteen (14) calendar days before ground disturbing activity begins.
- Action Plans describing potential changes to construction activities / means and methods within 24 hours if Response Values are reached during construction.

Additional Submittals include:

- Weekly reports of all vibration monitoring locations.

Method of Measurement

The work under this item as described herein will not be measured separately. It will be paid for as lump sum.

Basis of Payment

This work will be paid at the lump sum contract unit price for CONSTRUCTION VIBRATION MONITORING which payment shall be full compensation for all work described herein and as directed and approved by the Engineer.

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.

AVAILABLE REPORTS

No project specific reports were prepared.

When applicable, the following check 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: CCCD Testing Results

Those seeking these reports should request access from:

Stanley Consultants
Paul Schneider
8501 W. Higgins Road, Suite 730
Chicago, IL 60631
Phone: 773.693.9624

IDOT TRAINING PROGRAM GRADUATE ON-THE-JOB TRAINING SPECIAL PROVISION

Effective: August 1, 2012 Revised: February 2, 2017

In addition to the Contractor's equal employment opportunity (EEO) affirmative action efforts undertaken as required by this Contract, the Contractor is encouraged to participate in the incentive program described below to provide additional on-the-job training to certified graduates of the IDOT pre-apprenticeship training program, as outlined in this Special Provision.

IDOT funds, and various Illinois community colleges operate, pre-apprenticeship training programs throughout the State to provide training and skill-improvement opportunities to promote the increased employment of minority groups, disadvantaged persons and women in all aspects of the highway construction industry. The intent of this IDOT Pre-Apprenticeship Training Program Graduate (TPG) special provision (Special Provision) is to place these certified program graduates on the project site for this Contract in order to provide the graduates with meaningful on-the-job training. Pursuant to this Special Provision, the Contractor must make every reasonable effort to recruit and employ certified TPG trainees to the extent such individuals are available within a practicable distance of the project site.

Specifically, participation of the Contractor or its subcontractor in the Program entitles the participant to reimbursement for graduates' hourly wages at \$15.00 per hour per utilized TPG trainee, subject to the terms of this Special Provision. Reimbursement payment will be made even though the Contractor or subcontractor may also receive additional training program funds from other non-IDOT sources for other non-TPG trainees on the Contract, provided such other source does not specifically prohibit the Contractor or subcontractor from receiving reimbursement from another entity through another program, such as IDOT through the TPG program. With regard to any IDOT funded construction training program other than TPG, however, additional reimbursement for other IDOT programs will not be made beyond the TPG Program described in this Special Provision when the TPG Program is utilized.

No payment will be made to the Contractor if the Contractor or subcontractor fails to provide the required on-site training to TPG trainees, as solely determined by IDOT. A TPG trainee must begin training on the project as soon as the start of work that utilizes the relevant trade skill and the TPG trainee must remain on the project site through completion of the Contract, so long as training opportunities continue to exist in the relevant work classification. Should a TPG trainee's employment end in advance of the completion of the Contract, the Contractor must promptly notify the IDOT District EEO Officer for the Contract that the TPG's involvement in the Contract has ended. The Contractor must supply a written report for the reason the TPG trainee involvement terminated, the hours completed by the TPG trainee on 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 separated TPG trainee.

Finally, the Contractor must maintain all records it creates as a result of participation in the Program on the Contract, and furnish periodic written reports to the IDOT District EEO Officer that document its contractual performance under and compliance with this Special Provision. Finally, through participation in the Program and reimbursement of wages, the Contractor is not relieved of, and IDOT has not waived, the requirements of any federal or state labor or employment law applicable to TPG workers, including compliance with the Illinois Prevailing Wage Act.

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 each utilized certified TPG Program trainee (TRAINEES TRAINING PROGRAM GRADUATE). The estimated total number of hours, unit price, and total price must be included in the schedule of prices for the Contract submitted by Contractor prior to beginning work. The initial number of TPG trainees for which the incentive is available for this contract is 4.

The Department has contracted with several educational institutions to provide screening, tutoring and pre-training to individuals interested in working as a TPG trainee in various areas of common construction trade work. Only individuals who have successfully completed a Pre-Apprenticeship Training Program at these IDOT approved institutions are eligible to be TPG trainees. To obtain a list of institutions that can connect the Contractor with eligible TPG trainees, the Contractor may contact: HCCTP TPG Program Coordinator, Office of Business and Workforce Diversity (IDOT OBWD), Room 319, Illinois Department of Transportation, 2300S. Dirksen Parkway, Springfield, Illinois 62764. Prior to commencing construction with the utilization of a TPG trainee, the Contractor must submit documentation to the IDOT District EEO Officer for the Contract that provides the names and contact information of the TPG trainee(s) to be trained in each selected work classification, proof that that the TPG trainee(s) has successfully completed a Pre-Apprenticeship Training Program, proof that the TPG is in an Apprenticeship Training Program approved by the U.S. Department of Labor Bureau of Apprenticeship Training, and the start date for training in each of the applicable work classifications.

To receive payment, the Contractor must provide training opportunities aimed at developing a full journey worker in the type of trade or job classification involved. During the course of performance of the Contract, the Contractor may seek approval from the IDOT District EEO Officer to employ additional eligible TPG trainees. In the event the Contractor subcontracts a portion of the contracted work, it must determine how many, if any, of the TPGs will be trained by the subcontractor. Though a subcontractor may conduct training, the Contractor retains the responsibility for meeting all requirements imposed by this Special Provision. The Contractor must also include this Special Provision in any subcontract where payment for contracted work performed by a TPG trainee will be passed on to a subcontractor.

Training through the Program is intended to move TPGs toward journeyman status, which is the primary objective of this Special Provision. Accordingly, the Contractor must make every effort to enroll TPG trainees by recruitment through the Program participant educational institutions to the extent eligible TPGs are available within a reasonable geographic area of the project. The Contractor is responsible for demonstrating, through documentation, the recruitment efforts it has undertaken prior to the determination by IDOT whether the Contractor is in compliance with this Special Provision, and therefore, entitled to the Training Program Graduate reimbursement of \$15.00 per hour.

Notwithstanding the on-the-job training requirement of this TPG Special Provision, some minimal off-site training is permissible as long as the offsite training is an integral part of the work of the contract, and does not compromise or conflict with the required on-site training that is central to the purpose of the Program. No individual may be employed as a TPG trainee in any work classification in which he/she has previously successfully completed a training program leading to journeyman status in any trade, or in which he/she has worked at a journeyman level or higher.

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:

City of Evanston

The entities listed above and their officers, employees, and agents shall be indemnified and held harmless in accordance with Article 107.26.

**USGA RECOMMENDATIONS
FOR A METHOD OF**

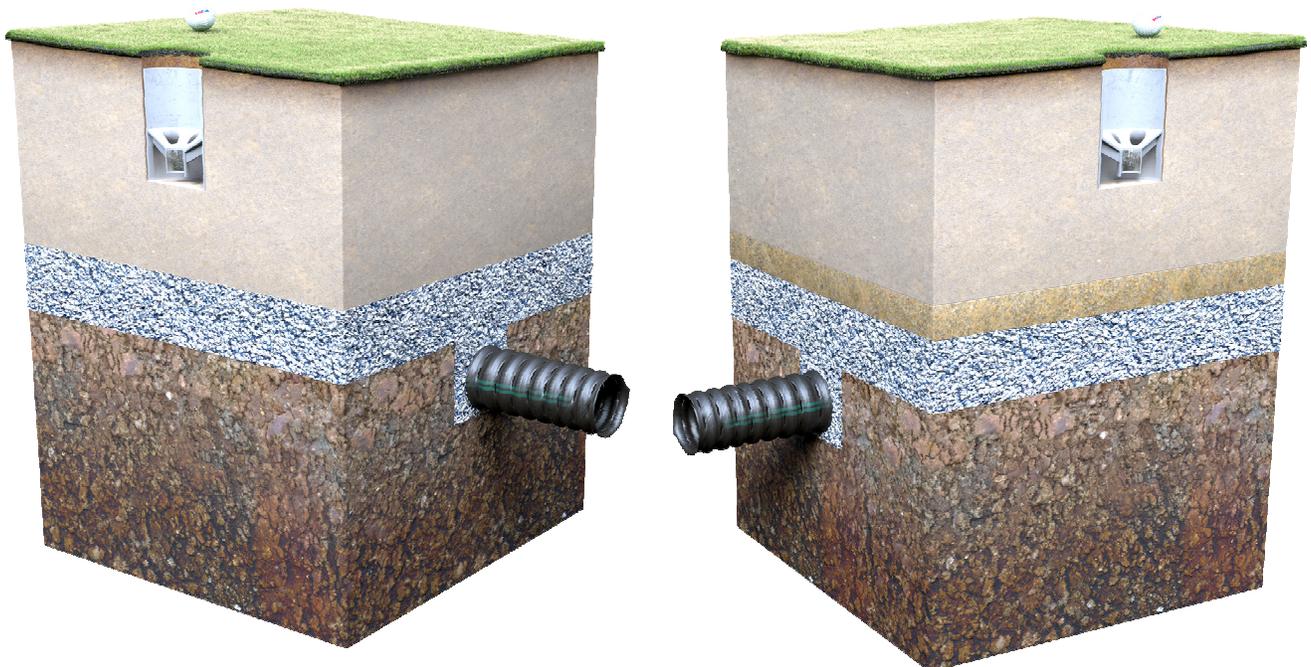
Putting Green Construction



FOR NEARLY 60 YEARS the USGA

recommendations for putting green construction have been the most widely used method of putting green construction throughout the United States and other parts of the world. When built and maintained properly, putting greens built in accordance to the USGA recommendations have provided consistently good results for golf courses over a period of many years. These recommendations are periodically reviewed and updated as a result of scientific research and as new techniques and materials are proven reliable.

This document specifically represents the USGA's recommendations for putting green construction. It does not include a discussion of construction techniques or methods. Additional documents are available from the USGA that describe construction methods, offering tips for success and providing guidance for putting green management.



STEP 1 | Assemble Your Team

Whether building putting greens on a new or existing site, it is important to have your project team lined up well before construction begins, including:

1. Golf Course Architect:

The golf course architect is responsible for designing the putting greens and drafting the specifications with which a builder will be contractually obligated to comply.

2. Golf Course

Superintendent:

The superintendent is an expert on maintaining putting greens under local conditions and should be consulted on many aspects of the construction process, especially when selecting materials and grass types.



COLLABORATION IS A CRITICAL PART OF SUCCESSFUL PUTTING GREEN CONSTRUCTION. KEY TEAM MEMBERS SHOULD BE IN CLOSE COMMUNICATION EARLY IN THE PLANNING PROCESS.

- 3. Golf Course Builder:** The golf course builder is a specialized contractor hired to complete substantial golf course construction and renovation projects. Often, golf course architects and superintendents have a list of contractors that they trust. A list of some golf course builders is also available through the [Golf Course Builders Association of America](#).

STEP 2 | The Putting Green Cavity and Subgrade

The slope of the subgrade should conform to the general slope of the finished grade.

Excavate the putting green site to a depth approximately 16 inches (400 millimeters) below the proposed surface grade (18 to 20 inches or 450 to 500 mm when an intermediate layer is necessary).

Cavity walls should be 90 degrees to the cavity floor or steeply sloped. If the cavity walls are sloped, they should be sloped steeply enough to prevent significant differences in the depth of the rootzone mixture near the putting green perimeter. Include the collar area as part of the putting green cavity.

If fill soil is used to construct the putting green subgrade, the soil should be placed in 6-inch lifts and compacted to at least 90 percent of minimum standard Proctor density ASTM D698.

The subgrade should be shaped to avoid any water-collecting depressions and thoroughly compacted to prevent settling.



THE SUBGRADE MUST BE SMOOTH, FIRMLY COMPACTED AND FREE OF WATER-COLLECTING DEPRESSIONS.

If the subsoil is unstable – as may be the case with expanding clays, sand or highly organic soils – consult geotechnical engineers familiar with local soils for soil-stabilization recommendations. For more information about methods of stabilizing soils, please refer to the USGA publication “Building the USGA Putting Green: Tips for Success.”

STEP 3 | Drainage

A subsurface drainage system is a requirement of putting greens built to USGA recommendations. The pattern of drainage pipes should be designed so that the main drains are placed along the lines of maximum fall. Install cleanout ports on the main drainage lines upstream and downstream from the putting green. These ports are created by extending risers from the main drain pipes to the surface. Attach a cap to the riser that is equipped with a stainless-steel insert or metal washer so that the riser can be easily located with a metal detector.

Install lateral drainage pipes at an angle across the slopes of the subgrade, allowing for a continuous slope of 0.5 percent or greater to the main drain. Space the lateral drains not more than 15 feet (5 meters) apart and extend them to the perimeter of the putting green cavity. Laterals should also be placed in water-collecting depressions if they exist.

At any low points where a main drain exits the putting green, place drainage pipe along the perimeter of the putting green cavity to facilitate the drainage of water that may accumulate along the cavity wall. Also install perimeter drains at any other low point along the edge of the putting green where water is likely to accumulate. It is important that the perimeter drains be installed immediately adjacent to the cavity wall. Perimeter drains installed even a short distance from the cavity wall may not adequately drain water from the putting green perimeter.

Drainage systems should be designed to remove excess water from playing areas in accordance to local and federal laws regulating drainage water disposal.

Drainage pipe shall be perforated polyvinyl chloride (PVC) or corrugated polyethylene (PE) pipe minimally conforming to ASTM D2729 or ASTM F667, respectively. The pipe shall have a minimum diameter of 4 inches (100 mm). Waffle drains, drain panels or any piping encased in geotextile sleeves are not recommended.

Drainage trenches shall be at least 6 inches (150 mm) wide, 8 inches (200 mm) deep and cut into thoroughly compacted subsoil so that the drainage pipes maintain a consistent 0.5-percent slope to the outlet. Remove all spoil from the trenches and smooth the trench floors. The subgrade floor also should be smooth and clean of all debris after trenching. If a geotextile fabric is to be used as a barrier between the subsoil and the gravel layer, it should be installed along the subgrade and in the drainage trenches once the cavity is completely clear of debris. Under no circumstances should geotextile fabric cover the drainage pipes or trenches.

Place a layer of gravel (Step 4) in the drainage trenches to a minimum depth of 1 inch (25 mm). The gravel in the trenches may be deeper than 1 inch to ensure that when the drainage pipes are installed they have a continuous slope of at least 0.5 percent toward the outlet.

Install all drainage pipes on top of a gravel layer in the drainage trenches. If using PVC drain pipe, install the pipe with the holes facing down. Pipe connections shall not impair the overall function of the pipeline. Backfill the trenches with additional gravel, taking care not to displace any of the drainage pipes or fittings. Ensure that there is gravel between the pipes and the trench walls.

As an alternative to round pipe placed in a trench, flat pipe may be placed directly on the prepared subgrade provided that the pipe conforms to ASTM D7001.

The flat pipe should be a minimum of 12 inches (300 mm) wide and should not be covered with a geotextile sleeve. Staple or otherwise secure the flat pipe to the subgrade to prevent shifting or movement during construction. Rational combinations of round and flat pipe may be used within a putting green drainage system. All other guidelines for drainage system installation shall apply when utilizing flat drainage pipes, including the installation of perimeter drains and cleanouts. Encase and cover all drainage pipe with approved drainage gravel (Step 4).



LATERAL DRAINAGE PIPES SHOULD BE SPACED NOT MORE THAN 15 FEET APART AND HAVE A CONTINUOUS SLOPE OF 0.5 PERCENT OR GREATER TO THE MAIN DRAIN LINE.

STEP 4 | Gravel and Intermediate Layer

Installing a wicking barrier around the perimeter of a putting green is optional. However, if used, the wicking barrier should be installed along the cavity walls prior to installing the gravel layer. For more information about the use of a wicking barrier, refer to the USGA publication “Building the USGA Putting Green: Tips for Success.”

After the drainage system is installed, place grade stakes at frequent intervals over the subgrade and mark them to indicate the depth of the gravel layer, intermediate layer (if included) and rootzone mixture. Cover the entire subgrade with a layer of clean, washed crushed stone or pea gravel to a minimum thickness of 4 inches (100 mm). The surface of the finished gravel layer should be 12 inches (300 mm) below the finished grade (14 to 16 inches or 350 to 400 mm if an intermediate layer is required) and shall conform to the proposed finished grade, plus or minus 1 inch.

Gravel composed of soft limestones, sandstones or shales is not acceptable. Questionable materials should be tested for stability using the Micro-Deval test ASTM D6928. A loss of material greater than 18 percent using this method is unacceptable.

There is evidence that placing low-pH rootzone mixtures over high-pH gravel materials such as limestone and dolomite contributes to the formation of iron oxide layers at the rootzone and gravel interface. These layers have been shown to impede drainage from the rootzone mixture to the gravel layer. If given the option, selecting a neutral-pH gravel is recommended.

An intermediate layer may be required between the gravel layer and rootzone mixture to prevent migration



THE GRAVEL LAYER SHOULD BE SPREAD TO A MINIMUM DEPTH OF 4 INCHES AND SHOULD MIRROR THE FINAL SURFACE OF THE PUTTING GREEN.

of the rootzone mixture into the gravel. The need for the intermediate layer is based on the particle size distribution of the rootzone mixture relative to the gravel. When properly sized gravel (Table 1) is available, the intermediate layer is not necessary.

If properly sized gravel cannot be sourced, an intermediate layer must be installed.

SELECTING GRAVEL TO EXCLUDE THE INTERMEDIATE LAYER:

The intermediate layer will not be required if the gravel used meets the recommendations in Table 1. Selecting the appropriately sized gravel depends on the particle size of the rootzone mixture. Therefore, the contractor, architect or superintendent must work closely with an [A2LA Accredited Laboratory](#) to select the appropriate gravel. Either of the following two procedures may be used:

- Send samples of different gravels to a lab along with the proposed rootzone mixture. As a general guideline, select gravel with a particle size diameter between 2 mm and 9.5 mm. After testing both the rootzone mixture and gravel, the lab will be able to determine which of the gravel samples will bridge with the rootzone mixture.
- Submit a sample of rootzone mixture to a lab and ask the lab to provide a description or specification of the gravel that would bridge with the rootzone mixture. Use this information to locate one or more acceptable gravel options and submit the gravels to the lab for confirmation.

The bridging factor, calculated by dividing the D15 of the gravel by the D85 of the rootzone, can be used to determine the need for an intermediate layer. The D15 of a gravel is the particle size diameter below which 15 percent of the gravel particles by weight are smaller. The D85 of a rootzone is the particle size diameter below which 85 percent of the rootzone particles by weight are smaller. If the bridging factor is less than or equal to 8, the rootzone and gravel can successfully be used in combination without the need for an intermediate layer because the rootzone is able to bridge the gaps between gravel particles. Gravel that meets the criteria in Table 1 will not require an intermediate layer.

Strict adherence to these criteria is imperative. Failure to follow these guidelines could result in compromised putting green performance or failure.



LABORATORY TESTING OF GRAVEL AND ROOTZONE MATERIALS IS NECESSARY TO ENSURE THE SUCCESS OF A PUTTING GREEN BUILT ACCORDING TO USGA RECOMMENDATIONS.

SELECTING AND PLACING MATERIALS WHEN THE INTERMEDIATE LAYER IS REQUIRED:

An intermediate layer will be required if the gravel and rootzone do not meet the bridging requirements in Table 1. The particle size requirements of the gravel and intermediate layer material are described in Table 2.

Spread the intermediate layer to a uniform thickness of 2 to 4 inches (50 to 100 mm) over the gravel layer—e.g., if a 3-inch depth (75mm) is selected, the intermediate layer material shall be spread to a consistent 3-inch depth across the entire surface of the gravel layer. The surface of the intermediate layer should conform to the contours of the proposed finish grade.

TABLE 1. Rootzone and Gravel Performance Factors When Intermediate Layer is Not Required

Bridging Factor	$\frac{D15 \text{ (gravel)}}{D85 \text{ (rootzone)}}$	≤ 8
Permeability Factor	$\frac{D15 \text{ (gravel)}}{D15 \text{ (rootzone)}}$	≥ 5
Uniformity Factors	$\frac{D90 \text{ (gravel)}}{D15 \text{ (gravel)}}$	≤ 3
	100% passing a 12-mm screen	
	$\leq 10\%$ passing a 2-mm screen	
	$\leq 5\%$ passing a 1-mm screen	

TABLE 2. Particle Size Recommendations When the Intermediate Layer is Used

Gravel Layer	$\leq 10\%$ larger than 0.5 inch (12.7 mm) $\geq 65\%$ between 0.250 inch (6.4 mm) and 0.375 inch (9.5 mm) $\leq 10\%$ smaller than 2 mm
Intermediate Layer	$\geq 90\%$ between 1 mm and 4 mm

STEP 5 | The Rootzone Mixture

SAND SELECTION:

Putting greens built to USGA recommendations are sand-based systems—i.e., sand is the primary component of the growing medium or rootzone mixture. Sand is defined as any particle between 0.05 and 2 mm in diameter. It is important to note that sands differ in their mineral makeup based on the parent rock material from which they are derived. Therefore, the mineral makeup of sands differs across geographic areas.

Quartz sands that are predominately silicon dioxide (SiO_2) are chemically inert and therefore resistant to chemical decomposition or change over time. Highly pure quartz sands are rare, and availability is limited to just a few areas in the United States. Many, if not most, of the sands used for putting green construction are a composite of silica minerals including quartz, feldspars and other minerals.

In some cases, sand may contain calcium carbonate (CaCO_3) – e.g., calcite or aragonite – or calcium magnesium carbonate ($\text{CaMg}(\text{CO}_3)_2$) – i.e., dolomite. Since sands have little ability to resist changes in pH, even small amounts of these minerals will increase the pH of a sand. Calcareous sand is a blanket term describing high-pH sands regardless of the amount of calcium or magnesium carbonate that may be present. Aside from the high pH, the long-term stability of calcium and calcium magnesium carbonate is questionable, especially where acidifying fertilizers or acidic irrigation water is used. While it would be best to minimize the amount of calcium and magnesium carbonates in rootzone sands, it is important to understand that calcareous sands have been used for the construction of many putting greens that have performed well for many years.



MATERIALS TESTING REQUIRES SPECIALIZED EQUIPMENT AND SKILLS AND SHOULD ONLY BE PERFORMED BY AN ACCREDITED LABORATORY.

However, sands that are predominately calcium carbonate – e.g., coral sands – are not recommended.

Sand selection, especially with regard to particle size, is critical to the successful performance of a putting green. Sand particle size will have a profound influence on putting green performance; affecting factors such as water retention, drainage and firmness. Fine sands will have greater water retention than coarse sands, so less organic or inorganic amendment can be used to achieve adequate capillary porosity. Coarse sands retain little water and, therefore, often must be amended to increase capillary porosity.

Sands that are too uniform may lack sufficient particle packing to form a stable or firm surface. To quantify particle size uniformity, the USGA recommends sands have a coefficient of uniformity (Cu) within the ranges in Table 3. The lower the Cu, the more uniform the particle size and the greater the risk for unstable or soft putting greens. Conversely, sands with high Cu values will pack, potentially providing firmer surfaces. Sands with excessively high Cu values may pack too tightly, adversely affecting drainage and rooting.

Sand particle shape also influences stability. Rounded sands may require a higher Cu to provide a firm surface while more angular sands may provide adequate stability with a lower Cu.

The USGA recommends selecting sands for putting green rootzones so that the particle size distribution of

the final rootzone mixture conforms to the description in Table 3. The sand shall preferably be a naturally occurring sand not a manufactured sand produced by crushing rock.

SOIL SELECTION:

If soil is used in the rootzone mixture, it shall preferably be a screened, 0.5-inch (12.5 mm) sandy loam soil having a minimum sand content of 60 percent and a clay content of 5 to 20 percent. The particle size distribution of the final sand/soil/peat mixture shall conform to these recommendations and the physical properties described herein. Be aware that soil may be a source of weed seed, possibly necessitating fumigation of the rootzone mixture.

TABLE 3. Recommended Particle Size Distribution for a Putting Green Rootzone Mixture

PARTICLE	DIAMETER	SIEVE	% BY WEIGHT
Coarse gravel	> 4 mm	No. 5	0%
Fine gravel	2.0 – 3.4 mm	No. 10	≤ 3% gravel
Very coarse sand	1 – 2 mm	No. 18	≤ 10% combined in this range
Coarse sand	0.5 – 1.0 mm	No. 35	≥60% of the particles in this range
Medium sand	0.25 – 0.5 mm	No. 60	
Fine sand	0.15 – 0.25 mm	No. 100	≤ 20%
Very fine sand	0.05 – 0.15 mm	No. 270	≤ 5%
Silt	0.002 – 0.05 mm		≤ 5%
Clay	< 0.002 mm		≤ 3%
Total fines	Very fine sand + silt + clay		≤ 10% combined
Coefficient of Uniformity (D60/D10)	1.8 - 3.5		Rootzone mixtures with peat
	2.0 - 3.5		Rootzone mixtures with inorganic amendments
	2.0 - 3.5		Pure sand rootzone mixtures

ORGANIC MATTER SELECTION:

Organic matter, usually in the form of peat, can be added to sand to increase water and nutrient retention compared to sand alone. Organic matter should be incorporated throughout the full 12-inch (300 mm) rootzone depth. Incorporate the organic matter as described in the Rootzone Mixture Blending section.

PEATS: The most common organic amendment used in rootzone mixtures is peat. The two most common types of peat are sphagnum moss peat and reed sedge peat. Refer to the USGA publication “Building the USGA Putting Green: Tips for Success” for more information on the characteristics of peat types. The peat used in the rootzone mixture shall have an organic matter content of at least 85 percent by weight as determined by loss on ignition ASTM D2974, Method C. In addition, the peat shall be screened to no larger than 0.25 inches (6.4 mm).

COMPOSTS: Compost may be considered as an organic amendment if the product is composted through the thermophilic stage to the mesophilic maturation stage. The compost should be aged for one year to assure that it is fully mature. In addition, a rootzone mixture amended with compost must meet the physical performance parameters outlined in these recommendations.

Composts can vary not only by source, but also from batch to batch within a source. Extreme caution must be exercised when using compost in rootzone mixtures. Any compost selected for a rootzone mixture amendment shall meet the following parameters:

- 95 – 100% passing a 0.25-inch screen (6.4 mm)
- Organic matter content \geq 50% as determined by ASTM D2974, Method C
- Moisture content between 30% – 60%
- Carbon to nitrogen ratio between 15:1 – 30:1
- Solvita Compost Maturity Index of 7 – 8
- Electrical conductivity \leq 6 dS/m
- pH between 4 – 8
- Proven to be non-phytotoxic
- Meet or exceed ceiling concentrations and pollutant concentrations as specified by USEPA Class A standard, 40 CFR § 503.13, Tables 1 and 3, respectively

Any test report on compost must be less than one month old and represent the actual compost that will be used to amend the rootzone mixture.

INORGANIC AND OTHER AMENDMENTS:

Porous inorganic amendments such as calcined diatomites, porous ceramics – e.g., calcined clays – and zeolites may be used in place of or in addition to peat in a rootzone mixture. However, the particle size of the amendment and the performance characteristics of the rootzone mixture must meet the recommendations in Tables 3 and 4. Users of these products should be aware that there are considerable differences among products. Porous inorganic amendments should be incorporated throughout the full 12-inch (300 mm) depth of

the rootzone mixture. Polyacrylamides and soil-reinforcement products are not recommended.

Other amendments such as humates, biochar, seaweed products, vermiculture byproducts and similar products are sometimes used to amend rootzone mixtures. While some may view these products as adding value, they are not a replacement for peat or porous inorganic amendments. Since these products may influence the physical properties of a rootzone mixture, it is important that lab testing include these products at anticipated rates.

PHYSICAL PROPERTIES OF A ROOTZONE MIXTURE:

A rootzone mixture shall have physical properties tested per ASTM F1815. Sometimes referred to as performance parameters, these properties include total porosity, air-filled porosity, capillary porosity and saturated hydraulic conductivity – i.e., infiltration rate. Rootzone mixtures shall have physical properties meeting those listed in Table 4.

While it is an important property, arguably too much emphasis has been placed on infiltration rate (Ksat) in the past. Although rootzone mixtures with Ksat values below 6 inches per hour have a high risk of experiencing drainage problems in the field, a high Ksat value does not necessarily mean a rootzone mixture will be droughty. Different rootzone amendments have different water-retention characteristics that can influence Ksat. For example, adding small amounts of soil to a rootzone mixture will likely reduce Ksat without significantly increasing water retention, while incorporating inorganic amendments will increase water retention often without decreasing Ksat. The bottom line: if the capillary porosity – i.e., water retention – of a rootzone mixture is within the recommended range, the rootzone mixture should not be excessively droughty even if the Ksat is high. The USGA publication “Building the USGA Putting Green: Tips for Success” provides a more in-depth discussion on this topic and information on how to learn more about the water-retention characteristics of rootzone mixtures.

TABLE 4. Physical Properties of a Rootzone Mixture

PHYSICAL PROPERTY	RECOMMENDED RANGE
Total Porosity	35%–55%
Air-filled Porosity	15%–30%
Capillary Porosity	15%–25%
Saturated Hydraulic Conductivity (Ksat)	≥ 6 inches/hour (150 mm/hr.)

Many rootzone mixture suppliers have off-the-shelf rootzone mixtures that are routinely produced for golf course projects. If that is not the case, an accredited lab can help you develop or design a rootzone mixture that meets your exact specifications. Either way, it is important that comprehensive performance testing be conducted on a sample of the final rootzone mixture to ensure that it meets the properties listed in Table 4. Do not rely on reports from other projects or earlier stages of rootzone blending because sand characteristics and performance can change over time. The approved rootzone mixture will serve as the baseline against which all quality control samples should be compared.

QUALITY CONTROL TESTING:

Once the gravel and rootzone mixture has been approved, it is important that samples of each be tested prior to delivery to ensure consistency throughout the project. Make arrangements with an [A2LA Accredited Laboratory](#) to routinely check the gravel and rootzone mixture during production and blending. It is recommended that gravel be tested every 500 tons. Rootzone mixture should be tested to determine at least particle size and organic matter every 500 to 1,000 tons. It is recommended to conduct full performance testing if there are any discrepancies in the particle size or organic matter content. Rootzone mixture samples should be collected at the production facility for quality control testing.

Variability in the raw materials used in a rootzone mixture is normal over time. If the baseline rootzone mixture was tested several weeks or months before the actual rootzone mixture is produced for a project, it is recommended that full performance testing be repeated on the first 200 tons of rootzone mixture. If the results of that testing are acceptable, the new results should serve as the baseline production sample



THE FINAL PRODUCT.

for the project.

When collecting rootzone mixture samples for quality control testing, it is recommended that a golf facility representative be present or collect the sample themselves and ship it to the lab.

Quality control testing is only as good as how representative a sample is of the rootzone mixture in the field. It is imperative that good samples be taken in the field. The USGA publication “[Quality Control Sampling of Sand and Rootzone Mixture Stockpiles](#)” offers a detailed pictorial on proper sampling techniques. Table 5 lists the maximum amount of variation that should be tolerated for key test parameters in quality control samples.

If a sample deviates in one or more parameters, it is important for all parties involved to discuss and decide if the deviation is significant enough to reject the batch of rootzone mixture. A lab or soils consultant with experience in reviewing quality control data may be able to offer



ROOTZONE MIXTURE SAMPLES SHOULD BE COLLECTED AT THE PRODUCTION FACILITY FOR QUALITY CONTROL TESTING.

assistance in this review. Refer to the USGA publication “Building the USGA Putting Green: Tips for Success” for more information about this topic.

ROOTZONE MIXTURE BLENDING:

It is essential to blend all rootzone components with mechanical blending equipment that is specially designed to produce a consistent rootzone mixture. Methods that should NOT be used include loader-bucket flipping, farm implement mixing or on-site rototilling in a putting green cavity.

If soil tests determine that a rootzone mixture has a lime requirement, the lime shall be thoroughly blended into the rootzone mixture at the same time as any other organic or inorganic amendments.

TABLE 5. USGA Confidence Intervals for Quality Control Testing

TEST PARAMETER	USGA CONFIDENCE INTERVAL(%)
Fine gravel	50
Very coarse sand	50
Coarse sand	15
Medium sand	15
Fine sand	15
Very fine sand	30
Total porosity	10
Air-filled porosity	15
Capillary porosity	15
Saturated hydraulic conductivity	25
¹ Percent organic matter	± 0.2 for mixes with > 1% OM ± 0.15 for mixes with ≤ 1% OM

¹The confidence interval for organic matter is an absolute value, not a percentage of the target organic matter content. For example, a rootzone mixture with a target organic matter content of 0.7 percent would have an acceptable range of 0.55 to 0.85 percent.

Avoid excessive handling of peat and the blended rootzone mixture. Sand will abrade or grind fragile peat fibers, potentially affecting the physical characteristics of a rootzone mixture. Excessive handling also includes re-blending a rejected rootzone mixture.

The peat and sand should be moist during the blending process to ensure uniform mixing and to minimize segregation of the peat and sand.

STEP 6 | Rootzone Installation

Place the rootzone mixture into the putting green cavity by dumping it on the edge and spreading it across the gravel or intermediate layer with appropriate equipment. Under no circumstance should trucks be allowed to drive onto placed rootzone mixture. The rootzone mixture should be spread and uniformly firmed to a 12-inch (300 mm) depth with a tolerance of plus or minus 1 inch (25 mm). Moistening the rootzone mixture during spreading will assist with firming and prevents segregation of the peat and sand. Perform light power tamping along the edges of the putting green and over any areas where grade stakes were located because these areas may not receive the same amount of traffic and firming during the spreading process.

Heavy watering after placement will help the rootzone mixture settle. Check grades and add or remove rootzone mixture as necessary to achieve the final putting green grade.



IT IS ESSENTIAL TO BLEND ALL ROOTZONE COMPONENTS WITH MECHANICAL BLENDING EQUIPMENT THAT IS SPECIFICALLY DESIGNED TO PRODUCE A CONSISTENT MIXTURE.

STEP 7 | Pre-Plant Preparation and Establishment

USGA-recommended sand-based rootzone mixtures typically have low cation exchange capacities (CEC), so nutrient retention will be low. Pre-plant fertilizer will facilitate turf establishment. Apply fertilizer amendments as recommended by a soil testing lab or soils consultant. Work any pre-plant amendments to a depth of 2 inches prior to final smoothing.

If necessary, fumigate the rootzone mixture after the final grade is achieved. Fumigation should be considered:

- In areas prone to severe nematode problems
- In areas with severe weed problems

Putting greens can be established from seed, sod or sprigs. Refer to the USGA publication “Building the USGA Putting Green: Tips for Success” for suggestions on proper establishment techniques.

If sod is to be used for planting, it should ideally be grown on a rootzone mixture that is identical or very similar to the rootzone mixture used for the project. If that is not possible, washed sod is recommended. In no case is it acceptable to place unwashed sod grown on loam or fine-textured soil above a sand-based rootzone mixture.



THE ROOTZONE MIXTURE SHOULD BE SPREAD AND UNIFORMLY FIRMED TO A 12-INCH DEPTH WITH A TOLERANCE OF PLUS OR MINUS 1 INCH.

STEP 8 | **Grow In**

For suggestions on establishing a new or renovated putting green, contact your regional USGA Agronomist and refer to the USGA publication “Building the USGA Putting Green: Tips For Success.”

APPENDIX 1

TEST METHODS AND MATERIAL SPECIFICATIONS

All of the methods and material specifications listed below are published by the American Society for Testing and Materials (ASTM). The standards can be acquired at www.ASTM.org. Since the standards are updated regularly, we recommend that you check for the most current standard.

ASTM D698. Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

ASTM D6928. Standard Test Method for Resistance of Coarse Aggregates to Degradation by Abrasion in the Micro-Deval Apparatus

ASTM C136. Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

ASTM D75. Standard Practice for Sampling Aggregates

ASTM D854. Standard Test Method for Specific Gravity of Soil Solids by Water Pycnometer

ASTM D5550. Standard Test Method for Specific Gravity of Soil Solids by Gas Pycnometer

ASTM F1815. Standard Test Methods for Saturated Hydraulic Conductivity, Water Retention, Porosity, and Bulk Density of Athletic Field Rootzone Mixes

ASTM F1632. Standard Test Method for Particle Size Analysis and Sand Shape Grading of Golf Course Putting Greens and Sports Field Rootzone Mixes

ASTM F1647. Standard Test Method for Organic Matter Content of Athletic Field Rootzone Mixes

ASTM D2974. Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

ASTM D2976. Standard Test Method for pH of Peat Materials

ASTM D4972. Standard Test Method for pH of Soils

ASTM D2729. Standard Specification for Polyvinyl chloride (PVC) Sewer Pipe and Fittings

ASTM F667. Standard Specification for Corrugated Polyethylene (PE) Pipe and Fittings

ASTM D7001. Standard Specification for Geocomposites for Pavement Edge Drains and Other High-Flow Applications

The USGA Recommendations for a Method of Putting Green Construction is not an expressed or implied guarantee or warranty of performance of any putting green, and the USGA expressly disclaims any responsibility with respect to the construction or maintenance of putting greens constructed utilizing these recommendations.

United States Golf Association
77 Liberty Corner Road
Liberty Corner, NJ 07938
908.234.2300
www.usga.org



Storm Water Pollution Prevention Plan



Route FAU 1301	Marked Route CENTRAL STREET	Section 16-00278-00-BR
Project Number TNMS(849)	County COOK	Contract Number 61F92

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issues 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 Sat Nagar	Title Senior Project Manager	Agency City of Evanston
Signature 		Date 05/17/2019

1. Site Description

- A. Provide a description of the project location (include latitude and longitude):
Central Street, Evanston, Illinois 42.0642208544 °N, -87.6871204376 °W
- B. Provide a description of the construction activity which is subject of this plan:
Bridge replacement and associated improvements.
- C. Provide the estimated duration of this project:
24 months.
- D. The total area of the construction site is estimated to be 2 acres.
The total area of the site estimated to be disturbed by excavation, grading or other activities is 1.4 acres.
- E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:
0.9 - Highly Developed Area Prior and Post construction.
- F. List all soils found within project boundaries. Include map unit name, slope information and erosivity:
See attached soils exhibit.
- G. Provide an aerial extent of wetland acreage at the site:
Wetlands are shown on the erosion control plan.
- H. Provide a description of potentially erosive areas associated with this project:
Bridge abutment grading, graded slopes and temporary construction areas.
- 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 scopes, etc.):
Graded slopes and grading around abutment ends along with temporary.

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:

The drainage system is owned by City of Evanston.

L. The following is a list of General NPDES ILR40 permittees within whose reporting jurisdiction this project is located.

City of Evanston and Metropolitan Water Reclamation District.

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:

North Shore Channel.

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.

See plans for specific protection along North Shore Channel.

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):

a. The name(s) of the listed water body, and identification of all pollutants causing impairment:

b. Provide a description of how erosion and sediment control practices will prevent a discharge of sediment resulting from a storm event equal to or greater than a twenty-five (25) year, twenty-four (24) hour rainfall event:

c. Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:

d. Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

2. TMDL (fill out this section if checked above)

a. The name(s) of the listed water body:

b. Provide a description of the erosion and sediment control strategy that will be incorporated into the site design that is consistent with the assumptions and requirements of the TMDL:

- c. If a specific numeric waste load allocation has been established that would apply to the project's discharges, provide a description of the necessary steps to meet the allocation:

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 checked="" type="checkbox"/> Solid waste Debris | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Paints | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Solvents | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" type="checkbox"/> Fertilizers / Pesticides | <input type="checkbox"/> Other (specify) _____ |

II. Controls

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in I.C. above and for all use areas, borrow sites, and waste sites. For each measure discussed, the Contractor will be responsible for its implementation as indicated. The Contractor shall provide to the Resident Engineer a plan for the implementation of the measures indicated. The Contractor and subcontractors, will notify the Resident Engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the Permit ILR10. Each such Contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

A. **Erosion and Sediment Controls:** 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 checked="" type="checkbox"/> Sodding |
| <input checked="" type="checkbox"/> Protection of Trees | <input type="checkbox"/> Geotextiles |
| <input checked="" type="checkbox"/> Temporary Erosion Control Seeding | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Temporary Turf (Seeding, Class 7) | <input type="checkbox"/> Other (specify) _____ |
| <input checked="" 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:

Sediment and erosion control measures will be installed per plan in accordance with Std. Spec. Sec. 280

Describe how the stabilization practices listed above will be utilized after construction activities have been completed:

Permanent erosion control measures include establishment of seed and sod.

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:

- Perimeter Erosion Barrier
- Temporary Ditch Check
- Storm Drain Inlet Protection
- Sediment Trap
- Temporary Pipe Slope Drain
- Temporary Sediment Basin
- Temporary Stream Crossing
- Stabilized Construction Exits
- Turf Reinforcement Mats
- Permanent Check Dams
- Permanent Sediment Basin
- Aggregate Ditch
- Paved Ditch
- Rock Outlet Protection
- Riprap
- Gabions
- Slope Mattress
- Retaining Walls
- Slope Walls
- Concrete Revetment Mats
- Level Spreaders
- Other (specify) _____
- Other (specify) _____
- Other (specify) _____
- Other (specify) _____

Describe how the structural practices listed above will be utilized during construction:

Temporary perimeter erosion barriers will be utilized at project limits and others as shown on plans.

Describe how the structural practices listed above will be utilized after construction activities have been completed:

All temporary erosion control practices will be removed after permanent vegetation is established.

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.

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:

None

- 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:

None

- 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.

None. Follow manufacturer specifications for specific maintenance guidance.

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, 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:

None

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.



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 FAU 1301	Marked Route CENTRAL STREET	Section 16-00278-00-BR
Project Number TNM6(849)	County COOK	Contract Number 61F92

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 	Signature
Title 	Date
Name of Firm 	Telephone
Street Address 	City/State/Zip

Items which the Contractor/subcontractor will be responsible for as required in Section II.G. of SWPPP:

Conservation Planning

This report provides those soil attributes for the conservation plan for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. It provides the soil description along with the slope, runoff, T Factor, WEI, WEG, Erosion class, Drainage class, Land Capability Classification, and the engineering Hydrologic Group and the erosion factors Kf, the representative percentage of fragments, sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic surface layer. Further information on these factors can be found in the National Soil Survey Handbook section 618 found at the url http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054223#00.

Report—Conservation Planning

Soil properties and interpretations for conservation planning. The surface mineral horizon properties are displayed.
Organic surface horizons are not displayed.

Conservation Planning—Cook County, Illinois																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydro logic Group	Surface					
												Depth in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
141A—Wesley fine sandy loam, 0 to 2 percent slopes																	
Wesley	91	0.9	200	Medium	4	86	3	Class 1	Somewhat poorly drained	2w	C/D	0 - 12	.17	2	62	26	11
802A—Orthents, loamy, nearly level																	
Orthents, loamy, nearly level	90	0.5	249	Negligible	5	48	6	Class 1	Well drained	2s	C	0 - 7	.37	6	35	40	25
802D—Orthents, loamy, rolling																	
Orthents, loamy, rolling	92	9.0	124	Medium	5	48	6	Class 1	Well drained	4e	C	0 - 5	.37	6	35	40	25
2822A—Alfics Udarents, clayey—Urban land-Elliott complex, 0 to 2 percent slopes																	
Alfics Udarents, clayey, moderately deep water table	42	0.5	150	High	4	86	4	Class 1	Moderately well drained	2s	D	0 - 9	.37	4	8	56	36
Elliott	18	0.9	150	Medium	4	48	6	Class 1	Somewhat poorly drained	2s	C/D	0 - 5	.32	1	8	66	25

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Data Source Information

Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 12, Sep 12, 2018

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Soil Map—Cook County, Illinois
(Evanston Central Street Project)



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Map Scale: 1:1,170 if printed on A landscape (11" x 8.5") sheet.

0 15 30 60 90 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

- Area of Interest (AOI)
 - Area of Interest (AOI)
 - Soil Map Unit Polygons
 - Soil Map Unit Lines
 - Soil Map Unit Points
- Special Point Features
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features
 - Streams and Canals
- Transportation
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background
 - Aerial Photography
- Soils
 - Area of Interest (AOI)
 - Stony Spot
 - Very Stony Spot
 - Wet Spot
 - Other
 - Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 12, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 3, 2014—Sep 22, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
141A	Wesley fine sandy loam, 0 to 2 percent slopes	1.0	22.4%
533	Urban land	1.3	27.4%
802A	Orthents, loamy, nearly level	0.5	10.1%
802D	Orthents, loamy, rolling	1.0	22.4%
2822A	Alfic Udarents, clayey—Urban land-Elliott complex, 0 to 2 percent slopes	0.3	6.3%
W	Water	0.5	11.4%
Totals for Area of Interest		4.6	100.0%

GENERAL PERMIT

THIS PERMIT is made this 7th day of May, 2020, by and between the METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO, a body corporate and politic, organized and existing under the laws of the State of Illinois, hereinafter called "District," and the CITY OF EVANSTON, a municipal corporation organized and existing under the laws of the State of Illinois, hereinafter called "Permittee."

ARTICLE ONE

1.01 The District, for and in consideration of the payment of the permit fees hereinafter set forth, hereby issues to Permittee a permit and license to use 36,461± sq. ft. of District real estate located on North Shore Channel Parcels 2.06, 2.07, 2.08 and 2.09 in Evanston, Illinois as a construction staging area, and for no other purpose whatsoever. (The Permit Premises are generally depicted in the Central Street Bridge Improvement Right-of-Way Exhibit "Limits of MWRD Construction Staging Permit" attached hereto and made a part hereof as Exhibit A).

1.02 This Permit shall be effective from the 7th day of May, 2020, to the 6th day of May 6, 2025, at which time Permittee shall vacate the Permit Premises and remove Permittee's effects therefrom at Permittee's cost, unless said Permit shall be terminated sooner by virtue of the provisions hereinafter provided.

ARTICLE TWO

2.01 Permittee hereby agrees that in consideration for the granting of this Permit, Permittee shall pay to the District an annual fee in the amount of FIVE THOUSAND AND ZERO/100 DOLLARS (\$5,000.00), which is payable contemporaneously with Permittee's execution and delivery hereof. This amount represents the annual fee for the period from May 7, 2020, through May 6, 2021.

During the period from May 7, 2021, through May 6, 2022, and for every year thereafter, the annual permit fee shall be due on the 7th day of every month of May.

2.02 In addition thereto, Permittee shall pay on or before the due date therefor, all real estate taxes, special assessments and all other taxes, assessments and charges which may be levied against the property or the District by any governmental authority empowered to do so, on account of Permittee's use of the Permit Premises.

ARTICLE THREE

3.01 Permittee agrees and specifically understands that this Permit is confined solely to the non-exclusive privilege to Permittee to use the Permit Premises set forth in

Article One, and no other; that the authority and permission herein given does not thereby grant unto Permittee any interest or estate in the said lands of the District and that the District retains dominion, possession and control of said lands, including access thereto at all times.

3.02 Permittee further agrees and specifically understands that the District shall have the right to enter upon the Permit Premises herein described for the purpose of making such surveys, soil borings or other purposes as may be deemed necessary by the District in the furtherance of its corporate purpose.

3.03 The District shall not be liable for any loss, cost or damage to Permittee by reason of the exercise of the right to make such surveys, soil borings or other purposes as may be deemed necessary by the District in the furtherance of its corporate purpose.

ARTICLE FOUR

4.01 The District hereby reserves the right to terminate this Permit upon giving thirty (30) days' notice, in writing, of such termination to Permittee and thereupon Permittee shall vacate the Permit Premises and remove its effects therefrom, and restore the Permit Premises to the condition existing prior to Permittee's entry thereon, at Permittee's cost.

4.02 In the event Permittee uses or allows the Permit Premises to be used for any illegal or immoral purposes, or for any purpose other than that hereinabove specifically provided, or violates any of the provisions hereof, this Permit may be terminated by the District upon giving seven (7) days' notice, in writing, to Permittee, and thereupon Permittee shall forthwith vacate the Permit Premises and remove Permittee's effects therefrom, and restore the premises to the condition existing prior to Permittee's entry thereon, at Permittee's cost.

4.03 The District shall not be liable to Permittee for any loss, cost or damage incurred by Permittee by reason of the exercise of the right of the District to cancel this Permit.

ARTICLE FIVE

5.01 Permittee shall be solely responsible for and shall defend, indemnify, keep and save harmless the District, its Commissioners, officers, agents and employees, against all injuries, deaths, losses, damages, claims, patent claims, liens, suits, liabilities, judgments, costs and expenses which may in any wise accrue, directly or indirectly, against the District, its Commissioners, officers, agents or employees, in consequence of the granting of this Permit, or which may in anywise result therefrom or from any work done hereunder, whether or not it shall be alleged or determined that the act was caused through negligence or omission of Permittee, or Permittee's employees, or of any contractor or subcontractor, or their employees, if any, and Permittee shall, at Permittee's sole expense appear, defend and pay all charges of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith, and if any judgment shall be rendered against the District, its Commissioners, officers, agents or employees, in any such action Permittee shall, at Permittee's sole expense, satisfy and discharge the same.

5.02 Permittee, prior to entering upon the Permit Premises and using the same for the purposes for which this Permit is issued, shall procure, maintain and keep in force or self-insure, at Permittee's or Permittee's contractors expense, public liability and property damage insurance in which the District, its Commissioners, officers, agents and employees, are a named insured as well as fire and extended coverage, and all-risk property insurance in which the District is named loss payee from a company to be approved by the District, each afore-referenced policy shall have limits of not less than ("CLAIMS MADE" policies are unacceptable):

COMPREHENSIVE GENERAL LIABILITY
Combined Single Limit Bodily Injury Liability
Property Damage Liability
(Including Liability for Environmental Contamination of Adjacent Properties)
in the amount of not less than \$4,000,000.00
per Occurrence
and
ALL RISK PROPERTY INSURANCE
(Including Coverage for Environmental Contamination
of the Permit Premises)
in the amount of not less than \$4,000,000.00
per Occurrence
INCLUDING
An Amount Not Less Than the
Replacement Cost of Improvements
Located on the Permit Premises

Prior to entering upon said Permit Premises, Permittee shall furnish to the District certificates of such insurance or other suitable evidence that such insurance coverage has been procured and is maintained in force and effect.

Upon District's written request, Permittee shall provide District with copies of the actual insurance policies within ten (10) days of District's request for same. Such certificates and insurance policies shall clearly identify the Permit Premises and shall provide that no change, modification in or cancellation of any insurance shall become effective until the expiration of thirty (30) days after written notice thereof shall have been given by the insurance company to the District. The provisions of this paragraph shall in no wise limit the liability of Permittee as set forth in the provisions of 5.01 above.

5.03 The Permittee shall cause its contractors working within said Permit Premises, prior to entering upon said premises and using the same for the purposes for which this Permit is issued, to execute and lodge with the District, its indemnity bond in the sum of Five Thousand and no/100 Dollars (\$5,000.00), conditioned upon the performance of each and every condition of this Permit; such bond shall be in a form satisfactory to the General Counsel for the District. The furnishing of the bond required in this Article shall in no wise limit or affect the liability of Permittee's contractor or its insurance carrier under any other provision of this Permit.

5.04 Permittee expressly understands and agrees that any insurance protection or bond required by this Permit, or otherwise provided by Permittee's contractor, shall in

no way limit the responsibility to defend, indemnify, keep and save harmless the District, as hereinabove provided.

ARTICLE SIX

6.01 It is further expressly understood that the District shall not be liable to Permittee for any loss, cost, or expense which Permittee shall sustain by reason of any damage to its property or business caused by or growing out of the construction, repair, reconstruction, maintenance, existence, operation, or failure of any of the sewers, structures, or other works or equipment of the District now located or to be constructed on the Permit Premises, or on the land of the District adjacent to the Permit Premises.

6.02 Permittee also agrees that if the District incurs any additional expense for additional work which the District would not have had to incur if this Permit had not been executed, then, in that event, Permittee agrees to pay to the District such additional expense as determined by the Executive Director of the District, promptly upon rendition of bills therefor to Permittee.

ARTICLE SEVEN

7.01 It is understood and agreed by and between the parties hereto that Permittee shall not erect any structure of any type or kind upon the Permit Premises except with the consent, in writing, of the Executive Director first had and obtained.

7.02 No blockage or restriction of flow in the water will be tolerated at any time. No construction or improvements of any kind can project into the waterway during construction or after permanent repairs are completed.

7.03 Permittee, prior to entering upon the Permit Premises and using the same for the purposes for which this Permit is granted, shall, at Permittee's sole cost and expense, obtain all permits, consents and licenses which may be required under any and all statutes, laws, ordinances and regulations of the District, the United States of America, the State of Illinois, the County, or the city, village, town or municipality in which the subject property is located, and furnish to the District suitable evidence thereof.

7.04 Permittee covenants and agrees not to maintain any nuisance on the Permit premises which shall be in any manner injurious to the health and comfort of persons residing or being in the vicinity of the Permit Premises, and Permittee further covenants and agrees to keep the Permit Premises in a clean and sanitary condition.

7.05 Permittee covenants and agrees that it shall strictly comply with any and all statutes, laws, ordinances and regulations of the District, the United States of America, the State of Illinois, the County and the city, village, town or municipality in which the subject property is located, which in any manner affect this Permit, any work done hereunder or control or limit in any way the actions of Permittee, its agents, servants and employees, or of any contractor or subcontractor of Permittee, or their employees.

7.06 Permittee covenants and agrees that on or before the termination date of this Permit, Permittee shall remove or cause to be removed, any and all debris on the Permit Premises described in this Permit, and any and all equipment, facilities, or other things erected or placed upon the Permit Premises, and will yield up the Permit Premises to the District in as good condition as when the same was entered upon by Permittee.

Upon Permittee's failure so to do, the District may do so at the sole expense and cost of Permittee.

ARTICLE EIGHT

8.01 Any notice herein provided to be given shall be deemed properly served if delivered in writing personally or mailed by registered or certified mail, postage prepaid, return receipt requested to the District in care of the Executive Director, 100 East Erie Street, Chicago, Illinois 60611, or to Permittee in care of:

Erika Storlie
Interim City Manager
City of Evanston
2100 Ridge Avenue
Evanston, Illinois 60201
Phone: (847) 866-2936

Email: citymanagersoffice@cityofevanston.org

or to such other persons or addresses as either party may from time to time designate in writing.

8.02 In the event that Permittee hereinabove contemplated shall consist of two or more parties, each and every party shall be jointly and severally liable for the faithful and complete performance of each and every provision of this Permit.

8.03 Permittee expressly acknowledges that the District has made no representations, warranties, express or implied, as to the adequacy, fitness or condition of Permit Premises or the improvements upon the Permit Premises. Permittee accepts the Permit Premises and the improvements thereon, if any, 'AS-IS" and 'WITH ALL FAULTS". Permittee acknowledges that it has inspected the Permit Premises and has satisfied itself as to the adequacy, fitness and condition thereof.

8.04 Permittee agrees and specifically understands that the District shall not issue or execute this Permit and license, unless within 28 days of Permittee's receipt of this Permit Agreement, Permittee causes same to be duly executed and returned to the District with evidence of compliance with all terms contained herein.

8.05 This Permit Agreement shall be mutually cancelable by Permittee upon Permittee's giving ninety (90) days' notice in writing, of such cancellation to the District and thereupon Permittee shall vacate the Permit Premises and remove its effects therefrom, and restore the Permit Premises to the condition existing prior to Permittee's entry thereon, at Permittee's cost.

8.06 If the land is to be used for public use and recreation, Permittee shall, during the term of this Permit, at its sole cost and expense, construct, erect and maintain, at one or more prominent locations on the Permit Premises, tastefully designed and constructed permanent signs which acknowledge the cooperation and support of the District in connection with Permittee's use of the Permit Premises. The style, text and size of the sign(s) shall be approved in advance of erection thereof by the Executive Director of the District, and shall, at minimum state that:

"THIS FACILITY IS PROVIDED IN PART AS A COMMUNITY

**SERVICE WITH THE COOPERATION AND SUPPORT OF THE
METROPOLITAN WATER RECLAMATION DISTRICT OF
GREATER CHICAGO”.**

8.07 Tree Mitigation

A. No alterations, construction or maintenance work upon the Permit Premises involving any material change in the location, installation or construction of facilities, or involving the removal of any trees on District property, shall be performed by any person or municipality without having first obtained District approval. However, Permittee may conduct routine trimming of trees, brush or other overgrown vegetation to the extent it interferes with the safety or proper functioning of any improvements.

B. If the proper maintenance and operation of facilities or improvements on the Permit Premises necessitates the removal of any trees on District property, Permittee shall give no less than 14-day written notice, exclusive of Saturdays, Sundays and holidays, of its intent to remove any trees on the Permit Premises, setting forth the number, location and species of trees to be removed.

C. Permittee shall submit to the District a plan to replace any trees removed that provides for planting the same or greater number and quality of trees on the Permit Premises, or on alternate areas owned by the District as designated and approved in writing by the District.

D. Permittee is responsible for obtaining any local permits necessary for tree removal.

ARTICLE NINE

GENERAL ENVIRONMENTAL PROVISIONS

9.01 DEFINITIONS

A. “Environmental Laws” shall mean all present and future statutes, regulations, rules, ordinances, codes, licenses, permits, orders, approvals, plans, authorizations and similar items, of all government agencies, departments, commissions, boards, bureaus, or instrumentalities of the United States, state and political subdivisions thereof and all applicable judicial, administrative, and regulatory decrees, judgments, orders, notices or demands relating to industrial hygiene, and the protection of human health or safety from exposure to Hazardous Materials, or the protection of the environment in any respect, including without limitation:

- (1) all requirements, including, without limitation, those pertaining to notification, warning, reporting, licensing, permitting, investigation, and remediation of the presence, creation, manufacture, processing, use, management, distribution, transportation, treatment, storage, disposal, handling, or release of Hazardous Materials;

- (2) all requirements pertaining to the protection of employees or the public from exposure to Hazardous Materials or injuries or harm associated therewith; and
- (3) the Comprehensive Environmental Response, Compensation and Liability Act (Superfund or CERCLA) (42 U.S.C. Sec. 9601 et seq.), the Resource Conservation and Recovery Act (Solid Waste Disposal Act or RCRA) (42 U.S.C. Sec. 6901 et seq.), Clean Air Act (42 U.S.C. Sec 7401 et seq.), the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. Sec, 1251 et seq.), the Emergency Planning and Community Right-to-Know Act (42 U.S.C. Sec. 11001 et seq.), the Toxic Substances Control Act (15 U.S.C. Sec, 2601 et. seq.), the National Environmental Policy Act (42 U.S.C. Sec. 4321 et seq.), the Rivers and Harbors Act of 1988 (33 U.S.C. Sec. 401 et seq.), the Endangered Species Act of 1973 (16 U.S.C. Sec. 1531 et seq.), the Safe Drinking Water Act (42 U.S.C. Sec. 300 (f) et seq., the Illinois Environmental Protection Act (415 ILCS 5/1 et seq.) and all rules, regulations and guidance documents promulgated or published thereunder, Occupational Safety and Health Act (29 U.S.C. Sec. 651 et seq.) and all similar state, local and municipal laws relating to public health, safety or the environment.

B. "Hazardous Materials" shall mean:

- (1) any and all asbestos, natural gas, synthetic gas, liquefied natural gas, gasoline, diesel fuel, petroleum, petroleum products, petroleum hydrocarbons, petroleum by-products, petroleum derivatives, crude oil and any fraction of it, polychlorinated biphenyls (PCBs), trichloroethylene, urea formaldehyde and radon gas;
- (2) any substance (whether solid, liquid or gaseous in nature), the presence of which (without regard to action level, concentration or quantity threshold requires investigation or remediation under any federal, state or local statute, regulation, ordinance, order, action, policy or common law;
- (3) any substance (whether solid, liquid, or gaseous in nature) which is toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic, or otherwise hazardous or dangerous;
- (4) any substance (whether solid, liquid or gaseous in nature) the presence of which could cause or threaten to cause a nuisance upon the area subject to Permit or

to adjacent properties or pose or threaten to pose a hazardous threat to the health or safety of persons on or about such properties;

- (5) any substance (whether solid, liquid or gaseous in nature) the presence of which on adjacent properties could constitute trespass by or against Permittee or District;
- (6) any materials, waste, chemicals and substances, whether solid, liquid or gaseous in nature, now or hereafter defined, listed, characterized or referred to in any Environmental Laws as "hazardous substances," "hazardous waste," "infectious waste," "medical waste," "extremely hazardous waste," "hazardous materials," "toxic chemicals," "toxic substances," "toxic waste," "toxic materials," "contaminants," "pollutants," "carcinogens," "reproductive toxicants," or any variant or similar designations;
- (7) any other substance (whether solid, liquid or gaseous in nature) which is now or hereafter regulated or controlled under any Environmental Laws (without regard to the action levels, concentrations or quantity thresholds specified herein); or
- (8) any result of the mixing or addition of any of the substances described in this Subsection B with or to other materials.

C. "Phase I Environmental Assessment" shall mean:

- (1) environmental assessments of real estate, bedrock and groundwater of the type found on the Permit Premises and said assessment shall include, but not necessarily be limited to a historical review of the use (abuse) of the Permit Premises, a review of the utilization and maintenance of hazardous materials on the Permit Premises review of the Permit Premises' permit and enforcement history (by review of regulatory agency records), a site reconnaissance and physical survey, inspection of Permit Premises, site interviews and site history evaluations, basic engineering analyses of the risks to human health and the environment of any areas of identified concerns, and preparation of a written report which discusses history, site land use, apparent regulatory compliance or lack thereof and which includes historical summary, proximity to and location of USTs, LUSTs, TSDFs, CERCLA site flood plain, maps,

photograph log references, conclusions and recommendations.

D. "Phase II Environmental Assessment" shall mean:

- (1) an assessment of the Permit Premises and a reasonable area of the adjacent property owned by the District performed by an independent and duly qualified, licensed engineer with experience and expertise in conducting environmental assessments of real estate, bedrock and groundwater of the type found on the Permit Premises and said assessment shall include, but not necessarily be limited to, extensive sampling of soils, groundwaters and structures, followed by laboratory analysis of these samples and interpretation of the results, and preparation of a written report with boring logs, photograph logs, maps, investigative procedures, results, conclusions and recommendations.

9.02 MANUFACTURE, USE, STORAGE, TRANSFER OR DISTRIBUTION OF HAZARDOUS MATERIALS UPON OR WITHIN THE PERMIT

Permittee, for itself, its heirs, executors, administrators, and successors covenants that to the extent that any Hazardous Materials are manufactured, brought upon, placed, stored, transferred, conveyed or distributed upon or within the Permit Premises, by Permittee or its subtenant or assigns, or any of its agents, servants, employees, contractors or subcontractors, same shall be done in strict compliance with all Environmental Laws.

Construction or installation of new or reconstruction of any underground interconnecting conveyance facilities for any material or substance is not permitted without the advance written consent of the Executive Director of the District.

9.03 USE OF PREMISES (RESTRICTIONS - ENVIRONMENTAL)

Permittee shall use the Permit Premises only for purposes expressly authorized by Article 1.01 of this Permit Agreement. Permittee will not do or permit any act that may impair the value of the Permit Premises or any part thereof or that could materially increase the dangers, or pose an unreasonable risk of harm, to the health or safety of persons to third parties (on or off the Permit Premises) arising from activities thereon, or that could cause or threaten to cause a public or private nuisance on the Permit Premises or use Permit Premises in any manner (i) which could cause the Permit Premises to become a hazardous waste treatment, storage, or disposal facility within the meaning of, or otherwise bring the Permit Premises within the ambit of, the Resource Conservation and Recovery Act of 1976, Section 6901 et seq. of Title 42 of the United States Code, or any similar state law or local ordinance, (ii) so as to cause a release or threat of release of Hazardous Materials from the Permit Premises within the meaning of, or otherwise bring the Easement Premises within the ambit of, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 9601 et seq. of Title 42 of the United States Code, or any similar state law or local ordinance or any other Environmental Law or (iii) so as to cause a discharge of pollutants or effluents into any water source or system, or

the discharge into the air of any emissions, which would require a permit under the Federal Water Pollution Control Act, Section 1251 of Title 33 of the United States Code, or the Clean Air Act, Section 741 of Title 42 of the United States Code, or any similar state law or local ordinance.

9.04 CONDITION OF PROPERTY (ENVIRONMENTAL)

A. In the event Permittee has used the Permit Premises under a prior Permit agreement, Permittee warrants and represents that as a result of the Permit grant, the Permit Premises and improvements thereon, including all personal property, have not been exposed to release, contamination by any Hazardous Materials, that there has not been thereon a release, discharge, or emission, of any Hazardous Materials during its occupancy of the premises as defined by any Environmental Laws, and that the Permit Premises do not contain, or are not affected by underground storage tanks, landfills, land disposal sites, or dumps.

B. In the event of a release, emission, discharge, or disposal of Hazardous Materials in, on, under, or about the Permit Premises or the improvements thereon, during the term of this Permit (except such release, emission, discharge or disposal by the District, its employees, agents or its other permittees arising out of or in connection with the use authorized by the Permit). Permittee will take all appropriate response action, including any removal and remedial action after the execution date of this Permit Agreement.

9.05 INDEMNIFICATION (ENVIRONMENTAL)

A. In consideration of the execution and delivery of this Permit Agreement, Permittee indemnifies, exonerates, and holds the District and its officers, officials, Commissioners, employees, and agents ("Indemnified Parties") free and harmless from and against any and all actions, causes of action, suits, losses, costs, liabilities and damages and expenses incurred in connection with any of these (irrespective of whether any such Indemnified Party is a party to the action for which indemnification is here sought, including reasonable attorney's fees, costs and disbursements, incurred by the Indemnified Parties as a result of or arising out of or relating to (i) the imposition of any governmental lien for the recovery of environmental cleanup costs expended by reason of Permittee's activities; or (ii) any investigation, litigation, or proceeding related to any environmental response, audit, compliance, or other matter relating to the protection of the environment, resulting from or related to Permittee's activities; or (iii) the release or threatened release by Permittee, its subsidiaries, or its parent company, of any Hazardous Materials, or the presence of Hazardous Materials on or under the Permit Premises, (except such presence created by the District, its employees, agents or its other permittees), or any property to which Permittee, its parent company or any of its subsidiaries has sent Hazardous Materials, (including any losses, liabilities, damages, injuries, costs, expenses, or claims asserted or arising under any Environmental Law), to the extent caused by or within the control of Permittee, its parent company or its subsidiaries, provided that, to the extent District is strictly liable under any Environmental Laws, Permittee's obligation to District under this indemnity shall be without regard to fault on the part of Permittee with respect to the violation of law which results in liability to the District.

9.06 ENVIRONMENTAL COVENANTS

Permittee agrees to and covenants as follows:

A. Permittee covenants and agrees that, throughout the term of the Permit Agreement, all Hazardous Materials which may be used by Permittee or person permitted by Permittee upon the Permit Premises shall be used or stored thereon only in a safe, approved manner, in accordance with all generally accepted industrial standards and all Environmental Laws.

B. Permittee has been issued and is in compliance with all permits, certificates, approvals, licenses, and other authorizations relating to environmental matters and necessary for its business, if any.

C. Permittee, to the best of its knowledge, is not a potentially responsible party with respect to any other facility receiving waste of Permittee (whether or not from the Permit Premises) under CERCLA or under any statute providing for financial responsibility of private parties for cleanup or other actions with respect to the release or threatened release of any Hazardous Materials.

D. Permittee will take all reasonable steps to prevent a violation of any Environmental Laws and to assure that there will be no spill, discharge, leaks, emission, injection, escape, dumping, or release of any toxic or Hazardous Materials by any persons on the area to be used and under the Permit Agreement.

E. Permittee will not allow the installation of asbestos on the area described in Exhibit A or any item, article, container or electrical equipment, including, but not limited to, transformers, capacitors, circuit breakers, reclosers, voltage regulators, switches, electro-magnets and cable, containing PCBs.

F. Permittee shall be responsible to install "plugs" of compacted impermeable soil material at intervals of no greater than 100 feet between such plugs along utility trenches which have been backfilled with compacted granular materials in order to minimize cross-site and off-site environmental contaminant migration. The spacing of these plugs should be based on the characteristics of the site, the configuration of the trench or trenches, the characteristics (nature and extent) of the site environmental contamination, and/or the potential for site contamination should a surface of subsurface chemical release occur. Special emphasis should be placed on locating these plugs at all utility trenches where they cross: other utility trenches, containment berms or walls, property boundaries, and lease boundaries.

G. The aforesaid representations and warranties shall survive the expiration or termination of the Permit Agreement.

9.07 COVENANTS (ENVIRONMENTAL)

Permittee shall cause its parent company and each of its respective subsidiaries, contractors, subcontractors, employees and agents to:

- A. (1) Use and operate all of the Permit Premises in compliance with all applicable Environmental Laws, keep all material permits, approvals, certificates, and licenses in effect and remain in material compliance with them;

(2) Undertake reasonable and cost-effective measures to minimize any immediate environmental impact of any spill or leak of any Hazardous Materials caused or permitted by Permittee;

B. Notify District by telephone within two hours of the release of Hazardous Materials, including the extent to which the identity of the Hazardous Materials is known, the quantity thereof and the cause(s) of the release, and provide District within 72 hours of the event, with copies of all written notices by Permittee, its parent and its subsidiaries that are reported to government regulators or received from the governmental regulators.

C. Provide such information that District may reasonably request from time to time to determine compliance by the Permittee with this Article.

D. Permittee covenants and agrees to cooperate with District in any inspection, assessment, monitoring or remediation instituted by District during the Permit Agreement.

9.08 COMPLIANCE (ENVIRONMENTAL)

Permittee will cause its parent company and each of its subsidiaries, if any, to exercise due diligence to comply with all applicable treaties, laws, rules, regulations, and orders of any government authority.

A. In the event of a spill, leak or release of hazardous waste caused by Permittee, its employees or its agents, Permittee shall conduct a Phase I Environmental Assessment, at its own expense, with respect to the Permit Premises and a reasonable area of the adjacent property owned by the District, and submit the written report to the District within 90 days after the spill, leak or discharge. After review of each Phase I Environmental Assessment, District, at its sole discretion, may require Permittee, at Permittee's expense, to obtain a Phase II Environmental Assessment with respect to the premises used under the Permit Agreement. The written report of the Phase II Environmental Assessment shall be submitted to District within 120 days of District's request for same. If the Phase II Assessment discloses the presence of any Hazardous Materials contamination on the Permit Premises or adjacent premises, Permittee shall take immediate action to remediate the contamination and to restore the Permit Premises described in Exhibit A and adjacent premises owned by the District to a clean and sanitary condition and to the extent required by any and all environmental laws.

B. Capacitors, transformers, or other environmentally sensitive installations or improvements shall be removed at the end of the Permit Agreement, at District's election.

C. If any Environmental Assessment reveals, or District otherwise becomes aware of, the existence of any violation of any Environmental Laws that either Permittee is unwilling to remediate or that District is unwilling to accept, District shall have the right and option to terminate this Agreement and to declare it null and void.

D. In the event Permittee should receive a Notice of Environmental Problem, Permittee shall promptly provide a copy to the District, and in no event later than seventy-two (72) hours from Permittee's and any tenant's receipt or submission thereof. "Notice of Environmental Problem" shall mean any notice, letter, citation, order, warning,

complaint, inquiry, claim, or demand that: (i) Permittee has violated, or is about to violate, any Environmental Laws; (ii) there has been a release, or there is a threat of release, of Hazardous Materials, on the Permit Premises, or any improvements thereon; (iii) Permittee will be liable, in whole or in part, for the costs of cleaning up, remediating, removing, or responding to a release of Hazardous Materials; (iv) any part of the Permit Premises or any improvements thereon is subject to a lien in favor of any governmental entity for any liability, costs, or damages, under any Environmental Laws, arising from or costs incurred by such government entity in response to a release of Hazardous Materials, Permittee shall promptly provide a copy to the District, and in no event later than seventy-two (72) hours from Permittee's and any tenant's receipt or submission thereof.

9.09 INSPECTION AND RIGHT OF INSPECTION (ENVIRONMENTAL)

A. In the event Permittee gives notice pursuant to the provisions of Notice of Environmental Problem, within ninety (90) days Permittee shall submit to District a written report of a site assessment and environmental audit, in scope, form and substance and prepared by an independent, competent and qualified, professional, registered engineer, satisfactory to the District, showing that the engineer made all appropriate inquiry consistent with good commercial and customary practice, such that, consistent with generally accepted engineering practice and procedure, no evidence or indication came to light which would suggest there was a release of substances on the Permit Premises which could necessitate an environmental response action, and which demonstrates that the Permit Premises complies with, and does not deviate from, all applicable environmental statutes, laws, ordinances, rules and regulations, including licenses, permits, or certificates required thereunder, and that Permittee is in compliance with, and has not deviated from, the representations and warranties previously set forth.

B. District hereby expressly reserves to itself, its agents, attorneys, employees, consultants, and contractors, an irrevocable license and authorization to enter upon and inspect the Permit Premises and improvements thereon, and perform such tests, including without limitation, subsurface testing, soils, and groundwater testing, and other tests which may physically invade the Permit Premises or improvements thereon, as the District, in its sole discretion, determines is necessary to protect its interests.

ARTICLE TEN

10.01 Permittee shall contact Mr. Roscoe Hardeman, Engineering Technician V, of the District's Maintenance and Operations Department at (847) 568-8227, prior to the start of construction to identify District infrastructure in the area to avoid Permittee, or its contractors, from impeding access to District infrastructure.

10.02 Permittee shall restore, repair, and/or replace (to the District's satisfaction and at no cost to the District) any damage to the Permit Premises caused by its activities.

10.03 Permittee shall protect all existing District facilities and appurtenances located within its Permit Premises, including, but not limited to, intercepting sewers, sludge lines, utility lines, dropshafts, connecting structures, siphons, and manholes.

10.04 Permittee shall maintain the Permit Premises during the Permit's term (e.g. security fencing, trash/debris clean-up and removal, etc.) and shall remove all materials, equipment and debris from the Permit Premises at the expiration of the Permit.

10.05 Permittee shall maintain the perimeter security of the Permit Premises during the Permit's term; any alterations, other than repairs, are not allowed without prior approval from the District.

10.06 Permittee shall secure its equipment or materials stored on the Permit Premises during the Permit's term and the District will not assume any liability for Permittee's equipment or materials stored on the Permit Premises.

10.07 All District facilities must be protected from excavation, driving of sheet piles and columns, and any other work during the Permit's term.

10.08 Access to District facilities must be maintained at all times during the Permit's term.

10.09 A Watershed Management Ordinance Permit from the District's Engineering Department Local Sewers Systems Section is required for any new outfall to the North Shore Channel.

10.10 Permittee's arborist has identified fifty-three (53) invasive species and poor-quality trees for removal and replacement from the Permit Premises. These trees will be removed and replaced in accordance with the Tree Removal Schedule, Tree Management Area Table and Central Street Bridge Reconstruction Tree Restoration Planting Area attached hereto and made a part hereof as Group Exhibit B.

[THE REMAINDER OF THIS PAGE LEFT BLANK INTENTIONALLY]
[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, on the day and year first above written, the parties hereto have caused these presents, including Riders and Exhibits, if any, to be duly executed, duly attested and their corporate seals to be hereunto affixed.

**METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO**

By: _____
Frank Avila
Chairman of Committee on Finance

ATTEST:

Jacqueline Torres, Clerk

CITY OF EVANSTON

By: _____
Name: _____
Title: _____

ATTEST:

By: _____

Title: _____

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

I, _____ Notary Public in and for said County, in the State aforesaid, DO HEREBY CERTIFY that Frank Avila, personally known to me to be the Chairman of the Committee on Finance of the Board of Commissioners of the Metropolitan Water Reclamation District of Greater Chicago, a body corporate and politic, and Jacqueline Torres, personally known to me to be the Clerk of said body corporate and politic, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that as such Chairman of the Committee on Finance and such Clerk, they signed and delivered the said instrument as Chairman of the Committee on Finance of the Board of Commissioners and Clerk of said body corporate and politic, and caused the corporate seal of said body corporate and politic to be affixed thereto, pursuant to authority given by the Board of Commissioners of said body corporate and politic, as their free and voluntary act and as the free and voluntary act and deed of said body corporate and politic, for the uses and purposes therein set forth.

GIVEN under my hand and Notarial Seal this _____ day of _____, A.D. 2020

Notary Public

My Commission expires:

APPROVED AS TO FORM AND LEGALITY:

Head Assistant Attorney

General Counsel

APPROVED:

Executive Director

RECEIVED:

Fee_____

Insurance_____

Bond_____

LOCATION	OFFSET	20101000 TEMPORARY FENCE [FOOT]	20101100 TREE TRUNK PROTECTION [EACH]	20101200 TREE ROOT PRUNING [EACH]	20101300 TREE PRUNING (OVER 10" DIAMETER) [EACH]	20101350 TREE PRUNING (OVER 10" DIAMETER) [EACH]
STA 103+26.00	35.82	30	1	1	1	1
STA 103+58.00	35.46	30	1	1	1	1
STA 104+47.00	94.85	30	1	1	1	1
STA 104+48.00	104.37	30	1	1	1	1
STA 104+44.00	106.87	30	1	1	1	1
STA 104+29.00	110.38	30	1	1	1	1
STA 104+25.00	140.82	30	1	1	1	1
STA 104+22.00	160.45	30	1	1	1	1
STA 104+03.00	162.79	30	1	1	1	1
STA 103+80.00	181.39	30	1	1	1	1
STA 105+22.00	55.09	30	1	1	1	1
STA 105+32.00	52.32	30	1	1	1	1
STA 106+61.00	99.19	30	1	1	1	1
STA 106+67.00	73.33	30	1	1	1	1
STA 106+67.00	68.05	30	1	1	1	1
STA 107+97.00	114.7	30	1	1	1	1
STA 103+87.26	51.38	30	1	1	1	1
STA 104+34.27	51.7	30	1	1	1	1
TOTAL	540	18	18	18	7	11

STATION	SCHEDULE OF TOPSOIL REMOVAL		TOPSOIL VOLUME (cu ft)
	LENGTH (ft)	4" TOPSOIL REMOVAL (sq ft)	
CENTRAL STREET STAGE 1			
103+00	0.00	1.65	
103+50	50.00	1.23	72.04
104+00	50.00	8.57	245.05
104+50	50.00	10.13	467.53
104+65.25	15.25	3.85	106.60
104+90.38	25.38	3.85	96.84
BRIDGE OMISSION			
106+61.67	0.00	7.11	
106+95	33.33	7.11	236.98
107+33.37	28.37	4.71	167.66
107+50	26.63	6.05	143.41
108+00	50.00	5.69	293.71
108+50	50.00	2.50	204.77
109+00	50.00	0.00	62.59
CENTRAL STREET STAGE 2			
103+00	0.21	2.40	
103+35	35.00	2.40	83.91
BRIDGE OMISSION			
103+61	0.00	9.34	
104+00	39.00	9.34	364.07
104+50	50.00	9.77	477.50
104+65.25	15.25	9.74	146.69
104+90.38	25.38	9.74	244.64
BRIDGE OMISSION			
106+61.67	0.00	6.31	
106+95	33.33	6.31	210.32
107+33.37	28.37	3.39	137.59
107+50	26.63	4.50	105.00
108+00	50.00	0.00	112.39
108+50	50.00	0.00	0.00
109+00	50.00	0.00	0.00
USGA GREEN RELOCATION			
		5031.00	1677.00
		4250.00	1416.67
SCHEDULES TOPSOIL		5015	7074.9

STATION	SCHEDULE OF EARTHWORK			FILL VOLUME (cu ft)
	LENGTH (ft)	CUT CROSS SECTION AREA (sq. ft)	FILL CROSS SECTION AREA (sq. ft)	
CENTRAL STREET STAGE 1				
103+00	0.26	0.00	0.00	
103+50	50.00	51.13	0.00	0.00
104+00	50.00	246.75	17.00	425.00
104+50	50.00	7.89	399.38	25.83
104+65.25	15.25	5.27	100.31	206.94
104+90.38	25.38	66.15	10.00	142.11
BRIDGE OMISSION				
106+61.67	0.00	10.00	10.00	
106+95	33.33	0.00	24.60	576.63
107+33.37	28.37	3.36	47.86	503.48
107+50	26.63	93.40	8.00	251.59
108+00	50.00	3.57	190.50	405.88
108+50	50.00	3.41	174.38	221.63
109+00	50.00	0.00	85.25	15.75
CENTRAL STREET STAGE 2				
103+00	0.21	0.00	0.00	
103+35	35.00	7.18	0.00	0.00
BRIDGE OMISSION				
103+61	0.00	2.90	0.00	
104+00	39.00	16.60	372.40	53.43
104+50	50.00	17.86	863.88	100.00
104+65.25	15.25	21.97	394.43	19.41
104+90.38	25.38	0.00	276.05	383.10
BRIDGE OMISSION				
106+61.67	0.00	0.00	0.00	
106+95	33.33	2.50	41.62	644.95
107+33.37	28.37	7.44	140.89	549.72
107+50	26.63	7.56	199.92	0.73
108+00	50.00	1.67	231.13	0.00
108+50	50.00	0.00	41.63	0.00
109+00	50.00	0.00	0.00	0.00
SCHEDULED EARTHWORK				5,881
BORROW EXCAVATION (+) OR EXCESS MATERIAL (-) (ASSUMED 15% SHRINKAGE)				(CU YD)
FILL REQUIRED (CY)	206.7	x	1.15	237.7
CUT (CY)	145.3	x	1.00	145.3
NON-SPL WASTE DISPOS (CY)	323.3	x	1.00	323.3
BORROW/EXCESS (CY)	-178.0	-	237.7	-415.7
FURNISHED	237.7	x	1.1	261.5
UNDERCUT ALLOWANCE (SY)	178.0	x	1.00	178.0

LOCATION	OFFSET	20101000 TEMPORARY FENCE [FOOT]	20101100 TREE TRUNK PROTECTION [EACH]	20101200 TREE ROOT PRUNING [EACH]	20101300 TREE PRUNING (1-10" DIAMETER) [EACH]	20101350 TREE PRUNING (OVER 10" DIAMETER) [EACH]	
							20101000 TEMPORARY FENCE [FOOT]
1	103+91.0	34.84	RT	8	8	8	
2	104+06.0	166.53	RT	9	9	9	
3	104+06.7	156.87	RT	9	9	9	
4	104+11.0	161.94	RT	9	9	9	
5	104+13.0	144.63	RT	10	10	10	
6	104+23.0	122.96	RT	7	7	7	
7	104+24.0	130.93	RT	8	8	8	
8	104+25.0	126.55	RT	8	8	8	
9	104+25.3	31.57	RT	10	10	10	
10	104+27.4	31.26	RT	10	10	10	
11	104+29.0	101.05	RT	10	10	10	
12	104+34.0	103.87	RT	7	7	7	
13	104+37.2	67.67	RT	7	7	7	
14	104+37.4	65.77	RT	7	7	7	
15	104+38.7	66.22	RT	10	10	10	
16	104+45.2	31.12	RT	6	6	6	
17	104+50.0	63.99	RT	6	6	6	
18	104+79.6	33.96	RT	6	6	6	
19	105+04.7	74.45	RT	7	7	7	
20	105+07.6	79.28	RT	7	7	7	
21	105+16.3	70.19	RT	7	7	7	
22	105+25.0	58.63	LT	7	7	7	
23	105+28.0	57.24	LT	30	30	30	
24	105+30.0	58.54	LT	8	8	8	
25	105+33.7	50.25	LT	15	15	15	
26	105+65.0	53.83	LT	7	7	7	
27	108+23.8	58.84	RT	7	7	7	
28	108+25.9	62.25	RT	6	6	6	
TOTAL							241

LOCATION	STA.	OFFSET	LT/RT	20100110 TREE REMOVAL (6-15 UNITS DIAMETER) TOTAL UNITS	20100210 TREE REMOVAL (OVER 15 UNITS DIAMETER) TOTAL UNITS	20100310 TREE REMOVAL (OVER 15 UNITS DIAMETER) TOTAL UNITS	
							20100110 TREE REMOVAL (6-15 UNITS DIAMETER) TOTAL UNITS
29	100+26.2	70.43	RT	8	8	8	
30	100+26.5	37.44	RT	7	7	7	
31	100+27.0	74.23	RT	6	6	6	
32	100+27.9	63.63	RT	6	6	6	
33	100+38.9	49.76	RT	7	7	7	
34	100+50.0	57.72	RT	8	8	8	
35	100+47.2	76.17	RT	8	8	8	
36	100+48.8	37.81	RT	8	8	8	
37	100+52.0	49.5	LT	8	8	8	
38	100+53.2	42.26	RT	7	7	7	
39	100+53.6	40.80	RT	9	9	9	
40	100+54.0	53.47	LT	8	8	8	
41	100+58.4	38.40	RT	8	8	8	
42	100+58.4	34.61	LT	8	8	8	
43	100+58.3	38.01	RT	8	8	8	
44	100+68.4	36.02	RT	14	14	14	
45	100+66.6	34.67	RT	7	7	7	
46	100+66.6	33.48	RT	8	8	8	
47	100+79.6	32.65	LT	13	13	13	
48	107+01.4	52.26	LT	14	14	14	
49	107+22.6	100.25	LT	7	7	7	
50	107+28.9	127.62	LT	8	8	8	
51	107+36.1	128.76	LT	8	8	8	
52	107+44.0	40.36	RT	7	7	7	
53	107+47.0	38.61	RT	10	10	10	
TREES TO BE REMOVED							496
DIAMETER REMOVED							241

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCALE: NONE

SHEET 1 OF 2

CENTRAL STREET BRIDGE
SCHEDULE OF QUANTITIES

SECTION
1F-007F-00-8R

COUNTY
COOK

CONTRACT NO.
61F92

STANLEY CONSULTANTS INC.

DESIGNED - CEG

DRAWN - CEG

CHECKED - PAS

DATE - 04-16-2020

REVISIONS

NO.	DATE	DESCRIPTION
1		REVISED
2		REVISED
3		REVISED
4		REVISED

203

Group Exhibit B

Central Street Bridge Reconstruction
Tree Restoration Planting Area





Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

Office of Water Resources • 2050 West Stearns Road • Bartlett, Illinois 60103

April 10, 2020

SUBJECT: Permit No. NE2020019
Central Street Bridge Reconstruction
North Shore Channel
Cook County, Application No. N20190077

Sat Nagar
City of Evanston
2100 Ridge Road
Evanston, Illinois 60201

Dear Mr. Nagar:

Enclosed is Illinois Department of Natural Resources, Office of Water Resources Permit No. NE2020019 authorizing the subject project. This permit does not supersede any other federal, state or local authorizations that may be required for the project. Upon receipt and review of this permit and all conditions included therein, please properly execute and return the attached acceptance slip within sixty (60) days from the date of this permit.

Please be advised that the Illinois Department of Natural Resources, Division of Ecosystems and Environment (DEE) participates in the regulatory programs of the U.S. Army, Corps of Engineers (USACE) and may review this project if a USACE Section 10 or 404 permit is required. Issuance of a permit by the Office of Water Resources does not preclude DEE's provision of comments and/or recommendations, primarily related to biological effects of the proposed action, to the USACE and other federal agencies concerning your project.

If any changes of the permitted work are found necessary, revised plans should be submitted promptly to this office for review and approval. Also, this permit expires on the date indicated in Condition (13). If unable to complete the work by that date, the permittee may make a written request for a time extension.

Please contact Kevin Hoobler of my staff at 847/608-3116 if you have any questions.

Sincerely,

William T. Boyd, P.E.
Acting Chief, Northeastern Illinois Regulatory Programs Section

WTB/KH:cjp

Enclosure

206

cc: Chicago District, U.S. Army Corps of Engineers
Graig Neville, Environmental Design International, Inc. ✓
Metropolitan Water Reclamation District of Greater Chicago



PERMIT NO. NE2020019
DATE: April 10, 2020

State of Illinois
Department of Natural Resources, Office of Water Resources

Permission is hereby granted to:

City of Evanston
2100 Ridge Road
Evanston, Illinois 60201

to reconstruct the Central Street Bridge in the floodway and public waters of the North Shore Channel in the Southwest Quarter of Section 35, Township 42 North, Range 13 East of the Third Principal Meridian in Cook County,

in accordance with an application dated April 1, 2019, and the plans and specifications entitled:

CENTRAL STREET BRIDGE, ROADWAY PLAN AND PROFILE, SHEET 1 OF 1, DATED FEBRUARY 21, 2019, JOINT APPLICATION EXHIBIT, SHEET 1 OF 1, DATED APRIL 17, 2019, BOTH SHEETS RECEIVED APRIL 19, 2019.

Examined and Recommended:

William T. Boyd, Acting Chief
Northeastern IL Regulatory
Programs Section

Approval Recommended:

Loren A. Wobig, Director
Office of Water Resources

Approved:

Colleen Callahan, Director
Department of Natural Resources

This PERMIT is subject to the terms and special conditions contained herein.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
CHICAGO DISTRICT, CORPS OF ENGINEERS
231 SOUTH LA SALLE STREET
CHICAGO, ILLINOIS 60604-1437

September 23, 2019

Technical Services Division
Regulatory Branch
LRC-2019-00324

SUBJECT: Letter of No Objection, Central Street Bridge Replacement, City of Evanston, Cook County, Illinois (Latitude 42.06422, Longitude -87.68712)

Sat Nagar
City of Evanston
2100 Ridge Road
Evanston, Illinois 60201

Dear Mr. Nagar:

This is in response to your permit application for the above-referenced site. The subject project has been assigned number LRC-2019-00324. Please reference this number in all future correspondence concerning this project.

Following a review of the information you submitted, this office has determined that the subject property may contain "waters of the United States". The North Shore Channel may be waters of the United States below its Ordinary High Water Mark.

A Department of the Army (DA) permit is required for any work involving a discharge of dredged or fill material into waters that fall under the jurisdiction of Section 404 of the Clean Water Act, 33 U.S.C. Sec. 1251 et seq.

However, based on our review of the information you furnished, and assuming your project is conducted only as set forth in the information provided, this office has determined that a DA permit will not be required, as your project may be completed without causing a discharge into regulated waters. Please be aware that any unpermitted discharge into an area within the jurisdiction of this office may result in civil or criminal enforcement under the Clean Water Act, 33 U.S.C. Sec. 1319. Further, although the North Shore Channel is a navigable water of the United States, no permit is required pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) because your proposed structure is a bridge, which is not regulated by Section 10.

The jurisdictional determination decision document for the subject property is enclosed. This determination covers only your project as depicted in the plans titled "Joint Application Exhibit," undated (plotted 4/17/2019), prepared by the Illinois Department of Transportation. Measures should be taken to prevent construction materials and/or activities from entering any waters of the United States. Appropriate soil erosion and sediment controls should be implemented on-site to achieve this end.

This letter is considered a preliminary jurisdictional determination for your subject site. If you object to this determination, please contact this office to obtain the Request for Appeal (RFA) form.

It is your responsibility to obtain any required state, county, or local approvals for impacts to wetland areas not under the Department of the Army jurisdiction. For projects located in unincorporated and unauthorized municipalities in Cook County, please contact the Metropolitan Water Reclamation District of Greater Chicago at (312) 751-3247.

If you have any questions, please contact me by telephone at (312) 846-5538 or email at Colin.C.Smalley@usace.army.mil.

Sincerely,



Digitally signed by
SMALLEY.COLIN.COOK.13742875
63
Date: 2019.09.23 16:17:59 -05'00'

Colin C. Smalley, PG
Regulatory Project Manager

Enclosures

Copy Furnished w/ Enclosures:

U.S. Fish and Wildlife Service (Shawn Cirton)
U.S. Coast Guard, Marine Safety Unit Chicago (LT Tiziana Garner)
Metropolitan Water Reclamation District of Greater Chicago (Dan Feltes)
Environmental Design International Inc. (Graig Neville)



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

Permit No. ILR10 _____

Company/Owner Name: City of Evanston

Mailing Address: 2100 Ridge Ave

Phone: 847-866-2967

City: Evanston

State: IL

Zip: 60201

Fax: _____

Contact Person: Sat Nagar

E-mail: snagar@cityofevanston.org

Owner Type (select one) City

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: Central Street Bridge Replacement

County: Cook

Street Address: 1105 Central St

City: Evanston

IL

Zip: 60201

Latitude: 87

41

13.2

Longitude: 42

03

50.4

7/35

41/42N

14/13E

(Deg)

(Min)

(Sec)

(Deg)

(Min)

(Sec)

Section

Township

Range

Approximate Construction Start Date Oct 15, 2019

Approximate Construction End Date Aug 31, 2021

Total size of construction site in acres: 2.5

If less than 1 acre, is the site part of a larger common plan of development?

Yes No

Fee Schedule for Construction Sites:

Less than 5 acres - \$250

5 or more acres - \$750

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Has the SWPPP been submitted to the Agency?

Yes No

(Submit SWPPP electronically to: epa.constilr10swppp@illinois.gov)

Location of SWPPP for viewing: Address: 2100 Ridge Ave

City: Evanston

SWPPP contact information:

Inspector qualifications:

Contact Name: Sat Nagar

P.E.

Phone: 847-866-2967

Fax: _____

E-mail: snagar@cityofevanston.org

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:

This project involves the demolition and re-construction of the Central Street bridge over the North Shore Channel, also included in the project is roadway resurfacing from Bryant Ave to the CTA tracks, landscaping, water main relocation and street lighting replacement.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

- Historic Preservation Agency Yes No
- Endangered Species Yes No

RECEIVING WATER INFORMATION

Does your storm water discharge directly to: Waters of the State or Storm Sewer

Owner of storm sewer system: City of Evanston

Name of closest receiving water body to which you discharge: North Shore Channel

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

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:

Printed Name:

Title:

INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610

FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is \$250.

Construction sites with 5 or more acres of land disturbance - fee is \$750.

SWPPP should be submitted electronically to: epa.constilr10swppp@illinois.gov. When submitting electronically, use Project Name and City as indicated on NOI form.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue, East; Post Office Box 19276; Springfield, IL 62794-9276.

Division of Public Water Supplies

Telephone 217/782-1724

PUBLIC WATER SUPPLY CONSTRUCTION PERMIT

SUBJECT: EVANSTON (IL0310810)

Permit Issued to:
City of Evanston
555 Lincoln Street
Evanston, IL 60201

PERMIT NUMBER: 1248-FY2019

DATE ISSUED: August 20, 2019

PERMIT TYPE: Water Main

The issuance of this permit is based on plans and specifications prepared by the engineers/architects indicated, and are identified as follows. This permit is issued for the construction and/or installation of the public water supply improvements described in this document, in accordance with the provisions of the "Environmental Protection Act", Title IV, Sections 14 through 17, and Title X, Sections 39 and 40, and is subject to the conditions printed on the last page of this permit and the ADDITIONAL CONDITIONS listed below.

FIRM: Environmental Design International Inc.

NUMBER OF PLAN SHEETS: 3

TITLE OF PLANS: "Central Street Reconstruction and Bridge Replacement Over North Shore Channel"

PROPOSED IMPROVEMENTS:

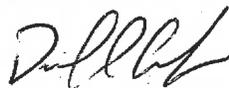
The installation of approximately 369 feet of water main with a nominal diameter of 6-inches.

ADDITIONAL CONDITIONS:

1. All water mains shall be satisfactorily disinfected prior to use. In accordance with the requirements of AWWA C651-05, at least one set of samples shall be collected from every 1,200 feet of new water main, plus one set from the end of the line, and one set from each branch. Satisfactory disinfection shall be demonstrated in accordance with the requirements of 35 Ill. Adm. Code Section 602.310.
2. When a storm sewer crosses above the proposed water main 18-inches of separation must be provided between the invert of the storm sewer and crown of the water main.
3. There are no further conditions to this permit

DCC:LMcD

cc: Environmental Design International Inc.
Elgin Regional Office



David C. Cook, P.E.
Manager Permit Section

213 Division of Public Water Supplies

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_P = Bituminous Price Index, as published by the Department for the month the work is performed, \$/ton (\$/metric ton).

BPI_L = Bituminous Price Index, as published by the Department for the month prior to the letting 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_V = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_V will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_V and undiluted emulsified asphalt will be considered to be 65% AC_V.

Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: $Q, \text{ tons} = A \times D \times (G_{mb} \times 46.8) / 2000$. For HMA mixtures measured in square meters: $Q, \text{ metric tons} = A \times D \times (G_{mb} \times 1) / 1000$. 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_V.

For bituminous materials measured in gallons: $Q, \text{ tons} = V \times 8.33 \text{ lb/gal} \times SG / 2000$

For bituminous materials measured in liters: $Q, \text{ metric tons} = V \times 1.0 \text{ kg/L} \times SG / 1000$

Where: A = Area of the HMA mixture, sq yd (sq m).

D = Depth of the HMA mixture, in. (mm).

G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.

V = Volume of the bituminous material, gal (L).
SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(BPI_L - BPI_P) \div BPI_L\} \times 100$$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

80173

COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revised: April 1, 2019

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 according to Article 109.04.

When an extended traffic control 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."

80384

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 ^{1/}	600-749	2002
	750 and up	2006
June 1, 2011 ^{2/}	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 ^{2/}	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<http://www.epa.gov/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.

80261

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000

Revised: March 2, 2019

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 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 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, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform 17.00 % of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

- (a) The bidder documents enough DBE participation has been obtained to meet the goal or,
- (b) The bidder documents 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 a material bidding requirement and failure of the bidder to comply will render the bid not responsive.

The bidder shall submit a DBE Utilization Plan (form SBE 2026), and a DBE Participation Statement (form SBE 2025) for each DBE company proposed for the performance of work to achieve the contract goal, with the bid. If the Utilization Plan indicates the contract goal will not be met, documentation of good faith efforts shall also be submitted. 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. The required forms and documentation must be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a Utilization Plan if it does not meet the bidding procedures set forth herein and the bid will be declared not responsive. In the event the bid is declared not responsive, 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.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate and adequately document enough DBE participation has been obtained or document the 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. This means 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 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 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 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 the 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 it is otherwise eligible for award. If the Department determines 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 will also include a statement of reasons for the adverse 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 to cure the deficiency.

- (c) The bidder may request administrative reconsideration of an adverse determination by emailing the Department at "DOT.DBE.UP@illinois.gov" within the five calendar days after the receipt of the notification of the determination. The determination shall become final if a request is not made on or before the fifth calendar day. 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 reviewed by the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person 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 reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid 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 Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.
- (d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:
 - (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
 - (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement.
- (e) DBE as a material supplier:
 - (1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
 - (2) 100 percent goal credit for the cost of materials or supplies obtained from a DBE manufacturer.
 - (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a 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 emailed to the Department at DOT.DBE.UP@illinois.gov.
- (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, a new Request for Approval of Subcontractor will not be required. However, the Contractor must document efforts to assure 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 copies of DBE subcontracts to the Department 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) 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) The DBE is aware 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) 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 Contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the 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) The Contractor has determined the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides written notice to the Contractor 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 Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE contractor was engaged or so that the 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 will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

- (f) FINAL PAYMENT. 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 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment 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 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.

80029

DISPOSAL FEES (BDE)

Effective: November 1, 2018

Replace Articles 109.04(b)(5) – 109.04(b)(8) of the Standard Specifications with the following:

- “(5) Disposal Fees. When the extra work performed includes paying for disposal fees at a clean construction and demolition debris facility, an uncontaminated soil fill operation or a landfill, the Contractor shall receive, as administrative costs, an amount equal to five percent of the first \$10,000 and one percent of any amount over \$10,000 of the total approved costs of such fees.
- (6) Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
- (7) Statements. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with itemized statements of the cost of such force account work. Statements shall be accompanied and supported by invoices for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor’s stock, then in lieu of the invoices, the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

Itemized statements at the cost of force account work shall be detailed as follows.

- a. Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman. Payrolls shall be submitted to substantiate actual wages paid if so requested by the Engineer.
 - b. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
 - c. Quantities of materials, prices and extensions.
 - d. Transportation of materials.
 - e. Cost of property damage, liability and workmen’s compensation insurance premiums, unemployment insurance contributions, and social security tax.
- (8) Work Performed by an Approved Subcontractor. When extra work is performed by an approved subcontractor, the Contractor shall receive, as administrative costs, an amount equal to five percent of the total approved costs of such work with the minimum payment being \$100.

- (9) All statements of the cost of force account work shall be furnished to the Engineer not later than 60 days after receipt of the Central Bureau of Construction form "Extra Work Daily Report". If the statement is not received within the specified time frame, all demands for payment for the extra work are waived and the Department is released from any and all such demands. It is the responsibility of the Contractor to ensure that all statements are received within the specified time regardless of the manner or method of delivery."

80402

EMULSIFIED ASPHALTS (BDE)

Effective: August 1, 2019

Revise Article 1032.06 of the Standard Specifications to read:

“1032.06 Emulsified Asphalts. Emulsified asphalts will be accepted according to the current Bureau of Materials Policy Memorandum, “Emulsified Asphalt Acceptance Procedure”. These materials shall be homogeneous and shall show no separation of asphalt after thorough mixing, within 30 days after delivery, provided separation has not been caused by freezing. They shall coat the aggregate being used in the work to the satisfaction of the Engineer and shall be according to the following requirements.

- (a) Anionic Emulsified Asphalt. Anionic emulsified asphalts RS-1, RS-2, HFRS-2, SS-1h, and SS-1 shall be according to AASHTO M 140, except as follows.
 - (1) The cement mixing test will be waived when the emulsion is being used as a tack coat.
 - (2) The Solubility in Trichloroethylene test according to AASHTO T 44 may be run in lieu of Ash Content and shall meet a minimum of 97.5 percent.
- (b) Cationic Emulsified Asphalt. Cationic emulsified asphalts CRS-1, CRS-2, CSS-1h, and CSS-1 shall be according to AASHTO M 208, except as follows.
 - (1) The cement mixing test will be waived when the emulsion is being used as a tack coat.
 - (2) The Solubility in Trichloroethylene test according to AASHTO T 44 may be run in lieu of Ash Content and shall meet a minimum of 97.5 percent.
- (c) High Float Emulsion. High float emulsions HFE-90, HFE-150, and HFE-300 are medium setting and shall be according to the following table.

Test	HFE-90	HFE-150	HFE-300
Viscosity, Saybolt Furol, at 122 °F (50 °C), (AASHTO T 59), SFS ^{1/}	50 min.	50 min.	50 min.
Sieve Test, No. 20 (850 µm), retained on sieve, (AASHTO T 59), %	0.10 max.	0.10 max.	0.10 max.
Storage Stability Test, 1 day, (AASHTO T 59), %	1 max.	1 max.	1 max.
Coating Test (All Grades), (AASHTO T 59), 3 minutes	stone coated thoroughly		
Distillation Test, (AASHTO T 59): Residue from distillation test to 500 °F (260 °C), % Oil distillate by volume, %	65 min. 7 max.	65 min. 7 max.	65 min. 7 max.

Characteristics of residue from distillation test to 500 °F (260 °C): Penetration at 77 °F (25 °C), (AASHTO T 49), 100 g, 5 sec, dmm	90-150	150-300	300 min.
Float Test at 140 °F (60 °C), (AASHTO T 50), sec.	1200 min.	1200 min.	1200 min.

1/ The emulsion shall be pumpable.

- (d) Penetrating Emulsified Prime. Penetrating Emulsified Prime (PEP) shall be according to AASHTO T 59, except as follows.

Test	Result
Viscosity, Saybolt Furol, at 77 °F (25 °C), SFS	75 max.
Sieve test, retained on No. 20 (850 µm) sieve, %	0.10 max.
Distillation to 500 °F (260 °C) residue, %	38 min.
Oil distillate by volume, %	4 max.

The PEP shall be tested according to the current Bureau of Materials Illinois Laboratory Test Procedure (ILTP), "Sand Penetration Test of Penetrating Emulsified Prime (PEP)". The time of penetration shall be equal to or less than that of MC-30. The depth of penetration shall be equal to or greater than that of MC-30.

- (e) Delete this subparagraph.
- (f) Polymer Modified Emulsified Asphalt. Polymer modified emulsified asphalts, e.g. SS-1hP, CSS-1hP, CRS-2P (formerly CRSP), CQS-1hP (formerly CSS-1h Latex Modified) and HFRS-2P (formerly HFP) shall be according to AASHTO M 316, except as follows.
- (1) The cement mixing test will be waived when the polymer modified emulsion is being used as a tack coat.
 - (2) CQS-1hP (formerly CSS-1h Latex Modified) emulsion for micro-surfacing treatments shall use latex as the modifier.
 - (3) Upon examination of the storage stability test cylinder after standing undisturbed for 24 hours, the surface shall show minimal to no white, milky colored substance and shall be a homogenous brown color throughout.
 - (4) The distillation for all polymer modified emulsions shall be performed according to AASHTO T 59, except the temperature shall be 374 ± 9 °F (190 ± 5 °C) to be held for a period of 15 minutes and measured using an ASTM 16F (16C) thermometer.
 - (5) The specified temperature for the Elastic Recovery test for all polymer modified emulsions shall be 50.0 ± 1.0 °F (10.0 ± 0.5 °C).

(6) The Solubility in Trichloroethylene test according to AASHTO T 44 may be run in lieu of Ash Content and shall meet a minimum of 97.5 percent.

(g) Non-Tracking Emulsified Asphalt. Non-tracking emulsified asphalt NTEA (formerly SS-1vh) shall be according to the following.

Test	Requirement
Saybolt Viscosity at 77 °F (25 °C), (AASHTO T 59), SFS	20-100
Storage Stability Test, 24 hr, (AASHTO T 59), %	1 max.
Residue by Distillation, 500 ± 10 °F (260 ± 5 °C), or Residue by Evaporation, 325 ± 5 °F (163 ± 3 °C), (AASHTO T 59), %	50 min.
Sieve Test, No. 20 (850 µm), (AASHTO T 59), %	0.3 max.
Tests on Residue from Evaporation	
Penetration at 77 °F (25 °C), 100 g, 5 sec, (AASHTO T 49), dmm	40 max.
Softening Point, (AASHTO T 53), °F (°C)	135 (57) min.
Ash Content, (AASHTO T 111), % ^{1/}	1 max.

1/ The Solubility in Trichloroethylene test according to AASHTO T 44 may be run in lieu of Ash Content and shall meet a minimum of 97.5 percent

The different grades are, in general, used for the following.

Grade	Use
SS-1, SS-1h, RS-1, RS-2, CSS-1, CRS-1, CRS-2, CSS-1h, HFE-90, SS-1hP, CSS-1hP, NTEA (formerly SS-1vh)	Tack Coat
PEP	Prime Coat
RS-2, HFE-90, HFE-150, HFE-300, CRS-2P (formerly CRSP), HFRS-2P (formerly HFP), CRS-2, HFRS-2	Bituminous Surface Treatment
CQS-1hP (formerly CSS-1h Latex Modified)	Micro-Surfacing Slurry Sealing Cape Seal™

80415

ENGINEER'S FIELD OFFICE AND LABORATORY (BDE)

Effective: January 1, 2020

Revise the last sentence of the first paragraph of Article 670.01 of the Standard Specifications to read:

“The building shall remain available for use until released by the Engineer.”

Revise the fifth and sixth paragraphs of Article 670.02 of the Standard Specifications to read:

“Sanitary facilities shall include hot and cold potable running water, lavatory and toilet as an integral part of the office where available. A portable toilet, if necessary, shall be serviced once per week. Solid waste disposal consisting of two waste baskets and an outside trash container of sufficient size to accommodate a weekly provided pick-up service.

In addition, the following furniture and equipment meeting the approval of the Engineer shall be furnished.”

Revise Article 670.02(b) through 670.02(r) of the Standard Specifications to read:

- “(b) One desk with minimum working surface of 48 x 72 in. (1.2 x 1.8 m).
- (c) Two free standing four drawer legal size file cabinets with lock and an underwriters' laboratories insulated file device 350 degrees one hour rating.
- (d) Table(s) and chairs capable of seating 10 people.
- (e) One equipment cabinet of minimum inside dimension of 44 in. (1100 mm) high x 24 in. (600 mm) wide x 30 in. (750 mm) deep with lock. The walls shall be of steel with a 3/32 in. (2 mm) minimum thickness with concealed hinges and enclosed lock constructed in such a manner as to prevent entry by force. The cabinet assembly shall be permanently attached to a structural element of the field office in a manner to prevent theft of the entire cabinet.
- (f) One refrigerator with a minimum size of 14 cu ft (0.40 cu m) with a freezer unit.
- (g) One electric desk type tape printing calculator.
- (h) A minimum of two communication paths. The configuration shall include:
 - (1) Internet Connection. An internet service connection with a wireless router capable of providing service to a minimum of five devices. The internet service shall be for unlimited data with a minimum internet data download speed of 25 megabits per second. For areas where this minimum download speed is not available, the maximum speed available for the area shall be provided.

- (2) Telephone Line. One landline touch tone telephone with voicemail or answering machine. The telephone shall have an unpublished number.
- (i) One plain paper wireless color printer capable of reproducing prints up to 11 x 17 in. (280 x 432 mm) with an automatic feed tray. Separate paper trays for letter size and 11 x 17 in. (280 x 432 mm) paper shall be provided. The wireless printer shall also be equipped to copy in color and scan documents.
- (j) One electric water cooler dispenser.
- (k) One first-aid cabinet fully equipped.
- (l) One microwave oven (minimum 700 watt) with a turntable and 1 cu ft (0.03 cu m) minimum capacity.
- (m) One fire-proof safe, 0.5 cu ft (0.01 cu m) minimum capacity.
- (n) One electric paper shredder.
- (o) One post mounted rain gauge, located on the project site for each 5 miles (8 km) of project length.”

Revise the last sentence of the first paragraph of Articles 670.04 and 670.05 of the Standard Specifications to read:

“Doors and windows shall be equipped with locks.”

Revise Article 670.04(c) through 670.04(n) of the Standard Specifications to read:

“(c) Two folding chairs.

(d) One equipment cabinet of minimum inside dimension of 44 in. (1100 mm) high x 24 in. (600 mm) wide x 30 in. (750 mm) deep with lock. The walls shall be of steel with a 3/32 in. (2 mm) minimum thickness with concealed hinges and enclosed lock constructed to prevent entry by force. The cabinet assembly shall be permanently attached to a structural element of the field office to prevent theft of the entire cabinet.

(e) A minimum of two communication paths. The configuration shall include:

(1) Internet Connection. An internet service connection with a wireless router capable of providing service to a minimum of five devices. The internet service shall be for unlimited data with a minimum internet download speed of 25 megabits per second. For areas where this minimum download speed is not available, the maximum speed available for the area shall be provided.

(2) Telephone Line. One land line touch tone telephone with voicemail or answering machine. The telephone shall have an unpublished number.

(f) One electric desk type tape printing calculator.

(g) One first-aid cabinet fully equipped.

(h) One plain paper wireless color printer capable of reproducing prints up to 11 x 17 in. (280 x 432 mm) with an automatic feed tray. Separate paper trays for letter size and 11 x 17 in. (280 x 432 mm) paper shall be provided. The wireless printer shall also be equipped to copy in color and scan documents.

(i) A portable toilet meeting Federal, State, and local health department requirements shall be provided, maintained clean and in good working condition, and shall be stocked with lavatory and sanitary supplies at all times. The portable toilet shall be serviced once per week.

(j) One electric water cooler dispenser.

(k) One refrigerator with a minimum size of 14 cu ft (0.45 cu m) with a freezer unit.

(l) One microwave oven (minimum 700 watt) with a turntable and 1 cu ft (0.03 cu m) minimum capacity.”

Revise Article 670.05(f) of the Standard Specifications to read:

“(f) One landline touch tone telephone with voicemail or an answering machine. The telephone shall have an unpublished number.”

Delete the last sentence of the second paragraph of Article 670.06 of the Standard Specifications.

Revise the fifth sentence of the first paragraph of Article 670.07 of the Supplemental Specifications to read:

“This price shall include all utility costs and shall reflect the salvage value of the building or buildings, equipment, and furniture which remain the property of the Contractor after release by the Engineer, except the Department will pay that portion of the monthly long distance and monthly local telephone, when combined, exceed \$250.”

80423

EQUIPMENT PARKING AND STORAGE (BDE)

Effective: November 1, 2017

Replace the first paragraph of Article 701.11 of the Standard Specifications with the following.

“701.11 Equipment Parking and Storage. During working hours, all vehicles and/or nonoperating equipment which are parked, two hours or less, shall be parked at least 8 ft (2.5 m) from the open traffic lane. For other periods of time during working and for all nonworking hours, all vehicles, materials, and equipment shall be parked or stored as follows.

- (a) When the project has adequate right-of-way, vehicles, materials, and equipment shall be located a minimum of 30 ft (9 m) from the pavement.
- (b) When adequate right-of-way does not exist, vehicles, materials, and equipment shall be located a minimum of 15 ft (4.5 m) from the edge of any pavement open to traffic.
- (c) Behind temporary concrete barrier, vehicles, materials, and equipment shall be located a minimum of 24 in. (600 mm) behind free standing barrier or a minimum of 6 in. (150 mm) behind barrier that is either pinned or restrained according to Article 704.04. The 24 in. or 6 in. measurement shall be from the base of the non-traffic side of the barrier.
- (d) Behind other man-made or natural barriers meeting the approval of the Engineer.”

80388

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_P = Fuel Price Index, as published by the Department for the month the work is performed, \$/gal (\$/liter)
FPI_L = 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_L and FPI_P 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.

80229

GEOTECHNICAL FABRIC FOR PIPE UNDERDRAINS AND FRENCH DRAINS (BDE)

Effective: November 1, 2019

Revise Article 1080.01(a) of the Standard Specifications to read:

“(a) Fabric Materials. Fabric materials shall be as follows.

- (1) Knitted Fabric. Knitted fabric envelope shall be Type A according to ASTM D 6707 and be a continuous one piece knitted polymeric material that fits over the pipe underdrain like a sleeve. It shall be free from any chemical treatment or coating that might significantly reduce porosity and permittivity.
- (2) Woven or Nonwoven Fabric. The fabric shall be Class 3 according to AASHTO M 288 and consist of woven yarns or nonwoven filaments of polyolefins or polyesters. Woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape like character) shall not be permitted. The yarns or filaments shall be dimensionally stable (i.e. maintain their relative position with respect to each other) and resistant to delamination. The yarns or filaments shall be free from any chemical treatment or coating that might significantly reduce porosity and permittivity.
- (3) Physical Properties. The physical properties for knitted, woven, and nonwoven fabrics shall be according to the following.

PHYSICAL PROPERTIES			
	Knitted ^{1/}	Woven ^{2/}	Nonwoven ^{2/}
Grab Strength, lb (N) ASTM D 4632 ^{3/}	--	180 (800) min.	112 (500) min.
Elongation/Grab Strain, % ASTM D 4632 ^{3/}	--	49 max.	50 min.
Trapezoidal Tear Strength, lb (N) ASTM D 4533 ^{3/}	--	67 (300) min.	40 (180) min.
Puncture Strength, lb (N) ASTM D 6241 ^{3/}	180 (800) min.	370 (1650) min.	222 (990) min.
Apparent Opening Size, Sieve No. (mm) ASTM D 4751 ^{4/}	30 (0.60) max.	40 (0.425) max.	40 (0.425) max.
Permittivity, sec ⁻¹ ASTM D 4491	1.0 min.		
Ultraviolet Stability, % retained strength after 500 hours of exposure ASTM D 4355	--	50 min.	50 min.

1/ Manufacturer's certification to meet test requirements.

2/ NTPEP results or manufacturer's certification to meet test requirements.

3/ Values represent the minimum average roll value (MARV) in the weaker principle direction [machine direction (MD) or cross-machine direction (XD)].

4/ Values represent the maximum average roll value.”

Revise Article 1080.05 of the Standard Specifications to read:

“1080.05 Geotechnical Fabric for French Drains and Pipe Underdrains, Type 2. Geotechnical fabric for french drains and pipe underdrains, Type 2 shall be Class 3 according to AASHTO M 288 and consist of woven yarns or nonwoven filaments of polyolefins or polyesters. Woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) shall not be permitted. The yarns or filaments shall be dimensionally stable (i.e. maintain their relative position with respect to each other) and resistant to delamination. The yarns or filaments shall be free from any chemical treatment or coating that might significantly reduce porosity and permittivity.

The fabric shall be according to the following.

PHYSICAL PROPERTIES ^{1/}		
	Woven	Nonwoven
Grab Strength, lb (N) ASTM D 4632 ^{2/}	180 (800) min.	112 (500) min.
Elongation/Grab Strain, % ASTM D 4632 ^{2/}	49 max.	50 min.
Trapezoidal Tear Strength, lb (N) ASTM D 4533 ^{2/}	67 (300) min.	40 (180) min.
Puncture Strength, lb (N) ASTM D 6241 ^{2/}	370 (1650) min.	222 (990) min.
Apparent Opening Size, Sieve No. (mm) ASTM D 4751 ^{3/}	60 (0.25) max.	
Permittivity, sec ⁻¹ ASTM D 4491	0.2 min.	
Ultraviolet Stability % retained strength after 500 hours of exposure - ASTM D 4355	50 min.	

1/ NTPEP results to meet test requirements. Manufacturer shall have public release status and current reports on laboratory results in Test Data of NTPEP’s DataMine.

2/ Values represent the minimum average roll value (MARV) in the weaker principle direction [machine direction (MD) or cross-machine direction (XD)].

3/ Values represent the maximum average roll value.”

LUMINAIRES, LED (BDE)

Effective: April 1, 2019

Description. This work shall consist of furnishing and installing light emitting diode (LED) luminaires. Work shall be according to Sections 801, 821, and 1067 of the Standard Specifications, except as modified herein.

Submittals. In addition to the requirements listed in Article 801.05(a), submittals for LED luminaires shall include the following.

- Completed manufacturer's luminaire ordering form with the full catalog number provided.
- Descriptive literature and catalog cuts for the luminaire, driver, and surge protective device.
- Lighting calculations generated with AGi32 software demonstrating compliance with the Luminaire Performance Table shown in the contract. These calculations shall be performed to the following criteria: photopic units shall be used; calculations shall be performed to an accuracy of two digits ($x.xx \text{ cd/m}^2$); point-by-point illuminance, luminance, and veiling luminance ratios demonstrating that the submitted luminaire meets the lighting metrics specified in the Luminaire Performance Table using IES RP-8 methods.

Upon request by the Engineer, submittals for LED Luminaires shall also include any or all the following.

- IES file associated with each submitted luminaire in IES LM-63 format.
- TM-21 calculator spreadsheet (XLSX or PDF format) and if available, TM-28 report for the specified luminaire or luminaire family. Both reports shall be for 50,000 hours at an ambient temperature of 77 °F (25 °C).
- LM-79 report with National Voluntary Laboratory Accreditation Program (NVLAP) current at the time of testing in PDF format inclusive of the following: isofootcandle diagram with half candela contour and maximum candela point; polar plots through maximum plane and maximum cone; coefficient of utilization graph; candela table; and spectral distribution graph and chromaticity diagram.
- LM-80 report for the specified LED package in PDF format and if available, LM-84 report for the specified luminaire or luminaire family in PDF format. Both reports shall be conducted by a laboratory with NVLAP certification current at the time of testing.
- In Situ Temperature Measurement Test (ISTMT) report for the specified luminaire or luminaire family in PDF format.
- Vibration test report in accordance with ANSI C136.31 in PDF format.

- ASTM B117/ASTM D1654 (neutral salt spray) test and sample evaluation report in PDF format.
- ASTM G154 (ASTM D523) gloss test report in PDF format.
- LED drive current, total luminaire input wattage, and current over the operating voltage range at an ambient temperature of 77 °F (25 °C).
- Power factor (pf) and total harmonic distortion (THD) at maximum and minimum supply and at nominal voltage for the dimmed states of 70%, 50%, and 30% full power.
- Ingress protection (IP) test reports, conducted according to ANSI C136.25 requirements, for the driver and optical assembly in PDF format.
- Installation, maintenance, and cleaning instructions in PDF format, including recommendations on periodic cleaning methods.
- Documentation in PDF format that the reporting laboratory is certified to perform the required tests.

Warranty. Replace the last sentence of Article 801.14(a) with the following.

“The warranty, including the maintained minimum luminance, for LED signal head modules, optically programmed LED signal head modules, and LED pedestrian signal head modules shall cover a minimum of 60 months from the date of delivery. The warranty for LED roadway luminaires, LED highmast luminaires, LED underpass luminaires, LED sign lighting luminaires, LED obstruction warning luminaires, and all of their components shall cover a minimum of ten years from the date of delivery.”

Roadway Luminaires. Revise Article 821.02(d) to read.

“(d) Light Source1067.06”

Revise the third paragraph of Article 821.03 to read.

“Each luminaire driver and/or driver arrangement shall be checked to assure compatibility with the project power supply. When the luminaire driver has a readily accessible electrical compartment, the driver shall be attached so as to be easily removed for maintenance.”

Replace the fifth paragraph of Article 821.03 with the following.

“No luminaire shall be installed before it is approved. When independent luminaire testing is required, full approval will not be given until complete test results which demonstrate compliance with the contract documents have been reviewed and accepted by the Engineer. Independent luminaire testing will be required, and shall be conducted, according to Article 1067.01(k)”.

Revise the last paragraph of Article 821.03 to read.

“When installing or adjusting the luminaire, care shall be taken to avoid touching the lenses or allowing contaminants to be deposited on any part of the optical assembly. Each lens shall be free of all dirt, smudges, etc. Should the luminaire require cleaning, the luminaire manufacturer’s cleaning instructions shall be strictly followed.”

Revise Article 821.08 to read.

“**821.08 Basis of Payment.** This work will be paid for at the contract unit price per each for LUMINAIRE, LED, ROADWAY, of the output designation specified; LUMINAIRE, LED, HIGHMAST, of the output designation specified; LUMINAIRE, LED, UNDERPASS, WALLMOUNT, of the output designation specified; LUMINAIRE, LED, UNDERPASS, SUSPENDED, of the output designation specified; LUMINAIRE, LED, SIGN LIGHTING, of the output designation specified.

When independent luminaire testing is required, the work will be paid for at the contract lump sum price for INDEPENDENT LUMINAIRE TESTING.”

Luminaires. Revise Articles 1067.01 through 1067.06 to read.

“**1067.01 General.** The luminaire shall be mechanically strong and easy to maintain. The size, weight, and shape of the luminaire shall be designed so as not to incite detrimental vibrations in its respective pole and it shall be compatible with the pole and arm. All electrical and electronic components of the luminaire shall comply with the requirements of Restriction of Hazardous Materials (RoHS) regulations. The luminaire shall be listed for wet locations by an NRTL and shall meet the requirements of UL 1598 and UL 8750.

- (a) Labels. An internal label shall be provided indicating the luminaire is suitable for wet locations and indicating the luminaire is an NRTL listed product to UL1598 and UL8750. The internal label shall also comply with the requirements of ANSI C136.22.

An external label consisting of two black characters on a white background with the dimensions of the label and the characters as specified in ANSI C136.15 for HPS luminaires. The first character shall be the alphabetical character representing the initial lumen output as specified in Table 1 of Article 1067.06(c). The second character shall be the numerical character representing the transverse light distribution type as specified in IES RP-8 (i.e. Types 1, 2, 3, 4, or 5).

- (b) Surge Protection. The luminaire shall comply the requirements of ANSI C136.2 for electrical transient immunity at the “Extreme” level (20KV/10KA) and shall be equipped with a surge protective device (SPD) that is UL1449 compliant with indicator light. An SPD failure shall open the circuit to protect the driver.

- (c) Optical Assembly. The optical assembly shall have an IP66 or higher rating in accordance with ANSI C136.25. The circuiting of the LED array shall be designed to minimize the effect of individual LED failures on the operation of other LEDs. All optical components shall be made of glass or a UV stabilized, non-yellowing material.
- (d) Housing. All external surfaces shall be cleaned in accordance with the manufacturer's recommendations and be constructed in such a way as to discourage the accumulation of water, ice, and debris.
- (e) Driver. The driver shall be integral to the luminaire and shall be capable of receiving indefinite open and short circuit output conditions without damage.

The driver shall incorporate the use of thermal foldback circuitry to reduce output current under abnormal driver case temperature conditions and shall be rated for a lifetime of 100,000 hours at an ambient temperature exposure of 77 °F (25 °C) to the luminaire. If the driver has a thermal shut down feature, it shall not turn off the LEDs when operated at 104 °F (40 °C) or less.

The driver shall have an input voltage range of 120 to 277 volts ($\pm 10\%$) or 347 to 480 volts ($\pm 10\%$) according to the contract documents. When the driver is operating within the rated input voltage range and in an un-dimmed state, the power factor measurement shall be not less than 0.9 and the THD measurement shall be no greater than 20%.

The driver shall meet the requirements of the FCC Rules and Regulations, Title 47, Part 15 for Class A devices with regard to electromagnetic compatibility. This shall be confirmed through the testing methods in accordance with ANSI C63.4 for electromagnetic interference.

The driver shall be dimmable using the protocol listed in the Luminaire Performance Table shown in the contract.

- (f) Photometric Performance. The luminaire shall be IES LM-79 tested by a laboratory holding accreditation from the NVLAP for IES LM-79 testing procedures. At a minimum the LM-79 report shall include a backlight/uplight/glare (BUG) rating and a luminaire classification system (LCS) graph showing lumen values and percent lumens by zone as described in IES RP-8. The uplight of the BUG rating shall be U=0.

The luminaire shall also meet the requirements of the Luminaire Performance Table shown in the contract.

- (g) Finish. The luminaire shall have a baked acrylic enamel finish. The color of the finish shall be gray, bronze, or black to match the pole or tower on which the luminaire is mounted.

The finish shall have a rating of six or greater according to ASTM D1654, Section 8.0 Procedure A – Evaluation of Rust Creepage for Scribed Samples after exposure to

1000 hours of testing according to ASTM B117 for painted or finished surfaces under environmental exposure.

The luminaire finish shall have less than or equal to 30% reduction of gloss according to ASTM D523 after exposure of 500 hours to ASTM G154 Cycle 6 QUV® accelerated weathering testing.

- (h) Hardware. All hardware shall be stainless steel or of other corrosion resistant material approved by the Engineer.

Luminaires shall be designed to be easily serviced, having fasteners such as quarter-turn clips of the heavy spring-loaded type with large, deep straight slot heads, complete with a receptacle and shall be according to military specification MIL-f-5591.

All hardware shall be captive and not susceptible to falling from the luminaire during maintenance operations. This shall include lens/lens frame fasteners as well hardware holding the removable driver and electronic components in place.

- (i) Vibration Testing. All luminaires shall be subjected to and pass vibration testing requirements at “3G” minimum zero to peak acceleration in accordance with ANSI C136.31 requirements using the same luminaire. To be accepted, the luminaire housing, hardware, and each individual component shall pass this test with no noticeable damage and the luminaire must remain fully operational after testing.
- (j) Wiring. All wiring in the luminaire shall be rated for operation at 600V, 221 °F (105 °C).
- (k) Independent Luminaire Testing. When a contract has 30 or more luminaires of the same manufacturer’s catalog number, that luminaire shall be independently tested to verify it will meet the contract requirements. The quantity of luminaires requiring testing shall be one luminaire for the first 30 plus one additional luminaire for each additional 50 luminaires of that catalog number. Testing is not required for temporary lighting luminaires.

Prior to testing the Contractor shall propose a properly accredited laboratory and a qualified independent witness, submitting their qualifications to the Engineer for approval. After approval, the Contractor shall coordinate the testing and pay all associated costs, including travel expenses, for the independent witness.

- (1) Independent Witness. The independent witness shall select from the project luminaires at the manufacturer’s facility the luminaires for testing. In all cases, the selection of luminaires shall be a random selection from the entire completed lot of luminaires required for the contract. Selections from partial lots will not be allowed. The independent witness shall mark each sample luminaire’s shipping carton with the IDOT contract number and a unique sample identifier.

At the time of random selection, the independent witness shall inspect the luminaire(s) for compliance with all physical, mechanical, and labeling requirements for luminaires

according to Sections 821 and 1067. If deficiencies are found during the physical inspection, the Contractor shall have all luminaires of that manufacturer's catalog number inspected for the identified deficiencies and shall correct the problem(s) where found. Random luminaire selection and physical inspection must then be repeated. When the physical inspection is successfully completed, the independent witness shall mark the project number and sample identifier on the interior housing and driver of the luminaires and have them shipped to the laboratory.

The independent witness shall be present when testing is approved to be performed by the luminaire manufacturer. If the tests are performed by a laboratory independent of the luminaire manufacturer, distributor, and Contractor, the independent witness need not be present during the testing.

- (2) Laboratory Testing. Luminaires shall be tested at an NVLAP accredited laboratory approved for each of the required tests. The testing shall include photometric, colorimetric, and electrical testing according to IES LM-79. Colorimetric values shall be determined from total spectral radiant flux measurements using a spectroradiometer. Photometric testing shall be according to IES recommendations and as a minimum, shall yield an isofootcandle chart, with max candela point and half candela trace indicated, an isocandela diagram, maximum plane and maximum cone plots of candela, a candlepower table (house and street side), a coefficient of utilization chart, a luminous flux distribution table, BUG rating report, and complete calculations based on specified requirements and test results.

All testing shall cover the full spherical light output at a maximum of 5 degree intervals at the vertical angles. The vertical angles shall run from 0 to 180 degrees. There shall be a minimum of 40 lateral test planes listed in Fig. 1 of IES LM-31 plus the two planes containing the maximum candela on the left and right sides of the luminaire axis. Before testing, the luminaire when mounted on the goniometer shall be scanned for vertical and horizontal angles of maximum candela and these planes included in the test. The luminaire shall be checked for a bi-symmetric light distribution. Individual tests must be conducted for each hemisphere, quadrant, and left/right sides.

The results for each photometric and colorimetric test performed shall be presented in a standard IES LM-79 report that includes the contract number, sample identifier, and the outputs listed above. The calculated results for each sample luminaire shall meet or exceed the contract specified levels in the luminaire performance table(s). The laboratory shall mark its test identification number on the interior of each sample luminaire.

Electrical testing shall be in according to IES LM-79 as well as NEMA and ANSI standards. The report shall list luminaire characteristics including input amperes, watts, power factor, total harmonic distortion, and LED driver current for full and partial power.

- (3) Summary Test Report. The summary test report shall consist of a narrative documenting the test process, highlight any deficiencies and corrective actions, and clearly state which luminaires have met or exceeded the test requirements and may be released for delivery to the jobsite. Photographs shall also be used as applicable to document luminaire deficiencies and shall be included in the test report. The summary test report shall include the Luminaire Physical Inspection Checklist (form BDE 5650), photometric and electrical test reports, and point-by-point photometric calculations performed in AGi32 sorted by luminaire manufacturers catalog number. All test reports shall be certified by the independent test laboratory's authorized representative or the independent witness, as applicable, by a dated signature on the first page of each report. The summary test reports shall be delivered to the Engineer and the Contractor as an electronic submittal. Hard copy reports shall be delivered to the Engineer for record retention.
- (4) Approval of Independent Testing Results. Should any of the tested luminaires fail to satisfy the specifications and perform according to approved submittal information, all luminaires of that manufacturers catalog number shall be deemed unacceptable and shall be replaced by alternate equipment meeting the specifications. The submittal and testing process shall then be repeated in its entirety. The Contractor may request in writing that unacceptable luminaires be corrected in lieu of replacement. The request shall identify the corrections to be made and upon approval of the request, the Contractor shall apply the corrections to the entire lot of unacceptable luminaires. Once the corrections are completed, the testing process shall be repeated, including selection of a new set of sample luminaires. The number of luminaires to be tested shall be the same quantity as originally tested.

The process of retesting, correcting, or replacing luminaires shall be repeated until luminaires for each manufacturers catalog number are approved for the project. Corrections and re-testing shall not be grounds for additional compensation or extension of time. No luminaires shall be shipped from the manufacturer to the jobsite until all luminaire testing is completed and approved in writing.

Submittal information shall include a statement of intent to provide the testing as well as a request for approval of the chosen independent witness and laboratory. All summary test reports, written reports, and the qualifications of the independent witness and laboratory shall be submitted for approval to the Engineer with a copy to the Bureau of Design and Environment, 2300 S Dirksen Parkway, Room 330 Springfield, IL 62764.

1067.02 Roadway Luminaires. Roadway luminaires shall be according to Article 1067.01 and the following.

The luminaire shall be horizontally mounted and shall be designed to slip-fit on a 2-3/8 in. (60 mm) outside diameter pipe arm with a stop to limit the amount of insertion to 7 in. (180 mm). It shall not be necessary to remove or open more than the access door to mount the luminaire.

The effective projected area (EPA) of the luminaire shall not exceed 1.6 sq ft (0.149 sq m) and the weight, including accessories, shall not exceed 40 lb (18.14 kg). If the weight of the luminaire is less than 20 lb (9.07 kg), weight shall be added to the mounting arm or a supplemental vibration damper installed as approved by the Engineer.

The luminaire shall be equipped with both internal and external leveling indicators. The external leveling indicator shall be clearly visible in daylight to an observer directly under the luminaire at a mounting height of 50 ft (15.2 m).

The luminaire shall be fully prewired to accept a seven-pin, twist-lock receptacle that is compliant with ANSI C136.41. All receptacle pins shall be connected according to TALQ Consortium protocol.

The luminaire shall be provided with an installed shorting cap that is compliant with ANSI C136.10.

1067.03 Highmast Luminaires. Highmast luminaires shall be according to Article 1067.01 and the following.

The luminaire shall be horizontally mounted and shall be designed and manufactured for highmast tower use. The EPA of the luminaire shall not exceed 3.0 sq ft (0.279 sq m) and the weight, including accessories, shall not exceed 85 lb (38.6 kg).

The optical assembly shall be capable of being rotated 360 degrees. A vernier scale shall be furnished on the axis of rotation for aiming the luminaire in relation to its mounting tenon arm. The scale shall be graduated in 5 degree increments or less. The luminaire shall be clearly marked at the vernier as to 'house-side' and 'street-side' to allow proper luminaire orientation.

1067.04 Underpass Luminaires. Underpass luminaries shall be according to Article 1067.01 and the following.

The underpass luminaire shall be complete with all supports, hardware, and appurtenant mounting accessories. The underpass luminaire shall be suitable for lighting a roadway underpass at an approximate mounting height of 15 ft (4.5 m) from a position suspended directly above the roadway edge of pavement or attached to a wall or pier. The underpass luminaire shall meet the requirements of ANSI C136.27.

It shall not be necessary to remove more than the cover, reflector and lens to mount the luminaire. The unit shall be heavy duty, suitable for highway use and shall have no indentations or crevices in which dirt, salt, or other corrosives may collect.

- (a) Housing. The housing and lens frame shall be made of heavy duty die cast aluminum or 16 gauge (1.5 mm) minimum thickness Type 304 stainless steel. All seams in the housing enclosure shall be welded by continuous welds.

The housing shall have an opening for installation of a 3/4 in. (19 mm) diameter conduit.

(b) Lens and Lens Frame. The frame shall not overlap the housing when closed. The luminaire shall have a flat glass lens to protect the LEDs from dirt accumulation or be designed to prevent dirt accumulation. The optic assembly shall be rated IP 66 or higher.

1067.05 Sign Lighting Luminaires. Sign lighting luminaires shall be suitable for lighting overhead freeway and expressway guide signs; and shall be according to Article 1067.01.

1067.06 Light Sources. The light sources in all luminaires shall be LED according to Article 1067.01 and the following.

- (a) The light source shall be according to ANSI C136.37 for solid state light sources used in roadway and area lighting.
- (b) The light source shall have a minimum color rendering index (CRI) of 70 and a nominal correlated color temperature (CCT) of 4000 K.
- (c) The rated initial luminous flux (lumen output) of the light source, as installed in the luminaire, shall be according to the following table for each specified output designation.

Output Designations and Initial Luminous Flux		(for information only)
Output Designation	Initial Luminous Flux (lm)	Approximate High Pressure Sodium (HPS) Equivalent Wattage
A	2,200	35 (Low Output)
B	3,150	50 (Low Output)
C	4,400	70 (Low Output)
D	6,300	100 (Low Output)
E	9,450	150 (Low Output)
F	12,500	200 (Med Output)
G	15,500	250 (Med Output)
H	25,200	400 (Med Output)
I	47,250	750 (High Output)
J	63,300	1,000 (High Output)
K	80,000+	1,000+ (High Output)

Luminaires with an initial luminous flux less than the values listed in the above table may be acceptable if they meet the requirements given in the Luminaire Performance Table shown in the contract.”

MANHOLES, VALVE VAULTS, AND FLAT SLAB TOPS (BDE)

Effective: January 1, 2018

Revised: March 1, 2019

Description. In addition to those manufactured according to the current standards included in this contract, manholes, valve vaults, and flat slab tops manufactured prior to March 1, 2019, according to the previous Highway Standards listed below will be accepted on this contract:

Product	Previous Standards		
Precast Manhole Type A, 4' (1.22 m) Diameter	602401-05	602401-04	602401-03
Precast Manhole Type A, 5' (1.52 m) Diameter	602402-01	602402	602401-03
Precast Manhole Type A, 6' (1.83 m) Diameter	602406-09	602406-08	602406-07
Precast Manhole Type A, 7' (2.13 m) Diameter	602411-07	602411-06	602411-05
Precast Manhole Type A, 8' (2.44 m) Diameter	602416-07	602416-06	602416-05
Precast Manhole Type A, 9' (2.74 m) Diameter	602421-07	602421-06	602421-05
Precast Manhole Type A, 10' (3.05 m) Diameter	602426-01	602426	
Precast Valve Vault Type A, 4' (1.22 m) Diameter	602501-04	602501-03	602501-02
Precast Valve Vault Type A, 5' (1.52 m) Diameter	602506-01	602506	602501-02
Precast Reinforced Concrete Flat Slab Top	602601-05	602601-04	

The following revisions to the Standard Specifications shall apply to manholes, valve vaults, and flat slab tops manufactured according to the current standards included in this contract:

Revise Article 602.02(g) of the Standard Specifications to read:

“(g) Structural Steel (Note 4) 1006.04

Note 4. All components of the manhole joint splice shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable.”

Add the following to Article 602.02 of the Standard Specifications:

“(s) Anchor Bolts and Rods (Note 5) 1006.09

Note 5. The threaded rods for the manhole joint splice shall be according to the requirements of ASTM F 1554, Grade 55, (Grade 380).”

Revise the second paragraph of Article 1042.10 of the Standard Specifications to read:

“Catch basin Types A, B, C, and D; Manhole Type A; Inlet Types A and B; Drainage Structures Types 1, 2, 3, 4, 5, and 6; Valve Vault Type A; and reinforced concrete flat slab top (Highway Standard 602601) shall be manufactured according to AASHTO M 199 (M 199M), except the minimum wall thickness shall be as shown on the plans. Additionally, catch basins, inlets, and drainage structures shall have a minimum concrete compressive strength of 4500 psi

(31,000 kPa) at 28 days and manholes, valve vaults, and reinforced concrete flat slab tops shall have a minimum concrete compressive strength of 5000 psi (34,500 kPa) at 28 days.”

80393

MOBILIZATION (BDE)

Effective: April 1, 2020

Replace Articles 671.02(a), (b), and (c) of the Standard Specifications with the following:

“(a) Upon execution of the contract, 90 percent of the pay item will be paid.

(b) When 90 percent of the adjusted contract value is earned, the remaining ten percent of the pay item will be paid along with any amount bid in excess of six percent of the original contract amount.”

80428

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.

80371

PORTLAND CEMENT CONCRETE (BDE)

Effective: November 1, 2017

Revise the Air Content % of Class PP Concrete in Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

"TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA		
Class of Conc.	Use	Air Content %
PP	Pavement Patching Bridge Deck Patching (10)	
	PP-1	4.0 - 8.0"
	PP-2	
	PP-3	
	PP-4	
	PP-5	

Revise Note (4) at the end of Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

"(4) For all classes of concrete, the maximum slump may be increased to 7 in (175 mm) when a high range water-reducing admixture is used. For Class SC, the maximum slump may be increased to 8 in. (200 mm). For Class PS, the maximum slump may be increased to 8 1/2 in. (215 mm) if the high range water-reducing admixture is the polycarboxylate type."

80389

PORTLAND CEMENT CONCRETE – HAUL TIME (BDE)

Effective: July 1, 2020

Revise Article 1020.11(a)(7) of the Standard Specifications to read:

“(7) Haul Time. Haul time shall begin when the delivery ticket is stamped. The delivery ticket shall be stamped no later than five minutes after the addition of the mixing water to the cement, or after the addition of the cement to the aggregate when the combined aggregates contain free moisture in excess of two percent by weight (mass). If more than one batch is required for charging a truck using a stationary mixer, the time of haul shall start with mixing of the first batch. Haul time shall end when the truck is emptied for incorporation of the concrete into the work. The maximum haul time shall be as follows.

Concrete Temperature at Point of Discharge, °F (°C)	Maximum Haul Time ^{1/} (minutes)	
	Truck Mixer or Truck Agitator	Nonagitator Truck
50 - 64 (10 - 17.5)	90	45
> 64 (> 17.5) - without retarder	60	30
> 64 (> 17.5) - with retarder	90	45

1/ To encourage start-up testing for mix adjustments at the plant, the first two trucks will be allowed an additional 15 minutes haul time whenever such testing is performed.

For a mixture which is not mixed on the jobsite, a delivery ticket shall be required for each load. The following information shall be recorded on each delivery ticket: (1) ticket number; (2) name of producer and plant location; (3) contract number; (4) name of Contractor; (5) stamped date and time batched; (6) truck number; (7) quantity batched; (8) amount of admixture(s) in the batch; (9) amount of water in the batch; and (10) Department mix design number.

For concrete mixed in jobsite stationary mixers, the above delivery ticket may be waived, but a method of verifying the haul time shall be established to the satisfaction of the Engineer.”

80430

PORTLAND CEMENT CONCRETE BRIDGE DECK CURING (BDE)

Effective: April 1, 2015

Revised: November 1, 2019

Revise the following three entries and add the following footnote to the Index Table of Curing and Protection of Concrete Construction in Article 1020.13 of the Standard Specifications:

"INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION"			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5)(6) ^{8/ 19/}	7	1020.13(d)(1)(2)
Superstructure (Approach Slab)	1020.13(a)(5)(6) ^{19/}	3	1020.13(d)(1)(2) ^{17/}
Deck	1020.13(a)(5)(6) ^{19/}	7	1020.13(d)(1)(2) ^{17/}

19/ The cellulose polyethylene or synthetic fiber with polymer polyethylene blanket method shall not be used on latex modified concrete, or vertical concrete surfaces greater than 1 ft (300 mm), e.g. parapets."

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 wetted cellulose polyethylene blanket or wetted synthetic fiber with polymer polyethylene blanket. The blankets shall be installed with the white perforated polyethylene side facing up. The blanket's fiber side shall be wetted immediately prior to placement or as the blanket is being placed, and the polyethylene side shall be thoroughly soaked with a gentle spray of water immediately after placement. For bridge decks, a foot bridge shall be used to place and wet the blankets.

Adjoining blankets shall overlap a minimum of 8 in. (200 mm). Bubbles and wrinkles shall be removed with a broom, squeegee, or as recommended by the manufacturer.

The blankets 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 blankets at a maximum 4 ft (1.2 m) spacing. The blankets 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 blankets, curing shall be according to Article 1020.13(a)(3). "

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.

The cellulose polyethylene blanket shall consist of a perforated 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 on the product 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 perforated 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.”

80359

PORTLAND CEMENT CONCRETE PAVEMENT PATCHING (BDE)

Effective: July 1, 2020

Revise Article 701.17(e)(3)b. of the Standard Specifications to read:

- “b. Strength Tests. For patches constructed with Class PP-1, PP-2, PP-3, PP-4, or PP-5 concrete, the pavement may be opened to traffic when test specimens have obtained a minimum flexural strength of 250 psi (1725 kPa) or a minimum compressive strength of 1600 psi (11,000 kPa) according to Article 1020.09. However, the concrete mixture shall obtain a minimum flexural strength of 600 psi (4150 kPa) or a minimum compressive strength of 3200 psi (22,100 kPa) in the time specified in Table 1 of Article 1020.04.

With the approval of the Engineer, concrete strength may be determined according to Illinois Modified AASHTO T 325.”

Revise Article 1001.01(d) of the Standard Specifications to read:

“(d) Rapid Hardening Cement. Rapid hardening cement shall be used according to Article 1020.04 or when approved by the Engineer. The cement shall be on the Department’s qualified product list, and shall be according to ASTM C 1600 in addition to the following.

- (1) The cement shall have a minimum final set of 10 minutes, according to Illinois Modified AASHTO T 131.
- (2) The cement shall have a minimum compressive strength of 2000 psi (13,800 kPa) at 3.0 hours, 3200 psi (22,100 kPa) at 6.0 hours, and 4000 psi (27,600 kPa) at 24.0 hours, according to Illinois Modified AASHTO T 106.
- (3) The cement shall have a maximum drying shrinkage of 0.07 percent at 28 days, according to Illinois Modified ASTM C 596.
- (4) The cement shall have a maximum expansion of 0.04 percent at 14 days, according to Illinois Modified ASTM C 1038.”

Revise the first paragraph of Article 1020.05(b)(5) of the Standard Specifications to read:

“(5) For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture with the high range water-reducing admixture. An accelerator shall not be used. A mobile portland cement concrete plant shall be used to produce the patching mixture.”

80431

PORTLAND CEMENT CONCRETE PAVEMENT PLACEMENT (BDE)

Effective: July 1, 2020

Revise the fifth paragraph of Article 420.07 of the Standard Specifications to read:

“The concrete shall be deposited uniformly across the subgrade or subbase as close as possible to its final position. The time elapsing from when the concrete is unloaded until it is incorporated into the work shall not exceed 20 minutes. When required, hand spreading shall be accomplished with shovels.”

80432

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2019

Revised: January 1, 2020

Revise Section 669 of the Standard Specifications to read:

“SECTION 669. REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES

669.01 Description. This work shall consist of the transportation and proper disposal of regulated substances. This work shall also consist of the removal, transportation, and proper disposal of underground storage tanks (UST), their contents and associated underground piping to the point where the piping is above the ground, including determining the content types and estimated quantities.

669.02 Equipment. The Contractor shall notify the Engineer of the delivery of all excavation, storage, and transportation equipment to a work area location. The equipment shall comply with OSHA and American Petroleum Institute (API) guidelines and shall be furnished in a clean condition. Clean condition means the equipment does not contain any residual material classified as a non-special waste, non-hazardous special waste, or hazardous waste. Residual materials include, but are not limited to, petroleum products, chemical products, sludges, or any other material present in or on equipment.

Before beginning any associated soil or groundwater management activity, the Contractor shall provide the Engineer with the opportunity to visually inspect and approve the equipment. If the equipment contains any contaminated residual material, decontamination shall be performed on the equipment as appropriate to the regulated substance and degree of contamination present according to OSHA and API guidelines. All cleaning fluids used shall be treated as the contaminant unless laboratory testing proves otherwise.

669.03 Pre-Construction Submittals and Qualifications. Prior to beginning this work, or working in areas with regulated substances, the Contractor shall submit a “Regulated Substances Pre-Construction Plan (RSPCP)” to the Engineer for review and approval using form BDE 2730. The form shall be signed by an Illinois licensed Professional Engineer or Professional Geologist.

As part of the RSPCP, the Contractor(s) or firm(s) performing the work shall meet the following qualifications.

- (a) Regulated Substances Monitoring. Qualification for environmental observation and field screening of regulated substances work and environmental observation of UST removal shall require either pre-qualification in Hazardous Waste by the Department or demonstration of acceptable project experience in remediation and operations for contaminated sites in accordance with applicable Federal, State, or local regulatory requirements using BDE 2730.

Qualification for each individual performing regulated substances monitoring shall require a minimum of one-year of experience in similar activities as those required for the project.

- (b) Underground Storage Tank Removal. Qualification for underground storage tank (UST) removal work shall require licensing and certification with the Office of the State Fire Marshall (OSFM) and possession of all permits required to perform the work. A copy of the permit shall be provided to the Engineer prior to tank removal.

The qualified Contractor(s) or firm(s) shall also document it does not have any current or former ties with any of the properties contained within, adjoining, or potentially affecting the work.

The Engineer will require up to 21 calendar days for review of the RSPCP. The review may involve rejection or revision and resubmittal; in which case, an additional 21 days will be required for each subsequent review. Work shall not commence until the RSPCP has been approved by the Engineer. After approval, the RSPCP shall be revised as necessary to reflect changed conditions in the field and documented using BDE 2730A "Regulated Substances Pre-Construction Plan (RSPCP) Addendum" and submitted to the Engineer for approval.

CONSTRUCTION REQUIREMENTS

669.04 Regulated Substances Monitoring. Regulated substances monitoring includes environmental observation and field screening during regulated substances management activities at the contract specific work areas. As part of the regulated substances monitoring, the monitoring personnel shall perform and document the applicable duties listed on form BDE 2732 "Regulated Substances Monitoring Daily Record (RSMDR)".

- (a) Environmental Observation. Prior to beginning excavation, the Contractor shall mark the limits of the contract specific work areas. Once work begins, the monitoring personnel shall be present on-site continuously during the excavation and loading of material.
- (b) Field Screening. Field screening shall be performed during the excavation and loading of material from the contract specific work areas, except for material classified according to Article 669.05(b)(1) or 669.05(c) where field screening is not required.

Field screening shall be performed with either a photoionization detector (PID) (minimum 10.6eV lamp) or a flame ionization detector (FID), and other equipment as appropriate, to monitor for potential contaminants associated with regulated substances. The PID or FID shall be calibrated on-site, and background level readings taken and recorded daily, and as field and weather conditions change. Field screen readings on the PID or FID in excess of background levels indicates the potential presence of regulated substances requiring handling as a non-special waste, special waste, or hazardous waste. PID or FID readings may be used as the basis of increasing the limits of removal with the approval of the Engineer but shall in no case be used to decrease the limits.

669.05 Regulated Substances Management and Disposal. The management and disposal of soil and/or groundwater containing regulated substances shall be according to the following:

- (a) Soil Analytical Results Exceed Most Stringent MAC. When the soil analytical results indicate detected levels exceed the most stringent maximum allowable concentration (MAC) for chemical constituents in soil established pursuant to Subpart F of 35 Ill. Adm. Code 1100.605, the soil shall be managed as follows:
 - (1) When analytical results indicate inorganic chemical constituents exceed the most stringent MAC, but still considered within area background levels by the Engineer, the excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soils cannot be utilized within the right-of-way, they shall be managed and disposed of at a landfill as a non-special waste.
 - (2) When analytical results indicate inorganic chemical constituents exceed the most stringent MAC but do not exceed the MAC for a Metropolitan Statistical Area (MSA) County identified in 35 Ill. Admin. Code 742 Appendix A. Table G, the excavated soil can be utilized within the right-of-way as embankment or fill, when suitable, or managed and disposed of at a clean construction and demolition debris (CCDD) facility or an uncontaminated soil fill operation (USFO) within an MSA County provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.
 - (3) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, or the MAC within the Chicago corporate limits, the excavated soil can be utilized within the right-of-way as embankment or fill, when suitable, or managed and disposed of off-site at a CCDD facility or an USFO within an MSA County excluding Chicago or within the Chicago corporate limits provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.
 - (4) When analytical results indicate chemical constituents exceed the most stringent MAC but do not exceed the MAC for an MSA County excluding Chicago, the excavated soil can be utilized within the right-of-way as embankment or fill, when suitable, or managed and disposed of off-site at a CCDD facility or an USFO within an MSA County excluding Chicago provided the pH of the soil is within the range of 6.25 - 9.0, inclusive.
 - (5) When the Engineer determines soil cannot be managed according to Articles 669.05(a)(1) through (a)(4) above and the materials do not contain special waste or hazardous waste, as determined by the Engineer, the soil shall be managed and disposed of at a landfill as a non-special waste.
 - (6) When analytical results indicate soil is hazardous by characteristic or listing pursuant to 35 Ill. Admin. Code 721, contains radiological constituents, or the Engineer otherwise determines the soil cannot be managed according to Articles 669.05(a)(1)

through (a)(5) above, the soil shall be managed and disposed of off-site as a special waste or hazardous waste as applicable.

(b) Soil Analytical Results Do Not Exceed Most Stringent MAC. When the soil analytical results indicate that detected levels do not exceed the most stringent MAC, the excavated soil can be utilized within the right-of-way as embankment or fill, when suitable, or managed and disposed of off-site according to Article 202.03. However, the excavated soil cannot be taken to a CCDD facility or an USFO for any of the following reasons.

(1) The pH of the soil is less than 6.25 or greater than 9.0.

(2) The soil exhibited PID or FID readings in excess of background levels.

(c) Soil Analytical Results Exceed Most Stringent MAC but Do Not Exceed Tiered Approach to Corrective Action Objectives (TACO) Residential. When the soil analytical results indicate that detected levels exceed the most stringent MAC but do not exceed TACO Tier 1 Soil Remediation Objectives for Residential Properties pursuant to 35 Ill. Admin. Code 742 Appendix B Table A, the excavated soil can be utilized within the right-of-way as embankment or fill, when suitable, or managed and disposed of off-site according to Article 202.03. However, the excavated soil cannot be taken to a CCDD facility or an USFO.

(d) Groundwater. When groundwater analytical results indicate the detected levels are above Appendix B, Table E of 35 Ill. Admin. Code 742, the most stringent Tier 1 Groundwater Remediation Objectives for Groundwater Component of the Groundwater Ingestion Route for Class 1 groundwater, the groundwater shall be managed off-site as a special waste or hazardous waste as applicable. Special waste groundwater shall be containerized and trucked to an off-site treatment facility, or may be discharged to a sanitary sewer or combined sewer when permitted by the local sewer authority. Groundwater discharged to a sanitary sewer or combined sewer shall be pre-treated to remove particulates and measured with a calibrated flow meter to comply with applicable discharge limits. A copy of the permit shall be provided to the Engineer prior to discharging groundwater to the sanitary sewer or combined sewer.

Groundwater encountered within trenches may be managed within the trench and allowed to infiltrate back into the ground. If the groundwater cannot be managed within the trench, it may be discharged to a sanitary sewer or combined sewer when permitted by the local sewer authority, or it shall be containerized and trucked to an off-site treatment facility as a special waste or hazardous waste. The Contractor is prohibited from discharging groundwater within the trench through a storm sewer. The Contractor shall install backfill plugs within the area of groundwater contamination.

One backfill plug shall be placed down gradient to the area of groundwater contamination. Backfill plugs shall be installed at intervals not to exceed 50 ft (15 m). Backfill plugs are to be 4 ft (1.2 m) long, measured parallel to the trench, full trench width and depth. Backfill plugs shall not have any fine aggregate bedding or backfill, but shall be entirely cohesive

soil or any class of concrete. The Contractor shall provide test data that the material has a permeability of less than 10^{-7} cm/sec according to ASTM D 5084, Method A or per another test method approved by the Engineer.

The Contractor shall use due care when transferring contaminated material from the area of origin to the transporter. Should releases of contaminated material to the environment occur (i.e., spillage onto the ground, etc.), the Contractor shall clean-up spilled material and place in the appropriate storage containers as previously specified. Clean-up shall include, but not be limited to, sampling beneath the material staging area to determine complete removal of the spilled material.

The Contractor shall provide engineered barriers, when required, and shall include materials sufficient to completely line excavation surfaces, including sloped surfaces, bottoms, and sidewall faces, within the areas designated for protection.

The Contractor shall obtain all documentation including any permits and/or licenses required to transport the material containing regulated substances to the disposal facility. The Contractor shall coordinate with the Engineer on the completion of all documentation. The Contractor shall make all arrangements for collection and analysis of landfill acceptance testing. The Contractor shall coordinate waste disposal approvals with the disposal facility.

The Contractor shall provide the Engineer with all transport-related documentation within two days of transport or receipt of said document(s). For management of special or hazardous waste, the Contractor shall provide the Engineer with documentation that the Contractor is operating with a valid Illinois special waste transporter permit at least two weeks before transporting the first load of contaminated material.

Transportation and disposal of material classified according to Article 669.05(a)(5) or 669.05(a)(6) shall be completed each day so that none of the material remains on-site by the close of business, except when temporary staging has been approved.

Any waste generated as a special or hazardous waste from a non-fixed facility shall be manifested off-site using the Department's county generator number provided by the Bureau of Design and Environment. An authorized representative of the Department shall sign all manifests for the disposal of the contaminated material and confirm the Contractor's transported volume. Any waste generated as a non-special waste may be managed off-site without a manifest, a special waste transporter, or a generator number.

The Contractor shall select a landfill permitted for disposal of the contaminant within the State of Illinois. The Department will review and approve or reject the facility proposed by the Contractor to use as a landfill. The Contractor shall verify whether the selected disposal facility is compliant with those applicable standards as mandated by their permit and whether the disposal facility is presently, has previously been, or has never been, on the United States Environmental Protection Agency (U.S. EPA) National Priorities List or the Resource Conservation and Recovery Act (RCRA) List of Violating Facilities. The use of a Contractor selected landfill shall in no manner delay the construction schedule or alter the Contractor's responsibilities as set forth.

669.06 Non-Special Waste Certification. An authorized representative of the Department shall sign and date all non-special waste certifications. The Contractor shall be responsible for providing the Engineer with the required information that will allow the Engineer to certify the waste is not a special waste.

(a) Definition. A waste is considered a non-special waste as long as it is not:

- (1) a potentially infectious medical waste;
- (2) a hazardous waste as defined in 35 Ill. Admin. Code 721;
- (3) an industrial process waste or pollution control waste that contains liquids, as determined using the paint filter test set forth in subdivision (3)(A) of subsection (m) of 35 Ill. Admin. Code 811.107;
- (4) a regulated asbestos-containing waste material, as defined under the National Emission Standards for Hazardous Air Pollutants in 40 CFR Part 61.141;
- (5) a material containing polychlorinated biphenyls (PCB's) regulated pursuant to 40 CFR Part 761;
- (6) a material subject to the waste analysis and recordkeeping requirements of 35 Ill. Admin. Code 728.107 under land disposal restrictions of 35 Ill. Admin. Code 728;
- (7) a waste material generated by processing recyclable metals by shredding and required to be managed as a special waste under Section 22.29 of the Environmental Protection Act; or
- (8) an empty portable device or container in which a special or hazardous waste has been stored, transported, treated, disposed of, or otherwise handled.

(b) Certification Information. All information used to determine the waste is not a special waste shall be attached to the certification. The information shall include but not be limited to:

- (1) the means by which the generator has determined the waste is not a hazardous waste;
- (2) the means by which the generator has determined the waste is not a liquid;
- (3) if the waste undergoes testing, the analytic results obtained from testing, signed and dated by the person responsible for completing the analysis;
- (4) if the waste does not undergo testing, an explanation as to why no testing is needed;

(5) a description of the process generating the waste; and

(6) relevant material safety data sheets.

669.07 Temporary Staging. Soil classified according to Articles 669.05(a)(2), (b)(1), or (c) may be temporarily staged at the Contractor's option. Soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) shall be managed and disposed of without temporary staging to the greatest extent practicable. If circumstances beyond the Contractor's control require temporary staging of these latter materials, the Contractor shall request approval from the Engineer in writing.

Temporary staging shall be accomplished within the right-of-way and the Contractor's means and methods shall be described in the approved or amended RSPCP. Staging areas shall not be located within 200 feet (61 m) of a public or private water supply well; nor within 100 feet (30 m) of sensitive environmental receptor areas, including wetlands, rivers, streams, lakes, or designated habitat zones.

The method of staging shall consist of containerization or stockpiling as applicable for the type, classification, and physical state (i.e., liquid, solid, semisolid) of the material. Materials of different classifications shall be staged separately with no mixing or co-mingling.

When containers are used, the containers and their contents shall remain intact and inaccessible to unauthorized persons until the manner of disposal is determined. The Contractor shall be responsible for all activities associated with the storage containers including, but not limited to, the procurement, transport, and labeling of the containers. The Contractor shall not use a storage container if visual inspection of the container reveals the presence of free liquids or other substances that could cause the waste to be reclassified as a hazardous or special waste.

When stockpiles are used, they shall be covered with a minimum 20-mil plastic sheeting or tarps secured using weights or tie-downs. Perimeter berms or diversionary trenches shall be provided to contain and collect for disposal any water that drains from the soil. Stockpiles shall be managed to prevent or reduce potential dust generation.

When staging non-special waste, special waste, or hazardous waste, the following additional requirements shall apply:

- (a) **Non-Special Waste.** When stockpiling soil classified according to Article 669.05(a)(1) or 669.05(a)(5), an impermeable surface barrier between the materials and the ground surface shall be installed. The impermeable barrier shall consist of a minimum 20-mil plastic liner material and the surface of the stockpile area shall be clean and free of debris prior to placement of the liner. Measures shall also be taken to limit or discourage access to the staging area.
- (b) **Special Waste and Hazardous Waste.** Soil classified according to Article 669.05(a)(6) shall not be stockpiled but shall be containerized immediately upon generation in containers, tanks or containment buildings as defined by RCRA, Toxic Substances Control

Act (TSCA), and other applicable State or local regulations and requirements, including 35 Ill. Admin. Code Part 722, Standards Applicable to Generators of Hazardous Waste.

The staging area(s) shall be enclosed (by a fence or other structure) to restrict direct access to the area, and all required regulatory identification signs applicable to a staging area containing special waste or hazardous waste shall be deployed.

Storage containers shall be placed on an all-weather gravel-packed, asphalt, or concrete surface. Containers shall be in good condition and free of leaks, large dents, or severe rusting, which may compromise containment integrity. Containers must be constructed of, or lined with, materials that will not react or be otherwise incompatible with the hazardous or special waste contents. Containers used to store liquids shall not be filled more than 80 percent of the rated capacity. Incompatible wastes shall not be placed in the same container or comingled.

All containers shall be legibly labeled and marked using pre-printed labels and permanent marker in accordance with applicable regulations, clearly showing the date of waste generation, location and/or area of waste generation, and type of waste. The Contractor shall place these identifying markings on an exterior side surface of the container.

Storage containers shall be kept closed, and storage pads covered, except when access is needed by authorized personnel.

Special waste and hazardous waste shall be transported and disposed within 90 days from the date of generation.

669.08 Underground Storage Tank Removal. For the purposes of this section, an underground storage tank (UST) includes the underground storage tank, piping, electrical controls, pump island, vent pipes and appurtenances.

Prior to removing an UST, the Engineer shall determine whether the Department is considered an "owner" or "operator" of the UST as defined by the UST regulations (41 Ill. Adm. Code Part 176). Ownership of the UST refers to the Department's owning title to the UST during storage, use or dispensing of regulated substances. The Department may be considered an "operator" of the UST if it has control of, or has responsibility for, the daily operation of the UST. The Department may however voluntarily undertake actions to remove an UST from the ground without being deemed an "operator" of the UST.

In the event the Department is deemed not to be the "owner" or "operator" of the UST, the OSFM removal permit shall reflect who was the past "owner" or "operator" of the UST. If the "owner" or "operator" cannot be determined from past UST registration documents from OSFM, then the OSFM removal permit will state the "owner" or "operator" of the UST is the Department. The Department's Office of Chief Counsel (OCC) will review all UST removal permits prior to submitting any removal permit to the OSFM. If the Department is not the "owner" or "operator" of the UST then it will not register the UST or pay any registration fee.

The Contractor shall be responsible for obtaining permits required for removing the UST, notification to the OSFM, using an OSFM certified tank contractor, removal and disposal of the UST and its contents, and preparation and submittal of the OSFM Site Assessment Report in accordance with 41 Ill. Admin. Code Part 176.330.

The Contractor shall contact the Engineer and the OSFM's office at least 72 hours prior to removal to confirm the OSFM inspector's presence during the UST removal. Removal, transport, and disposal of the UST shall be according to the applicable portions of the latest revision of the "American Petroleum Institute (API) Recommended Practice 1604".

The Contractor shall collect and analyze tank content (sludge) for disposal purposes. The Contractor shall remove as much of the regulated substance from the UST system as necessary to prevent further release into the environment. All contents within the tank shall be removed, transported and disposed of, or recycled. The tank shall be removed and rendered empty according to IEPA definition.

The Contractor shall collect soil samples from the bottom and sidewalls of the excavated area in accordance with 35 Ill. Admin. Code Part 734.210(h) after the required backfill has been removed during the initial response action, to determine the level of contamination remaining in the ground, regardless if a release is confirmed or not by the OSFM on-site inspector.

In the event the UST is designated a leaking underground storage tank (LUST) by the OSFM's inspector, or confirmation by analytical results, the Contractor shall notify the Engineer and the District Environmental Studies Unit (DESU). Upon confirmation of a release of contaminants and notifications to the Engineer and DESU, the Contractor shall report the release to the Illinois Emergency Management Agency (IEMA) (e.g., by telephone or electronic mail) and provide them with whatever information is available ("owner" or "operator" shall be stated as the past registered "owner" or "operator", or the IDOT District in which the tank is located and the DESU Manager).

The Contractor shall perform the following initial response actions if a release is indicated by the OSFM inspector:

- (a) Take immediate action to prevent any further release of the regulated substance to the environment, which may include removing, at the Engineer's discretion, and disposing of up to 4 ft (1.2 m) of the contaminated material, as measured from the outside dimension of the tank;
- (b) Identify and mitigate fire, explosion and vapor hazards;
- (c) Visually inspect any above ground releases or exposed below ground releases and prevent further migration of the released substance into surrounding soils and groundwater; and
- (d) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors and free product that have migrated from the tank excavation zone and entered into subsurface structures (such as sewers or basements).

The tank excavation shall be backfilled according to applicable portions of Sections 205, 208, and 550 with a material that will compact and develop stability. All uncontaminated concrete and soil removed during tank extraction may be used to backfill the excavation, at the discretion of the Engineer.

After backfilling the excavation, the site shall be graded and cleaned.

669.09 Regulated Substances Final Construction Report. Not later than 90 days after completing this work, the Contractor shall submit a “Regulated Substances Final Construction Report (RSFCR)” to the Engineer using form BDE 2733 and required attachments. The form shall be signed by an Illinois licensed Professional Engineer or Professional Geologist.

669.10 Method of Measurement. Non-special waste, special waste, and hazardous waste soil will be measured for payment according to Article 202.07(b) when performing earth excavation, Article 502.12(b) when excavating for structures, or by computing the volume of the trench using the maximum trench width permitted and the actual depth of the trench.

Groundwater containerized and transported off-site for management, storage, and disposal will be measured for payment in gallons (liters).

Backfill plugs will be measured in cubic yards (cubic meters) in place, except the quantity for which payment will be made shall not exceed the volume of the trench, as computed by using the maximum width of trench permitted by the Specifications and the actual depth of the trench, with a deduction for the volume of the pipe.

Engineered Barriers will be measured for payment in square yards (square meters).

669.11 Basis of Payment. The work of preparing, submitting and administering a Regulated Substances Pre-Construction Plan will be paid for at the contract lump sum price for REGULATED SUBSTANCES PRE-CONSTRUCTION PLAN.

Regulated substances monitoring, including completion of form BDE 2732 for each day of work, will be paid for at the contract unit price per calendar day, or fraction thereof to the nearest 0.5 calendar day, for REGULATED SUBSTANCES MONITORING.

The installation of engineered barriers will be paid for at the contract unit price per square yard (square meter) for ENGINEERED BARRIER.

The work of UST removal, soil excavation, soil and content sampling, the management of excavated soil and UST content, and UST disposal, will be paid for at the contract unit price per each for UNDERGROUND STORAGE TANK REMOVAL.

The transportation and disposal of soil and other materials from an excavation determined to be contaminated will be paid for at the contract unit price per cubic yard (cubic meter) for

NON-SPECIAL WASTE DISPOSAL, SPECIAL WASTE DISPOSAL, or HAZARDOUS WASTE DISPOSAL.

The transportation and disposal of groundwater from an excavation determined to be contaminated will be paid for at the contract unit price per gallon (liter) for SPECIAL WASTE GROUNDWATER DISPOSAL or HAZARDOUS WASTE GROUNDWATER DISPOSAL. When groundwater is discharged to a sanitary or combined sewer by permit, the cost will be paid for according to Article 109.05.

Backfill plugs will be paid for at the contract unit price per cubic yard (cubic meter) for BACKFILL PLUGS.

Payment for temporary staging of soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) will be paid for according to Article 109.04. The Department will not be responsible for any additional costs incurred, if mismanagement of the staging area, storage containers, or their contents by the Contractor results in excess cost expenditure for disposal or other material management requirements.

Payment for accumulated stormwater removal and disposal will be according to Article 109.04. Payment will only be allowed if appropriate stormwater and erosion control methods were used.

Payment for decontamination, labor, material, and equipment for monitoring areas beyond the specified areas, with the Engineer's prior written approval, will be according to Article 109.04.

When the waste material for disposal requires sampling for landfill disposal acceptance, the samples shall be analyzed for TCLP VOCs, SVOCs, RCRA metals, pH, ignitability, and paint filter test. The analysis will be paid for at the contract unit price per each for SOIL DISPOSAL ANALYSIS using EPA Methods 1311 (extraction), 8260B for VOCs, 8270C for SVOCs, 6010B and 7470A for RCRA metals, 9045C for pH, 1030 for ignitability, and 9095A for paint filter.

The work of preparing, submitting and administering a Regulated Substances Final Construction Report will be paid for at the contract lump sum price REGULATED SUBSTANCES FINAL CONSTRUCTION REPORT."

80407

SILT FENCE, INLET FILTERS, GROUND STABILIZATION AND RIPRAP FILTER FABRIC (BDE)

Effective: November 1, 2019

Revised: April 1, 2020

Revise Article 280.02(m) and add Article 280.02(n) so the Standard Specifications read:

- “(m) Above Grade Inlet Filter (Fitted)..... 1081.15(j)
- “(n) Above Grade Inlet Filter (Non-Fitted)..... 1081.15(k)”

Revise the last sentence of the first paragraph in Article 280.04(c) of the Standard Specifications to read:

“The protection shall be constructed with hay or straw bales, silt filter fence, above grade inlet filters (fitted and non-fitted), or inlet filters.

Revise the first sentence of the second paragraph in Article 280.04(c) of the Standard Specifications to read:

“When above grade inlet filters (fitted and non-fitted) are specified, they shall be of sufficient size to completely span and enclose the inlet structure.”

Revise Article 1080.02 of the Standard Specifications to read:

“1080.02 Geotextile Fabric. The fabric for silt filter fence shall consist of woven fabric meeting the requirements of AASHTO M 288 for unsupported silt fence.

The fabric for ground stabilization shall consist of woven yarns or nonwoven filaments of polyolefins or polyesters. Woven fabrics shall be Class 2 and nonwoven fabrics shall be Class 1 according to AASHTO M 288.

The physical properties for silt fence and ground stabilization fabrics shall be according to the following.

PHYSICAL PROPERTIES			
	Silt Fence Woven ^{1/}	Ground Stabilization Woven ^{2/}	Ground Stabilization Nonwoven ^{2/}
Grab Strength, lb (N) ^{3/} ASTM D 4632	123 (550) MD 101 (450) XD	247 (1100) min. ^{4/}	202 (900) min. ^{4/}
Elongation/Grab Strain, % ASTM D 4632 ^{4/}	49 max.	49 max.	50 min.
Trapezoidal Tear Strength, lb (N) ASTM D 4533 ^{4/}	--	90 (400) min.	79 (350) min.

Puncture Strength, lb (N) ASTM D 6241 ^{4/}	--	494 (2200) min.	433 (1925) min.
Apparent Opening Size, Sieve No. (mm) ASTM D 4751 ^{5/}	30 (0.60) max.	40 (0.43) max.	40 (0.43) max.
Permittivity, sec ⁻¹ ASTM D 4491	0.05 min.		
Ultraviolet Stability, % retained strength after 500 hours of exposure ASTM D 4355	70 min.	50 min.	50 min.

- 1/ NTPEP results or manufacturer’s certification to meet test requirements.
- 2/ NTPEP results to meet test requirements. Manufacturer shall have public release status and current reports on laboratory results in Test Data of NTPEP’s DataMine.
- 3/ MD = Machine direction. XD = Cross-machine direction.
- 4/ Values represent the minimum average roll value (MARV) in the weaker principle direction, MD or XD.
- 5/ Values represent the maximum average roll value.”

Revise Article 1080.03 of the Standard Specifications to read:

“1080.03 Filter Fabric. The filter fabric shall consist of woven yarns or nonwoven filaments of polyolefins or polyesters. Woven fabrics shall be Class 3 for riprap gradations RR 4 and RR 5, and Class 2 for RR 6 and RR 7 according to AASHTO M 288. Woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) shall not be permitted. Nonwoven fabrics shall be Class 2 for riprap gradations RR 4 and RR 5, and Class 1 for RR 6 and RR 7 according to AASHTO M 288. After forming, the fabric shall be processed so that the yarns or filaments retain their relative positions with respect to each other. The fabric shall be new and undamaged.

The filter fabric shall be manufactured in widths of not less than 6 ft (2 m). Sheets of fabric may be sewn together with thread of a material meeting the chemical requirements given for the yarns or filaments to form fabric widths as required. The sheets of filter fabric shall be sewn together at the point of manufacture or another approved location.

The filter fabric shall be according to the following.

PHYSICAL PROPERTIES ^{1/}				
	Gradation Nos. RR 4 & RR 5		Gradation Nos. RR 6 & RR 7	
	Woven	Nonwoven	Woven	Nonwoven
Grab Strength, lb (N) ASTM D 4632 ^{2/}	180 (800) min.	157 (700) min.	247 (1100) min.	202 (900) min.
Elongation/Grab Strain, % ASTM D 4632 ^{2/}	49 max.	50 min.	49 max.	50 min.
Trapezoidal Tear Strength, lb (N) ASTM D 4533 ^{2/}	67 (300) min.	56 (250) min.	90 (400) min.	79 (350) min.
Puncture Strength, lb (N) ASTM D 6241 ^{2/}	370 (1650) min.	309 (1375) min.	494 (2200) min.	433 (1925) min.
Ultraviolet Stability, % retained strength after 500 hours of exposure - ASTM D 4355	50 min.			

1/ NTPEP results to meet test requirements. Manufacturer shall have public release status and current reports on laboratory results in Test Data of NTPEP's DataMine.

2/ Values represent the minimum average roll value (MARV) in the weaker principle direction [machine direction (MD) or cross-machine direction (XD)].

As determined by the Engineer, the filter fabric shall meet the requirements noted in the following after an onsite investigation of the soil to be protected.

Soil by Weight (Mass) Passing the No. 200 sieve (75 µm), %	Apparent Opening Size, Sieve No. (mm) - ASTM D 4751 ^{1/}	Permittivity, sec ⁻¹ ASTM D 4491
49 max.	60 (0.25) max.	0.2 min.
50 min.	70 (0.22) max.	0.1 min.

1/ Values represent the maximum average roll value.”

Revise Article 1081.15(h)(3)a of the Standard Specifications to read:

“a. Inner Filter Fabric Bag. The inner filter fabric bag shall be constructed of woven yarns or nonwoven filaments made of polyolefins or polyesters with a minimum silt and debris capacity of 2.0 cu ft (0.06 cu m). Woven fabric shall be Class 3 and nonwoven fabric shall be Class 2 according to AASHTO M 288. The fabric bag shall be according to the following.

PHYSICAL PROPERTIES		
	Woven	Nonwoven
Grab Strength, lb (N) ASTM D 4632 ^{1/}	180 (800) min.	157 (700) min.
Elongation/Grab Strain, % ASTM D 4632 ^{1/}	49 max.	50 min.
Trapezoidal Tear Strength, lb (N) ASTM D 4533 ^{1/}	67 (300) min.	56 (250) min.
Puncture Strength, lb (N) ASTM D 6241 ^{1/}	370 (1650) min.	309 (1375) min.
Apparent Opening Size, Sieve No. (mm) ASTM D 4751 ^{2/}	60 (0.25) max.	
Permittivity, sec ⁻¹ ASTM D 4491	2.0 min.	
Ultraviolet Stability, % retained strength after 500 hours of exposure – ASTM D 4355	70 min.	

1/ Values represent the minimum average roll value (MARV) in the weaker principle direction [machine direction (MD) or cross-machine direction (XD)].

2/ Values represent the maximum average roll value.”

Revise Article 1081.15(i)(1) of the Standard Specifications to read:

“(i) Urethane Foam/Geotextile. Urethane foam/geotextile shall be triangular shaped having a minimum height of 10 in. (250 mm) in the center with equal sides and a minimum 20 in. (500 mm) base. The triangular shaped inner material shall be a low density urethane foam. The outer geotextile fabric cover shall consist of woven yarns or nonwoven filaments made of polyolefins or polyesters placed around the inner material and shall extend beyond both sides of the triangle a minimum of 18 in. (450 mm). Woven filter fabric shall be Class 3 and nonwoven filter fabric shall be Class 2 according to AASHTO M 288.

(1) The geotextile shall meet the following properties.

PHYSICAL PROPERTIES		
	Woven	Nonwoven
Grab Strength, lb (N) ASTM D 4632 ^{1/}	180 (800) min.	157 (700) min.
Elongation/Grab Strain, % ASTM D 4632 ^{1/}	49 max.	50 min.
Trapezoidal Tear Strength, lb (N) ASTM D 4533 ^{1/}	67 (300) min.	56 (250) min.
Puncture Strength, lb (N) ASTM D 6241 ^{1/}	370 (1650) min.	309 (1375) min.

Apparent Opening Size, Sieve No. (mm) ASTM D 4751 ^{2/}	30 (0.60) max.
Permittivity, sec ⁻¹ ASTM D 4491	2.0 min.
Ultraviolet Stability, % retained strength after 500 hours of exposure – ASTM D 4355	70 min.

1/ Values represent the minimum average roll value (MARV) in the weaker principle direction [machine direction (MD) or cross-machine direction (XD)].

2/ Values represent the maximum average roll value.”

Add the following to Article 1081.15(i) of the Standard Specifications.

“(3) Certification. The manufacturer shall furnish a certificate with each shipment of urethane foam/geotextile assemblies stating the amount of product furnished and that the material complies with these requirements.”

Revise the title and first sentence of Article 1081.15(j) of the Standards Specifications to read:

“(j) Above Grade Inlet Filters (Fitted). Above grade inlet filters (fitted) shall consist of a rigid polyethylene frame covered with a fitted geotextile filter fabric.”

Revise Article 1081.15(j)(2) of the Standard Specifications to read:

(2) Fitted Geotextile Filter Fabric. The fitted geotextile filter fabric shall consist of woven yarns or nonwoven filaments made of polyolefins or polyesters. Woven filter fabric shall be Class 3 and nonwoven filter fabric shall be Class 2 according to AASHTO M 288. The filter shall be fabricated to provide a direct fit to the frame. The top of the filter shall integrate a coarse screen with a minimum apparent opening size of 1/2 in. (13 mm) to allow large volumes of water to pass through in the event of heavy flows. The filter shall have integrated anti-buoyancy pockets capable of holding a minimum of 3.0 cu ft (0.08 cu m) of stabilization material. Each filter shall have a label with the following information sewn to or otherwise permanently adhered to the outside: manufacturer’s name, product name, and lot, model, or serial number. The fitted geotextile filter fabric shall be according to the table in Article 1081.15(h)(3)a above.”

Add Article 1081.15(k) to the Standard Specifications to read:

“(k) Above Grade Inlet Filters (Non-Fitted). Above grade inlet filters (non-fitted) shall consist of a geotextile fabric surrounding a metal frame. The frame shall consist of either a) a circular cage formed of welded wire mesh, or b) a collapsible aluminum frame, as described below.

(1) Frame Construction.

- a) Welded Wire Mesh Frame. The frame shall consist of 6 in. x 6 in. (150 mm x 150 mm) welded wire mesh formed of #10 gauge (3.42 mm) steel conforming to ASTM A 185. The mesh shall be 30 in. (750 mm) tall and formed into a 42 in. (1.05 m) minimum diameter cylinder.
 - b) Collapsible Aluminum Frame. The collapsible aluminum frame shall consist of grade 6036 aluminum. The frame shall have anchor lugs that attach it to the inlet grate, which shall resist movement from water and debris. The collapsible joints of the frame shall have a locking device to secure the vertical members in place, which shall prevent the frame from collapsing while under load from water and debris.
- (2) Geotextile Fabric. The geotextile fabric shall consist of woven yarns or nonwoven filaments made of polyolefins or polyesters. The woven filter fabric shall be a Class 3 and the nonwoven filter fabric shall be a Class 2 according to AASHTO M 288. The geotextile fabric shall be according to the table in Article 1081.15(h)(3)a above.
- (3) Geotechnical Fabric Attachment to the Frame.
- a) Welded Wire Mesh Frame. The woven or nonwoven geotextile fabric shall be wrapped 3 in. (75 mm) over the top member of a 6 in. x 6 in. (150 mm x 150 mm) welded wire mesh frame and secured with fastening rings constructed of wire conforming to ASTM A 641, A 809, A 370, and A 938 at 6 in. (150 mm) on center. The fastening rings shall penetrate both layers of geotextile and securely close around the steel mesh. The geotextile shall be secured to the sides of the welded wire mesh with fastening rings at a spacing of 1 per sq ft (11 per sq m) and securely close around a steel member.
 - b) Collapsible Aluminum Frame. The woven or nonwoven fabric shall be secured to the aluminum frame along the top and bottom of the frame perimeter with strips of aluminum secured to the perimeter member, such that the anchoring system provides a uniformly distributed stress throughout the geotechnical fabric.
- (4) Certification. The manufacturer shall furnish a certificate with each shipment of above grade inlet filter assemblies stating the amount of product furnished and that the material complies with these requirements.”

80419

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) Furnishing Metal Pile Shells 12 in. (305 mm), 0.250 in. (6.35 mm) wall thickness) Furnishing Metal Pile Shells 14 in. (356 mm), 0.250 in. (6.35 mm) wall thickness) Other piling	23 lb/ft (34 kg/m) 32 lb/ft (48 kg/m) 37 lb/ft (55 kg/m) 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 Steel Plate Beam Guardrail, Type B w/steel posts Steel Plate Beam Guardrail, Types A and B w/wood posts Steel Plate Beam Guardrail, Type 2 Steel Plate Beam Guardrail, Type 6 Traffic Barrier Terminal, Type 1 Special (Tangent) Traffic Barrier Terminal, Type 1 Special (Flared)	20 lb/ft (30 kg/m) 30 lb/ft (45 kg/m) 8 lb/ft (12 kg/m) 305 lb (140 kg) each 1260 lb (570 kg) each 730 lb (330 kg) each 410 lb (185 kg) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms Traffic Signal Post Light Pole, Tenon Mount and Twin Mount, 30 - 40 ft (9 - 12 m) Light Pole, Tenon Mount and Twin Mount, 45 - 55 ft (13.5 - 16.5 m) Light Pole w/Mast Arm, 30 - 50 ft (9 - 15.2 m) Light Pole w/Mast Arm, 55 - 60 ft (16.5 - 18 m) Light Tower w/Luminaire Mount, 80 - 110 ft (24 - 33.5 m) Light Tower w/Luminaire Mount, 120 - 140 ft (36.5 - 42.5 m) Light Tower w/Luminaire Mount, 150 - 160 ft (45.5 - 48.5 m)	11 lb/ft (16 kg/m) 14 lb/ft (21 kg/m) 21 lb/ft (31 kg/m) 13 lb/ft (19 kg/m) 19 lb/ft (28 kg/m) 31 lb/ft (46 kg/m) 65 lb/ft (97 kg/m) 80 lb/ft (119 kg/m)
Metal Railings (excluding wire fence) Steel Railing, Type SM Steel Railing, Type S-1 Steel Railing, Type T-1 Steel Bridge Rail	64 lb/ft (95 kg/m) 39 lb/ft (58 kg/m) 53 lb/ft (79 kg/m) 52 lb/ft (77 kg/m)
Frames and Grates Frame Lids and Grates	250 lb (115 kg) 150 lb (70 kg)

80127

STEEL PLATE BEAM GUARDRAIL MANUFACTURING (BDE)

Effective: January 1, 2019

Revise the first three paragraphs of Article 1006.25 of the Standard Specifications to read:

“1006.25 Steel Plate Beam Guardrail. Steel plate beam guardrail, including bolts, nuts, and washers, shall be according to AASHTO M 180. The guardrail shall be Class A, with a Type II galvanized coating.

Steel plates for mounting guardrail on existing culverts shall be according to AASHTO M 270 Grade 36 (M 270M Grade 250) and zinc coated according to AASHTO M 111.

The Department will accept guardrail based on the “Brand Registration and Guarantee” requirements of AASHTO M 180 and the manufacturer shall be listed as compliant through the NTPEP Program. The Department will maintain a qualified product list.”

80408

SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

“109.14 Subcontractor and Disadvantaged Business Enterprise Payment Reporting.
The Contractor shall report all payments made to the following parties:

- (a) first tier subcontractors;
- (b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;
- (c) material suppliers or trucking firms that are part of the Contractor’s submitted DBE utilization plan.

The report shall be made through the Department’s on-line subcontractor payment reporting system within 21 days of making the payment.”

80397

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: November 2, 2017

Revised: April 1, 2019

Replace the second paragraph of Article 109.12 of the Standard Specifications with the following:

“This mobilization payment shall be made at least seven days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor’s work.

Value of Subcontract Reported on Form BC 260A	Mobilization Percentage
Less than \$10,000	25%
\$10,000 to less than \$20,000	20%
\$20,000 to less than \$40,000	18%
\$40,000 to less than \$60,000	16%
\$60,000 to less than \$80,000	14%
\$80,000 to less than \$100,000	12%
\$100,000 to less than \$250,000	10%
\$250,000 to less than \$500,000	9%
\$500,000 to \$750,000	8%
Over \$750,000	7%”

80391

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 feet (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.

Wet Retroreflectance, Initial R_L

Color	R _L 1.05/88.76
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.

Color	Daylight Reflectance %Y
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."

80298

TRAFFIC CONTROL DEVICES - CONES (BDE)

Effective: January 1, 2019

Revise Article 701.15(a) of the Standard Specifications to read:

“(a) Cones. Cones are used to channelize traffic. Cones used to channelize traffic at night shall be reflectorized; however, cones shall not be used in nighttime lane closure tapers or nighttime lane shifts.”

Revise Article 1106.02(b) of the Standard Specifications to read:

“(b) Cones. Cones shall be predominantly orange. Cones used at night that are 28 to 36 in. (700 to 900 mm) in height shall have two white circumferential stripes. If non-reflective spaces are left between the stripes, the spaces shall be no more than 2 in. (50mm) in width. Cones used at night that are taller than 36 in. (900 mm) shall have a minimum of two white and two fluorescent orange alternating, circumferential stripes with the top stripe being fluorescent orange. If non-reflective spaces are left between the stripes, the spaces shall be no more than 3 in. (75 mm) in width.

The minimum weights for the various cone heights shall be 4 lb for 18 in. (2 kg for 450 mm), 7 lb for 28 in. (3 kg for 700 mm), and 10 lb for 36 in. (5 kg for 900 mm) with a minimum of 60 percent of the total weight in the base. Cones taller than 36 in. shall be weighted per the manufacturer’s specifications such that they are not moved by wind or passing traffic.”

80409

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 4. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau

and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

METHOD OF MEASUREMENT The unit of measurement is in hours.

BASIS OF PAYMENT This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price and total price have been included in the schedule of prices.

20338

WARM MIX ASPHALT (BDE)

Effective: January 1, 2012

Revised: 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 ± 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.

80288

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

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: March 2, 2020

Add the following to Article 701.03 of the Standard Specifications:

“(q) Temporary Sign Supports 1106.02”

Revise the third paragraph of Article 701.14 of the Standard Specifications to read:

“For temporary sign supports, the Contractor shall provide a FHWA eligibility letter for each device used on the contract. The letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device. The signs shall be supported within 20 degrees of vertical. Weights used to stabilize signs shall be attached to the sign support per the manufacturer’s specifications.”

Revise the first paragraph of Article 701.15 of the Standard Specifications to read:

“**701.15 Traffic Control Devices.** For devices that must meet crashworthiness standards, the Contractor shall provide a manufacturer’s self-certification or a FHWA eligibility letter for each Category 1 device and a FHWA eligibility letter for each Category 2 and Category 3 device used on the contract. The self-certification or letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device.”

Revise the first six paragraphs of Article 1106.02 of the Standard Specifications to read:

“**1106.02 Devices.** Work zone traffic control devices and combinations of devices shall meet crashworthiness standards for their respective categories. The categories are as follows.

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, plastic drums, and delineators, with no attachments (e.g. lights). Category 1 devices manufactured after December 31, 2019 shall be MASH-16 compliant. Category 1 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include vertical panels with lights, barricades, temporary sign supports, and Category 1 devices with attachments (e.g. drums with lights). Category 2 devices manufactured after December 31, 2019 shall be MASH-16 compliant. Category 2 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions (impact

attenuators), truck mounted attenuators, and other devices not meeting the definitions of Category 1 or 2. Category 3 devices manufactured after December 31, 2019 shall be MASH-16 compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2029. Category 3 devices shall be crash tested for Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as arrow boards, changeable message signs, temporary traffic signals, and area lighting supports. It is preferable for Category 4 devices manufactured after December 31, 2019 to be MASH-16 compliant; however, there are currently no crash tested devices in this category, so it remains exempt from the NCHRP 350 or MASH compliance requirement.

For each type of device, when no more than one MASH-16 compliant is available, an NCHRP 350 or MASH-2009 compliant device may be used, even if manufactured after December 31, 2019.”

Revise Articles 1106.02(g), 1106.02(k), and 1106.02(l) to read:

“(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be approved for use at Test Level 3. Test Level 2 may be used for normal posted speeds less than or equal to 45 mph.

(k) Temporary Water Filled Barrier. The water filled barrier shall be a lightweight plastic shell designed to accept water ballast and be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings.

(l) Movable Traffic Barrier. The movable traffic barrier shall be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings. The barrier shall be capable of being moved on and off the roadway on a daily basis.”

80427

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.

BRIDGE DECK CONSTRUCTION

Effective: October 22, 2013

Revised: December 21, 2016

When Diamond Grinding of Bridge Sections is specified, hand finishing of the deck surface shall be limited to areas not finished by the finishing machine and to address surface corrections according to Article 503.16(a)(2). Hand finishing shall be limited as previously stated solely for the purpose of facilitating a more timely application of the curing protection. In addition the requirements of 503.16(a)(3)a. and 503.16(a)(4) will be waived.

Revise the Second Paragraph of Article 503.06(b) to read as follows.

“When the Contractor uses cantilever forming brackets on exterior beams or girders, additional requirements shall be as follows.”

Revise Article 503.06(b)(1) to read as follows.

- “(1) Bracket Placement. The spacing of brackets shall be per the manufacturer’s published design specifications for the size of the overhang and the construction loads anticipated. The resulting force of the leg brace of the cantilever bracket shall bear on the web within 6 inches (150 mm) of the bottom flange of the beam or girder.”

Revise Article 503.06(b)(2) to read as follows.

- “(2) Beam Ties. The top flange of exterior steel beams or girders supporting the cantilever forming brackets shall be tied to the bottom flange of the next interior beam. The top flange of exterior concrete beams supporting the cantilever forming brackets shall be tied to the top flange of the next interior beam. The ties shall be spaced at 4 ft (1.2 m) centers. Permanent cross frames on steel girders may be considered a tie. Ties shall be a minimum of 1/2 inch (13 mm) diameter threaded rod with an adjusting mechanism for drawing the tie taut. The ties shall utilize hanger brackets or clips which hook onto the flange of steel beams. No welding will be permitted to the structural steel or stud shear connectors, or to reinforcement bars of concrete beams, for the installation of the tie bar system. After installation of the ties and blocking, the tie shall be drawn taut until the tie does not vary from a straight line from beam to beam. The tie system shall be approved by the Engineer.”

Revise Article 503.06(b)(3) to read as follows.

- “(3) Beam Blocks. Suitable beam blocks of 4 in x 4 in (100 x 100 mm) timbers or metal structural shapes of equivalent strength or better, acceptable to the Engineer, shall be wedged between the webs of the two beams tied together, within 6 inches (150 mm) of the bottom flange at each location where they are tied. When it is not feasible to have

the resulting force from the leg brace of the cantilever brackets transmitted to the web within 6 inches (150 mm) of the bottom flange, then additional blocking shall be placed at each bracket to transmit the resulting force to within 6 inches (150 mm) of the bottom flange of the next interior beam or girder.”

Delete the last paragraph of Article 503.06(b).

PREFORMED PAVEMENT JOINT SEAL

Effective: October 4, 2016

Revised: March 1, 2019

Description. This work shall consist of furnishing all labor, equipment and materials necessary to prepare the joint opening and install pavement joint seal(s) at the locations specified. Unless otherwise detailed on the plans, the joint shall be sized for a rated movement of 2 inches (50 mm).

Materials: Unless otherwise specified, one of the following prefabricated joint seals will be permitted.

- (a) Preformed Elastomeric Joint Seal. This material shall be according to Section 1053.01.
- (b) Preformed Pre-compressed, Silicone Coated, Self-Expanding Sealant System. This Sealant system shall be comprised of three components: 1) cellular polyurethane foam impregnated with hydrophobic 100% acrylic, water-based emulsion, factory coated with highway-grade, fuel resistant silicone; 2) field-applied epoxy adhesive primer, 3) field-injected silicone sealant bands.

The preformed, pre-compressed silicone joint seal shall, as a minimum, be according to the following:

- The joint seal shall be held in place by a non-sag, high modulus silicone adhesive.
- The joint seal shall be compatible with the epoxy and header material.
- The joint seal shall withstand the effects of vertical and lateral movements, skew movements and rotational movement without adhesive or cohesive failure.
- The joint seal shall be designed so that, the material is capable of movement of +50%, -50% (100% total) of nominal material size.
- Changes in plane and direction shall be executed using factory fabricated 90 degree transition assemblies. The transitions shall be watertight at the inside and outside corners through the full movement of the product.
- The depth of the joint shall be recessed 3/4 in. (19 mm) below the riding surface throughout the normal limits of joint movement.
- The joint seal shall be resistant to ultraviolet rays.
- The joint seal shall be resistant to abrasion, oxidation, oils, gasoline, salt, and other materials that may be spilled on or applied to the surface.
- The manufacturer shall certify that the joint composition shall be free of any waxes or wax compounds; asphalts or asphalt compounds.

The joint material shall meet the following physical properties:

Property	Requirement	Test Method
Tensile Strength of Silicone Coating (min)	140 psi	ASTM D 412
UV Resistance of Joint System	No Changes--2000 Hours	ASTM C793
Density of Cellular Polyurethane Foam	4.0 lb/ cu ft (200kg/cu m)	ASTM D545
Heat Aging Effects (Silicone Coating)	No cracking, chalking	ASTM C 792
Joint System Operating temp range (min)	-40° F to 185° F	ASTM C 711

The adhesive shall be a two-component, 100% solid, modified epoxy meeting the requirements of ASTM C881, Type I, Grade 3, Class B & C. The adhesive shall also have the following properties:

Property	Requirement	Test method
Tensile Strength	2,500 psi (24 MPa) min.	ASTM D638
Compressive Strength	7000 psi (48 MPa) min.	ASTM D695
Bond Strength (Dry Cure)	2000 psi (28MPa) min	ASTM C882
Water Absorption	0.1% by weight	ASTM D570

The silicone band adhesive shall have the following properties:

Property	Requirement	Test Method
Movement Capability	+50/-50%	ASTM C 719
Elongation at Break	>600%	ASTM D 5893
Slump	≤=0.3"	ASTM D 2202
Hardness (Shore A) max.	20	ASTM C 661
Tack free time (max)	60 minutes	ASTM C 679
Heat Aging Effects	No cracking, chalking	ASTM C 792
Resilience	≥ 75%	ASTM D5329
Bond	0% Adhesive or Cohesive Failure after 5 cycles @100%extension	ASTM D 5329

(c) Performed Silicone Joint Seal. The preformed silicone joint seal used for this item shall conform to the following specifications:

**Table 1
Physical Properties of Preformed Silicone Gland**

Property	Requirement	Test Method
Rated Movement Capability	+2 ¼ inch total	N/A
Tensile Strength, psi.	1000 min	ASTM D 412
Elongation	400% min	ASTM D 412
Tear (die B)	100 ppi. min	ASTM D 624
Hardness Durometer (Shore A).	55 +/- 5 max	ASTM D 2240
Compression set at 212°F, 70 hrs	30% max	ASTM D 395
Heat Aged Properties	5pt max loss on Durometer	ASTM D 573
Tensile and Elongation % Loss	10 % max	

The color of the preformed silicone seal shall be black, made by the addition of Carbon Black fillers which increases UV resistance, tensile strength, and abrasion wear properties.

The locking adhesive shall be non-sag, high modulus silicone adhesive conforming to the following specifications:

Table 2
Physical Properties of the Silicone Locking Adhesive

Property	Requirement	Test Method
Tensile Strength, psi.	200 min	ASTM D 412
Elongation, %	450 min	ASTM D 412
Tack Free Time, minutes.	20 max.	ASTM C 679
Cure Time ¼" bead, hrs	24 max	ASTM C 679
Resistance to U.V.	No cracking, chalking, or degradation	ASTM C793
VOC (g/L)	0	ATSM D 3960

Any rips, tears, or bond failure will be cause for rejection.

The two part epoxy primer shall be supplied for application to the vertical faces of the joint opening. The supplied primer shall be equally as effective when bonded to concrete or steel. This primer shall meet the following criteria:

Table 3
Physical Properties of Preformed Silicone Joint System Primer

Property	Requirement	Test Method
Viscosity (cps)	44	ASTM D 2196
Color	Light Amber	Visual
Solids (%)	41	ASTM D 4209
Specific Gravity	0.92	ATSM D 1217
Product Flash Point (°F, T.C.C.)	48	ATSM D 56
Package Stability	N/A	One year in tightly sealed containers
Cleaning	N/A	Mineral Spirits
VOC (g/L)	520	ATSM D 3960

- (a) Preformed Inverted EPDM Joint Seal. The preformed inverted EPDM joint seal used for this item shall conform to the following specifications:

**Table 1
Physical Properties of Preformed Silicone Gland**

Property	Requirement	Test Method
Rated Movement Capability	Up To 5 inch total	N/A
Tensile Strength, psi.	1200 psi min	ASTM D 412
Elongation	400 % min	ASTM D 412
Tear (Die C)	150 pli. min	ASTM D 624
Durometer Content	50 +/- 5 max	ASTM D 2240
Water Resistance (70 hrs @ 100c)	10% max	ASTM D 471
Ozone Resistance	100 min	ASTM D 1171

**Table 2
Physical Properties of the V-Epoxy-R**

V-Epoxy-R adhesive meets the requirements of ASTM C881 Type III, Grade 2. The adhesive shall also have the following properties:

Property	Requirement	Test Method
Color	Gray	Visual
Viscosity	45,000 CP (typ.)	N/A
Gel Time (minutes)	30 min.	ASTM C 881
Shelf Life (Separate Sealed Containers)	12 Months	N/A
Resistance to U.V.	No cracking, chalking, or degradation	ASTM C793
VOC (g/L)	0	ATSM D 3960

Any rips, tears, or bond failure will be cause for rejection.

(e) Bonded Preformed Joint Seal. This joint system shall consist of preformed elastomeric seal bonded to the side walls of the joint opening using an adhesive as specified by the Manufacturer of the joint seal.

The bonded preformed joint seal shall be according to Table 1 of ASTM D2628 with the following exceptions: Compression set shall not be over 40 percent when tested according to Method B (Modified) of ASTM D 395 after 70 hours at 212 °F (100 °C). The Compression-Deflection requirement will not apply to the bonded preformed joint seal.

The adhesive shall be epoxy base, dual component, which resists salt, diluted acids, alkalis, solvents, greases, oils, moisture, sunlight and weathering. Temperatures up to 200 °F (93 °C) shall not reduce bond strength. At 68 °F (20 °C), the bond strength shall be a minimum of 1000 psi (6.9 MPa) within 24 hours.

Any primers or cleaning solutions used on the faces of the joint or on the profile of the sides of the bonded preformed joint seal shall be supplied by the manufacturer of the bonded preformed joint seal.

Any additional installation materials and adhesive for splicing joint sections shall be as supplied by the manufacturer of the preformed joint seal.

The Contractor shall submit the Manufacturer's material certification documentation stating that their materials meet the applicable requirements of this specification for the joint seal(s) installed.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall furnish the Engineer with the manufacturer's product information and installation procedures at least two weeks prior to installation.

The minimum ambient air temperature in which the joint seal can be installed is 40° F (4.4° C) and rising, except for bonded preformed joint seals which shall not be installed when temperatures below 50 °F (10 °C) are predicted within a 48 hour period.

The joint surface shall be completely dry before installing the Joint Seal. For newly placed concrete, the concrete shall be fully cured and allowed to dry out a minimum of seven additional days prior to placement of the seal. Cold, wet, inclement weather will require an extended drying time.

The Joint Seal shall not be installed immediately after precipitation or if precipitation is forecasted for the day. Joint preparation and installation of Joint Seal shall be done during the same day.

Surface Preparation. Surface preparation shall be according to the joint seal manufacturer's written instructions.

After surface preparation is completed, the joint shall be cleaned of debris using compressed air with a minimum pressure of 90 psi (620 kPa). The air compressor shall be equipped with traps to prevent the inclusion of water and/or oil in the air line. The compressed air shall be according to the cleanliness requirements of ASTM D 4285.

When priming is required per the manufacturer's instruction, this operation shall immediately follow cleaning.

Joint Installation. The Joint installation shall be per the manufacturer's instructions; special attention shall be given to insure the joint seal is properly recessed below the top of the riding surface as recommended by the manufacturer.

For bonded joint seals the seal shall be inserted into the joint and held tightly against both sides of the joint until sufficient bond strength has been developed to resist the expected expansion forces.

Opening to traffic. As these joint systems are supposed to be recessed below the top of the riding surface, there should be no restriction, based on the joint seal installation, on when these joints can be reopened to traffic.

Method of Measurement. The installed prefabricated joint seal will not be measured for payment.

Basis of Payment. The prefabricated joint seal will not be paid for separately but shall be considered included in the cost of the adjacent concrete work involved.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor

performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection

for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#).

The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each

classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a

separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice

performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one

and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of

Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of

Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

Contract Provision - Cargo Preference Requirements

In accordance with Title 46 CFR § 381.7 (b), the contractor agrees—

“(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.”

Provisions (1) and (2) apply to materials or equipment that are acquired solely for the project. The two provisions do not apply to goods or materials that come into inventories independent of the project, such as shipments of Portland cement, asphalt cement, or aggregates, when industry suppliers and contractors use these materials to replenish existing inventories.

**MINIMUM WAGES FOR FEDERAL AND FEDERALLY
ASSISTED CONSTRUCTION CONTRACTS**

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.