Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

October 31, 2024

SUBJECT: FAP 305 (US 14)
Section 11-00087-02-GS (Barrington)
Lake County
Contract No. 61J87
Item 102
November 8, 2024 Letting
Addendum (A)

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. **Revised the Schedule of Prices**
2. **Revised Plan Sheets 3, 5, 14, 16, 20, 27, 34, 53, 60, 69, 70, 77, 81, 88, 106, 162, 193, 194, 279, 280, 299, 317, 318, 320, 440, 671, 694, 697, 699, 700, 702-737, 782-784, & 790-796.**
3. **Added Plan Sheets 247A-247C, 280A, & 280B**
4. **Revised pages i & iv of the Special Provision Index**
5. **Revised pages 1, 4-9, 33-35, 66, 176, 179, 186, 194, 197, 203-205, & 221 of the Special Provisions**
6. **Added pages 221a-221c to the Special Provisions**

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Very truly yours,

Jack A. Elston, P.E.
Bureau Chief, Design and Environment

## INDEX OF SPECIAL PROVISIONS

**TITLE** **PAGE NO.**

# STATE OF ILLINOIS

# SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2022 (hereinafter referred to as the Standard Specifications); the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD); the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids; the "Standard Specifications for Water and Sewer Construction in Illinois", 7th Edition, 2014 (hereinafter referred to as the Water and Sewer Specifications); the Illinois Urban Manual, June, 2013 Edition; and the "Supplemental Specifications and Recurring Special Provisions", adopted January 1, 2024, indicated on the Check Sheet included herein which apply to and govern the construction of the US 14 reconstruction and Grade Separation, Section 11-00087-00-GS & Section 11-00087-02-GS, Contract No. 61J87, and in case of conflict with any part, or parts, of said specifications, the said Special Provisions shall take precedence and shall govern.

## LOCATION OF PROJECT

This project is located in the Village of Barrington, Lake County. The project limits on US 14 (Northwest Highway) from Hough Street (IL 59) to Valencia Avenue; on Hough Street (IL 59) from 300' south of Lions Drive to US 14; and Lake Zurich Road from US 14 to 650 north of US 14. The project has a total gross and net length of 3,916.4 feet (0.74 mile).

## DESCRIPTION OF PROJECT

The project consists of constructing a grade separation with US 14 going under the CN/WCL railroad. The proposed pavement will consist of concrete curb and gutter, Portland cement concrete pavement, aggregate subgrade improvement. Concrete faced sheet piling retaining walls and precast concrete post and panel noise walls will be constructed. A section of the Flint Creek tributary will be relocated to a new alignment. A pump station will be constructed. In addition, there will be storm sewer, water main, sanitary sewer, pavement marking, signing, erosion control, lighting and landscaping installation along with all incidental and collateral work necessary to complete the project as shown on the plans and as described herein.

## COMPLETION DATE PLUS WORKING DAYS (D1)

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

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

"When a completion date plus working days is specified, the Contractor shall complete all contract items and safely open all roadways to traffic by 11:59 PM on, July 31, 2027 except as specified herein.

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

| | | | | |
|---|---|---|---|---|
| US 14 – STA 204+60 STA 213+00 STA 211+50 STA 229+75 IL 59 – STA 70+90 | Coaxial Underground CATV and Overhead lines | Existing line is in conflict with proposed roadway improvements.<br><br>Contractor for Comcast to install new line and cut over services. | Comcast | 14 days after ComEd's completion on Utility Poles and Overhead Wires |
| US 14 – STA 216+25 IL 59 – STA 71+00 LZR – STA 505+00 | Pedestal and Aerial Lines | Existing lines and pedestal are in conflict with proposed roadway improvements.<br><br>Contractor for AT&T to install new line/pedestal and cut over services. | AT&T | 30 days after ComEd's completion on Utility Poles and Overhead Wires |
| US 14 – STA 225+00 to STA 226+80 | Pedestal and Underground Telecommunication Lines | Existing line and pedestal are in conflict with proposed roadway improvements.<br><br>Contractor for Verizon to install new line/pedestal and cut over services. | Verizon | 14 days installation |
| US 14 – STA 201+77 to STA 229+99 | Utility Poles and Overhead Wires | Existing utility poles and overhead wires are in conflict with proposed roadway improvements.<br><br>Contractor for ComEd to install new line and relocate the utility poles. | ComEd | 150 days installation |
| IL 59 – STA 68+63 to STA 70+98 | Underground conduit | Existing conduit in conflict with proposed roadway improvements.<br><br>Contractor for ComEd to install new conduit and cut over services. | ComEd | 21 days installation |
| US 14 – STA 202+00 to STA 230+00.7 IL 59 – STA 70+50 | 6" and 2" Steel Gas Line | Existing gas lines are in conflict with proposed roadway improvements.<br><br>Contractor for | Nicor | 30 day installation |

| | | | | |
|---|---|---|---|---|
| | | Nicor to install new line and cut over services. | | |

**Stage 1**

No conflicts to be resolved.

**Stage 2**

No conflicts to be resolved.

**Stage 3**

No conflicts to be resolved.

Pre-Stage: ___180___ Days Total Installation

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

| Agency/Company Responsible to Resolve Conflict | Name of contact | Phone | E-mail address |
|---|---|---|---|
| AT&T | Hector Garcia | 630.639.8372 | hg2929@att.com |
| ComEd | James Campbell III | 630.940.6805 | James.CampbellIII@comed.com |
| Nicor Gas | Charles “Chip” Parrott | 630.388.3319 | cparrott@southernco.com |
| Comcast | Martha Gieras | 224.229.5862 | Martha_Gieras@comcast.com |
| Verizon | Joe B. Chaney | 312.617.2131 | joe.chaney@verizon.com |

UTILITIES TO BE WATCHED AND PROTECTED

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

**Pre-Stage**

| STAGE / LOCATION | TYPE | DESCRIPTION | OWNER |
|---|---|---|---|
| US 14 – STA 201+57 to STA 208+65, LT; STA 206+65 to STA | 6” and 2” Steel Gas Line | The Contractor is alerted that there is a 6” and 2” steel gas line. | Nicor |

| | | | |
|---|---|---|---|
| 212+70, RT; STA 221+00 to STA 229+73, LT<br>IL 59 – STA 70+50 to STA 71+12, LT<br>Park Ln – STA 400+25 to STA 406+02, LT | | There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | |
| US 14 –<br>STA 204+60<br>STA 213+00<br>STA 211+50<br>STA 229+75<br>IL 59 –<br>STA 70+90<br>STA 229+75 | Coaxial Underground CATV | The Contractor is alerted that there are coaxial underground CATV cables.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | Comcast |
| US 14 – STA 216+25<br>IL 59 – STA 71+00<br>LZR – STA 505+00 | Pedestal and Aerial Lines | The Contractor is alerted that there is a pedestal and aerial Lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | AT&T |
| US 14 – STA 225+00 to STA 231+32, LT | Manhole and Underground Telecommunication Lines | The Contractor is alerted that there is a manhole and underground telecommunication lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect | Verizon |
| US 14 – STA 201+70 to STA 215+00, LT; STA 226+08 to STA 229+74, LT<br>IL 59 – STA 73+82 to STA 76+50, LT<br>Park Ln – STA 400+20 to STA 403+95, RT | Utility Poles, Overhead Wires, and underground conduit | The Contractor is alerted that there are utility poles, overhead wires and underground conduit.<br><br>There are no conflicts with the proposed improvements, but all workers should follow the current OHSA rules and other applicable guidelines regarding working safely around electrical power lines. | ComEd |

**Stage 1**

| STAGE / LOCATION | TYPE | DESCRIPTION | OWNER |
|---|---|---|---|
| US 14 – STA 201+57 to STA 208+65, LT; STA 206+65 to STA 212+70, RT; STA | 6” and 2” Steel Gas Line | The Contractor is alerted that there is a 6” and 2” steel gas line.<br><br>There are no conflicts with the proposed | Nicor |

| | | | |
|---|---|---|---|
| 221+00 to STA 229+73, LT<br>IL 59 – STA 70+50 to STA 71+12, LT<br>Park Ln – STA 400+25 to STA 406+02, LT | | improvements, however the contractor shall watch and protect facilities in this area. | |
| US 14 –<br>STA 204+60<br>STA 213+00<br>STA 211+50<br>STA 229+75<br>IL 59 –<br>STA 70+90<br>STA 229+75 | Coaxial Underground CATV | The Contractor is alerted that there are coaxial underground CATV cables.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | Comcast |
| US 14 – STA 216+25<br>IL 59 – STA 71+00<br>LZR – STA 505+00 | Pedestal and Aerial Lines | The Contractor is alerted that there is a pedestal and aerial Lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | AT&T |
| US 14 – STA 225+00<br>STA 231+32, LT | Manhole and Underground Telecommunication Lines | The Contractor is alerted that there is a manhole and underground telecommunication lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect | Verizon |
| US 14 – STA 201+70 to STA 215+00, LT; STA 226+08 to STA 229+74, LT<br>IL 59 – STA 73+82 to STA 76+50, LT<br>Park Ln – STA 400+20 to STA 403+95, RT | Utility Poles and Overhead Wires | The Contractor is alerted that there are utility poles, overhead wires and underground conduit.<br><br>There are no conflicts with the proposed improvements, but all workers should follow the current OHSA rules and other applicable guidelines regarding working safely around electrical power lines. | ComEd |

**Stage 2**

| STAGE / LOCATION | TYPE | DESCRIPTION | OWNER |
|---|---|---|---|
| US 14 – STA 201+57 to STA 208+65, LT; STA 206+65 to STA 212+70, RT; STA 221+00 to STA 229+73, LT<br>IL 59 – STA 70+50 to | 6” and 2” Steel Gas Line | The Contractor is alerted that there is a 6” and 2” steel gas line.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | Nicor |

| | | | |
|---|---|---|---|
| STA 71+12, LT<br>Park Ln – STA 400+25 to STA 406+02, LT | | | |
| US 14 –<br>STA 204+60<br>STA 213+00<br>STA 211+50<br>STA 229+75<br>IL 59 –<br>STA 70+90<br>STA 229+75 | Coaxial Underground CATV | The Contractor is alerted that there are coaxial underground CATV cables.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | Comcast |
| US 14 – STA 216+25<br>IL 59 – STA 71+00<br>LZR – STA 505+00 | Pedestal and Aerial Lines | The Contractor is alerted that there is a pedestal and aerial Lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | AT&T |
| US 14 – STA 225+00<br>STA 231+32, LT | Manhole and Underground Telecommunication Lines | The Contractor is alerted that there is a manhole and underground telecommunication lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect | Verizon |
| US 14 – STA 201+70 to STA 215+00, LT; STA 226+08 to STA 229+74, LT<br>IL 59 – STA 73+82 to STA 76+50, LT<br>Park Ln – STA 400+20 to STA 403+95, RT | Utility Poles and Overhead Wires | The Contractor is alerted that there are utility poles, overhead wires and underground conduit.<br><br>There are no conflicts with the proposed improvements, but all workers should follow the current OHSA rules and other applicable guidelines regarding working safely around electrical power lines. | ComEd |

**Stage 3**

| STAGE / LOCATION | TYPE | DESCRIPTION | OWNER |
|---|---|---|---|
| US 14 – STA 201+57 to STA 208+65, LT; STA 206+65 to STA 212+70, RT; STA 221+00 to STA 229+73, LT<br>IL 59 – STA 70+50 to STA 71+12, LT<br>Park Ln – STA | 6” and 2” Steel Gas Line | The Contractor is alerted that there is a 6” and 2” steel gas line.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | Nicor |

| | | | |
|---|---|---|---|
| 400+25 to STA 406+02, LT | | | |
| US 14 – STA 204+60 STA 213+00 STA 211+50 STA 229+75 IL 59 – STA 70+90 STA 229+75 | Coaxial Underground CATV | The Contractor is alerted that there are coaxial underground CATV cables.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | Comcast |
| US 14 – STA 216+25 IL 59 – STA 71+00 LZR – STA 505+00 | Pedestal and Aerial Lines | The Contractor is alerted that there is a pedestal and aerial Lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect facilities in this area. | AT&T |
| US 14 – STA 225+00 STA 231+32, LT | Manhole and Underground Telecommunication Lines | The Contractor is alerted that there is a manhole and underground telecommunication lines.<br><br>There are no conflicts with the proposed improvements, however the contractor shall watch and protect | Verizon |
| US 14 – STA 201+70 to STA 215+00, LT; STA 226+08 to STA 229+74, LT IL 59 – STA 73+82 to STA 76+50, LT Park Ln – STA 400+20 to STA 403+95, RT | Utility Poles and Overhead Wires | The Contractor is alerted that there are utility poles, overhead wires and underground conduit.<br><br>There are no conflicts with the proposed improvements, but all workers should follow the current OHSA rules and other applicable guidelines regarding working safely around electrical power lines. | ComEd |

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

| Agency/Company Responsible to Resolve Conflict | Name of contact | Phone | E-mail address |
|---|---|---|---|
| AT&T | Hector Garcia | 630.639.8372 | hg2929@att.com |
| ComEd | James Campbell III | 630.940.6805 | James.CampbellIII@comed.com |
| Nicor Gas | Charles “Chip” Parrott | 630.388.3319 | cparrott@southernco.com |
| Comcast | Martha Gieras | 224.229.5862 | Martha_Gieras@comcast.com |
| Verizon | Joe B. Chaney | 312.617.2131 | joe.chaney@verizon.com |

The above represents the best information available to the Department and is included for the convenience of the bidder. The days required for conflict resolution should be considered in the bid

When constructing PCC sidewalk through a residential driveway entrance, the thickness of the PCC sidewalk shall be 6” regardless of the actual thickness called off by the plan pay item.

**Method of Measurement.** This work will be measured for payment in place and the area computed in square feet (square meters). Curb ramps, including side curbs and side flares, will be measured for payment as sidewalk. No deduction will be made for detectable warnings located within the ramp.

**Basis of Payment.** This work will be paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE SIDEWALK, of the thickness specified.

**EXPLORATION TRENCH, SPECIAL**

**Description.** This work shall be done in accordance with Section 213 of the Standard Specifications except as modified herein. This item shall consist of excavating a trench at the locations directed by the Engineer for the purpose of locating existing TILE LINES, GAS LINES, UNDERGROUND ELECTRIC LINES, UNDERGROUND TELEPHONE LINES, UNDERGROUND CABLE TV LINES, and other UTILITIES within the construction limits of the proposed improvement.

The trench shall be deep enough to expose the utility, and the width of the trench shall be sufficient to allow proper investigation of the utility.

**Method of Measurement.** The exploration trench within the roadway width shall be backfilled with trench backfill at the direction of the Engineer in accordance with Section 208 of the Standard Specifications. Trench backfill will not be measured separately but shall be included in the cost of EXPLORATION TRENCH, SPECIAL.

The exploration trench outside of the roadway width shall be backfilled according to Article 550.07.

An estimated length of exploration trench has been shown in the summary of quantities to establish a unit price only, and payment shall be based on the actual length of trench explored without a change in unit price because of adjustment in plan quantities.

**Basis of Payment.** This work will be paid for at the contract unit price per foot (regardless of depth) for EXPLORATION TRENCH, SPECIAL, and no extra compensation will be allowed for any delays, inconveniences or damage sustained by the Contractor in performing the work.

## PRECAST CONCRETE BOX CULVERTS (SPECIAL)

**Description.** This work shall consist of furnishing all labor, materials, tools, and equipment necessary to construct the precast concrete box culverts as shown on the plans or as directed by the Engineer, in accordance with the applicable portions of Sections 502, 503, and 540 of the Standard Specifications.

This item shall include an end wall on the east end of the culvert run. The end wall shall be constructed as part of the precast process. Steps per Standard 602701 shall be included on east wall from manhole access and shall be placed 12"-16" o.c. Any risers, frames, and grates shown on the plans shall be included with this item. Included in this work are all the excavation, backfilling, dewatering, Class SI Concrete, reinforcement bars, and all other incidental hardware as specified and detailed on the plans.

**Method of Measurement.** This work will be measured for payment per foot for PRECAST CONCRETE BOX CULVERTS (SPECIAL) of the size shown on the plans, installed in place.

**Basis of Payment.** This work will be paid for at the contract unit price per foot for PRECAST CONCRETE BOX CULVERTS (SPECIAL) for the size shown on the plans, which price shall include all labor, equipment and materials necessary to complete the work as specified herein.

## PRECAST CONCRETE JUNCTION CHAMBER

**Description:** This work shall consist of furnishing all labor, materials, tools, and equipment necessary to construct the junction chambers as shown on the plans or as directed by the Engineer, in accordance with the applicable portions of Sections 502, 503, 508, and 602 of the Standard Specifications.

Included in this work are all the excavation, backfilling, dewatering, Class SI Concrete, reinforcement bars, and all other incidental hardware as specified and detailed on the plans. Frames, grates or lids and risers shall be included in the cost of the junction chamber.

**Method of Measurement:** This work will be measured for payment for each PRECAST CONCRETE JUNCTION CHAMBER at each location as shown on the plans, installed in place.

**Basis of Payment:** This work will be paid for at the contract unit price per each for each PRECAST CONCRETE JUNCTION CHAMBER at each location as shown on the plans including the type of frames, grates or lids specified, which price shall include all labor, equipment and materials necessary to complete the work as specified herein.

## TEMPORARY DRAINAGE STRUCTURES

Description. This work shall consist of installing, maintaining, and removing temporary inlets and catch basins. Inlets and catch basins used as drainage structures for proposed temporary connections and detour roads shall be furnished, installed, maintained, and removed as specified. The temporary drainage structures shall be furnished with Type 1 Frame and Open Lid. All work shall be performed at the direction of the Engineer.

General: The work shall be performed according to Section 602 of the “Standard Specifications”

Basis of Payment. This work will be paid for at the contract unit price each for TEMPORARY INLETS and CATCH BASINS regardless of the diameter and shall include the specified frame and grate or lid.

## TEMPORARY STORM SEWER

**Description.** This work shall consist of installing, maintaining, and removing temporary storm sewer of the required inside diameter. Storm sewer used for proposed temporary connections and detour roads shall be furnished, installed, maintained, and removed as specified. All work shall be performed at the direction of the Engineer.

**Materials.** The storm sewer materials shall meet the requirements of Article 550.02 of the "Standard Specifications".

**General.** The work shall be performed according to Section 550 of the "Standard Specifications".

**Method of Measurement.** Temporary Storm Sewers shall be measured in place, in feet, of actual pipe installed.

**Basis of Payment.** This work will be paid for at the contract unit price per foot for TEMPORARY STORM SEWER of the size specified. The unit price shall include all materials, equipment and labor required to install the temporary storm sewers, including concrete collars and drilling and grouting for connections to culverts, and/or drainage structures.

## PIPE DRAINS (SPECIAL)

**Description:** This work shall consist of furnishing and installing the pipe drains behind the abutments of SN 049-0014 including all connections and fittings as shown on the plans, as specified herein, and as directed by the Engineer. This work shall be performed in accordance with Sections 523 and 601 of the Standard Specifications, except as modified herein.

**Materials:** Solid pipe drains behind the abutments shall be bituminous coated corrugated metal pipe conforming to the requirements of Article 1006.01(a) of the Standard Specifications.

**Method of Measurement:** Pipe Drains (Special) will be measured for payment in feet, in place.

Basis of Payment: This work will be paid for at the contract unit price per foot for PIPE DRAINS (SPECIAL), of the diameter specified.

## PIPE UNDERDRAINS

**Description:** This work shall be in accordance with Section 601 of the Standard Specifications, except as modified herein.

**Materials:** Pipe underdrains must be polyethene pipe per Article 601.02. No other pipe materials will be accepted. PIPE UNDERDRAINS 8" (SPECIAL) shall be backfilled with CLSM up to 2' from final surface. CLSM shall be per Section 593.

**Method of Measurement:** Pipe underdrains will be measured per Article 601.07 of the Standard Specifications. CLSM shall be measured for payment per Article 593.05.

**Basis of Payment:** This work will be paid for per Article 601.08 of the Standard Specifications.

CLSM shall be paid according to Article 593.06.

Sanitary sewer will be measured for payment in place in feet along the length from end to end, including sanitary sewer service wye fittings, but excluding through manholes.

This work will be measured in place and paid for at the contract unit price per foot (FT) for SANITARY SEWER, of the diameter specified, which shall include all labor, material, and equipment required to complete the work as specified herein.

## DELINEATOR SYSTEM

**Description.** This work shall consist of furnishing, installing, and removing a channelizing system adjacent to the CN/WCL Railroad on both the east and west sides. The system shall include yellow interlocking continuous curb with reflective marker panels (minimum 42” height) mounted on reboundable connections. Any delineator system provided must meet the approval of the Federal Railroad Administration as a quiet zone traffic channelization and median supplemental safety measure. The system shall be fully anchored to the pavement. Panels shall be placed roughly every 6’-8”.

The delineator system shall be installed in accordance with manufacturer instructions.

The delineators, curb, panels and hardware shall be removed and disposed of once the railroad crossing is not longer active.

The delineator system shall consist of 100 feet of curb. Each terminal end of curbing shall have a formed, tapered end curb piece.

**Method of Measurement.** Delineator System shall be measured for each system furnished and installed.

**Basis of Payment.** This work will be paid for at the contract unit price per each for DELINEATOR SYSTEM.

## WOOD FENCE TO BE REMOVED AND RE-ERECTED

**Description.** This work shall consist of removing the fence, installing new posts in temporary fence location and re-erecting the existing fence panels on the new posts.

Construction Requirements: The Contractor shall remove the wood fence with components in such a manner as to not cause it damage as directed by the Engineer.

The new posts shall be 4”x6” treated pine. The posts shall be installed per the detail in the plans.

The existing posts shall be removed and disposed of by the Contractor.

**Method of Measurement.** This work will be measured for payment in place in feet.

**Basis of Payment.** This work will be paid for at the contract unit price per foot for WOOD FENCE TO BE REMOVED AND RE-ERECTED which price shall include all labor, equipment, and materials necessary to complete the work as specified.

pattern and dimensions and be submitted for the Engineer's approval no later than 30 calendar days from the date of notification of approval of the style type.

Upon approval of the form liner plans and details, the Contractor shall submit up to three 6' by 6' (minimum) sample concrete panel of the simulated stone masonry finish including the staining and anti-graffiti coating. The sample panel shall be delivered and positioned on the job site at a location to be determined by the Engineer. The approved sample panel shall be the standard for concrete staining and anti-graffiti coating to replicate the look of actual stone masonry and mortar joints throughout the project.

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

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

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

**Method of Measurement:** This work will be measured in place per square feet of surface area upon which the anti-graffiti coating has been applied and accepted by the Engineer

**Basis of Payment:** This work will be paid for at the contract unit price per square foot for ANTI-GRAFFITI COATING which price shall be payment in full for the cleaning of designated surfaces and the application of the anti-graffiti coating.

## PERMANENT GROUND ANCHORS

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

This is a performance specification for a single ground anchor. The Contractor is given the responsibility for the ground anchor design, construction and performance. The anchor bond lengths shown on the plans are estimated based on the soil data and were determined according to AASHTO Specifications. The Contractor shall select the ground anchor type, the installation method and

Steel Elements: Anchorage head assemblies, including bearing and wedge plates, shall be fabricated from steel conforming to AASHTO M270 (M270M) Grade 50 (345), or be a ductile iron casting conforming to ASTM A536.

Walers and stiffeners shall be fabricated from steel confirming to AASHTO M270 (M270M) Grade 50(345).

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

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

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

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

Seamless polyethylene (PE) tube having a minimum wall thickness of 60 mils (1525 microns) plus or minus 10 mils (250 microns). The polyethylene shall be cell classification 334413 by ASTM D3350.

Seamless polypropylene tube having a minimum wall thickness of 60 mils (1525 microns) plus or minus 10 mils (255 microns). The polypropylene shall be cell classification PP210B55542- 11 by ASTM D4101.

Heat shrinkable tube consisting of a radiation crosslinked polyolefin tube internally coated with an adhesive sealant. The minimum tube wall thickness before shrinking shall be 24 mils (610 microns). The minimum adhesive sealant thickness shall be 20 mils (510 microns).

A corrugated tube conforming to the requirement of the encapsulation for the tendon bond length.

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

Corrugated high density polyethylene (HDPE) tube having a minimum wall thickness of 30 mils (760 microns) and conforming to AASHTO M252 requirements.

Deformed steel tube or pipe having a minimum wall thickness of 25 mils (635 microns).

Corrugated polyvinyl chloride (PVC) tube having a minimum wall thickness of 30 mils (760 microns). (ASTM D1784) class 13464-B

Fusion-bonded epoxy conforming to the requirements of AASHTO M284 (M284M), except that it shall have a film thickness of 15 mils (380 microns).

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

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

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

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

Lock Off: Upon successful completion of the load testing, the ground anchor load shall be reduced to the design load indicated on the plans and transferred to the anchorage device. The ground anchor may be completely unloaded prior to lock-off. After transferring the load and prior to removing the jack, a lift-off load reading shall be made. The lift-off load shall be within 10 percent of the specified lock-off load. If the load is not within 10 percent of the specified lock-off load, the anchorage shall be reset and another lift-off load reading shall be made. This process shall be repeated until the desired lock-off load is obtained.

METHOD OF MEASUREMENT
This work will be measured per each permanent ground anchor, installed according to the plans or as approved by the Engineer, and passing the testing program(s) required in this Special Provision.

BASIS OF PAYMENT
This work will be paid for at the contract unit price each for PERMANENT GROUND ANCHORS and shall be compensation in full for designing, furnishing, installing and testing the permanent ground anchors and anchorage head assemblies and walers.

**STAINING CONCRETE STRUCTURES**

**Description:** This work shall consist of staining the form-liner textured surfaces as shown in the plans to replicate actual stone masonry and mortar joints. The staining shall match the color variations present in natural limestone, accurately simulating the appearance of real stone masonry constructions. Final coloration of the designated concrete surfaces shall accurately simulate the appearance of actual stone including multiple colors, shades, flecking, and veining. It shall also simulate the colors that may be present due to aging, staining, oxidation, rusting and/or organic staining from soil and vegetation. An example of the desired staining is shown below.

**Materials:** The stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight, and/or weathering.

**COFFERDAM (TYPE 2)**

**Description:** This work shall include all labor, materials and equipment required to provide a temporary structure consisting of engineered components (cofferdam) to isolate the excavations for the substructure elements for the proposed railroad bridge (SN 049-0014) from groundwater to enable construction in dry conditions while also supporting the adjacent land and Shoofly Track. This work shall be in accordance with Section 502 of the Standard Specifications except as modified herein.

The Contractor shall submit detailed drawings and design calculations, prepared and sealed by an Illinois Licensed Structural Engineer in accordance with Article 502.06(b). The cofferdams shall be designed to resist the estimated ground water elevation provided in the plans as well as the railroad surcharge in accordance with the current AREMA specifications.

**Basis of Payment:** COFFERDAM (TYPE 2) will be paid for at the contract unit price per each for COFFERDAM (TYPE 2) at the locations specified.

**CONCRETE STRUCTURES (SPECIAL)**

**Description:** This work shall consist of constructing cast-in-place concrete structures. The work shall be in accordance with Standard Specification Section 503 and American Railway Engineering and Maintenance of Way Association (AREMA) "Manual for Railway Engineering", Chapter 8, Concrete Structures except as modified herein, as shown on the drawings and as directed by the Engineer.

**Materials:** The materials shall be in accordance Section 1020 of the Standard Specifications except as modified herein:

(a) All concrete covered in this specification shall achieve a minimum compressive strength of 5,000 PSI at 28 days. The Contractor shall submit the proposed mix design to the Engineer for approval. IDOT approved mix designs will be allowed to target this requirement.

(b) The use of slag, fly ash or a combination of the two will not be permitted.

(c) Cement.

1. The cement used in the concrete for all grade separations shall be low alkali cement. The Contractor shall obtain and furnish to the Engineer, a statement signed by an officer or chemist of the cement manufacturer, certifying that the cement furnished does not exceed 0.6 percent alkali equivalent as measured by the percent of sodium oxide plus 0.658 times the percent of potassium oxide.

2. If the above cement type is proven to be unavailable, alternative cement proposed must be tested for alkali aggregate reactivity utilizing mortar bar accelerated expansion test or other acceptable tests. The concrete to be tested shall be based on the proposed design concrete mix and source of aggregates, which is project specific. The CN Railway Senior Engineer must approve the acceptance of the cement.

3. Portland Cement: ASTM C595, domestic brand, Type I or Type IL, normal portland cement. The same brand of portland cement shall be used for exposed concrete throughout the job unless a change is approved by the Engineer. Air entraining cement is not acceptable.

(b) All concrete surfaces shall be moist cured for a minimum of seven (7) consecutive days at a minimum of 50 deg. F (10 deg. C) or for the time necessary to attain 70% of the specified 28-day compressive strength.

(c) The use of curing compounds will not be permitted unless approved by the Senior Engineer.

**Method of Measurement:** This work shall be measured in cubic yards according to the requirements specified in Section 503.21 of the Standard Specifications.

**Basis of Payment:** This work will be paid for at the contract unit price per cubic yard for CONCRETE STRUCTURES (SPECIAL).

**FORM LINER TEXTURED SURFACE**

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

**Materials:** The materials shall be according to Article 503.02 of the “Standard Specifications” and the following:

Form liners for Form Liner Textured Surface shall duplicate closely the appearance of natural stone masonry and be non-repeating. Seam lines or match lines caused from two or more molds coming together will not be apparent when viewing final wall.

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

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

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

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

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

The joints shall be colored to simulate real mortar.

For cast in-place structures, Class SI concrete or concrete specified in Concrete Structures (Special) shall contain a high range water-reducing admixture according to Article 1021.03(c) of the “Standard Specifications” or Concrete Structures (Special) respectively, to obtain a 5”-7” slump.

**Sample Panel:** The Contractor shall select a form liner pattern that satisfies the requirements in the above table. The form liner shall be according to Article 503.06(a) and the following:

For a proposed equivalent the Contractor shall submit to the Engineer one (1) specification and catalog cut sheet for the style(s) of architectural form liner proposed for use on the project. Note that

B. Grommets shall be inserted into the pre-punched holes in the rails and pickets shall be inserted through the grommets so that pre-drilled picket holes align with the internal upper raceway of the horizontal rails. (Note: This can best be accomplished by using an alignment template.) Retaining rods shall be inserted into each horizontal rail so that they pass through the predrilled holes in each picket, thus completing the panel assembly.

C. Completed panels shall be capable of supporting a 600 lb. load (applied at midspan) without permanent deformation. Panels without rings shall be biasable to a 25% change in grade; panels with rings shall be biasable to a 12.5% change in grade.

D. Gates shall be fabricated using the same components as the fence system. Panel material and gate ends having the same outside cross-section dimensions as the horizontal rail. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined either by welding or by the same retaining rod process used for panel assembly.

**Gate Installation**

Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out to out leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application, weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

Gate posts shall be spaced according to the gate openings specified in the construction plans. The fence panels shall be attached to the posts using mechanically fastened panel brackets supplied by the manufacturer.

**Method of Measurement:** The ORNAMENTAL FENCE will be measured for payment in feet. The length measured will be the overall length measured along the top longitudinal railing member through all posts and gaps.

**Basis of Payment:** This work will be paid for at the contract unit price per foot for ORNAMENTAL FENCE, which payment shall include all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified.

**STORM SEWERS JACKED IN PLACE, 42"**

**Description.** This work for storm sewers jacked in place under the Canadian National/Wisconsin Central Limited (CN/WCL) Railroad at locations shown on the plans shall conform to Article 552 of the Standard Specifications except as herein modified:

**General.** The strength and thickness of the steel casing, shall be in accordance with Canadian National Railroad Utility Crossing requirements. See CN/WCL Railroad Storm Sewer Jacking Requirements Details in the plans for all requirements.

Track monitoring of the area around the pipe jacking within the CN/WCL Right of Way will be required. This work shall be as described in the specification for "Track Monitoring".

**Basis of Payment.** This work will be paid for at the contract unit price per foot of STORM SEWERS JACKED IN PLACE, 42". This price shall include all costs for the excavation, work pits, receiving pits, dewatering, sheeting, bracing, backfilling, caps, plugs, grout, spacers, lubricants, drilling fluids, auguring, concrete collars, reinforcement material, and disposal of the augured material, and all other labor, equipment, and materials necessary to install the work as specified. All work required for Track Monitoring shall be included in the cost of Storm Sewer Jacked In Place, 42".

## TRACK MONITORING

Description:

This work shall consist of providing pre-construction, during construction, and post-construction track surveys and daily monitoring of the CN/WCL Railroad (CN/WCL) track for vertical and horizontal

potential displacements during operations associated with the jacking of the steel casing pipes underneath the railroad corridor and track, and bridge and wall construction in railroad corridor. These operations include, but are not limited to:

1. Excavation of jacking and receiving pits
2. Jacking of steel casing pipes
3. Insertion of storm sewer pipes into casing pipes
4. Backfilling and restoration of jacking and receiving pits
5. Installation and removal of cofferdams
6. Installation of piles
7. Installation of sheeting and ground anchors
8. Backfilling operations
9. Documenting all conditions photographically

The Contractor shall submit a track monitoring plan to the Engineer a minimum of forty five (45) calendar days prior to start of any work within the CN/WCL right of way for the Engineer's and the CN/WCL's review and approval. The purpose of the track monitoring plan is to ensure that there will be no horizontal and/or vertical displacement of railroad track due to proposed work within railroad right of way. The track monitoring plan shall be in compliance with the description of the work described below.

The Contractor will not be allowed to begin work within the CN/WCL Railroad right of way until written approval of the Contractor's track monitoring plan is received from the CN/WCL and the supervising engineer.

Pre-Construction:

A pre-construction track survey and inspection shall be performed prior to the start of any construction operations taking place which shall consist of the following:

- The Contractor will establish an existing track alignment for each set of rails extending 1,000 feet along the track in both directions from the centerline of the proposed pipe.
- The survey shots will be taken every 50 feet along the top of all existing rails
- The survey shall be taken for a period of fourteen (14) consecutive calendar days prior to the start of the jacking operation.
- The survey shall be coordinated with the Engineer and the CN/WCL Railroad at least fourteen (14) calendar days prior to any activity that precedes construction.
- The pre-construction track survey shall be documented and tabulated for weekly submittal to the Engineer and the CN/WCL Railroad for review.

During Construction:

Daily monitoring shall consist of the Contractor surveying the same points taken during the pre-construction track survey, taking horizontal and vertical measurements. Daily monitoring shall only occur from the date the Contractor begins work through the date the Contractor completes work within the CN/WCL ROW.

Track conditions shall be documented and tabulated for weekly submittal to the Engineer and the CN/WCL for review. If any measurements exceed ¼" of the pre-construction track survey, the Contractor must discontinue construction operations immediately and notify the Engineer and CN/WCL to evaluate the track condition.

The Contractor shall perform any restorative work at his/her own expense prior to resuming construction operations. If track repairs are required, the Contractor shall use a qualified specialty contractor experienced in CN/WCL track work and approved by CN/WCL in advance to perform corrective track repairs to the satisfaction of CN/WCL, and the Engineer. These repairs can include, but are not limited to elevation adjustments, realignment, replacement of track units or hardware or other work to restore the existing tracks to pre-construction conditions and shall be performed at no additional cost to the Department or CN/WCL.

Post-Construction:

The Contractor shall complete a post-construction track survey and inspection after completion of the operation. The post-construction track survey shall consist of the Contractor surveying the same points taken during the pre-construction track survey, taking horizontal and vertical measurements, for a period of fourteen (14) consecutive calendar days.

The post-construction track survey shall be documented and tabulated for weekly submittal to the Engineer and the CN/WCL for review.

**Method of Measurement.**

This work will not be measured for payment.

**Basis of Payment.**

This work shall be included in the contract unit price for the pay item associated with the specified work operations to be completed which shall include all track monitoring involved.

## BOLLARD REMOVAL

**Description.** This work consists of removing and disposing of existing metal bollards and their foundations. This work shall include all materials, labor, and equipment to remove the bollards and foundations. After removal, the bollards and foundations shall become the property of the Contractor and shall be legally disposed of or recycled.

**Method of Measurement.** This work will be measured per each bollard removed.

**Basis of Payment.** This work will be paid for at the contract unit price per each for BOLLARD REMOVAL.

## REMOVE EXISTING PARKING BLOCKS

**Description.** This work shall consist of the removal and the disposal of the parking blocks, at the locations shown in the plans, as supplemented herein, and as directed by the Engineer. The steel pins that anchor the existing parking blocks shall be pulled out and disposed of.

**Method of Measurement.** This work will be measured per each parking block removed.

**Basis of Payment.** This work will be paid for at the contract unit price per each for REMOVE EXISTING PARKING BLOCKS, which price shall include removal of parking blocks and pins to an approved disposal site.

water main trenches to limit the exposure and control the migration of contamination from the contaminated soil that remains within the trench excavation. It shall be placed beneath the trench backfill material at the following locations:

- Station 228+90 to Station 229+00 (Proposed CL US 14), 0 to 70 feet LT (ROW, PESA Site 2599V2-25, 100 block of W. Northwest Highway, Barrington) – hazardous waste. Contaminants of concern sampling parameters: TCLP Cadmium and Manganese.

The engineered barrier shall consist of a geosynthetic clay liner system, geomembrane liner, or equivalent material as approved by the Engineer. A geosynthetic clay liner shall be composed of a bentonite clay liner approximately 0.25 inches thick. The engineered barrier shall have a permeability of less than $10^{-7}$ cm/sec. Installation of the geosynthetic clay liner system shall be in accordance with the manufacturer's recommendations except that all laps shall face down-slope.

The geomembrane liner shall have a minimum thickness of 30 mils. The geomembrane liner shall line the entire trench and in accordance with the manufacturer's recommendations.

No equipment will be allowed on the engineered barrier until it is covered by a minimum of 1 foot of backfill. Any damage to the engineered barrier caused by the Contractor shall be repaired at no additional expense to the Department in accordance with the manufacturer's recommendations and as directed by the Engineer.

Method of Measurement: The engineered barrier will be measured for payment in place and the area computed in square yards.

Basis of Payment: The engineered barrier will be paid for at the contract unit price per square yard for ENGINEERED BARRIER.

## CONSTRUCTION VIBRATION MONITORING

Description
This work consists of monitoring buildings, structures, and utilities susceptible to vibration from construction activities. Additional monitoring, as determined by the Engineer, is included in the cost of this item.

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

- 593-599 Shorely Drive
- 596-598 Shorely Drive
- 15 E Northwest Highway
- 17 E Northwest Highway
- 410-412 Park Lane
- 416-420 Park Lane
- 422-426 Park Lane
- 428-430 Park Lane
- 432-434 Park Lane
- 436-440 Park Lane

- 442-446 Park Lane
- 448-450 Park Lane
- 454-456 Park Lane
- 555 N Hough Street

The proposed locations of vibration and displacement monitoring points are to be submitted to the Engineer for approval prior to the start of construction. The Contractor is solely responsible for determining the means, methods and sequences of construction, and may identify additional locations beyond those listed above for monitoring vibration. The cost for monitoring the additional locations identified by the Contractor is included in the lump sum contract unit price for CONSTRUCTION VIBRATION MONITORING.

The Contractor shall coordinate with the Engineer and building, structure and utility owners to ensure the proposed monitoring locations are acceptable to the owners and accessible to both the Contractor and the Engineer at all times.

Vibration Monitoring

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

Response Values

The Contractor shall establish the response values, including both the Threshold Value and the Limiting Value, for each building and structure.

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

- Limiting Value: A Limiting Value is an alarm value. If Limiting Values are achieved, construction work shall stop immediately, the adjacent structures shall be surveyed for signs of additional distress from pre-construction surveys, and corrective action shall be taken to revise the design and/or construction methods to protect the adjacent structures from damage.

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

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

Displacement Monitoring

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

Monitoring Frequency

During the beginning phase of each stage of demolition and construction, displacement monitoring shall be performed at the beginning and end of each workday at a minimum. These surveying intervals are the minimum required, and more frequent monitoring may be required by the Engineer as field conditions warrant.

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

Monitoring readings for displacement shall be dated, recorded, and reported to the Engineer the same day the readings are taken. During demolition within 100 feet of a vibration monitoring point location, the Contractor shall report the results of the largest amplitude vibration to the Engineer on the same day. At all other times the vibration report shall be submitted weekly.

Construction Requirements

Before the start of construction, the Contractor will complete a preconstruction inspection of each of the adjacent structures and utilities listed above. Readily visible conditions and distress such as unusual cracks in concrete or masonry, obvious signs of leakage, settlement, etc. will be photographically recorded and documented. The Contractor will also make a video survey to provide a more complete general record of conditions in those areas. The interior survey shall include the first floor and basement (if existing) within 30 feet of the exterior wall closest to the project site and the two adjacent walls. The survey will be performed from grade without the use of magnification devices. At the conclusion of the pre-construction field work, a report shall be prepared by the Contractor presenting the observed existing conditions and shall include written, videotaped and photographic documentation. This record shall then be used by the Contractor as a basis for comparison to distresses that may occur after the survey. The locations of the displacement monitoring points shall be included in the Report.

The Contractor will use the preconstruction report to aid in the selection of the displacement monitoring points. The Contractor must devise means and methods of construction that will not reach the established vibration response values.

Corrective Measures

If, at any time, resulting vibrations meet or exceed the established response values or cause damage to facilities or property, the Contractor shall stop work immediately and initiate the necessary corrective measures as approved by the Engineer. Damage to the Adjacent Structures as a result of construction activity shall be corrected by the Contractor. No additional compensation shall be due to the Contractor for repairing these facilities. The Contractor will not be entitled to any claim of damages or delay for stopping the project construction activities to make corrective measures.

Submittals

Submit the following items to allow for review and approval by the Engineer without delaying the work. Do not order materials or start work before receiving written approval from the Engineer.

- Vibration Control Plan shall include:
  - Locations of all vibration monitoring points (vibration and displacement), including property address and property contact information.
  - Procedure and outline for how the data will be provided to the Engineer.
  - Product Data: Type of vibration monitor to be used. Include construction details, material descriptions, performance properties, dimensions of individual components and profiles.
  - List of the Contractor's equipment to be used during demolition and construction operations.
  - Contact information for the Vibration Monitoring consultant and their staff.
  - Instrumentation plans, schedules, and details, including:
    - An instrumentation plan showing the type, location, and installation details of all instruments to be installed.
    - Monitoring and reporting frequency.
    - Timetable that outlines the duration that each monitoring point will be maintained and checked.
    - Reports of all monitoring (at the required frequencies listed above) including a description of the associated construction activity. The reports shall include a tabular and graphical summary of all readings to date.
  - Submit at least fourteen (14) calendar days before construction begins.

- Qualification Data for the following:
  - Firm(s) installing instrumentation and collecting readings. Firms shall have experience installing and reading similar instrumentation on at least five projects over the last five years.
- Response Value Report establishing the response values for the Threshold Value and the Limiting Value for each building, structure and utility. Submit at least fourteen (14) calendar days before construction begins.
- Action Plans describing potential changes to construction activities / means and methods within 24 hours if Response Values are reached during construction.

Additional Submittals include:

- Weekly reports of all vibration monitoring locations.

Method of Measurement

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

Basis of Payment

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