

GENERAL

1. Construction shall conform to the requirements of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007 of the Illinois Department of Transportation.

2. The Contractor shall take all the necessary safety precautions to protect abutting property, utilities, pedestrians and vehicular traffic and shall maintain cleanliness of all public and private property immediately adjacent to the construction site. The Contractor shall install protective barriers, fences or other approved protective measures to prevent access by unauthorized personnel into the work area.

3. The Contractor shall coordinate his efforts with all local and governmental agencies that are affected by the work to assure conformance with their regulations.

4. Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of work, however, the Contractor will be paid for the quantity actually furnished or removed at the unit price.

5. All dimensions on structural drawings shall be coordinated by the Contractor with Civil and Electrical drawings. Contractor shall be fully responsible for confirming and correlating all dimensions on the job site and between drawings and trades. Notify Engineer of any discrepancies that may exist. See Civil and Electrical Drawings for additional openings, sleeves and other embedded items.

6. It shall be the Contractor's responsibility to verify the location of all utilities and fiber optic lines prior to starting construction. Contact J.U.L.I.E. at 800-892-0123.

7. Items not specifically listed or annotated in the documents but necessary for the complete and correct installation are included in the scope of work.

TESTING & INSPECTION

1. All welds shall be tested in accordance with American Welding Society (AWS) Standards

2. All material tests shall be made in accordance with the Specifications. Concrete compressive strength tests shall be made for all concrete strengths. The approved testing laboratory shall make all testing. All test reports shall be submitted to the designated Metra Representative.

3. Track level inspection shall consist of measuring the top of rail elevations during all phases of work, that could result in ground settlement below the tracks, such as tunnel jacking or driving sheet piles. If a vertical settlement of $\frac{1}{4}$ " is measured, all work shall cease until initial track elevations have been restored by corrective actions. (See Special Provisions).

FOUNDATION

1. All substructure work shall be performed according to the recommendations prepared by Geo Services, Inc., dated September 2009.

2. The Contractor is responsible for the design and detailing of the connections, helical ground anchors and all appurtenances for the earth retention systems during all phases of construction. Where shown on the plans, the Contractor shall use the member sizes and forces indicated and submit the construction procedure, prepared by a Structural Engineer licensed in the State of Illinois, to the Engineer for review.

STRUCTURAL STEEL

1. Structural steel members shall conform ASTM A36.

2. Structural pipe shall conform to ASTM A53, Grade B (Fy = 35 ksi)

3. Tubular sections shall conform to ASTM A500, Grade B (Fy=46 ksi)

4. All bolts shall be 3/4" diameter ASTM A-325 high strength bolts in accordance with the "Specifications for Structural Joints Using ASTM A325 or A 490 Bolts" unless noted otherwise.

5. All headed welding studs shall conform to ASTM A108

DESIGNED	KJH
CHECKED	BB
DRAWN	KJH/RJ
CHECKED	AWW

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

REINFORCED CONCRETE:

1. Cast-in-place concrete shall conform to the requirements of Class SI concrete.
2. The following minimum concrete cover (clear cover) shall be provided for reinforcement unless noted otherwise:
Concrete cast against and permanently exposed to earth = 3" CI
Walls = 2" CI
Slab Top Bars = 2" CI
Slab on Grade Top Bars = 1" CI
3. Any change in the location of construction joints shown or specified is subject to the Engineer's approval. The Contractor shall submit the shop drawing's, showing the location of all proposed construction joints for Engineer's review and approval before commencing the work.
4. Each contractor and sub-contractor shall provide sleeves in concrete formwork for his own work. No coring of the concrete work will be allowed without the written permission of the Engineer.

5. REINFORCING STEEL

5.1 All reinforcing steel shall conform to ASTM A615-60 (60,000 psi yield stress) and shall be used throughout the job, with the exception of reinforcement bars used in welded connections, which shall conform to ASTM A706-60.

5.2 All welded wire fabrics shall be ASTM A185

6. EPOXY COATING:

6.1 Epoxy coated reinforcement shall be ASTM A775. Damaged epoxy coating shall be repaired with patching material conforming to these Specifications and performed in accordance with material manufacturer's recommendations.

6.2 All Reinforcement bars shall be epoxy coated. All tie wires for epoxy coated bars and accessories shall be epoxy coated.

7. REINFORCEMENT BAR SPLICES

7.1 Splicing shall conform to Section 508 of the Standard Specifications except as modified below.

7.2 Vertical Bars shall be spliced at or near the floor lines.

7.3 All splices shall be staggered. At any section, a maximum of 50% of reinforcement shall be spliced. The distance between splices shall be a minimum of 4'-0".

7.4 All lap splices shall be spliced in contact and wired together except where definitely detailed otherwise.

7.5 Unless specifically shown otherwise, location of splices shall be as following:

- Walls: At floor lines
- Beams, Spandrels, etc: Top bars at the mid-span,
Bottom bars over supports
Side bars at mid-span

8. All walls shall be doweled in to the footings, walls or slabs with bars of the same size and spacing as the wall bars having minimum 38 bar diameter embedment, except where specifically indicated otherwise.

9. For walls provide #5 bars at 12" each face, vertical and horizontal unless noted otherwise.

TUNNEL CONSTRUCTION

1. Safety measures as per OSHA and METRA regulations

2. All temporary shoring structures, tie-backs and thrust block, including sheet piling, batter piles if required, steel frames, etc., required for the tunnel jacking shall be designed by the Contractor's Structural Engineer and subject to approval by the Engineer. All related calculations/sketches must be sealed by a Structural Engineer licensed in the State of Illinois.

3. Strength of concrete in precast concrete tunnel segments shall be f'c = 5,000 PSI at 28 days

4. Fabrication of reinforcement bars and placement of concrete shall be as indicated in the Special Provisions.

5. Steel sheet piles shall be per ASTM A-328, latest edition

6. Structural steel shall conform to ASTM A-36, latest edition

7. Fabrication and erection of steel shall be as per AISC Specifications.

8. Monitor alignment and level of the railroad track during construction as indicated in the Special Provisions.

TUNNEL CONSTRUCTION (CONT.)

9. Should any movement occur on the railroad tracks beyond the limits defined in the Special Provisions, the Contractor should stop jacking immediately and revise jacking procedures so that no movement occurs.

10. Dewater the excavation as required, to maintain a dry condition.

11. The jacking shield, shown on the drawing is schematic. Contractor shall submit the details and procedures of the jacking for review by Engineer prior to starting any construction of tunnel.

12. Contractor must include in his bid the amount of bentonite slurry injected to cover a surface area of 2,000 square feet and voids in soil created during tunnel construction.

13. All sheet piles shall remain in place unless otherwise noted on the drawings.

CONSTRUCTION REQUIREMENTS

The Contractor shall be cognizant about the site constraints and the related challenges associated with this work. Installation procedures will be affected by existing conditions and may require modifications to the details and/or procedures shown on the plans. It is the Contractor's responsibility to determine the most cost-effective method of constructions and include all items necessary for the proper and safe execution and completion of the work.

ANCHORING SYSTEMS AND TIE-RODS

1. The ultimate ground anchor capacity for soil anchors or helical anchors shall be at least twice the service loads indicated on the plans.

2. At the locations where bar tendons are indicated on the plans, the bars shall be ASTM A722 steel with an ultimate strength of 150 KSI.

CONSTRUCTION INCIDENTALS

1. Steel Sheet Piling: Included in the contract unit price per square foot shall be the necessary bracing and lateral support systems required to assure the sheet piling installation is safe throughout all phases of construction. The lateral support systems shall consist of walers, struts, and tie-rods installed at the proper locations and if required in stages.

2. Tunnel Jacking: Included in the contract lump sum price shall be all tie back anchors, bracing, piling, shoring and thrust blocks for the launching pit and receiving pit; the alignment system, the exploratory borings, the mud-slabs, sheet pile wall modifications, the tunnel shield, the pressure grout injection, the jacking, the contract grouting, the track monitoring, the ventilation and de-watering, all excavation and spoil haul for the launching and receiving pits and for the tunnel itself, and all other material and labor necessary to complete tunnel jacking in accordance with the requirements of the Special Provisions or as directed by the Engineer.

3. Precast Concrete Box Segments: Included in the contract lump sum price shall be the preparation of shop drawings, the manufacture of the box segments, the testing, the delivery to the job site, and all other material and labor necessary to complete the precast concrete box segments in accordance with the requirements of the Special Provisions.

4. Underpinning Existing Structures: Included in the contract lump sum price shall be the design of the system and all labor and material required to safely support existing structure components during all phases of construction and prevent shifting or settlement in accordance with the requirements of the Special Provisions.

5. Retaining Wall, Special: Included in the contract unit price per square foot shall be all labor and material required for the design and installation of a temporary earth retention system to support the railroad embankment and to construct the wall as indicated in the Special Provisions.

ANTI-GRAFFITI PROTECTION SYSTEM

With the exception of the tunnel interior, all exposed concrete surface areas constructed under this contract shall be coated with an Anti-Graffiti Protection System as specified and directed by the Engineer. In addition, the surface areas of the south abutment of the existing railroad bridge shall also be coated.



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TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Concrete Removal	Cu Yd	89.4
Structure Excavation	Cu Yd	194
Concrete Structures	Cu Yd	142.8
Form Liner Textured Surface	Sq Ft	1,617
Stud Shear Connectors	Each	439
Untreated Timber Lagging	Sq Ft	1,200
Reinforcement Bars, Epoxy Coated	Pound	14,290
Furnishing Soldier Piles (HP Section)	Each	466
Furnishing Soldier Piles (W Section)	Foot	100
Steel Sheet Piling	Sq Ft	2,256
Name Plates	Each	1
Geocomposite Wall Drain	Sq Ft	643
Pipe Underdrains For Structures, 4"	Feet	166.5
Anti-Graffiti Protection System	Sq Ft	2,581
Helical Ground Anchors	Each	9
Drilling And Setting Soldier Piles (In-Soil)	Cu Ft	1,778
Retaining Wall, Special	Sq Ft	135
Coating System For Concrete	Sq Ft	1,153
Precast Concrete Box Segments	L Sum	1
Underpinning Existing Structure	L Sum	1
Tunnel Jacking	L Sum	1

**GENERAL NOTES AND QUANTITIES
STRUCTURE NO. 049-6159**

SHEET NO. S-2 SHEETS S-25	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	1257	08-00083-00-BT	LAKE	51	22
SN 049-6159			CONTRACT NO. 63450		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT					