1

Letting August 2, 2024

Notice to Bidders, Specifications and Proposal

Illinois Department of Transportation

Contract No. 61J93
MCHENRY County
Section 06-00329-02-PW
Route FAP 336 (Randall Road)
Project YJ7X-870 ()
District 1 Construction Funds

Prepared by	F
Checked by	

(Printed by authority of the State of Illinois)

Illinois Department of Transportation

NOTICE TO BIDDERS

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. August 2, 2024 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. 61J93
   MCHENRY County
   Section 06-00329-02-PW
   Project YJ7X-870 ()
   Route FAP 336 (Randall Road)
   District 1 Construction Funds

Pavement reconstruction, construction of a multi-use path, replace two bridges, curb and gutter, storm sewer, traffic signals, lighting and landscaping on Randall Road from Ackman Road to Acorn lane/Polaris Drive, located in the Village of Lake in the Hills, and the City of Crystal Lake.

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

   (b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. **AWARD CRITERIA AND REJECTION OF BIDS**. This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to re-advertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Omer Osman,
Secretary

CONTRACT 61J93

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2024

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-22) (Revised 1-1-24)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

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

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

Table of Contents

TABLE OF CONTENTS

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.

	File Name	Pg.		Special Provision Title	Effective	Revised
	80099	326	☒	Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2022
	80274	328	☒	Aggregate Subgrade Improvement	April 1, 2012	April 1, 2022
	80192		☐	Automated Flagger Assistance Device	Jan. 1, 2008	April 1, 2023
	80173	331	☒	Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2017
	80426		☐	Bituminous Surface Treatment with Fog Seal	Jan. 1, 2020	Jan. 1, 2022
	80241		☐	Bridge Demolition Debris	July 1, 2009	
	5053I		☐	Building Removal	Sept. 1, 1990	Aug. 1, 2022
	5026I		☐	Building Removal with Asbestos Abatement	Sept. 1, 1990	Aug. 1, 2022
	80449	333	☒	Cement, Type IL	Aug. 1, 2023	
	80384	334	☒	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	
	80453	338	☒	Concrete Sealer	Nov. 1, 2023	
	80261	339	☒	Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
	80434		☐	Corrugated Plastic Pipe (Culvert and Storm Sewer)	Jan. 1, 2021	
	80029	342	☒	Disadvantaged Business Enterprise Participation	Sept. 1, 2000	Mar. 2, 2019
	80229	352	☒	Fuel Cost Adjustment	April 1, 2009	Aug. 1, 2017
	80452		☐	Full Lane Sealant Waterproofing System	Nov. 1, 2023	
	80447		☐	Grading and Shaping Ditches	Jan 1, 2023	
	80433		☐	Green Preformed Thermoplastic Pavement Markings	Jan. 1, 2021	Jan. 1, 2022
	80443		☐	High Tension Cable Median Barrier Removal	April 1, 2022	
	80456	355	☒	Hot-Mix Asphalt	Jan. 1, 2024	
	80446	356	☒	Hot-Mix Asphalt – Longitudinal Joint Sealant	Nov. 1, 2022	Aug. 1, 2023
	80438		☐	Illinois Works Apprenticeship Initiative – State Funded Contracts	June 2, 2021	April 2, 2024
	80045		☐	Material Transfer Device	June 15, 1999	Jan. 1, 2022
	80450	358	☒	Mechanically Stabilized Earth Retaining Walls	Aug. 1, 2023	
	80441	359	☒	Performance Graded Asphalt Binder	Jan 1, 2023	
	80451	364	☒	Portland Cement Concrete	Aug. 1, 2023	
*	80459	365	☒	Preformed Plastic Pavement Marking	June 2, 2024	
	3426I		☐	Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2022
	80455	366	☒	Removal and Disposal of Regulated Substances	Jan. 1, 2024	April 1, 2024
	80445	368	☒	Seeding	Nov. 1, 2022	
*	80457	374	☒	Short Term and Temporary Pavement Markings	April 1, 2024	April 2, 2024
	80448	378	☒	Source of Supply and Quality Requirements	Jan. 2, 2023	
	80340		☐	Speed Display Trailer	April 2, 2014	Jan. 1, 2022
	80127	379	☒	Steel Cost Adjustment	April 2, 2014	Jan. 1, 2022
	80397	382	☒	Subcontractor and DBE Payment Reporting	April 2, 2018	
	80391	383	☒	Subcontractor Mobilization Payments	Nov. 2, 2017	April 1, 2019
	80437	384	☒	Submission of Payroll Records	April 1, 2021	Nov. 2, 2023
	80435	386	☒	Surface Testing of Pavements – IRI	Jan. 1, 2021	Jan. 1, 2023
	80410		☐	Traffic Spotters	Jan. 1, 2019	
	20338	392	☒	Training Special Provisions	Oct. 15, 1975	Sept. 2, 2021
	80429		☐	Ultra-Thin Bonded Wearing Course	April 1, 2020	Jan. 1, 2022
	80439	395	☒	Vehicle and Equipment Warning Lights	Nov. 1, 2021	Nov. 1, 2022
*	80458		☐	Waterproofing Membrane System	Aug. 1, 2024	
	80302	396	☒	Weekly DBE Trucking Reports	June 2, 2012	Nov. 1, 2021
	80454		☐	Wood Sign Support	Nov. 1, 2023	
	80427	397	☒	Work Zone Traffic Control Devices	Mar. 2, 2020	
	80071		☐	Working Days	Jan. 1, 2002	

GUIDE BRIDGE SPECIAL PROVISION INDEX/CHECK SHEET

Effective as of the: August 2, 2024 Letting

Pg #	√	File Name	Title	Effective	Revised
	☐	GBSP 4	Polymer Modified Portland Cement Mortar	June 7, 1994	April 1, 2016
	☐	GBSP 13	High-Load Multi-Rotational Bearings	Oct 13, 1988	Sept 2, 2022
	☐	GBSP 14	Jack and Remove Existing Bearings	April 20, 1994	April 13, 2018
	☐	GBSP 16	Jacking Existing Superstructure	Jan 11, 1993	April 13, 2018
	☐	GBSP 18	Modular Expansion Joint	May 19, 1994	Oct 27, 2023
	☐	GBSP 21	Cleaning and Painting Contact Surface Areas of Existing Steel Structures	June 30, 2003	Oct 23, 2020
	☐	GBSP 25	Cleaning and Painting Existing Steel Structures	Oct 2, 2001	April 15, 2022
	☐	GBSP 26	Containment and Disposal of Lead Paint Cleaning Residues	Oct 2, 2001	Apr 22, 2016
	☐	GBSP 28	Deck Slab Repair	May 15, 1995	Feb 2, 2024
	☐	GBSP 29	Bridge Deck Microsilica Concrete Overlay	May 15, 1995	April 30, 2021
	☐	GBSP 30	Bridge Deck Latex Concrete Overlay	May 15, 1995	April 30, 2021
	☐	GBSP 31	Bridge Deck High-Reactivity Metakaolin (HRM) Conc Overlay	Jan 21, 2000	April 30, 2021
	☐	GBSP 33	Pedestrian Truss Superstructure	Jan 13, 1998	Oct 27, 2023
	☐	GBSP 34	Concrete Wearing Surface	June 23, 1994	Oct 4, 2016
	☐	GBSP 45	Bridge Deck Thin Polymer Overlay	May 7, 1997	Feb 6, 2013
	☐	GBSP 53	Structural Repair of Concrete	Mar 15, 2006	Aug 9, 2019
	☐	GBSP 55	Erection of Curved Steel Structures	June 1, 2007	
399	☒	GBSP 59	Diamond Grinding and Surface Testing Bridge Sections	Dec 6, 2004	April 15, 2022
	☐	GBSP 60	Containment and Disposal of Non-Lead Paint Cleaning Residues	Nov 25, 2004	Apr 22, 2016
	☐	GBSP 61	Slipform Parapet	June 1, 2007	April 15, 2022
	☐	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	April 30, 2021
404	☒	GBSP 78	Bridge Deck Construction	Oct 22, 2013	Dec 21, 2016
406	☒	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	March 24, 2023
	☐	GBSP 85	Micropiles	Apr 19, 1996	Oct 23, 2020
	☐	GBSP 86	Drilled Shafts	Oct 5, 2015	Oct 27, 2023
	☐	GBSP 87	Lightweight Cellular Concrete Fill	Nov 11, 2001	Apr 1, 2016
	☐	GBSP 88	Corrugated Structural Plate Structures	Apr 22, 2016	April 13, 2018
407	☒	GBSP 89	Preformed Pavement Joint Seal	Oct 4, 2016	March 24, 2023
	☐	*GBSP 90	Three Sided Precast Concrete Structure (Special)	Dec 21, 2016	March 22, 2024
	☐	GBSP 91	Crosshole Sonic Logging Testing of Drilled Shafts	Apr 20, 2016	March 24, 2023
	☐	GBSP 92	Thermal Integrity Profile Testing of Drilled Shafts	Apr 20, 2016	March 24, 2023
	☐	GBSP 93	Preformed Bridge Joint Seal	Dec 21, 2016	March 24, 2023
	☐	GBSP 94	Warranty for Cleaning and Painting Steel Structures	Mar 3, 2000	Nov 24, 2004
	☐	GBSP 96	Erection of Bridge Girders Over or Adjacent to Railroads	Aug 9, 2019	
	☐	GBSP 97	Folded/Formed PVC Pipeliner	April 15, 2022	
	☐	GBSP 98	Cured-in-Place Pipe Liner	April 15, 2022	
	☐	GBSP 99	Spray-Applied Pipe Liner	April 15, 2022	
414	☒	GBSP 100	Bar Splicers, Headed Reinforcement	Sept 2, 2022	Oct 27, 2023
415	☒	GBSP 101	Noise Abatement Wall, Ground Wall	Dec 9, 2022	
426	☒	GBSP 102	Noise Abatement Wall, Structure Mounted	Dec 9, 2022	
435	☒	GBSP 103	Noise Abatement Wall Anchor Rod Assembly	Dec 9, 2022	

An * indicates a new or revised special provision.

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2022 (hereinafter referred to as the Standard Specifications); the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways"; the “American National Standard Practice for Roadway Lighting, IES/IESNA RP-8”; the latest edition of the “National Electric Code”; the latest edition of the “Standard Specifications for Water and Sewer Main Construction in Illinois”; 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 Randall Road within the City of Crystal Lake and Village of Lake in the Hills, and in case of conflict with any part, or parts, of said specifications, the said Special Provisions shall take precedence and shall govern.

Randall Road (F.A.P. Route 336)
Polaris Drive/West Acorn Lane to Ackman Road
Section 06-00329-02-PW
McHenry County

Contract No.: 61J93

LOCATION OF PROJECT

This project begins at a point on the centerline of Randall Road, from Polaris Drive/Acorn Lane at Station 2214+31.18 and extends in a northerly direction to Station 2296+90.06 at Ackman Road. The project also begins at a point on the centerline of Miller Road, from west of Heartland Gate at Station 106+25.00 and extends in an easterly direction to Station 123+83.18, east of Washington Avenue. The project is within the Village of Lake in the Hills and City of Crystal Lake in McHenry County. The total project gross and net lengths are 10,618.60 feet (2.01 miles) and 10,431.02 feet (1.98 miles), respectively.

DESCRIPTION OF PROJECT

The work consists of bridge construction, removal and reconstruction of portland cement concrete and hot-mix asphalt pavements on aggregate subgrade, sidewalk, multi-use path, earth excavation, furnished excavation, combination concrete curb and gutter, ground improvements, bridges, retaining walls, storm sewers, drainage structures, noise abatement wall, guardrail and terminals, traffic signals, street lighting, watermain and appurtenances, striping, signing, landscaping, and all incidental and collateral work necessary to complete the project as shown on the plans and as described herein.

AVAILABLE REPORTS (D1 LR)

Effective: July 1, 2021

☐ No project specific reports were prepared.

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

☐ Record structural plans

☒ Preliminary Site Investigation - Local (PSI) (Huff & Huff)

☒ Preliminary Environmental Site Assessment - Local (PESA) (Huff & Huff)

☒ Soils/Geotechnical Report (Wang Engineering)

- RGR Randall Road Phase II Improvements
- GDR Randall Road Pile-Supported Embankment Ground Improvement Design
- SGR Randall Road Phase II Improvements Randall Road Bridge Over Woods Creek
- SGR Randall Road Phase II Improvements Miller Road Over Woods Creek Tributary
- SGR Randall Road Phase II Improvements Retaining Wall 1, SN 056-W301
- SGR Randall Road Phase II Improvements Retaining Wall NB2
- SGR Randall Road Phase II Improvements Retaining Wall SB2
- SGR Randall Road Phase II Improvements Retaining Wall NB3
- Randall Road Detention Basin Excavations & Right-of-Way Berm Stability Memorandum

☒ Wetland and Waters of the U.S. Investigation (Huff & Huff)

☒ Pavement Cores (Wang Engineering)

☒ Location Drainage Study (LDS) (Baxter & Woodman)

☒ Hydraulic Report (Bollinger Lach & Associates)

☒ Noise Analysis (TranSystems)

☐ Other: _____

Those seeking these reports should request access from:

Darrell Kuntz, P.E
Assistant County Engineer
McHenry County Division of Transportation
Phone: (815) 334-4969
Email: Dwkuntz@mchenrycountyil.gov

COMPLETION DATE PLUS WORKING DAYS (D1)

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

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

"When a completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on, **October 29, 2027** except as specified herein.

The Contractor will be allowed to complete all clean-up work and punch list items within **15** working days after the completion date for opening the roadway to traffic. Under extenuating circumstances the Engineer may direct that certain items of work, not affecting the safe opening of the roadway to traffic, may be completed within the working days allowed for clean up work and punch list items. Temporary lane closures for this work may be allowed at the discretion of the Engineer.

Article 108.09 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.

ANTI-GRAFFITI COATING

Description
This work shall consist of the furnishing and application of an anti-graffiti coating to exposed concrete surfaces designated on the plans.

General
The anti-graffiti coating product shall be submitted to the Engineer for approval. Product features shall include: Zero VOC, 10-year unlimited warranty for graffiti removals, binary prime coat, non-yellowing, non-chalking and breathable.

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

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

Surface Preparation

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

Weather Conditions

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

Application

The manufacturer's product data sheets and application guides shall be submitted to the Engineer prior to coating application. All information contained in the data sheets and application guides shall be strictly followed. All coatings shall be applied in the presence of the Engineer. Film thickness shall be measured by the Contractor in the presence of the Engineer and shall be according to the manufacturer's recommendation. Application of the clear protective coating shall take place after the application and curing of the concrete staining as appropriate for the surface to be treated (see the special provision for STAINING CONCRETE STRUCTURES).

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

Cleaning Agent

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

Method of Measurement.

This work will be measured in place per square foot of surface area upon which the anti-graffiti coating has been applied and accepted by the Engineer. No surface area will be measured for payment for areas below final grade. Applying anti-graffiti coating to mock-up will not be measured for payment.

Basis of Payment

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

BIAXIAL GEOGRID
GRANULAR EMBANKMENT, SPECIAL

Description

This work shall consist of furnishing all labor, material and equipment required to place and compact the 18-inch thick aggregate Load Transfer Platform and install biaxial geogrid in layers as indicated on the plans, as directed by the Engineer, and as specified herein.

General Requirements

The multiple layers of geosynthetic fabric (geogrid) shall form a positive mechanical interlocking system with the embankment fill, to create a stiff reinforced soil mass, in the form of a platform that transfers the load from the embankment above to the supporting piles below the platform. Where placed under the constructed berm adjacent to Ken Carpenter Park, a single layer of geogrid shall be placed 18 inches below existing ground.

Qualifications

The geosynthetic fabric shall be a product that has been commercially available for a period of at least 5 years. Samples of the proposed material shall be supplied to the Engineer with the factory testing certificate.

Materials

The Load Transfer Platform aggregate shall be CA-6, CA-12, or CA-19 gradation. The geosynthetic fabric shall consist of an integrally formed Biaxial Geogrid, with Polypropylene Polymers.

Geogrid Product Properties: Each individual layer of selected product shall conform to the following minimum requirements.

Index Properties:

	Units	MD Values	XMD Values
▪ Tensile Strength @ 5% Strain	lb/ft	750	750
▪ Ultimate Tensile Strength	lb/ft	800	800

Structural Integrity:

▪ Junction Efficiency[4]	%	93
▪ Flexural Stiffness[5]	mg-cm	250,000
▪ Aperture Stability[6]	m-N/deg	0.30

Durability

▪ Resistance to Installation Damage[7]	%SC/%SW/%GP	95 / 93 /90
▪ Resistance to Long Term Degradation[8]	%	100
▪ Resistance to UV Degradation[9]	%	100

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified.

Notes:

1. Unless indicated otherwise, strength values shown are minimum average roll values (MARV) determined in accordance with ASTM D4759. The “MD Values” represents results

from testing the product in the Machine Direction; “XMD Values” represents results from testing the product in the Cross-Machine (Transverse) Direction.

2. Nominal dimensions.
3. True resistance to elongation should be when initially subjected to a load determined in accordance with ASTM D6637 without deforming test materials under load before measuring such resistance or employing “secant” or “offset” tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-87 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-95, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a “ladder”), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818 and load capacity shall be determined in accordance with ASTM D6637.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.

Delivery, Storage, and Handling

Storage and Protection

1. Prevent excessive mud, wet concrete, epoxy, or other deleterious materials from coming in contact with and affixing to the geogrid materials.
2. Store at temperatures above -20 degrees F (-29 degrees C).
3. Rolled materials may be laid flat or stood on end.
4. Geogrid materials should not be left directly exposed to sunlight for a period longer than the period recommended by the manufacturer.

Construction Requirements

The Load Transfer Platform aggregate shall be placed in lifts on greater than 8 inches loose thickness, at +/- 2% of the optimum moisture content and compacted to no less than 95% of the maximum dry density in accordance with AASHTO T 180, Modified Proctor method.

The geosynthetic fabric layers shall be installed in accordance with the manufacturer’s specifications. Prior to the start of installation, the placement of the fabric as well as the overlapping requirements shall be discussed, during a pre-construction conference, with all parties involved, in order to obtain the reinforced load transfers platform indicated on the plans.

Any roll of geogrid damaged before, during, or after installation shall be replaced by the Contractor at no additional cost to the Department.

Method of Measurement
The Load Transfer Platform will be measured for payment in cubic yards compacted in place and the volume computed by the method of average end areas. The geogrid will be measured for payment in place and the area computed in square yards for each layer of geosynthetic fabric.

Basis of Payment
Geogrid will be paid for at the contract unit price per SQUARE YARD for BIAXIAL GEOGRID, which price shall be payment in full for all labor, materials and equipment required to install the geogrid as specified herein. The Load Transfer Platform will be paid for at the contract unit price per CUBIC YARD for GRANULAR EMBANKMENT, SPECIAL.

BIKE PATH REMOVAL

Description
This work shall consist of the removal of the existing hot-mix asphalt multi-use/bike path at the locations indicated in the plans or as directed by the Engineer. This work shall conform to this special provision and Articles 440.03 and 440.06 of the Standard Specifications.

Method of Measurement
Removal of the existing hot-mix asphalt path will be measured for payment in place and the area computed in square yards.

Basis of Payment
This work will be paid for at the contract unit price per SQUARE YARD for BIKE PATH REMOVAL.

BRIDGE DECK CONCRETE SEALER

Description.
This work shall consist of furnishing and applying a sealer to concrete structures as shown on the plans.

Materials.
Materials shall be according to Article 587.02 of the Standard Specifications.

CONSTRUCTION REQUIREMENTS

General.
This work shall be performed in accordance with Article 587.03 of the Standard Specifications and the following.

Add the following to the third paragraph of Article 587.03 of the Standard Specifications:

> "The concrete sealer shall be applied prior to traffic and after any diamond grinding and surface smoothness testing activities. When applied, the sealer shall be clear, colorless, and have no effect on the color of the substrate."

Method of Measurement.
This work will be measured according to Article 587.04 of the Standard Specifications.

Basis of Payment.
This work will be paid for at the contract unit price per square foot for BRIDGE DECK CONCRETE SEALER.

CATCH BASIN, MANHOLE, INLET, DRAINAGE STRUCTURE, AND VALVE VAULT CONSTRUCTION, ADJUSTMENT, AND RECONSTRUCTION

Description: This work shall consist of constructing, adjusting, or reconstructing catch basins, manholes, inlets, or valve vaults, with frames and grates or lids, and constructing drainage structures with frames and grates.

General: The work shall be performed according to Section 602 of the Standard Specifications and the following:

Precast concrete adjustment rings and/or common brick shall not be used within McHenry County right-of-way to adjust or reconstruct catch basin, manhole, inlet and valve vault structures. The Contractor may use Expanded Polypropylene (EPP), High Density Expanded Polystyrene, High Density Polyethylene (HDPE) or Recycled Rubber adjusting rings. The Contractor shall comply with the maximum adjustment height limit specified for each material. No additional compensation will be allowed for reordering rings of a different material to meet the adjustment height required. The cost of furnishing and installing adjustment rings shall be included in the unit price for each proposed adjusted or reconstructed structure.

To accommodate topsoil placement all type 8 grates installed on flat slab tops shall be adjusted to the plan grade with a minimum of 4” of adjusting rings. The cost of furnishing and installing adjustment rings shall be included in the unit price for each proposed drainage structure.

The cost of connecting existing storm sewer to proposed structures shall be included in the unit cost of the proposed structure. Additional pipe required to complete the connections will be paid for at the contract unit price for "STORM SEWER" of the type, size and class required.

All frames with closed lids to be furnished as part of this contract, for the construction, adjustment, or reconstruction of manholes, catch basins, inlets, valve vaults, or meter vaults shall have cast into the lid one of the following words: Lids for storm sewer structures shall bear the word STORM. Lids for sanitary sewer structures shall bear the word SANITARY. Lids for water system structures shall bear the word WATER. Additionally, open grates or lids shall include the wording DUMP NO WASTE, DRAINS TO WATERWAYS. This work shall be included in the unit cost of the structure being constructed, adjusted or reconstructed.

Basis of Payment: This work will be paid for according to Article 602.16 of the Standard Specifications.

CATCH BASINS, TYPE A, 4’ DIAMETER, TYPE 11 OR 24 FRAME AND GRATE (SPECIAL)

Description
This work shall consist of constructing a Type A Catch Basin per Sections of 602 of the Standard Specifications and Highway Standard 602001-02 except that the sump shall be 18 inch in depth.

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

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

Basis of Payment
This work will be paid for at the contract unit price per EACH for CATCH BASINS, TYPE A, 4' DIAMETER, with the type of frame and grate specified (SPECIAL) installed. Price shall include but not be limited to all frames, grates, lids, sand cushion, steps, flat slab tops, excavation and backfilling, and other labor, materials, and equipment needed to perform the work as specified herein.

CATCH BASINS, TYPE C, WITH SPECIAL FRAME AND GRATE

Description.
This work shall consist of constructing a Type C Catch Basin per Sections of 602 of the Standard Specifications and Highway Standard 602001-02 except shall have a frame and grate as detailed in the plans.

CONSTRUCTION REQUIREMENTS

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

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

Basis of Payment.
This work will be paid for at the contract unit price per EACH for CATCH BASINS, TYPE C, WITH SPECIAL FRAME AND GRATE installed. Price shall include but not be limited to all frames, grates, lids, sand cushion, all excavation and backfilling, and all other labor, materials, and equipment needed to perform the work as specified herein.

CHANGEABLE MESSAGE SIGN

This work shall consist of furnishing, installing, maintaining, relocating for various stages of construction and eventually removing the advanced signing.

The Contractor shall provide notice to the public a minimum of 14 days in advance of any work that requires the closure of lanes and/or change in traffic patterns though the use of a changeable message sign or temporary information signing.

Method of Measurement
Temporary information signs will be measured for payment in place and the surface area of the front of the sign computed in square feet. The surface area is determined by calculating the area

of the smallest rectangle, measured from edge-to-edge (horizontally and vertically), that will circumscribe an individual sign.

Basis of Payment
This work will be paid for at the contract unit price per CALENDAR DAY for each sign for CHANGEABLE MESSAGE SIGN or at the contract unit price per SQUARE FOOT for TEMPORARY INFORMATION SIGNING.

CONNECTION TO EXISTING WATER MAIN

Description
The work of this Pay Item consists of connecting to existing water mains, including removal of existing plugs; cutting, removing, and plugging existing mains; thrust blocking; excavation; bracing; bedding and covering of pipe; trench dewatering; trench backfilling with excavated materials; testing; disinfection; finish grading; removal and disposal of waste excavated materials; protection, replacement, or repair of utilities; including backfilling with compacted granular backfill materials where required.

This Pay Item includes installation and removal of temporary thrust blocking and temporary plugs and coordination of shutdown of main with Owner and Engineer during final connection.

General:
Make connections to existing water mains. Use non-pressure connections except where pressure connections are shown on the Drawings or required by the conditions encountered at the time of construction. Make one connection at a time except as approved by the Engineer.

Do not operate the valves on the existing water mains. The employees of the Owner's Water Department will open and close the valves as required for the connections.

Coordinate shutdown of existing water mains with Owner's Water Department and Engineer with a minimum of 48 hours' notice prior to shutdown.

Submittals
Prior to testing, an 8 ½" x 11" site plan shall be submitted to the Water Superintendent which shall show any section of main being pressure tested, chlorinated, or tested for bacteria levels. The plan shall clearly show the sections of main being submitted for permit and clearly indicate the footage of main.

Tapping Sleeves And Valves
Tapping sleeves:

1. Use two-piece bolted sleeve ductile iron type with mechanical joints. Stainless steel sleeves are not permitted.
2. Test each tapping sleeve for water tightness prior to starting tap.
3. Provide joint accessories.
4. Measure existing water main outside diameter to determine proper tapping sleeve size.
5. Acceptable manufacturers:
    a. Smith-Blair #665.
    b. Cascade CST-EX.

Tapping valves:

1. Use fully ported gate valves complying with AWWA C500.
2. Use mechanical joints type, Mueller or American Flow Control.

Basis of Payment

The work will be paid for at the contract unit price EACH for CONNECTION TO EXISTING WATER MAIN of the pipe sizes specified.

CONSTRUCTION LAYOUT

Description

The Contractor shall provide field forces, equipment, and material (i.e. stakes, lathe, iron pins, paint, etc.) to perform the entire layout for all work shown in the plans, set additional stakes, which are needed to establish offset stakes, reference points, and any other horizontal or vertical controls, including supplementary bench marks, necessary to secure a correct layout of all work shown in the plans. Stakes for line and grade of pavement and/or shoulders shall be set at sufficient station intervals to ensure conformance to plan line and grade. The Contractor shall establish from the given survey points and bench marks shown on the plans all the control points necessary to construct the individual project elements. The layout activities shall also include staking of all construction limits, right-of-way and easements lines within the project limits.

The Contractor will not be required to set additional stakes to locate a utility line which is not included as a pay item in the contract nor to determine property lines between private properties.

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

The contractor may request electronic CADD Files for this project to assist with project layout. The contractor should make the written request for the electronic files through the Engineer.

Basis of Payment

Providing construction layout as described herein will be paid for at the contract LUMP SUM for CONSTRUCTION LAYOUT, which price shall be full compensation for layout stakes and lathe, flagging, paint, markers, re-staking, and all labor, equipment and materials required for performing the work as herein specified and detailed on the plans.

CONSTRUCTION VIBRATION MONITORING

Description.

This work consists of monitoring vibration and displacement when driving temporary sheet piles and timber piles, placing the Load Transfer Platform, and constructing the Mechanically Stabilized Earth retaining walls.

The Contractor shall monitor for both vibration and displacement. The Contractor shall identify the monitoring point locations along the east side of Randall Road from Sta. 2231+35 to Sta. 2248+70. Additional monitoring locations may be required during construction activities and will be as determined by the Engineer.

The monitoring point locations shall be spaced as evenly as possible along the interface between the areas of construction and the right-of-way. The monitoring points for vibration and displacement do not have to be at the same location. The Contractor shall coordinate with the Engineer to ensure the proposed monitoring locations are accessible to both the Contractor and the Engineer. Proposed locations of building vibration and displacement monitoring points are to be submitted to the Engineer for approval prior to construction.

General.

Vibration Monitoring: The Contractor shall employ the services of a seismic monitoring consultant as approved by the Engineer. 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 monitoring devices (seismographs) shall be placed at the interface between the areas of construction and the right-of-way. The target of acceptable vibration (Target Value) shall be 0.5 in/s (inches per second) peak particle velocity which is an industry standard that would preclude damage to residential structures. The Contractor's consultant may propose a peak particle velocity greater than the Target Value of vibration for the Engineer's review. When the Target Value is reached, the Contractor must stop the work and meet with the Engineer to determine the best course of action to reduce the vibrations or minimize further displacement. A more formal response plan shall be submitted for approval before work can proceed.

All seismographs on the project shall be programmed to actuate an alarm when the Target Value is exceeded. The alarm notification protocol shall consist of immediate dialing the mobile telephone numbers of the Engineer and the Contractor. If the Target Value is exceeded, all vibration inducing work within 50 feet of the monitoring locations shall be stopped. Work may resume at the direction of the Engineer with the Contractor continuing to closely monitor vibration in the area of the alarm.

Displacement Monitoring: The Contractor shall provide the exact horizontal and vertical location of the displacement monitoring points to the Engineer prior to the commencement of any construction activities. The data shall be presented in a tabular format and shall include horizontal positions (stations and offsets or Northing and Easting) as well as vertical elevation (NAVD88 Datum) to a minimum of one hundredth of a foot (0.01 ft.).

Monitoring Frequency: During the beginning phase of each stage when driving temporary soil retention system or timber piles, placing the Load Transfer Platform, or constructing the Mechanically Stabilized Earth retaining walls, displacement monitoring shall be performed at the beginning and end of each work day at a minimum. These surveying intervals are the minimum required, and more frequent monitoring may be required by the Engineer as field conditions warrant.

If after a period of time resulting in movements that are small in magnitude, monitoring frequency can be reduced to a frequency as established by the Engineer. If resulting movements become random in nature and/or large in magnitude, the frequency shall be increased as directed by the Engineer. The frequency of readings will be dictated by the phase of current construction but must be sufficient to detect serious movements.

Monitoring readings for displacement shall be dated, recorded, and reported to the Engineer the same day the readings are taken.

Vibration monitoring shall be a continuous and uninterrupted process. When driving temporary soil retention system or timber piles, placing the Load Transfer Platform, or constructing the Mechanically Stabilized Earth retaining walls within 50 feet of a vibration monitoring point location, the Contractor shall report the results of the largest amplitude of vibration to the Engineer on the same day. At all other times, the vibration report shall be submitted weekly.

Submittals. The Contractor shall submit a Vibration and Displacement Control Plan to the Engineer for Approval. The Plan must be approved prior to the commencement of work. The plan shall include, but is not limited to the following:

- Locations of all monitoring points (Vibration and displacement).
- Procedure and outline for how the data will be provided to the Engineer.
- Type of seismograph to be used (Submit to Engineer for Approval).
- List of pneumatic equipment to be used during construction operations.
- Contact information for the Seismic Monitoring consultant.
- Timetable that outlines the duration that each monitoring point will be maintained and checked.
- A “Response Plan” to detail how the Contractor will address any concerns with vibration or displacement.

Additional Submittals include:

- Daily reports of all displacement monitoring.
- Weekly reports of all vibration monitoring.

Method of Measurement.
This work will be measured for payment per each monitor installed.

Basis of Payment.
This work will be paid at the contract unit price per EACH for CONSTRUCTION VIBRATION MONITORING.

DEWATERING

Description: This work shall consist of furnishing all labor, tools, equipment, and materials to install, maintain, operate, and remove all dewatering systems. The dewatering systems are necessary to divert and remove water from the channel or designed to control sediment discharge in dewatering applications where water is being pumped for the construction of the proposed bridge, removal of the existing culverts, and any other excavations associated with the construction of the project to ensure that work can be completed in the dry or in manageable conditions as approved by the Engineer. This work shall also include sump pits and bypass pumping.

Dewatering systems and outlets must be constructed of non-erodible materials such as stone, metal, geosynthetics, steel sheets, water inflated devices, rip rap and geotextile liner or other

material approved by the McHenry-Lake County Soil and Water Conservation District (MLCSWCD) and Engineer. Earthen cofferdams will not be permitted.

This item will also include constructing a dewatering filtering system consisting of filtration or sediment bags for collecting sediment from pumping operations within the coffered area and sump pits. Construction waters will include, but not be limited to, all waters generated from the removal and construction of the structures, abutments, piers, culverts, channel grading, riprap / articulated block revetment mat placement, and proposed ditch and channel grading.

Prior to performing any in-stream work associated with the project, the Contractor shall identify the proposed dewatering method to be used and obtain approval from MLSWCD, USACE, and Engineer prior to starting work. In-stream work shall take place only during low flow conditions unless otherwise allowed by the MLSWCD and Engineer. Concentrated flow shall be isolated from the work area. Dewatering shall comply with all requirements contained in the Storm Water Pollution Prevention Plan (SWPPP) contained in the Plans.

The Contractor is ultimately responsible for the choice of the materials, product(s), and equipment; for the dewatering systems and their safety and for conformity with local codes, regulations, and these Specifications, as well as “means and methods” for the site dewatering work to be performed. The Contractor’s “means and methods” are subject to the review of the County, USACE, and MLSWCD. All products and “means and methods” selected shall be adequate for the intended use/application within the construction limits represented on the plans. The MLSWCD and Engineer’s review does not relieve the Contractor from compliance with the requirements of the Drawings, Standard Specifications, and the requirements of this special provision.

Submittal: The Contractor shall submit a description of the dewatering system, dewatering techniques, and equipment to be used along with detailed drawings for review to the Engineer and MLSWCD. Detailed drawings shall show items such as, but not limited to, the location of the dewatering system, type of pumps, pump size, lengths and sizes of discharge piping and points(s) of discharge including erosion control procedures. The approved site dewatering plan(s) shall become part of the SWPPP prior to implementation. Changes to the site dewatering will need to be approved by the Engineer, USACE and the MLSWCD. The Agency review of dewatering techniques and equipment shall in no way be construed as creating any obligation on the part of County for same.

Dewatering and Filter Bag Material: The material for the filtration bag shall meet the requirements of the material specification in Table 1 for Class I with a minimum tensile strength of 180 lbs. The filtration bag shall be sized per manufacturer recommendations and based on the size of the pump. The pump shall be sized to be used with the filtration bag.

Table 1: Requirements for Non-Woven Geotextiles

PROPERTY	TEST METHOD	CLASS I	CLASS II	CLASS III	CLASS IV[3/]
Tensile Strength (lb)[1/]	ASTM D 4632 Grab Test	180 min.	120 min.	90 min.	115 min.
Elongation at Failure[1/]	ASTM D 4632	≥ 50	≥ 50	≥ 50	≥ 50
Puncture (lb)	ASTM D 4833	80 min.	60 min.	40 min.	40 min.

PROPERTY	TEST METHOD	CLASS I	CLASS II	CLASS III	CLASS IV[3/]
Ultraviolet Light (% Residual Tensile Strength)	ASTM D 4355 150-hr Exposure	70 min.	70 min.	70 min.	70 min.
Apparent Opening Size (AOS)	ASTM D 4751	As Specified Max#40[2/]	As Specified Max#40[2/]	As Specified Max#40[2/]	As Specified Max#40[2/]
Permittivity	ASTM D 4491	0.70 min.	0.70 min.	0.70 min.	0.70 min.

1/ Minimum average roll value (weakest principal direction).
2/ U.S. standard sieve size.
3/ Heat-bonded or resin-bonded geotextile may be used for Class III and IV. They are particularly well suited to Class IV. Needle-punched geotextiles are required for all other classes.

Operation and Maintenance: The frequency of inspections shall depend on the dewatering method, amount of discharge, potential damage, and quality of the receiving bodies of water. The frequency of inspections and specific tasks shall be identified.

1. The filtration bag must be placed on level ground with secondary containment provided to prevent sediment from accumulating on the bare ground and to protect the surrounding area in case the bag bursts or is no longer effective.
2. The Contractor shall provide certification or documentation that the bag meets the specification for materials and is suitable for the pump that it will be used with.
3. Inspections shall be conducted to ensure proper operation and compliance with any permits or water quality standards.
4. Accumulated sediment shall be removed from the flow area and temporary diversions shall be repaired, as required.
5. Outlet areas shall be checked, and repairs shall be made in a timely manner, as needed.
6. Pump outlets shall be inspected for erosion and sumps shall be inspected for accumulated sediment. Sediment shall be removed as required.
7. Dewatering bags shall be removed and replaced when half full of sediment or when the pump discharge has reduced to an impractical rate.
8. If the receiving area is showing any signs of cloudy water, erosion, or sediment accumulation, discharges shall be stopped immediately once safety and property damage concerns have been addressed.
9. Sediment shall be disposed in accordance with all applicable laws and regulations.

The Contractor shall select the pumps to use and the rate at which the pumps discharge, but adequate protection at the pump discharge shall be provided by the Contractor and will be subject to review by the Engineer, USACE, and MLSWCD. The Contractor shall ensure that downstream water quality and further erosion will not be impaired.

Water pumped or drained from the work required for this Contract shall be disposed of in a safe and suitable manner without damage to adjacent properties or to other work under construction. Water shall not be discharged onto roadways without adequate protection of the surface at the point of discharge. Water containing settleable solids shall not be discharged without treatment to meet the requirements of the USACE 404 Permit and the MLSWCD requirements. All damages caused by dewatering operations will be promptly repaired by the Contractor. Conditions and deficiency deductions as specified in Article 105.03(a) of the Standard Specifications shall apply.

Water pumped or drained from the work required for this Contract shall be disposed of in a safe and suitable manner without damage to adjacent properties or to other work under construction. Water shall not be discharged onto roadways without adequate protection of the surface at the point of discharge. Water containing settleable solids shall not be discharged without treatment to meet the requirements of the USACE 404 Permit and the MLSWCD requirements. All damages caused by dewatering operations will be promptly repaired by the Contractor. Conditions and deficiency deductions as specified in Article 105.03(a) of the Standard Specifications shall apply. The Contractor is responsible for providing all labor, materials, and equipment for the dewatering of waters to meet the scheduled completion of the project.

Removal of Dewatering Facilities: The temporary dewatering filtering system shall be removed after it has served its purpose and as directed by the Engineer. The dewatering areas shall be graded, stabilized, and permanently restored with appropriate erosion control practices and as shown on the plans. The dewatering sites after removal shall not create any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.

Method of Measurement: The dewatering system will be measured only once for the entire project, regardless of the number of stages of construction, as DEWATERING, regardless of the type and quantity of materials required to construct the dewatering system for each stage and regardless of the number of times the dewatering system may need to be relocated. The payment under this item is for the duration of the contract, regardless of conditions encountered.

Basis of Payment: This work required for construction of the dewatering systems necessary to construct the proposed bridges and related site work as shown in the plans shall be paid for only once, regardless of number of stages, locations or operations, at the contract lump sum for the entire project for DEWATERING, which work shall include dewatering system(s) (i.e.: non-erodible materials, filter fabric, plastic liner, sediment containment filter bags, piping, pumping, foundation preparation, framing and supports, dewatering filtering system consisting of filtration or sediment bags, installation, maintenance, removal of systems and all labor, material, and equipment required to perform the work described herein and as specified on the plans. If excavation and backfilling is required for this item, they will not be measured separately for payment but shall be included in the cost for DEWATERING.

DRAINAGE SCUPPERS, DS-12

Description: This work shall consist of installing drainage scuppers at the locations and according to the details shown in the plans. The work shall be performed in accordance with the applicable portions of Section 602 of the Standard Specifications.

Method of Measurement: This work will be measured for payment in units of each.

Basis of Payment: This work will be paid for at the contract unit price per EACH for DRAINAGE SCUPPERS, DS-12, which shall include the grate, frame, downspout, anchor rods, nuts, and washers necessary to install the drainage scupper.

ELASTOMERIC CHECK VALVE

Description: This work shall consist of furnishing and installing elastomeric check valves of the size specified.

Construction Requirements: Check valves are to be all rubber and the flow operated check type with slip-in cuff or flange connection. The entire valve shall be ply reinforced throughout the body, disc and bill, and cured and vulcanized into a cone-price unibody construction. A separate valve body or pipe used as the housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure the disc or bill to the valve housing. The port area of the disc shall contour down, which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the pipe I.D. Once installed, the valve shall not protrude beyond the face of the structure or end of the pipe. The downstream end of the valve must be circumferentially in contract with the pipe while in the closed positions.

In-line valves will be furnished with a set of stainless-steel expansion clamps. The clamps, which will secure the valve in place, shall be installed inside the cuff portion of the valve, based on installation orientation, and shall expand outwards by means of a turnbuckle. Each clamp shall be predrilled allowing for the valve to be pinned and secured into position in accordance with the manufacturer's installation instructions.

Method of Measurement: This work will be measured for payment in units of each.

Basis of Payment: This work will be paid for at the contract unit price per EACH for ELASTOMERIC CHECK VALVE of the diameter specified.

ENVIRONMENTAL NOTICE FOR DRAINAGE STRUCTURES

This work shall consist of providing an environmental notice that shall be placed on all proposed open lid drainage structures.

The text of the notice shall be "DUMP NO WASTE" and "DRAINS TO WATERWAYS" or similar wording meeting the approval of the Engineer. The notice shall be cast into the top of the lid, curb inlet, or grate (if the frame does not have a curb inlet).

If the Engineer determines that the proposed grate is not of sufficient size to allow the text of the notice to be cast or engraved into the grate, the Contractor shall furnish and install a separate grey iron or ductile iron casting plate with the notice cast or engraved into the plate. The Contractor shall embed the plate in the plastic concrete flush with the tip of curb at curb drainage structure locations as the curb is constructed.

The plate shall be East Jordan Iron Works, Inc. 7001PL1 or Neenah Foundry Company R-3000-A.

The cost of this work will not be paid for separately but shall be included in the contract unit price for the various drainage structures being constructed.

EROSION CONTROL BLANKET (SPECIAL)

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

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

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

List of Vendors & Product Name:

- Tensar/North American Green – S75BN
- ADS Geosynthetics – 00S2AN
- Western Excelsior Corporation – Excel SR-1AN (All-Natural)
- American Excelsior Company – Premier Single Straw
- East Coast Erosion Control – ECS-1B
- Erosion Control Blanket.com – S31 BD "Big Daddy"

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

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

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

EXPLORATION TRENCH (SPECIAL)

Description
This work shall be in accordance with Section 213 of the Standard Specifications insofar as applicable and the following provisions.

This item shall consist of excavating a trench at locations as directed by the Engineer for the purpose of locating existing sewer lines, water mains, sanitary sewers and other utilities within or adjacent to the proposed project limits.

The trench shall be deep enough to expose the sewer lines, water mains, sanitary sewers or other utilities. The width of the trench shall be sufficient to allow proper investigation to determine if the existing facility needs to be adjusted.

The Contractor shall familiarize himself with the locations of all underground utilities of facilities as outlined in applicable Articles 105 of the Standard Specifications and shall save such facilities from damage.

The exploration trench shall be backfilled with trench backfill meeting the requirements of Article 208 of the Standard Specifications, the cost of which shall be included in the item Exploration Trench (Special).

Payment shall be based on actual length of trench explored without change in unit price because of adjustment in plan quantities due to field conditions.

Method of Measurement
This work shall be measured in place and measured per lineal foot.

Basis of Payment
This work will be paid for at the contract unit price per FOOT for EXPLORATION TRENCH (SPECIAL) and no extra compensation will be allowed for any delays, inconvenience or damage sustained by the Contractor in performing this work. This price shall include excavation, backfill, and disposal of excess material.

FENCE REMOVAL

Description
This work shall consist of the removal of fence as shown in the plans or otherwise directed by the Engineer. The removal shall include post foundations, fittings, gates, posts and accessories. All holes left by the removal of the fence posts and post foundations shall be filled with crushed stone screenings The furnishing and placing of the screenings shall be included in the cost of the Fence Removal. The Contractor shall do so at locations shown on the plans or as directed by the Engineer. The existing fence shall be carefully removed and delivered to the owners or properly disposed of as directed by the Engineer. Any part of the fence that is damaged that is not called for to be removed will be replaced at the Contractor's expense.

Method of Measurement
Fence Removal will be measured per lineal foot measured along the top of the fence.

Basis of Payment
This work will be paid for at the contract unit price per linear FOOT for FENCE REMOVAL, which includes all equipment, labor and materials necessary to remove, deliver, furnish, place, and dispose of the fence, crushed stone screenings, and miscellaneous accessories (posts, gates, fittings, etc.).

FIRE HYDRANT EXTENSION

Description
The work of this Pay Item consists of providing barrel extensions for fire hydrants when existing or future final grade conditions result in the water main being deeper than the specified depth of bury, including determining the appropriate extension height and extension necessary, and installation of extension.

Measurement
The work will be measured in vertical foot of extension, determined by the amount added to the fire hydrant bury dimensions outlined in Pay Item FIRE HYDRANTS.

Extensions utilized to obtain the proper amount “bury” on fire hydrants when the water main is not deeper than the specified depth of bury will not be paid for.

Basis of Payment
The work will be paid for at the contract unit price for vertical FOOT for FIRE HYDRANT EXTENSION.

FIRE HYDRANTS

Description
The work of this Pay Item consists of fire hydrants complete in place, including excavation; bracing; bedding and covering of pipe; auxiliary gate valve and valve box; thrust blocking; hydrant barrel drain washed stone pocket; support; trenching dewatering; trench backfilling with excavated materials; testing; disinfection; finish grading; removal and disposal of waste excavated materials; protection, replacement, or repair of utilities; and including backfilling with granular backfill materials where connecting pipe is below pavement.

This Pay Item includes polyethylene wrapping of connecting pipe, auxiliary valve, and hydrant.

This Pay Item includes providing a fire hydrant of sufficient height to position the hydrant nozzles and break-away flange to the elevations indicated in the technical specifications and plan detail. Contractor will determine the proper “bury” height based on water main size and depth of bury.

Where depth of water main is required to be greater than standard bury depth, fire hydrant extensions will be paid for as FIRE HYDRANT EXTENSION.

Materials
Fire hydrants shall meet AWWA C-502 and shall be Waterous 5 ¼” Pacer or Mueller Centurion, A-428.

1. Comply with AWWA C502.
2. Paint fire hydrants red.
3. Match the fire hydrants generally installed in the Owner's water system.

Materials:

1. Provide compression type with a 5¼-inch minimum size main valve assembly, O-ring seals, two 2½-inch hose nozzles, and a 4½-inch pumper nozzle with National Standard threads, a National Standard operating nut, and an above ground break flange.
2. Provide break-away traffic flange and connections.
3. Hydrant leads shall be six (6) inch swivel anchor couplings. Hydrant tees shall be used in lieu of swivel anchoring coupling pipe if necessary.

4. Provide a 6-inch auxiliary resilient seat type gate valve with restrained type joints or bituminous coated metal tie rods between the valves and the tee fittings.
   a. Provide and install nuts, bolts, and tie rods matching the nuts and bolts used for fittings.

5. Provide valve boxes with cover marked with the word “WATER”.
   a. Bituminous coated carbon steel valve extension stems and 2-inch square operating nuts 2 inches below cover.
6. Provide valve box stabilizers on all fire hydrant auxiliary valves.
   a. Acceptable manufacturers:
      (1) Valve Box Stabilizer, Inc.
      (2) Adaptor, Inc.
      (3) Assured Flow.

Installation
Install fire hydrants plumb with the lowest hose connection at least 18 inches, but not more than 26 inches, above the finished grade ground level.

Set fire hydrant and auxiliary valve on precast concrete blocks to provide firm support for the bases.

Brace the fire hydrant base with solid concrete blocking between the base and undisturbed trench wall to counteract the reaction thrust of water pressure at the base.

1. Provide mechanical joint anchoring fittings, or approved restrained joints.

Brace the fire hydrant barrels during backfilling.

1. Do not block the drain hole in fire hydrant.

Place a minimum of 1/2 cubic yards of washed coarse stone at and around the base for proper drainage.

1. Cover stone with plastic before backfilling.

Place and compact backfill materials in 6-inch layers around the fire hydrant and auxiliary gate valve.

Rotate hydrants to the proper position prior to testing.

Cover new fire hydrant with plastic bag until new system is in service.

Basis of Payment
The work will be paid for at the contract unit price EACH for FIRE HYDRANTS.

FIRE HYDRANTS TO BE ADJUSTED

Description: This item shall consist of the proper adjustment of the hydrant where indicated on the plans in accordance with the applicable portions of Article 564 of the Standard Specifications and the Standard Specifications for Water and Sewer Construction in Illinois, 7th Edition.

Basis of Payment: This work will be measured at the contract unit price EACH for FIRE HYDRANTS TO BE ADJUSTED.

FIRE HYDRANTS TO BE REMOVED

Description: This item shall include full compensation for cost of removal and onsite storage (for Village of Lake in the Hills or City of Crystal Lake pick-up) of the complete fire hydrant and auxiliary valve assembly, excavation, hauling, disposal of excess material, backfill, temporary restoration of disturbed area but not including permanent restoration, cleanup and work incidental to fire hydrant removal but not specifically included in other unit prices. All removed fire hydrants and valve assemblies shall be stored onsite for Village of Lake in the Hills or City of Crystal Lake pickup and all pickups shall be coordinated with the Engineer.

Method of Measurement: This work will be measured for payment in place as EACH for FIRE HYDRANTS TO BE REMOVED.

Basis of Payment: This work will be paid at the contract unit price for FIRE HYDRANTS TO BE REMOVED.

FLOCCULATION LOGS
FLOCCULATION POWDER

Description.
This work shall consist of furnishing and applying Flocculation Logs and/or Flocculation Powder during construction of and prior to vegetation of the stormwater detention ponds and as directed by the Engineer to minimize soil erosion, bind soil particles, remove suspended particles, and act as a construction aide.

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

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

b) Performance: All vendors and suppliers of PAM, PAM mix or PAM blends shall supply written “site specific” testing results, demonstrating that a performance of 95% or greater of nephelometric turbidity units (NTU) or total suspended solids (TSS) is achieved from samples taken. In addition to soil testing, a CPESC shall design the installation plan for the polymers based on mix time and point of entry.

c) Safety: PAM shall be mixed and/or applied in according to all Occupational Safety and Health Administration (OSHA) material safety data sheet (MSDS) requirements and the manufacturer’s recommendations for the specified use.

CONSTRUCTION REQUIREMENTS

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

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

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

Flocculation Log Installation: A Flocculation Log is a semi-hydrated polyacrylamide block that is placed within storm water and/or construction site drainage to remove fine particles and reduce NTU values. A typical dry log weighs about 10 pounds and is approximately 5 in. x 4 in. x 12 in. Placement of Flocculation Logs should be as close to the source of particle suspension as possible. Ideal performance of the Flocculation Logs occurs when the product is used in conjunction with other best management practices (BMPs). Each Flocculation Log is specifically formulated for the soil and water chemistry at the site. Soil and water samples will determine which formula Flocculation Log is needed. The samples will also aid in determining proper placement.

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

1. Reapplication of Flocculation Powder to disturbed areas
2. Reapplication of Flocculation Powder to temporary areas
3. Replacement of Flocculation Logs
4. Adjustments to the Storm Water Pollution Prevention Plan

Method of Measurement.
Flocculation Logs will be measured for payment in place in units of EACH.

Flocculation Powder will be measured for payment in pounds.

Basis of Payment.
FLOCCULATION LOGS will be paid for at the contract unit price per each. FLOCCULATION POWDER will be paid for at the contract unit price per pound. The unit price shall include all equipment, materials and labor required to furnish and apply flocculation logs and/or flocculation powder.

FLY ASH RESTRICTION

The use of fly ash in Class PV concrete will not be allowed. All references to fly ash in the Standard Specifications shall not apply.

FORM LINER TEXTURED SURFACE
FORM LINER TEXTURED SURFACE (SPECIAL)

Description
This work shall consist of the construction of form liner textured surfaces on designated surfaces in the contract plans.

Materials
The materials shall be according to Article 503.02 of the "Standard Specifications" and the following: Form liners for **Form Liner Textured Surface** and **Form Liner Textured Surface (Special)** shall duplicate closely the appearance of natural stone masonry and be non-repeating. Seam lines or match lines caused from two or more molds coming together will not be apparent when viewing final wall.

The molds shall not compress more than ¼ inch when concrete is poured at a rate of 10 vertical feet per hour. The molds shall be removable without causing deterioration of surface or underlying concrete.

The forms shall be constructed so that the completed concrete structures conform to the shape, lines and dimensions of the members of the approved pattern. The forms shall be properly braced or tied together to maintain position and shape. The forms shall be made sufficiently tight to prevent leakage of the mortar. The formwork shall have the strength and stability to ensure finished concrete dimensions within the tolerances specified herein.

The following form liner suppliers and patterns have been pre-approved for Form Liner Textured Surface and Form Liner Textured Surface (Special):

Custom Rock International
1156 Homer Street St. Paul, Minnesota
55116 (800) 637-2447
www.custom-rock.com
Pattern Number 12005 – Bearpath Coursed Stone

Sika Greenstreak
601 Avenue Delmar
Point-Claire, Quebec, Canada 63122-6614
(800)933-SIKA
www.sika.ca
Pattern Number 477 – Meramec Drystack Stone

Fitzgerald Formliners
1500 East Chestnut Ave.
Santa Ana, California 92701
(800) 547-7760
www.formliners.com
Pattern Number 17008 – Brayman Drystack
APS Plastic

Pre-approval of the form liner does not include material acceptance at the job site.

For Form Liner Textured Surface and Form Liner Textured Surface (Special) the Contractor shall select a form liner pattern from above or propose an equivalent form liner. The pattern for Form Liner Textured Surface (Special) shall match the pattern selected for Form Liner Texture Surface, except that the maximum relief depth shall be ½" and the maximum relief width shall be 1" for Form Liner Textured Surface (Special).

Form liners shall be according to Article 503.06(a) and the requirements detailed in this specification.

The form ties shall be made of either metal or fiberglass. Metal ties, which result in a portion of the tie permanently embedded in the concrete, shall be designed to separate at least one inch back from finished surface, leaving only a neat hole that can be plugged with patching material. Contractor shall submit the type of form ties to the Engineer, for approval prior to use in this work.

Concrete used for the cast-in-place concrete designated to receive form liner textured surfaces shall contain a high range water-reducing admixture according to Article 1021.03(c) of the "Standard Specifications" to obtain a 5" to 7" slump.

Submittals
For a proposed equivalent the Contractor shall submit to the Engineer one (1) specification including bonding and releasing agents, catalog cut sheet and 36" x 36" liner sample for the style of architectural form liner proposed for use on Form Liner Textured Surfaces on the project. Note that the same style of form liner shall be used on all surfaces to receive Form Liner Textured Surfaces within the project limits. The submittal shall be made no later than 14 calendar days from the date of notification to proceed with the contract. Upon receipt of the information, the Engineer, in consultation with McHenry County will have 14 calendar days to approve and notify the Contractor of which style of form liner is to be used on the project.

Contractor shall submit to the Engineer for approval evidence of the selected subcontractor's five years experience making stone masonry molds to create formed concrete surfaces to match natural stone shapes, surface textures.

Upon receipt of notification of the style of form liners to be used or if the Contractor is proposing a form liner from the pre-approved list, he/she shall submit a proposed procedure for obtaining the simulated finish. The procedure shall include plans and details for the form liner pattern and dimensions, and be submitted for the Engineer's approval no later than 14 calendar days from the date of notification of approval of the style type. If such plans and details are not satisfactory to the Engineer, the Contractor shall make any changes as may be required by the Engineer or McHenry County at no additional cost to the Department.

Upon approval of the form liner plans and details, the Contractor shall submit up to three 6' by 6' (minimum) mock-up concrete panel(s) of the simulated stone masonry finish of the Form Liner Textured Surface and Form Liner Textured Surface (Special) each. Include an area to demonstrate wall mold butt joint.

The sample panel(s) shall be delivered and positioned on the job site at a location to be determined by the Engineer. The mock-up shall also include the concrete staining if it is included in the contract. The approved form liners shall be used throughout the project to replicate natural stone surfaces unless otherwise noted in the plans. The approved mock-ups shall be the standard for replicated natural stone surfaces and special surfaces where required throughout the project.

General

The work shall be performed according to Article 503.06 of the "Standard Specifications" and the following:

The form liners shall be installed according to the manufacturers' recommendations to achieve the highest quality concrete appearance possible. The form liners shall withstand the concrete placement pressures without leakage, physical or visual defects.

The Contractor shall clean the form liners, removing any buildup prior to each use. The Contractor shall inspect each form for blemishes or tears and make repairs as needed following manufacturer's recommendations.

The Contractor shall install the form liners with less than ¼ inch separation between them. The molds shall be attached securely to the forms following manufacturer's recommendations. The panels shall be attached to each other with flush seams and seams filled as necessary to eliminate visible evidence of seams in the cast concrete.

The liner butt joints shall be blended into the pattern so as to eliminate visible vertical or horizontal seams and conspicuous form butt joint marks. The liner joints shall fall within pattern joints or reveals. The finished textures shall be continuous without visual disruption and properly aligned over adjacent and multiple liner panels. Continuous or single liner panels shall be used where liner joints may interrupt the intended pattern. Panel remnants shall not be pieced together.

The Contractor shall notify the Engineer at least 48 hours prior to placing concrete. Concrete shall not be placed until the Engineer has inspected the formwork and the placement of reinforcing bars for compliance with the plans.

The Contractor shall apply the form release agent to all surfaces of the form liner which will come in contact with concrete, according to the manufacturers' recommendations.

The Contractor shall employ proper consolidation methods to ensure the highest quality finish. Internal vibration shall be achieved with a vibrator of appropriate size, the highest frequency and low to moderate amplitude. Concrete placement shall be in lifts not to exceed 1.5 feet. Internal vibrator operation shall be at appropriate intervals and depths and withdrawn slowly enough to assure a minimal amount of surface air voids and the best possible finish without causing segregation. An external form vibrator may be required to assure the proper results. The use of an external form vibrator must be approved by the form liner manufacturer and the Department. The Contractor shall coordinate concrete pours to prevent visible differences between individual pours or batches. Concrete pours shall be continuous between construction or expansion joints. Cold joints shall not occur within continuous form liner pattern fields.

The form liners shall be stripped between 12 and 24 hours as recommended by the manufacturer. When stripping the forms the Contractor shall avoid creating defects in finished surface.

Wall ties shall be coordinated with the liner and form to achieve the least visible result. Place form ties at thinnest points of molds (high points of finished wall). Neatly patch the remaining hole after disengaging the protruding portion of the tie so that it will not be visible after coloring the concrete surface.

Where an expansion joint must occur at a point other than at mortar or rustication joints, such as at the face of concrete texture, which is to have the appearance of stone, consult manufacturer for proper treatment of expansion material.

Curing methods shall be according to Article 1020.13 of the “Standard Specifications” and compatible with the desired aesthetic result. The use of curing compounds will not be allowed. No rubbing of flat areas or other repairs should be required after form removal. The finished exposed formed concrete surfaces shall be free of visible vertical seams, horizontal seams, and butt joint marks. Grinding and chipping of finished formed surfaces shall be avoided.

Releasing Form Liners

Products and application procedures for form liner release agents shall be approved by the form liner manufacturer. Release agents shall not cause swelling of the form liner material or delamination of the form liner. Release agents shall not stain the concrete or react with the form liner material. Release agent shall coat form liner with a thin film. Following application of release agent, the form liner surface shall be cleaned of excess amounts of release agent using compressed air. Buildup of release agent caused by reuse of a form liner shall be removed at least every 5 uses.

Form liners shall release without leaving particles or pieces of form liner material on concrete and without pulling or breaking concrete from the textured surface. The concrete and textured surfaces exposed by removing form liners shall be protected from damage. Form stripping and related construction shall avoid creating defects in the concrete.

All concrete shall be cured in conformance with the Standard Specifications except that curing compounds will not be allowed.

Method of Measurement

This work will be measured for payment in place and the area computed in square feet for FORM LINER TEXTURED SURFACE and FORM LINER TEXTURED SURFACE (SPECIAL). Measurement will include all costs associated with providing the aesthetic treatment on the walls including the furnishing, installing, stripping and reusing the form liner and providing the required submittals.

Basis of Payment

The work will be paid for at the contract unit price per SQUARE FOOT for FORM LINER TEXTURED SURFACE and FORM LINER TEXTURED SURFACE (SPECIAL).

FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)

Description
This work shall consist of the adjustment of inlets, catch basins, valve vaults, and manholes at those locations as directed by the Engineer in the field. This work shall be completed in accordance with the applicable portions of Section 602, 603, and 604 of the Standard Specifications as well as the District One Standard Detail "Details for Frames and Lids Adjustment with Milling" (BD600-03 (BD-08)).

The existing pavement around each structure to be adjusted or reconstructed shall be removed by a straight, saw-cut joint.

All structures requiring frame and lid adjustment shall also be cleaned in accordance with Article 602.15 of the Standard Specifications.

Any trench backfill necessary to fill in the area around the adjusted structure will not be paid for separately but considered included in the cost of the structure being adjusted or reconstructed.

The pavement being replaced will not be measured for payment separately but considered included in the cost of the structure being adjusted or reconstructed.

Basis of Payment
The work will be paid for at the contract unit price per EACH for FRAMES AND LIDS TO BE ADJUSTED (SPECIAL) which price shall include all material and equipment to perform the work specified above.

GABION REMOVAL

Description.
This work shall consist of exposing and completely removing existing gabion baskets, including but not limited to stones, metal gabion baskets and associated materials to the limits shown on the plans or as directed by the Engineer.

CONSTRUCTION REQUIREMENTS

General.
The removed gabion and associated materials shall be disposed of according to Article 202.03. The cost of offsite hauling and disposal shall be included in this item.

Method of Measurement
This work will be measured for payment in cubic yards.

Basis of Payment
This work will be paid for at the contract unit price per cubic yard for GABION REMOVAL.

GENERAL REQUIREMENTS FOR WEED CONTROL SPRAYING

Experience

The Contractor shall have previous experience with the use of weed control chemicals. He/she shall have had at least three (3) season's experience in ecological restoration and the ability to identify and differentiate between targeted weeds and vegetation to remain. The Contractor shall observe and comply with all sections of the Illinois Custom Spray Law, including licensing. Contractor personnel applying herbicides shall have a valid pesticide applicator license issued by the Illinois Department of Agriculture.

The licensed pesticide applicator shall attend the preconstruction meeting and submit their current license to the Engineer. The licensed pesticide applicator shall be qualified at a minimum in Right-of-Way and Aquatics. The licensed applicator shall work on-site.

Equipment

The equipment used shall consist of a vehicle-mounted tank, pump, spray bar and handgun, plus any other accessories needed to complete the specified work. Spraying shall be done through multiple low-pressure flooding or broad jet nozzles mounted on spray bars operated not more than 36" above the ground. If different sizes or types of nozzles are used to make up the spray pattern, the pressure, sizes, and capacities shall be adjusted to provide a uniform rate of application for each segment of the spray pattern. Hand spray guns may be used for spraying areas around traffic control devices, lighting standard and similar inaccessible areas. Maximum speed of the spray vehicle during application of chemical shall be ten (10) miles per hour.

Pumps used shall have a volume and pressure capacity range sufficient to deliver the mixture at a pressure to provide the required coverage and to keep the spray pattern full and steady without pulsation or excessive pressure as to cause fogging. Maximum pressure for application shall be 15 PSI. Quick acting shut-off valves and spring-loaded ball check valves shall be provided to stop the spray pattern with a minimum of nozzle drip. In areas where the spray vehicle must traverse the right-of-way, a four-wheel drive vehicle with flotation tires will be required to minimize damage to the ground surface.

Additional equipment used shall consist of swiping gloves, wicks, wands, hand spray guns and/or backpack sprayers, plus any other accessories needed to complete the specified work as directed by the Engineer. Wick applicators, swiping gloves, or other such devices may be required to ensure herbicides are applied only to target species. If hand spray guns used are attached to spray vehicle, maximum speed of the spray vehicle during application of chemical shall be five (5) miles per hour. In areas where a vehicle is needed to traverse the right-of-way, a four-wheel drive vehicle with flotation tires will be required to minimize damage to the ground surface.

Prior to beginning work, the Contractor shall obtain approval from the Engineer of the spraying equipment proposed for completing this work. The proposed equipment shall be in an operational condition and available for inspection by the Engineer at least two (2) weeks prior to the proposed starting time. If requested by the Engineer, the Contractor shall demonstrate the calibration of the equipment.

The equipment must provide consistently uniform coverage and keep the spray mixture sufficiently agitated or the work will be suspended until the equipment is repaired or replaced.

Spraying Areas

This work includes roadsides and other types of right-of-way of various widths and gradients. Spray areas often extend more than thirty (30) feet from the edge of the roadway, requiring both spray bar and handgun applications.

When the description of work requires weed control of a stated species, such as teasel, the chemical shall be applied only to locations where the stated species is present. When the description of work requires general weed control within a bed or area, such as broadleaf weed control in turf, then the chemical shall be applied to the entire bed or area.

Exclusion of Spraying Areas

Areas where weed control spraying is inappropriate or detrimental to the environment, desirable planting, or private property shall be excluded from the spray area.

Spraying will not be permitted over any drainage swales or waterways, or other areas where the chemical label prohibits application. Spraying within 150 feet of a natural area or site where endangered or threatened species occur.

Responsibility for Prevention of Damage to Private Property

The Contractor shall, at all times, exercise extreme caution to prevent damage to residential plantings, flower or vegetable gardens, vegetable crops, farm crops, orchard or desirable plants adjacent to the roadside.

The Contractor or Department receives a complaint; the Contractor shall contact a complaint within ten (10) days after receiving a claim for damages, either in person or by letter. The Contractor, or his authorized representative, shall make a personal contact with the complainant within twenty (20) days. The Engineer shall also be notified by the Contractor of all claims for damage he received and shall keep the Engineer informed as to the progress in arriving at a settlement for such claims.

Communication with the Engineer

The Contractor is required to communicate with the Engineer to receive all required approvals in a timely way and to assure that the Engineer can accurately document the work performed.

All herbicide application shall be directly supervised by the Engineer for quality assurance and for payment purposes. If the Contractor performs work without the Engineer's supervision, work will not be paid for.

It shall be the Contractor's responsibility to assure that all chemical containers are opened and added to the spray mixture in the presence of the Engineer.

The Contractor shall obtain approval from the Engineer to proceed with spraying at each location 24 hours prior to the proposed spray operations.

The Contractor's superintendent shall closely coordinate work with the Engineer at all times in accordance with Article 105.06. The superintendent shall attend weekly progress meetings with the Engineer at the Engineer's office or other mutually agreed upon location. The superintendent

shall communicate with the Engineer in the field during weed control activities to facilitate accurate completion of work while it is occurring. At the request of the Engineer, the Contractor shall provide a cell phone number where the superintendent can be reached during working hours. The Contractor shall notify the Engineer at least twenty-four (24) hours in advance of either discontinuing or resuming operations.

Pesticide Application Daily Spray Record

The Contractor will be required to properly track pesticide applications as required by the ILG87 Permit. Reported data from this form will be collected and complied annually and reported to the IEPA as required.

Within 48 hours of the application of pesticides, including but not limited to herbicides, insecticides, algaecides, and fungicides, the Contractor shall complete and return to the Engineer, Operations form "OPER 2720". OPER 2720 may be found at the following link:

http://www.idot.illinois.gov/Assets/uploads/files/IDOT-Forms/OPER/OPER%202720.docx

HIGH-EARLY-STRENGTH PORTLAND CEMENT CONCRETE PAVEMENT (JOINTED)

This work shall consist of constructing high-early-strength portland cement concrete pavement at locations directed by the Engineer. This work shall be performed in accordance with Section 420 of the Standard Specifications.

Basis of Payment
This work will be paid for at the contract unit price per SQUARE YARD for HIGH-EARLY-STRENGTH PORTLAND CEMENT CONCRETE PAVEMENT (JOINTED), of the thickness specified.

HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE

Description. This work shall consist of furnishing and placing cast-in-place high performance concrete (HPC) superstructures that shall include bridge deck and diaphragm elements of the superstructure. Work under this item shall be performed in accordance with all applicable portions of Section 503 of the Standard Specifications for Class BS Concrete, except as modified herein.

When Diamond Grinding and Surface Smoothness Testing for 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) of the Standard Specifications. Hand finishing shall be limited solely for the purpose of facilitating a timelier application of the curing protection. In addition, the requirements of 503.16(a)(3)a. and 503.16(a)(4) of the Standard Specifications will be waived.

Materials. Materials shall be provided from IDOT approved sources according to Article 503.02 of the Standard Specifications and the following requirements:

a) Portland cement. The cement shall be Type I, IL, IS, I(SM), or IP according to Article 1001.01 of the Standard Specifications.

b) Fine Aggregate. Fine aggregate shall be according to Section 1003 of the Standard Specifications and the following:

   i) Quality. The fine aggregate quality shall be according to Article 1003.02 of the Standard Specifications except all sands or blends must comply with the minus No. 200 sieve requirements for a Class A Quality according to Article 1003.01(b) of the Standard Specifications.

   ii) ASR Rating. The IDOT assigned expansion value for dolomite or limestone stone sand shall be used. The expansion value for natural sands shall be as determined by IDOT.

   iii) Gradation. The fine aggregate shall be FM02.

c) Coarse Aggregate. Coarse aggregate shall be according to Section 1004 of the Standard Specifications and the following:

   i) Quality. The coarse aggregate quality shall be according to Article 1004.02 of the Standard Specifications except crushed gravel, crushed concrete, crushed slag, or crushed sandstone are not allowed. Coarse aggregates used in HPC superstructure concrete shall contain no more than two percent total by weight (mass) of deleterious materials as required for a Class A Quality according to Article 1004.01(b) of the Standard Specifications.

   ii) Freeze-Thaw Rating. The coarse aggregate gradation(s) and source(s) must be a minimum of an IDOT 30 Year Extended Life Pavement Design rating.

   iii) ASR Rating. The IDOT assigned expansion value for limestone or dolomite coarse aggregates (crushed stone) shall be used.

   iv) Gradation. Two or more coarse aggregate sizes, consisting of CM 11, CM 13, CM 14, and CM 16, may be combined provided a CM 11 is included in the blend. The combined coarse aggregate gradation shall have a minimum of 45 percent passing the ½ in sieve.

d) Finely Divided Minerals (FDM): Finely divided minerals shall be according to Section 1010 of the Standard Specifications and the following:

   i) Fly ash. Flash ash shall be Class F according to Article 1010.02 of the Standard Specifications.

   ii) Microsilica (silica fume). Microsilica shall be according to Article 1010.03 of the Standard Specifications.

   iii) Ground Granulated Blast-Furnace (GGBF) Slag. Ground granulated blast-furnace slag shall be according to Article 1010.05 of the Standard Specifications.

   iv) The limestone in a Portland-limestone cement is not classified as an FDM.

   v) FDMs shall have an alkali content less than 3.5 percent (Na_2O_{eq}).

e) Admixtures. Admixtures shall be according to Section 1021 of the Standard Specifications and the following.

i) Shrinkage reducing admixtures (SRA) shall be per the IDOT Approved List of Shrinkage Reducing Admixtures (SRA).

ii) Replace Article 1020.05(b)(9) with the following:

(9) When a Type F admixture is used, retempering with water will not be allowed. When a Type G admixture is used, retempering with water or with Type G admixture will not be allowed.

f) Water. Water shall be according to Section 1002 of the Standard Specifications.

g) Protective Coat. The protective coat shall be replaced with a penetrating concrete sealer in accordance with the special provision for BRIDGE DECK CONCRETE SEALER.

Concrete Mix Design.

a) Proportions – HPC superstructure concrete mixes shall be designed and produced within the following target proportions.

Mix Component	HPC SUPERSTUCTURE CONCRETE
Portland Cement (Minimum prior to FDM Reductions)	575 lb/cu yd
Microsilica (silica fume)	25 ± 5 lb/ cu yd required
FDM Requirements: Ground Granulated Blast Furnace Slag Cement or Fly Ash, Type F	FDM content shall be a minimum of 15% and a maximum of 25% of the reduced Portland Cement content by weight (mass) plus the FDM content by weight (mass) summed together (excluding microsilica content) If used for ASR mitigation, the FDM content shall be 25%
Water:Cementitious Ratio	0.32 - 0.44
Air-Entraining Agent	Per IDOT approved list and manufacturer's written instructions
High Range Water-Reducer	Per IDOT approved list and manufacturer's written instructions
Retarder	Per IDOT approved list and manufacturer's written instructions

b) Corrosion inhibitors, accelerating admixtures (Types C or E), viscosity modifiers, and hydration stabilizers are not allowed unless approved by the Engineer.

c) Alkali-Silica Reaction (ASR) Mitigation shall be according to Article 1020.05(d) of the Standard Specifications.

d) Physical Properties. The mix design shall meet the specifications listed in Table 1.

Table 1
Physical Properties

Property	HPC SUPERSTRUCTURE CONCRETE	Test Methods
Total air content, plastic concrete	5.0% – 8.0%[1/]	AASHTO T152[2/]
Slump, maximum after HRWR addition	8 in[3/]	AASHTO T119[2/]
Slump, minimum after 45 minutes	3 in[3/]	AASHTO T119[2/]
Initial set time, minimum	3 hours	AASHTO T197
14-day compressive strength, minimum	4,000 psi	AASHTO T22[2/]
14-day compressive strength, maximum	5,500 psi	AASHTO T22[2/]
28-day compressive strength, maximum	9,500 psi	AASHTO T22[2/]
Total air content, hardened concrete	5.0% – 8.0%	ASTM C457
Maximum air void spacing factor	0.008 in	ASTM C457[4/]
Minimum air void specific surface	600 in^2/in^3	ASTM C457[4/]
Total air content, minimum	4.0%	ASTM C457[4/]
Durability factor, minimum after 300 cycles	80%	AASHTO T161[2/5/]
Chloride Permeability Resistance[6/]	< 1500 coulombs at 28 days	AASHTO T277[7/]
or		
Resistivity Testing (Surface)[6/]	≥ 37 kOhm-cm at 28 days	AASHTO T358
Petrographic examination	Report	ASTM C856
System Air Metric (SAM)	≤ 0.20	AASHTO TP118
Alkali Silica Reactivity[8/]	4.0 lb/yd^3	AASHTO T105
Time to cracking, minimum[9/]	28 days	ASTM C1581
Length Change, maximum[10/]	0.03%	AASHTO T160

Footnotes:

1/ Or as required to meet the total air content in the hardened concrete.

2/ Per IDOT Manual of Test Procedures

3/ The change in slump shall be no greater than 2 inches in 20 minutes and no greater than 4 inches from the initial measurement (measured within 10 minutes after the addition of water). The concrete temperature during testing shall be greater than 70°F. Specimens for compressive strength and hardened air void analysis shall be cast after the final slump measurement.

4/ Method B shall be used.

5/ This test shall be waived if the air-void system parameters are met.

[6/] Resistivity Testing can be performed in place of Chloride Permeability testing. The test specimens shall be 6 in x 12 in cylinders with each specimen being cured in a 5-gallon bucket of lime saturated water.

[7/] Test specimens shall be made in accordance with Illinois Modified AASHTO R 39. Specimens shall be cured for one week at 73°F and the following three weeks at 100°F. An interim test result can be provided at the option of the contractor. A test shall consist of three specimens.

[8/] The requirements shall be waived if one of the following two requirements are met. 1) Each aggregate shall be evaluated individually in accordance with ASTM C1260 and must have a measured expansion no greater than 0.10 percent after 16 days. Each aggregate that does not meet this limit when tested with Portland cement alone may demonstrate acceptance using a blended cement or a combination of portland cement and supplementary cementitious materials proposed for the mixture. The supplementary cementitious replacement content needed to pass the ASTM C1260 requirement shall become the minimum required replacement percentage of the concrete mixture. 2) The aggregate has been evaluated in accordance with ASTM C1293 within the last 12 months and has an average expansion of three concrete specimens equal to or less than 0.04 % at one year.

[9/] Prior to batching for a test sample, all coarse aggregate particles exceeding ¾-inch shall be removed and replaced with an equal volume of minus ¾-inch graded material. This test shall be waived if the concrete mixture contains 605 lb/yd3 of less total cementitious material and a minimum dosage of 1.5 gal/yd3 of approved SRA.

[10/] Shrinkage shall be measured shrinkage after 21 days of air drying. Specimens shall be wet cured for 7 days prior to air drying. The initial reading for calculation of shrinkage shall be taken at the initiation of drying.

Mix Design, Trial Mixes and Verification Testing.

a) Mix designs shall be submitted to the Engineer for approval at least 45 days prior to the start of production. Mix designs shall be performed according to the IDOT PCC Mix Design Program except the water/cement ratio method is not allowed.

b) The Trial Mix shall be produced with the mix equipment proposed for production. The Trial Mix evaluation shall include testing for the properties in Table 1.

   i) Testing shall be conducted by laboratories approved by the Engineer at no additional cost to the contract.

   ii) Initial Set Time (AASHTO T197), Air Voids analysis (ASTM C457), Chloride Permeability Resistance (AASHTO T277) or Resistivity Testing (AASHTO TP119), and Petrographic Analysis (ASTM C856) shall be performed by AASHTO accredited laboratories. Advance notice of testing shall be provided to the Engineer who may witness the trial mix and testing.

c) Documentation:

   i) Ingredient Materials. Include relevant pages of IDOT's:

      (1) Approved aggregate source list.
      (2) Freeze-thaw rating list.
      (3) Approved list of qualified cement plants.

(4) Approved list of concrete admixtures.
(5) Approved list of suppliers for finely divided minerals.
(6) Alkali-Silica Potential Reactivity Rating List.

ii) Trial Mix test results verifying conformance with the requirements of Table 1.

d) Mix Changes. Once the mix design is approved, no ingredient sources may be changed without the written approval of the Engineer.

Equipment. Equipment shall meet the requirements of Article 503.03 of the Standard Specifications unless otherwise modified by this specification.

a) Curing Equipment. A work bridge for the purpose of conducting curing operations including fogging shall be provided and be separate from any other operations conducted during the placement of the bridge deck. The work bridge shall span the entire width of the pour and be capable of traveling the full length of the pour allowing access for curing operations over the entire placement area.

Fogging System. Fogging equipment shall be required regardless of evaporation rate and be according to 1103.17(k). Fogging equipment shall be adequate to reach or cover the entire pour from behind the finishing machine or vibrating screed to the point of curing covering application and shall be operated in a manner which shall not accumulate water on the deck until the curing covering has been placed. Fogging equipment attached to the finishing machine will not be permitted.

CONSTRUCTION REQUIREMENTS

Production Facility and Transportation Equipment. The production facility and ready-mix trucks supplying portland cement concrete shall have a current Certification of Ready Mixed Concrete Production Facilities from the National Ready Mixed Concrete Association (NRMCA). The Contractor's Quality Control Plan shall include documentation of NRMCA certification.

Placing and Consolidating. Work shall be performed according to Article 503.07 of the Standard Specifications and as modified herein:

a) All placements require the use of a finishing machine according to Article 1103.13(a) of the Standard Specifications and the following:

The Contractor may attach other equipment to the finishing machine to enhance the final finish when approved by the Engineer. The finishing machine supports shall be located outside the pour, were possible.

If there are physical site conditions that prohibit the use of a finishing machine, a written request for exception shall be submitted to the Engineer explaining in detail the constraints that exclude the use of a finishing machine. The request shall include all pertinent controlling site conditions with detailed drawings, proposed substitute finishing equipment, details on maintaining the proposed cross-slope and longitudinal grades, and any other information germane to the exception request. The request for exception will be reviewed based on the information submitted and a response with a final determination will be sent within 14 days of receiving the exception request. Authorization to utilize substitute finishing equipment does not waive any other requirements related to grade, cross-slope, finish, and concrete characteristics as required by the contract documents.

b) All weather parameters shall be measured, recorded, and provided. In addition, all weather monitoring equipment to support any request to deviate from the temperature requirements of this specification shall be provided.

   i) Temperature. The air and concrete temperature at placement shall be in accordance with Article 1020.14(b) of the Standard Specifications and as modified herein.

      (1) The temperature of the surfaces to receive concrete shall not be less than 40°F.
      (2) The maximum temperature of the HPC superstructure concrete at the point of placement shall not exceed 85°F.
      (3) The temperature of the concrete at the point of placement shall not be less than 60°F for ternary mixtures or for any concrete with more than 20% fly ash or 35% slag replacement of portland cement.
      (4) HPC superstructure concrete shall be cast at night whenever air temperatures exceed 80°F, unless it has been demonstrated the evaporation rate will be less than 0.10 lb/sq ft/hr and approval has been granted by the Engineer.
      (5) Only glass type thermometers with a range of 30°F to 120°F ± 1°F will be acceptable for determining concrete or air temperatures as part of the required QC/QA testing.

c) Wind. Whenever wind speeds exceed 10 mph (light breeze), fogging of the exposed concrete surface shall be continuous.

d) Evaporation. Evaporation rates shall be determined according to Article 503.16 of the Standard Specifications and shall be based on actual temperature and wind speed data obtained from the field the day prior to the pour. The resulting evaporation rates will determine the time of day for the subsequent placement if climatic conditions are anticipated to be similar in nature. If the conditions prior to the pour are deemed by the Engineer not to be similar in nature, the time of day for the placement will need to be reevaluated using current field data. The Engineer must concur with the proposed placement date and time submitted by the Contractor. Unless waived by the Engineer, evaporation rates shall also be monitored during every placement to determine the level of fogging necessary to reduce the potential for shrinkage cracking. The use of automatic electronic evaporation equipment is required on site and in operation according to Article 503.16 of the Standard Specifications regardless of the evaporation rate or ambient air temperature. Equipment used for monitoring evaporation rates shall be certified by the manufacturer to be within 2°F, 5% relative humidity, and 1 mph wind speed. The equipment shall be set up at a height of 20 inches above the finished deck elevation.

   i) When the evaporation rate exceeds 0.15 lb/sf/hr, HPC superstructure concrete shall not be cast.

   ii) When the evaporation rate exceeds 0.10 lb/sf/hr, casting HPC superstructure concrete at night shall be performed.

   Methods necessary to lower concrete temperatures including nighttime placements, cooling the mix water, adding ice, shading, or sprinkling the coarse aggregates with chilled water shall be implemented when concrete temperatures cannot be maintained below the maximum acceptable limit given the application. Extra attention to fogging may be required as well as applying curing as soon as possible after finishing.

e) Curing. Curing shall be in accordance with Article 1020.13(a)(5) of the Standard Specifications for a 7-day period, with the following additions:

i) The temperature of the curing water shall not be more than 20°F cooler than the surface temperature of the concrete at the time the water and concrete come in contact. The curing water temperature shall be measured in the storage tank. The surface temperature of the concrete shall be measured under the cotton mats placed for curing. Measuring the temperatures of the curing water and concrete surface, and any required heating or cooling of the curing water, shall be the responsibility of the Contractor.

ii) Use black or dark colored plastic sheets when the daily high ambient temperature is below 60 °F. Use white or similarly reflective plastic sheets when the daily high ambient temperature is above 85°F. Use any color or transparency of plastic sheet at temperatures between 60°F and 85°F.

f) Protection of Concrete. The Contractor shall protect concrete in accordance with Article 1020.13(d) of the Standard Specifications, except as revised herein:

i) Replace the 8th sentence of 5th paragraph of Article 1020.13(d)(1) with the following.

Temperature sensor readings shall be provided to the Engineer in the morning of each day for the duration of the required protection.

ii) Replace the 1st sentence of 6th paragraph of Article 1020.13(d)(1) with the following.

The concrete temperature should be a minimum of 45°F and a maximum of 90°F, but shall not be less than 40°F.

iii) When protection is required, the temperature of water for curing shall be no less than 45°F.

iv) Add the following to Article 1020.13(d)(1).

Protection Method IA. For superstructure and moment slabs, Protection Method I shall apply, with the following exception: The insulating material shall only cover the top and sides of the superstructure and moment slabs.

Protection Method IB. For superstructure and moment slabs, Protection Method I shall apply, with the following exceptions: The insulating material shall only cover the top and sides of the bridge deck. The Contractor shall place heating coils uniformly across the superstructure and moment slabs.

g) No additional or supplemental compensation shall be made, or additional time granted for any measures required for the satisfactory placement of HPC concrete as described herein or as directed by the Engineer, including but not limited to weather delays, equipment, admixtures, premium costs, lighting, or other appurtenant and collateral work required. The cost shall be included in the unit price for the placement of High Performance

Concrete Superstructures as shown on the Contract Plans and indicated in the Contract Specifications.

h) Concrete mixtures shall be tested and evaluated according to the Illinois Department of Transportation Recurring Special Provision for Quality Control/Quality Assurance of Concrete Mixtures, except as revised herein.

i) Add the following to Article 1020.16(g) Schedule B Footnote 2/:

If a gap in the placement of a given mix design exceeds two hours, the procedure to determine testing frequency shall restart for slump, air content, temperature, and compressive strength.

Method of Measurement. Measurement shall be performed according to Article 503.21 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per CUBIC YARD for HIGH PERFORMANCE CONCRETE SUPERSTRUCTURES.

Concrete protected according to Article 1020.13(d) of the Standard Specifications may be paid for at the adjusted unit prices which will be a percentage according to the table from Article 503.22 of the Standard Specifications of the contract unit price for the classes of concrete involved. These adjustments will be made only when they are authorized in writing by the Engineer. No adjustment will be made in the contract unit prices for any concrete if winter work is necessary to meet the required completion date(s) specified in the contract.

INLETS, TYPE A (SPECIAL)

Description
This work shall consist of constructing a Type A Inlet and grate per Sections of 602 of the Standard Specifications and the detail in the plans.

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

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

Basis of Payment
This work will be paid for at the contract unit price per EACH for INLETS, TYPE A (SPECIAL) installed. Price shall include but not be limited to all frames, grates, lids, sand cushion, steps, flat slab tops, excavation and backfilling, and other labor, materials, and equipment needed to perform the work as specified herein.

JOINT TIES FOR CONCRETE PIPE

Description: This work shall consist of furnishing and installing joint ties for concrete pipe culverts and/or concrete storm sewers.

Materials: The steel threaded rod, eye bolts, sleeve nuts, hex nuts, and washers, shall meet the requirements of ASTM A 307. They shall be zinc-coated according to AASHTO M 232 or AASHTO M 298, Class 50. The galvanized coat shall be a maximum of 6 mils thick.

The steel cast-in-place inserts shall be zinc-coated according to AASHTO M 232, AASHTO M 298, Class 50 with galvanizing not to exceed 6 mils, or ASTM B 633 SC 3.

General: The installation of pipe culvert shall be according to Section 542 of the "Standard Specifications" and the installation of storm sewers shall be according to Section 550 of the "Standard Specifications" with the addition of the following:

> The work shall include the installation of joint ties. The joint ties shall be installed according to the LCDOT standard LC5402 JOINT TIES FOR CONCRETE PIPE, included in the plans. The ties shall be installed at the locations as shown on the standard and/or as directed by the Engineer.

Basis of Payment: The work will not be paid for separately. For proposed culverts and/or storm sewer the cost of furnishing and installing the ties, including all required materials and labor, shall be included in the contract unit price of the concrete PIPE CULVERTS and/or concrete STORM SEWERS of the size and type specified. For repairing existing culverts and/or storm sewer the cost of furnishing and installing the ties, including all required materials and labor, shall be included in the contract unit price for REMOVE AND RELAY END SECTIONS.

MANHOLE, SPECIAL

Description
This work shall consist of constructing a Type A manhole of 8-foot diameter with two frame and grates. The curb line lid shall be a Type 24 Frame and Grate and the second lid shall be a Type 1 Closed Lid. The pay item shall be in accordance with Sections 602 of the Standard Specifications and the plans and/or as directed by the Engineer.

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

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

Basis of Payment
This work will be paid for at the contract unit price per EACH for MANHOLE (SPECIAL) installed. Price shall include but not be limited to all frames, grates, lids, sand cushion, steps, flat slab tops, excavation and backfilling, and other labor, materials, and equipment needed to perform the work as specified herein.

MANHOLES, TYPE A, 6' OR 8' DIAMETER, WITH 2 TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE

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

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

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

Basis of Payment
This work will be paid for at the contract unit price per EACH for MANHOLES, TYPE A, 6' or 8'-DIAMETER, WITH 2 TYPE 1 FRAME, CLOSED LID, RESTRICTOR PLATE installed. Price shall include but not be limited to all frames, grates, lids, sand cushion, steps, 6" concrete wall, flat slab tops, excavation and backfilling, and other labor, materials, and equipment needed to perform the work as specified herein.

PARAPET RAILING (SPECIAL)

Description
This work shall consist of furnishing and erecting parapet mounted aluminum railing as detailed in the contract plans, and in accordance with Section 509 and Article 1006.30(b) of the Standard Specifications except as modified herein.

Method of Measurement
This work will be measured for payment in place in feet. The length measured will be the overall length along the top longitudinal railing through all posts and gaps.

Basis of Payment
This work shall be paid for at the contract unit price per FOOT of PARAPET RAILING (SPECIAL), including all railing connections and cleaning and powder coating new aluminum structures.

PERIMETER EROSION BARRIER (SPECIAL)

Description
This work shall consist of constructing, removing, and disposing of perimeter erosion barrier, special as part of the project's temporary erosion control system. Wire-back mesh perimeter erosion control barrier, special shall be utilized adjacent to existing wetlands. Unsupported may be used in all other project areas.

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

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

Table – Temporary Silt Fence Requirements

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

Notes:
a) Silt fence support shall consist of 12-gauge steel wire with a mesh backing of 6”x6” or prefabricated polymeric mesh of equivalent strength.
b) These default filtration property values are based on empirical evidence with a variety of sediments. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests should be performed to confirm the suitability of these requirements.

The wire support fence shall:

1) Be a minimum of 12-gauge
2) Have a minimum of six horizontal wires
3) The maximum vertical wire spacing shall be 6”

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

Basis of Payment
This work will be paid for at the contract unit price per FOOT for PERIMETER EROSION BARRIER (SPECIAL). The unit price shall include all work and materials necessary to properly install the barrier and to remove and dispose of the used materials at the completion of the project. Maintenance requirements shall be included and paid for according to Section 280 of the "Standard Specifications."

PIPE UNDERDRAIN REMOVAL

Description.
This work shall consist of the removal of existing underdrain pipe, fittings, and cleanouts as shown on the plans.

Basis of Payment.
This work will be paid for at the contract unit price per FOOT for PIPE UNDERDRAIN REMOVAL, regardless of diameter or material, which shall include removal and disposal of all pipe, fittings, and cleanouts, all labor, materials and equipment necessary to complete the work as specified.

PLANTING PERENNIAL PLANTS

Delete Article 254.03(a) Planting Time and substitute the following:

Bulbs shall be planted between October 15 and November 30. Bulbs shall not be installed prior to trees, shrubs, perennials, and ornamental grasses are planted.

Delete Article 254.05 Layout of Planting and substitute the following:

When plants are specified to be planted in prepared soil planting beds, the planting bed shall be approved by the Engineer prior to planting. The Contractor shall be responsible for all plant layout. The layout must be performed by qualified personnel. The planting locations must be laid out as shown in the landscape plan. This will require the use of an engineer's scale to determine some dimensions. Bed limits shall be painted or flagged. Individual plants layout shall be marked prior to installation. The Engineer will contact the Roadside Development Unit at (847) 705-4171 to approve the layout prior to installation. Allow a minimum of three (3) days prior to installation for approval.

Add the following to Article 254.06 Planting Procedures:

When planting perennials in bed areas shown on the plans or as directed by the Engineer, the following work shall be performed prior to planting:

- Spade a planting bed edge at approximately a 45 degree angle and to a depth of approximately three (3) inches around the perimeter of the perennial bed. Remove any debris created in the spade edging process and dispose of as specified in Article 202.03.

- Do not plant when soil is muddy.

- Trees and shrubs must be installed first to establish proper layout and to avoid damage to other plantings.

- Perennial plants shall be planted by a hand method approved by the Engineer. Open holes sized to accommodate roots, place plants so it is level with the surrounding soil and backfill with soil, working carefully to avoid damage to roots and to leave no voids. Build up a small water basin of soil around each plant.

- Thoroughly water plant beds within 2 hours of installation. Do not wash soil onto crowns of plants.

Delete the first sentence of Article 254.08 Mulching and substitute the following:

A mulch sample shall be submitted to the Engineer for approval seven (7) days prior to placing.

Within 24 hours, the entire perennial plant bed shall be mulched with two (2) inches of fine grade Shredded Hardwood Bark Mulch. Hardwood bark mulch shall be clean, finely shredded mixed-hardwood bark not to exceed two (2) inches in its largest dimension, free of foreign matter, sticks, stones, and clods. All hardwood mulch shall be processed through a hammer mill. Hardwood bark not processed through a hammer mill shall not be accepted.

Care shall be taken to place the mulch to form a saucer around each perennial so as not to smother the plants or bury leaves, stems, or vines under mulch material.

Delete Article 254.08 (b) Period of Establishment and substitute the following:

Perennial plants must undergo a 30-day period of establishment. Additional watering shall be performed not less than once a week for four weeks following installation. Any signs of stress exhibited by plant material must be given special consideration in determining water needs. Water immediately if plants begin to wilt, or if top (1) inch to two (2) inches of soil is dry. Water shall be applied at the rate of a minimum of 2 gallons per square foot. Water to ensure that moisture penetrates throughout the root zone, including the surrounding soil, and only as frequently as necessary to maintain healthy growth. Do not over water.

Should excess moisture prevail, the Engineer may delete any or all of the additional watering cycles. In severe weather, the Engineer may require additional watering.

Water must be applied in such a manner so as not to damage plant material. Water must trickle slowly into soil and completely soak the root zone. An open end hose is unacceptable. Water early in the day and apply water as close to the soil as possible without washing out soil or mulch. Water at the base of the plant to keep as much water as possible off plant leaves in order to minimize fungus problems. Watering of plants in beds shall be applied in such a manner that all plant holes are uniformly saturated without allowing water to flow beyond the periphery of the bed. Thoroughly saturate all areas of the perennial bed, not just individual plants. The plants to be watered and the method of application will be approved by the Engineer.

The Contractor will not be relieved in any way from the responsibility for unsatisfactory plants due to the amount of watering. Any loss of newly installed plant material determined by the Engineer to be due to lack of water, is the responsibility of the contractor to replace at no additional cost. Any damage to plant material due to incorrect watering must be corrected or replace at the Contractors expense, to the satisfaction of the Engineer.

Add the following Article 254.08 Period of Establishment:

During the period of establishment, weeds and grass growth shall be removed from within the mulched perennial beds. This weeding shall be performed a minimum of once per week or within 48 hours following notification by the Engineer during the 30-day period of establishment. The Contractor will not be relieved in any way from the responsibility for unsatisfactory plants due to the extent of weeding.

The weeding may be performed in any manner approved by the Engineer provided the weed and grass growth, including their roots and stems, are removed from the area specified. Mulch disturbed by the weeding operation shall be replaced to its original condition. All debris that results from this operation must be removed from the right-of-way and disposed of at the end of each day in accordance with Article 202.03.

Add the following to Article 254.09 Method of Measurement:

a) Disposal of weeds, sod and debris (rock, stones, concrete, bottles, plastic bags, etc.) removed from the perennial planting bed as specified in Article 202.03.

Add the following to Article 254.10 Basis of Payment:

a) Payment for Shredded Mulch shall be included in contract unit price of the perennial plant pay item.

b) The unit price shall include the cost of all materials, equipment, labor, plant care, removal, disposal and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer.

PLANTING SOIL MIX FURNISH AND PLACE

Description: This work shall consist of furnishing, transporting, testing, preparing, and placing planting soil including finish grading to the depth specified in areas as shown in the plans or as directed by the Engineer. Work under this item shall be performed in accordance with Section 200 of the Standard Specifications for Road and Bridge Construction except as modified herein.

General Requirements: In general, the planting soil shall be two (2) parts pulverized top soil and one (1) part coarse sand. The sand, in the amount required to produce an acceptable planting soil, shall be added and mixed during the pulverization process only. The sand shall be of an FA 2 gradation.

Soil Stockpiling: The Contractor shall obtain the total quantity of planting soil required for this project and stockpile this material at an acceptable offsite location a minimum of 30 days in advance of placement. The stockpile must be covered to avoid excessive moisture content and erosion. The Contractor shall have the material tested following the guidelines presented below under Soil Testing and, if approved, this stockpile shall be the sole source for planting soil to be delivered to site. The test results and a Request for Inspection form should be sent to the Engineer prior to delivering the material to site. This transmittal must also identify the location of the stockpile. If there are any changes in the source the Contractor shall notify the Engineer

immediately. No additional time will be allowed for the completion of this project in order to substitute, test, and approve a new source of planting soil.

Delivery, Storage and Handling: Protect soil from absorbing excess water and from erosion at all times. Do not store materials unprotected from large rainfall events. Do not allow excess water to enter site prior. Remove weeds prior to inspection.

Soil Testing: No planting soil shall be delivered to the site until the Engineer has reviewed test results and has accepted the planting soil. The Contractor shall employ a soil testing agency acceptable to the Engineer, which uses test methods approved by the Association of Agricultural Chemists. Test frequency shall be as follows:

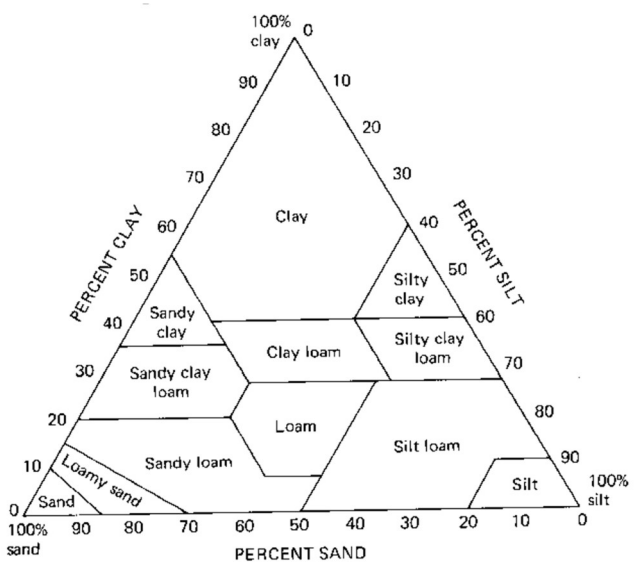
Quantity of Soil Placed (c.y.)	Number of Tests
1 – 200	1
200 – 1000	3
1000 <	((Quantity – 1000) / 500) + 3 round up to whole number

When more than one test is performed, the average of the test results will be used to determine acceptance.

The planting soil test report must obtain the following information:

		HIGH	LOW
1.	Chemical Analysis:		
	a. pH	7.0	6.5
2.	Mechanical Analysis		
	a. % clay	25%	0%
	b. % silt	77%	45%
	c. % sand	33%	25%
3.	Additionally, the following variables are required.		

- cation exchange capacity (CEC)
- soluble salts
- organic matter
- phosphorous
- available potassium
- nutrients
- residual chemicals
- Recommendations to mitigate any issues from the results in items 3a through 3g.



The mechanical analysis should show that the % sand, % silt, and the % clay must yield a silt loam soil. See the attached Textural Classes diagram above. To determine the class plot a line parallel to the % clay axis starting the line at the value of the % silt. Plot another line parallel to the % sand axis starting the line at the value of the % clay. The intersection of these lines should be in the silt loam or loam region, for the soil to be approved.

Preparation and Placement:

1. Perform or coordinate final adjustments of any utility structure.

2. Clean planting areas of all trash and debris before placement of soil mix. Remove and legally dispose of debris off site in accordance with Article 202.03. Repair to the satisfaction of the Engineer any portion of the geotechnical fabric or drainage layers prior to installation of planting soil mix.

3 Place, spread and rough grade specified planting soil to depths specified in all areas to be planted. Place planting soil mix in two level (2) lifts. The first lift shall contain 2/3 of the planter soil depth. After placing each lift, moisten the surface at a rate sufficient to hydraulically settle the soil, as determined by the Engineer. Allow water to thoroughly percolate through the soil before placing the next lift. Allow for settling, and place additional planting soil as necessary. Allow for placement and mixing of compost, as determined by the Engineer, but place enough soil mix to meet finish grades within =/- 0.10 foot of design grades.

4 Rake smooth and finish grade all planted areas. The removal of excess material or the addition of planting soil may be required prior to landscaping. This shall be considered incidental to planting soil. Grading will be to a tolerance +/- .10 foot of design grades. Any grade disturbed by irrigation installation shall be restored to finish grade and raked smooth.

5 All debris, litter, tire tracks, dirt, and unintended materials shall be removed, swept or washed off of all landscape, hard surfaces, and pavement on a daily basis.

Planting Soil Acceptance:

The Engineer retains the right to visually inspect planting soil mix on site before placement. The Engineer may ask that material suspected of not meeting specification be removed from the site, until the material can be mechanically tested.

The final determination of the planter soil quality shall be based upon soil tests taken by the Engineer. The samples shall be taken at the time of planting soil installation. The samples will be tested by independent accredited agencies, for the Engineer. The test frequency shall be the same as listed above. When more than one test is required, the percentages of sand, silt and clay will be averaged. This averaged value will be used to determine the soil quality.

Average Sand or Silt Deficiency	Percent of Contract Payment
0 to 2	80
2.1 to 4	66
4.1 to 5	50

If the averaged test result for sand or silt content is outside the range specified by less than five (5%) percent, an adjusted unit price will be used in computing payment for the planting soil. The adjusted unit price will be a percentage of the contract unit price as given in the following schedule:

Clay content in excess of this specification by two (2%) percent or less: If the averaged result for clay is outside the range specified by less than two (2%) percent an adjusted unit price will be used in computing payment for the planting soil. The adjusted unit price will be sixty-six (66%) percent of the contract unit price.

The Contractor shall remove all planting soil and install material meeting this specification. The Contractor shall be responsible for all costs incurred to remove deficient material and install acceptable planting soil. The Contractor shall be responsible for any damage to plant material, irrigation system, waterproof membrane, or any other damage caused by this work. The Contractor shall be responsible for all additional traffic control. No addition time will be provided in the contract to perform remedial work.

Method of Measurement: Planting Soil Mix Furnish and Place will be measured for payment in place to the depth specified in square yards. Areas not meeting the depth specified shall not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per SQUARE YARD for PLANTING SOIL MIX FURNISH AND PLACE, of the thickness specified. Payment shall include all testing, furnishing, stockpiling, transporting of materials, all labor and equipment necessary, disposal and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer. Furnishing and Placing Compost shall be paid for separately.

PLUG EXISTING STORM SEWERS

Description
This work shall consist of plugging and abandoning existing storm sewers where shown on the plans in existing manholes, at right-of-way lines or as directed by the engineer. The pipe end

shall be capped with bricks and mortar to seal the pipe invert with 24" of lateral length along each pipe to be filled with a slurry seal or other method approved by the engineer. This work shall be in conformance with Article 550 of the Standard Specifications.

Method of Measurement
This work shall be measured for payment by CUBIC YARD of brick and mortar and slurry seal for each storm sewer to be plugged.

Basis of Payment
This work shall be paid for at the contract unit price per CUBIC YARD for PLUG EXISTING STORM SEWERS. This item includes all material, excavation, and labor to complete the operation as described.

PORTLAND CEMENT CONCRETE PAVEMENT

Description.
This work shall consist of a pavement composed of portland cement concrete with or without reinforcement, constructed on a prepared subgrade, or subbase, with or without forms.

Materials.
Materials shall be according to Article 420.02 of the Standard Specifications.

Equipment.
Equipment shall be according to Article 420.03 of the Standard Specifications.

CONSTRUCTION REQUIREMENTS

This work shall be performed in accordance with Articles 420.04 through 420.18 of the Standard Specifications and the following.

Replace Article 420.09(e)(1) of the Standard Specifications with the following:

(1) "Type A. Texturing of the top of plastic concrete shall be obtained by the use of an artificial turf drag followed immediately by a mechanically operated metal comb longitudinal tining device.

The artificial turf shall be made of molded polyethylene with synthetic turf blades approximately 0.85 in. long and containing approximately 7,200 individual blades per square foot. The drag shall be suitably attached to an approved device that permits control of the time and rate of texturing. The artificial turf shall be full pavement width and of sufficient size that during the finishing operation; approximately 2 feet of the turf parallel to the pavement centerline shall be in contact with the pavement surface. The drag shall be operated in a longitudinal direction so as to produce a uniform appearing finish meeting the approval of the Engineer. If necessary for maintaining intimate contact with the pavement surface, the drag may be weighted down using lumber, rebar, or other suitable material.

The metal comb shall consist of a single line of tempered spring steel tines spaced at 3/4 in. centers and securely mounted in a suitable head. The tines shall be flat and of a size and stiffness sufficient to produce a groove of the specified

dimensions in the plastic concrete without tearing of the pavement edge or surface. The Contractor shall modify the equipment or operations if an acceptable pavement edge or surface is not produced. The mechanically operated metal comb shall be attached to an exclusive piece of equipment which is mechanically self-propelled. The tining device shall be operated so as to produce a relatively uniform pattern of grooves parallel to the pavement centerline spaced at approximately 3/4 in. centers, 1/8 to 3/16 in. deep, and 3/16 in. wide. Longitudinal tining shall stop at 2 in. from the edge of travel lanes or longitudinal sawed joints. Do not tine, but instead apply an artificial turf drag finish, within 2 inches of a longitudinal sawed joint. Tining devices shall be maintained clean and free from encrusted mortar and debris to ensure uniform groove dimensions. The tining finish shall not be performed too soon after pavement placement whereby the grooves may close up. The tining grooves shall be neat in appearance, parallel with the longitudinal joint, uniform in depth and in accordance with these specifications.

Hand tining or tining with a mechanically operated comb combined with the curing equipment specified in Article 1101.09 of the Standard Specifications will be permitted where the specifications permit hand finishing or vibratory screeds, one lane construction up to 16 ft. wide, gaps, projects with a net length of 1/2 mile or less, and where the production rate on any paving day will be less than 1,500 cubic yards per day. A foot bridge shall be provided for the hand tining operation for all pavements over 12 ft. wide, unless it can be demonstrated to the satisfaction of the Engineer that an alternate texturing operation produces satisfactory results."

Method of Measurement.
This work will be measured according to Article 420.19 of the Standard Specifications.

Basis of Payment.
This work will be paid for according to Article 420.20 of the Standard Specifications.

PRECAST REINFORCED CONCRETE FLARED END SECTIONS

Description. This work shall consist of constructing the precast reinforced concrete flared end section in accordance with Section 542 of the Standard Specifications, the details in the plans, and the following:

Construction Requirements. The pay item shall include grating for end sections 24" and larger as shown in the detail in the plans. The cost of materials and labor for the grating and installation of the grating shall be included in this pay item.

Method of Measurement. This work will be measured in place per each end section.

Basis of Payment. This work will be paid for at the contract unit price per EACH for PRECAST REINFORCED CONCRETE FLARED END SECTIONS of the size specified which price shall include all equipment, labor, and materials needed in accordance with the provisions herein.

PROPOSED STORM SEWER CONNECTION TO EXISTING STORM SEWER

Description
This work shall govern the placement of a concrete collar to support the connection between an existing storm sewer pipe and a proposed storm sewer pipe in locations as shown on the plans to the satisfaction of the Engineer. Reinforced concrete collars shall be constructed according to Section 503 and Section 542.08 of the Standard Specifications.

Concrete jointing collar shall be rectangular shaped and extend 1'-0" minimum from center along each pipe in which the existing and proposed pipe ends are to be joined and supported by #4 reinforcing bars. Collar shall extend a minimum of 0'-6" around the outer wall of the pipe in all directions.

After centering pipe ends—which may include cutting the existing or proposed pipe to create a flush connection—joints shall be wrapped with a 3" wide polyvinyl tape or rubber adapter.

Materials
Concrete shall be Portland Cement Concrete Class SI and shall conform to Section 1020 of the standard specifications. Reinforcement bars shall be #4 bars and placed no less than 0'-2" from the external edge of the collar.

Method of Measurement
This work will be measured for payment in place as EACH for PROPOSED STORM SEWER CONNECTION TO EXISTING STORM SEWER made and shall include pipe cutting, concrete, reinforcing bars, excavation, polyvinyl tape, and all other materials necessary for construction.

Basis of Payment
This work will be paid for as EACH for PROPOSED STORM SEWER CONNECTION TO EXISTING STORM SEWER made. The unit price shall include all equipment, materials and labor required to construct the concrete jointing collar.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (PROJECT SPECIFIC)

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.

Soil Disposal Analysis. When the waste material requires sampling for landfill disposal acceptance, the Contractor shall secure a written list of the specific analytical parameters and analytical methods required by the landfill. The Contractor shall collect and analyze the required number of samples for the parameters required by the landfill using the appropriate analytical procedures. A copy of the required parameters and analytical methods (from landfill email or on landfill letterhead) shall be provided as Attachment 4A of the BDE 2733 (Regulated Substances Final Construction Report). The price shall include all sampling materials and effort necessary for collection and management of the samples, including transportation of samples from the job site to the laboratory. The Contractor shall be responsible for determining the specific disposal

facilities to be utilized; and collect and analyze any samples required for disposal facility acceptance using a NELAP certified analytical laboratory registered with the State of Illinois.

PESA Site #2: Randall Road at Ackman Road Intersection, Crystal Lake, IL

- Station 2296+19 to Station 2296+89 for the full width of construction RT of the Randall Road centerline and Station 2296+84 to Station 2297+05 for the full width of construction LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-16). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) manganese exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #3: 451 Ackman Road, Crystal Lake, IL (Hope Church)

- Station 2292+19 to Station 2294+53 for the full width of construction LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 10 feet at SB-15). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2294+53 to Station 2296+84 for the full width of construction LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-16). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) manganese exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #4: Southeast Corner of Randall Road at Ackman Road Intersection, Crystal Lake, IL (Vacant Land – Former Fuhler Property)

- Station 2292+84 to Station 2294+53 for the full width of construction RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 10 feet at SB-15). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill

operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.

- Station 2294+53 to Station 2296+19 for the full width of construction RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-16). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) manganese exceeds the Maximum Allowable Concentration (MAC) values.

<u>PESA Site #5: Residences Adjacent to Project Corridor, Lake in the Hills, IL and Crystal Lake, IL (Residences)</u>

- Station 2231+34 to Station 2232+02 for the full width of construction RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-5). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2232+02 to Station 2235+80 for the full width of construction corridor RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese and pH (0 to 5 feet at SB-28). The excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soil cannot be utilized with the right-of-way, it shall be managed and disposed of at a landfill as non-special waste for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2252+34 to Station 2257+05 for the full width of construction RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-23). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) manganese exceeds the Maximum Allowable Concentration (MAC) values.

- Station 2257+05 to Station 2262+17 for the full width of construction corridor RT of the Randall Road centerline and Station 2259+63 to Station 2262+17 for the full width of construction LT of the Randall Road centerline, including along Village Road. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 25 feet at SB-9). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2267+40 to Station 2270+17 for the full width of construction LT and RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 25 feet at SB-11). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2283+01 to Station 2285+32 for the full width of construction LT of the Randall Road centerline, including along Alexandra Boulevard. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 15 feet at SB-18). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2290+70 to Station 2292+19 for the full width of construction LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 10 feet at SB-15). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.
- Station 106+25 to Station 112+70 for the full width of construction LT of the Miller Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 5 feet at SB-25). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #6: 8716 Randall Road, Lake in the Hills, IL (Vacant Land – Former Rothschild 3 Site)

- Station 2290+70 to Station 2292+84 for the full width of construction RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 10 feet at SB-15). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #7: 1501LT Carlemont Drive, Crystal Lake, IL (Vacant Land – Former Farmstead)

- Station 2273+50 to Station 2283+01 for the full width of construction LT of the Randall Road centerline, including along Angela Lane and Alexandra Boulevard. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-20, 0 to 15 feet at SB-19, and 0 to 15 feet at SB-13). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) manganese exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #8: Vacant Land Adjacent to Project Corridor, Lake in the Hills, IL and Crystal Lake, IL (Vacant Land)

- Station 2217+71 to Station 2218+31 for the full width of construction corridor RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese and pH (0 to 5 feet at SB-2). The excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soil cannot be utilized with the right-of-way, it shall be managed and disposed of at a landfill as non-special waste for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2218+31 to Station 2220+78 for the full width of construction corridor RT of the Randall Road centerline and Station 2218+99 to Station 2220+78 for the full width of construction LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 5 feet at SB-31). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.

- Station 2220+78 to Station 2224+02 for the full width of construction corridor LT and RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) lead (0 to 5 feet at SB-3). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) lead exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2228+09 to Station 2232+02 for the full width of construction LT of the Randall Road centerline and Station 2228+09 to Station 2231+34 for the full width of construction corridor RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-5). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2232+02 to Station 2235+80 for the full width of construction corridor LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese and pH (0 to 5 feet at SB-28). The excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soil cannot be utilized with the right-of-way, it shall be managed and disposed of at a landfill as non-special waste for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2252+34 to Station 2257+05 for the full width of construction LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 10 feet at SB-23). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2257+05 to Station 2259+63 for the full width of construction LT of the Randall Road centerline, including along Village Road. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3).

Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 25 feet at SB-9). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.

- Station 2270+17 to Station 2285+32 for the full width of construction RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 25 feet at SB-11, 0 to 10 feet at SB-20, 0 to 15 feet at SB-19, 0 to 15 feet at SB-13, and 0 to 15 feet at SB-18). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 112+70 to Station 116+03 for the full width of construction LT of the Miller Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 15 feet at SB-26). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.

<u>PESA Site #9: 435 Angela Lane, Crystal Lake, IL (Randall Road Commercial Plaza)</u>

- Station 2270+17 to Station 2273+50 for the full width of construction LT of the Randall Road centerline, including along Angela Lane. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(2). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese (0 to 25 feet at SB-11 and 0 to 10 feet at SB-20). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.

<u>PESA Site #10: Southwest Corner of Randall Road at Miller Road Intersection, Crystal Lake, IL (Park – Former Beverly Gravel Inc./Town & Country Homes)</u>

- Station 113+14 to Station 116+03 for the full width of construction RT of the Miller Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling

parameter: Benzo(a)pyrene (0 to 15 feet at SB-26). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #12: 320 N Randall Road, Lake in the Hills, IL (Arby's)

- Station 2216+39 to Station 2218+31 for the full width of construction corridor LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese and pH (0 to 5 feet at SB-2). The excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soil cannot be utilized with the right-of-way, it shall be managed and disposed of at a landfill as non-special waste for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.
- Station 2218+31 to Station 2218+99 for the full width of construction corridor LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(3). Contaminants of concern sampling parameter: Benzo(a)pyrene (0 to 5 feet at SB-31). 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 clean construction demolition debris (CCDD) or uncontaminated soil fill operation (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, for the following reason: (1) Benzo(a)pyrene exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #13: 441 N Randall Road, Lake in the Hills, IL (Acorn Cleaners)

- Station 2213+87 to Station 2215+01 for the full width of construction corridor RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameter: multiple semi-volatile organic compounds (SVOCs) and pH (0 to 5 feet at SB-1). The excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soil cannot be utilized with the right-of-way, it shall be managed and disposed of at a landfill as non-special waste for the following reason: (1) multiple (SVOCs) exceed the Maximum Allowable Concentration (MAC) values.
- Station 2216+39 to Station 2217+71 for the full width of construction corridor RT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameter: Synthetic Precipitation Leaching Procedure (SPLP)/Toxicity Characteristic Leaching Procedure (TCLP) manganese and pH (0 to 5 feet at SB-2). The excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soil cannot be utilized with the right-of-way, it shall be managed and disposed of at a landfill as non-special waste for the following reason: (1) SPLP/TCLP manganese exceeds the Maximum Allowable Concentration (MAC) values.

PESA Site #14: 310 N Randall Road, Lake in the Hills, IL (Chase Bank – Former Bank One)

- Station 2214+14 to Station 2215+01 for the full width of construction corridor LT of the Randall Road centerline. The Engineer has determined this material meets the criteria of and shall be managed in accordance with Article 669.05(a)(1). Contaminants of concern sampling parameter: multiple semi-volatile organic compounds (SVOCs) and pH (0 to 5 feet at SB-1). The excavated soil can be utilized within the right-of-way as embankment or fill, when suitable. If the soil cannot be utilized with the right-of-way, it shall be managed and disposed of at a landfill as non-special waste for the following reason: (1) multiple (SVOCs) exceed the Maximum Allowable Concentration (MAC) values.

Work Zones
Three distinct OSHA HAZWOPER work zones (exclusion, decontamination, and support) shall apply to projects adjacent to or within sites with documented leaking underground storage tank (LUST) incidents, or sites under management in accordance with the requirements of the Site Remediation 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**

Additional information on the above sites is available from the contact information listed under AVAILABLE REPORTS.

REMOVE AND RELAY END SECTIONS

Description. This work shall consist of removing culvert end sections of all types, sizes, and materials, and reset them in accordance with the applicable portions of Section 542 of the Standard Specifications, the details in the plans, and the following.

Construction Requirements. End sections scheduled to be reset shall be re-installed at the locations and grades noted on the plans or as directed by the Engineer. The contractor shall exercise care when removing and storing each end section such that damage to the existing end section does not occur and allows for reuse. Payment to replace end sections damaged due to negligence during removal or storage will not be allowed.

Earth excavation, grading, shaping, and compacting of earth to provide safe removal and resetting of each end section shall be included in the unit price of this item.

Method of Measurement. This work will be measured in place per each culvert end section removed and reset.

Basis of Payment. This work will be paid for at the contract unit price per EACH for REMOVE AND RELAY END SECTIONS which price shall include all equipment, labor, and materials needed in accordance with the provisions herein.

REMOVE EXISTING FLARED END SECTION

Description
This work shall consist of the removal and disposal of flared end section(s) as shown on the Plans in accordance with Section 551.

Basis of Payment
This work shall be measured and paid for at the contract unit price per EACH for REMOVE EXISTING FLARED END SECTION and shall include all labor, excavation, backfill, material, and equipment to complete this item as specified.

REMOVE EXISTING VALVE AND VAULT

Description: This work shall consist of the removal of existing valve vaults, frames and lids at the locations shown on the plans and as directed by the Engineer and in accordance with the Standard Specifications for Water and Sewer Construction in Illinois, current edition. The valve and vault shall be removed and disposed of offsite. All work shall conform to Section 605 with the addition that the existing water main shall be cut on both sides of the valve vault to facilitate removal of entire structure. Existing pipe ends shall be grouted if not removed as part of plan. Existing frame and lids shall be stockpiled onsite for pickup by City of Crystal Lake and cost shall be considered incidental to this item.

Method of Measurement: This work will be measured for payment in place as EACH for REMOVE EXISTING VALVE AND VAULT.

Basis of Payment: This work will be paid for as EACH for REMOVE EXISTING VALVE AND VAULT.

RESTRICTED DEPTH DRAINAGE STRUCTURES

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

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

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

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

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

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

RIVER ROCK

Description
This work shall be performed in accordance with applicable portions of Section 281 and 282 of the Standard Specifications, with detail drawings found in the plans, and as directed by the Engineer. This work shall be performed within the locations shown on the plans.

The river rock is designed to prevent scour along the stream banks and to create riffles for aquatic habit.

Materials
The river rock shall be constructed per the detail in the plans. The bedding stone shall be Stone Riprap Class A1. The footer and header stones shall be natural boulders and shall have a d50 (in.) of 19 in. and a dMax (in.) of 29 in.. The construction of the river rock must be completed by placing the header and footer boulders one at a time. Dumped stone will not be acceptable. Please see the detail in the plans.

Stone has been sized as having a unit weight of 165 PCF. No stone shall be less than 150 PCF and its size shall be increased relative to its unit weight.

Installation of filter fabric is not required under the river rock.

Stone shall be angular in shape and neither breadth nor thickness of a single stone should be less than 1/3 its length. Stone shall be blocky rather than elongated. Stone shall have sharp, angular, clean edges at the intersections of relatively flat surface and should be nested together. **Round stones or boulders will not be allowed.**

Construction Methods
All footer stones shall be buried such that 1/3 of the stone is exposed and 2/3 of the stone is below grade. All footer stones shall be in contact with the stone adjacent to it. The header stones shall be 2/3 exposed and 1/3 buried and abut the footer stones by at least 1/3. Please see the detail in the plans for a depiction of this structure. The middle 1/3 of the structure is slightly lower than the thirds that tie into the banks. This slight depression further focuses the water into the middle of the stream channel.

The Contractor shall guarantee in-stream and bank structures shall remain in place throughout one full year after project completion. Repairs shall be done with light tracked equipment to minimize disturbance to established areas and disturbance that exposes bare soil must be

stabilized with materials per the design plans. The County reserves the right to change these directives if they are deemed to impose too much of an impact upon the project area. Repairs may be done with nominal dewatering techniques such as sandbag diversions.

Method of Measurement
This work shall be measured for payment in tons.

Basis of Payment
This work shall be paid for at the contract unit price per TON for RIVER ROCK which price shall include all excavation, stone bedding, stone boulders, labor, machinery and other materials and work required to construct the work as specified.

MANHOLES, SANITARY, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID
SANITARY MANHOLES TO BE ADJUSTED
SANITARY MANHOLES TO BE RECONSTRUCTED

Description
This work shall consist of constructing, adjusting, or reconstructing sanitary manholes with frame and lid.

PART 1 GENERAL

1.1 SUMMARY
- A. Section Includes:
  1. Modular precast concrete manhole sections with tongue-and-groove joints with masonry transition to cover frame, covers, anchorage, and accessories.
  2. MH Reconstruction
  3. MH Adjustments

1.2 REFERENCES
- A. Standard Specifications for Sewer & Water Construction in Illinois ("Standard Specifications')
- B. American Concrete Institute:
  1. ACI 318 - Building Code Requirements for Structural Concrete.
- C. ASTM International:
  1. ASTM A48 - Standard Specification for Gray Iron Castings.
  2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  3. ASTM A536 - Standard Specification for Ductile Iron Castings.
  4. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  5. ASTM C55 - Standard Specification for Concrete Brick.
  6. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
  7. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
  8. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.

9. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

1.3 DESIGN REQUIREMENTS

A. Equivalent strength: Based on structural design of reinforced concrete as outlined in ACI 318.
B. Design of Lifting Devices for Precast Structures: In accordance with ASTM C913.
C. Design of Joints for Precast Structures: In accordance with ASTM C913.

1.4 SUBMITTALS

A. Shop Drawings: Indicate manhole locations, rim elevations, piping and conduit sizes, and elevations of penetrations.
B. Product Data: Submit manhole covers, component construction, features, configuration, and dimensions.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with applicable State and Local Codes governing Work.

1.6 DELIVERY, STORAGE AND HANDLING

A. Comply with precast concrete manufacturer's instructions for unloading, storing and moving precast manholes and drainage structures.
B. Store precast concrete manholes and drainage structures to prevent damage to Owner's property or other public or private property. Repair property damaged from materials storage.
C. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.

PART 2 PRODUCTS

2.1 MANHOLES, FRAMES, AND COVERS

A. Frames and covers
    a. ASTM A48 Class 30B Cast iron construction, machined flat bearing surface, gasketed, self-sealing, bolted.
    b. 1.5-inch recessed flush lettering stating "LAKE IN THE HILLS SANITARY DISTRICT"
B. Manhole Sections:
    1. Reinforced precast concrete:
        a. Conforming to Section 32 of the Standard Specifications and in accordance with ASTM C478, with gaskets in accordance with ASTM C923. Minimum wall thickness shall be 5 inches; minimum inside diameter shall be 48 inches.
        b. Manhole section joints shall be tongue and groove. Preformed flexible gaskets to be used for sealing structure sections shall conform to the requirements of ASTM C990 and ASTM C443. External joint wrap systems shall conform to the requirements of ASTM C877 and Section 32 of the Standard Specifications.
C. Doghouse Manhole Base:
    1. Doghouse Manhole Base shall be an 8-inch cast in place bottom. Base shall include integral pour for base and bench.

2. Concrete bonding agent must be applied to all interfaces of precast concrete surfaces and cast-in-place surfaces.

D. Mortar and Grout: As specified in Section 32 of the Standard Specifications.

E. Reinforcement: Steel reinforcement shall conform to Section 32 of the Standard Specifications.

F. Configuration
1. Manhole configurations shall be as shown on the Drawings.
2. Design Depth: Provide depth to accommodate to elevations indicated on Drawings.
3. Clear Cover Opening: 26 inches or as indicated on Drawings.
4. Pipe and Conduit Entry: Furnish openings as indicated on Drawings.
5. Manholes shall be precast construction
6. Furnish manholes with 4-foot diameter
7. Establish flowline and rim elevations per the work.
8. Provide manhole riser sections in a combination of lengths which will minimize the number of joints.

2.2 COMPONENTS

A. Manhole Steps: ½-inch diameter grade 60 steel reinforcement rod encapsulated in copolymer polypropylene. Steps shall be as manufactured by M.A. Industries, Inc.

B. Base Pad: Minimum of 6” crushed rock conforming to ASTM D448 - No. 67, compacted to 95% Standard Proctor Density.

C. Manhole Extensions: Concrete grade rings or HDPE adjusting rings for extensions shall conform to Section 32 of the Standard Specifications.

D. Pulling Irons: Galvanized steel bent bar as shown on the Drawings. Galvanize to ASTM A-153.

E. Pipe Connectors: All connections between pipes and manholes shall be made through watertight resilient connectors meeting the requirements of ASTM C923. Resilient connectors shall be cast in place in the manhole walls and shall provide a watertight, flexible seal between the pipe and manhole. Connectors shall be as manufactured by A-Lock products, Inc..

F. Chimney Seals: Provide external type seal. Seals shall be a flexible rubber boot that seals from the manhole frame to manhole cone section. Boot thickness shall 3/16 inch minimum. Compressions rings required, top and bottom, 16 gauge minimum, type 304 stainless steel with stainless steel adjusters. Chimney seals shall be Adapter, Inc., Cretex,.

G. Joint Sealing: 1-1/4-inch Buty L-Lok Preformed tape.

H. Joint Wrap: All joints shall be wrapped and sealed with a minimum nine (9) inch wide exterior joint wrap meeting ASTM C-877, Type III.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of existing conditions before starting work.
1. Verify items provided by other sections of Work are properly sized and located.
2. Verify built-in items are in proper location, and ready for roughing into Work.
3. Verify correct size of manhole excavation.

3.2 PREPARATION

A. Coordinate placement of inlet and outlet pipe

B. Inspect precast concrete structures immediately prior to placement in excavation to verify structures are internally clean and free from damage. Remove and replace damaged units.

3.3 INSTALLATION

A. Excavation and Backfill:

1. Excavate for manholes and drainage structures in accordance with specifications location and to depth shown. Provide clearance around sidewalls of structure for construction operations.
2. When groundwater is encountered, prevent accumulation of water in excavations. Place manholes or drainage structures in dry trench.
3. Where possibility exists of watertight structure becoming buoyant in flooded excavation, anchor structure to avoid flotation.

B. Install manholes and drainage structures supported at proper grade and alignment on compacted crushed stone bedding.

C. Place base pad, trowel top surface level.

D. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.

E. Backfill excavations for manholes and drainage structures in accordance with specifications.

F. Place manhole cylinder plumb and level, to correct dimensions and elevations.

G. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour to form continuous drainage channel as indicated on Drawings.

H. Set cover frames and covers level without tipping, to correct elevations.

I. Coordinate with other sections of Work to provide correct size, shape, and location.

3.4 TEMPORARY SANITARY BYPASS SYSTEM

A. The County shall cause the Improvement to be constructed in accordance with maintaining District Facilities throughout and shall coordinate with the District to ensure uninterrupted operation.

B. The Contractor shall provide all necessary material, labor, equipment, and fuel to implement a temporary pumping system for the purpose of diverting sewage around each sanitary sewer manhole to permit construction modifications to occur in the existing or proposed manhole.

C. The Contractor shall be responsible for the design, installation, and operation of all temporary bypass systems, capable of bypassing the 18-inch sanitary sewer on Miller Road and Randall Road, or the 8-inch sanitary sewer on Randall Road. The bypass systems shall be capable of bypassing a continuous flow.

D. Temporary bypass piping or flow through plugs shall be provided to divert the flow through or from manholes by use of temporary piping.

E. For any bypass pumping that occurs after working hours the Contractor shall also provide an independent standby system, capable of bypassing the flow continuously for each sanitary sewer. The standby system shall be provided with its own dedicated piping. The standby system shall be available as an emergency back-up to the temporary bypass system.

F. The Contractor shall submit a detailed description of the temporary bypass system to the District. The submittal shall include all pumping equipment. The submittal shall also include pump manufacturer’s pump performance curves. The size, type, and routing of all suction and discharge piping shall be provided.

G. The Contractor shall give the District prior notice, at least two weeks in advance, of intent to commence bypass operations.
H. The Contractor shall provide adequate supervision, fuel, and materials to ensure continuous operation of the temporary bypass system. The Contractor shall be liable for damage or fines caused by the failure to maintain continuous operation of the temporary bypass system.

3.5 PRECAST CONCRETE MANHOLE AND DRAINAGE STRUCTURE INSTALLATION
A. Lift precast structures at lifting points designated by manufacturer.
B. When lowering manholes and drainage structures into excavations and joining pipe to units, take precautions to ensure interior of pipeline and structure remains clean.
C. Set precast structures bearing firmly and fully on crushed stone bedding, compacted in accordance with provisions.
D. Assemble multi-section structures by lowering each section into excavation. Lower, set level, and firmly position base section before placing additional sections.
E. Remove foreign materials from joint surfaces and verify sealing materials are placed properly. Maintain alignment between sections by using guide devices affixed to lower section.
F. Joint sealing materials shall be installed on site.
G. Set casting frames and adjusting rings on joint sealing tape and back-plaster the inside and outside of the joint with mortar.
H. Seal all manhole joints with joint wrap.
I. Verify manhole structures installed satisfy required alignment and grade.
J. Fill interior joints and lift holes with mortar.
K. Cut pipe to finish flush with interior of structure.

3.6 CAST IN PLACE CONCRETE MANHOLE BASE
A. Cast in Place Concrete shall meet the specifications of Section 32 of the Standard Specifications.

3.7 CASTINGS INSTALLATION
A. Set frame and cover 2 inches above finished grade for manholes and other structures with covers located within unpaved areas to allow area to be graded away from cover beginning 1 inch below top surface of frame.
B. Manhole Extensions: The extensions shall be built in accordance with the details shown on the Drawings. The actual height of extensions shall be as determined by the Engineer.

3.8 FIELD QUALITY CONTROL
A. Quality Requirements: Field inspecting, testing, adjusting, and balancing.
B. Test cast-in-place concrete in accordance with specifications.
C. All new Sanitary Manholes shall be inspected and tested per ASTM C1244 “Standard Test Method for Concrete Sewer Manholes by Negative Pressure (Vacuum) Test.”
D. Vertical Adjustment of Existing Manhole and Drainage Structures:
1. Where required, adjust top elevation of existing manholes and drainage structures to finished grades shown on Drawings.

2. Reset existing frames, grates and covers, carefully removed, cleaned of mortar fragments, to required elevation in accordance with requirements specified for installation of castings.
3. Remove concrete without damaging existing vertical reinforcing bars when removal of existing concrete wall is required. Clean vertical bars of concrete and bend into new concrete top slab or splice to required vertical reinforcement, as indicated Drawings.
4. Clean and apply sand-cement bonding compound on existing concrete surfaces to receive cast-in-place concrete in accordance with specifications.

3.9 SANITARY SEWER MANHOLE

A. Basis of Payment

1. This work shall be paid for at the contract unit price per EACH for MANHOLES, SANITARY, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID and shall include new frame and cover, manhole sections, and all required components, complete, to install the proposed manhole MH to the required elevation. Including all labor and materials, complete, and the proper disposal of any removed material.

3.10 MH RECONSTRUCTION

A. Basis of Payment

1. This work shall be paid for at the contract unit price per EACH for SANITARY MANHOLES TO BE RECONSTRUCTED and shall include new frame and cover, manhole sections, and all required components, complete, to bring the existing MH to the required elevation. Including all labor and materials, complete, and the proper disposal of any removed material.

3.11 MH ADJUSTMENT

A. Basis of Payment

1. This work shall be paid for at the contract unit price per EACH for SANITARY MANHOLES TO BE ADJUSTED and shall include new frame and cover, manhole sections, and all required components, complete, to bring the existing MH to the required elevation. Including all labor and materials, complete, and the proper disposal of any removed material.

SANITARY SEWER 8”
SANITARY SEWER 18”
ABANDON AND FILL EXISTING SANITARY SEWER
ABANDON AND FILL EXISTING SANITARY MANHOLE

Description
This work shall consist of constructing sanitary sewer pipe and abandoning and filling existing sanitary sewer and manholes.

PART 1 GENERAL

1.1 SECTION INCLUDES
- A. PVC sewer pipe with bell and spigot joints.

1.2 REFERENCE SPECIFICATIONS
- A. Standard Specifications for Sewer & Water Construction in Illinois (“Standard Specifications’)
- B. ASTM F477: Elastomeric Seals (Gaskets) for joining Plastic Pipe.
- C. ASTM F679: PVC Large Diameter Plastic Gravity Sewer Pipe and Fittings
- D. ASTM F794: PVC Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
- E. ASTM D1784: Specification for Rigid PVC Compounds and CPVC Compounds.
- F. ASTM D3034: Type PSM PVC Sewer Pipe and Fittings.
- G. ASTM D3212: Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

1.3 SUBMITTALS
- A. Certification that the pipe materials comply with the requirements of this Specification Section.

PART 2 PRODUCTS

2.1 PIPE AND FITTINGS
- A. Gravity Sewer Material: Polyvinyl Chloride (PVC) sewer pipe, SDR 26, meeting the requirements of ASTM Specification D3034 for sewer pipe less than or equal to 15-inch diameter and meeting the requirements of the Standard Specifications.
- B. Water Main Quality Pipe Material: Polyvinyl Chloride (PVC) pressure pipe meeting the requirements of AWWA Standard, C-900, DR-25, with cast iron O.D. and integral elastomeric bell and spigot joints.
- C. Performance:
  1. Impact resistance: No shattering or splitting shall be evident (denting is not considered a failure) when tested in accordance with ASTM D2444.
  2. Pipe Stiffness:
     a. Performance: Minimum 46 psi "Pipe Stiffness" (F/ y) at 5% deflection for all pipe sizes.
     b. Test method: Testing in accordance with ASTM D2412, "External Loading Properties of Plastic Pipe by Parallel-Plate Loading.
  3. Joint tightness: Tested in accordance with ASTM D3212.

4. Flattening:
   a. Performance: No evidence of splitting, cracking, or breaking when tested.
   b. Test method: Flatten specimen of pipe, six inches long between parallel plates in a suitable press until the distance between the plates is forty percent of outside diameter of the pipe. The rate of loading shall be uniform and such that the compression is completed two to five minutes.
5. Testing temperature: 73º F ± 3º F.

D. Joints: Push-on type bell and spigot configuration compatible with that of the pipe and in accordance with ASTM D3212 requirements, with elastomeric ring gasket complying with ASTM F477.

E. Fittings: Fittings such as elbows, tees, wyes, and others shall be of material and construction corresponding to and have a joint design compatible with the adjacent pipe, meeting the requirements of ASTM D3212, ASTM F477, ASTM D3034.

2.2 LUBRICANT

A. Provide manufacturer's standard for pipe and gasket materials.

2.3 JOINTS FOR AWWA C-900

A. Joints shall be bell and spigot. Spigot pipe ends shall be factory supplied with bevels. The bell shall consist of an integral wall section with a solid cross section elastomeric ring and shall be as hydrostatically strong as the pipe wall.
   1. Elastomeric rings shall be factory installed butyl or hypalon rubber gaskets conforming to ASTM F477, "Elastomeric Seals (gaskets) for Joining Plastic Pipe".

PART 3 EXECUTION

3.1 HANDLING PIPE

A. Handle pipe in accordance with manufacturer's instructions. Do not handle pipe with chains or cables. Do not drop pipe.

3.2 CUTTING PIPE

A. Saw cut pipe in accordance with manufacturer's instructions. All cuts to be square, perpendicular to pipe axis, within tolerance of joints.

3.3 DRESSING CUT ENDS

A. Dress cut ends of pipe in accordance with the type of joint to be made.

B. Dress cut ends of mechanical joint pipe to remove sharp edges or projections that may damage the rubber gasket.

C. Dress cut ends of push-on joint pipe by leveling, as recommended by the pipe manufacturer.

3.4 JOINTING PIPE

A. Join pipe in accordance with the manufacturer's recommendations. Provide all special tools and devices, such as special jacks, chokers, and similar items required for proper installation. Lubricant for the pipe gaskets shall be furnished by the pipe manufacturer, and no substitutes will be permitted under any circumstances.

3.5 TEMPORARY SANITARY BYPASS SYSTEM

A. The County shall cause the Improvement to be constructed in accordance with maintaining District Facilities throughout and shall coordinate with the District to ensure uninterrupted operation.

B. The Contractor shall provide all necessary material, labor, equipment, and fuel to implement a temporary pumping system for the purpose of diverting sewage around each sanitary sewer manhole to permit construction modifications to occur in the existing or proposed manhole.

C. The Contractor shall be responsible for the design, installation, and operation of all temporary bypass systems, capable of bypassing the 18-inch sanitary sewer on Miller Road and Randall Road, or the 8-inch sanitary sewer on Randall Road. The bypass systems shall be capable of bypassing a continuous flow.

D. Temporary bypass piping or flow through plugs shall be provided to divert the flow through or from manholes by use of temporary piping.

E. For any bypass pumping that occurs after working hours the Contractor shall also provide an independent standby system, capable of bypassing the flow continuously for each sanitary sewer. The standby system shall be provided with its own dedicated piping. The standby system shall be available as an emergency back-up to the temporary bypass system.

F. The Contractor shall submit a detailed description of the temporary bypass system to the District. The submittal shall include all pumping equipment. The submittal shall also include pump manufacturer's pump performance curves. The size, type, and routing of all suction and discharge piping shall be provided.

G. The Contractor shall give the District prior notice, at least two weeks in advance, of intent to commence bypass operations.

H. The Contractor shall provide adequate supervision, fuel, and materials to ensure continuous operation of the temporary bypass system. The Contractor shall be liable for damage or fines caused by the failure to maintain continuous operation of the temporary bypass system.

3.6 TESTING

A. Leakage Testing: The "low pressure air test" method of leakage testing shall be required in accordance with the Standard Specifications. Testing shall be conducted by the Contractor under the observation of the Lake in the Hills Sanitary District.

B. Deflection Testing: Deflection testing of PVC sewer pipe shall be required in accordance with the Standard Specifications. Testing shall be conducted by the Contractor under the observation of the Lake in the Hills Sanitary District.

C. All sanitary sewer lines shall be televised after all tests have been completed and a hard copy record report of televising results shall be provided to the Lake in the Hills Sanitary District.

3.7 ABANDONMENT

A. Sanitary Sewer and Manholes shall be abandoned as called out on the drawings. Abandonment and filling shall meet MCDOT and IDOT standards.

3.8 SANITARY SEWER

A. Basis of Payment

1. This work shall be paid for at the contract unit price per lineal FOOT of SANITARY SEWER of the diameter specified and shall include all labor and material to install and test the sanitary sewer. Trench backfill shall be

included. The installation of any required water main quality pipe shall be incidental to the work.

3.9 SANITARY SEWER ABANDONMENT

A. Basis of Payment

1. This work shall be paid for at the contract unit price per EACH for ABANDON AND FILL EXISTING SANITARY SEWER, regardless of the diameter, and shall include all labor and materials.

3.10 MH ABANDONMENT

A. Basis of Payment

1. This work shall be paid for at the contract unit price per EACH for ABANDON AND FILL EXISTING SANITARY MANHOLE and shall include all labor and materials.

SANITARY SEWER REMOVAL AND REPLACEMENT

Description

The work of this Pay Item consists of the removal and replacement of existing sanitary sewers with Class 52 ductile iron pipe or water main quality PVC pipe, including sawcutting, and removal and disposal of existing pavement; protection, repair or replacement of utilities; excavation; removal and disposal of waste excavated material; trench dewatering, including erosion and sedimentation control; watertight connections to existing pipes or structures; installation of pipe; bracing, bedding and covering of pipe; granular trench backfill material at pipe crossing and below all pavement; and cleanup.

Comply with the requirements of the WATER MAIN provision wherever new water main crosses sewers or sewer service connections or is installed parallel within 10 feet horizontally of any sewer or drain.

Measurement

The work will be measured in lineal feet along the centerline of the sanitary sewer removed and replaced.

Basis of Payment

The work will be paid for at the Contract Unit Price per lineal FOOT for SANITARY SEWER REMOVAL AND REPLACEMENT, of the size indicated.

SEDIMENT CONTROL, STABILIZED CONSTRUCTION ENTRANCE

Description

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

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

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

Filter Fabric: The filter fabric shall be made of synthetic polymers composed of at least 85 percent by weight polypropylene, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene-chlorides. The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet lights.

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

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

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

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

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

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

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

SEEDING NO MOW
ZONE A SEED MIXTURE
ZONE B SEED MIXTURE
ZONE C SEED MIXTURE

Description: This work shall consist of preparing the seed bed and placing the seed and other materials in areas as shown on the plans or a directed by the Engineer.

Materials: Materials shall be according to Article 250.02 of the Standard Specifications.

Equipment: Equipment shall be according to Article 250.03 of the Standard Specifications.

CONSTRUCTION REQUIREMENTS

All work shall conform to the applicable sections of Section 250 of the Standard Specifications and the following:

Delete Article 250.04 of the Standard Specifications.

Revise Article 250.05 of the Standard Specifications to read:

250.05 Seed Bed Preparation. For bare earth seeding, seed bed preparation shall not be started until all requirements of Section 212 of the Standard Specifications have been completed. The area to be seeded shall be worked to a minimum depth of 3 in. (75 mm) with a disk, power rake, or other equipment approved by the Engineer, reducing all soil particles to a size not larger than 2 in. (50 mm) in the largest dimension. The prepared surface shall be free from all debris including but not limited to existing vegetation, clods, stones, roots, sticks, trash, rivulets, gullies, crusting, and caking.

Prior to seeding, areas not regraded and containing turf, old field, or other upland non-native herbaceous vegetation shall be herbicided at least one time during the growing season until 100% of the vegetation is dead following application methods in this section. The soil should then be scarified, and seeding shall be done no sooner than 2 weeks after the last herbicide treatment.

Herbaceous species to be removed in areas without standing water or saturated soils shall be treated with glyphosate, n-(phosphonomethyl) glycine, trade name RoundUp, as approved in writing by the Engineer. Herbaceous species to be removed in areas with standing water or saturated soils shall be treated with glyphosate, n-(phosphonomethyl) glycine in a form approved for aquatic applications such as Rodeo, Aqua Neat or equivalent as approved in writing by the Engineer. Other products such as grass-specific herbicides may be proposed by the Contractor and approved in writing by the Engineer.

Prior to seeding in areas with standing water or saturated soils, all non-native herbaceous vegetation shall be herbicided one time during the growing season, allowed to sit for at least four weeks, then herbicided a second time during the growing season until 100% of the vegetation is dead following the application methods in this special provision. The soil should then be scarified, and seeding shall be done no sooner than 2 weeks after the last herbicide treatment.

Prior to seeding, the Contractor shall check compaction of the topsoil (0 in. to 6 in. in depth) and normal subsoil depth (6 in. to 12 in. in depth). A hand operated cone penetrometer shall be used to confirm a 50 psi specification standard. All foreign matter larger than 3 in. in the largest dimension shall be removed from the areas to be seeded and disposed of according to Article 202.03 of the Standard Specifications. Prior to seeding, areas disturbed by construction operations shall be restored to grade, disked, raked, and checked for compaction as described in this Special Provision. Within 24 hours after seeding, the areas shall be blanketed with erosion control blanket or straw mulch per the plans and installed per manufactures' specifications. The seed bed shall comply with the preparation requirements of Article 251.04 for erosion control blanket or Article 251.05 for turf reinforcement mat prior to application of seed. No seeds shall be sown until the seed bed has been approved by the Engineer.

Add the following to Article 250.06 (a) of the Standard Specifications:

(5) Seeding shall be sown by broadcasting. If the soil is too wet or the grade is too steep (slopes over 1:3 (V:H)), a mechanical broadcast seeder, such as a cyclone, shall be used. Hand broadcasting is also allowed. All methods shall be approved by the Engineer prior to seeding.

Add the following to Table 1 in Article 250.07 of the Standard Specifications:

"CLASS TYPE
ZONE A WETLAND EMERGENT AND STORMWATER BIOINFILTRATION

WETLAND EMERGENT (ZONE A)

Scientific Name	Common Name	oz/acre	lbs/acre
Wildflowers			
Acorus calamus	Sweet Flag	5.00	
Alisma subcordatum	Mud Plantain	2.00	
Iris virginica shrevei	Southern Blue Flag Iris	3.50	
Mimulus ringens	Monkey Flower	0.20	
Sagittaria latifolia	Common Arrowhead	2.00	
Sparganium eurycarpum	Great Bur Reed	6.00	
	Total Wildflowers	**18.70**	**1.17**
Grasses, Sedges & Rushes			
Calamagrostis canadensis	Blue Joint Grass	1.25	
Carex comosa	Bristly Sedge	5.00	
Carex crinita	Fringed Sedge	2.00	
Carex hystericina	Porcupine Sedge	5.00	
Glyceria grandis	Reed Manna Grass	3.00	
Glyceria striata	Fowl Manna Grass	2.00	
Juncus effusus	Common Rush	0.30	
Leersia oryzoides	Rice Cut Grass	4.00	
Scirpus acutus	Hard-Stem Bulrush	1.00	
Scirpus atrovirens	Dark-Green Bulrush	2.00	
Scirpus cyperinus	Wool Grass	0.75	

Scientific Name	Common Name	oz/acre	lbs/acre
Scirpus fluviatilis	River Bulrush	2.50	
Scirpus pendulus	Red Bulrush	1.00	
Scirpus validus	Great Bulrush	2.50	
Spartina pectinata	Prairie Cordgrass	13.00	
	Total Grasses, Sedges & Rushes	**45.30**	**2.83**
	Total Wildflowers, Grasses, Sedges & Rushes	**64.00**	**4.00**
Temporary Cover Crop:			
Avena sativa	Common oats	320.00	20.00
Elymus virginicus	Virginia wild rye	32.00	2.00
	Total Cover Crop	**352.00**	**22.00**

STORMWATER BIOINFILTRATION (ZONE A)

Scientific Name	Common Name	oz/acre	lbs/acre
Wildflowers			
Alisma subcordatum	Mud Plantain	1.00	
Asclepias incarnata	Marsh (Red) Milkweed	2.00	
Aster novae-angliae	New England Aster	1.00	
Cassia hebecarpa	Wild Senna	6.00	
Eupatorium maculatum	Spotted Joe Pye Weed	0.50	
Eupatorium perfoliatum	Boneset	0.50	
Helianthus grosseserratus	Sawtooth Sunflower	0.75	
Liatris spicata	Marsh Blazing Star	1.50	
Mimulus ringens	Monkey Flower	0.15	
Monarda fistulosa	Wild Bergamot	1.25	
Parthenium integrifolium	Wild Quinine	2.00	
Penthorum sedoides	Ditch Stonecrop	0.10	
Pycnanthemum virginianum	Mountain Mint	0.50	
Rudbeckia hirta	Black-Eyed Susan	2.00	
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	2.00	
Silphium perfoliatum	Cup Plant	4.00	
Solidago riddellii	Riddell's Goldenrod	1.00	
Verbena hastata	Blue Vervain	2.00	
Vernonia fasciculata	Ironweed	1.50	
	Total Wildflowers	**29.75**	**1.86**
Grasses, Sedges & Rushes			
Carex grayi	Common Bur Sedge	4.00	
Carex lupulina	Common Hop Sedge	2.00	
Carex vulpinoidea	Brown Fox Sedge	1.00	
Elymus virginicus	Virginia Wild Rye	32.00	
Glyceria striata	Fowl Manna Grass	2.00	
Juncus dudleyi	Dudleys Rush	0.50	
Leersia oryzoides	Rice Cut Grass	8.00	

Scientific Name	Common Name	oz/acre	lbs/acre
Panicum virgatum	Switch Grass	4.00	
Poa palustris	Fowl Bluregrass	6.00	
Scirpus atrovirens	Dark-Green Bulrush	0.50	
Scirpus cyperinus	Wool Grass	0.25	
Scirpus validus	Great Bulrush	2.00	
Spartina pectinata	Prairie Cordgrass	4.00	
Total Grasses, Sedges & Rushes		**66.25**	**4.14**
Total Wildflowers, Grasses, Sedges & Rushes		**96.00**	**6.00**
Temporary Cover Crop:			
Avena sativa	Common Oats	320.00	20.00
Elymus virginicus	Virginia Wild Rye	32.00	2.00
Total Cover Crop		**352.00**	**22.00**

CLASS TYPE
ZONE B WET PRAIRIE AND SHORTGRASS PRAIRIE FOR MEDIUM SOILS

WET PRAIRIE (ZONE B)

Scientific Name	Common Name	oz/acre	lbs/acre
Wildflowers			
Anemone canadensis	Meadow Anemone	0.50	
Asclepias incarnata	Marsh (Red) Milkweed	4.00	
Aster novae-angliae	New England Aster	1.00	
Aster puniceus	Swamp Aster	1.00	
Baptisia leucantha (alba)	White Wild Indigo	2.00	
Cassia hebecarpa	Wild Senna	6.00	
Eupatorium maculatum	Spotted Joe Pye Weed	0.40	
Eupatorium perfoliatum	Boneset	0.50	
Gentiana andrewsii	Bottle Gentian	0.10	
Helenium autumnale	Sneezeweed	0.25	
Heliopsis helianthoides	Early Sunflower	1.50	
Liatris spicata	Marsh Blazing Star	1.00	
Lobelia siphilitica	Great Blue Lobelia	0.50	
Mimulus ringens	Monkey Flower	0.25	
Monarda fistulosa	Wild Bergamot	2.00	
Parthenium integrifolium	Wild Quinine	1.00	
Pycnanthemum virginianum	Mountain Mint	0.25	
Ratibida pinnata	Yellow Coneflower	3.00	
Silphium terebinthinaceum	Prairie Dock	1.00	
Solidago graminifolia	Grass-Leaved Goldenrod	0.10	
Solidago ohioensis	Ohio Goldenrod	1.00	
Solidago riddellii	Riddell's Goldenrod	1.50	
Verbena hastata	Blue Vervain	1.50	

Scientific Name	Common Name	oz/acre	lbs/acre
Veronicastrum virginicum	Culver's Root	0.25	
Zizia aurea	Golden Alexanders	4.00	
	Total Wildflowers	**34.60**	**2.16**
Grasses, Sedges & Rushes			
Bromus ciliatus	Fringed Brome	32.00	
Carex bebbii	Bebb's Oval Sedge	1.00	
Carex crawfordii	Crawford's Sedge	0.40	
Carex crinita	Fringed Sedge	1.00	
Carex scoparia	Lance-Fruited Oval Sedge	0.50	
Carex stipata	Common Fox Sedge	3.00	
Carex vulpinoidea	Brown Fox Sedge	1.50	
Elymus virginicus	Virginia Wild Rye	48.00	
Glyceria canadensis	Rattlesnake Grass	3.00	
Glyceria grandis	Reed Manna Grass	2.50	
Scirpus pendulus	Red Bulrush	0.50	
	Total Grasses, Sedges & Rushes	**93.40**	**5.84**
	Total Wildflowers, Grasses, Sedges & Rushes	**128.00**	**8.00**
Temporary Cover Crop:			
Avena sativa	Common Oats	320.00	20.00
Elymus virginicus	Virginia Wild Rye	32.00	2.00
	Total Cover Crop	**352.00**	**22.00**

SHORTGRASS PRAIRIE FOR MEDIUM SOILS (ZONE B)

Scientific Name	Common Name	oz/acre	lbs/acre
Wildflowers:			
Allium cernuum	Nodding Onion	6.00	
Amorpha canescens	Leadplant	2.50	
Asclepias tuberosa	Butterfly Weed	1.50	
Aster azureus	Sky Blue Aster	1.50	
Aster laevis	Smooth Blue Aster	2.00	
Aster novae-angliae	New England Aster	0.50	
Chamaecrista fasciculata	Partridge Pea	10.00	
Coreopsis palmata	Prairie Coreopsis	6.00	
Dalea candida	White Prairie Clover	4.00	
Dalea purpurea	Purple Prairie Clover	3.00	
Echinacea pallida	Pale Purple Prairie Clover	2.50	
Echinacea purpurea	Purple Coneflower	6.00	
Eryngium yuccifolium	Rattlesnake Master	3.00	
Heliopsis helianthoides	Early Sunflower	10.00	
Liatris pycnostachya	Prairie Blazing Star	2.50	
Monarda fistulosa	Wild Bergamot	1.50	
Penstemon digitalis	Foxglove Beard Tongue	0.50	

Scientific Name	Common Name	oz/acre	lbs/acre
Potentilla arguta	Prairie Cinquefoil	0.20	
Pycnanthemum virginianum	Mountain Mint	0.20	
Ratibida pinnata	Yellow Coneflower	4.00	
Rudbeckia hirta	Black-Eyed Susan	2.50	
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	2.00	
Silphium laciniatum	Compass Plant	0.50	
Solidago speciosa	Showy Goldenrod	1.00	
Tradescantia ohioensis	Ohio Spiderwort	1.50	
Veronicastrum virginicum	Culver's Root	0.10	
	Total Wildflowers	**75.00**	**4.69**
Grasses, Sedges & Rushes:			
Bouteloua curtipendula	Side Oats Grama	42.00	
Carex bicknellii	Copper-Shoulder Oval Sedge	1.00	
Elymus canadensis	Canada Wild Rye	32.00	
Elymus virginicus	Virginia Wild Rye	32.00	
Koeleria cristata (macrantha)	June Grass	2.00	
Schizachyrium scoparium	Little Bluestem	32.00	
	Total Grasses, Sedges & Rushes	**141.00**	**8.81**
	Total Wildflowers, Grasses, Sedges & Rushes	**216.00**	**13.50**
Temporary Cover Crop:			
Avena sativa	Common Oats	320.0	20.0
Elymus virginicus	Virginia Wild Rye	24.0	1.5
	Total Cover Crop	**344.0**	**21.5**

CLASS TYPE
ZONE C BIRD AND BUTTERFLY AND SHORTGRASS PRAIRIE FOR DRY SOILS

BIRD & BUTTERFLY (ZONE C)

Scientific Name	Common Name	oz/acre	lbs/acre
Wildflowers:			
Agastache foeniculum	Lavender Hyssop	0.50	
Allium cernuum	Nodding Onion	2.00	
Amorpha canescens	Leadplant	1.00	
Anemone cylindrica	Thimbleweed	0.75	
Aquilegia canadensis	Wild Columbine	0.60	
Asclepias incarnata	Marsh (Red) Milkweed	1.50	
Asclepias syriaca	Common Milkweed	0.75	
Asclepias tuberosa	Butterfly Weed	2.50	
Aster azureus	Sky Blue Aster	0.75	
Aster novae-angliae	New England Aster	0.75	
Aster sagittifolius	Arrow-Leaved Aster	0.50	
Astragalus canadensis	Canada Milk Vetch	3.00	

Scientific Name	Common Name	oz/acre	lbs/acre
Baptisia australis	Blue Wild Indigo	4.00	
Chamaecrista fasciculata	Partridge Pea	8.00	
Coreopsis lanceolata	Lance-Leaf (Sand) Coreopsis	2.50	
Coreopsis palmata	Prairie Coreopsis	2.50	
Dalea candida	White Prairie Clover	3.00	
Dalea purpurea	Purple Prairie Clover	3.00	
Echinacea pallida	Pale Purple Prairie Clover	6.00	
Echinacea purpurea	Purple Coneflower	4.00	
Eryngium yuccifolium	Rattlesnake Master	3.00	
Eupatorium maculatum	Spotted Joe Pye Weed	0.50	
Helianthus grosseserratus	Sawtooth Sunflower	0.50	
Heliopsis helianthoides	Early Sunflower	8.00	
Kuhnia eupatorioides	False Boneset	1.00	
Liatris aspera	Rough Blazing Star	0.75	
Liatris pycnostachya	Prairie Blazing Star	4.00	
Lobelia cardinalis	Cardinal Flower	0.25	
Lobelia siphilitica	Great Blue Lobelia	0.50	
Lupinus perennis	Wild Lupine	6.00	
Monarda fistulosa	Wild Bergamot	1.00	
Penstemon digitalis	Foxglove Beard Tongue	0.50	
Physostegia virginiana	Obedient Plant	0.50	
Ratibida pinnata	Yellow Coneflower	2.50	
Rosa arkansana	Prairie Wild Rose	1.00	
Rudbeckia hirta	Black-Eyed Susan	3.00	
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	2.50	
Rudbeckia triloba	Brown-Eyed Susan	1.50	
Silene regia	Royal Catchfly	1.00	
Silphium laciniatum	Compass Plant	2.00	
Solidago rigida	Stiff Goldenrod	0.75	
Solidago speciosa	Showy Goldenrod	1.00	
Tradescantia ohioensis	Ohio Spiderwort	2.00	
Verbena stricta	Hoary Vervain	1.50	
Vernonia fasciculata	Ironweed	1.00	
Veronicastrum virginicum	Culver's Root	0.15	
Zizia aurea	Golden Alexanders	4.00	
	Total Wildflowers	**98.00**	**6.12**
Grasses, Sedges & Rushes:			
Bouteloua curtipendula	Side Oats Grama	32.00	
Bromus kalmii	Prairie Brome	20.00	
Elymus canadensis	Canada Wild Rye	32.00	
Koeleria cristata (macrantha)	June Grass	2.00	
Schizachyrium scoparium	Little Bluestem	16.00	

Scientific Name	Common Name	oz/acre	lbs/acre
Sporobolus heterolepis	Prairie Dropseed	8.00	
	Total Grasses, Sedges & Rushes	**110.00**	**6.88**
	Total Wildflowers, Grasses, Sedges & Rushes	**216.00**	**13.00**
Temporary Cover Crop:			
Avena sativa	Common Oats	320.00	20.00
Elymus virginicus	Virginia Wild Rye	32.00	2.00
	Total Cover Crop	**352.00**	**22.00**

SHORTGRASS PRAIRIE FOR DRY SOILS (ZONE C)

Scientific Name	Common Name	oz/acre	lbs/acre
Wildflowers:			
Agastache foeniculum	Lavender Hyssop	1.00	
Allium cernuum	Nodding Onion	4.00	
Amorpha canescens	Leadplant	2.00	
Asclepias tuberosa	Butterfly Weed	2.00	
Aster azureus	Sky Blue Aster	1.25	
Aster ericoides	Heath Aster	0.10	
Aster laevis	Smooth Blue Aster	1.25	
Chamaecrista fasciculata	Partridge Pea	8.00	
Coreopsis lanceolata	Lance-Leaf (Sand) Coreopsis	2.50	
Coreopsis palmata	Prairie Coreopsis	2.00	
Dalea candida	White Prairie Clover	3.00	
Dalea purpurea	Purple Prairie Clover	2.50	
Echinacea pallida	Pale Purple Prairie Clover	8.00	
Eryngium yuccifolium	Rattlesnake Master	3.00	
Heliopsis helianthoides	Early Sunflower	6.00	
Liatris aspera	Rough Blazing Star	1.00	
Liatris cylindracea	Dwarf Blazing Star	1.00	
Lupinus perennis	Wild Lupine	6.00	
Monarda fistulosa	Wild Bergamot	2.00	
Monarda punctata	Dotted Mint	0.25	
Potentilla arguta	Prairie Cinquefoil	0.50	
Ratibida pinnata	Yellow Coneflower	3.00	
Rudbeckia hirta	Black-Eyed Susan	4.00	
Solidago rigida	Stiff Goldenrod	0.70	
Solidago speciosa	Showy Goldenrod	0.70	
Tradescantia ohioensis	Ohio Spiderwort	0.75	
Verbena stricta	Hoary Vervain	2.00	
	Total Wildflowers	**68.50**	**4.28**
Grasses, Sedges & Rushes:			
Bouteloua curtipendula	Side Oats Grama	16.00	
Bromus kalmii	Prairie Brome	8.00	

Scientific Name	Common Name	oz/acre	lbs/acre
Carex bicknellii	Copper-Shoulder Oval Sedge	1.50	
Elymus canadensis	Canada Wild Rye	48.00	
Koeleria cristata (macrantha)	June Grass	2.00	
Schizachyrium scoparium	Little Bluestem	20.00	
Sporobolus heterolepis	Prairie Dropseed	4.00	
	Total Grasses, Sedges & Rushes	**99.50**	**6.22**
	Total Wildflowers, Grasses, Sedges & Rushes	**168.00**	**10.50**
Temporary Cover Crop:			
Avena sativa	Common Oats	320.0	20.0
Elymus virginicus	Virginia Wild Rye	24.0	1.5
	Total Cover Crop	**344.0**	**21.5**

CLASS TYPE
SEEDING FEN CONSERVATION
NO MOW

FEN CONSERVATION (SEEDING NO MOW)

Scientific Name	Common Name	oz/acre	lbs/acre
Wildflowers:			
Agalinis tenuifolia	Slender False Foxglove	0.50	
Allium cernuum	Nodding Wild Onion	2.50	
Anemone canadensis	Meadow Anemone	1.00	
Anemone cylindrica	Thimbleweed	0.50	
Antennaria plantaginifolia	Pussytoes	0.50	
Arnoglossum plantagineum	Prairie Indian Plantain	2.00	
Asclepias hirtella	Tall Green Milkweed	0.50	
Asclepias incarnata	Swamp Milkweed	2.00	
Asclepias tuberosa	Butterfly Weed	1.00	
Asclepias verticillata	Whorled Milkweed	1.00	
Astragalus canadensis	Canadian Milkvetch	0.50	
Baptisia leucophaea	Cream Wild Indigo	0.50	
Blephilia ciliata	Ohio Horse Mint	0.50	
Brickellia eupatorioides var. corymbulosa	False Boneset	0.50	
Chelone glabra	Turtlehead	0.50	
Cicuta maculata	Water Hemlock	0.50	
Comandra umbellata	False Toadflax	0.50	
Coreopsis palmata	Prairie Coreopsis	1.00	
Dalea candida	White Prairie Clover	2.00	
Dalea purpurea	Purple Prairie Clover	2.50	
Desmodium illinoense	Illinois Ticktrefoil	1.00	
Dodecatheon meadia	Shooting Star	0.50	
Doellingeria umbellata	Flat-Top Aster	0.50	

Scientific Name	Common Name	oz/acre	lbs/acre
Drymocallis arguta	Prairie Cinquefoil	0.50	
Echinacea pallida	Pale Purple Coneflower	1.50	
Eryngium yuccifolium	Rattlesnake Master	1.00	
Euphorbia corollata	Flowering Spurge	0.50	
Euthamia graminifolia	Smooth Grass-Leaved Goldenrod	0.50	
Galium boreale	Northern Bedstraw	0.50	
Gentiana andrewsii	Closed Gentian	0.50	
Geum aleppicum	Yellow Avens	0.50	
Geum triflorum	Prairie Smoke	0.50	
Hasteola suaveolens	Sweet Indian Plantain	1.00	
Helenium autumnale	Sneezeweed	0.50	
Helianthus grosseserratus	Sawtooth Sunflower	0.50	
Helianthus occidentalis	Western Sunflower	0.50	
Heuchera richardsonii	Prairie Alum Root	0.50	
Hypoxis hirsuta	Yellow Star Grass	0.50	
Juncus dudleyi	Dudleys Rush	0.50	
Juncus nodosus	Joint Rush	0.50	
Juncus tenuis	Path Rush	0.50	
Juncus torreyi	Torreys Rush	0.50	
Lespedeza capitata	Round-Headed Bush Clover	2.00	
Liatris aspera	Rough Blazing Star	1.00	
Liatris cylindracea	Cylindrical Blazing Star	0.50	
Liatris spicata	Marsh Gay Feather	1.50	
Lilium michiganense	Michigan Lily	1.00	
Lobelia cardinalis	Cardinal Flower	0.50	
Lobelia siphilitica	Great Blue Lobelia	0.50	
Lobelia spicata	Pale-Spiked Lobelia	0.50	
Lycopus americanus	Common Water Horehound	0.50	
Lysimachia quadriflora	Fen Loosestrife	0.50	
Lythrum alatum	Winged Loosestrife	0.50	
Monarda fistulosa	Wild Bergamot	0.50	
Oligoneuron album	Stiff Aster	0.50	
Oligoneuron riddellii	Riddells Goldenrod	0.50	
Oxypolis rigidior	Cowbane	0.50	
Packera aurea	Golden Ragwort	0.50	
Packera paupercula	Balsam Ragwort	0.50	
Parthenium integrifolium	Wild Quinine	1.00	
Pedicularis canadensis	Wood Betony	1.00	
Pedicularis lanceolata	Fen Betony	0.50	
Penstemon digitalis	Foxglove Beard Tongue	0.50	
Penstemon pallidus	Pale Beard Tongue	0.50	

Scientific Name	Common Name	oz/acre	lbs/acre
Phlox glaberrima var. interior	Marsh Phlox	1.00	
Phlox pilosa var. fulgida	Prairie Phlox	0.50	
Physostegia virginiana	Obedient Plant	0.50	
Prenanthes racemosa	Smooth Prairie Lettuce	1.00	
Pycnanthemum virginianum	Common Mountain Mint	1.00	
Rudbeckia hirta	Black-Eyed Susan	1.00	
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	0.50	
Silphium laciniatum	Compass Plant	3.50	
Silphium terebinthinaceum	Prairie Dock	6.50	
Sisyrinchium albidum	Common Blue-Eyed Grass	1.00	
Smilacina stellata	Starry False Solomons Seal	0.50	
Solidago nemoralis	Old-Field Goldenrod	0.50	
Solidago speciosa	Showy Goldenrod	0.50	
Stachys pilosa	Woundwort	0.50	
Symphyotrichum ericoides	Heath Aster	0.50	
Symphyotrichum lanceolatum	Panicled Aster	0.50	
Symphyotrichum lateriflorum	Calico Aster	0.50	
Symphyotrichum novae-angliae	New England Aster	0.50	
Symphyotrichum oolentangiense	Sky-Blue Aster	0.50	
Symphyotrichum puniceum	Bristly Aster	0.50	
Symphyotrichum sericeum	Silky Aster	0.50	
Teucrium canadense	Canadian Germander	0.50	
Thalictrum dasycarpum	Purple Meadow Rue	1.50	
Tradescantia ohiensis	Common Spiderwort	3.50	
Verbena hastata	Blue Vervain	0.50	
Verbena stricta	Hoary Vervain	0.50	
Vernonia fasciculata	Common Ironweed	0.50	
Veronicastrum virginicum	Culvers Root	1.00	
Viola pedatifida	Prairie Violet	0.50	
Zizia aptera	Heart-Leaved Meadow Parsnip	0.50	
Zizia aurea	Golden Alexanders	1.50	
	Total Wildflowers	**82.00**	**5.13**
Grasses, Sedges & Rushes:			
Amorpha canescens	Lead Plant	0.50	
Bouteloua curtipendula	Side-Oats Grama	16.00	
Bromus ciliatus	Fringed Brome	1.50	
Bromus kalmii	Prairie Brome	8.00	
Calamagrostis canadensis	Blue Joint Grass	1.00	
Carex annectens var. xanthocarpa	Small-Seeded Fox Sedge	0.50	
Carex bicknellii	Copper-Shouldered Oval Sedge	1.00	
Carex brevior	Plains Oval Sedge	0.50	
Carex buxbaumii	Dark-Scaled Sedge	0.50	

Scientific Name	Common Name	oz/acre	lbs/acre
Carex cristatella	Crested Oval Sedge	0.50	
Carex granularis	Pale Sedge	1.50	
Carex molesta	Field Oval Sedge	2.00	
Carex scoparia	Broom Oval Sedge	1.00	
Carex stipata	Common Fox Sedge	1.00	
Carex tenera	Narrow-Leaved Oval Sedge	0.50	
Carex tetanica	Common Stiff Sedge	0.50	
Carex tribuloides	Awl-Fruited Oval Sedge	0.50	
Carex vulpinoidea	Brown Fox Sedge	2.00	
Ceanothus americanus	New Jersey Tea	0.50	
Dichanthelium scribnerianum	Scribners Panic Grass	1.00	
Elymus virginicus	Virginia Wild Rye	8.50	
Hesperostipa spartea	Porcupine Grass	6.50	
Hierochloe hirta	Sweet Grass	0.50	
Koeleria macrantha	June Grass	4.00	
Muhlenbergia glomerata	Marsh Wild Timothy	0.50	
Muhlenbergia mexicana	Wood Satin Grass	0.50	
Panicum virgatum	Switch Grass	0.50	
Poa palustris	Marsh Bluegrass	2.00	
Rosa carolina	Pasture Rose	1.00	
Schizachyrium scoparium	Little Bluestem	16.00	
Scirpus atrovirens	Dark Green Rush	0.50	
Scirpus cyperinus	Woolgrass	0.50	
Scirpus pendulus	Red Bulrush	0.50	
Spartina pectinata	Prairie Cordgrass	6.50	
Sphenopholis intermedia	Slender Wedge Grass	0.50	
Sporobolus heterolepis	Prairie Dropseed	8.00	
	Total Grasses, Sedges & Rushes	**97.00**	**6.06**
	Total Wildflowers, Grasses, Sedges & Rushes	**179.00**	**11.19**
Temporary Cover Crop:			
Avena sativa	Common Oats	320.0	20.0
Elymus virginicus	Virginia Wild Rye	24.0	1.5
	Total Cover Crop	**344.0**	**21.5**

Notes:

1/ The planting time shall be October 15 to June 1. Seeding done outside of this time frame will not be measured for payment. No seed shall be sown during high winds or when the ground is not in proper condition for seeding, such as when raining or when the ground is covered with snow.

2/ Purity and germination tests no older than twelve months of the date of sowing must be submitted to verify all bulk seed required to achieve LB Pure Live Seed (PLS) specified.

3/ The seedbed shall be prepared and approved by the Engineer prior to seeding. The Contractor shall delineate the perimeter of the seedbed with wooden lathe. The wooden lathe shall remain in place.

4/ All native species shall be local genotype and their origin shall be from a radius not to exceed 100 miles from the project site. The Engineer must witness the delivery of seed with original labels attached in the field. The Contractor shall provide the Engineer with the seed labels from the bags in which the seed is delivered in prior to installation.

5/ Temporary cover seed shall be kept separate from the native seed mixture. It shall be mixed on site under the direction of the Engineer.

6/ In order to eliminate potential introduction of invasive or exotic species, all equipment used on the planting site shall be free of mud and/or plant material. This includes tires, mower decks, undercarriage, etc.

7/ The temporary cover crop shall be thoroughly mixed with native grass seed mix of each class and seeded using a mechanical seeder that applies the seed uniformly at a depth of 1/4 inch. Second, the native forb seed shall be thoroughly mixed with 2 bushels of moistened horticultural grade vermiculite per acre and uniformly seeded at a depth of 1/8 inch. The seedbed shall be immediately mulched as specified.

8/ Within two hours after the seeding and mulching are complete, water shall be applied at a rate of 5 gal/sq yd.

9/ The Contractor shall have on hand enough equipment to completely water all seeded areas in two days at the watering rate specified above. The Engineer will make periodic checks of the Contractor's watering equipment to determine its adequacy and operating condition.

10/ All watering described shall be done with a spray application. An open-end hose will not be acceptable. The method of watering shall be approved by the Engineer.

11/ Supplemental Watering: During periods exceeding 26 °C (80 °F) or subnormal rainfall (less than 1 inch of rainfall per week), supplemental watering may be required after the initial watering and prior to acceptance of the work. Supplemental watering shall be performed when directed by the Engineer. Water shall be applied at the rate specified by the Engineer within 24-hour notice.

12/ Fertilizer shall not be used. However, a mycorrhizal inoculant shall be used when installing the seed.

13/ If specified seed material is unavailable, the Engineer shall approve the substitutes in writing. Approval of substitutes shall in no way waive any requirements of this special provision. Adjustments shall be made at no additional cost to the Contract."

Maintenance and Monitoring of Native Vegetation Installation: This project consists of Native Vegetation Installation (NVI) along the relocated Woods Creek Tributary, stormwater detention basin in the northwest corner of Randall Road at Miller Road, and the east side of Randall Road from Roosevelt Road to Ackman Road on lands owned by the McHenry County Division of

Transportation. A Maintenance and Monitoring Period (MMP) shall follow the vegetation installation until the completion date of the whole project as detailed in this special provision, with final approval based upon acceptance criteria for the successful establishment of the NVI.

The terms of inspection and acceptance are defined in this special provision. The Engineer shall be the sole authority in determining which plantings or areas meet or do not meet the acceptance criteria.

If the Contractor fails to perform the maintenance work necessary to meet acceptance criteria, or performs the work unsuitably as determined by the Engineer, or for any other cause whatsoever does not carry out the work in a suitable manner, the Engineer shall give notice to the Contractor. Said notice shall specify the corrective measures required. The plant materials covered by the MMP are those listed in this special provision.

The MMP will begin after initial acceptance of the covered work, including the period of establishment requirements. If planting work is not completed at the same time, the MMP shall start when the first planting is completed and end at the completion of the project.

During the MMP, the Engineer will visit the site a minimum of two times a year during the growing season. The visits will occur on or about May 1 and September 1, in all years of the MMP. The visits will be conducted to assess the progress and health of the vegetation within the native planting area. The Engineer will evaluate the status of the plantings and the level of the acceptance criteria achieved. Additionally, the Engineer will determine if remedial measures are required and recommend procedures to correct any noted deficiencies.

The vegetative monitoring shall be based on meander surveys of the various areas. Large community types will have multiple meander surveys completed each year to provide a better representative evaluation of the overall area and to be able to clearly identify those areas which are deficient.

At the end of each year of the MMP, the Engineer will evaluate the installed plant materials according to the specified acceptance criteria. A report will be issued by the Engineer following the completion of the MMP. The report will, at a minimum, address the level of acceptance criteria met and include any applicable remedial recommendations.

For acceptance at the end of the Maintenance and Monitoring Period (MMP), all included NVI areas shall meet the following conditions:

1. No NVI area shall have more than 1.0 square yard (areal) coverage devoid of vegetation.
2. No NVI area shall have less than 50% vegetative (areal) coverage in any given 10.0 square yard plot.
3. No more than 20% of the total species present within any 10.0 square yard plot and throughout the NVI area may be comprised of non-native or invasive species as measured by areal coverage. The term non-native shall include all species identified as not native to northeastern Illinois in “Plants of the Chicago Region” (Swink and Wilhelm, 1994), invasive species include those listed on the Northeast Illinois Invasive Plant partnership website (www.niipp.net), and include but are not limited to the species listed below.

NON-NATIVE AND INVASIVE SPECIES

BOTANIC NAME	COMMON NAME
Alliaria petiolata	Garlic mustard
Rhamnus spp.	Buckthorn
Phalaris arundinacea	Reed canary grass
Lythrum salicaria	Purple loosestrife
Melilotus spp.	Sweetclover
Rosa multiflora	Multiflora rose
Cirsium spp.	Thistle
Coronilla varia	Crown vetch
Dipsaucus spp.	Teasel
Lonicera spp.	Honeysuckle
Phragmites australis	Common reed
Poa compressa & P. pratensis	Canada & Kentucky bluegrass
Salix interior	Sandbar willow
Lespedeza cuneata	Sericea lespedeza
Euphorbia esula	Leafy spurge
Centaurea spp.	Knapweed
Polygonum cuspidatum	Japanese knotweed

If any of these standards are not met during the MMP, the Contractor shall implement remedial activities, the cost of which shall be included in this work. The remedial activities shall be continued until final acceptance. Final acceptance shall not be granted until such time as all acceptance criteria have been met.

The Landscaping Contractor shall have at least five years experience in natural area installation and native planting management, maintenance and monitoring. The Landscaping Contractor shall have completed comprehensive natural area installation and management activities on at least three sites encompassing 10 acres or more. The Landscaping Contractor shall have on staff a senior level biologist, botanist, ecologist or equivalent, to oversee the natural area installation and management activities. The Landscaping Contractor shall also have licensed herbicide applicators and staff proficient in on-site natural area maintenance.

It is the Contractor's/Landscaping Contractor's responsibility to become familiar with all site conditions, instructions, contract documents, site conditions and conditions pertinent to the work involved. Failure to make a site inspection shall not excuse the Contractor/Landscaping Contractor from performance of the duties and obligations imposed under the terms of these Special Provisions and the contract. Failure to have read all the conditions, instructions and specifications of this contract shall not be cause to alter the original contract or to request additional compensation.

Over the MMP, there may be events that are beyond the Contractor's control that will affect his/her ability to achieve the required performance standards. Loses due to fire, flood, lightning or storm (winds greater than 75 mph) are examples of such events. If such an event occurs that damages or kills the seeding, wetland plants or trees and shrubs prior to the end of the MMP, the Contractor shall immediately notify the Engineer. The Engineer will evaluate the situation, and if they concur that the event was in fact beyond the Contractor's control, the Contractor will be compensated for reseeding and replanting at the contract unit prices for the items involved, with prior approval from the Engineer.

Method of Measurement: This work be measured for payment according to Article 250.09 of the Standard Specifications and the following:

Seeding, native forb mix horticultural grade vermiculite will not be measured for payment.

Implementation of the Maintenance and Monitoring Plan will not be measured for payment.

Initial watering of seeded areas as described in this special provision will not be measured for payment.

Supplemental watering will be measured for payment as specified in the Special Provision for SUPPLEMENTAL WATERING.

Basis of Payment. This work will be paid for at the contract unit price per ACRE for ZONE A SEEDING MIXTURE, ZONE B SEEDING MIXTURE, ZONE C SEEDING MIXTURE, and SEEDING NO MOW.

SETTLEMENT PLATFORMS

Description.
This work shall consist of furnishing and placing settlement platforms at the locations shown on the plans and as directed by the Engineer. Settlement platforms shall meet the requirements of Article 204.03 and Article 204.06 of the Standard Specifications and the plan details.

CONSTRUCTION REQUIREMENTS

General.
Project geotechnical reports note that settlement of embankment may occur in the timber pile ground improvement areas. The settlement platforms will be used by the Engineer to determine when construction of the following items may commence: 1) moment slab on top of the mechanically stabilized earth retaining walls, 2) hot-mix asphalt and portland cement concrete pavement, 3) combination concrete curb and gutter, 4) portland cement concrete sidewalk and hot-mix asphalt surface course for bike paths, and 5) concrete superstructure, approach slabs, and pavement connector (portland cement concrete) for the Miller Road Bridge.

Settlement readings shall be taken a minimum of twice each week, or more frequently, to expedite production rates, as approved by the Engineer.

Upon completion of the items noted above, the settlement readings will continue to be taken by the Engineer until no more than 0.01 ft. of settlement occurs per week for a minimum of two consecutive weeks. Once this occurs and the Engineer determines, based on the applicable project geotechnical report, the total anticipated future settlement of the embankment is 1 in. or less, approval will be given to the Contractor to commence the pending construction work.

The duration of settlement monitoring is at the discretion of the Engineer.

No additional compensation or time extension will be allowed to comply with the implementation of the waiting periods for embankment settlement.

Method of Measurement
This work will be measured for payment per each settlement platform.

Basis of Payment
This work will be paid for at the contract unit price per EACH for SETTLEMENT PLATFORMS, which price shall include all labor, equipment, and materials necessary to install, maintain, and monitor the settlement platforms.

SILICONE BRIDGE JOINT SEALER

Description. This work shall consist of furnishing all labor, equipment, technical assistance and materials necessary to install the silicone joint sealer as shown on the plans and as specified herein.

Materials:

(a) Silicone Joint Sealer. The silicone joint sealer shall be rapid cure, self-leveling, cold applied, two component silicone sealant. The sealant, upon curing, shall demonstrate resilience, flexibility and resistance to moisture and puncture. The sealant shall also demonstrate excellent adhesion to portland cement concrete, polymer concrete and steel over a range of temperatures from -30 to 130°F (-34 to 54°C) while maintaining a watertight seal. The sealant shall not contain any solvents or diluents that cause shrinkage or expansion during curing. Acid cure sealants are not acceptable. The date of manufacture shall be provided with each lot. Materials twelve months old or older from the date of manufacture will not be accepted. The manufacturer shall certify that the sealant meets or exceeds the following test requirements before installation begins. The Department reserves the right to test representative samples from material proposed for use.

Physical Properties:

Each component as supplied:	
Specific Gravity (ASTM D1475)	1.2-1.4
Extrusion Rate (MIL-5-8802)	200 - 600 grams per minute
Flow	Self-leveling
Durometer Hardness, Shore (ASTM C 661) (32°F and 77+3°F (0° and 25°C + 1°C))	40-80
Ozone and U.V. (ASTM C 793) Resistance	No chalking, cracking or bond loss after 5,000 hours.
After Mixing:	
Tack Free Time (ASTM C679)	60 minutes max.
Joint Cure Rate (% of total cure)	50% within 4 - 6 hours 75% within 24 hours 100% within 48 - 160 hours
Upon Complete Cure: (ASTM D-3569[1])	
Joint Elongation (adhesion to concrete/steel/polymer concrete)	600% min

Joint Modulus elongation	3-15 psi (21-103 kPa) @ 100%

[1] Modified; Sample cured 2 days at 77±2°F (25±1°C) 50±5% relative humidity

(b) Backer Rod. The backer rod shall conform to ASTM D5249, Type 3.

CONSTRUCTION REQUIREMENTS

General. Technical assistance provided by the manufacturer during surface preparation and installation shall be furnished at no additional cost to the Department. The Contractor shall furnish the Engineer with the manufacturer's written product information, installation procedures, and instructional video at least two weeks prior to installation. The Contractor, the manufacturer's representative, and the Engineer shall meet to review and clarify installation procedures, and requirements prior to starting the work. A technical representative must be present for the start of surface preparations and installation for at least one day. The Contractor shall contact the manufacturer at least two weeks prior to installation.

When placing the silicone against concrete, the concrete surface shall be dry. For newly placed concrete, the concrete shall be fully cured and allowed to dry out a minimum of 7 additional days prior to placement of the silicone. Cold, wet, inclement weather will require an extended drying time.

(a) Surface Preparation:

(1) Sandblasting. Both faces of the joint shall be sandblasted. A separate pass for each face for the full length of the joint and to the design depth of the center of the backer rod will be required.

The nozzle shall be held at an angle of 30-90 degrees to the joint face, at a distance of 1 – 2 in. (25-50 mm).

For portland cement concrete and polymer concrete surfaces, sandblasting will be considered acceptable when both joint faces have a roughened surface with clean, exposed aggregate. The surface shall be free of foreign matter or plastic residue.

For steel surfaces, sandblasting will be considered acceptable when the steel surfaces have been cleaned to an SSPC-SP10 degree of cleanliness.

After sandblasting 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.

(2) Priming. This operation will immediately follow sandblasting and cleaning and will only be permitted to proceed with the air and substrate temperatures are at least 41°F (5°C) and rising. Sandblasting, priming and sealing must be performed on the same day. The entire sandblasted surface shall be primed using a brush applied primer. The primer shall be allowed to dry a minimum of one hour or more until it is thoroughly dry, whichever is longer, before proceeding. For steel surfaces, the minimum drying time shall be extended to 90 minutes when the substrate temperature is below 60°F (15°C).

For portland cement concrete and polymer concrete, the primer shall be in according to the manufacturer's recommendations. For steel surfaces, the primer shall be a rust inhibiting primer recommended by the sealant manufacturer.

The primer shall be supplied in original containers and shall have a “use-by” date clearly marked on them. Only primer, freshly poured from the original container into clean pails will be permitted. The primer must be used immediately. All primer left in the pail after priming shall be disposed of and shall not be reused.

(b) Joint Installation:

(1) Backer Rod Placement. The backer rod shall be installed to a uniform depth as specified on the plans and as recommended by the manufacturer. All splices in the backer rod shall be taped to prevent material loss during sealing. The backer rod shall be installed to within 1/8 in. (3 mm) tolerance prior to sealing.

(2) Sealant Placement. The sealant shall be 1/2 in. (13 mm) thick within ± 1/8 in. (3 mm) tolerance as measured in the center of the joint at the thinnest point. The sealant thickness shall be measured during installation every ±2 ft. (±600 mm). Adjustments to correct sealant thickness to within tolerance shall be made immediately before the sealant begins to set up. Sealant placement will only be permitted when the air and substrate temperatures are above 41°F (5°C) and 5°F (2.8°C) above the dew point. The joint must be kept clean and dry during sealing. If the joint becomes wet and/or dirty during sealing, the operation will be halted until the joint has been restored to a clean and dry state.

Sealing shall be performed using a pneumatic gun approved by the sealant manufacturer. Prior to sealing, the gun shall be inspected to insure that it is in proper working order and that it is being operated at the recommended air pressure.

The gun must demonstrate proper mixing action before sealant will be allowed into the joint. Unmixed sealant will not be permitted in the joint. All unmixed sealant found in the joint will be removed and replaced at the Contractors expense.

After the Engineer has determined that the pneumatic gun is functioning properly, the joint shall be sealed to the thickness and depth as shown on the plans. The sealant must be allowed to achieve initial set before opening the joint to traffic.

End of seal treatment at vertical faces of curbs, sidewalks or parapets shall be as recommended by the manufacturer and as shown on the plans.

Sealant placed incorrectly shall be removed and replaced by the Contractor at no additional cost to the Department.

(3) Field Testing. A minimum of one joint per bridge per joint configuration will be tested by the Engineer by performing a Pull Test. The sealant shall be allowed to cure for a minimum of 24 hours before testing. The locations for the tests will be determined by the Engineer. The tests will be performed per the manufacture’s written instructions. As part of the test, the depth and thickness of the sealant will be verified. All joint system installations failing to meet the specifications shall be removed and replaced, by the Contractor, to the satisfaction of the Engineer at no additional cost to the Department. In addition, the “Pull Test” is a destructive

test, the Contractor shall repair the joint after completion of the test per the manufacturer's written instructions at no additional cost to the Department.

Method of Measurement. The installed joint sealer will be measured in feet (meters) along the centerline of the joint.

Basis of Payment. The silicone joint sealer measured as specified will be paid for at the contract unit price per FOOT (METER) for SILICONE JOINT SEALER, of the size specified. The size is defined as the joint opening at 50°F (10°C), rounded to the nearest 1/2 in. (13 mm).

SLEEPER SLAB

Description
This work shall consist of installing a pavement separation joint with a sleeper slab per IDOT District 1 Standard BD-52 at locations specified on the plans.

Construction Requirements
Sleeper slab shall be 8" in thickness and no less than 4'-0" in width, centered about the pavement separation joint as indicated on the jointing plans included with the project plans. Joint filler, joint sealer, bond breaker, and sleeper slab reinforcing bars per BD-52 shall be considered included in the cost of this pay item.

Method of Measurement & Basis of Payment
This work will be measured for payment, complete in place per FOOT for SLEEPER SLAB and shall consist of all time, labor, excavation, disposal of excess material, and materials necessary to complete the operation.

SPECIAL EXCAVATION

Description
This work shall be done in accordance with Section 202 of the Standard Specifications except it shall include removal of the existing ground improvement system along Randall Road south of Miller Road. The material shall be disposed of at a location approved of by the McHenry County Division of Transportation, Environmental Consultant and Resident Engineer.

Basis of Payment
This work will be paid at the contract unit price per CUBIC YARD for SPECIAL EXCAVATION, which price shall include all labor, materials and exvacations necessary to remove and properly dispose of the existing ground improvement system.

STAINING CONCRETE STRUCTURES

Description
This work shall consist of staining the Form Liner Textured Surface, Form Liner Textured Surface (Special) and the precast concrete panels of the Mechanically Stabilized Earth Retaining Wall as shown on the plans to replicate the look of actual stone masonry. The staining shall match the color variations present in natural limestone, accurately simulating the appearance of real stone including the multiple colors, shades, flecking, and veining that is apparent in real stone. It shall

also simulate the colors that may be present from aging, such as staining from oxidation, rusting and/or organic staining from soil and vegetation. An example of the desired staining is shown below.

Materials

The stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight, and/or weathering. The stain shall be odor free and V.O.C. compliant. The stain shall meet the requirements for weathering resistance of 2000 hours accelerated exposure.

Store concrete stain materials in an area where temperatures will not be less than 50°F (10°C) or more than 100°F (38°C) and in accordance with OSHA and local Fire Code Requirements. Deliver materials in original and sealed containers, clearly marked with the manufacturer's name, brand name, type of material, batch number, and date of manufacture.

Submittal

Contractor shall submit to the Engineer for approval evidence of the selected subcontractor's five years of experience making color stains to match natural stone colors on concrete surfaces.

Upon receipt of notification of the style of form liner to be used the Contractor shall submit a proposed procedure for obtaining the simulated finish using the approved architectural form liner style and stain (see the Special Provision for FORM LINER TEXTURED SURFACE and FORM LINER TEXTURED SURFACE (SPECIAL)). The procedure shall include plans and details for the form liner pattern and dimensions, and be submitted for the Engineer's approval no later than 30 calendar days from the date of notification of approval of the style type. If such plans and details are not satisfactory to the Engineer and McHenry County, the Contractor shall make any changes as may be required by the Engineer or McHenry County at no additional cost to the Department.

Upon approval of the form liner plans and details, the Contractor shall submit three 6' by 6' (minimum) mock-up cast concrete panel of the simulated stone masonry finish including the staining. One of the strained panels shall also include Anti-Graffiti Coating (see the Special Provision for ANTI-GRAFFITI COATING). The sample panels shall be delivered and positioned on the job site at a location to be determined by the Engineer. The approved sample panel shall be the standard for concrete staining to replicate the look of actual stone masonry throughout the project (see the Special Provision for FORM LINER TEXTURED SURFACE and FORM LINER TEXTURED SURFACE (SPECIAL)).

General

The surfaces to be stained shall be structurally sound, clean, dry, and fully cured. The concrete shall be at least 30 days old prior to applying the stain. Curing agents must be removed a minimum of 14 days prior to staining to allow the concrete to dry out.

Temperature and relative humidity conditions shall meet the manufacturer's application instructions. Do not apply the stain under rainy conditions or within three (3) days after surfaces became wet from rainfall or other moisture. Do not apply when the weather is foggy or overcast.

The concrete surface shall be cleaned prior to the applying the stain materials. The methods and materials used for cleaning the substrate shall be as recommended by the manufacturer of the water repellent stain. The Contractor shall insure that the surface is free of latency, dirt, dust, grease, efflorescence, paint, or other foreign material. The Contractor shall not use sandblasting as a cleaning method. The preferred method to remove latency is pressure washing with water, at a minimum 3000 psi (3-4 gal/min), using fan nozzle. The nozzle should be positioned perpendicular to and at a distance of 1-2 feet from the concrete surface. The cleaned surface shall be free of blemished, discoloration, surface voids and unnatural form marks.

The stain shall be thoroughly mixed according to the manufacturer's directions using an air-driven or other explosion-proof power mixer. Mix all containers thoroughly prior to application. Do not thin the material. Materials shall be applied at the rate as recommended by the manufacturer. Absorption rates may be increased or decreased depending upon the surface texture and porosity of the substrate so as to achieve even staining.

A test area of 10 square feet shall be prepared and the stain applied to the surface to verify the surface preparation, adhesion and color. Once the Engineer has approved the results from the test area the application of the stain to the rest of the exposed surfaces may be completed.

Take precautions to ensure that workman and work areas are adequately protected from fire and health hazards resulting from handling, mixing and application of materials. Furnish all the necessary equipment to complete the work. Provide drop cloths and other forms of protection necessary to protect all adjoining work and surfaces to render them completely free of overspray and splash from the concrete stain work. Any surfaces, which have been damaged or splattered, shall be cleaned, restored, or replaced to the satisfaction of the Engineer.

Schedule the color stain application with earthwork and back-filling of any wall areas making sure that all simulated stone texture that might fall below grade is colored prior to back-filling. Delay adjacent plantings until color application is completed. Coordinate work to permit coloring applications without interference from other trades. Where exposed soil or pavement is adjacent which may splatter dirt or soil from rainfall, or where surface may be subject to over-spray from other processes, provide temporary cover of completed work.

Anti-Graffiti Coating shall be applied to the final exposed surface (see the Special Provision for ANTI-GRAFFITI COATING).

Method of Measurement

The exposed surfaces will be measured in place and the area computed in square feet. Staining mock-ups will not be measured for payment.

Basis of Payment
This work will be paid for at the contract unit price per SQUARE FOOT for STAINING CONCRETE STRUCTURES.

STUMP REMOVAL ONLY

Description Special attention is called to this item since the Contractor will, in this case, be required to remove stumps only. The trees have previously been removed by others. All excess chips and debris from this operation shall be removed from County, City or Village right-of-way. This work shall be done in accordance with Section 201 of the Standard Specifications for tree removal, except that stumps are to be removed to a minimum of six (6) inches below the natural surface of the ground. Seeding Class 2A shall be spread uniformly over previous stump removal site.

Basis of Payment Stump removal shall be paid for at the contract unit price per UNIT diameter for STUMP REMOVAL ONLY measured as specified herein across the top of the stump. All references to tree removal in the Standard Specifications shall include the item STUMP REMOVAL ONLY. Seeding Class 2A will not be paid for as a separate item, but the cost shall be considered as included in the contract unit prices for STUMP REMOVAL ONLY, and no additional compensation will be allowed.

SUPPLEMENTAL WATERING

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

Schedule
Water perennials once a week. Supplemental watering will only begin after the successful completion of period of establishment requirements of the plant material to be watered.

Watering must be completed in a timely manner. When the Engineer directs the Contractor to do supplemental watering, the Contractor must begin the watering operation within 24 hours of notice. A minimum of 10 units of water per day must be applied until the work is complete. Damage to plant material that is a result of the Contractor's failure to water in a timely way must be repaired or replaced at the Contractor's expense.

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

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

Perennial Plants:	5 gallons per square yard
Trees:	30 gallons per tree
Shrubs:	7 gallons per shrub
Vines:	3 gallons per vine

Seeding: As directed by the Engineer

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

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

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

TELESCOPING STEEL SIGN SUPPORT (SPECIAL)

Description
This work shall consist of furnishing and installing telescoping steel sign supports for ground-mounted signs utilizing a telescoping base in accordance with applicable articles of Section 728 and as detailed in the plans and the following:

Posts as specified in Article 1093.01 (c) shall be formed of 14 gage steel, except that the base shall be formed of 12 gage steel. Holes 7/16+or-1/64 inch diameter will be spaced one inch on centers on all sides for the entire length of the posts. Holes shall be on the centerline of each side in true alignment and opposite of each other to accept a 3/8 inch bold through the post at any location. The post shall have a smooth galvanized finish applied either before or after forming.

The base shall be constructed with 12 gage steel winged anchors by using standard tubular steel and welding metal triangular fins on each corner of the tubular steel. The four triangular fins shall be 10 inches long by 4 inches wide mounted 9 inches from the top of the base pointing in a downward direction. The base shall be 3 feet in length. The base shall have a smooth galvanized finish applied either before or after fabrication.

Splicing of the top section will not be permitted.

The base shall be driven according to Article 728.04 (b) except that leaving the top 9 inches above the adjacent finished ground surface.

Method of Measurement
This work will be measured for payment per FOOT. The length measured will be the total length of all sections installed, except for any telescoping of a top section more than 12 inches into a base section.

Basis of Payment
This work will be paid for at the contract unit price per FOOT for TELESCOPING STEEL SIGN SUPPORT (SPECIAL) and shall include a 6 inch sleeve for signs to be installed on medians and pavement.

TEMPORARY ACCESS

Description.
This work shall consist of constructing and maintaining aggregate surface course for temporary access for all entrances and roadways according to Section 402 of the Standard Specifications and as directed by the Engineer.

Materials.
Materials shall be according to Article 402.02 of the Standard Specifications.

Equipment.
Equipment shall be according to Article 402.03 of the Standard Specifications.

CONSTRUCTION REQUIREMENTS

The Contractor shall construct and maintain aggregate surface course for temporary access to field entrances, private entrances, commercial entrances, and roads according to Article 402.07 of the Standard Specifications 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) Field Entrance. The minimum width shall be 12 feet. The minimum compacted thickness shall be 6 inches. The maximum grade shall be ten percent, except as required to match the existing grade.

(b) Private Entrance. The minimum width shall be 12 feet. The minimum compacted thickness shall be 6 inches. The maximum grade shall be eight percent, except as required to match the existing grade.

(b) Commercial Entrance. The minimum width shall be 24 feet. The minimum compacted thickness shall be 9 inches. The maximum grade shall be six percent, except as required to match the existing grade.

(c) Road. The minimum width shall be 24 feet. The minimum compacted thickness shall be 9 inches. The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

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

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

Method of Measurement.
Aggregate surface course for temporary access will be measured for payment as each for every field entrance, private entrance, commercial entrance or road constructed for the purpose of temporary access. If a field, entrance, 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."

Basis of Payment.
Aggregate surface course for temporary access will be paid for at the contract unit price per EACH for TEMPORARY ACCESS (FIELD ENTRANCE), 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."

TEMPORARY BULKHEAD

Description:
This work shall consist of providing and installing a temporary bulkhead at the location of the temporary 72" culverts at Woods Creek as shown on the plans. The work also includes subsequent removal of the installed bulkhead at the appropriate construction stage after various proposed storm sewer systems and structural elements have been successfully constructed.

Construction Requirements:
Materials shall be brick or concrete block masonry or sheet piling according to Section 104 or Article 1042.15 or Section 522 respectively of the Standard Specifications and sealed with mortar or grout.

Temporary bulkheads shall be watertight, ensuring no water or sediment infiltration will occur after backfilling. Temporary bulkheads shall only be installed where indicated on the plans.

Any damage to the proposed temporary pipe during the installation or removal of the temporary bulkhead shall be repaired by the Contractor with no additional compensation.

Method of Measurement:
This work will be measured for payment in units of EACH, regardless of size of the hole to be bulk headed.

Basis of Payment:
This work will be paid for at the contract unit price per EACH for TEMPORARY BULKHEAD complete installation.

TEMPORARY CHAIN LINK FENCE

Description.
This work shall consist of furnishing, installing, maintaining, relocating, and removing temporary chain link fence and gates with screening. The fence and gates are to be installed at locations shown on the plans or as directed by the Engineer. Work under this item shall be performed according to Section 664 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

CONSTRUCTION REQUIREMENTS

General.
The temporary chain link fence shall be at least 8 feet in height. It shall be self-standing without the need to disturb the surface ground by excavation when adjacent to areas where no proposed work is to take place. The stand shall be made of galvanized steel pipe or similar materials. The temporary chain link fence may be anchored into existing pavement or sidewalk where the sidewalk or pavement is shown to be removed. The chain link fence shall be anchored sufficient to resist wind loads of 30 pounds per square foot without deflection of more than three inches between top and bottom fence. Each fence panel shall be made from welded wire panels or out of chain link fence materials. All the necessary bases, panel clamps and bolts shall be included and installed in accordance with the manufacturer specifications and to the satisfaction of the Engineer.

The temporary chain link fence shall utilize opaque fabric meshing affixed to the chain link fence face. The fabric meshing shall allow passage of air but shall contain dust and dirt. The mesh fabric shall be the full height of the fence and cover the entire length of the fence including any gated opening. The fabric meshing and fence shall not contain any advertisement. The color of the fabric shall be approved by the Engineer.

Gates shall be installed at locations approved by the Engineer to provide Contractor access to the area. The gates shall be locked at the end of each workday.

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

Basis of Payment.
This work will be paid for at the contract unit price foot for TEMPORARY CHAIN LINK FENCE for which said price shall include all labor, materials, equipment, and incidentals necessary for the placement, relocation, and removal of the temporary chain link fence and gates.

TEMPORARY DITCH CHECKS

Description
This work shall consist of furnishing, constructing, maintaining and removing temporary ditch checks in accordance with the applicable portions of Section 280 of the Standard Specifications, the details in the plans and as modified herein. The furnished materials shall remain the property of the Contractor upon removal.

Materials

Urethane Foam Geotextile Ditch Checks
The temporary ditch check shall be triangular shaped, urethane foam covered with a geotextile fabric. The temporary ditch check shall be installed on a geotextile fabric apron. The temporary ditch check shall have a triangle base of 20" wide and a minimum triangle height of 10". Standard length of each unit ditch check shall be no less than 7 feet. The temporary ditch checks shall be installed at the locations as shown on the plans, and/or as directed by the Engineer. The temporary ditch check installation shall be according to the detail shown on the plans and the manufacturer's recommendations.

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

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

Basis of Payment
(a) Urethane Foam Geotextile Ditch Checks. This work will be paid for at the contract unit price per FOOT for TEMPORARY DITCH CHECKS.

The unit price shall include all work and materials necessary to install, maintain, and remove and dispose of the temporary ditch checks at the completion of the project.

TEMPORARY END SECTION

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

For purposes of this contract, all temporary end sections will be paid for at the same unit cost regardless of size of end section shown in the plans.

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

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:

	Item	Article/Section
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 for TEMPORARY INFORMATION SIGNING.

TEMPORARY INLET

Description:
This work shall consist of providing temporary inlets as shown on the plans and at the Engineer's discretion during various stages of traffic control. This pay item shall include providing and

installing each inlet as well as removal and disposal following the need for utilizing the temporary inlet. All time, labor, excavation, materials, frames and lids, connection to storm sewer, or other materials necessary to complete the operation are considered included in this pay item.

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

TEMPORARY PAVEMENT (VARIABLE DEPTH)

Description
This work shall consist of constructing temporary hot-mix asphalt wedges at the locations shown on the plans or as directed by the Engineer. These wedges will be necessary at various locations throughout the project, including intersections, during the course of construction to temporarily provide a ramp over grade differentials resulting from stage construction (i.e. from new pavement constructed in Stage 1 to adjacent existing pavement remaining in place until a later stage).

The Contractor shall use HMA according to Sections 355, 356, and 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 will be variable and determined in the field at the time of construction. Article 406.11 of the Standard Specifications shall not apply.

All labor, equipment and materials required to remove Temporary Pavement (Variable Depth), including bond breaker, shall be included in this item and will not be measured separately for payment. The removal of the Temporary Pavement (Variable Depth), if required, shall conform to Section 440 of the Standard Specifications.

All necessary maintenance of traffic required to place and remove the Temporary Pavement (Variable Depth) shall be included in the cost of Temporary Pavement (Variable Depth).

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 (Variable Depth) will not be measured separately for payment, but shall be included within the contract unit price per TON for TEMPORARY PAVEMENT (VARIABLE DEPTH).

TEMPORARY SIDEWALK

Description This work shall consist of constructing portions of temporary sidewalk as needed to maintain pedestrian access during stage construction.

The Contractor shall use either portland cement concrete (PCC) according to Section 424 of the Standard Specifications or hot-mix asphalt (HMA) according to Section 406 of the Standard Specifications, and other applicable PCC and HMA special provisions as contained herein. The PCC depth and materials to be used shall be equivalent to the 5” PCC sidewalk specified in the plans. The HMA depth and mixtures to be used shall be equivalent to the Bikeway / Multi-use path specified in the plans.

The temporary sidewalk shall be placed on a suitable prepared subgrade in accordance with the Standard Specifications.

The removal of the temporary sidewalk shall conform to Section 440 of the Standard Specifications.

Method of Measurement
This work will be measured for payment in place and the area computed in square feet (square meters). The preparation of subgrade, including any materials required, will not be measured separately for payment, but shall be included within the contract unit price for TEMPORARY SIDEWALK. The removal of the temporary sidewalk will not be measured separately for payment, but shall be included within the contract unit price for TEMPORARY SIDEWALK.

Basis of Payment
This work will be paid for at the contract unit price per SQUARE FOOT for TEMPORARY SIDEWALK. This contract unit price shall include all labor, equipment and materials necessary to complete the work. An estimated quantity has been provided for TEMPORARY SIDEWALK. Actual locations will be determined as field conditions warrant and as directed by the Engineer.

TEMPORARY STORM SEWERS, CLASS A, TYPE 2 12”

Description
This work will consist of the construction and removal of temporary storm sewer as indicated on the Maintenance of Traffic plans or as directed by the Engineer.

Temporary storm sewer shall be constructed to provide a fully-functional storm sewer system throughout staged construction. Upon completion of the permanent sewers and at the direction of the Engineer, the temporary storm sewer shall be removed and disposed of according to Article 202.03. All work shall comply with the applicable portions of Section(s) 550, 551, and Section 605 of the Standard Specifications. Materials shall meet the requirements of Articles 550.02 and 550.03 of the Standard Specifications.

Method of Measurement
TEMPORARY STORM SEWER, CLASS A, TYPE 2 12” will be measured for payment in place per FOOT.

Basis of Payment
This work will be paid for at the contract unit price per FOOT for TEMPORARY STORM SEWER, CLASS A, TYPE 2 12”. The unit price shall include all materials, labor, equipment, and miscellaneous work necessary to complete the installation, removal, and disposal of the items.

TEST PILE TIMBER

Description.
This work consists of dynamic monitoring of timber test piles as indicated on the plans, both during their initial driving process and the re-strike procedure conducted after the minimum waiting period specified herein has elapsed. All pile driving operations shall follow Section 512 of the Standard Specifications, except as modified herein.

CONSTRUCTION REQUIREMENTS

General.
Dynamic monitoring will be accomplished by attaching sensors near the top of the pile which transmit data by cable or wireless connection to a Pile Driving Analyzer (PDA) unit on site. The test piles should be a minimum of 10 feet longer than the length indicated on the plans.

The Contractor shall secure the services of a Dynamic Testing Consultant qualified for Pile Driving Analyzer (PDA) work. The Consultant shall submit documentation of successful completion of at least 5 PDA testing projects within the last 3 years of a scope and complexity similar to that anticipated for this project. The Dynamic Testing Consultant shall also submit documentation of experience with PDA equipment manufactured by Pile Dynamics, Inc. and the CASE Pile Wave Analysis Program (CAPWAP). The dynamic monitoring shall be performed using a PDA (Model PAK, PAX, or PAL). The Dynamic Testing Consultant shall furnish all equipment necessary for the dynamic monitoring such as sensors, cables, or wireless transmitters, etc. The equipment shall conform to the requirements of ASTM D-4945. An engineer with a minimum of 5 years of experience and who has achieved Basic Level or better on the Foundation QA Examination for Providers of PDA Testing Services shall be in charge of PDA operations and of result interpretation, either on site or by remote connection.

Submittals.
The Contractor shall submit a completed "Pile Driving Equipment Data" Form (https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/idot-forms/bbs/bbs-136.docx) included below to the Engineer and Dynamic Testing Consultant to prepare the PDA. The Contractor shall also notify the Engineer in writing of the anticipated driving and re-strike date(s) of the pile(s) to be dynamically monitored. Both the completed form and written driving and re-strike dates shall be provided to the Engineer a minimum of two weeks prior to driving the first dynamically monitored pile. Any changes to the proposed driving equipment or dates shall be submitted to the Engineer.

Construction.
Dynamic monitoring will be performed during the final 10 feet of initial driving. After lifting the pile to be monitored into the leads, the Contractor shall provide labor to access to either side of the test pile within the top 8 ft. to attach the sensors.

When the level of the sensors is within 1 ft. of any obstruction endangering the survival of sensors and/or cables, driving shall be halted and the contractor shall remove the sensors and reattach them after passing the obstruction. When sensors are within 1 ft. of the ground surface, driving shall be halted and the contractor shall remove the sensors and reattach them near the top of the next pile segment after lifting into place and splicing.

Upon completion of initial driving process of each dynamically monitored pile, the Contractor shall provide the PDA operator access to remove the sensors. Other piles in the substructure and elsewhere on the project may be driven during the waiting period but the dynamically monitored piles shall not be cut off and remain accessible for the re-strike procedure.

If the sensors are located 10ft or more above the ground at the end of initial driving, the Contractor shall provide equipment and labor to remove the sensors as well as reattach them after the waiting period, just prior to the re-strike procedure.

The Contractor shall wait a minimum of 7 days prior to re-striking piles.

After the minimum waiting period has elapsed, the Contractor shall warm up the hammer by driving another pile a minimum of an additional 20 blows and reposition the driving equipment on the restrike pile. Once the PDA operator has reattached the sensors and connections, the contractor shall apply at least 20 blows or drive the pile an additional 3 in., whichever occurs first, to allow the PDA to obtain the final pile setup data. The contractor shall remove and provide the sensors to the PDA operator after which the contractor may proceed with cutting the pile to length and normal construction.

Dynamic Testing Reports.
The Dynamic Testing Consultant shall prepare and submit to the Engineer written reports of the test pile program prior to start of production pile installation in each construction stage. Separate reports will be prepared for tests performed in each construction stage. These reports shall include the results of the pile capacity obtained from the dynamic testing and CAPWAP analysis, as well as recommended driving criteria for the remaining production piles. The reports shall also discuss hammer and driving system performance, driving stress levels, and pile integrity.

Method of Measurement.
This work will be measured for payment per each test pile.

Basis of Payment.
This work will be paid for at the contract unit price per each for TEST PILE TIMBER.

TUBULAR MARKER

Description
This work will consist of the installation of tubular markers for maintenance of traffic as shown on the plans or as directed by the Engineer.

General
All work shall comply with the applicable portions of Section 701 of the Standard Specifications.

Basis of Payment
This work will be paid for at the contract unit price per EACH for TUBULAR MARKER. The unit price shall include all materials, labor, equipment, and miscellaneous work necessary to complete the installation, removal, and disposal of the items.

VALVE VAULTS

Description
The work of this pay item consists of the installation of valve vaults during open cut water main installation complete in place as outlined in the technical specifications and on plan details, including sawcutting, removal and disposal of existing pavements; excavation in excess of that required for standard pipeline trench construction; removal and disposal of waste excavated materials; bracing, sheeting, and shoring; protection, replacement, or repair of utilities; dewatering, including erosion and sedimentation control methods and devices to provide protection to the environment from all pumping operations; vault bedding; monolithic type vault base with watertight flexible pipe connectors where pipes enter vault wall; manhole risers as

required to provide proper depth; concentric cone or flat top cover; frame and cover adjusting rings; frame and cover; steps; backfilling with compacted excavated materials in parkways, and compacted granular materials under pavements; and including frame and cover adjustment to final grade at time of street or parkway restoration.

Provide eccentric cones only on vaults utilized for tapping of existing mains, or when indicated on the Drawings.

This pay item includes providing vaults of sufficient depth to provide the standard depth of cover indicated on the drawings, plus two feet, measured from the top of the water main to the top of the frame and cover. If depth of cover is 6 feet, vaults to a depth of 8 feet from top to main to top of frame and cover will be installed with no addition to the contract allowed. Where deeper vaults are installed, the cost for additional manhole risers required will be paid for in a separate Pay Item.

Allow for vault adjustments 6-inches below pavement grade for interim pavement conditions.

Materials

Precast:

1. Provide precast reinforced concrete manhole sections, bottoms, and flat top slabs complying with ASTM C478 unless otherwise indicated on Drawings.
2. Provide concentric cone section unless otherwise indicated on the Drawings.
3. Provide precast reinforced concrete monolithic or separate base.
4. Design flat slab tops for HL-93 wheel loading.
5. All valve vaults shall have no more than two adjusting rings with a minimum of four (4) inches and a maximum of twelve (12) inches of adjusting rings.
6. All castings shall be set on bitumastic material. Bitumastic material shall be placed between precast reinforced concrete sections and all adjusting rings.

Concrete:

1. Provide 4,000 psi concrete using Type I Portland Cement complying with ASTM C150.

Mortar:

1. Mix one part Portland Cement to three parts fine aggregate.

Preformed Gaskets:

1. Provide joints of either flexible watertight rubber gaskets or preformed bituminous plastic gaskets consisting of a homogeneous blend of refined hydro-carbon resins and plasticizing compound reinforced with inert mineral filler.
2. All lifting holes, joints between precast reinforced concrete sections, gaps between pipes and structures shall be tuckpointed with hydraulic cement.
    a. Acceptable manufacturers:
        (1) Henry Company, RAM-NEK.
        (2) ConSeal Concrete Sealants, Inc., Type CS-102.
        (3) EZSTIK by Press Seal Corp..

Steps:

1. Provide steps with a minimum width of 12 inches and a minimum projection of 5 inches.

2. Use steps consisting of copolymer polypropylene plastic with a continuous ½-inch steel reinforcement as manufactured by M.A. Industries, Inc.; cast iron steps, Neenah R-1981-I.

Frames and covers:

1. Provide cast iron frames and covers with heavy duty, indented top, with solid self-sealing lids and machined bearing surfaces, stamped with the word “WATER”.
2. Valve operating nuts shall be accessible through the frame and list, with flexible pipe rubber seals.
    a. Acceptable products:
        (1) Neenah Foundry (R-1712 in paved areas, R-1772 in grass areas).
        (2) East Jordan (V1501 in paved areas, 1020AGS in grass areas).
        (3) Barry Kraft (B1600C in paved areas, 1602 in grass areas).

Flexible pipe connectors:

1. Provide flexible rubber gasket collar for connecting pipe to the manhole.
    a. Comply with ASTM C923.
    b. For pipe 24-inch and smaller, use PSX gasket system by Press-Seal Gasket Corporation, Tylox MIB by Hamilton Kent, or Kor-N-Seal by Trelleborg.

Installation

Install pipe through valve vault as shown on the Detail. Make vault watertight with use of flexible manhole connectors as per the Detail.

Steps:

1. Provide each valve vault over 3 feet deep with individual wall-mounted steps as shown on the valve vault detail.
2. Comply with the requirements of governmental agencies having jurisdiction.

Jointing:

1. Use flexible watertight gaskets for each joint.
2. Trim smooth and free from surplus gaskets.

Frames and covers: Unless otherwise shown on the Drawings or as directed by the Engineer, set frames and covers:

1. In paved areas: So that the top of the solid cover will be flush with the finished pavement.
2. In unpaved areas: To drain away from the valve vault.
3. With flexible watertight gaskets.
4. With grade rings not to exceed 8 inches.

Basis of Payment

The work will be paid for at the contract unit price EACH for VALVE VAULTS, of the size and type specified.

WASHOUT BASIN

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

General Requirements
The Contractor must submit a plan of his/her proposed temporary concrete washout facility to the Engineer for his/her approval at least 10 days prior to the first concrete pour.

Temporary concrete washout facilities are to be in place prior to any delivery of concrete to the construction site.

Temporary concrete washout facilities are to be located at least 50 feet from storm drain inlets, open drainage facilities, or water bodies. Each facility is

A sign is to be installed adjacent to each temporary concrete washout facility to inform concrete equipment operations of the designated washout facility.

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

1. Prefabricated portable facilities (as approved by the Engineer)

2. Non-portable facilities:

    a. Above Grade: Constructed using barrier wall & polyethylene sheeting. Barrier walls are constructed to create a berm with a single sheet of 10-mil polyethylene sheeting which is free of holes, tears, or other defects which pay compromise the impermeability of the material. Sandbags are used to hold the sheeting in place on top of the berm. Sheeting must extend over the entire basin and berm to prevent escape of discharge.
    b. Below Grade: Constructed via excavation and the use of polyethylene sheeting and sandbags. A pit is first excavated in a designated location with a single sheet of 10-mil polyethylene sheeting which is free of holes, tears, or other defects, which may compromise the impermeability of the material. Sandbags are then used to hold the sheeting in place.

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

Inspection/Maintenance/Removal
Temporary concrete washout facilities are to be inspected by the Engineer during his/her weekly erosion and sediment control inspection per the requirements of the SWPPP. The inspector is to ensure there are no leaks, spills, and the capacity of the facility has not yet been compromised.

Any overflowing of the washout facility onto the ground must be cleaned up and removed within 24 hours of discovery.

If a rain or snow event is forecasted, a non-collapsing, non-water collecting cover shall be placed over the washout facility and secured to prevent accumulation and overflow of precipitation.

Contents of each facility are not to exceed 75% of design capacity. If contents reach 75% capacity, discontinue pouring concrete into the facility until it has been cleaned out.

Allow slurry to evaporate or remove the site in a safe manner (i.e. vacuum truck). All hardened material can then be removed or disposed of properly.

If a lined basin is used, immediately replace the liner if it becomes damaged.

Remove temporary concrete washout facilities when they are no longer required and restore the disturbed areas to their original condition.

Note locations of these facilities and any changes to these locations on the SWPPP.

Basis of Payment
This work shall be paid for once for the entire contract at the contract unit price LUMP SUM for WASHOUT BASIN, which price shall be payment in full for all material, labor, excavation, and disposal of all basins to be utilized for this contract.

WATER MAIN

Description
The work of this Pay Item consists of water main pipe complete in place, including sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; protection, replacement, or repair of utilities; trench dewatering, including erosion and sedimentation control methods and devices to provide protection to environment from all pumping operations; installation of pipe; bracing; bedding and covering of pipe; trench backfilling with and compaction of excavated materials; backfilling with granular backfill material; testing; disinfection, and finish grading.

Installing new mains in excess of 6 feet of cover in order to cross existing mains, provide for future improvements or cross below sewer lines is considered incidental to the installation of the water main, and no addition to the contract will be allowed.

This Pay Item includes polyethylene wrapping of all ductile iron pipe and appurtenances and pipe tracer wire for all PVC pipe.

This Pay Item includes all restrained joint type (RJT) fittings complete in place.

Removal and replacement of material, including unsuitable material, to a depth of one foot below the bottom of the pipe barrel is considered incidental to construction and no addition to the contract will be allowed.

Over excavation, and removal and replacement of unsuitable materials with CA 1 greater than one foot below the bottom of the pipe barrel will be paid for in a separate Pay Item.

General
Provide the water distribution system as shown on the Plans, specified herein, and needed for a complete and proper installation, and in accordance with the latest edition of the “Standard Specifications for Water and Sewer Main Construction in Illinois”, except as revised herein.

Submittals
Furnish two (2) copies of bacteriological test reports.

Iron And Steel Materials
All iron and steel materials used on this project shall be domestically manufactured or produced and fabricated in accordance with Article 106.01 of the Standard Specifications.

Brass And Bronze Alloys
All brass and bronze alloys supplied with the products shall contain less than 15 percent zinc, unless otherwise specified. Brass that will come in contact with potable water shall contain no more than 0.25% lead.

1. Brass fittings shall be marked with industry standard marking to indicate the amount of lead (no lead, low lead, etc.) in the brass.
2. Brass for service saddles may contain more than 0.25% lead to improve ductility of the saddles.

Granular Pipe Bedding And Covering Materials: Provide well graded, washed, mixture of gravel or crushed stone aggregate free of clay, loam, dirt, calcareous or other foreign matter conforming to the IDOT "Standard Specifications" gradation No. CA 6, or the ”Illinois Standard Specifications“.

1. Following placement of pipe and inspection of joints, provide compacted granular pipe bedding and covering material, gradation No. CA 6, for the full width of the trench to the following levels unless otherwise shown on the Drawings:
   a. To 12 inches above the top of the pipe for all pipe sizes.
2. Place granular pipe bedding and covering material in uniform loose layers not exceeding 8 inches thick.
   a. Compact each layer firmly by ramming or tamping with tools approved by the Engineer in such a manner as not to disturb or injure the pipe to yield a minimum density of 95 percent of maximum dry density as determined according to ASTM D1557 or AASHTO-T180.
3. Where trench is widened by installation of structures, jacking pits, or tunnel shafts, extend bedding and covering materials to total width of excavations and compact as noted in following section.
   a. As a contractor’s option, to eliminate compacting of the material, replace bedding and covering material with flowable fill at no additional cost to Owner.
4. For flexible thermoplastic pipes including sewer pipes, sewage force mains, and water mains: Comply with ASTM D2321, Class I or II as modified below.
   a. Exclude sharp angular granular materials.
   b. Limit maximum particle size to 1/2-inch (IDOT CA 15 or CA 16).
   c. Do not use Class II materials in wet conditions.
5. For rigid pipes comply with ASTM C12, Bedding Class B.

Materials

Ductile Iron Pipe:

1. Provide ductile iron pipe complying with ANSI A21.51, thickness Class 52, with joints complying with ANSI A21.11.
   a. Use cement lining complying with ANSI/AWWA C104/A21.4, standard thickness.
   b. In areas where petroleum contamination is present, use Buna-Nitrile gaskets.
2. Provide restrained joint pipe system, where indicated on the Drawings, that utilizes one of the following methods:
   a. Lock rings welded into place around pipe barrel.
   b. Bolted rings installed around pipe barrels that fit inside pipe bells.
   c. Gaskets which include stainless steel locking segments vulcanized into the gasket.
   d. Mechanical joint retainer gland systems that provide locking segments shaped to pipe barrel that do not create stress points on pipe barrel.
      (1) Do not use set screw type retainer glands.
   e. Acceptable products:
      (1) Meg-A-Lug System.
         i. Series 1100 Megalug for MJ to pipe.
         ii. Series 1700 Megalug Harness for push on joint.
         iii. As recommended by manufacturer for connection to existing pipes.
      (2) Star Grip.
         i. Series 3000 for MJ to pipe.
         ii. Series 3100P for push on joint.
         iii. As recommended by manufacturer for connection to existing pipes.
      (3) Tyler Union
         i. TUFGRIP TLD 1000 for MJ to pipe.
         ii. TUFGRIP 3000MJ for push on joint.
         iii. As recommended by manufacturer for connection to existing pipes.

PVC plastic pipe:

1. Pipe material: Use Class 12454A or B polyvinyl chloride complying with ASTM D1784.
2. Pipe 12-inch and smaller: Comply with AWWA C900 for Class 235 pressure pipe with a standard dimension ratio of 18.
   a. Provide pipe manufactured with ductile iron outside diameters.
   b. Provide pipe manufactured from a PVC stock with a starting hydrostatic design basis (HDB) of 4,000 psi, and a finished HDB of 7,100 psi.
3. Use push-on bell and spigot type joints with elastomeric ring conforming to ASTM F-477.

4. Provide restrained joint pipe system, where indicated on the Drawings, that utilizes one of the following methods:
   a. Mechanical joint retainer gland systems that provide locking segments shaped to pipe barrel that do not create stress points on pipe barrel.

b. Acceptable products for pipes:
   (1) Meg-A-Lug System.
      i. Series 2000PV Megalug for MJ to Pipe (C900).
      ii. Series 1500 Megalug Harness for push on joint (C900).
      iii. As recommended by manufacturer for connection to existing pipes.
   (2) Star Grip.
      i. Series 4000 for MJ to pipe (C900).
      ii. Series 4100P for push on joint (C900).
      iii. As recommended by manufacturer for connection to existing pipes.
   (3) Tyler Union
      i. TUFGRIP TLP 2000 for MJ to pipe (C900).
      ii. TUFGRIP 3000MJ for push on joint (C900).
      iii. As recommended by manufacturer for connection to existing pipes.

Fittings:

1. Ductile iron fittings: Provide mechanical joints complying with ANSI A21.10 or A21.53.
   a. Acceptable manufacturers:
      (1) US Pipe.
      (2) American.
      (3) Star Pipe Products
   b. Cement lining: Comply with ANSI A-21.4, standard thickness.
   c. Bolts and nuts:
      (1) Use Corten bolts and nuts.

Polyethylene sheet: Comply with ANSI/AWWA C105/A21.5:

1. Thickness: Three layers of co-extruded linear low-density polyethylene (LLDPE) fused into a single thickness of not less than 8 mils.
2. The inside surface of the polyethylene wrap to be in contact with the pipe exterior shall be infused with a blend of anti-microbial biocide to mitigate microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion.
3. Markings: The following information will be clearly marked on the sheet at minimum increments of 2 feet along its length:
   a. Manufacturers name or trademark.
   b. Year of manufacture.
   c. Minimum film thickness and material type (LLDPE).
   d. Applicable range of nominal pipe diameter size(s).
   e. Warning – Corrosion Protection – Repair Any Damage.
4. Acceptable manufacturers:
   a. US Pipe V-BIO Enhanced Polywrap
   b. Trumbull V-BIO Enhanced Polyethylene Encasement.
   c. American Polyfilm Inc. Antimicrobial TPU film.
5. Place polyethylene sheet around the entire circumference of the pipe, tie or tape sheet securely to prevent displacement during backfilling.

6. Wrap all water mains, fittings, valves, fire hydrant leaders, fire hydrants, and service lines.
    a. Wrap copper service lines to a point 3 feet from center of water main.
    b. Do not block fire hydrant weep hole. Polyethylene encasement shall be installed with a one foot gap on either side of the weep hole and taped tight to the pipe.

Conductivity appurtenances:

1. Provide wedges of serrated silicon bronze or #10-copper cable and tapping devices specifically designed for this purpose.
2. Use devices provided by the pipe manufacturer.
3. Standard mechanical joints, Field-Lok, Megalug joints or similar joints/restrained joint systems do not provide conductivity.

Restrained Flange Adapter:

Provide a ductile iron flange adaptor dual ring system with bolt circles compatible with 125#/Class 150 bolt pattern.

1. Provide adaptor with individual actuated gripping wedges that utilize torque limiting screws to insure proper initial set.
2. Set screw “only” restraining adaptors are not acceptable.
3. Provide system that allows joint deflection of up to 5º.
4. Provide a fluoropolymer coating to the wedge and wedge assembly and powder coating to the restraint body.
5. Acceptable manufacturers:
    a. Series 2100 Megaflange by EBAA Iron.
    b. Series 3200 Star Flange by Star Pipe Products.
    c. Series 4000 TUF FLANGE by Tyler Union.

Pipe Restraining Systems

Provide protection from movement of water main piping, plugs, caps, tees, valves, hydrants, and bends of 11¼ degrees or greater.

Restrained joint pipe, fittings and valves:

1. Provide restrained joint pipe to a distance indicated on the Drawings, or if not shown on the Drawings, to a distance not less than two pipe lengths on each side of a fitting or valve to be restrained.

Concrete thrust blocks:

1. Provide concrete thrust blocks on bends and at points of connection to existing water mains. When conditions prevent the use of restrained joints, use concrete thrust blocks of an approved type. The use of concrete thrust blocks in lieu of restrained joint pipe, fittings and valves requires written approval of the Engineer.
2. Provide precast or cast-in-place concrete thrust blocking with a compressive strength of 3,000 psi in 28 days.
3. Locate thrust blocking between solid ground and the fitting to be anchored.
4. Unless otherwise shown or directed by the Engineer, place the base and thrust bearing sides of thrust blocking directly against undisturbed earth.
5. Sides of thrust blocking not subject to thrust may be placed against forms.
6. Place thrust blocking so the fitting joints will be accessible for repair.

Pipe Inspection, Handling, Storage, And Installation
Install in accordance with pipe manufacturer's recommendations.

Ductile iron or PVC water mains and appurtenances:

1. Comply with AWWA C600.
2. Protect ductile iron pipe and fittings installed in corrosive soils containing cinders or having a high organic content by loose wrapping or tubing with polyethylene sheet.
    a. Place polyethylene sheet or tube around the entire circumference of the pipe, tie or tape sheet securely to prevent displacement during backfilling.
    b. Comply with ANSI/AWWA A21.5-99/C105 regarding installation of polyethylene protection.
3. Install conductivity through joints by use of conductivity wedges or copper cable and taps.
    a. Use two (2) wedges per joint for pipes 12 inches or smaller, and four (4) wedges per joint for pipe sizes larger than 12 inches.
    b. Use number of copper cable connectors per joint as recommended by the pipe manufacturer.

Depth Of Pipe Cover
Install water mains and water service lines with a minimum depth of cover of 6 feet below finished grade ground level unless otherwise indicated on the Drawings.

Where new water mains cross existing water mains, install new water main below existing main unless otherwise indicated on the Drawings.

Pipe Tracer Wire: Provide wire to be used for electronic locating of all PVC water main installed. Provide wire and tracer system components manufactured in the USA.

Materials:

1. Provide locating system components that have been designed for compatibility to ensure end-to-end conductivity for detecting underground utilities.
    a. Copperhead SnakePit Lite Duty XL or Concrete/Driveway Access Point.
    b. KRIS-TECH Total Tracer Wire solution
    c. PRO-Line Safety Products
2. Wire: Single Strand, single conductor, copper-clad steel, No. 12 AWG high strength, high carbon with min. 450 lb. break load, min. 30 mil. HDPE insulation thickness (1230B-HS) for direct bury installation; color coded per APWA Standards.
3. Connectors: Single, three-way locking connectors (LSC1230C); Mainline to service connectors (3WB-01) and dielectric silicon sealant.
4. Connect tracer wire to inside of valve vault walls with stainless steel grip clips.
5. Provide 1.5 lb. magnesium grounding anodes and 12-AWG wire.
6. Tracer wire test station: Provide for a direct connection to the tracer wire by utility locate transmitter manufactured for the application location; Identified with “WATER” on the cap and color coded per APWA Standards; Two terminal tracer wires to include a manually interruptible conductive/connective link between the terminal for the tracer wire connection and the terminal for the ground rod wire connection; External direct connection points to bother tracer wire and ground rod

on top of lid; Encapsulated magnet molded into the top portion of the box for detection by ferrous metal locator; Anti-corrosion wax/gel to protect wires.

a. Copperhead SnakePit Lite Duty XL or Concrete/Driveway Access Point.
b. KRIS-TECH Total Tracer Wire solution
c. PRO-Line Safety Products

Pipe Tracer Wire Installation:

1. Install tracer wire system for PVC water main per manufacturer's instructions.
2. Place tracer wire taped to pipe at maximum intervals of 5 feet at 3 o'clock or 9 o'clock positions or as shown on the plans.
3. Continue wire through valve boxes, valve vaults, or other structures. Install tracer wire as a single continuous wire, except where using approved connectors. Mount tracer wire to inside of valve vault walls with stainless steel grip clips.
4. Extend wire up to top of valve boxes, vaults, structures, fire hydrants, or marker posts, if marker posts are included with project. Leave 24-inches of slack to facilitate connections. Install tracer wire test stations on the back side of fire hydrants and adjacent to water service curb stops.
5. Install grounding anodes at each end of pipe and at intermediate points not exceeding 1,000 lineal feet.
6. Provide termination points with a direct connection point to the tracer wire by utility locate transmitter. Install tracer wire to allow proper access for connection of tracing equipment, without loss or deterioration of low frequency (512 Hz) signal, and without distortion of signal caused by more than one wire installed in close proximity.
7. Interconnect tracer wires at intersections. At tees join the three wires using single, three-way locking connectors. At crosses join the four wires using two three-way locking connectors with a short jumper wire between them.
8. Successfully test tracer wire system installation after final restoration by locating the full length of facility using a low frequency (512 Hz) line tracing equipment in the presence of Owner and Engineer.

Pipe Insulation: Provide extruded polystyrene sheeting conforming with ASTM C578, Type IV.

1. Thickness: 2 inches.
2. R-Value: 10.
3. Water absorption: No greater than 0.10% by volume per ASTM C272.
4. Acceptable products:
   a. Formular Rigid Foam Insulation by Owens-Corning.
   b. DuPont XPS 250 Blue Board.
   c. Dow Styrofoam.
5. Place rigid pipe insulation board above the pipe cover material to the width of the trench.
6. Place rigid insulation board to the required thickness and in the locations shown on the Plans or as determined by the Engineer.

Sewer Crossing

Separate water mains and water service lines from sanitary sewer, storm sewers, combined sewers, house sewer service connections, and drains in accordance with the "Standard Specifications for Water and Sewer Construction in Illinois".

Water mains:

1. Wherever water mains cross storm sewers, sanitary sewers, or sewer service connections:
   a. Install the water main so that its invert is at least 18 inches above the top of the sewer.
   b. Maintain this vertical separation for that portion of the water main located within 10' horizontally of any sewer or drain crossed.
   c. Center a length of water main pipe over the sewer to be crossed with joints equidistant from the sewer or drain.
2. When it is impossible to obtain the minimum 18 inches vertical separation, or when it is necessary for the water main to pass under a sewer or drain:
   a. Construct the sewer or drain of pressure pipe, conforming to the specification for water main materials.
   b. Extend the sewer construction on each side of the crossing until the normal distance from the water main to the sewer or drain is at least ten feet.
   c. As an alternate, install either the water main or sewer inside a water main quality casing pipe for a distance of 10 feet measured perpendicular to the sewer on each side of the crossing.
3. Where a water main must cross under a sewer:
   a. Maintain a vertical separation of 18 inches between the invert of the sewer and the crown of the water main.
   b. Support the sewer or drain line to prevent settling and breaking the water main.

Water Main Repair:

1. Repair water main or water services damaged during construction utilizing products of type and manufacturers as approved by the Owner.
2. Pipe couplings for joining of sections of cut water main where a section of new pipe is used to replace a broken pipe.
   a. Acceptable manufacturers:
      (1) Smith-Blair.
      (2) Cascade.
      (3) Romac.
3. Repair clamps for broken or cracked pipe and sealing of existing corporation stop opening.
   a. Use full-circle single band all stainless steel clamps.
   b. Acceptable manufacturers:
      (1) Smith-Blair 200 Series.
      (2) Cascade CR1.
      (3) Romac SS1.
   c. Replace damaged service corporation stops by installation of full-circle single band all stainless steel clamps, with service outlet, matching manufacturer's and styles used for repair of a cracked pipe.

Testing And Inspecting

Sequence of installation:

1. Install new water main but do not install corporation stops, service lines, curb stops, or service boxes; conduct pressure test, leakage test; and disinfection of new water main; flush main; after acceptance for use put main into service (while existing main continues to function): Install corporation stops, curb stops, and new service boxes; and connect new service box to existing service lines.

Hydrostatic tests:

1. Where any section of a water line is provided with concrete thrust blocking for fittings, do not make hydrostatic tests until at least 5 days after installation of the concrete thrust blocking, unless otherwise directed by the Engineer.
2. Devise a method for disposal of waste water from hydrostatic tests, and for disinfection, as approved in advance by the Engineer.

Pressure tests:

1. Subject the new water mains and service lines, including valves and hydrants, to a hydrostatic pressure of 100 psi.
2. Hold the test pressure for a duration of one hour without pressure loss or further pressure application.
3. Carefully examine exposed pipe, joints, fittings, and valves.
4. Replace or remake joints showing visible leakage.
5. Remove cracked pipe, defective pipe, and cracked or defective joints, fittings, and valves. Replace with sound material and repeat the test until results are satisfactory.
6. Make repair and replacement without additional cost to the Owner.
7. Use only solid stainless full-body repair clamps as approved by the Engineer.

Leakage test:

1. Conduct a metered leakage test after the pressure test has been satisfactorily completed.
2. Duration of each leakage test: At least 24 hours.
3. During the test, subject water lines to a normal water pressure of the Owner's water system.
4. Install water meter approved by the Engineer.
   a. Provide double check valve assembly between water meter and existing water main.
5. Maximum allowable leakage: As recorded by a meter approved by the Engineer, with leakage to not exceed the number of gallons per hour (gph) as determined by the following formula:

   $$gph = LD(P^{½})/133{,}200$$

   in which: L = Length of pipe test, in feet
   D = Diameter of water main, in inches
   P = Average pressure, in pounds per square inch (gage)
6. Should any test of pipe disclose leakage greater than the maximum allowable amount, locate and repair the defective joint or joints and then repeat the 24-hour metered leakage test until the leakage is within the specified allowance, and at no additional cost to the Owner.

Time for making test:

1. Except for joint material setting, or where concrete reaction backing necessitates a 5 day delay, pipelines jointed with rubber gaskets, mechanical, or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage at any time after partial completion of backfill.
2. Perform the pressure and leakage tests satisfactorily prior to requesting the Engineer to witness the official tests.
3. Notify the Engineer at least 48 hours prior to the time of the requested official tests.

4. Depending on traffic conditions, public hazard, or other reasons, the Engineer may direct when to conduct the tests, and may order the tests to be made in relatively short sections of water mains.

Preliminary Flushing

Prior to disinfection, flush water main as thoroughly as possible.

1. Flush water main until water runs clear.
2. Provide a minimum flushing velocity of 2.5 feet per second in the water main.
3. Where no fire hydrant exists on the end of a water main, the plug (or cap) on the end of the water main must be tapped with opening in the end for flushing purposes. After acceptance install threaded plug into tap.
   a. 8", 10" and 12" mains: 2½-inch tap.
4. Contractor has the option to use temporary fire hydrants in lieu of taps. Temporary fire hydrants must be removed after testing is complete.

Coordinate time of flushing with Owner and Engineer, at least 72 hours in advance of flushing.

1. Do not initiate flush without Owner's permission.

Disinfection

After the water main work has been satisfactorily completed and tested, disinfect the work in accordance with AWWA C651, and "Standard Specifications for Water and Sewer Construction in Illinois" as modified by these Specifications.

Application of chlorine:

1. Apply chlorine by gas feed or solution feed chlorinator as approved by the Owner.
   a. Provide effective diffusion of the gas or solution into the water.
   b. Provide means for preventing the backflow of water into the feeder.

Requirement of chlorine:

1. Initial chlorine solution in pipe: At least 50 mg/L, but not more than 100 mg/L.
2. Retain the disinfecting solutions in the work for at least 24 hours.
3. Chlorine residual after the retention period: At least 25 mg/L.

Flushing and testing:

1. Following chlorination, flush treated water thoroughly from the water mains until the chlorine concentration in the water flowing from the main is no higher than generally prevailing in the Owner's system, or less than 1 mg/L.
2. After flushing, collect two water samples on successive days at least 24 hours apart in sterile bottles treated with sodium thiosulfate. Notify the Engineer and the Owner to witness sample collection.
3. Sampling locations will be determined by the Village of Plainfield Water Department of designated representative during construction.
4. The Owner will deliver the samples to a State approved laboratory for bacteriological analysis.
5. Should the initial disinfection result in an unsatisfactory bacterial test, repeat the chlorination and sampling procedures until satisfactory results are obtained.
6. The initial flush, fill, chlorination, and sampling of a newly installed water main will incur a water charge. The water cost will be calculated based on the size and length of the water main on the design plans and the number of times the system is flushed. The minimum charge will be $100.00 per flushing.
7. Sampling from fire hydrants is not allowed.

Swabbing:

1. Flush and swab the piping, valves, and fittings that must be placed in service immediately and cannot be disinfected by the above specified methods, with 5 percent solution of calcium hypochlorite prior to assembly.
    a. Secure the Engineer's approval before applying this method of disinfection.

Dechlorination

Comply with AWWA C651-05 requirements to neutralize the residual chlorine in new water mains.

After new water mains have passed disinfection requirements, utilize portable diffusing dechlorinators that utilize sulfur dioxide or other chemicals listed in Appendix C of AWWA C651 to lower chlorine residuals prior to discharge to the drainage system.

1. Lower concentration to 1 mg/L or less.

Measurement

The work will be measured in lineal feet along the centerline of the pipe and will go through fittings and valves.

Basis of Payment

The work will be paid for at the contract unit price per lineal FOOT for WATER MAIN of the pipe sizes and type, regardless of depth.

WATER MAIN, 10” (SPECIAL)

Description

The work of this pay item consists of installing high density polyethylene (HDPE) or PVC pipe complete in place by directional drilling methods; including providing insertion and receiving pits, tightsheeting where required to protect adjacent utilities, roadways and property, or to provide protection to the public; leaving tightsheeting in place if indicated on the Drawings; protection, repair or replacement of utilities; traffic control; fencing of work site to provide protection to public; excavation; removal and disposal of waste excavated materials; bracing; dewatering, including erosion and sedimentation control methods and devices to provide protection to environment from all pumping operations; providing and installing casing and carrier pipe; end seals; testing; backfilling with and compaction of excavated materials at pits, or granular backfill materials if indicated on the Drawings; cleanup; and finish grading.

This pay item includes pipe tracer wire for all directionally drilled PVC or HDPE pipe.

Summary

Provide labor, materials, tools, and equipment necessary to install pipes by the trenchless horizontal directional drilling (HDD) method as shown on the Drawings, as specified herein, and as needed for a complete installation.

Submittals

Submit shop drawings including, but not limited to:

1. Manufacturer's data on installation procedures, pipe specifications and butt-fusing specifications.
    a. Obtain approval prior to beginning work.
2. General specifications for drilling fluid/mud.

a. Using water and native soils only for drilling fluid/mud is not acceptable.

Provide detailed plan of means and methods to maintain clean and safe conditions in the event drilling material escapes to surface or adjacent storm sewers, including list of material and equipment that will be on-site during drilling and pipe insertion.

Prepare a written, comprehensive contingency plan to address the response to, and clean-up of, hydrofracture (frac-outs) and surface spill events (release events).

Directional Drilling System

Provide hydraulically or pneumatically operated, fluid-assisted, remote guided drilling system capable of installing pipe indicated on the Drawings by trenchless methods.

1. Provide compressors, pumps, apparatus, tools, and all devices certified as suitable by the system manufacturer to install the new pipe without damaging or stressing the pipe.
2. Provide recovery system that will recover bentonite slurries or other drilling fluids without releasing the slurry/fluid onto the surrounding ground or water surfaces.
3. Provide, use and maintain downhole pressure monitoring equipment.
4. Provide and stock a complete variety of equipment, tools and materials to respond to release events.
    a. Equipment and tools include, but are not limited to: backhoe, dozer, tank or dump trucks, rowboat, barrels, vacuum truck, vacuum hoses, shovels, hand tools, lumber, sandbags, tarps, silt fence, compost filter logs, coir wattles, straw bales, spill containment socks and pads, spill berms and portable pumps.

Provide certification from pipe manufacturer the proposed pipe material and strength classification is appropriate for this project's application(s).

HDPE Pipe

Provide high density polyethylene extruded pipe.

1. Material:
    a. Comply with AWWA C906 for water main pipe, and AWWA C901 for water service pipe, and ASTM F714 for sewer pipe.
    b. Type III, Class C, Category 5, P34 material as per ASTM D3350.
    c. Minimum cell classification PE345464C.
2. Wall thickness: As determined by pipe manufacturer, but with a minimum ratio of:
    a. DR 11 for water main for ductile iron (DIOD) pipe sizes.
3. Color:
    a. Provide blue or blue striped pipe for potable water application.
4. Identification:
    a. Provide pipe with cell classification and SDR rating stamped on the pipe.

Pipe joining:

1. Thermal butt-fusion method:
    a. Provide equipment and procedures in accordance with manufacturer's recommendations regarding:
        (1) Surface temperature at heating plate.
        (2) Pressure of pipe to heating plate.
        (3) Soak time.

(4) Fusion pressure.
(5) Fusion cooling time.
(6) Allowable bead height and width.

b. Utilize only personnel certified by pipe manufacturer as fusing technicians.

Fusible PVC Pipe

Pipe:

1. Provide Cell Classification 12454 polyvinyl chloride plastic pipe complying with ASTM D-1784 and conforming to AWWA C900 or C905 for ductile iron pipe sizes.
2. Provide pipe with a standard dimension ratio of 18 (DR 18), unless thicker pipe is required for the conditions of the pullback.
3. Compound formulation shall be in accordance with PPI TR-2/2006. Material shall be 100% virgin resin, with no recycled contents or reworked compounds.
4. Provide plain end pipe. Ends shall be square to the pipe and free of any bevel or chamfer.
5. Color:
   a. Provide blue color pipe for water main applications.
6. Acceptable supplier: FPVC™ by Underground Solutions, Inc., Poway, California (858) 679-9551.

Joints:

1. Joints shall be thermal butt-fused in the field using supplier's/manufacturer's written instructions.
2. Joint strength shall be equal to or greater than the pipe strength.

Pipe joining:

1. Thermal butt-fusion method:
   a. Provide equipment and procedures in accordance with manufacturer's recommendations regarding:
      (1) Pipe size and dimensions.
      (2) Machine size.
      (3) Fusion technician identification.
      (4) Job identification number.
      (5) Fusion number.
      (6) Fusion, Heating and Drag Pressure settings.
      (7) Heat plate temperature.
      (8) Time stamp.
      (9) Heating and Cool Down time of fusion.
      (10) Ambient temperature.
   b. Use only personnel certified by pipe supplier/manufacturer as fusing technicians.

Pipe Tracer Wire

Provide wire to be used for electronic locating of all PVC and HDPE pipe installed by directional drilling.

Materials:

1. Provide locating system components designed for compatibility to ensure end-to-end conductivity for detecting underground utilities.
   a. Copperhead Complete Utility Locating System.
   b. KRIS-TECH Total Tracer Wire solution.

c. PRO-Line Safety Products.

2. Wire: Single Strand, single conductor, copper-clad steel, No. 10 AWG extra-high strength, high carbon with min. 2,032 lb. break load, min. 45 mil. HDPE insulation thickness (1045B-EHS) for direct bury installation; color coded per APWA Standards.
   a. Use higher strength wire if necessitated by drilling conditions.
3. Connectors: Single, three-way locking connectors (LSC1030C); Mainline to service connectors (3WB-01) and dielectric silicon sealant.
4. Provide 1.5 pound magnesium grounding anodes and 12-AWG wire.
5. Tracer wire test station: Provide for a direct connection to the tracer wire by utility locate transmitter manufactured for the application location; Identified with "WATER" on the cap and color coded per APWA Standards; Two terminal tracer wire to include a manually interruptible conductive/connective link between the terminal for the tracer wire connection and the terminal for the ground rod wire connection; External direct connection points to both tracer wire and ground rod on top of lid; Encapsulated magnet molded into the top portion of the box for detection by ferrous metal locator; Anti-corrosion wax/gel to protect wires.
   a. Copperhead SnakePit Lite Duty XL or Concrete/Driveway Access Point.
   b. KRIS-TECH Total Tracer Wire solution
   c. PRO-Line Safety Products

Surface Conditions

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

Protection

Protect existing utilities indicated or made known.

Protect trees and shrubs by plank wrappers securely wired in place or by providing a fence around the tree or shrub of sufficient distance away and of sufficient height so trees and shrubs will not be damaged in any way as part of this Work.

1. Do not permit any equipment to operate within 5 feet of any trees or shrubs that are to remain or in a manner as to harm overhanging branches.

Protection of persons and property:

1. Barricade open depressions and holes occurring as part of this Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by operations under this Section.

Remove the top six (6) inches of topsoil at entry and exit locations and stockpile the topsoil on-site. Cover the topsoil with tarps and sandbags or other weights to keep the tarps in place. Surround topsoil storage areas and the drilling and separation equipment and tanks with silt fence and/or compost filter logs and/or coir wattles.

Use means necessary to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the work areas.

Maintain access to the work areas at all times.

Provide protection to environment, public and private property, and public or private utilities from drilling fluid used as lubricant, cooling, suspending cuttings, controlling downhole pressures, providing pipe buoyancy, and for hole support during drilling and pipe insertion.

1. Provide vac-trucks and apparatus of sufficient size and quantity to reclaim drilling fluid used during operations.
2. Provide trucks, end loaders, and any other equipment and manpower necessary to maintain a clean and safe work site during construction.
3. Comply with requirements of paragraphs 1.2 G and 1.2 H. of this Specification.

HDD activities shall be constantly monitored by the Contractor and may be monitored by the representatives of the Owner, the Engineer, the Resident Project Representative and Environmental Inspector, or any combination of these representatives. Monitoring shall include:

1. Inspection along the drill path.
2. Continuous examination of drilling fluid pressure gauges and return flows to the surface pits by the Contractor.
3. Monitoring of drill status information regarding drilling conditions and alignment of the drilling profile during the course of drilling activities, by the Contractor.
4. If a release event occurs, contain the drilling fluids and continue inspection to determine any potential for movement of released drilling mud into or within a wetland or water body. Collect drilling mud returns at the release location for future analysis, as required. Notify the Owner, the Engineer, the Resident Project Representative and Environmental Inspector, or any combination of these representatives. The Owner, or their representative, will keep documentation and photographs of release events.
5. If a monitoring indicates a release is occurring or has occurred, the Contractor shall immediately begin containment.
    a. The Contractor shall determine and implement any modifications to the drilling technique or composition of drilling fluid (e.g., thickening of mud by increasing bentonite content, temporary lowering of the downhole pressures, etc.) to minimize or prevent further releases of drilling mud.
    b. If a release occurs within a wetland or water body, reasonable actions within the limitation of directional drilling technology and the Contractor's ability, shall be taken to re-establish drilling mud circulation.
    c. The Owner may evaluate the release to determine if containments structures are warranted and can effectively contain the release. When making this determination, the Owner may consider if placement of containments structures will cause additional adverse environmental impact.
    d. Upon completion of the drilling operations, the Owner may consult with applicable regulatory agencies to determine any final clean-up requirements for the release.
    e. If public health and safety are threatened by the release, drilling operations might be shut down until the threat is eliminated. This measure would be taken as a last resort because of the potential for drill hole collapse resulting from loss of downhole pressure.

Dispose of all bentonite slurry, drilling fluid, cuttings, pit spoils, etc. at a legal off-site disposal area.

Installation And Receiving Pits

Although most horizontal directional drilling is done without the use of pits, in the rare case that pits are required, comply with the following criteria.

Provide pits as required to install and receive pipes.

1. Provide tight sheeting where required to provide protection to public, permitting agency and public property, and adjacent utilities.
2. Comply with OSHA requirements for type, installation, and removal of sheeting.
3. Leave sheeting in place where indicated on the Drawings.
4. Provide fencing around pits to secure the area and to provide protection to the public.

Provide pits of length and width as necessary to install pipes and sized to fit area available for Work.

Provide dewatering as required to allow excavation of pits and installation of pipes.

1. Provide protection to environment from erosion or sedimentation resulting from all pumping operations.

Backfilling of pits:

1. Backfill with compacted granular backfill materials where indicated on the Drawings.
2. Backfill with compacted excavated materials where granular backfill material is not indicated.
3. Comply with compaction requirements outlined in TRENCH BACKFILL.
4. Re-grade slopes and ditches to match preconstruction condition and adjacent area.
5. Remove all construction debris, materials, excess excavated material, and sheeting from construction area upon completion of the Work.

Pipe Installation

Provide pipe insertion pits necessary for complete installation of pipe.

1. Position pits at locations indicated on the Drawings whenever possible.
2. Provide additional pits as required to install new pipe.
3. Provide all traffic control, barricades, flagmen, and other items at insertion pit areas as necessary to complete the work.
4. Provide tight sheeting at insertion pits to keep pit to the minimum size necessary to do the work.
    a. Remove sheeting when work is completed.

Connect to manholes or valve vaults where indicated on the Drawings and as outlined in these Specifications.

Install high density polyethylene (HDPE), Fusible PVC, or ductile iron pipe by pulling the pipe into place.

1. Provide winch systems designed to protect structures, provide directional stability, and pull pipe from insertion point to exit point without causing damage to the pipe being inserted.
2. Insert pipe in a continuous operation from point to point.
3. Provide lubricants as specified by pipe manufacturer to avoid stressing of pipe beyond its elastic limit during insertion.

4. Provide silencers, mufflers, or other devices required to reduce noise from compressors and other equipment to meet limits as outlined by Owner's local ordinances.

Joints:

1. Provide HDPE or Fusible PVC pipe assembled and jointed at the site by thermal butt-fusion welding techniques.
    a. Provide equipment and procedures in accordance with the pipe manufacturer's recommendations.
    b. Provide pressurized, heated fusing apparatus that meets manufacturer's requirements to provide watertight, smooth joints, and operated by personnel certified as fusion technicians by pipe manufacturer.
2. For PVC, provide elastomeric seals in non-metallic restrained joint couplings that are restrained with use of nylon splines.
    a. Utilize ductile iron mechanical gland adapters only when connecting to ductile iron pipe at extremities of PVC installation.
3. For D.I. pipe utilize only the restrained type joints allowed in paragraph 2.4.

Allow pipe cooling and relaxation time as per HDPE pipe manufacturer's recommendations, a minimum of 4 hours, prior to sealing of annular spaces at manholes or vaults.

1. Extend pipe into structure a minimum of 4 inches beyond interior walls prior to cooling period, to allow for relaxation of pipe.
2. Seal annular spaces at structure walls with non-shrink grout.
3. Utilize flexible rubber gasket collars for connections to new manholes or vaults if indicated on drawing details or required in other Sections of these Specifications.

Provide transition fittings and temporary plugs and/or caps on pipes where pipes are left for others to connect to.

Provide neoprene or rubber seals between drilled pipe and carrier pipe at termination of drilled pipe, if dual pipes are indicated.

Mark location of drilled pipe termination points on "Job Set" of plans, measured from adjacent permanent structures or iron pins.

Install pipe tracer wire (and conduit) pulled into place alongside the main pipe, at each drilling location for the total length of pipe.

1. Connect tracer wire to ductile or steel pipe or to tracer wire on pipe installed by other methods with a “hard” connection at each end of directional drilled pipe.

Anchors:

1. Provide HDPE butt-fused thrust collars around circumference of HDPE pipe at all termination points of drill.
2. Provide concrete thrust block/anchors around thrust collars at all HDPE pipe termination points.

Method of Measurement

The work will be measured in lineal feet along the centerline of the pipe and will begin and end at the transition to ductile iron water main pipe. The length of pipe can be measured with the Engineer prior to insertion, and totaled to arrive at total pay length.

Basis of Payment
The work will be paid for at the contract unit price per lineal FOOT for WATER MAIN, 10" (SPECIAL), regardless of depth.

WATER MAIN ABANDONMENT

Description: This work shall meet the requirements of Section 1019 of the Standard Specifications. Abandon water mains indicated on the Drawings as "to be abandoned" only after all requirements for testing and disinfection have been satisfied and all existing services have been connected to new water mains.

Provide concrete plugs in all water main pipes to be abandoned at the limits of the trench excavations, or at other locations if so indicated by the Drawings.

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

Close existing water valves only with the permission of the Engineer.

Remove valves and valve boxes, and fill excavation with compacted granular material.

Remove valves and valve vaults to top of pipe, and backfill with compacted granular backfill material.

Remove fire hydrants in total, including auxiliary box, and backfill excavation with compacted granular material.

Deliver valves, valve boxes, fire hydrants, and frames and lids to the Owner's Public Works Department.

Where abandonment of existing water mains or appurtenances require work outside of the work zone, restore area of work as indicated on the Drawings.

Removal of existing water mains that are being replaced by new water mains in the same location is considered incidental to the installation of the new water main and no additional compensation will be allowed.

Basis of Payment: The work will be paid for at the contract unit price per EACH for WATER MAIN ABANDONMENT.

WATER MAIN LINE STOP

Description
The work of this Pay Item consists of the installation of a line stop in an existing water main complete, including locating of existing main; sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; protection, repair, or replacement of existing utilities; dewatering, including erosion and sedimentation control methods and devices to provide protection to the environment from all pumping operations; sheeting; shoring; tapping of pipe to install temporary line stop bladder; installation of line stop; and

temporary fencing, barricades, and other items needed to provide traffic control and protection and to protect excavation while new valve is being installed.

The work of this Pay Item includes removal of the line stop bladder, and capping of the tapping valve once new main valve is in place; backfilling of the excavation with compacted granular trench backfill material; but not including surface restoration.

Basis of Payment
The work will be paid for at the contract unit price EACH for WATER MAIN LINE STOP, of the size specified.

WATER MAIN REMOVAL

Description
This work shall consist of the removal of portions of the existing water main. This work shall be performed at locations shown on the plans and/or subject to the review of the Engineer in accordance with Section 551 of the Standard Specifications, except as specified herein.

Work shall also include coordination with the City of Crystal Lake for shutdown of existing valves.

Method of Measurement
This work will be measured for payment in place per FOOT for WATER MAIN REMOVAL, of the diameter specified.

Basis of Payment
This work will be paid for at the contract unit price per lineal FOOT for WATER MAIN REMOVAL, of the diameter specified, measured as removed.

WATER MAIN TO BE ABANDONED, 10”

Description
This work shall meet the requirements of Section 1019 of the Standard Specifications. This work shall consist of furnishing, transporting and placing controlled low-strength material (CLSM) in water mains of the diameter specified to be abandoned/filled as shown on the plans along the west side of Randall Road, from Village Road to Alexandra Boulevard within the City of Crystal Lake municipal limits.

The Contractor shall not open cut the pipe trench beyond that which is reasonably necessary to access the water main. Concrete or brick and mortar bulkheads per Article 550.05 shall be installed at the limits of the water main abandonment if necessary as determined by the Engineer, to ensure the pipe is completely filled with the CLSM and no air voids remain. All excess material resulting from the filling of the existing sewer shall be disposed of by the contractor according to Article 202.03. The backfilling of locations at the limits of abandonment shall be according to Article 550.07.

Method of Measurement
This work shall be measured for payment in feet.

Basis of Payment
This work shall be paid for at the contract unit price per FOOT for WATER MAIN TO BE ABANDONED, 10". This price shall include all labor, materials and equipment necessary to complete this work as described herein and directed by the Engineer.

WATER MAIN REMOVAL and TRENCH BACKFILL, if required, will be paid for separately as provided for elsewhere in the contract.

WATER VALVES

Description
The work of this Pay Item shall consist of gate valves, complete in place, installed as a part of the water main installation, at locations indicated on the Drawings.

This Pay Item does not include fire hydrant auxiliary valves, which are paid for as part of the pay item for FIRE HYDRANT.

Materials
Provide gate valves with clockwise closing direction. Design in accordance with AWWA C509 (cast iron body), or AWWA C515 (ductile iron body), bronze fitted, resilient wedge and seat type with non-rising stem and O-ring packing.

Provide mechanical joint ends for buried valves and ANSI Class 125 flange ends or mechanical joint ends for valve installed in vaults as indicated on the Drawings.

a. Provide restrained type joints for all mechanical joint end valves.
b. Provide and install nuts and bolts matching the nuts and bolts used for fittings.

All valves shall be American Flow Control or Mueller resilient wedge gate valves.

Basis of Payment
The work will be paid for at the contract unit price per EACH for WATER VALVES of the valve size specified.

WEED CONTROL, BROADLEAF IN TURF

Description: This work shall consist of the application of a broadleaf herbicide (TRIPLET HI-D SELECTIVE HERBICIDE) along highway roadsides for control of broadleaf weeds in turf areas.

Materials: The broadleaf herbicide (TRIPLET HI-D SELECTIVE HERBICIDE) shall have the following formulation:

A. Active Ingredients

1.	Dimethylamine Salt of 2,4 Dichlorophenoxyacetic acid	41.08%
2.	Dimethylamine Salt of (+)-R-2-(2-Methyl-4-Chlorophenoxy) propionic Acid	6.95%
3.	Dimethylamine Salt of Dicamba (3,6-Dichloro-o-anisic Acid)	1.67 %

B.	Inert Ingredients	50.30%
	TOTAL	100.00%

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

1 The chemical names of the compound and the percentage by weight of the ingredients must match the above specified formulation.

2 A statement that the material is in a solution which will form a satisfactory emulsion for use when diluted with water for normal spraying conditions.

3 A statement that the TRIPLET HI-D SELECTIVE HERBICIDE, when mixed with water, will be completely soluble and dispersible and remain in suspension with continuous agitation.

4 A statement describing the products proposed for use when the manufacturer of TRIPLET HI-D SELECTIVE HERBICIDE requires that surfactants, drift control agents, or other additives be used with the product. These tank mix additives shall be used as specified by the manufacture. Required additives will not be paid for separately.

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

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

Application Rate: The TRIPLET HI-D SELECTIVE HERBICIDE broadleaf herbicide shall be applied at the rate of two (2) quarts per acre.

Two (2) quarts of TRIPLET HI-D SELECTIVE HERBICIDE formulation shall be diluted with a minimum of forty (40) gallons of water and applied as a mixture. Water for dilution of the mixture will not be paid for separately.

Method of Measurement: Weed Control, Broadleaf in Turf will be measured for payment in gallons of undiluted TRIPLET HI-D SELECTIVE HERBICIDE applied as specified. The gallons for payment will be determined based on the gallons specified on the label attached to the original container supplied by the manufacturer.

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

ROADWAY LIGHTING (DSE)

GENERAL ELECTRICAL REQUIREMENTS

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.

Within 30 calendar days after contract execution, the Contractor shall submit, for approval to the MCDOT prior to submittal to IDOT Bureau of Local Roads and Streets (BLRS), 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.

Each PDF document must be a vector format PDF from the originating supplier or program and not scanned images.

The submittal must clearly identify the specific model number or catalog number of the item being proposed.

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.

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 Department may provide a list of pay items broken out by discipline upon request for a particular contract.

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.

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.

Marking Proposed Locations for Highway Lighting System. The Contractor shall mark or stake the proposed locations of all poles, cabinets, junction boxes, pull boxes, handholes, cable routes, pavement crossings, and other items pertinent to the work. A proposed location inspection by the Engineer shall be requested prior to any excavation, construction, or installation work after

all proposed installation locations are marked. Any work installed without location approval is subject to corrective action at no additional cost to the Department.

Inspection of electrical work. Inspection of electrical work shall be according to Article 105.12 and the following.

Before any splice, tap, or electrical connection is covered in handholes, junction boxes, light poles, or other enclosures, the Contractor shall notify and make available such wiring for the Engineer's inspection.

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 shall be measured and recorded with all loads disconnected. Prior to performance of the insulation resistance test, the Contractor shall remove all fuses within all light pole bases on a circuit to segregate the luminaire loads.

On tests of new cable runs, the readings shall exceed 50 megohms for phase and neutral conductors with a connected load over 20A and shall exceed 100 megohms for conductors with a connected load of 20A 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 120 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 made on the PDF copy of the as-Let documents using a PDF editor. Hand drawn notations or markups and scanned plans are not acceptable. These drawings shall be updated daily and shall be available for inspection by the Engineer during the work. The record drawings shall include the following:

- Cover Sheet
- The Electrical Maintenance Contract Management System (EMCMS) location designation, i.e. “L” number
- Summary of Quantities, electrical items only
- Legends, Schedules, and Notes
- Plan Sheets
- Pertinent Details
- Single Line Diagrams
- 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 CD-ROM 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 three 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 three hardcopies and two CD-ROMs of the final documentation shall be submitted utilizing the following final documentation pay item numbers:

Pay Code	Description	Discipline
FDLRD000	Record Drawings - Lighting	Lighting
FDSRD000	Record Drawings - Surveillance	Surveillance
FDTRD000	Record Drawings - Traffic Signal	Traffic Signal
FDIRD000	Record Drawings - ITS	ITS
FDLCC000	Catalog Cuts - Lighting	Lighting
FDSCC000	Catalog Cuts – Surveillance	Surveillance
FDTCC000	Catalog Cuts – Traffic Signal	Traffic Signal
FDICC000	Catalog Cuts - ITS	ITS
FDLWL000	Warranty - Lighting	Lighting
FDSWL000	Warranty - Surveillance	Surveillance
FDTWL000	Warranty - Traffic Signal	Traffic Signal
FDIWL000	Warranty - ITS	ITS
FDLTR000	Test Results - Lighting	Lighting
FDSTR000	Test Results - Surveillance	Surveillance
FDTTR000	Test Results - Traffic Signal	Traffic Signal
FDITR000	Test Results - ITS	ITS
FDLINV00	Inventory - Lighting	Lighting
FDSINV00	Inventory - Surveillance	Surveillance
FDTINV00	Inventory - Traffic Signal	Traffic Signal
FDIINV00	Inventory - ITS	ITS
FDLGPS00	GPS - Lighting	Lighting
FDSGPS00	GPS - Surveillance	Surveillance
FDTGPS00	GPS - Traffic Signal	Traffic Signal
FDIGPS00	GPS - ITS	ITS

Record Drawings shall include Marked up plans, controller info, Service Info, Equipment Settings, Manuals, Wiring Diagrams for each discipline.

Test results shall be all electrical test results, fiber optic OTDR, and Fiber Optic power meter as applicable for each discipline.

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. 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

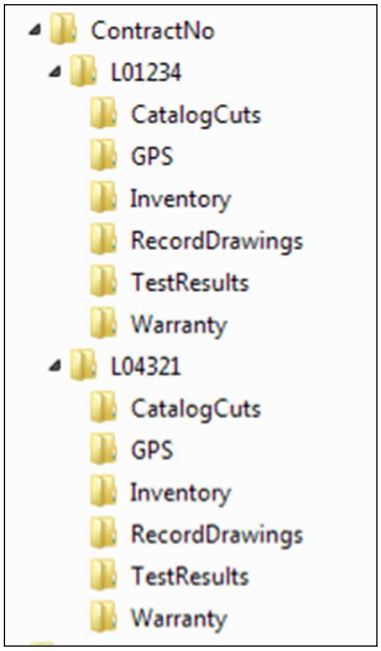
A spreadsheet template will be available from the Engineer for use by the Contractor.

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.

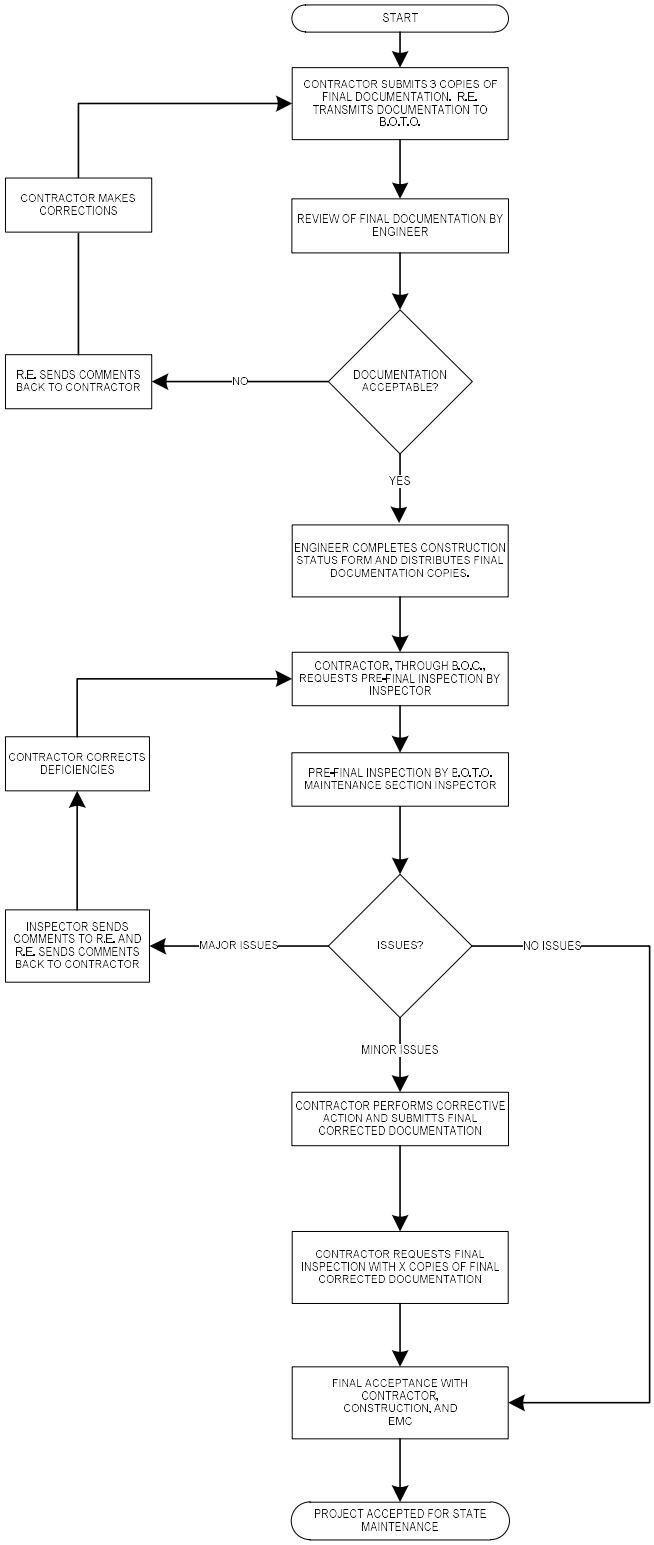
The Final Acceptance Documentation Checklist shall be completed and is contained elsewhere herein.

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.


START
CONTRACTOR SUBMITS 3 COPIES OF FINAL DOCUMENTATION. R.E. TRANSMITS DOCUMENTATION TO B.O.T.O.
REVIEW OF FINAL DOCUMENTATION BY ENGINEER
DOCUMENTATION ACCEPTABLE?
NO
R.E. SENDS COMMENTS BACK TO CONTRACTOR
CONTRACTOR MAKES CORRECTIONS
YES
ENGINEER COMPLETES CONSTRUCTION STATUS FORM AND DISTRIBUTES FINAL DOCUMENTATION COPIES.
CONTRACTOR, THROUGH B.O.C., REQUESTS PRE-FINAL INSPECTION BY INSPECTOR
PRE-FINAL INSPECTION BY B.O.T.O. MAINTENANCE SECTION INSPECTOR
ISSUES?
MAJOR ISSUES
INSPECTOR SENDS COMMENTS TO R.E. AND R.E. SENDS COMMENTS BACK TO CONTRACTOR
CONTRACTOR CORRECTS DEFICIENCIES
NO ISSUES
MINOR ISSUES
CONTRACTOR PERFORMS CORRECTIVE ACTION AND SUBMITTS FINAL CORRECTED DOCUMENTATION
CONTRACTOR REQUESTS FINAL INSPECTION WITH X COPIES OF FINAL CORRECTED DOCUMENTATION
FINAL ACCEPTANCE WITH CONTRACTOR, CONSTRUCTION, AND EMC
PROJECT ACCEPTED FOR STATE MAINTENANCE

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 -Three hardcopies (11" x 17") -Scanned to two CD-ROMs	☐ ☐	☐ ☐
Field Inspection Tests -Voltage -Amperage -Cable Insulation Resistance -Continuity -Controller Ground Rod Resistance (Three Hardcopies & scanned to two CD's)	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐
GPS Coordinates -Excel file (Check Special Provisions, Excel file scanned to two CD's)	☐	☐
Job Warranty Letter (Three Hardcopies & scanned to two CD's)	☐	☐
Catalog Cut Submittals -Approved & Approved as Noted (Scanned to two CD's)	☐	☐
Lighting Inventory Form (Three Hardcopies & scanned to two CD's)	☐	☐
Lighting Controller Inventory Form (Three Hardcopies & scanned to two CD's)	☐	☐
Light Tower Inspection Form (If applicable, Three Hardcopies & scanned to two CD's)	☐	☐

Three 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 shall be 11" x 17" size. 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.

LIGHTING CONTROLLER, BASE MOUNTED, 240VOLT, 200AMP

Description
This item shall consist of furnishing and installing a Control Center complete with all circuit breakers and appurtenances as shown on the plans, Section 825 of the SSRBC and as modified herein.

Materials
The Control Center, complete, shall consist of the following:

1. Controller foundation and pad.
2. Ground Mounted Aluminum Cabinet, 50” x 30” x 19” minimum size.
3. Enclosure to house mechanically held contactor of proper size for system with 120 volt coil. Also, to contain thermal magnetic main circuit breaker of adequate size. Wiring for the number of circuit breakers to be provided. Provide the number of circuit breakers indicated on the plans.
4. GFI Duplex Convenience outlet and porcelain lampholder with pull chain.
5. Hand-Off-Auto Switch.
6. Photo-electric cell

The concrete foundation and pad for the cabinet shall be of the dimensions shown on the plans. The concrete shall conform to specifications for Class “SI” concrete as outlined in the Standard Specifications.

Rigid Steel Conduit and elbows, of the diameter indicated, shall be placed in the foundation and extended into the cabinet as shown on the plans. Insulating bushings shall be neoprene and shall be of a creditable manufacturer’s make, anchor bolts shall be provided as shown on the plans.

The cabinet shall have a smooth and even texture and shall be free from marks and imperfections. After fabrication and painting, the outside surface of the control cabinet shall be covered with a tough nonstaining gummed paper. Such protective covering shall remain in place until such time as the Engineer will order its removal. After the protective covering has been removed, the entire cabinet shall be thoroughly cleaned to the satisfaction of the Engineer.

Equipment mounting panels shall be of the dimensions and shape indicated on the plans and shall be fabricated from non-conducting inorganic, non-asbestos subpanel. Equipment to be mounted on the panels will be as shown on the plans.

Each panel shall be easily mounted or removed from the front of the cabinet. All equipment mounted on panels shall be easily installed or removed from the front. All wiring of equipment shall be in the front of the panels and wire sizes shall be as designated on the Control Cabinet Wiring Diagram.

A suggested arrangement of equipment on the control equipment panels is shown on the plans. This arrangement has been carefully planned and any deviation from same shall be submitted to the Engineer for approval.

The control cabinet door shall face away from the roadway. All panel and equipment shall be front mounted necessitating no back entry to the cabinet. All cable and connections shall be in front of the panels as shown. All wire or cable sizes shall be as shown on the plans. Bus bar and

wire or cable sizes shall be in conformity with the National Electrical code. Bus bars for the equipment shall be insulated, where exposed, except at terminal points.

The main breakers shall be standard UL listed molded case, which are sufficient to trip the branch circuit breakers. The Main Breakers shall be of the size indicated on the plans. The electrically operated mechanically held automatic switch shall be 200 Amp, 2P, 600v, with 120v coil. The contactor shall be complete with coil clearing contacts to interrupt current through the coil once the contactor is held in position. The main contacts for the automatic switch shall be double breaksilver type protected by arcing contacts. Contacts shall be self-aligning and renewable from the front of the panel.

A three position switch as indicated on the plans shall be provided. The switch shall provide for automatic operation, manual and off.

The photocell shall be provided at the controller cabinet as indicated in the plan details.

It is called to the attention of the Contractor that all branch circuits shall be identified by numbers as indicated on the control cabinet wiring diagram. The exact color and number sequence, shown on the plans, must be followed in order to maintain the designed load across each pole of the main switch.

All ends of conduit terminating in the control cabinet shall be blocked with a neoprene plug, and sealed with an approved sealing compound.

Submittal of Drawings

The Contractor shall furnish, prior to any shop work or fabrication, complete and detailed drawings as to dimensions, type of material and method of fabrication for the control cabinet, equipment mounting panel, arrangement of equipment of panels, bus bar sizes, wire or cable sizes for connections between main breaker, automatic switches, photo electric cell, circuit breakers, H-O-A switch, all appurtenances as shown on the plans, and any other equipment as may be necessary for proper operation and control of the lighting system.

Basis of Payment

This work will be paid for at the contract unit price EACH for LIGHTING CONTROLLER, BASE MOUNTED, 240VOLT, 200AMP, which price shall be payment in full for furnishing and placing Class “SI” concrete foundation with rigid steel conduit for cable entrance and grounding of equipment; Class “SI” concrete pad; furnishing and placing ground rod, furnishing and placing fabricated cabinet complete with equipment panels and all necessary circuit breakers, appurtenances and wiring of same as indicated on the plans; furnishing, installing and connecting the photo-electric cells, and shall include all labor, materials, tools and incidentals necessary to complete and test the operation of the control cabinet as herein specified and as shown on the plans.

LUMINAIRE, LED, SPECIAL

Description.
This work shall consist of furnishing and installing a roadway LED luminaire as shown on the plans, as specified herein.

General.
The luminaires shall be American Electric Lighting Autobahn Series ATBL-B-MVOLT-N2-4B-20-HSS-NL-PT-P7-SH-RFD. This code indicates:

ATBL:	Autobahn LED Roadway
B:	21,000 Lumens
MVOLT:	Multi-volt 120-277V
N2:	Roadway Type II, Narrow
4B:	4 Bolt Mounting
20:	20kV/10kA SPD
HSS:	House Side Shield
NL:	NEMA Label Indicating Wattage
PT:	Power Tray
P7:	7 Pin Photocontrol Receptacle (dimmable driver included)
SH:	Short Cap
RFD:	For internal label per ANSI, & made in USA, 5 units to be tested.

Any substitution shall require the approval of both the Engineer and the McHenry County Division of Transportation.

Luminaires must be new. No luminaires of used, remanufactured, or similar conditions will be accepted.

Installation.
Each luminaire shall be installed according to the luminaire manufacturer's recommendations.

Luminaires which are pole mounted shall be mounted on site such that poles and arms are not left unloaded. Pole mounted luminaires shall be leveled/adjusted after poles are set and vertically aligned before being energized. When mounted on a tenon, care shall be exercised to assure maximum insertion of the mounting tenon. Each luminaire shall be checked to assure compatibility with the project power system. When the night-time check of the lighting system by the Engineer indicates that any luminaires are mis-aligned, the mis-aligned luminaires shall be corrected at no additional cost.

No luminaire shall be installed prior to approval. Where independent testing is required, full approval will not be given until complete test results, demonstrating compliance with the specifications, have been reviewed and accepted by the Engineer.

Pole wiring shall be provided with the luminaire. Pole wire shall run from handhole to luminaire. Pole wire shall be sized No. 10, rated 600 V, RHW/USE-2, and have copper conductors, stranded in conformance with ASTM B 8. Pole wire shall be insulated with cross-linked polyethylene (XLP) insulation. Pole wire shall include a phase, neutral, and green ground wire. Wire shall be trained within the pole or sign structure so as to avoid abrasion or damage to the insulation.

Pole wire shall be extended through the pole, pole grommet, luminaire ring, and any associated arm and tenon. The pole wire shall be terminated in a manner that avoids sharp kinks, pinching, pressure on the insulation, or any other arrangement prone to damaging insulation value and producing poor megger test results. Wires shall be trained away from heat sources within the luminaire. Wires shall be terminated so all strands are extended to the full depth of the terminal lug with the insulation removed far enough so it abuts against the shoulder of the lug, but is not compressed as the lug is tightened.

Included with the pole wiring shall be fusing located in the handhole. Fusing shall be according to Article 1065.01 of the IDOT Standard Specifications with the exception that fuses shall be 6 amperes.

Each luminaire and optical assembly shall be free of all dirt, smudges, etc. Should the optical assembly require cleaning, a luminaire manufacturer approved cleaning procedure shall be used.

Horizontal mount luminaires shall be installed in a level, horizontal plane, with adjustments as needed to insure the optics are set perpendicular to the traveled roadway.

When the pole is bridge mounted, a minimum size stainless steel 1/4-20NC set screw shall be provided to secure the luminaire to the mast arm tenon. A hole shall be drilled and tapped through the tenon and luminaire mounting bracket and then fitted with the screw.

Warranty.
The entire luminaire and all of its component parts shall be covered by a 5-year warranty. Failure is when one or more of the following occur:

1) Negligible light output from more than 10 percent of the discrete LEDs.
2) Significant moisture that deteriorates performance of the luminaire.
3) Driver that continues to operate at a reduced output due to overheating.

The warranty period shall begin on the date of luminaire shipment. The Contractor shall verify that the Resident Engineer has noted the shipment date in the daily diary. Copy of the shipment documentation shall be submitted.

The replacement luminaire shall be of the same manufacturer, model, and photometric distribution as the original. If at the time of failure the manufacturer no longer exists or the model is no longer available, the McHenry County Division of Transportation shall approve of any substitutions.

Basis of Payment.
This work will be paid for at the contract unit price per EACH for LUMINAIRE, LED, SPECIAL of the output designation specified.

REMOVE TEMPORARY WOOD POLE

Description This work shall consist of the removal of temporary poles and all associated apparatus and connections. The poles shall become property of the Contractor and removed offsite.

The void caused by the removal of the pole shall be backfilled in accordance with Section 841 of the Standard Specifications.

Basis of Payment This work shall be paid for at the Contract unit price per EACH for REMOVE TEMPORARY WOOD POLE, which shall include the labor, equipment, and materials required to perform the work described herein.

STEEL LUMINAIRE MAST ARM ASSEMBLY 20 FT

Description.
This work shall consist of furnishing and installing steel street lighting mast arms on steel poles as specified herein and as shown on the plans.

General Requirements.
The work described under this item involves the Contractor furnishing and installing steel lighting mast arms of the size and type shown on the plans and specified here in. The lighting mast arms specified herein are the additional lighting mast arms installed on combination lighting and traffic signal poles with two lighting arms.

Furnish and install a second steel lighting mast arm on steel traffic signal poles with two lighting mast arms.

Steel mast arms shall be according to Article 1069.03(a) of the Standard Specifications.

Aluminum mast arms shall be according to Article 1069.02(a) of the Standard Specifications.

Method of Measurement.
STEEL LUMINAIRE MAST ARM ASSEMBLY 20 FT. shall be measured per each additional mast arm of the type and size specified here and shown on the plans.

Basis of Payment.
This item shall be paid for at the contract unit price EACH for STEEL LUMINAIRE MAST ARM ASSEMBLY 20 FT. of the size and type indicated on the plans, which shall be payment in full for furnishing and installing the second lighting mast arm on steel poles shown with two lighting mast arms, as described herein, shown on the plans, and approved by the Engineer.

TEMPORARY LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H

Description.
This work shall consist of furnishing and installing a temporary roadway LED luminaire as shown on the plans, as specified herein.

General.
The luminaire including the housing, driver and optical assembly shall be assembled in the U.S.A. The luminaire shall be assembled by and manufactured by the same manufacturer. 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

Submittal Requirements.
The Contractor shall also the following manufacturer's product data for each type of luminaire:

1. Descriptive literature and catalogue cuts for luminaire, LED driver, and surge protection device. Completed manufacturer’s luminaire ordering form with the full catalog number provided

2. LED drive current, total luminaire input wattage and total luminaire current at the system operating voltage or voltage range and ambient temperature of 25 C.

3. LED efficacy per luminaire expressed in lumens per watt (l/w).

4. Initial delivered lumens at the specified color temperature, drive current, and ambient temperature.

5. Computer photometric calculation reports as specified and in the luminaire performance table.

6. TM-15 BUG rating report.

7. Isofootcandle chart with max candela point and half candela trace indicated.

Housing.
Material. The luminaire shall be a single device not requiring on-site assembly for installation. The driver for the luminaire shall be integral to the unit.

The luminaire shall slip-fit on a mounting arm with a 2" diameter tenon (2.375" outer diameter), and shall have a barrier to limit the amount of insertion. The slip fitter clamp shall utilize four (4) bolts to clamp to the tenon arm. The luminaire shall be provided with a leveling surface and shall be capable of being tilted ±5 degrees from the axis of attachment in 2.5 degree increments and rotated to any degree with respect to the supporting arm.

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.

The effective projected area of the luminaire shall not exceed 1.6 sq. ft.

The total 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.

A passive cooling method with no moving, rotating parts, or liquids shall be employed for heat management.

Hardware. All hardware shall be stainless steel or of other corrosion resistant material approved by the Engineer.

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.

Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LED's.

Wiring. Wiring within the electrical enclosure shall be rated at 600v, 105°C or higher.

Driver.
The driver shall be integral to the luminaire shall be capable of receiving an 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 (± 10%) or 347 to 480 volts (± 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.

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.

LED 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.

The optical assembly shall utilize high brightness, long life, minimum 70 CRI, 4,000K color temperature (+/-300K) LEDs binned in accordance with ANSI C78.377. Lenses shall be UV-stabilized acrylic or glass.

The luminaire may or may not have a glass lens over the LED modules. If a glass lens is used, it must be a flat lens. Material other than glass will not be acceptable. If a glass lens is not used, the LED modules may not protrude lower than the luminaire housing.

The assembly shall have individual serial numbers or other means for manufacturer tracking.

Photometric Performance.
Luminaires shall be tested according to IESNA LM-79. This testing shall be performed by a test laboratory holding accreditation from the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) for the IESNA LM-79 test procedure.

The luminaire shall have a BUG rating of Back Light B3 or less, Up Light rating of U0, and a Glare rating of G3 or less unless otherwise indicated in the luminaire performance table.

Photometric Calculations.
Calculations. Submitted report shall include a luminaire classification system graph with both the recorded lumen value and percent lumens by zone along with the BUG rating according to IESNA TM-15.

Complete point-by-point luminance and veiling luminance calculations as well as listings of all indicated averages and ratios as applicable shall be provided in accordance with IESNA RP-8 recommendations. Lighting calculations shall be performed using AGi32 software with all luminance calculations performed to one decimal place (i.e. x.x cd/m2). Uniformity ratios shall also be calculated to one decimal place (i.e. x.x:1). Calculation results shall demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Table(s). Values shall be rounded to the number of significant digits indicated in the luminaire performance table(s).

All photometry must be **photopic**. Scotopic or mesopic factors will not be allowed. The AGi32 file shall be submitted at the request of the Engineer.

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE
ROADWAY LIGHTING

GIVEN CONDITIONS

Roadway Data	Pavement Width	98	Ft
	Number of Lanes Left of Median	3	
	Number of Lanes Right of Median	3	
	Lane Width	11	Ft
	Median Width	32	Ft
	IES Surface Classification	R3	
	Q-Zero Value	0.07	
Mounting Data	Mounting Height	50	Ft
	Mast Arm Length	15	Ft
	Pole Set-Back from Edge of Pavement	20	Ft
Luminaire Data	Source	LED	
	Color Temperature	4000	°K
	Lumens	26,500	Min
	Pay Item Lumen Designation	H	
	BUG Rating	B3-U0-G3	
	IES Vertical Distribution	Medium or Long	
	IES Control of Distribution	Full-Cutoff	
	IES Lateral Distribution	Type IV	
	Total Light Loss Factor	0.70	
Pole Layout Data	Spacing	n/a (intersection only)	Ft
	Configuration		
	Luminaire Overhang over E.O.P.	-5	Ft

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested, and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

Roadway Luminance	Average Luminance, L_{AVE} (Max)	0.9	Cd/m^2
	Average Luminance, L_{AVE} (Min)	0.6	Cd/m^2
	Uniformity Ratio, L_{AVE}/L_{MIN}	3	Max
	Uniformity Ratio, L_{MAX}/L_{MIN}	5	Max
	Veiling Luminance Ratio, L_V/L_{AVE}	0.3	Max

Installation.
Each luminaire shall be installed according to the luminaire manufacturer's recommendations.

Luminaires which are pole mounted shall be mounted on site such that poles and arms are not left unloaded. Pole mounted luminaires shall be leveled/adjusted after poles are set and vertically aligned before being energized. When mounted on a tenon, care shall be exercised to assure maximum insertion of the mounting tenon. Each luminaire shall be checked to assure compatibility with the project power system. When the night-time check of the lighting system by the Engineer indicates that any luminaires are mis-aligned, the mis-aligned luminaires shall be corrected at no additional cost.

No luminaire shall be installed prior to approval. Where independent testing is required, full approval will not be given until complete test results, demonstrating compliance with the specifications, have been reviewed and accepted by the Engineer.

Pole wiring shall be provided with the luminaire. The pole wire shall be terminated in a manner that avoids sharp kinks, pinching, pressure on the insulation, or any other arrangement prone to damaging insulation value and producing poor megger test results. Wires shall be trained away from heat sources within the luminaire. Wires shall be terminated so all strands are extended to the full depth of the terminal lug with the insulation removed far enough so it abuts against the shoulder of the lug, but is not compressed as the lug is tightened.

Included with the pole wiring shall be fusing. Fusing shall be according to Article 1065.01.

Each luminaire and optical assembly shall be free of all dirt, smudges, etc. Should the optical assembly require cleaning, a luminaire manufacturer approved cleaning procedure shall be used.

Horizontal mount luminaires shall be installed in a level, horizontal plane, with adjustments as needed to insure the optics are set perpendicular to the traveled roadway.

Method of Measurement.
The rated initial minimum 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.

Designation Type	Minimum Initial Luminous Flux	Designation Type	Minimum Initial Luminous Flux
A	2,200	G	15,500
B	3,150	H	25,200
C	4,400	I	47,250
D	6,300	J	63,300
E	9,450	K	80,000+
F	12,500		

Where delivered lumens is defined as the minimum initial delivered lumens at the specified color temperature. Luminaires with an initial luminous flux less than the values listed in the above table will not be acceptable even if they meet the requirements given in the Luminaire Performance table shown in the contract.

Basis of Payment.
This work will be paid for at the contract unit price per EACH for TEMPORARY LUMINAIRE, LED, ROADWAY, of the output designation specified.

TEMPORARY WOOD POLE, CLASS 4

This work shall consist of furnishing and installing a Temporary Wood Pole, Class 4, of the height specified, in accordance with Section 830 of the Standard Specifications and the temporary lighting plans.

Basis of Payment
This work shall be paid for at the Contract unit price per EACH for TEMPORARY WOOD POLE, CLASS 4, of the height specified, which shall include the labor, equipment, and materials required to perform the work described herein.

TRAFFIC SIGNAL (DSE)

CONCRETE FOUNDATION, PEDESTRIAN POST

Description
This item shall consist of constructing a concrete foundation for supporting a pedestrian post at the locations shown on the plans.

General
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. at the threaded end.
>
> Depending on the foundation type, the top of foundation shall be between 1 in. and 6 in. above finished grade or as directed by the Engineer.
>
> No foundation is to be poured until the Resident Engineer gives their approval as to the depth of the foundation.
>
> The diameter of the foundation shall be 24 in. as shown in the plans."

Basis of Payment.
This work will be paid for at the Contract unit price per FOOT of depth of CONCRETE FOUNDATION, TYPE A.

CONCRETE FOUNDATIONS (SPECIAL)

Description
This item shall consist of constructing a foundation for supporting a traffic signal mast arm at the location shown on the plans.

Materials
The foundation for the traffic signal mast arm shall be of the size, depth, and dimensions shown on the plans. The concrete shall conform to specifications for Class "SI" concrete as outlined in the Standard Specifications. The form liner textured surface and staining shall follow the special provisions for FORM LINER TEXTURED SURFACE and STAINING CONCRETE STRUCTURES, respectively.

Construction shall conform to the details shown in the plans, all application articles of Section 878 of the Standard Specifications, and the special provision for FORM LINER TEXTURED SURFACE. The foundation shall include the anchor bolts of the type and size shown on the details in the plans.

Basis of Payment
This work will be paid for at the contract unit price per EACH for CONCRETE FOUNDATION (SPECIAL) which price shall include all labor, materials, tools and incidentals necessary to complete the concrete foundation herein specified and as shown on the plans. The form liner

textured surface and staining will not be paid for separately but shall be considered included in the cost of CONCRETE FOUNDATION (SPECIAL).

REMOVE EXISTING DOUBLE HANDHOLE

Add the following to Article 895.05 of the Standard Specifications.

Description

The existing double handhole which is to be removed and is to become the property of the Contractor shall be disposed of at the Contractor's expense. This work shall include all of the necessary work to remove the existing double handholes from the ground and to restore the existing pavement or ground to match the adjacent conditions at the site. Holes created should be filled or barricaded immediately to prevent safety hazards.

Basis of Payment

This work shall be paid for at the contract unit price, per EACH, for REMOVE EXISTING DOUBLE HANDHOLE, of the type indicated on the plans, which price shall include all work, excavation, materials, all equipment and labor required to complete the work as specified and to restore the existing ground or pavement.

REMOVE FIBER OPTIC CABLE FROM CONDUIT

Description

This work shall consist of removing a portion of the existing fiber optic interconnect cable as specified herein or as directed by the Engineer.

The existing fiber optic cable shall be disconnected from the traffic signal controller cabinets and removed from the existing conduits. The existing interconnect cable shall not be disconnected and removed until the temporary radio interconnect installation is operating to the satisfaction of the Engineer.

Basis of Payment

This work will be paid for at the contract unit price per FOOT for REMOVE FIBER OPTIC CABLE FROM CONDUIT which price shall be payment in full for disconnecting the existing fiber optic cable from the controller cabinets and removing the existing fiber optic cable.

TRAFFIC SIGNAL (MCDOT)

TRAFFIC SIGNAL GENERAL REQUIREMENTS (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
800.01TS

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations.

All material furnished shall be new unless otherwise noted herein. Traffic signal construction and maintenance work shall be performed by personnel holding current International Municipal Signal Association (IMSA)/Illinois Public Service Institute (IPSI) Traffic Signal Technician Level II certification. A copy of the certification shall be immediately available upon request of the Engineer. The work to be done under the Contract consists of furnishing, installing, and maintaining all traffic signal work and items as specified in the plans and as specified herein in a manner acceptable and approved by the Engineer.

Definitions of Terms.
Add the following to Section 101 of the Standard Specifications:

101.56 Manufacturer. Company that sells a particular type of product directly to the Contractor or the Vendor.

101.57 Vendor. Company that supplies, represents, and provides technical support for IDOT District One approved traffic signal controllers and other related equipment. The Vendor shall be located within IDOT District One and shall:

(1) Be full service with on-site facilities to assemble, test and troubleshoot traffic signal controllers and cabinet assemblies.

(2) Maintain an inventory of IDOT District One approved controllers and cabinets.

(3) Be staffed with permanent sales and technical personnel able to provide traffic signal controller and cabinet expertise and support.

(4) Have technical staff that hold current IMSA/IPSI Traffic Signal Technician Level III certification and shall attend traffic signal turn-ons as well as cabinet and/or controller modifications.

Submittals.
Revise Article 801.05 of the Standard Specifications to read:

"All material approval requests shall be submitted electronically following District guidelines unless directed otherwise by the Engineer. Submittal requirements shall include, but not limited to the following:

(1) All material approval requests shall be made prior to or no later than the date of the preconstruction meeting. A list of major traffic signal items can be found in Article 801.05. Material or equipment which is similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.

(2) Product data and shop drawings shall be assembled by pay item. Only the top sheet of each pay item submittal will be stamped by the Department with the review status, except shop drawings for mast arm pole assemblies and the like will be stamped with the review status on each sheet.

(3) Original manufacturer published product data and shop drawing sheets with legible dimensions and details shall be submitted for review.

(4) When hard copy submittals are necessary, four (4) complete copies of the manufacturer's descriptive literatures and technical data for the traffic signal materials shall be submitted. For hard copy or electronic submittals, the descriptive literature and technical data shall be adequate for determining whether the materials meet the requirements of the plans and specifications. If the literature contains more than one item, the Contractor shall indicate which item or items will be furnished.

(5) When hard copy submittals are necessary for structural elements, four (4) complete copies of the shop drawings for the mast arm assemblies and poles, and the combination mast arm assemblies and poles showing, in detail, the fabrication thereof and the certified mill analyses of the materials used in the fabrication, anchor rods, and reinforcing materials shall be submitted.

(6) Partial or incomplete submittals will be returned without review.

(7) Certain non-standard mast arm poles and special structural elements will require additional review from IDOT's Central Office. Examples include ornamental/decorative, non-standard length mast arm pole assemblies and monotube structures.

(8) The Contract number or Permit number, project location/limits, and corresponding pay code number must be on each sheet of correspondence, material approval, and mast arm poles and assemblies drawings.

(9) Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections and/or tests of material shall be complete with all test data, dates, and times.

(10) After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'Approved', 'Approved-As-Noted', 'Disapproved', or 'Incomplete'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's approval thereof. The Contractor must still be in full compliance with Contract and specification requirements.

(11) The Contractor shall secure approved materials in a timely manner to assure construction schedules are not delayed.

(12) All submitted items reviewed and marked 'APPROVED AS NOTED', 'DISAPPROVED', or 'INCOMPLETE' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify Contract compliance at no additional cost to the Contract.

(13) Exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

(14) The Contractor shall not order major equipment such as mast arm assemblies prior to Engineer approval of the Contractor marked proposed traffic signal equipment locations to assure proper placement of Contract required traffic signal displays, push buttons and other facilities. Field adjustments may require changes in proposed mast arm length and other coordination.

(15) Revised cabinet wiring diagrams shall be submitted whenever any wiring modifications are made to the traffic signal cabinet."

Marking Proposed Locations.
Revise "Marking Proposed Locations for Highway Lighting System" of Article 801.09 to read "Marking Proposed Locations for Highway Lighting System and Traffic Signals."

Add the following to Article 801.09 of the Standard Specifications:

"It shall be the Contractor's responsibility to verify all dimensions and conditions existing in the field prior to ordering materials and beginning construction. This shall include locating the mast arm foundations and verifying the mast arms lengths."

Inspection of Electrical Systems.
Add the following to Article 801.10 of the Standard Specifications:

(c) All cabinets, including temporary traffic signal cabinets, shall be assembled by an approved Vendor in District One. The Department reserves the right to request any controller and cabinet to be tested at the Vendor's facility prior to field installation at no extra cost to the Contract.

Maintenance and Responsibility of Traffic Signal and Flashing Beacon Installations.
Replace Article 801.11(b) of the Standard Specifications to read:

(b) Traffic Signals and Flashing Beacons. The Contractor shall be responsible for maintaining the traffic signal/flashing beacon installation in proper operating condition.

(1) General.

a. The Contractor must notify the Traffic Engineer at (815) 334-4960 and the Department's Electrical Maintenance Contractor of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. The Department will attempt to fulfill the Contractor's inspection date request(s); however, workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested inspection date(s) cannot be scheduled by the Department.

b. Full maintenance responsibility shall start upon the successful completion of a maintenance transfer inspection, or as directed by the Engineer. If the Contractor begins any physical work on the Contract or any portion thereof prior to a traffic signal inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will become responsible for repairing or replacing all equipment that is not operating properly or is damaged at the time of transfer at no cost to the owner of the traffic signal equipment. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection, otherwise the traffic signal installation will not be accepted.

c. All traffic signals within the limits of the Contract or those which have the item "MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION," "TEMPORARY TRAFFIC SIGNAL INSTALLATION", "TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION", "TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION", and/or "MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION" shall become the full responsibility of the Contractor. Maintenance responsibility shall end upon issuance of final acceptance by the Engineer.

d. The Contractor shall have electricians with IMSA/IPSI Traffic Signal Technician Level II certification on staff to provide signal maintenance. A copy of the certification shall be immediately available upon request by the Engineer.

e. This item shall include maintenance of all traffic signal equipment and other connected and related equipment such as flashing beacons, emergency vehicle preemption (EVP) equipment, master controllers, network switches, uninterruptable power supply (UPS) and batteries, pan-tilt-zoom (PTZ) cameras, vehicle detection, handholes, lighted signs, telephone service installations, cellular modems, radios, communication cables, and other traffic signal equipment. All conduit and related equipment to adjacent intersections shall be maintained to the far back handhole, or as directed by the Engineer. If adjacent intersections are part of Contract work, then maintenance of all conduit and related equipment shall be included in this item.

f. Regional transit, County, and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as network switches and transit signal priority (TSP, SCP, and BRT) servers, radios, and other devices, where maintenance shall be coordinated with the owner.

g. 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 others and shall be deactivated while on Contractor maintenance.

h. The energy charges for the operation of the traffic signal installation shall be paid for by the Contractor.

(2) Maintenance.

a. The Contractor shall inspect all traffic signal equipment and appurtenances every two (2) weeks to ensure they are functioning properly. Signal heads shall be properly adjusted, including plumb, and tightly mounted. All controller cabinets, signal posts, and controller pedestals shall be tight on their foundations and in alignment. Deficient equipment shall be repaired or replaced as necessary. The Contractor shall check signal system communications and phone lines to assure proper operation. This item includes, as routine maintenance, all portions of EVP equipment. The Contractor shall always maintain enough materials and equipment in stock to provide effective temporary and permanent repairs. The Contractor shall supply a detailed maintenance log monthly that includes dates, locations, names of electricians performing the required checks and inspections, and any other information requested by the Engineer. The Contractor shall attend any additional inspections as requested by the Engineer. The Contractor shall check the controllers, relays, and detectors after receiving complaints or calls to ascertain that they are functioning properly and make all necessary repairs and replacement.

b. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation which exceeds fifteen (15) minutes must have prior approval from the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 9:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

c. The Contractor shall provide immediate corrective action when any part(s) of the signal 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 in flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall install cones on all lane lines at the stop bar on each approach, R1-1 (36 in. minimum) “STOP” signs at the stop bar on each approach on the right side and on raised medians (where applicable), and black on fluorescent orange “SIGNALS OUT AHEAD” warning signs followed by fluorescent orange W3-1 symbolic stop ahead warning signs on all approaches to the intersection.

d. Temporary replacement of a damaged or knocked down 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 is not permitted.

e. The Contractor shall provide the Engineer, MCDOT, and the MCDOT’s Electrical Maintenance Contractor with two (2) 24-hour telephone numbers for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

f. Traffic signal equipment which is lost, damaged, 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.

g. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals and other equipment noted herein. 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 equipment meeting current District One traffic signal specifications. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional cost 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 Department's Electrical Maintenance Contractor perform the maintenance work. The Contractor shall be responsible for all of the Department’s Electrical Maintenance Contractor’s costs and liquidated damages of $1,000 per day per occurrence. The Department'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 inspect the traffic signal installation that has been transferred to the Contractor for

maintenance. 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. The Department may inspect any signalizing device on the Department's highway system at any time without notification. The Contractor shall not install padlocks on traffic signal cabinets or otherwise restrict the Department's access to the cabinet or controller.

h. 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.

i. The Contractor shall be responsible to clear snow, ice, dirt, debris, vegetation, temporary fence, or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

j. The Contractor shall maintain the traffic signal in normal operation during any loss of utility or battery backup power. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power shall not be paid for separately but shall be included in the Contract.

(3) Basis of Payment. This work will be paid for at the Contract unit price per EACH for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION. Each location will be paid for separately. Maintenance of a 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.

Damage to Traffic Signal System.

Add the following to Article 801.12(b) of the Standard Specifications to read:

"Any traffic signal control equipment that is damaged and non-repairable 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. Repair or replace any equipment damaged within the time shown in the table below:

ITEM	RESPONSE TIME	SERVICE RESTORATION	PERMANEN TREPAIR (calendar days)
Cabinet	1 hour	24 hours	21 days
Controllers and Peripheral Equipment	1 hour	4 hours	21 days
System Detector Loop	1 hour	N/A	7 days
All Other Detectors	1 hour	N/A	21 days
Signal Head and Lenses	1 hour	4 hours	7 days
Aviation Red Beacon	1 hour	4 hours	7 days
Mast Arm Assembly and Pole	1 hour	4 hours	7 days
Traffic Signal Post	1 hour	4 hours	7 days
Cable and Conduit	1 hour	4 hours	7 days
Interconnect and Telemetry	1 hour	4 hours	7 days
Graffiti Removal	N/A	N/A	7 days
Misalignment of Signal Heads	1 hour	4 hours	4 hours
Closed Loop Monitoring System	1 hour	24 hours	14 days
Post and Poles Plumb Vertically	N/A	N/A	21 days
Controller, Post & Pole Foundations	N/A	N/A	21 days
Complaints, Calls, Controller or System Alarms, Timing, Phasing, Programming	1 hour	4 hours	N/A
Patrol Truck Deficiencies	N/A	24 hours	24 hours
Signal Heads Visibility	1 day	2 days	14 days

Temporary replacement of a damaged or knocked down 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.

Replacement of any equipment for any reason shall be reported to the Engineer and Traffic Engineer in writing within 24 hours. Permanent and temporary replacement of the controller and/or cabinet shall require inspection and testing by the Vendor.

Automatic Traffic Enforcement equipment, such as red light enforcement cameras, detectors, and peripheral equipment, that is damaged or not operating properly from any cause, shall be the responsibility of the municipality or the automatic traffic enforcement company per Permit agreement."

Traffic Signal Inspection (TURN-ON).

Revise Article 801.15(b) of the Standard Specifications to read:

"Turn-on. It is the intent to have all electric work completed and equipment field tested by the Contractor and/or Vendor prior to the Department's "turn-on" field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two (2) hours to complete, the inspection shall be canceled, and the Contractor will be required to reschedule at another date. The maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the Contractor requests a turn-on and inspection of the completed traffic signal installation(s), the request must be made to the Traffic Engineer a minimum of seven (7) working days prior to the time of the requested inspection. The Department will attempt to fulfill the Contractor's turn-on and inspection date request(s); however, workload and other conditions may prevent the Department from accommodating specific dates or times. The Contractor shall not be entitled to any other compensation if the requested turn-on and inspection date(s) cannot be scheduled by the Department. The Department will not grant a field inspection until written or electronic notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Contractor must invite local fire department personnel to the turn-on when emergency vehicle preemption (EVP) is included in the project. When the Contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, and/or TEMPORARY TRAFFIC SIGNAL TIMING, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and turn-on of the traffic signal installation. The Contractor shall be responsible to provide a police officer to assist with traffic control at the time of testing.

The Contractor shall provide a representative from the Vendor who is knowledgeable of the cabinet design and controller functions to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons.

Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the Engineer will then allow the signals to be placed in continuous operation. The signals shall continue to be maintained by the Contractor until final acceptance.

The Department requires the following Final Project Documentation from the Contractor at traffic signal turn-ons in electronic format in addition to hard copies where noted. An electronic media device shall be submitted with separate folders corresponding to each numbered title below. The electronic media device shall be labeled with date, project location, company, and Contract or Permit number. Electronic record drawings and material approvals shall be submitted prior to traffic signal turn-on for review by the Department as described in the Record Drawings section herein.

Final Project Documentation:

(1) Record Drawings. Electronically produced signal plans of record with field revisions marked in red. Two (2) hard copies of 11 in. x 17 in. record drawings shall also be provided.

(2) Field Testing. Written notification from the Contractor and Vendor of satisfactory field testing with corresponding material performance measurements, such as for detector loops and fiber optic systems (see Article 801.13).
(3) Materials Approval. Material approval documentation.
(4) Manuals. Operation and service manuals of the signal controller and associated control equipment. One hard copy shall also be provided.
(5) Cabinet Wiring Diagram and Cable Logs. Five (5) hard copies of 11 in. x 17 in. cabinet wiring diagrams shall be provided along with electronic PDF and DGN files of the cabinet wiring diagram. Five (5) hard copies of the cable logs and electronic Excel files shall be provided with cable #, number of conductors and spares, connected device/signal head and intersection location.
(6) Warrantees and Guarantees. All manufacturer and Contractor warrantees and guarantees required by Article 801.14.
(7) GPS coordinates. GPS coordinates of traffic signal equipment as described in the Record Drawings section herein.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal “turn-on”, completeness of the required documentation and successful operation during a minimum 72 hour “burn-in” period following activation of traffic signal equipment. If approved, traffic signal acceptance shall be verbal at the final inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the turn-on. The Contractor shall notify the Area Traffic Signal Maintenance and Operations Engineer to schedule an inspection of all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of $500 per month per incident.

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

Record Drawings.

The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the second and third paragraphs of Article 801.16 of the Standard Specifications to read:

“When the work is complete, and seven (7) days before the request for a final inspection, electronic 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. If the Contract consists of multiple intersections, each intersection shall be saved as an individual PDF file with TS# and location name in its file name.

In addition to the record drawings, copies of the final material approvals which have been Approved or Approved as Noted shall be submitted in PDF format. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible.

The Contractor shall provide two (2) 11 in. x 17 in. hard copies of electronically produced final record drawings to be kept inside each traffic signal cabinet within project limits."

Add the following to Article 801.16 of the Standard Specifications:

"In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by this Contract:

- All Mast Arm Poles and Posts
- Traffic Signal Wood Poles
- Rail Road Bungalow
- UPS
- Handholes
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV/PTZ Camera installations

Datum to be used shall be North American 1983.

Data shall be provided in electronic format and shall be in .csv format. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

- File shall be named: TSXXX_YY-MM-DD.csv (i.e. TS22157_24-01-01.csv)
- Each intersection shall have its own file
- Row 1 should have the location name (i.e. IL 31 @ Klausen)
- Row 2 is blank
- Row 3 is the headers for the columns
- Row 4 starts the data
- Column A (Date) – should be in the following format: MM/DD/YYYY
- Column B (Item) – as shown in the table below
- Column C (Description) – as shown in the table below
- Column D and E (GPS Data) – should be in decimal form

Examples:

Date	Item	Description	Latitude	Longitude
01/01/2024	MP (Mast Arm Pole)	NEQ, NB, Dual, Combination Pole	41.580493	-87.793378
01/01/2024	HH (Handhole)	Heavy Duty, Fiber, Intersection, Double	41.558532	-87.792571
01/01/2024	ES (Electrical Service)	Ground mount, Pole mount	41.765532	-87.543571
01/01/2024	CC (Controller Cabinet)		41.602248	-87.794053
01/01/2024	PTZ (PTZ)	NEQ extension pole	41.593434	-87.769876
01/01/2024	POST (Post)		41.651848	-87.762053
01/01/2024	MCC (Master Controller Cabinet)		41.584593	-87.793378
01/01/2024	COMC (Communication Cabinet)		41.584600	-87.793432
01/01/2024	BBS (Battery Backup System)		41.558532	-87.792571

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 shall have a minimum 1 ft accuracy after post processing.

Restoration of Work Area.

Add the following article to Section 801 of the Standard Specifications:

"801.17 Restoration of Work Area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, underground raceways, detector loop installation or replacement, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer.

Exposed holes created from removal or relocation of traffic signal equipment shall be sealed using a zinc-plated fender washer with toggle bolt.

Restoration of the work area shall be included in the Contract without any extra compensation allowed to the Contractor.

Bagging Signal Heads.

Light tan colored traffic and pedestrian signal reusable covers shall be used to cover dark/un-energized signal sections, visors, and retroreflective backplates. Covers shall be made of outdoor fabric with urethane coating for repelling water, have elastic fully sewn around the cover ends for

a tight fit over the visor, and have a minimum of two (2) straps with buckles to secure the cover to the backplate. A center mesh strip allows viewing without removal for signal status testing purposes. Covers shall include a message indicating the signal is not in service. Pedestrian pushbuttons that are not in service shall be covered with a durable material such as described above or burlap that is secured in a weather-resistant manner. The entire housing, including the pedestrian sign, shall also be covered on the front side.

Turn-on of New Traffic Signal Installations.
The following only applies to new traffic signals at previously unsignalized locations.

The signal responsibility shall begin at the start of signal construction and shall end upon issuance of final acceptance by the Engineer. New traffic signal heads and indications may not be installed more than two (2) weeks (14 calendar days) prior to the scheduled turn-on of the traffic signal to avoid motorist confusion caused by the presence of new signal heads, even if properly covered. Unenergized signal indications shall be bagged until one (1) hour prior to the scheduled turn-on per the Bagging Signal Heads section above.

New stop bars and crosswalks on approaches that did not previously have stop control shall NOT be installed until the day of the traffic signal turn-on.

A Portable Changeable Message Sign (PCMS) must be placed two (2) weeks prior to the scheduled new traffic signal turn-on for all approaches to the intersection with the following messages:

NEW TRAFFIC SIGNAL	STARTING MMM ##

where “MMM” and “##” are the 3-character month abbreviation and day of the scheduled turn-on, respectively.

On the day of the turn-on, change messages to read:

NEW SIGNAL AHEAD	BE PREPARED TO STOP

The PCMS must remain in place for two (2) weeks following the day of the turn-on.

Conflicting Stop signs shall be removed immediately at the time of the traffic signal turn-on.

Locating Underground Facilities.
Revise Section 803 to the Standard Specifications to read:

> “MCDOT traffic signal facilities are part of J.U.L.I.E, a one-call locating service. When maintenance of a traffic signal is transferred to a Contractor, the locating requirements are also transferred to the Contractor. J.U.L.I.E. locating tickets received by MCDOT will be forwarded to the Contractor. If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at their own expense for locating all

existing MCDOT electrical facilities, including but not limited interconnect conduit and handholes, prior to performing any work. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000, and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

The Contractor shall take whatever precautions to protect the electric cable or electric conductors in conduit from damage during location and construction operations. If the wiring is damaged, the Contractor shall replace the entire length of cable or conductors in conduit, in a manner satisfactory to the Engineer. Splicing below grade will not be permitted.

In the event the repairs are not made by the Contractor, the Contractor shall reimburse the Department for such repairs within sixty (60) days of receiving written notification of said damage. Otherwise, the cost of such repairs will be deducted from monies due or which will become due the Contractor under the terms of the Contract."

Grounding of Traffic Signal Systems

Revise Section 806 of the Standard Specifications to read:

"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 were 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 conductor*s* shall be bonded, using a UL Listed grounding connector, (Burndy type KC/K2C, as applicable), 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 and conduit protruding from handhole walls.

(3) All metallic and non-metallic raceways, including spare or empty raceways, shall have a continuous equipment grounding conductor, except raceways containing only detector loop lead-in circuits, circuits under 50 V 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."

CONCRETE FOUNDATIONS (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
878.01TS

Add the following to Article 878.03 of the Standard Specifications:

"All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. at the threaded end.

Depending on the foundation type, the top of foundation shall be between 1 in. and 6 in. above finished grade or as directed by the Engineer.

No foundation is to be poured until the Resident Engineer gives their approval as to the depth of the foundation."

Concrete Foundations, Type "A" for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "District 1 Standard Traffic Signal Design Details." All Type "A" foundations shall be a minimum depth of 48 in. (1.22 m).

Concrete Foundations, Type "C" for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS) cabinet installations shall be a combined concrete foundation with the UPS portion of the foundation located on the signal power panel side of the controller foundation. The dimensions of the Type C foundation shall be a minimum of 72 in. long

and 36 in. wide. All Type “C” foundations shall be a minimum depth of 48 inches. The concrete apron in front Type IV or V cabinet shall be 36 in. x 72 in. x 5 in. The concrete apron in front of the UPS cabinet shall be 36 in. x 72 in. x 5 in. Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type “D” for Traffic Signal Cabinets shall be a minimum of 48 in. (1.22 m) long and 31 in. (790 mm) wide. All Type “D” foundations shall be a minimum depth of 48 in. (1.22 m). The concrete apron shall be 36 in. x 48 in. x 5 in. (910 mm x 1220 mm x 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type "E" for Mast Arm and Combination Mast Arm Poles shall meet the current requirements listed in the Highway Standards and District 1 traffic signal details.

Add the following to the first paragraph of Article 878.05 of the Standard Specifications:

“The concrete apron in front of the cabinet and UPS shall be included in this pay item.”

Revise the first paragraph of Article 878.05 of the Standard Specifications to read:

“Basis of Payment. This work will be paid for at the Contract unit price per foot (meter) of depth of CONCRETE FOUNDATION of the type specified, or CONCRETE FOUNDATION, TYPE A 12-INCH DIAMETER for pedestrian post concrete foundations.”

FIBER OPTIC CABLE (MCDOT)

Effective: May 22, 2002
Revised: July 1, 2015
871.01TS

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 871.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be 24 Port Fiber Wall Enclosure, unless otherwise indicated on plans. The fiber optic cable shall provide twelve fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled “spare." Fibers not attached to the distribution enclosure shall be capped. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

Testing shall be in accordance with Article 801.13(d). Electronic files of OTDR signature traces shall be provided in the Final project documentation with certification from the Contractor that attenuation of each fiber does not exceed 3.5 dB/km nominal at 850nm for multimode fiber and 0.4 bd/km nominal at 1300nm for single mode fiber.

Basis of Payment.
This work shall be paid for at the contract unit price foot for FIBER OPITC CABLE 36 FIBERS, SINGLE MODE.

FIBER OPTIC TRACER CABLE (MCDOT)

Effective: May 22, 2002
Revised: November 1, 2023
817.02TS

The cable shall meet the requirements of Section 817 of the Standard Specifications, except for the following:

Add the following to Article 817.03 of the Standard Specifications:

> "In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a terminal strip mounted on the side wall of the controller cabinet. The terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with WCSMW 30/100 heat shrink tube, minimum length 4 in. (100 mm) and with a minimum 1 in. (25 mm) coverage over the XLP insulation, underwater grade."

Revise Article 817.05 of the Standard Specifications to read:

> "Basis of Payment. The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 12 1C per foot (meter), which price shall include all associated labor and material for installation."

FULL-ACTUATED CONTROLLER AND CABINET (MCDOT)

Effective: January 1, 2002
Revised: March 1, 2024
857.02TS

Description.
This work shall consist of furnishing and installing a traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications, as modified herein, including malfunction management unit, load switches and flasher relays, with all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing a(n) "Econolite" brand traffic actuated solid state controller.

Materials.
Add the following to Article 857.02 of the Standard Specifications:

> "Controllers shall be Econolite Cobalt ATC with Cobalt Touch TS2 Type 1 connectors and Ethernet connector unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved vendors will be allowed. The controller shall be of the most recent approved model and software version supplied by the vendor at the time of the traffic signal TURN-ON unless specified otherwise on the plans or these specifications. A removable controller data key shall also be provided. Individual load switches shall be provided for each vehicle, pedestrian, and overlap phase. The controller shall prevent phases from being omitted during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications.
>
> For integration into an Advanced Traffic Management System (ATMS) such as Centracs, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications."

Revise Article 1074.03 (a) (5) paragraph "b." to read:

> "Thermostatically Controlled Exhaust Fans. The cabinet shall be equipped with two (2) thermostatically controlled exhaust fans. Each fan shall have a minimum air delivery capacity of 100 cfm (2.8 cu m/min) and shall be mounted on self-lubricating ball bearings. The thermostat control shall be adjustable between 91 and 113 °F (33 and 45 °C) and shall be set to turn the fan on at 95 °F (35 °C)."

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation. All cabinets to be 65-inches in height and have a third shelf.

Revise the second sentence in Article 1074.03 (b) (1) paragraph “a” to read:

“The malfunction management unit shall have a minimum of 16 fully programmable channels.”

Add the following to Article 1074.03 of the Standard Specifications:

(b) (5) Cabinets – Provide 1/8 in. (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel. All seams/corners on the cabinet shall be welded.

(b) (6) Controller Harness – Provide a TS2 Type 2 “A” wired harness in addition to the TS2 Type 1 harness.

(b) (7) Surge Protection – ASC Zone IT (50 kA rating) with LED status indicators. Model 91391 Zone IT base station and Model 91375 Zone IT.

(b) (8) BIU – shall be secured by mechanical means.

(b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.

(b) (10) Switch Guards – All switches shall be guarded.

(b) (11) Heating – Two (2) 200 watt, thermostatically-controlled, electric heaters located in upper left and lower right corners. Heaters controlled by a universally mounted thermostat controlling both heaters.

(b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a door switch. The LED Panels shall be provided from an approved vendor.

(b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1-1/2 in. (38mm) deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lbs. (23 kg) in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 18 inches (610mm) wide.

(b) (14) Plan & Wiring Diagrams – 12 in. x 15 in. (305mm x 406mm) moisture sealed container attached to door.

(b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.

(b) (16) Field Wiring Labels – All field wiring shall be labeled.

(b) (17) Field Wiring Termination – Approved channel lugs required.

(b) (18) Power Panel – Provide a nonconductive shield.

(b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.

(b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.

(b) (21) Malfunction Management Unit (MMU) – The MMU supplied shall have a Liquid Crystal Display (LCD) and also have an Ethernet communications port.

(b) (22) Load Switch – All load switches shall have both input and output LED controller status indicators.

Basis of Payment.
This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET; FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET; FULL-ACTUATED CONTROLLER AND TYPE V CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER P CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER P STRETCHED CABINET; FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET; FULL-ACTUATED CONTROLLER AND TYPE IV CABINET (SPECIAL); FULL-ACTUATED CONTROLLER AND TYPE IV STRETCHED CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE SUPER P CABINET (SPECIAL); FULL-ACTUATED CONTROLLER AND TYPE SUPER P STRETCHED CABINET (SPECIAL); FULL-ACTUATED CONTROLLER AND TYPE SUPER R CABINET (SPECIAL).

HANDHOLES (MCDOT)

Effective: January 01, 2002
Revised: November 1, 2023
814.01TS

Description.
Add the following to Section 814 of the Standard Specifications:

All conduits shall enter the handhole at a depth of 30 in. (762 mm) except for the conduits for detector loops when the handhole is less than 5 ft (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 epoxy coated and must meet the specifications set forth in 1006.10. Hooks shall be a minimum of 5/8 in. (16 mm) diameter with 90-degree bend and extend into the handhole at least 6 in. (152 mm). Hooks shall be placed a minimum of 12 in. (305 mm) below the lid or lower if additional space is required.

All handholes shall be cast-in-place.

The cover of the handhole frame shall be labeled “Traffic Signals" with legible raised letters. Only handholes serving MCDOT traffic signal equipment shall have this label. Handhole covers for Red Light Running Cameras shall be labeled “RLRC”.

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. Heavy duty handholes shall be cast-in-place.”

Add the following to Section 814 of the Standard Specifications:

Cast-In-Place Handholes.
All cast-in-place handholes shall be concrete with minimum inside dimensions of 21-1/2 in. (546 mm). Frames and lid openings shall match this dimension.

For grounding purposes, the handhole frame shall have provisions for a 7/16 in. (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 1 ft (305mm).

LAYER II (DATALINK) SWITCH (MCDOT)

Effective: November 1, 2023
892.04TS

Description.
This work shall consist of furnishing and installing a Layer II Ethernet switch used to transmit data from one traffic signal cabinet to another traffic signal cabinet containing a Layer II switch or a Layer III (Network) switch.

Materials.
The Layer II switch shall be environmentally hardened with a minimum of 2 100Mbps SFP ports and 8 100Mbps copper RJ45 ports. Two SFP ports shall be populated with environmentally hardened optical modules capable of transmitting for 10 Km on single-mode fiber optic cable. An environmentally hardened power supply with input of 120 VAC and sufficient wattage for the switch shall be provided.

The switch shall conform to the following minimum specifications:

- Forwarding Bandwidth 3.8Gbps
- Switching Bandwidth 7.6Gbps
- Forwarding rate: 5.66Mpps with 64-byte packets (Line-rate at all packet sizes)
- Egress buffer: 2 MB
- Unicast MAC addresses: 8000
- Internet Group Management Protocol (IGMP) multicast groups: 255
- Virtual LANs (VLANs): 1005
- IPv4 MAC security ACEs: 384 (default Ternary Content-Addressable Memory [TCAM] template)
- Bidirectional, 128 NAT translation entries
- IPv4 routing: 3500 routes, IPv6 routing: 1750 routes
- Layer 2 switching: IEEE 802.1, 802.3, 802.3at, 802.3af standard (see Table 8), VTPv2, NTP, UDLD, CDP, LLDP, Unicast MAC filter, Resilient Ethernet Protocol (REP), Media Redundancy Protocol (MRP) Ring (IEC 62439-2)
- Security: SCP, SSH, SNMPv3, TACACS+, RADIUS Server/Client, MAC Address Notification, BPDU Guard, SPAN session
- Multicast: IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier
- Safety certifications:
    - UL/CSA 60950-1
    - EN 60950-1
    - CB to IEC 60950-1 (with country deviations)
    - NOM to NOM-019-SCF1 (through partners and distributors)
    - CE Marking
- Hazard location:
    - ANSI/ISA 12.12.01 (Class1, Div2 A-D)
    - EN 60079-0, -15 ATEX Certificate (Class 1, Zone2 A-D)

- EMC emissions and immunity compliance:
  - FCC 47 CFR Part 15 Class A
  - EN 55022A Class A
  - VCCI Class A
  - RoHS compliance
  - AS/NZS CISPR 22 Class A, AS/NZS CISPR 24
  - CISPR11 Class A, CISPR22 Class A
  - ICES 003 Class A
  - CE Marking
  - IEC/EN/EN61000-4-2 (Electro Static Discharge), 15kV air/8kV contact
  - IEC/EN 61000-4-3 (Radiated Immunity, 10 and 20 V/m)
  - IEC/EN 61000-4-4 (Fast Transients - 4kV power line, 4kV data line)
  - IEC/EN 61000-4-5 (Surge 2 kV/1 kV)
  - IEC/EN 61000-4-6 (Conducted Immunity, 10 V/emf)
  - IEC/EN 61000-4-8 (Power Frequency Magnetic Field Immunity)
  - IEC/EN 61000-4-9 (Pulse Magnetic Field Immunity)
  - IEC/EN 61000-4-10 (Oscillatory Magnetic Field Immunity)
  - IEC/EN 61000-4-11 (AC power Voltage Immunity)
  - IEC/EN 61000-4-29 (Voltage Dips Immunity)
  - IEC/EN 61000-6-1 (Immunity for Light Industrial Environments)
  - IEC/EN 61000-6-2 (Immunity for Industrial Environments)
  - IEC/EN 61000-6-4 Class A
  - EN 61326
- Shock and vibration:
  - IEC 60068-2-27 (Operational Shock: 30G 11ms, half sine)
  - IEC 60068-2-27 (Non-Operational Shock 55-70G, trapezoidal)
  - IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Operational Vibration)
  - IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Non-operational Vibration)
- Industry standards:
  - UL508
  - CSA C22.2 No. 142
  - EN 61131-2 (EMC/EMI, environmental, mechanical)
  - Substation KEMA (IEEE 1613, IEC 61850-3)
  - EN50121-3-2
  - EN50121-4
  - NEMA TS-2 (EMC, environmental, mechanical)
  - ABB Industrial IT certification
  - IP30
  - ODVA Industrial Ethernet/IP support
- Corrosive testing:
  - ISO-12944-6
  - IEC-60068-2-60
- Humidity:
  - IEC 60068-2-52 (salt fog mist, test Kb) marine environments
  - IEC 60068 -2-3
  - IEC 60068-2-30
  - Relative humidity: 5% to 95% non-condensing
- Operating temperature:
  - -40C to +70C (vented enclosure - 40 LFM Air Flow)
  - -40C to +60C (sealed enclosure – 0 LFM Air Flow)

  - -34C to +75C (fan or blower-equipped enclosure – 200 LFM Air Flow)
  - -40C to +85C (IEC 60068-2-2 Environmental Type Testing – 16 hours)
- Operational altitude: Up to 15,000 ft
- Storage temperature:
  - -40 C to +85 C (storage temperature)
  - IEC 60068-2-14
- Storage altitude: Up to 15,000 ft
- Mean time between failure: 374,052 hours (42.7 years)
- Warranty: Five-year

The Cisco IE-2000-8TC-B Industrial Ethernet Switch is compliant with this specification. Other manufacturers that comply with this specification are allowed.

The Layer II switch and its power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Configuration Design Document.
A configuration design document shall be submitted within 60 days after contract award. It shall be prepared by a designer with a minimum of CCNP certification – and shall include proof of currently active CCNP credentials. The document shall contain actual configuration files for each switch to be delivered under this contract.

The Layer II switch shall be configured to be compatible with the IDOT D1 field network design. High level guidance (IP Scheme / VLANs / routing protocols, etc.) will be provided by IDOT but the integration, functionality and compatibility with the existing network are the responsibility of the contractor.

The configuration design document shall meet the acceptance of the traffic engineer. Contractor to coordinate with MCDOT Electrical Maintenance Contractor and Network engineer for proper set up and IP configuration.

Basis of Payment.
This work will be paid for at the contract unit price per each for LAYER II (DATALINK) SWITCH, the price of which shall include all equipment, materials, and labor required to furnish, configure and install the switch, including all necessary connectors, cables, fiber optic jumpers, hardware, software, and other peripheral equipment required to place the switch in operation to the satisfaction of the Traffic Engineer.

LED INTERNALLY ILLUMINATED STREET NAME SIGN (MCDOT)

Effective: May 22, 2002
Revised: July 1, 2021
891.02TS

Description.
This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials.
The illuminated street name sign shall be as follows.

(a) Description.
The LEDs shall be white in color and utilize InGaN or UV thermally efficient technology. The LED Light Engines shall be designed to fit inside a standard fluorescent illuminated street sign housing in lieu of fluorescent lamps and ballasts or a slim line type housing. The LED internally illuminated street name sign shall display the designated street name clearly and legibly in the daylight hours without being energized and at night when energized. The sign assemblies are generally available in four-, six-, or eight-foot lengths but are also available in 6-inch increments. White translucent 3M DG3 reflective sheeting sign faces with the street name applied in 3M/Scotchlite Series 1177 transparent green shall be installed in hinged doors on the side of the sign for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

(b) Environmental Requirements.
The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50°C (-40 to +122°F) for storage in the ambient temperature range of -40 to +75°C (-40 to +167°F).

(c) General Construction.
1. The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply must be designed to fit and mounted on the inside wall at one end of the street sign housing. The LED components, power supply, and wiring harness shall be arranged as to allow for maintenance, up to and including the replacement of all three components. The LED Light Engine shall be mounted in the top and/or bottom of the sign housing and no components of the light source shall sit between the sign faces.

2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI C136.31-2001 standards.

(d) Mechanical Construction.
1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum top with a minimum thickness of .140” x 10 ¾” deep (including the drip edge). The extruded aluminum bottom is .094” thick x 5 7/8” deep. The ends of the housing shall be cast aluminum with a minimum thickness of .250”. A six-foot sign shall be 72 5/8” long and 22 5/16” tall and not weigh more than 77 pounds. An eight-foot sign shall be 96 5/8” long and 22 5/16” tall and not weigh more than 92 pounds. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum with the maximum sign dimensions of 30” in height, 96” in length, 10.75” in depth (including the drip edge) and shall not weight more than 92 pounds. All housing corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal.

2. The sign doors shall be constructed of extruded aluminum and shall be continuous TIG welded along the two corners with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length, .040” x 1 1/8” open stainless steel hinge. The sign shall also be fabricated in a way to ensure that no components fall out while a technician is opening

or working inside the sign enclosure. The door shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by three (six total for two-way sign) quarter-turn fasteners to form a watertight seal between the door and the housing.

3. The sign face shall be constructed of .125" white translucent polycarbonate or acrylic. Sign legend shall be according to D1 Mast Arm Mounted Street Name Sign detail and MUTCD. The sign face legend background shall consist of 3M/Scotchlite Series 4090T translucent diamond grade DG3 white and 3M/Scotchlite Series 1177 film applied to the front of the sign face and transparent green acrylic EC (electronic cut-able) film applied to the front of the sign face. A logo symbol and/or name of the community may be included with approval of the Engineer.

4. All surfaces of the sign shall be unpainted and have a natural finish.

5. All fasteners and hardware shall be corrosion resistant stainless steel. No special tools shall be required for routine maintenance.

6. All wiring shall be secured by insulated wire compression nuts or barrier type terminal blocks.

7. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and shall provide a weather tight seal.

8. Each sign shall be activated by the same photocell/power panel mounted/installed inside the traffic signal cabinet on the left side of the cabinet when facing into the cabinet. The photo-cell shall be mounted above the door and under the lip of the signal cabinet. All signs shall be wired to the same power panel with lighting contactor sized for the power consumption of the LED signs. Each sign shall be individually fused.

9. Brackets and Mounting: LED internally illuminated street name signs will be factory drilled to accommodate mast arm two-point support assembly mounting brackets unless indicated otherwise in the plans. A 72" stainless steel safety cable shall be included and installed with each mounting bracket.

(e) Electrical.

1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.

2. The LED Light Engine shall operate from a 60 +- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +- 10%.

3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage and at a temperature of +25^{o}C (+77^{o}F), shall not exceed 20%.

4. The LED Light Engine shall cycle ON and OFF with a photocell as shown on the detail sheet and shall not exceed the following maximum power values:

4-Foot Sign	60 W max
6-Foot Sign or less	90 W max
8-Foot Sign or less	120 W max

The signs shall be installed such that they are not energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power supply (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m^2.

2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.

3. Twelve (12) 1.25 watt LED units shall be mounted on 1 in. x 22 in. metal cone printed circuit boards (MCPCB). The viewing angle shall be 120 degrees. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) Quality Assurance.

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes. LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

Installation.

The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be from an approved vendor, utilizing stainless steel components.

Mounting on aluminum mast arm pole requires supporting structural calculations. The sign can be mounted on most steel mast arm poles. Some older or special designed steel mast arm poles may require structural evaluation to assure that construction of the mast arm pole is adequate for the proposed additional loading. Structural calculations and other supporting documentation as determined by the Engineer shall be provided by the Contractor for review by MCDOT.

Basis of Payment.

This work will be paid for at the contract unit price each for LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the length as specified in the contract plans which shall be payment in full for furnishing and installing the LED internally illuminated street name sign, complete with

circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

The Illuminated street name sign cable will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operations.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
881.01TS

Add the following to the third paragraph of Article 881.03 of the Standard Specifications:

"No mixing of different types of pedestrian traffic signals or displays shall be permitted."

Delete the fourth paragraph of Article 881.03 of the Standard Specifications. Refer to the "Bagging Signal Heads" section of the MCDOT Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

Add the following to Article 881.03 of the Standard Specifications:

"Pedestrian Countdown Signal Heads shall be 16 in. (406mm) x 18 in. (457mm) single units with glossy yellow polycarbonate housings. All pedestrian head housings shall be the same color (yellow) at the intersection. For new signalized intersections and existing signalized intersections where all pedestrian heads are being replaced, the proposed head housings shall be yellow. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on.

Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 in. (229mm) in height and easily identified from a distance of 120 ft (36.6m)."

Materials.
Add the following to Article 1078.02 of the Standard Specifications:

"The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. The module shall not have user accessible switches or controls for modification of cycle.

At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.

If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.

The next cycle following the preemption event shall use the correct, initially programmed values.

If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.

The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

The countdown numerals shall be two (2) “7 segment” digits forming the time display utilizing two rows of LEDs.

The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, “Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules,” or applicable successor ITE specifications, except as modified herein.

The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

In the event of a power outage, light output from the LED modules shall cease instantaneously.

The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.

The individual LEDs shall be wired such that a loss or the failure of one or more LED will not result in the loss of the entire module.

See Article 801.14 of the Standard Specifications for warranty information.”

Basis of Payment.

Add the following to the first paragraph of Article 881.04 of the Standard Specifications:

“The price shall include furnishing the equipment described above, all mounting hardware, and installing them in satisfactory operating condition.”

Add the following to Article 881.04 of the Standard Specifications:

"If the work consists of retrofitting an existing polycarbonate pedestrian signal head and pedestrian countdown signal head with light emitting diodes (LEDs), it will be paid for as a PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition."

LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
880.01TS

Materials.
Add the following to Section 1078 of the Standard Specifications:

"Representatives of LED modules shall have a local office and warehouse within IDOT District One for inspection of materials and to handle inquiries and warranty issues.

LED modules proposed for use and not previously approved by IDOT District One will require independent testing for compliance to current VTCSH-ITE standards for the product and be Intertek ETL Verified. This would include modules from new Vendors and new models from IDOT District One approved Vendors.

The proposed independent testing facility shall be approved by IDOT District One. Independent testing must include a minimum of two (2) randomly selected modules of each type of module (i.e. ball, arrow, pedestrian, etc.) used in the District and include as a minimum Luminous Intensity and Chromaticity tests. However, complete module performance verification testing may be required by the Engineer to assure the accuracy of the Vendor's published data and previous test results. An IDOT representative will select sample modules from the local warehouse and mark the modules for testing. Independent test results shall meet current ITE standards and vendor's published data. Any module failures shall require retesting of the module type. All costs associated with the selection of sample modules, testing, reporting, and retesting, if applicable, shall be the responsibility of the LED module Vendor and not be a cost to this Contract.

All signal heads shall provide 12 in. (300 mm) displays with glossy yellow polycarbonate housings. All head housings shall be the same color (yellow) at the intersection. For new signalized intersections and existing signalized intersections where all signals heads are being replaced, the proposed head housings shall be yellow. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts and shall be constructed of the same material as the brackets.

All signal heads shall have a “baseball” cap visor for each section. Tunnel visors shall not be accepted. All cap visors shall be black polycarbonate.

Signal heads shall be positioned according to the “District One Standard Traffic Signal Design Details."

The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first **7-years** from the date of traffic signal TURN-ON. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants within the first **15-years** of the date of traffic signal TURN-ON shall be replaced or repaired. The Vendor’s written warranty for the LED signal modules shall be dated, signed by a Vendor’s representative, and included in the product submittal to the MCDOT.

The LED signal modules shall be designed and constructed to meet the **15-year** warranty and shall not be a 5- or 6-year warranty LED signal module with a manufacturer's written 15-year warranty.

(a) Physical and Mechanical Requirements

(1) Modules can be manufactured under this specification for the following faces:

a. 12 in. (300 mm) circular, multi-section
b. 12 in. (300 mm) arrow, multi-section

(2) The maximum weight of a module shall be 4 lb (1.8 kg).

(3) Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weatherproof after installation and connection.

(4) The lens of the module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.

(5) The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

(6) Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 in. (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 in. (12.7mm) letters next to the symbol.

(b) Photometric Requirements

(1) The minimum initial luminous intensity values for the modules shall conform to the values in Table 1 of the VTCSH (2005) for circular signal indications and as stated in Table 3 of these specifications for arrow and pedestrian indications at 25 °C.

(2) The modules shall meet or exceed the illumination values stated in Articles 1078.01 and 1078.02 the Standard Specifications for circular signal indications, and Table 3 of these specifications for arrow and pedestrian indications, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.

(3) The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Section 4.2 of the VTCSH (2005) or applicable successor ITE specifications.

(4) The LEDs utilized in the modules shall be AlInGaP technology for red and InGaN for green and amber indications and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 °C to 74 °C.

(c) Electrical

(1) Maximum power consumption for LED modules as per the tables in Article 1078.01.

(2) Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

(3) The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

(4) When a current of 20 mA AC or less is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.

(5) The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

(6) LED arrows shall be wired such that a loss or the failure of one or more LEDs will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

(1) Retrofit modules can be manufactured under this specification for the following faces:

a. 12 in. (300 mm) circular, multi-section
b. 12 in. (300 mm) arrow, multi-section

(2) Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.

(3) The maximum weight of a Retrofit module shall be 4 lb (1.8 kg).

(4) Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weatherproof after installation and connection.

(5) Electrical conductors for modules, including Retrofit modules, shall be 39-2/5 in. (1m) in length, with quick disconnect terminals attached.

(6) The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

(e) The following specification requirements apply to the 12 in. (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.

(1) The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.

(2) The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.

(f) The following specification requirement applies to the 12 in. (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.

(1) The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

Delete the fourth paragraph of Article 880.03 of the Standard Specifications. Refer to the "Bagging Signal Heads" section of the MCDOT Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS."

Basis of Payment.

Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

"The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition."

Revise the second paragraph of Article 880.04 of the Standard Specifications to read:

If the work consists of retrofitting an existing polycarbonate traffic signal head with light emitting diodes (LEDs), it will be paid for as a SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for removal of the existing module, furnishing the equipment described

above including LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of signal faces, the number of signal sections in each signal face and the method of mounting.

MAST ARM ASSEMBLY AND POLE (MCDOT)

Effective: May 22, 2002
Revised: July 01, 2015
877.01TS

Revise Article 877.01 of the Standard Specifications to read:

877.01 Description. This work shall consist of furnishing and installing a steel mast arm assembly and pole and a galvanized steel or extruded aluminum shroud for protection of the base plate.

Add the following to Article 877.04 of the Standard Specifications:

"The shroud or stainless screen mesh shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole."

Revise the second sentence of Article 1077.03 (a)(3) of the Standard Specifications to the following:

"Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer."

Add the following to Article 1077.03 (a)(3) of the Standard Specifications:

"If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions."

Revise Article 1077.03(a)(4) of the Standard Specifications to the following:

(4) Shop Drawing Approval. The Contractor shall submit detailed drawings showing design materials, thickness of sections, weld sizes, and anchor rods to the Engineer for approval prior to fabrication. These drawings shall be at least 11 x 17 in. (275 x 425 mm) in size and of adequate quality for microfilming. All product data and shop drawings shall be submitted in electronic form on a flash drive.

Revise Article 1077.03(b) of the Standard Specifications to the following:

(b) Anchor Rods. The anchor rods shall be ASTM F 1554 Grade 105, coated by the hot-dip galvanizing process according to AASHTO M 232, and shall be threaded a minimum of 7 1/2 in. (185 mm) at one end and have a bend at the other end. The first 12 in. (300 mm) at the threaded end shall be galvanized. Two nuts, one lock washer, and one flat washer shall be furnished with each anchor rod. All nuts and washers shall be galvanized.

Add Article 1077.03(c) of the Standard Specifications:

(c) The shroud shall be of sufficient strength to deter pedestrian and vehicular damage and shall be constructed and designed to allow air to circulate throughout the mast arm. The shroud shall not extend beyond the beveled edge of the top of the mast arm pole foundation to assure ADA requirements are met and to prevent infestation of insects or other animals. All mounting hardware shall be stainless steel. Where a shroud cannot meet these requirements, a stainless steel screen mesh 0.25 in. maximum opening with a minimum wore diameter of AWG 16 with a minimum 2 in. lap shall be installed to enclose the void between the base plate and the foundation. The stainless steel screen wire shall be formed to the shape of the base plate and fasten to the base plate with ¾ inch stainless steel banding. The screen wire shall overlap and be fastened with a ring type connector.

MAST ARM SIGN PANELS (MCDOT)

Effective: May 22, 2002
Revised: July 1, 2015
720.01TS

Add the following to Article 720.02 of the Standard Specifications:

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by the McHenry County Sign Shop. Signfix Aluminum Channel Framing System is currently recommended. All signs shall have a white reflectorized legend and border on a green reflectorized background, and shall meet ASTM Type XI and IDOT Type ZZ reflective sheeting. The sign face shall not have any holes. 3M Scotch Joining Systems bonding tape shall be used in place of screws or rivets.

Sign stiffening channel systems shall be aluminum and meet the requirements of ASTM 6261-T5. Sign mounting banding, buckles and buckle straps shall be manufactured from AISI 201 stainless steel.

OPTIMIZE TRAFFIC SIGNAL SYSTEM (MCDOT)

Effective: May 22, 2002
Revised: November 1, 2023
800.02TS

Description.
This work shall consist of optimizing a traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings and developing both a Time Of Day (TOD) program and a Traffic Responsive Program (TRP).

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing traffic signal systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Engineer at (815) 334-4960 for a listing of approved Consultants. Traffic signal system

optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as noted herein.

A listing of existing signal equipment, interconnect information, phasing data, timing patterns, and SCAT Report may be obtained from the Department, if available and as appropriate. The Consultant shall confer with the Traffic Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the signal system. Consultant shall be present at the turn-on(s), if applicable, to implement initial timing plans.

2. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Traffic Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday and on a Saturday or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.

3. The intersections shall be re-addressed and all system detectors reassigned as necessary according to the current standard practice of District One. System detector quantities and locations shall be assessed for optimal performance. The Department shall be notified of any proposed changes during Data Collection.

4. A traffic responsive program shall be developed, which considers both volume and occupancy. A Time Of Day program shall be developed for used as a back-up system.

5. Proposed signal timing plan for the new or modified intersection shall be forwarded to MCDOT for review prior to implementation.

6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations. The consultant shall respond to MCDOT comments and public complaints for a minimum period of six (6) months from date of timing plan implementation.

7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations.

(b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.

Consultant shall provide to MCDOT one (1) USB flash drive for the optimized system containing the following:

1. Electronic copy of the SCAT Report in PDF format

2. Copies of the Synchro (or other appropriate, approved optimization software) files for the optimized system

3. Traffic counts for the optimized system

The flash drive shall be labeled with the IDOT system number and master location (if applicable), as well as the submittal date and the consultant logo.

The SCAT Report shall include the following elements:

Cover Page in color showing a System Map
Figures 1. System overview map showing system number, system schematic map with numbered system detectors, oversaturated movements, master location (if applicable), system phone number (if applicable), cycle lengths, and date of completion. 2. General location map in color showing signal system location in the metropolitan area. 3. Detail system location map in color showing cross street names and local controller addresses. 4. Controller sequence showing controller phase sequence diagrams.
Table of Contents
Tab 1: Final Report 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) with AM, Midday, and PM cycle lengths 7. Evaluation a. Speed and Delay runs
Tab 2: Turning Movement Counts 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)
Tab 3: Synchro Analysis 1. AM: Time-Space diagram in color, followed by intersection Synchro report (timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM 4. Special weekend or off-peak traffic generators (shopping centers, educational facilities, arenas, etc.): same as AM
Tab 4: Speed, Delay Studies 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period.
Tab 5: Environmental Report
1. Environmental impact report including gas consumption, NO2, HCCO, improvements.

Basis of Payment.
The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the USB flash drive containing the SCAT report has been submitted and the system is operating to the satisfaction of the Engineer.

PEDESTRIAN SIGNAL POST (MCDOT)

Effective: January 1, 2020
Revised:
875.02TS

Description.
This work shall consist of furnishing and installing a metal pedestrian signal post. All installations shall meet the requirements of the "District One Standard Traffic Signal Design Details".

Materials.

a. General. The pedestrian signal post shall be designed to support the traffic signal loading shown on the plans. The design and fabrication shall be according to the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, as published by AASHTO.

b. Post. The post shall be made of steel or aluminum and have an outside diameter of 4-1/2 in. The post shall be threaded for assembly to the base. Aluminum posts shall be according to the specifications for Schedule 80 aluminum pipe. Steel posts shall be according to the specifications for Schedule 40 steel pipe.

c. Base. The base of a steel post shall be cast iron. The base of an aluminum post shall be aluminum. The base shall be threaded for the attachment to the threaded post. The base shall be approximately 14 in. square at the bottom. The bottom of the base shall be designed to accept four 3/4 in. diameter anchor rods evenly spaced in the diameter circle. The base shall be true to pattern, with sharp clean cutting ornamentation, and equipped with access doors for cable handling. The door shall be fastened to the base with stainless steel screws. A grounding lug shall be provided inside the base.

d. Anchor Rods. The anchor rods shall be 3/4 in. in diameter and 17 in. long and shall be according to Article 1006.09. The anchor rods shall be threaded approximately 6 in. at one end and have a bend at the other end. The first 12 in. at the threaded end shall be galvanized. One each galvanized nut and trapezoidal washer shall be furnished with each anchor rod. The washer shall be properly sized to fully engage and sit flush on all sides of the slot of the base plate.

   The aluminum post and base shall be drilled at the third points around the diameter and 1/4 in. by 2 in. stainless steel bolts shall be inserted to prevent the post from turning and wobbling.

e. Finish. The steel post, steel post cap and the cast iron base shall be hot-dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions. If the post and the base are threaded after the galvanization, the bare exposed metal shall be immediately cleaned to remove all cutting solvents and oils, and then spray painted with two coats of an approved galvanized paint.

   The aluminum post shall have a natural finish, 100 grit or finer.

Installation.

The pedestrian signal post shall be erected plumb, securely bolted to a concrete foundation, and grounded to a ground rod according to the details shown on the plans. No more than 3/4 in. of the post threads shall protrude above the base.

A post cap shall be furnished and installed on the top of the post. The post cap shall match the material of the post. The Contractor shall apply an anti-seize paste compound on all nuts and bolts prior to assembly.

Prior to the assembly, the Contractor shall apply two additional coats of galvanized paint on the threads of the post and the base. The Contractor shall use a fabric post tightener to screw the post to the base.

Basis of Payment.
This work will be paid for at the contract unit price per each for PEDESTRIAN SIGNAL POST, of the length specified.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM (MCDOT)

Effective: May 22, 2002
Revised: November 1, 2023
800.03TS

Description.
This work shall consist of re-optimizing a traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the Traffic Responsive Program (TRP).

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing traffic signal systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Engineer at (815) 334-4960 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

A listing of existing signal equipment, interconnect information, phasing data, timing patterns, and SCAT Report may be obtained from the Department, if available and as appropriate. The Consultant shall confer with the Traffic Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.

    a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.

    b. Proposed signal timing plan for the subject intersection shall be forwarded to MCDOT for review prior to implementation.

    c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations. The consultant shall respond to MCDOT comments and public complaints for a minimum period of six (6) months from date of timing plan implementation.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.

    a. Consultant shall furnish to MCDOT a cover letter describing the extent of the re-optimization work performed.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.

    a. Traffic counts shall be taken at the subject intersection(s) after the traffic signals are approved for operation by the Traffic Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday and on a Saturday and/or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event

facilities. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.

b. The intersections shall be re-addressed and all system detectors reassigned as necessary according to the current standard practice of District One. System detector quantities and locations shall be assessed for optimal performance. The Department shall be notified of any proposed changes.

c. TRP operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to MCDOT.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.

a. Consultant shall provide to MCDOT one (1) USB flash drive for the optimized system containing the following:

(1) Electronic copy of the technical memorandum in PDF format

(2) Revised Synchro (or other appropriate, approved optimization software) files including the new signal and the rest of the signals in the system

(3) Traffic counts conducted at the subject intersection(s)

The flash drive shall be labeled with the MCDOT system number and master location (if applicable), as well as the submittal date and the consultant logo.

b. The technical memorandum shall include the following elements:

(1) Brief description of the project

(2) Analysis output from Synchro (or other appropriate, approved optimization software file)

(3) Traffic counts conducted at the subject intersection(s)

Basis of Payment.
This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of the specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

REMOTE CONTROLLED VIDEO SYSTEM (MCDOT)

Effective: November 1, 2023
892.08TS

Description.
This work shall consist of furnishing and installing an IP based remote controlled video system at a location designated by the Traffic Engineer. The work shall include a color camera, dome assembly, all mounting hardware, connectors, cables, power injectors, and related equipment

necessary to complete the installation according to the manufacturer's specifications. Any licensing required for adding the camera to the CENTRACS CCTV VIDEO MODULE will be provided by The Department. Configuration of the camera into the centralized system shall be part of this pay item.

Materials.
The PTZ camera shall be one of the following approved models:

- TKH Security Solutions PD1103Z2-E

- AXIS Q6075-E

- Cohu 4220HD

The Contractor shall furnish the required number of power injectors for the camera make and model selected, including operation of the camera heater, as well as all required mounting hardware, connectors, patch cables, and power supplies. The system shall have anonymous FTP capabilities disabled by the vendor/equipment supplier or provide a feature for the user to disable the functionality through the standard internal menu.

Installation.
The camera shall be installed as shown on the plans, either on the luminaire arm near the luminaire, or on the combination mast arm assembly pole, angled toward the center of the intersection using a mounting bracket compatible with the camera and procured from one of the approved camera manufacturers. When installed on the pole, the camera shall be mounted to provide a minimum of 12 inches clear space between face of the pole and the camera housing. When installed on the luminaire arm, the camera shall be installed with a 30-degree tilt-adjustable bracket. The camera and any external hardware and housing shall be installed with stainless steel straps.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent the chafing of wires.

The Contractor shall contact the Traffic Engineer prior to installing the camera and associated wiring, to receive final approval on the camera location. If the Remote Controlled Video System will be connected to the Gigabit Ethernet network, then a Layer II (Datalink) Switch and/or a Layer III (Network) Switch shall be required. Layer II and Layer III switches shall be installed as shown on the plans. Contractor to coordinate with MCDOT Electrical Maintenance Contractor and Network engineer for proper set up and IP configuration. The remote controlled video system shall be warrantied, free from material and workmanship defects for a period of three years from final acceptance.

Basis of Payment.
This work will be paid for at the contract unit price per each for REMOTE CONTROLLED VIDEO SYSTEM, The unit price shall include all associated equipment, hardware, cables, materials and labor required to install the complete system in place and in operation to the satisfaction of the Traffic Engineer. The OUTDOOR RATED NETWORK cable from the traffic signal cabinet will be paid for separately. If required, the LAYER II (DATALINK) SWITCH and/or the LAYER III (NETWORK) SWITCH will be paid for separately.

SERVICE INSTALLATION (TRAFFIC SIGNALS) (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
805.01TS

Revise Section 805 of the Standard Specifications to read:

Description.
This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the "District One Standard Traffic Signal Design Details".

General.
The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of Contract preparation. The Contractor must request in writing for service and/or service modification within ten (10) days of Contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the Contractor and utility company to the Engineer and Traffic Engineer. The service agreement and sketch shall be submitted for signature to the MCDOT's Traffic Engineer.

Materials.
(a) General. The completed control panel shall be constructed in accordance with UL Std. 508A, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

(b) Enclosures.

(1) Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080 in. (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14 in. (350 mm) high, 9 in. (225 mm) wide and 8 in. (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the Vendor.

(2) Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125 in. (3.175 mm) thick, the top 0.250 in. (6.350 mm) thick and the bottom 0.500 inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. The door and door opening shall be double flanged. The door shall be approximately 80%

of the front surface, with a full length tamperproof stainless steel .075 in. (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylock nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40 in. (1000 mm) high, 16 in. (400 mm) wide and 15 in. (375 mm) in depth is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.

(3) All enclosures shall include a green external power indicator LED light with circuitry as shown in the Electrical Service-Panel Diagram detail sheet. For pole mounted service enclosures, the power indicator light shall be mounted as shown in the detail. For ground mounted enclosures, the power indicator light shall be mounted on the side of the enclosure most visible from the major roadway.

(c) Electric Utility Meter Housing and Riser. The electric meter housing and meter socket shall be supplied and installed by the Contractor. The Contractor is to coordinate the work to be performed and the materials required with the utility company to make the final connection at the power source. Electric utility required risers, weather/service head, and any other materials necessary for connection shall also be included in the pay item. Materials shall be in accordance with the electric utility's requirements. For ground-mounted service, the electric utility meter housing shall be mounted to the enclosure. The meter shall be supplied by the utility company. Metered service shall not be used unless specified in the plans.

(d) Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120 V load circuit by the means MOV and thermal fusing technology. The response time shall be < 5 ns and operate within a range of –40°C to +85°C. The surge protector shall be UL 1449 Listed.

(e) Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers with trip free indicating handles. 120 V circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 A, 120 V and the auxiliary circuit breakers shall be rated 10 A, 120 V.

(f) Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.

(g) Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

(h) Utility Services Connection. The Contractor shall notify the utility company marketing representative a minimum of thirty (30) working days prior to the anticipated date of hook-up. This 30-day advance notification will begin only after the utility company marketing representative has received service charge payments from the Contractor. Prior to contacting the utility company marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the utility company.

(i) Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 ft (3.0m) in length, and 3/4 in. (20mm) in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the Contract.

Installation.

(a) General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the Engineer prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

(b) Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.

(c) Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

Basis of Payment.

The service installation shall be paid for at the Contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The CONCRETE FOUNDATION, TYPE A, which includes the ground rod, shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 in. (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility companies shall be approved by the Engineer and paid for as an addition to the Contract according to Article 109.05 of the Standard Specifications.

TEMPORARY TRAFFIC SIGNAL INSTALLATION (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
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. When temporary traffic signals will be operating within a traffic signal system, the equipment shall be compatible with the current operating requirements of the system. For integration into an Advanced Traffic

Management System (ATMS) such as Centracs, Tactics, or TransSuite, the controller shall have the latest version of approved NTCIP software installed.

General.
Only an approved controller Vendor will be allowed to assemble a temporary traffic signal and railroad traffic signal cabinet. Also, an approved equipment vendor shall assemble and test a temporary railroad traffic signal cabinet. Traffic signal inspection and TURN-ON shall be according to the current MCDOT Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

Construction Requirements.

(a) Controllers. Only controllers supplied by one of the District approved Vendors 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 250 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. 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, or as specified in the Contract.

(b) Cabinets. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved Vendors 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 Contract. All temporary traffic signal cabinets shall have a closed bottom. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust, animal, and insect-proof seal. The bottom shall provide a minimum of two (2) 4 in. (100 mm) diameter holes to run the electric cables through. The 4 in. (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 “Grounding of Traffic Signal Systems” section of the current MCDOT Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

(d) Traffic Signal Heads. All traffic signal sections shall be 12 in. (300 mm). Pedestrian signal sections shall be 16 in. (406mm) x 18 in. (457mm). All signal heads shall be furnished with tunnel visors unless otherwise specified in the contract. Traffic signal sections shall be Light Emitting Diode (LED) with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be LED Pedestrian

Countdown Signal Heads. 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 Contract. If the Contract specifies fiber optic cable to be used for temporary interconnect, the Contractor may request, in writing, to substitute the fiber optic temporary interconnect 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. If the existing traffic signal has a cellular modem, the modem shall be temporarily relocated to the temporary signal. The temporary signal cabinet shall have an antenna supplied by the Contractor. Any existing network switches shall be temporarily relocated to the temporary signal. Any existing pan-tilt-zoom (PTZ) cameras shall be temporarily relocated to the temporary signal. 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. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.

(3) Temporary wireless interconnect for closed-loop systems. The radio interconnect system shall be compatible with Eagle/Yunex 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. Maximum 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 hardwire 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 with the Vendor’s recommendations.

Temporary wireless interconnect for Advanced Traffic Management Systems. The radio interconnect system shall be compatible with an ATMS.

(f) Emergency Vehicle Preemption. 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 ±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. Video vehicle detection systems shall be approved by MCDOT prior to the Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the video vehicle detection system in accordance to the Manufacturer’s

recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. The Vendor shall be present and assist the contractor in setting up the video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.

(h) Pedestrian push-buttons. Pedestrian push-buttons shall be provided for all pedestrian signal heads/phases or as directed by the Engineer. Accessible Pedestrian Signal (APS) buttons shall be installed at any location where they currently exist. All push-buttons shall be latching and have MUTCD R10-3e signs with proper arrows.

(i) Uninterruptable Power Supply. All temporary traffic signal installations shall have an 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 the current MCDOT Traffic Signal Special Provision 862.01TS UNITERRUPTABLE POWER SUPPLY (SPECIAL).

(j) Signs. All existing signs shall be removed from existing poles and relocated to the temporary signal. 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 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 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 the Contractor shall furnish reflectorized street name signs on the temporary traffic signal installation.

(k) 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.

(l) Maintenance.

(1) Maintenance shall meet the requirements of the Standard Specifications and the “Maintenance and Responsibility of Traffic Signal and Flashing Beacon Installations” section of the current MCDOT Traffic Signal Special Provision 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS.

(2) 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 they begin any physical work on the Contract or any portion thereof.

(3) The temporary signal responsibility shall begin at the start of temporary signal construction and shall end with the removal of the signal as directed by the Engineer

(m) 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 Contract. 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 ft (5.5m) on temporary wood poles (Class 5 or better) of 45 ft (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. A video vehicle detection system may be used in place of detector loops as approved by the Engineer or as shown in the Contract.

(n) 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 twelve (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 ft (5 m) 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 ft (2.5 m) 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 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 -30ºF (-34ºC) and 120ºF (48ºC). 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 SIGNALS, 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, video vehicle detection system, any maintenance or adjustment to the 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.

TEMPORARY TRAFFIC SIGNAL TIMING (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
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 Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Engineer at (815) 334-4960 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 Traffic 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.

TRAFFIC SIGNAL BACKPLATE (MCDOT)

Effective: May 22, 2002
Revised: March 1, 2024
882.01TS

Revise the first sentence of Article 1078.03 of the Standard Specifications to read:

"All backplates shall be louvered and made of formed ABS plastic."

Revise the third paragraph of Article 1078.03 of Standard Specifications to read:

"The backplate shall have a 3 in. (75 mm) wide fluorescent yellow retroreflective strip applied to the outside perimeter of the face. When retroreflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the vendor's recommendations. The retroreflective sheeting shall be installed under a controlled environment at the Manufacturer/Vendor before shipment to the Contractor. The formed plastic backplate shall be prepared and cleaned, following recommendations of the retroreflective sheeting Manufacturer."

Delete the second sentence of the fourth paragraph of Article 1078.03 of the Standard Specifications.

UNINTERRUPTABLE POWER SUPPLY, SPECIAL (MCDOT)

Effective: January 1, 2013
Revised: March 1, 2024
862.01TS

This work shall be in accordance with section 862 of the Standard Specification except as modified herein.

Add the following to Article 862.01 of the Standard Specifications:

"The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics for a minimum of six (6) hours."

Add the following to Article 862.02 of the Standard Specifications:

"Materials shall be according to Article 1074.04 as modified in UNINTERRUPTABLE POWER SUPPLY, SPECIAL."

Add the following to Article 862.03 of the Standard Specifications:

"The UPS shall additionally include, but not be limited to, a battery cabinet, where applicable. For Super P and Super R cabinets, the battery cabinet is integrated to the traffic signal cabinet and shall be included in the cost for the traffic signal cabinet of the size and type indicated on the plans."

Revise Article 862.04 of the Standard Specifications to read:

Installation.
When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and an emergency vehicle priority system is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the Contract. A concrete apron shall be provided and be in accordance with Articles 424 and 202 of the Standard Specifications. The concrete apron shall also follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet.

For a ground mounted UPS, the UPS shall be mounted on its own Type A concrete foundation which will be paid for separately. A concrete apron shall be provided with a dimension of 36 in. in front of the UPS cabinet, 5 in. deep, and a width sized appropriately to the width of the concrete foundation. The concrete apron shall follow Articles 424 and 202 of the Standard Specifications.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the UPS including the addition of alarms.

Materials.

Revise Article 1074.04(a)(1) of the Standard Specifications to read:

"The UPS shall be line interactive or double conversion and provide voltage regulation and power conditioning when utilizing utility power. The UPS shall be sized appropriately for the intersection(s) normal traffic signal operating load. The UPS must be able to maintain the intersection's normal operating load plus 20 percent of the intersection's normal operating load. When installed at a railroad-interconnected intersection, the UPS must maintain the railroad preemption load, plus 20 percent of the railroad preemption-operating load. The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 1000 W active output capacity, with 86 percent minimum inverter efficiency)."

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

"The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans."

Revise Article 1074.04(a)(17) of the Standard Specifications to read:

"When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, luminaires, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer."

Revise Article 1074.04(b)(2) paragraph "b." of the Standard Specifications to read:

"Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125 in. thick and have a natural mill finish."

Revise Article 1074.04(b)(2) paragraph "c." of the Standard Specifications to read:

"No more than three (3) batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four (4) batteries per shelf for a cabinet housing eight batteries."

Revise Article 1074.04(b)(2) paragraph "e." of the Standard Specifications to read:

"The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm)."

Revise Article 1074.04(b)(2) paragraph "g." of the Standard Specifications to read:

"The door shall open to the entire cabinet, have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The door shall be equipped with a two position doorstop, one a 90° and one at 120°. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided."

Add the following to Article 1074.04(b)(2) of the Standard Specifications:

j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

(8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.

(9) The UPS shall include standard RS-232 and internal Ethernet interface.

(10) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate. Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel. **A generator plug/cord shall be supplied for plugging a generator extension cord into the UPS. The plug/cord shall be a minimum of 18 in. in length from connector to connector.**

(11) The bypass switch shall include an internal power transfer relay that allows removal of the battery back-up unit, while the traffic signal is connected to utility power, without impacting normal traffic signal operation.

Revise Article 1074.04(d)(3) of the Standard Specifications to read:

"All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic lead calcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted."

Revise Article 1074.04(d)(4) of the Standard Specifications to read:

"Batteries shall be certified by the manufacturer to operate over a temperature range of -13°F to 160°F (-25°C to 71°C) for gel cell batteries and -40°F to 140°F (-40°C to 60°C) for AGM type batteries."

Add the following to Article 1074.04(d) of the Standard Specifications:

(9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six (6) hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four (4) batteries shall be provided.

(10) Battery heater mats shall be provided when gel cell type batteries are supplied.

Add the following to Article 1074.04 of the Standard Specifications:

(e) Warranty. The warranty for an uninterruptable power supply (UPS) and batteries (full replacement) shall cover a minimum of five (5) years from date the equipment is placed in operation.

(f) Installation. Bypass switch shall completely disconnect the traffic signal cabinet from the utility provider.

(g) The UPS shall be set-up to run the traffic signal continuously without going to a red flashing condition when switched to battery power unless otherwise directed by the Engineer. The Contractor shall confirm set-up with the Engineer. The continuous operation mode when switched to battery may require modification to unit connections and these modifications are included in the unit price for this item.

Revise Article 862.04 of the Standard Specifications to read:

Basis of Payment.
This work will be paid for at the Contract unit price per each for UNINTERRUPTABLE POWER SUPPLY, SPECIAL, UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED, or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL. Replacement of emergency vehicle priority system confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, SPECIAL, UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED, or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item. The concrete apron and earth excavation required shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, GROUND MOUNTED or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item.

VIDEO VEHICLE DETECTION SYSTEM (MCDOT)

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

The video vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of –30°F to 165°F.

The video vehicle detection system shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The video vehicle detection system shall provide a minimum of one interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 2 detector units. The video vehicle detection system shall include a display and stand inside

the cabinet that has a minimum 10 in. screen with a minimum 1280 x 800 resolution. The display shall be temperature rated for the cabinet environment.

The video vehicle detection system shall be one of the following systems or an approved equivalent:

- Autoscope Vision
- Iteris Vantage Next

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

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

The video detection system shall be warrantied for a period of two (2) years from final inspection and shall be free from material and workmanship defects.

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

DISTRICT ONE LIGHTING SPECIFICATIONS

BREAKAWAY DEVICE

Effective: January 1, 2023

Revise the first sentence of Article 1070.04(b)(2) to read:

> "The device shall be approximately 9 in. (230 mm) high and shall have a large fiberglass or polyethylene access door of a color to match the base finish which shall be held in place with a button-type tamper resistant stainless-steel screw or other means approved by the Engineer."

ELECTRIC SERVICE INSTALLATION

Effective: January 1, 2012

Description. This item shall consist of all material and labor required to extend, connect or modify the electric services, as indicated or specified, which is over and above the work performed by the utility. Unless otherwise indicated, the cost for the utility work, if any, will be reimbursed to the Contractor separately under ELECTRIC UTILITY SERVICE CONNECTION. This item may apply to the work at more than one service location and each will be paid separately.

Materials. Materials shall be in accordance with the Standard Specifications.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall ascertain the work being provided by the electric utility and shall provide all additional material and work not included by other contract pay items required to complete the electric service work in complete compliance with the requirements of the utility.

No additional compensation will be allowed for work required for the electric service, even though not explicitly shown on the Drawings or specified herein

Method Of Measurement. Electric Service Installation shall be counted, each.

Basis Of Payment. This work will be paid for at the contract unit price EACH for **ELECTRIC SERVICE INSTALLATION** which shall be payment in full for the work specified herein.

ELECTRIC UTILITY SERVICE CONNECTION (COMED)

Effective: January 1, 2012

Description. This item shall consist of payment for work performed by ComEd in providing or modifying electric service as indicated. THIS MAY INVOLVE WORK AT MORE THAN ONE ELECTRIC SERVICE. For summary of the Electrical Service Drop Locations see the schedule contained elsewhere herein.

CONSTRUCTION REQUIREMENTS

General. It shall be the Contractor's responsibility to contact ComEd. The Contractor shall coordinate his work fully with the ComEd both as to the work required and the timing of the installation. No additional compensation will be granted under this or any other item for extra work caused by failure to meet this requirement. **Please contact ComEd, New Business Center Call Center, at 866 NEW ELECTRIC (1-866-639-3532) to begin the service connection process. The Call Center Representatives will create a work order for the service connection. The representative will ask the requestor for information specific to the request. The representative will assign the request based upon the location of project.**

The Contractor should make particular note of the need for the earliest attention to arrangements with ComEd for service. In the event of delay by ComEd, no extension of time will be considered applicable for the delay unless the Contractor can produce written evidence of a request for electric service within 30 days of execution.

Method Of Payment. The Contractor will be reimbursed to the exact amount of money as billed by ComEd for its services. Work provided by the Contractor for electric service will be paid separately as described under ELECTRIC SERVICE INSTALLATION. No extra compensation shall be paid to the Contractor for any incidental materials and labor required to fulfill the requirements as shown on the plans and specified herein.

For bidding purposes, this item shall be estimated as $12,000.

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.

JUNCTION BOX EMBEDDED IN STRUCTURE

Effective: January 1, 2012

Description. This work shall consist of furnishing and installing an embedded Composite Concrete Junction Box in concrete.

Materials. The box and cover shall be constructed of a polymer concrete and reinforced with a heavy-weave fiberglass cloth. The material shall have the following properties:

Mechanical Property	Value	Physical Property	Value
Compressive strength	9,000 – 15,000 psi	Density	85-150 lbs/ft^2
flexural strength	3,000 – 6,000 psi	Barcol Hardness	45
Impact Energy	30 – 72 ft.-lbs	Water Absorption	Less Than 1%
tensile strength	800 – 1,100 psi		

The resulting enclosure shall have a Tier 8 Load Rating in accordance with ANSI/SCTE 77 2002. The material shall have light gray color to match the surrounding concrete. The cover shall be made of the same material. The junction box and cover shall be arranged to fit flush with the structure surface. The cover shall be gasketed and attached with a minimum of four stainless steel hex-head bolts factory coated with anti-seize compound. The enclosure shall be UL Listed.

Installation. The embedded junction box shall be set flush with the adjoining surface and shall be properly supported during concrete placement. Concrete cover shall not be less than 3 in. (75 mm) all around the embedded junction box. The junction box shall not be installed in areas where vehicular traffic may drive over the junction box.

Field cut conduit openings shall be uniform and smooth. All burrs and rough edges shall be filed smooth to the satisfaction of the Engineer prior to the installation of conduit(s) into the junction box. Field cut conduit openings shall be fitted with the appropriate conduit fittings and accessories. Conduit fittings and accessories shall be provided according to Article 1088.01 and as shown on the plans.

Conduit openings may be factory cut and pre-assembled with conduit fittings. Conduit fittings and accessories shall be manufactured from polyvinyl chloride complying with ASTM D 1784 and shall comply with all the applicable requirements of NEMA Publication No. TC2, U.L. Standard 651 for EPC-40-PVC and NEC Article 347.

Slight deviations to a larger size than the specified sizes may be allowed to conform to a standard manufacturer's production size with the approval of the Engineer.

Basis of Payment. This work will be paid for at the contract unit price each for **JUNCTION BOX, EMBEDDED IN STRUCTURE**, of the type and size when specified. The Contractor may, with the approval of the Engineer, use box sizes larger than indicated, at no additional cost to the Department.

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.

Cables shall be manufactured and listed for compliance with Federal Specification RR-W-410 and Mil-DTL-83420.

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.

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.

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 Section109.04.

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.

UNDERGROUND RACEWAYS

Effective: March 1, 2015

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 or 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."

UNIT DUCT

Effective: January 1, 2012

Revise the first paragraph of Article 810.04 to read:

"The unit duct shall be installed at a minimum depth of 30-inches (760 mm) unless otherwise directed by the Engineer."

Revise Article 1088.01(c) to read:

"(c) Coilable Nonmetallic Conduit.

General:

The duct shall be a plastic duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The duct shall be a plastic duct which is intended for underground use and can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance.

The duct shall be made of high density polyethylene which shall meet the requirements of ASTM D 2447, for schedule 40. The duct shall be composed of black high density polyethylene meeting the requirements of ASTM D 3350, Class C, Grade P33. The wall thickness shall be in accordance with Table 2 for ASTM D 2447.

The duct shall be UL Listed per 651-B for continuous length HDPE coiled conduit. The duct shall also comply with NEC Article 354.100 and 354.120.

Submittal information shall demonstrate compliance with the details of these requirements.

Dimensions:

Duct dimensions shall conform to the standards listed in ASTM D2447. Submittal information shall demonstrate compliance with these requirements.

Nominal Size		**Nominal I.D.**		**Nominal O.D.**		**Minimum Wall**	
mm	in	mm	in	mm	in	mm	in
31.75	1.25	35.05	1.380	42.16	1.660	3.556 +0.51	0.140 +0.020
38.1	1.50	40.89	1.610	48.26	1.900	3.683 +0.51	0.145 +0.020

Nominal Size		**Pulled Tensile**	
mm	in	N	lbs
31.75	1.25	3322	747
38.1	1.50	3972	893

Marking:

As specified in NEMA Standard Publication No. TC-7, the duct shall be clearly and durably marked at least every 3.05 meters (10 feet) with the material designation (HDPE for high density polyethylene), nominal size of the duct and the name and/or trademark of the manufacturer.

Performance Tests:

Polyethylene Duct testing procedures and test results shall meet the requirements of UL 651. Certified copies of the test report shall be submitted to the Engineer prior to the installation of the duct. Duct crush test results shall meet or exceed the following requirements:

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

WIRE AND CABLE

Effective: January 1, 2012

Add the following to the first paragraph of Article 1066.02(a):

"The cable shall be rated at a minimum of 90°C dry and 75°C wet and shall be suitable for installation in wet and dry locations, and shall be resistant to oils and chemicals."

Revise the Aerial Electric Cable Properties table of Article 1066.03(a)(3) to read:

Aerial Electric Cable Properties

Phase Conductor				Messenger wire	
Size AWG	Stranding	Average Insulation Thickness		Minimum Size AWG	Stranding
		mm	mils		
6	7	1.1	(45)	6	6/1
4	7	1.1	(45)	4	6/1
2	7	1.1	(45)	2	6/1
1/0	19	1.5	(60)	1/0	6/1
2/0	19	1.5	(60)	2/0	6/1
3/0	19	1.5	(60)	3/0	6/1
4/0	19	1.5	(60)	4/0	6/1

Add the following to Article 1066.03(b) of the Standard Specifications:

"Cable sized No. 2 AWG and smaller shall be U.L. listed Type RHH/RHW and may be Type RHH/RHW/USE. Cable sized larger than No. 2 AWG shall be U.L. listed Type RHH/RHW/USE."

Revise Article 1066.04 to read:

"Aerial Cable Assembly. The aerial cable shall be an assembly of insulated aluminum conductors according to Section 1066.02 and 1066.03. Unless otherwise indicated, the cable assembly shall be composed of three insulated conductors and a steel reinforced bare aluminum conductor (ACSR) to be used as the ground conductor. Unless otherwise indicated, the code word designation of this cable assembly is "Palomino". The steel reinforced aluminum conductor shall conform to ASTM B-232. The cable shall be assembled according to ANSI/ICEA S-76-474."

Revise the second paragraph of Article 1066.05 to read:

"The tape shall have reinforced metallic detection capabilities consisting of a woven reinforced polyethylene tape with a metallic core or backing."

DISTRICT ONE TRAFFIC SIGNAL SPECIFICATIONS

ACCESSIBLE PEDESTRIAN SIGNALS

Effective: April 1, 2003
Revised: November 1, 2023
888.02TS

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid-state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Add the following to Article 888.03 of the Standard Specifications:

A mounting bracket and/or extension shall be used to assure proper orientation and accessibility where needed. The price of the bracket and/or extension shall be included in the cost of the pedestrian push button. The contractor is not allowed to install a push-button assembly with the sign below the push-button to meet mounting requirements.

Add the following to Article 1074.02(e) of the Standard Specifications:

Stations shall be designed to be mounted to a post, mast arm pole or wood pole. The station shall be aluminum and shall accept a 3 inch round push-button assembly and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9” x 15” sign with arrow(s) for a count-down pedestrian signal. Stations shall be powder coated yellow with a black pushbutton and stainless steel arrow on pushbutton.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton and shall be deactivated during the associated walk indication and when associated traffic signals are in flashing mode. Pushbutton locator tones shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals. Each actuation of the pushbutton shall be accompanied by the speech message “Wait”. Locator tones shall be audible 6 to 12 ft from pushbutton.

If two accessible pedestrian pushbuttons are placed less than 10 ft apart or placed on the same pole, the audible walk and don’t walk indication shall be a speech message. This speech message shall sound throughout the WALK interval only. Common street name shall be used and not the route number of the street unless there is no common street name. The street name used in programming shall reflect the street name mast arm mounted sign panel. Locations without street name (ex. private benefit driveways, shopping plaza entrance, etc.) shall use a general term “Commercial Driveway” as a street name for that leg. The speech message shall be modeled after: “’Street Name.’ Walk Sign is on to cross “Street Name’.” For signalized intersections utilizing exclusive pedestrian phasing, the verbal message shall be “Walk sign is on for all crossings”. In addition, a speech pushbutton information message shall be provided by actuating

the APS pushbutton during DON'T WALK interval. This verbal message shall be modeled after: "Wait". The extended press option verbal massage shall be: "Wait to cross 'Street Name' at 'Street Name'".

Railroad Preemption.
At locations with railroad interconnection APS pushbutton shall be capable of receiving a railroad preemption similar to a traffic signal controller and shall be hard wired to the railroad preemption relay inside the traffic signal cabinet. A shelf mount control unit shall be provided and installed inside the cabinet capable of receiving and transmitting the railroad preemption to all the push buttons.

At railroad intersections all APS pushbuttons shall use the speech message and shall follow the below speech models.

During Don't Walk: "Wait to cross 'Street Name' at 'Street Name', Caution, Walk time shortened when train approaches'" – this does not repeat, plays only once with every push button press.
During Walk: "Walk sign is on to cross 'Street Name', – this repeats as many times as possible during Walk interval only.
During Railroad preemption: All push buttons at same time "Train Approaching" – this message shall be repeated two times.

At locations with emergency vehicle preemption, NO additional speech message shall be provided.

At locations with Equestrian Pushbuttons style installation the APS push buttons shall use speech message only and shall emit the audible message from the bottom mounted push button only.

Locations with Corner Islands or Center Medians
At locations with corner islands pushbuttons shall follow the requirement of the 10 ft as specified herein regarding the percussive tone vs a speech message. When push buttons are closer than 10 ft apart the speech message shall follow the format specified herein for the main street crossing. The speech message shall follow the below speech models for the unusual configurations.

Crossing of the right turn lane from or to Corner Island: "Wait to cross right turn lane for 'Street Name' at 'Street Name' crosswalks" and "Walk sign is on to cross right turn lane for 'Street Name' at 'Street Name' crosswalks"
Crossing from Corner Island to Corner Island where second pushbutton actuation is required: "Wait to cross 'Street Name' at 'Street Name' to median with second pushbutton" and "Walk sign is on to cross 'Street Name' to median with second pushbutton"

Center Medians on a divided highways with push buttons will require pushbutton to have a dual arrow on the pushbutton.

Where two accessible pedestrian pushbuttons are separated by 10 ft or more, the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz. Percussive tone shall be uniform at all stations at the intersection and shall not change for different directions.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB

louder than ambient sound. Locator tone and speech message shall be programmed at same volume one shall not be significantly louder than the other and shall be adjusted as directed by the Engineer.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

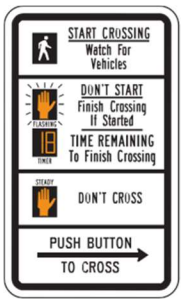
APS pushbutton systems that utilize any wireless technology including Bluetooth technology to place calls or communicate with controller will not be allow. A central master control unit shall be provided and installed in the traffic signal cabinet. Push button shall be connected directly to the master control unit in the traffic signal cabinet using only 2 wires. All pushbuttons shall be capable of placing a pedestrian call request into the controller and shall be hard wired. APS pushbuttons shall be a direct replacement of existing standard push buttons and shall be weather resistant with a minimum warranty of 5 years.

APS push buttons shall be compatible with one another and easily replaceable on future replacements or maintenance repairs no multiple model variations will be allowed.

All APS pushbuttons shall come with the messages pre-programmed for each particular intersection regardless of the location or the 10 ft separation. Final field adjustments including percussive tone vs speech message use shall be completed once push buttons are installed in the final location. All push buttons shall be programmed with the appropriate parameters and settings as directed by the Engineer. These settings shall be standard for all pushbuttons and will vary based on the manufacturer. Access to pushbutton settings shall be provided through an app either through wired, wireless, or Bluetooth connection. Pushbutton information, settings, and access instructions shall all be provided in a weatherproof pouch and safely stored inside each traffic signal cabinet.

Contractor shall remove any existing pedestrian isolation boards, field wire terminals, and any wires to the board when easily accessible. If the pedestrian isolation board has been installed from the factory on the back panel of the cabinet, contractor is to disconnect the power to the isolation board and any wires while leaving the board mounted. This work shall be included in the cost of Accessible Pedestrian Signals and will not be paid for separately.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall conform to the following standard MUTCD design: R10-3e.



R10-3E

Tactile Arrow.
A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided on the pushbutton.

Vibrotactile Feature.
The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Basis of Payment.
This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS and shall include furnishing, installation, mounting hardware including extension brackets if required, and programming of the push button.

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

Effective: May 22, 2002
Revised: July 1, 2015
887.01TS

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor’s responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, or a 7 watt Par 30 LED flood lamp with a 15 degree or greater spread, maximum 7 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4L.01 of the “Manual on Uniform

Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signalized by a continuous indication.

All light operated systems shall include security and transit preemption software and operate at a uniform rate of 14.035 Hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

Basis of Payment.
The work shall be paid for at the contract unit price each for furnishing and installing LIGHT DETECTOR and LIGHT DETECTOR AMPLIFIER. Furnishing and installing the confirmation beacon shall be included in the cost of the Light Detector. Any required modifications to the traffic signal controller shall be included in the cost of the LIGHT DETECTOR AMPLIFIER. The preemption detector amplifier shall be paid for on a basis of (1) one each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

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.

LED SIGNAL FACE, LENS COVER

Effective: July 01, 2021
Revised: March 1, 2024
880.03TS

Description.
This work shall consist of furnishing and installing a signal lens cover with the purpose or preventing snow buildup on and around a signal lens allowing for clear indication during inclement weather.

This item shall fit over a 12 in. signal head lens and shall include the clear lens cover, attachment collar, and any clips or fasteners necessary to fit it flush. The cover shall be installed in accordance with the Manufacturer's instructions and in a manner that prevents dust, debris, or moisture buildup on the inside of the lens cover that could affect the signal indication visibility.

The snow resistant signal head lens cover shall be warrantied for a period of three (3) years from final inspection and shall be free from material and workmanship defects.

Basis of Payment.
This work shall be paid for at the Contract unit price each for LED SIGNAL FACE, LENS COVER, the price of which shall include the cost for all work and material described herein and includes furnishing, installing, and all mounting hardware necessary for a fully operational snow resistant signal head lens cover.

OUTDOOR RATED NETWORK CABLE

Effective: November 1, 2023
887.04TS

Description.
This work shall consist of furnishing and installing a network cable from the traffic signal cabinet to the associated field device as shown on the plans

Materials.
The outdoor rated network cable shall be a black Category 5e cable, meeting the TIA/EIA 568-B.2 telecommunication standards. The cable shall be composed of 24 AWG solid bare copper conductors, twisted pairs, polyolefin insulation, inner LLPE jacket, overall shield (100% coverage), 24 AWG stranded TC drain wire, industrial grade sunlight- and oil-resistant LLPE jacket. The cable shall be capable of performing from -40 ºF to 160 ºF.

Each end of the cable shall be terminated with an RJ-45 connector installed according to the TIA/EIA 568B standard. The drain wire at the cabinet end shall be terminated with a ring lug and attached to a suitable ground point.

The work shall be performed according to the applicable portions of Section 873 of the “Standard Specifications”, and details as shown on the plans.

Basis of Payment.
This work will be paid for at the contract unit price per foot for OUTDOOR RATED NETWORK CABLE, the unit price shall include all equipment, materials and labor required to furnish and install the cable and making all connections necessary for proper operation. The unit price shall also include furnishing and installing the RJ-45 connectors, ring terminals and grounding the cable.

RADAR VEHICLE DETECTION SYSTEM

Effective: July 01, 2015
Revised: March 1, 2024
886.03TS

Description.
This work shall consist of furnishing and installing a radar vehicle detection system as specified and/or as shown on the plan. This pay item shall include all necessary work and equipment required to have a fully operational system including but not limited to the detector unit(s), the

interface unit and all the necessary hardware, cable and accessories required to complete the installation in accordance with the manufacturer's specifications.

The radar vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of –30°F to 165°F. It shall have a max power output of 75 W or less.

The radar vehicle detection system shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The radar vehicle detection system shall provide a minimum of one interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 2 detector units.

The stop bar radar vehicle detection system shall have true presence capabilities in which it can detect stopped, slow moving or turning vehicles similar to the Department's in-pavement detection. This is especially important at side streets where driveways are near the intersection. The radar shall be able to drop the call if the vehicle leaves the detection zone. A manufacture statement confirming proper operation is required along each material approval submittal. The Department will not allow substitutes for other types of detection.

The far back radar detection shall have a detection range of 400 ft or better.

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

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

The radar vehicle detection system shall be warrantied for a period of two (2) years from final inspection and shall be free from material and workmanship defects.

Basis of Payment.
This work shall be paid for at the Contract unit price each for RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, STOP BAR; RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, FAR BACK; RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, STOP BAR AND FAR BACK, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational radar vehicle detection system.

REBUILD EXISTING HANDHOLE

Effective: January 1, 2002
Revised: November 1, 2023
895.04TS

This item shall consist of rebuilding and bringing to grade a handhole or double 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.

Handhole
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 epoxy coated steel rebar, eight (8) inches in length, shall be furnished and shall be installed in the drilled holes with a masonry epoxy.

Double Handhole
Six (6) 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 both short walls and two spaced equally on both long walls. Six (6) #3 epoxy coated steel rebar, 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. All rebar must meet the specifications set forth in 1006.10.

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.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Effective: May 22, 2002
Revised: March 1, 2024
895.02TS

Add the following to Article 895.05 of the Standard Specifications:

> "The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.
>
> All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within thirty (30) days of removing it from the traffic signal installation.

The Contractor shall provide one hard copy and one electronic file of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned according to these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until approval by the Department. A delivery receipt will be signed by the State's Electrical Maintenance Contractor indicating the items have been returned.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost, damaged, or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract."

ROD AND CLEAN EXISTING CONDUIT

Effective: January 1, 2015
Revised: July 1, 2015
810.03TS

Description.
This work shall consist of inserting a duct rod or electrical fish rod or tape of sufficient length and rigidity into an electrical conduit opening in one electrical handhole, and pushing the said rod through the conduit to emerge at the next or subsequent handhole in the conduit system at the location(s) shown on the plans. The duct rod may be inserted and removed by any standard construction method which causes no damage to the conduit. The size of the conduit may vary, but there shall be no differentiation in cost for the size of the conduit.

The conduit which is to be rodded and cleaned may exist with various amounts of standing water in the handholes to drain the conduit and to afford compatible working conditions for the installation of the duct rods and/or cables. Pumping of handholes shall be included with the work of rodding and cleaning of the conduit.

Any handhole which, in the opinion of the Engineer contains excessive debris, dirt or other materials to the extent that conduit rodding and cleaning is not feasible, shall be cleaned at the Engineer's order and payment approval as a separate pay item.

Prior to removal of the duct rod, a duct cleaning attachment such as a properly sized wire brush or cleaning mandrel shall be attached to the duct rod, which by removal of the duct rod shall be pulled through the conduit to remove sand, grit, or other light obstructions from the duct to provide a clean, clear passage for the installation of cable. Whenever the installation of cables is not performed as an adjunct to or immediately following the cleaning of the duct, a light weight pulling line such as a 1/8" polyethylene line or conduit measuring tape shall be placed and shall remain in the conduit to facilitate future work. When great difficulty of either inserting the duct rod or

removal of the cleaning mandrel is encountered, the duct may require further cleaning by use of a compressed air gun, or a low pressure water hose. In the case of a broken conduit, the conduit must be excavated and repaired. The existence and location of breaks in the conduit may be determined by rodding, but the excavation and repair work required will be paid for separately.

This work shall be measured per lineal foot for each conduit cleaned. Measurements shall be made from point to point horizontally. No vertical rises shall count in the measurement.

Basis of Payment.
This work shall be paid for at the contract unit price per lineal foot for ROD AND CLEAN EXISTING CONDUIT for the installation of new electric cables in existing conduits. Such price shall include the furnishing of all necessary tools, equipment, and materials required to prepare a conduit for the installation of cable.

SIGN SHOP DRAWING SUBMITTAL

Effective: January 22, 2013
Revised: July 1, 2015
720.02TS

Add the following paragraph to Article 720.03 of the Standard Specifications:

Shop drawings will be required, according to Article 105.04, for all Arterials/Expressways signs except standard highway signs covered in the MUTCD. Shop drawings shall be submitted to the Engineer for review and approval prior to fabrication. The shop drawings shall include dimensions, letter sizing, font type, colors and materials.

TRAFFIC SIGNAL POST

Effective: May 22, 2002
Revised: July 14, 2021
875.01TS

Revise Article 1077.01 (c) of the Standard Specifications to read:

(c) Anchor Rods. The anchor rods shall be a minimum of 3/4 in. in diameter and 17 in. long and shall be according to Article 1006.09. The anchor rods shall be threaded approximately 6 in. at one end and have a bend at the other end. The first 12 in. at the threaded end shall be galvanized. One each galvanized nut and trapezoidal washer shall be furnished with each anchor rod. The washer shall be properly sized to fully engage and sit flush on all sides of the slot of the base plate.

Revise the first sentence of Article 1077.01 (d) of the Standard Specifications to read:

All posts shall be steel, and bases shall be cast iron. All posts and bases shall be hot dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

UNDERGROUND RACEWAYS

Effective: May 22, 2002
Revised: March 1, 2024
810.02TS

Revise Article 810.04 of the Standard Specifications to read:

> "Installation. All underground conduits shall have a minimum depth of 30 in. (700 mm) below the finished grade and shall be installed to avoid existing and proposed utilities within the project limits."

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 1 ft (300 mm) 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 1/8 in. (3 mm) 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."

DISTRICT ONE SPECIAL PROVISIONS

ADJUSTMENTS AND RECONSTRUCTIONS (D1)

Effective: March 15, 2011
Revised: October 1, 2021

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-2 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-2 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-2 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-2 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."

CLEANING EXISTING DRAINAGE STRUCTURES (D1)

Effective: September 30, 1985
Revised: May 1, 2022

All existing storm sewers, pipe culverts, manholes, catch basins and inlets shall be considered as drainage structures insofar as the interpretation of this Special Provision is concerned. When specified for payment, the location of drainage structures to be cleaned will be determined in the field by the Engineer.

All existing drainage structures which are to be adjusted or reconstructed shall be cleaned according to Article 602.15 of the Standard Specifications. This work will be paid for according to accordance with Article 602.16 of the Standard Specifications.

All other existing drainage structures which are specified to be cleaned by the Engineer will be cleaned according to Article 602.15 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price each for DRAINAGE STRUCTURES TO BE CLEANED, and at the contract unit price per foot (meter) for STORM SEWERS TO BE CLEANED, of the diameter specified.

DRAINAGE AND INLET PROTECTION UNDER TRAFFIC (D1)

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

Add the following to Article 603.02 of the Standard Specifications:

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

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

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

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

Revise Article 603.07 of the Standard Specifications to read:

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

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

(a) Temporary Asphalt Ramps. Temporary hot-mix asphalt ramps shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 2 ft (600 mm) around the entire surface of the casting.

(b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 40 mph or less and when the height of the casting to be protected meets the proper sizing requirements for the rubber ramps as shown below.

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

Placement shall be according to the manufacturer's specifications.

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

EMBANKMENT I (D1)

Effective: March 1, 2011
Revised: November 1, 2013

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

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

a) The laboratory Standard Dry Density shall be a minimum of 90 lb/cu ft (1450 kg/cu m) when determined according to AASHTO T 99 (Method C).

b) The organic content shall be less than ten percent determined according to AASHTO T 194 (Wet Combustion).

c) Soils which demonstrate the following properties shall be restricted to the interior of the embankment and shall be covered on both the sides and top of the embankment by a minimum of 3 ft (900 mm) of soil not considered detrimental in terms of erosion potential or excess volume change.

   1) A grain size distribution with less than 35 percent passing the number 75 um (#200) sieve.

   2) A plasticity index (PI) of less than 12.

   3) A liquid limit (LL) in excess of 50.

d) Reclaimed asphalt shall not be used within the ground water table or as a fill if ground water is present.

e) The RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, “Reclaimed Asphalt Pavement (RAP) for Aggregate Applications”. Gradation deleterious count shall not exceed 10% of total RAP and 5% of other by total weight.

CONSTRUCTION REQUIREMENTS

Samples

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

Placing Material

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

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

Compaction

Soils classification for moisture content control will be determined by the Soils Inspector using visual field examination techniques and the IDH Textural Classification Chart.

When tested for density in place each lift shall have a maximum moisture content as follows.

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

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

Stability
The requirement for embankment stability in Article 205.04 will be measured with a Dynamic Cone Penetrometer (DCP) according to the test method in the IDOT Geotechnical Manual. The penetration rate must be equal or less than 1.5 inches (38 mm) per blow.

Basis of Payment
This work will not be paid separately but will be considered as included in the various items of excavation.

ENGINEER'S FIELD OFFICE TYPE A (D1)

Effective: January 1, 2022

Revise the first paragraph of Article 670.02 to read:

> **670.02 Engineer's Field Office Type A (D1).** Type A (D1) field offices shall have a ceiling height of not less than 7 feet and a floor space of not less than 1000 square feet with a minimum of two separate offices. The office shall also have a separate storage room capable of being locked for the storage of the nuclear measuring devices. The office shall be provided with sufficient heat, natural and artificial light, and air conditioning. Doors and windows shall be equipped with locks approved by the Engineer.

Add the following to Article 670.07 Basis of Payment.

> The building or buildings, fully equipped, will be paid for at the contract unit price per calendar month or fraction thereof for ENGINEER'S FIELD OFFICE, TYPE A (D1).

FRICTION AGGREGATE (D1)

Effective: January 1, 2011
Revised: December 1, 2021

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	Allowed Alone or in Combination [5/]: Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete

<table>
<tr><th>Use</th><th>Mixture</th><th>Aggregates Allowed</th></tr>
<tr><td>HMA
Low ESAL</td><td>Stabilized Subbase
or Shoulders</td><td><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</td></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>Binder
IL-19.0
or IL-19.0L

SMA Binder</td><td><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/]</td></tr>
<tr><td>HMA
High ESAL
Low ESAL</td><td>C Surface and Binder
IL-9.5
IL-9.5FG
or IL-9.5L</td><td><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/]</td></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">D Surface and Binder
IL-9.5
or IL-9.5FG</td><td><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/]</td></tr>
<tr><td><u>Other Combinations Allowed:</u>

Up to... | With...
25% Limestone | Dolomite
50% Limestone | Any Mixture D aggregate other than Dolomite
75% Limestone | Crushed Slag (ACBF) or Crushed Sandstone</td></tr>
</table>

<table>
<tr><th>Use</th><th>Mixture</th><th colspan="2">Aggregates Allowed</th></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">E Surface
IL-9.5

SMA
Ndesign 80
Surface</td><td colspan="2"><u>Allowed Alone or in Combination</u> [5/ 6/]:

Crushed Gravel
Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag

No Limestone.</td></tr>
<tr><td colspan="2"><u>Other Combinations Allowed:</u></td></tr>
<tr><td>Up to...</td><td>With...</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/]</td><td>Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag</td></tr>
<tr><td rowspan="5">HMA
High ESAL</td><td rowspan="5">F Surface
IL-9.5

SMA
Ndesign 80
Surface</td><td colspan="2"><u>Allowed Alone or in Combination</u> [5/ 6/]:

Crystalline Crushed Stone
Crushed Sandstone
Crushed Slag (ACBF)
Crushed Steel Slag
No Limestone.</td></tr>
<tr><td colspan="2"><u>Other Combinations Allowed</u>:</td></tr>
<tr><td>Up to...</td><td>With...</td></tr>
<tr><td>50% Crushed Gravel[2/] or Dolomite[2/]</td><td>Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone</td></tr>
</table>

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.
3/ Crushed concrete will not be permitted in SMA mixes.
4/ Crushed steel slag shall not be used as 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."

HOT-MIX ASPHALT BINDER AND SURFACE COURSE (D1)

Effective: November 1, 2019
Revised: December 1, 2021

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 the fine aggregates 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."

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 Note 2. and add Note 6 to Article 1030.02 of the Standard Specifications to read:

"Item Article/Section

(g)Performance Graded Asphalt Binder (Note 6) 1032
(h)Fibers (Note 2)

Note 2. 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 6. 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.."

Revise table in Article 1030.05(a) of the Standard Specifications to read:

"MIXTURE COMPOSITION (% PASSING) [1/]												
Sieve Size	IL-19.0 mm		SMA 12.5		SMA 9.5		IL-9.5mm		IL-9.5FG		IL-4.75 mm	
	min	max	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		100
3/8 in. (9.5 mm)				65	90	100	90	100	90	100		100
#4 (4.75 mm)	40	60	20	30	36	50	34	69	60	75[6/]	90	100
#8 (2.36 mm)	20	42	16	24 [4/]	16	32[4/]	34 [5/]	52 [2/]	45	60[6/]	70	90
#16 (1.18 mm)	15	30					10	32	25	40	50	65
#30 (600 μm)			12	16	12	18			15	30		
#50 (300 μm)	6	15					4	15	8	15	15	30

"MIXTURE COMPOSITION (% PASSING) [1/]												
Sieve Size	IL-19.0 mm		SMA 12.5		SMA 9.5		IL-9.5mm		IL-9.5FG		IL-4.75 mm	
	min	max	min	max	min	max	min	max	min	max	min	max
#100 (150 μm)	4	9					3	10	6	10	10	18
#200 (75 μm)	3.0	6.0	7.0	9.0 [3/]	7.5	9.5 [3/]	4.0	6.0	4.0	6.5	7.0	9.0 [3/]
#635 (20 μm)			≤ 3.0		≤ 3.0							
Ratio Dust/Asphalt Binder		1.0		1.5		1.5		1.0		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.

6/ When the mixture is used as a binder, the maximum shall be increased by 0.5 percent passing."

Revise Article 1030.05(b) of the Standard Specifications to read:

(b) Volumetric Requirements. The target value for the air voids of the HMA shall be 4.0 percent, for IL-4.75 and SMA mixtures 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.

	Voids in the Mineral Aggregate (VMA), % Minimum for Ndesign				
Mix Design	30	50	70	80	90
IL-19.0		13.5	13.5		13.5
IL-9.5		15.0	15.0		
IL-9.5FG		15.0	15.0		
IL-4.75[1/]		18.5			
SMA-12.5[1/2/5/]				17.0[3/]/16.0[4/]	
SMA-9.5[1/2/5/]				17.0[3/]/16.0[4/]	
IL-19.0L	13.5				
IL-9.5L	15.0				

1/ Maximum draindown shall be 0.3 percent according to Illinois Modified AASHTO T 305.

2/ The draindown shall be determined at the JMF asphalt binder content at the mixing temperature plus 30°F.

3/ Applies when specific gravity of coarse aggregate is ≥ 2.760.

4/ Applies when specific gravity of coarse aggregate is < 2.760.

5/ 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"

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 steal slag sand, shall have minimum surge bin storage plus haul time of 1.5 hours."

Add after third sentence of Article 1030.09(b) 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."

Revise Table 1 and Note 4/ of Table 1 in Article 406.07(a) of the Standard Specifications to read:

	Breakdown/Intermediate Roller (one of the following)	Final Roller (one or more of the following)	Density Requirement
IL-9.5, IL-9.5FG, IL-19.0 1/	V_D, P , T_B, 3W, O_T, O_B	V_S, T_B, T_F, O_T	As specified in Section 1030
IL-4.75 and SMA 3/ 4/	T_B, 3W, O_T	T_F, 3W	As specified in Section 1030
Mixtures on Bridge Decks 2/	T_B	T_F	As specified in Articles 582.05 and 582.06.

"4/ The Contractor shall provide a minimum of two steel-wheeled tandem rollers (T_B), and/or three-wheel (3W) rollers for breakdown, except one of the (T_B) or (3W) rollers shall be 84 inches (2.14 m) wide and a weight of 315 pound per linear inch (PLI) (5.63 kg/mm) and one of the (T_B) or (3W) rollers can be substituted for an oscillatory roller (O_T). T_F rollers shall be a minimum of 280 lb/in. (50 N/mm). The 3W and T_B rollers shall be operated at a uniform speed not to exceed 3 mph (5 km/h), with the drive roll for T_B rollers nearest the paver and maintain an effective rolling distance of not more than 150 ft (45 m) behind the paver."

Add the following after the fourth paragraph of Article 406.13 (b):

"The plan quantities of SMA mixtures shall be adjusted using the actual approved binder and surface Mix Design's G_{mb}."

Revise first paragraph of Article 1030.10 of the Standard Specifications to read:

"A test strip of 300 ton (275 metric tons), except for SMA mixtures it will be 400 ton (363 metric ton), will be required for each mixture on each contract at the beginning of HMA production for 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."

Revise third paragraph of Article 1030.10 of the Standard Specifications to read:

"When a test strip is constructed, the Contractor shall collect and split the mixture according to the document "Hot-Mix Asphalt Test Strip Procedures". The Engineer, or a representative, shall deliver split sample to the District Laboratory for verification testing. The Contractor shall complete mixture tests stated in Article 1030.09(a). Mixture sampled shall include enough material for the Department to conduct mixture tests detailed in Article 1030.09(a) and in the document "Hot-Mix Asphalt Mixture Design Verification Procedure" Section 3.3. The mixture test results shall meet the requirements of Articles 1030.05(b) and 1030.05(d), except Hamburg wheel tests will only be conducted on High ESAL mixtures during production."

HOT-MIX ASPHALT – MIXTURE DESIGN VERIFICATION AND PRODUCTION (D1)

Effective: January 1, 2019
Revised: December 1, 2021

Add to Article 1030.05 (d)(3) of the Standard Specifications to read:

" During mixture design, prepared samples shall be submitted to the District laboratory by the Contractor for verification testing. The required testing, and number and size of prepared samples submitted, shall be according to the following tables.

High ESAL – Required Samples for Verification Testing	
Mixture	Hamburg Wheel and I-FIT Testing [1/ 2/]
Binder	total of 3 - 160 mm tall bricks
Surface	total of 4 - 160 mm tall bricks

Low ESAL – Required Samples for Verification Testing	
Mixture	I-FIT Testing [1/ 2/]
Binder	1 - 160 mm tall brick
Surface	2 - 160 mm tall bricks

1/ The compacted gyratory bricks for Hamburg wheel and I-FIT testing shall be 7.5 ± 0.5 percent air voids.

2/ If the Contractor does not possess the equipment to prepare the 160 mm tall brick(s), twice as many 115 mm tall compacted gyratory bricks will be acceptable.

Revise the fourth paragraph of Article 1030.10 of the Standard Specifications to read:

"When a test strip is not required, each HMA mixture shall still be sampled on the first day of production: I-FIT and Hamburg wheel testing for High ESAL; I-FIT testing for Low ESAL. Within two working days after sampling the mixture, the Contractor shall deliver gyratory cylinders to the District laboratory for Department verification testing. The High ESAL mixture test results shall meet the requirements of Articles 1030.05(d)(3) and 1030.05(d)(4). The Low ESAL mixture test results shall meet the requirements of Article 1030.05(d)(4). The required number and size of prepared samples submitted for the Hamburg wheel and I-FIT testing shall be according to the "High ESAL - Required Samples for Verification Testing" table in Article 1030.05(d)(3) above."

Add the following to the end of Article 1030.10 of the Standard Specifications to read:

"Mixture sampled during first day of production shall include approximately 60 lb (27 kg) of additional material for the Department to conduct Hamburg wheel testing and approximately 80 lb (36 kg) of additional material for the Department to conduct I-FIT testing. Within two working days after sampling, the Contractor shall deliver prepared samples to the District laboratory for verification testing. The required number and size of prepared samples submitted for the Hamburg wheel and I-FIT testing shall be according to the "High ESAL - Required Samples for Verification Testing" table in Article 1030.05(d)(3) above."

MAINTENANCE OF ROADWAYS (D1)

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.

PLANTING WOODY PLANTS

This work shall consist of planting woody plants as specified in Section 253 of the Standard Specifications with the following revisions:

Delete Article 253.03 Planting Time and substitute the following:

Spring Planting. This work shall be performed between March 15th and May 31st except that evergreen planting shall be performed between March 15th and April 30th in the northern zone.

Add the following to Article 253.03 (a) (2) and (b):

All plants shall be obtained from Illinois Nurserymen's Association or appropriate state chapter nurseries. All trees and shrubs shall be dug prior to leafing out (bud break) in the spring or when plants have gone dormant in the fall, except for the following species which are only to be dug prior to leafing out in the spring:

- Red Maple (Acer rubra)
- Alder (alnus spp.)
- Buckeye (Aesculus spp.)
- Birch (Betulus spp.)
- American Hornbeam (Carpinus caroliana)
- Hickory (Carya spp.)
- Eastern Redbud (Cercis spp.)
- American Yellowwood (Cladrastis kentuckea spp.)
- Corylus (Filbert spp.)
- Hawthorn (Crataegus spp.)
- Walnut (Juglans spp.)
- Sweetgum (Liquidambar spp.)
- Tuliptree (Liriodendron spp.)
- Dawn Redwood (Metasequoia spp.)
- Black Tupelo (Nyssa sylvatica)
- American Hophornbeam (Ostraya virginiana)
- Planetree (Platanus spp.)
- Poplar (Populus spp.)
- Cherry (Prunus spp.)
- Oak (Quercus spp.)
- Willow (Salix spp.)
- Sassafras (Sassafras albidum)
- Baldcypress (Taxodium distichum)
- Broadleaf Evergreens (all)
- Vines (all)

Fall Planting. This work shall be performed between October 1 and November 30 except that evergreen planting shall be performed between August 15 and October 15.

Planting dates are dependent on species of plant material and weather. Planting might begin or end prior or after above dates as approved by the Engineer. Do not plant when soil is muddy or during frost.

Add the following to Article 253.05 Transportation:

Cover plants during transport to prevent desiccation. Plant material transported without cover shall be automatically rejected. During loading and unloading, plants shall be handled such that stems are not stressed, scraped, or broken and that root balls are kept intact.

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

Trees must be installed first to establish proper layout and to avoid damage to other plantings such as shrubs and perennials.

The Contractor shall be responsible for all tree, shrub, and vine layout. The layout must be performed by qualified personnel. The planting locations must be laid out as shown in the landscape plan. This will require the use of an engineer's scale to determine dimensions.

Tree and shrub locations within each planting area shall be marked with different color stakes/flags and labeled to denote the different tree and shrub species.

Shrub and vine beds will first be marked out with flags to delineate the perimeter of the planting bed. Once the planting bed has been approved by the Roadside Development Unit, the perimeter shall be painted prior to the removal of the flags and turf. The removal of the existing turf will be by a method approved by the Engineer.

Prior to shrub, vine installation, all plants shall be placed above ground or planting locations clearly marked out.

All utilities shall have been marked prior to contacting the Roadside Development Unit. The Engineer will contact the Roadside Development Unit at (847) 705-4171 to approve the layout prior to installation. Allow a minimum of seven (7) working days prior to installation for approval.

Delete the first paragraph to Article 253.08 Excavation of Plant Holes and substitute with the following:

Protect structures, utilities, sidewalks, bicycle paths, knee walls, fences, pavements, utility boxes, other facilities, lawns and existing plants from damage caused by planting operations. Excavation of the planting hole may be performed by either hand, machine excavator, or auger.

The excavated material shall not be stockpiled on turf, in ditches, or used to create enormous water saucer berms around newly installed trees or shrubs. Remove all excess excavated subsoil from the site and dispose as specified in Article 202.03.

Delete the second sentence of Article 253.08 Excavation of Plant Holes (a) and the third paragraph of Article 253.08(b) and substitute with the following:

Excavation of planting hole width. Planting holes for trees, shrubs, and vines shall be three times the diameter of the root mass and with 45-degree sides sloping down to the base of the root mass to encourage rapid root growth. Roots can become deformed by the edge of the hole if the hole is too small and will hinder root growth.

Planting holes dug with an auger shall have the sides cut down with a shovel to eliminate the glazed, smooth sides and create sloping sides.

Excavation of planting hole depth. The root flare shall be visible at the top of the root mass. If the trunk flare is not visible, carefully remove soil from around the trunk until the root flare is visible without damaging the roots. Remove excess soil until the top of the root mass exposes the root collar.

The root flare shall always be slightly above the surface of the surrounding soil. The depth of the hole shall be equal to the depth of the root mass minus one (1) inch allowing the tree or shrub to sit one (1) inch higher than the surrounding soil surface for trees that have a 1-inch caliper or smaller. The depth of the hole shall be equal to the depth of the root mass minus two (2) inches allowing the tree or shrub to sit two (2) inches higher than the surrounding soil surface for trees that have a 2-inch caliper or larger.

For stability, the root mass shall sit on existing undisturbed soil. If the hole was inadvertently dug too deep, backfill and recompact the soil to the correct depth.

Excavation of planting hole on slopes. Excavate away the slope above the planting hole to create a flattened area uphill of the planting hole to prevent the uphill roots from being buried too deep. Place the excess soil on the downslope of the planting hole to extend the planting shelf to ensure roots on the downhill side of the tree remain buried. The planting hole shall be three times the diameter of the root mass and saucer shaped. The hole may be a bit elongated to fit the contour of the slope as opposed to the typical round hole on flat ground.

Add backfill to create a small berm on the downhill portion of the planting shelf to trap water and encourage movement into the soil to increase water filtration around the tree. Smooth out the slope above the plant where you have cut into the soil so the old slope and the new slope transition together smoothly.

Add the following to Article 253.08 Excavation of Plant Holes (b):

When planting shrubs in shrub beds or vines in vine beds as shown on the plans or as directed by the Engineer, the Contractor will contact the Roadside Development Unit at (847) 705-4171 to approve the layout prior to removing the existing turf. The removal of the existing turf will be by a method approved by the Engineer. Areas damaged outside the delineated planting beds shall be restored at the Contractor's expense.

Spade a planting bed edge at approximately a 45-degree angle and to a depth of approximately 3-inches around the perimeter of the shrub bed prior to placement of the mulch. Remove any debris created in the spade edging process and dispose of as specified in Article 202.03.

Delete Article 253.09 (b) Pruning and substitute with the following:

Deciduous Shrubs. Shrubs shall be pruned to remove dead, conflicting, or broken branches and shall preserve the natural form of the shrub.

Delete the third and fourth paragraphs of Article 253.10 Planting Procedures and Article 253.10 (a) and substitute the following:

Approved watering equipment shall be at the immediate work site area and in operational condition PRIOR TO STARTING the planting operation and DURING all planting operations OR PLANTING WILL NOT BE ALLOWED.

All plants shall be placed in a plumb position and avoid the appearance of leaning. Confirm the tree is straight from two directions prior to backfilling.

Before the plant is placed in the hole, any paper or cardboard trunk wrap shall be removed. Check that the trunk is not damaged. Any soil covering the tree's root flare shall be removed to expose the crown prior to planting.

Check the depth of the root ball in the planting hole. With the root flare exposed, one-inch caliper trees shall be set one inch higher than the surrounding soil and two-inch and larger caliper trees shall be set two inches higher than the surrounding soil. The root flare shall always be slightly above the surface of the surrounding soil. For stability, the root ball shall sit on existing undisturbed soil. If the hole was inadvertently dug too deep, backfill and recompact the soil to the correct depth.

After the plant is place in the hole, all cords and burlap shall be removed from the trunk. Remove the wire basket from the top three quarters (3/4) of the root ball. The remaining burlap shall be loosened and scored to provide the root system quick contact with the soil. All ropes or twine shall be removed from the root ball and tree trunk. All materials shall be disposed of properly.

The plant hole shall be backfilled with the same soil that was removed from the hole. Clay soil clumps shall be broken up as much as possible. Where rocks, gravel, heavy clay, or other debris are encountered, clean topsoil shall be used. Do not backfill excavation with subsoil.

The hole shall be 1/3 filled with soil and firmly packed to assure the plant remains in plumb, then saturated with water. After the water has soaked in, complete the remaining backfill in 8" lifts, tamping the topsoil to eliminate voids, and then the hole shall be saturated again. Maintain plumb during backfilling. Backfill to the edge of the root mass and do not place any soil on top of the root mass. Visible root flair shall be left exposed, uncovered by the addition of soil.

Add the following to Article 253.10 (b):

After removal of the container, inspect the root system for circling, matted or crowded roots at the container sides and bottom. Using a sharp knife or hand pruners, prune, cut, and loosen any parts of the root system requiring corrective action.

Delete the first sentence of Article 253.10(e) and substitute with the following:

Water Saucer. All plants placed individually and not specified to be bedded with other plants, shall have a water saucer constructed of soil by mounding up the soil 4-inches high x 8-inches wide outside the edge of the planting hole.

Delete Article 253.11 and substitute the following:

Individual trees, shrubs, shrub beds, and vines shall be mulched within 48 hours after being planted. No weed barrier fabric will be required for tree and shrub plantings.

The mulch shall consist of wood chips or shredded tree bark free not to exceed two (2) inches in its largest dimension, free of foreign matter, sticks, stones, and clods. Mulch shall be aged in stockpiles for a minimum of four (4) months where interior temperatures reach a minimum of 140-degrees. The mulch shall be free from inorganic materials, contaminants, fuels, invasive weed seeds, disease, harmful insects such as emerald ash borer or any other type of material detrimental to plant growth. A sample must be supplied to the Roadside Development Unit for approval prior to performing any work. Allow a minimum of seven (7) working days prior to installation for approval.

Mulch shall be applied at a depth of 4-inches around all plants within the entire mulched bed area or around each individual tree forming a minimum 5-foot diameter mulch ring around each tree. An excess of 4-inches of mulch is unacceptable, and excess shall be removed. Mulch shall not be tapered so that no mulch shall be placed within 6-inches of the shrub base or trunk to allow the root flare to be exposed and shall be free of mulch contact.

Care shall be taken not to bury leaves, stems, or vines under mulch material. All finished mulch areas shall be left smooth and level to maintain uniform surface and appearance. After the mulch placement, any debris or piles of material shall be immediately removed from the right of way, including raking excess mulch out of turf areas in accordance with Article 202.03.

Pre-emergent Herbicide shall be used in the around the plant beds and tree rings after the placement of mulch. See specification for Weed Control, Pre-emergent Herbicide.

Delete Article 253.12 Wrapping and substitute the following:

Within 48 hours after planting, screen mesh shall be wrapped around the trunk of all deciduous trees with a caliper of 1-inch or greater. Multi-stem or clump form trees, with individual stems having a caliper of 1-inch or greater, shall have each stem wrapped separately. The screen mesh shall be secured to itself with staples or single wire strands tied to the mesh. Trees shall be wrapped at time of planting, before the installation of mulch. The lower edge of the screen wire shall be in continuous contact with the ground and shall extend up to a minimum of 36-inches or to the lowest major branch, whichever is less. Replacement plantings shall not be wrapped.

Delete Article 253.13 Bracing and substitute with the following:

Unless otherwise specified by the Engineer, within 48 hours after planting all deciduous and evergreen trees, with the exception of multi-stem or clump form specimens, over 8-feet in height shall require three 6-foot long steel posts so placed that they are equidistant from each other and adjacent to the outside of the ball. The posts shall be driven vertically to a depth of 18-inches below the bottom of the hole. The anchor plate shall be aligned perpendicular to a line between the tree and the post. The tree shall be firmly attached to each post with a double guy of 14-gauge steel wire. The portion of the wire in contact with the tree shall be encased in a hose of a type and length approved by the Engineer.

During the life of the contract, within 72 hours the Contractor shall straighten any tree that deviates from a plumb position. The Contractor shall adjust backfill compaction and install or adjust bracing on the tree as necessary to maintain a plumb position. Replacement trees shall not be braced.

Delete the second sentence of the first paragraph of Article 253.14 Period of Establishment and substitute the following:

This period shall begin in April and end in November of the same year.

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

During the period of establishment, the Contractor shall properly care for all plants including weeding, watering, adjusting of braces, repair of water saucers, pruning, cultivating, tightening, and repairing supports, repair of wrapping, and furnishing and applying sprays as necessary to keep the plants free of insects and disease, or other work which is necessary to maintain the health and satisfactory appearance of the plantings. The Contractor shall provide plant care a minimum of every two weeks, or within 36 hours following notification by the Engineer. All requirements for plant care shall be considered as included in the cost of the contract.

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

During the period of establishment, watering (initial) shall be performed at least every 30 days following installation during the months of May through November and is included in the cost of the contract unit price per each for TREES, SHRUBS, or VINES, of the species, root type, and plant size specified. The Contractor shall apply per week a minimum of 15 gallons of water per tree, 10 gallons per large shrub, 5 gallons per small shrub, and 2 gallons per vine.

Additional watering will be done once a week (3 times a month) following installation during the months of May through November. Any required additional watering in between the regularly scheduled (initial) watering(s) will be paid for as Supplemental Watering.

Special consideration in determining water needs must be given during extreme weather conditions or if plants exhibit any signs of stress in between the regularly scheduled every thirty-day watering during the period of establishment. Water immediately if plants show signs of wilting or if top (1) inch to two (2) inches of soil is dry. Water to ensure that moisture penetrates throughout the root zone, including the surrounding soil, and only as frequently as necessary to maintain healthy growth. **Do not overwater.**

The Engineer may direct the Contractor to adjust the watering rate and frequency depending upon weather conditions. Should excess moisture prevail, the Engineer may delete any or all the additional watering cycles.

Add the following to Article 253.15 Plant Care (c):

The contractor shall correct any vine growing across the ground plane that should be growing up desired vertical element (noise wall, retaining wall, fence, knee wall, etc.). Work may include but is not limited to carefully weaving vines through fence and/or taping vines to vertical elements.

Add the following to Article 253.15 Plant Care (d):

The Contractor shall inspect all trees, shrubs, and vines for pests and diseases at least every two weeks during the months of initial planting through final acceptance. Contractor must identify and monitor pest and diseases and determine action required to maintain the good appearance, health, and top performance of all plant material. Contractor shall notify the Engineer with their inspection findings and recommendations within twenty-four (24) hours of findings. The recommendations for action by the Contractor must be reviewed and by the Engineer for approval/rejection. All approved corrective activities will be considered as included in the cost of the contract and shall be performed within thirty-six (36) hours following notification by the Engineer.

Add the following to Article 253.16 Method of Measurement:

Pre-emergent Herbicide will be measured for payment as specified in Weed Control, Pre-emergent Granular Herbicide.

Additional Watering will be measured for payment as specified in Supplemental Watering.

Delete Article 253.17 Basis of Payment and substitute the following:

This work will be paid for at the contract unit price per each for TREES, SHRUBS, or VINES, of the species, root type, and plant size specified, and per unit for SEEDLINGS. The unit price shall include the cost of all materials, equipment, labor, plant care, removal, disposal, and incidentals required to complete the work as specified herein and to the satisfaction of the Engineer. Payment will be made according to the following schedule:

(a) Initial Payment. Upon completion of planting, mulching, wrapping, and bracing, 75 percent of the pay item(s) will be paid.

(b) Final Payment. Upon inspection and acceptance of the plant material, or upon execution of a third-party bond, the remaining 25 percent of the pay item(s) will be paid."

(c) The placement of Pre-emergent Herbicide shall be paid for at the contract unit price for WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE.

(d) Additional Watering will be paid for as specified in SUPPLEMENTAL WATERING.

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."

SLIPFORM PAVING (D1)

Effective: November 1, 2014

Revise Article 1020.04 Table 1, Note (5) of Standard Specifications to read:

"The slump range for slipform construction shall be 1/2 to 1 1/2 in."

Revise Article 1020.04 Table 1 (metric), Note (5) of Standard Specifications to read:

"The slump range for slipform construction shall be 13 to 40 mm."

STATUS OF UTILITIES (D1)

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 regarding their facilities and the proposed improvements. The tables below contain a description of specific conflicts to be resolved and/or facilities which will require some action on the part of the Department's contractor to proceed with work. Each table entry includes an identification of the action necessary and, if applicable, the estimated duration required for the resolution.

UTILITIES TO BE ADJUSTED

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

Pre-Stage

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Randall Rd Sta. 2242+00 LT To Sta. 2244+30 LT	Underground Telephone	Conflict with bridge, curb, sidewalk, traffic signals	AT&T	Contractor for AT&T to adjust/relocate conduit, cable, and structures: __90__ days. Cutover services __30__ days. __120__ days total.
Randall Rd Sta. 2260+20 LT To Sta. 2297+50 LT	Underground Telephone	Conflict with proposed bridge, pavement, curb, drainage, and traffic signals		
Miller Rd Sta. 116+25 RT To Sta. 117+65 RT	Underground Telephone	Conflict with proposed bridge, pavement, curb, drainage, and traffic signals		
Randall Rd. Sta. 2260+20 LT To Sta. 2288+50 LT	Underground Cable	Conflict with proposed pavement, curb, drainage laterals, sidewalk, and traffic signals. Branches across Randall at Sta 2269+63 and Sta 2283+59	Comcast	Contractor for Comcast to adjust/relocate conduit, cable, and structures: __60__ days. Cutover services __15__ days. __75_ days total.
Miller Rd Sta. 115+00 RT To Sta. 117+65 RT	Underground Cable	Conflict with proposed bridge, pavement, curb, sidewalk, and traffic signals		
Randall Rd Sta. 2214+10 LT To Sta. 2245+35 RT	Overhead Lines	Conflict with proposed bridge, pavement, sidewalk, and traffic signals	ComEd	Contractor for ComEd to adjust/relocate poles, overhead lines, conduit, cable, and structures: __90__ days. Cutover services __30__ days. __120__ days total.
Randall Rd Sta. 2260+10 LT To Sta. 2266+40 LT	Underground	Conflict with proposed pavement, curb, drainage laterals, and sidewalk		

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Randall Rd Sta. 2260+10 LT To Sta. 2269+10 LT	Underground	Conflict with proposed pavement, curb, drainage laterals, and sidewalk	ComEd (cont'd)	See durations on previous page.
Randall Rd Sta. 2260+15 LT To Sta. 2288+50 LT	Underground	Conflict with proposed pavement, curb, drainage laterals, and sidewalk		
Randall Rd Sta. 2269+65 LT To Sta. 2269+70 RT	Underground	Conflict with proposed pavement, drainage laterals, sidewalk, and curb. Branches across Randall		
Randall Rd Sta. 2283+85 LT To Sta. 2286+20 LT	Underground	Conflict with proposed drainage laterals and sidewalk		
Randall Sta. 2283+85 LT To Sta. 2286+20 LT	Underground	Conflict with proposed drainage laterals and sidewalk		
Randall Rd Sta. 2288+50 LT To Sta. 2298+20 LT	Overhead Lines	Power Poles conflict with proposed drainage		
Miller Rd Sta. 114+25 RT To Sta. 117+65 RT	Underground	Conflict with proposed bridge, pavement, sidewalk, and traffic systems		
Miller Rd Sta. 119+00 LT To Sta. 122+20 LT	Overhead Lines	Power Poles conflicts with proposed curb line		
Miller Rd Sta. 121+00 LT To Sta. 121+75 RT	Overhead Lines	Conflict with proposed sidewalk		

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Alexandra Blvd Sta. 404+00 RT To Sta. 405+85 RT	Underground	Conflict with proposed drainage laterals and sidewalk	ComEd (cont'd)	See durations on previous page.
Alexandra Blvd Sta. 404+00 LT To Sta. 405+80 LT	Underground	Conflict with proposed drainage laterals and sidewalk		
Randall Rd Sta. 2214+00 LT To Sta. 2220+20 LT	Underground Gasline	Conflict with proposed sidewalk	Nicor	Contractor for Nicor to adjust/relocate gas main and structures: __120__ days. Cutover services __30__ days. __150__ days total. See durations on previous page.
Randall Rd Sta. 2244+35 LT To Sta. 2248+75 LT	Underground Gasline	Conflict with proposed bridge, pavement, curb, drainage laterals, and traffic signals		
Randall Rd Sta. 2248+75 LT To Sta. 2248+90 RT	Underground Gasline	Conflict with proposed pavement, curb, drainage laterals, and sidewalk		
Randall Rd Sta. 2248+90 RT To Sta. 2295+85 RT	Underground Gasline	Conflict with proposed pavement, curb, drainage laterals, and sidewalk		
Randall Rd Sta. 2295+85 RT To Sta. 2295+80 LT	Underground Gasline	Conflict with proposed pavement, curb, drainage laterals, and sidewalk		
Randall Rd Sta. 2295+80 LT To Sta. 2297+00 LT	Underground Gasline	Conflict with proposed pavement, curb, drainage laterals and sidewalk		
Miller Rd Sta. 113+00 RT To Sta. 116+50 RT	Underground Gasline	Conflict with proposed sidewalk		

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Miller Rd Sta. 119+50 LT To Sta. 124+00 LT	Underground Gasline	Conflict with proposed pavement, curb, and drainage laterals	Nicor (cont'd)	See durations on previous page.
Miller Rd Sta. 120+40 LT To Sta. 120+35 RT	Underground Gasline	Conflict with proposed pavement, curb, and drainage lateral, and sidewalk		
Village Rd Sta. 209+65 RT To Sta. 211+35 RT	Underground Gasline	Conflict with proposed curb and drainage laterals		
Randall Rd Sta. 2214+00 LT To Sta. 2280+00 LT	Underground Fiber Optic	Conflict with proposed bridge, pavement, curb, drainage, sidewalk, and traffic signals	CMS Illinois	Contractor for CMS Illinois to adjust/relocate conduit, cable, and structures: __90__ days. Cutover services __15__ days. __105__ days total.
Randall Rd Sta. 2280+00 LT To Sta. 2282+00 LT	Underground Fiber Optic	Conflict with proposed drainage laterals		
Randall Rd Sta. 2282+00 LT To Sta. 2286+00 LT	Underground Fiber Optic	Conflict with proposed pavement, curb, drainage laterals, and sidewalk		
Randall Rd Sta. 2228+45 LT To Sta. 2231+00 LT	Underground Sanitary Sewer	Conflict with proposed pavement, curb, drainage laterals, and sidewalk	Lake in the Hills Sanitary District	Contractor for Lake in the Hills Sanitary District to relocate/adjust sanitary sewer and structures: __30__ days. Cutover services __0__ days. __30__ days total.
Randall Rd Sta. 2231+00 LT To Sta. 2231+00 RT	Underground Sanitary Sewer	Conflict with proposed pavement, curb, and sidewalk		
Randall Rd Sta. 2231+25 RT To Sta. 2231+25 LT	Underground Sanitary Sewer	Conflict with proposed pavement, curb, and sidewalk		

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Randall Rd Sta. 2231+25 LT To Sta. 2245+15 LT	Underground Sanitary Sewer	Conflict with proposed bridge, pavement, sidewalk, and traffic signals	Lake in the Hills Sanitary District (cont'd)	See durations on previous page.
Randall Rd Sta. 2245+15 LT To Sta. 2258+65 LT	Underground Sanitary Sewer	Conflict with proposed pavement, curb, drainage laterals, and traffic signals		
Miller Rd Sta. 113+00 LT To Sta. 117+75 LT	Underground Sanitary Sewer	Conflict with proposed bridge, pavement, curb, drainage laterals, and traffic signals		
Miller Rd Sta. 119+20 LT To Sta. 122+60 LT	Underground Sanitary Sewer	Conflict with proposed pavement, drainage laterals, and traffic signals		
Miller Rd Sta. 120+80 LT To Sta. 120+80 RT	Underground Sanitary Sewer	Conflict with proposed pavement, curb, drainage laterals, sidewalk, and driveway		
Miller Rd Sta. 122+65 LT To Sta. 122+70 RT	Underground Sanitary Sewer	Conflicts with proposed pavement, curb, and drainage laterals		
Randall Rd Sta. 2218+00 RT To Sta. 2228+30 RT	Underground Watermain	Conflict with proposed bridge, drainage laterals, and sidewalk	Lake in the Hills Public Works	Contractor for Lake in the Hills Public Works to relocate/adjust water main and structures: __90__ days. Cutover services __0__ days. __90__ days total.
Randall Rd Sta. 2219+05 RT To Sta. 2219+05 LT	Underground Watermain	Conflict with proposed pavement, curb, and sidewalk		
Randall Rd Sta. 2228+25 RT To Sta. 2228+30 LT	Underground Watermain	Conflict with proposed bridge, pavement, curb, drainage, and sidewalk		

STAGE / LOCATION	TYPE	DESCRIPTION	RESPONSIBLE AGENCY	DURATION OF TIME
Randall Rd Sta. 2244+25 LT To Sta. 2245+35 RT	Underground Watermain	Conflict with proposed pavement, curb, drainage laterals, sidewalk, and traffic signals	Lake in the Hills Public Works (cont'd)	See durations on previous page.
Randall Rd Sta. 2245+35 RT To Sta. 2269+40 RT	Underground Watermain	Fire hydrant adjustments		
Miller Rd Sta. 115+00 LT To Sta. 117+40 LT	Underground Watermain	Conflict with proposed bridge and sidewalk		
Miller Rd Sta. 119+30 RT To Sta. 124+00 RT	Underground Watermain	Conflict with proposed pavement, curb, and drainage laterals.		
Randall Rd Sta. 2260+00 LT To Sta. 2282+40 LT	Underground Watermain	Conflict with proposed pavement, curb, drainage laterals, and traffic signals	Crystal Lake Public Works	Contractor Crystal Lake Public Works to relocate/adjust water main and structures: __15__ days. Cutover services __0__ days. __15__ days total.
Village Rd Sta. 208+65 RT To Sta. 210+90 RT	Underground Watermain	Conflict with proposed pavement, curb, and drainage laterals		
Angela Rd Sta. 303+25 RT To Sta. 304+30 RT	Underground Watermain	Conflict with proposed pavement, curb, and drainage laterals		

Stage 1

No conflicts to be resolved.

Stage 2

No conflicts to be resolved.

Stage 3

No conflicts to be resolved.

Stage 4
No conflicts to be resolved.

Pre-Stage: ____705____ Days Total Installation

**Note to contractor: It is anticipated that the utility companies will have roughly two months to relocate prior to any construction activities starting. However, the contractor should anticipate working concurrently with utility companies for the first 12 months of the construction schedule. Design efforts have been made to allow work to be done by the utility companies and the contractor simultaneously.

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

Agency/Company Responsible to Resolve Conflict	Name of contact	Phone	E-mail address
AT&T	Hector Garcia	630-573-5465	hg2929@att.com
Comcast	Martha Gieras	224-229-5862	martha.gieras@cable.comcast.com
ComEd	Ron McConnell	TBD	ron.mcconnell@comed.com
State of IL CMS	Steve Creasey	217-299-9312	DOIT.ICN.FOCMAINT@ILLINOIS.GOV
Nicor	Sakibul Forah	630-388-2903	sforah@southernco.com
Lake in the Hills Sanitary District	Tamara Mueller	847-658-5122	tmueller@lithsd.com
Lake in the Hills Public Works	Carolyn Grieves	815-459-1260	cgrieves@baxterwoodman.com
Crystal Lake Public Works	Abigail Wilgreen	815-459-2020	awilgreen@crystallake.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 Department's contractor to take into consideration when making the determination of the means and methods that would be required to construct the proposed improvement. In some instances, the contractor will be responsible to notify the owner in advance of the work to take place so necessary staffing on the owner's part can be secured.

Pre-Stage

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
Village Rd Sta. 208+65 LT To Sta. 210+00 LT	Underground Telephone	Beyond proposed sidewalk	AT&T

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
Randall Rd Sta. 2277+40 LT To Sta. 2282+55 LT	Underground Cable	Outside proposed improvements	Comcast
Village Rd. Sta. 208+00 RT To Sta. 210+40 RT	Underground Cable	Beyond proposed sidewalk	
Alexandra Blvd Sta. 404+00 LT To Sta. 405+50 LT	Underground Cable	Beyond proposed sidewalk	
Village Rd Sta. 208+00 LT To Sta. 210+30 LT	Underground Cable	Beyond proposed sidewalk	ComEd
Village Rd Sta. 208+00 LT To Sta. 210+40 LT	Underground Cable	Beyond proposed sidewalk	
Village Rd Sta. 208+00 LT To Sta. 210+00 LT	Underground Cable	Beyond proposed sidewalk	
Randall Rd Sta. 2296+90 LT To Sta. 2298+00 LT	Underground Watermain	Beyond proposed sidewalk	Crystal Lake Public Works
Randall Rd Sta. 2298+25 RT To Sta. 2298+50 LT	Underground Watermain	Outside proposed improvements	
Alexandra Blvd Sta. 405+00 LT To Sta. 406+00 LT	Underground Watermain	Beyond proposed sidewalk	

Stage 1

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
Randall Rd Sta. 2228+46 RT To Sta. 2258+66 RT	Underground Sanitary Sewer	Under proposed pavement, ground improvements, ground improvements, and sidewalk	Lake in the Hills Sanitary District

Stage 2

No facilities requiring extra consideration.

Stage 3

STAGE / LOCATION	TYPE	DESCRIPTION	OWNER
Randall Rd Sta. 2248+90 RT To Sta. 2270+10 RT	Underground Gasline	Beyond proposed sidewalk	Nicor
Randall Rd Sta. 2214+00 RT To Sta. 2221+00 RT	Underground Sanitary Sewer	Beyond proposed sidewalk	Lake in the Hills Sanitary District
Randall Rd Sta. 2223+00 RT To Sta. 2231+20 RT	Underground Sanitary Sewer	Beyond proposed sidewalk	
Randall Rd Sta. 2297+90 RT To Sta. 2300+00 RT	Underground Sanitary Sewer	Outside proposed improvements	

Stage 4

No facilities requiring extra consideration

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	Phone	E-mail address
AT&T	Hector Garcia	630-573-5465	hg2929@att.com
Comcast	Martha Gieras	224-229-5862	martha.gieras@cable.comcast.com

Agency/Company Responsible to Resolve Conflict	Name of contact	Phone	E-mail address
ComEd	Ron McConnell	TBD	ron.mcconnell@comed.com
State of IL CMS	Steve Creasey	217-299-9312	DOIT.ICN.FOCMAINT@ILLINOIS.GOV
Nicor	Charles Parrot	630-388-2903	cparrot@southernco.com
Lake in the Hills Sanitary District	Tamara Mueller	847-658-5122	tmueller@lithsd.com
Lake in the Hills Public Works	Carolyn Grieves	815-459-1260	cgrieves@baxterwoodman.com
Crystal Lake Public Works	Abigail Wilgreen	815-459-2020	awilgreen@crystallake.org

The above represents the best information available to the Department and is included for the convenience of the bidder. The days required for conflict resolution should be considered 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 above 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 duration 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 when necessary. The Department's contractor is responsible for contacting J.U.L.I.E. prior to all excavation work.

STORM SEWER ADJACENT TO OR CROSSING WATER MAIN (D1)

Effective: February 1, 1996
Revised: January 1, 2007

This work consists of constructing storm sewer adjacent to or crossing a water main, at the locations shown on the plans. The material and installation requirements shall be according to the latest edition of the "Standard Specifications for Water and Sewer Main Construction in Illinois", and the applicable portions of Section 550 of the Standard Specifications; which may include concrete collars and encasing pipe with seals if required.

Pipe materials shall meet the requirements of Sections 40 and 41-2.01 of the "Standard Specifications for Water and Sewer Main Construction in Illinois", except PVC pipe will not be allowed. Ductile-Iron pipe shall meet the minimum requirements for Thickness Class 50.

Encasing of standard type storm sewer, according to the details for "Water and Sewer Separation Requirements (Vertical Separation)" in the "STANDARD DRAWINGS" Division of the "Standard Specifications for Water and Sewer Main Construction in Illinois", may be used for storm sewers crossing water mains.

Basis of Payment: This work will be paid according to Article 550.10 of the Standard Specifications, except the pay item shall be STORM SEWER (WATER MAIN REQUIREMENTS), of the diameter specified.

TEMPORARY PAVEMENT (D1)

Effective: March 1, 2003
Revised: April 10, 2008

Description

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

The Contractor shall use either Portland cement concrete (PCC) according to Sections 353 and 354 of the Standard Specifications or hot-mix asphalt (HMA) according to Sections 355, 356, 406 of the Standard Specifications, and other applicable PCC and HMA special provisions as contained herein. The HMA mixtures to be used shall be specified in the plans. The thickness of the Temporary Pavement shall be as described in the plans. The Contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans. The Contractor shall furnish and construct Subgrade Granular Material, Type B, 4” under the temporary pavement in accordance with the Standard Specifications.

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

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

Method of Measurement

Temporary pavement will be measured in place and the area computed in square yards (square meters). The Subgrade Granular Material, Type B, 4” will not be measured separately for payment, but shall be included within the contract unit price for TEMPORARY PAVEMENT.

Basis of Payment

This work will be paid for at the contract unit price per square yard (square meter) for TEMPORARY PAVEMENT.

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

TRAFFIC CONTROL PLAN (D1)

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

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

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

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

STANDARDS

701001-02	701006-05	701011-04	701101-05	701106-02	701301-04
701311-03	701421-08	701422-10	701423-10	701426-09	701427-05
701501-06	701502-09	701601-09	701606-10	701611-01	701701-10
701801-06	701901-09	704001-08			

DETAILS

Traffic Control and Protection for Side Roads, Intersections, and Driveways (TC-10)
District One Typical Pavement Markings (TC-13)
Traffic Control and Protection at Turn Bays (To Remain Open to Traffic) (TC-14)
Short Term Pavement Marking Letters and Symbols (TC-16)
Arterial Road Information Sign (TC-22)
Driveway Entrance Signing (TC-26)

SPECIAL PROVISIONS

Aggregate Surface Course for Temporary Access
Maintenance of Roadways (D1)
Public Convenience and Safety (Dist 1)
Temporary Pavement (D1)
Traffic Control and Protection (Special)
Winterized Temporary Access (D1)
Temporary Information Signing
Temporary Pavement (Variable Depth) (DSE)
Temporary Sidewalk (DSE)
Short Term and Temporary Pavement Markings (BDE)
Vehicle and Equipment Warning Lights (BDE)
Work Zone Traffic Control Devices (BDE)

TRAFFIC CONTROL AND PROTECTION (SPECIAL)

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

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

All intersections within project limits are to be constructed utilizing temporary short duration closures as described herein, with the exception of the following. The intersections listed below shall be stage constructed in accordance with the Suggested Maintenance of Traffic detailed in the plans, or as directed by the Engineer. At least one (1) lane of traffic must be maintained in each direction at all times. Stage construction may require Temporary Pavement, Temporary Pavement (Variable Depth), Temporary Access (Road) and Winterized Temporary Access.

Signalized intersections requiring stage construction include:

- Randall Road at Miller Road
- Randall Road at Alexandra Road (temporary signal)

Unsignalized intersections requiring stage construction include:

- Randall Road at Village Road
- Randall Road at Angela Lane

Intersection to be closed.

- Randall Road at Miller Road – Stage 1 (only)

Method of Measurement

All traffic control (except items specified to be paid separately) indicated on the traffic control plan, details and specified in the Special Provisions will be measured for payment on a lump sum basis.

Basis of Payment

All traffic control and protection will be paid for at the contract LUMP SUM price for TRAFFIC CONTROL AND PROTECTION, (SPECIAL).

The following additional pay items will be paid for separately:

TEMPORARY PAVEMENT MARKINGS
PAVEMENT MARKING TAPE, TYPE III
SHORT TERM PAVEMENT MARKING
TEMPORARY INFORMATION SIGNING
CHANGEABLE MESSAGE SIGN
TEMPORARY CONCRETE BARRIER
PINNING TEMPORARY CONCRETE BARRIER
RELOCATE TEMPORARY CONCRETE BARRIER
IMPACT ATTENTUATORS, TEMPORARY
IMPACT ATTENTUTORS, RELOCATE
BARRIER WALL REFLECTORS, TYPE C
TEMPORARY ACCESS (ROAD)
TEMPORARY ACCESS (PRIVATE)
TEMPORARY ACCESS (FIELD ENTRANCE)
TEMPORARY PAVEMENT
TEMPORARY PAVEMENT (VARIABLE DEPTH)
TEMPORARY SIDEWALK
TRAFFIC CONTROL SURVEILLANCE

TREE ROOT PRUNING OR TREE TRIMMING

The Contractor shall be responsible for taking measures to minimize damage to the tree limbs, tree trunks, and tree roots at each work site. All such measures shall be included in the contract price for other work except that payment will be made for TEMPORARY FENCE, TREE ROOT PRUNING, and TREE PRUNING.

All work, materials and equipment shall conform to Section 201 and 1081 of the Standard Specifications except as modified herein.

A. Earth Saw Cut of Tree Roots (Tree Root Pruning):

1. Whenever proposed excavation falls within a drip-line of a tree, the Contractor shall:

   a. 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 affected tree roots.

   b. Root prune to a maximum width of 4-inches using a “wheel”, or other similar saw machine. Trenching machines will not be permitted.

   c. Exercise care not to cut any existing utilities.

   d. If during construction it becomes necessary to expose tree roots which have not been precut, the Engineer shall be notified and the Contractor shall provide a clean, vertical cut at the proper root location, nearer the tree trunk, as necessary, by means of hand-digging and trimming with chain saw or hand saw. Ripping, shredding, shearing, chopping or tearing will not be permitted.

   e. Top Pruning: When thirty percent (30%) or more of the root zone is pruned, an equivalent amount of the top vegetative growth or the plant material shall be pruned off within one (1) week following root pruning.

2. Whenever excavation for removal of or construction of a structure is within the drip line/root zone of a tree, the Contractor shall:

   a. Root prune 6-inches behind the curbing so as to neatly cut the tree roots.

   b. 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.

   c. Locations where earth saw cutting of tree roots is required will be marked in the field by the Engineer.

3. All root pruning work is to be performed shall be approved by the Engineer.

   Root pruning will be paid for at the contract unit price EACH for TREE ROOT PRUNING, which price shall be payment for all labor, materials and equipment.

B. Tree Limb Trimming:

1. The Contractor shall inspect the work site in advance and arrange with the Engineer to have any tree limbs pruned that might be damaged by equipment operations at least one week prior to the start of construction. Any tree limbs that are broken by construction equipment after the initial pruning must be pruned correctly within 72 hours.

2. Top Pruning: When thirty percent (30%) or more of the root zone of a tree is pruned, an equivalent amount of the top vegetative growth or the plant material shall be pruned off within one (1) week following root pruning.

   Tree limb pruning will be paid for at the contract unit price per Each for TREE TRIMMING which price shall include labor, materials, and equipment.

C. Backfilling:

1. Prior to placing the topsoil and/or sod, in areas outside the protection zone, the existing ground shall be disked to a depth no greater than one (1”), unless otherwise directed by the Engineer. No grading will be allowed within the drip-line of any tree unless directed by the Engineer.

D. Damages:

1. The Contractor shall place extreme importance upon the protection and care of trees and shrubs which are to remain during all times of this improvement. It is of paramount importance that the trees and shrubs which are to remain are adequately protected by the Contractor and made safe from harm and potential damage from the operations and construction of this improvement. If the Contractor is found to be in violation of storage or operations within the “tree protection zone” or construction activities not approved by the Engineer, a penalty shall be levied against the Contractor with the monies being deducted from the contract. The amount of the penalty shall be two hundred fifty dollars ($250.00) per occurrence per day.

WEED CONTROL, PRE-EMERGENT GRANULAR HERBICIDE

Effective: July 29, 2002
Revised: February 7, 2007

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

Delete Article 253.11 and substitute the following:

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

Materials: The pre-emergent granular herbicide (Snapshot 2.5 TG or equivalent) shall contain the chemicals Trifluralin 2% active ingredient and Isoxaben with 0.5% active ingredient. The herbicide label shall be submitted to the Engineer for approval at least seventy-two (72) hours prior to application.

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

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

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

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

WINTERIZED TEMPORARY ACCESS (D1)

Effective: January 1, 2012
Revised: March 5, 2012

Description. This work shall consist of constructing, maintaining and removing winterized temporary access for private and commercial entrances and side roads designed for use throughout the winter months.

Materials. Materials shall be according to the following.

ITEM	ARTICLE/SECTION
Hot-Mix Asphalt	1030

Construction Requirements

For projects lasting longer than one construction season, the contractor shall construct and maintain temporary access composed of an HMA surface course over an existing aggregate temporary access. The contractor shall install the winterized temporary access prior to winter shut down at the direction of the engineer. The top 2" of the existing aggregate temporary access should be removed and replaced with 2" of Hot-Mix Asphalt. Compensation will be given for the winterized temporary access at the time of the installation of the Hot-Mix Asphalt surface course.

HMA Surface Course. The Hot-Mix Asphalt surface course shall be 2 in. thick when compacted. HMA Surface Course, Mix "D", N50 shall be used except as modified by the plans or as directed by the Engineer. This work shall be constructed in accordance with the applicable portions of

Section 406 of the Standard Specifications and as directed by the Engineer. The material shall conform to the applicable portions of Section 1030 of the Standard Specifications.

The winterized temporary access shall be constructed to the dimensions and grades of the existing aggregate temporary access.

Maintaining the winterized temporary access shall include repairing the HMA surface course after any operation that may disturb or remove the winterized temporary access to the satisfaction of the Engineer.

When use of the winterized temporary access is discontinued, the winterized temporary access shall be removed according to Article 440.03 of the Standard Specifications. The material shall be disposed of according to Article 202.03 of the Standard Specifications or may be utilized in the permanent construction with the approval of the Engineer.

Method of Measurement. Winterized temporary access for private and commercial entrances and roads will be measured for payment at the contract unit price per square yard for every private entrance, commercial entrance or road constructed for the purpose of winterized temporary access.

Basis of Payment. Winterized temporary access for private and commercial entrances and roads will be paid for at the contract unit price per square yard for TEMPORARY ACCESS (WINTERIZE) as specified in the plans.

Partial payment of the square yard amount bid for each winterized temporary access will be paid according to the following schedule:

(a) Upon construction of the winterized temporary access, sixty percent of the contract unit price per square yard will be paid.

(b) Subject to the approval of the Engineer for the adequate maintenance and removal of the winterized temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access.

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, 2300 S. 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 journeyworker 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:

McHenry County Division of Transportation

Village of Lake in the Hills

City of Crystal Lake

Lake in the Hills Sanitary District

Crystal Lake Park District

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

State of Illinois
DEPARTMENT OF TRANSPORTATION
Bureau of Local Roads & Streets
SPECIAL PROVISION
FOR
LOCAL QUALITY ASSURANCE/ QUALITY MANAGEMENT QC/QA
Effective: January 1, 2022

Replace the first five paragraphs of Article 1030.06 of the Standard Specifications with the following:

"**1030.06 Quality Management Program.** The Quality Management Program (QMP) will be Quality Control / Quality Assurance (QC/QA) according to the following."

Delete Article 1030.06(d)(1) of the Standard Specifications.

Revise Article 1030.09(g)(3) of the Standard Specifications to read:

"(3) If core testing is the density verification method, the Contractor shall provide personnel and equipment to collect density verification cores for the Engineer. Core locations will be determined by the Engineer following the document "Hot-Mix Asphalt QC/QA Procedure for Determining Random Density Locations" at density verification intervals defined in Article 1030.09(b). After the Engineer identifies a density verification location and prior to opening to traffic, the Contractor shall cut a 4 in. (100 mm) diameter core. With the approval of the Engineer, the cores may be cut at a later time."

Revise Article 1030.09(h)(2) of the Standard Specifications to read:

"(2) After final rolling and prior to paving subsequent lifts, the Engineer will identify the random density verification test locations. Cores or nuclear density gauge testing will be used for density verification. The method used for density verification will be as selected below.

Density Verification Method	
☐	Cores
☒	Nuclear Density Gauge (Correlated when paving ≥ 3,000 tons per mixture)

Density verification test locations will be determined according to the document "Hot-Mix Asphalt QC/QA Procedure for Determining Random Density Locations". The density testing interval for paving wider than or equal to 3 ft (1 m) will be 0.5 miles (800 m) for lift thicknesses of 3 in. (75 mm) or less and 0.2 miles (320 m) for lift thicknesses greater than 3 in. (75 mm). The density testing interval for paving less than 3 ft (1 m) wide will be 1 mile (1,600 m). If a day's paving will be less than the prescribed density testing interval, the length of the day's paving will be the interval for that day. The density testing interval for mixtures used for patching will be 50 patches with a minimum of one test per mixture per project.

If core testing is the density verification method, the Engineer will witness the Contractor coring, and secure and take possession of all density samples at the

density verification locations. The Engineer will test the cores collected by the Contractor for density according to Illinois Modified AASHTO T 166 or AASHTO T 275.

If nuclear density gauge testing is the density verification method, the Engineer will conduct nuclear density gauge tests. The Engineer will follow the density testing procedure detailed in the document "Illinois Modified ASTM D 2950, Standard Test Method for Density of Bituminous Concrete In-Place by Nuclear Method".

A density verification test will be the result of a single core or the average of the nuclear density tests at one location. The results of each density test must be within acceptable limits. The Engineer will promptly notify the Contractor of observed deficiencies."

Revise the seventh paragraph and all subsequent paragraphs in Section D. of the document "Hot-Mix Asphalt QC/QA Initial Daily Plant and Random Samples" to read:

"Mixtures shall be sampled from the truck at the plant by the Contractor following the same procedure used to collect QC mixture samples (Section A). This process will be witnessed by the Engineer who will take custody of the verification sample. Each sample bag with a verification mixture sample will be secured by the Engineer using a locking ID tag. Sample boxes containing the verification mixture sample will be sealed/taped by the Engineer using a security ID label."

To: Jesse L. Vuorenmaa, P.E., ENV SP – TranSystems Corporation

From: Jeremy J. Reynolds, P.G. – H&H/GZA

Date: October 3, 2023

Re: CCDD LPC-663 Randall Road (Ackman Road to Acorn Lane) Improvement Project

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Huff & Huff, Inc. / GZA, Inc. (GZA) provided services in support of a Form LPC-663 for the Randall Road (Ackman Road to Acorn Lane) Improvement Project. The Project Area includes the existing roadway right-of-way (ROW) along Randall Road, from Ackman Road to Acorn Lane, within the Village of Lake in the Hills and the City of Crystal Lake, McHenry County, Illinois (Project Area).

Therefore, the LPC-663 form was utilized, and on May 2nd, 3rd, and 4th, 2023, twenty-seven (27) soil borings were advanced within the Project Area. Soils were screened in the field using a photoionization detector (PID). Soil samples were submitted for the analysis of one or more of the following contaminants of concern associated with the identified PIPs: volatile organic compounds (VOCs); semi-volatile organic compounds (SVOCs); total Target Analyte List (TAL) metals; and SPLP/TCLP 8 RCRA metals and Be, Co, Cu, FE, MN, Ni, and Zn. Samples were also analyzed for pH using laboratory analysis to assess CCDD suitability of Project Area soils.

Analytical Results

Soil pH: Twenty-seven (27) samples were submitted for soil pH analysis and are considered representative of the Project Area. Samples SB-1 (0-5), SB-2 (0-5), and SB-28 (0-5) had pH values of 9.23, 9.65, and 9.18, respectively, that exceed the range of 6.25 and 9.00 to be acceptable for disposal at a CCDD or soil-only facility, this will preclude soils from this area as being eligible for CCDD disposal. The remaining pH results ranged from 6.71 to 8.99, within the acceptable 6.25 to 9.00 range. Therefore, with the exception of SB-1 (0-5), SB-2 (0-5), and SB-28 (0-5), soils from this Project Area are considered to achieve the CCDD soil pH criteria.

VOCs: Twenty-seven (27) samples were submitted for VOC analysis. Samples SB-10 (10-15) had a detection of toluene [0.0052 mg/kg] below the MAC values, achieving the MAC values for CCDD disposal. The remaining VOC results are below detection limits for the samples analyzed, achieving the MACs for CCDD disposal.

SVOCs: Twenty-seven (27) samples were analyzed for SVOCs. Samples SB-9 (0-5), SB-15 (0-5), SB-26 (0-5), and SB-31 (0-5) had detections of benzo(a)pyrene [0.129 mg/kg, 0.155 mg/kg, 0.188 mg/kg, 0.140 mg/kg, respectively] above the most stringing MAC [0.09 mg/kg]. Sample SB-26 (0-5) had a detection of di-n-octyl phthalate below its respective MAC values. Sample SB-31 (0-5) had a detection of bis(2-Ethylhexyl)phthalate below its respective MAC values. Sample SB-1 (0-5) had detections of benzo(a)anthracene [1.66 mg/kg], benzo(a)pyrene [1.41 mg/kg], benzo(b)fluoranthene [1.68 mg/kg], and Dibenzo(a,h)anthracene above their respective MACs for outside a populated area, within a populated area in a non-MSA County, and within Chicago corporate limits; however, the detections achieved the MAC value for within a populated area in a MSA excluding Chicago. Additionally, sample SB-1 (0-5) had detections of benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene,

indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene below their respective MAC values. The remaining samples did not have detectable SVOC concentrations, therefore results achieve their respective MAC values for CCDD disposal.

TAL/TCLP/SPLP METALS: Several metals were detected in each of the analyzed samples. The metals concentrations achieve their respective Tier 1 ROs for the following exposure pathways: residential ingestion and inhalation; industrial/commercial ingestion and inhalation; and construction worker ingestion and inhalation.

Chromium was detected in samples SB-13 (0-5), SB-15 (0-5), SB-26 (0-5), SB-27 (10-15), and SB-31 (0-5) at concentrations exceeding the default MAC value. The leachable chromium concentrations were also assessed using the TCLP and SPLP method. Based on the TCLP and SPLP chromium results, these soil samples are considered to achieve the MAC for chromium.

Iron was detected in samples SB-1 (0-5), SB-7 (5-10), SB-8 (20-25), SB-13 (0-5), SB-14 (0-5), SB-15 (0-5), SB-18 (0-5), SB-23 (0-5), SB-26 (0-5), SB-27 (10-15), and SB-31 (0-5) at concentrations exceeding the default MAC value. The leachable iron concentrations were also assessed using the TCLP and SPLP method. Based on the TCLP iron results, these soil samples are considered to achieve the MAC for iron.

Manganese was detected in sample SB-7 (5-10) at a concentration exceeding the default MAC value. The leachable manganese concentrations were also assessed using the TCLP and SPLP method. Based on the SPLP manganese results, these soil samples are considered to achieve the MAC for manganese.

The remaining samples had detections below default MAC values or had no detectable concentration, therefore results achieve MAC values for CCDD disposal.

Two (2) PIPs were identified near the Project Area. Appropriate laboratory analyses have been conducted on samples collected to assess achievement of the MACs for CCDD disposal.

Spoils generated from the Project Area are certified for disposal at a CCDD or USFO facility, within the following areas as presented in the table below.

Soil Boring ID	Soil Interval (ft)	Sample Classification	Parameter(s) Exceeding MAC(s)	Eligible for CCDD or USFO Disposal?	Soil Disposal Classification (Max Excavation Depth)[1]
SB-1	**(0-5)**	**669.05(a)(1)**	**Multiple SVOCS and pH>9.0**	**No: Full Depth**	**Full Depth: Landfill as NSW or *Site Reuse***
SB-2	**(0-5)**	**669.05(a)(1)**	**TCLP/SPLP Manganese and pH>9.0**	**No: Full Depth**	**Full Depth: Landfill as NSW or *Site Reuse***
SB-3	(0-5)	669.05 (a)(2)	TCLP/SPLP Lead	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-4	(0-10)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-5	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-6	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-7	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-8	(0-25)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)

Soil Boring ID	Soil Interval (ft)	Sample Classification	Parameter(s) Exceeding MAC(s)	Eligible for CCDD or USFO Disposal?	Soil Disposal Classification (Max Excavation Depth)[1]
SB-9	(0-25)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-10	(0-25)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-11	(0-25)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-13	(0-15)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-14	(0-10)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-15	(0-10)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-16	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-17	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-18	(0-15)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-19	(0-15)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-20	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	No: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-23	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-24	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-25	(0-5)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-26	(0-15)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-27	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-28	**(0-5)**	**669.05(a)(1)**	**TCLP/SPLP Manganese and pH>9.0**	**No: Full Depth**	**Full Depth: Landfill as NSW or *Site Reuse***
SB-31	(0-5)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-32	(0-10)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)

[1] Based on maximum excavation depth planned per Contract Plans.

[2] "Unrestricted" refers to material that is approved for CCDD disposal at any facility location (e.g., Within Chicago Corporate Limits, Within a Populated Area in a MSA County, Within a Populated Area in Non-MSA County, and Outside a Populated Area).

Bold/Shaded Refers to areas which must be disposed of as **Non-Special Waste** if off-site disposal is required.

Based on analytical results for various samples, the following areas are within a **CCDD Exclusion Area**:

- SB-1 ~Sta. Randall Road 2214+31 to ~Sta. Randall Road 2215+01: from ground surface to maximum anticipated excavation depth.
- SB-2 ~Sta. Randall Road 2216+39 to ~Sta. Randall Road 2218+31: from ground surface to maximum anticipated excavation depth.
- SB-28 ~Sta. Randall Road 2232+02 to ~Sta. Randall Road 2235+80: from ground surface to maximum anticipated excavation depth.

According to Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction, Section 669.05 (Removal and Disposal of Regulated Substances – Contaminated Soil and/or Groundwater Management and Disposal), the following areas shall be managed as follows:

669.05 Regulated Substances Management and Disposal

(a) Soil Types: *"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:"*

Spoils generated from SB-1, SB-2, and SB-28 are classified as 669.05(a)(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*."

Spoils generated from SB-3, SB-5, SB-11, SB-13, SB-16, SB-18, SB-19, SB-20, SB-23, and SB-25 are classified as 669.05(a)(2):

- "*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*."

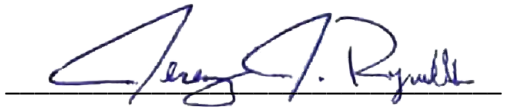
Spoils generated from SB-9, SB-15, SB-26, and SB-31 are classified as 669.05(a)(3):

- *"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."*

Spoils generated from the remainder of the Project Area are certified for disposal at a CCDD facility or USFO facility, within the following areas:

- Within Chicago corporate limits
- A populated area in a Metropolitan Statistical Area (MSA) excluding Chicago
- A populated area in a Non-Metropolitan Statistical Area (MSA) excluding Chicago
- Outside a populated area

Should conditions within the Project Area change, such as unusual staining, odors, or if loads become rejected, additional analytical assessment may be required for final disposition of spoils from this Project Area. Elevated PID readings may also result in rejected loads.



Jeremy J. Reynolds, P.G.
Associate Principal

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Uncontaminated Soil Certification
by Licensed Professional Engineer or Licensed Professional Geologist
for Use of Uncontaminated Soil as Fill in a CCDD or Uncontaminated Soil Fill Operation LPC-663

Revised in accordance with 35 Ill. Adm. Code 1100, as amended by PCB R2012-009 (eff. Aug. 27, 2012)

This certification form is to be used by professional engineers and professional geologists to certify, pursuant to 35 Ill. Adm. Code 1100.205(a)(1)(B), that soil (i) is uncontaminated soil and (ii) is within a pH range of 6.26 to 9.0. If you have questions about this form, please telephone the Bureau of Land Permit Section at 217/524-3300.

This form may be completed online, saved locally, printed and signed, and submitted to prospective clean construction or demolition debris (CCDD) fill operations or uncontaminated soil fill operations.

I. Source Location Information

(Describe the location of the source of the uncontaminated soil)

Project Name: Randall Road Improvement Project Office Phone Number, if available:

Physical Site Location (address, including number and street):
Randall Road from the intersection of Ackman Road to Acorn Lane

City: Lake in the Hills State: IL Zip Code: 60014

County: McHenry Township: Algonquin

Lat/Long of approximate center of site in decimal degrees (DD.ddddd) to five decimal places (e.g., 40.67890, -90.12345):

Latitude: 42.19447 (Decimal Degrees) Longitude: - 88.33544 (-Decimal Degrees)

Identify how the lat/long data were determined:

◯ GPS ◯ Map Interpolation ◯ Photo Interpolation ◯ Survey ◉ Other

ISGS Public Land Survey System. Lat/lon above refer to the approximate center of the Project Area

IEPA Site Number(s), if assigned: BOL: BOW: BOA:

Approximate Start Date (mm/dd/yyyy): Mar 1, 2024 Approximate End Date (mm/dd/yyyy): Nov 29, 2024

Estimated Volume of debris (cu. Yd.):

II. Owner/Operator Information for Source Site

Site Owner

Name: McHenry County Division of Transportation
Street Address: 16111 Nelson Road
PO Box:
City: Woodstock State: IL
Zip Code: 60098 Phone: 815-334-4960
Contact: Darrell W. Kuntz, PE -Asst. Co. Engineer
Email, if available: dwkuntz@McHenryCountyIL.gov

Site Operator

Name:
Street Address:
PO Box:
City: State:
Zip Code: Phone:
Contact:
Email, if available:

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). This form has been approved by the Forms Management Center.

Project Name: Randall Road Improvement Project Latitude: 42.19447 Longitude: - 88.33544

Uncontaminated Soil Certification

III. Basis for Certification and Attachments

For each item listed below, reference the attachments to this form that provide the required information.

a. A Description of the soil sample points and how they were determined to be sufficient in number and appropriately located 35 Ill. Adm. Code 1100.610(a)]:

A PESA was completed by H&H in the 2023 PESA for the Project Area, which consists of commercial properties. Two (2) potentially impacted properties (PIPs) were identified in connection with the Project Area as part of PESA activities. Refer to the attachments for additional information.

b. Analytical soil testing results to show that soil chemical constituents comply with the maximum allowable concentrations established pursuant to 35 Ill. Adm. Code Part 1100, Subpart F and that the soil pH is within the range of 6.25 to 9.0,including the documentation of chain of custody control, a copy of the lab analysis; the accreditation status of the laboratory performing the analysis; and certification by an authorized agent of the laboratory that the analysis has been performed in accordance with the Agency's rules for the accreditation of environmental and the scope of the accreditation [35 Ill. Adm. Code 1100.201 (g), 1100.205(a), 1100.610]:

Twenty-seven (27) soil borings were advanced for one or more of: VOCs, SVOCs, total TAL Metals, TCLP/SPLP Metals, and pH. Areas corresponding to each soil boring achieved the MACs, with soil pH at acceptable range for CCDD disposal, except for the CCDD Exclusion Areas (SB-1, SB-2, and S-28) as shown in the attached documentation. Refer to attached narrative for details.

IV. Certification Statement, Signature and Seal of Licensed Professional Engineer or Licensed Professional Geologist

I, Jeremy J. Reynolds, P.G. (name of licensed professional engineer or geologist) certify under penalty of law that the information submitted, including but not limited to, all attachments and other information, is to the best of my knowledge and belief, true, accurate and complete. In accordance with the Environmental Protection Act [415 ILCS 5/22.51 or 22.51a] and 35 Ill. Adm. Code 1100.205(a), I certify that the soil from this site is uncontaminated soil. I also certify that the soil pH is within the range of 6.25 to 9.0. In addition, I certify that the soil has not been removed from the site as part of a cleanup or removal of contaminants. All necessary documentation is attached.

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))

Company Name:	Huff & Huff, Inc.
Street Address:	915 Harger Rd Suite 330
City:	Oak Brook State: IL Zip Code: 60523
Phone:	(630) 684-9100

Jeremy J. Reynolds, P.G.
Printed Name:

Licensed Professional Engineer or
Licensed Professional Geologist Signature:

Oct 3, 2023
Date:

LICENSED PROFESSIONAL GEOLOGIST
JEREMY J. REYNOLDS
196-001170
ILLINOIS

3/25

P.E or L.P.G. Seal:

Uncontaminated Soil Certification
by Licensed Professional Engineer or Licensed Professional Geologist for Use of Uncontaminated Soil as Fill in a CCDD or Uncontaminated Soil Fill Operation.
LPC-663
Owner: McHenry County Division of Transportation
Project Name: Randall Road (Ackman Road to Acorn Lane) Improvement Project

III. Basis for Certification and Attachments

Explain the basis upon which you are certifying that the soil from this site is uncontaminated soil.

This form pertains to soils excavated from the Randall Road, from Ackman Road to Acorn Lane, Improvement Project. The Project Area includes the existing roadway right-of-way (ROW) along Randall Road, from Ackman Road to Acorn Lane, within the Village of Lake in the Hills and the City of Crystal Lake, McHenry County, Illinois (Project Area). The maximum depth of excavation is currently unknown but is anticipated to be approximately eight (8) to twelve (12) feet below ground surface (bgs) in select areas of roadway and utility improvements. Maps depicting the Project Area location, identified sites, and sample locations are included in **Attachment A**.

A PESA completed in June 2023 which provides discussion of records review and historical research is included in **Attachment B**. The analyses conducted and results are summarized at the end of this narrative. The laboratory analytical reports are included in **Attachment C**. **Attachment D** contains tables comparing the analytical results to the Maximum Allowable Concentrations (MACs). Boring logs are included in **Attachment E**.

Historic Aerials

Per the 2023 PESA, aerial photographs of the Project Corridor for the years 1938, 1946, 1953, 1962, 1972, 1980, 1988, 1999, 2004, 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2014, 2015, 2017, 2019, and 2021 were provided by Environmental Risk Information Services (ERIS) and reviewed. A general discussion of the aerials is provided below.

1938 The 1938 aerial photograph depicts agricultural farmland and undeveloped land adjacent throughout the Project Corridor. Randall Road (north of Miller Road), Ackman Road, and Miller Road are depicted through the Project Corridor as rural roads. A stream is depicted adjacent to Randall Road, just south of the intersection with Miller Road. A few farmsteads are depicted adjacent to the Project Corridor.

1946 The 1946 aerial looks similar in layout to the 1938 aerial. No significant changes are noted.

1953 In the 1953 aerial, residential property and street development is depicted adjacent to the east side of the Project Corridor.

1962 In the 1962 aerial, further residential property development is depicted adjacent to the east side of the Project Corridor. An airport runway is depicted in the surrounding northeast direction from the Project Corridor.

1972 In the 1972 aerial, the configuration of Randall Road has changed, extended past Miller Road, and has expanded lanes. Further residential property development is depicted adjacent to the east side of the Project Corridor. A water treatment facility is shown to the north of the Project Corridor.

1980 In the 1980 aerial, further residential property development is depicted adjacent to the east side of the Project Corridor. A school is shown to the north of the Project Corridor.

1988 In the 1988 aerial, residential construction is depicted adjacent to the west side of the Project Corridor.

1999 In the 1999 aerial, extensive residential development is depicted adjacent to the east and west of the Project Corridor. Randall Road has expanded lanes and resembles the present-day layout. A commercial building is depicted adjacent to the southeast corner of the Project Corridor.

2004 In the 2004 aerial, further residential street development is depicted adjacent to the west of the Project Corridor. Multiple commercial buildings are depicted adjacent to the south end of the Project Corridor that resemble present-day.

2005-2006 In the 2005 and 2006 aerials, residential construction is depicted adjacent to the west side of the Project Corridor.

2007 In the 2007 aerial, a new commercial building is depicted adjacent to the northeast corner of the Project Corridor.

2009-2010 The 2009 and 2010 aerial photographs are like the 2007 aerial and no discernable changes to the Project Corridor are identified.

2011 In the 2011 aerial, a previous farmstead has been demolished and is now occupied by vacant land adjacent to the east of the Project Corridor.

2012-2017 The 2012, 2014, 2015, and 2017 aerial photographs are like the 2011 aerial and no discernable changes to the Project Corridor are identified.

2019 In the 2019 aerial, a detention pond is depicted adjacent to the east of the Project Corridor. The intersection of Acorn Lane and Randall Road is under construction to include additional lanes.

2021 In the 2021 aerial, the intersection of Acorn Lane and Randall Road has been reconstructed to include additional lanes and resembles present-day.

Records Search

Per the 2023 PESA, the following site descriptions and table summarizes the identified PIPs that are adjacent to the Project Area.

Site ID	Site Name	Address	Reason(s)
6	Vacant Land (Former Rothschild 3 Site)	8716 Randall Road, Lake in the Hills	REM ASSESS, SRP, and UST Listings, Adjacent to Project Corridor
13	Acorn Cleaners	441 N Randall Road, Lake in the Hills	DELISTED DRYCLEANERS and DRYCLEANERS Listings, Adjacent to Project Corridor

Vacant Land (Former Rothschild 3 Site) (Site ID 6)

This site is listed under the operator name of "Rothschild 3 Site", located at 8716 Randall Road, Lake in the Hills, adjacent to the east of the Project Corridor. During site reconnaissance, the property was occupied by vacant land. The site is identified in the FINDS/FRS, REM ASSESS, SRP, and UST databases. The UST database associates the property with an exempt status and the following USTs:

- One 8,000-gallon diesel fuel tank, Pre-1974, exempt, last used 12/31/1973

The FINDS/FRS database lists the site in the ACES database with no further information. The site is identified in the SRP and REM ASSESS databases with EPA ID #1110155299 and as having received a comprehensive NFR letter, recorded on 1/13/2010 and is not listed as an active site. The comprehensive NFR noted industrial/commercial or residential land use. Online FOIA documentation for the NFR letter indicated substances of concern including SVOCs/PNAs. The site is described as historically burning waste materials. During remediation activities, soil materials were excavated and backfilled with concrete. A figure depicting the site boundary of the SRP is included in Appendix D of the PESA report.

The historical aerial photographs show the site occupied by a farmstead with barns and outdoor storage in the 1938 to 1988 aerials. In the 1999 through 2010 aerials, operations at the farmstead appear to be diminished with multiple barns demolished and reduced outdoor storage is visible. In the 2011 aerial, the site is depicted as vacant and resembles present-day.

Based on the available information, the SRP, REM ASSESS, and UST listings, and its location adjacent to the Project Corridor, **this site is considered a PIP.**

Acorn Cleaners (Site ID 13)

This site is listed under the operator name of "Acorn Cleaners," located at 441 N Randall Road, Lake in the Hills, adjacent to the east of the Project Corridor. During site reconnaissance, the site was occupied by a multi-business building with drycleaners present in the center of the building. Other businesses included an ACE hardware, restaurant, liquor store, physical therapy office, and gym. The site is identified in the DELISTED DRYCLEANERS and DRYCLEANERS databases. The databases list the site in the delisted database, recorded on 6/30/2020. The facility BOL ID No. is listed as #1110405089, entered into the system on 12/9/2020. No violations are listed for the site. A pad-mounted transformer was observed at the southeast corner of the building. The historical aerial photographs show the site occupied by agricultural land from 1938 to 1988. The 1999 aerial depicts a commercial building on the site that resembles present-day.

Based on the available information, the DELISTED DRYCLEANERS and DRYCLEANERS listings, and location adjacent to the Project Corridor, **this site is considered a PIP**.

Analytical Summary

In order to assess CCDD suitability soil samples were collected for contaminant of concern as well as for pH. Soil borings were advanced to max depths ranging from approximately five (5) feet bgs to twenty-five (25) feet bgs. Soils were screened continuously using a PID meter and representative soil samples were collected. The PID readings are summarized in the following table.

PID Screening Summary

Soil Boring	Depth, ft	PID Reading, ppm
SB-1	**0-5**	**0.1**
SB-2	**0-5**	**0.2**
SB-3	**0-5**	**0.0**
SB-4	**0-5**	**0.0**
	5-10	0.0
SB-5	0-5	0.0
	5-10	**0.0**
SB-6	0-5	0.0
	5-10	**0.0**
	10-15	0.0
SB-7	0-5	0.0
	5-10	**0.0**
	10-15	0.0
SB-8	0-5	0.0
	5-10	0.0
	10-15	0.0
	15-20	0.0
	20-25	**0.0**
SB-9	0-5	0.0
	5-10	0.0
	10-15	0.0
	15-20	0.0
	20-25	0.0
SB-10	0-5	0.0
	5-10	0.0
	5-10	**0.0**
	15-20	0.0
	20-25	0.0
SB-11	**0-5**	**0.2**
	5-10	0.0
	10-15	0.0
	15-20	0.0
	20-25	0.0

Soil Boring	Depth, ft	PID Reading, ppm
SB-13	5-10	0.0
	10-15	0.0
SB-14	**0-5**	**0.0**
	5-10	0.0
SB-15	**0-5**	**0.0**
	5-10	0.0
SB-16	0-5	0.0
	5-10	**0.0**
SB-17	**0-5**	**0.0**
	5-10	0.0
	10-15	0.0
SB-18	**0-5**	**0.0**
	5-10	0.0
	10-15	0.0
SB-19	**0-5**	**0.5**
	5-10	0.0
	10-15	0.0
SB-20	0-5	0.0
	5-10	**0.0**
SB-23	**0-5**	**0.0**
	5-10	0.0
SB-24	0-5	0.0
	5-10	**0.0**
	5-10	0.0
SB-25	**0-5**	**0.0**
SB-26	**0-5**	**0.0**
	5-10	0.0
	10-15	0.0
SB-27	0-5	0.0
	5-10	0.0
	5-10	**0.0**
SB-28	**0-5**	**0.0**
SB-31	**0-5**	**0.0**

Soil Boring	Depth, ft	PID Reading, ppm
SB-13	**0-5**	**0.0**

Soil Boring	Depth, ft	PID Reading, ppm
SB-32	0-5	0.6
	5-10	**0.4**

VOCS

Twenty-seven (27) samples [SB-1 (0-5), SB-2 (0-5), SB-3 (0-5), SB-4 (0-5), SB-5 (5-10), SB-6 (5-10), SB-7 (5-10), SB-8 (20-25), SB-9 (0-5), SB-10 (10-15), SB-11 (0-5), SB-13 (0-5), SB-14 (0-5), SB-15 (0-5), SB-16 (5-10), SB-17 (0-5), SB-18 (0-5), SB-19 (0-5), SB-20 (5-10), SB-23 (0-5), SB-24 (5-10), SB-25 (0-5), SB-26 (0-5), SB-27 (10-15), SB-28 (0-5), SB-31 (0-5), and SB-32 (5-10)] were submitted for VOC analysis. Table 1 presents the soil VOC results compared to the MACs.

Sample SB-10 (10-15) had a detection of toluene [0.0052 mg/kg] below the default MAC value. The remaining VOC results are below detection limits for the samples analyzed, achieving the MACs for CCDD disposal.

SVOCS

Twenty-seven (27) samples [SB-1 (0-5), SB-2 (0-5), SB-3 (0-5), SB-4 (0-5), SB-5 (5-10), SB-6 (5-10), SB-7 (5-10), SB-8 (20-25), SB-9 (0-5), SB-10 (10-15), SB-11 (0-5), SB-13 (0-5), SB-14 (0-5), SB-15 (0-5), SB-16 (5-10), SB-17 (0-5), SB-18 (0-5), SB-19 (0-5), SB-20 (5-10), SB-23 (0-5), SB-24 (5-10), SB-25 (0-5), SB-26 (0-5), SB-27 (10-15), SB-28 (0-5), SB-31 (0-5), and SB-32 (5-10)] were analyzed for SVOCs. Table 2 presents the soil sample SVOC analytical results compared to the MACs.

One or more SVOC compounds were detected in samples SB-1 (0-5), SB-9 (0-5), SB-15 (0-5), SB-26 (0-5), and SB-31 (0-5). Samples SB-9 (0-5), SB-15 (0-5), SB-26 (0-5), and SB-31 (0-5) had results of one or more SVOCs which exceeded the MAC for disposal Outside a Populated Area only. Sample SB-1 (0-5) had results of one or more SVOCs which exceeded the MAC for disposal Outside a Populated Area and within a non-MSA county.

The remaining samples did not have detectable SVOC concentrations, therefore results achieve their respective MAC values for CCDD disposal.

TAL/TCLP/SPLP METALS

Twenty-seven (27) samples [SB-1 (0-5), SB-2 (0-5), SB-3 (0-5), SB-4 (0-5), SB-5 (5-10), SB-6 (5-10), SB-7 (5-10), SB-8 (20-25), SB-9 (0-5), SB-10 (10-15), SB-11 (0-5), SB-13 (0-5), SB-14 (0-5), SB-15 (0-5), SB-16 (5-10), SB-17 (0-5), SB-18 (0-5), SB-19 (0-5), SB-20 (5-10), SB-23 (0-5), SB-24 (5-10), SB-25 (0-5), SB-26 (0-5), SB-27 (10-15), SB-28 (0-5), SB-31 (0-5), and SB-32 (5-10)] were analyzed for total Target Analyte List (TAL) metals, minus aluminum. Additionally, samples were analyzed for arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc via the TCLP and SPLP methods. Table 3 presents the TAL metals, TCLP, and SPLP analytical results compared to the MACs.

Several metals were detected in each of the analyzed samples. Chromium was detected in samples SB-13 (0-5), SB-15 (0-5), SB-26 (0-5), SB-27 (10-15), and SB-31 (0-5) at concentrations exceeding the default MAC value. The leachable chromium concentrations were also assessed using the TCLP and SPLP method. Based on the TCLP and SPLP chromium results, these soil samples are considered to achieve the MAC for chromium.

Iron was detected in samples SB-1 (0-5), SB-7 (5-10), SB-8 (20-25), SB-13 (0-5), SB-14 (0-5), SB-15 (0-5), SB-18 (0-5), SB-23 (0-5), SB-26 (0-5), SB-27 (10-15), and SB-31 (0-5) at concentrations exceeding the default MAC value. The leachable iron concentrations were also assessed using the TCLP and SPLP method. Based on the TCLP iron results, these soil samples are considered to achieve the MAC for iron.

Manganese was detected in sample SB-7 (5-10) at a concentration exceeding the default MAC value. The leachable manganese concentrations were also assessed using the TCLP and SPLP method. Based on the SPLP manganese results, these soil samples are considered to achieve the MAC for manganese.

The remaining samples had detections below default MAC values or had no detectable concentration, therefore results achieve MAC values for CCDD disposal.

Soil pH

Table 4 (below) presents the soil pH results. Soil samples were preserved and transferred to First Environmental Laboratories, Inc., under Chain-of-Custody for analysis. The laboratory analytical reports are provided in Appendix C. CCDD regulations require soil pH between 6.25 and 9.00 to be acceptable for disposal at a CCDD or soil-only facility. Twenty-seven (27) samples were submitted for soil pH analysis and are considered representative of the Project Area. Samples SB-1 (0-5), SB-2 (0-5), and SB-28 (0-5) had pH values of 9.23, 9.65, and 9.18, respectively, that exceed the range of 6.25 and 9.00 to be acceptable for disposal at a CCDD or soil-only facility, this will preclude soils from this area as being eligible for CCDD disposal. The remaining pH results ranged from 6.71 to 8.99, within the acceptable 6.25 to 9.00 range. Therefore, with the exception of SB-1 (0-5), SB-2 (0-5), and SB-28 (0-5), soils from this Project Area are considered to achieve the CCDD soil pH criteria.

TABLE 4
SOIL pH RESULTS

Soil Boring	Depth, ft	Soil pH Result
SB-1	(0-5)	9.23
SB-2	(0-5)	9.65
SB-3	(0-5)	7.88
SB-4	(0-5)	8.45
SB-5	(5-10)	8.45
SB-6	(5-10)	8.53
SB-7	(5-10)	7.09
SB-8	(20-25)	8.47
SB-9	(0-5)	8.79
SB-10	(10-15)	8.53
SB-11	(0-5)	8.99
SB-13	(0-5)	7.88
SB-14	(0-5)	8.05
SB-15	(0-5)	8.15
SB-16	(5-10)	8.17

Soil Boring	Depth, ft	Soil pH Result
SB-17	(0-5)	8.41
SB-18	(0-5)	8.47
SB-19	(0-5)	8.37
SB-20	(5-10)	8.73
SB-23	(0-5)	8.35
SB-24	(5-10)	7.55
SB-25	(0-5)	8.60
SB-26	(0-5)	8.20
SB-27	(10-15)	6.71
SB-28	(0-5)	9.18
SB-31	(0-5)	8.35
SB-32	(5-10)	8.62

CCDD Soil pH Requirement: between 6.25 - 9.0

CCDD Assessment

Two (2) PIPs were identified near the Project Area. Appropriate laboratory analyses have been conducted on samples collected to assess achievement of the MACs for CCDD disposal.

Spoils generated from the Project Area are certified for disposal at a CCDD or USFO facility, within the following areas as presented in the table below.

Soil Boring ID	Soil Interval (ft)	Sample Classification	Parameter(s) Exceeding MAC(s)	Eligible for CCDD or USFO Disposal?	Soil Disposal Classification (Max Excavation Depth)[1]
SB-1	**(0-5)**	**669.05(a)(1)**	**Multiple SVOCS and pH>9.0**	**No: Full Depth**	**Full Depth: Landfill as NSW or *Site Reuse***
SB-2	**(0-5)**	**669.05(a)(1)**	**TCLP/SPLP Manganese and pH>9.0**	**No: Full Depth**	**Full Depth: Landfill as NSW or *Site Reuse***
SB-3	(0-5)	669.05 (a)(2)	TCLP/SPLP Lead	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-4	(0-10)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-5	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-6	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-7	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-8	(0-25)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-9	(0-25)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-10	(0-25)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)

Soil Boring ID	Soil Interval (ft)	Sample Classification	Parameter(s) Exceeding MAC(s)	Eligible for CCDD or USFO Disposal?	Soil Disposal Classification (Max Excavation Depth)[1]
SB-11	(0-25)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-13	(0-15)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-14	(0-10)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-15	(0-10)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-16	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-17	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-18	(0-15)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-19	(0-15)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-20	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	No: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-23	(0-10)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-24	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-25	(0-5)	669.05 (a)(2)	TCLP/SPLP Manganese	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties*) or *Site Reuse*
SB-26	(0-15)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-27	(0-15)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)
SB-28	**(0-5)**	**669.05(a)(1)**	**TCLP/SPLP Manganese and pH>9.0**	**No: Full Depth**	**Full Depth: Landfill as NSW or *Site Reuse***
SB-31	(0-5)	669.05 (a)(3)	Benzo(a)pyrene	Yes: Full Depth	Full Depth: CCDD (*Within MSA Counties, including Chicago*) or *Site Reuse*
SB-32	(0-10)	Unrestricted	None	Yes: Full Depth	Full Depth: CCDD (Unrestricted)

[1] Based on maximum excavation depth anticipated per Contract Plans.

[2] "Unrestricted" refers to material that is approved for CCDD disposal at any facility location (e.g., Within Chicago Corporate Limits, Within a Populated Area in a MSA County, Within a Populated Area in Non-MSA County, and Outside a Populated Area).

Bold/Shaded Refers to areas which must be disposed of as **Non-Special Waste** if off-site disposal is required.

Based on analytical results for various samples, the following areas are within a **CCDD Exclusion Area**:

- SB-1 ~Sta. Randall Road 2214+31 to ~Sta. Randall Road 2215+01: from ground surface to maximum anticipated excavation depth.

- SB-2 ~Sta. Randall Road 2216+39 to ~Sta. Randall Road 2218+31: from ground surface to maximum anticipated excavation depth.

- SB-28 ~Sta. Randall Road 2232+02 to ~Sta. Randall Road 2235+80: from ground surface to maximum anticipated excavation depth.

According to Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction, Section 669.05 (Removal and Disposal of Regulated Substances – Contaminated Soil and/or Groundwater Management and Disposal), the following areas shall be managed as follows:

669.05 Regulated Substances Management and Disposal

(a) Soil Types: *"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:"*

Spoils generated from SB-1, SB-2, and SB-28 are classified as 669.05(a)(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*."

Spoils generated from SB-3, SB-5, SB-11, SB-13, SB-16, SB-18, SB-19, SB-20, SB-23, and SB-25 are classified as 669.05(a)(2):

- "*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*."

Spoils generated from SB-9, SB-15, SB-26, and SB-31 are classified as 669.05(a)(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."*

Spoils generated from the remainder of the Project Area are certified for disposal at a CCDD facility or USFO facility, within the following areas:

- Within Chicago corporate limits
- A populated area in a Metropolitan Statistical Area (MSA) excluding Chicago
- A populated area in a Non-Metropolitan Statistical Area (MSA) excluding Chicago
- Outside a populated area

Should conditions within the Project Area change, such as unusual staining, odors, or if loads become rejected, additional analytical assessment may be required for final disposition of spoils from this Project Area. Elevated PID readings may also result in rejected loads.

ATTACHMENT A

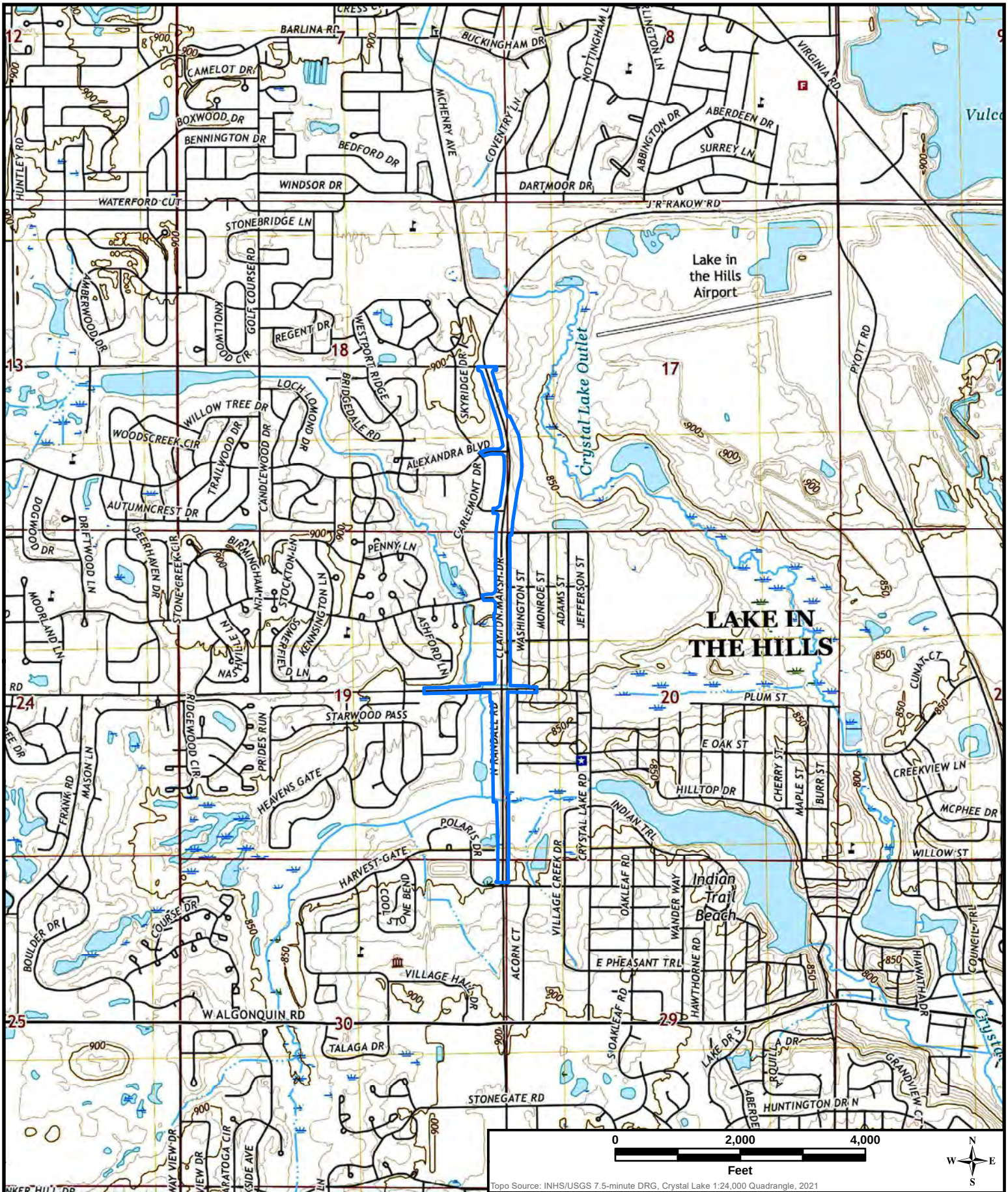


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Figure 1
Site Location Map
Randall Road, from Ackman Road to Acorn Lane, Project CCDD
Lake in the Hills and Crystal Lake, McHenry County, IL

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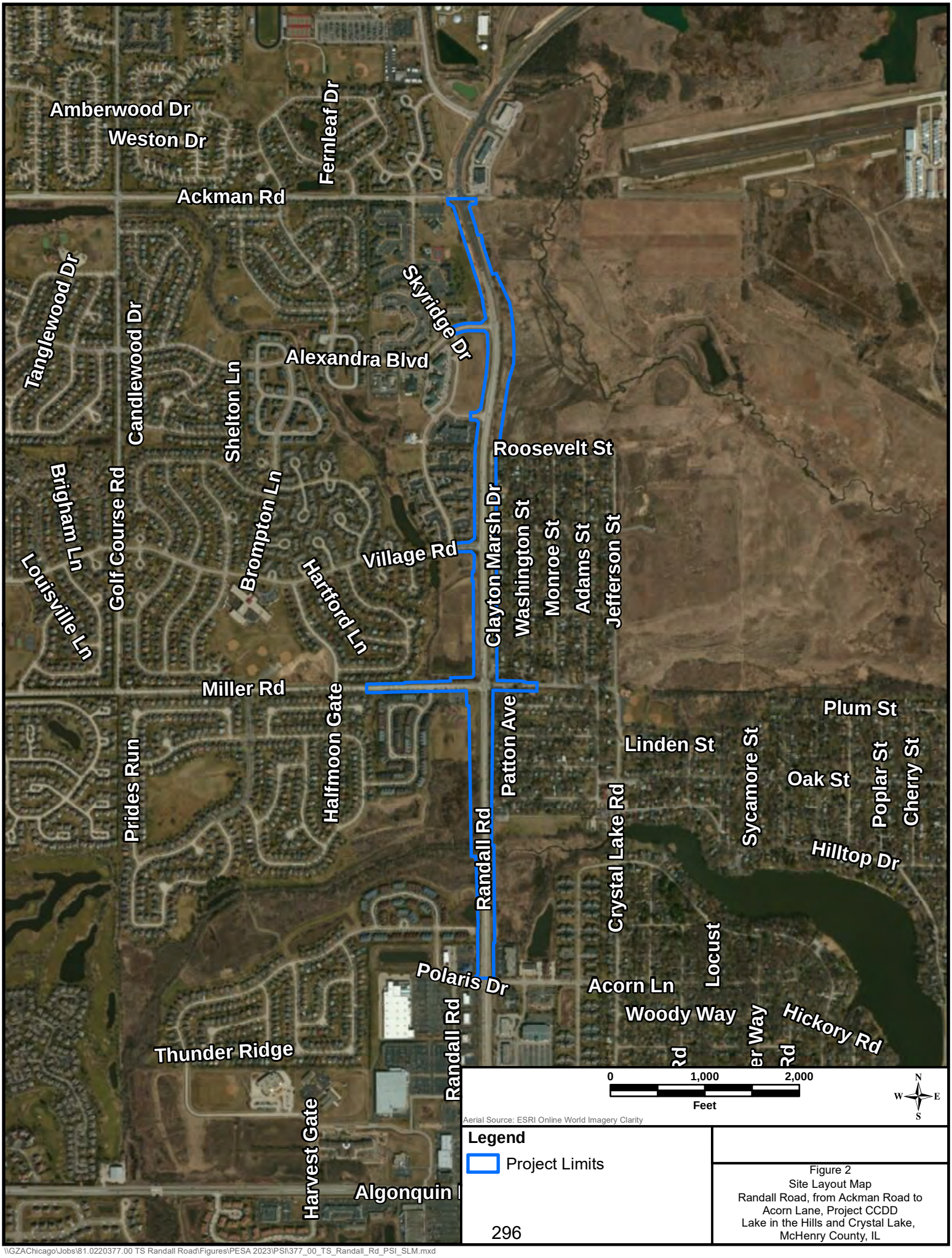

Figure 2
Site Layout Map
Randall Road, from Ackman Road to Acorn Lane, Project CCDD
Lake in the Hills and Crystal Lake, McHenry County, IL

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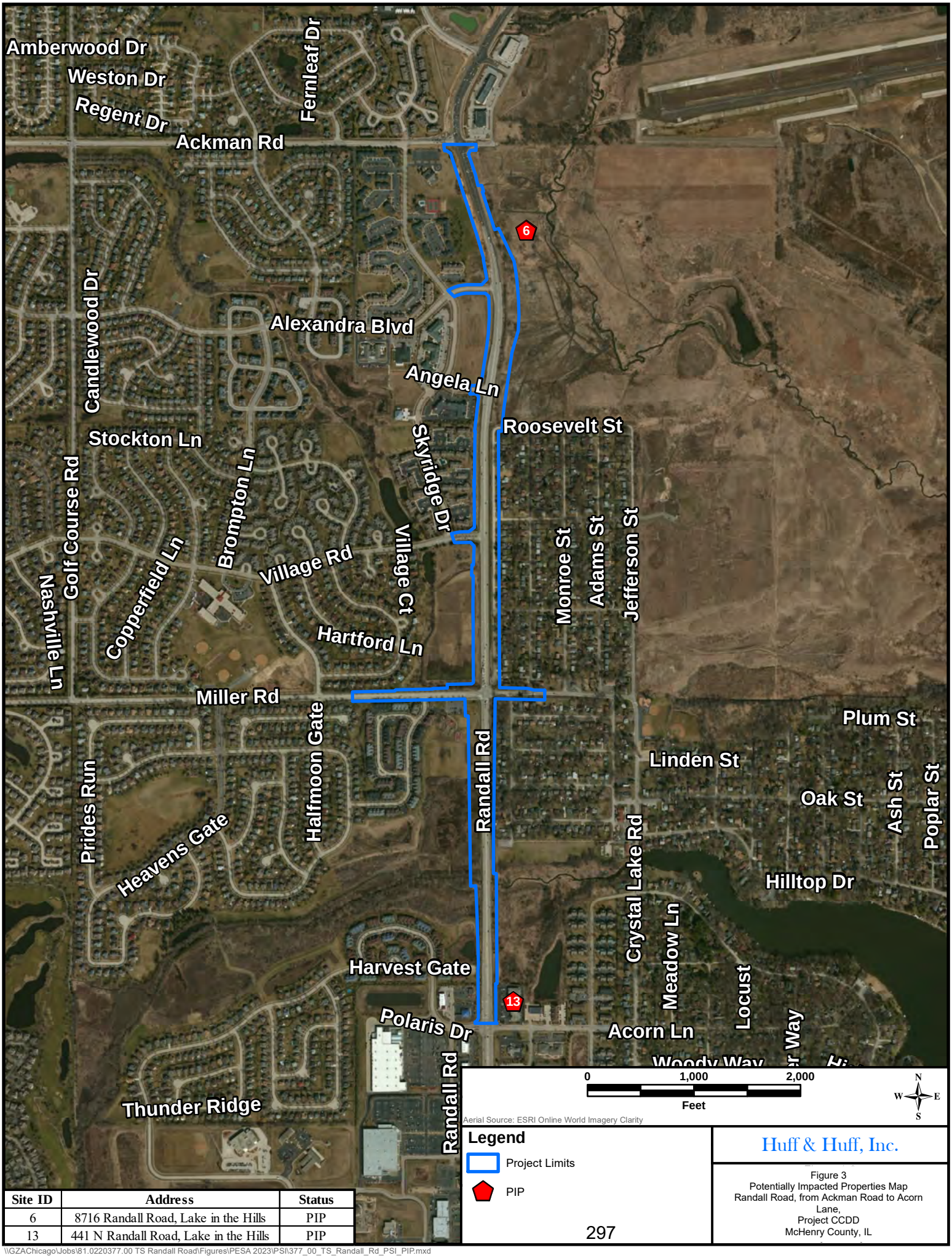

Site ID	Address	Status
6	8716 Randall Road, Lake in the Hills	PIP
13	441 N Randall Road, Lake in the Hills	PIP

Legend

- Project Limits
- PIP

Huff & Huff, Inc.

Figure 3
Potentially Impacted Properties Map
Randall Road, from Ackman Road to Acorn Lane,
Project CCDD
McHenry County, IL

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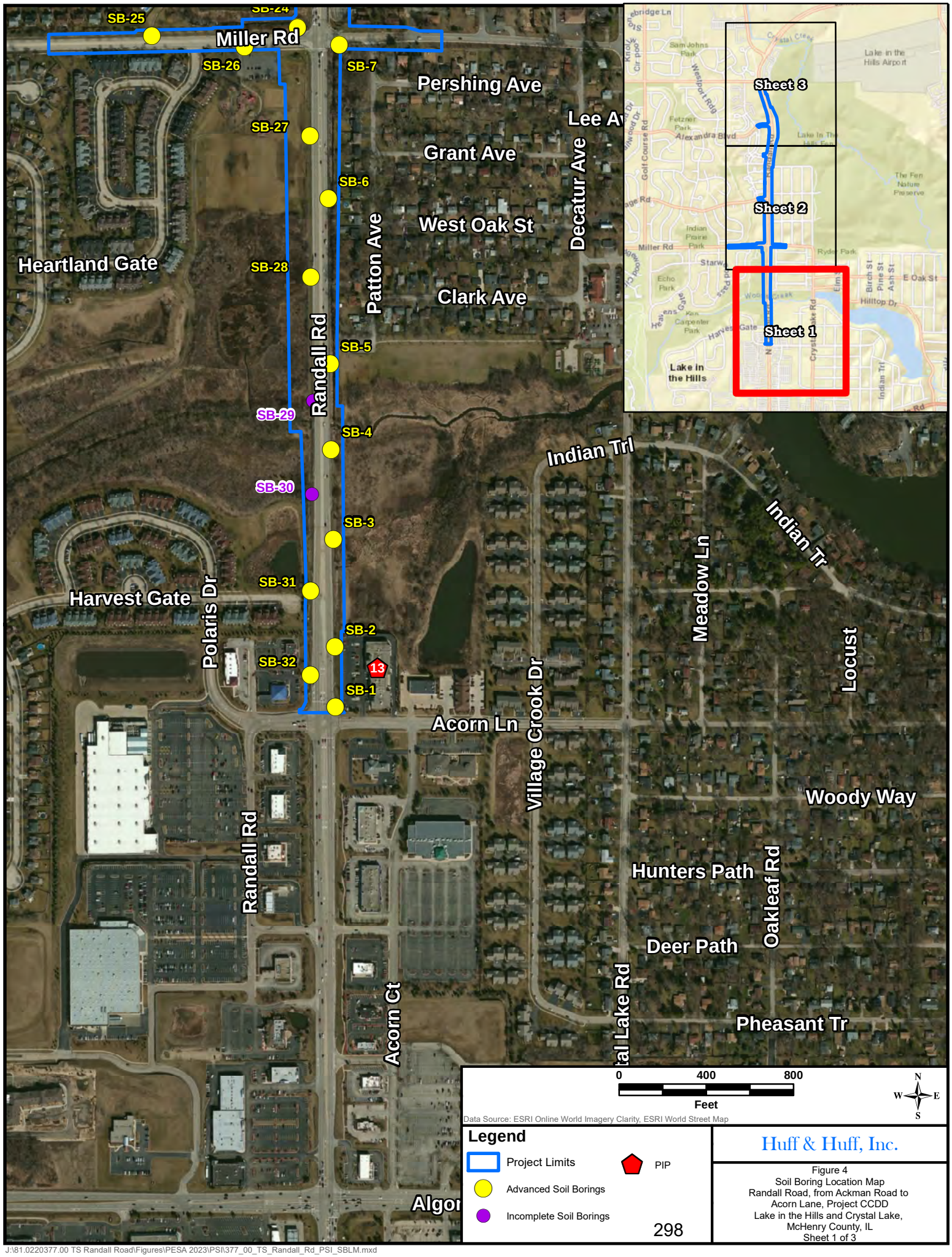

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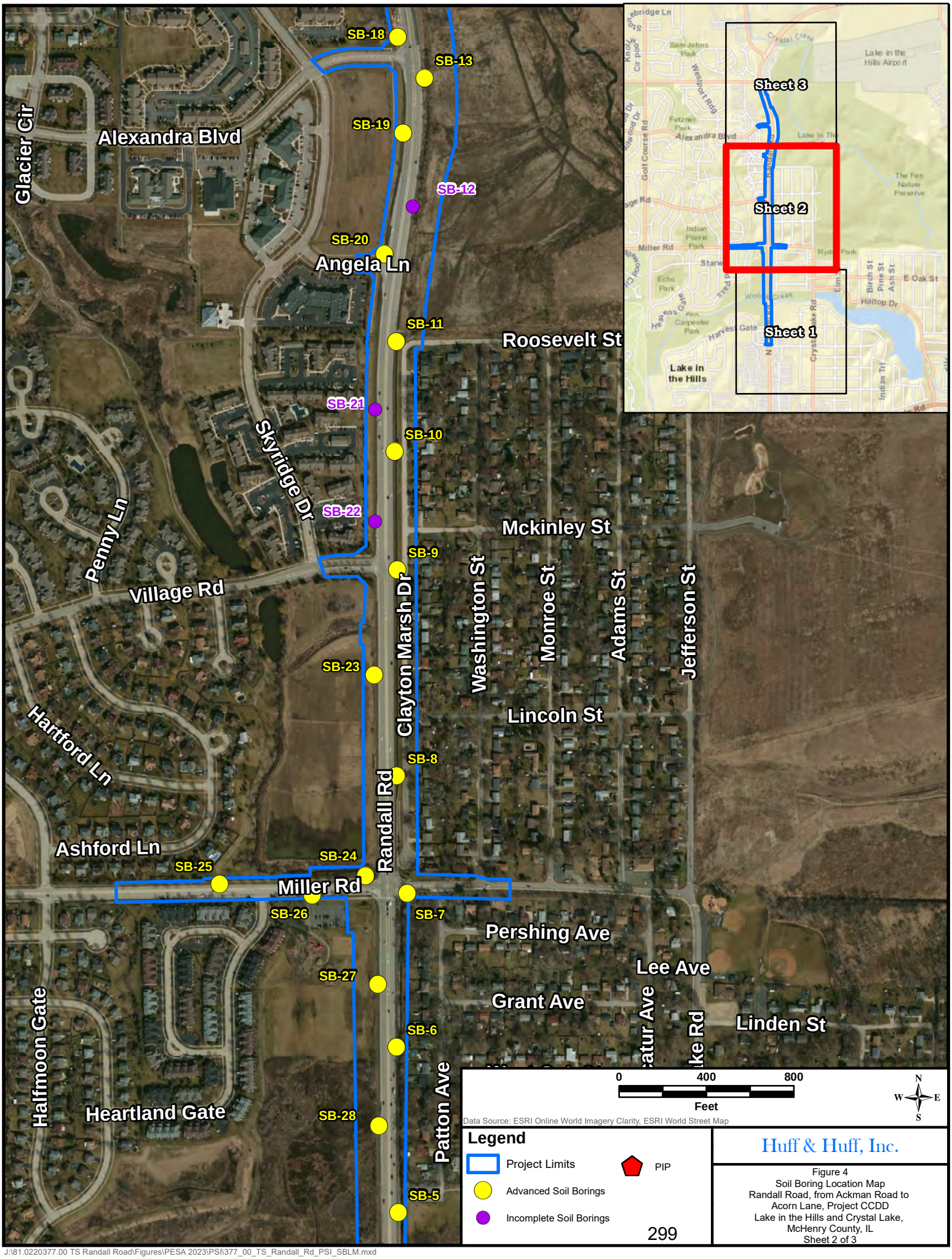

Huff & Huff, Inc.

Figure 4
Soil Boring Location Map
Randall Road, from Ackman Road to Acorn Lane, Project CCDD
Lake in the Hills and Crystal Lake,
McHenry County, IL
Sheet 2 of 3

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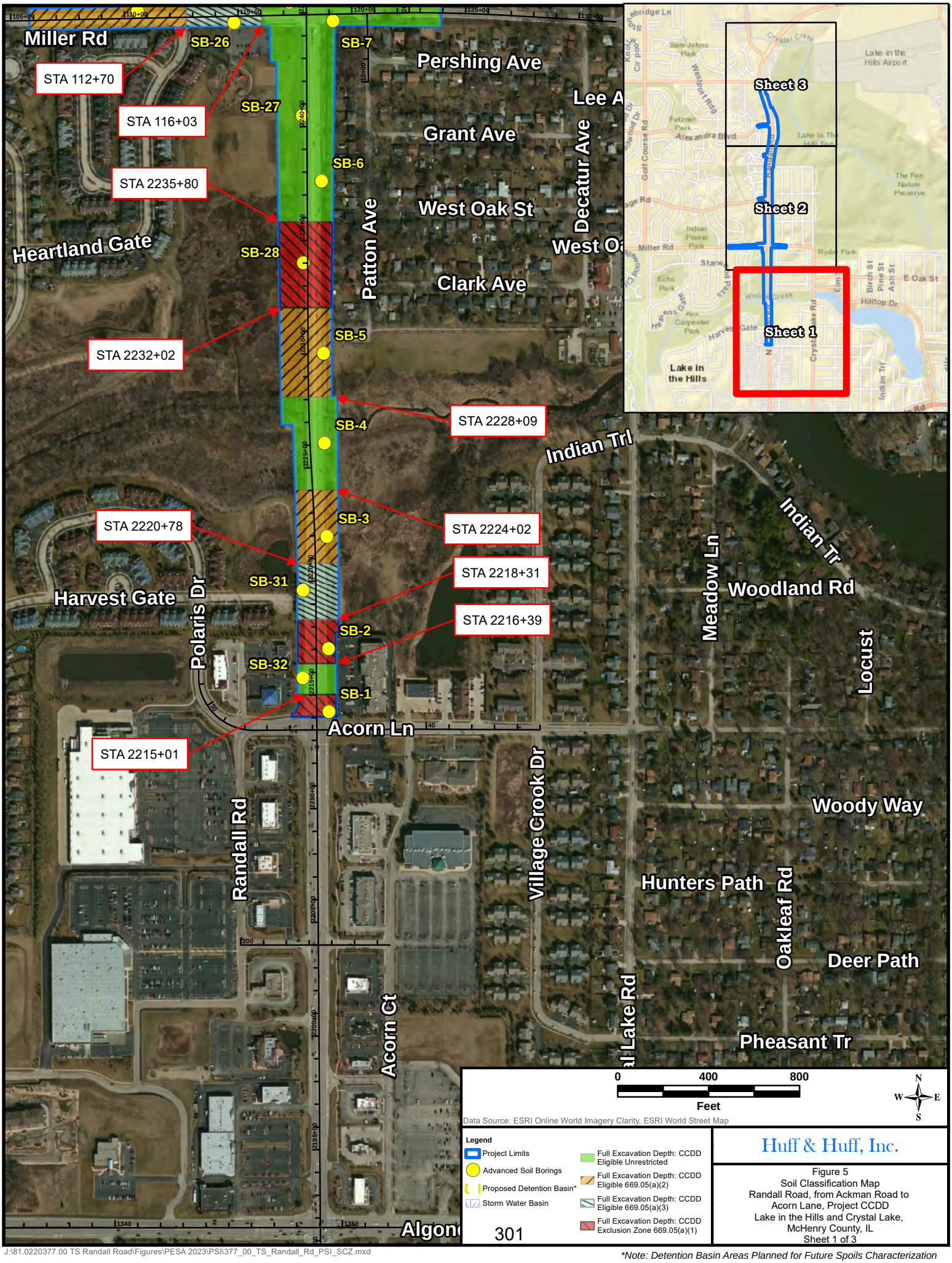

Huff & Huff, Inc.

Figure 5
Soil Classification Map
Randall Road, from Ackman Road to Acorn Lane, Project CCDD
Lake in the Hills and Crystal Lake, McHenry County, IL
Sheet 1 of 3

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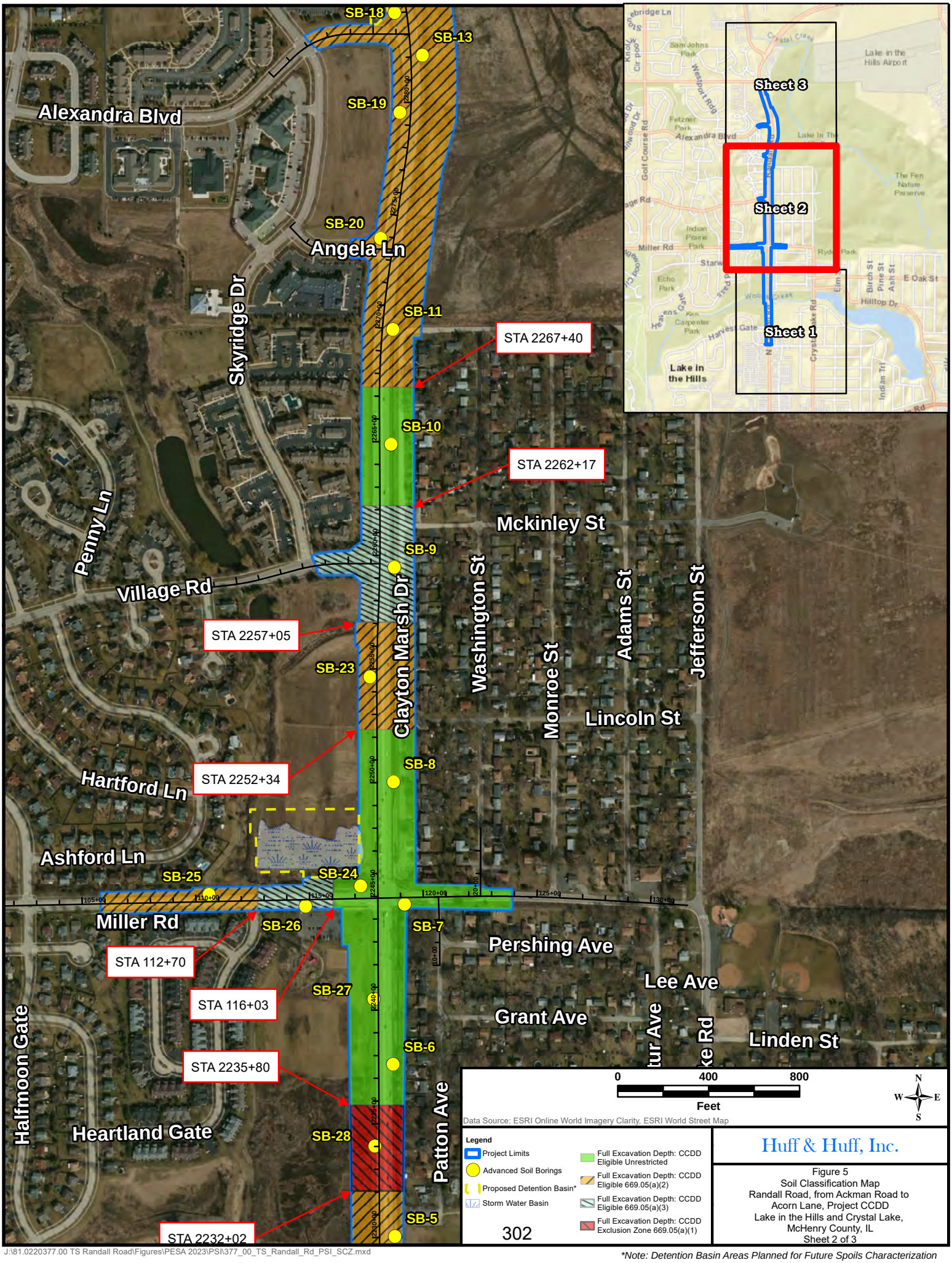
*Note: Detention Basin Areas Planned for Future Spoils Characterization



Huff & Huff, Inc.

Figure 5
Soil Classification Map
Randall Road, from Ackman Road to Acorn Lane, Project CCDD
Lake in the Hills and Crystal Lake, McHenry County, IL
Sheet 2 of 3

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*Note: Detention Basin Areas Planned for Future Spoils Characterization


Mchenry Ave
Fernleaf Dr
Ackman Rd
Fountain Green Dr
Skyridge Dr
Alexandra Blvd
Angela Ln
SB-16
SB-15
SB-17
SB-14
SB-18
SB-13
SB-19
SB-20
SB-11
STA 2294+53
STA 2290+70
STA 2285+32
Sheet 3
Sheet 2
Sheet 1
Lake in the Hills
0
400
800
Feet
Data Source: ESRI Online World Imagery Clarity, ESRI World Street Map
Legend
Project Limits
Advanced Soil Borings
Proposed Detention Basin*
Storm Water Basin
Full Excavation Depth: CCDD Eligible Unrestricted
Full Excavation Depth: CCDD Eligible 669.05(a)(2)
Full Excavation Depth: CCDD Eligible 669.05(a)(3)
Full Excavation Depth: CCDD Exclusion Zone 669.05(a)(1)
303
Huff & Huff, Inc.
Figure 5
Soil Classification Map
Randall Road, from Ackman Road to Acorn Lane, Project CCDD
Lake in the Hills and Crystal Lake,
McHenry County, IL
Sheet 3 of 3
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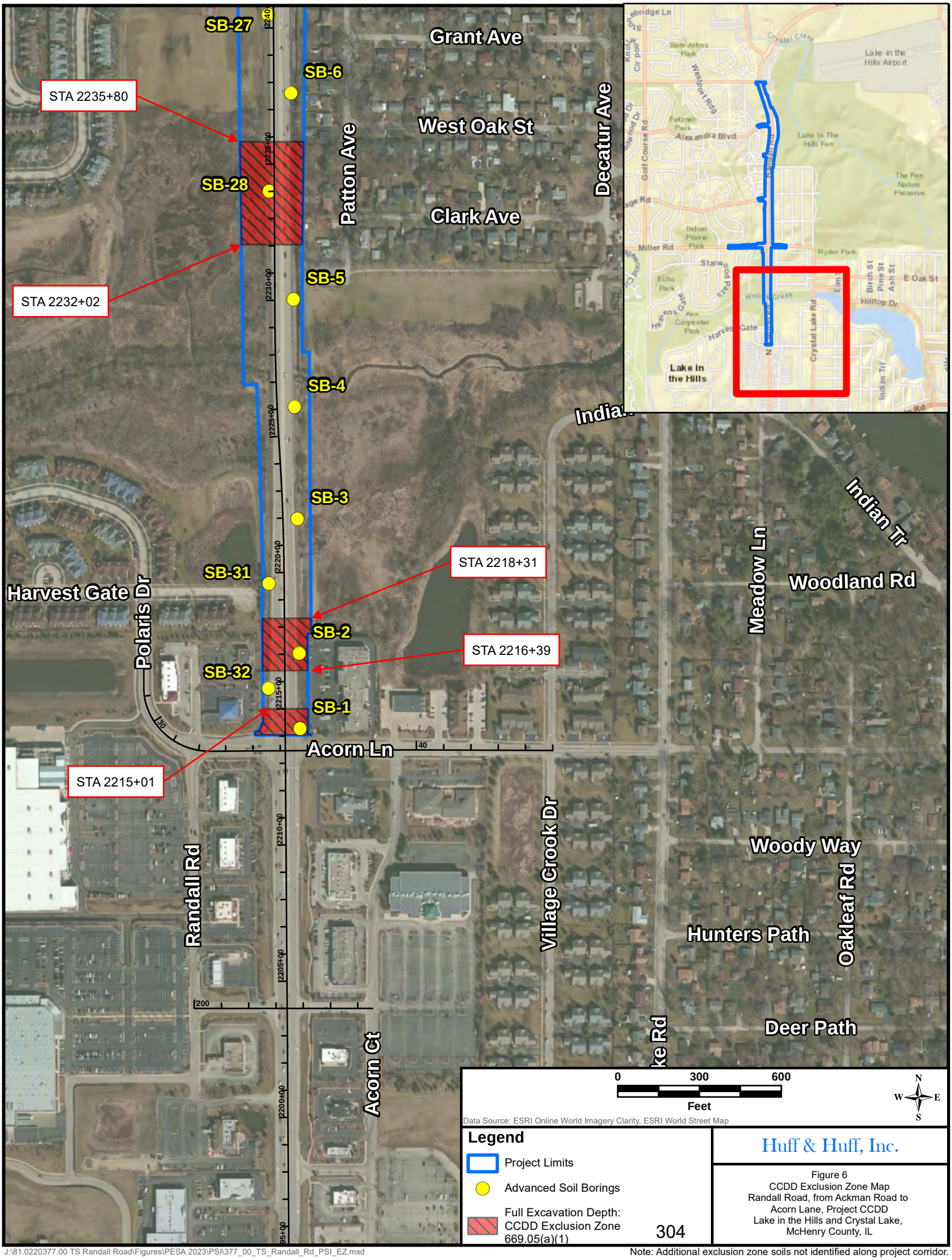
*Note: Detention Basin Areas Planned for Future Spoils Characterization



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Note: Additional exclusion zone soils not identified along project corridor.

Illinois Department of Transportation

Storm Water Pollution Prevention Plan

Route	Marked Route	Section Number
FAP 336	Randall Road	06-00329-02-PW
Project Number	**County**	**Contract Number**
YJ7X(870)	McHenry	61J93

This plan has been prepared to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (Permit ILR10), issued by the Illinois Environmental Protection Agency (IEPA) for storm water discharges from construction site activities.

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

Signature	Date
Joseph R Korpalski Jr	10.3.23

Print Name	Title	Agency
Joseph Korpalski, Jr	County Engineer	McHenry County DOT

Note: Guidance on preparing each section of BDE 2342 can be found in Chapter 41 of the IDOT Bureau of Design and Environment (BDE) Manual. Chapter 41 and this form also reference the IDOT Drainage Manual which should be readily available.

I. Site Description:

A. Provide a description of the project location; include latitude and longitude, section, town, and range:

This project begins at a point on the centerline of Randall Road, from Polaris Drive at Station 2214+31.18 and extends in a northerly direction to Station 2296+90.06 Ackman Drive. The project is within the Village of Lake in the Hills and City of Crystal Lake in McHenry County, Illinois. The total project gross length is 10,618.6 feet (2.01 miles).(Latitude 42 deg 11 min 25.2 sec Longitude -88 deg 20 min 7.9 sec)

B. Provide a description of the construction activity which is the subject of this plan. Include the number of construction stages, drainage improvements, in-stream work, installation, maintenance, removal of erosion measures, and permanent stabilization:

Construction includes the widening and reconstruction of Randall Road from a 4-lane section to a 6-8 lane section divided by a median. The improvements include widening and reconstruction of Miller Rd, Village Rd, Angela Ln, Alexandra Blvd and Ackman Road. The improvements will use a combination of enclosed drainage with curb and gutter and open swale drainage systems. Stormwater detention is provided in compliance with McHenry County requirements. Water quality runoff volume retention is also provided in compliance with McHenry County requirements. Temporary and permanent soil erosion and sediment control are provided for all phases of construction. There are five (5) anticipated construction stages which includes a prestage.

C. Provide the estimated duration of this project:

Estimated duration of this project is 32 months (April 2024 to November 2026)

D. The total area of the construction site is estimated to be 71 acres.

The total area of the site estimated to be disturbed by excavation, grading or other activities is 66 acres.

E. The following are weighted averages of the runoff coefficient for this project before and after construction activities are completed; see Section 4-102 of the IDOT Drainage Manual:

Existing C: 0.75, Proposed C: 0.80

F. List all soils found within project boundaries; include map unit name, slope information, and erosivity:

67A - Harpster silty clay loam, 0 to 2 percent slopes, 0.24
87A - Dickinson sandy loam, 0 to 2 percent slopes, 0.17
87B - Dickinson sandy loam, 2 to 5 percent slopes, 0.20
87B2 - Dickinson sandy loam, 2 to 5 percent slopes, eroded, 0.20
103A - Houghton muck, 0 to 2 percent slopes, (no K)
146A - Elliot silt loam, 0 to 2 percent slopes, 0.32
146B - Elliot silt loam, 2 to 4 percent slopes, 0.32
149A - Brenton silt loam, 0 to 2 percent slopes, 0.32
153A - Pella silty clay loam, 0 to 2 percent slopes, 0.28
172A - Hoopeston sandy loam, 0 to 2 percent slopes, 0.10
223B - Varna silt loam, 2 to 4 percent slopes, 0.32
223C2 - Varna silt loam, 4 to 6 percent slopes, eroded, 0.32
223D2 - Varna silt loan, 6 to 12 percent slopes, eroded, 0.32
232A - Ashkum silty clay loam, 0 to 2 percent slopes, 0.20
290B - Warsaw loam, 2 to 4 percent slopes, 0.28
318C2 - Lorenzo loam, 4 to 6 percent slopes, eroded, 0.28
318D2 - Lorenzo loam, 6 to 12 percent slopes, eroded, 0.28
330A - Peotone silty clay loam, 0 to 2 percent slopes, 0.24
343A - Kane silt loam, 0 to 2 percent slopes, 0.24
369B - Waupecan silt loam, 2 to 4 percent slopes, 0.37
488A - Hooppole loam, 0 to 2 percent slopes, 0.20
526A - Grundelein silt loam, 0 to 2 percent slopes, 0.37
527B - Kidami silt loam, 2 to 4 percent slopes, 0.43
527C - Kidami silt loam, 4 to 6 percent slopes, 0.43
527C2 - Kidami loam, 4 to 6 percent slopes, eroded, 0.37
527D2 - Kidami loam, 6 to 12 percent slopes, eroded, 0.37
528A - Lahoguess loam, 0 to 2 percent slopes, 0.28
530E - Ozaukee silt loam, 12 to 20 percent slopes, 0.43
618F - Senachwine silt loam, 20 to 30 percent slopes, 0.32
626A - Kish loam, 0 to 2 percent slopes, 0.24
969F - Casco-Rodman complex, 20 to 30 percent slopes, 0.32
8082A - Millington silt loam, 0 to 2 percent slopes, occasionally flooded, 0.28

G. If wetlands were delineated for this project, provide an extent of wetland acreage at the site; see Phase I report:

Wetlands are depicted on the project plans. Aerial attached at end of this document.

Wetlands Site 1: Total Wetlands = 8.96 acres; Impacted Area = 0.49 acres
Wetlands Site 2: Total Wetlands = 25.07 acres; Impacted Area = 0.82 acres
Wetlands Site 4: Total Wetlands = 0.29 acres; Impacted Area = 0.00 acres (no impact)
Wetlands Site 5: Total Wetlands = 0.43 acres; Impacted Area = 0.27 acres
Wetlands Site 17: Total Wetlands = 0.77 acres; Impacted Area = 0.04 acres

H. Provide a description of potentially erosive areas associated with this project:

Potentially erosive soils are present at Ratt Creek and at Woods Creek due to significant flows through the wetlands and floodplain

I. The following is a description of soil disturbing activities by stages, their locations, and their erosive factors (e.g., steepness of slopes, length of slopes, etc.):

1) Installation of construction fencing, sediment control, silt fence and vegetation

2) Clearing of the project site as shown in the staging plan

3) Grading of detention ponds; this work is to be completed concurrently with the construction of sump pits, sediment basins, and temporary aggregate berms

4) Storm sewer installation

5) Roadway construction

6) Topsoil spreading with temporary or permanent soil stabilization measures and the construction of permanent soil erosion and sediment control measures

7) Removal of temporary soil erosion and sediment control measures

J. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) , and locations where storm water is discharged to surface water including wetlands.

K. Identify who owns the drainage system (municipality or agency) this project will drain into:

McHenry County Division of Transportation
Village of Lake in the Hills
City of Crystal Lake

L. The following is a list of General NPDES ILR40 permittees within whose reporting jurisdiction this project is located:

McHenry County Division of Transportation
Village of Lake in the Hills
City of Crystal Lake

M. The following is a list of receiving water(s) and the ultimate receiving water(s) for this site. In addition, include receiving waters that are listed as Biologically Significant Streams by the Illinois Department of Natural Resources (IDNR). The location of the receiving waters can be found on the erosion and sediment control plans:

Woods Creek
Crystal Creek
The receiving waters are not listed as biologically significant streams by the IDNR.

N. Describe areas of the site that are to be protected or remain undisturbed. These areas may include steep slopes (i.e., 1:3 or steeper), highly erodible soils, streams, stream buffers, specimen trees, natural vegetation, nature preserves, etc. Include any commitments or requirements to protect adjacent wetlands.

For any storm water discharges from construction activities within 50-feet of Waters of the U.S. (except for activities for water-dependent structures authorized by a Section 404 permit, describe: a) How a 50-foot undisturbed natural buffer will be provided between the construction activity and the Waters of the U.S. or b) How additional erosion and sediment controls will be provided within that area.

All areas outside of the grading limits of the proposed roadway, and all areas outside of the proposed ROW, shall be protected and remain undisturbed.

O. Per the Phase I document, the following sensitive environmental resources are associated with this project and may have the potential to be impacted by the proposed development. Further guidance on these resources is available in Section 41-4 of the BDE Manual.

Wetland Riparian
Threatened and Endangered Species
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

☒ 303(d) Listed receiving waters for suspended solids, turbidity, or siltation.
The name(s) of the listed water body, and identification of all pollutants causing impairment:

Woods Creek - Mercury, Phosphorus

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:

Perimeter erosion barrier, erosion control blanket, inlet filters, inlet & pipe protection, temporary ditch checks, and riprap will be installed. Water quality basins are also proposed for the cleaning of the 2-year storm event. These varieties of SESC measures and BMPs in combination will prevent pollutant discharge in the 25yr-24hr storm event.

Provide a description of the location(s) of direct discharge from the project site to the 303(d) water body:

At approximate station 2220+80 (RT) a proposed pond will discharge through a restricted release manhole into a large wetland area (Wetland Site 2) which is tributary to Woods Creek

Provide a description of the location(s) of any dewatering discharges to the MS4 and/or water body:

Water naturally discharges to this water body. In this particular location, a detention basin is being constructed for roadway and tributary area stormwater runoff. Water will discharge at a restricted release back into the waterway in the final condition. A water quality/sediment storage volume of 1.23 acres is being provided below the NWL of the basin for sediment and pollutants to filter out below the discharge elevation. During construction, dewatering will consist of the use of silt bags for bypass pumping any groundwater.

☐ Applicable Federal, Tribal, State, or Local Programs

☐ Floodplain

☐ Historic Preservation

☐ Receiving waters with Total Maximum Daily Load (TMDL) for sediment, total suspended solids, turbidity or siltation

TMDL (fill out this section if checked above)

The name(s) of the listed water body:

Woods Creek

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:

A water quality/sediment storage volume of 0.97 acres is being provided below the NWL of the basin for sediment and pollutants to filter out below the discharge elevation.

If a specific numeric waste load allocation has been established that would apply to the project's discharges, provide a description of the necessary steps to meet that allocation:

TBD

☐ Threatened and Endangered Species/Illinois Natural Areas (INAI)/Nature Preserves

☐ Other

☐ Wetland

P. The following pollutants of concern will be associated with this construction project:

- ☒ Antifreeze / Coolants
- ☒ Concrete
- ☒ Concrete Curing Compounds
- ☒ Concrete Truck Waste
- ☐ Fertilizers / Pesticides
- ☐ Paints
- ☒ Petroleum (gas, diesel, oil, kerosene, hydraulic oil / fluids)
- ☒ Soil Sediment
- ☐ Solid Waste Debris
- ☐ Solvents
- ☒ Waste water from cleaning construction equipments
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____
- ☐ 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 Section 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:

- ☒ Erosion Control Blanket / Mulching
- ☒ Geotextiles
- ☒ Permanent Seeding
- ☒ Preservation of Mature Seeding
- ☒ Protection of Trees
- ☒ Sodding
- ☒ Temporary Erosion Control Seeding
- ☐ Temporary Turf (Seeding, Class 7)
- ☐ Temporary Mulching
- ☐ Vegetated Buffer Strips
- ☒ Other (Specify) DUST CONTROL WATERING
- ☒ Other (Specify) RIPRAP
- ☒ Other (Specify) INLET FILTERS/PIPE PROTECTION
- ☐ Other (Specify) _____

Describe how the stabilization practices listed above will be utilized during construction:

Stabilization controls runoff volume and velocity, peak runoff rates, and volumes of discharge to minimize exposed soil, disturbed slopes, sediment discharges from construction, and provides for natural buffers and minimization of soil compaction. Existing vegetated areas where disturbance can be avoided will not require stabilization. Where possible, stabilization of initial Stage should be completed before work is moved to subsequent stages.

1) Protection of Trees/Temporary Fence: All trees designated to be saved, or outside the limits of construction, shall be protected prior to beginning any clearing or removal work and shall remain protected during subsequent construction work. Protection of trees shall be as shown on the plans or directed by the Engineer and in accordance with Article 201.05 of the Illinois Department of Transportation's Standard Specifications for Road and Bridge, latest edition.

2) Temporary Seed: This item will be applied to all bare areas to minimize the amount of exposed surface areas and shall be applied as needed for stabilization. Temporary seed shall be placed in areas as shown on the plans, areas disturbed during the removal of Soil and Erosion measures, or directed by the Engineer and in accordance with the Illinois Department of Transportation's Standard Specifications for Road and Bridge, latest edition. Temporary seed is primarily a ryegrass/oats mixture.

3) Permanent Seeding: This item will be utilized in small areas where sodding has failed as an interim remedy until sod can be replaced or as designated in rural areas where sod is not a prudent alternative, All disturbed areas, identified to receive seeding, will be stabilized via seeding immediately following final grading.

4) Erosion Control Blanket: This item will be used within 24 hours after seeding operations have been completed, in ditches/swales and sloped areas that require protection from erosion. Erosion control blankets shall be installed over fill slopes, high velocity areas and slopes steeper that 3:1that have been brought to final grade. Erosion Control Blanket will be installed in accordance to IDOT Specification 251.04.

5) Dust Control Watering - This item will be provided for areas exposed during the mass grading/excavation to control the discharge of sediment through wind erosion during dry periods of construction, areas that are exposed during excavation shall receive dust control watering to minimize dust.

6) Geotextiles - In locations where ditching is present, urethane foam/geotextile ditch checks will be used as a means of trapping sediment. Flow will pass over the top of a dike section and loose sediment trapped in the geotextile.

7) Riprap - Riprap will be used to provide energy dissipation at upstream and downstream ends of open-ended flared-end structures and/or other downstream discharge structures.

8) Inlet Filters/Inlet & Pipe Protection - These items will be provided to prevent sediment from entering the storm sewer system while construction operations are occuring. These will be cleaned regularly to prevent excess buildup.

9) Sodding - Sodding will be utilized in ditch bottoms with steeper slopes as seed will simply wash away during rainfall events.

Describe how the stabilization practices listed above will be utilized after construction activities have been completed:

The erosion control practices listed above shall be removed upon final stabilization or incorporated into the final stabilization of the site.

C. **Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

- ☒ Aggregate Ditch
- ☐ Concrete Revetment Mats
- ☐ Dust Suppression
- ☐ Dewatering Filtering
- ☐ Gabions
- ☒ Stabilized Construction Exits
- ☐ Stabilized Trench Flow
- ☐ Slope Mattress
- ☐ Slope Walls
- ☒ Temporary Ditch Check

- ☐ In-Stream or Wetland Work
- ☐ Level Spreaders
- ☐ Paved Ditch
- ☐ Permanent Check Dams
- ☒ Perimeter Erosion Barrier
- ☐ Permanent Sediment Basin
- ☒ Retaining Walls
- ☒ Riprap
- ☒ Rock Outlet Protection
- ☐ Sediment Trap
- ☒ Storm Drain Inlet Protection
- ☐ Temporary Pipe Slope Drain
- ☐ Temporary Sediment Basin
- ☐ Temporary Stream Crossing
- ☐ Turf Reinforcement Mats
- ☒ Other (Specify) CULVERT INLET PROTE
- ☒ Other (Specify) STABILIZED FLOW LINE
- ☒ Other (Specify) IN-WETLAND WORK PL
- ☐ Other (Specify)
- ☐ Other (Specify)
- ☐ Other (Specify)
- ☐ Other (Specify)

Describe how the structural practices listed above will be utilized during construction:

1) Perimeter Erosion Barrier: This item will be used to demarcate the perimeter of the project location and for the prevention of silt/sediment from leaving the site. Perimeter erosion barrier will be modified as necessary to accommodate the construction and repaired/replaced as necessary. Silt fence/perimeter erosion barrier should only be used in areas where the work area is higher than the perimeter. The use of silt fence at the top of slope/ elevations higher than the work area should always be avoided. If necessary, temporary fence should be utilized in locations (where the top of slope/elevation is higher than the work area in lieu of silt fence.

2) Temporary Ditch Checks - These items will be used throughout the project limits as shown on the plans to reduce the runoff velocity and to trap silt before drains outside the project limit.

3) Storm Drain Inlet Protection: This item will be utilized at all manholes, catch basins and inlets with open grates. Inlet filters will be installedunder the grate of the drainage structure resting on the lip of the frame. Inlet filters will be checked on a regular basis and any sediment/debris will be removed to maintain inlet protection. Pipe protection will be implemented at outfalls.

4) Stabilized Construction Exists - Stabilized Construction Exists shall be used at the locations indicated on the plans for all construction traffic entering or exiting the construction site, Stabilized Construction Exits shall be continuously maintained during construction operations.

5) Rock Check Dams - This item will be provided for the proposed swales in areas with step slopes. Rock check dams will be placed at regular intervals as shown on the plans during construction and will be cleaned on a regular basis.

6) Stone Riprap: Stone Riprap of size and class as indicated on the plans will be placed to prevent erosion and scouring at the flared end sections at the upstream and downstream of storm sewer and culvert systems as shown on the plans and maintained as directed by the engineer.

8) Retaining Walls - Retaining Walls shall be used as indicated on the plans to limit the areas of excavation. Please refer to the structural drawings for detail and the plans for general layout of retaining walls

9) Culvert Inlet Protection - This item will be provided at locations where surface water is intercepted by a storm sewer culvert as indicated on the plans, this item will consist of stone placed in front of the culvert to prevent the discharge of transported sediment.

10) Stabilized Flow Line - The Contractor shall provide to the Resident Engineer a plan to ensure that the stabilized flow line between installed storm sewer open disturbance will reduce the potential for offsite discharge of sediment bearing waters, particularly when rain is forecast so that flow will not erode. Lack of an approved plan or failure to comply will result in an ESC Deficiency Deduction.

All work associated with work within wetland shall be included in the cost of contract pay items which reflect the work being performed (i.e. Earth Excavation, Removal and Disposal of Unsuitable Materials, Temporary/ Permanent stabilization measures, etc.).

Straw bales and silt fence per Highway Standard 280001 shall not be used as inlet and pipe protection.

Describe how the structural practices listed above will be utilized after construction activities have been completed:

Temporary structural features including perimeter erosion barrier, temporary ditch checks, storm drain inlet protection, culvert inlet protection, and stabilized construction exits shall be removed upon completion of construction and final grade stabilization. Permanent structural features including rock check dams, stone riprap, and retaining walls shall be maintained throughout construction and shall become permanent features of the proposed improvements.

D. **Treatment Chemicals**

Will polymer flocculants or treatment chemicals be utilized on this project: ☒ Yes ☐ No

If *yes* above, identify where and how polymer flocculants or treatment chemicals will be utilized on this project.

Polymer flocculants may be used in conjunction with dewatering operations. At the discretion of the contractor and the direction of the engineer, polymer flocculants may be used to remove suspended solids from water pumped from excavations as required by construction operations. All pumping/dewatering shall follow the dewatering plan. All treated material resulting from the use of polymer flocculants shall be removed by the contractor.

E. **Permanent (i.e., Post-Construction) 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 based on the technical guidance in Chapter 41 (Construction Site Storm Water Pollution Control) of the IDOT BDE Manual. If practices other than those discussed in Chapter 41 are selected for implementation or if practices are applied to situations different from those covered in Chapter 41, the technical basis for such decisions will be explained below.

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

Description of permanent storm water management controls:

Stormwater management facilities are provided throughout the proposed improvements as required by the McHenry County Stormwater Ordinance. Compensatory storage basins have been designed in compliance with the McHenry County Stormwater Ordinance and provide both stormwater detention storage and water quality runoff volume retention. Outlet protection in the form of riprap is proposed at storm sewers outletting to bodies of water or channels.

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 IEPA's Illinois Urban Manual. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under the Permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

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

The management practices, controls, and other provisions contained in this plan are at least as protective as the

requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual Standards and Specifications which was used as a guide in designing the erosion and sediment control features. Procedures and requirements specified in applicable soil erosion and sediment control plans or storm water management plans approved by local officials shall be described or incorporated by reference below. Requirements specified in soil erosion and sediment control plans, site permits, storm water management site plans, or site permits approved by county, state, or local officials that are applicable to protecting surface water resources are, upon submittal of a Notice of Intent (NOI), incorporated and enforceable under this permit even if they are not specifically included in the plan.

The soil erosion and sediment control for this site must meet the requirements of the following agencies:

McHenry-Lake County Soil and Water Conservation District
McHenry County Division of Transportation
Village of Lake in the Hills
City of Crystal Lake
Illinois Department of Transportation
Illinois Environmental Protection Agency
U.S. Army Corps of Engineers

G. **Contractor Required Submittals:** Prior to conducting any professional services at the site covered by this plan, the Contractor and each subcontractor responsible for compliance with the permit shall submit to the Resident Engineer a Contractor Certification Statement, BDE 2342A.

1. The Contractor shall provide a construction schedule containing an adequate level of detail to show major activities with implementation of pollution prevention BMPs, including the following items:
   - Approximate duration of the project, including each stage of the project
   - Rainy season, dry season, and winter shutdown dates
   - Temporary stabilization measures to be employed by contract phases
   - Mobilization time-frame
   - Mass clearing and grubbing/roadside clearing dates
   - Deployment of Erosion Control Practices
   - Deployment of Sediment Control Practices (including stabilized cons
   - 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 operation
   - Time frame for other significant long-term operations or activities that may plan non-storm water discharges as dewatering, grinding, etc
   - Permanent stabilization activities for each area of the project
2. During the pre-construction meeting, 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:
   - Temporary Ditch Checks - Identify what type and the source of Temporary Ditch Checks that will be installed as part of the project. The installation details will then be included with the SWPPP.
   - 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 Fueling - Identify equipment fueling locations for this project and what BMPs will be used to ensure containment and spill prevention.
   - Vehicle and Equipment Cleaning and Maintenance - Identify where equipment cleaning and maintenance locations for

this project and what BMPs will be used to ensure containment and spill prevention.

- 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 (e.g., IDOT Erosion and Sediment Control Field Guide) to the Contractor for the practices associated with this project. Describe how all items will be checked for structural integrity, sediment accumulation and functionality. Any damage or undermining shall be repaired immediately. Provide specifics on how repairs will be made. The following additional procedures will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. It will be the Contractor's responsibility to attain maintenance guidelines for any manufactured BMPs which are to be installed and maintained per manufacture's specifications.

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, soil erosion and sediment control measures, and other protective measures identified in this plan and standard specifications:

The contractor will identify an Erosion Control Representative for the project. His duties will be to supervise the maintenance of the soil erosion and sediment control measures and implementation of this plan.

The following shall be the minimum maintenance required:

A. Vegetative soil erosion measures - the vegetative growth of permanent seeding, vegetative filters, etc, shall be maintained periodically and supplied adequate watering and fertilizer. The vegetative cover shall be removed and reseeded as necessary.
B. Aggregate ditch checks / Rock Check Dams shall be cleaned of sediment when the sediment has reached a depth of 50% of the height of the aggregate berm.
C. Sediment control, silt fence will be examined regularly and repaired as necessary. Sediment shall be removed when it reaches a height equal to 50% of the height of the barrier.
D. Temporary seeding for erosion control will be reapplied when bare stops and washout occur.
E. Stabilized construction entrances shall have sediment build up removed as necessary.
F. Inlet filters shall be cleaned on a regular basis.
G. Temporary and permanent erosion control measures shall be inspected weekly or after any rainfall event in excess of 0.50".

IDOT SESC Field Guide for Construction Inspection and BMP Maintenance Guide can be found at www.idot.illinois.gov/transportation-system/environment/erosion-and-sediment-control

IV. Inspections:

Qualified personnel shall inspect disturbed areas of the construction site including Borrow, Waste, and Use Areas, 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 email at: epa.swnoncomp@illinois.gov, telephone or fax within twenty-four (24) hours of the incident. The Resident Engineer shall then complete and submit an "Incidence of Non-Compliance" (ION) report for the identified violation within five (5) days of the incident. The Resident Engineer shall use forms provided by IEPA and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes

of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of non-compliance shall be signed by a responsible authority in accordance with Part VI. G of the Permit ILR10.

The Incidence of Non-Compliance shall be mailed to the following address:
Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

V. Failure to Comply:

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of a National Pollutant Discharge Elimination System/Erosion and Sediment Control Deficiency Deduction against the Contractor and/or penalties under the Permit ILR10 which could be passed on to the Contractor.

Illinois Department of Transportation

Contractor Certification Statement

Prior to conducting any professional services at the site covered by this contract, the Contractor and every subcontractor must complete and return to the Resident Engineer the following certification. A separate certification must be submitted by each firm. Attach to this certification all items required by Section II.G of the Storm Water Pollution Prevention Plan (SWPPP) which will be handled by the Contractor/subcontractor completing this form.

Route	Marked Route	Section Number
FAP 336	Randall Road	06-00329-02-PW

Project Number	County	Contract Number
YJ7X(870)	McHenry	61J93

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. ILR 10 that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Additionally, 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

Signature	Date

Print Name	Title

Name of Firm	Phone

Street Address	City	State	Zip Code

Items which this Contractor/subcontractor will be responsible for as required in Section II.G. of SWPPP

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Division of Water Pollution Control
Notice of Intent (NOI) for General Permit
to Discharge Storm Water Associated with Construction Site Activities

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at the above address.

For Office Use Only

Permit No. ILR10 _____

OWNER INFORMATION

Company/Owner Name: McHenry County Division of Transportation

Mailing Address: 16111 Nelson Road Phone: 815-334-4964

City: Woodstock State: IL Zip: 60098 Fax: 815-334-4989

Contact Person: Joseph R Korpalski, Jr E-mail: jrkorpalski@mchenrycountyil.gov

Owner Type (select one) County

MS4 Community: ☑ Yes ○ No

CONTRACTOR INFORMATION

Contractor Name:

Mailing Address: Phone:

City: State: Zip: Fax:

CONSTRUCTION SITE INFORMATION

Select One: ◉ New ○ Change of information for: ILR10 _____

Project Name: Randall Road Widening and Reconstruction County: McHenry

Street Address: Randall Road at Miller Road City: Crystal Lake IL Zip: 60014

Latitude: 42 (Deg) 11 (Min) 25.2 (Sec) Longitude: -88 (Deg) 20 (Min) 7.9 (Sec) 19 Section T43N Township **R8E** Range

Approximate Construction Start Date Apr 1, 2024 Approximate Construction End Date Nov 30, 2026

Total size of construction site in acres: 71

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: 16111 Nelson Road City: Woodstock

SWPPP contact information:

Inspector qualifications:

Contact Name: Jacob Thede P.E.

Phone: 630-438-6400 Fax: 630-438-6444 E-mail: jthede@bla-inc.com

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 Reconstruction

SIC Code: _____

Type a detailed description of the project:

Construction includes the widening and reconstruction of Randall Road from a 4 lane section to a 6 lane section with a divided median. The improvements include widening and/or reconstructing Miller Roadd Village Road, Angela Lane, and Alexandra Boulevard. The improvements will use a combination of enclosed drainage with curb and gutter and open swale drainage systems outside the multi-use path or sidewalk. Stormwater detention is provided in compliance with McHenry County Planning and Development requirements. Water quality runoff volume retention is also provided in compliance with these requirements.

HISTORIC PRESERVATION AND ENDANGERED SPECIES COMPLIANCE

Has the project been submitted to the following state agencies to satisfy applicable requirements for compliance with Illinois law on:

Historic Preservation Agency ☑ Yes ○ 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: McHenry County, Village of Lake in the Hills, City of Crystal Lake

Name of closest receiving water body to which you discharge: Woods Creek and Crystal Creek

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))

Joseph R Korpalski Jr
Owner Signature:

10.03.23
Date:

Joseph R. Korpalski, Jr
Printed Name:

Dir. of Transportation/County Engineer
Title:

INSTRUCTIONS FOR COMPLETION OF CONSTRUCTION ACTIVITY NOTICE OF INTENT (NOI) FORM

Submit original, electronic or facsimile copies. Facsimile and/or electronic copies should be followed-up with submission of an original signature copy as soon as possible. Please write "copy" under the "For Office Use Only" box in the upper right hand corner of the first page.

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Permit Section at:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Post Office Box 19276
Springfield, Illinois 62794-9276
or call (217) 782-0610

FAX: (217) 782-9891

Or submit electronically to: epa.constilr10swppp@illinois.gov

Reports must be typed or printed legibly and signed.

Any facility that is not presently covered by the General NPDES Permit for Storm Water Discharges From Construction Site Activities is considered a new facility.

If this is a change in your facility information, renewal, etc., please fill in your permit number on the appropriate line, changes of information or permit renewal notifications do not require a fee.

NOTE: FACILITY LOCATION IS NOT NECESSARILY THE FACILITY MAILING ADDRESS, BUT SHOULD DESCRIBE WHERE THE FACILITY IS LOCATED.

Use the formats given in the following examples for correct form completion.

	Example	Format
Section	12	1 or 2 numerical digits
Township	12N	1 or 2 numerical digits followed by "N" or "S"
Range	12W	1 or 2 numerical digits followed by "E" or "W"

For the Name of Closest Receiving Waters, do not use terms such as ditch or channel. For unnamed tributaries, use terms which include at least a named main tributary such as "Unnamed Tributary to Sugar Creek to Sangamon River."

Submission of initial fee and an electronic submission of Storm Water Pollution Prevention Plan (SWPPP) for Initial Permit prior to the Notice of Intent being considered complete for coverage by the ILR10 General Permits. Please make checks payable to: Illinois EPA at the above address.

Construction sites with less than 5 acres of land disturbance - fee is $250.

Construction sites with 5 or more acres of land disturbance - fee is $750.

SWPPP should be submitted electronically to: epa.constilr10swppp@illinois.gov. When submitting electronically, use Project Name and City as indicated on NOI form.

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: LAKE IN THE HILLS (IL1110400)

Permit Issued to:
Village of Lake in the Hills
600 Harvest Gate Drive
Lake in the Hills, IL 60156

PERMIT NUMBER: 0175-FY2024

DATE ISSUED: October 11, 2023
PERMIT TYPE: Water Main Extension

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: Baxter & Woodman Consulting Engineers
NUMBER OF PLAN SHEETS: 9
TITLE OF PLANS: "Randall Road Phase 2 Water Main Relocation"
APPLICATION RECEIVED DATE: August 15, 2023

PROPOSED IMPROVEMENTS:

The installation of approximately 751 feet of 10-inch and 10 feet of 6-inch diameter watermain along Miller Road.

ADDITIONAL CONDITIONS:

1. All water mains shall be satisfactorily disinfected prior to use pursuant to 35 Ill. Adm. Code 602.310. Two consecutive sets of samples collected at least 24 hours apart must show the absence of coliform bacteria. The samples must be collected from every 1,200 feet of new water main along each branch and from the end of the line. An operating permit must be obtained before the project is placed in service.

2. When the owner or operator of a community water supply replaces a water main, the community water supply shall identify all lead service lines connected to the water main and shall comply with the requirements of Section 17.12 of the Act, 415 ILCS 5/17.12 for lead service line replacement. Galvanized service line must also be replaced if the galvanized service line is or was connected downstream to the lead piping. A statement must be submitted with the Application for Operating Permit indicating either that no full or partial lead service lines were identified or that Section 17.12 of the Act was complied with for this project.

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Agency Act (415 ILCS 5/39) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

These standard conditions shall apply to all permits which the Agency issues for construction or development projects which require permits under the Division of Water Pollution Control, Air Pollution Control, Public Water Supplies and Land Pollution Control. Special conditions may also be imposed by the separate divisions in addition to these standard conditions.

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year after this date of issuance unless construction or development on this project has started on or prior to that date.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentation of credentials:

   a. to enter at reasonable times the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit.

   b. to have access to and copy at reasonable times any records required be kept under the terms and conditions of this permit.

   c. to inspect at reasonable times, including during any hours or operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit.

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants.

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the permits upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability directly or indirectly for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. These standard conditions shall prevail unless modified by special conditions.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

   a. upon discovery that the permit application misrepresentation or false statements or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

3. When replacing water mains with lead service lines or partial lead service lines attached to them, the owner or operator of the community water supply shall provide the owner or operator of each potentially affected building that is serviced by the affected lead service lines or partial lead service lines, as well as the occupants of those buildings, with an individual written notice. The lead informational notice shall be provided at least 14 days prior to permitted water main work. The notification provided by the community water supply must satisfy the requirements of Section 17.12(jj) of the Act, 415 ILCS 5/17.12(jj). A copy of the notice used must be submitted to the Agency with the Application for Operating Permit.

4. Per Executive Order V please contact the Illinois Department of Natural Resources (IDNR), Office of Water Resources. IDNR may require a permit pursuant to State statutes which requires all development within a Special Flood Hazard Area to comply with the requirements of 17 Illinois Adm. Code Part 3700 or 17 Illinois Adm. Code Part 3708, whichever is applicable. Additionally, local floodplain permits may be required as a local floodplain management ordinance may require compliance with higher standards than those of the National Flood Insurance Program (44 CFR 59-79).

5. The permit approval is for the Application, Schedule A, Schedule B, and 9 plan sheets received on August 15, 2023, and one revised plan sheet received on September 28, 2023.

DCC:EJM

cc: Baxter & Woodman Consulting Engineers
Elgin Regional Office
IDPH/DEH Plumbing & Water Quality Program

David C. Cook, P.E.
Manager, Permit Section
Division of Public Water Supplies

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS
ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Agency Act (415 ILCS 5/39) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

These standard conditions shall apply to all permits which the Agency issues for construction or development projects which require permits under the Division of Water Pollution Control, Air Pollution Control, Public Water Supplies and Land Pollution Control. Special conditions may also be imposed by the separate divisions in addition to these standard conditions.

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year after this date of issuance unless construction or development on this project has started on or prior to that date.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentation of credentials:

   a. to enter at reasonable times the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit.

   b. to have access to and copy at reasonable times any records required be kept under the terms and conditions of this permit.

   c. to inspect at reasonable times, including during any hours or operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit.

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants.

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the permits upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability directly or indirectly for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. These standard conditions shall prevail unless modified by special conditions.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

   a. upon discovery that the permit application misrepresentation or false statements or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

McHENRY - LAKE COUNTY
SOIL & WATER
CONSERVATION DISTRICT

1648 South Eastwood Dr., Woodstock, Illinois 60098 (815) 338-0444 ext. 3

March 11, 2024

Jacob Thede, P.E.
BLA, Inc.
333 Pierce Road, Suite 200
Itasca, IL 60143

RE: Randal Road Project

Dear Mr. Thede,

The McHenry – Lake County Soil & Watter Conservation District has reviewed the soil erosion and sediment control plans for the Randal Road project in Lake in the Hills and Crystal Lake. These plans meet our technical standards to control erosion. Please keep a few important items in mind:

When in-stream work is being performed you must follow the attached Requirements for In-stream Construction Activities, have all erosion control material on hand as to not cause any delay with installation and be sure the contractor is experienced in the installation of erosion control practices. All coffer dam materials must be made of a non-erodible material.

When dewatering or bypass pumping activities are being performed, you must follow procedures outlined in the Illinois Urban Manual practice standard code 813 for dewatering (https://illinoisurbanmanual.org/). All dewatering or bypass pumping discharge must be as clean or cleaner than the receiving body with no visible sediment plumes. Sump pits, sediment filter bags, chemical flocculants, and other sediment filtering measures may be needed to ensure clean discharge from dewatering and bypass pumping activities.

As with any plan, changes in weather conditions and construction site conditions may require further revisions. If any major changes are made to the plans, please notify me of those changes. All dewatering activities will need to be properly designed to avoid off-site sedimentation and erosion. Lastly, please notify me when a pre-construction meeting is scheduled and or when construction begins so I may schedule inspections.

If you have any questions, you can reach me at (815)-338-0444 x3 or email at ryan.bieber@mchenryswcd.org.

Sincerely,

Ryan Bieber
Urban Conservation Specialist

McHENRY - LAKE COUNTY
SOIL & WATER
CONSERVATION DISTRICT

1648 South Eastwood Dr., Woodstock, Illinois 60098 (815) 338-0444 ext. 3

Requirements for In-stream Construction Activities

The contractor shall contact the Corps with a proposed cofferdam plan that meets the standards listed below. The Corps will approve a cofferdam plan which meets these erosion and sediment control standards. Means and methods for completing work within a waterway must be approved by the Corps prior to the commencement of work. However, it is incumbent upon the contractor to ensure that all cofferdams are constructed to allow the passage of high flows, maintain downstream flows, and withstand anticipated erosive forces.

The following definitions apply to these notes:
Cofferdam: a temporary structure within a waterway or body of water designed to provide a dry work area for temporary construction activities and contain disturbed soil and/or suspended sediments.

In-stream work area: work occurring at or below the ordinary high-water mark (OHWM) of a waterway or the normal water level (NWL) of abutting wetlands, including adjacent uplands.

Dewatering: the removal of water with the purpose of creating a dry work area for temporary construction activities.

Work within a waterway must meet the following standards:

1. Work in the waterway should be timed to take place during low or no-flow conditions. Low flow conditions are flow at or below the normal water elevation.

2. Water shall be isolated from the in-stream work area using a cofferdam constructed of non-erodible materials (steel sheets, aqua barriers, rip rap and geotextile fabric, etc.). Earthen cofferdams are not permissible.

3. Work may not be performed in the water, except for the placement of the materials necessary for the construction of the cofferdam. The cofferdam must be constructed from the upland area and no equipment may enter the water at any time. If the installation of the cofferdam cannot be completed from shore and access is needed to reach the area to be coffered, other measures, such as the construction of a causeway, will be necessary to ensure that equipment does not enter the water. Once the cofferdam is in place and the isolated area is dewatered, equipment may enter the coffered area to perform the required work.

4. If bypass pumping is necessary, the intake hose shall be placed on a stable surface or floated to prevent sediment from entering the hose. The bypass discharge shall be placed on a non-erodible, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion. Filtering of bypass water is not necessary unless the bypass water has become sediment laden as a result of the current construction activities.

5. During dewatering of the coffered area, all water must be filtered to remove sediment. Possible options for sediment removal include appropriately designed sump pits, baffle systems, anionic polymers, dewatering bags, or other appropriate methods. All dewatering activity must follow Illinois Urban Manual Practice Standards relevant to the site's dewatering plan. Water shall have sediment removed prior to being re-introduced to the downstream waterway. A stabilized conveyance from the dewatering device to the waterway must be identified. Discharge water is considered clean if it does not result in a visually identifiable degradation of water clarity.

6. The portion of the side slope that is above the observed water elevation shall be stabilized as specified in the plans prior to accepting flows. The substrate and toe of slope that has been disturbed due to construction activities shall be restored to pre-construction conditions and fully stabilized prior to accepting flows.

ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)

Effective: April 1, 2003
Revised: January 1, 2022

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid-state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton and shall be deactivated during the associated walk indication and when associated traffic signals are in flashing mode. Pushbutton locator tones shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals. Each actuation of the pushbutton shall be accompanied by the speech message "Wait".

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: "'Street Name.' Walk Sign is on to cross "Street Name'." For signalized intersections utilizing exclusive pedestrian phasing, the verbal message shall be "Walk sign is on for all crossings". In addition, a speech pushbutton information message shall be provided by actuating the APS pushbutton when the WALK interval is not timing. This verbal message shall be modeled after: "Wait. Wait to cross 'Street Name' at 'Street Name'".

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

At locations with railroad interconnection, an additional speech message stating "Walk time shortened when train approaches" shall be used after the speech walk message. At locations with emergency vehicle preemption, an additional speech message "Walk time shortened when emergency vehicle approaches" shall be used after the speech walk message.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall conform to one of the following standard MUTCD designs: R10-3, R10-3a, R10-3e, R10-3i, R10-4, and R10-4a.

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided on the pushbutton.

Vibrotactile Feature. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Method of Measurement. This work will be measured for payment as each, per pushbutton.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS.

80099

AGGREGATE SUBGRADE IMPROVEMENT (BDE)

Effective: April 1, 2012
Revised: April 1, 2022

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 (ASI).

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.07
(b) Reclaimed Asphalt Pavement (RAP)	1031.09

303.03 Equipment. The vibratory roller shall be according to Article 1101.01, or as approved by the Engineer. Vibratory machines, such as tampers, shall be used in areas where rollers do not fit.

303.04 Soil Preparation. The minimum immediate bearing value (IBV) of the soil below the improved subgrade shall be according to the Department's "Subgrade Stability Manual" for the aggregate thickness specified.

303.05 Placing and Compacting. The maximum nominal lift thickness of aggregate gradations CA 2, CA 6, and CA 10 when compacted shall be 9 in. (225 mm). The maximum nominal lift thickness of aggregate gradations CS 1, CS 2, and RR 1 when compacted shall be 24 in. (600 mm).

The top surface of the aggregate subgrade improvement shall consist of a layer of capping aggregate gradations CA 6 or CA 10 that is 3 in. (75 mm) thick after compaction. Capping aggregate will not be required when aggregate subgrade improvement is used as a cubic yard pay item for undercut applications.

Each lift of aggregate 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.

303.06 Finishing and Maintenance. 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.

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

303.08 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) or ton (metric ton) 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 (ASI).** 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. In applications where greater than 24 in. (600 mm) of ASI material is required, gravel may be used below the top 12 in (300 mm) of ASI.

(b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.

(c) Gradation.

(1) The coarse aggregate gradation for total ASI thickness less than or equal to 12 in. (300 mm) shall be CA 2, CA 6, CA 10, or CS 1.

The coarse aggregate gradation for total ASI thickness greater than 12 in. (300 mm) shall be CS 1 or CS 2 as shown below or RR 1 according to Article 1005.01(c).

	COARSE AGGREGATE SUBGRADE GRADATIONS				
Grad No.	Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 1	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 2		100	80 ± 10	25 ± 15	

	COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)				
Grad No.	Sieve Size and Percent Passing				
	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 1	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20
CS 2		100	80 ± 10	25 ± 15	

(2) Capping aggregate shall be gradation CA 6 or CA 10."

Add the following to Article 1031.09 of the Standard Specifications:

"(b) RAP in Aggregate Subgrade Improvement (ASI). RAP in ASI shall be according to Articles 1031.01(a), 1031.02(a), 1031.06(a)(1), and 1031.06(a)(2), and the following.

(1) The testing requirements of Article 1031.03 shall not apply.

(2) Crushed RAP used for the lower lift may be mechanically blended with aggregate gradations CS 1, CS 2, and RR 1 but it shall be no greater than 40 percent of the total product volume. RAP agglomerations shall be no greater than 4 in. (100 mm).

(3) For capping aggregate, well graded RAP having 100 percent passing the 1 1/2 in. (38 mm) sieve may be used when aggregate gradations CS 1, CS 2, CA 2, or RR 1 are used in the lower lift. FRAP will not be permitted as capping material.

Blending shall be through calibrated interlocked feeders or a calibrated blending plant such that the prescribed blending percentage is maintained throughout the blending process. The calibration shall have an accuracy of ± 2.0 percent of the actual quantity of material delivered."

80274

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, tons = A x D x (G_{mb} x 46.8) / 2000. For HMA mixtures measured in square meters: Q, metric tons = A x D x (G_{mb} x 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, tons = V x 8.33 lb/gal x SG / 2000
For bituminous materials measured in liters: Q, metric tons = V x 1.0 kg/L x 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:

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

CEMENT, TYPE IL (BDE)

Effective: August 1, 2023

Add the following to Article 302.02 of the Standard Specifications:

"(k) Type IL Portland-Limestone Cement .....1001"

Revise Note 2 of Article 352.02 of the Standard Specifications to read:

"Note 2. Either Type I or Type IA portland cement or Type IL portland-limestone cement shall be used."

Revise Note 1 of Article 404.02 of the Standard Specifications to read:

"Note 1. The cement shall be Type I portland cement or Type IL portland-limestone cement."

Revise Article 1019.02(a) of the Standard Specifications to read:

"(a) Cement, Type I or IL .....1001"

80449

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

CONCRETE SEALER (BDE)

Effective: November 1, 2023

Replace Section 1026 of the Standard Specifications with the following:

"**SECTION 1026. CONCRETE SEALER**

1026.01 General. Sealer types shall be according to the listing in AASHTO M 224. All concrete sealer types shall meet the sealer requirements of AASHTO M 224 when tested in accordance with AASHTO T 384. The sealer shall be listed on the Department's qualified product list.

The sealer shall have a clear or amber color when dry.

The Department will perform the sealer characterization properties of ATR-FTIR spectra, total solids, and specific gravity in accordance with AASHTO M 224."

80453

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 23.00 % 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 is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

(a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be 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

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:

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

HOT-MIX ASPHALT (BDE)

Effective: January 1, 2024

Revise the second paragraph of Articles 1030.07(a)(11) and 1030.08(a)(9) of the Standard Specifications to read:

"When establishing the target density, the HMA maximum theoretical specific gravity (G_{mm}) will be based on the running average of four available Department test results for that project. If less than four G_{mm} test results are available, an average of all available Department test results for that project will be used. The initial G_{mm} will be the last available Department test result from a QMP project. If there is no available Department test result from a QMP project, the Department mix design verification test result will be used as the initial G_{mm}."

In the Supplemental Specifications, replace the revision for the end of the third paragraph of Article 1030.09(h)(2) with the following:

"When establishing the target density, the HMA maximum theoretical specific gravity (G_{mm}) will be the Department mix design verification test result."

Revise the tenth paragraph of Article 1030.10 of the Standard Specifications to read:

"Production is not required to stop after a test strip has been constructed."

80456

HOT-MIX ASPHALT – LONGITUDINAL JOINT SEALANT (BDE)

Effective: November 1, 2022
Revised: August 1, 2023

Add the following after the second sentence in the eighth paragraph of Article 406.06(h)(2) of the Standard Specifications:

"If rain is forecasted and traffic is to be on the LJS or if pickup/tracking of the LJS material is likely, the LJS shall be covered immediately following its application with FA 20 fine aggregate mechanically spread uniformly at a rate of 1.5 ± 0.5 lb/sq yd (0.75 ± 0.25 kg/sq m). Fine aggregate landing outside of the LJS shall be removed prior to application of tack coat."

Add the following after the first sentence in the ninth paragraph of Article 406.06(h)(2) of the Standard Specifications:

"LJS half-width shall be applied at a width of 9 ± 1 in. (225 ± 25 mm) in the immediate lane to be placed with the outside edge flush with the joint of the next HMA lift. The vertical face of any longitudinal joint remaining in place shall also be coated."

Add the following after the eleventh paragraph of Article 406.06(h)(2) of the Standard Specifications:

"LJS Half-Width Application Rate, lb/ft (kg/m) [1/]			
Lift Thickness, in. (mm)	Coarse Graded Mixture (IL-19.0, IL-19.0L, IL-9.5, IL-9.5L, IL-4.75)	Fine Graded Mixture (IL-9.5FG)	SMA Mixture (SMA-9.5, SMA-12.5)
¾ (19)	0.44 (0.66)		
1 (25)	0.58 (0.86)		
1 ¼ (32)	0.66 (0.98)	0.44 (0.66)	
1 ½ (38)	0.74 (1.10)	0.48 (0.71)	0.63 (0.94)
1 ¾ (44)	0.82 (1.22)	0.52 (0.77)	0.69 (1.03)
2 (50)	0.90 (1.34)	0.56 (0.83)	0.76 (1.13)
≥ 2 ¼ (60)	0.98 (1.46)		

1/ The application rate includes a surface demand for liquid. The thickness of the LJS may taper from the center of the application to a lesser thickness on the edge of the application, provided the correct width and application rate are maintained."

Revise the second paragraph of Article 406.13(b) of the Standard Specifications to read:

"Aggregate for covering tack, LJS, or FLS will not be measured for payment."

Add the following to the end of the second paragraph of Article 406.14 of the Standard Specifications:

“Longitudinal joint sealant (LJS) half-width will be paid for at the contract unit price per foot (meter) for LONGITUDINAL JOINT SEALANT, HALF-WIDTH.”

80446

MECHANICALLY STABILIZED EARTH RETAINING WALLS (BDE)

Effective: August 1, 2023

Revise the second sentence of Articles 1003.07(d) and 1004.06(d) of the Standard Specifications to read:

"The Illinois Modified AASHTO T 296 test with pore pressure measurement may be used in lieu of AASHTO T 236."

Add the following to Article 522.02 of the Standard Specifications:

"(s) Metal Hardware Cast into Concrete.....1006.13"

80450

PERFORMANCE GRADED ASPHALT BINDER (BDE)

Effective: January 1, 2023

Revise Article 1032.05 of the Standard Specifications to read:

"**1032.05 Performance Graded Asphalt Binder.** These materials will be accepted according to the Bureau of Materials Policy Memorandum, "Performance Graded Asphalt Binder Qualification Procedure." The Department will maintain a qualified producer list. These materials shall be free from water and shall not foam when heated to any temperature below the actual flash point. Air blown asphalt, recycle engine oil bottoms (ReOB), and polyphosphoric acid (PPA) modification shall not be used.

When requested, producers shall provide the Engineer with viscosity/temperature relationships for the performance graded asphalt binders delivered and incorporated in the work.

(a) Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 "Standard Specification for Performance Graded Asphalt Binder" for the grade shown on the plans and the following.

Test	Parameter
Small Strain Parameter (AASHTO PP 113) BBR, ΔTc, 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)	-5 °C min.

(b) Modified Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 "Standard Specification for Performance Graded Asphalt Binder" for the grade shown on the plans.

Asphalt binder modification shall be performed at the source, as defined in the Bureau of Materials Policy Memorandum, "Performance Graded Asphalt Binder Qualification Procedure."

Modified asphalt binder shall be safe to handle at asphalt binder production and storage temperatures or HMA construction temperatures. Safety Data Sheets (SDS) shall be provided for all asphalt modifiers.

(1) Polymer Modification (SB/SBS or SBR). Elastomers shall be added to the base asphalt binder to achieve the specified performance grade and shall be either a styrene-butadiene diblock, triblock copolymer without oil extension, or a styrene-butadiene rubber. The polymer modified asphalt binder shall be smooth, homogeneous, and be according to the requirements shown in Table 1 or 2 for the grade shown on the plans.

Table 1 - Requirements for Styrene-Butadiene Copolymer (SB/SBS) Modified Asphalt Binders		
Test	Asphalt Grade SB/SBS PG 64-28 SB/SBS PG 70-22	Asphalt Grade SB/SBS PG 64-34 SB/SBS PG 70-28 SB/SBS PG 76-22 SB/SBS PG 76-28
Separation of Polymer ITP, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions	4 (2) max.	4 (2) max.
TESTS ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	60 min.	70 min.

Table 2 - Requirements for Styrene-Butadiene Rubber (SBR) Modified Asphalt Binders		
Test	Asphalt Grade SBR PG 64-28 SBR PG 70-22	Asphalt Grade SB/SBS PG 64-34 SB/SBS PG 70-28 SBR PG 76-22 SBR PG 76-28
Separation of Polymer ITP, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions	4 (2) max.	4 (2) max.
Toughness ASTM D 5801, 77 °F (25 °C), 20 in./min. (500 mm/min.), in.-lbs (N-m)	110 (12.5) min.	110 (12.5) min.
Tenacity ASTM D 5801, 77 °F (25 °C), 20 in./min. (500 mm/min.), in.-lbs (N-m)	75 (8.5) min.	75 (8.5) min.
TESTS ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	40 min.	50 min.

(2) Ground Tire Rubber (GTR) Modification. GTR modification is the addition of recycled ground tire rubber to liquid asphalt binder to achieve the specified performance grade. GTR shall be produced from processing automobile and/or truck tires by the ambient

grinding method or micronizing through a cryogenic process. GTR shall not exceed 1/16 in. (2 mm) in any dimension and shall not contain free metal particles, moisture that would cause foaming of the asphalt, or other foreign 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 "Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates" or AASHTO PP 74 "Standard Practice for Determination of Size and Shape of Glass Beads Used in Traffic Markings by Means of Computerized Optical Method", 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

GTR modified asphalt binder shall be tested for rotational viscosity according to AASHTO T 316 using spindle S27. GTR modified asphalt binder shall be tested for original dynamic shear and RTFO dynamic shear according to AASHTO T 315 using a gap of 2 mm.

The GTR modified asphalt binder shall meet the requirements of Table 3.

Table 3 - Requirements for Ground Tire Rubber (GTR) Modified Asphalt Binders		
Test	Asphalt Grade GTR PG 64-28 GTR PG 70-22	Asphalt Grade GTR PG 76-22 GTR PG 76-28 GTR PG 70-28
TESTS ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	60 min.	70 min.

(3) Softener Modification (SM). Softener modification is the addition of organic compounds, such as engineered flux, bio-oil blends, modified vegetable oils, glycol amines, and fatty acid derivatives, to the base asphalt binder to achieve the specified performance grade. Softeners shall be dissolved, dispersed, or reacted in the asphalt binder to enhance its performance and shall remain compatible with the asphalt binder with no separation. Softeners shall not be added to modified PG asphalt binder as defined in Articles 1032.05(b)(1) or 1032.05(b)(2).

An Attenuated Total Reflectance-Fourier Transform Infrared spectrum (ATR-FTIR) shall be collected for both the softening compound as well as the softener modified

asphalt binder at the dose intended for qualification. The ATR-FTIR spectra shall be collected on unaged softener modified binder, 20-hour Pressurized Aging Vessel (PAV) aged softener modified binder, and 40-hour PAV aged softener modified binder. The ATR-FTIR shall be collected in accordance with Illinois Test Procedure 601. The electronic files spectral files (in one of the following extensions or equivalent: *.SPA, *.SPG, *.IRD, *.IFG, *.CSV, *.SP, *.IRS, *.GAML, *.[0-9], *.IGM, *.ABS, *.DRT, *.SBM, *.RAS) shall be submitted to the Central Bureau of Materials.

Softener modified asphalt binders shall meet the requirements in Table 4.

Table 4 - Requirements for Softener Modified Asphalt Binders	
Test	Asphalt Grade SM PG 46-28 SM PG 46-34 SM PG 52-28 SM PG 52-34 SM PG 58-22 SM PG 58-28 SM PG 64-22
Small Strain Parameter (AASHTO PP 113) BBR, ΔTc, 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)	-5°C min.
Large Strain Parameter (Illinois Modified AASHTO T 391) DSR/LAS Fatigue Property, Δ|G*|peak τ, 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)	≥ 54 %

The following grades may be specified as tack coats.

Asphalt Grade	Use
PG 58-22, PG 58-28, PG 64-22	Tack Coat”

Revise Article 1031.06(c)(1) and 1031.06(c)(2) of the Standard Specifications to read:

“(1) RAP/RAS. When RAP is used alone or RAP is used in conjunction with RAS, the percentage of virgin ABR shall not exceed the amounts listed in the following table.

HMA Mixtures - RAP/RAS Maximum ABR % 1/ 2/			
Ndesign	Binder	Surface	Polymer Modified Binder or Surface 3/
30	30	30	10
50	25	15	10
70	15	10	10
90	10	10	10

1/ For Low ESAL HMA shoulder and stabilized subbase, the RAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When RAP/RAS ABR exceeds 20 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

3/ The maximum ABR percentages for ground tire rubber (GTR) modified mixes shall be equivalent to the percentages specified for SBS/SBR polymer modified mixes.

(2) FRAP/RAS. When FRAP is used alone or FRAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the following table.

HMA Mixtures - FRAP/RAS Maximum ABR % 1/ 2/			
Ndesign	Binder	Surface	Polymer Modified Binder or Surface 3/
30	55	45	15
50	45	40	15
70	45	35	15
90	45	35	15
SMA	- -	- -	25
IL-4.75	- -	- -	35

1/ For Low ESAL HMA shoulder and stabilized subbase, the FRAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When FRAP/RAS ABR exceeds 20 percent for all mixes, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

3/ The maximum ABR percentages for GTR modified mixes shall be equivalent to the percentages specified for SBS/SBR polymer modified mixes."

Add the following to the end of Note 2 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 shall be capable of providing continuous mechanical mixing throughout and/or 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."

80441

PORTLAND CEMENT CONCRETE (BDE)

Effective: August 1, 2023

Revise the second paragraph of Article 1103.03(a)(4) the Standard Specifications to read:

> "The dispenser system shall provide a visual indication that the liquid admixture is actually entering the batch, such as via a transparent or translucent section of tubing or by independent check with an integrated secondary metering device. If approved by the Engineer, an alternate indicator may be used for admixtures dosed at rates of 25 oz/cwt (1630 mL/100 kg) or greater, such as accelerating admixtures, corrosion inhibitors, and viscosity modifying admixtures."

80451

PREFORMED PLASTIC PAVEMENT MARKING (BDE)

Effective: June 2, 2024

Revise Article 1095.03(h) of the Standard Specifications to read:

"(h) Glass Beads. Glass beads shall be colorless and uniformly distributed throughout the yellow and white portions of the material only. A top coating of beads shall be bonded to or directly embedded into the surface of the markings such that the beads are not easily removed when the film is scratched firmly with a thumb nail.

The glass bead refractive index shall be tested using the liquid immersion method.

Type B material shall have an inner mix of glass beads with a minimum refractive index of 1.50 and a top coating of ceramic beads bonded to top urethane wear surface with a minimum refractive index of 1.70. Beads with a refractive index greater than 1.80 shall not be used.

Type C material shall have glass beads with a minimum refractive index of 1.50 and a layer of skid resistant ceramic particles bonded to the top urethane wear surface. The urethane wear surface shall have a nominal thickness of 5 mils (0.13 mm)."

Revise Article 1095.03(n) of the Standard Specifications to read:

"(n) Sampling and Inspection.

(1) Sample. Prior to approval and use of preformed plastic pavement markings, 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 independent laboratory test report shall state the lot tested, the manufacturer's name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent 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, the manufacturer's name, and the date of manufacture.

(2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests will be taken or witnessed by a representative of the Bureau of Materials and will be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

80459

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2024
Revised: April 1, 2024

Revise the first paragraph of Article 669.04 of the Standard Specifications to read:

"**669.04 Regulated Substances Monitoring.** Regulated substances monitoring includes environmental observation and field screening during regulated substances management activities. The excavated soil and groundwater within the work areas shall be managed as either uncontaminated soil, hazardous waste, special waste, or non-special waste.

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)"."

Revise the first two sentences of the nineteenth paragraph of Article 669.05 of the Standard Specifications to read:

"The Contractor shall coordinate waste disposal approvals with the disposal facility and provide the specific analytical testing requirements of that facility. The Contractor shall make all arrangements for collection, transportation, and analysis of landfill acceptance testing."

Revise the last paragraph of Article 669.05 of the Standard Specifications to read:

"The Contractor shall select a permitted landfill facility or CCDD/USFO facility meeting the requirements of 35 Ill. Admin. Code Parts 810-814 or Part 1100, respectively. The Department will review and approve or reject the facility proposed by the Contractor based upon information provided in BDE 2730. The Contractor shall verify whether the selected facility is compliant with those applicable standards as mandated by their permit and whether the 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 facility shall in no manner delay the construction schedule or alter the Contractor's responsibilities as set forth."

Revise the first paragraph of Article 669.07 of the Standard Specifications to read:

"**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. All other 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.

Topsoil for re-use as final cover which has been field screened and found not to exhibit PID readings over daily background readings as documented on the BDE 2732, visual staining or

odors, and is classified according to Articles 669.05(a)(2), (a)(3), (a)(4), (b)(1), or (c) may be temporarily staged at the Contractor's option."

Add the following paragraph after the sixth paragraph of Article 669.11 of the Standard Specifications.

"The sampling and testing of effluent water derived from dewatering discharges for priority pollutants volatile organic compounds (VOCs), priority pollutants semi-volatile organic compounds (SVOCs), or priority pollutants metals, will be paid for at the contract unit price per each for VOCS GROUNDWATER ANALYSIS using EPA Method 8260B, SVOCS GROUNDWATER ANALYSIS using EPA Method 8270C, or RCRA METALS GROUNDWATER ANALYSIS using EPA Methods 6010B and 7471A. This price shall include transporting the sample from the job site to the laboratory."

Revise the first sentence of the eight paragraph of Article 669.11 of the Standard Specifications to read:

"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) to be managed and disposed of, if required and approved by the Engineer, will be paid according to Article 109.04."

80455

SEEDING (BDE)

Effective: November 1, 2022

Revise Article 250.07 of the Standard Specifications to read:

"**250.07 Seeding Mixtures.** The classes of seeding mixtures and combinations of mixtures will be designated in the plans.

When an area is to be seeded with two or more seeding classes, those mixtures shall be applied separately on the designated area within a seven day period. Seeding shall occur prior to placement of mulch cover. A Class 7 mixture can be applied at any time prior to applying any seeding class or added to them and applied at the same time.

TABLE 1 - SEEDING MIXTURES			
Class - Type		Seeds	lb/acre (kg/hectare)
1	Lawn Mixture 1/	Kentucky Bluegrass	100 (110)
		Perennial Ryegrass	60 (70)
		Festuca rubra ssp. r*ubra* (Creeping Red Fescue)	40 (50)
1A	Salt Tolerant	Kentucky Bluegrass	60 (70)
	Lawn Mixture 1/	Perennial Ryegrass	20 (20)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	20 (20)
		Festuca brevipilla (Hard Fescue)	20 (20)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	60 (70)
1B	Low Maintenance	Turf-Type Fine Fescue 3/	150 (170)
	Lawn Mixture 1/	Perennial Ryegrass	20 (20)
		Red Top	10 (10)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	20 (20)
2	Roadside Mixture 1/	*Lolium arundinaceum* (Tall Fescue)	100 (110)
		Perennial Ryegrass	50 (55)
		Festuca rubra ssp. r*ubra* (Creeping Red Fescue)	40 (50)
		Red Top	10 (10)
2A	Salt Tolerant	*Lolium arundinaceum* (Tall Fescue)	60 (70)
	Roadside Mixture 1/	Perennial Ryegrass	20 (20)
		Festuca rubra ssp. *rubra* (Creeping Red Fescue)	30 (20)
		Festuca brevipila (Hard Fescue)	30 (20)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	60 (70)
3	Northern Illinois	*Elymus canadensis*	5 (5)
	Slope Mixture 1/	(Canada Wild Rye) 5/	
		Perennial Ryegrass	20 (20)
		Alsike Clover 4/	5 (5)
		Desmanthus illinoensis	2 (2)
		(Illinois Bundleflower) 4/ 5/	
		Schizachyrium scoparium	12 (12)
		(Little Bluestem) 5/	
		Bouteloua curtipendula	10 (10)
		(Side-Oats Grama) 5/	
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	30 (35)
		Oats, Spring	50 (55)
		Slender Wheat Grass 5/	15 (15)
		Buffalo Grass 5/ 7/	5 (5)
3A	Southern Illinois	Perennial Ryegrass	20 (20)
	Slope Mixture 1/	*Elymus canadensis*	20 (20)
		(Canada Wild Rye) 5/	
		Panicum virgatum (Switchgrass) 5/	10 (10)
		Schizachyrium scoparium	12 (12)
		(Little Blue Stem) 5/	
		Bouteloua curtipendula	10 (10)
		(Side-Oats Grama) 5/	
		Dalea candida	5 (5)
		(White Prairie Clover) 4/ 5/	
		Rudbeckia hirta (Black-Eyed Susan) 5/	5 (5)
		Oats, Spring	50 (55)

Class – Type		Seeds	lb/acre (kg/hectare)
4	Native Grass 2/ 6/	*Andropogon gerardi* (Big Blue Stem) 5/	4 (4)
		Schizachyrium scoparium (Little Blue Stem) 5/	5 (5)
		Bouteloua curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	1 (1)
		Panicum virgatum (Switch Grass) 5/	1 (1)
		Sorghastrum nutans (Indian Grass) 5/	2 (2)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4A	Low Profile Native Grass 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Bouteloua curtipendula (Side-Oats Grama) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	1 (1)
		Sporobolus heterolepis (Prairie Dropseed) 5/	0.5 (0.5)
		Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Perennial Ryegrass	15 (15)
4B	Wetland Grass and Sedge Mixture 2/ 6/	Annual Ryegrass	25 (25)
		Oats, Spring	25 (25)
		Wetland Grasses (species below) 5/	6 (6)

Species:	% By Weight
Calamagrostis canadensis (Blue Joint Grass)	12
Carex lacustris (Lake-Bank Sedge)	6
Carex slipata (Awl-Fruited Sedge)	6
Carex stricta (Tussock Sedge)	6
Carex vulpinoidea (Fox Sedge)	6
Eleocharis acicularis (Needle Spike Rush)	3
Eleocharis obtusa (Blunt Spike Rush)	3
Glyceria striata (Fowl Manna Grass)	14
Juncus effusus (Common Rush)	6
Juncus tenuis (Slender Rush)	6
Juncus torreyi (Torrey's Rush)	6
Leersia oryzoides (Rice Cut Grass)	10
Scirpus acutus (Hard-Stemmed Bulrush)	3
Scirpus atrovirens (Dark Green Rush)	3
Bolboschoenus fluviatilis (River Bulrush)	3
Schoenoplectus tabernaemontani (Softstem Bulrush)	3
Spartina pectinata (Cord Grass)	4

Class – Type		Seeds	lb/acre (kg/hectare)
5	Forb with Annuals Mixture 2/ 5/ 6/	Annuals Mixture (Below) Forb Mixture (Below)	1 (1) 10 (10)

Annuals Mixture - Mixture not exceeding 25 % by weight of any one species, of the following:

Coreopsis lanceolata (Sand Coreopsis)
Leucanthemum maximum (Shasta Daisy)
Gaillardia pulchella (Blanket Flower)
Ratibida columnifera (Prairie Coneflower)
Rudbeckia hirta (Black-Eyed Susan)

Forb Mixture - Mixture not exceeding 5 % by weight PLS of any one species, of the following:

Amorpha canescens (Lead Plant) 4/
Anemone cylindrica (Thimble Weed)
Asclepias tuberosa (Butterfly Weed)
Aster azureus (Sky Blue Aster)
Symphyotrichum leave (Smooth Aster)
Aster novae-angliae (New England Aster)
Baptisia leucantha (White Wild Indigo) 4/
Coreopsis palmata (Prairie Coreopsis)
Echinacea pallida (Pale Purple Coneflower)
Eryngium yuccifolium (Rattlesnake Master)
Helianthus mollis (Downy Sunflower)
Heliopsis helianthoides (Ox-Eye)
Liatris aspera (Rough Blazing Star)
Liatris pycnostachya (Prairie Blazing Star)
Monarda fistulosa (Prairie Bergamot)
Parthenium integrifolium (Wild Quinine)
Dalea candida (White Prairie Clover) 4/
Dalea purpurea (Purple Prairie Clover) 4/
Physostegia virginiana (False Dragonhead)
Potentilla arguta (Prairie Cinquefoil)
Ratibida pinnata (Yellow Coneflower)
Rudbeckia subtomentosa (Fragrant Coneflower)
Silphium laciniatum (Compass Plant)
Silphium terebinthinaceum (Prairie Dock)
Oligoneuron rigidum (Rigid Goldenrod)
Tradescantia ohiensis (Spiderwort)
Veronicastrum virginicum (Culver's Root)

Class – Type		Seeds	lb/acre (kg/hectare)
5A	Large Flower Native Forb Mixture 2/ 5/ 6/	Forb Mixture (see below)	5 (5)
		Species:	% By Weight
		Aster novae-angliae (New England Aster)	5
		Echinacea pallida (Pale Purple Coneflower)	10
		Helianthus mollis (Downy Sunflower)	10
		Heliopsis helianthoides (Ox-Eye)	10
		Liatris pycnostachya (Prairie Blazing Star)	10
		Ratibida pinnata (Yellow Coneflower)	5
		Rudbeckia hirta (Black-Eyed Susan)	10
		Silphium laciniatum (Compass Plant)	10
		Silphium terebinthinaceum (Prairie Dock)	20
		Oligoneuron rigidum (Rigid Goldenrod)	10
5B	Wetland Forb 2/ 5/ 6/	Forb Mixture (see below)	2 (2)
		Species:	% By Weight
		Acorus calamus (Sweet Flag)	3
		Angelica atropurpurea (Angelica)	6
		Asclepias incarnata (Swamp Milkweed)	2
		Aster puniceus (Purple Stemmed Aster)	10
		Bidens cernua (Beggarticks)	7
		Eutrochium maculatum (Spotted Joe Pye Weed)	7
		Eupatorium perfoliatum (Boneset)	7
		Helenium autumnale (Autumn Sneeze Weed)	2
		Iris virginica shrevei (Blue Flag Iris)	2
		Lobelia cardinalis (Cardinal Flower)	5
		Lobelia siphilitica (Great Blue Lobelia)	5
		Lythrum alatum (Winged Loosestrife)	2
		Physostegia virginiana (False Dragonhead)	5
		Persicaria pensylvanica (Pennsylvania Smartweed)	10
		Persicaria lapathifolia (Curlytop Knotweed)	10
		Pychanthemum virginianum (Mountain Mint)	5
		Rudbeckia laciniata (Cut-leaf Coneflower)	5
		Oligoneuron riddellii (Riddell Goldenrod)	2
		Sparganium eurycarpum (Giant Burreed)	5
6	Conservation Mixture 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	2 (2)
		Buffalo Grass 5/ 7/	5 (5)
		Vernal Alfalfa 4/	15 (15)
		Oats, Spring	48 (55)
6A	Salt Tolerant Conservation Mixture 2/ 6/	*Schizachyrium scoparium* (Little Blue Stem) 5/	5 (5)
		Elymus canadensis (Canada Wild Rye) 5/	2 (2)
		Buffalo Grass 5/ 7/	5 (5)
		Vernal Alfalfa 4/	15 (15)
		Oats, Spring	48 (55)
		Puccinellia distans (Fults Saltgrass or Salty Alkaligrass)	20 (20)
7	Temporary Turf Cover Mixture	Perennial Ryegrass	50 (55)
		Oats, Spring	64 (70)

Notes:

1/ Seeding shall be performed when the ambient temperature has been between 45 ºF (7 ºC) and 80 ºF (27 ºC) for a minimum of seven (7) consecutive days and is forecasted to be the same for the next five (5) days according to the National Weather Service.
2/ Seeding shall be performed in late fall through spring beginning when the ambient temperature has been below 45 ºF (7 ºC) for a minimum of seven (7) consecutive days and ending when the ambient temperature exceeds 80 ºF (27 ºC) according to the National Weather Service.
3/ Specific variety as shown in the plans or approved by the Engineer.
4/ Inoculation required.
5/ Pure Live Seed (PLS) shall be used.
6/ Fertilizer shall not be used.
7/ Seed shall be primed with KNO_3 to break dormancy and dyed to indicate such.

Seeding will be inspected after a period of establishment. The period of establishment shall be six (6) months minimum, but not to exceed nine (9) months. After the period of establishment, areas not exhibiting 75 percent uniform growth shall be interseeded or reseeded, as determined by the Engineer, at no additional cost to the Department."

80445

SHORT TERM AND TEMPORARY PAVEMENT MARKINGS (BDE)

Effective: April 1, 2024
Revised: April 2, 2024

Revise Article 701.02(d) of the Standard Specifications to read:

"(d) Pavement Marking Tapes (Note 3) .....1095.06"

Add the following Note to the end of Article 701.02 of the Standard Specifications:

"Note 3. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape."

Revise Article 703.02(c) of the Standard Specifications to read:

"(c) Pavement Marking Tapes (Note 1) .....1095.06"

Add the following Note to the end of Article 703.02 of the Standard Specifications:

"Note 1. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape."

Revise Article 1095.06 of the Standard Specifications to read:

"**1095.06 Pavement Marking Tapes.** Type I white or yellow marking tape shall consist of glass spheres embedded into a binder on a foil backing that is precoated with a pressure sensitive adhesive. The spheres shall be of uniform gradation and distributed evenly over the surface of the tape.

Type IV tape shall consist of white or yellow tape with wet reflective media incorporated to provide immediate and continuing retroreflection in wet and dry conditions. The wet retroreflective media shall be bonded to a durable polyurethane surface. The patterned surface shall have approximately 40 ± 10 percent 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 reflective elements or particles.

Blackout tape shall consist of a matte black, non-reflective, patterned surface that is precoated with a pressure sensitive adhesive.

(a) Color. The white and yellow markings 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 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 min.
Yellow *	36 - 59

*Shall match Aerospace Material Specification Standard 595 33538 (Orange Yellow) and the chromaticity limits as follows.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456

(b) Retroreflectivity. The white and yellow markings shall be retroreflective. Reflective values measured in accordance with the photometric testing procedure of ASTM D 4061 shall not be less than those listed in the table below. The coefficient of retroreflected luminance, R_L, shall be expressed as average millicandelas/footcandle/sq ft (millicandelas/lux/sq m), measured on a 3.0 x 0.5 ft (900 mm x 150 mm) panel at 86 degree entrance angle.

Coefficient of Retroreflected Luminance, R_L, Dry					
Type I			Type IV		
Observation Angle	White	Yellow	Observation Angle	White	Yellow
0.2°	2700	2400	0.2°	1300	1200
0.5°	2250	2000	0.5°	1100	1000

Wet retroreflectance shall be measured for Type IV under wet conditions according to ASTM E 2177 and meet the following.

Wet Retroreflectance, Initial R_L	
Color	R_L 1.05/88.76
White	300
Yellow	200

(c) Skid Resistance. The surface of Type IV and blackout markings shall provide a minimum skid resistance of 45 BPN when tested according to ASTM E 303.

(d) Application. The pavement marking tape shall have a precoated pressure sensitive adhesive and shall require no activation procedures. Test pieces of the tape shall be applied according to the manufacturer's instructions and tested according to ASTM D 1000, Method A, except that a stiff, short bristle roller brush and heavy hand pressure will be substituted for the weighted rubber roller in applying the test pieces to the metal test panel. Material tested as directed above shall show a minimum adhesion value of 750 g/in. (30 g/mm) width at the temperatures specified in ASTM D 1000. The adhesive shall be resistant to oils, acids, solvents, and water, and shall not leave objectionable stains or residue after removal. The material shall be flexible and conformable to the texture of the pavement.

(e) Durability. Type IV and blackout tape shall be capable of performing for the duration of a normal construction season and shall then be capable of being removed intact or in large sections at pavement temperatures above 40 °F (4 °C) either manually or with a roll-up device without the use of sandblasting, solvents, or grinding. The Contractor shall provide a manufacturer's certification that the material meets the requirements for being removed after the following minimum traffic exposure based on transverse test decks with rolling traffic.

(1) Time in place - 400 days
(2) ADT per lane - 9,000 (28 percent trucks)
(3) Axle hits - 10,000,000 minimum

Samples of the material applied to standard specimen plates will be measured for thickness and tested for durability in accordance with ASTM D 4060, using a CS-17 wheel and 1000-gram load, and shall meet the following criteria showing no significant change in color after being tested for the number of cycles indicated.

Test	Type I	Type IV	Blackout
Minimum Initial Thickness, mils (mm)	20 (0.51)	65 (1.65) 1/ 20 (0.51) 2/	65 (1.65) 1/ 20 (0.51) 2/
Durability (cycles)	5,000	1,500	1,500

1/ Measured at the thickest point of the patterned surface.

2/ Measured at the thinnest point of the patterned surface.

The pavement marking tape, when applied according to the manufacturer's recommended procedures, shall be weather resistant and shall show no appreciable fading, lifting, or shrinkage during the useful life of the marking. The tape, as applied, shall be of good appearance, free of cracks, and edges shall be true, straight, and unbroken.

(f) Sampling and Inspection.

(1) Sample. Prior to approval and use of Type IV 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 independent laboratory test report shall state the lot tested, the manufacturer's name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent batch of Type IV tape 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, the manufacturer's name, and the date of manufacture.

(2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests shall be taken or witnessed by a representative of the Bureau of Materials and shall be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

80457

SOURCE OF SUPPLY AND QUALITY REQUIREMENTS (BDE)

Effective: January 2, 2023

Add the following to Article 106.01 of the Standard Specifications:

"The final manufacturing process for construction materials and the immediately preceding manufacturing stage for construction materials shall occur within the United States. Construction materials shall include an article, material, or supply that is or consists primarily of the following.

(a) Non-ferrous metals;

(b) Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);

(c) Glass (including optic glass);

(d) Lumber;

(e) Drywall.

Items consisting of two or more of the listed construction materials that have been combined through a manufacturing process, and items including at least one of the listed materials combined with a material that is not listed through a manufacturing process shall be exempt."

80448

STEEL COST ADJUSTMENT (BDE)

Effective: April 2, 2004
Revised: January 1, 2022

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, welded reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), and frames and grates will be subject to a steel cost adjustment when the pay items they are used in have a contract value of $10,000 or greater.

The adjustments shall apply to the above items when they are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply when the item is added as extra work and paid for at a lump sum price or by force account.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

(a) The dates and quantity of steel, in lb (kg), shipped from the mill to the fabricator.

(b) The quantity of steel, in lb (kg), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$SCA = Q \times D$

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in lb (kg)
D = price factor, in dollars per lb (kg)

$D = MPI_M - MPI_L$

Where: MPI_M = The Materials Cost Index for steel as published by the Engineering News-Record for the month the steel is shipped from the mill. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

MPI_L = The Materials Cost Index for steel as published by the Engineering News-Record for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price,. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

The unit weights (masses) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the MPI_M will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the MPI_L and MPI_M in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(MPI_L - MPI_M) \div MPI_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Attachment

Item	Unit Mass (Weight)
Metal Piling (excluding temporary sheet piling)	
Furnishing Metal Pile Shells 12 in. (305 mm), 0.179 in. (3.80 mm) wall thickness)	23 lb/ft (34 kg/m)
Furnishing Metal Pile Shells 12 in. (305 mm), 0.250 in. (6.35 mm) wall thickness)	32 lb/ft (48 kg/m)
Furnishing Metal Pile Shells 14 in. (356 mm), 0.250 in. (6.35 mm) wall thickness)	37 lb/ft (55 kg/m)
Other piling	See plans
Structural Steel	See plans for weights (masses)
Reinforcing Steel	See plans for weights (masses)
Dowel Bars and Tie Bars	6 lb (3 kg) each
Welded Reinforcement	63 lb/100 sq ft (310 kg/sq m)
Guardrail	
Steel Plate Beam Guardrail, Type A w/steel posts	20 lb/ft (30 kg/m)
Steel Plate Beam Guardrail, Type B w/steel posts	30 lb/ft (45 kg/m)
Steel Plate Beam Guardrail, Types A and B w/wood posts	8 lb/ft (12 kg/m)
Steel Plate Beam Guardrail, Type 2	305 lb (140 kg) each
Steel Plate Beam Guardrail, Type 6	1260 lb (570 kg) each
Traffic Barrier Terminal, Type 1 Special (Tangent)	730 lb (330 kg) each
Traffic Barrier Terminal, Type 1 Special (Flared)	410 lb (185 kg) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms	
Traffic Signal Post	11 lb/ft (16 kg/m)
Light Pole, Tenon Mount and Twin Mount, 30 - 40 ft (9 – 12 m)	14 lb/ft (21 kg/m)
Light Pole, Tenon Mount and Twin Mount, 45 - 55 ft (13.5 – 16.5 m)	21 lb/ft (31 kg/m)
Light Pole w/Mast Arm, 30 - 50 ft (9 – 15.2 m)	13 lb/ft (19 kg/m)
Light Pole w/Mast Arm, 55 - 60 ft (16.5 – 18 m)	19 lb/ft (28 kg/m)
Light Tower w/Luminaire Mount, 80 - 110 ft (24 – 33.5 m)	31 lb/ft (46 kg/m)
Light Tower w/Luminaire Mount, 120 - 140 ft (36.5 – 42.5 m)	65 lb/ft (97 kg/m)
Light Tower w/Luminaire Mount, 150 - 160 ft (45.5 – 48.5 m)	80 lb/ft (119 kg/m)
Metal Railings (excluding wire fence)	
Steel Railing, Type SM	64 lb/ft (95 kg/m)
Steel Railing, Type S-1	39 lb/ft (58 kg/m)
Steel Railing, Type T-1	53 lb/ft (79 kg/m)
Steel Bridge Rail	52 lb/ft (77 kg/m)
Frames and Grates	
Frame	250 lb (115 kg)
Lids and Grates	150 lb (70 kg)

80127

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

SUBMISSION OF PAYROLL RECORDS (BDE)

Effective: April 1, 2021
Revised: November 2, 2023

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

"STATEMENTS AND PAYROLLS

The payroll records shall include the worker's name, social security number, last known address, telephone number, email address, classification(s) of work actually performed, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof), daily and weekly number of hours actually worked in total, deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit certified payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers, last known addresses, telephone numbers, and email addresses shall not be included on weekly submittals. Instead, the payrolls need only include an identification number for each employee (e.g., the last four digits of the employee's social security number). The submittals shall be made using LCPtracker Pro software. The software is web-based and can be accessed at https://lcptracker.com/. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected."

STATE CONTRACTS. Revise Item 3 of Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

"3. Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Illinois Prevailing Wage Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Prevailing-Wage-Portal.aspx. Payrolls shall be submitted in the format prescribed by the IDOL.

In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPtracker Pro software. The software is web-based and can be accessed at https://lcptracker.com/.

When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option (“No Work”, “Suspended”, or “Complete”) selected.”

80437

SURFACE TESTING OF PAVEMENTS – IRI (BDE)

Effective: January 1, 2021
Revised: January 1, 2023

Description. This work shall consist of testing the ride quality of the finished surface of pavement sections with new concrete pavement, PCC overlays, full-depth HMA, and HMA overlays with at least 2.25 in. (57 mm) total thickness of new HMA combined with either HMA binder or HMA surface removal, according to Illinois Test Procedure 701, "Ride Quality Testing Using the International Roughness Index (IRI)". Work shall be according to Sections 406, 407, or 420 of the Standard Specifications, except as modified herein.

Hot-Mix Asphalt (HMA) Overlays

Add the following to Article 406.03 of the Standard Specifications:

"(n) Pavement Surface Grinding Equipment.....1101.04"

Revise Article 406.11 of the Standard Specifications to read:

"**406.11 Surface Tests.** Prior to HMA overlay pavement improvements, the Engineer will measure the smoothness of the existing high-speed mainline pavement. The Contractor shall measure the smoothness of the finished high-speed mainline, low-speed mainline, and miscellaneous pavements after the pavement improvement is complete but within the same construction season. Testing shall be performed in the presence of the Engineer and according to Illinois Test Procedure 701. The pavement will be identified as high-speed mainline, low-speed mainline, or miscellaneous as follows.

(a) Test Sections.

(1) High-Speed Mainline Pavement. High-speed mainline pavement consists of pavements, ramps, and loops with a posted speed limit greater than 45 mph. These sections shall be tested with an inertial profiling system (IPS).

(2) Low-Speed Mainline Pavement. Low-speed mainline pavement consists of pavements, ramps, and loops with a posted speed limit of 45 mph or less. These sections shall be tested using a 16 ft (5 m) straightedge or with an IPS analyzed using the rolling 16 ft (5 m) straightedge simulation in ProVAL.

(3) Miscellaneous Pavement. Miscellaneous pavement are segments that either cannot readily be tested by an IPS or conditions beyond the control of the Contractor preclude the achievement of smoothness levels typically achievable with mainline pavement construction. This may include the following examples or as determined by the Engineer.

a. Pavement on horizontal curves with a centerline radius of curvature of less than or equal to 1,000 ft (300 m) and the pavement within the superelevation transition of such curves;

b. Pavement on vertical curves having a length less than or equal to 200 ft (60 m) in combination with an algebraic change in tangent grade greater than or equal to 3 percent as may occur on urban ramps or other constricted-space facilities;

c. The first and last 50 ft (15 m) of a pavement section where the Contractor is not responsible for the adjoining surface;

d. Intersections and the 25 ft (7.6 m) before and after an intersection or end of radius return;

e. Variable width pavements;

f. Side street returns, to the end of radius return;

g. Crossovers;

h. Pavement connector for bridge approach slab;

i. Bridge approach slab;

j. Pavement that must be constructed in segments of 600 ft (180 m) or less;

k. Pavement within 25 ft (7.6 m) of manholes, utility structures, at-grade railroad crossings, or other appurtenances;

l. Turn lanes; and

m. Pavement within 5 ft (1.5 m) of jobsite sampling locations for HMA volumetric testing that fall within the wheel path.

Miscellaneous pavement shall be tested using a 16 ft (5 m) straightedge.

(4) International Roughness Index (IRI). An index computed from a longitudinal profile measurement using a quarter-car simulation at a simulation speed of 50 mph (80 km/h).

(5) Mean Roughness Index (MRI). The average of the IRI values for the right and left wheel tracks.

a. MRI_O. The MRI of the existing pavement prior to construction.

b. MRI_I. The MRI value that warrants an incentive payment.

c. MRI_F. The MRI value that warrants full payment.

d. MRI_D. The MRI value that warrants a financial disincentive.

(6) Areas of Localized Roughness (ALR). Isolated areas of roughness, which can cause significant increase in the calculated MRI for a given sublot.

(7) Sublot. A continuous strip of pavement 0.1 mile (160 m) long and one lane wide. A partial sublot greater than or equal to 264 ft (80 m) will be subject to the same evaluation as a whole sublot. Partial sublots less than 264 ft (80 m) shall be included with the previous sublot for evaluation purposes.

(b) Corrective Work. Corrective work shall be completed according to the following.

(1) High-Speed Mainline Pavement. For high-speed mainline pavement, any 25 ft (7.6 m) interval with an ALR in excess of 200 in./mile (3,200 mm/km) will be identified by the Engineer and shall be corrected by the Contractor. Any sublot having a MRI greater than MRI_D, including ALR, shall be corrected to reduce the MRI to the MRI_F, or replaced at the Contractor's option.

(2) Low-Speed Mainline Pavement. Surface variations in low-speed mainline pavement which exceed the 5/16 in. (8 mm) tolerance will be identified by the Engineer and shall be corrected by the Contractor.

(3) Miscellaneous Pavements. Surface variations in miscellaneous pavement which exceed the 5/16 in. (8 mm) tolerance will be identified by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed with pavement surface grinding equipment or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area perpendicular to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the sublot(s) shall be retested. The Contractor shall furnish the data and reports to the Engineer within 2 working days after corrections are made. If the MRI and/or ALR still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at no additional cost to the Department.

(c) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each sublot of high-speed mainline pavement per the Smoothness Assessment Schedule. Assessments will be based on the MRI of each sublot prior to performing any corrective work unless the Contractor has chosen to remove and replace the pavement.

For pavement that is replaced, assessments will be based on the MRI determined after replacement.

The upper MRI thresholds for high-speed mainline pavement are dependent on the MRI of the existing pavement before construction (MRI_0) and shall be determined as follows.

Upper MRI Thresholds [1/]	MRI Thresholds (High-Speed, HMA Overlay)	
	$MRI_0 \leq 125.0$ in./mile (≤ 1,975 mm/km)	$MRI_0 > 125.0$ in./mile [1/] (> 1,975 mm/km)
Incentive (MRI_I)	45.0 in./mile (710 mm/km)	$0.2 \times MRI_0 + 20$
Full Pay (MRI_F)	75.0 in./mile (1,190 mm/km)	$0.2 \times MRI_0 + 50$
Disincentive (MRI_D)	100.0 in./mile (1,975 mm/km)	$0.2 \times MRI_0 + 75$

1/ MRI_0, MRI_I, MRI_F, and MRI_D shall be in in./mile for calculation.

Smoothness assessments for high-speed mainline pavement shall be determined as follows.

SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, HMA Overlay)	
Mainline Pavement MRI Range	Assessment Per Sublot [1/]
$MRI \leq MRI_I$	$+ (MRI_I - MRI) \times \$20.00$ [2/]
$MRI_I < MRI \leq MRI_F$	+ \$0.00
$MRI_F < MRI \leq MRI_D$	$- (MRI - MRI_F) \times \$8.00$
$MRI > MRI_D$	– \$200.00

1/ MRI, MRI_I, MRI_F, and MRI_D shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed \$300.00.

Smoothness assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein."

Hot-Mix Asphalt (HMA) Pavement (Full-Depth)

Revise the first paragraph of Article 407.03 of the Standard Specifications to read:

"**407.03 Equipment.** Equipment shall be according to Article 406.03."

Revise Article 407.09 of the Standard Specifications to read:

"**407.09 Surface Tests.** The finished surface of the pavement shall be tested for smoothness

according to Article 406.11, except as follows:

The testing of the existing pavement prior to improvements shall not apply and the smoothness assessment for high-speed mainline pavement shall be determined according to the following table.

SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, Full-Depth HMA)	
Mainline Pavement MRI, in./mile (mm/km)	Assessment Per Sublot [1/]
≤ 45.0 (710)	+ (45 – MRI) × $45.00 [2/]
> 45.0 (710) to 75.0 (1,190)	+ $0.00
> 75.0 (1,190) to 100.0 (1,580)	– (MRI – 75) × $20.00
> 100.0 (1,580)	– $500.00

1/ MRI shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed $800.00."

Portland Cement Concrete Pavement

Delete Article 420.03(i) of the Standard Specifications.

Revise Article 420.10 of the Standard Specifications to read:

"**420.10 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows.

The testing of the existing pavement prior to improvements shall not apply. The Contractor shall measure the smoothness of the finished surface of the pavement after the pavement has attained a flexural strength of 250 psi (3,800 kPa) or a compressive strength of 1,600 psi (20,700 kPa).

Membrane curing damaged during testing shall be repaired as directed by the Engineer at no additional cost to the Department.

(a) Corrective Work. No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to areas ground according to Article 420.18 at no additional cost to the Department.

Jointed portland cement concrete pavement corrected by removal and replacement, shall be corrected in full panel sizes.

(b) Smoothness Assessments. Smoothness assessment for high-speed mainline pavement shall be determined as follows.

SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, PCC)	
Mainline Pavement MRI, in./mile (mm/km) [3/]	Assessment Per Sublot [1/]
≤ 45.0 (710)	+ (45 – MRI) × $60.00 [2/]
> 45.0 (710) to 75.0 (1,190)	+ $0.00
> 75.0 (1,190) to 100.0 (1,580)	– (MRI – 75) × $37.50
> 100.0 (1,580)	– $750.00

1/ MRI shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed $1200.00.

3/ If pavement is constructed with traffic in the lane next to it, then an additional 10 in./mile will be added to the upper thresholds."

Removal of Existing Pavement and Appurtenances

Revise the first paragraph of Article 440.04 of the Standard Specifications to read:

"**440.04 HMA Surface Removal for Subsequent Resurfacing.** The existing HMA surface shall be removed to the depth specified on the plans with a self-propelled milling machine. The removal depth may be varied slightly at the discretion of the Engineer to satisfy the smoothness requirements of the finished pavement. The temperature at which the work is performed, the nature and condition of the equipment, and the manner of performing the work shall be such that the milled surface is not torn, gouged, shoved or otherwise damaged by the milling operation. Sufficient cutting passes shall be made so that all irregularities or high spots are eliminated to the satisfaction of the Engineer. When tested with a 16 ft (5 m) straightedge, the milled surface shall have no surface variations in excess of 3/16 in. (5 mm)."

General Equipment

Revise Article 1101.04 of the Standard Specifications to read:

"**1101.04 Pavement Surface Grinding Equipment.** The pavement surface grinding device shall have a minimum effective head width of 3 ft (0.9 m).

(a) Diamond Saw Blade Machine. The machine shall be self-propelled with multiple diamond saw blades.

(b) Profile Milling Machine. The profile milling machine shall be a drum device with carbide or diamond teeth with spacing of 0.315 in. (8 mm) or less and maintain proper forward speed for surface texture according to the manufacturer's specifications."

80435

TRAINING SPECIAL PROVISIONS (BDE)

Effective: October 15, 1975
Revised: September 2, 2021

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, it 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 ensure 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 it employs 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 it 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 or she has successfully completed a training course leading to journeyman status or in which he or she 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 Employment Training Administration 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 shall provide for the maintenance of records and furnish periodic reports documenting its performance under this Training Special Provision.

For contracts with an awarded contract value of $500,000 or more, the Contractor is required to comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules to the extent permitted by Section 20-20(g). For federally funded projects, the number of trainees to be trained under this contract, as stated in the Training Special Provisions, will be the established goal for the Illinois Works Apprenticeship Initiative 30 ILCS 559/20-20(g). The Contractor shall make a good faith effort to meet this goal. For federally funded projects, the Illinois Works Apprenticeship Initiative will be implemented using the FHWA approved OJT procedures. The Contractor must comply with the recordkeeping and reporting obligations of the Illinois Works Apprenticeship Initiative for the life of the project, including the certification as to whether the trainee/apprentice labor hour goals were met.

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

VEHICLE AND EQUIPMENT WARNING LIGHTS (BDE)

Effective: November 1, 2021
Revised: November 1, 2022

Add the following paragraph after the first paragraph of Article 701.08 of the Standard Specifications:

"The Contractor shall equip all vehicles and equipment with high-intensity oscillating, rotating, or flashing, amber or amber-and-white, warning lights which are visible from all directions. In accordance with 625 ILCS 5/12-215, the lights may only be in operation while the vehicle or equipment is engaged in construction operations."

80439

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012
Revised: November 1, 2021

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 Sunday through Saturday 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

DIAMOND GRINDING AND SURFACE TESTING BRIDGE SECTIONS
Effective: December 6, 2004
Revised: April 15, 2022

Description. This work shall consist of diamond grinding and surface testing bridge sections.

The bridge section shall consist of the bridge deck plus the bridge approach slab and pavement connector, if present, at each end of the bridge.

Equipment. Equipment shall be according to the following.

(a) Diamond Grinder. The diamond grinder shall be a self-propelled planing machine specifically designed for diamond saw grinding. It shall be capable of accurately establishing the profile grade and controlling the grinding cross slope. It shall also have an effective means for removing excess material and slurry from the surface and for preventing dust from escaping into the air. The removal of slurry shall be continuous throughout the grinding operation. The slurry shall be disposed of according to Article 202.03.

The grinding head shall be a minimum of 4 ft. (1.2 m) wide and the diamond saw blades shall be gang mounted on the grinding head at a rate of 50 to 60 blades / ft. (164 to 197 blades/m).

(b) Surface Testing Equipment. Required surface testing and analysis equipment and their jobsite transportation shall be provided by the Contractor. The Profile Testing Device shall be according to Illinois Test Procedure 701 except the trace analysis shall be based on traces from bridge sections.

CONSTRUCTION REQUIREMENTS

General. After all components have been properly cured, the bridge section shall be ground over its entire length and over a width that extends to within 2 ft. (600 mm) of the curbs or parapets. Grinding shall be done separately before any saw cut grooving, and no concurrent combination of the two operations will be permitted. Whenever possible, each subsequent longitudinal grinding pass shall progress down the cross slope from high to low. The maximum thickness removed shall be 1/4 inch (6 mm); however, when the bridge deck thickness noted on the plans can be maintained, as a minimum, additional removal thickness may be permitted.

The grinding process shall produce a pavement surface that is true in grade and uniform in appearance with longitudinal line-type texture. The line-type texture shall contain corrugations parallel to the outside pavement edge and present a narrow ridge corduroy type appearance. The peaks of the ridges shall be 1/8-inch +/- 1/16-inch (3 mm +/- 1.5 mm) higher than the bottom of the grinding with evenly spaced ridges. It shall be the

Contractor's responsibility to select the actual number of blades per foot (meter) to be used to provide the proper surface finish for the aggregate type and concrete present on the project within the limits specified above.

The vertical difference between longitudinal passes shall be 1/8 inch (3 mm) maximum. The grinding at the ends of the bridge section shall be diminished uniformly at a rate of 1:240 over the pavement connectors.

Grinding shall be continuous through all joints. All expansion joints and bridge components under the joints shall be protected from damage or contact with the grinding slurry.

Surface Testing. The diamond ground bridge section shall be surface tested in the presence of the Engineer prior to opening to traffic.

A copy of the approval letter and recorded settings from the Profile Equipment Verification (PEV) Program shall be submitted to the Engineer prior to testing.

The Contractor shall notify the Engineer a minimum of 24 hours prior to commencement of measurements. All objects and debris shall be removed from the bridge section surface prior to testing. During surface testing, joint openings may be temporarily filled with material approved by the Engineer.

Profiles shall be taken in both wheel paths of each lane, 3 ft. (1 m) from, and parallel to, the planned lane lines.

The profile report shall have stationing indicated every 500 ft. (150 m) at a minimum. The profile report shall include the following information: contract number, structure number, beginning and ending stationing, which lane was tested, direction of travel on the trace, date of collection, time of collection, ambient air temperature at time of collection, and the device operator name(s). The data file created from the testing will be submitted to the Engineer and the Bureau of Research for analysis. The file shall be in a format that is compatible with ProVAL software (ERD, PPF).

Trace Reduction and Bump Locating Procedure. All traces shall be reduced using ProVal. This software shall calculate the Mean International Roughness Index (MRI) in inches/mile (mm/km) and indicate any areas of localized roughness in excess of 200 inches/mile (3105 mm/km) on a continuous 25 feet (8 meters) basis.

The average MRI and locations with deviations exceeding the 200 inches/mile (3105 mm/km) limit will be recorded on the Profile Report for Bridge Deck Smoothness.

All ProVAL files shall be provided to the Engineer within two working days of completing the testing. Bureau of Construction Form BC 2450 shall be provided to the Engineer. An

example Form BC 2450 is attached. All files shall contain serial numbers for the vehicle and profiling equipment, the approved settings from the PEV program. The Engineer will compare these settings with the approved settings from the PEV Program. If the settings do not match, the results will be rejected and the section shall be retested/reanalyzed with the appropriate settings.

Corrective Actions. Within the bridge section, all deviations in excess of 200 inches/mile (1575 mm) within any continuous length of 25 ft. (8 m) shall be corrected. Correction of deviations shall not result in the deck thickness being less than the minimum. Where corrective work is performed, the bridge section shall be retested to verify that corrections have produced a MRI of 200 inch/mile (3105 mm/km) within an continuous length of 25 ft (8 m) or less for each lane. The Contractor shall furnish and Form BC 2450 the ProVAL files to the Engineer and the Bureau of Research within two working days after any corrections are made.

Corrective actions shall be performed at no additional cost to the department.

The Engineer may perform profile testing on the surface at any time for monitoring and comparison purposes.

Method of Measurement. This work will be measured for payment in place and the area computed in square yards (square meters) of diamond grinding performed.

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for DIAMOND GRINDING (BRIDGE SECTION).

Instructions for Completing Bridge Deck Smoothness Assessment Summary ALR

This form shall be prepared and submitted, along with the raw data files, to the Engineer.

Report Type:

Initial – Testing of bridge section prior to any smoothness grinding.

Intermediate – After initial pass of smoothness grinding has been completed.

Final – All smoothness grinding has been completed.

Other information:

Submission Date – Date in which it has been submitted to the Engineer

Project Type – New Deck, Microsilica Overlay, Latex Overlay, Fly Ash Overlay

Specification Effective Date – revision date of the specification in the contract

Begin ALR Section 1 – beginning station of ALR finding

End ALR Section 1 – end station of ALR finding

Distance – End ALR minus the Begin ALR station number

MRI – The value of the ALR at that location.

Illinois Department of Transportation

Bridge Deck Smoothness Assessment Summary
Areas of Localized Roughness

This worksheet is intended as a reference for documenting Areas of Localized Roughness (ALR) as described in GBSP-59.

Contract Information		*Contact Info*	
Contract	60111	IDOT RE Name	Jerry Jones
District	1	IDOT RE E-Mail	Jerry.Jones2@illinois.gov
Letting Date	1/15/2022	IDOT RE Phone	217-555-4183
Item #	26	Contractor Rep. Name	Bob Builder
Route	IL 164	Contractor Rep. E-Mail	Bob.Builder@BTBBConstr.com
Report Type (Initial or Post Grinding)	Initial	Contractor Rep. Phone	217-555-2822
		General Comments	
Lane	Driving		
Direction	Eastbound		
Begin Station	13+45.00		
End Station	14+65.00		
Contractor	Bob the Bridge Builder		
Submission Date	4/1/2022		
Overlay Type	Microsilica		
Specification Effective Date	1/1/2022	*Distance (ft)*	*MRI (in/mi)*
Begin ALR Section 1	13+56.00	8.2	256.40
End ALR Section 1	13+64.20		
Begin ALR Section 2	14+04.60	1.4	278.90
End ALR Section 2	14+06.00		
Begin ALR Section 3			
End ALR Section 3			
Begin ALR Section 4			
End ALR Section 4			
Begin ALR Section 5			
End ALR Section 5			
Begin ALR Section 6			
End ALR Section 6			
Begin ALR Section 7			
End ALR Section 7			
Begin ALR Section 8			
End ALR Section 8			
Begin ALR Section 9			
End ALR Section 9			
Begin ALR Section 10			
End ALR Section 10			

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).

BRIDGE DECK GROOVING (LONGITUDINAL)
Effective: December 29, 2014
Revised: March 29, 2017

Revise Article 503.16(a)(3)b. to read as follows.

b. Saw Cut Grooving. The grooving operation shall not be started until after the expiration of the required curing or protection period and after correcting excessive variations by grinding or cutting has been completed.

The grooves shall be cut into the hardened concrete, parallel to the centerline of the roadway, using a mechanical saw device equipped with diamond blades that will leave grooves 1/8 in. wide and 3/16 in. ± 1/16 in. deep (3 mm wide and 5 mm ± 1.5 mm deep), with a uniform spacing of 3/4 in. ± 1/16 in. (20 mm ± 1.5 mm) centers. The grooving shall typically extend the full width of the traffic lanes and terminate at the edge of the traffic lane or shoulder. If the bridge has a variable width traffic lane, the grooving shall remain parallel to the centerline of the main roadway. Any staggering of the groove terminations to accommodate the variable width shall be within the shoulders. Grooves shall not be cut closer than 3 inches (75 mm) nor further than 6 inches (150 mm) from any construction joint running parallel to the grooving. In addition, grooves shall not be cut within 6 in. ± 1 in. (150 mm ± 25 mm) from deck drains and expansion joints.

The grooving machine shall contain diamond blades mounted on a multi-blade arbor on a self-propelled machine built for grooving hardened concrete surfaces. The grooving machine shall have a depth control device that detects variations in the deck surface and adjusts the cutting head height to maintain a specified depth of groove. The grooving machine shall have a guide device to control multi-pass alignment.

The removal of slurry shall be continuous throughout the grooving operations. The grooving equipment shall be equipped with vacuum slurry pickup equipment which shall continuously pick up water and sawing dust, and pump the slurry to a collection tank. The slurry shall be disposed of offsite according to Article 202.03.

Cleanup shall be continuous throughout the grooving operation. All grooved areas of the deck shall be flushed with water as soon as possible to remove any slurry material not collected by the vacuum pickup. Flushing shall be continued until all surfaces are clean.

Method of Measurement. This work shall be measured for payment according to Article 503.21(b) except no measurement will be made for any grooving of the shoulders to accommodate a variable width traffic lane.

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK GROOVING (LONGITUDINAL).

PREFORMED PAVEMENT JOINT SEAL
Effective: October 4, 2016
Revised: March 24, 2023

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.
- The gland shall not contain any open, unsealed joints along its length in its final condition.
- 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^{o} F to 185^{o} 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	ASTM 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	ASTM D 1217
Product Flash Point (◦F, T.C.C.)	48	ASTM D 56
Package Stability	N/A	One year in tightly sealed containers
Cleaning	N/A	Mineral Spirits
VOC (g/L)	520	ASTM D 3960

(d) 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	ASTM 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 ºF (100 ºC). 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 ºF (93 ºC) shall not reduce bond strength. At 68 ºF (20 ºC), 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 ºF (10 ºC) 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 ensure 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.

BAR SPLICERS, HEADED REINFORCEMENT
Effective: September 2, 2022
Revised: October 27, 2023

Add the following to Article 508.08(b):

When bar splicers are epoxy-coated, all damaged or uncoated areas near the threaded ends shall be coated with a two-part epoxy according to ASTM D 3963 (D 3963M). All threaded ends of Stage II construction threaded splicer bars shall be coated according to ASTM D 3963 or dipped in an epoxy-mastic primer prior to joining the Stage II construction threaded splicer bar to the threaded coupler.

Add the following Article 508.02 (d)

Bar Terminators ……1006.10(a)(1)h

Add the following paragraph after Article 508.08 (c):

Bar terminators are threaded, headed attachments to reinforcement to form headed reinforcement. When specified on the plans, a bar terminator shall be attached to the designated reinforcement for development.

Add the following 4th paragraph to Article 508.11:

Bar Terminators will be paid for at the contract unit price per each for BAR TERMINATORS.

Add the following to Article 1006.10(a)(1)g:

For bar splicers with welded connections between the threaded coupler and threaded rod, the Stage I construction threaded splicer bar shall be welded to the threaded coupler using an all-around fillet weld.

Add the following Article 1006.10(a)(1)h:

Bar Terminators. Designated bars shall use a bar terminator to form headed reinforcement. Headed reinforcement shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706, except the connection strength of the bar terminator to the reinforcement bar shall meet, in tension, at least 125 percent of the specified yield strength of the reinforcement bar. The bar terminator shall be on the Department's qualified product list.

When the reinforcement bar to receive the bar terminator is epoxy coated, the bar terminator shall also be epoxy coated according to ASTM A 775 (A 775M)

NOISE ABATEMENT WALL, GROUND MOUNTED
Revised: December 9, 2022

General. This work shall consist of furnishing the design, shop drawings, materials, post anchorage, and construction of ground mounted concrete noise abatement walls (noise walls) according to this Special Provision, the Contract Plans and/or as directed by the Engineer.

The noise abatement wall shall consist of precast concrete panels spanning between vertical posts supported by concrete drilled shaft foundations (ground mounted) as shown on the plans. Driven piles will not be allowed. The posts shall be steel or concrete, unless otherwise specified on the Contract Plans. The design, material, fabrication and construction shall comply with this Special Provision and the requirements specified by the noise wall supplier selected by the Contractor for use on this project. The walls shall have no omissions or gap except as detailed in the Contract Plans.

The Contractor shall verify the locations for the proposed ground mounted wall for conflicts and inform the Engineer in writing of any conflicts before realigning or redesigning the wall. The Contractor shall realign or redesign the wall to avoid any conflicts.

Post spacing shall avoid existing and proposed underground utilities and storm sewers.

Wall components shall be fabricated and erected to produce a precast concrete reflective noise wall system and/or an absorptive noise reduction system at the locations shown in the Contract Plans. The noise reduction system shall satisfy the acoustical requirements as specified on the Contract Plans. An absorptive noise reduction system may be used as an alternate to a reflective noise wall system. Substitution of alternate materials in lieu of precast concrete panels will not be allowed.

All appurtenances behind, in front of, under, over, mounted upon, or passing through the noise wall, such as drainage structures, fire hydrant access, highway signage, emergency access, utilities, and storm sewers shall be accounted for in design of the wall.

The noise walls shall be designed and constructed to extend to the minimum lines, grades and dimensions of the wall envelope, with no omissions or gaps, as shown on the Contract Plans and as directed by the Engineer.

Submittals. A complete wall and foundation design submittal, including design calculations for wall panels, posts, foundations, and all connections and shop drawings shall be submitted to the Department for review and approval no later than 90 days prior to beginning construction of the wall. The time required for the preparation and review of these submittals shall be charged to the allowable contract time. Delays caused by untimely submittals or insufficient data will not be considered justifications for any time extensions. No additional compensation will be made for any additional material, equipment or other items found necessary to comply with the project specifications as a result of the Engineer's review. The Contractor will be required to submit the necessary shop drawings. All submittals shall be prepared and sealed by an Illinois Licensed Structural Engineer.

Submittals shall include all structural calculations, details, dimensions, quantities and cross sections necessary for the construction of the noise abatement walls including but not be limited to:

(1) Structural design calculations for all structural members, foundations, and connections prepared and sealed by an Illinois Licensed Structural Engineer, and prints of shop drawings on reduced size 11 x 17 in. (275 x 425 mm) sheets in accordance with Article 503.05 and 1042.03(b) of the Standard Specifications.

(2) A plan view of the wall indicating the stations and offsets required to locate the drilled shaft foundations. The proposed foundation diameter(s) and spacing(s) shall be indicated with all changes to the horizontal alignment shown. Each panel and post shall be numbered and any changes in type or size shall be noted. The centerline of any utilities passing under the wall and locations of expansion joints, access doors, lighting, signing, curb cuts, and drainage structures shall also be shown.

(3) An elevation view of the wall, indicating the elevations of the top of the posts and panels as well as the elevations of the bottom of the panels, tops of the shaft foundations, all steps in wall system, the finished grade line, and vertical clearances to existing utilities and storm sewers. Each post size and length, panel type and size, and foundation depth shall be designated.

(4) A typical cross section(s) that shows the panel, post, foundation, and the elevation relationship between existing ground conditions and the finished grade as well as slopes adjacent to the wall.

(5) All general notes required for constructing the wall.

(6) All details for the steps in the bottom of panels shall be shown. The bottom of the panels shall be located at or below the theoretical bottom of panel line shown on the Contract Plans. The theoretical bottom of panel line is assumed to be 8 in (200 mm) below the finished grade line at front face of the wall for ground mounted noise walls, unless otherwise shown on the Contract Plans.

(7) Tops of the panels and posts shall extend to or above the theoretical top of wall line shown on the Contract Plans. All panel tops shall be cast and placed horizontally with any changes in elevation accomplished by stepping adjacent panel sections at posts. Steps shall not exceed 2 ft (300 mm) in height.

(8) All panel types shall be detailed. The details shall show panel weight, orientation, all dimensions necessary to cast and/or fabricate each type of panel, the reinforcing steel, and location of post or foundation connection hardware as well as lifting devices embedded in the panels. The Noise Reduction Coefficient (NRC) of each panel of the absorptive face shall be noted.

(9) All post types shall be detailed. The details shall show post weight, orientation, all dimensions necessary to cast and/or fabricate each type of post, the reinforcing steel, connecting plates, and anchorage details as well as lifting devices embedded in or attached to the posts. Post spacing for walls shall be limited to a distance that does not over stress the supporting structure.

(10) Details of wall panels with appurtenances attached to or passing through the wall, as shown on the contract plans, such as utilities, emergency access doors, framed openings, drainage structures, signs, etc. shall be shown. Any modifications to the design or location of these appurtenances to accommodate a particular system shall also be submitted.

(11) All architectural panel treatment, including color, texture and form liner patterns shall be shown. All joints shall be placed horizontal or vertical and shall be aligned with adjacent panels.

(12) The details for the connection between panels and posts as well as their connection to the foundation, shall be shown. Foundation details, including details showing the dimensions, reinforcement, and post anchorage system for the drilled shaft foundations, shall be shown. The method of securing the reinforcement in the foundation prior to concrete placement shall be shown.

(13) Testing, certifications and reports from independent laboratories documenting that the panel's sound Transmission Loss (TL) and NRC for the panel satisfy the criteria shown in the design criteria section of this specification. The testing results for the flame spread, smoke density and freeze-thaw/salt scaling requirements described in the materials section of this specification shall also be submitted. If unable to document panel and post deflections by calculations, reports of full scale testing shall be submitted to demonstrate the deflection criteria have been met.

(14) Manufacturer recommended installation requirements, a sequence of construction and a detailed bill of materials shall be included.

(15) The color of the wall panels and support posts identified by Federal Standard 595-B color number.

The Contractor shall deliver to the Department, a 2 ft x 2 ft (600 mm x 600 mm) precast concrete sample of the wall which contains the colors, textures and patterns proposed for use on the project for approval.

The samples shall be made at the same plant manufacturing the product for the noise walls under this contract, and shall be representative of those which will be tested per this specification. Once the color sample is approved, a batch shall be designated by batch number and date and will remain the standard for the entire project.

The Contractor shall submit site access plans showing access and limits of the work areas for the installation of the wall. Any required traffic controls shall be according to the requirements in the plans or the special provision for TRAFFIC CONTROL PLAN.

The initial wall and foundation design submittal shall include three (3) sets of shop drawings and calculations. One set of drawings will be returned to the Contractor with any corrections indicated. The Contractor shall do no work or ordering of materials for the structure until the Engineer has approved the submittal.

Design Criteria. The wall system shall be designed to withstand wind pressure, applied perpendicular to the panels in either direction, according to the AASHTO LRFD Bridge Design Specifications, Chapter 15, for the Design of Sound Barriers. The noise wall design life shall be 75 years unless otherwise noted. The wall system shall be designed to withstand active earth pressure and live load surcharge at locations indicated on the plans. The contractor shall be responsible for the structural adequacy of the panels, posts, foundations and connections as well as overall wall overturning stability. Prestressed and/or post tensioned panel concepts will not be permitted.

The factored Strength III design wind loading shall be as specified on the plans but not less than 35 psf (1.7 kPa). The Service I factored design wind loading shall be as specified on the plans but not less than 15 psf. When a sound wall is also required to support earth pressures, the unfactored design active earth pressure shall be based on an equivalent fluid pressure of 55 pounds per cubic foot (880 kg/m^3) and a minimum live load surcharge pressure of 2 feet (600 mm) of earth pressure. The earth pressure fill height shall be defined by the proposed grade line elevation and the theoretical bottom of panel line.

The post shall be connected to the foundation by either embedding the post inside the concrete foundation shaft or by attaching the post to the foundation shaft with base plates and anchor bolts as required by design. Embedded posts shall extend into the shaft for the full length of the shaft. For base plate and anchor bolt connections, the minimum number of anchor bolts per post shall be four 1 in. (M24) diameter bolts, with a minimum embedment depth of 18 in. (450 mm). The concrete shaft for base plate and anchor bolt type connections shall be reinforced. For embedded post type connections, the shaft need not be reinforced unless the minimum clear cover over the post exceeds 10 inches (250 mm). When reinforcement of the concrete shaft is required as specified above, the reinforcement shall consist of a minimum of eight #5 (#15) vertical bars symmetrically placed and tied with #3 (#10) ties at 6 in. (150 mm) centers. An additional tie shall be provided at the top and bottom of the foundation. As an alternative to the ties, a #3 (#10) spiral at a 6 in. (150 mm) pitch with an additional 1 1/2 turns at the top and bottom of the foundation or an equivalent 4 x 4 – W12.3 x W7.4 welded wire fabric may be substituted. Reinforcement bars inside the concrete foundations do not require epoxy coating.

Posts shall be oversized by 0.0625 in. in each direction to account for corrosion.

The material and construction of the foundations (drilled shafts) shall be according to Section 516 of the Standard Specifications.

The shaft foundation dimensions shall be determined according to AASHTO LRFD Bridge Design Specifications. Soil borings from prior soil investigations when available are shown in the plans and may be used to generate foundation design parameters. The design shall utilize load and resistance factors as specified in the AASHTO LRFD Bridge Design Specifications and shall account for the effects of a sloping ground surface and water table indicated on the plans. In the event that insufficient data is shown on the plans, the following parameters should be assumed for the foundation design:

Effective unit weight	70 pcf (1120 kg/m^3)
Internal friction angle	30 degrees
Cohesion intercept	0 ksf (0 kg/m^3)

The maximum post spacing shall be as specified in the Contractor's approved design, but not greater than 20 ft.

The maximum allowable panel deflection shall be no more than the panel length (L) divided by 240 (L/240). The maximum post deflection due to post curvature shall be H/180, where H is the height of the post above the foundation. The maximum total post deflection due to post curvature, foundation curvature, and top-of-foundation rotation shall be H/90. A method utilizing P-y springs for different soil layers shall be used to calculate the total post deflection. When meeting the deflection limits cannot be demonstrated by calculations, a lateral load test and report shall be submitted to the Engineer indicating that the above noted design lateral loads can be applied to the panels and/or posts without exceeding noted deflection tolerance. The test shall apply lateral loads to the panel simulating uniform wind pressure, and earth pressure when present.

The design shall account for the presence of all appurtenances mounted on or passing through the wall such as drainage structures, existing or proposed utilities, emergency access doors and other items.

Corrugations, ribs or battens on the panel shall be oriented vertically when erected. The panels shall be designed to prevent entrapment and ponding of water. The walls shall not have openings allowing the perching or nesting of birds or the collection of dirt, debris or water.

The walls shall not have handholds or grips promoting climbing of the walls. Any bolts or fasteners used to connect material to the supporting panel, posts, or foundations shall be recessed or embedded in concrete, hidden from view and weather exposure. No external mechanical fastening devices such as frames or clips shall be used for these connections.

The noise abatement material shall be designed to achieve a sound TL equal to or greater than 20 dB in all one-third octave bands from 100 hertz to 5000 hertz, inclusive, when tested according to ASTM E-90. The sound absorptive material shall have a minimum NRC as indicated on the plans. For the side of the walls specified as reflective, no minimum NRC is required.

The NRC shall be determined per ASTM E795, tested according to ASTM C423 (mounting type A). The ratio of noise absorptive material on the panel surface to total wall area (including posts)

shall be greater than 90 percent. NRC testing shall be performed on coated samples, utilizing the stain that will be applied for color.

Access Doors. All access doors shall be designed to fit within the design of the noise wall as shown on the plans. Doors shall be complete with hardware and locking devices. Each door shall provide a 3 ft (0.9 m) wide by 7 ft (2.1 m) high minimum clear access opening. Both door jambs shall be securely fastened to anchored posts. Front and back face of the installed door shall be flush with the faces of the noise wall.

Perimeter and internal door frames shall consist of welded hot dip galvanized steel channels and miscellaneous angle stiffeners and plates designed to provide support for noise wall panels to match the noise wall material as specified in this special provision. Infill noise panel geometry and color shall match the adjacent noise wall panels. Noise wall panels shall be fastened to steel frames as per panel manufacturer's recommendations.

The door, jambs, head, hinges, door appurtenances, and adjacent ground mounted posts shall be designed to withstand the wind pressure of 30 psf (1.4 kPa) with the door in fully open and fully closed positions and support the weight of the door and a 300 lb (136 kg) vertical load on the non-hinged side of the door. Provide steel bracing as required. Door bottom shall be equipped with drainage holes to avoid accumulation of trapped moisture.

Door jambs and head section shall be hot dip galvanized steel. Door hinges shall be barrel type, edge mount, extra heavy-duty, hot dip galvanized steel or stainless steel. The hinges shall be designed to support the weight of door assembly, wind loads on the open door, and a 300 lb (136 kg) vertical load on the non-hinged side of the door.

Door pulls shall be provided on both sides of access door(s). Door locking hardware shall be hasp-type to be used with a padlock and shall be located according to local fire department or other requirements as applicable. A solid steel emergency access lock box system shall be provided and mounted near the hasp location at the steel post on the locking hardware side of door. The lock box for emergency access doors shall be according to local fire department requirements.

Doors shall be equipped with lifting bolts or beams as required for safe lifting of door units.

Materials. Noise wall materials shall conform to the supplier's standards, AASHTO Specifications for noise walls and the following:

(a) Reinforcement bars shall satisfy ASTM A706 Grade 60 (400). Welded wire fabric shall be according to AASHTO M 336. All reinforcement in the wall panels shall be epoxy coated or galvanized.

(b) Anchor bolts shall conform to ASTM F1554 Grade 55 or 105 and shall be galvanized per AASHTO M232.

(c) The precast elements shall be according to applicable portions of Section 1042 of the Standard Specifications. The precast elements are considered to be Precast Concrete

Structural Members. Coarse Aggregate shall meet the requirements of Article 1004.02(f)) of the Standard Specifications. Concrete shall be Class PC with a minimum compressive strength of 4500 psi (31,000 kPa)at 28 days. Dry cast concrete element will not be permitted.

(d) For sound absorptive panels, the manufacturer shall provide test information from an independent lab that the panels meet specified durability requirements.

All sound absorbing concrete and composite concrete components shall be tested for long-term durability according to ASTM C672 and the following modifications and/or requirements:

Three specimens of a full cross section of the panel at least 144 square inches in face area will be selected at random from the provided panel. Sample specimens shall be representative of the manufacturer's continuous production operation, as selected and marked by the engineer. Specimens shall be 2D-symmetric and shaped according to the testing laboratory's accommodations. Surfaces of the sample specimens shall be prepared for testing as follows. Brush the surfaces of the sample to remove any loose particles. Before testing, submerge the test specimens be submerged in water for a period of 24 hours before testing. Immediately following this, cover the specimens with the sodium chloride solution as stated below.

Test Procedure

Place samples in a 5 sided water tight container, fully submerged in a solution of sodium chloride (concentration 3% by mass). Maintain 1/4 inch of sodium chloride solution above the top surface of the fully submerged specimen within the container.

Subject the submerged specimens to continuous freeze-thaw cycles as follows:

After each five cycles, remove the salt solution and particles of deteriorated concrete from the slab and collect in a watertight container. The operation is best accomplished by tilting the slab in a funnel approximately 20 inches in diameter and washing the surface of the slab with a 3% sodium chloride solution. Continue this washing until all loose particles are removed from the sample. Strain the solution through a filter and dry the residue at 221 degrees Fahrenheit to a constant mass condition. Cumulatively weigh the residue after each five cycles. The dry residue is defined as the loss of mass. Calculate the loss of mass to the nearest 0.01 pounds per square foot, not including the exposed surface of any core material on the cast or cut edges. Visually rate the surfaces according to 10.1.5 of ASTM C672 including any delamination of the sound absorbing material from the concrete core for composite concrete materials. After each washing of each sample, re-establish the initial submerged condition with a new solution of 3% sodium chloride before continuing with freeze-thaw cycling.

Continue the test until 30 freeze-thaw cycles have been completed.

During the test position and support each specimen to allow free circulation of the test solution under, around, and over test pieces. Support the bottom of the specimens on blocks in a manner to facilitate movement of moisture through and around the test specimens.

Test Report

Submit to the engineer an independent testing laboratory test report which shows that all solid and composite concrete products meet or exceed the following criteria:

1. After 30 freeze-thaw cycles the test specimens shall not exhibit excessive deterioration in the form of cracks, spalls, aggregate disintegration, delamination or other objectionable features.
2. Compliance with the test requirements is based upon a loss of mass of not more than 0.2 pounds per square foot from the surface after 30 cycles of freezing and thawing.
3. The report shall include the following:
    a. Name of manufacturer.
    b. Location of production.
    c. Production description.
    d. Date product sample was cast.
    e. Date testing began.
    f. Specimen identification.
    g. 5x7-inch color photographs of the test specimens before and after the 30 cycles of freeze-thaw test showing both sound absorbing faces and at least one representative side view of a cut (not cast) face, and any defects.
    h. A graph of the cumulative mass loss of each specimen plotted against the number of freeze-thaw cycles for 5, 10, 15, 20, 25, and 30 freeze-thaw cycles.
    i. Visual rating according to ASTM C672 Section 10.1.5, including report of any delamination of the sound absorbing material from the concrete core for composite concrete components.

(e) The manufacturer for the noise abatement wall shall provide their quality control plan for testing the product, and test results shall be provided upon request by the Engineer. Manufacturers on the Department's Qualified Product List of Certified Precast Concrete Producers who are approved for noise abatement walls will be considered in compliance with this requirement. The panel manufacturer shall warranty the panels for aesthetic coating durability and no material delaminations or failures for a minimum of ten years.

(f) Steel plates and posts shall conform to AASHTO M 270 (M 270 M) Grade 36 (250) or 50 (345). All portions of the post shall be galvanized according to AASHTO M111 and ASTM A385 or primed according to Section 506 of the Standard Specifications. The exposed portions of the steel posts shall be painted according to Section 506 of the Standard Specifications. The adjacent concrete panels shall be protected from over spray. The color shall closely match the color of the concrete panels, unless otherwise specified on the plans. Steel bolts, nuts, and washers shall be galvanized according to AASHTO M232.

(g) Lifting inserts cast into the panels shall be hot dipped galvanized.

(h) Non shrink grout shall be according to Section 1024 of the Standard Specifications.

(i) The default color of both sides of the panels, posts and other visible elements shall be a light brown earth tone unless specified otherwise on the Contract Plans Colors shall be achieved through the use of integral pigments or stains, which are in compliance with the environmental regulation of the State of Illinois. Components manufactured with integral pigment shall be tested and certified in conformance to ASTM C979. Stains shall be non film forming, penetrating stains. Stains shall be applied to concrete at the cured age of the manufacturer's recommendation. Surface preparation and application shall be according to manufacturer written recommendations. Coloring of concrete elements shall be accomplished using a single component water based, sound absorptive, penetrating, architectural stain that is weather resistant. Stains and/or pigments must be applied at the manufacturing plant; application in the field on site will not be allowed. The final color shall be consistent with the quality and appearance of the approved sample. The surface coating shall be tested for accelerated weathering as follows:

(j)

Submit to the engineer certification of compliance that all coatings on barrier components, with the exception of structural steel and wood components comply with the following requirements when tested according to ASTM Standard G155, G153, or G152 after 2400 hours of exposure on a cement based test specimens:

1. No checking when rated according to ASTM D660.
2. No cracking when rated according to ASTM D661.
3. No blistering when rated according to ASTM D714.
4. No difference in adhesion between the unexposed control sample and an exposed sample when tested according to ASTM D3359, Method A.
5. No chalking less than #7 rating when rated according to ASTM D4214.
6. No color change greater than 5 NBS units when measured according to ASTM D2244, using illuminant D65 and the 1964 10-degree standard observer.

(k) The finish pattern of the precast panels shall be as specified on the Contract Plans.

(l) With the exception of the steel and Portland cement concrete elements of the wall, all materials shall be tested for flame spread and smoke density developed according to ASTM E84. The material must exhibit a flame-spread index less than 10 and a smoke density developed value of 10 or less.

Fabrication. All precast units shall be manufactured according to Section 504 of the Standard Specifications, and the following requirements and tolerances with respect to the dimensions shown on the approved shop drawings.

(a) The minimum reinforcement bar cover shall be 1 1/2 in (40 mm).
(b) Panel dimensions shall be within 1/4 in (6 mm).
(c) All hardware embedded in panels or posts shall be within 1/4 in (6 mm).
(d) Angular distortion with regard to panel squareness, defined as the difference between the two diagonals, shall not exceed 1/2 in (13 mm).
(e) Surface defects on formed surfaces measured on a length of 5 ft (1.5 m) shall not be more than 0.10 in (2.5 mm).

(f) Posts shall be installed plumb to within 1/2 in (13 mm) of vertical for every 15 ft (5 m) of height and to within 1/2 in (13 mm) of the station and offset indicated on the approved shop drawings.
(g) Drilled shaft foundations shall be placed within 2 in (50 mm) of the station and offset indicated on the approved shop drawings.
(h) Panel reinforcement and lifting devices shall be set in place to the dimension and tolerances shown on the plans and these special provisions prior to casting.

The date of manufacture, the production lot number, and the piece-mark shall be clearly noted on each panel.

Absorptive material shall be permanently attached to their supporting elements and no external mechanical fastening systems such as frames or clips shall be used. Any bolts or fasteners used shall be recessed or embedded below the surface.

Any chipping, cracks, honeycomb, or other defects, to be allowed, shall be within acceptable standards for precast concrete products according to Section 1042 of the Standard Specifications and as determined by the Engineer.

Construction. The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include any costs related to this technical assistance in the contract unit price for Noise Abatement Wall. The instructions provided by the wall supplier are guidelines and do not relieve the contractor of the responsibility to adhere to contract requirements.

It is recommended that all bottom panels be installed for a length of wall prior to placing middle or top panels. After bottom panels are in-place, finish grading can be accomplished with heavy equipment by reaching over the in-place panels.

Site excavations and/or fill construction shall be completed to plan elevations and profiles prior to the start of wall foundation construction. All underground utility or drainage structure installation shall be completed prior to foundation installation. The ground elevations as shown on the plans and the approved noise wall shop drawings shall be verified by the contractor and discrepancies corrected prior to material fabrication. Buried utilities shall be marked to verify proper clearance from the drilled foundations. The Contractor should consider overhead obstruction such as electric and telephone wires prior to wall erection.

If the soils encountered during drilling of the foundations do not satisfy the design strengths shown on the Contract Plans, the Engineer shall be notified to evaluate the required foundation modifications. The shaft foundation will normally require additional length, which may be paid separately under Article 104.03 of the Standard Specifications. All drilled shaft excavations shall be filled with concrete within 6 hours of their initiation. The concrete for the drilled shaft foundations shall be placed against undisturbed, in-place soils. The concrete at the top of the shaft shall be shaped to provide the panels on each side of the post adequate bearing area and correct elevation per the approved shop drawings.

The panels shall be delivered to the project site in full truckload quantities. They may be off-loaded individually or by forklift with a solid steel plate spanning between the forks providing uniform, fully distributed bearing support to the underside of the panels. Units shall be shipped, handled and stored in such a manner as to minimize the danger of staining, chipping, spalling, development of cracks, fractures, and excessive bending stresses. Panels shall be stored and shipped in bundles, on edge. Any touch up and repair is at the Contractor's expense and shall be carried out according to the manufacturer's recommendations.

Method of Measurement. Noise abatement walls will be measured in square feet (square meters) from the wall envelope, defined by the theoretical top of wall line to the theoretical bottom of wall line for the length of the wall as shown on the Contract Plans.

Drilled shafts, concrete, reinforcement bars and other elements for supporting the ground mounted noise abatement walls will not be measured for payment.

Access doors shown on the Contract Plans will not be measured for payment.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for NOISE ABATEMENT WALL, GROUND MOUNTED.

The costs for drilled shafts, concrete, reinforcement bars and other elements supporting the noise abatement walls will not be paid for separately but will be included in the item for NOISE ABATEMENT WALL, GROUND MOUNTED.

NOISE ABATEMENT WALL, STRUCTURE MOUNTED
Revised: December 9, 2022

General. This work shall consist of furnishing the design, shop drawings, materials, post anchorage, and construction of structure mounted concrete noise abatement walls (noise walls) according to this Special Provision, the Contract Plans and/or as directed by the Engineer.

The noise abatement wall shall consist of precast concrete panels spanning between vertical posts attached to/supported by another structure (structure mounted) as shown on the plans. The posts shall be steel, unless otherwise specified on the Contract Plans. The design, material, fabrication and construction shall comply with this Special Provision and the requirements specified by the noise wall supplier selected by the Contractor for use on this project. The walls shall have no omissions or gap except as detailed in the Contract Plans.

The Contractor shall verify the locations for the proposed structure mounted wall for conflicts and inform the Engineer in writing of any conflicts before realigning or redesigning the wall. The Contractor shall realign or redesign the wall to avoid any conflicts.

Wall components shall be fabricated and erected to produce a precast concrete reflective noise wall system and/or an absorptive noise reduction system at the locations shown in the Contract Plans. The noise reduction system shall satisfy the acoustical requirements as specified on the Contract Plans. An absorptive noise reduction system may be used as an alternate to a reflective noise wall system. Substitution of alternate materials in lieu of precast concrete panels will not be allowed.

All appurtenances behind, in front of, under, over, mounted upon, or passing through the noise wall, such as drainage structures, fire hydrant access, highway signage, emergency access, utilities, and storm sewers shall be accounted for in design of the wall.

The noise walls shall be designed and constructed to extend to the minimum lines, grades and dimensions of the wall envelope, with no omissions or gaps, as shown on the Contract Plans and as directed by the Engineer.

Submittals. A complete wall design submittal, including design calculations for wall panels, posts, and all connections and shop drawings shall be submitted to the Department for review and approval no later than 90 days prior to beginning construction of the wall. The time required for the preparation and review of these submittals shall be charged to the allowable contract time. Delays caused by untimely submittals or insufficient data will not be considered justifications for any time extensions. No additional compensation will be made for any additional material, equipment or other items found necessary to comply with the project specifications as a result of the Engineer's review. The Contractor will be required to submit the necessary shop drawings. All submittals shall be prepared and sealed by an Illinois Licensed Structural Engineer.

Submittals shall include all structural calculations, details, dimensions, quantities and cross sections necessary for the construction of the noise abatement walls including but not be limited to:

(1) Structural design calculations for all structural members, and connections prepared and sealed by an Illinois Licensed Structural Engineer, and prints of shop drawings on reduced size 11 x 17 in. (275 x 425 mm) sheets in accordance with Article 503.05 and 1042.03(b) of the Standard Specifications.

(2) A plan view of the wall indicating the stations and offsets required to locate the wall.. Each panel and post shall be numbered and any changes in type or size shall be noted. The centerline of any utilities passing under the wall and locations of expansion joints, access doors, lighting, signing, curb cuts, and drainage structures shall also be shown.

(3) An elevation view of the wall, indicating the elevations of the top of the posts and panels as well as the elevations of the bottom of the panels, , all steps in wall system, the finished grade line, and vertical clearances to existing utilities and storm sewers. Each post size and length, panel type and size, shall be designated.

(4) A typical cross section(s) that shows the panel, post, , and the elevation relationship between the supporting structure and the finished grade as well as slopes adjacent to the wall.

(5) All general notes required for constructing the wall.

(6) All details for the steps in the bottom of panels shall be shown. The bottom of the panels shall be located at or below the theoretical bottom of panel line shown on the Contract Plans. The theoretical bottom of panel line is assumed to be at the top of the structure to which it is mounted, unless otherwise shown on the Contract Plans.

(7) Tops of the panels and posts shall extend to or above the theoretical top of wall line shown on the Contract Plans. All panel tops shall be cast and placed horizontally with any changes in elevation accomplished by stepping adjacent panel sections at posts. Steps shall not exceed 2 ft (300 mm) in height.

(8) All panel types shall be detailed. The details shall show panel weight, orientation, all dimensions necessary to cast and/or fabricate each type of panel, the reinforcing steel, and location of post or foundation connection hardware as well as lifting devices embedded in the panels. The Noise Reduction Coefficient (NRC) of each panel of the absorptive face shall be noted.

(9) All post types shall be detailed. The details shall show post weight, orientation, all dimensions necessary to cast and/or fabricate each type of post, the reinforcing steel, connecting plates, and anchorage details as well as lifting devices embedded in or attached to the posts. Post spacing for walls shall be limited to a distance that does not over stress the supporting structure.

(10) Details of wall panels with appurtenances attached to or passing through the wall, as shown on the contract plans, such as utilities, emergency access doors, framed openings, drainage

structures, signs, etc. shall be shown. Any modifications to the design or location of these appurtenances to accommodate a particular system shall also be submitted.

(11) All architectural panel treatment, including color, texture and form liner patterns shall be shown. All joints shall be placed horizontal or vertical and shall be aligned with adjacent panels.

(12) The details for the connection between panels and posts as well as their connection to the supporting structure shall be shown.

(13) Testing, certifications and reports from independent laboratories documenting that the panel's sound Transmission Loss (TL) and NRC for the panel satisfy the criteria shown in the design criteria section of this specification. The testing results for the flame spread, smoke density and freeze-thaw/salt scaling requirements described in the materials section of this specification shall also be submitted. If unable to document panel and post deflections by calculations, reports of full scale testing shall be submitted to demonstrate the deflection criteria have been met.

(14) Manufacturer recommended installation requirements, a sequence of construction and a detailed bill of materials shall be included.

(15) The color of the wall panels and support posts identified by Federal Standard 595-B color number.

The Contractor shall deliver to the Department, a 2 ft x 2 ft (600 mm x 600 mm) precast concrete sample of the wall which contains the colors, textures and patterns proposed for use on the project for approval.

The samples shall be made at the same plant manufacturing the product for the noise walls under this contract, and shall be representative of those which will be tested per this specification. Once the color sample is approved, a batch shall be designated by batch number and date and will remain the standard for the entire project.

The Contractor shall submit site access plans showing access and limits of the work areas for the installation of the wall. Any required traffic controls shall be according to the requirements in the plans or the special provision for TRAFFIC CONTROL PLAN.

The initial wall and foundation design submittal shall include three (3) sets of shop drawings and calculations. One set of drawings will be returned to the Contractor with any corrections indicated. The Contractor shall do no work or ordering of materials for the structure until the Engineer has approved the submittal.

Design Criteria. The wall system shall be designed to withstand wind pressure, applied perpendicular to the panels in either direction, according to the AASHTO LRFD Bridge Design Specifications, Chapter 15, for the Design of Sound Barriers. The noise wall design life shall be 75 years unless otherwise noted. The wall system shall be designed to withstand any active earth

pressure and live load surcharge at locations indicated on the plans. The contractor shall be responsible for the structural adequacy of the panels, posts, and connections. Prestressed and/or post tensioned panel concepts will not be permitted.

The factored Strength III design wind loading shall be as specified on the plans but not less than 35 psf (1.7 kPa). The factored Service I design wind loading shall be as specified on the plans but not less than 15 psf.

The post spacing for structure mounted noise walls shall be as shown on the plans but in no case greater than 11 ft. – 8 in. (3.5 m) center to center.

Posts shall be oversized by 0.0625 in. in each direction to account for corrosion.

The maximum allowable panel deflection shall be no more than the panel length (L) divided by 240 (L/240). The maximum post deflection due to post curvature shall be (H/180), where H is the height of the post above the foundation. For noise abatement walls on retaining walls, the maximum total post deflection due to post curvature, retaining wall curvature, and top-of-retaining-wall rotation shall be H/90. When meeting the deflection limits cannot be demonstrated by calculations, a lateral load test and report shall be submitted to the Engineer indicating that the above noted design lateral loads can be applied to the panels and/or posts without exceeding noted deflection tolerance. The test shall apply lateral loads to the panel simulating uniform wind pressure, and earth pressure when present.

The design shall account for the presence of all appurtenances mounted on or passing through the wall such as drainage structures, existing or proposed utilities, emergency access doors and other items.

Corrugations, ribs or battens on the panel shall be oriented vertically when erected. The panels shall be designed to prevent entrapment and ponding of water. The walls shall not have openings allowing the perching or nesting of birds or the collection of dirt, debris or water.

The walls shall not have handholds or grips promoting climbing of the walls. Any bolts or fasteners used to connect material to the supporting panel, posts, or foundations shall be recessed or embedded in concrete, hidden from view and weather exposure. No external mechanical fastening devices such as frames or clips shall be used for these connections.

The noise abatement material shall be designed to achieve a sound TL equal to or greater than 20 dB in all one-third octave bands from 100 hertz to 5000 hertz, inclusive, when tested according to ASTM E-90. The sound absorptive material shall have a minimum NRC as indicated on the plans. For the side of the walls specified as reflective, no minimum NRC is required.

The NRC shall be determined per ASTM E795, tested according to ASTM C423 (mounting type A). The ratio of noise absorptive material on the panel surface to total wall area (including posts) shall be greater than 90 percent. NRC testing shall be performed on coated samples, utilizing the stain that will be applied for color.

Access Doors. All access doors shall be designed to fit within the design of the noise wall as shown on the plans. Doors shall be complete with hardware and locking devices. Each door shall provide a 3 ft (0.9 m) wide by 7 ft (2.1 m) high minimum clear access opening. Both door jambs shall be securely fastened to anchored posts. Front and back face of the installed door shall be flush with the faces of the noise wall.

Perimeter and internal door frames shall consist of welded hot dip galvanized steel channels and miscellaneous angle stiffeners and plates designed to provide support for noise wall panels to match the noise wall material as specified in this special provision. Infill noise panel geometry and color shall match the adjacent noise wall panels. Noise wall panels shall be fastened to steel frames as per panel manufacturer's recommendations.

The door, jambs, head, hinges, door appurtenances, and adjacent ground mounted posts shall be designed to withstand the wind pressure of 30 psf (1.4 kPa) with the door in fully open and fully closed positions and support the weight of the door and a 300 lb (136 kg) vertical load on the non-hinged side of the door. Provide steel bracing as required. Door bottom shall be equipped with drainage holes to avoid accumulation of trapped moisture.

Door jambs and head section shall be hot dip galvanized steel. Door hinges shall be barrel type, edge mount, extra heavy-duty, hot dip galvanized steel or stainless steel. The hinges shall be designed to support the weight of door assembly, wind loads on the open door, and a 300 lb (136 kg) vertical load on the non-hinged side of the door.

Door pulls shall be provided on both sides of access door(s). Door locking hardware shall be hasp-type to be used with a padlock and shall be located according to local fire department or other requirements as applicable. A solid steel emergency access lock box system shall be provided and mounted near the hasp location at the steel post on the locking hardware side of door. The lock box for emergency access doors shall be according to local fire department requirements.

Doors shall be equipped with lifting bolts or beams as required for safe lifting of door units.

Materials. Noise wall materials shall conform to the supplier's standards, AASHTO Specifications for noise walls and the following:

(a) Reinforcement bars shall satisfy ASTM A706 Grade 60 (400). Welded wire fabric shall be according to AASHTO M 336. All reinforcement in the wall panels shall be epoxy coated or galvanized.

(b) Anchor bolts shall conform to ASTM F1554 Grade 55 or 105 and shall be galvanized per AASHTO M232.

(c) The precast elements shall be according to applicable portions of Section 1042 of the Standard Specifications. The precast elements are considered to be Precast Concrete Structural Members. Coarse Aggregate shall meet the requirements of Article 1004.02(f)) of the Standard Specifications. Concrete shall be Class PC with a minimum compressive strength of 4500 psi (31,000 kPa)at 28 days. Dry cast concrete element will not be permitted.

(d) For sound absorptive panels, the manufacturer shall provide test information from an independent lab that the panels meet specified durability requirements.

All sound absorbing concrete and composite concrete components shall be tested for long-term durability according to ASTM C672 and the following modifications and/or requirements:

Three specimens of a full cross section of the panel at least 144 square inches in face area will be selected at random from the provided panel. Sample specimens shall be representative of the manufacturer's continuous production operation, as selected and marked by the engineer. Specimens shall be 2D-symmetric and shaped according to the testing laboratory's accommodations. Surfaces of the sample specimens shall be prepared for testing as follows. Brush the surfaces of the sample to remove any loose particles. Before testing, submerge the test specimens be submerged in water for a period of 24 hours before testing. Immediately following this, cover the specimens with the sodium chloride solution as stated below.

Test Procedure

Place samples in a 5 sided water tight container, fully submerged in a solution of sodium chloride (concentration 3% by mass). Maintain 1/4 inch of sodium chloride solution above the top surface of the fully submerged specimen within the container.

Subject the submerged specimens to continuous freeze-thaw cycles as follows:

After each five cycles, remove the salt solution and particles of deteriorated concrete from the slab and collect in a watertight container. The operation is best accomplished by tilting the slab in a funnel approximately 20 inches in diameter and washing the surface of the slab with a 3% sodium chloride solution. Continue this washing until all loose particles are removed from the sample. Strain the solution through a filter and dry the residue at 221 degrees Fahrenheit to a constant mass condition. Cumulatively weigh the residue after each five cycles. The dry residue is defined as the loss of mass. Calculate the loss of mass to the nearest 0.01 pounds per square foot, not including the exposed surface of any core material on the cast or cut edges. Visually rate the surfaces according to 10.1.5 of ASTM C672 including any delamination of the sound absorbing material from the concrete core for composite concrete materials. After each washing of each sample, re-establish the initial submerged condition with a new solution of 3% sodium chloride before continuing with freeze-thaw cycling.

Continue the test until 30 freeze-thaw cycles have been completed.

During the test position and support each specimen to allow free circulation of the test solution under, around, and over test pieces. Support the bottom of the specimens on blocks in a manner to facilitate movement of moisture through and around the test specimens.

Test Report

Submit to the engineer an independent testing laboratory test report which shows that all solid and composite concrete products meet or exceed the following criteria:

1. After 30 freeze-thaw cycles the test specimens shall not exhibit excessive deterioration in the form of cracks, spalls, aggregate disintegration, delamination or other objectionable features.
2. Compliance with the test requirements is based upon a loss of mass of not more than 0.2 pounds per square foot from the surface after 30 cycles of freezing and thawing.
3. The report shall include the following:
    a. Name of manufacturer.
    b. Location of production.
    c. Production description.
    d. Date product sample was cast.
    e. Date testing began.
    f. Specimen identification.
    g. 5x7-inch color photographs of the test specimens before and after the 30 cycles of freeze-thaw test showing both sound absorbing faces and at least one representative side view of a cut (not cast) face, and any defects.
    h. A graph of the cumulative mass loss of each specimen plotted against the number of freeze-thaw cycles for 5, 10, 15, 20, 25, and 30 freeze-thaw cycles.
    i. Visual rating according to ASTM C672 Section 10.1.5, including report of any delamination of the sound absorbing material from the concrete core for composite concrete components.

(e) The manufacturer for the noise abatement wall shall provide their quality control plan for testing the product, and test results shall be provided upon request by the Engineer. Manufacturers on the Department's Qualified Product List of Certified Precast Concrete Producers who are approved for noise abatement walls will be considered in compliance with this requirement. The panel manufacturer shall warranty the panels for aesthetic coating durability and no material delaminations or failures for a minimum of ten years.

(f) Steel plates and posts shall conform to AASHTO M 270 (M 270 M) Grade 36 (250) or 50 (345). All portions of the post shall be galvanized according to AASHTO M111 and ASTM A385 or primed according to Section 506 of the Standard Specifications. The exposed portions of the steel posts shall be painted according to Section 506 of the Standard Specifications. The adjacent concrete panels shall be protected from over spray. The color shall closely match the color of the concrete panels, unless otherwise specified on the plans. Steel bolts, nuts, and washers shall be galvanized according to AASHTO M232.

(g) Lifting inserts cast into the panels shall be hot dipped galvanized.

(h) Non shrink grout shall be according to Section 1024 of the Standard Specifications.

(i) The default color of both sides of the panels, posts and other visible elements shall be a light brown earth tone unless specified otherwise on the Contract Plans Colors shall be achieved through the use of integral pigments or stains, which are in compliance with the environmental regulation of the State of Illinois. Components manufactured with integral pigment shall be

tested and certified in conformance to ASTM C979. Stains shall be non film forming, penetrating stains. Stains shall be applied to concrete at the cured age of the manufacturer's recommendation. Surface preparation and application shall be according to manufacturer written recommendations. Coloring of concrete elements shall be accomplished using a single component water based, sound absorptive, penetrating, architectural stain that is weather resistant. Stains and/or pigments must be applied at the manufacturing plant; application in the field on site will not be allowed. The final color shall be consistent with the quality and appearance of the approved sample. The surface coating shall be tested for accelerated weathering as follows:

Submit to the engineer certification of compliance that all coatings on barrier components, with the exception of structural steel and wood components comply with the following requirements when tested according to ASTM Standard G155, G153, or G152 after 2400 hours of exposure on a cement based test specimens:

1. No checking when rated according to ASTM D660.
2. No cracking when rated according to ASTM D661.
3. No blistering when rated according to ASTM D714.
4. No difference in adhesion between the unexposed control sample and an exposed sample when tested according to ASTM D3359, Method A.
5. No chalking less than #7 rating when rated according to ASTM D4214.
6. No color change greater than 5 NBS units when measured according to ASTM D2244, using illuminant D65 and the 1964 10-degree standard observer.

(j) The finish pattern of the precast panels shall be as specified on the Contract Plans.

(k) With the exception of the steel and Portland cement concrete elements of the wall, all materials shall be tested for flame spread and smoke density developed according to ASTM E84. The material must exhibit a flame-spread index less than 10 and a smoke density developed value of 10 or less.

Fabrication. All precast units shall be manufactured according to Section 504 of the Standard Specifications, and the following requirements and tolerances with respect to the dimensions shown on the approved shop drawings.

(a) The minimum reinforcement bar cover shall be 1 1/2 in (40 mm).
(b) Panel dimensions shall be within 1/4 in (6 mm).
(c) All hardware embedded in panels or posts shall be within 1/4 in (6 mm).
(d) Angular distortion with regard to panel squareness, defined as the difference between the two diagonals, shall not exceed 1/2 in (13 mm).
(e) Surface defects on formed surfaces measured on a length of 5 ft (1.5 m) shall not be more than 0.10 in (2.5 mm).
(f) Posts shall be installed plumb to within 1/2 in (13 mm) of vertical for every 15 ft (5 m) of height and to within 1/2 in (13 mm) of the station and offset indicated on the approved shop drawings.
(g) Panel reinforcement and lifting devices shall be set in place to the dimension and tolerances shown on the plans and these special provisions prior to casting.

The date of manufacture, the production lot number, and the piece-mark shall be clearly noted on each panel.

Absorptive material shall be permanently attached to their supporting elements and no external mechanical fastening systems such as frames or clips shall be used. Any bolts or fasteners used shall be recessed or embedded below the surface.

Any chipping, cracks, honeycomb, or other defects, to be allowed, shall be within acceptable standards for precast concrete products according to Section 1042 of the Standard Specifications and as determined by the Engineer.

Construction. The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include any costs related to this technical assistance in the contract unit price for Noise Abatement Wall. The instructions provided by the wall supplier are guidelines and do not relieve the contractor of the responsibility to adhere to contract requirements.

It is recommended that all bottom panels be installed for a length of wall prior to placing middle or top panels. After bottom panels are in-place, finish grading can be accomplished with heavy equipment by reaching over the in-place panels.

The Contractor should consider overhead obstruction such as electric and telephone wires prior to wall erection.

The panels shall be delivered to the project site in full truckload quantities. They may be off-loaded individually or by forklift with a solid steel plate spanning between the forks providing uniform, fully distributed bearing support to the underside of the panels. Units shall be shipped, handled and stored in such a manner as to minimize the danger of staining, chipping, spalling, development of cracks, fractures, and excessive bending stresses. Panels shall be stored and shipped in bundles, on edge. Any touch up and repair is at the Contractor's expense and shall be carried out according to the manufacturer's recommendations.

Method of Measurement. Noise abatement walls will be measured in square feet (square meters) from the wall envelope, defined by the theoretical top of wall line to the theoretical bottom of wall line for the length of the wall as shown on the Contract Plans.

Access doors shown on the Contract Plans will not be measured for payment. The presence of access doors will not be used to reduce the area of the noise abatement wall.

Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for NOISE ABATEMENT WALL, STRUCTURE MOUNTED. The costs of aesthetic treatments, noise reduction treatments, access doors, weep holes, or other details within the wall panels will not be paid for separately but will be included in the cost of NOISE ABATEMENT WALL, STRUCTURE MOUNTED.

NOISE ABATEMENT WALL ANCHOR ROD ASSEMBLY
Effective: December 9, 2022

Description. This work shall consist of furnishing and installing Anchor Rod Assembly for future Noise Abatement Wall installation. It includes installation of threaded anchor rods, nuts, washers, and a template plate.

Materials. Materials shall be according to the following.

Item	Article
(a) Structural Steel	1006.04
(b) High Strength Steel Nuts and Washers	1006.08(a)
(c) Anchor Bolts and Rods	1006.09

Anchor rods, nuts, washers, and template plates shall be hot dipped galvanized according to the requirements of AASHTO M111 or M232 as applicable.

Anchor rods shall be according to ASTM F 1554 Grade 105, and shall satisfy Charpy V-Notch (CVN) toughness requirements according to Supplemental Requirement S4 of ASTM F 1554.

Construction. All structural steel related work shall be according to Section 505 of the Standard Specifications.

Welding of anchor rods is not permitted.

A 1/4” structural steel template plate shall be used to ensure the anchor rods retain the correct geometry during the pouring of the parapets. The template plate shall be embedded in the parapet, with the exterior face of the plate flush with the back face of the parapet.

Anchor Rod Assemblies shall be installed according to Article 521.06 of the Standard Specifications.

Method of Measurement. This work will be measured for payment as each. Each will be defined as complete anchor rod assembly which shall include furnishing and installing of anchor rods, washers, nuts, and template plate.

Basis of Payment. Anchor rod assembly furnished and installed will be paid for at the contract unit price each for NOISE ABATEMENT WALL ANCHOR ROD ASSEMBLY.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (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). 23 CFR 633.102(e).

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. 23 CFR 633.102(e).

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) in accordance with 23 CFR 633.102. 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 solicitation-for-bids or request-for-proposals 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). 23 CFR 633.102(b).

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. 23 CFR 633.102(d).

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. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A 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 Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 230, Subpart A, 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 (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 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 Part 35 and 29 CFR Part 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. 23 CFR 230.409 (g)(4) & (5).

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, sexual orientation, gender identity, 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 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 or other knowledgeable company official.

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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure 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. 23 CFR 230.409. 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, sexual orientation, gender identity, 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, sexual orientation, gender identity, 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 thereunder. 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, sexual orientation, gender identity, 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, 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. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. 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 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 recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

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 more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, 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, sexual orientation, gender identity, 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), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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 (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 basic hourly 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. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. 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 classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must 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. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must 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 be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate 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 used 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) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) 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 will be sent by the contracting officer by email to *DBAconformance@dol.gov*. 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.

(4) 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 will, by email to *DBAconformance@dol.gov*, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The 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.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must 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.

d. *Fringe benefits not expressed as an hourly rate.* 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* 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, in accordance with the criteria set forth in § 5.28, 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.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must 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.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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 29 CFR part 3; and

(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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH–347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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 (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must 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, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. 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. 23 CFR 230.111(e)(2). 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 journeyworkers 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 as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 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 as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, 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 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 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), 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 watchpersons 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. 29 CFR 5.5.

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 and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* 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.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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” in paragraph 1 of Section VI 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: (based on longstanding interpretation)

(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. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), 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. Pursuant to 23 CFR 635.116(c), 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. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

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 Part 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. 23 CFR 635.108.

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 Part 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). 29 CFR 1926.10.

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 Part 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 11, 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 (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

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. 2 CFR 180.220 and 1200.220.

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. 2 CFR 180.320.

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. 2 CFR 180.325.

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. 2 CFR 180.345 and 180.350.

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, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 180.330.

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. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. 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 System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

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 CFR 180.325.

* * * * *

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 CFR 180.335;.

(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, 2 CFR 180.800;

(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, 2 CFR 180.700 and 180.800; 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. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. **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). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

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, Subpart I, 180.900 – 180.1020, 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 recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 1200.220 and 1200.332.

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. 2 CFR 180.220 and 1200.220.

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 System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

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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 Part 20, App. A.

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.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor 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. 46 CFR 381.7.

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 Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B) 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.