B.M. #044-004: Chiseled "□" on S.E. corner of a Combination Wingwall for 48" and 30" RCCP, 6.5' West of Existing Structure No. 044-0004. Elev. 366.30

Existing Structure (No. 044-0004):

Originally constructed in 1924 and reconstructed in 1981. The original 1924 superstructure was removed, the existing closed reinforced concrete abutments were modified, and 2 new solid wall enclosed pile bent piers were added to accomodate the new 11" PPC Deck Beam Superstructure. The present structure is 3 spans, Span 1 measures 30'-5¾" from back of abutment to ℄ of Pier. Span 2 measures 28'-4½" from ℄ of pier to ℄ of pier. Span 3 measures 30'-5¾" ℄ of Pier to back of abutment, for a total structure length of 89'-4" back to back of abutments, with an out to out width of 34'-8". The existing ℄ of Structure is at Sta. 3+70.82.

The Structure is to be removed and replaced using stage construction.

No Salvage.

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	N. Abut.	Pier 1	Pier 2	S. Abut.
	362.60	329.1	[illegible]	362.57

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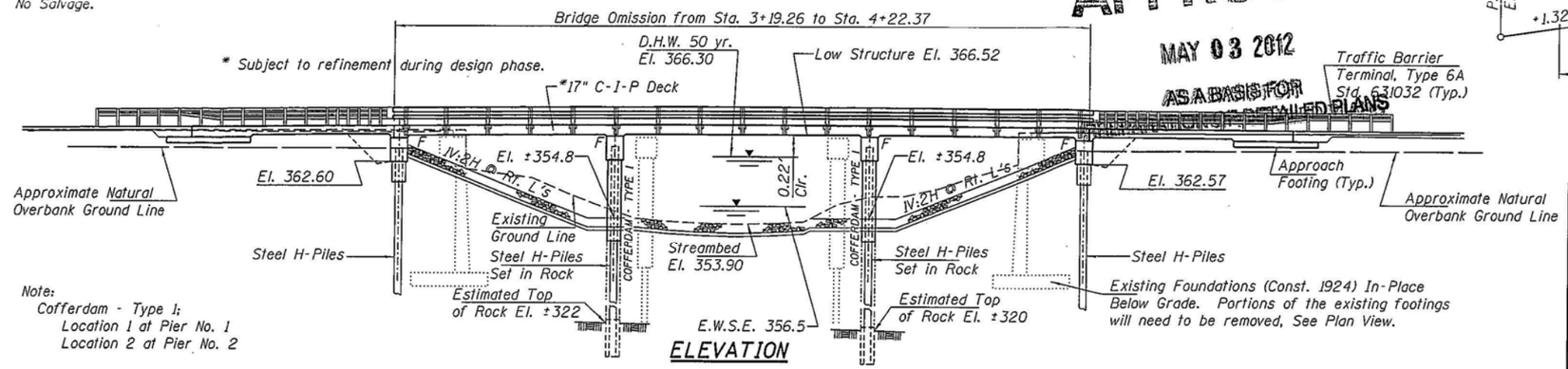
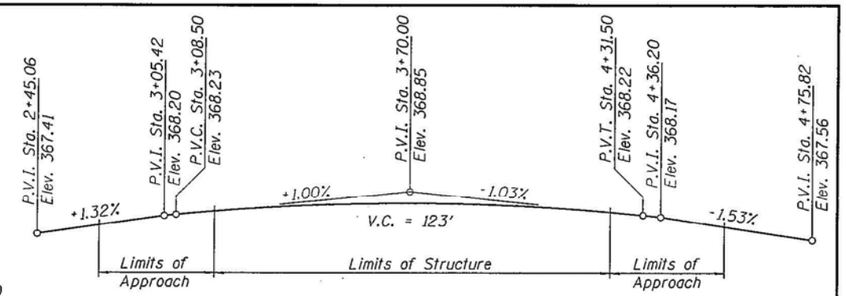
AS A BASIS FOR DETAILED PLANS



Note:
Cofferdam - Type 1;
Location 1 at Pier No. 1
Location 2 at Pier No. 2

ELEVATION



PROFILE GRADE - U.S. RTE. 45

(Along ℄ of Roadway)

WATERWAY INFORMATION

Drainage Area = 32 Sq. Miles — Low Grade Elev. 366.3 @ Sta. 15+50.00

Flood Distribution	Freq. Yr.	Discharge cfs Exist.	Discharge cfs Prop.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Main Channel	10 Year	3499	3599	585	582	365.3	0.8	0.7	366.1	366.0
Relief Struct.		1487	1398	243	243					
Culvert		194	183	50	50					
Total		5180	5180	877	874					
Main Channel	Design 50 Year	4704*	5067*	645	661	366.3	0.8	0.7	367.1	367.0
Relief Struct.		1749*	1603*	258	258					
Culvert		1207*	990*	50	50					
Total		7660	7660	953	968					
Main Channel	Base 100 Year	4924*	5345*	645	668	366.7	0.8	0.7	367.5	367.4
Relief Struct.		1921*	1810*	258	258					
Culvert		1875*	1565*	50	50					
Total		8720	8720	953	975					
Main Channel	Existing Overtopping 12 Year	3614	-	592	-	365.4	0.9	-	366.3	-
Relief Struct.		1540	-	245	-					
Culvert		246*	-	50	-					
Total		5400	-	887	-					
Main Channel	Proposed Overtopping 14 Year	-	3879	-	597	365.5	-	0.8	-	366.3
Relief Struct.		-	1463	-	247					
Culvert		-	258*	-	50					
Total		-	5600	-	894					
Main Channel	Max. Calc. 500 Year	4119*	4587*	645	668	367.6	0.7	0.6	368.3	368.2
Relief Struct.		4122*	3755*	258	258					
Culvert		3259*	3158*	50	50					
Total		11500	11500	953	975					

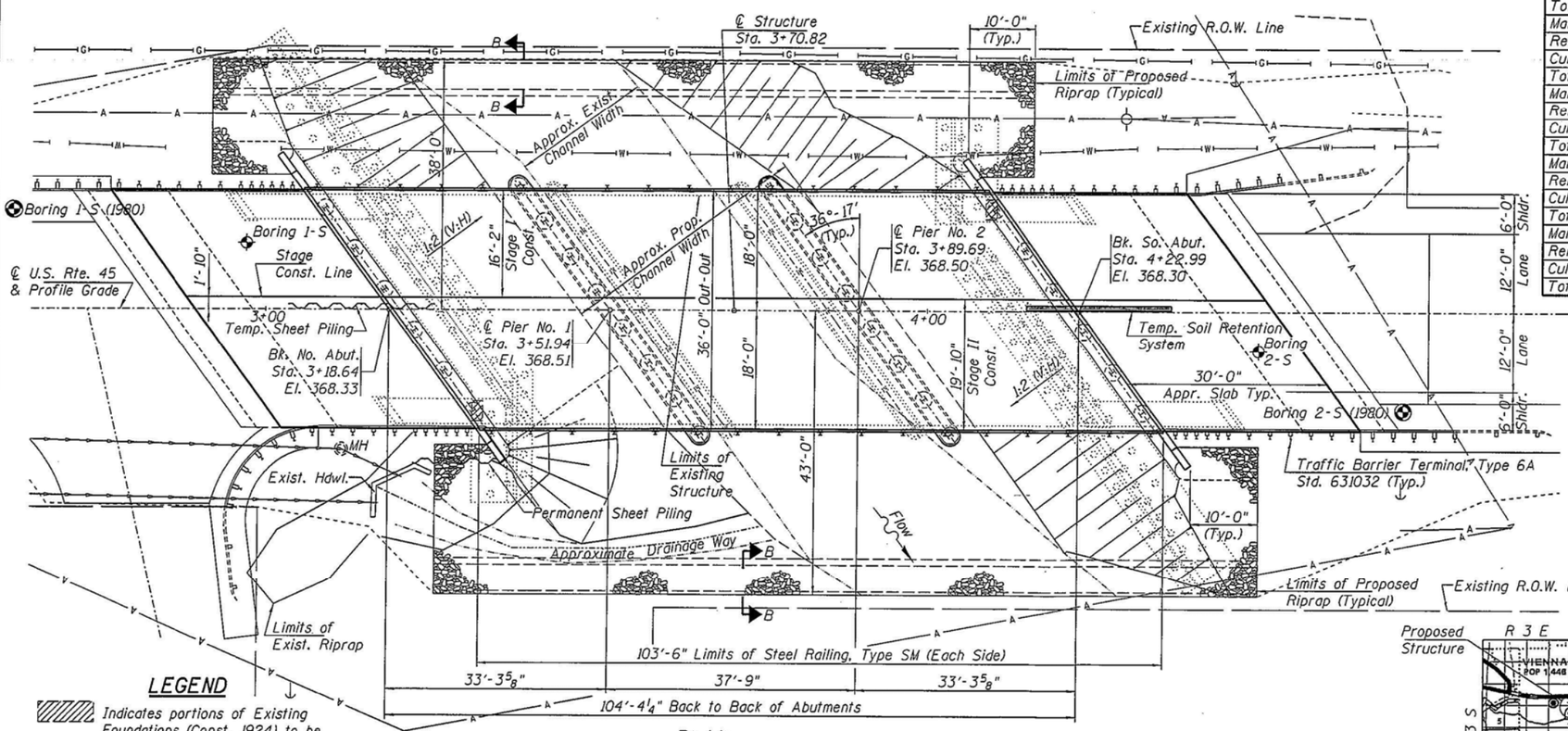
*Structure experiences Weir Flow.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 3
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.50
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 1.14
Soil Site Class = D

HIGHWAY CLASSIFICATION

F.A.S. Rte. 960 - U.S. Rte. 45
Functional Class: Major Collector, Non-Urban
ADT: 3710 (2007); 5000 (2027)
ADTT: 290 (2007); 385 (2027)
DHV: 500 (2027)
Design Speed: 35 m.p.h.
Posted Speed: 35 m.p.h.
2-Way Traffic
Directional Distribution: 50:50



PLAN

LEGEND

Indicates portions of Existing Foundations (Const. 1924) to be Removed to facilitate Proposed Abutment Pile Installation.

Indicates Boring Location

Indicates Boring Location (1980)

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications
5th Edition, with 2010 Interims

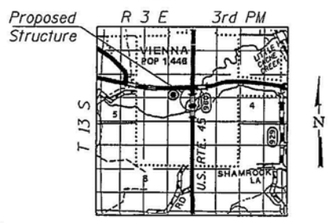
LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

f'c = 5,000 psi
fy = 60,000 psi (Reinforcement)



LOCATION SKETCH

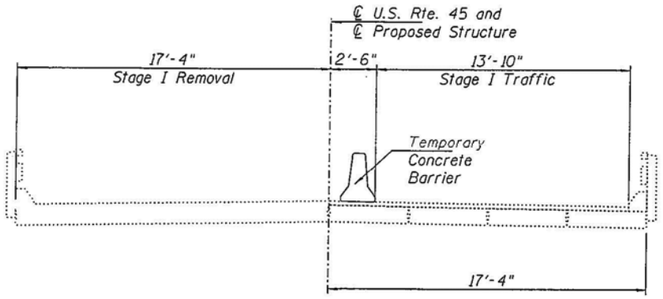
GENERAL PLAN
U.S. ROUTE 45 over LITTLE CACHE CREEK
F.A.S. ROUTE 960 - SECTION 38B-1
JOHNSON COUNTY
STATION 3+70.82
STRUCTURE NO. 044-0060

USER NAME = mendel0100	DESIGNED - MNM	REVISED -	
PROFESSIONAL DESIGN FIRM LICENSE #184-001084	CHECKED - TEH	REVISED -	
PLOT SCALE = -	DRAWN - Rod	REVISED -	
PLOT DATE = 04/17/2012	CHECKED - MNM	REVISED -	

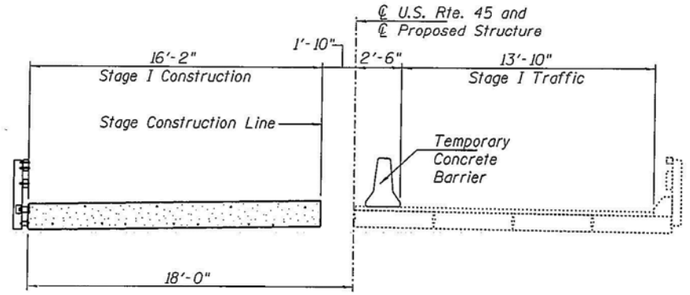
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 01 OF 02 SHEETS

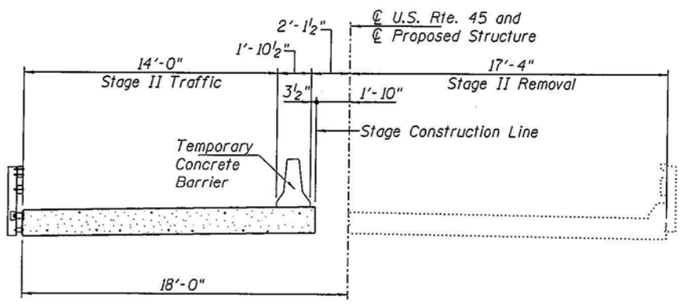
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
960	38B-1	Johnson		
		CONTRACT NO. 78029		
		ILLINOIS FED. AID PROJECT		



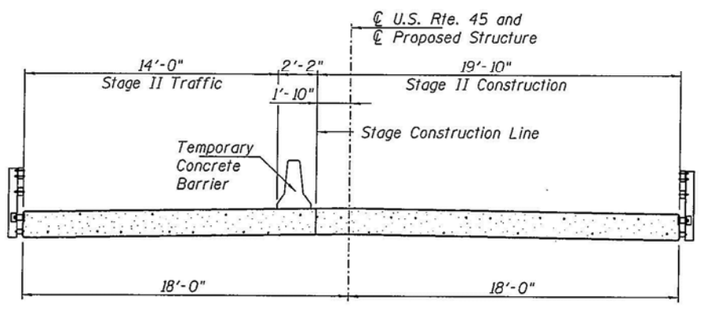
STAGE I REMOVAL
(Looking South)



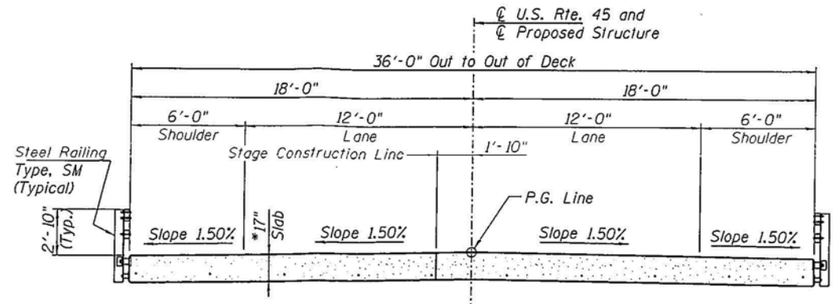
STAGE I CONSTRUCTION
(Looking South)



STAGE II REMOVAL
(Looking South)



STAGE II CONSTRUCTION
(Looking South)

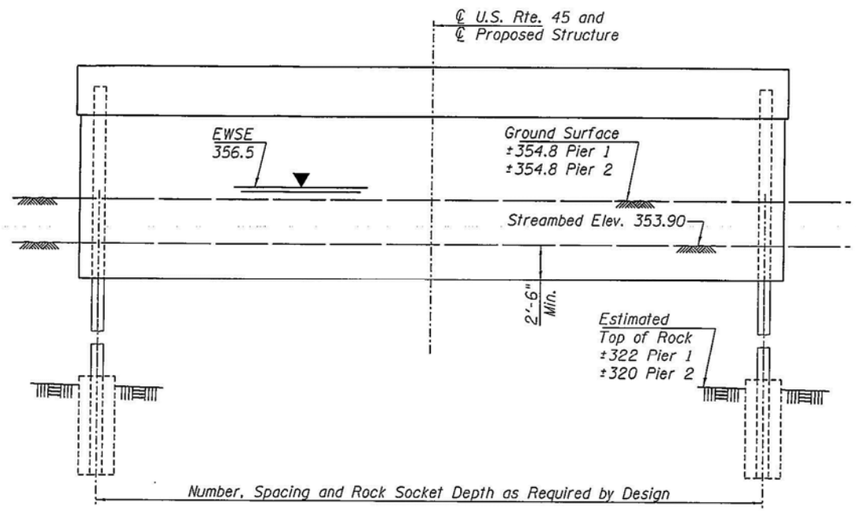


(Looking South)

* Subject to refinement during design phase.

DECK CROSS SECTION

Note:
The condition of the existing deck beams for the duration of Stage I Traffic should be verified during final design. If the condition changes, the proposed staging sequence shall be re-evaluated. If a beam replacement, or beam support contract is required, the designer shall provide the necessary plans.

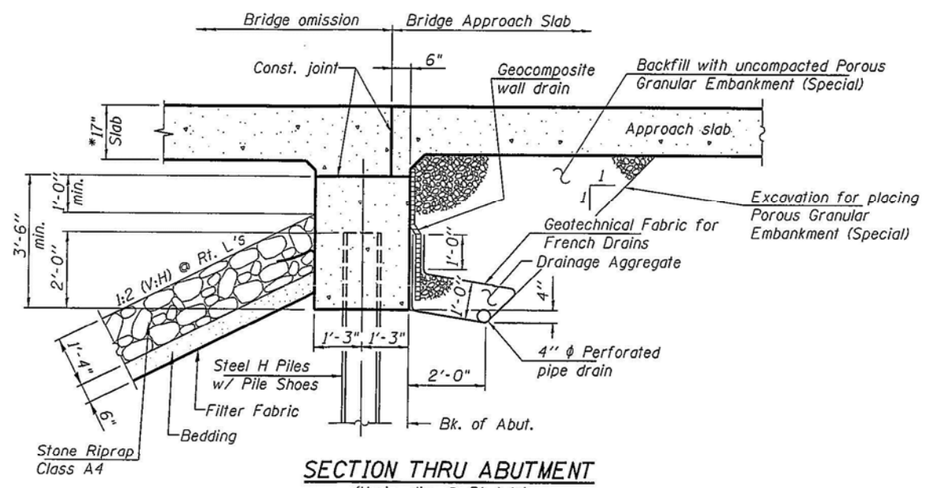


PIER SKETCH

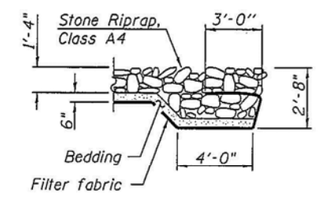
APPROVED

MAY 03 2012

AS A BASIS FOR
PREPARATION OF DETAILED PLANS



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



SECTION B-B

DETAILS
U.S. ROUTE 45 over LITTLE CACHE CREEK
F.A.S. ROUTE 960 - SECTION 38B-1
JOHNSON COUNTY
STATION 3+70.82
STRUCTURE NO. 044-0060

USER NAME = mendel010	DESIGNED -	REVISED -	
PROFESSIONAL DESIGN FIRM LICENSE #184-001084	CHECKED -	REVISED -	
PLOT SCALE = -	DRAWN -	REVISED -	
PLOT DATE = 04/17/2012	CHECKED -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 02 OF 02 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
960	38B-1	Johnson		
		CONTRACT NO. 78029		
		ILLINOIS FED. AID PROJECT		