ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 599	*	ROCK ISLAND	90	35
FED.ROAD DIST.NO.		ILLINOIS	PROJECT	

Sheet No. 1 of 7 Sheets

*42 MFT-BR

CONTRACT NO. 64641

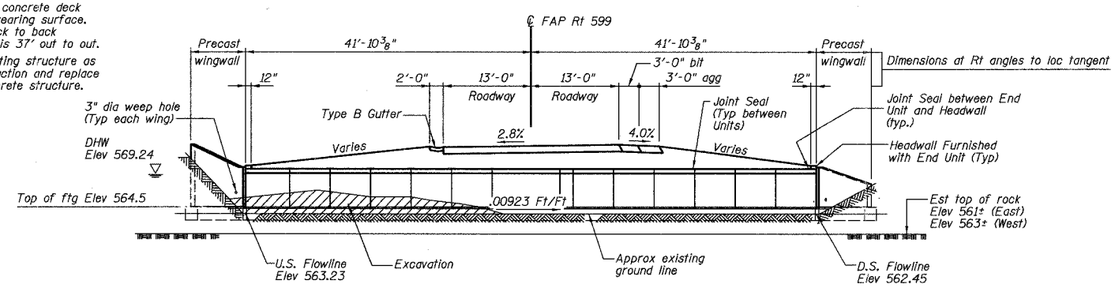
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Bench Mark #402:
Chiseled "□" on NE wingwall of bridge just east of Andalusia
Elev 574.03

Existing Structure (SN 081-0075):
A single span, cast in place concrete tee beam bridge with a 6½" concrete deck and a bituminous concrete wearing surface. The bridge length is 33' back to back of abutments and the width is 37' out to out.

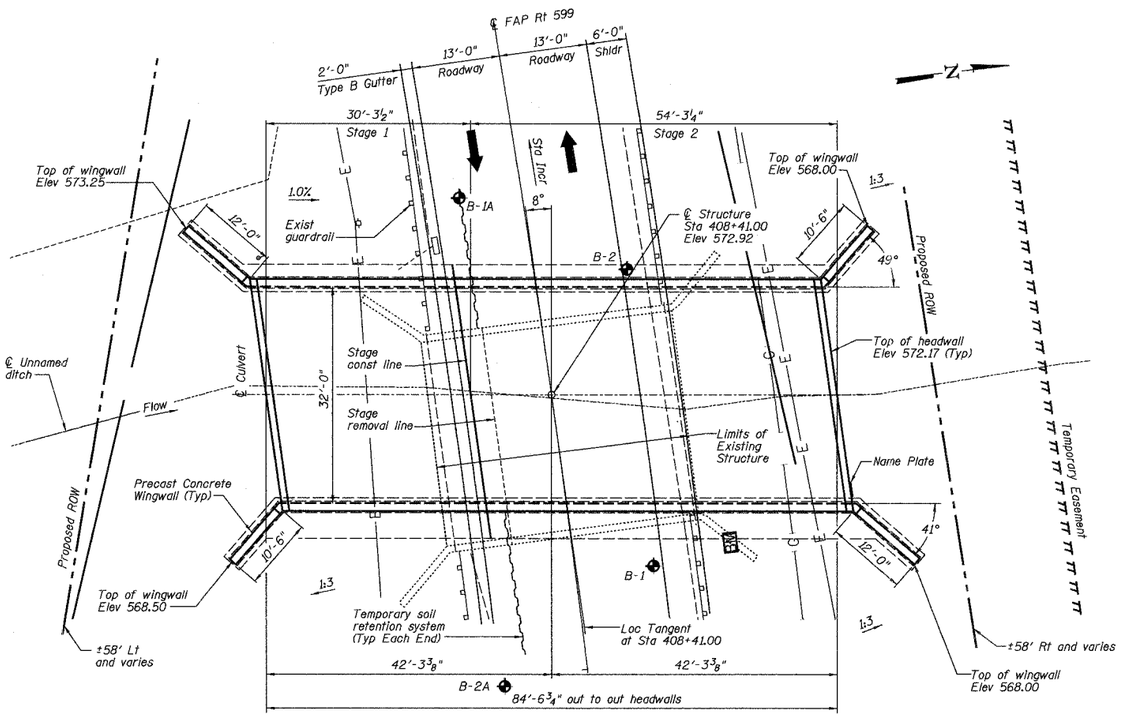
Contractor shall remove existing structure as required using stage construction and replace with a 3-sided precast concrete structure.

No salvage.



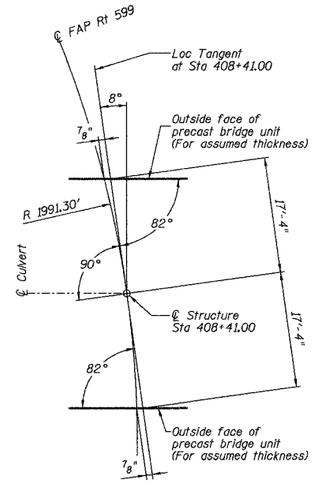
Max. Allowable Bearing Pressure = 5.0 TSF

LONGITUDINAL SECTION



EX CURVE 1
PI STA 409+32.70
Δ = 14° 39' 17" (LT)
D = 2° 52' 38"
T = 256.06'
R = 1,991.30'
L = 509.32'
E = 16.40'
e = 0.04 (AVERAGE)
PC STA 406+76.64
PT STA 411+85.97

PLAN



OFFSET SKETCH

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST UNITS
f'c = 5,000 psi
fy = 60,000 psi (reinforcement)
fy = 65,000 psi (welded wire fabric)

SEISMIC DATA

Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = .033
Site Coefficient (S) = 1.0

Max. Allowable Bearing Pressure = 5.0 TSF

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

GENERAL NOTES

Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

All Construction joints shall be bonded.

Excavation behind existing abutment walls shall be done before removing the existing superstructure. The Contractor shall sawcut the existing abutments at the stage removal line before Stage 1 removal.

The footing design for the precast structure is based on the following maximum service load reactions applied at the top of the footing/pedestal walls:
Vertical: 9.8 kips/ft ⏀ + 4.6 kips/ft ⏊
Horizontal: 7.2 kips/ft ⏀ + 2.9 kips/ft ⏊

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.

After the keyways have been grouted and cured, the joints on all three sides of the structure shall be externally sealed using 12" wide external sealing bands conforming to Article 1057.01. Cost included with Three Sided Precast Concrete Structures.

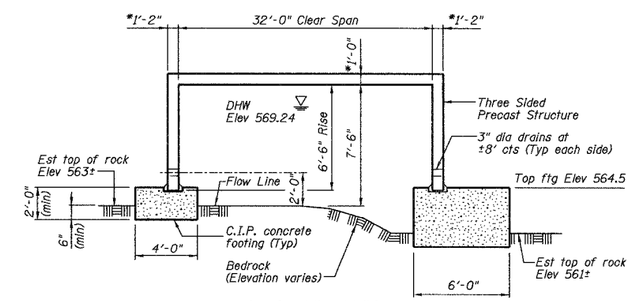
The option of using precast footings is not allowed. Portions of footings set in rock shall be poured against in-place rock.

The Contractor will fill any scour holes in the rock in the area of the structure with Class SI Concrete. Cost included with Concrete Structures.

The minimum gross clear area of the opening of the structure shall be 192 sq ft.

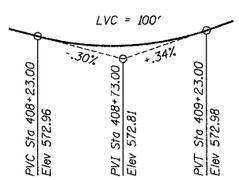
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures No. 1	Each	1	--	1
Rock Excavation for Structures	Cu Yd	--	18.4	18.4
Concrete Structures	Cu Yd	--	110.4	110.4
Reinforcement Bars	Pound	--	5670	5670
Name Plates	Each	1		1
Three Sided Precast Concrete Structure 32' x 6'-6"	Foot	84.6	--	84.6
Precast Concrete Substructure	L Sum	--	1	1
Temporary Soil Retention System	Sq Ft	--	271.8	271.8
Bar Splicers	Each	--	26	26



SECTION THRU BARREL LOOKING DOWNSTREAM

*Assumed dimensions for three sided precast concrete structure. Dimensions may vary.



PROFILE GRADE

WATERWAY INFORMATION

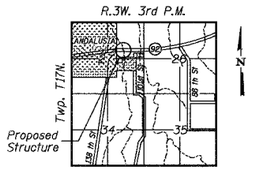
Drainage Area = 1.95 sq mi			Low Grade Elev 573.00 @ Sta 407+00						
Flood	Freq Yr	Q C.F.S.	Opening Sq Ft Exist	Opening Sq Ft Prop	Nat. H.W.E.	Head-Ft Exist	Head-Ft Prop	Headwater El Exist	Headwater El Prop
Design	50	1411	105.8	192.3	569.24	1.01	0.98	570.25	570.22
Base	100	1639	113.0	198.1	569.42	1.31	1.36	570.73	570.78
Max	500	2192	127.2	215.4	569.96	2.17	2.26	572.13	572.22

STATION 408+41.00
BUILT 200 BY
STATE OF ILLINOIS
FAP ROUTE 599
SECTION 42-MFT-BR
LOADING HS20
STR. NO. 081-1009

NAME PLATE

See Std. 515001

LICENSED STRUCTURAL ENGINEER
CORY W. CHAMBERLAIN
081-005882
STATE OF ILLINOIS
8-29-05
Exp 11-30-06



LOCATION SKETCH

ILLINOIS ROUTE 92 OVER AN UNNAMED DITCH

GENERAL PLAN AND ELEVATION

REVISIONS		
NO.	DATE	INITIALS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FAP ROUTE 599 — SECTION 42 MFT-BR
SN 081-1009
STA 408+41.00 — ROCK ISLAND COUNTY

HOMER L. CHASTAIN & ASSOCIATES, LLP
CONSULTING ENGINEERS
184-001397

DRAWN BY	DATE
R King	2/05
CHECKED BY	DATE
GWP	2/05
QA/QC BY	DATE
CWC	2/05
BOOK NUMBER	
PROJECT No.	
4858-4	
SHEET No.	
35	