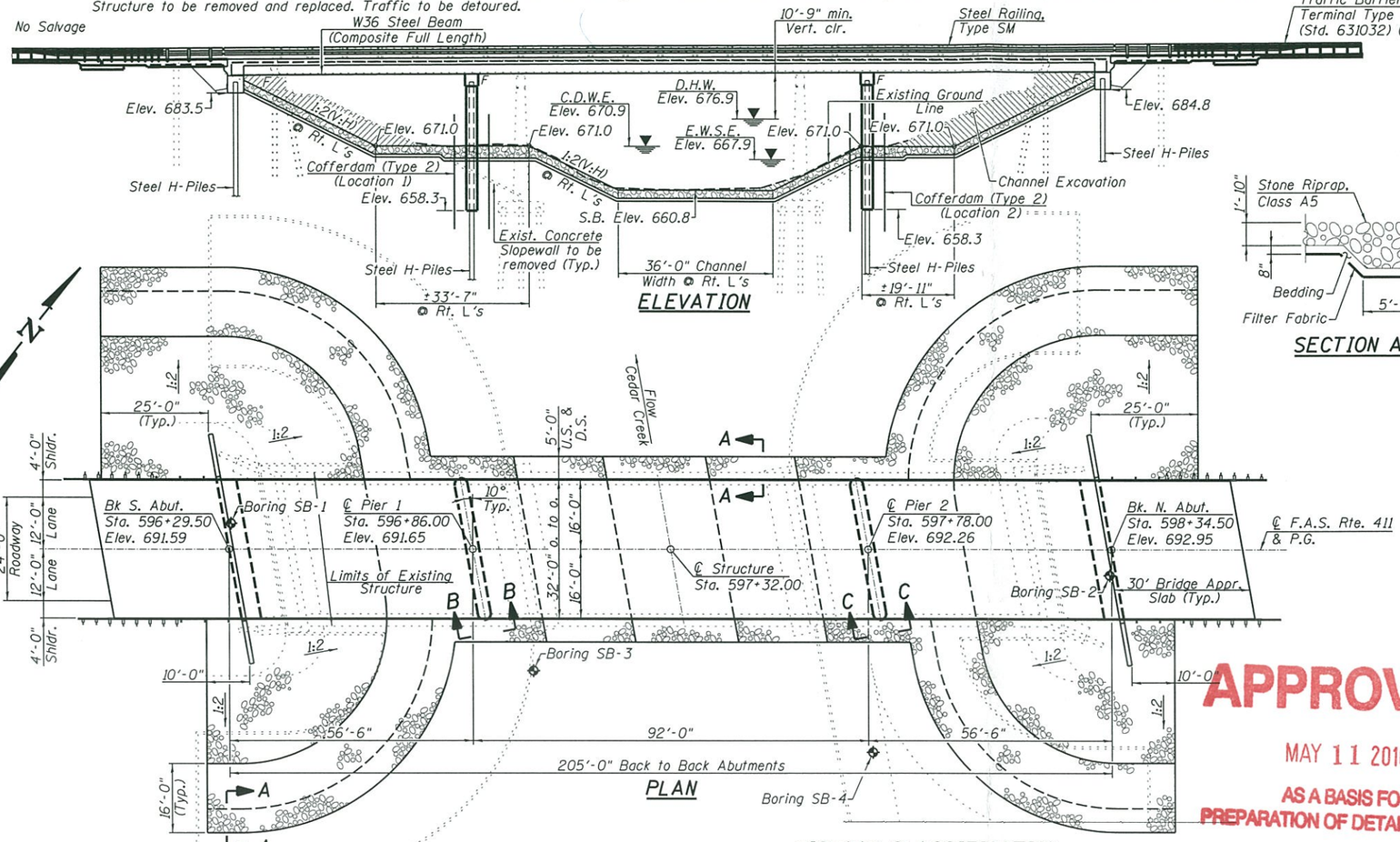
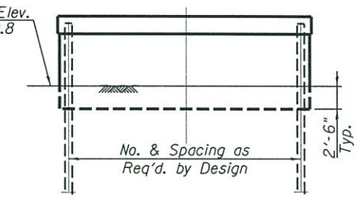
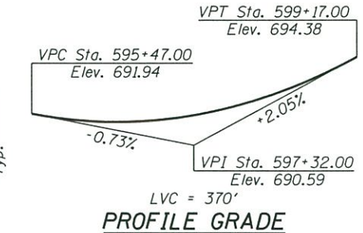
Bench Mark A: Chiseled "□" on top of north abutment wall of S.N. 094-0009. Elev. 695.96

Existing Structure: Structure Number 094-0009 was built in 1963 as F.A. Route 9, Section 103B at Station 597+30. The structure consists of a three span non-composite concrete deck supported by continuous 33 WF steel beams. The substructure consists of concrete pile bent abutments and concrete solid wall piers. The abutments are supported by two rows of steel piles. The piers are supported on steel pile supported spread footings. The back-to-back of abutment length is 179'-9" and out-to-out width of deck is 35'-8". Structure to be removed and replaced. Traffic to be detoured.

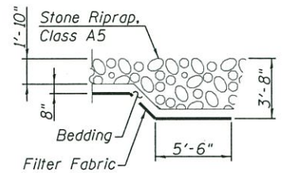




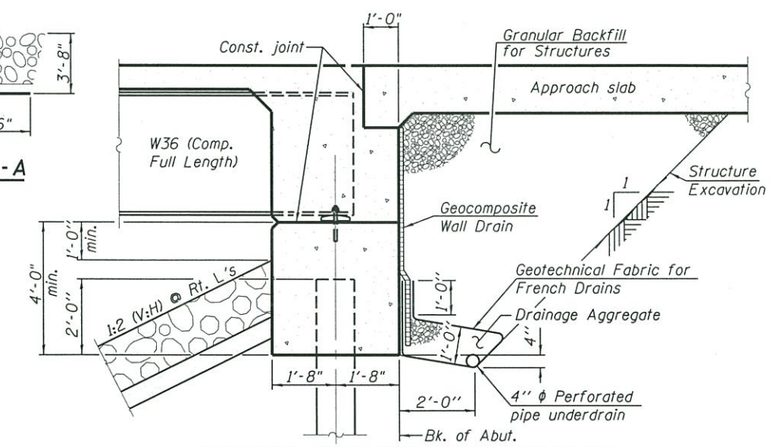
PIER SKETCH



PROFILE GRADE
(along ℄ F.A.S. Rte. 411)



SECTION A-A



SECTION THRU INTEGRAL ABUTMENT
(Horiz. dim. @ Rt. L's)

APPROVED
MAY 11 2016
AS A BASIS FOR PREPARATION OF DETAILED PLANS

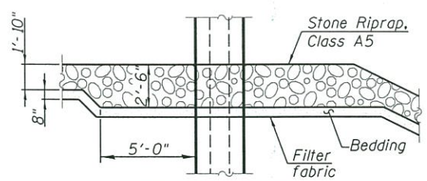
WATERWAY INFORMATION

Drainage Area = 61.5 mi² Exist. Overtopping Elev. 691.5 at Sta. 596+40 Prop. Overtopping Elev. 691.5 at Sta. 596+40

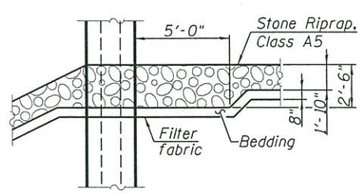
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	3631	894	1092	675.1	0.4	0.3	675.6	675.5
Design	50	7093	1094	1364	676.9	1.1	0.8	678.1	677.8
Base	100	8997	1183	1484	677.7	1.6	1.1	679.3	678.8
	200	11800	1300	1639	678.7	2.2	1.6	680.9	680.3
Overtop Proposed									
Max. Calc.	500	14605	1404	1778	679.5	3.0	2.0	682.5	681.6

10 year velocity through Existing Bridge = 4.2 fps
10 year velocity through Proposed Bridge = 3.5 fps

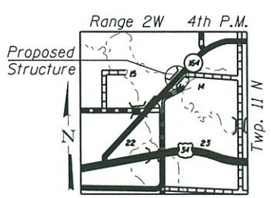
Event/Limit State	Design Scour Elevations (ft.) S. Abut.	Pier 1	Pier 2	N. Abut.	Item 113
Q100	683.5	652.7	654.2	684.8	5
Q200	683.5	650.7	652.1	684.8	
Design	683.5	652.7	654.2	684.8	
Check	683.5	650.7	652.1	684.8	



SECTION B-B



SECTION C-C



LOCATION SKETCH

HIGHWAY CLASSIFICATION

F.A.S. Rte. 411 - IL Rte. 164
Functional Class: Minor Arterial
ADT: 1450 (2011); 1450 (2032)
ADTT: 57 (2011); 57 (2032)
DHV: 145
Speed: 55 m.p.h. (posted); 55 m.p.h. (design)
Two-way traffic
Directional Dist. 50:50

LOADING HL 93

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

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2016 Interims.

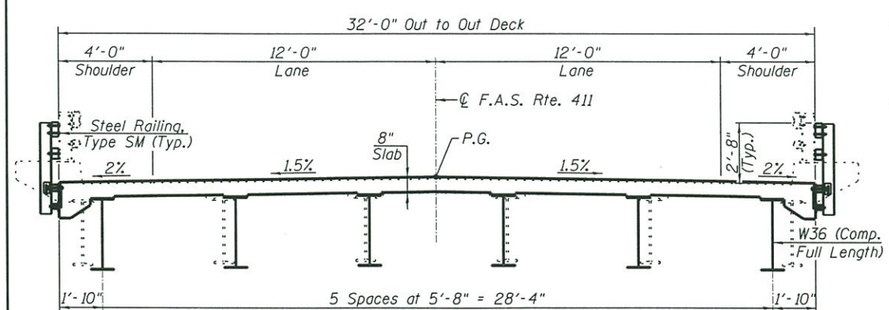
DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi (Concrete Substructure)
f'_c = 5,000 psi (Concrete Superstructure)
f_y = 60,000 psi (reinforcement)
* f_y = 50,000 psi (M270 Grade 50)
* f_y = 36,000 psi (M270 Grade 36)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.099 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.144 g
Soil Site Class = D



PROPOSED CROSS SECTION
(Looking North)

* All new structural steel shall be galvanized

GENERAL PLAN & ELEVATION
IL RTE. 164 OVER CEDAR CREEK
F.A.S. RTE. 411 - SEC. (103B)BR
WARREN COUNTY
STATION 597+32.00
STRUCTURE NO. 094-0052

FILE NAME = $FILE$	USER NAME = $USER$	DESIGNED - GBR	REVISED -
		CHECKED - MAH	REVISED -
	PLOT SCALE = $SCALE$	DRAWN - JRP	REVISED -
	PLOT DATE = $DATE$	CHECKED - GBR	REVISED -

V&K

Allen Henderson & Associates
A Division of Veenstra & Kimm, Inc.
Springfield, IL. Phone: (217)544-8033
IL. Design Firm No. 184-001939

TYPE, SIZE AND LOCATION
STRUCTURE NO. 094-0052
SHEET NO. 1 OF 1 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
411	(103B)BR	WARREN		
		CONTRACT NO. 68B43		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		