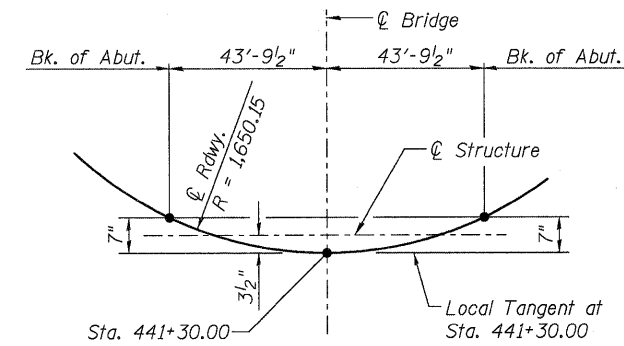


Bench Mark: BM #2. Sq. cut in top of SE wingwall of Rt. 173 bridge over Nippersink Creek of Structure No. 056-0029, Elev. 936.69.

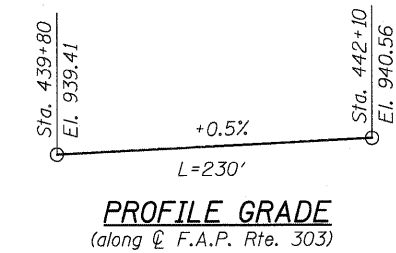
Existing Structure: S.N. 056-0029 was built in 1930 under F.A.P. Rte 303, Sec. 132B at Sta. 441+36.41. Structure consists of a two simple span superstructure on reinforced concrete closed abutments and a solid wall pier, 75'-9 5/8" back-to-back abutments. In 1974, the bridge superstructure was replaced and widened to 41'-0" out-to-out with prestressed precast concrete (PPC) deck beams. In 2000, the north exterior PPC deck beam in Span 2 was replaced.

The contractor shall remove and replace the existing bridge with a one span 54" PPC I-beam superstructure on integral abutments. The road shall be kept open at all times by utilizing stage construction and a temporary signal system.

Salvage: None.



OFFSET SKETCH



PROFILE GRADE
(along ϕ F.A.P. Rte. 303)

CURVE DATA

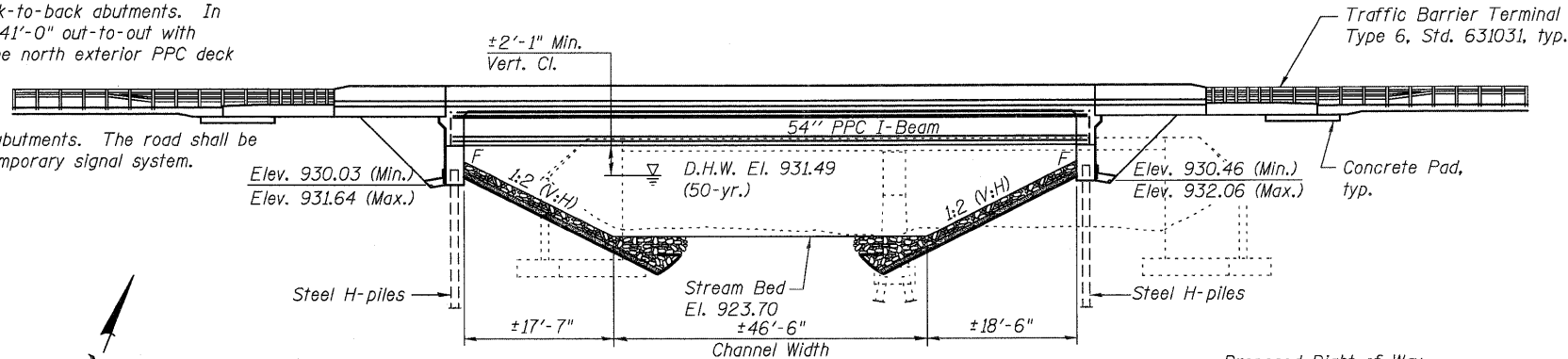
$\Delta = 34^{\circ}20'44''$
 $D = 3^{\circ}28'20''$
 $R = 1,650.15'$
 $T = 509.95'$
 $L = 989.18'$
 $E = 77.00'$
 $e = 5.75\%$
 $S.E. Run = 170'$
 $P.C. Sta. = 438+55.37$
 $P.I. Sta. = 443+65.32$
 $P.T. Sta. = 448+44.54$
 $SE = 5.75\%$

APPROVED
 FOR STRUCTURAL ADEQUACY ONLY
 [Signature]
 ENGINEER OF BRIDGES AND STRUCTURES

WATERWAY INFORMATION

Drainage Area = 19.6 Sq. Mi. Existing Low Grade Elev. = 933.69 ft. @ Sta. 440+50 (EOS)
 Proposed Low Grade Elev. = 938.78 ft. @ Sta. 439+05 (EOS)

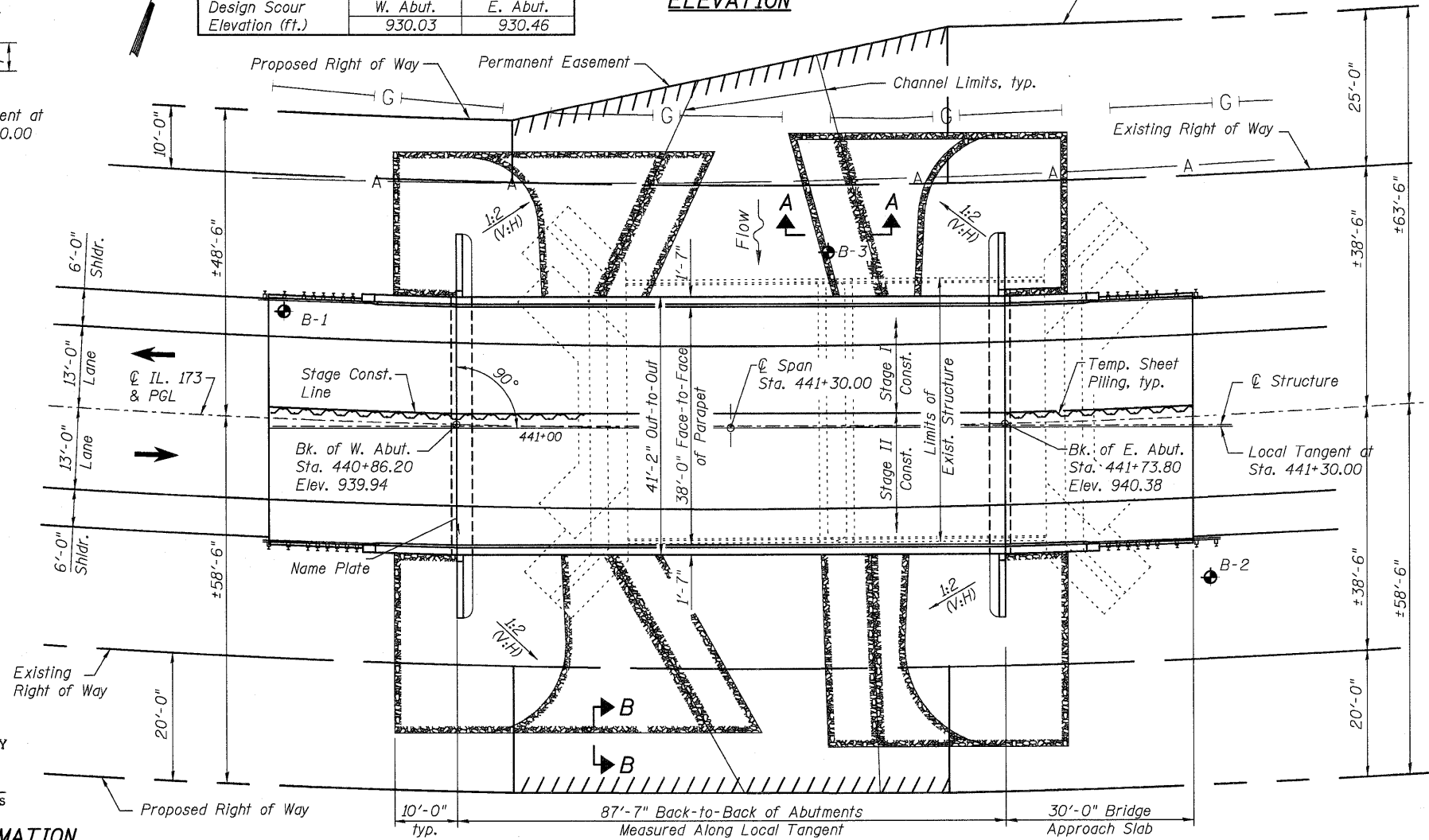
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	10	1240	372	474	930.77	0.12	0.00	930.89
Base	50	1850	422	529	931.49	0.31	0.12	931.80
Overtopping	100	2090	438	547	931.72	0.72	0.18	932.44
Max. Calc.	>500	>2670	474	588	932.23	0.53	0.34	932.76
	500	2670	474	588	932.23	0.53	0.34	932.76



DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	E. Abut.
	930.03	930.46

ELEVATION



PLAN



[Signature]
 Andrew E. Underwager
 Licensed Structural Engineer
 State of Illinois No. 81-6218
 Expires 11/30/2012



[Signature]
 November 30, 2012
 Expires

Sheets 17 and 18 of 22

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications.

LOADING HL-93

Allow 50#/sq. ft. for Future Wearing Surface.

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)

PRECAST PRESTRESSED UNITS

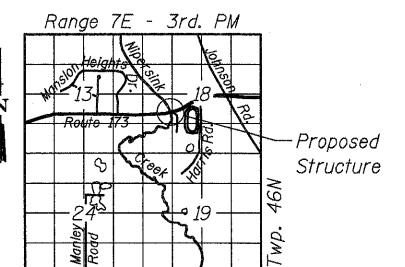
$f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $f_{pu} = 270,000$ psi ($\frac{1}{2}$ " ϕ low lax. strands)
 $f_{pbt} = 201,960$ psi ($\frac{1}{2}$ " ϕ low lax strands)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.078g
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.125g
 Soil Site Class = D

INDEX OF SHEETS

- 1 General Plan & Elevation
- 2 General Data
- 3 Stage Construction Details
- 4 Temporary Concrete Barrier For Stage Construction
- 5-6 Top of Slab Elevations
- 7-8 Top of Approach Slab Elevations
- 9 Superstructure
- 10 Superstructure Details
- 11-12 Bridge Approach Slab Details
- 13 Diaphragm Details
- 14 Framing Plan
- 15 54" PPC I-Beam
- 16 54" PPC I-Beam Details
- 17-18 Abutments
- 19 HP Pile Details
- 20 Bar Splicer Assembly Details
- 21-22 Soil Boring Logs



LOCATION SKETCH

GENERAL PLAN

ILLINOIS ROUTE 173 OVER NIPPERSINK CREEK
 F.A.P. ROUTE 303 SEC. 132 B-2
 McHENRY COUNTY
 STATION 441+30.00
 STRUCTURE NO. 056-0091



USER NAME =	DESIGNED - MLH	REVISED -
FILE NAME =	CHECKED - AEU	REVISED -
PLOT SCALE =	DRAWN - MLH	REVISED -
PLOT DATE =	CHECKED - AEU	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 22 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
303	132B-2	McHENRY	106	46

CONTRACT NO. 60129
 ILLINOIS FED. AID PROJECT