

# 120

January 20, 2023 Letting

## Notice to Bidders, Specifications and Proposal



**Illinois Department  
of Transportation**

**Contract No. 78962  
FRANKLIN County  
Section (28-2-1)(I-2)RA  
Route FAI 57  
District 9 Construction Funds**

Prepared by

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Checked by

(Printed by authority of the State of Illinois)



## **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. January 20, 2023 prevailing time 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. 78962  
FRANKLIN County  
Section (28-2-1)(I-2)RA  
Route FAI 57  
District 9 Construction Funds**

**Replacement of the sanitary sewer lift station and grinder, electrical service, alarm system, driveway pavement and water service at northbound I-57 Rend Lake Rest Area, 2.4 miles north of the IL 14 / Benton interchange.**

- 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 readvertise the proposed improvement, and to waive technicalities.

By Order of the  
Illinois Department of Transportation

Omer Osman,  
Secretary

INDEX  
FOR  
SUPPLEMENTAL SPECIFICATIONS  
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2022

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

No ERRATA this year.

SUPPLEMENTAL SPECIFICATIONS

Std. Spec. Sec.

Page No.

No Supplemental Specifications this year.

RECURRING SPECIAL PROVISIONS

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

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## STATE OF ILLINOIS

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### SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2022, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAI Route 57 (I-57), Section (28-2-1)(I-2)RA, Franklin County, Contract No 78962, and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

FAI Route 57 (I-57)  
Section (28-2-1)(I-2)RA  
Franklin County  
Contract No 78962

#### LOCATION OF PROJECT

This project is located at the northbound Rend Lake Rest Area on Interstate 57 in Franklin County, approximately 2.45 miles north of IL 14 in Benton, IL.

#### DESCRIPTION OF PROJECT

The project involves the replacement of the existing sanitary sewer lift station with a new lift station and grinder, electrical service, alarm system, driveway pavement, and water service to the lift station site.

#### UTILITIES

Effective 1984    Revised 4/8/20

There are no known utility conflicts within the project limits. However, the following utility companies have facilities within the project limits:

**Status of JULIE Member Utilities  
78962 I-57 Lift Station Replacement at Northbound Rend Lake Rest Area,  
Franklin County**

Name and Address of Utility	Type	Location	Estimated Adjustment Status
Benton, City of P.O Box 640 Benton, IL 62812 ATTN: Craig Miles Cell: (618) 927-3196 Email: wssupt@bentonil.com	WATER/ SEWER	THROUGHOUT	NONE ANTICIPATED
Ewing / INA Water Commission 104 West Main Whittington, IL 62897 ATTN: Adam Allsop Tel: (618) 629-2221 Cell: (618) 927-6756 Email: ewingina@gmail.com	WATER	THROUGHOUT	NONE ANTICIPATED
Frontier Communications 208 West Union St. Marion, IL 62959 ATTN: Rick Shaw Tel: (618) 997-0253 Cell: (618) 967-5540 Email: rick.shaw@ftr.com	TELEPHONE/ FIBER OPTIC	THROUGHOUT	NONE ANTICIPATED
Ameren Illinois Electric 1800 W Main Street Marion, IL 62959 ATTN: Kristina Carlson Tel: (618) 998-4536 Cell: (618) 499-5246 Email: KCarlson@ameren.com	ELECTRIC	THROUGHOUT	NONE ANTICIPATED
Ameren Illinois 1800 West Main St Marion, IL 62959 ATTN: Traven Watts Tel: (618) 998-4504 Cell: (618) 351-8440 Email: TWatts2@Ameren.com	GAS	THROUGHOUT	NONE ANTICIPATED
CountryMark 6701 Lower Harmony Road Mt. Vernon, IN. 47620 ATTN: Jamie Marques Tel: (812) 833-2598 Cell: (812) 270-2107 Email: Jamie.Marques@CountryMark.com	GAS PIPELINE	THROUGHOUT	NONE ANTICIPATED

Additional utility information may be obtained by calling the "Joint Utility Location Information for Excavators" phone number, 800-892-0123. This project is located in the Benton Township.

## **TRAFFIC CONTROL PLAN**

Effective 1985 Revised 6/16/21

During the entire construction period, the road shall be kept open to traffic as follows.

- (a) The northbound Rend Lake Rest Area shall be kept open to at least one lane of traffic at all times, except for the allowed closure of the rest area where the northbound Rend Lake Rest Area can be completely closed.
- (b) The Contractor will be allowed to close the northbound Rend Lake Rest Area for no more than 48 hours to switch the electrical and sewage flow from the existing lift station to the proposed system. Within this 48-hour period, the Contractor shall make the proposed lift station fully operational before re-opening the rest area. The northbound Rend Lake Rest Area shall remain open to public use at all other times unless approved by the Engineer.
- (c) All lanes of FAI 57 shall remain open to traffic.

## **CONTRACTOR ACCESS – AIR RELEASE VALVES**

Access to the air release valve locations will not be allowed from FAI 57 due to the current construction contract on FAI 57 in this area (Contract 78656). The Contractor will access the air release valves from the north side of the Petroff Road overpass using foot traffic or a light all-terrain vehicle (ATV).

## **COOPERATION BETWEEN CONTRACTORS**

Revised 2/10/17

The Contractor is to be aware that the traffic control limits of this contract may overlap those of another project(s) that may be under construction along FAI 57 concurrently with this work. The Contractor shall coordinate his/her work with the other Contractors to minimize any possible conflicts. The Contractor shall also notify the Engineer five (5) working days in advance of any work that may affect other adjacent contracts.

Adjacent Project, Contract No. 78656: Additional lanes in each direction from Marcum Branch Bridge to 0.6 miles south of the Big Muddy River Bridge at mile post 66 in Franklin County



## **EARTH EXCAVATION, BORROW AND FURNISHED EXCAVATION**

Description: This work shall be done according to Sections 202 and 204 of the Standard Specifications and this provision for items.

Basis of Payment: Earth excavation, borrow excavation, and furnished excavation will not be paid for directly and shall be included in the cost of the contract.

## **AIR RELEASE VALVE REPLACEMENT**

### GENERAL

Section includes combination air release and vacuum valves for sewage including valves, fittings, and appurtenances.

### Summary of Work:

The work required by this specification section consists of furnishing all labor, materials, equipment, means, methods, procedures, safety programs, and testing to replace air release valves as shown on the contract documents.

### Standard Specifications:

All work, installation, procedures, and testing shall be in conformance with the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and the Standard Specifications for Road and Bridge Construction, latest edition, by the Illinois Department of Transportation and all subsequent supplements to this document.

### Regulatory Requirements:

1. IEPA, Illinois Environmental Protection Agency Permits
2. IEPA Sanitary Sewer Construction and Operating Permit for this Project

### Standards:

1. Illinois Recommended Standards for Sewage Works
2. Illinois Plumbing Code
3. Illinois Urban Manual
4. OSHA - Occupational, Safety, and Health Administration
5. All municipal, county, state, and federal jurisdiction's ordinances, regulations, statutes, and laws.

### References:

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

1. AMERICAN WATER WORKS ASSOCIATION (AWWA)
  - a. AWWA C512 Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service

### Submittals:

2. Product Data:
3. Manufacturer's product data sheets.

4. Contract Closeout Submittals:
5. Project Record Documents: Accurately record installed location of valves.
6. Provide all testing reports, O&M Manuals, and manufacturer warranty information.
7. Delivery, Storage, and Handling:
  - a. Storage: Store all valves and appurtenances in accordance with the manufacturer's written instructions, protect from damage, and protect after installation until final acceptance.

## PRODUCTS

### Combination Air/Vacuum Relief Valves:

Wastewater combination air valves shall be designed to exhaust large quantities of air when filling a pipeline and close when liquid enters the valve. The valve shall open during draining or if a negative pressure occurs. The valve shall release accumulated air from the system while in operation and under pressure. Valves shall be attached by means of threaded pipe connections.

All air valves shall be fully automatic and shall operate together as intended in the application shown on the drawings and discussed herein. All air valves provided must be from the same manufacturer. The manufacturer shall demonstrate a minimum of five (5) years' experience in the manufacture of wastewater air valves. The manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals as specified.

Required valve performance shall be demonstrated in shop drawing submittals based on actual physical testing or CFD modeling supported with benchmarking proven to +/- 5%.

## Construction and Design

Valves shall be of a single body type design, and all air valves shall be rated for a working pressure of at least 150 psi.

Air valves shall be manufactured in accordance with applicable standards to meet all specified requirements. Air valves shall be tested to show compliance with manufacturer's published performance as indicated in the approved shop drawings. Manufacturer shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

All hardware shall be Type 316 stainless steel, except where otherwise specified or otherwise approved by the Engineer.

Each air valve shall be designed specifically for raw, unscreened wastewater applications.

All component parts shall be field replaceable without the need of special tools.

Size: Air valves shall be 2-inch nominal size. Entire flow pathway through the valve shall be at least equal to the nominal area of the base connection.

Warranty: Provide manufacturer's warranty.

## EXECUTION

### Preparation:

Prior to installing valves, remove foreign matter from within the valves. Inspect the valves to verify that parts are in satisfactory working condition. Prior to installing valves remove existing valves.

Installation:

Install valves in accordance with manufacturer's instructions at locations shown on the drawings. Set valves plumb and as detailed on drawings.

Field Testing:

Demonstrate proper operation of combination air release and pressure reducing valves after installation.

BASIS OF PAYMENT

This work will be paid for at the contract unit price per EACH for AIR RELEASE VALVE REPLACEMENT.

**DEMOLITION OF EXISTING PUMP STATION**

Description: This work shall consist of the complete removal and disposal of the pump station located at the northbound Rend Lake Rest Area. Included in this removal will be the complete structure, pumps, and all electrical and mechanical devices inside and outside of the pump station including all wires and pipes.

Open Holes: All holes shall be filled with aggregate gradation CA 6, except for the top 8 inches which shall be clean topsoil.

All fill material shall be compacted in lifts to the satisfaction of the Engineer.

Disposal of Material: Materials resulting from the removal of the existing pump station and appurtenances shall be disposed of according to Article 202.03

Method of Measurement: This work will be measured for payment on a lump sum basis.

Basis of Payment: All material, equipment, and labor to perform this work shall be paid for at the contract unit price per LUMP SUM for DEMOLITION OF EXISTING PUMP STATION, which price shall include all labor and equipment necessary to remove and properly dispose of the pump station and all its contents.

## **WATER HYDRANT**

Description: This work shall consist of furnishing and installing a freeze proof, sanitary yard hydrants according to the details and location as shown in the plans.

The installation shall be in accordance with the manufacturer's recommendations, the Standard Specifications for Water and Sewer Construction in Illinois, and the Illinois Plumbing Code. The installation shall include a curb stop valve and valve box, the necessary fittings, tees, reducers, and hardware to connect to the water line, the underdrain line, and the french drain at the outlet of the underdrain.

Method of Measurement: Water hydrant will be measure for payment per location starting with the curb stop valve to the siphon break.

Basis of Payment: This work shall be paid for at the contract unit price per EACH for WATER HYDRANT.

## **SANITARY SEWER GRINDING STATION**

### GENERAL

This section includes grinder manhole, open-channel grinder, installation frame & lifting guides, and controller.

#### Summary of Work:

The work required by this specification section consists of furnishing all labor, materials, equipment, means, methods, procedures, safety programs, and testing to install open-channel grinders and manholes as shown on the contract documents.

#### Standard Specifications:

All work, installation, procedures, and testing shall be in conformance with the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and the Standard Specifications for Road and Bridge Construction, latest edition, by the Illinois Department of Transportation and all subsequent supplements to this document.

#### Regulatory Requirements:

1. IEPA, Illinois Environmental Protection Agency Permits
2. IEPA Sanitary Sewer Construction and Operating Permit for this Project

#### Standards:

1. Illinois Recommended Standards for Sewage Works
2. Illinois Plumbing Code
3. Illinois Urban Manual
4. OSHA - Occupational, Safety, and Health Administration
5. All municipal, county, state, and federal jurisdiction's ordinances, regulations, statutes, and laws.

References:

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

1. ASTM International (ASTM):
2. ASTM A36 - Carbon Steel Plate.
3. ASTM A536 - Ductile Iron Castings.
4. ASTM A48 - Gray Iron Castings.
5. ASTM A564 Grade 630 condition H1150 (17-4) stainless steel
6. American Iron and Steel Institute (AISI):
7. AISI Type 1020 Steel
8. AISI Type 1045 Steel.
9. AISI Type 4130 - Heat Treated Alloy Steel.
10. AISI Type 4140 Heat Treated Alloy Steel.
11. AISI Type 18-8 Stainless Steel
12. AISI Type 303 Stainless Steel.
13. AISI Type 304 and 304L Stainless Steel.
14. AISI Type 316 and 316L Stainless Steel.
15. Society of Automotive Engineers (SAE):
16. SAE Type 660 Bearing Bronze.
17. National Electrical Manufacturer's Association (NEMA) Standards.
18. National Electrical Code (NEC).
19. Underwriters Laboratory (UL and cUL).
20. International Electrotechnical Commission (IEC).

Submittals:

Product Data:

Manufacturer's product data sheets.

Contract Closeout Submittals:

Provide all testing reports, O&M Manuals, and manufacturer warranty information.

Delivery, Storage, and Handling:

1. Storage: Store in accordance with the manufacturer's written instructions, protect from damage, and protect after installation until final acceptance.

Warranty:

12-month Limited Warranty

1. Manufacturer submits a standard twelve-month limited warranty document clearly identifying the scope, term, and exclusions from the coverage.

Service:

Supplier supports product with multiple programs options available. Service Center located domestically for repairs and upgrades.

1. Renew Program: Provides new factory-built replacements of selected products for install without requirement to return existing products.
2. Preventative Maintenance Program: Inspection and service of equipment by factory technicians.
3. Spare Parts.

PRODUCTS

Grinder Manhole:

A fiberglass reinforced polyester (FRP) below ground manhole connects into pipeline ahead of pump location and allows installation of an open-channel grinder for solids reduction. There shall be above access provided to the grinder.

**Basis of Design:**

1. 48-inch barrel diameter with  $\frac{1}{2}$  minimum wall thickness able to withstand static load of 150 lb-ft per foot of depth with less than  $\frac{1}{4}$ -inch deflection.
2. Interior surface smooth isophthalic gelcoat integral to the laminate not applied as spray or secondary process.
3. Interior surfaces white for easy inspection for toxic molds and mildew.
4. Supplied with  $\frac{1}{2}$ -inch thick expanded polystyrene bead board for placement on concrete slab under manhole.
5. 2-inch NPT FRP conduit tap for electrical cables.
6. Equipped with four (4) AISI 304 stainless steel mounting brackets

**Inlet and Outlet Connections**

1. Neoprene boot and stainless-steel bands for connection to influent and effluent pipe.
2. Pipe size: 6-inch (Contractor to field verify)

**Manway-Traffic**

1. Concentric dome able to withstand 16,000 lb vertical dynamic wheel load plus lateral forces.
2. Provides 28-inch diameter access.
3. For use with cast iron manhole cover (Provided by others)

**Integral open-channel**

1. Width 17-9/16-inch to accommodate frame and grinder.
2. Depth sized to accommodate grinder and required hydraulics.
3. Provides 4-inch deep recess for grinder for improved hydraulic performance.

**Fiberglass ladder**

1. Meets or exceeds OSHA General Industry Standards, Part 1910.27 for "Fixed Ladders".
2. Non-slip traction surface.

**Open-Channel Grinder:**

Reduces solids conveyed in a wastewater stream to a size that is non-detrimental to downstream equipment. Grinder uses side rail with flow channel and specially designed fingers with a shape to create a pressure gradient increasing flow capacity and maximize capture of solids. Grinder uses low speed and high torque drive with two counter-rotating shafts stacked with intermeshed individual cutters and spacers supported on both ends of each shaft with mechanical seal and bearing cartridges, driven by an electric motor and speed reducer.

**Basis of Design:**

1. Maximum design flow capacity: 370 GPM (0.53 MGD)
2. Cutter stack height: 8-inches
3. Cutter stack configuration: single zone-helical

**Cutter assembly**

- a. Stack configuration: single zone-helical stack
- b. Cutters stacked helically with a uniform type, thickness, and material throughout assembly.

- c. Material: Alloy Steel.
- d. Cutters: Through hardened to 45-52 HRC
- e. Spacers: Through hardened to 34-52 HRC.

#### Mechanical Seal and Bearing Cartridges-Standard

- f. Seals and bearing incorporated into a cartridge style design requiring no external seal flush or lubricants to operate wet or dry.
- g. Rated for maximum operating depth: 208 feet (90 psi).
- h. Dynamic and Static seal faces to be Tungsten carbide with 6% nickel binder.
- i. Cartridge bushing and housing are AISI 304 stainless steel.
- j. O-rings to be Buna-N (Nitrile).

#### Shafts

- k. 2-inch hexagon heat treated AISI 4140 alloy steel.
- l. Minimum tensile strength of 170,000 psi.
- m. Supported on either end by Mechanical Seal and Bearing Cartridges.
- n. Cantilevered designs are not acceptable.

#### End Housings, Side Rails, Top Cover, Bottom Cover, and Gaskets

1. End Housings
  - a. Cast integral bushing deflector directs solids away from mechanical seal and bearing cartridge bushings.
  - b. Directional flow arrows on side of housings indicate correct installation orientation for solids discharge.
  - c. Cast ASTM A536-84 65-45-12 ductile iron.
2. Side Rails
  - a. Evenly spaced horizontal fingers and flow channels. Flows channel creates an additional open area through grinder, increasing flow capacity. Horizontal fingers direct solids toward cutters by creating a pressure differential towards the cutters.
  - b. Shape of flow fingers creates a pressure gradient to force solids to cutters and minimize water head loss.
  - c. Fingers and flow channel are positioned on the upstream side of the grinder terminating even with the center of the cutter proving free of discharge.
  - d. Side rails with flow channel running the entire length of the side rail are not allowed.
  - e. Cast ASTM A536-84 65-45-12 ductile iron.
3. Top Cover:
  - a. Manufacturing identification plate mounting.
  - b. Cast ASTM A536-84 65-45-12 ductile iron.
4. Bottom Cover:
  - a. ASTM A36 Steel.
5. Gaskets:
  - a. Cork and neoprene rubber.

#### Transfer Gears with integral interlocking lobes

1. Heat treated and hardened AISI 4140 alloy steel.
2. Number of teeth on the gears creates a ratio of cutter tip speed on low-speed shaft to cutter tip speed of high speed shaft greater than 0.90 and less than 1.00, to promote cleanout of processed material in cutting stack.

#### Couplings

1. Low Speed Coupling
  - a. Two-piece 3-jaw interlocking design.

- b. Hardened AISI 4140 alloy steel
2. High Speed Coupling
  - a. Type L 3-jaw with elastomer
  - b. Buna-N spider.

#### Lifting Eyes

1. Drop forged Steel
2. Rated for 1300 lb
3. Designed for lift of grinder.

#### Speed Reducer

1. Grease lubricated cycloidal design, Cyclo Series 6000 with 29:1 reduction ratio, of Sumitomo Machinery Corporation of America or an approved equal.

#### Motor

1. Installed Horsepower: 5 HP.
2. Motor Service Factor: 1.15.
3. Minimum Motor Efficiency (at Full Load): 91 percent.
4. Minimum Motor Power Factor (at Full Load): 76.
5. Grinder Peak Torque with Reducer: 1,665 lb-ft.
6. Grinder Peak Force at Cutter Tip: 8,493 lbf.
7. UL rated NEMA 6P,
  - a. Class I, Div. 1 Groups C&D,
  - b. Class II Div. 2, Groups F&G,
  - c. Class III Div. 1.
8. Manufacturer rating of 40 consecutive days of submergence at a maximum depth of 40'.
9. Capable of operating in air 100 percent of time with no external cooling required.
10. No fan cooling during operation.
11. Utilize ceramic shaft seal requiring no oil lubrication.

#### Identification:

1. Corrosion resistant nameplate affixed to the top cover of the grinder.
2. Nameplate information shall include manufacturer's name and address, model No., serial No., capacity, max. psi, weight, and manuf. date.

#### Finishes:

1. Paint coatings for ferrous materials shall be prepared to SSPC-SP6 (Commercial Blast Cleaning) and coated with minimum 6 to 8 mils TDFT (total dry film thickness) of an aliphatic acrylic polyurethane paint in the color hunter green.
2. Paint coatings for previously coated components (motors, speed reducers, etc.) shall be prepared to SSPC-SP1 (Solvent Cleaning) and SSPC-SP2 (Hand Tool Cleaning) and coated with minimum 6-8 mils TDFT (total dry film thickness) of an aliphatic acrylic polyurethane paint in the color hunter green.

#### Installation Frame & Lifting Guides:

Frame and guide rails provide structure for mounting and positioning of the grinder in the integral open channel of the fiberglass manhole. The frame secures the grinder in position and provides structure and baffling to properly support and prevent unwanted bypass of material.

#### Frame:



1. The frame mounts to channel walls while supporting the weight of grinder with suitable anchors supplied by the Contractor for installation.
2. Frame guide plate allows grinder to be lifted or lowered in and out of frame with no removal of fasteners.
3. Adjustable flanges allow frame to connect to manhole integral channel walls for sealing.

#### Guide Rail

1. Rail provides guidance of grinder into the frame of the manhole.
2. Rail shall be mounted to manhole walls with suitable anchors.
3. Uses a guide plate mounted to the grinder to interface with guide slots in the rail to guide grinder into installation frame.

#### Lifting Bail

1. Mounts to the top cover of the grinder and provides a single pick point for lifting of the grinder.
2. 1-1/4-inch ID of the eyebolt
3. Working load Limit: 3500 lb

#### Lifting Chain

1. Provides sling hook, shackle, and chain for lifting of grinder.
2. Working load Limit: 3000 lb

#### Motor Controller:

DESIGN: NEMA enclosure with programmable logic controller (PLC), operation and fail indicators, and selector switches.

Basis of Design is a motor controller power supply of 208 V/ 3 PH/ 60 Hz.

#### Enclosure, Selector Switches, Pushbuttons, and Pilot Lights

1. Enclosure NEMA 4X
2. Fiberglass reinforced plastic with hinged door and mounting flanges.
3. Selector Switches: 22 mm, three-position, rated equal or better than the enclosure and indicate On-Off/Reset-Remote.
4. Pilot Lights: 22 mm, LED (pilot lamp), rated equal or better than the enclosure and indicate POWER ON, grinder RUN, grinder JAMMED, and MOTOR FAULT.

#### Programmable Logic Controller

1. Basis of Design: Panasonic FP-X series.
2. 16K program capacity.
3. (8) 24 Vdc inputs and (6) relay outputs.

#### Motor Starters, Overload Relays, and Control Power Transformer:

1. Starters
  - a. IEC, full voltage, and reversing.
  - b. Maximum short circuit protective fault current 100 kA.
2. Overload Relays
  - a. Adjustable and sized to full load amperes (FLA) of the motor.
3. Control Power Transformer
  - a. Produce 120-volt AC power from the supply power and sized and fused in accordance with code to accommodate the control power requirements.

Current Transducers

1. Discrete output type with an adjustable set point from 1-135A with 200ms or faster response time.

Operation:

- a. Grinder Control: In accordance with ON-OFF/RESET-REMOTE selector switch, the OFF/RESET position (OFF) shall de-energize the grinder. The OFF/RESET Position (RESET) shall clear all fault conditions. The ON Position shall energize the grinder, and the REMOTE Position shall have the grinder operate as controlled by a remote start/stop dry contact.
2. Grinder JAM Condition: In accordance with the setting of the current transducer, controller will stop and reverse the grinder motor three (3) times and activate the grinder FAIL indicator and relay. Grinder will stop operation.
3. Grinder MOTOR OVERLOAD Condition: In accordance with the setting of the Motor Overload Relay, the MOTOR FAULT indicator lamp will be illuminated, and the FAIL contact will be closed. Grinder will stop operation.
4. Grinder MOTOR OVERTEMP Condition: In accordance with the setting of the Motor Thermostat, only with applicable motors, the MOTOR FAULT indicator lamp will be illuminated, and the FAIL contact will be closed. The grinder will stop operation.
5. Power Failure:
  - a. While system is operating, the system shall not return to normal operation until power is restored, and the START pushbutton is pressed.
  - b. While system is in a fail condition, the system shall return to a fail state when power is restored. The fail state shall not be cleared until reset.
6. Reset of Grinder shall be accomplished from the controller only.

EXECUTION

Installation:

1. The Contractor shall coordinate installation of the equipment in accordance with the manufacturer's installation instructions, approved submittals, and in accordance with OSHA, local, state, and federal codes and regulations.

Field Quality Control:

1. INSPECTION
  - a. The manufacturer is required to provide the services of a factory or manufacturer's representative for a minimum of one day to inspect the equipment for proper installation, apply power for the first time, check for proper motor rotation, oversee the initial introduction of material into the system, and confirm the equipment operates as intended.
2. TRAINING
  - a. Field training for operations, maintenance, and supervisory staff members is to be provided by a manufacturer or manufacturer's representative. Field instruction shall cover key components of the equipment, operating, and maintenance requirements and troubleshooting techniques.

Basis of Payment: This work will be paid for at the contract unit price per LUMP SUM for SANITARY SEWER GRINDING STATION.

## **SANITARY SEWER LIFT STATION**

### GENERAL

Sanitary sewer lift station includes, but not limited to, a structure with a hatch, two (2) submersible pumps, and all associated piping and appurtenances for the installation of one complete lift station. Valve vault includes, but not limited to, a structure with hatch, valves, and all associated piping and appurtenances for the installation of one complete lift station.

The work consists of furnishing all labor, materials, equipment, means, methods, procedures, safety programs, and testing for one complete sanitary lift station and valve vault system as shown on the contract documents.

#### Standard Specifications:

1. All work, installation, procedures, and testing shall be in conformance with the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and the Standard Specifications for Road and Bridge Construction, latest edition by the Illinois Department of Transportation and all subsequent supplements to this document.

#### Regulatory Requirements:

1. IEPA, Illinois Environmental Protection Agency Permits
  - a. IEPA Sanitary Sewer Construction and Operating Permit for this Project
2. Standards:
  - a. Illinois Recommended Standards for Sewage Works
  - b. Illinois Plumbing Code
  - c. Illinois Urban Manual
  - d. OSHA - Occupational, Safety, and Health Administration
  - e. All municipal, county, state, and federal jurisdiction's ordinances, regulations, statutes, and laws.

#### Reference to Standards:

1. American Iron & Steel Institute (AISI)
2. American Society for Testing and Materials (ASTM)
3. American Water Works Association (AWWA)
4. Factory Mutual (FM)
5. Hydraulic Institute Standards
6. National Fire Protection Association
7. National Electric Code (NEC)
8. National Electrical Manufacturers Association (NEMA)
9. Anti-Friction Bearing Manufacturers Association (AFBMA)

#### Submittal Requirements:

1. Product Data shall include manufacturer's product data sheets.
2. Contract Closeout Submittals:
  - a. Project record documents include an accurate record of installed location of valves.
  - b. Provide all testing reports, O&M Manuals, and manufacturer warranty information.

#### Delivery, Storage, and Handling:

1. Store components in accordance with the manufacturer's written instructions, protect from damage, and protect after installation until final acceptance.

## PRODUCTS

### Submersible Sewage Pumps:

#### 1. PUMP GENERAL

- a. The manufacturer must have a local authorized service center in the territory where the pumps are to be installed. The service center shall have trained technicians authorized to make repairs to all components of the supplied pumps.
- b. Each pump shall be capable of delivering 100 GPM at 106 FT TDH.
- c. The pumps shall be automatically and firmly connected to the discharge connection, guided by no less than two guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet-well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight connection. Sealing of the discharge interface with a diaphragm, O-ring, or profile gasket will not be acceptable. No portion of the pump shall bear directly on the sump floor.

#### 2. PUMP CONSTRUCTION

- a. Major pump components shall be of grey cast iron (ASTM A-48, Class 35B) with smooth surfaces devoid of blow holes or other irregularities. The lifting handle shall be of stainless steel. All exposed nuts or bolts shall be AISI type 316 stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.
- b. Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or optional Viton rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.
- c. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease, or other devices shall be used.

#### 3. COOLING SYSTEM

- a. Motors are sufficiently cooled by the surrounding environment or pumped media. A water-cooling jacket is not required.

#### 4. CABLE ENTRY SEAL

- a. The cable entry seal design shall preclude specific torque requirements to ensure a watertight and submersible seal. The cable entry shall consist of a single cylindrical elastomer grommet flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief function, separate from the function of sealing the cable. The assembly shall provide ease of changing the cable when necessary using the same entry seal.

#### 5. MOTOR

- a. The pump motor shall be a NEMA B shell type design, induction type with a squirrel cage rotor, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31. The stator shall be heat-shrink fitted into the cast iron stator housing. The use of multiple step dip and bake-

- type stator insulation process is not acceptable. The use of bolts, pins, or other fastening devices requiring penetration of the stator housing is not acceptable. The motor shall be designed for continuous duty handling pumped media of 40°C (104°F) and capable of no less than 30 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of cast aluminum. Thermal switches set to open at 125°C (260°F) shall be embedded in the stator end coils to monitor the temperature of each phase winding. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the control panel. The motor and the pump shall be produced by the same manufacturer.
- b. The combined service factor (combined effect of voltage, frequency, and specific gravity) shall be a minimum of 1.15. The motor shall have a voltage tolerance of plus or minus 10%. The motor shall be designed for operation up to 40°C (104°F) ambient and with a temperature rise not to exceed 80°C. A performance chart shall be provided upon request showing curves for torque, current, power factor, input/output kW, and efficiency. This chart shall also include data on starting and no-load characteristics. The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run-out.
  - c. The motor shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet or greater.
  - d. The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The outer jacket of the cable shall be oil resistant chlorinated polyethylene rubber.
6. BEARINGS
- a. The pump shaft shall rotate on two bearings. Motor bearings shall be permanently grease lubricated. The upper bearing shall be a single deep groove ball bearing. The lower bearing shall be a two row angular contact bearing to compensate for axial thrust and radial forces. Single row lower bearings are not acceptable. The minimum L10 bearing life shall be 50,000 hours at any usable portion of the pump curve.
7. MECHANICAL SEALS
- a. Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in a lubricant reservoir that hydro-dynamically lubricates the lapped seal faces at a constant rate. The lower primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary and one positively driven rotating, corrosion and abrasion resistant tungsten-carbide ring. The upper secondary seal unit, located between the lubricant chamber and the motor housing, shall contain one stationary and one positively driven rotating, corrosion and abrasion resistant tungsten-carbide seal ring.
  - b. Each seal interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment nor depend on direction of rotation for sealing. The position of both mechanical seals shall depend on the shaft. Mounting of the lower mechanical seal on the impeller hub will not be acceptable. For special applications, other seal face materials shall be available.
  - c. The following seal types shall not be considered acceptable or equal to the dual independent seal specified: shaft seals without positively driven rotating members or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces. No system requiring a pressure differential to offset pressure and to effect sealing shall be used.
  - d. Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and to provide lubricant expansion capacity. The drain and inspection plug, with positive anti-leak seal, shall be easily accessible from the outside. The seal system shall not rely upon the pumped

- media for lubrication. The motor shall be able to operate dry without damage while pumping under load.
- e. Where a seal cavity is present in the seal chamber, the area around the exterior of the lower mechanical seal in the cast iron housing shall be cast in an integral concentric spiral groove. This groove shall protect the seals by causing abrasive particulates entering the seal cavity to be forced out away from the seal due to centrifugal action.
  - f. Seal lubricant shall be non-hazardous.
8. PUMP SHAFT
- a. The pump and motor shaft shall be a single piece unit. The pump shaft is an extension of the motor shaft. Couplings shall not be acceptable. The pump shaft shall be stainless steel – ASTM A479 S43100-T.
  - b. The use of stainless-steel sleeves will not be considered equal to stainless steel shafts.
9. IMPELLER
- a. The impeller(s) shall be cast of an ASTM A-48, Class 35B grey iron, dynamically balanced, semi-open, multi-vane, back-swept, non-clog design. The impeller vane leading edges shall be mechanically self-cleaned upon each rotation as they pass across a spiral groove located on a replaceable insert ring.
  - b. The impeller shall have vanes hardened to Rc 45 and shall be capable of handling solids, fibrous materials, heavy sludge, and other matter found in waste water. The screw shape of the impeller inlet shall provide an inducing effect for the handling of sludge and rag-laden wastewater. The impeller shall be capable of momentarily moving axially upwards a distance of 15mm/0.6-in. to allow larger debris to pass through and immediately return to normal operating position.
10. VOLUTE
- a. The pump volute shall be a single piece grey cast iron, ASTM A-48, Class 35B, non-concentric design with smooth passages of sufficient size to pass any solids that may enter the impeller. Minimum inlet and discharge size shall be as specified. The volute shall have a replaceable suction cover insert ring that has cast spiral-shaped, sharp-edged groove(s). The spiral groove(s) shall provide trash release pathways and sharp edge(s) across, which each impeller vane's leading edge shall cross during rotation so to remain unobstructed. The insert ring shall have a guide pin integral to the casting, shall be cast of ASTM A-48, Class 35B grey iron, and provide effective sealing between the multi-vane semi-open impeller and the volute housing.
11. PROTECTION
- a. All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. The thermal switches shall open at 125°C (260°F), stop the motor, and activate an alarm.
  - b. A leakage sensor shall be available as an option to detect water in the stator chamber. The float leakage sensor (FLS) is a small float switch used to detect the presence of water in the stator chamber. When activated, the FLS will stop the motor and send an alarm both local and/or remote. USE OF VOLTAGE SENSITIVE SOLID STATE SENSORS AND TRIP TEMPERATURE ABOVE 125°C (260°F) SHALL NOT BE ALLOWED. The thermal switches and FLS shall be connected to a mini CAS (Control and Status) monitoring unit. The mini CAS shall be designed to be mounted in any control panel and shall be furnished by the pump supplier prior to the start of control panel manufacture.
12. PUMP WARRANTY
- a. The pump manufacturer shall warrant the units being supplied to the owner against defects in workmanship and material for a period of five years or 10,000 hours, whichever shall occur first. The warranty shall cover both parts and labor and shall apply to all other similar products as manufactured by the pump manufacturer. The

warranty shall cover 100% of all parts and labor during the first 18 months of operation after startup. During the next 24 months, parts and labor shall be covered at a 50% rate. During the last 18 months, both parts and labor shall be covered at a rate of 25%. During the entire five-year period, IDOT shall be responsible for removing and replacing the pump from the tubes. However, during the entire five-year period, the manufacturer shall be responsible for freight.

Wet Well:

1. STRUCTURE

- a. Structure shall be constructed of pre-cast concrete and conform to ASTM C-478. Sections shall be substantially free from fractures, large or deep cracks, and surface roughness. Joints between pre-cast sections shall be designed for rubber gaskets or bituminous joint material.
- b. The structure shall be constructed with a silica fume admixture, specifically to prevent hydrogen sulfide corrosion of pre-cast concrete. Submittals detailing the type of silica fume admixture and its suitability for this application shall be submitted to the Engineer for approval. Rheomac SF100TM and Rheobuild 1000 TM or approved equals shall be used in the manufacture of the manhole component sections. The addition rate of the silica fume admixture shall be 8% by the weight of cement.
- c. The pre-cast base section shall be monolithically constructed.
- d. Pipe connections shall be flexible watertight connections conforming with ASTM C-923, "Standard Specifications for Resilient Connectors Between Reinforced Concrete and Pipe."
- e. All bolts or fasteners to be used within the structure are to be stainless steel.

2. INTERIOR LINING

- a. The concrete structure shall have a liner that is integrally cast with the precast section at the time of manufacture.
- b. The liner shall be manufactured from an acrylic modified PVC alloy.
- c. The liner shall be thermo-vacuum formed to create a semi-rigid liner and shall conform to the interior size of the structure.
- d. The liner shall be formed with dovetail ribs so that it is securely anchored to the concrete structure. The liner shall be formed with returns into the bell and spigot joints to allow for butyl sealant to be placed and to eliminate the need for any field welding of the joint.
- e. The liner shall be light in color to reflect light.
- f. The liner shall have both antifungal and antibacterial properties that will not readily provide a source of nutrients for bacteria or fungi.
- g. The liner shall be a minimum of .065" thick.
- h. The liner panels shall be joined together by an EPDM slotted rubber strip.
- i. All materials shall meet the physical and chemical properties specified in the appropriate ASTM specification.

Valve Vault Structure:

Structure shall be constructed of pre-cast concrete and conform to ASTM C-857 and C-858. Sections shall be substantially free from fractures, large or deep cracks, and surface roughness. Joints between pre-cast sections shall be designed for rubber gaskets or bituminous joint material.

Structure shall be constructed with a silica fume admixture specifically to prevent hydrogen sulfide corrosion of pre-cast concrete. Submittals detailing the type of silica fume admixture and its suitability for this application shall be submitted to the Engineer for approval. Rheomac SF100TM and Rheobuild 1000 TM or approved equals shall be used in the manufacture of the manhole

component sections. The addition rate of the Silica Fume admixture shall be 8% by the weight of cement.

Pipe connections shall be flexible watertight connections conforming with ASTM C-923, "Standard Specifications for Resilient Connectors Between Reinforced Concrete and Pipe."

Access Hatches:

The door leaf shall be thick aluminum diamond plate reinforced for the loading as indicated on the drawings (300 psf live load minimum and maximum of H-20 loading where indicated on the drawings). The frame shall be an extruded aluminum trough section with an integral anchor flange on all four sides. The frame shall include an EPDM odor reduction gasket that reduces the amount of odor that escapes from below the door and a 1 1/2-inch threaded drain coupling. The floor access door shall be equipped with a flush drop handle that does not protrude above the cover and a 316 stainless steel hold open arm with vinyl grip that automatically locks the cover in the 90-degree open position. The door shall have 316 stainless steel hinges and tamper resistant bolts/locknuts. An adhesive backed vinyl material that protects the product during shipping and installation shall cover the entire top of the frame and cover.

The hatch shall be equipped with a watertight stainless-steel slam-lock with threaded plug, removable outside key, and fixed inside handle. The slam-lock must latch onto a stainless-steel catch that is bolted to the frame. The hatch shall include a recessed padlock assembly that consists of a cast aluminum enclosure that is sized to restrict access by bolt cutters, a stainless-steel staple for a No. 5 Master Lock, and a hinged, spring-loaded stainless-steel lid which does not protrude above the cover surface.

The hatch shall be equipped with spring operators for lift assist and to retard downward motion. All parts of the spring operators shall be stainless steel and of the open type to ensure visual inspection. The operators shall be engineered and installed so that in the event of slam-lock failure the door will remain closed. The force required to open any single leaf shall be 5 pounds minimum and 15 pounds maximum. The spring operators shall be mounted horizontally on the hinged side.

An aluminum extrusion that accommodates stainless steel sliding locknuts shall be welded on the bottom of the door's frame to provide adjustable mounting of vault accessories. Location shall be as indicated on the drawings.

The hatch shall have an aluminum skirt welded to the frame's perimeter to accommodate the thickness of the top slab.

The door(s) of the hatch shall be hinged on the long side of the frame.

All hatches shall have a fall through prevention system capable of withstanding a load of 300 psf as indicated on the drawings. The system will consist of an aluminum grate with 5" x 5" openings that rotates on hinges that are welded to the hatch frame. The grate shall operate independent of the cover's reinforcing so that the cover will continue to meet specified load and deflection requirements, even if a grate's leaf is damaged or removed. When the grate is lifted to its open position, it will lock in place and serve as a barrier. The door cannot be closed until the hinged aluminum safety grate is completely closed.

All door leaves shall be aluminum diamond plate reinforced capable of holding up to a 25 ft. head of water as indicated on the drawings. The bottom of the cover shall have a continuous groove to securely hold a 9/16-inch diameter EPDM gasket around its perimeter. The cover shall have 316



stainless steel watertight cam locks to compress the gasket so that the door will not leak from standing water. The frame shall be 3/8-inch thick with 3/16" x 1-1/2" strap anchors welded at 18 inches on center around the perimeter of the door. The floor access door shall be equipped with a flush watertight handle that does not protrude above the cover and a 316 stainless steel hold open arm with vinyl grip that automatically locks the cover in the 90 degree open position. The door shall have 316 stainless steel hinges with 316 stainless steel flat head bolts.

Manufacturer shall guarantee the door against defects in materials and workmanship for a period of ten (10) years.

Gate Valves:

All gate valves shall be resilient seated. Each valve shall have a gate with a bonded elastomeric seat which provides a bubble tight seal conforming to ASTM.D429 for rubber adhesion.

Valve bodies shall be high strength cast iron with a reinforced flange. All 2" to 12" gate valves shall be rated for 200 psi and over 12" shall be rated at 150 psi. All resilient seated gate valves shall conform with AWWA C509 80.

All valves shall have 2-inch square AWWA nuts.

The Contractor shall furnish and install resilient seat gate valves conforming to AWWA C-500. The gate valves shall be non-rising stem design and shall have double "O" ring type stem seals. The resilient rubber gate shall create a bubble tight seal capable of withstanding a differential pressure of 200 psi, and the shell shall allow no leakage in the disc "up" position under a pressure of 400 psi. The gate valves shall be equipped with a "hand wheel" and open counterclockwise. The interior and exterior of all gate valves shall be coated with an ANSI/NSF 61 approved fusion bonded epoxy lining.

Check Valves:

The Contractor shall furnish and install check valves conforming to AWWA C508, according to the contract drawings, and shall be Val-Matic swing flex SurgeBuster check valves or an approved equal.

The check valves shall have backflow actuators and mechanical indicators that show the position of the swing flex flap. The check valves shall have iron bodies in conformance with ASTM A126 Class B and shall have brass mountings. The check valves shall have rubber disc faced flappers. The check valves shall have hand access holes for removal of obstructions.

The design of the check valve shall be such that it keeps solids, stringy material, grit, rags, etc. moving without the need for backflushing. Flange drilling shall be in conformance with ANSI B 16.1, Class 125.

The interior and exterior of all check valves shall be coated with an ANSI/NSF 61 approved fusion bonded epoxy lining.

Valve Boxes:

Valve boxes shall be cast iron. Cast iron boxes shall be the extension type with slide type adjustment and with a flared base. The minimum thickness of metal shall be 3/16 inch. The box length shall be adaptable, without full extension, to the depth of cover over the pipe at the valve locations.

Poly-Vinyl Chloride Sanitary Sewer Pipe:

1. Sanitary Sewer Pipe
  - a. Polyvinyl chloride (PVC) sanitary sewer pipe shall conform to ASTM D3034, type PSM for sizes 4" to 15". Standard dimension ratio (SDR) shall be 26. Sizes 18" to 36" shall conform to ASTM F-679-89, Class T-1. The pipe shall be made of PVC plastic having a minimum cell classification of 12454-C and shall have a minimum pipe stiffness of 115 pounds per inch per inch.
2. Sanitary Sewer Pipe Fittings
  - a. Sanitary sewer pipe fittings, joints, and gaskets shall be of the same material and gasketed as the pipe. Fittings for service laterals shall be wyes and shall be 6 inches inside diameter. Laterals shall be terminated with a plug of the same material as the pipe and shall be capable of withstanding standard air testing pressure procedures as described herein.
3. Joints
  - a. Joints shall be in conformance with ASTM D3212 Standard Specification for plastic sewer pipe utilizing flexible elastomeric seals.
4. Gaskets
  - a. Gaskets shall be molded from a high grade properly vulcanized, elastomeric compound consisting of either a basic natural or synthetic rubber. Gaskets for PVC pipe shall meet the requirements of ASTM F477. Gaskets shall be molded into a circular form, or extruded to the proper section, then spliced into circular form and shall be made of a properly cured high grade elastomeric compound.
  - b. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe. Field installed gaskets and field cut beveled lengths of pipe shall not be allowed, except to provide a field adjusted pipe to allow placement of a manhole. This procedure shall be undertaken in strict conformance with the manufacturer's instructions and recommended equipment and materials.
5. Lubricant
  - a. Lubricant shall be suitable for lubricating the joint components. It shall have no deteriorating effect on the gasket or pipe material and no detrimental effect on the quality of wastewater to be carried by the pipe.

Ductile Iron Sanitary Sewer Pipe:

1. Ductile Iron Sanitary Sewer Pipe
  - a. Ductile iron pipe below grade shall be push-on joint and shall be flanged when above grade or placed inside valve vaults, tanks, or pump stations. Ductile iron pipe shall have mechanical joint fittings when placed below grade and shall have flanged fittings when placed above grade or placed inside valve vaults, tanks, or pump stations. Contractor shall use A304 stainless bolts for all fittings. All ductile iron pipe outside of buildings shall have 1 mil of ANSI AWWA C/151 asphaltic exterior coating. All ductile iron pipe inside buildings shall have a shop prime coat and shall be field painted per paint specification.
  - b. All pipe and fittings, which will transport sewage or a treated form of sewage, shall have an inside coating capable of withstanding corrosive, hydrogen sulfide gas-filled conditions that occur. Any of four microbiologically induced corrosion resistant linings that are currently available may be used; 1) Thnemec 435 2) Endurall Protecto 401, 3) Novocoat SP-2000W or 4) Induron PermaSafe 100 ceramic Epoxy; per lining manufacturer's requirements of a minimum of 30 mils thickness.
  - c. The Contractor is responsible for all pipe supports and hangers required. Pipe hangers inside tanks and wet well shall be 304 stainless steel.

- d. Interior lining cracks, other than closed hairline cracks, are not acceptable. Loose areas of interior lining will not be permitted.
- e. The weight, class, or nominal thickness and casting period shall be shown on each pipe. The manufacturer's mark, the year in which the pipe was produced, and the letters "DI" or "DUCTILE" shall be cast or stamped on the pipe. Markings shall be clear and legible, and all cast marks shall be on or near the bell. All letters and numerals on pipe sizes 14 in. and larger shall not be less than 1/2 in. (12.7 mm) in height.
- f. All mechanical and push-on joint ductile iron pipe shall be 350 Pressure Class, unless noted otherwise on the plans. Mechanical and push-on joint ductile iron pipe shall conform to ANSI/AWWA C151/A21.51 standards. All flanged joint ductile iron pipe shall be minimum 250 Pressure Class conforming to ANSI/AWWA C115/A21.15 standards. Ductile iron pipe thickness and outside diameters shall be as follows:

For Standard Pressure Class Ductile Iron Pipe

Size in.	O.D. in.	Pressure Class				
		150	200	250	300	350
		Nominal Thickness in Inches				
4	4.80	-	-	-	-	0.25
6	6.90	-	-	-	-	0.25
8	9.05	-	-	-	-	0.25
10	11.10	-	-	-	-	0.26

For Flanged Ductile Iron Pipe

Size in.	Pressure Rating Psi	Nominal Wall Thickness	Pipe O.D. in.
4	350	0.32	4.80
6	350	0.34	6.90
8	350	0.36	9.05
10	350	0.38	11.10

- 2. Joints
  - a. Joints for ductile iron gravity sewer pipe shall conform to ANSI/AWWA C111/A21.11 and shall be a rubber gasket push-on joint.
- 3. Gaskets
  - a. Gaskets shall be molded from a high grade properly vulcanized, elastomeric compound consisting of either a basic natural or synthetic rubber conforming to the requirements of ANSI/AWWA C111/21.11. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe. Field installed gaskets and field cut beveled lengths of pipe shall be done in accordance with the manufacturer's instructions and recommended equipment and materials.
- 4. Lubricant
  - a. Lubricant shall be suitable for lubricating the joint components. It shall have no deteriorating effect on the gasket or pipe material and no effect on the quality of wastewater to be carried by the pipe.
- 5. Couplings
  - a. Flexible couplings shall be manufactured by Smith-Blair, Dresser or an approved equal.

EXECUTION

Examination:

1. Verify that anchor bolts are the correct size and positioned properly.

Subgrade – Base Bedding:

1. Subgrade shall be undisturbed and stable. Any over dig shall be compacted CA-6.
2. Bedding material shall be CA-6 placed at a minimum depth of eight (8) inches beneath the structure and compacted to maximum density.

Installation:

Installation of all components shall be in accordance with the manufacturer's instructions.

1. PUMPS

- a. Install submersible pumps, installation/removal assembly, control equipment, and accessories in accordance with manufacturer's instructions and as shown on the plans.
- b. Install interconnecting electrical wiring, conduit, etc. between submersible pumps and control equipment so that when power and control wiring is brought to the control equipment, the submersible pump system will be a complete operational system.

2. WET WELL INTERIOR LINING

- a. Field installation of all lined precast sections shall be done in accordance with the recommendations of the manufacturer.
- b. The horizontal joints between sections of lined concrete structures can be made by either butyl or a combination of butyl and rubber joint per the recommendation of the concrete manufacturer. Joint surfaces must be clean to ensure proper adhesion of the butyl. An application of a butyl-based primer will produce the highest degree of adhesion to the joint surfaces.
- c. Place specified butyl material, and butt ends of material together. Material should never be overlapped. Butyl material shall be an approved strip (A-LOK® Products, Inc. Tullytown, PA. MT-329 or approved equivalent)
- d. Lined sections should be carefully centered and lowered to complete coupling process. Apply sufficient pressure to properly seat joint and achieve squeeze out.
- e. After structure is in place, care should be taken to properly plug all lift pin inserts or holes with a suitable non shrink grout.
- f. The Contractor shall take all necessary measures to prevent damage to the liner due to material handling and installation, equipment or material used in installing, or used in or taken through the structure.

3. VALVES

- a. Valves shall be installed at all locations shown on the plans and other locations as required by the Engineer to allow servicing of individual items of equipment and repair of piping without complete shutdown of the system. Operating nuts for buried valves shall not be any deeper than three feet. Where this depth is exceeded by the valve, the Contractor shall install extension stems.

Manufacturer's Services:

1. PUMPS

- a. The Contractor shall include with his or her bid the services of the equipment manufacturer's field service technician for a period of one 8-hour day at the site. This service shall be for the purpose of check-out, initial start-up, certification, and instruction of plant personnel. A written report covering the technician's findings and

installation certification shall be submitted to the Engineer covering all inspections and outlining in detail any deficiencies noted.

Testing:

1. PUMPS

- a. Tests shall be performed in accordance with the Test Code for Centrifugal Pumps per the Standards of the Hydraulic Institute, Level A. Tests shall be performed on the actual assembled pumps to be supplied. Tests shall cover a range from shut-off to at minimum 20% beyond specified design capacity. Conduct test per above specification on all supplied pumps, thus generating a curve showing actual flow, head, BHP, and hydraulic efficiency.
- b. The pump manufacturer shall perform the following inspections and tests on the pumps before shipment from the factory:
  - i. Impeller, motor rating, and electrical connections shall first be checked for compliance to the customer's purchase order.
  - ii. A motor and cable insulation test for moisture content or insulation defects.
  - iii. Prior to operation, the pump shall be run dry to establish correct rotation and mechanical integrity.
  - iv. The pump shall be ran for 30 minutes.
  - v. After operational test (iv), the insulation test (ii) is to be performed again.
- c. A written report stating that the inspections and testing has been done shall be supplied with each pump at the time of shipment.
- d. The pumps shall be tested at startup. Voltage, current, and other significant parameters shall be measured and recorded. The manufacturer shall provide a formal test procedure and forms for recording data.
- e. Prior to operation, all equipment shall be inspected for proper alignment, quiet operation, proper connection, and satisfactory performance by means of a functional test.

2. WET WELL INTERIOR LINING

- a. The liner manufacturer shall test each panel to withstand a constant vacuum of 25 inches of mercury for a period of 60 seconds. Any sections failing to meet this requirement shall be rejected.
- b. In-plant inspections of panels, cast into concrete sections shall be visually inspected for cuts or tears and shall be repaired following the manufacturers recommendations.

Basis of Payment: This work will be paid for at the contract unit price per LUMP SUM for SANITARY SEWER LIFT STATION.

**WATER SERVICE TAPPING SADDLE**

GENERAL

Work includes service saddles, corporation stops, and valve boxes.

Summary of Work:

1. The work consists of furnishing all labor, materials, equipment, means, methods, procedures, safety programs, safety devices, and testing to construct a complete and operable water service as shown on the plans

Standard Specifications:

1. All work, installation, procedures, and testing shall be in conformance with the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and the Standard Specifications for Road and Bridge Construction, latest edition by the Illinois Department of Transportation and all subsequent supplements to this document.

Regulatory Requirements:

1. IEPA, Illinois Environmental Protection Agency Permits
  - a. IEPA Construction Permit for this project
2. Standards:
  - a. Illinois Recommended Standards for Water Works
  - b. Illinois Plumbing Code
  - c. Illinois Urban Manual
  - d. Standard Specifications for Soil Erosion and Sediment Control
  - e. OSHA - Occupational, Safety, and Health Administration
  - f. All municipal, county, state, and federal jurisdiction's ordinances, regulations, statutes, and laws.

References:

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

1. AMERICAN WATER WORKS ASSOCIATION (AWWA)
  - a. AWWA C800: Underground Service Line Valves and Fittings
2. NATIONAL SANITATION FOUNDATION (NSF)
  - a. NSF 372: Drinking Water System Components – Lead Content
  - b. NSF/ANSI 14 (2017b): Plastics Piping System Components – and Related Materials
  - c. NSF/ANSI 61 (2017): Drinking Water System Components – Health Effects

Submittals:

1. Product Data:
  - a. Manufacturer's product data sheets
2. Contract Closeout Submittals:
  - a. Project Record Documents: Accurately record installed locations.
  - b. Provide all testing reports, O&M Manuals, and manufacturer warranty information.
3. Record Drawings:
  - a. Record Drawings shall be submitted to the Engineer and owner indicating the location of valves, meters, fire hydrants, and water mains.

PRODUCTS

Service Saddle:

1. Service saddle shall be a double strap style.
2. The service saddle shall be tested and conform to all applicable standards, including AWWA C-800.
3. The service saddle straps shall be provided with a flattened surface profile to prevent axial motion on the pipe.
4. The service saddle shall have a maximum working pressure of 200 psi.
5. The service saddle outlet shall be sealed by a nitrile rubber O-ring.

Corporation Stops:

1. Corporation stops shall be ground key types.

2. Corporation stops shall conform to all applicable standards, including AWWA C-800.
3. Corporation stops shall be suitable for the working pressure of the system.
4. Ends shall be as appropriate for connection to service piping.
5. Arrow shall be cast into the body indicating direction of flow.

Valve Boxes:

1. Cast iron valve boxes shall be installed over all valves to furnish operating access. The lid of the valve boxes shall be 5¼ inch cast iron with screw type adjustment or equivalent as approved by the owner. The lids shall have the word "WATER" cast in the lid.

Water Main Service Pipe (HDPE):

1. Pipe shall be manufactured of PE 3408, High Density Polyethylene (HDPE), in accordance with AWWA C901, ASTM D1248, ASTM D2239, ASTM D2737, and ASTM D3350. The tubing shall have a minimum working pressure of 200 psi. Polyethylene tubing shall be copper tube size SDR-9 with ultraviolet (UV) inhibitors for protection against direct sunlight for 1 year. Inserts for polyethylene tubing may be utilized. If used, inserts shall be 316 stainless steel. Tubing shall be approved for use with potable water by the National Sanitation Foundation.

EXECUTION

All work, installation, procedures, materials, and testing shall conform to the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition, and the Illinois Plumbing Code, except as modified herein.

Excavations:

1. All excavations shall be in conformance with the United States Department of Labor, OSHA regulations, "Construction Standards for Excavations, 29 CFR, Part 1926, Subpart P and all applicable OSHA standards.

General Installation:

1. Dimensions shown on plans are approximate only. Contractor shall verify all piping geometry in the field and shall be responsible for ensuring proper alignment and fit of all piping consistent with the intent of the contract drawings.
2. Temporary support, adequate protection, and maintenance of all underground and surface structures, drains, sewers, utilities, and other obstructions encountered in the progress of the work shall be provided or overcome by the Contractor at his/her own expense.
3. No deviation shall be made from the required line or grade except with the consent of the Engineer.
4. All pipes shall be laid and maintained to the required lines and grades. All water mains shall be installed a minimum of 4 feet below finished grade unless otherwise specified. Fittings, valves, and hydrants shall be at the required locations and with joints centered, spigots home, and all valve and hydrant stems plumb unless otherwise specified by the Engineer.
5. Cast iron valve boxes shall be firmly supported and maintained centered and plumb over the wrench nut of the valves with box cover flush with the surface of the finished pavement or at such other levels as directed by the Engineer.
6. The Contractor shall make all necessary cuts on the pipe and shall provide all required pipe supports, thrust rods, hangers, brackets, and like items.

Basis of Payment: This work will be paid for at the contract unit price per LUMP SUM for WATER SERVICE TAPPING SADDLE.

## **PUMP STATION MOTOR CONTROL CENTER**

This work shall consist of furnishing and installing complete motor control center assembly and providing a connection to the switchboard. The motor control center shall be designed to feed and control the number of lift station motors as shown on the plans.

Motor Control Center: System materials shall be as follows.

1. Motor Control Center
  - a. Motor control center (MCC) shall consist of the required number of vertical sections of heavy gauge sheet steel bolted together to form a rigid self-supporting assembly. A removable lifting angle shall be mounted to the motor control center at the top. Removable bottom channel sills shall be mounted front and rear of the vertical sections and shall extend the width of the lineup.
  - b. Vertical sections shall be nominally 90 inches high and a depth to match the switchboard. Section widths shall be 20 inches, 24-inches, or 30-inches wide as required.
2. Bus System
  - a. The motor control center shall contain tin plated copper busses. The horizontal bus ratings shall be equal to or greater than the electric service size, and the vertical bus rating shall be a minimum of 300 amps and be determined by the connected load. The fully rated neutral and ground busses shall be horizontal, shall extend the entire length of the MCC, and shall be non-insulated copper sized at 2 x 0.25 inches minimum. Busbars shall connect horizontal and vertical sections. Cable connections shall not be permitted.
3. Surge Protection
  - a. Surge protective devices (SPD) shall be provided for each incoming electric service as well as at each voltage level in accordance with NEC requirements. The SPD shall be located external to the electrical gear on the load side of the main disconnect to aid with maintenance. Each SPD shall have a dedicated circuit breaker disconnect in the corresponding electrical gear or panelboard. Larger SPDs shall be directly tapped off the bus without a circuit breaker and shall be provided with an integral disconnect.
  - b. The ratings of the SPD should be evaluated on a per-station basis. The SPD shall be provided with status indicating lights that provide visual indication from the front of the enclosure. Visual indication shall include voltage present at the SPD and when any value of less than 50% suppression protection is available from the SPD.
4. Circuit Breakers
  - a. Main circuit breakers in the MCC that are rated 400 amp and larger shall include electronic trips with adjustable short time, long time, and continuous current settings. All main breakers shall include ground fault relays. If specified, each main breaker shall include a multifunction digital meter with a readout and a means to output a three-phase voltage analog signal to the SCADA panel. Ethernet communications shall be included with the metering.
5. Motor Starter
  - a. The motor starters shall be full voltage, non-reversing, across the line type, unless otherwise required by the electric utility. The motor starters shall include circuit breaker disconnects, electronic solid state type overload relays, and dedicated control power



- transformers to derive 120 volts for the control circuits. Motor starter bucket door for the main and low flow pumps shall contain sufficient space for the installation of the pump manufacturer's furnished motor protection relay. If specified, the motor starter buckets shall contain a current sensing relay equipped with a means to output an analog signal of the motor current to the SCADA panel.
- b. Where reduced voltage starting is required by the electric utility, the full voltage, non-reversing starters shall be replaced with solid state reduced voltage non-reversing starters (soft starters) manufactured by the MCC manufacturer. A meeting shall be held between the electric utility, the Department, and the designer to discuss soft start before proceeding with detailed design.
6. Enclosure
- a. Enclosures shall be NEMA Type 12. Enclosures shall be suitable for front mounting. The enclosure shall be of sufficient size and volume to accommodate all specified equipment.
  - b. The MCC steel parts shall be cleaned and sprayed in controlled cleaning solutions by a 7-stage spray washer. The operation shall produce an iron phosphate coating of a minimum of 150 milligrams per square foot to meet MIL Specification TT-C-490. The primed metal parts shall be electrostatically coated with powder paint consisting of 670-011 ANSI-61 Acrylic Paint (Light Gray) with a gloss of 60, plus or minus 5, and thickness of 2.5 mils. The paint finish shall withstand a minimum of 1000 hours of salt spray test.

General: The MCC equipment shall conform to the requirements listed below and shall be according to the details, location, and orientation shown on the plans.

1. Applicable Publications:
  - a. National Electrical Manufacturers Association (NEMA):
    - i. ANSI/NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum)
    - ii. ANSI/NFPA 70: National Electrical Code
    - iii. SG-3: Low Voltage Power Circuit Breakers.
    - iv. ICS 1-05: Industrial Control and Systems: General Requirements
    - v. ICS 2-05: Industrial Control and Systems: Controllers, Contactors, and Overhead Relays, Rated 600 volts
    - vi. ICS 6-06: Industrial Control and Systems: Enclosures
    - vii. FU 1-02: Low-Voltage Cartridge Fuses
    - viii. 250-03: Enclosures for Electrical Equipment (1000 Volts Maximum)
  - b. National Fire Protection Association (NFPA):
    - i. 70-05: National Electrical Code (NEC)
  - c. Underwriters Laboratories, Inc. (UL):
    - i. UL 508: Industrial Control Equipment (only for devices included specification)
    - ii. 977: Safety Fused Power Circuit Devices
    - iii. 1053: Ground Fault Sensing and Relaying Equipment
    - iv. 845-05: Motor Control Centers
  - d. Institute of Engineering and Electronic Engineers (IEEE):
    - i. C37.13: Low Voltage AC Power Circuit Breakers Used in Enclosures
    - ii. C37.20.1: Standard for Metal-Enclosed Low-Voltage Power Circuit-Breaker Switchgear
    - iii. C57.13: Instrument Transformers
    - iv. C62.41: Surge Voltage in Low Voltage AC Power Circuits
2. The MCC shall be manufactured by a single manufacturer who has been regularly engaged in the production of such equipment for a minimum of 10 years. The MCC shall be factory built, factory tested, and shipped by the manufacturer. The manufacturer shall

have a local representative in the area who can provide factory trained servicemen, required stock of replacement parts, and technical assistance.

Testing: The Motor control center shall be thoroughly tested at the factory to assure that there are no electrical or mechanical defects. Tests shall be conducted in accordance with ANSI C37.20 and ANSI C37.51. Factory tests shall be certified.

Field acceptance tests and checks shall be completed by the Contractor at the site location. It shall include visual and mechanical inspections and electrical tests.

Upon completion of acceptance checks and tests, the Contractor shall demonstrate that the motor control center is in good operating condition and properly performing the intended functions. The Contractor shall correct or rectify any deficiencies noticed during the field test at no additional cost.

Formal operation and maintenance training shall be conducted by the vendor or manufacturer's representative within two weeks of activation of the equipment. An outline of the proposed program shall be submitted for approval at least two weeks before date of commencement of training.

Basis of Payment: This work will be paid for at the contract unit price per LUMP SUM for PUMP STATION MOTOR CONTROL CENTER.

## **BLENDED FINELY DIVIDED MINERALS (BDE)**

Effective: April 1, 2021

Revise the second paragraph of Article 1010.01 of the Standard Specifications to read:

“Different sources or types of finely divided minerals shall not be mixed or used alternately in the same item of construction, except as a blended finely divided mineral product according to Article 1010.06.”

Add the following article to Section 1010 of the Standard Specifications:

**“1010.06 Blended Finely Divided Minerals.** Blended finely divided minerals shall be the product resulting from the blending or intergrinding of two or three finely divided minerals. Blended finely divided minerals shall be according to ASTM C 1697, except as follows.

- (a) Blending shall be accomplished by mechanically or pneumatically intermixing the constituent finely divided minerals into a uniform mixture that is then discharged into a silo for storage or tanker for transportation.
- (b) The blended finely divided mineral product will be classified according to its predominant constituent or the manufacturer’s designation and shall meet the chemical requirements of its classification. The other finely divided mineral constituent(s) will not be required to conform to their individual standards.”

## **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."

**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 **3.00%** 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](mailto: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](mailto: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.

## **ILLINOIS WORKS APPRENTICESHIP INITIATIVE – STATE FUNDED CONTRACTS (BDE)**

Effective: June 2, 2021

Revised: September 2, 2021

Illinois Works Jobs Program Act (30 ILCS 559/20-1 et seq.). For contracts having an awarded contract value of \$500,000 or more, the Contractor shall comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules. The goal of the Illinois Apprenticeship Works Initiative is that apprentices will perform either 10% of the total labor hours actually worked in each prevailing wage classification or 10% of the estimated labor hours in each prevailing wage classification, whichever is less. The Contractor may seek from the Department of Commerce and Economic Opportunity (DCEO) a waiver or reduction of this goal in certain circumstances pursuant to 30 ILCS 559/20-20(b). The Contractor shall ensure compliance during the term of the contract and will be required to report on and certify its compliance. An apprentice use plan, apprentice hours, and a compliance certification shall be submitted to the Engineer on forms provided by the Department and/or DCEO.

## **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)
	<i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue)	40 (50)
1A Salt Tolerant Lawn Mixture 1/	Kentucky Bluegrass	60 (70)
	Perennial Ryegrass	20 (20)
	<i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue)	20 (20)
	<i>Festuca brevipilla</i> (Hard Fescue)	20 (20)
	<i>Puccinellia distans</i> (Fulfs Saltgrass or Salty Alkaligrass)	60 (70)
1B Low Maintenance Lawn Mixture 1/	Turf-Type Fine Fescue 3/	150 (170)
	Perennial Ryegrass	20 (20)
	Red Top	10 (10)
	<i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue)	20 (20)
2 Roadside Mixture 1/	<i>Lolium arundinaceum</i> (Tall Fescue)	100 (110)
	Perennial Ryegrass	50 (55)
	<i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue)	40 (50)
	Red Top	10 (10)
2A Salt Tolerant Roadside Mixture 1/	<i>Lolium arundinaceum</i> (Tall Fescue)	60 (70)
	Perennial Ryegrass	20 (20)
	<i>Festuca rubra</i> ssp. <i>rubra</i> (Creeping Red Fescue)	30 (20)
	<i>Festuca brevipilla</i> (Hard Fescue)	30 (20)
	<i>Puccinellia distans</i> (Fulfs Saltgrass or Salty Alkaligrass)	60 (70)
3 Northern Illinois Slope Mixture 1/	<i>Elymus canadensis</i> (Canada Wild Rye) 5/	5 (5)
	Perennial Ryegrass	20 (20)
	Alsike Clover 4/	5 (5)
	<i>Desmanthus illinoensis</i> (Illinois Bundleflower) 4/ 5/	2 (2)
	<i>Schizachyrium scoparium</i> (Little Bluestem) 5/	12 (12)
	<i>Bouteloua curtipendula</i> (Side-Oats Grama) 5/	10 (10)
	<i>Puccinellia distans</i> (Fulfs 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 Slope Mixture 1/	Perennial Ryegrass
<i>Elymus canadensis</i> (Canada Wild Rye) 5/		20 (20)
<i>Panicum virgatum</i> (Switchgrass) 5/		10 (10)
<i>Schizachyrium scoparium</i> (Little Blue Stem) 5/		12 (12)
<i>Bouteloua curtipendula</i> (Side-Oats Grama) 5/		10 (10)
<i>Dalea candida</i> (White Prairie Clover) 4/ 5/		5 (5)
<i>Rudbeckia hirta</i> (Black-Eyed Susan) 5/		5 (5)
Oats, Spring		50 (55)



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Class – Type	Seeds	lb/acre (kg/hectare)
4 Native Grass 2/ 6/	<i>Andropogon gerardi</i> (Big Blue Stem) 5/	4 (4)
	<i>Schizachyrium scoparium</i> (Little Blue Stem) 5/	5 (5)
	<i>Bouteloua curtipendula</i> (Side-Oats Grama) 5/	5 (5)
	<i>Elymus canadensis</i> (Canada Wild Rye) 5/	1 (1)
	<i>Panicum virgatum</i> (Switch Grass) 5/	1 (1)
	<i>Sorghastrum nutans</i> (Indian Grass) 5/	2 (2)
	Annual Ryegrass	25 (25)
	Oats, Spring	25 (25)
	Perennial Ryegrass	15 (15)
	4A Low Profile Native Grass 2/ 6/	<i>Schizachyrium scoparium</i> (Little Blue Stem) 5/
<i>Bouteloua curtipendula</i> (Side-Oats Grama) 5/		5 (5)
<i>Elymus canadensis</i> (Canada Wild Rye) 5/		1 (1)
<i>Sporobolus heterolepis</i> (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
	Oats, Spring	25 (25)
	Wetland Grasses (species below) 5/	6 (6)
<u>Species:</u>	<u>% By Weight</u>	
<i>Calamagrostis canadensis</i> (Blue Joint Grass)	12	
<i>Carex lacustris</i> (Lake-Bank Sedge)	6	
<i>Carex slipata</i> (Awl-Fruited Sedge)	6	
<i>Carex stricta</i> (Tussock Sedge)	6	
<i>Carex vulpinoidea</i> (Fox Sedge)	6	
<i>Eleocharis acicularis</i> (Needle Spike Rush)	3	
<i>Eleocharis obtusa</i> (Blunt Spike Rush)	3	
<i>Glyceria striata</i> (Fowl Manna Grass)	14	
<i>Juncus effusus</i> (Common Rush)	6	
<i>Juncus tenuis</i> (Slender Rush)	6	
<i>Juncus torreyi</i> (Torrey's Rush)	6	
<i>Leersia oryzoides</i> (Rice Cut Grass)	10	
<i>Scirpus acutus</i> (Hard-Stemmed Bulrush)	3	
<i>Scirpus atrovirens</i> (Dark Green Rush)	3	
<i>Bolboschoenus fluviatilis</i> (River Bulrush)	3	
<i>Schoenoplectus tabernaemontani</i> (Softstem Bulrush)	3	
<i>Spartina pectinata</i> (Cord Grass)	4	

Class – Type	Seeds	lb/acre (kg/hectare)
5	Forb with	Annuals Mixture (Below)
	Annuals Mixture 2/ 5/ 6/	Forb Mixture (Below)
		1 (1)
		10 (10)
	Annuals Mixture - Mixture not exceeding 25 % by weight of any one species, of the following:	
	<i>Coreopsis lanceolata</i> (Sand Coreopsis)	
	<i>Leucanthemum maximum</i> (Shasta Daisy)	
	<i>Gaillardia pulchella</i> (Blanket Flower)	
	<i>Ratibida columnifera</i> (Prairie Coneflower)	
	<i>Rudbeckia hirta</i> (Black-Eyed Susan)	
	Forb Mixture - Mixture not exceeding 5 % by weight PLS of any one species, of the following:	
	<i>Amorpha canescens</i> (Lead Plant) 4/	
	<i>Anemone cylindrica</i> (Thimble Weed)	
	<i>Asclepias tuberosa</i> (Butterfly Weed)	
	<i>Aster azureus</i> (Sky Blue Aster)	
	<i>Symphotrichum leave</i> (Smooth Aster)	
	<i>Aster novae-angliae</i> (New England Aster)	
	<i>Baptisia leucantha</i> (White Wild Indigo) 4/	
	<i>Coreopsis palmata</i> (Prairie Coreopsis)	
	<i>Echinacea pallida</i> (Pale Purple Coneflower)	
	<i>Eryngium yuccifolium</i> (Rattlesnake Master)	
	<i>Helianthus mollis</i> (Downy Sunflower)	
	<i>Heliopsis helianthoides</i> (Ox-Eye)	
	<i>Liatris aspera</i> (Rough Blazing Star)	
	<i>Liatris pycnostachya</i> (Prairie Blazing Star)	
	<i>Monarda fistulosa</i> (Prairie Bergamot)	
	<i>Parthenium integrifolium</i> (Wild Quinine)	
	<i>Dalea candida</i> (White Prairie Clover) 4/	
	<i>Dalea purpurea</i> (Purple Prairie Clover) 4/	
	<i>Physostegia virginiana</i> (False Dragonhead)	
	<i>Potentilla arguta</i> (Prairie Cinquefoil)	
	<i>Ratibida pinnata</i> (Yellow Coneflower)	
	<i>Rudbeckia subtomentosa</i> (Fragrant Coneflower)	
	<i>Silphium laciniatum</i> (Compass Plant)	
	<i>Silphium terebinthinaceum</i> (Prairie Dock)	
	<i>Oligoneuron rigidum</i> (Rigid Goldenrod)	
	<i>Tradescantia ohioensis</i> (Spiderwort)	
	<i>Veronicastrum virginicum</i> (Culver's Root)	

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Class – Type	Seeds	lb/acre (kg/hectare)
5A Large Flower Native Forb Mixture 2/ 5/ 6/	Forb Mixture (see below)	5 (5)
	<u>Species:</u>	<u>% By Weight</u>
	<i>Aster novae-angliae</i> (New England Aster)	5
	<i>Echinacea pallida</i> (Pale Purple Coneflower)	10
	<i>Helianthus mollis</i> (Downy Sunflower)	10
	<i>Heliopsis helianthoides</i> (Ox-Eye)	10
	<i>Liatris pycnostachya</i> (Prairie Blazing Star)	10
	<i>Ratibida pinnata</i> (Yellow Coneflower)	5
	<i>Rudbeckia hirta</i> (Black-Eyed Susan)	10
	<i>Silphium laciniatum</i> (Compass Plant)	10
	<i>Silphium terebinthinaceum</i> (Prairie Dock)	20
	<i>Oligoneuron rigidum</i> (Rigid Goldenrod)	10
5B Wetland Forb 2/ 5/ 6/	Forb Mixture (see below)	2 (2)
	<u>Species:</u>	<u>% By Weight</u>
	<i>Acorus calamus</i> (Sweet Flag)	3
	<i>Angelica atropurpurea</i> (Angelica)	6
	<i>Asclepias incarnata</i> (Swamp Milkweed)	2
	<i>Aster puniceus</i> (Purple Stemmed Aster)	10
	<i>Bidens cernua</i> (Beggarticks)	7
	<i>Eutrochium maculatum</i> (Spotted Joe Pye Weed)	7
	<i>Eupatorium perfoliatum</i> (Boneset)	7
	<i>Helenium autumnale</i> (Autumn Sneezeweed)	2
	<i>Iris virginica shrevei</i> (Blue Flag Iris)	2
	<i>Lobelia cardinalis</i> (Cardinal Flower)	5
	<i>Lobelia siphilitica</i> (Great Blue Lobelia)	5
	<i>Lythrum alatum</i> (Winged Loosestrife)	2
	<i>Physostegia virginiana</i> (False Dragonhead)	5
	<i>Persicaria pensylvanica</i> (Pennsylvania Smartweed)	10
	<i>Persicaria lapathifolia</i> (Curlytop Knotweed)	10
	<i>Pycnanthemum virginianum</i> (Mountain Mint)	5
	<i>Rudbeckia laciniata</i> (Cut-leaf Coneflower)	5
	<i>Oligoneuron riddellii</i> (Riddell Goldenrod)	2
	<i>Sparganium eurycarpum</i> (Giant Burreed)	5
6 Conservation Mixture 2/ 6/	<i>Schizachyrium scoparium</i> (Little Blue Stem) 5/ <i>Elymus canadensis</i> (Canada Wild Rye) 5/ Buffalo Grass 5/ 7/ Vernal Alfalfa 4/ Oats, Spring	5 (5) 2 (2) 5 (5) 15 (15) 48 (55)
6A Salt Tolerant Conservation Mixture 2/ 6/	<i>Schizachyrium scoparium</i> (Little Blue Stem) 5/ <i>Elymus canadensis</i> (Canada Wild Rye) 5/ Buffalo Grass 5/ 7/ Vernal Alfalfa 4/ Oats, Spring <i>Puccinellia distans</i> (Fults Saltgrass or Salty Alkaligrass)	5 (5) 2 (2) 5 (5) 15 (15) 48 (55) 20 (20)
7 Temporary Turf Cover Mixture	Perennial Ryegrass Oats, Spring	50 (55) 64 (70)

Notes:

- 1/ Seeding shall be performed when the ambient temperature has been between 45 °F (7 °C) and 80 °F (27 °C) 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 °F (7 °C) for a minimum of seven (7) consecutive days and ending when the ambient temperature exceeds 80 °F (27 °C) 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<sub>3</sub> 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.”

#### **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.”

**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%”

**SUBMISSION OF PAYROLL RECORDS (BDE)**

Effective: April 1, 2021

Revised: November 1, 2022

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, the worker’s address, the worker’s telephone number when available, the worker’s social security number, the worker’s classification or classifications, the worker’s gross and net wages paid in each pay period, the worker’s number of hours worked each day, and the worker’s starting and ending times of work each day. However, any Contractor or subcontractor who remits contributions to a fringe benefit fund that is not jointly maintained and jointly governed by one or more employers and one or more labor organization must additionally submit the worker’s hourly wage rate, the worker’s hourly overtime wage rate, the worker’s hourly fringe benefit rates, the name and address of each fringe benefit fund, the plan sponsor of each fringe benefit, if applicable, and the plan administrator of each fringe benefit, if applicable.

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."

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 15<sup>th</sup> 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."

## **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."

**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.

**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.”

**WORKING DAYS (BDE)**

Effective: January 1, 2002

The Contractor shall complete the work within **30** working days.

## **REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES**

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at <http://www.state.il.us/agency/idol/> or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.