

Bench Mark: R.R. spike in 60" Cottonwood, 233' Lt. of Sta. 356+56, Elev. 437.49.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Contract #76394

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 1848	28-4BR	ST. CLAIR	101	63
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

SHEET NO. 1
22 SHEETS

Existing Structure: S.N. 082-0058 was originally built as a single span bridge approximately 35 ft. long supported on closed abutments with either timber piles or spread footings. In 1959 the bridge was removed, and a longer 2-span slab bridge was constructed as S.B.I. Rte. 15, Sec. 28-BR. The existing structure is 73'-0" bk. to bk. abutments and 36'-4" out to out deck. The abutments and wing walls are on timber pile supported footings. At the pier, the deck is cast integral with precast concrete piles. The existing structure is to be removed and replaced utilizing stage construction.

GENERAL NOTES

Fasteners shall be high strength bolts. Bolts $\frac{7}{8}$ " ϕ , open holes $\frac{15}{16}$ " ϕ , unless otherwise noted. Calculated weight of Structural Steel AASHTO M270 Grade 50 = 54,960 lbs. AASHTO M270 Grade 36 = 9,900 lbs.

All Construction joints shall be bonded. In addition to all other requirements of section 512 of the Standard Specifications, splices for HP12x74 piles shall develop the full capacity of the steel's cross sectional area of the pile for tension, shear and bending forces. One approved method of achieving this requirement is full penetration butt welding of the entire cross section. Other types of splices meeting the full capacity requirement may be allowed subject to the approval of the Engineer. Any proposal by the Contractor to use an alternate splice method must include adequate documentation demonstrating that the full tension, shear and bending capacities will be met. Appropriate welder qualifications will be required for the positions and processes used in splicing all piles. Nondestructive testing of completed welds will be limited to visual inspection.

Field welding of construction accessories will not be permitted to beams. Anchor bolts shall be set before bolting diaphragms over supports. The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams and all splice plate material except fill plates.

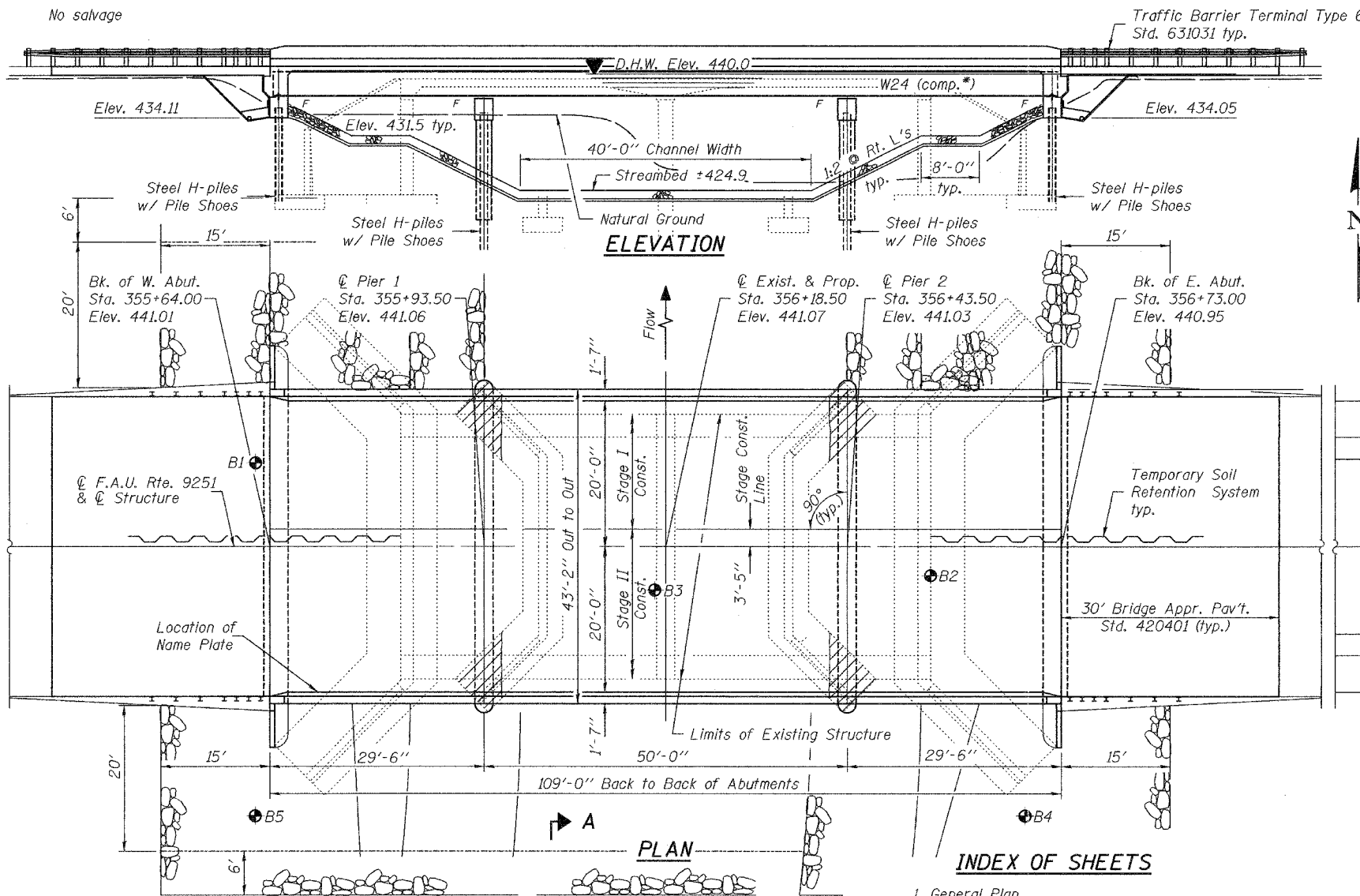
The Inorganic zinc rich primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Gray Munsell No. 5B 7/1. See special provisions for Cleaning and Painting New Metal Structures.

Reinforcement bars shall conform to the requirements of AASHTO M 31 or M 322 Grade 60. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer. Excavation behind existing abutment walls shall be done before removing the existing superstructure. The Contractor shall saw cut the existing abutments at the stage removal line before Stage I Removal.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $\frac{1}{8}$ ". Adjustment shall be made either by grinding the surface or by shimming the bearing. Two $\frac{1}{2}$ " adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

The Contractor shall remove portions of the existing concrete footings in order to drive the piling at the proposed piers. Cost included in Removal of Existing Structures.

The Contractor is advised that the existing concrete superstructure is a continuous structure and removal must be done in a proper sequence, possibly with falsework support. For Sec. A-A, see sheet 2 of 22.



TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures, N2	Each			1
Structure Excavation	Cu. Yd.		264	264
* Pipe Underdrains for Structures, 4"	Foot		140	140
* Porous Granular Embankment - Special Geocomposite Wall Drain	Cu. Yd.		90	90
Protective Coat	Sq. Yd.	576.5		576.5
Concrete Structures	Cu. Yd.		134.8	134.8
Concrete Superstructure	Cu. Yd.	153.0		153.0
Furnishing & Erecting Structural Steel	L. Sum			0.39
Stud Shear Connectors	Each	2310		2310
Bridge Deck Grooving	Sq. Yd.	460.2		460.2
Reinforcement Bars, Epoxy Coated	Pound	37,800	11,340	49,140
* Furnishing Steel Piles HP12x74	Foot		1540	1540
* Driving Piles	Foot		1540	1540
* Temporary Soil Retention System	Sq. Ft.		460	460
Name Plates	Each	1		1
Stone Riprap, Class A5	Sq. Yd.		1425	1425
Filter Fabric	Sq. Yd.		1610	1610
* Underwater Structure Excavation Protection - Location 1	Each		1	1
* Underwater Structure Excavation Protection - Location 2	Each		1	1
Bar Splicers	Each	414	86	500
Pile Shoes	Each		28	28

WATERWAY INFORMATION

Low Grade Elev. 439.22 @ Sta. 358+18 (Existing)
Drainage Area = 9.7 Sq. Mi. Low Grade Elev. 439.79 @ Sta. 358+70 (Proposed)

Flood Yr.	Freq.	Q	Opening	Nat.	Head - Ft.	Headwater El.
		C.F.S.	Sq. Ft.	H.W.E.	Exist.	Prop.
Design	10	4297	437	439.17	1.02	1.33
Base	50	6189	437	440.03	2.34	0.64
Overtop. (E)	100	7156	437	440.43	2.07	0.63
Overtop. (P)	3.3	2700	437	438.20	1.02	439.22
	5.5	3400		438.67		1.12
						439.79

Hatched area indicates removal of existing concrete footings. Cost included in "Removal of Existing Structures."

1. General Plan
2. General Details
3. Stage Construction
4. Temporary Concrete Barrier
5. Top of Slab Elevations
6. Top of Slab Elevations
7. Superstructure
8. Superstructure Details
9. Diaphragm Details
10. Structural Steel
11. Structural Steel Details
12. Bearing Details
13. Anchor Bolt Details
14. West Abutment
15. East Abutment
16. Pier 1
17. Pier 2
18. Bar Splicer Assembly Details
19. Cantilever Forming Brackets
20. Boring Details
21. Boring Details
22. Boring Details

PROFILE GRADE

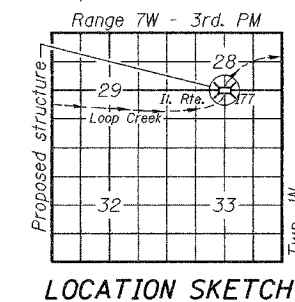
(along ϕ roadway)
LOADING HL93
Allow 50#/sq. ft. for future wearing surface.
DESIGN SPECIFICATIONS
2004 AASHTO LRFD Bridge Design Specifications

DESIGN STRESSES

FIELD UNITS
 $f_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 50,000$ psi (AASHTO M270 Gr. 50, structural steel)
 $f_y = 36,000$ psi (AASHTO M270 Gr. 36)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Bedrock Acceleration Coefficient (A) = 0.12g
Site Coefficient (S) = 1.0



GENERAL PLAN
ILLINOIS ROUTE 177 OVER
LOOP CREEK
F.A.S. ROUTE 1848 - SECTION 28-4BR
ST. CLAIR COUNTY
STATION 356+18.50
STRUCTURE NO. 082-0272

DESIGNED: Michael D. Collins
CHECKED: Robert J. Collins
DRAWN: W.D. Collins
CHECKED: MDC, RJC

EXAMINED: [Signature] March 17, 2006
PASSED: [Signature] ENGINEER OF BRIDGES AND STRUCTURES



Expires Nov 30, 2006