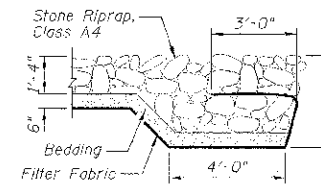
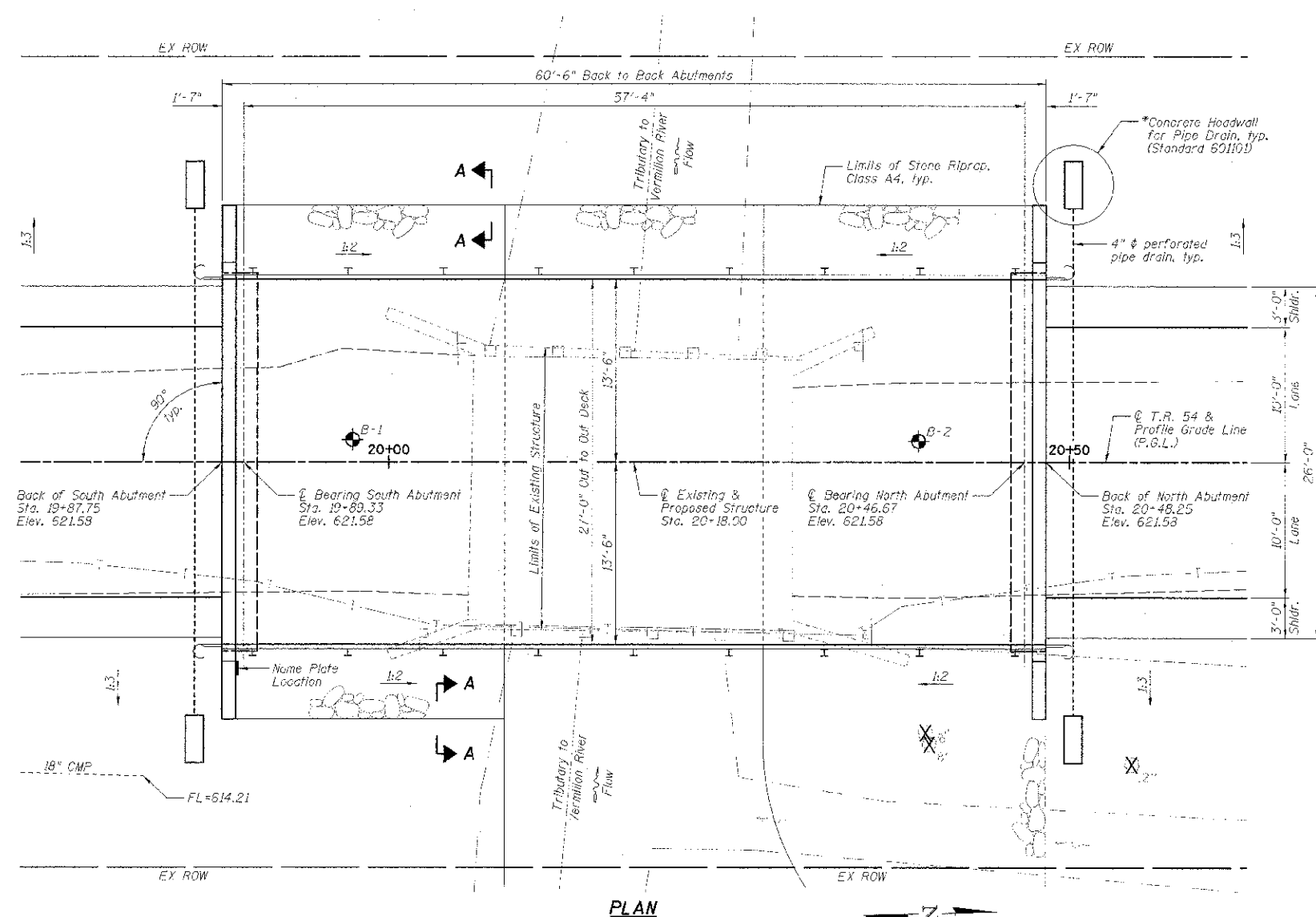
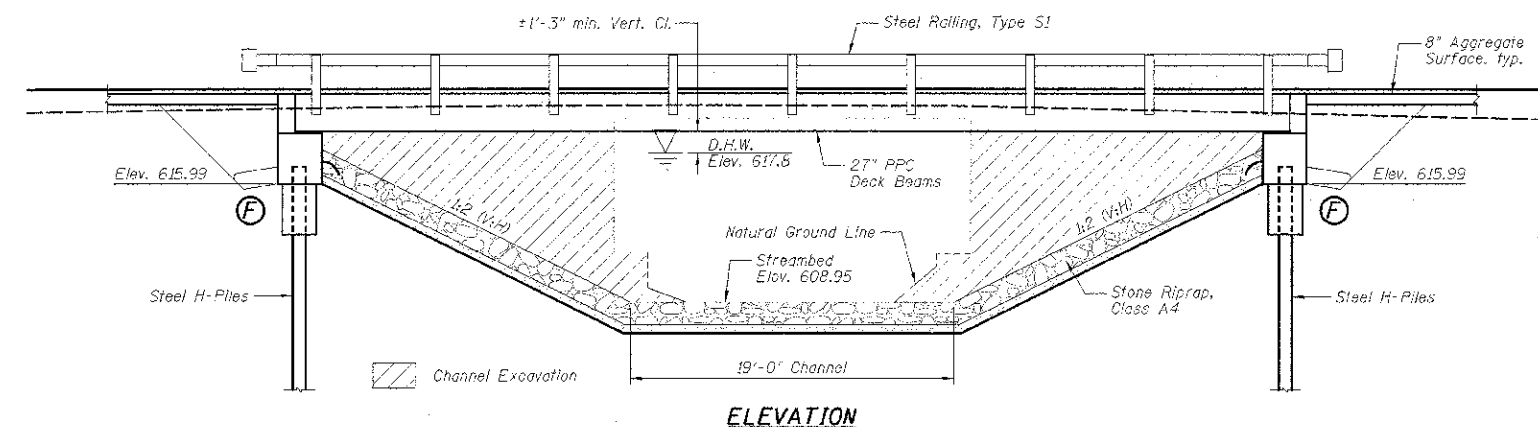


Benchmarks: BM #501 Cotton Picker Spindle set in Southwest face of wood post @ Southeast corner of Railroad & Road 800E, ±520' North of bridge, Station 25+55.33/30.69 RT., Elevation 620.98.
 BM #502 Cut "□" in top of West end of 30" concrete pipe East side of Road 800E, ±290' North of bridge, Station 23+03.05/35.75' RT., Elevation 616.15.
 BM #503 Cut "□" in top of Southwest wingwall near Southwest corner of bridge deck, Station 20+05.38/8.58' LT., Elevation 620.56.

Existing Structure: S.N. 053-3164 was originally constructed in 1950. The structure consists of a single span steel beam superstructure with closed concrete abutments. The back to back abutment dimension measures ±24'-0" and the width measures ±21'-0". The structure is to be replaced during road closure.

No Salvage.



SECTION A-A

DESIGN SPECIFICATIONS

AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 5th Edition

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi (Cast-In-Place Concrete)
 $f_y = 60,000$ 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 relaxation strands)
 $f_{pst} = 201,960$ psi ($\frac{1}{2}$ " ϕ low relaxation strands)

LOADING HL-93

Allow 25#/sq. ft. for future wearing surface.

SEISMIC DATA

Seismic Performance Zone (SPZ) - 1
 Design Spectral Acceleration at 1.0 sec. (SD1) - 0.071g
 Design Spectral Acceleration at 0.2 sec. (SD2) - 0.128g
 Soil Site Class = C

WATERWAY INFORMATION

Drainage Area = 3.7 Sq. Mi.		Low Grade Elev. 619.16 @ Sta. 23+00.00		Head - Ft.		Headwater El.	
Flood	Yr.	C.F.S.	Exist.	Prop.	Exist.	Prop.	Exist.
Design	15	1082	200	394	617.8	0.7	618.3
Base	100	1890	200	394	618.4	1.5	619.9
Overtopping							
Max. Calc.							

10 Yr. Velocity = 3.10 ft/sec. (Proposed)
 10 Yr. Velocity = 6.16 ft/sec. (Existing)

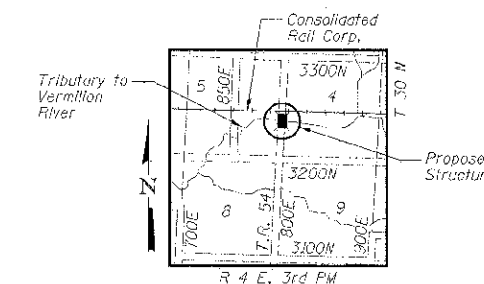
INDEX OF SHEETS

SHEET NO.	TITLE
B1	GENERAL PLAN AND ELEVATION
B2	GENERAL DATA
B3	27" x 36" PPC DECK BEAM
B4	27" x 36" PPC DECK BEAM DETAILS
B5	STEEL RAILING, TYPE S1
B6	ABUTMENTS
B7	HP PILE DETAILS
B8-B9	SOIL BORING LOGS

I certify that to the best of my knowledge, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.



JOSEPH M. LOWRANCE
 ILLINOIS STRUCTURAL ENGINEER
 NO. 081-006446
 Exp. Date 11/30/14



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
 T.R. 54 OVER TRIBUTARY
 TO VERMILION RIVER
 SECTION 11-17129-01-BR
 LIVINGSTON COUNTY
 STA. 20+18.00
 STRUCTURE NO. 053-4204

Farnsworth
 GROUP, INC.
 2709 McGraw Drive
 Bloomington, Illinois 61704
 309/893-9453, 309/893-1071 fax

DESIGNED - CEE
 CHECKED - JML
 DRAWN - DJM
 DATE 01/18/13
 CHECKED - MSW
 REVISED

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SHEET NO. B1 OF 9 SHEETS

T.R. 54
 SECTION 11-17129-01-BR
 COUNTY LIVINGSTON
 TOTAL SHEETS 16
 SHEET NO. 6
 CONTRACT NO. 87503
 ILLINOIS-SEC. AID PROJECT