Benchmark: BM#13 - Chiseled "□" on S.E. Wingwall of Exist. Bridge 034-0010 18.2' Rt. Sta. 633+15.3 El. 600.88

Existing Structure: 034-0010 built in 1928 under Section 115-B. The existing structure is a single span reinforced concrete slab bridge supported on pile supported closed abutments. Back to Back of abutment length is 30'-0". Out to Out of deck width is 36'-2" The existing structure is to be removed and replaced with a triple 10'x10' precast concrete box culvert. Traffic to be detoured during construction.

No Salvage.

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Removal of Existing Structures	Each	1
Name Plates	Each	1
Box Culvert End Sections, Culvert No. 1	Each	2
Precast Concrete Box Culverts 10'x10'	Foot	249
Rockfill-Foundation	Ton	493

WATERWAY INFORMATION

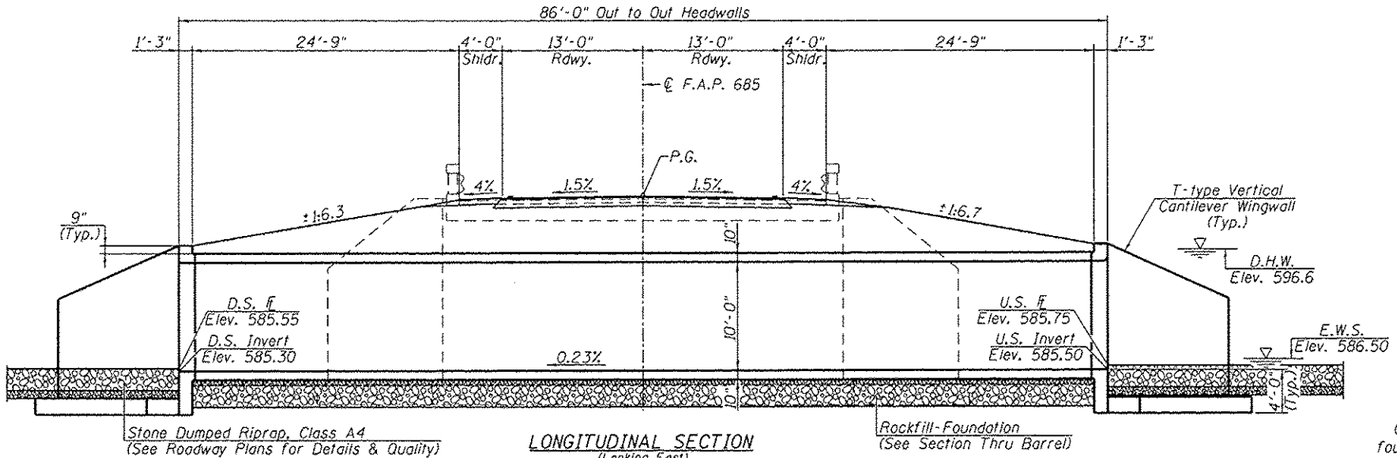
Drainage Area = 5.4 Sq. Mi. Existing Overtopping Elev. 600.9 ft. @ Sta. 633+30
Proposed Overtopping Evaluation ft. @ Sta.

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Hat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	1260	190	250	595.1	0.3	0	595.4	595.0
Design	50	2020	240	290	596.6	1.0	0.2	597.5	596.7
Base	100	2370	250	300	597.0	1.3	0.7	598.3	597.7
Overtopping (Exist.)	> 500 Yr.								
Overtopping (Prop.)	> 500 Yr.								
Max. Calc.	500	3230	270	300	597.9	2.0	1.8	599.8	599.7

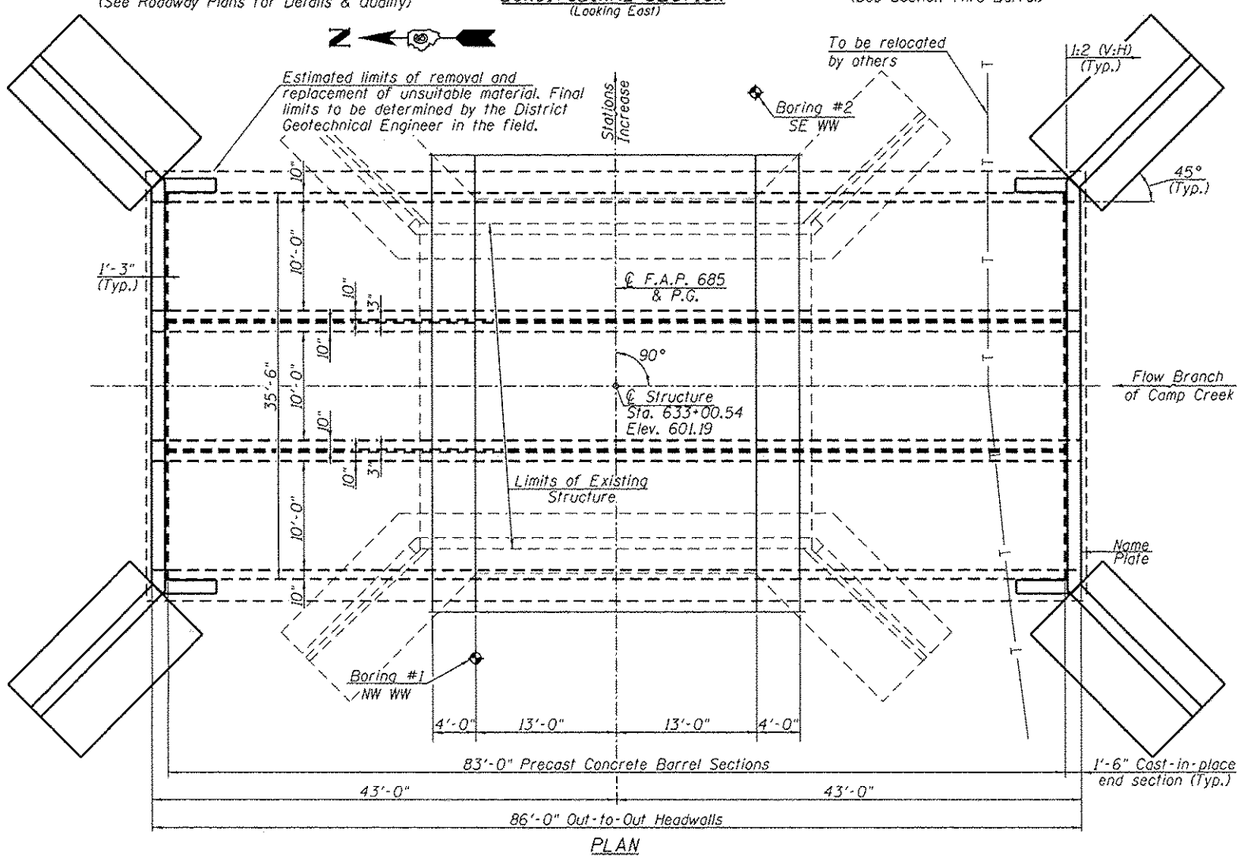
10-Year Outlet Velocity from Existing Structure = 8.8 fps
10-Year Outlet Velocity from Proposed Structure = 5.4 fps

DESIGN SCOUR ELEVATION TABLE

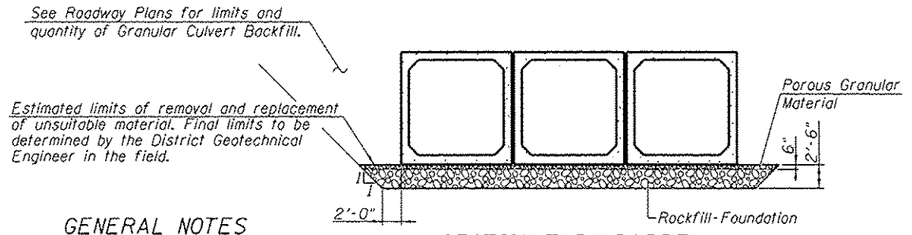
Design Scour Elevation (ft.)	D.S. Invert	U.S. Invert
	581.55	581.75



LONGITUDINAL SECTION
(Looking East)



PLAN



SECTION THRU BARREL

GENERAL NOTES

Contact the District Geotechnical Engineer to verify foundation conditions meet plan requirements.

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

Precast End Sections will not be allowed.

Outside end of precast sections at the ends of the culvert shall not have a bell or spigot.

Reinforcement bars designated (E) shall be epoxy coated.

The Contractor shall excavate behind existing abutments prior to removal of existing superstructure to balance front and back soil pressure.

The existing foundations should be removed entirely where it lies within the footprint of the proposed structure.

All construction joints shall be bonded according to 503.09 of the Standard Specifications.

The welded wire fabric extending from the precast boxes into the end sections shall have a minimum area of 0.20 in²/ft. Substitution of reinforcement bars for welded wire fabric is not allowed.

LOADING HL 93

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

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition with 2013 Interim Revisions.
ASTM C 1577

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)

DESIGN FILL HEIGHT

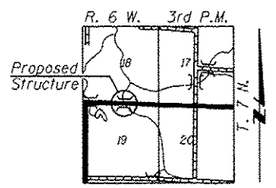
Design earth cover = 4.95'

PROFILE GRADE
(Along ℄ F.A.P. 685)

7/29/2014
GERALD B. ROTHERHAM
081-005673
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS
EXPIRATION: 11/30/2014

STATION 633+00.54
BUILT 20 BY
STATE OF ILLINOIS
F.A.P. RT. 685 SEC. (115)B-2
LOADING HL93
STR. NO. 034-2528

NAME PLATE
See Std. 515001



LOCATION MAP

GENERAL PLAN
IL RTE. 9/IL RTE. 94 OVER BRANCH OF CAMP CREEK / TILTON CREEK
F.A.P. RTE. 685 - SEC. (115)B-1
HANCOCK COUNTY
STATION 633+00.54
STRUCTURE NO. 034-2528

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

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

GENERAL PLAN
STR. NO. 034-2528
SHEET NO. 1 OF 6 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
685	(115)B-2	HANCOCK	28	15
		CONTRACT NO. 72F07		
	ILLINOIS FED. AID PROJECT			