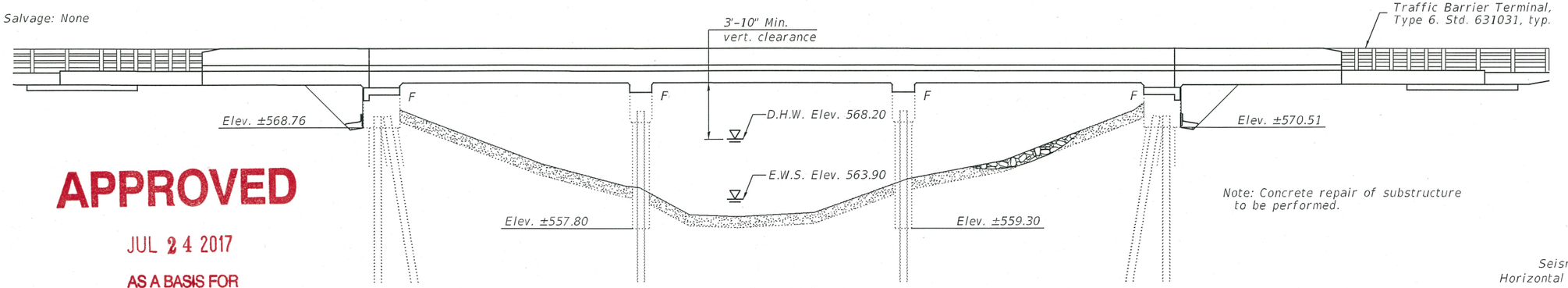
Bench Mark 100: RR spike in P.P. Sta. 177+10 68' Lt, Elev. 567.88
Bench Mark 101: Chisel square on N.E. wingwall of Structure No. 018-0056, Sta. 179+70 19' Lt, Elev. 572.79

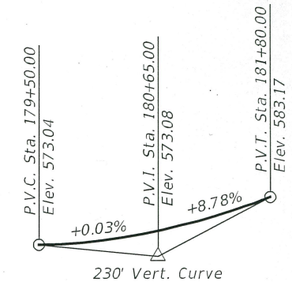
Existing Structure: S.N. 018-0056 Built in 1981 as F.A.P. Route 828, Section 12BR. The existing structure is a 3 span PPC deck beam superstructure with open pile bent abutments and solid wall encased pile bent piers supported on steel H-piles. Back-to-back abutment length is 73'-7¾" and out-to-out width of deck is 36'-0". The superstructure is to be removed and replaced. Traffic will be detoured during construction.

Salvage: None



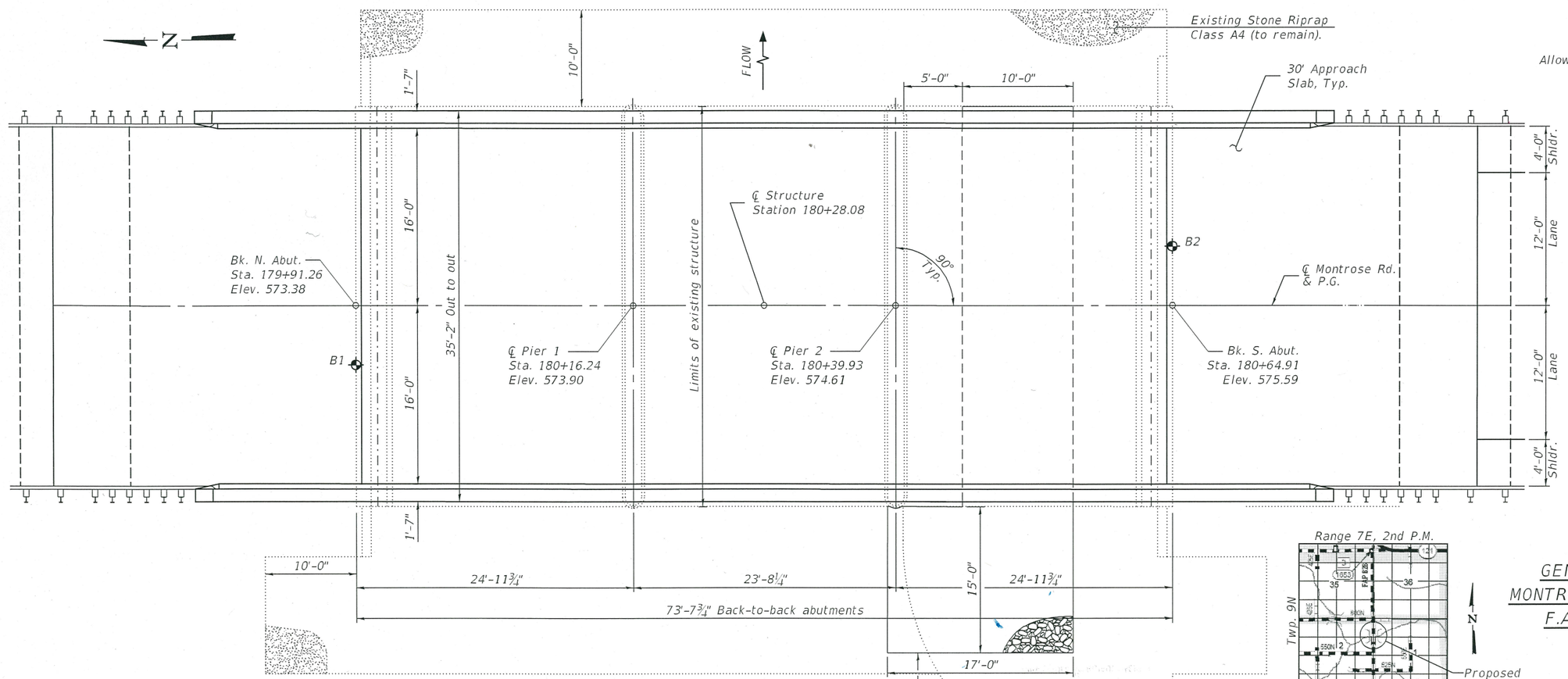
Note: Concrete repair of substructure to be performed.

ELEVATION



PROFILE GRADE
(along ℄ Montrose Rd.)

APPROVED
JUL 24 2017
AS A BASIS FOR
PREPARATION OF DETAILED PLANS



PLAN

LOCATION SKETCH

SEISMIC DATA

EXISTING SUBSTRUCTURE

Seismic Performance Category (SPC) = A
Horizontal Bedrock Acceleration Coefficient = 0.065g
Site Coefficient = 1.0
(Standard Bridge Importance)

LOADING HL-93

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

DESIGN STRESSES

NEW CONSTRUCTION

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure concrete)
fy = 60,000 psi (Reinforcement)

EXISTING CONSTRUCTION

f'c = 1,400 psi
fy = 24,000 psi (Reinforcement)

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims
1995 Seismic Retrofitting Manual for Highway Bridges

HIGHWAY CLASSIFICATION

F.A.P. Rte. 828 - Montrose Rd.
Functional Class: Minor Arterial
ADT: 1,950 (2019); 2,450 (2039)
ADTT: 349 (2019); 438 (2039)
DHV: 205
Design Speed: 60 m.p.h.
Posted Speed: 55 m.p.h.
Two-Way Traffic
Directional Distribution: 51:49

GENERAL PLAN & ELEVATION
MONTROSE RD. OVER BRUSH CREEK
F.A.P. 828 - SEC. (12 BR)BR
CUMBERLAND COUNTY
STA. 180+28.08
STRUCTURE NO. 018-0056

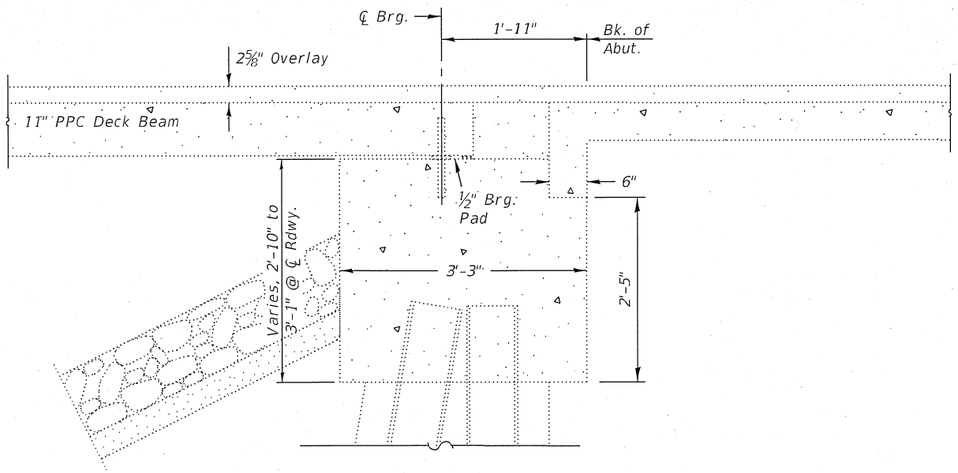
DESIGNED -	ALLY D. KELLEY
CHECKED -	CRYSTAL D. STONE
DRAWN -	IAN J. ANDREWS
CHECKED -	RICHARD J. CHAPUT

JULY 24, 2017

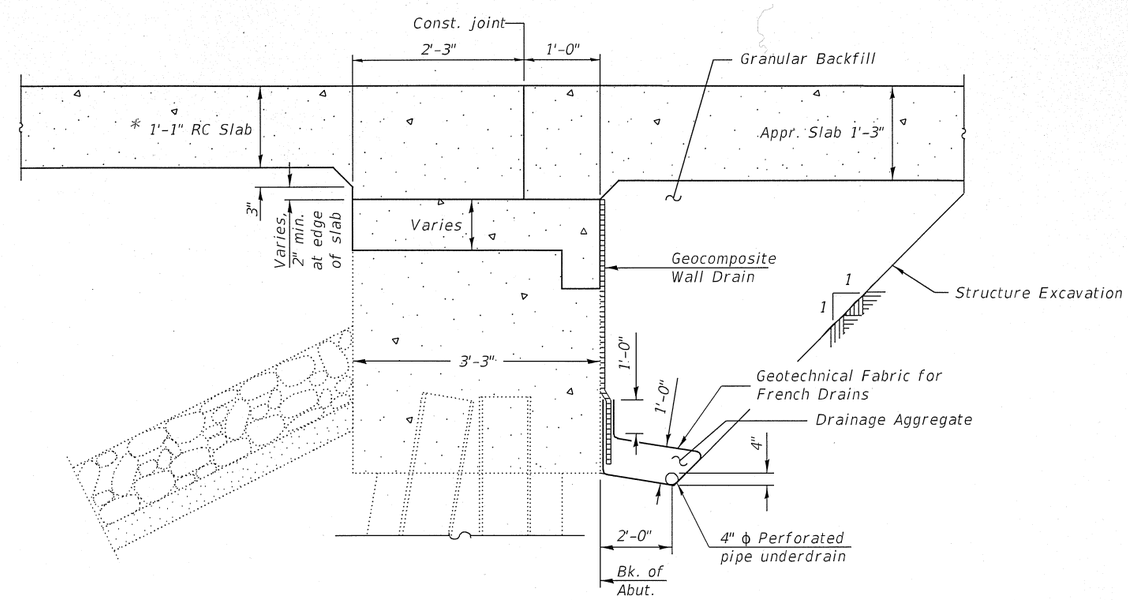
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 2 SHEETS

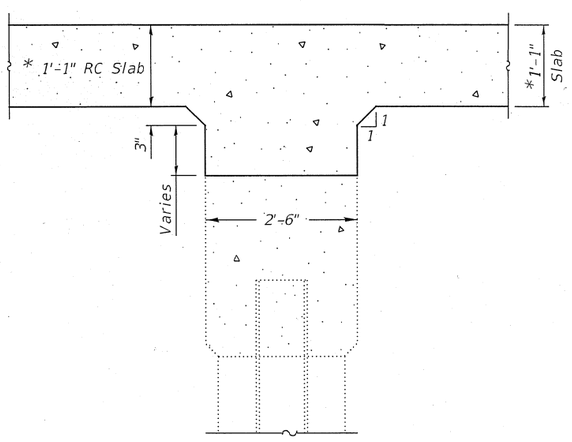
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
828	12BR	CUMBERLAND		
		CONTRACT NO. 74432		
		ILLINOIS FED. AID PROJECT		



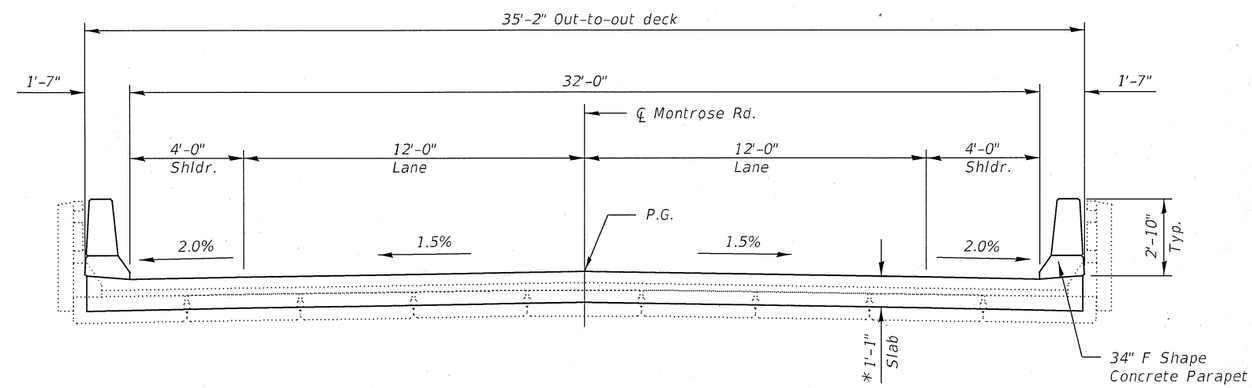
EXISTING SECTION THRU ABUTMENT



PROPOSED SECTION THRU ABUTMENT



SECTION THRU PIER



CROSS SECTION
(Looking South)

* Slab thickness may be refined in final design.

DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.) N. Abut.	Pier 1	Pier 2	S. Abut.	Item 113
Q100	568.76	552.90	556.60	570.51	5
Q200	568.76	552.20	556.50	570.51	
Design	568.76	552.90	556.60	570.51	
Check	568.76	552.20	556.50	570.51	

WATERWAY INFORMATION

Drainage Area = 4.3 sq. mi.
Existing Overtopping Elev. = 573.04 @ Sta. 179+00
Proposed Overtopping Elev. = 573.04 @ Sta. 179+00

Flood Event	Freq. Yr.	Discharge Ft³/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	1560	188	188	567.4	1.8	1.8	569.2	569.2
Design	50	2590	229	229	568.2	2.9	2.9	571.1	571.1
Base	100	3070	246	246	568.5	3.4	3.4	571.9	571.9
Scout Design Check	200	3560	263	263	568.8	4.1	4.1	572.9	572.9
Overtop Existing	220	3640	263	-	568.8	4.3	-	573.1	-
Overtop Proposed	220	3640	-	263	568.8	-	4.3	-	573.1

10 yr. velocity through existing bridge = 6.9 ft/s
10 yr. velocity through proposed bridge = 6.9 ft/s

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STATE OF ILLINOIS
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SHEET NO. 2 OF 2 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
828	12BR	CUMBERLAND		
		CONTRACT NO. 74432		
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