

Benchmark: Railroad spike in power pole south side of Old US 50, Sta. 354+90, 28.5' Lt., Elevation 512.53.

Existing Structure: S.N. 013-0023 built in 1924 as a single span RC slab bridge on closed abutments, 32'-2" out to out deck, 30'-0" bk to bk abutments. The existing structure is to be removed and replaced with a double 12'x10' CIP box culvert. Traffic to be detoured during construction.

No Salvage

Note: The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.

STA. 336+46.00
BUILT 20 BY
STATE OF ILLINOIS
F.A.S. RTE. 2704-SEC. 12B-1(2)
LOADING HS20-44
STR. NO. 013-2013

NAME PLATE
(Standard 515001)

Granular culvert backfill within limits of proposed roadway and paved shoulders (34' total length). Outside limits of paved shoulders, the culvert shall be backfilled in accordance with Section 502 of the Standard Specification.

TOTAL BILL OF MATERIAL

Item	Unit	Quantity
Concrete Box Culverts	Cu. Yd.	198.0
Reinforcement Bars	Pound	36410
Filter Fabric	Sq. Yd.	231
Stone Riprap, Class A5	Sq. Yd.	231
Name Plates	Each	1
Rockfill-Replacement	Ton	327
Removal of Existing Structures No. 2	Each	1
Removal & Disposal of Unsuitable Material for Structures	Cu. Yd.	182
Granular Culvert Backfill	Cu. Yd.	336
Steel Plate Beam Guardrail, Attached To Structures	Foot	53

WATERWAY INFORMATION

Drainage Area = 2.1 sq. mi. Prop. Low Grade Elev. 510.65 @ Sta. 337+00
Exist. Low Grade Elev. 510.65 @ Sta. 337+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E. Exist.	Natural H.W.E. Prop.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	10	914	179	187	506.3	506.3	0.6	0.4	506.9	506.7
Base	50	1510	202	206	507.1	507.1	2.1	1.1	509.2	508.2
Overtopping Prop.	100	1780	213	216	507.5	507.5	2.2	1.4	509.7	508.9
Max. Calc.	500	2480	229	230	508.1	508.1	3.0	2.4	511.1	510.5

10 Year Velocity through Existing Bridge = 5.11 ft/s
10 Year Velocity through Proposed Bridge = 4.89 ft/s

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	D.S. Invert	U.S. Invert
	495.30	495.50

GENERAL NOTES

Reinforcement bars shall conform to the requirements of A.S.T.M. A 706, Grade 60. See Special Provisions.
Cast in place concrete exposed edges shall be beveled 3/4".
Precast alternative is not allowed.
At least 8 ft. of the barrel shall be poured monolithically with the wingwalls.
Guardrail shall be mounted to the culvert per Highway Standard 630101 (Case IV) except that the 1/2" holes in the top slab shall be formed (instead of cored) for the threaded rods.
Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. For backfilling and embankment, See Special Provisions.

LOADING HS20-44

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

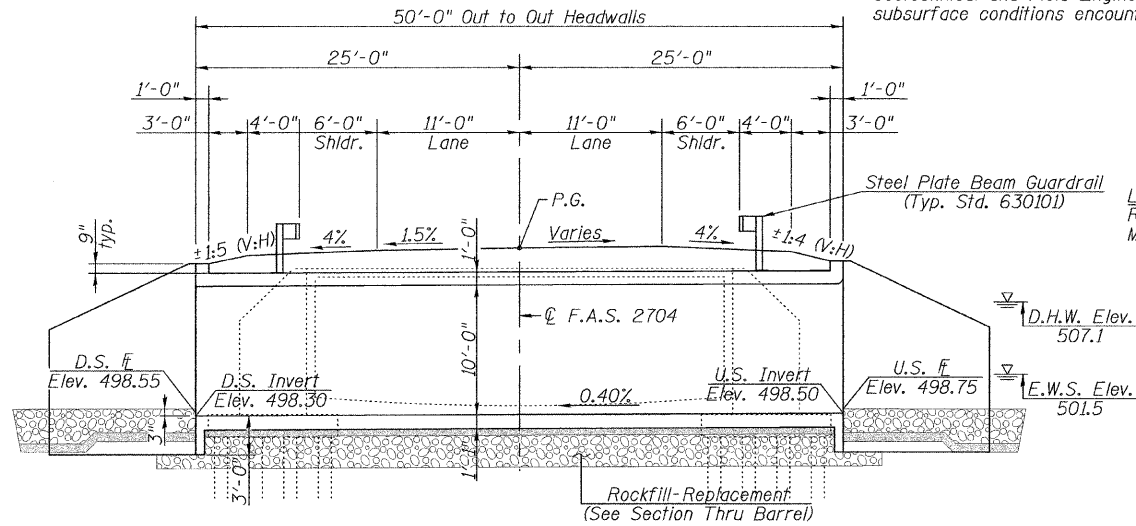
DESIGN SPECIFICATIONS

2002 A.A.S.H.T.O. Standard Specifications for Highway Bridges.

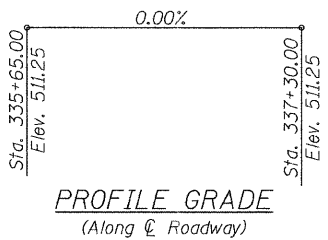
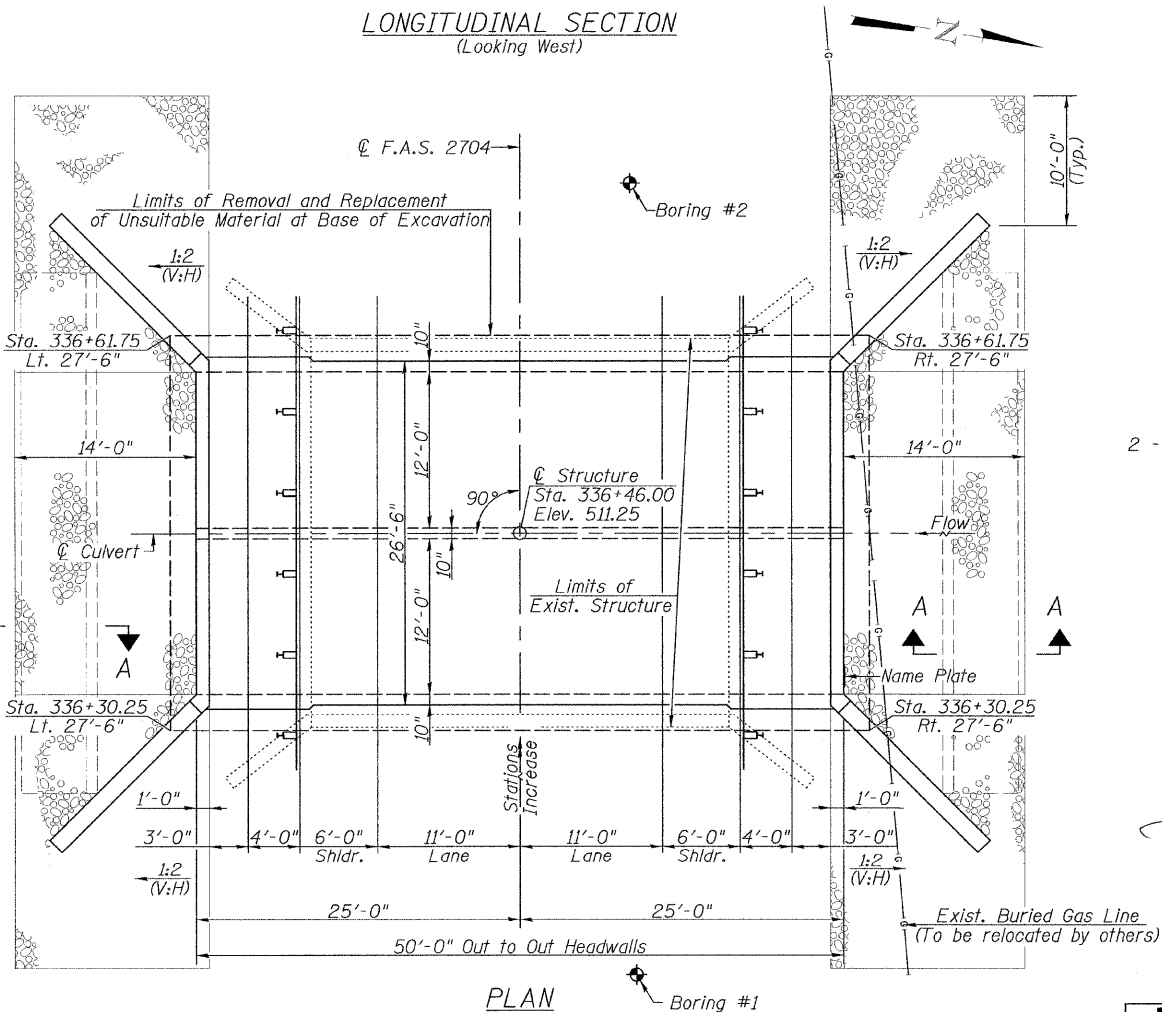
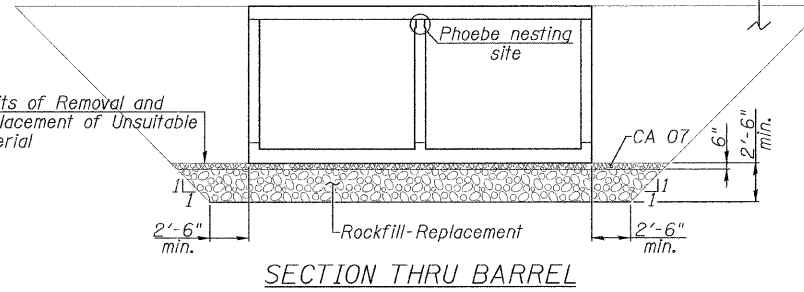
DESIGN STRESSES

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

GENERAL PLAN & ELEVATION
OLD US 50 OVER BRUSH CREEK
F.A.S. ROUTE 2704 - SEC. 12B-1(2)
CLAY COUNTY
STATION 336+46.00
STRUCTURE NO. 013-2013



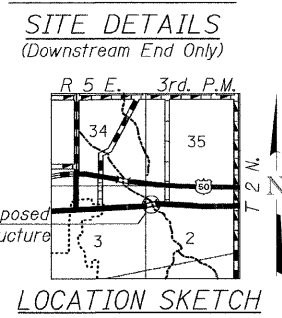
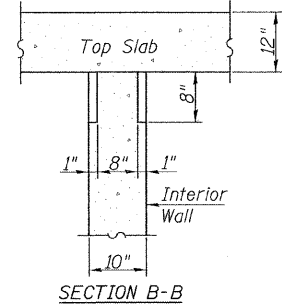
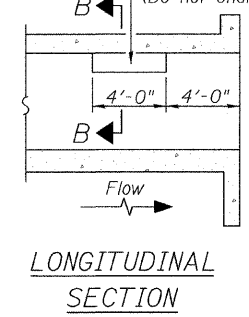
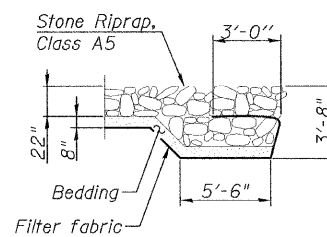
Limits of Removal and Replacement of Unsuitable Material



CURVE DATA
P.I. Sta. 331+00
Δ = 10° 00'
D = 1° 00'
R = 5229.6'
T = 501.3'
L = 1000'
E = 21.9'
SE = 0.021'/'
Superelevation Attained:
Sta. 324+38.7 to Sta. 326+78.7
Sta. 335+18.7 to Sta. 337+61.3

INDEX OF SHEETS
1. General Plan & Elevation
2 - 4. Culvert Details
5. Boring Logs

Dated 3/8/2011
Seal of Gerald B. Rothert, Licensed Structural Engineer, State of Illinois, No. 081-006678
Exp. 11/30/2012



APPROVED FOR STRUCTURAL ADEQUACY ONLY
Gerald B. Rothert, Engineer of Bridges and Structures

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Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

SHEET NO.	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5 SHEETS	2704	12B-1(2)	CLAY	39	23
CONTRACT NO. 74116					
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					