

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts.
Bolts $\frac{7}{8}$ in. ϕ , holes $\frac{15}{16}$ in. ϕ , unless otherwise noted.

Calculated weight of Structural Steel for Furnishing and Erecting Structural Steel = 208,350 lbs. of Grade 50 and 56,360 lbs. of Grade 36.

Calculated weight of Structural Steel for Structural Steel Repair = 211,510 lbs. of Grade 36 and 10 lbs. of Bronze.

All structural steel shall conform to M270 Grade 36, unless otherwise noted.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions

Reinforcement bars designated (E) shall be epoxy coated.

No field welding is permitted except as specified in the contract documents.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer.

Any cracks that cannot be removed by grinding $\frac{1}{4}$ inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details are subject to routine variations. The Contractor shall field verify existing dimensions and details affecting new construction 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 scope of the work, however, the Contractor will be paid for the quantity actually furnished based upon the unit price bid for the work.

Design drawings and shop drawings from original construction and major rehabilitation performed in 1995 will be made available to the Contractor.

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G 4/8. See Special Provision for "Cleaning and Painting New Metal Structures".

Existing structural steel that will be in contact with new structural steel and existing structural steel adjacent to field welding and mechanical treatment of welds shall be cleaned and painted prior to erection as required by the Special Provision, "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

All contact surfaces of connection angles and plates for cantilever floorbeam section to be replaced and splices plates for stringer end replacement shall be treated as primary connections.

Joints shall be adjusted according to Article 520.04 of the Standard Specifications when the deck is poured at an ambient temperature other than 50° F.

Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.

Cost of removal and re-installation of all members necessary to complete the work as detailed on the plans shall be included with Structural Steel Repair.

The steel beams which are part of the temporary slab support system currently installed over Stringer 7 at FB3 on Span 12 and at FB6 on Span 18 are to be removed and returned to the District. The beams and other appurtenant materials should be delivered to the District Day Labor at 505 North MacArthur Blvd., Springfield, IL 62702 between the hours of 8 am and 2 pm. Mr. Rick Brunette should be notified prior to the delivery of the beam at 217-782-7416. The beams shall not be cut for transport. The Contractor shall be responsible for providing the crane to unload the beams. Cost included with Concrete Removal.

SARs Notes:

The Contractor is advised that the existing structure contains members that are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the existing structure when developing construction procedures. An Existing Structure Information Package is available upon request as noted in the Special Provisions.

The Contractor shall submit Structural Assessment Report(s) as required for the Contractor's Means and Methods of Construction. See Special Provision.

The Contractor shall retain the services of an engineering firm, prequalified in the IDOT consultant selection category of Highway Bridges Advance Typical, for preparation of the Structural Assessment Report(s). Contractor's pre-approval shall not be applicable for this project. See Special Provision.

Current Ratings on File for Existing Structure

Inventory: HS 0.0 (for closed outside lane in each direction)

Operating: HS 0.0 (for closed outside lane in each direction)

Live Load Restriction: Legal Load Only (for inside lane in each direction)

Inventory and Operating Ratings and Live Load Restrictions are provided for information only. Inventory and Operating Ratings are based on HS loading and configuration. Live Load Restrictions are based on Illinois legal loads and configurations. The Rating and Live Load Restrictions are not necessarily representative of capacities to support the Contractor's equipment. The above zero capacity Inventory and Operating Ratings are for the outside lanes in each direction due to cracking and deterioration of the cantilever floorbeams and Stringers 1, 2, 7 and 8. As noted, the inside lanes are currently restricted to legal loads only.

The SSPC QP1 Painting Contractor Certification is required for this contract.

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specification for Highway Bridges

2007 AASHTO LRFD Bridge Design Specifications with 2009 Interims (Fatigue only)

LOADING HS25-44

LOADING HL-93 (Fatigue only)

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

NEW CONSTRUCTION

$f'_c = 3,500$ psi

$f_y = 60,000$ psi (Reinforcement)

$f_y = 36,000$ psi (M270 Grade 36, Structural Steel)

$f_y = 50,000$ psi (M270 Grade 50, Cantilever Floorbeam)

EXISTING CONSTRUCTION

$f'_c = 3,500$ psi

$f_y = 60,000$ psi (Reinforcement)

$f_y = 36,000$ psi (M270 Grade 36, Structural Steel)

$f_y = 50,000$ psi (M270 Grade 50, Structural Steel)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Concrete Removal	Cu. Yd.	427.2	---	427.2
Slope Wall Removal	Sq. Yd.	---	11.7	11.7
Protective Shield	Sq. Yd.	6123	---	6123
Concrete Superstructure	Cu. Yd.	611.6	---	611.6
Bridge Deck Grooving	Sq. Yd.	1479	---	1479
Protective Coat	Sq. Yd.	2224	---	2224
Furnishing and Erecting Structural Steel	L. Sum	1	---	1
Stud Shear Connectors	Each	4312	---	4312
Structural Steel Removal	Pound	155,620	---	155,620
Structural Steel Repair	Pound	211,520	---	211,520
Cleaning and Painting Structural Steel, Location 1	L. Sum	1	---	1
Reinforcement Bars, Epoxy Coated	Pound	167,320	---	167,320
Slope Wall 4 inch	Sq. Yd.	---	11.7	11.7
Preformed Joint Strip Seal	Foot	1636	---	1636
Elastomeric Bearing Assembly, Type 1	Each	100	---	100
Expansion Joint (Special)	Foot	233	---	233
Jacking and Cribbing	L. Sum	1	---	1
Temporary Support System	L. Sum	1	---	1
Embarkment	Cu. Yd.	---	6.3	6.3
Mechanical Splice	Each	10,228	---	10,228
Structural Repair of Concrete (Depth equal to or less than 5")	Sq. Ft.	---	11.6	11.6
Mechanical Treatment of Steel Welds	Each	828	---	828
Field Welding of Stiffeners	Each	828	---	828

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) (in⁴ and in³).

M_D : Un-factored moment due to dead load (kip-ft.).

M_L : Un-factored live load moment (kip-ft.).

M_I : Un-factored moment due to impact (kip-ft.).

M_o : Factored design moment (kip-ft.).

$1.3 [M_D + \frac{5}{3} (M_L + M_I)]$

f_s (Overload): Sum of stresses as computed from the moments below (ksi).

$M_D + \frac{5}{3} (M_L + M_I)$

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).

$1.3 [M_D + \frac{5}{3} (M_L + M_I)]$

	At Support
I_s	(in ⁴) 51058
S_s	(in ³) 1514
M_D	(k) 659
M_L	(k) 545
M_I	(k) 163
$\frac{5}{3} [M_L + M_I]$	(k) 1180
M_o	(k) 2391
f_s	(ksi) 5.2
f_s	(ksi) 9.4
f_s (Overload)	(ksi) 14.6
f_s (Total)	(ksi) 9.0

	At Support
V_D	(k) 69
V_L	(k) 79
V_I	(k) 23
V_{Total}	(k) 311

* partially braced section

Note:

Moment and shear shown are for cantilever floorbeam at single girder spans.

**GENERAL NOTES AND
BILL OF MATERIAL
I-80 OVER
MISSISSIPPI RIVER
STRUCTURE NO. 081-0011**

DESIGNED	YSS
CHECKED	DWP
DRAWN	PRC
CHECKED	YSS

09/17/09



SHEET NO. 3	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	80	(81-1B)M-4	ROCK ISLAND	75	30
33 SHEETS	SN 081-0011		CONTRACT NO. 64F31		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT		