

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 714	*	CHRISTIAN	94	38
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

SHEET NO. 1
OF 10 SHEETS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Benchmark: B.M. #589 - Chiseled "□" in center of E. Headwall of 3' x 5' Double Barrel Concrete Box Culvert, Sta. 398+59.00, 31.4' Rt., Elev. 611.79
Existing Structure: S.N. 011-2002 built in 1928 as a Double Barrel 5'-6" x 10'-0" R.C. Box Culvert with a Culvert Length of +/- 22'-0". Traffic to be maintained utilizing stage construction. No Salvage.

TOTAL BILL OF MATERIAL

Item	Unit	Quantity
Removal Of Existing Structures	Each	1
Concrete Structures	Cu. Yd.	93.8
Reinforcement Bars	Pound	7060
Reinforcement Bars, Epoxy Coated	Pound	310
Steel Bridge Rail	Foot	114.68
Furnishing Steel Piles HP 10x42	Foot	1284
Driving Steel Piles	Foot	1284
Test Pile, Steel HP 10x42	Each	2
Name Plates	Each	1
Temporary Soil Retention System	Sq. Ft.	478
Bar Splicers	Each	24
Three Sided Precast Concrete Structures, 25'-0" x 6'-2"	Foot	43.0
Granular Culvert Backfill	Cu. Yd.	214

WATERWAY INFORMATION

Drainage Area = 2.84 Sq. Mi.		Ex. Low Grade Elev. 613.90 ft. @ Sta. 400+76							
		Pr. Low Grade Elev. ft. @ Sta.							
Flood	Freq. Yr.	0 C.F.S.	Opening Sq. Ft.	Natural H.W.E.	Head - ft. Exst.	Head - ft. Prop.	Headwater El. Exst.	Headwater El. Prop.	
Design	10	159	45	55	609.39	0.02	0.02	609.41	609.41
Base	50	248	46	56	609.43	0.03	0.03	609.46	609.46
Overtopping	100	286	46	56	609.45	0.01	0.02	609.46	609.47
Max. Calc.	500	378	46	56	609.44	0.11	0.11	609.55	609.55

10 Year Velocity through Existing Bridge = N/A
10 Year Velocity through Proposed Bridge = 2.89 fps

GENERAL NOTES

Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
The option of using a precast footing is not allowed.
After the keyways have been grouted and cured, the joints on all three sides of the structure shall be externally sealed using 13" wide external sealing bands conforming to Article 1057.01. Cost included with Three-Sided Precast Concrete Structures.
All details shown were developed assuming the use of cast in place headwalls and wingwalls placed as shown. The Contractor has the option of using precast headwalls and wingwalls. If the precast option is used, details for the headwalls and wingwalls and revised footing details shall be submitted to the Engineer for approval.
The footing design is based on the following maximum reactions applied at the top of footing/pedestal walls:
Vertical 7.6 K/FT \bar{L} + 4.3 K/FT \bar{L} .
Horizontal 3.9 K/FT \bar{L} + 2.0 K/FT \bar{L} .
The Contractor shall verify that the selected structure meets these design parameters. If the design parameters are exceeded, a complete footing design with calculations, details, and the required seals shall be submitted for review and approval.
All construction joints shall be bonded.
Excavate behind the existing culvert before Stage I Removal. Install temporary soil retention system as required. Saw cut the existing structure at the stage removal line.
The Contractor shall drive one (1) test pile in a permanent location at the North footing and the South footing as directed by the Engineer before ordering the remainder of the piles.

INDEX OF SHEETS

- 1 - GENERAL PLAN & ELEVATION
- 2 - STAGING AND DETAILS
- 3 - TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
- 4 - CULVERT FOOTING DETAILS
- 5 - WINGWALL DETAILS
- 6 - HEADWALL DETAILS
- 7 - BAR SPLICER ASSEMBLY DETAILS
- 8 - STEEL BRIDGE RAIL CURB MOUNTED
- 9 & 10 - BORINGS

GENERAL PLAN & ELEVATION
IL. ROUTE 48 OVER BUCKHART CREEK
F.A.P. ROUTE 714 - SECTION
D-6 IL. 48 IMPROVEMENT 2006
CHRISTIAN COUNTY
STA. 401+35.5
S.N. 011-2507

STA. 401+35.50
BUILT 200 BY
STATE OF ILLINOIS
F.A.P. RTE. 714
SECTION D-6 IL. 48 IMPROVEMENT 2006
LOADING HS 20-44
STR. NO. 011-2507

NAME PLATE
(Standard 515001)

HIGHWAY CLASSIFICATION
F.A.P. Route 714 - IL. Route 48
Functional Class: Minor Arterial (Non-urban)
A.D.T. 4900(2003), 5980(2023)
D.H.V. 600(2021)
Design Speed: 35 mph
Posted Speed: 35 mph

LOADING HS 20-44

Allow 50#/Sq. Ft. for future wearing surface.

DESIGN SPECIFICATIONS

2002 A.A.S.H.T.O. Specifications.

DESIGN STRESSES

NEW CONSTRUCTION

FIELD UNITS

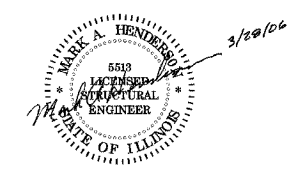
$f_c = 3500$ p.s.i.
 $f_y = 60000$ p.s.i. (reinforcement)

PRECAST UNITS

$f_c = 5000$ p.s.i.
 $f_y = 60000$ p.s.i. (reinforcement)
 $f_y = 65000$ p.s.i. (welded wire fabric)

SEISMIC DATA

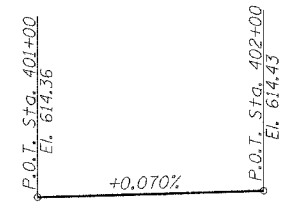
Seismic Performance Category (SPC) = A
Site Coefficient = 1.5
Bedrock Acceleration Coefficient (A) = 0.06g



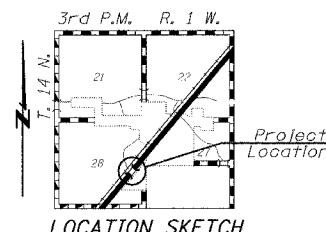
Exp. DATE: 11/30/06

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

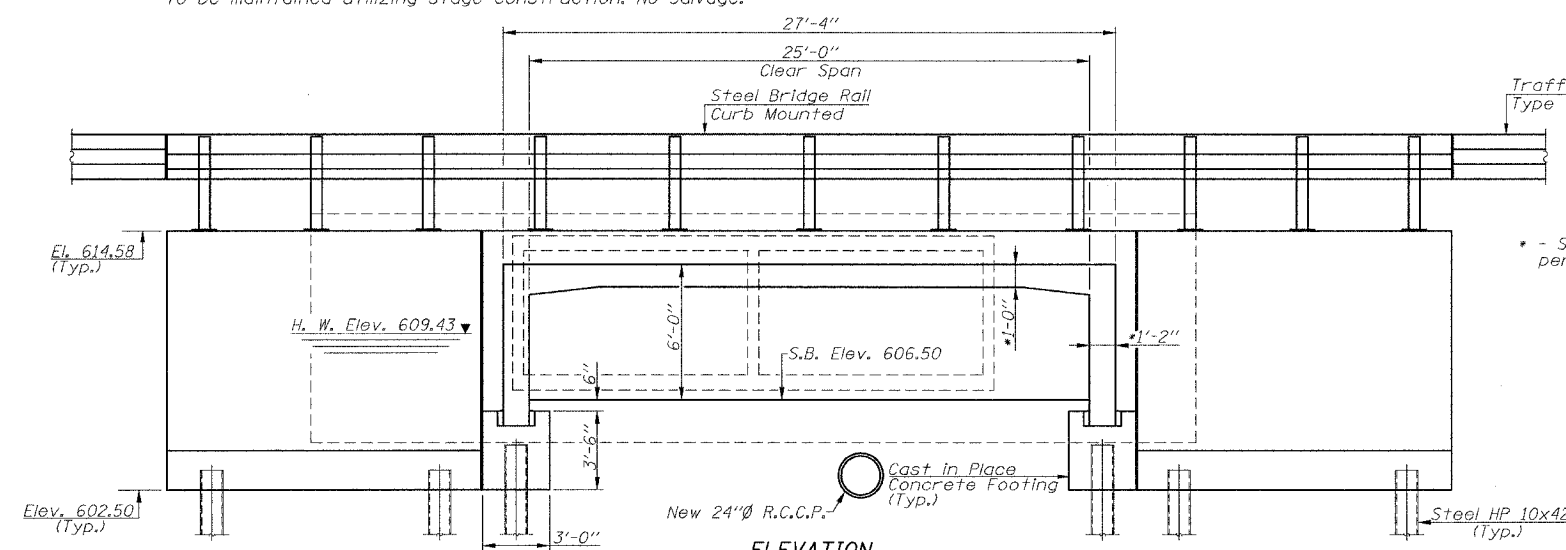
Ralph E. Anderson (TJD)
Engineer of Bridges and Structures



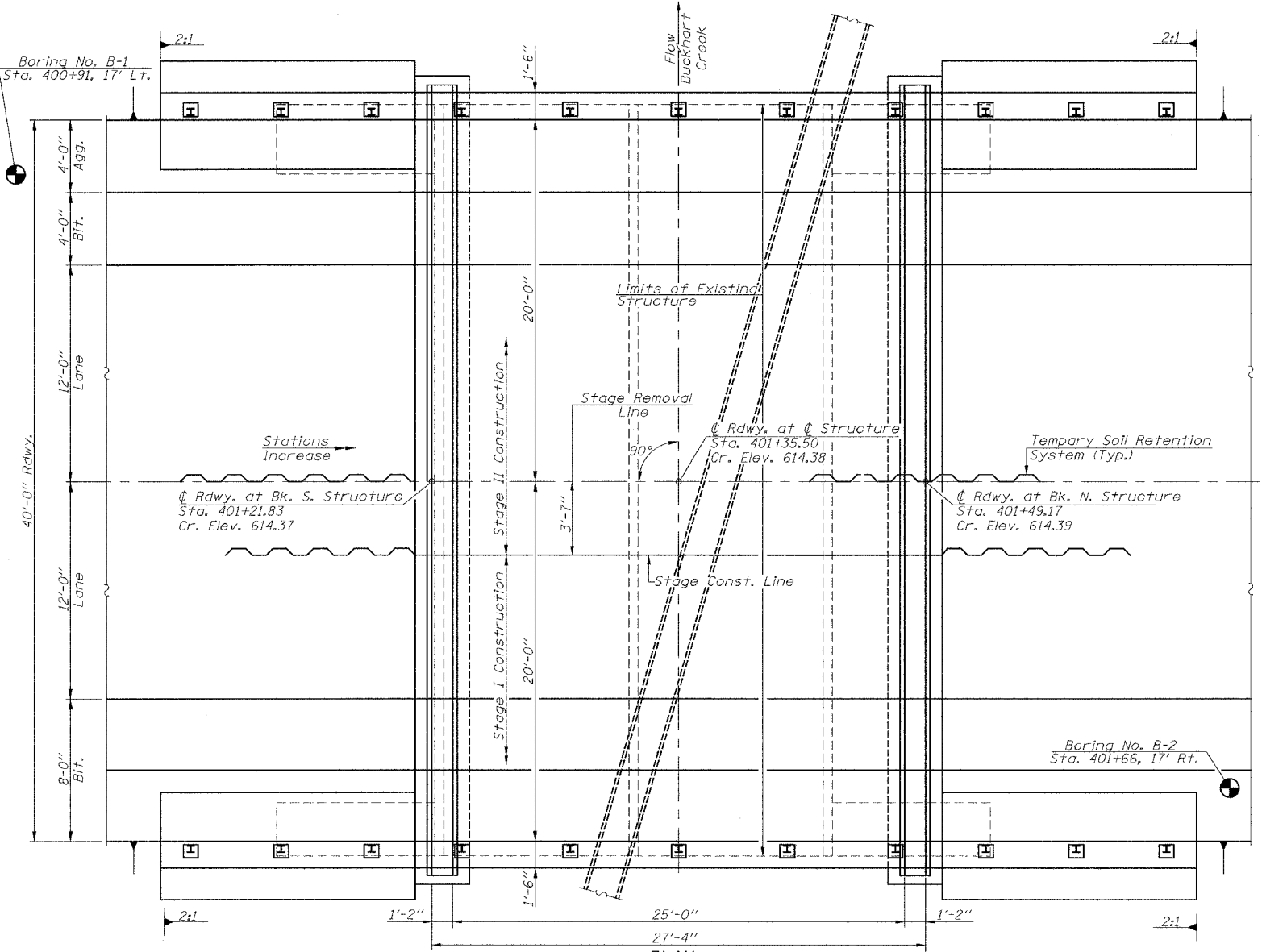
PROFILE GRADE
(Along \bar{C} Roadway)



LOCATION SKETCH



ELEVATION



PLAN