06-13-14 LETTING ITEM 216

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 9 WRINGE ROAD	10-00097-00-BR	CLINTON	13	1
FEDERAL AID PROJECT:	CONTRACT NO. 97556			

SURFACE TRANSPORTATION PROGRAM - BRIDGE
DETAIL PLANS FOR
PROPOSED BRIDGE
C.H. 9 (WRINGE ROAD) OVER TRIB. TO BEAVER CREEK
SECTION 10-00097-00-BR
CLINTON COUNTY
PROJECT: BROS-027(041)
JOB NO: C-98-360-11

INDEX OF SHEETS

HIGHWAY STANDARDS

280001-07	TEMP EROSION CONTROL SYS
515001-03	NAME PLATE FOR BRIDGES
701901-03	TRAFFIC CONTROL DEVICES
BLR 21-9	TYP APPLICATION OF TRAF CONTRL DEVICES FOR CONST ON RURAL LOCAL HIGHWAYS

PROJECT LOCATION: Exist. S.N. 014-3019

PROPOSED STRUCTURE NO. 014-5112 @ STATION 168+47.55 TRIPLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAMS, (21" DEPTH) ON SPILL THRU PILE BENT ABUTMENTS AND PILE BENT PIERS MEASURING 159'-0" BACK TO BACK OF ABUTMENTS WITH 28'-0" CLEAR ROADWAY WIDTH.

BEGIN CONSTRUCTION STA. 167+00
END CONSTRUCTION STA. 170+00

DESIGN CLASSIFICATION

LOCAL ROAD A.D.T. = 0-250
CURRENT A.D.T. = 250

FUNCTIONAL CLASSIFICATION: COLLECTOR
DESIGN SPEED = 40 MPH
DESIGN A.D.T. = 250

UTILITIES:

CALL J.U.L.I.E. BEFORE YOU DIG
800-892-0123

ELECTRIC:

CLINTON COUNTY ELEC. COOP.
475 N. MAIN ST.
BREESE, IL. 62230
PHONE: (618) 526-7282

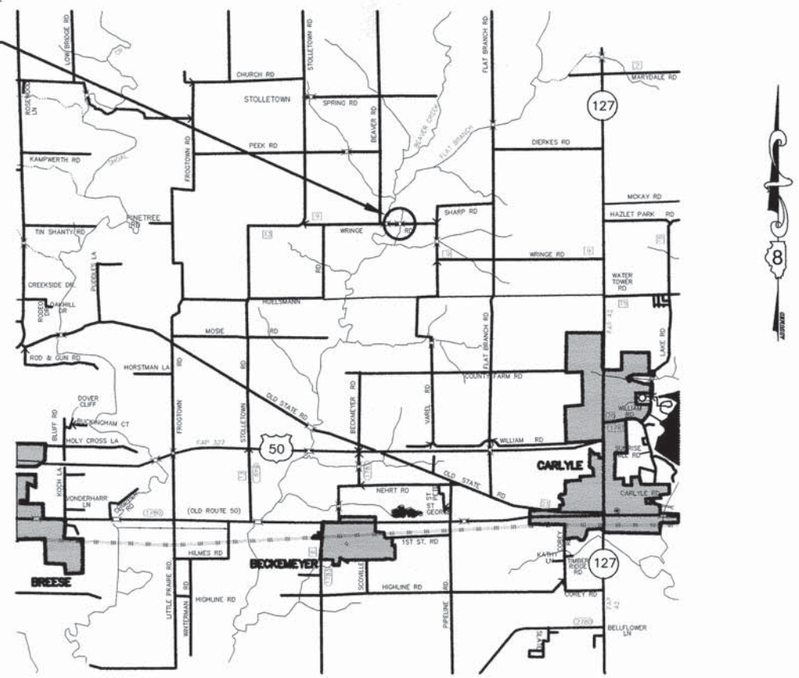
TELEPHONE:

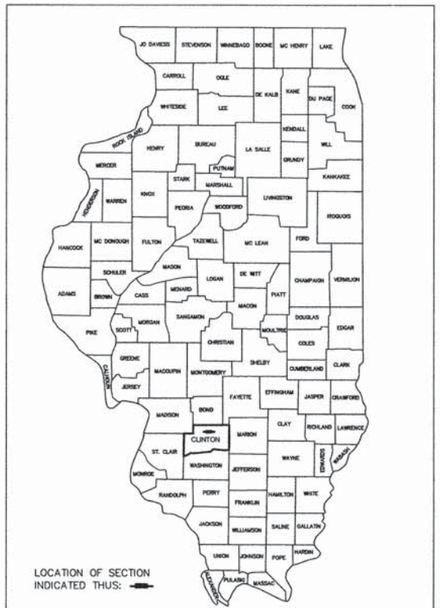
FRONTIER COMMUNICATIONS
801 W. JACKSON ST.
ALTAMONT, IL. 62411
PHONE: (618)483-6205

WATER:

CARLYLE NORTH WATER CO.
Carlyle, IL. 62231
Phone: (618)594-2508
Jack Karhoff (Manager)

WARNING
CALL J.U.L.I.E. TOLL FREE 1-800-892-0123
CALL BEFORE YOU DIG





LOCATION OF SECTION INDICATED THUS:

LOCATION MAP

NET LENGTH OF PROJECT = 300 FEET OR 0.057 MILES

GRAPHIC SCALE
0 1 2 4
1 INCH = 1 MILE

DANIEL L. BEHRENS 050860 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Daniel L Behrens DATE 4-7-14
COUNTY ENGINEER
ILLINOIS P.E. # 62-050860 EXPIRES 11/30/2015

ILLINOIS DEPARTMENT OF TRANSPORTATION

APPROVED April 7, 2014
Daniel L Behrens
CLINTON COUNTY, COUNTY ENGINEER

PASSED April 11, 2014
DISTRICT 8 ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW April 11, 2014
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

Printed by the Authority of the State of Illinois

NJR
4/7/14
13092733CO.DWG

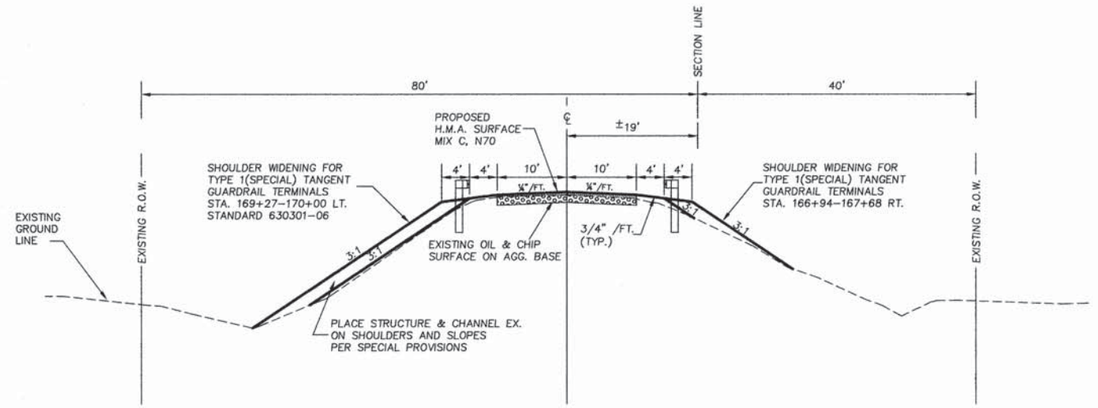
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 9 WRINGE ROAD	10-00097-00-BR	CLINTON	13	2
FEDERAL AID PROJECT		CONTRACT NO. 97556		

LOCATION OF WORK

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
20300100	CHANNEL EXCAVATION	CU. YD.	411
28000315	AGGREGATE DITCH CHECKS	TON	24
28100805	STONE DUMPED RIPRAP, CLASS A3	TON	173
40603315	HOT-MIX ASPHALT SURFACE, MIX C, N70	TON	70
50100100	REMOVAL OF EXISTING STRUCTURE	EACH	1
50300225	CONCRETE STRUCTURES	CU. YD.	53
50300280	CONCRETE ENCASEMENT	CU. YD.	37.8
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ. FT.	4,410
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	7,625
50900205*	STEEL RAILING, TYPE S1	FOOT	318
51201600	FURNISHING STEEL PILES, HP 12X53	FOOT	440
51201800	FURNISHING STEEL PILES, HP 14X73	FOOT	980
51202305	DRIVING PILES	FOOT	1,530
51203600	TEST PILE STEEL HP 12X53	EACH	2
51203800	TEST PILE STEEL HP 14X73	EACH	2
51500100	NAME PLATES	EACH	1
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ. YD.	495
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU.YD.	20
63100075*	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
63100167*	TRAFFIC BARRIER TERMINAL, TYPE 1, SPECIAL (TANGENT)	EACH	2
67100100	MOBILIZATION	L. SUM	1
78201000*	TERMINAL MARKER DIRECT APPLIED	EACH	2
XX001717	GROUTING OF STONE DUMPED RIPRAP	CU. YD.	50

* SPECIALTY ITEMS



EXISTING & PROPOSED ROADWAY TYPICAL SECTION

STA. 167+00 - STA. 170+00

LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA. 167+00 TO STA. 170+00	0	0	425	-425
ALLOWANCE FOR CHANNEL EXCAVATION	411	308		+308
ALLOWANCE FOR STRUCTURE EXCAVATION	510	383		+383
TOTAL	921	691	425	+266

CONTRACTOR SHALL PLACE SUITABLE CHANNEL EXCAVATION MATERIAL ON SLOPES AS DIRECTED BY ENGINEER. ALL OTHER UNSUITABLE CHANNEL EXCAVATION MATERIAL SHALL HAULED OFF AND DISPOSED OF AS PER ARTICLE 202.03. THIS WORK SHALL BE INCLUDED IN THE COST PER CU. YD. FOR CHANNEL EXCAVATION.

EXTRA BARS FOR TEST SAMPLES

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	SHAPE
h_2(E)	1	#4	28'-6"	———
v (E)	1	#5	8'-9"	———
u (E)	1	#6	11'-1"	⊏⊐
p (E)	1	#7	28'-2"	———

105 LBS OF TEST BARS

GENERAL NOTES

1. ALL ELEVATION REFER TO U.S.G.S. MEAN SEA LEVEL
2. UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION AND THEIR TRUE LOCATION IS NOT GUARANTEED TO BE AS SHOWN ON THE PLANS. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND CARRY ON HIS OPERATIONS ACCORDINGLY.
3. ALL FENCE REMOVAL, TEMPORARY SEEDING AND FINAL SEEDING OF DISTURBED AREAS WILL BE DONE BY OTHERS.

COMMITMENTS

NONE

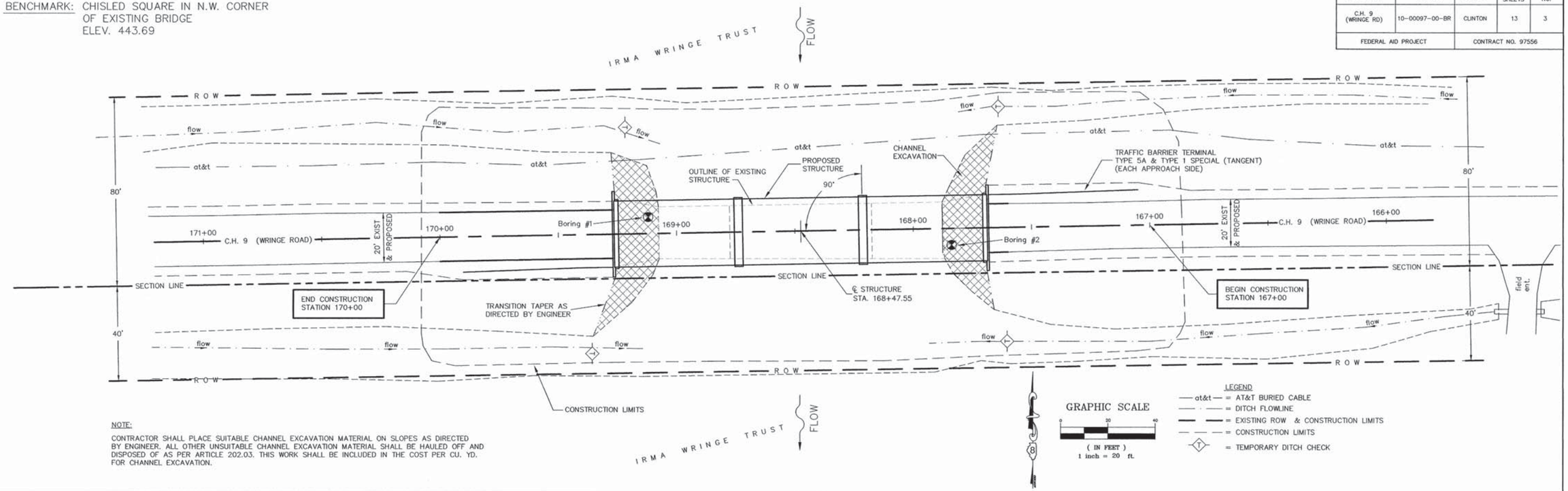
GENERAL NOTES
SUMMARY OF QUANTITIES
TYPICAL ROADWAY CROSS SECTIONS

C.H. 9 (WRINGE ROAD)
OVER TRIB. TO BEAVER CREEK
SECTION 10-00097-00-BR
CLINTON COUNTY

NJR
4/7/14
1309275Q.dwg

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 9 (WRINGE RD)	10-00097-00-BR	CLINTON	13	3
FEDERAL AID PROJECT		CONTRACT NO. 97556		

BENCHMARK: CHISLED SQUARE IN N.W. CORNER OF EXISTING BRIDGE
ELEV. 443.69



NOTE:

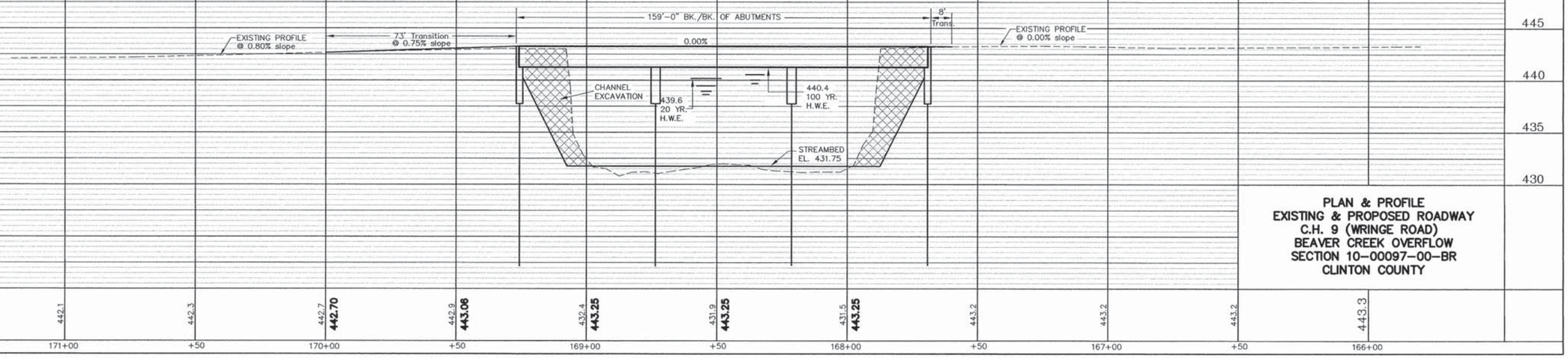
CONTRACTOR SHALL PLACE SUITABLE CHANNEL EXCAVATION MATERIAL ON SLOPES AS DIRECTED BY ENGINEER. ALL OTHER UNSUITABLE CHANNEL EXCAVATION MATERIAL SHALL BE HAULED OFF AND DISPOSED OF AS PER ARTICLE 202.03. THIS WORK SHALL BE INCLUDED IN THE COST PER CU. YD. FOR CHANNEL EXCAVATION.

GRAPHIC SCALE
0 20 40
(IN FEET)
1 inch = 20 ft.

LEGEND
- at&t = AT&T BURIED CABLE
- = DITCH FLOWLINE
- = EXISTING ROW & CONSTRUCTION LIMITS
- = CONSTRUCTION LIMITS
- (T) = TEMPORARY DITCH CHECK

PLAN: SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, BY, DATE, NOTE BOOK, NO., STRUCTURE NOTATIONS CHKD



PLAN & PROFILE
EXISTING & PROPOSED ROADWAY
C.H. 9 (WRINGE ROAD)
BEAVER CREEK OVERFLOW
SECTION 10-00097-00-BR
CLINTON COUNTY

NJR
3/10/14
130927PP.DWG

BENCHMARK

Chiseled square in N.W. Corner of existing bridge
EL. 443.69

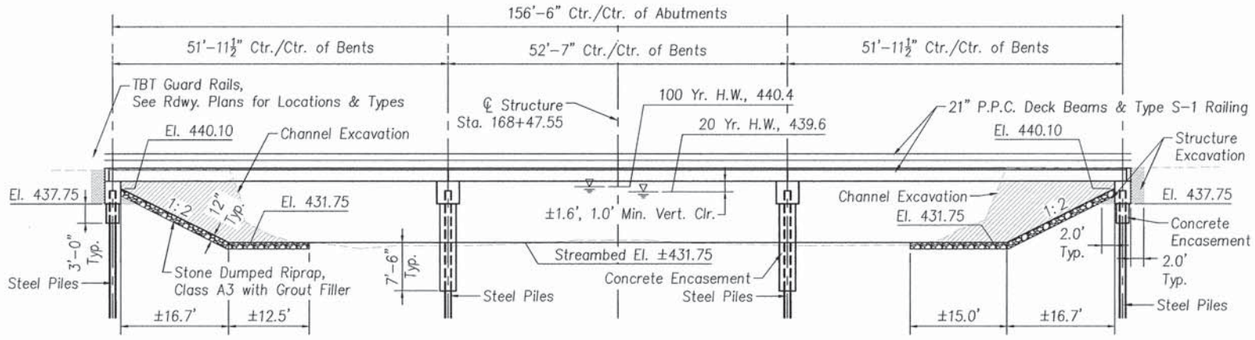
EXISTING STRUCTURE

The existing structure 014-3019 is a four span bridge with precast concrete deck beams on closed abutments and measures 121'-4" back to back of abutments and provides 20' clear roadway width.

The Contractor shall remove and dispose of the existing structure in accordance with Section 501 of the Standard Specifications.

SALVAGE

N/A

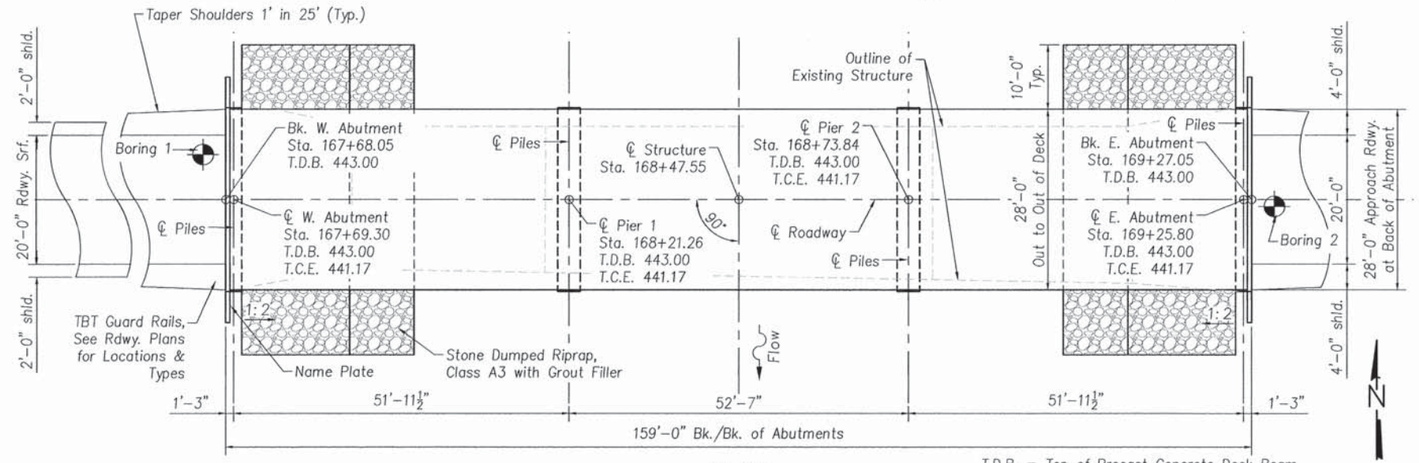


ELEVATION

Note:
Channel excavation shall be transitioned from the edge of the proposed deck to match the existing channel.

PROFILE GRADE

(along roadway ℄, top PPC deck beam elevations)



PLAN

T.D.B. = Top of Precast Concrete Deck Beam
T.C.E. = Top of Cap Elevation

WATERWAY INFORMATION

determined by Clinton County

Drainage Area = 110 Mi²			Low Grade El = 441.7			@ Sta 176+50			
Flood	Freq.	Q.	Opening Sq. Ft.*		Nat.	Head-Ft.		Headwater El.	
	Yr.	C.F.S.	Exist.	Prop.	H.W.E.	Exist	Prop.	Exist.	Prop.
Design	20	8,800	1,976	2,172	439.6	1.0	0.9	440.6	440.6
Base	100	12,700	2,195	2,423	440.4	1.3	1.2	441.7	441.6
Overtopping	±100	12,700	2,195	2,423	440.4	1.3	1.2	441.7	441.6
Max. Calc.	500	N/A							

* Sum of Areas of Beaver Creek Bridge and Overflow Bridge

DESIGN SCOUR ELEVATION TABLE

determined by Clinton County

Design Scour Elev.	W. Abut.	Pier 1	Pier 2	E. Abut.
(Feet)	437.1	424.3	424.3	437.1

"I certify to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with the current 'AASHTO LRFD Bridge Design Specifications' including seismic design."

Date: 4/7/2014

Patrick R. Netemeyer
Licensed Structural Engineer in Illinois No. 081-004357
Expires: November 30, 2014

PATRICK R. NETEMEYER 4357 REGISTERED STRUCTURAL ENGINEER OF ILLINOIS

INDEX OF STRUCTURE SHEETS

DESIGN SPECIFICATIONS

AASHTO LRFD Bridge Design Specifications, 6th Edition with 2013 interims

LOADING HL-93

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

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0s (S_{D1}) = 0.254 g
Design Spectral Acceleration at 0.2s (S_{DS}) = 0.587 g

DESIGN STRESSES

FIELD UNITS
f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 50,000 psi (M270 Grade 50)
PRECAST PRESTRESSED UNITS
f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f'_{si} = 270,000 psi (1/2" dia. low lax. strands)
f'_{sii} = 201,960 psi (1/2" dia. low lax. strands)

TOTAL BILL OF MATERIALS

ITEM	UNIT	SUPER.	SUB.	TOTAL
Channel Excavation	Cu. Yd.	——	——	411
Stone Dumped Riprap, Class A3	Ton	——	——	173
Removal of Existing Stuctures	Each	——	——	1
Concrete Structures	Cu. Yd.	——	53	53
Concrete Encasement	Cu. Yd.	——	37.8	37.8
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	4,410	——	4,410
Reinforcement Bars, Epoxy Coated	Pound	——	7,520	7,520
Steel Railing, Type S-1	Foot	318	——	318
Furnishing Steel Piles HP14x73	Foot	——	980	980
Furnishing Steel Piles HP12x53	Foot	——	440	440
Driving Piles	Foot	——	1530	1530
Test Pile Steel HP14x73	Each	——	2	2
Test Pile Steel HP12x53	Each	——	2	2
Waterproofing Membrane System	Sq. Yd.	495	——	495
Hot-Mix Asphalt Surf. Course, Mix "C", N50 or N70 per County	Ton	52	——	52
Name Plates	Each	——	——	1

LOCATION SKETCH

GENERAL PLAN AND ELEVATION
C.H. 9 (WRINGE RD) OVER
BEAVER CREEK OVERFLOW
SEC. 10-00097-00-BR
CLINTON COUNTY
STATION 168+47.55
STRUCTURE NO. 014-5112

STRUCTURAL ENGINEER & PROF. DESIGN FIRM (LSPE/DE) 184-001027
NETEMEYER ENGINEERING ASSOCIATES, INC.
3300 Highline Road ph: 618-228-7816
Aviston, IL 62216-1018 fax: 618-228-7900

		REVISION	DATE	REMARKS
DESIGNED	—			
DRAWN	—	1	04/07/2014	REVISE FOR FINAL SUBMITTAL
CHECKED	— PRN			
DATE	— 01/16/2014			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

GENERAL PLAN & ELEVATION

SCALE: | SHEET 1 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	4
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

NETEMEYER 20130326

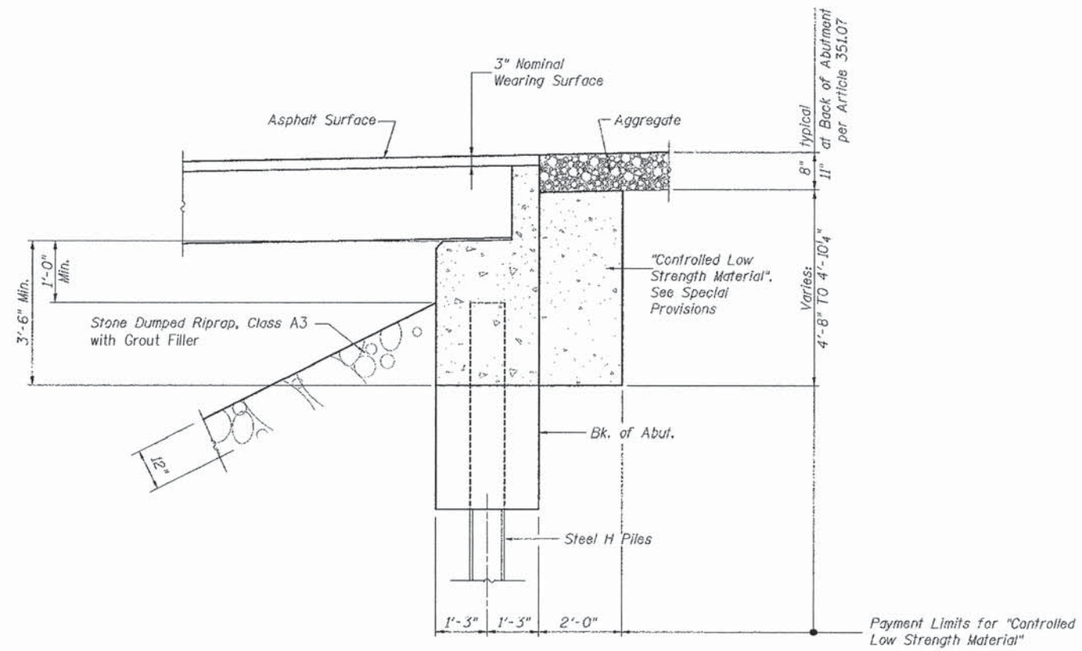
GENERAL NOTES

1. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
4. The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
5. The Contractor shall drive test piles to 110% of the nominal required bearing specified in the production location at the substructures specified or approved by the Engineer before ordering remaining piles.
6. Hot-mix asphalt surface course overlay for the bridge deck shall be constructed in accordance with applicable portions of Section 582 of the Standard Specifications.
7. Waterproofing membrane system for the bridge shall be in accordance with material and construction requirements of the applicable portions of Section 581 of the Standard Specifications.
8. Deck beams shall be cleaned to the satisfaction of the engineer before placing the waterproofing member system.

Beaver Creek Overflow
Built 201 By
Clinton County
Section 10-00097-00-BR
Proj. No. BROS-0027(041)
Station 168+47.55
S.N. 014-5112 Loading HL-93

NAME PLATE

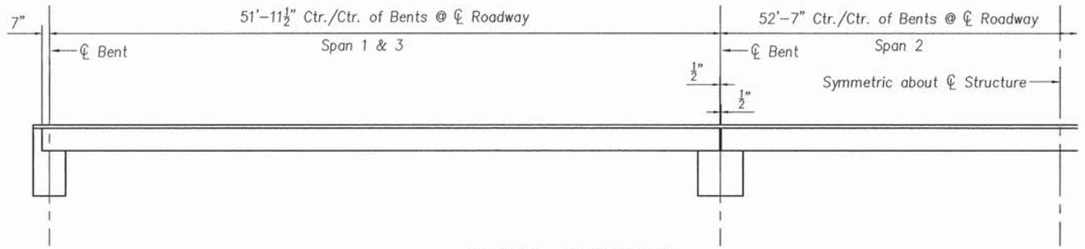
See Std. 515001
Locate name plate as shown in plan view.



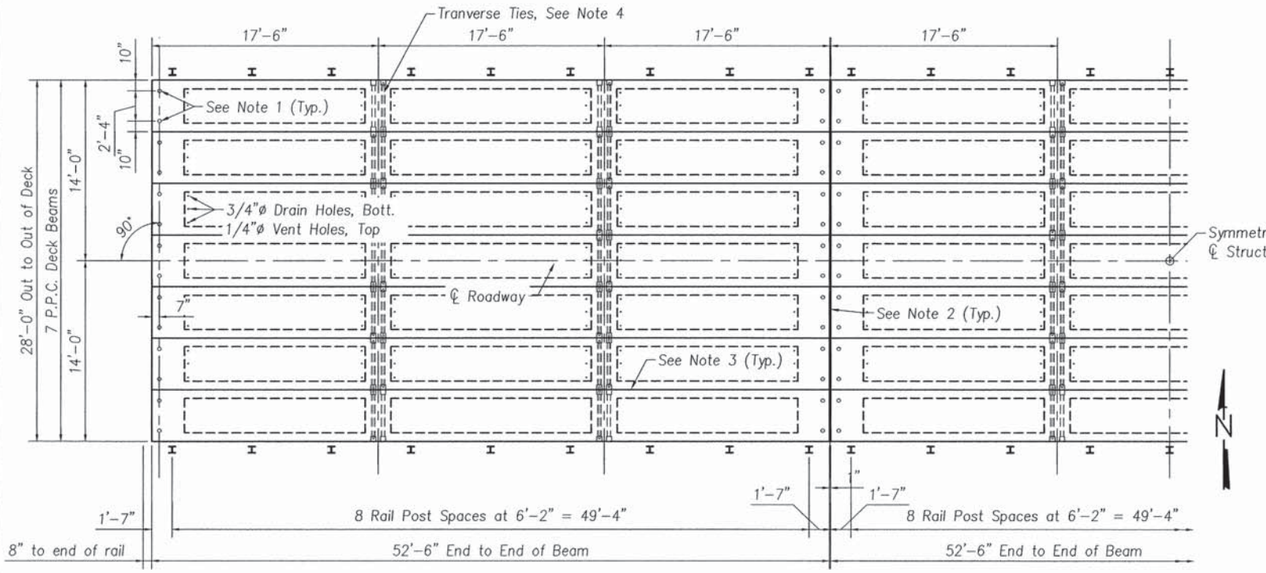
SECTION THRU ABUTMENT

STRUCTURAL ENGINEER — IL. PROF. DESIGN FIRM (LSP/ES/E) 184-001027	DESIGNED –	REVISION	DATE	REMARKS	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	C.H. 9 (WRINGE ROAD) OVER BEAVER CREEK OVERFLOW CLINTON COUNTY, ILLINOIS	GENERAL DATA	T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
NETEMEYER ENGINEERING ASSOCIATES, INC.	DRAWN –	1	04/07/2014	REVISE FOR FINAL SUBMITTAL					10-00097-00-BR	CLINTON	13	5
3300 Highline Road ph: 618-228-7816	CHECKED – PRN						SCALE: SHEET 2 OF 10 SHEETS STA. TO STA.		S.N. 014-5112		CONTRACT NO. 97556	
Aviston, IL 62216-1018 fax: 618-228-7900	DATE – 01/16/2014								ILLINOIS			

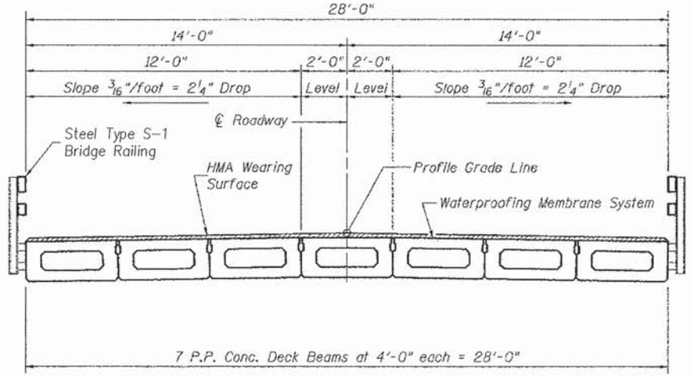
NETEMEYER 20130326



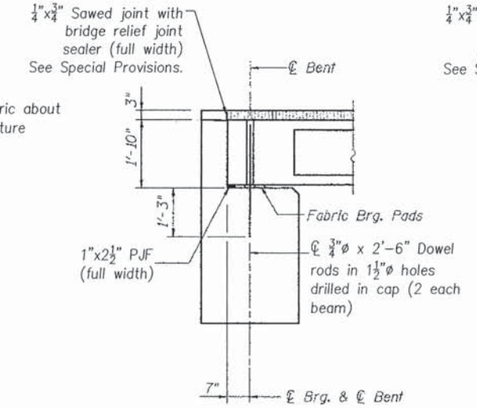
PARTIAL ELEVATION



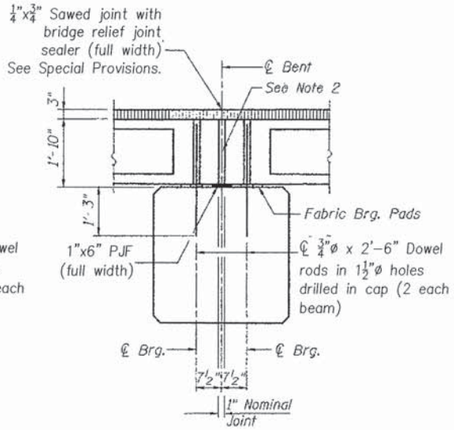
PARTIAL PLAN



CROSS SECTION



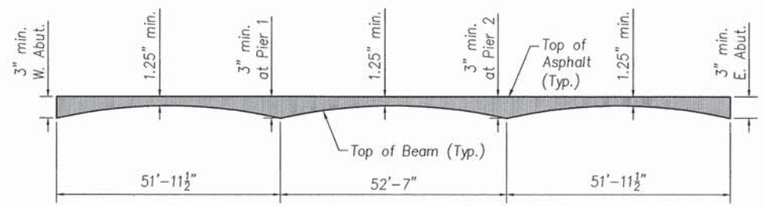
SECTION AT ABUTMENTS
(Along ℄ Beams)



SECTION AT PIERS
(Along ℄ Beams)

NOTES

1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a minimum of 24 hours prior to grouting the shear keys.
2. Nominal 1" joint at centerline of pier shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.
3. Longitudinal keys shall be grouted.
4. The 1" dia. roads in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bars shall be filled with grout after transverse tie assembly is in place.



PROFILE OF OVERLAY

BILL OF MATERIALS

Item	Unit	Quantity
Waterproofing Membrane System	Sq. Yd.	495
Hot-Mix Asphalt Surf. Course, Mix "C", N50 or N70 per County	Ton	52

STRUCTURAL ENGINEER IL. PROF. DESIGN FIRM (LSP/PE/SE) 184-001027
NETEMEYER ENGINEERING ASSOCIATES, INC.
3300 Highline Road ph: 618-228-7816
Aviston, IL 62216-1018 fax: 618-228-7900

DESIGNED	–		
DRAWN	–		
CHECKED	– PRN		
DATE	– 01/16/2014		

REVISION	DATE	REMARKS
1	04/07/2014	REVISE FOR FINAL SUBMITTAL

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

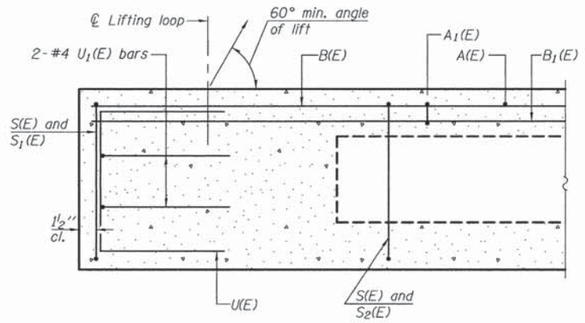
C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

SUPERSTRUCTURE

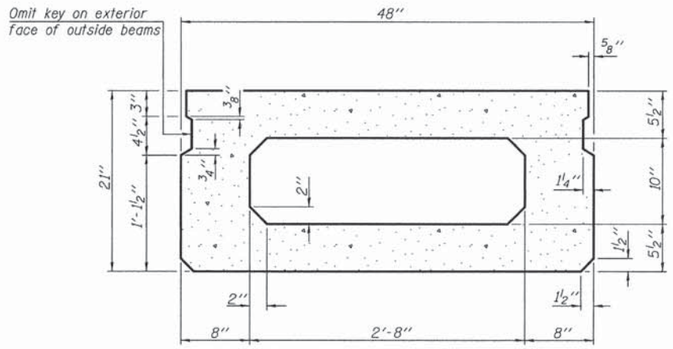
SCALE: | SHEET 3 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	6
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

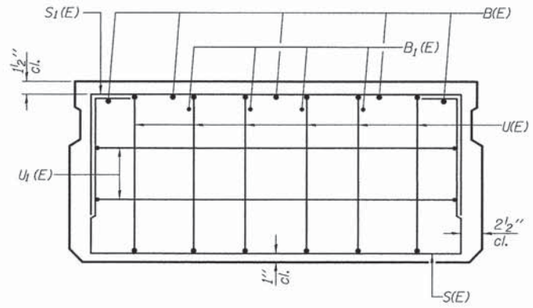
NETEMEYER 20130326



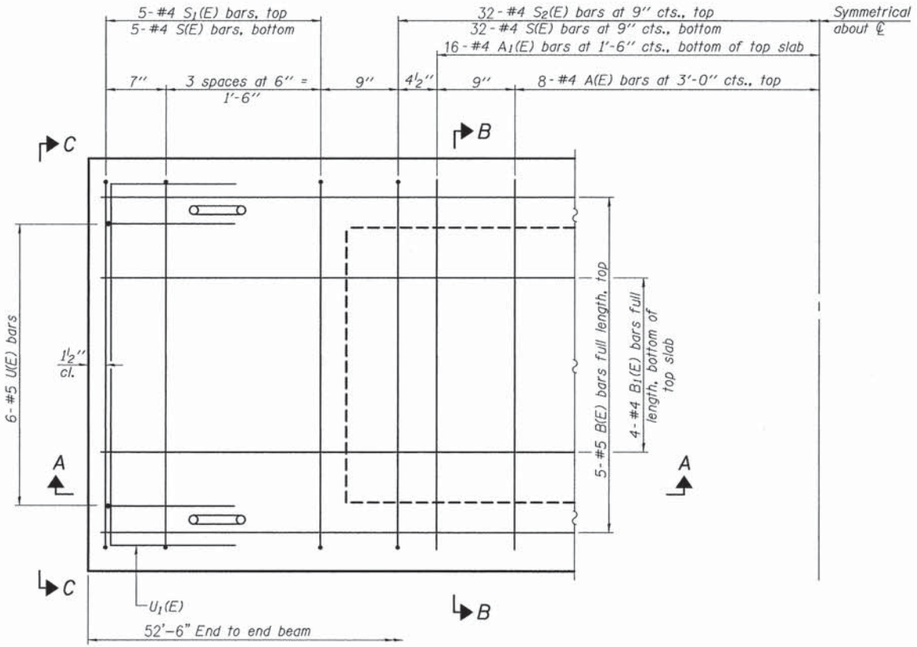
SECTION A-A



SECTION B-B
(Showing dimensions)

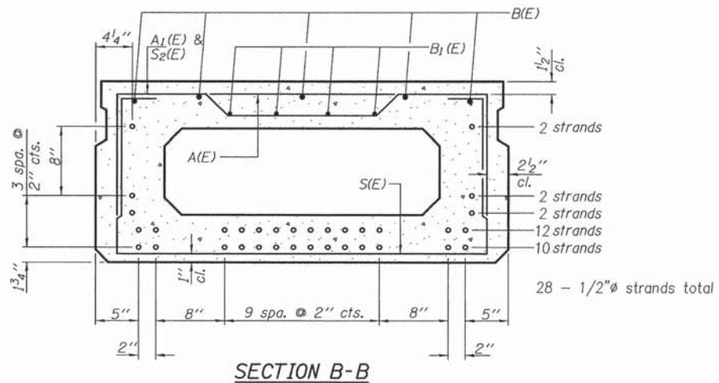


VIEW C-C



PLAN VIEW

Note: Spacing of S(E) and $S_2(E)$ bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



SECTION B-B
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

BAR LIST
ONE BEAM ONLY
(For Information Only)

Bar	No.	Size	Length	Shape
A(E)	16	#4	3'-7"	—
$A_1(E)$	32	#4	3'-10"	~
B(E)	5	#5	52'-3"	—
$B_1(E)$	4	#4	52'-3"	—
S(E)	74	#4	7'-5"	⊐
$S_1(E)$	10	#4	5'-11"	⊐
$S_2(E)$	64	#4	6'-2"	⊐
U(E)	12	#5	4'-0"	⊏
$U_1(E)$	4	#4	6'-0"	⊐

Note: See sheet 5 of 10 for additional details and Bill of Material.

MINIMUM BAR LAP
#4 bar = 2'-0"
#5 bar = 2'-6"

PD-2148-0 7-1-10

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REVISION	DATE	REMARKS
1	04/07/2014	REVISE FOR FINAL SUBMITTAL

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

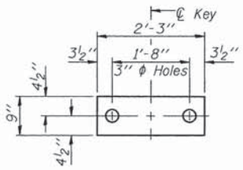
C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

21" x 48" PPC DECK BEAM

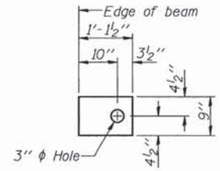
SCALE: | SHEET 4 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	7
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

NETEMEYER 20130326



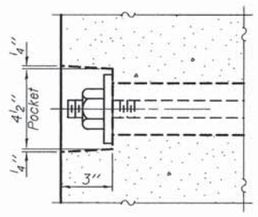
FABRIC BEARING PAD
(Interior)



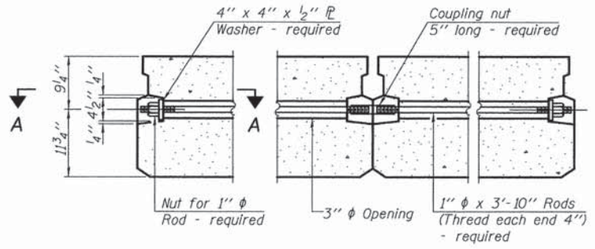
FABRIC BEARING PAD
(Exterior)

FIXED

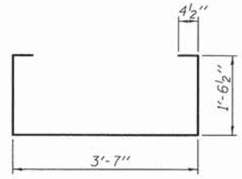
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



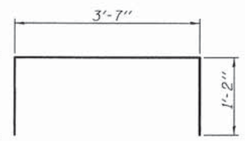
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



BAR S(E)



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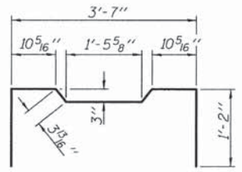

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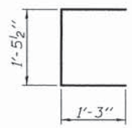
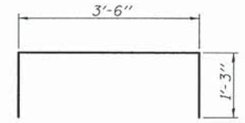
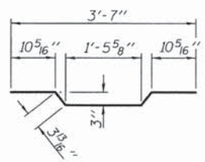


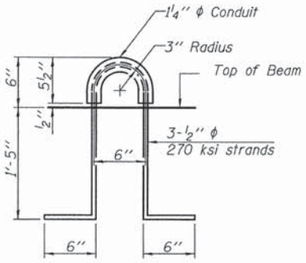
BAR U(E)



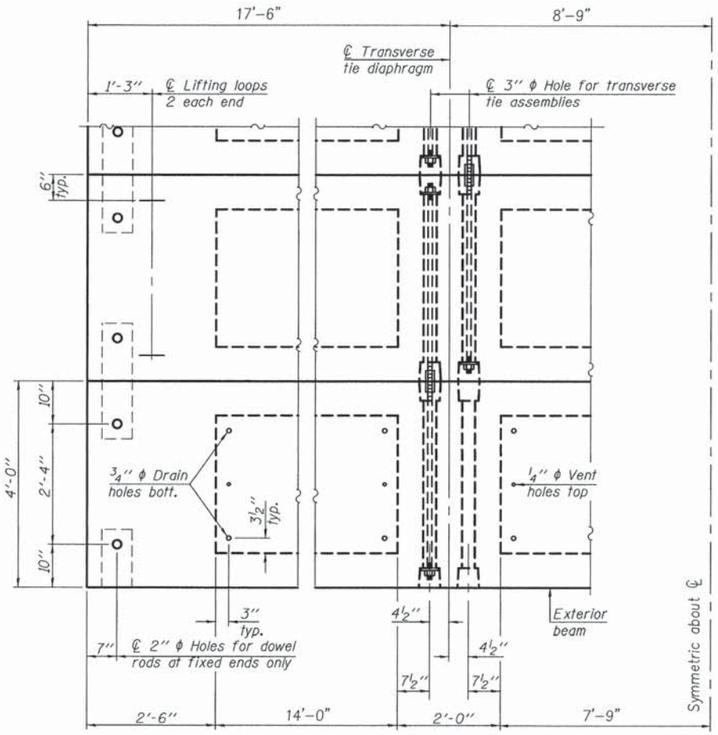
BAR U1(E)



BAR A1(E)



LIFTING LOOP DETAIL



PLAN VIEW

Note: Connect beams in pairs with the transverse tie configuration shown.

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	4,410

PD-2148-0D 7-1-10

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C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

21" x 48" DECK BEAM DETAILS

SCALE: | SHEET 5 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	8
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

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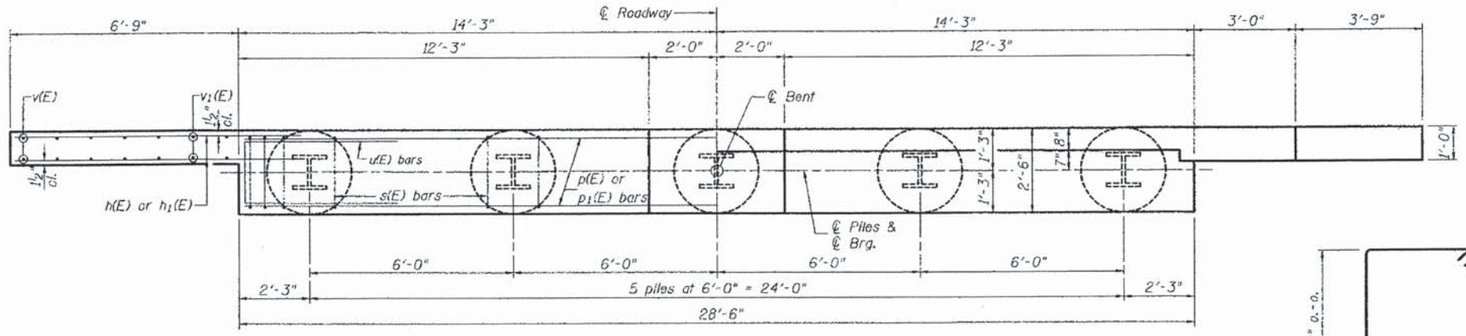
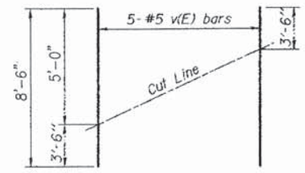
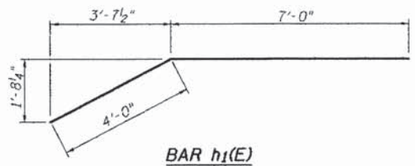


PLAN

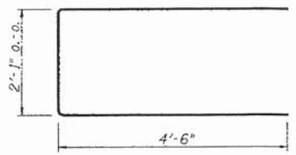


FIELD CUTTING DIAGRAM

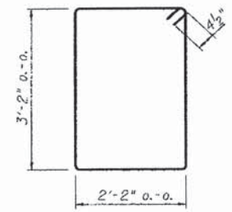
Order v(E) bars full length. Cut as shown and use remainder of bars in opposite face.



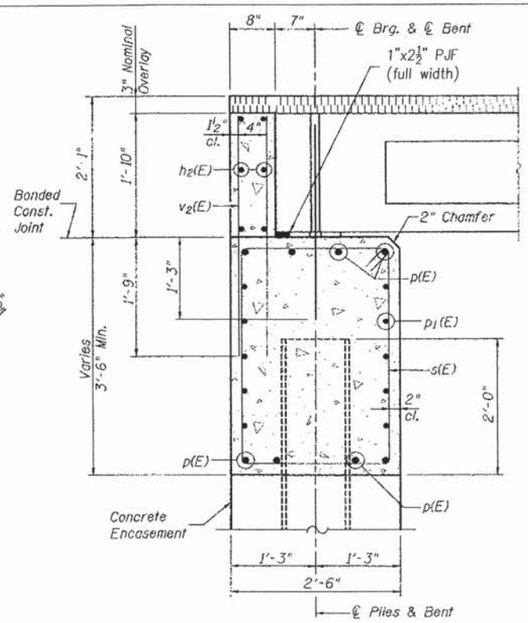
BAR h_1(E)



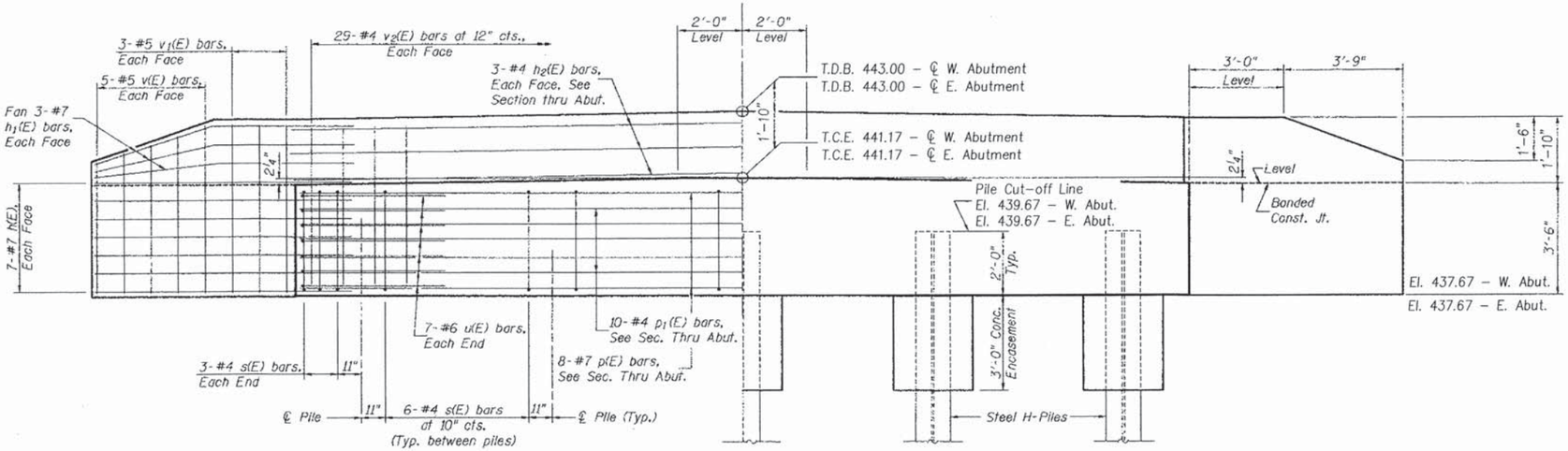
BAR u(E)



BAR s(E)



SECTION THRU ABUTMENT



ELEVATION

NOTES

1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beams.
2. Space reinforcement in cap to miss dowel rods.

PILE DATA

	WEST ABUT.	EAST ABUT.
Type:	Steel HP12x53	Steel HP12x53
Nominal Required Bearing:	221 kips	221 kips
Factored Resistance Available:	122 kips	122 kips
Estimated Length	55 feet	55 feet
No. of Production Piles	4	4
No. of Test Piles	1	1

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h(E)	28	#7	10'-7"	
h_1(E)	12	#7	11'-0"	
h_2(E)	6	#4	28'-6"	
p(E)	8	#7	28'-2"	
p_1(E)	10	#4	28'-2"	
s(E)	30	#4	11'-5"	
u(E)	14	#6	11'-1"	
v(E)	10	#5	8'-6"	
v_1(E)	12	#5	5'-1"	
v_2(E)	58	#4	3'-6"	

Concrete Structures	Cu. Yd.	13.3
Reinforcement Bars, Epoxy Coated	Pound	2,390
Concrete Encasement	Cu. Yd.	1.8
Furnishing Steel Piles HP 12x53 - West Abutment	Foot	220
Furnishing Steel Piles HP 12x53 - East Abutment	Foot	220
Driving Steel Piles - West Abut.	Foot	220
Driving Steel Piles - East Abut.	Foot	220
Test Pile Steel HP 12x53 - 1 each abutment	Each	2

For Details of Piles and Concrete Encasement, See Sheet 9 of 10.

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DEPARTMENT OF TRANSPORTATION

C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

ABUTMENT DETAILS

SCALE: | SHEET 6 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	9
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

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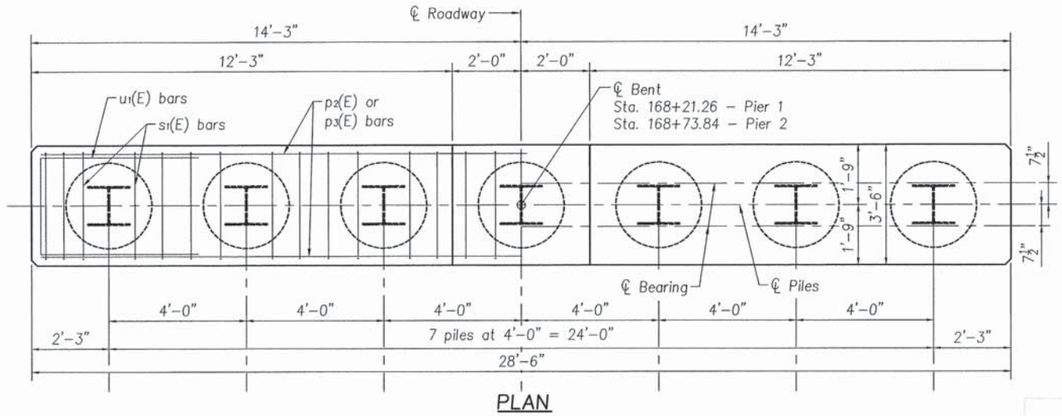
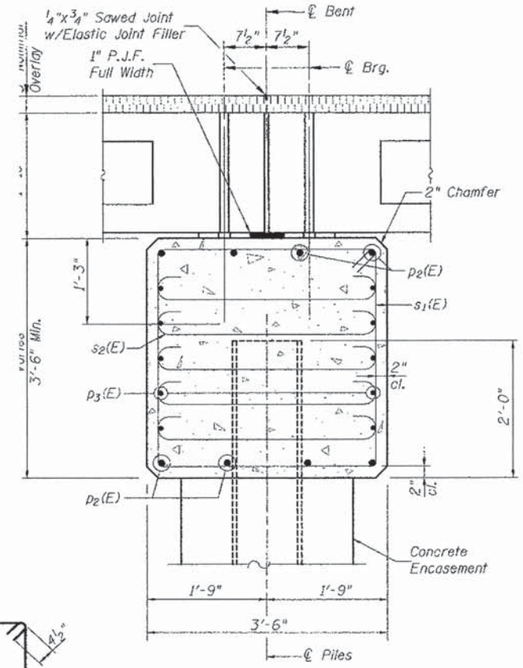


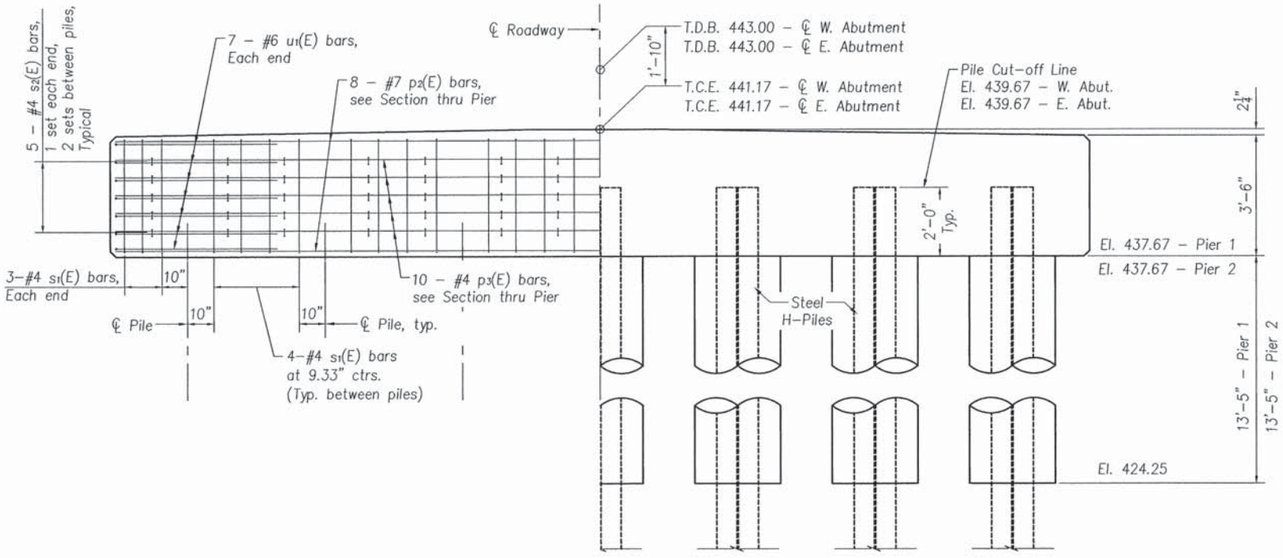
PLAN

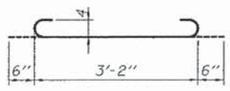
PILE DATA

	PIER 1	PIER 2
Type:	Steel HP14x73	Steel HP14x73
Nominal Required Bearing:	284 kips	284 kips
Factored Resistance Available:	149 kips	149 kips
Estimated Length	70 feet	70 feet
No. of Production Piles	7	7
No. of Test Piles	1	1

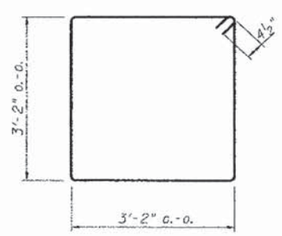


SECTION THRU PIER
(at Right Angles)

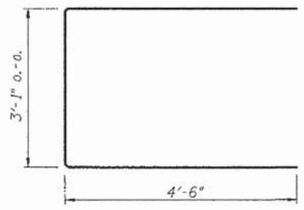




BAR $s_2(E)$



BAR $s_1(E)$



BAR $u_1(E)$

Notes:

For details of piles and concrete encasement see sheet 9 of 10.

Space reinforcement in pile cap to miss dowel rods.

If a portion of the concrete encasement is under water, reinforcement may be placed under water into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
$p_2(E)$	8	#7	28'-2"	——
$p_3(E)$	10	#4	28'-2"	——
$s_1(E)$	30	#4	13'-5"	
$s_2(E)$	70	#4	4'-2"	
$u_1(E)$	14	#6	12'-1"	
Concrete Structures			Cu. Yd.	13.2
Concrete Encasement - Pier 1			Cu. Yd.	17.1
Concrete Encasement - Pier 2			Cu. Yd.	17.1
Reinforcement Bars, Epoxy Coated			Pound	1,370
Furnishing Steel Piles HP 14x73 - Pier 1			Foot	490'
Furnishing Steel Piles HP 14x73 - Pier 2			Foot	490
Driving Steel Piles - Pier 1			Foot	490'
Driving Steel Piles - Pier 2			Foot	490
Test Pile Steel HP 14x73 - One each pier			Each	2

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CLINTON COUNTY, ILLINOIS

PIER DETAILS

SCALE: | SHEET 7 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	10
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

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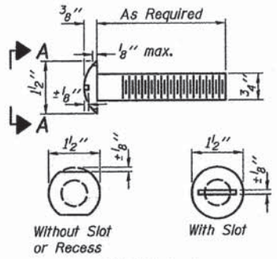
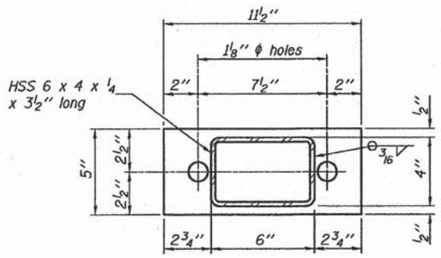
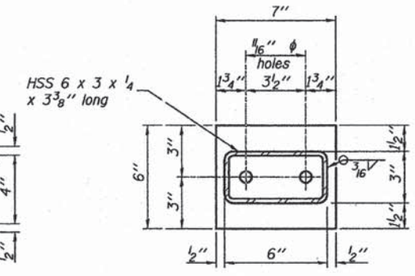


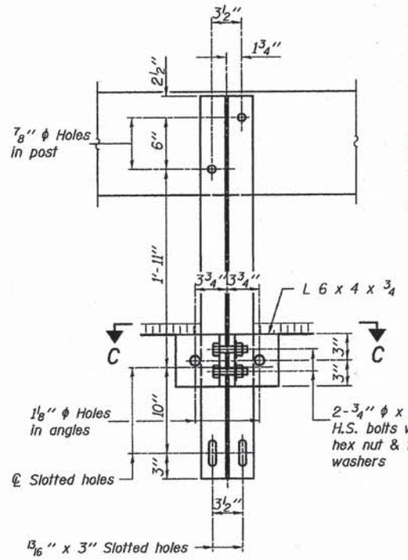
VIEW A-A
ROUND HEAD BOLT



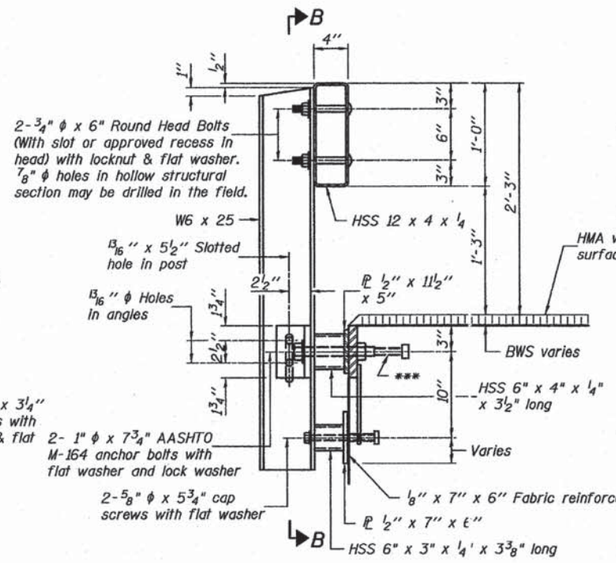
℄ 1/2" x 11 1/2" x 5"



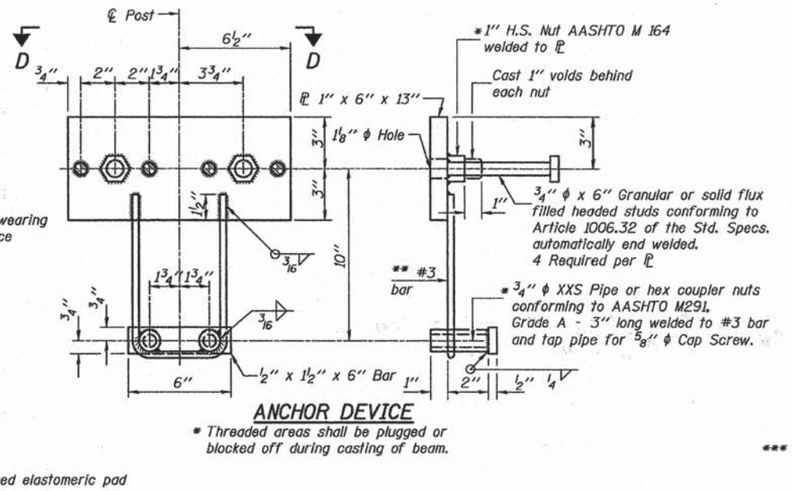
℄ 1/2" x 7" x 6"



SECTION B-B



SECTION AT RAILING POST



ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam.

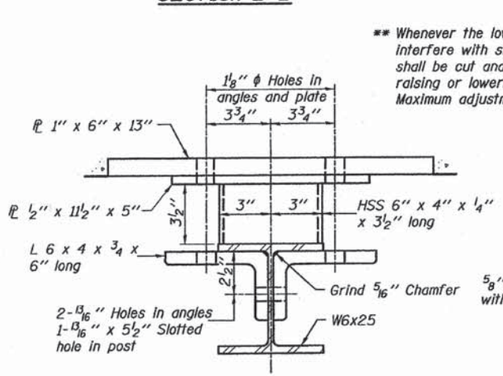
Notes:

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.

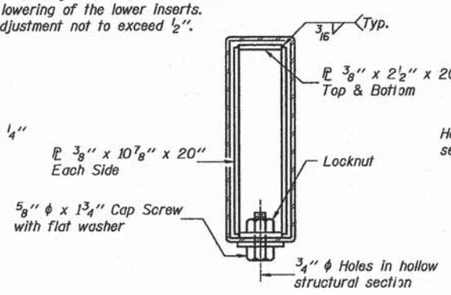
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

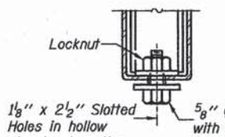


SECTION C-C

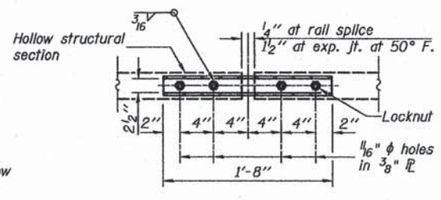
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



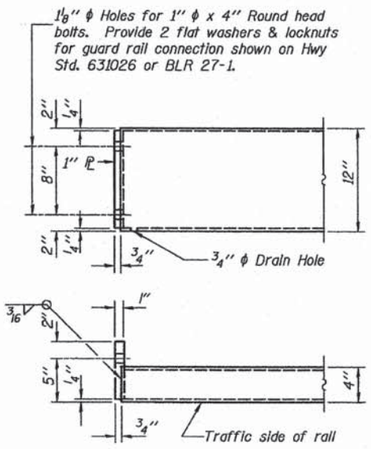
SECTIONS AT RAIL SPLICE



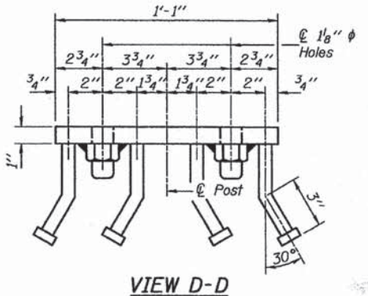
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE ℄ TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	318

R-23A 7-1-10 (10'-9" Maximum Post Spacing)

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NETEMEYER ENGINEERING ASSOCIATES, INC.
3300 Highline Road ph: 618-228-7816
Alvidson, IL 62216-1018 fax: 618-228-7900

DESIGNED	–		
DRAWN	–		
CHECKED	– PRN		
DATE	– 01/16/2014		

REVISION	DATE	REMARKS
1	04/07/2014	REVISE FOR FINAL SUBMITTAL

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

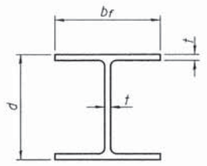
C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

STEEL RAILING, TYPE S-1

SCALE: SHEET 8 OF 10 SHEETS STA. TO STA.

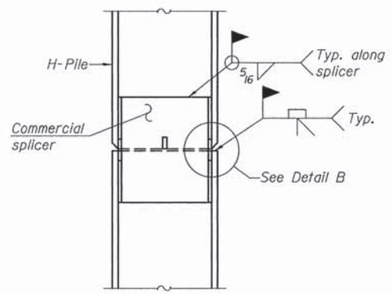
T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	11
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

NETEMEYER 20130326

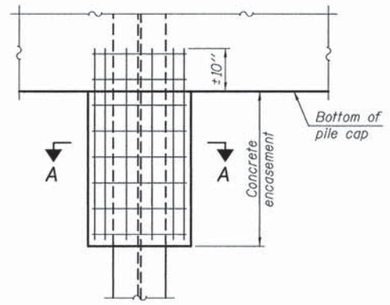


STEEL PILE TABLE

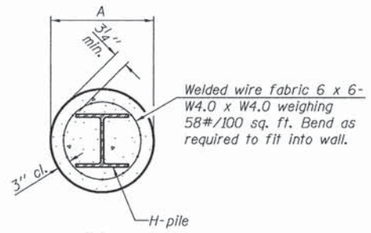
Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



ELEVATION



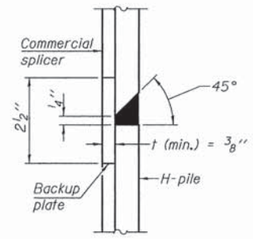
ELEVATION



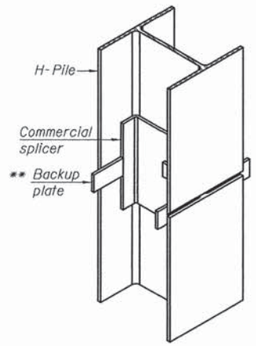
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

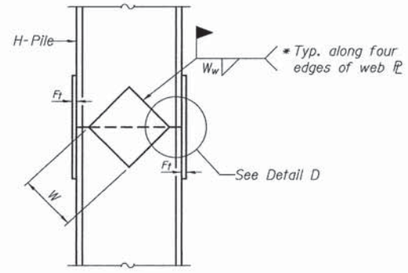
PILE ENCASEMENT



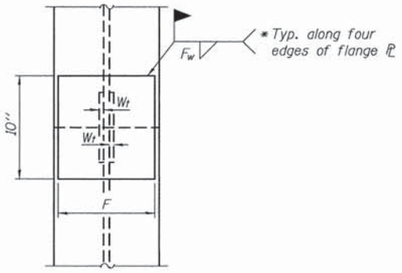
DETAIL "B"



ISOMETRIC VIEW

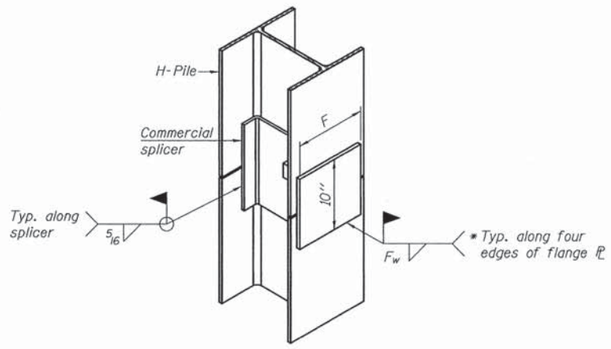


ELEVATION

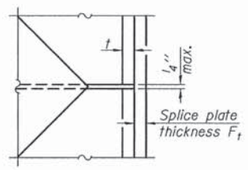


END VIEW

WELDED COMMERCIAL SPLICE



ISOMETRIC VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

WELDED COMMERCIAL SPLICE ALTERNATE

* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 1-27-12

STRUCTURAL ENGINEER IL. PROF. DESIGN FIRM (LSP/ESE) 184-001027
NETEMEYER ENGINEERING ASSOCIATES, INC.
3300 Highline Road ph: 618-228-7816
Aviston, IL 62216-1016 fax: 618-228-7900

DESIGNED	–		
DRAWN	–		
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DATE	– 01/16/2014		

REVISION	DATE	REMARKS
1	04/07/2014	REVISE FOR FINAL SUBMITTAL

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

HP PILE DETAILS

SCALE: | SHEET 9 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	12
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

NETEMEYER 20130326

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Eight Materials

Bridge Foundation Boring Log

Sh. 1 of 2

PROJECT SLT-98-001-97 BRIDGE CH 9 (WRINGE ROAD) OVER BEAVER CREEK OVERFLOW Date 11/03/97

ROUTE CH 9 Bored By LARRY FORD

SEC. NONE STA. 10+00 Checked By GELDERT-MURPHEY

COUNTY Clinton PROF. S.N. 014-3019 EXIST S.N. _____

Boring No. 1.W.ABU
Sta 9+17
O/S 7' N OF C.L.

Surf Wat El. _____
Grndwater El. at Compl _____
At _____ Hrs _____

El.	N	Qu t/sf	W %	Stratum
Ground Surface 99.65	0			
	1 2	S/10		GRAY SILTY CLAY LOAM
	3	0.7	22	
-5	2 3	S/10		
	4	0.6	24	
	2 3	S/10		
	3	0.6	22	
-10	4 3			WOOD IN BOTTOM SPOON
	3	NR		FILL
	2 4	S/20		
	5	1.8	26	
-15	2 3	S/15		GRAY SILTY CLAY
	4	1.7	27	
	3 4	S/15		
	7	1.7	26	
-20	2 3	B		
	5	2.1	27	
	2			

F.W. _____

El.	N	Qu t/sf	W %	Stratum
	4 4	S/15 1.5	26	
-25	0 2	S/15		BROWN AND GRAY SILTY CLAY LOAM
	3	0.7	24	
	3 9			BROWN SAND LOAM
	14	NC	19	
-30	1 2			SEE GRADATION #1
	1	NC	13	
	4 6	NC B		
	8	2.3	14	
-35	8 14	S/15		
	23	2.2	12	
	7 23	B		GRAY CLAY LOAM
	28	4.1	13	
-40	8 12	B		
	20	5.9	13	
	9 17	B		
	28	6.2	15	
-45				

N-Std Pentr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Project SLT-98-001-97
Route CH 9
Sec. NONE
County Clinton

Prop. S.N. _____
Exist S.N. _____

Sh. 2 of 2

Boring No. 1.W.ABU
Sta 9+17
O/S 7' N OF C.L.

El.	N	Qu t/sf	W %	Stratum
-45	7 30	S/15	13	GRAY SAND/SILT STONE
	50/91mm	5.2		
-50	7 14	B		GRAY CLAY LOAM
	22	6.5	15	
-55	13 16	B		
	21	4.9	16	
-60	7 13	B		
	20	4.2		
				END OF BORING
-65				
-70				

El.	N	Qu t/sf	W %
-70			
-75			
-80			
-85			
-90			
-95			

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Eight Materials

Bridge Foundation Boring Log

Sh. 1 of 2

PROJECT SLT-98-001-97 BRIDGE CH 9 (WRINGE ROAD) OVER BEAVER CREEK OVERFLOW Date 11/04/97

ROUTE CH 9 Bored By CODGHLIN

SEC. NONE STA. Checked By GELDERT-MURPHEY

COUNTY Clinton PROF. S.N. 014-3019 EXIST S.N. _____

Boring No. 2.E.ABU
Sta 10+83
O/S S OF C.L.

Surf Wat El. _____
Grndwater El. at Compl _____
At _____ Hrs _____

El.	N	Qu t/sf	W %	Stratum
Ground Surface 100.2	0			
	1 3	B		
	4	1.3	27	
	1 2	B		
	3	0.9	27	GRAY LOAM
-5	1 2	B		
	3	1.5	26	
	1 1	B		
	2	0.5	26	
-10	0 1	S/20		FILL
	2	0.6	29	
	2 3	B		
	4	1.6	28	
-15	2 3	B		GRAY CLAY
	5	1.6	26	
	2 4	B		
	5	1.5	27	
-20	1 4	S/20		
	4	1.4	27	

F.W. _____

El.	N	Qu t/sf	W %	Stratum
	1 3	B		
	4	1.3	27	
-25	1 2	B		CLAY LOAM
	3	0.9	23	
	1 4	B		BROWN SAND LOAM
	11	0.6	22	
-30	0 1			SAND
	7	NC	13	
	0 1			GRAY SAND
	5	NC	12	
-35	8 14	B		BROWN AND GRAY CLAY LOAM AND SHALE SMALL ROCKS
	23	5.7	11	
	10 17	B		
	28	5.4	14	
-40	8 19	S/20		GRAY SAND SILT
	30	7.1	12	
	34	S/20		
	50/106.7mm	4.6	13	
-45				

N-Std Pentr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Project SLT-98-001-97
Route CH 9
Sec. NONE
County Clinton

Prop. S.N. _____
Exist S.N. _____

Sh. 2 of 2

Boring No. 2.E.ABU
Sta 10+83
O/S S OF C.L.

El.	N	Qu t/sf	W %	Stratum
-45	11 33	S/20		GRAY CLAY LOAM
	37	6.5	15	
-50	7 15	B		
	24	4.9	16	
-55	8 16	B		
	25	4.7		
-60	6 12			
	18	4.4		
				END OF BORING
-65				
-70				

El.	N	Qu t/sf	W %
-70			
-75			
-80			
-85			
-90			
-95			

STRUCTURAL ENGINEER — IL. PROF. DESIGN FIRM (LSP/ES/SE) 184-001027	DESIGNED —	REVISION	DATE	REMARKS
NETEMEYER ENGINEERING ASSOCIATES, INC.	DRAWN —	1	04/07/2014	REVISE FOR FINAL SUBMITTAL
3300 Highline Road ph: 618-228-7816	CHECKED — PRN			
Aviston, IL 62216-1018 fax: 618-228-7900	DATE — 01/16/2014			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

C.H. 9 (WRINGE ROAD)
OVER BEAVER CREEK OVERFLOW
CLINTON COUNTY, ILLINOIS

SOIL BORING LOGS

SCALE: | SHEET 10 OF 10 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00097-00-BR	CLINTON	13	13
	S.N. 014-5112	CONTRACT NO. 97556		
	ILLINOIS			

NETEMEYER 20130326