

01-17-2020 LETTING ITEM 149

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

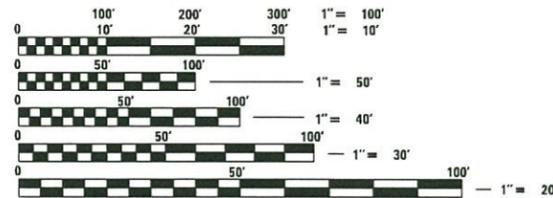
**PLANS FOR PROPOSED
MAJOR BRIDGE PROGRAM**

**FAS 799 / CH 3 / SAILOR SPRINGS ROAD
OVER LITTLE WABASH RIVER
SECTION 14-00090-00-BR
PROJECT NO. URPK(433)
CLAY COUNTY
JOB NO. C-97-050-19**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	1
			CONTRACT NO. 95863	

RAAI JOB NO. 54115

DESIGN CLASSIFICATION: RURAL MAJOR COLLECTOR
ADT₂₀₄₁ : 1550
DESIGN SPEED: 50 MPH

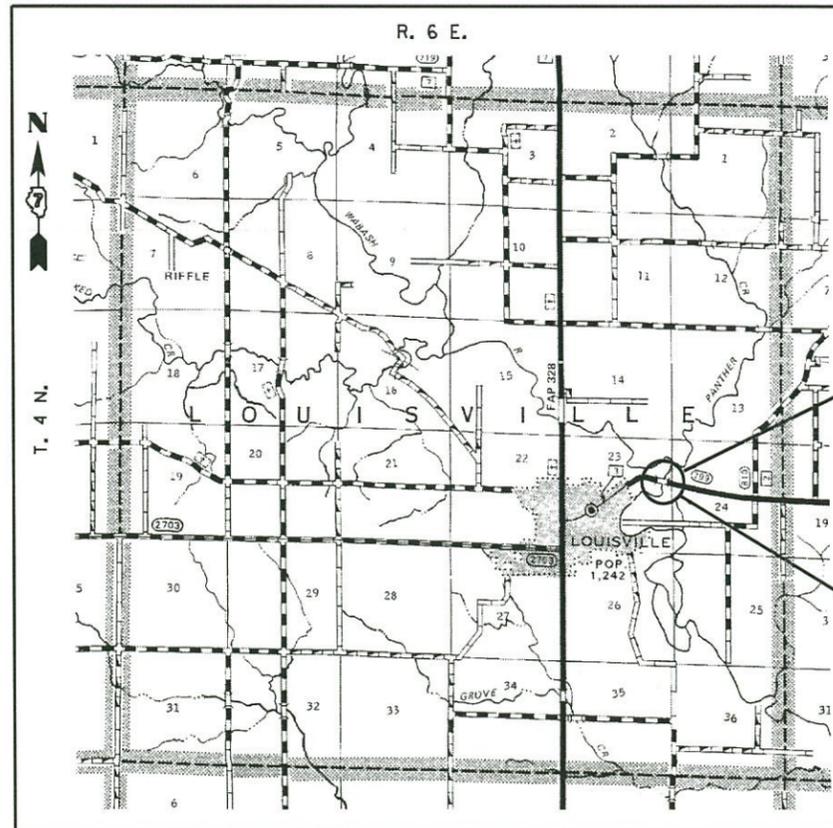


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
1-800-892-0123 or 811 Website: <http://www.illinois1call.com>



Brent L. Taylor
BRENT L. TAYLOR
SALEM, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 062-066114
DATE SIGNED: 08/01/2019
EXPIRES NOV. 30, 2019

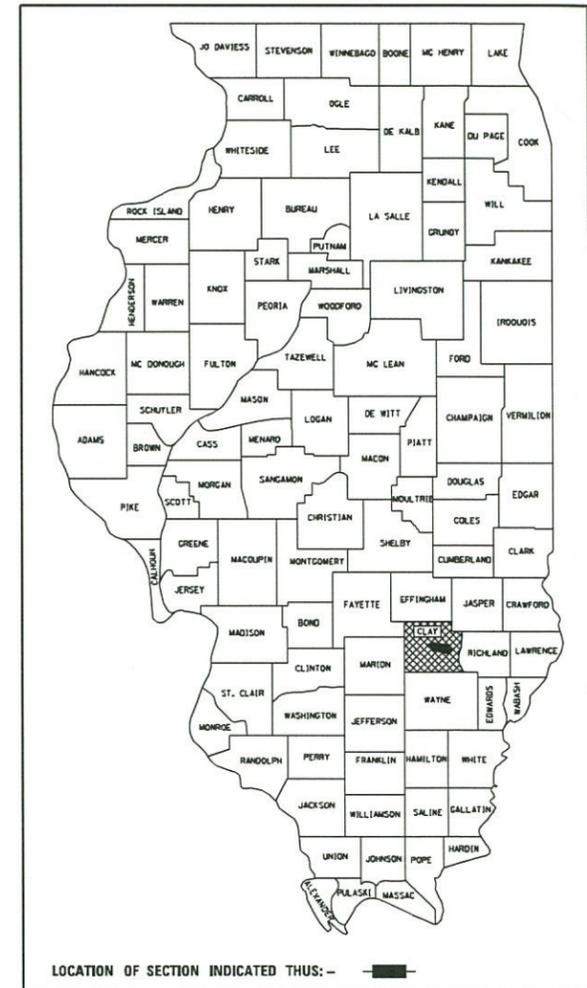


SECTION BEGINS
STA. 30+00.00

SECTION 14-00090-00-BR INCLUDES THE CONSTRUCTION OF A FIVE (5) SPAN STEEL PLATE GIRDER WITH CONCRETE DECK BRIDGE CARRYING CH 3 (FAS 799) OVER THE LITTLE WABASH RIVER. 627'-0" BK. TO BK. ABUTMENTS X 32' WIDE. NO SKEW. EXISTING STRUCTURE NO. 013-3008 PROPOSED STRUCTURE NO. 013-3250

SECTION ENDS
STA. 40+50.00

LOCATION: NEAR THE SE CORNER OF THE NE 1/4, SECTION 23, T4N, R6E, 3RD P.M.
NET LENGTH OF PROJECT: 1050.00 FT. = 0.199 MI.



CLAY COUNTY HIGHWAY DEPARTMENT	
APPROVED	AUGUST 1, 2019 <i>[Signature]</i> CLAY COUNTY, COUNTY ENGINEER
PASSED	Sept 4, 2019 <i>[Signature]</i> DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	Sept 4, 2019 <i>[Signature]</i> REGION FOUR ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

DATE: 08/01/2019

08/01/2019



RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
SALEM, ILLINOIS FREEBURG, ILLINOIS
618-532-1992 618-539-3178
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE ACCORDING TO THE PLANS, THE SPECIAL PROVISIONS, AND THE ILLINOIS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED APRIL 1, 2016.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCY IMMEDIATELY.
3. EXCEPT WHERE DESIGNATED OTHERWISE, THE LOCATIONS AND/OR DEPTHS OF UNDERGROUND UTILITIES SHOWN HAVE BEEN TAKEN FROM INFORMATION FURNISHED BY OTHERS AND MUST BE CONSIDERED APPROXIMATE AND SHALL NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES. CONTACT J.U.L.I.E. AND ALL UTILITY COMPANIES.
4. EXISTING STRUCTURE PLANS ARE AVAILABLE FOR REVIEW IN THE COUNTY ENGINEER'S OFFICE (618-665-3346).
5. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES. WATER SHALL NOT STAND OR POND. ANY DAMAGE TO STRUCTURES OR WORK ON SITE CAUSED BY INADEQUATE MAINTENANCE OF DRAINAGE PROVISIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY COST ASSOCIATED WITH REPAIRS FOR SUCH DAMAGE WILL BE AT THE CONTRACTOR'S EXPENSE.
6. ALL PAVEMENT REINFORCEMENT/DOWELS SHALL BE EPOXY COATED.
7. EXISTING SIGNS/SIGN POSTS SHALL BE REMOVED BY THE CONTRACTOR AND SALVAGED TO THE COUNTY. COST FOR THIS WORK SHALL BE INCLUDED IN EARTH EXCAVATION.

INDEX OF SHEETS

1. COVER SHEET
2. GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS, & COMMITMENTS
3. SUMMARY OF QUANTITIES
4. TYPICAL SECTIONS
5. SCHEDULE OF QUANTITIES
6. PLAN AND PROFILE OF ROADWAY
7. EROSION CONTROL PLAN
- 8.-47. STRUCTURE PLANS
- 48.-51. CROSS SECTIONS OF ROADWAY

HIGWAY STANDARDS

- | | |
|-----------|---|
| 000001-07 | STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS |
| 280001-07 | TEMPORARY EROSION CONTROL SYSTEMS |
| 420001-09 | PAVEMENT JOINTS |
| 420101-06 | 24' (7.2 M) JOINTED PCC PAVEMENT |
| 420401-13 | PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB |
| 515001-04 | NAME PLATE FOR BRIDGES |
| 601101-02 | CONCRETE HEADWALL FOR PIPE UNDERDRAIN |
| 630001-12 | STEEL PLATE BEAM GUARDRAIL |
| 630301-09 | SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS |
| 631032-09 | TRAFFIC BARRIER TERMINAL, TYPE 6A |
| 666001-01 | RIGHT-OF-WAY MARKERS |
| 701901-08 | TRAFFIC CONTROL DEVICES |
| 725001-01 | OBJECT AND TERMINAL MARKERS |
| 780001-05 | TYPICAL PAVEMENT MARKINGS |
| BLR 21-9 | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS |

FACTORS USED FOR QUANTITY CALCULATIONS

POROUS GRANULAR BACKFILL	2.1 TON/CU YD
AGGREGATE (SURFACE & BASE)	2.1 TON/CU YD
RIPRAP	130 LBS/CU FT
TEMPORARY EROSION CONTROL SEEDING	100 LBS/ACRE

LIST OF KNOWN UTILITIES

DESIGN PHASE J.U.L.I.E. DIG NO. X3450446-00X

TYPE	UTILITY	PHONE NUMBER	CONTACT NAME
GAS/ELECTRIC	AMEREN ILLINOIS	888-659-4540	KIMBERLY THOMSON / ZACH MICHAEL
COMMUNICATIONS	MEDIACOM COMMUNICATIONS	217-348-5533 EXT. 3830	DANIEL SALEE
COMMUNICATIONS	WABASH COMMUNICATIONS	618-665-3311	JASON GRIFFY
GAS	VILLAGE OF LOUISVILLE	618-392-0736	MIKE BRIDGES, P.E.

COMMITMENTS

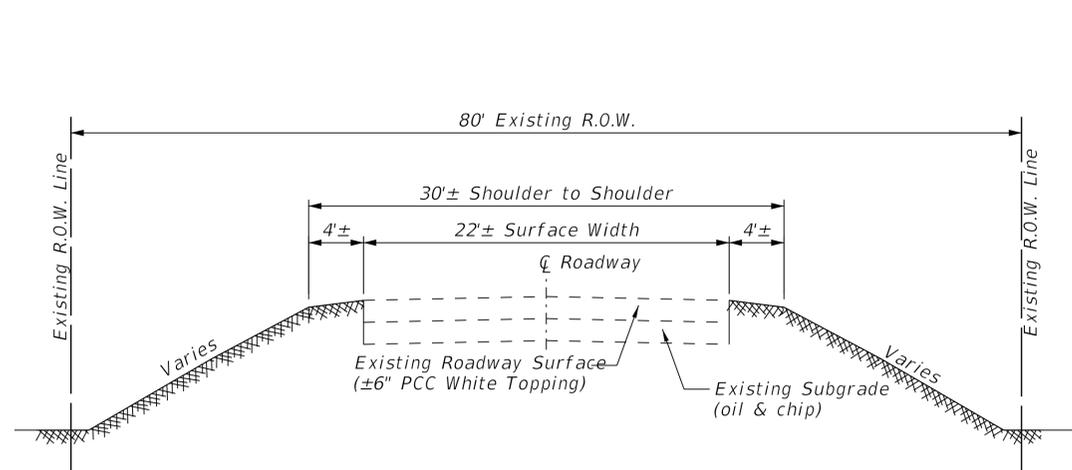
1. NO TREE CLEARING WILL BE ALLOWED OR PERFORMED FROM APRIL 1 THROUGH SEPTEMBER 30 AS PART OF THE EFFORT TO CONSERVE THE INDIANA AND NORTHERN LONG-EARED BAT.
2. THE COUNTY WILL PURCHASE WETLAND MITIGATION CREDITS PRIOR TO THE DISCHARGE OF FILL INTO WATERS OF THE U.S.
3. THE COUNTY ENGINEER WILL NOTIFY PUBLIC SERVICE PROVIDERS PRIOR TO THE START OF CONSTRUCTION.
4. A VALID BRIDGE BAT ASSESSMENT WILL BE OBTAINED PRIOR TO ANY WORK BELOW THE EXISTING DECK.

SUMMARY OF QUANTITIES			
Code No.	Item	Unit	Total Quantity
20100500	Tree Removal, Acres	Acre	1.5
20200100	Earth Excavation	Cu Yd	469
20300100	Channel Excavation	Cu Yd	4018
20400800	Furnished Excavation	Cu Yd	5274
25000324	Seeding, Class 5B	Acre	1.25
20900110	Porous Granular Backfill	Cu Yd	105
28000250	Temporary Erosion Control Seeding	Pound	200
28000305	Temporary Ditch Checks	Foot	40
28000400	Perimeter Erosion Barrier	Foot	745
28000500	Inlet and Pipe Protection	Each	2
28100807	Stone Dumped Riprap, Class A4	Ton	1880
35100100	Aggregate Base Course, Type A	Ton	50
40200800	Aggregate Surface Course, Type B	Ton	220
42000060	Welded Wire Reinforcement	Sq Yd	80
42000080	Pavement Connector (PCC) for Bridge Approach Slab	Sq Yd	108
42000301	Portland Cement Concrete Pavement 8" (Jointed)	Sq Yd	92
42001300	Protective Coat	Sq Yd	200
44000100	Pavement Removal	Sq Yd	384
44213200	Saw Cuts	Foot	44
48101200	Aggregate Shoulders, Type B	Ton	90
50100100	Removal of Existing Structures	Each	1
50104650	Slope Wall Removal	Sq Yd	360
50200100	Structure Excavation	Cu Yd	376

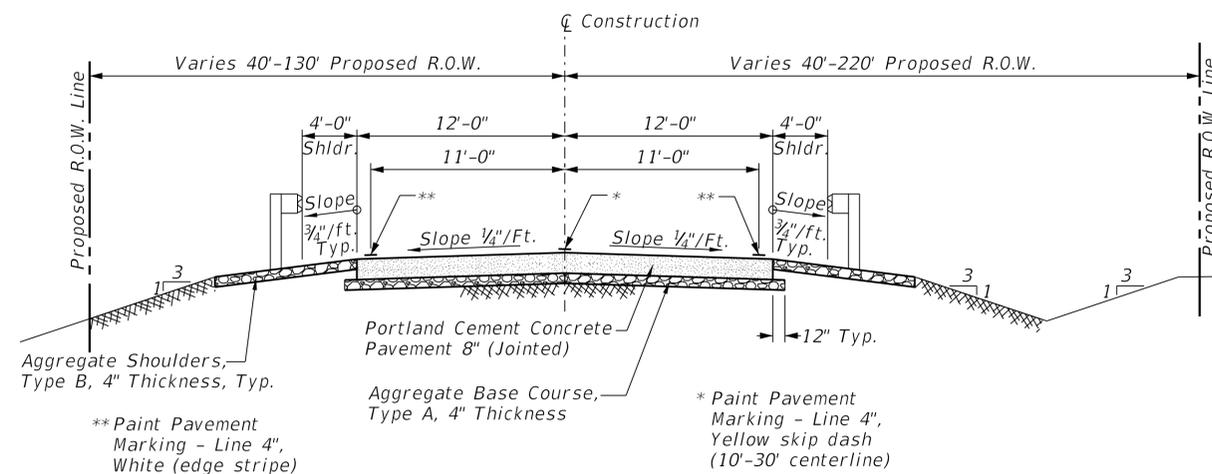
SUMMARY OF QUANTITIES			
Code No.	Item	Unit	Total Quantity
50200300	Cofferdam Excavation	Cu Yd	917
50201101	Cofferdam (Type 1) (Location - 1)	Each	1
50201102	Cofferdam (Type 1) (Location - 2)	Each	1
50201103	Cofferdam (Type 1) (Location - 3)	Each	1
50201104	Cofferdam (Type 1) (Location - 4)	Each	1
50300225	Concrete Structures	Cu Yd	406.3
50300255	Concrete Superstructure	Cu Yd	574.7
50300260	Bridge Deck Grooving	Sq Yd	2202
50300280	Concrete Encasement	Cu Yd	9.8
50300300	Protective Coat	Sq Yd	4879
50301350	Concrete Superstructure (Approach Slab)	Cu Yd	92.1
50500105	Furnishing and Erecting Structural Steel	L Sum	1
50500505	Stud Shear Connectors	Each	7452
50800105	Reinforcement Bars	Pound	72600
50800205	Reinforcement Bars, Epoxy Coated	Pound	259440
50800515	Bar Splicers	Each	644
50800530	Mechanical Splicers	Each	192
△ 50901050	Steel Railing, Type SM	Foot	1302
51201900	Furnishing Steel Piles HP14x89	Foot	928
51202305	Driving Piles	Foot	928
51203900	Test Pile Steel HP14x89	Each	2
51500100	Name Plates	Each	1
51603000	Drilled Shaft in Soil	Cu Yd	342.5

SUMMARY OF QUANTITIES			
Code No.	Item	Unit	Total Quantity
51604000	Drilled Shaft in Rock	Cu Yd	140.7
52000224	Finger Plate Expansion Joint, 7"	Foot	64
52000600	Fabric Reinforced Elastomeric Trough	Foot	66
52100010	Elastomeric Bearing Assembly, Type I	Each	12
52100020	Elastomeric Bearing Assembly, Type II	Each	12
52100510	Anchor Bolts, 3/4"	Each	24
52100530	Anchor Bolts, 1 1/4"	Each	24
542A1069	Pipe Culverts, Class A, Type 2 24"	Foot	140
58700300	Concrete Sealer	Sq Ft	756
59100100	Geocomposite Wall Drain	Sq Yd	49
△ 63100087	Traffic Barrier Terminal, Type 6A	Each	4
△ 63100167	Traffic Barrier Terminal, Type 1 (Special) Tangent	Each	4
66600105	Furnishing and Erecting Right Of Way Markers	Each	18
67000600	Engineer's Field Laboratory	Cal Mo	22
67100100	Mobilization	L Sum	1
△ 72501000	Terminal Marker - Direct Applied	Each	4
△ 78001110	Paint Pavement Marking - Line 4"	Foot	2363
X0900020	Thermal Integrity Profile Testing	Each	16
X0900044	Thermal Integrity Profile Data Collection	Foot	865
X2501000	Seeding, Class 2 (Special)	Acre	0.75
X7010216	Traffic Control and Protection, (Special)	L Sum	1
Z0046304	Pipe Underdrains for Structures 4"	Foot	200

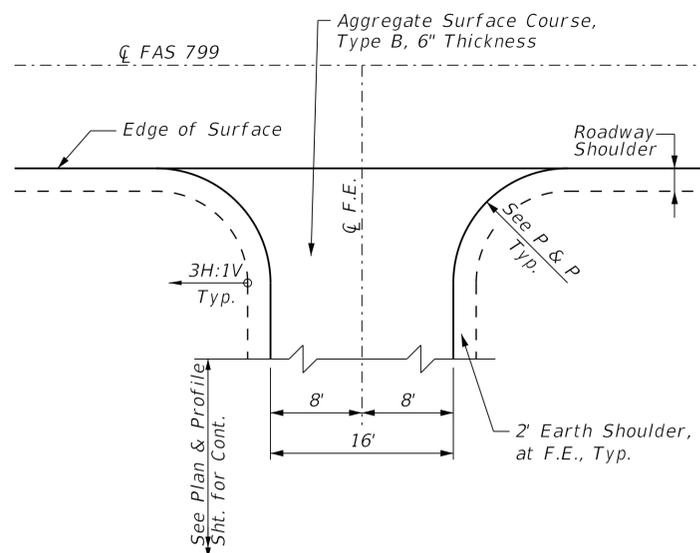
△ SPECIALTY ITEMS



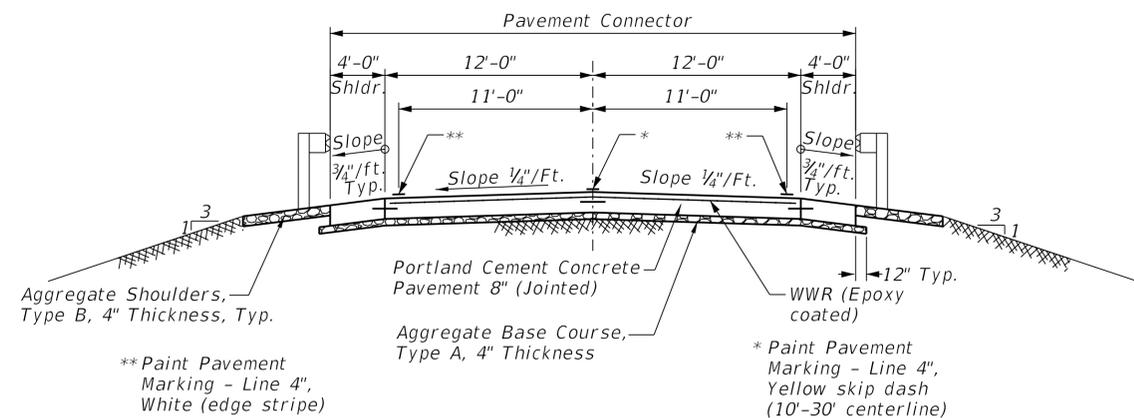
TYPICAL SECTION
EXISTING APPROACH ROADWAY



TYPICAL SECTION
PROPOSED APPROACH ROADWAY



TYPICAL FIELD ENTRANCE (F.E.)



TYPICAL SECTION
PROPOSED PAVEMENT CONNECTOR (PCC)
FOR BRIDGE APPROACH SLAB

DESIGNED -	BLT	REVISED -	
DRAWN -	JN / SJE	REVISED -	
CHECKED -	WDL	REVISED -	
DATE -	08/01/2019	REVISED -	

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	4
CONTRACT NO. 95863				

PAVEMENT REMOVAL	
LOCATION	PAVEMENT REMOVAL SQ YD
STA. 31+52.46 TO STA. 32+27.00	182
STA. 38+20.00 TO STA. 39+02.46	202
TOTAL	384

SHOULDER SCHEDULE	
LOCATION	AGGREGATE SHOULDERS, TYPE B (TON)
LT., STA. 30+79.47 TO STA. 31+99.46	23
RT., STA. 30+81.10 TO STA. 31+99.46	22
LT., STA. 38+55.46 TO STA. 39+75.39	23
RT., STA. 38+55.46 TO STA. 39+73.76	22
TOTAL	90

EARTHWORK SCHEDULE				
LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE* CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 30+00.00 TO STA. 32+13.96	201	157	3082	-2931
STA. 38+40.96 TO STA. 40+50.00	268	201	2544	-2343
TOTAL	469	352	5626	-5274

*25% SHRINKAGE **FURNISHED EXCAVATION

PIPE CULVERT SCHEDULE	
LOCATION	PIPE CULVERTS, CLASS A, TYPE 2, CLASS II 24" (FOOT)
62± RT., STA. 30+60	70
62± RT., STA. 39+95	70
TOTAL	140

RIGHT OF WAY MARKERS		
LOCATION (TO BE VERIFIED WITH LICENSED SURVEYOR)	OFFSET	FURNISHING AND ERECTING RIGHT OF WAY MARKERS (EACH)
STA. 30+00.00	40' RT.	1
STA. 30+00.00	120' RT.	1
STA. 30+25.00	40' LT.	1
STA. 30+25.00	75' LT.	1
*STA. 31+53.5	75' LT.	1
*STA. 31+53.5	120' LT.	1
*STA. 32+13.5	120' LT.	1
*STA. 32+13.5	75' LT.	1
STA. 33+00.00	75' LT.	1
STA. 33+00.00	40' LT.	1
**STA. 33+00.00	120' RT.	1
**STA. 36+00.00	220' RT.	1
STA. 37+50.00	40' LT.	1
STA. 37+50.00	130' LT.	1
STA. 40+25.00	130' LT.	1
STA. 40+25.00	40' LT.	1
STA. 40+50.00	40' RT.	1
STA. 40+50.00	220' RT.	1
TOTAL		18

- EXISTING R.O.W. LOCATIONS ESTIMATED AND ACTUAL LOCATIONS SHALL BE CONFIRMED WITH A LICENSED SURVEYOR.
- OFFSET MARKERS - VERIFY FINAL LOCATIONS WITH COUNTY & LICENSED SURVEYOR

PAVEMENT SCHEDULE				
LOCATION	AGGREGATE BASE COURSE, TYPE A (TON)	PCC PAVEMENT 8" (SQ YD)	PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB (SQ YD)	WELDED WIRE REINFORCEMENT (SQ YD)
STA. 31+52.46 TO STA. 31+69.46	12	46	-	-
STA. 31+69.46 TO STA. 31+84.46	13	-	54	40
STA. 38+70.46 TO STA. 38+85.46	13	-	54	40
STA. 38+85.46 TO STA. 39+02.46	12	46	-	-
TOTAL	50	92	108	80

ENTRANCE SCHEDULE			
LOCATION	WIDTH (FOOT)	THICKNESS (INCH)	AGGREGATE SURFACE COURSE, TYPE B (TON)
RT., STA. 30+60.0	16	6	110
RT., STA. 39+95.0	16	6	110
TOTAL			220

TREE REMOVAL, ACRES	
LOCATION	TREE REMOVAL, ACRES
RT., STA. 30+00 TO STA. 40+25	1.37
LT., STA. 31+00 TO STA. 32+50	0.01
LT., STA. 38+00 TO STA. 39+75	0.02
TOTAL (ROUNDED)	1.5

TREE REMOVAL WILL BE PAID FOR IN AREAS WITHIN THE LIMITS OF CONTRACTOR ACCESS, AS SHOWN ON THE EROSION CONTROL SHEET.

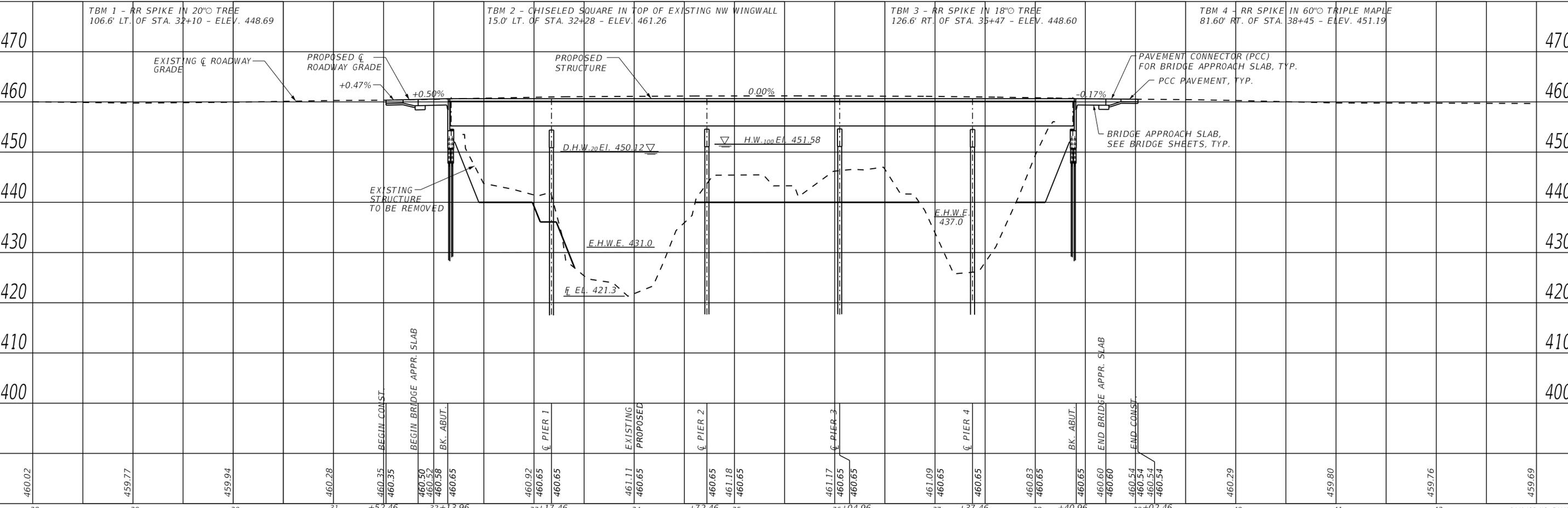
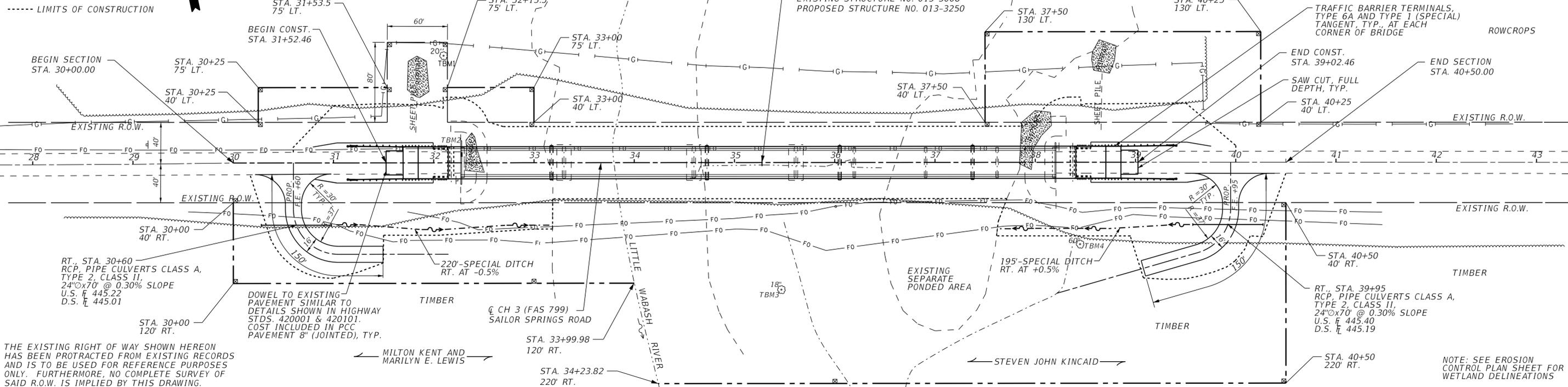
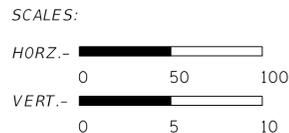
GUARDRAIL SCHEDULE		
LOCATION (STA. ARE APPROX. AND SHALL BE ADJUSTED AS REQUIRED TO MATCH STDS. & MANUF. DETAILS)	TRAFFIC BARRIER TERMINAL, TYPE 6A (EACH)	TRAFFIC BARRIER TERMINAL, TYPE 1, (SPECIAL) TANGENT (EACH)
RT. & LT., STA. 31+13.5± TO STA. 31+64.31	-	2
RT. & LT., STA. 31+64.3 TO STA. 32+01.9	2	-
RT. & LT., STA. 38+52.9 TO STA. 38+90.6	2	-
RT. & LT., STA. 38+90.61 TO STA. 39+41.4±	-	2
TOTAL	4	4

PAVEMENT MARKING SCHEDULE		
LOCATION	PAINT PAVEMENT MARKING - 4" (FOOT)	
	YELLOW SKIP DASH 10' - 30'	WHITE SOLID
STA. 30+00.00 TO STA. 40+50.00	263	2100
SUBTOTAL	263	2100
TOTAL	2363	

PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
NOTE BOOK NO.		

NOTE:
SEE EROSION CONTROL PLAN SHEET FOR ADDITIONAL SCHEDULES

SEE BRIDGE SHEETS FOR ADDITIONAL SCHEDULES



DATE	
SURVEYED	
PLOTTED	
CHECKED	
ALIGNED	
FILE NAME	
PLAN	
NOTE BOOK	
NO.	

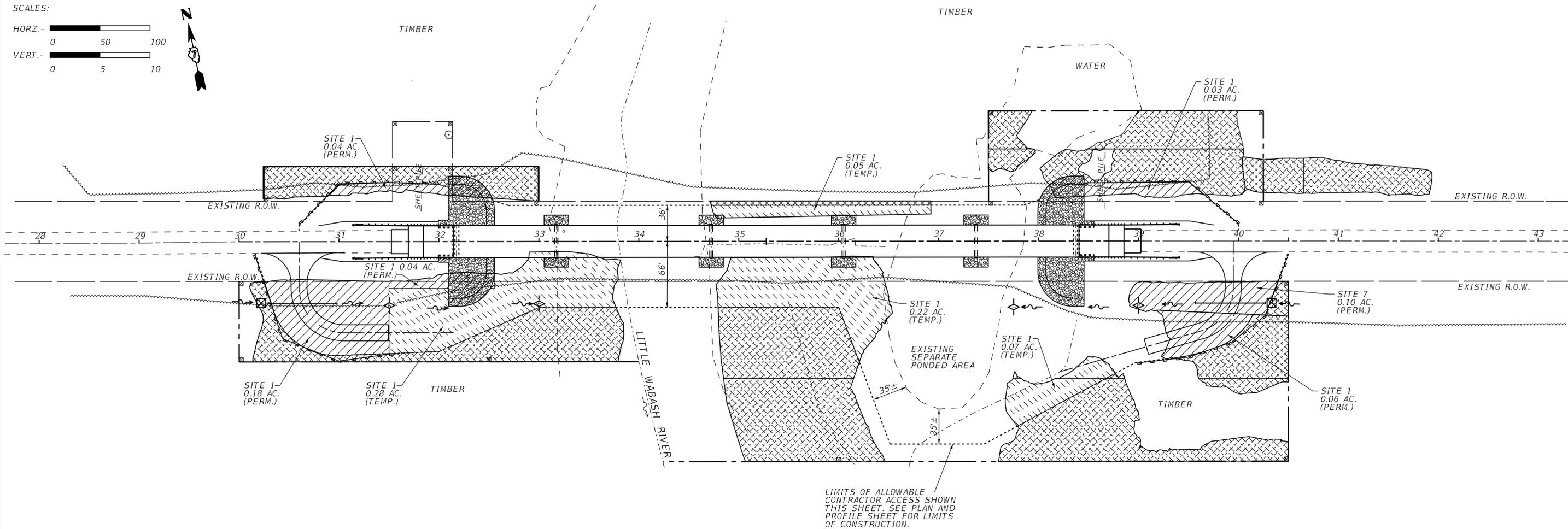
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SCALES:
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DATE	
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DATE	
BY	
PROFILE	
NOTE BOOK NO.	
SURVEYED	
PLOTTED	
CHECKED	
ATTESTED	
FILE NAME	



NOTES

1. ALL EROSION CONTROL PRODUCTS FURNISHED SHALL BE SPECIFICALLY RECOMMENDED BY THE MANUFACTURER FOR THE USE SPECIFIED IN THE EROSION CONTROL PLAN PRIOR TO APPROVAL AND USE OF THE PRODUCT. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A NOTARIZED CERTIFICATION BY THE PRODUCER STATING THE INTENDED USE OF THE PRODUCT AND THAT THE PHYSICAL PROPERTIES REQUIRED FOR THIS APPLICATION ARE MET OR EXCEEDED. THE CONTRACTOR SHALL PROVIDE MANUFACTURER RECOMMENDED INSTALLATION PROCEDURES TO FACILITATE THE ENGINEER IN CONSTRUCTION INSPECTION.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL EROSION AND DISPLACED SEDIMENT DOES NOT MIGRATE OFF SITE. IF UNEXPECTED EROSION OR SEDIMENTATION OCCURS OR IF THE EROSION PLAN STRUCTURES BECOME DAMAGED, THE CONTRACTOR SHALL PROVIDE SUFFICIENT MEASURES TO REPAIR, REPLACE, OR INSTALL EROSION CONTROL STRUCTURES TO ENSURE OFF-SITE DAMAGE DOES NOT OCCUR. ANY SEDIMENT OR EROSION DAMAGE WHICH OCCURS OFF-SITE SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE.

TEMPORARY DITCH CHECKS

LOCATION	FOOT
RT., STA. 31+50 TO 33+00	20
RT., STA. 37+75 TO 39+00	20
TOTAL	40

* ASSUMED 10' EACH DITCH CHECK

PERIMETER EROSION BARRIER

LOCATION	FOOT
RT., STA. 30+15 TO STA. 31+60	210
LT., STA. 30+60 TO STA. 32+00	160
RT., STA. 39+00 TO STA. 40+50	205
LT., STA. 38+50 TO STA. 40+00	170
TOTAL	745

INLET AND PIPE PROTECTION

LOCATION	EACH
RT., STA. 30+25	1
RT., STA. 40+30	1
TOTAL	2

SEEDING

PAY ITEM	
* SEEDING, CLASS 5B	1.25 ACRE
TEMPORARY EROSION CONTROL SEEDING	200 POUND
** SEEDING, CLASS 2 (SPECIAL)	0.75 ACRE

* SEEDING, CLASS 5B AT TEMPORARY IMPACT WETLAND AREAS AND IN FLOODPLAIN AREAS.

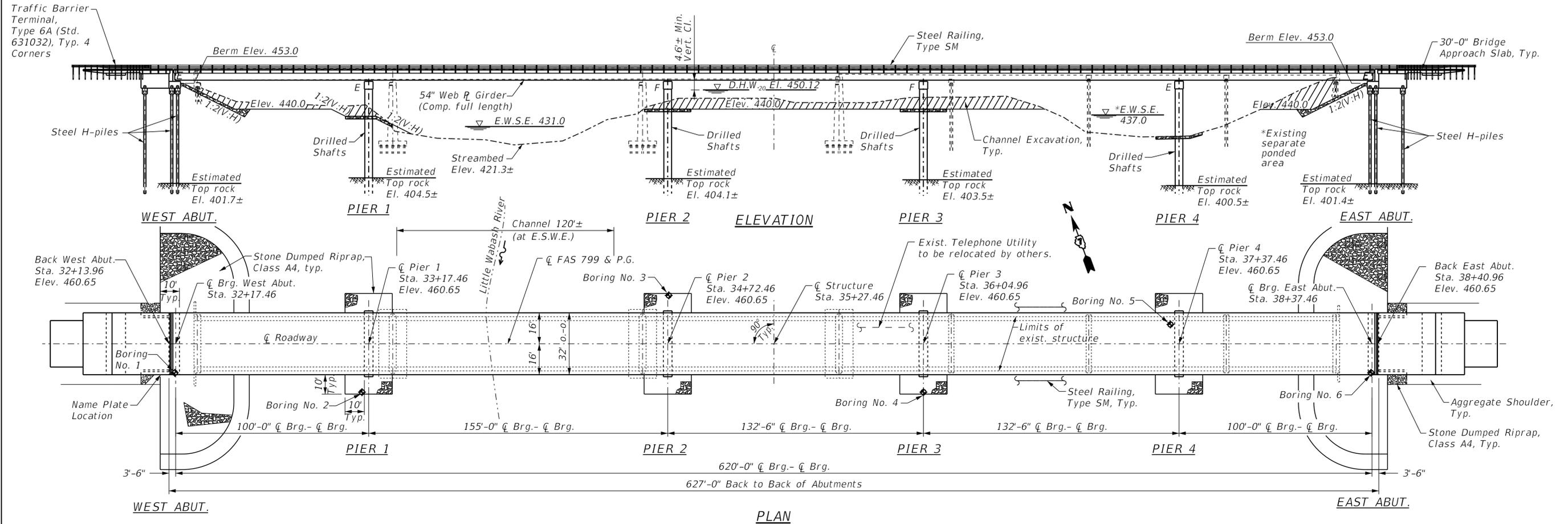
** SEEDING, CLASS 2 (SPECIAL) AT DISTURBED AREAS ADJACENT TO ROADWAY / F.E. (EXCLUDING TEMPORARY IMPACT WETLAND AREAS).

LEGEND

- INLET AND PIPE PROTECTION
- TEMPORARY DITCH CHECK
- PERIMETER EROSION BARRIER
- LIMITS OF JURISDICTIONAL WETLAND. DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS, THE CONTRACTOR SHALL EMPLOY ANY MEANS NECESSARY TO ENSURE THAT THIS AREA (OUTSIDE THE LIMITS OF CONSTRUCTION) REMAINS UNDISTURBED AND PROTECTED FOR THE DURATION OF THE PROJECT.
- AREA OF WETLAND WITHIN LIMITS OF CONSTRUCTION (TEMPORARY IMPACT) SEED WITH: SEEDING, CLASS 5B
- AREA OF WETLAND WITHIN LIMITS OF CONSTRUCTION (PERMANENT IMPACT)

TBM 1 - RR spike in 20" Ø tree 106.6' Lt. of Sta. 32+10 - Elev. 448.69
 TBM 2 - Chiseled square in top of existing NW wingwall 15.0' Lt. of Sta. 32+28 - Elev. 461.26
 TBM 3 - RR spike in 18" Ø tree 126.6' Rt. of Sta. 35+47 - Elev. 448.60
 TBM 4 - RR spike in 60" Ø triple maple 81.60' Rt. of Sta. 38+45 - Elev. 451.19

Existing Structure: S.N. 013-3008, Built 1948 as Section 18-B-F. Seven span bridge with concrete deck on steel girders supported on spill thru concrete abutments with concrete wingwalls. The three west piers are solid wall and footing with timber piles and the east three piers are precast concrete pile bents with concrete caps. 593'-9"L. x 28'W. No skew. To be removed. Roadway to be closed to all traffic during construction. Explosives shall not be used to demolish the existing structure.



DESIGN SCOUR ELEVATION TABLE

Event / Limit	Design Scour Elevations (ft.)						Item 113
	State	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	
Q100	N/A	421.5	428.5	428.5	412.5	N/A	5
Q200	N/A	420.0	427.4	427.4	411.4	N/A	
Design	Bott. Cap	421.5	428.5	428.5	412.5	Bott. Cap	
Check	Bott. Cap	420.0	427.4	427.4	411.4	Bott. Cap	

WATERWAY INFORMATION

Drainage Area = 746 sq. mi.		Exist. Low Grade Elev. 456.83 at Sta. 53+00.00							
		Prop. Low Grade Elev. 456.83 at Sta. 53+00.00							
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.	
Design	20	30,200	7014	8557	450.12	1.77	1.49	451.89	451.61
Base	100	43,200	7848	9444	451.58	2.52	2.28	454.10	453.86
Base	500	56,500	8573	10,217	452.84	3.28	3.07	456.12	455.91

DESIGN SPECIFICATIONS

A.A.S.H.T.O. LRFD Bridge Design Specifications
 2014 7th Ed. w/ 2015 & 2016 Interims

LOADING HL-93

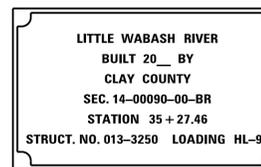
Allow 50#/Sq. Ft. for future wearing surface.

DESIGN STRESSES

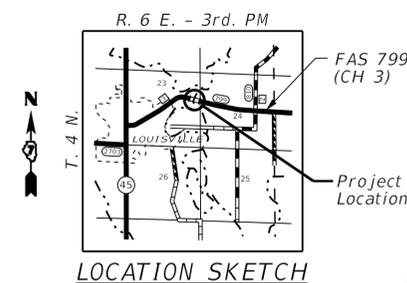
f'c = 3,500 psi (Substructure)
 f'c = 4,000 psi (Drilled Shaft, Approach Slab)
 f'c = 5,000 psi (Superstructure concrete)
 fy = 60,000 psi (Reinforcement)
 fy = 50,000 psi (Structural steel, M270, Grade 50)

SEISMIC DATA

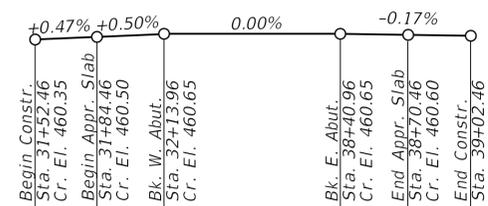
Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (SD1) = 0.248 g
 Design Spectral Acceleration at 2.0 sec. (SD5) = 0.582 g
 Soil Site Class = D



NAME PLATE
 (See Standard 515001 for details)

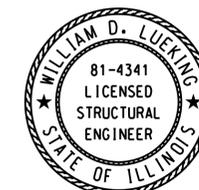


LOCATION SKETCH



GRADE ON STRUCTURE
 (along C FAS 799 CH 3)

I certify that 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 requirements of the current AASHTO Standard Specifications for Highway Bridges.



William D. Lueking

WILLIAM D. LUEKING
 SALEM, ILLINOIS
 ILLINOIS LICENSED STRUCTURAL
 ENGINEER NO. 081-4341
 DATE SIGNED: 08/01/2019
 EXPIRES NOV. 30, 2020

GENERAL NOTES

Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts (in painted areas and ASTM A325 Type 3 in unpainted areas). Bolts 7/8-in. Ø, holes 1-in. Ø, unless otherwise noted.

Calculated weight of Structural Steel = 832,542 lbs.

No field welding is permitted except as specified in the contract documents.

Reinforcement bars designated (E) shall be epoxy coated.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.

Concrete Sealer shall be applied to the designated areas of the abutments.

The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be blue Munsell No. 10B 3/6.

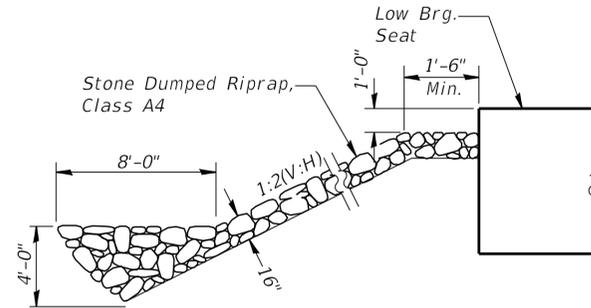
Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework, in addition to allowance for dead load deflection. Forms for deck slab shall be removed prior to placement of bridge approach slab.

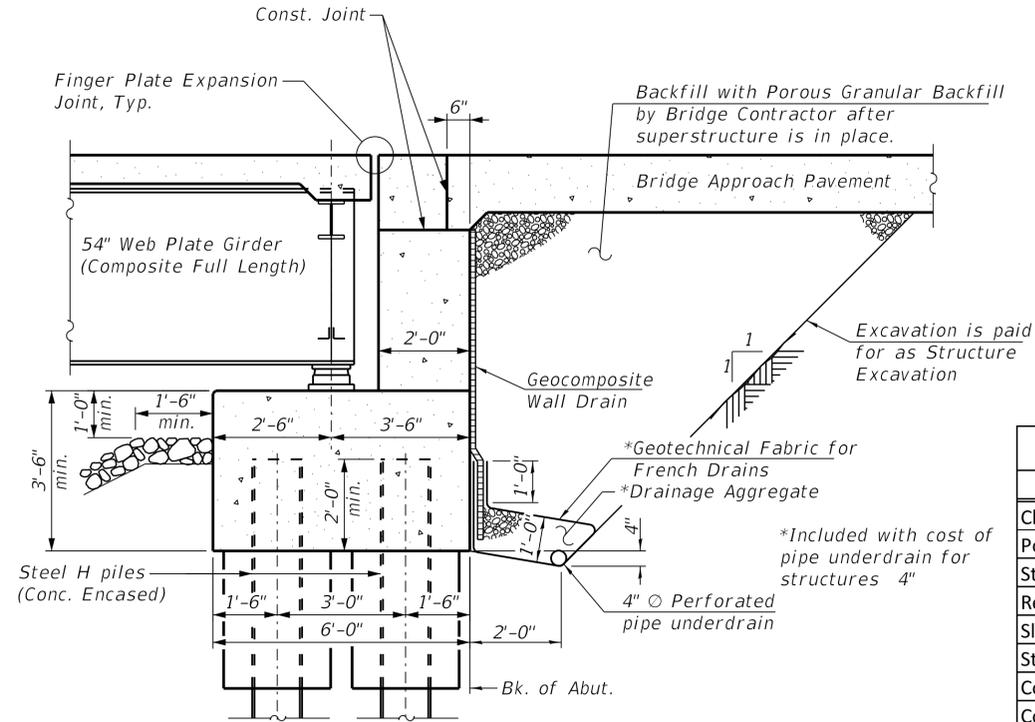
The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at 36' Lt. and Rt. (from C) of the bridge. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

The existing structural steel coating contains lead. The contractor shall take appropriate precautions to deal with the presence of lead on this project.



STONE RIPRAP ANCHOR DETAIL
(at Abutments)



SECTION THRU PILE SUPPORTED STUB ABUTMENT

INDEX OF BRIDGE SHEETS

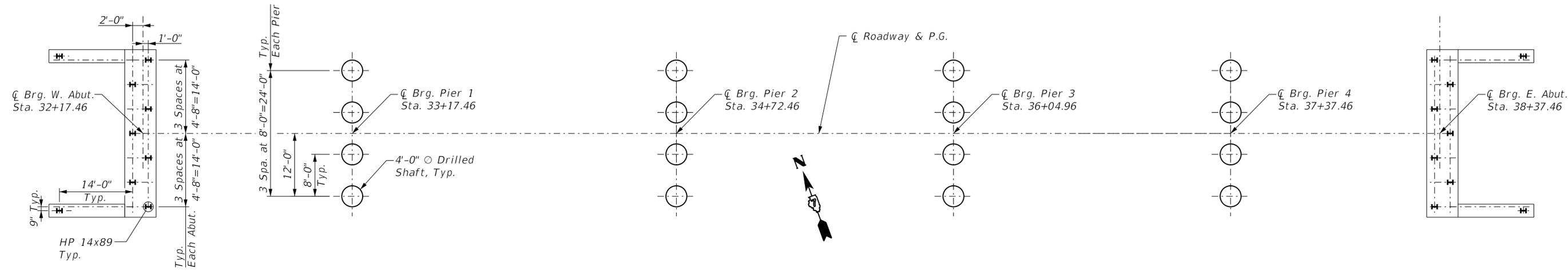
1. General Plan & Elevation
2. General Data & Summary of Bridge Quantities
3. Substructure Layout
- 4.-7. Top of Slab Elevations
8. Top of West Approach Slab Elevations
9. Top of East Approach Slab Elevations
- 10.-12. Superstructure Plan
13. Deck Cross Section & Pouring Sequence
14. Superstructure Details
- 15.-16. Bridge Approach Slab Details
- 17.-19. Steel Framing Plan
20. Camber Diagram & Top of Web Elevations
21. Girder Moment & Reaction Tables
22. Structural Steel Splices
23. Structural Steel Cross Frames
24. Abutments, Pier 2 & 3 Bearing Details
25. Pier 1 & 4 Bearing Details
26. Steel Railing, Type SM
- 27.-29. Finger Joint Details
- 30.-31. Abutment Details
32. Pier 1 Details
33. Pier 2 Details
34. Pier 3 Details
35. Pier 4 Details
36. Cofferdam & Drilled Shaft Details
37. HP Pile Details
38. Bar Splicer Assembly & Mechanical Splicer Details
- 39.-40. Boring Logs

Note:

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into *concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

Summary of Quantities (Bridge Only)

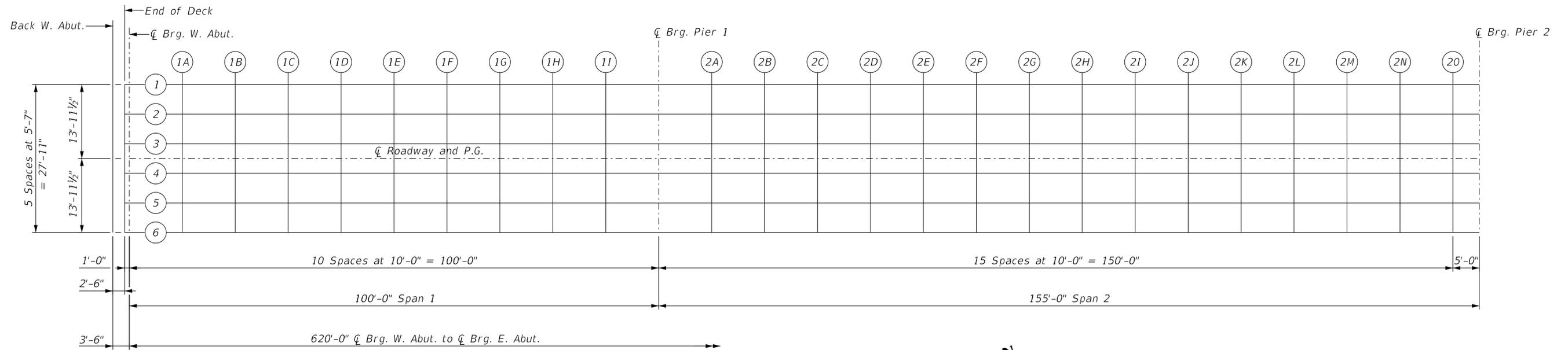
Item	Unit	Super.	Sub.	Total
Channel Excavation	Cu Yd	-	4018	4018
Porous Granular Backfill	Cu Yd	-	105	105
Stone Dumped Riprap, Class A4	Ton	-	1880	1880
Removal of Existing Structures	Each	1	-	1
Slope Wall Removal	Sq Yd	-	360	360
Structure Excavation	Cu Yd	-	376	376
Cofferdam Excavation	Cu Yd	-	917	917
Cofferdam (Type 1) (Location - 1)	Each	-	1	1
Cofferdam (Type 1) (Location - 2)	Each	-	1	1
Cofferdam (Type 1) (Location - 3)	Each	-	1	1
Cofferdam (Type 1) (Location - 4)	Each	-	1	1
Concrete Structures	Cu Yd	19.8	386.5	406.3
Concrete Superstructure	Cu Yd	574.7	-	574.7
Bridge Deck Grooving	Sq Yd	2202	-	2202
Concrete Encasement	Cu Yd	-	9.8	9.8
Protective Coat	Sq Yd	4879	-	4879
Concrete Superstructure (Approach Slab)	Cu Yd	92.1	-	92.1
Furnishing and Erecting Structural Steel	L Sum	1	-	1
Stud Shear Connectors	Each	7452	-	7452
Reinforcement Bars	Pound	-	72600	72600
Reinforcement Bars, Epoxy Coated	Pound	216330	43110	259440
Bar Splicers	Each	-	644	644
Mechanical Splicers	Each	-	192	192
Steel Railing, Type SM	Foot	1302	-	1302
Furnishing Steel Piles HP14x89	Foot	-	928	928
Driving Piles	Foot	-	928	928
Test Pile Steel HP14x89	Each	-	2	2
Name Plates	Each	-	1	1
Drilled Shaft in Soil	Cu Yd	-	342.5	342.5
Drilled Shaft in Rock	Cu Yd	-	140.7	140.7
Finger Plate Expansion Joint, 7"	Foot	64	-	64
Fabric Reinforced Elastomeric Trough	Foot	-	66	66
Elastomeric Bearing Assembly, Type I	Each	12	-	12
Elastomeric Bearing Assembly, Type II	Each	12	-	12
Anchor Bolts, 3/4"	Each	-	24	24
Anchor Bolts, 1 1/4"	Each	-	24	24
Concrete Sealer	Sq Ft	-	756	756
Geocomposite Wall Drain	Sq Yd	-	49	49
Thermal Integrity Profile Testing	Each	-	16	16
Thermal Integrity Profile Data Collection	Foot	-	865	865
Pipe Underdrains for Structures 4"	Foot	-	200	200



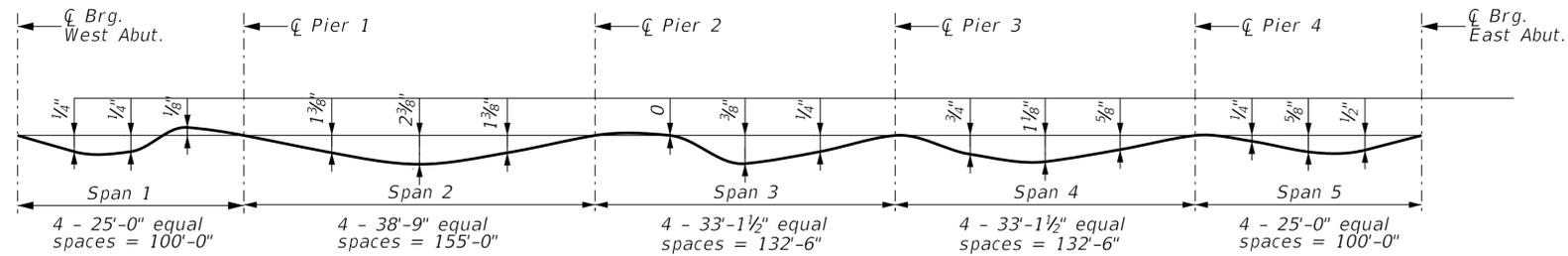
SUBSTRUCTURE LAYOUT

DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	10
			CONTRACT NO. 95863	



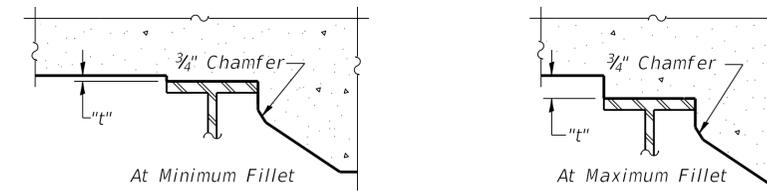
PLAN - TOP OF SLAB ELEVATIONS



DEAD LOAD DEFLECTION DIAGRAM

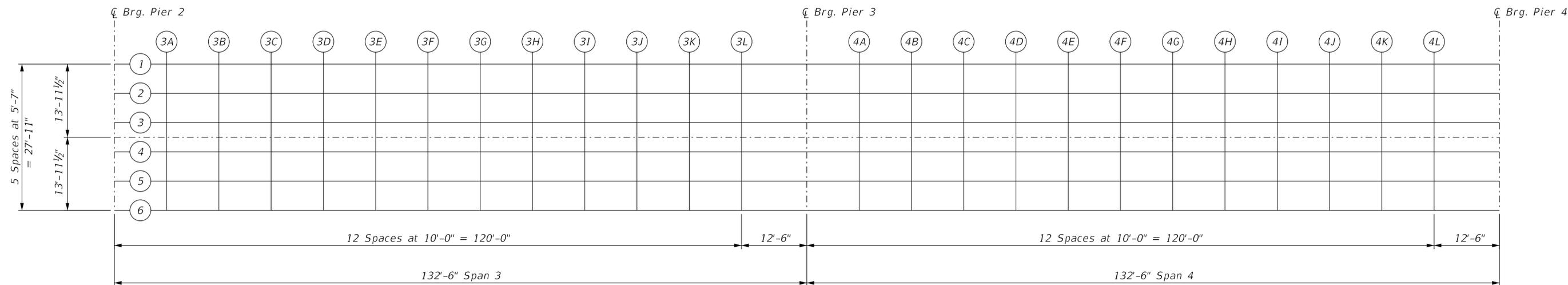
(Includes weight of concrete only.)

Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on the Top of Slab Elevation sheets.

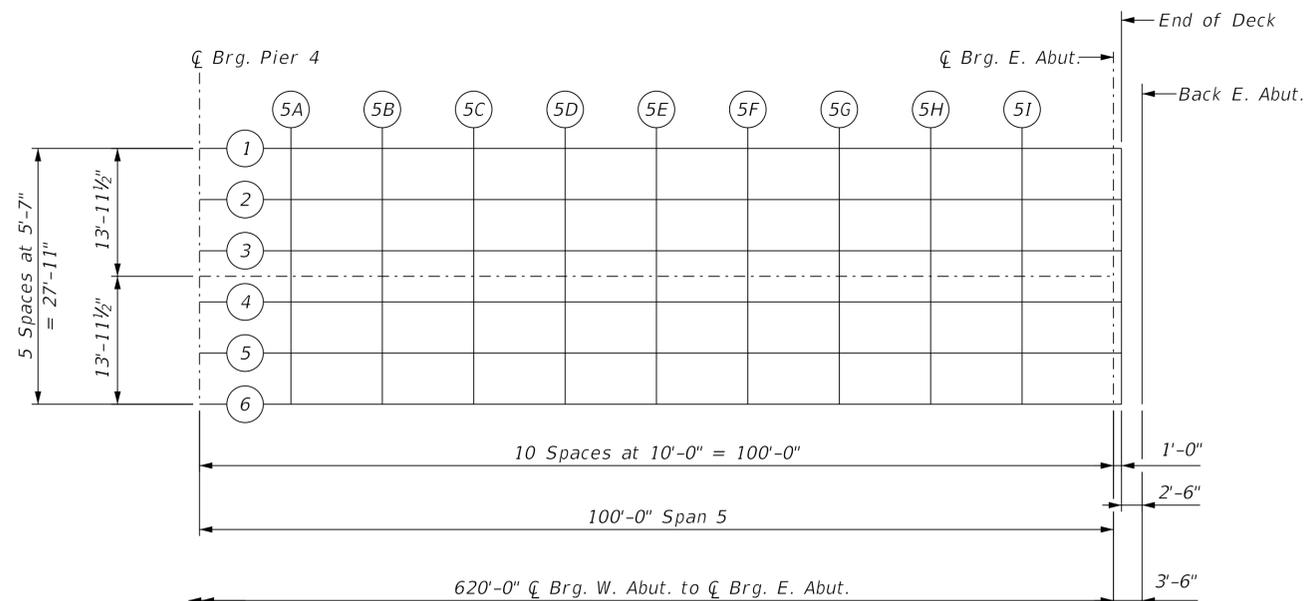


To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on the Top of Slab Elevations sheets. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" on Top of Slab Elevations sheets, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS



PLAN - TOP OF SLAB ELEVATIONS



PLAN - TOP OF SLAB ELEVATIONS

DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	12
CONTRACT NO. 95863				

Girders 1 & 6				
Location	Station	Offset (ft)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
End of Deck	32+16.46	13.96	460.28	460.28
CL Brg. W. Abut	32+17.46	13.96	460.28	460.28
1A	32+27.46	13.96	460.28	460.29
1B	32+37.46	13.96	460.28	460.30
1C	32+47.46	13.96	460.28	460.30
1D	32+57.46	13.96	460.28	460.30
1E	32+67.46	13.96	460.28	460.30
1F	32+77.46	13.96	460.28	460.29
1G	32+87.46	13.96	460.28	460.28
1H	32+97.46	13.96	460.28	460.27
1I	33+07.46	13.96	460.28	460.27
CL Pier 1	33+17.46	13.96	460.28	460.28
2A	33+27.46	13.96	460.28	460.30
2B	33+37.46	13.96	460.28	460.33
2C	33+47.46	13.96	460.28	460.36
2D	33+57.46	13.96	460.28	460.40
2E	33+67.46	13.96	460.28	460.43
2F	33+77.46	13.96	460.28	460.46
2G	33+87.46	13.96	460.28	460.47
2H	33+97.46	13.96	460.28	460.47
2I	34+07.46	13.96	460.28	460.46
2J	34+17.46	13.96	460.28	460.44
2K	34+27.46	13.96	460.28	460.42
2L	34+37.46	13.96	460.28	460.38
2M	34+47.46	13.96	460.28	460.35
2N	34+57.46	13.96	460.28	460.31
2O	34+67.46	13.96	460.28	460.29
CL Pier 2	34+72.46	13.96	460.28	460.28
3A	34+82.46	13.96	460.28	460.27
3B	34+92.46	13.96	460.28	460.27
3C	35+02.46	13.96	460.28	460.28
3D	35+12.46	13.96	460.28	460.29
3E	35+22.46	13.96	460.28	460.30
3F	35+32.46	13.96	460.28	460.31
3G	35+42.46	13.96	460.28	460.31
3H	35+52.46	13.96	460.28	460.31
3I	35+62.46	13.96	460.28	460.31
3J	35+72.46	13.96	460.28	479.03
3K	35+82.46	13.96	460.28	460.29
3L	35+92.46	13.96	460.28	460.28
CL Pier 3	36+04.96	13.96	460.28	460.28
4A	36+14.96	13.96	460.28	460.29
4B	36+24.96	13.96	460.28	460.31
4C	36+34.96	13.96	460.28	460.33
4D	36+44.96	13.96	460.28	460.35
4E	36+54.96	13.96	460.28	460.36
4F	36+64.96	13.96	460.28	460.37
4G	36+74.96	13.96	460.28	460.37
4H	36+84.96	13.96	460.28	460.36
4I	36+94.96	13.96	460.28	460.35
4J	37+04.96	13.96	460.28	460.33
4K	37+14.96	13.96	460.28	460.31
4L	37+24.96	13.96	460.28	460.29
CL Pier 4	37+37.46	13.96	460.28	460.28
5A	37+47.46	13.96	460.28	460.28
5B	37+57.46	13.96	460.28	460.29
5C	37+67.46	13.96	460.28	460.30
5D	37+77.46	13.96	460.28	460.32
5E	37+87.46	13.96	460.28	460.33
5F	37+97.46	13.96	460.28	460.33
5G	38+07.46	13.96	460.28	460.33
5H	38+17.46	13.96	460.28	460.32
5I	38+27.46	13.96	460.28	460.30
CL Brg. E. Abut	38+37.46	13.96	460.28	460.28
End of Deck	38+38.46	13.96	460.28	460.28

Giders 2 & 5				
Location	Station	Offset (ft)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
End of Deck	32+16.46	8.38	460.48	460.48
CL Brg. W. Abut	32+17.46	8.38	460.48	460.48
1A	32+27.46	8.38	460.48	460.49
1B	32+37.46	8.38	460.48	460.50
1C	32+47.46	8.38	460.48	460.50
1D	32+57.46	8.38	460.48	460.50
1E	32+67.46	8.38	460.48	460.49
1F	32+77.46	8.38	460.48	460.49
1G	32+87.46	8.38	460.48	460.48
1H	32+97.46	8.38	460.48	460.47
1I	33+07.46	8.38	460.48	460.47
CL Pier 1	33+17.46	8.38	460.48	460.48
2A	33+27.46	8.38	460.48	460.50
2B	33+37.46	8.38	460.48	460.53
2C	33+47.46	8.38	460.48	460.56
2D	33+57.46	8.38	460.48	460.60
2E	33+67.46	8.38	460.48	460.63
2F	33+77.46	8.38	460.48	460.65
2G	33+87.46	8.38	460.48	460.67
2H	33+97.46	8.38	460.48	460.67
2I	34+07.46	8.38	460.48	460.66
2J	34+17.46	8.38	460.48	460.64
2K	34+27.46	8.38	460.48	460.61
2L	34+37.46	8.38	460.48	460.58
2M	34+47.46	8.38	460.48	460.54
2N	34+57.46	8.38	460.48	460.51
2O	34+67.46	8.38	460.48	460.49
CL Pier 2	34+72.46	8.38	460.48	460.48
3A	34+82.46	8.38	460.48	460.47
3B	34+92.46	8.38	460.48	460.47
3C	35+02.46	8.38	460.48	460.48
3D	35+12.46	8.38	460.48	460.49
3E	35+22.46	8.38	460.48	460.50
3F	35+32.46	8.38	460.48	460.51
3G	35+42.46	8.38	460.48	460.51
3H	35+52.46	8.38	460.48	460.51
3I	35+62.46	8.38	460.48	460.50
3J	35+72.46	8.38	460.48	479.23
3K	35+82.46	8.38	460.48	460.48
3L	35+92.46	8.38	460.48	460.48
CL Pier 3	36+04.96	8.38	460.48	460.48
4A	36+14.96	8.38	460.48	460.49
4B	36+24.96	8.38	460.48	460.51
4C	36+34.96	8.38	460.48	460.53
4D	36+44.96	8.38	460.48	460.55
4E	36+54.96	8.38	460.48	460.56
4F	36+64.96	8.38	460.48	460.57
4G	36+74.96	8.38	460.48	460.57
4H	36+84.96	8.38	460.48	460.56
4I	36+94.96	8.38	460.48	460.55
4J	37+04.96	8.38	460.48	460.53
4K	37+14.96	8.38	460.48	460.51
4L	37+24.96	8.38	460.48	460.49
CL Pier 4	37+37.46	8.38	460.48	460.48
5A	37+47.46	8.38	460.48	460.48
5B	37+57.46	8.38	460.48	460.49
5C	37+67.46	8.38	460.48	460.50
5D	37+77.46	8.38	460.48	460.51
5E	37+87.46	8.38	460.48	460.52
5F	37+97.46	8.38	460.48	460.53
5G	38+07.46	8.38	460.48	460.52
5H	38+17.46	8.38	460.48	460.51
5I	38+27.46	8.38	460.48	460.50
CL Brg. E. Abut	38+37.46	8.38	460.48	460.48
End of Deck	38+38.46	8.38	460.48	460.48



DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 013-3250
BRIDGE SHEET 6 OF 40 SHEETS

ROUTE		SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799		14-00090-00-BR	CLAY	51	13
CONTRACT NO. 95863					

RAAI JOB NO. 54115

Giders 3 & 4				
Location	Station	Offset (ft)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
End of Deck	32+16.46	2.79	460.59	460.59
CL Brg. W. Abut	32+17.46	2.79	460.59	460.59
1A	32+27.46	2.79	460.59	460.60
1B	32+37.46	2.79	460.59	460.61
1C	32+47.46	2.79	460.59	460.62
1D	32+57.46	2.79	460.59	460.62
1E	32+67.46	2.79	460.59	460.61
1F	32+77.46	2.79	460.59	460.61
1G	32+87.46	2.79	460.59	460.59
1H	32+97.46	2.79	460.59	460.59
1I	33+07.46	2.79	460.59	460.58
CL Pier 1	33+17.46	2.79	460.59	460.59
2A	33+27.46	2.79	460.59	460.61
2B	33+37.46	2.79	460.59	460.64
2C	33+47.46	2.79	460.59	460.68
2D	33+57.46	2.79	460.59	460.71
2E	33+67.46	2.79	460.59	460.75
2F	33+77.46	2.79	460.59	460.77
2G	33+87.46	2.79	460.59	460.79
2H	33+97.46	2.79	460.59	460.79
2I	34+07.46	2.79	460.59	460.78
2J	34+17.46	2.79	460.59	460.76
2K	34+27.46	2.79	460.59	460.73
2L	34+37.46	2.79	460.59	460.70
2M	34+47.46	2.79	460.59	460.66
2N	34+57.46	2.79	460.59	460.63
2O	34+67.46	2.79	460.59	460.60
CL Pier 2	34+72.46	2.79	460.59	460.59
3A	34+82.46	2.79	460.59	460.59
3B	34+92.46	2.79	460.59	460.59
3C	35+02.46	2.79	460.59	460.60
3D	35+12.46	2.79	460.59	460.61
3E	35+22.46	2.79	460.59	460.62
3F	35+32.46	2.79	460.59	460.62
3G	35+42.46	2.79	460.59	460.63
3H	35+52.46	2.79	460.59	460.63
3I	35+62.46	2.79	460.59	460.62
3J	35+72.46	2.79	460.59	479.34
3K	35+82.46	2.79	460.59	460.60
3L	35+92.46	2.79	460.59	460.59
CL Pier 3	36+04.96	2.79	460.59	460.59
4A	36+14.96	2.79	460.59	460.60
4B	36+24.96	2.79	460.59	460.62
4C	36+34.96	2.79	460.59	460.64
4D	36+44.96	2.79	460.59	460.66
4E	36+54.96	2.79	460.59	460.68
4F	36+64.96	2.79	460.59	460.69
4G	36+74.96	2.79	460.59	460.69
4H	36+84.96	2.79	460.59	460.68
4I	36+94.96	2.79	460.59	460.66
4J	37+04.96	2.79	460.59	460.64
4K	37+14.96	2.79	460.59	460.62
4L	37+24.96	2.79	460.59	460.61
CL Pier 4	37+37.46	2.79	460.59	460.59
5A	37+47.46	2.79	460.59	460.59
5B	37+57.46	2.79	460.59	460.60
5C	37+67.46	2.79	460.59	460.62
5D	37+77.46	2.79	460.59	460.63
5E	37+87.46	2.79	460.59	460.64
5F	37+97.46	2.79	460.59	460.64
5G	38+07.46	2.79	460.59	460.64
5H	38+17.46	2.79	460.59	460.63
5I	38+27.46	2.79	460.59	460.61
CL Brg. E. Abut	38+37.46	2.79	460.59	460.59
End of Deck	38+38.46	2.79	460.59	460.59

Centerline Road and P.G.				
Location	Station	Offset (ft)	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted for Dead Load Deflection
End of Deck	32+16.46	0.00	460.65	460.65
CL Brg. W. Abut	32+17.46	0.00	460.65	460.65
1A	32+27.46	0.00	460.65	460.66
1B	32+37.46	0.00	460.65	460.67
1C	32+47.46	0.00	460.65	460.68
1D	32+57.46	0.00	460.65	460.67
1E	32+67.46	0.00	460.65	460.67
1F	32+77.46	0.00	460.65	460.66
1G	32+87.46	0.00	460.65	460.65
1H	32+97.46	0.00	460.65	460.64
1I	33+07.46	0.00	460.65	460.64
CL Pier 1	33+17.46	0.00	460.65	460.65
2A	33+27.46	0.00	460.65	460.67
2B	33+37.46	0.00	460.65	460.70
2C	33+47.46	0.00	460.65	460.74
2D	33+57.46	0.00	460.65	460.77
2E	33+67.46	0.00	460.65	460.80
2F	33+77.46	0.00	460.65	460.83
2G	33+87.46	0.00	460.65	460.84
2H	33+97.46	0.00	460.65	460.85
2I	34+07.46	0.00	460.65	460.84
2J	34+17.46	0.00	460.65	460.82
2K	34+27.46	0.00	460.65	460.79
2L	34+37.46	0.00	460.65	460.75
2M	34+47.46	0.00	460.65	460.72
2N	34+57.46	0.00	460.65	460.69
2O	34+67.46	0.00	460.65	460.66
CL Pier 2	34+72.46	0.00	460.65	460.65
3A	34+82.46	0.00	460.65	460.64
3B	34+92.46	0.00	460.65	460.65
3C	35+02.46	0.00	460.65	460.65
3D	35+12.46	0.00	460.65	460.66
3E	35+22.46	0.00	460.65	460.67
3F	35+32.46	0.00	460.65	460.68
3G	35+42.46	0.00	460.65	460.69
3H	35+52.46	0.00	460.65	460.68
3I	35+62.46	0.00	460.65	460.68
3J	35+72.46	0.00	460.65	479.40
3K	35+82.46	0.00	460.65	460.66
3L	35+92.46	0.00	460.65	460.65
CL Pier 3	36+04.96	0.00	460.65	460.65
4A	36+14.96	0.00	460.65	460.66
4B	36+24.96	0.00	460.65	460.68
4C	36+34.96	0.00	460.65	460.70
4D	36+44.96	0.00	460.65	460.72
4E	36+54.96	0.00	460.65	460.74
4F	36+64.96	0.00	460.65	460.74
4G	36+74.96	0.00	460.65	460.74
4H	36+84.96	0.00	460.65	460.74
4I	36+94.96	0.00	460.65	460.72
4J	37+04.96	0.00	460.65	460.70
4K	37+14.96	0.00	460.65	460.68
4L	37+24.96	0.00	460.65	460.66
CL Pier 4	37+37.46	0.00	460.65	460.65
5A	37+47.46	0.00	460.65	460.65
5B	37+57.46	0.00	460.65	460.66
5C	37+67.46	0.00	460.65	460.68
5D	37+77.46	0.00	460.65	460.69
5E	37+87.46	0.00	460.65	460.70
5F	37+97.46	0.00	460.65	460.70
5G	38+07.46	0.00	460.65	460.70
5H	38+17.46	0.00	460.65	460.69
5I	38+27.46	0.00	460.65	460.67
CL Brg. E. Abut	38+37.46	0.00	460.65	460.65
End of Deck	38+38.46	0.00	460.65	460.65



DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 013-3250
BRIDGE SHEET 7 OF 40 SHEETS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	14
CONTRACT NO. 95863			RAAI JOB NO. 54115	

NORTH EDGE OF SHOULDER

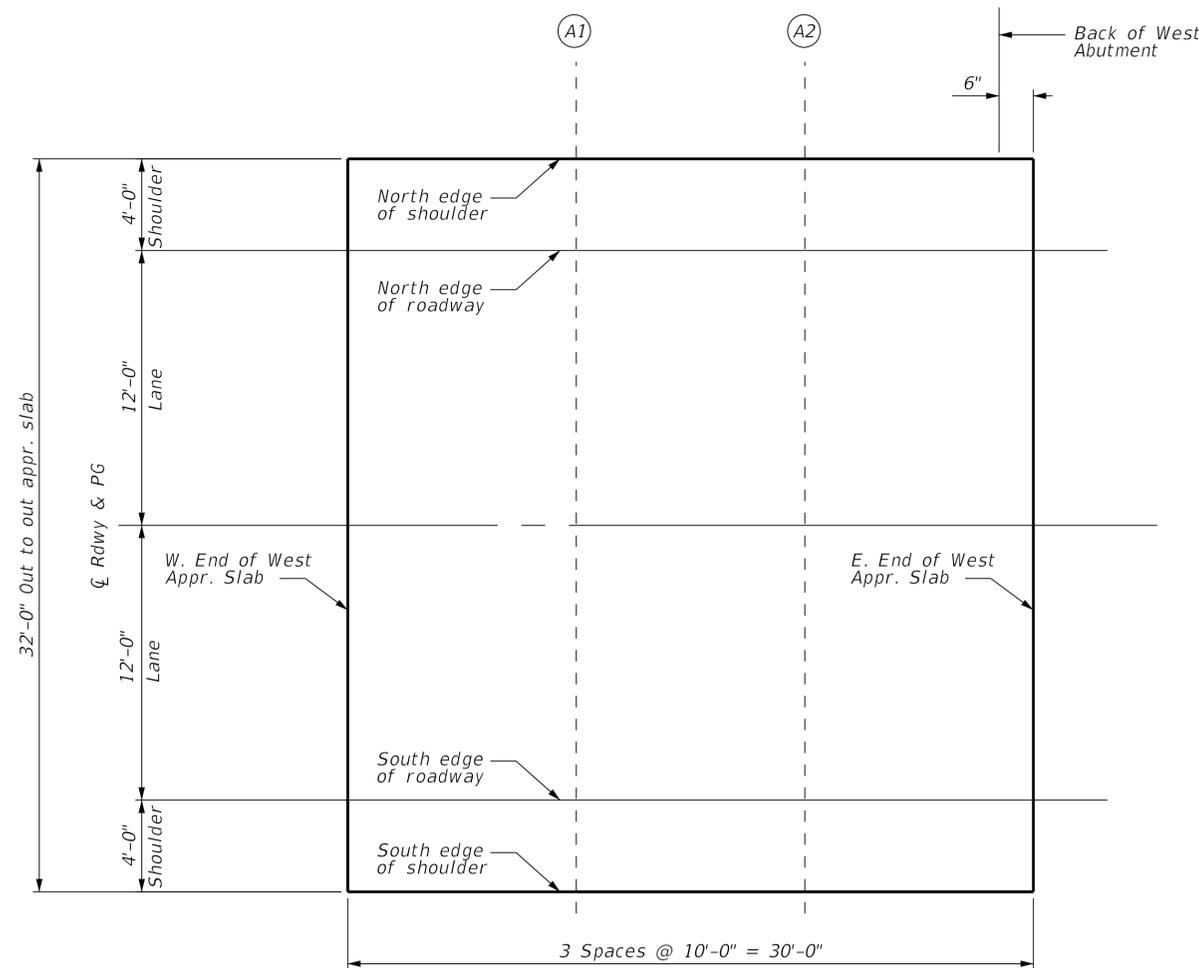
Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	31+84.46	-16.00	460.00
A1	31+94.46	-16.00	460.05
A2	32+04.46	-16.00	460.10
E. End West Appr. Slab	32+14.46	-16.00	460.15

NORTH EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	31+84.46	-12.00	460.25
A1	31+94.46	-12.00	460.30
A2	32+04.46	-12.00	460.35
E. End West Appr. Slab	32+14.46	-12.00	460.40

CL RDWY & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	31+84.46	0.00	460.50
A1	31+94.46	0.00	460.55
A2	32+04.46	0.00	460.60
E. End West Appr. Slab	32+14.46	0.00	460.65



WEST APPROACH PLAN

SOUTH EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	31+84.46	12.00	460.25
A1	31+94.46	12.00	460.30
A2	32+04.46	12.00	460.35
E. End West Appr. Slab	32+14.46	12.00	460.40

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	31+84.46	16.00	460.00
A1	31+94.46	16.00	460.05
A2	32+04.46	16.00	460.10
E. End West Appr. Slab	32+14.46	16.00	460.15

NORTH EDGE OF SHOULDER

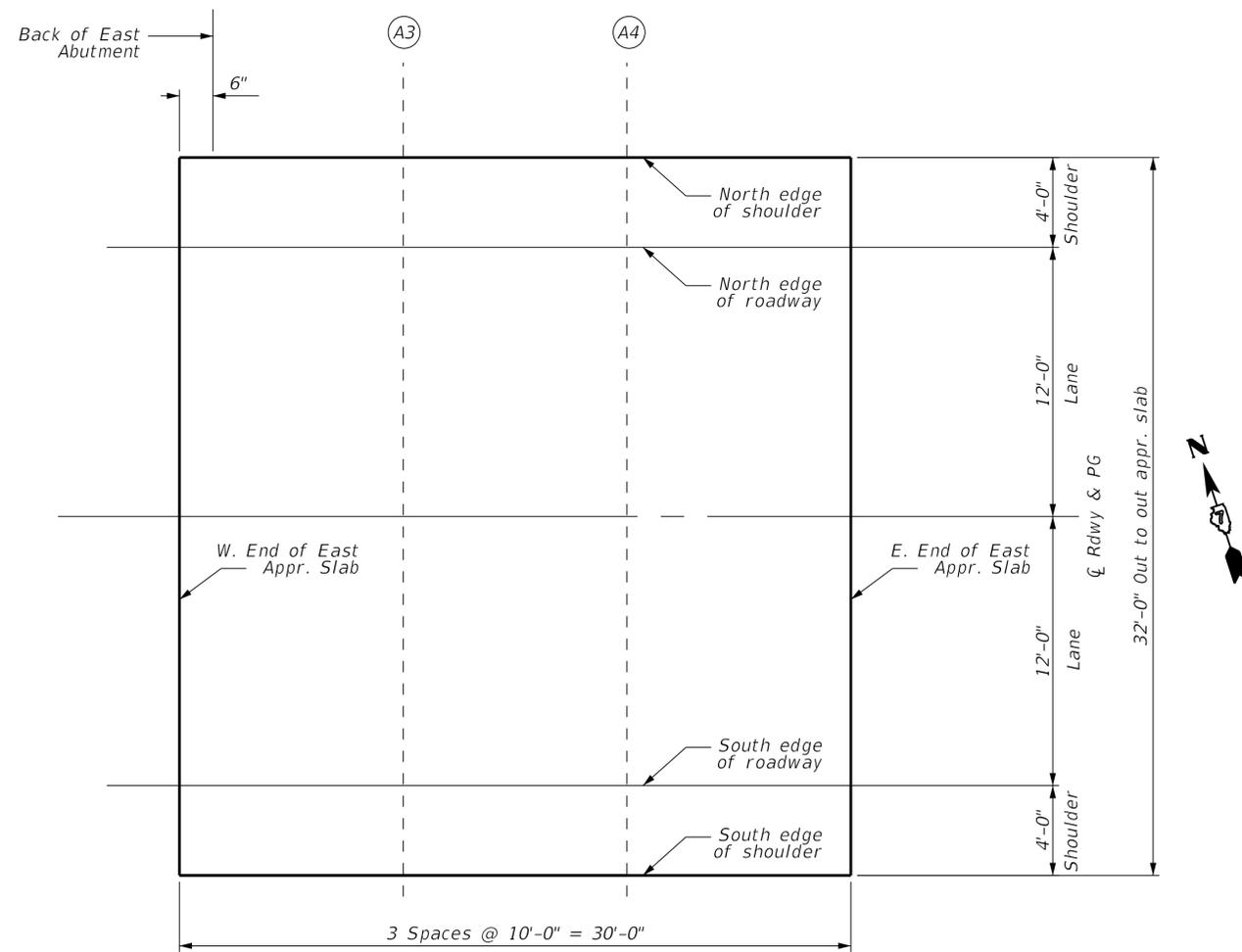
Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	38+40.46	-16.00	460.15
A3	38+50.46	-16.00	460.13
A4	38+60.46	-16.00	460.12
E. End East Appr. Slab	38+70.46	-16.00	460.10

NORTH EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	38+40.46	-12.00	460.40
A3	38+50.46	-12.00	460.38
A4	38+60.46	-12.00	460.37
E. End East Appr. Slab	38+70.46	-12.00	460.35

CL RDWY & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	38+40.46	0.00	460.65
A3	38+50.46	0.00	460.63
A4	38+60.46	0.00	460.62
E. End East Appr. Slab	38+70.46	0.00	460.60



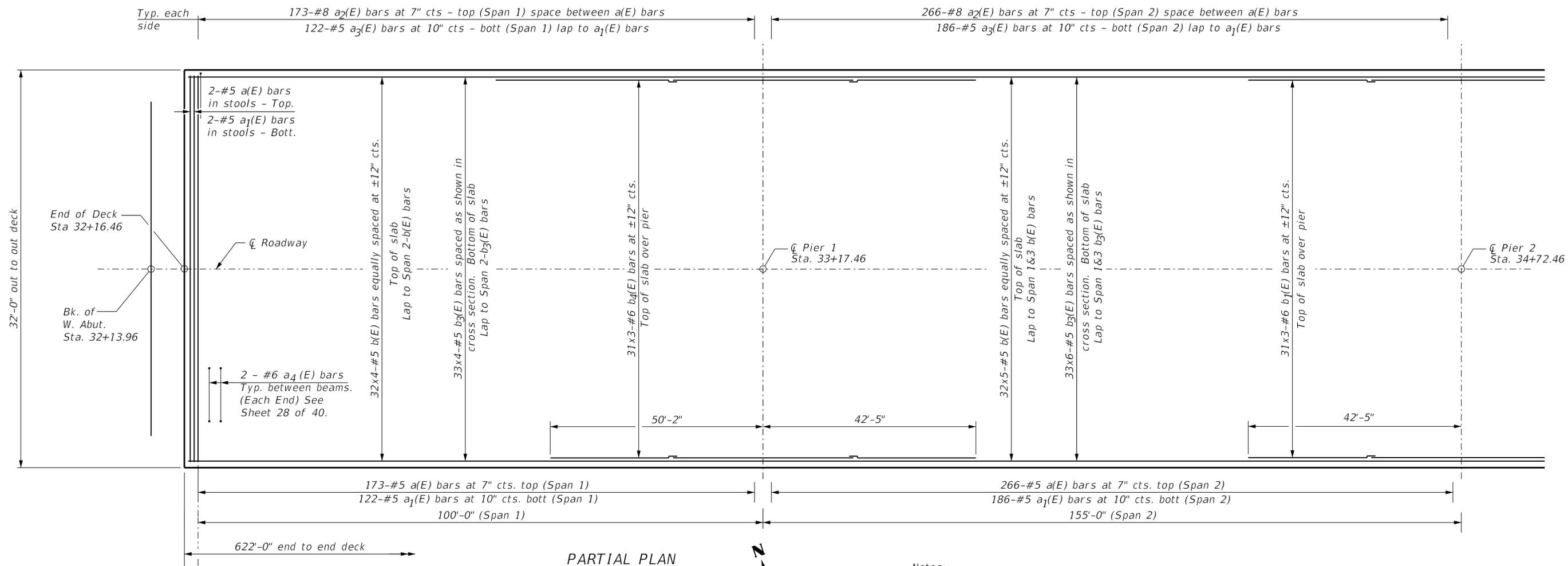
EAST APPROACH PLAN

SOUTH EDGE OF ROADWAY

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	38+40.46	12.00	460.40
A3	38+50.46	12.00	460.38
A4	38+60.46	12.00	460.37
E. End East Appr. Slab	38+70.46	12.00	460.35

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	38+40.46	16.00	460.15
A3	38+50.46	16.00	460.13
A4	38+60.46	16.00	460.12
E. End East Appr. Slab	38+70.46	16.00	460.10



MINIMUM BAR LAP
(Slab)
#5 bar = 3'-6"
#6 bar = 4'-10"

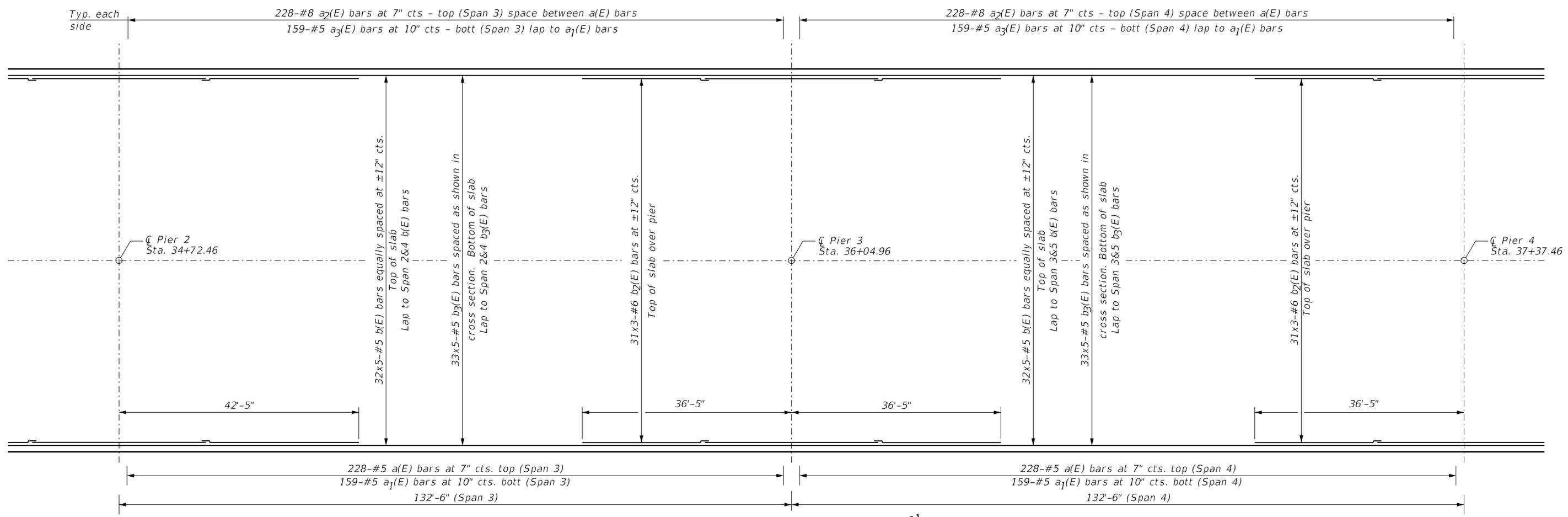
PARTIAL PLAN



Notes:
See sheets 13 & 14 of 40 for superstructure details and Bill of Material.
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See sheet 28 of 40 for end of deck details.

DESIGNED -	WDL/JSP/BLT	REVISED -	11/04/2019
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	17
CONTRACT NO. 95863			RAAI JOB NO. 54115	



MINIMUM BAR LAP
 (Slab)
 #5 bar = 3'-6"
 #6 bar = 4'-10"

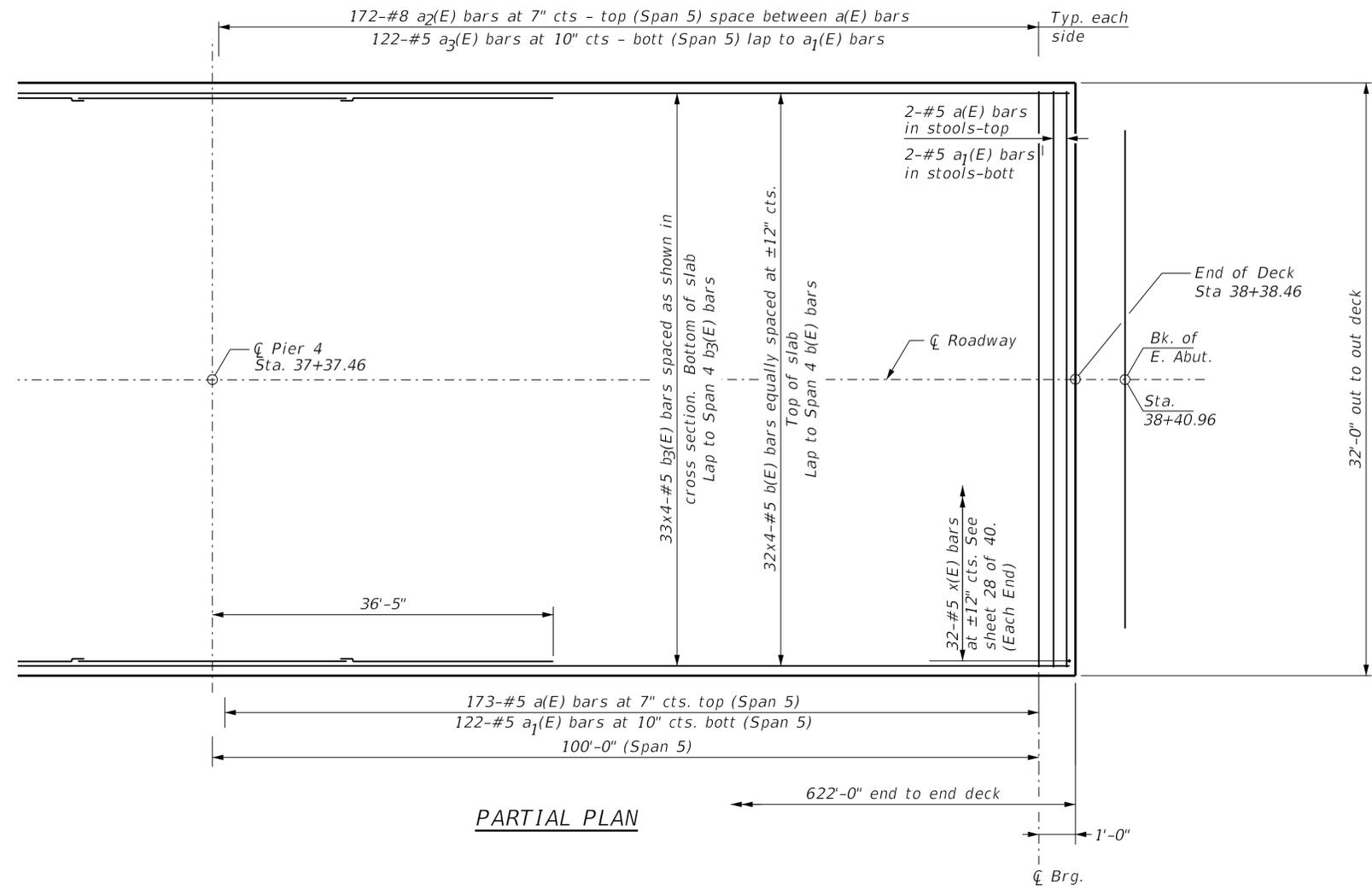
PARTIAL PLAN



Notes:
 See sheets 13 & 14 of 40 for superstructure details and Bill of Material.
 Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	18
CONTRACT NO. 95863				

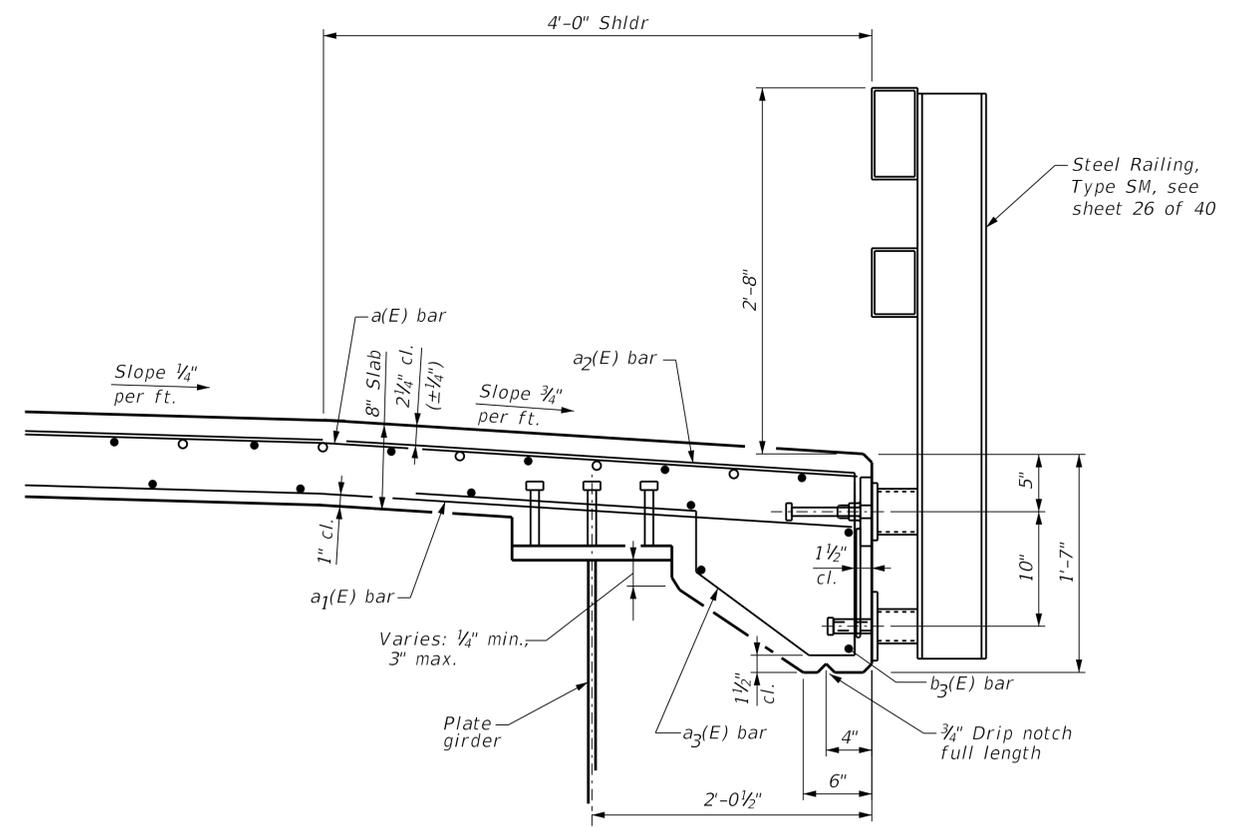


PARTIAL PLAN

MINIMUM BAR LAP

(Slab)
 #5 bar = 3'-6"
 #6 bar = 4'-10"

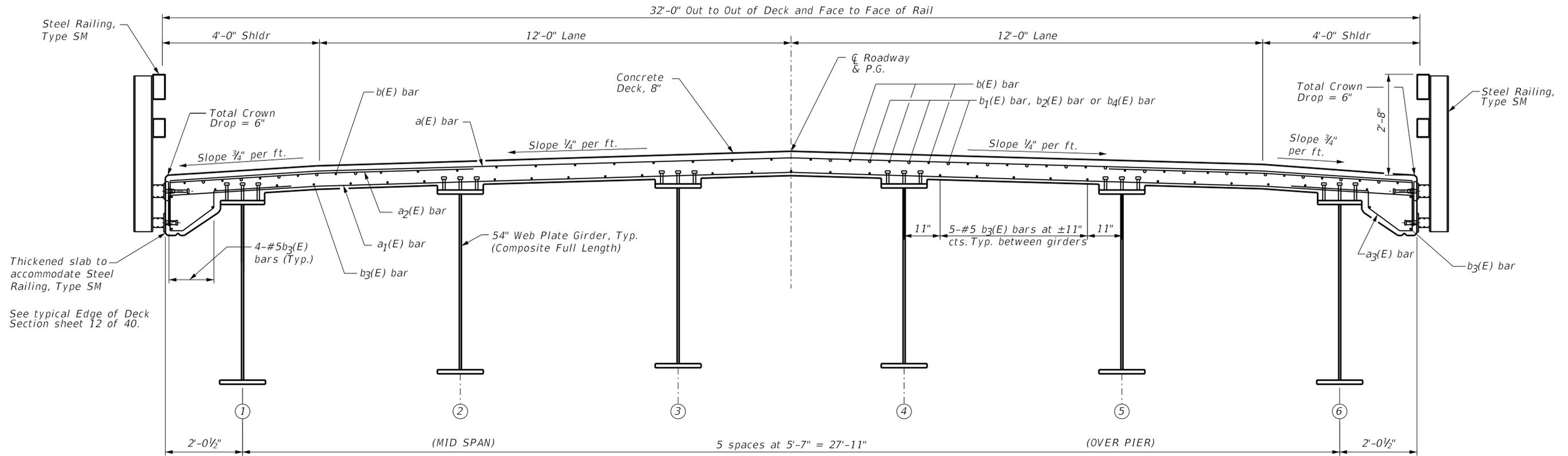
Notes:
 See sheets 13 & 14 of 40 for superstructure details and Bill of Material.
 Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
 See sheet 28 of 40 for end of deck details.



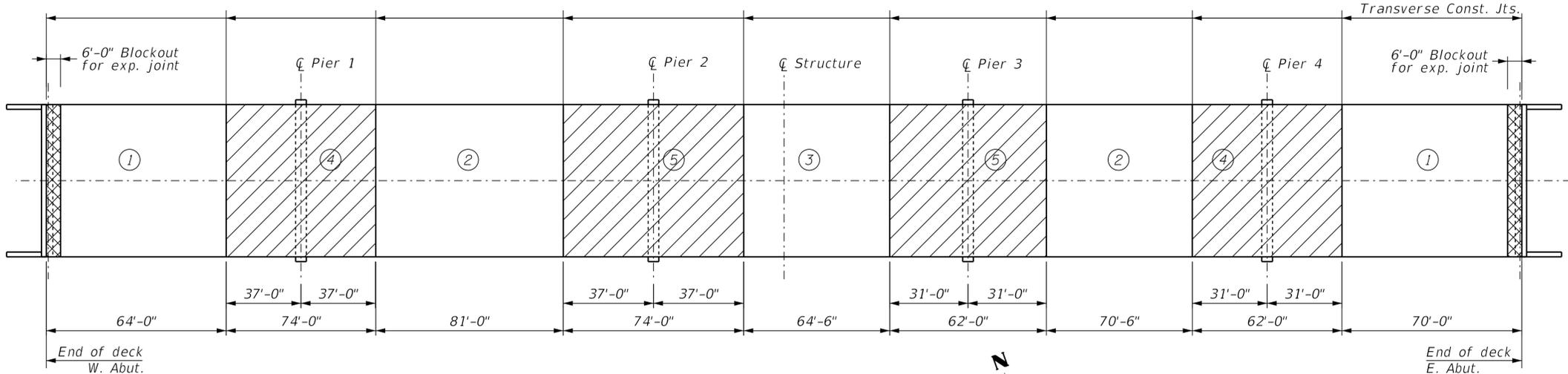
TYPICAL SECTION - EDGE OF DECK

DESIGNED -	WDL/JSP/BLT	REVISED -	11/04/2019
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	19
CONTRACT NO. 95863			RAAI JOB NO. 54115	



CROSS SECTION
(Looking East)

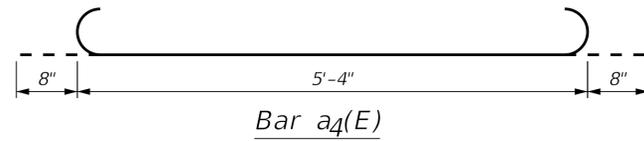
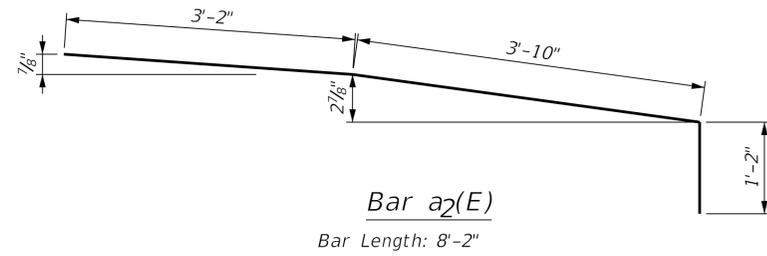
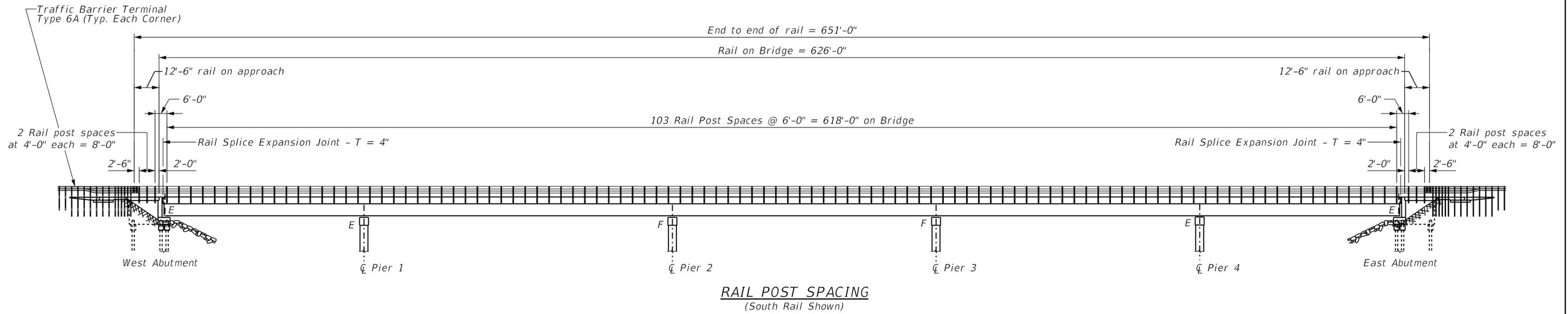


DECK POURING SEQUENCE

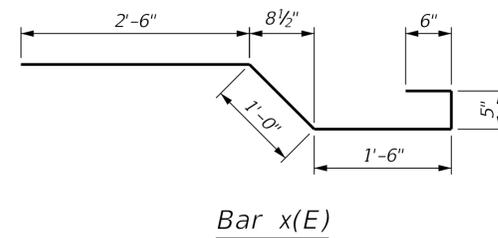
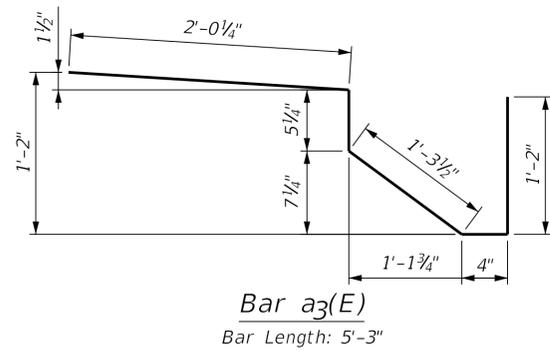
Note:
When the deck pour is stopped for the day at one or more of the transverse bonded construction joints in the deck pouring sequence as shown, the next pour shall not begin until both of the following are met:

- At least 72 hours shall have elapsed from the end of the previous pour.
- The concrete strength shall have attained a minimum flexural strength of 650 psi or a minimum compressive strength of 3500 psi.

Top of Slab elevations set for Deck Placing sequences 1, 2, & 3 (Positive Areas) placed in same day. Deck placing sequences 4 & 5 (Negative Areas) placed in the same day and a minimum 72 hours after the positive areas. If a different sequence is used, the contractor shall submit the revised Top of Slab elevations to Engineer for review and approval.

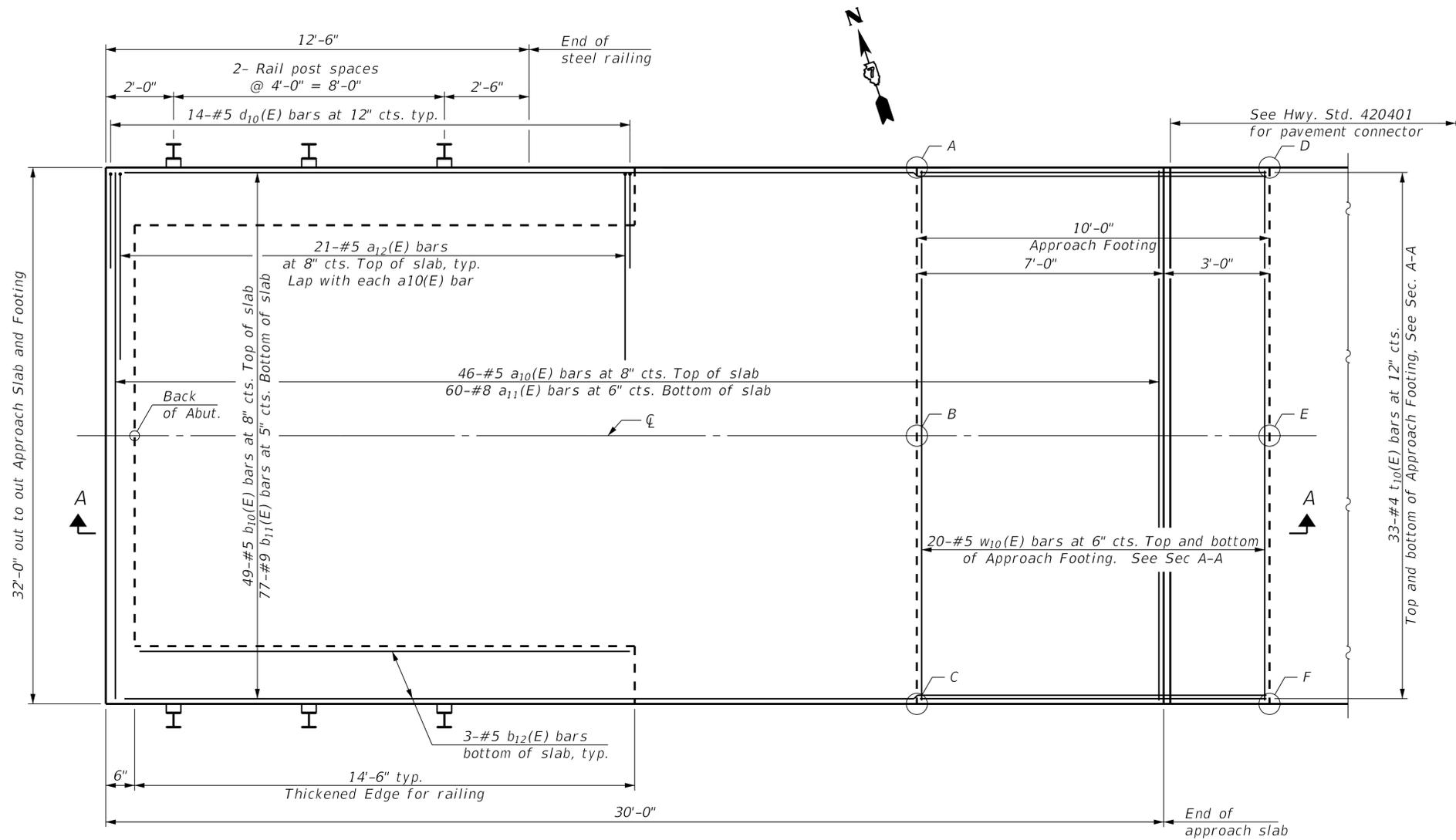


See sheet 26 of 40 for rail details.
 See sheets 15 & 16 of 40 for approach slab details.



**SUPERSTRUCTURE
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	1072	#5	31'-8"	—
a ₁ (E)	752	#5	31'-6"	—
a ₂ (E)	2134	#8	8'-2"	—
a ₃ (E)	1496	#5	5'-3"	—
a ₄ (E)	20	#6	6'-8"	—
b(E)	736	#5	30'-5"	—
b ₁ (E)	93	#6	31'-6"	—
b ₂ (E)	186	#6	27'-6"	—
b ₃ (E)	792	#5	29'-4"	—
b ₄ (E)	93	#6	34'-1"	—
x(E)	64	#5	6'-11"	—
Concrete Superstructure			Cu. Yd.	574.7
Reinforcement Bars, Epoxy Coated			Pound	179,930
Steel Railing, Type SM			Foot	1302

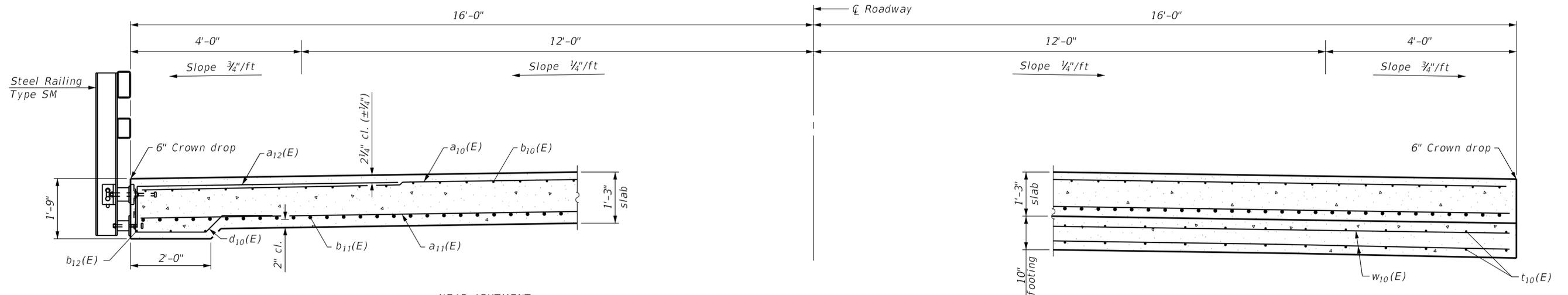


PLAN
(East Approach Shown)

**TOP AND BOTTOM ELEVATIONS
FOR APPROACH FOOTING**

Point	West Approach		East Approach	
	Top	Bottom	Top	Bottom
A	458.79	457.96	458.86	458.03
B	459.29	458.46	459.36	458.53
C	458.79	457.96	458.86	458.03
D	458.74	457.91	458.84	458.01
E	459.24	458.41	459.34	458.51
F	458.74	457.91	458.84	458.01

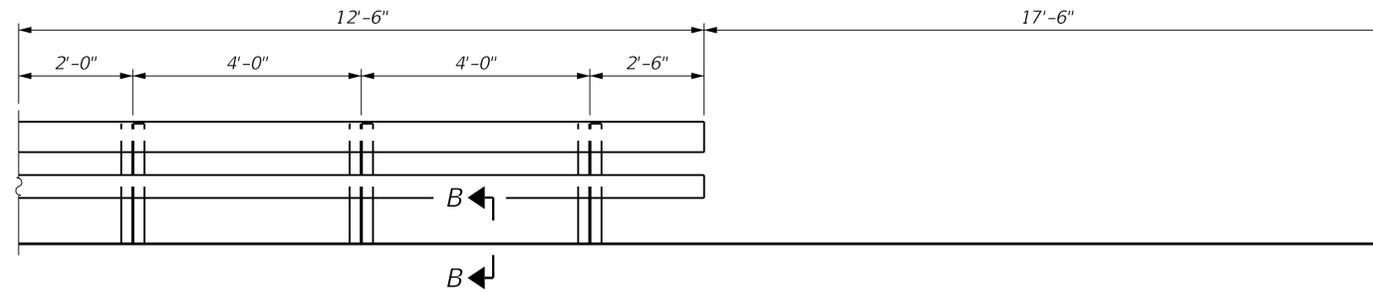
Note:
See sheet 16 of 40 for section A-A and Bill of Materials



NEAR ABUTMENT

CROSS SECTION
(Looking East)

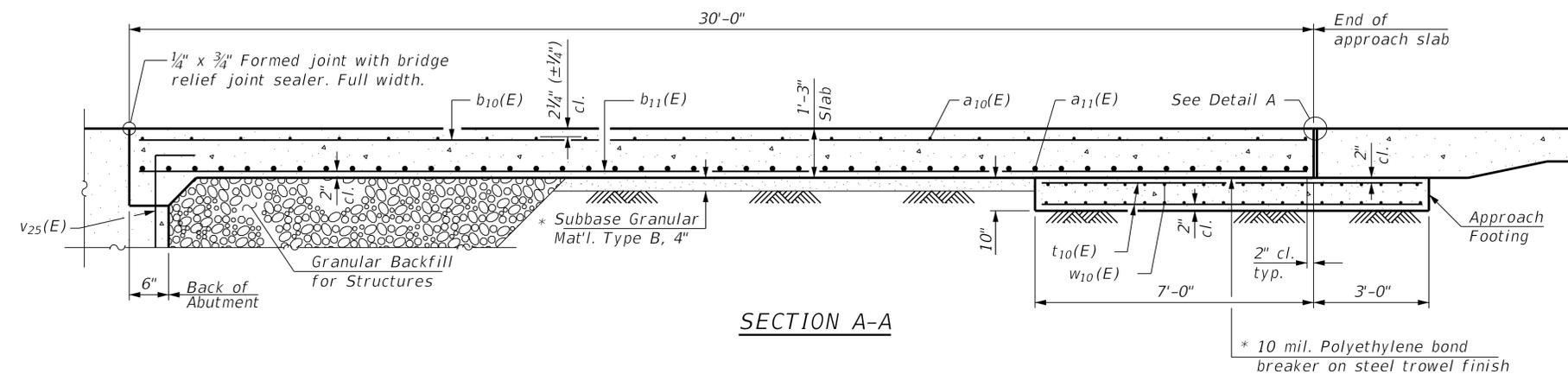
AT APPROACH FOOTING



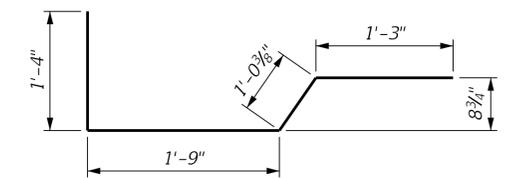
INSIDE ELEVATION OF RAILING

Note: Rail Quantity included on sheet 14 of 40.

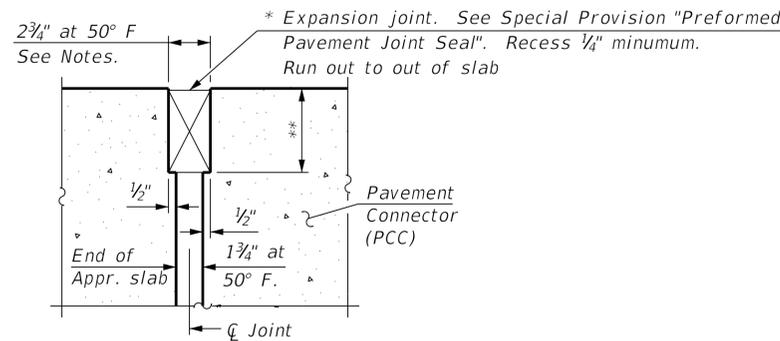
Notes:
 The joint opening shall be adjusted for temperature per Article 520.04 of the Standard Specifications.
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).
 Approach footing concrete shall be paid for as Concrete Structures.
 The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
 Cost of excavation for approach footing included with Concrete Structures.
 For Granular Backfill for Structures and drainage treatment details, see sheet 2 of 40.
 For railing details, see sheet 26 of 40.



SECTION A-A



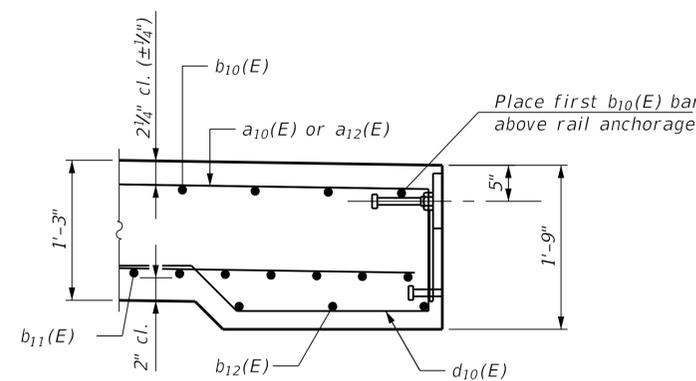
BAR $d_{10}(E)$



DETAIL A

* Cost included with Concrete Superstructure (Approach Slab).

** Per manufacturer recommendations



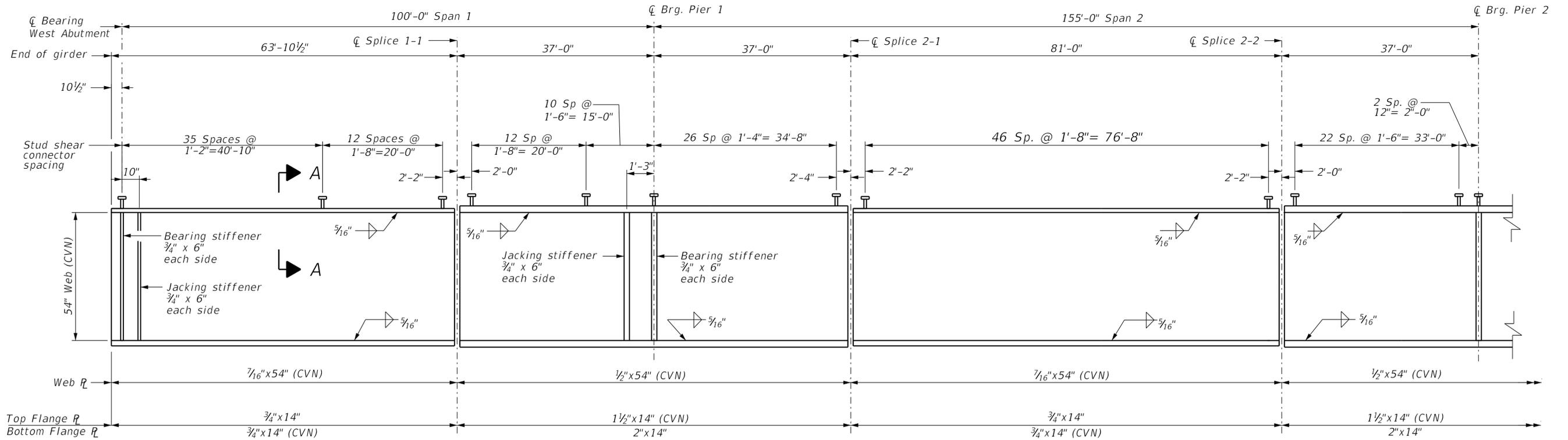
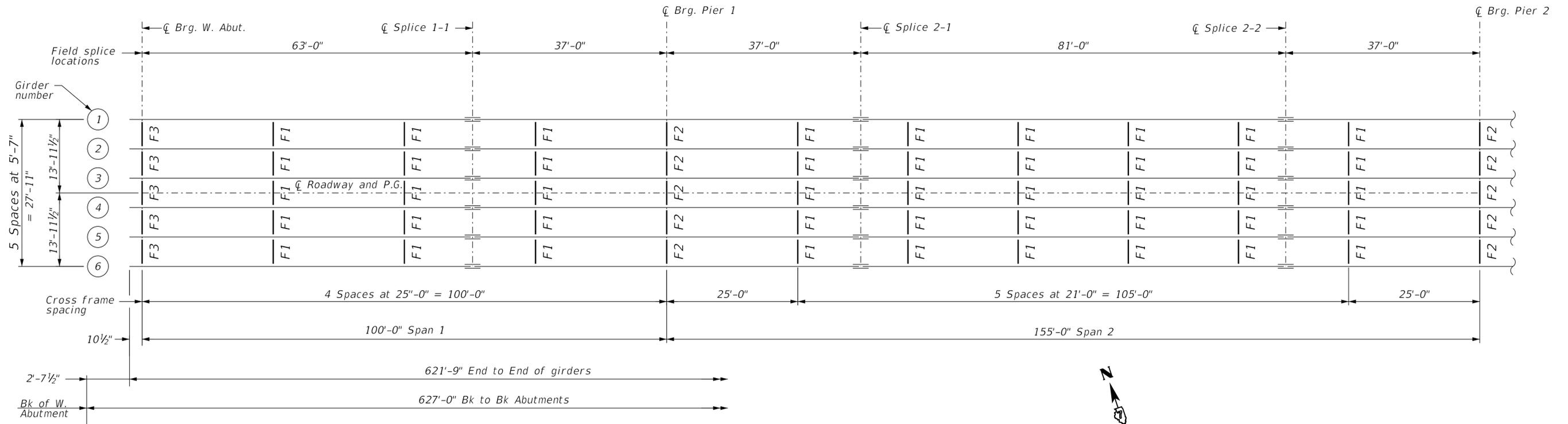
SECTION B-B



BAR $a_{12}(E)$

**TWO APPROACHES
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a10(E)	92	#5	31'-8"	—
a11(E)	120	#8	31'-8"	—
a12(E)	84	#5	7'-6"	—
b10(E)	98	#5	29'-8"	—
b11(E)	154	#9	29'-8"	—
b12(E)	12	#5	14'-2"	—
d10(E)	56	#5	5'-5"	┘
t10(E)	132	#4	9'-8"	—
w10(E)	80	#5	31'-8"	—
Concrete Superstructure (Approach Slab)		Cu. Yd.	92.1	
Concrete Structures		Cu. Yd.	19.8	
Reinforcement Bars, Epoxy Coated		Pound	36,400	



GIRDER ELEVATION

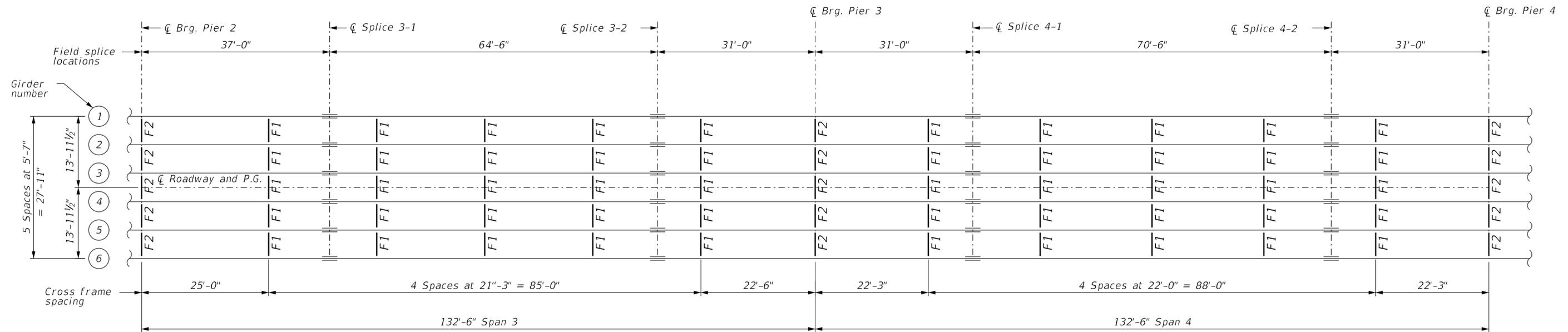
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

See Sheet 19 for 40 Section A-A

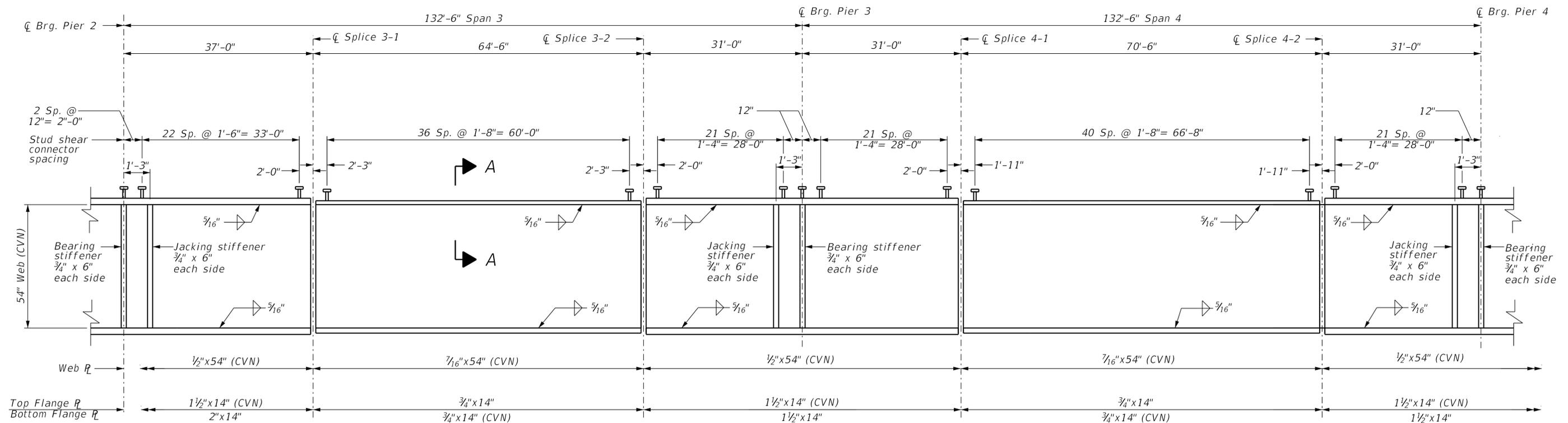
Omit shear connectors over splice.

DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

RAAI JOB NO. 54115		TOTAL SHEETS	SHEET NO.
ROUTE	SECTION	COUNTY	NO.
FAS 799	14-00090-00-BR	CLAY	51 24
CONTRACT NO. 95863			



FRAMING PLAN - SPANS 3 AND 4

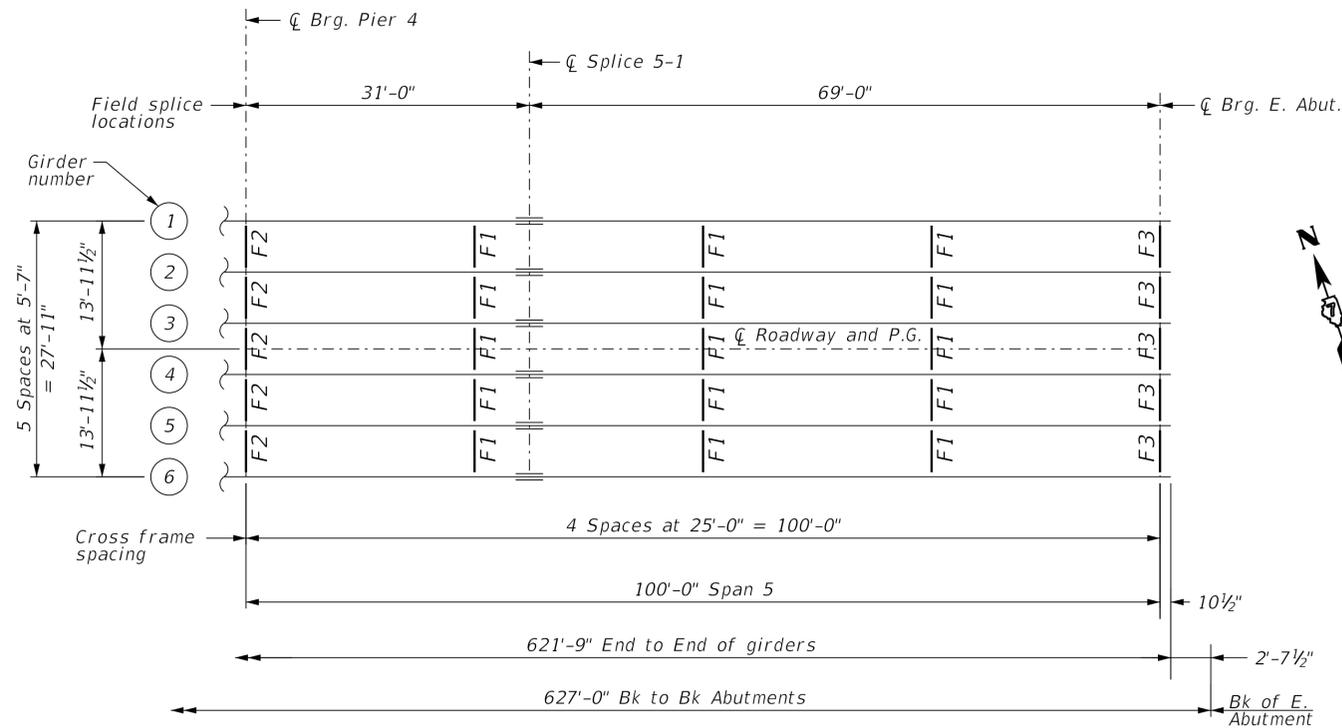


GIRDER ELEVATION

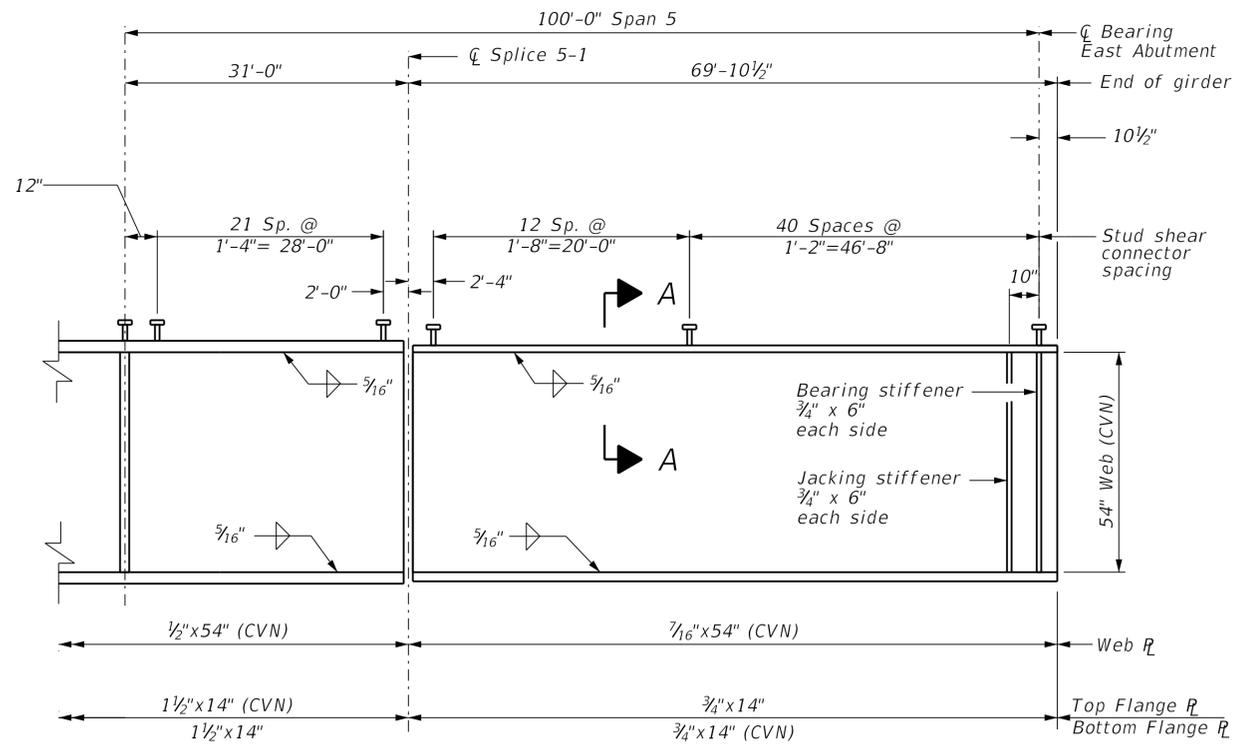
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

See Sheet 19 for 40 Section A-A

Omit shear connectors over splice.



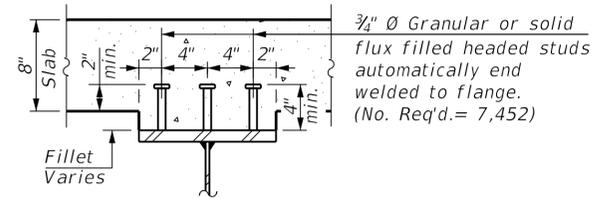
FRAMING PLAN - SPAN 5



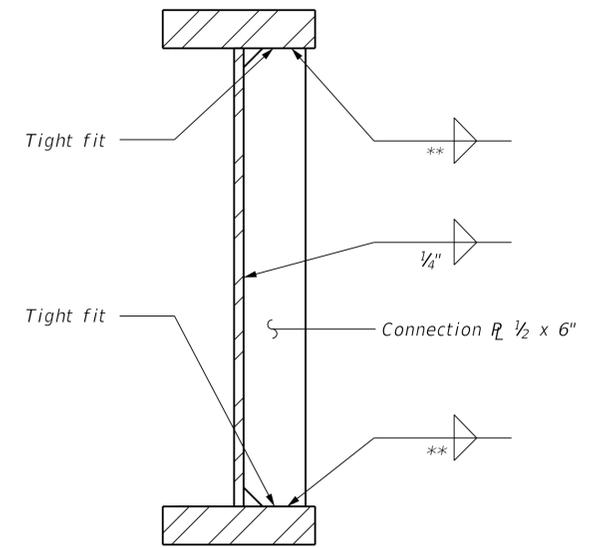
GIRDER ELEVATION

"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

Omit shear connectors over splice.

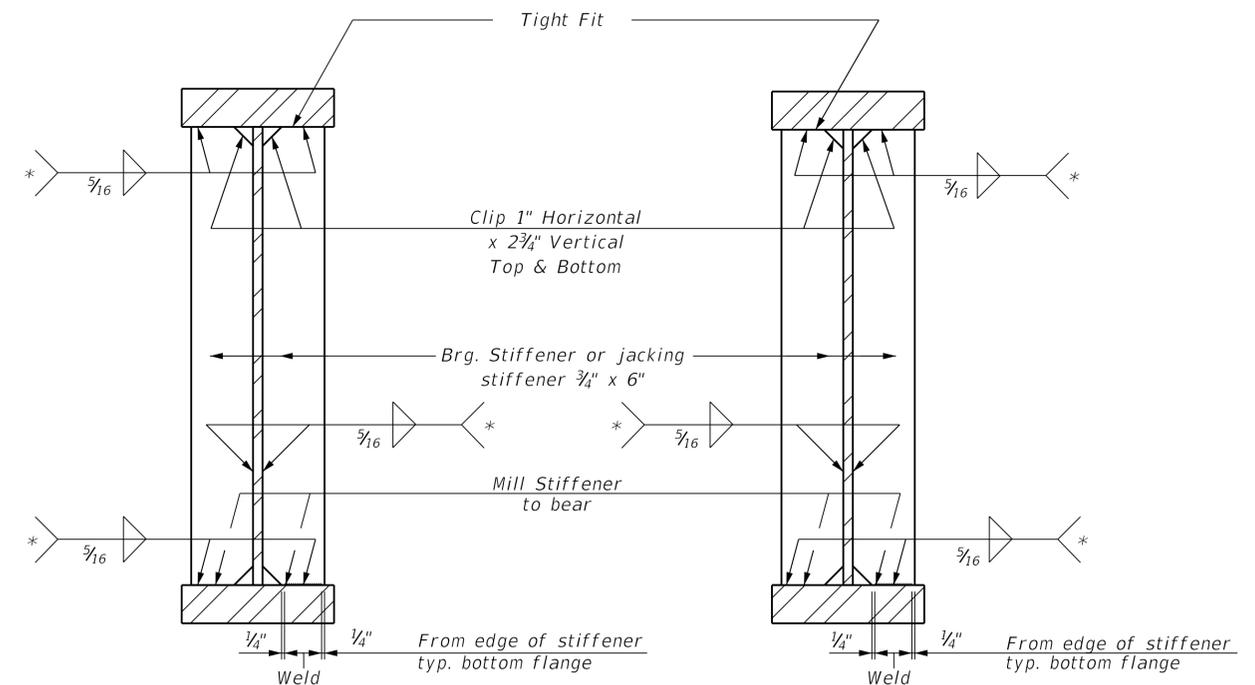


SECTION A-A



CONNECTION R DETAIL

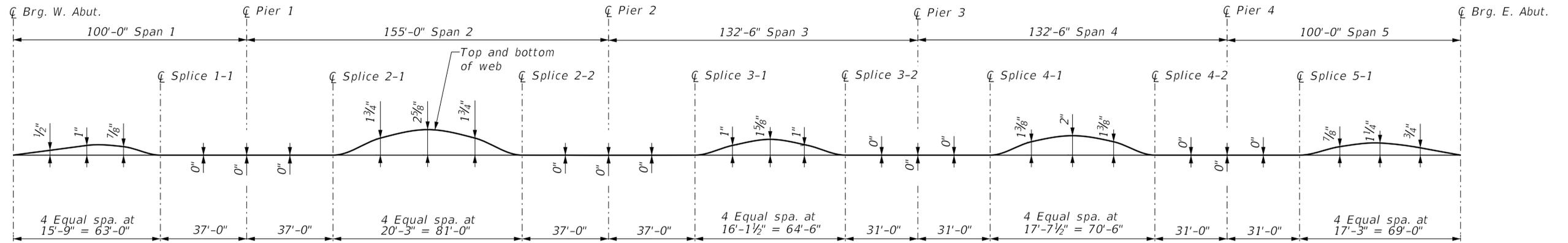
** Connection plate welds to 3/4" flanges shall be 1/4" fillet welds. Use 5/16" fillet welds at other locations.



SECTION AT PIERS

SECTION AT ABUTMENTS

* Terminate 1/4" (±1/8") from the end of plate intersects.



CAMBER DIAGRAM - GIRDERS 1 THRU 6

NOTE:

Plate girder camber dimensions take deck pouring sequence into account. See sheet 13 of 40 for required pouring sequence. If Contractor elects to place concrete in a different sequence, Camber calculations and revised Top of Slab Elevations shall be prepared by the Contractor and submitted to the Engineer for approval.

Top of Web Elevations			
	Beams 3 & 4	Beams 2 & 5	Beam 1 & 6
CL Brng W Abut	459.78	459.66	459.47
CL Splice 1-1	459.65	459.53	459.33
Pier 1	459.72	459.60	459.40
CL Splice 2-1	459.79	459.67	459.47
CL Splice 2-2	459.79	459.67	459.47
Pier 2	459.72	459.60	459.40
CL Splice 3-1	459.65	459.53	459.34
CL Splice 3-2	459.69	459.58	459.38
Pier 3	459.72	459.60	459.40
CL Splice 4-1	459.74	459.62	459.43
CL Splice 4-2	459.73	459.62	459.42
Pier 4	459.72	459.60	459.40
CL Splice 5-1	459.70	459.59	459.39
CL Brng E. Abut.	459.78	459.66	459.47

For Fabrication Only

INTERIOR GIRDER MOMENT TABLE										
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.5 Sp. 4	Pier 4	0.6 Sp. 5	
<i>I_s</i>	(in ⁴)	21479	44164	21479	44164	21479	38911	21479	38911	21479
<i>I_c(n)</i>	(in ⁴)	51667	-	51667	-	51667	-	51667	-	51667
<i>I_c(3n)</i>	(in ⁴)	38765	-	38765	-	38765	-	38765	-	38765
<i>I_c(cr)</i>	(in ⁴)	-	50910	-	50910	-	44650	-	44650	-
<i>S_s</i>	(in ³)	774	1675	774	1675	774	1365	774	1365	774
<i>S_c(n)</i>	(in ³)	1070	-	1070	-	1070	-	1070	-	1070
<i>S_c(3n)</i>	(in ³)	979	-	979	-	979	-	979	-	979
<i>S_c(cr)</i>	(in ³)	-	1764	-	1764	-	1438	-	1438	-
<i>DC1</i>	(k/')	0.763	0.871	0.763	0.871	0.763	0.847	0.763	0.79	0.847
<i>MDC1</i>	(k)	324	-1614	700	-1641	307	-1163	485	-1247	425
<i>DC2</i>	(k/')	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
<i>MDC2</i>	(k)	15	-67	33	-68	15	-49	23	-52	20
<i>DW</i>	(k/')	0.279	0.279	0.279	0.279	0.279	0.279	0.279	0.279	0.279
<i>MDW</i>	(k)	120	-535	260	-547	118	-390	183	-415	157
<i>M_ℓ + IM</i>	(k)	1148	-1737	1284	-1800	1188	-1557	1164	-1478	1136
<i>Mu (Strength I)</i>	(k)	2612	-5944	3553	-6107	2659	-4824	2949	-4832	2780
* <i>∅f Mn</i>	(k)	5608	-7693	5320	-7689	5592	-6266	5468	-6266	5517
<i>f_s DC1</i>	(ksi)	5.00	-11.60	10.90	-11.80	4.80	-10.20	7.50	-11.00	6.60
<i>f_s DC2</i>	(ksi)	0.20	-0.50	0.40	-0.50	0.20	-0.40	0.30	-0.40	0.20
<i>f_s DW</i>	(ksi)	1.50	-3.60	3.20	-3.70	1.40	-3.30	2.20	-3.50	1.90
<i>f_s (ℓ+IM)</i>	(ksi)	12.90	-11.80	14.40	-12.20	13.30	-13.00	13.10	-12.30	12.70
<i>f_s (Service II)</i>	(ksi)	23.40	-31.10	33.20	-31.80	23.70	-30.80	27.00	-30.90	25.00
<i>0.95Rh Fyf</i>	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
<i>f_s (Total)(Strength I)</i>	(ksi)	31.33	-41.18	44.13	-42.28	31.63	-40.95	35.98	-41.03	33.58
** <i>∅f Fn</i>	(ksi)	-	-	-	-	-	-	-	-	-
<i>Vf</i>	(k)	37.83	NA	40.95	NA	41.45	NA	40.34	NA	36.52

* Compact sections

** Non-compact and slender sections

***INTERIOR GIRDER REACTION TABLE							
	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	E. Abut.	
<i>RDC1</i>	(k)	23	122	122	105	110	26
<i>RDC2</i>	(k)	3	15	15	13	13	3
<i>RDW</i>	(k)	8	41	41	36	37	10
<i>R_ℓ + IM</i>	(k)	74	127	130	125	121	74
<i>RTotal</i>	(k)	108	305	308	279	281	113

*** Unfactored

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing *f_s(Total-Strength I, and Service II)* due to non-composite dead loads (in.⁴ and in.³).

I_c(n), S_c(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing *f_s(Total-Strength I, and Service II)* in uncracked sections due to short-term composite live loads (in.⁴ and in.³).

I_c(3n), S_c(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing *f_s(Total-Strength I, and Service II)* in uncracked sections due to long-term composite (superimposed) dead loads (in.⁴ and in.³).

I_c(cr), S_c(cr): Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing *f_s(Total-Strength I, and Service II)* in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.⁴ and in.³).

DC1: Un-factored non-composite dead load (kips/ft.).

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

MDW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M_ℓ + IM: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

Mu (Strength I): Factored design moment (kip-ft.).
1.25 (MDC1 + MDC2) + 1.5 MDW + 1.75 M_ℓ + IM

∅f Mn: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
MDC1 / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
MDC2 / S_c(3n) or MDC2 / S_c(cr) as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
MDW / S_c(3n) or MDW / S_c(cr) as applicable.

f_s (ℓ+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
M_ℓ + IM / S_c(n) or MDW / S_c(cr) as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
f_sDC1 + *f_sDC2* + *f_sDW* + 1.3 *f_sℓ* + IM

0.95RhFyf: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
1.25 (*f_sDC1* + *f_sDC2*) + 1.5 *f_sDW* + 1.75 *f_sℓ* + IM

∅f Fn: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

Vf: Maximum factored shear range in span computed according to Article 6.10.10.



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SALEM, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
CHECKED -	08/01/2019	REVISED -	

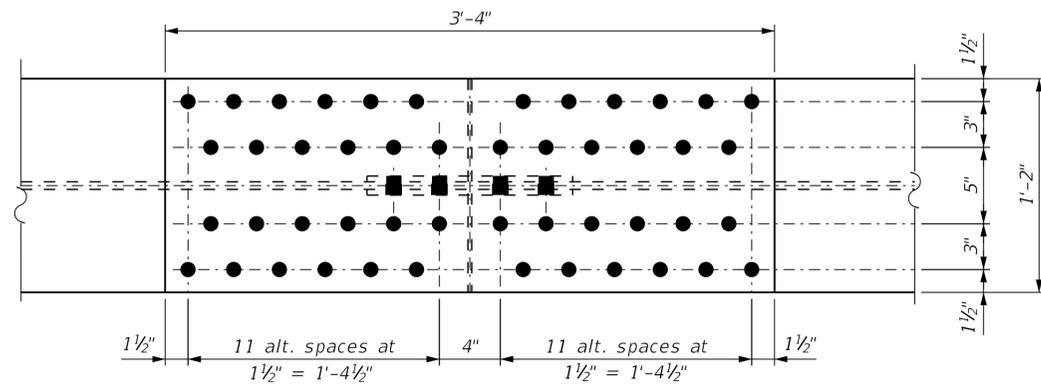
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES
STRUCTURE NO. 013-3250

BRIDGE SHEET 21 OF 40

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	28
CONTRACT NO. 95863				

RAAI JOB NO. 54115



TOP & BOTTOM FLANGE SPLICE

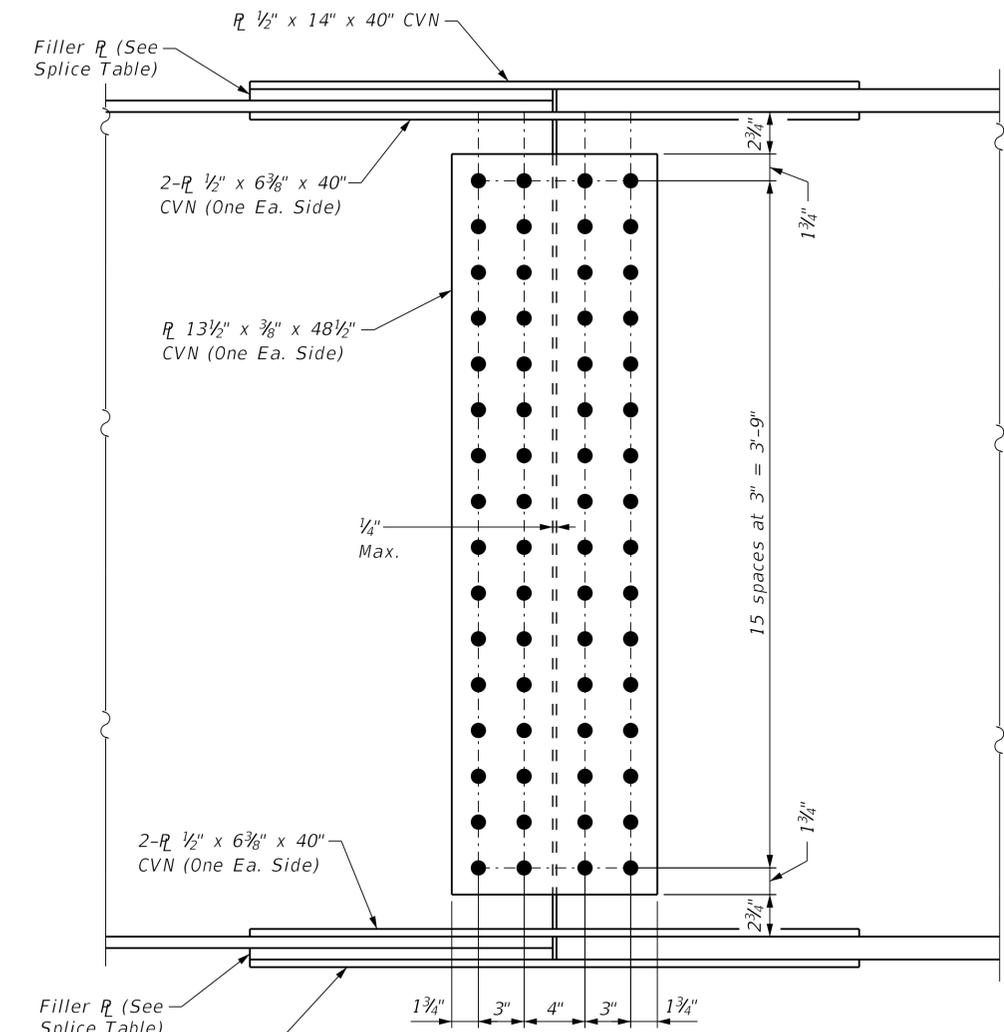
NOTES:

1. All splice plates shall be AASHTO M270 Grade 50 steel, except fill plates which may be AASHTO M270 Grade 36 or 50.
2. All splice bolts shall be 7/8" \varnothing ASTM A325 High Strength with 15/16" \varnothing holes.
3. Load carrying components designated "CVN" shall conform to the Impact Testing Requirement, Zone 2.
4. Place end cross frame F3 with outstanding angle legs outward, away from abutment backwalls.

FILLER PLATE TABLE

Splice Location	Bottom Filler R
Splice 1-1	1 1/4" x 14" x 19 7/8"
Splice 2-1	1 1/4" x 14" x 19 7/8"
Splice 2-2	1 1/4" x 14" x 19 7/8"
Splice 3-1	1 1/4" x 14" x 19 7/8"
Splice 3-2	3/4" x 14" x 19 7/8"
Splice 4-1	3/4" x 14" x 19 7/8"
Splice 4-2	3/4" x 14" x 19 7/8"
Splice 5-1	3/4" x 14" x 19 7/8"

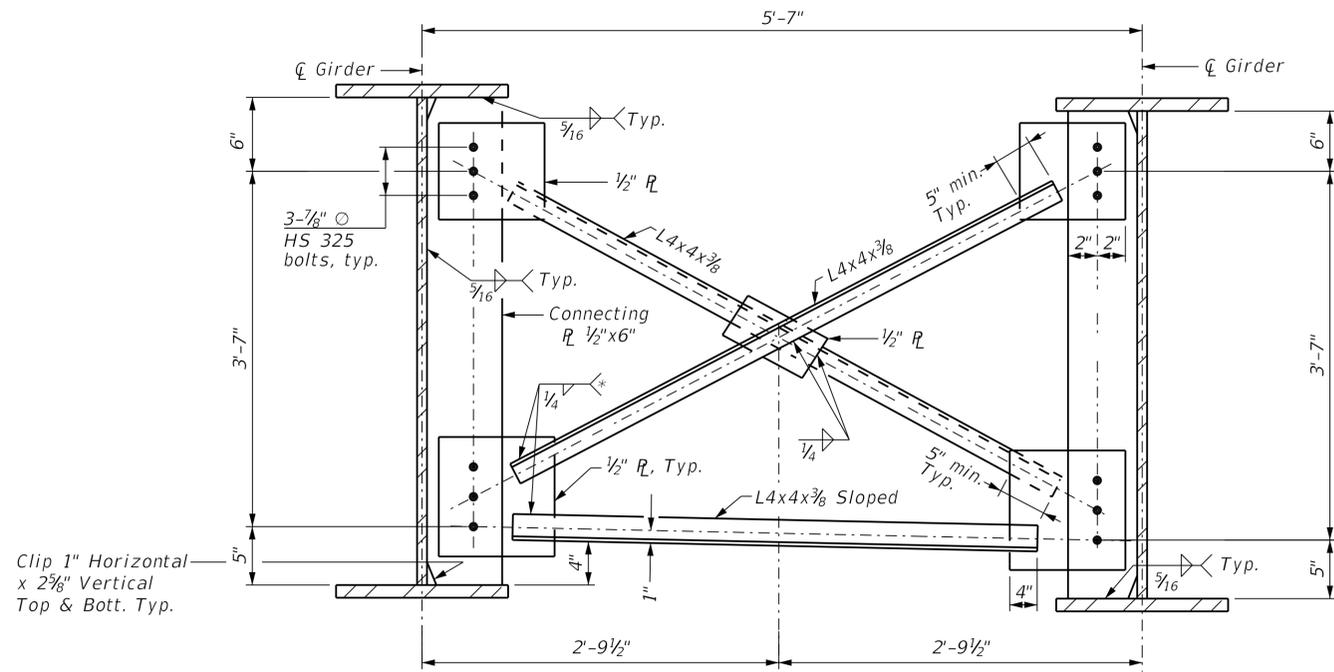
All Top Filler R 's
3/4" x 14" x 19 7/8"



Gider Splice 1-1 through 5-1

WEB SPLICE

(8 required each girder)

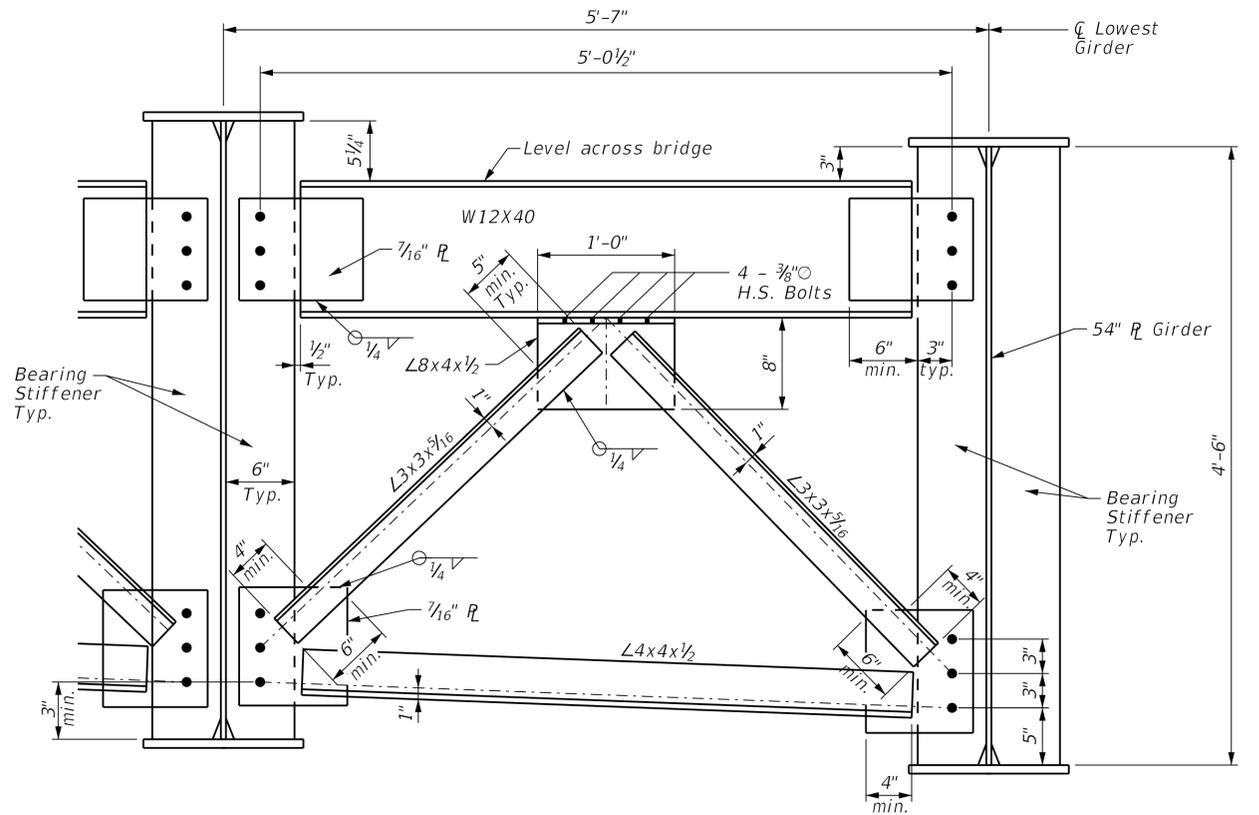


INTERIOR CROSS FRAME - F1

(110 Required)

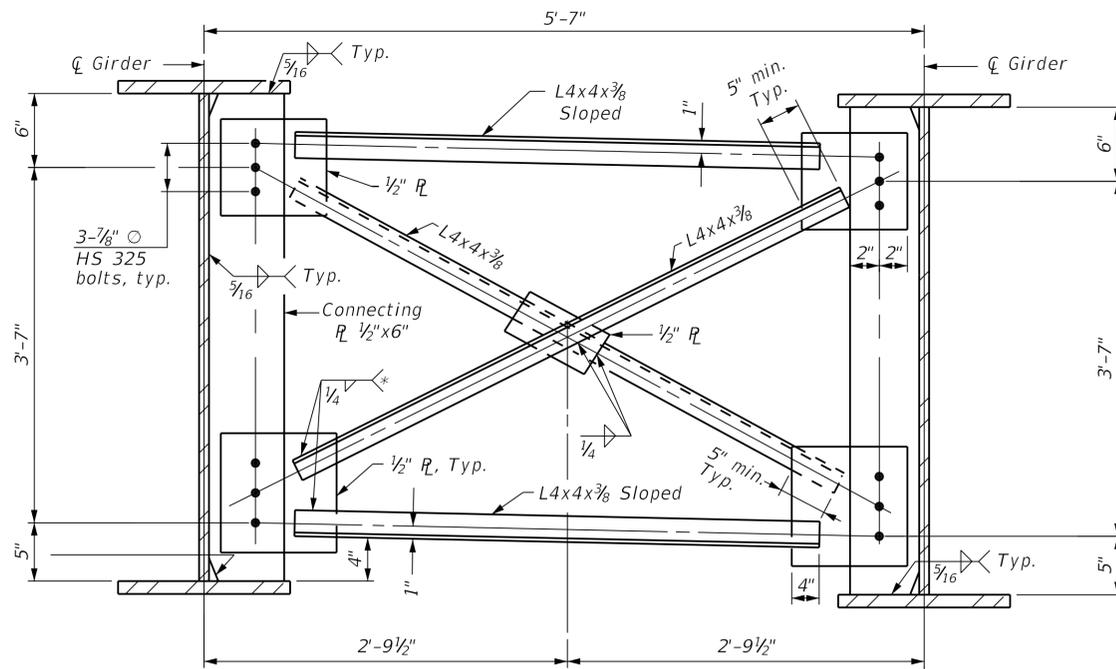
* Fillet weld angles along 3 sides on one face of gusset plate

Clip 1" Horizontal x 2 3/8" Vertical Top & Bott. Typ.



END CROSS FRAME - F3

At Abutments
(10 Required)



INTERIOR CROSS FRAME - F2

At Piers
(20 Required)

* Fillet weld angles along 3 sides on one face of gusset plate

NOTES:

1. Detail 1 1/16" Ø holes for all 7/8" Ø ASTM A325 Type 1, mechanically galvanized bolts.
2. Two hardened washers are required for each set of oversized holes.
3. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners.
4. All cross frames between girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.



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DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	JN/SJE	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	

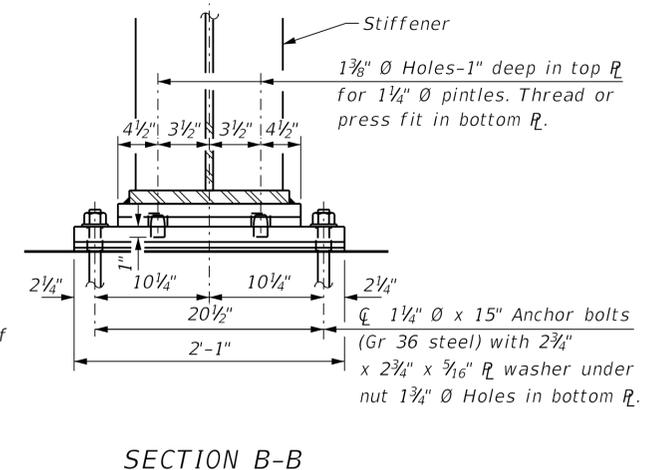
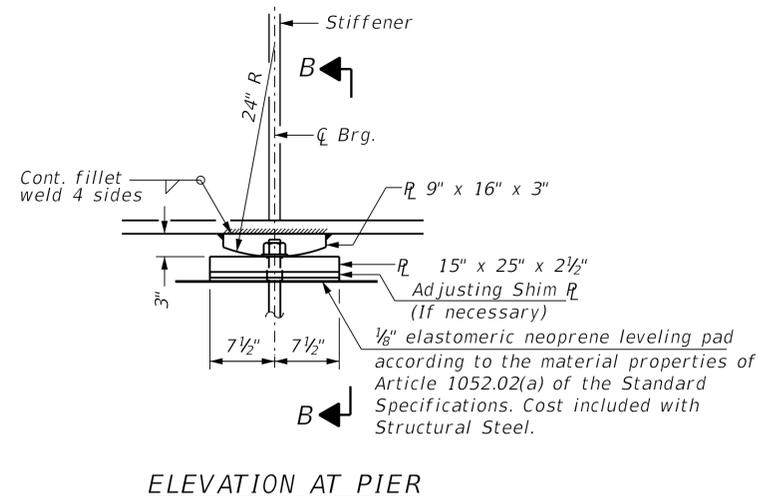
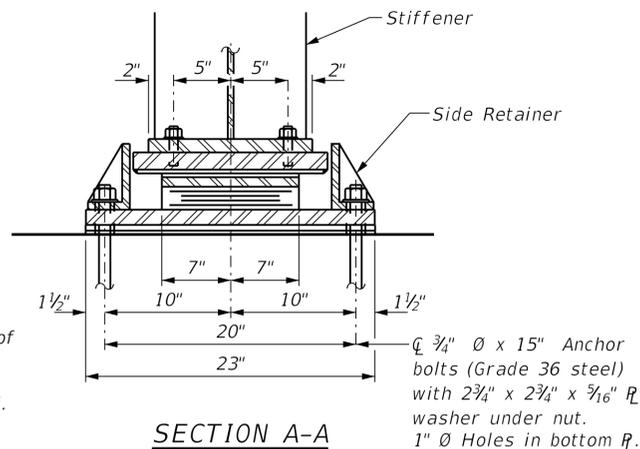
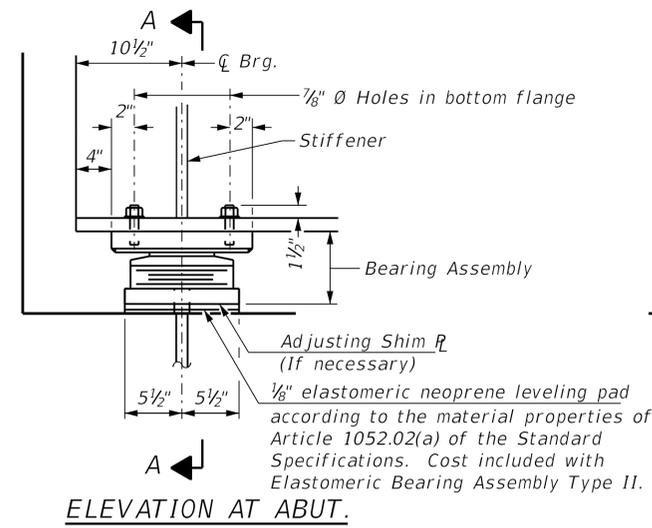
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STRUCTURAL STEEL CROSS FRAMES
STRUCTURE NO. 013-3250**

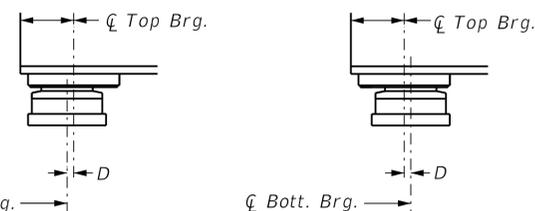
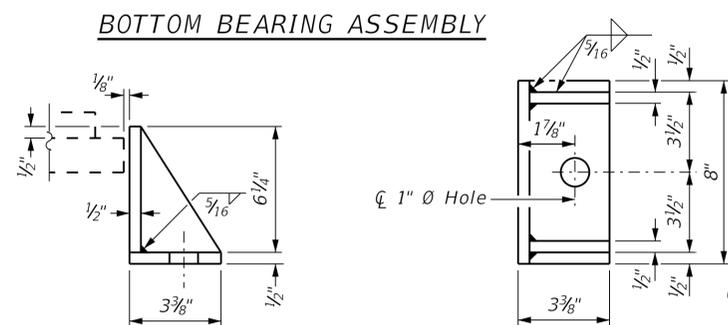
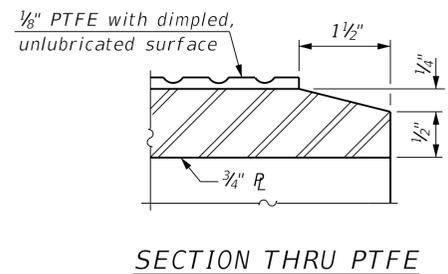
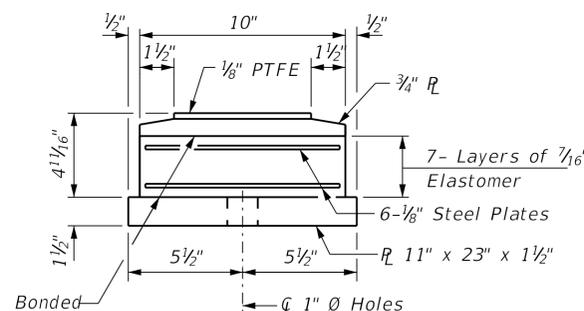
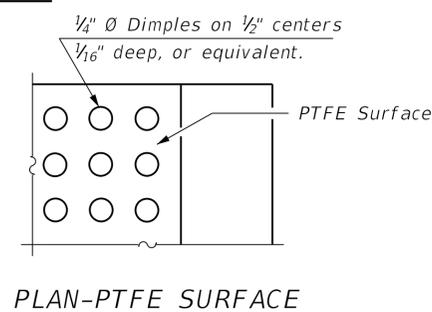
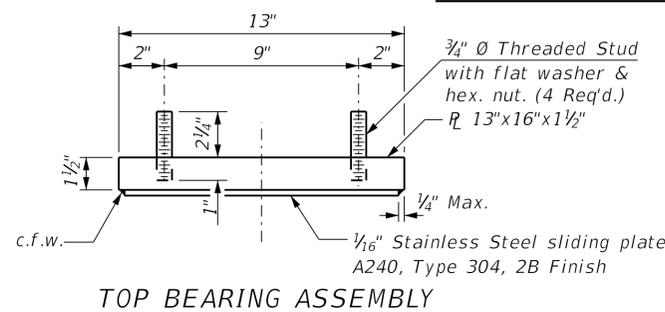
BRIDGE SHEET 23 OF 40

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	30
			CONTRACT NO. 95863	

RAAI JOB NO. 54115



**TYPE II ELASTOMERIC EXP. BRG.
WEST AND EAST ABUTMENTS**

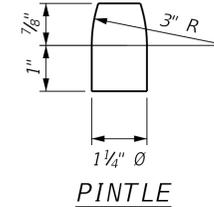


BELOW 50°F.
D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

ABOVE 50°F.

EXPANSION BEARING ORIENTATION
The above diagrams are for informational purposes only to show the amount of expected offset "D" for the current temperature in the field.

**FIXED BEARING
PIERS 2 AND 3**



Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type II.

The 1/8" PTFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

Side retainers, pintles, anchor bolts, nuts, washers and bearing plates shall be galvanized for steel beams according to AASHTO M111 or M232 (as applicable).

H.S. bolts shall be galvanized for steel beams according to AASHTO M298, Class 50.

Two 1/8" in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

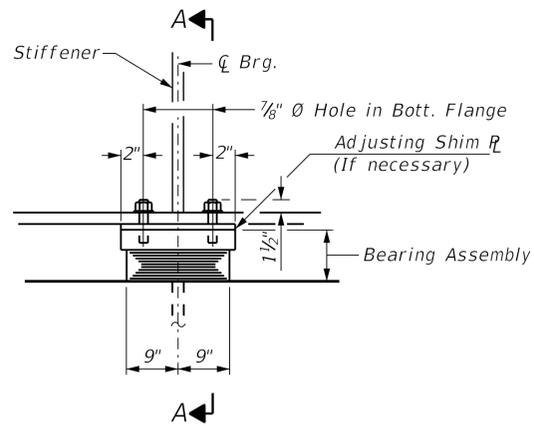
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

All plates and pintles shall be AASHTO M270, Grade 50.

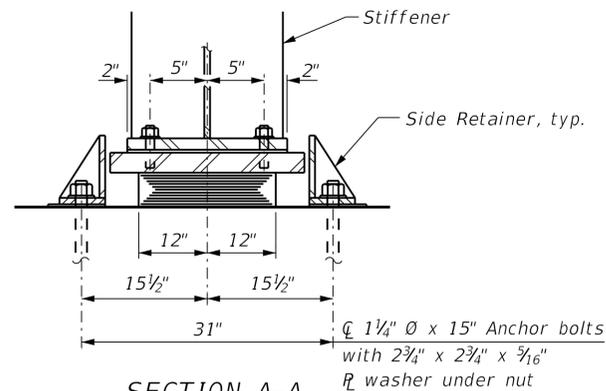
Fixed bearing material including bolts is included in the lump sum of Furnishing and Erecting Structural Steel.

BILL OF MATERIAL

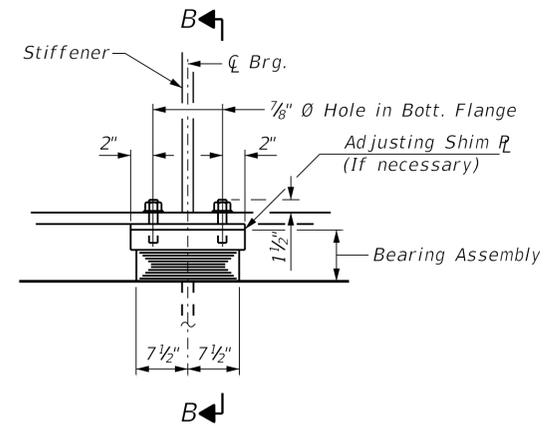
Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	12
Anchor Bolts 3/4"	Each	24



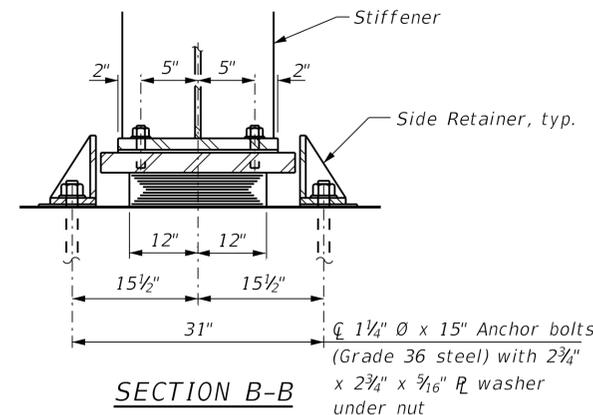
ELEVATION AT PIER 1



SECTION A-A

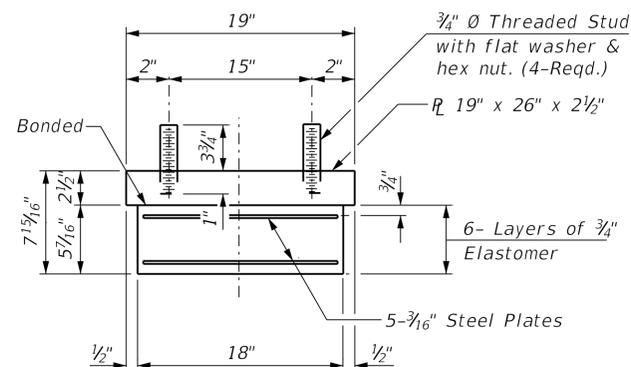


ELEVATION AT PIER 4



SECTION B-B

**TYPE I ELASTOMERIC EXP. BRG.
PIER 1**

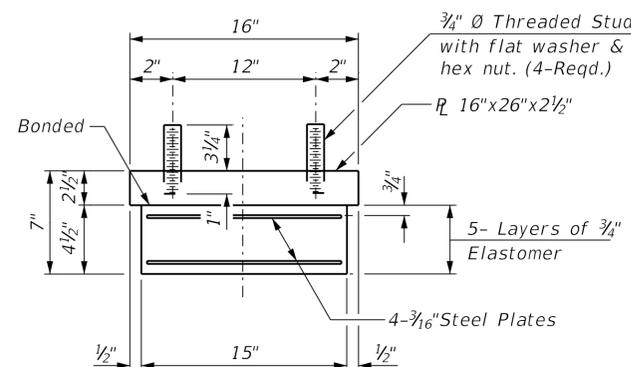


BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.

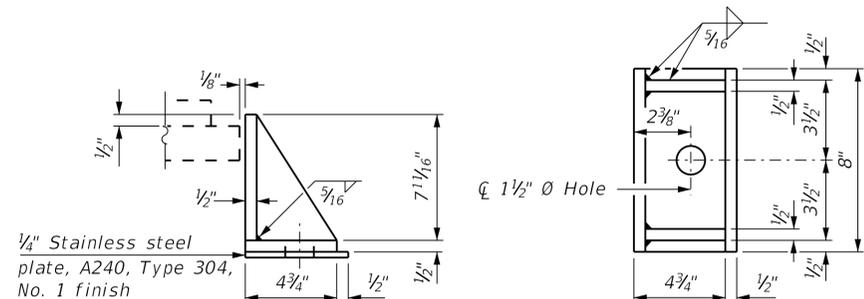
Notes:
Anchor bolts shall be ASTM F1554 (Grade 36 steel) all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.
Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.
Side retainers, pintles, anchor bolts, nuts, washers and bearing plates shall be galvanized for steel beams according to AASHTO M111 or M232 (as applicable).
H.S. bolts shall be galvanized for steel beams according to AASHTO M298, Class 50
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
All plates shall be AASHTO M270, Grade 50.

**TYPE I ELASTOMERIC EXP. BRG.
PIER 4**



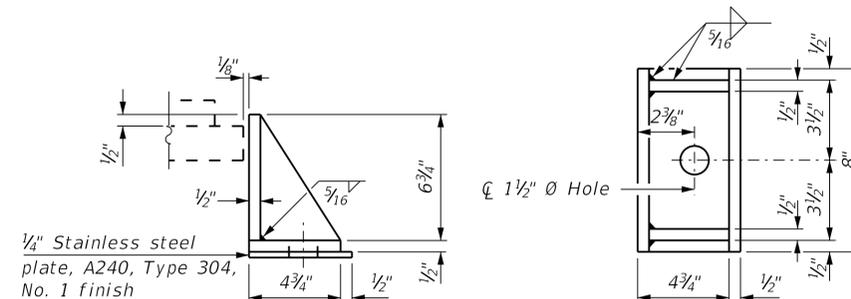
BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.



SIDE RETAINER - PIER 1

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

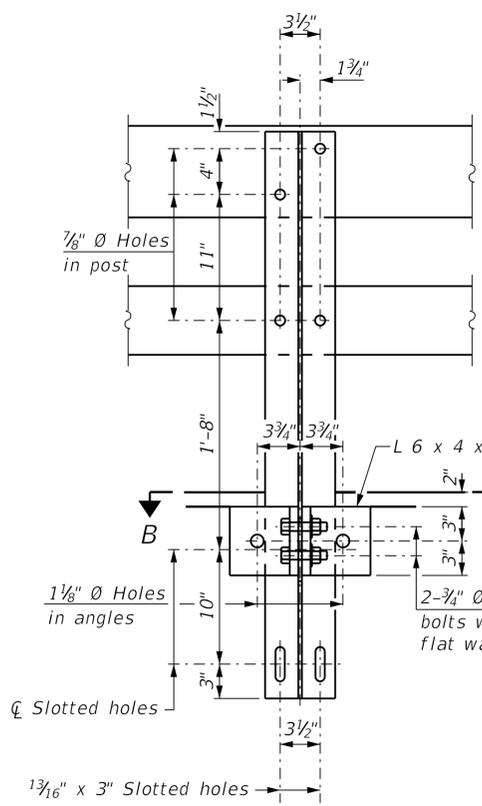


SIDE RETAINER - PIER 4

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

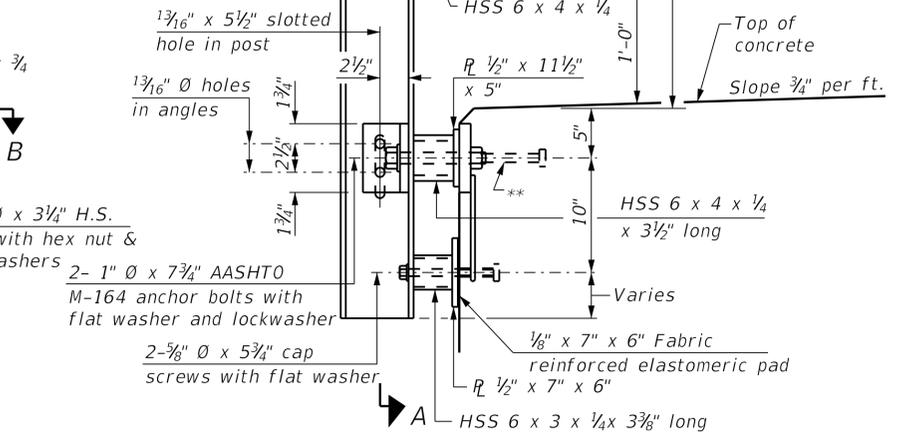
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	12
Anchor Bolts 1 1/4"	Each	24



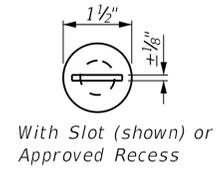
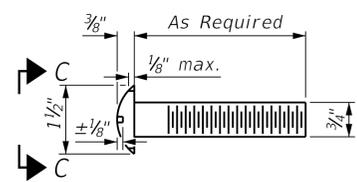
SECTION A-A

4-3/4" Ø x 6" Round Head Bolts with locknut & flat washer.
 7/8" Ø holes in hollow structural section may be drilled in the field.



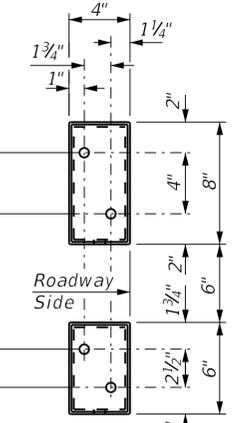
SECTION AT RAIL POST

DETAIL OF 3/4" Ø ROUND HEAD BOLT

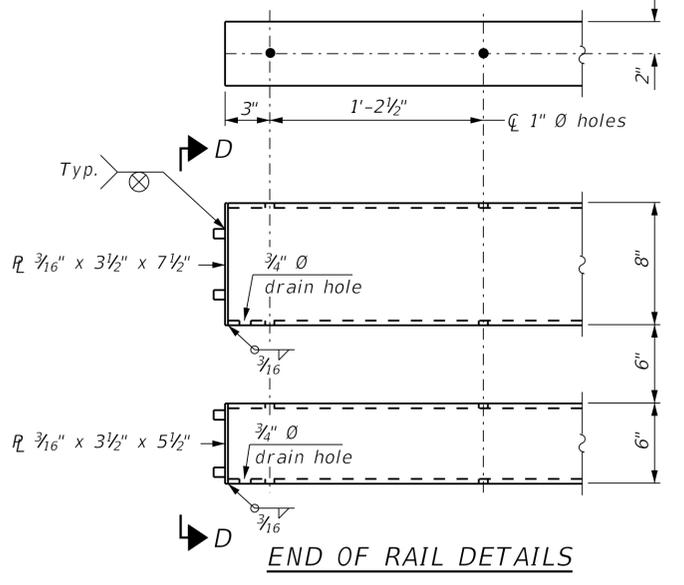


VIEW C-C

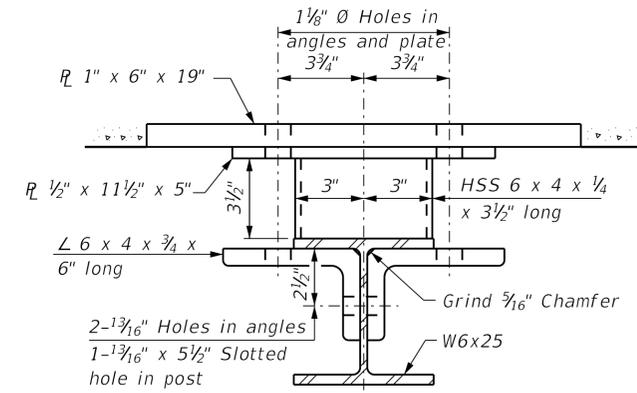
4-5/8" reduced base welded studs. Provide 4-3/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032.



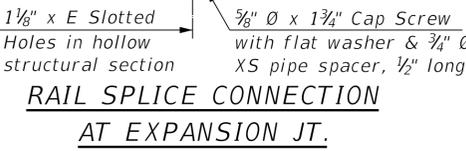
VIEW D-D



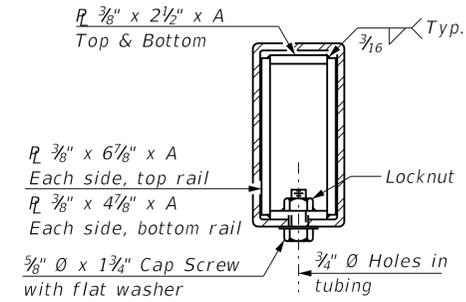
END OF RAIL DETAILS



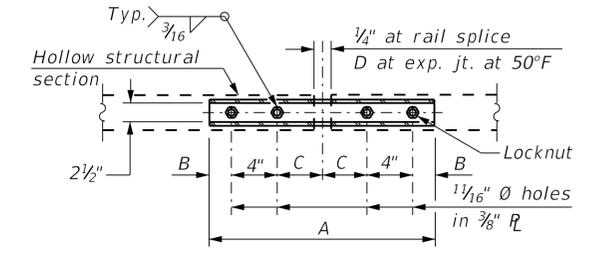
SECTION B-B



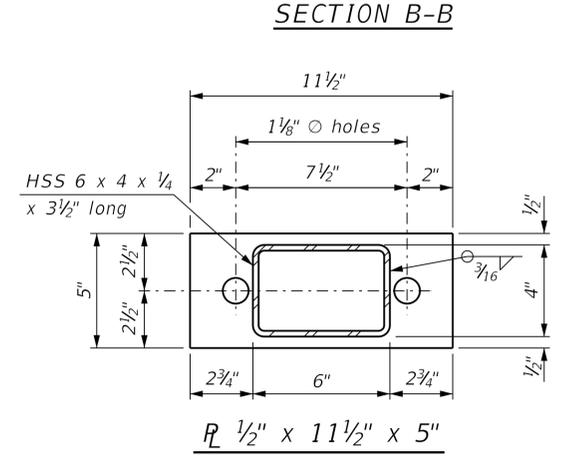
RAIL SPLICE CONNECTION AT EXPANSION JT.



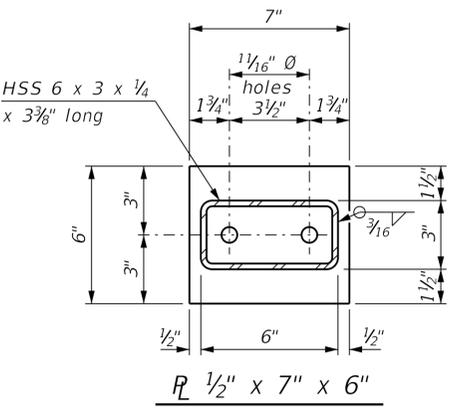
SECTION AT RAIL SPLICE



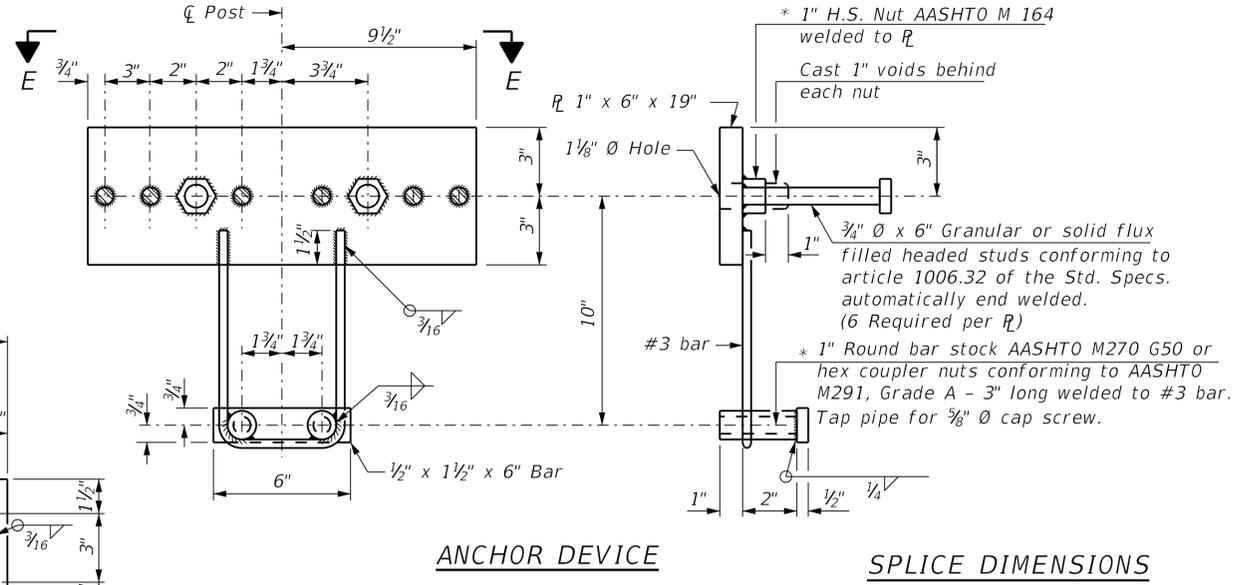
PLAN-BOTT. SPLICE R TYPICAL



R 1/2" x 11 1/2" x 5"



R 1/2" x 7" x 6"



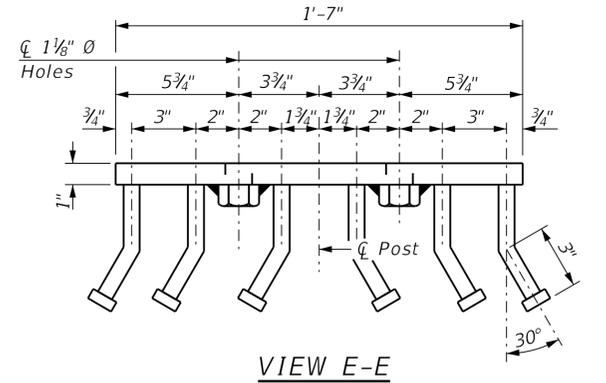
ANCHOR DEVICE

*Threaded areas shall be plugged or blocked off during placing of concrete. Galvanized after fabrication.

SPLICE DIMENSIONS

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	

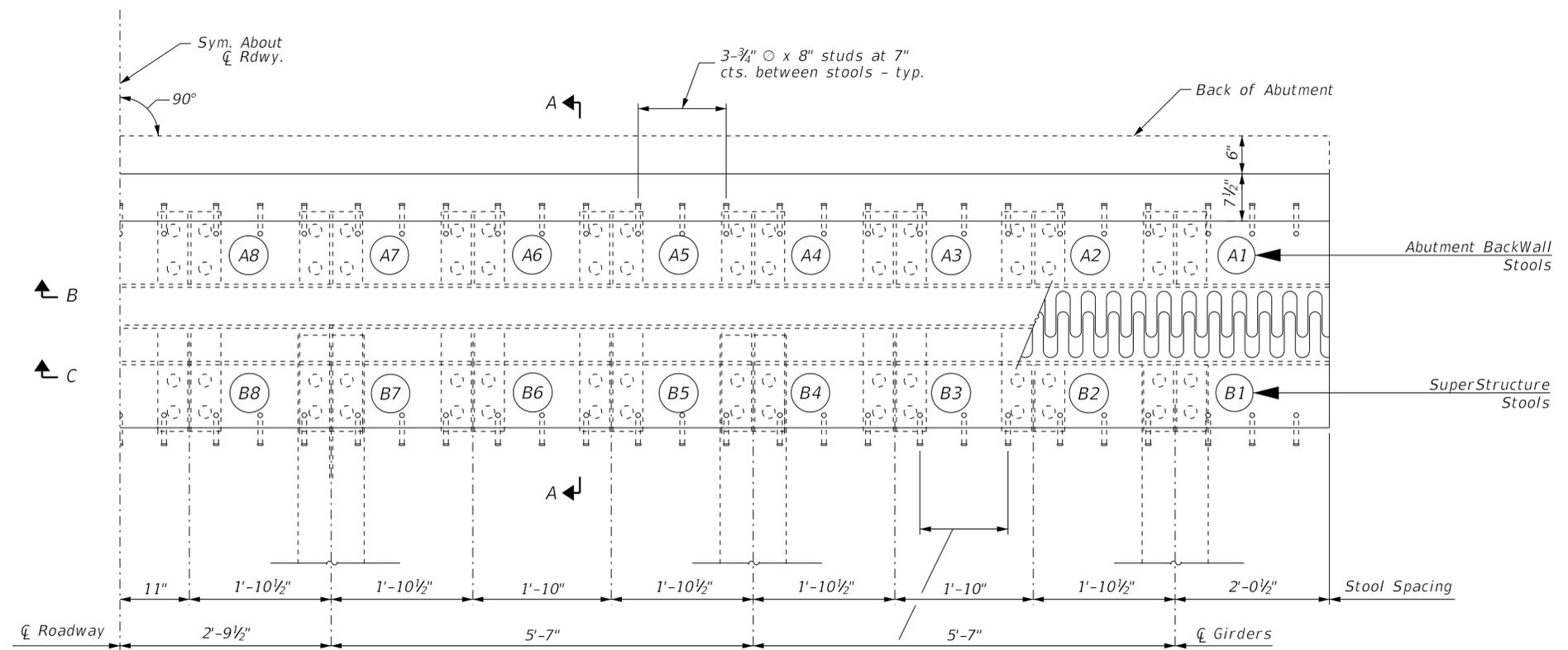
T = Total movement at expansion joint as shown on the design plans.



VIEW E-E

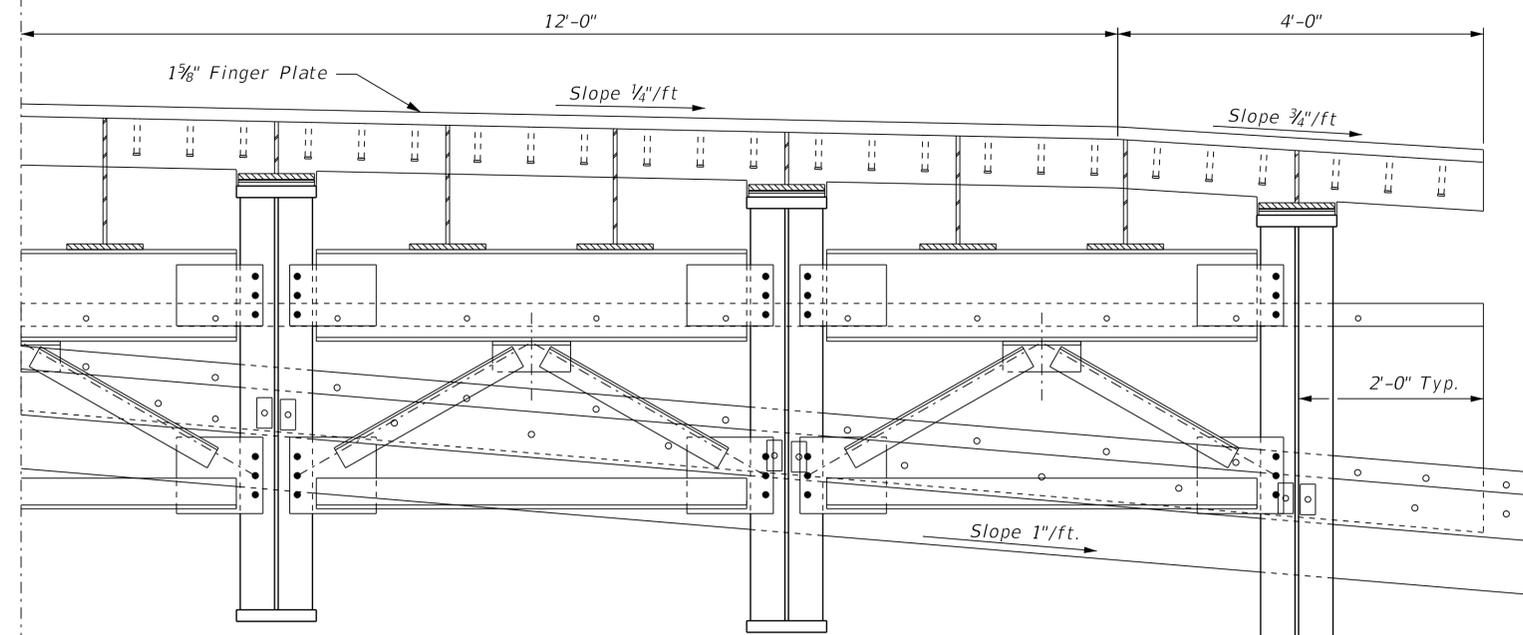
Notes:
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
 All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.
 ** The studs 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. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.

See sheet 14 of 40 for Bill of Materials.



PLAN - FINGER PLATE

3 - 3/4" \varnothing x 8" Studs at 7" Cts. between stools, Typ.



ELEVATION - FINGER PLATE

Looking at Backwall

Abutment Backwall

Stool Mark	Stool Height
A1	16 3/8"
A2	17 7/8"
A3	18 1/4"
A4	18 7/8"
A5	19 1/8"
A6	19 5/8"
A7	20 1/8"
A8	20 5/8"

Superstructure

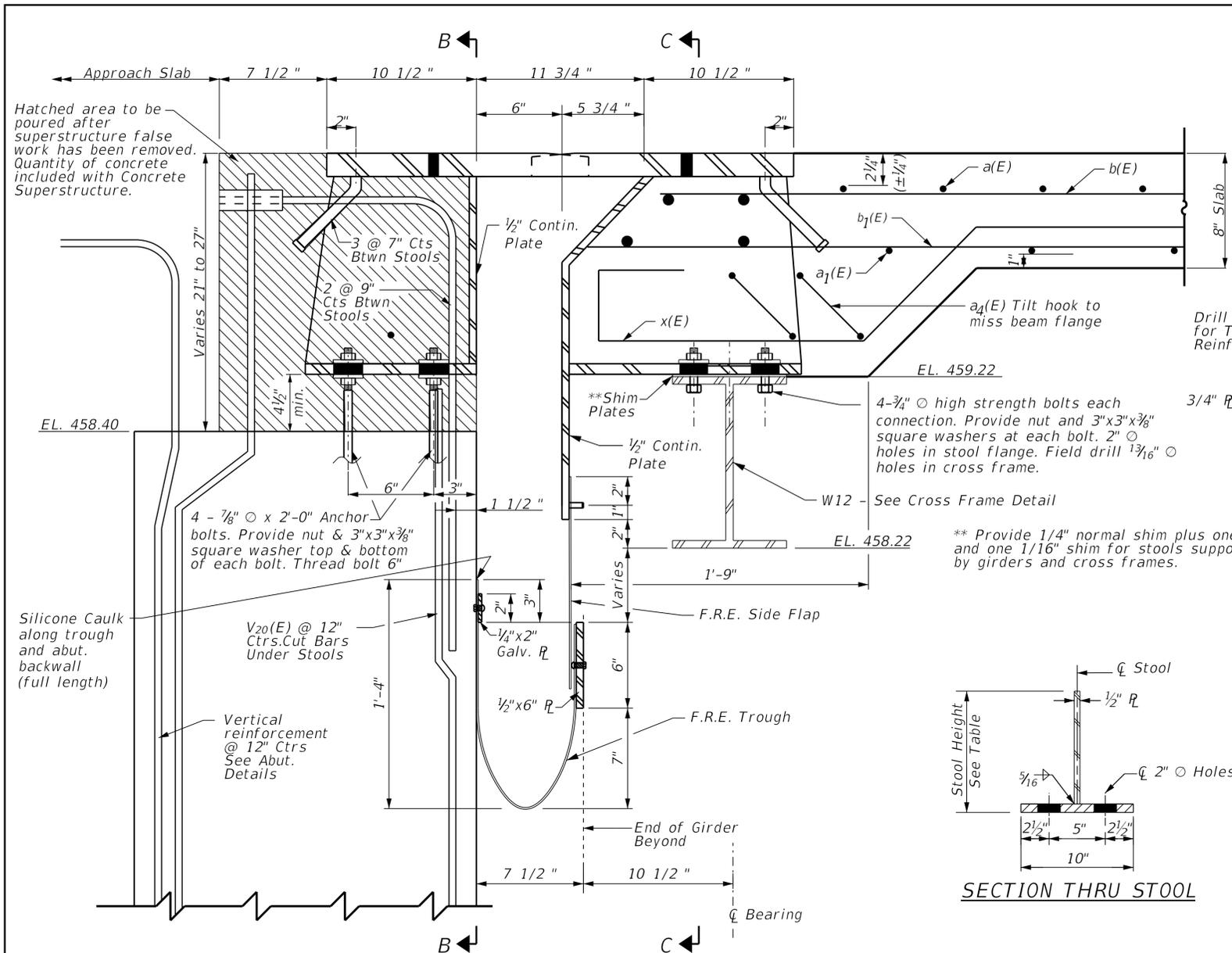
Stool Mark	Stool Height
B1	7 1/8"
B2	12 3/8"
B3	12 7/8"
B4	7 1/4"
B5	13 3/8"
B6	14 1/8"
B7	7 1/4"
B8	15 1/8"

Note:

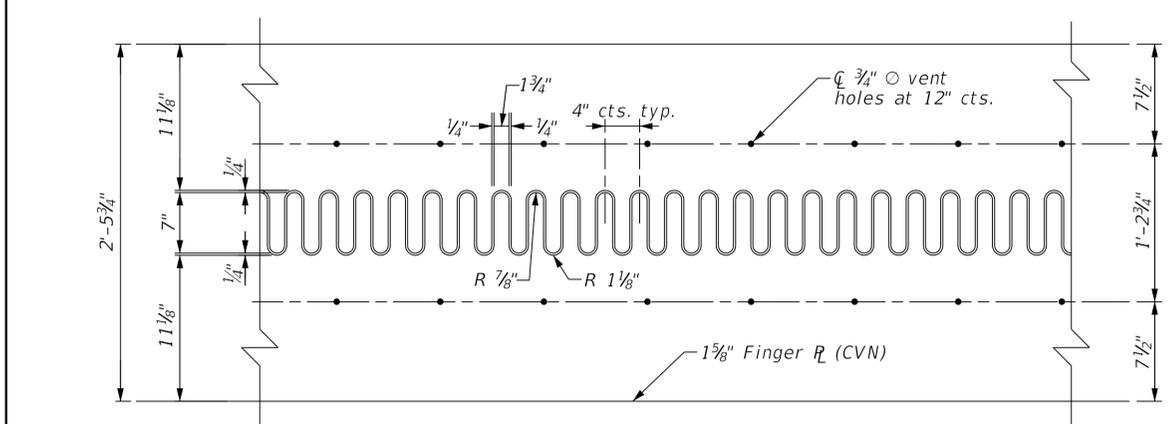
See sheet 28 of 40 for section A-A
See sheet 29 of 40 for section B-B & C-C

Finger plate expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.

All plates shall be AASHTO M270 Grade 50.



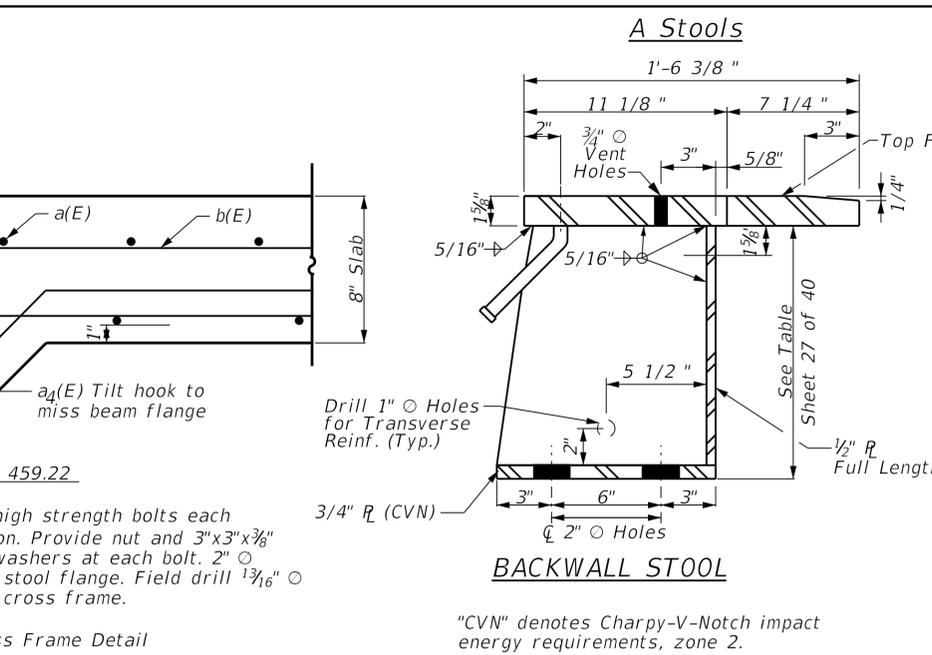
SECTION A-A
(Horizontal Dimensions @ 50°F)



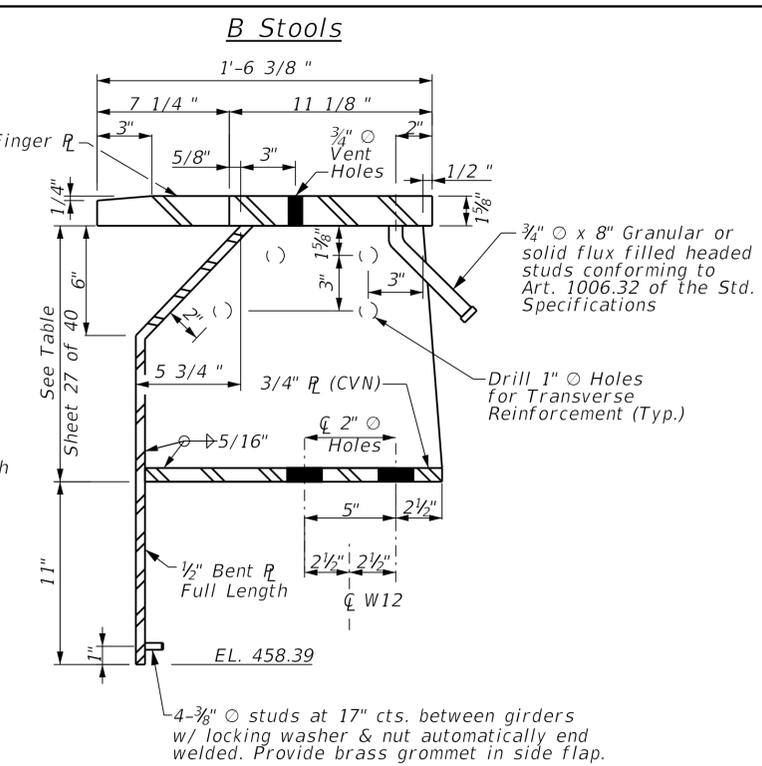
FLAME CUTTING DIAGRAM

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
SALEM, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

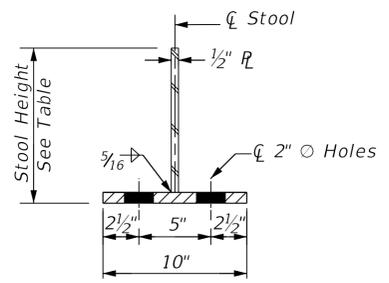
DESIGNED -	WDL/JSP/BLT	REVISED -	
DRAWN -	SJE/JMW	REVISED -	
CHECKED -	WDL/JSP	REVISED -	
DATE -	08/01/2019	REVISED -	



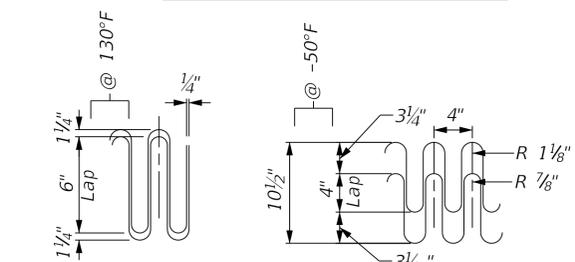
BACKWALL STOOL



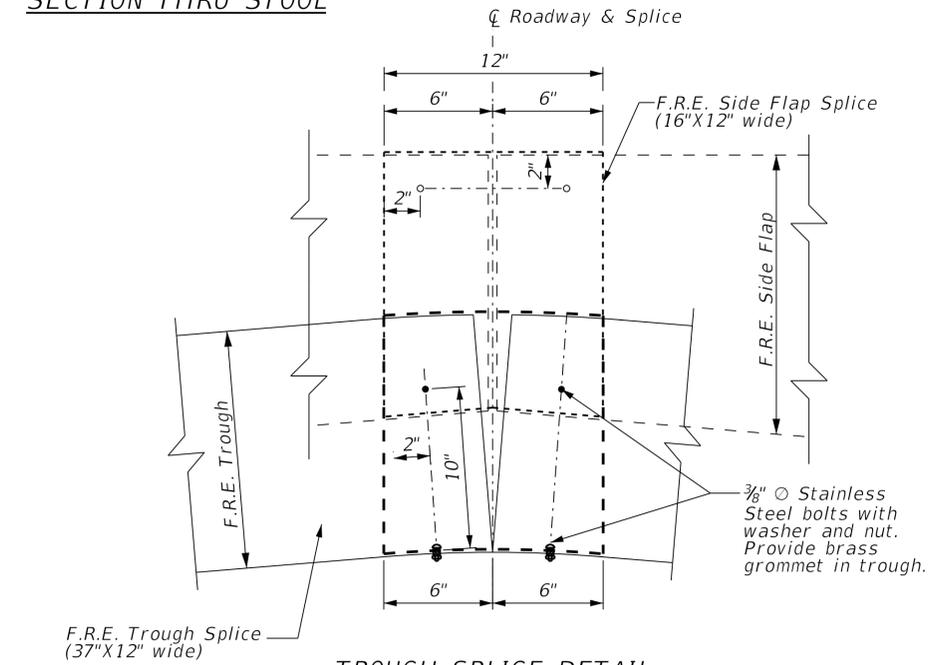
SUPERSTRUCTURE STOOL



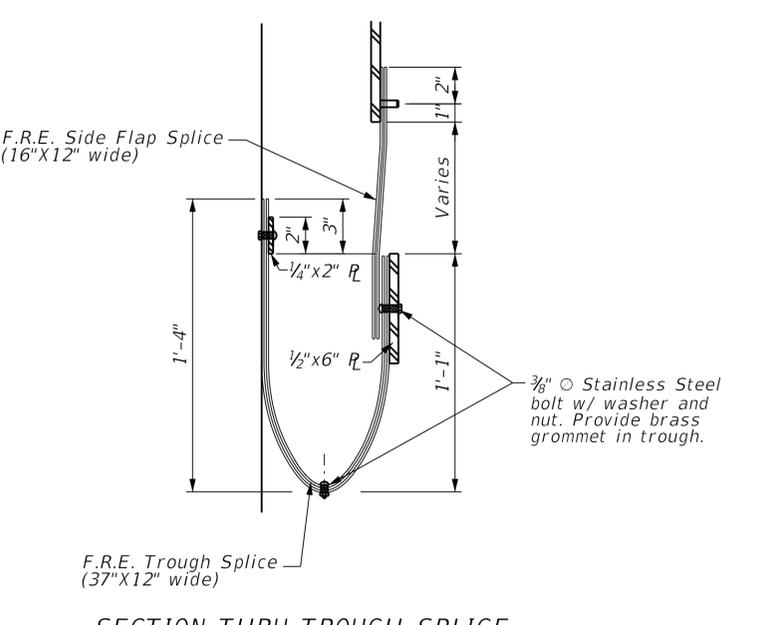
SECTION THRU STOOL



JOINT OPENING AND GEOMETRY DETAIL



TROUGH SPLICE DETAIL

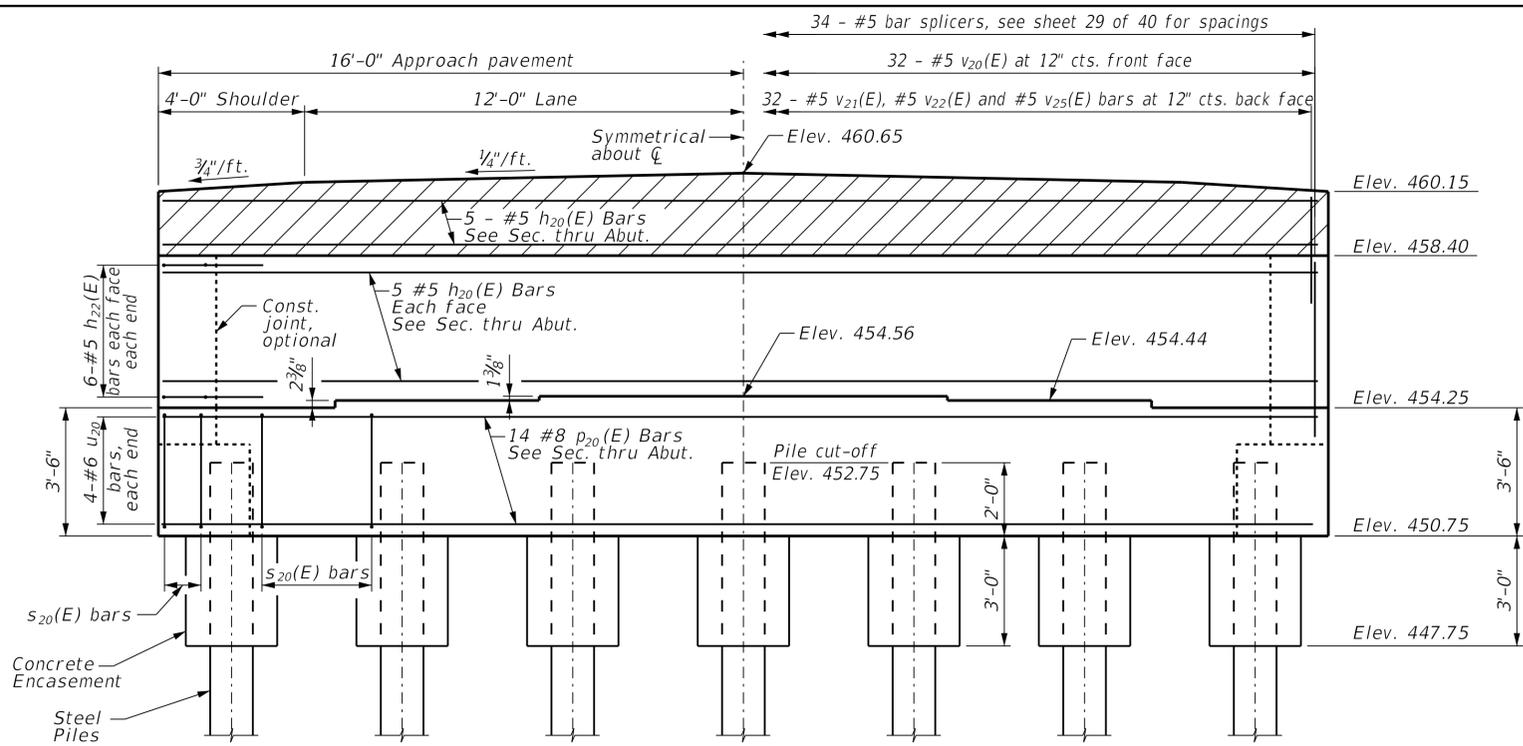


SECTION THRU TROUGH SPLICE

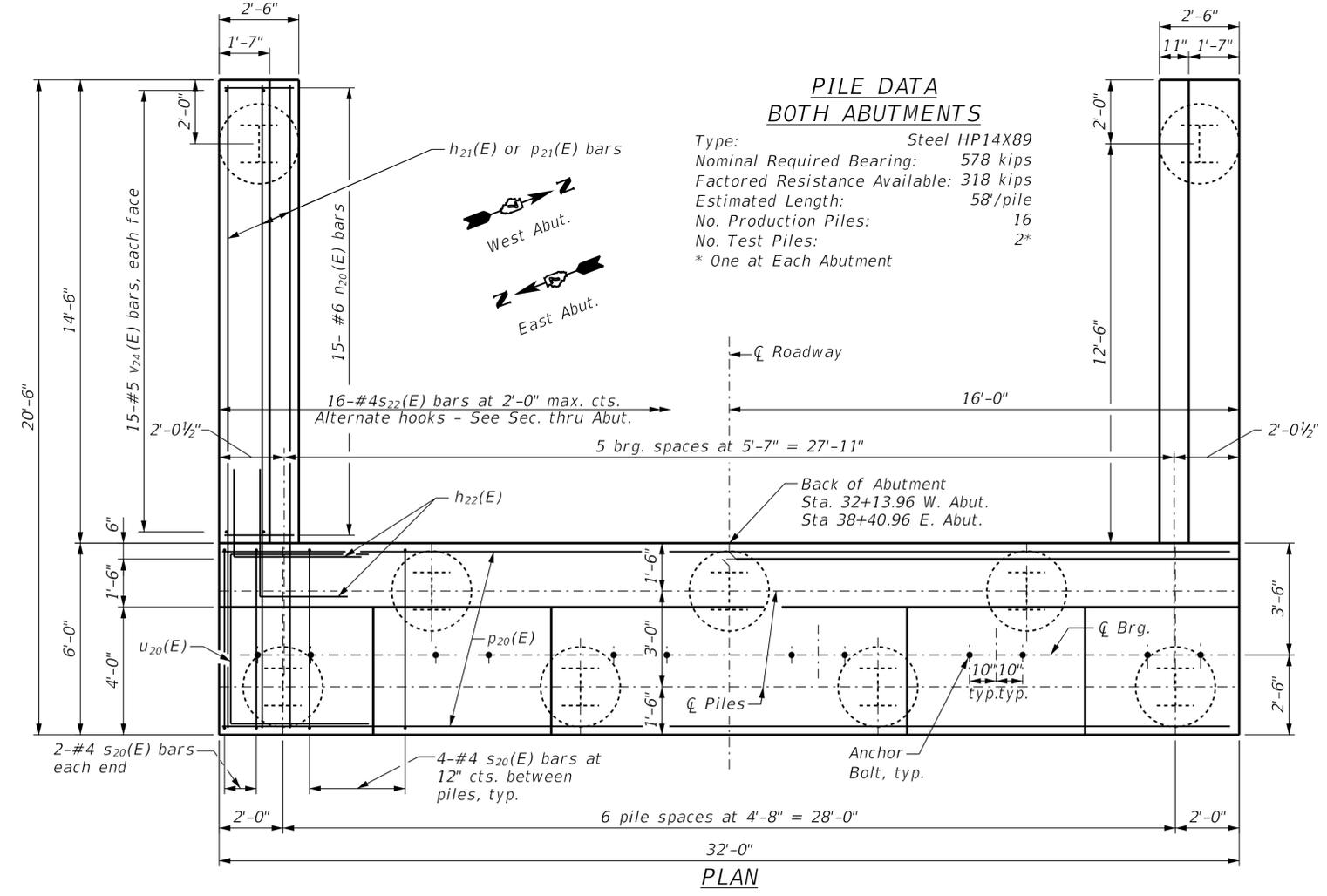
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FINGER JOINT DETAILS
STRUCTURE NO. 013-3250
BRIDGE SHEET 28 OF 40 SHEETS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	35
CONTRACT NO. 95863				



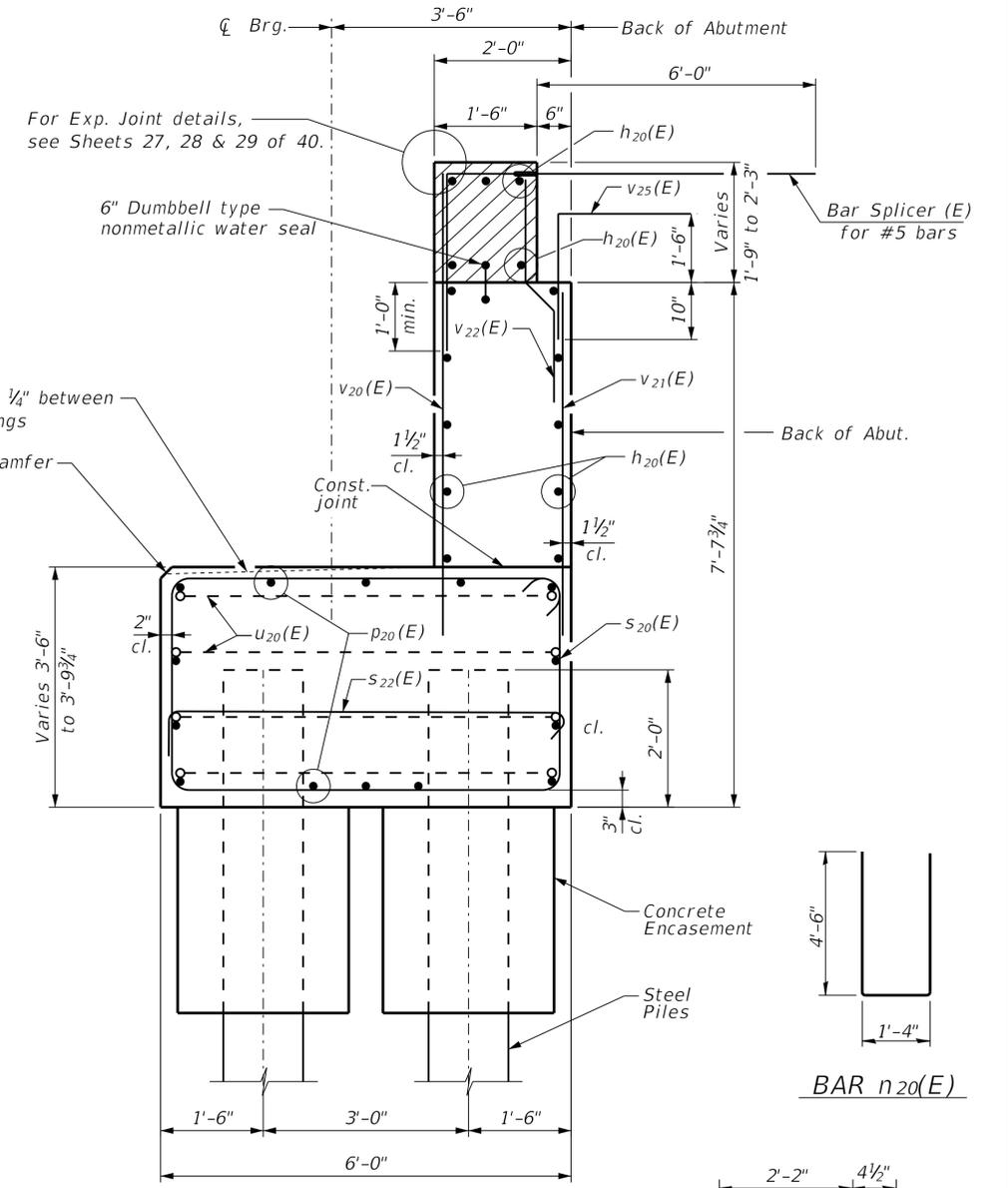
ELEVATION



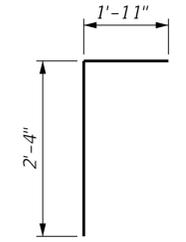
PLAN

**PILE DATA
BOTH ABUTMENTS**

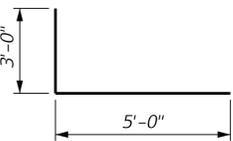
Type: Steel HP14X89
 Nominal Required Bearing: 578 kips
 Factored Resistance Available: 318 kips
 Estimated Length: 58'/pile
 No. Production Piles: 16
 No. Test Piles: 2*
 * One at Each Abutment



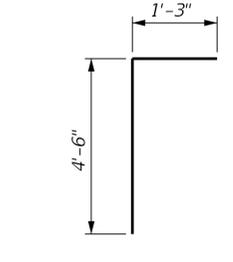
SEC. THRU ABUTMENT



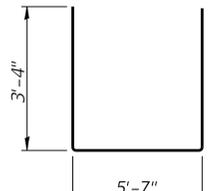
BAR v25(E)



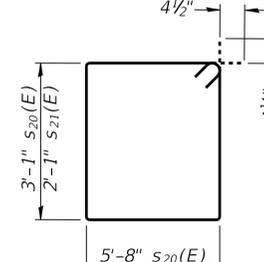
BAR h22(E)



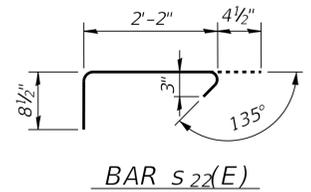
BAR v23(E)



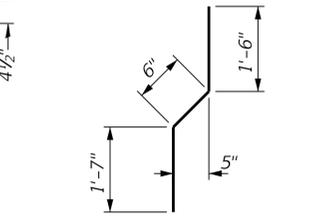
BAR u20(E)



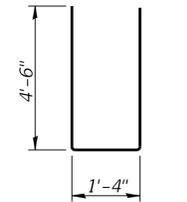
BAR s20(E)
BAR s21(E)



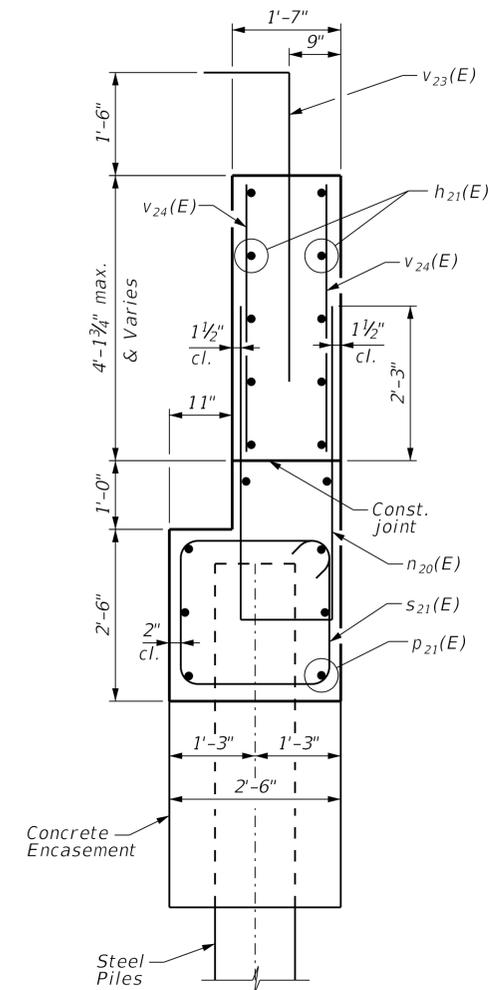
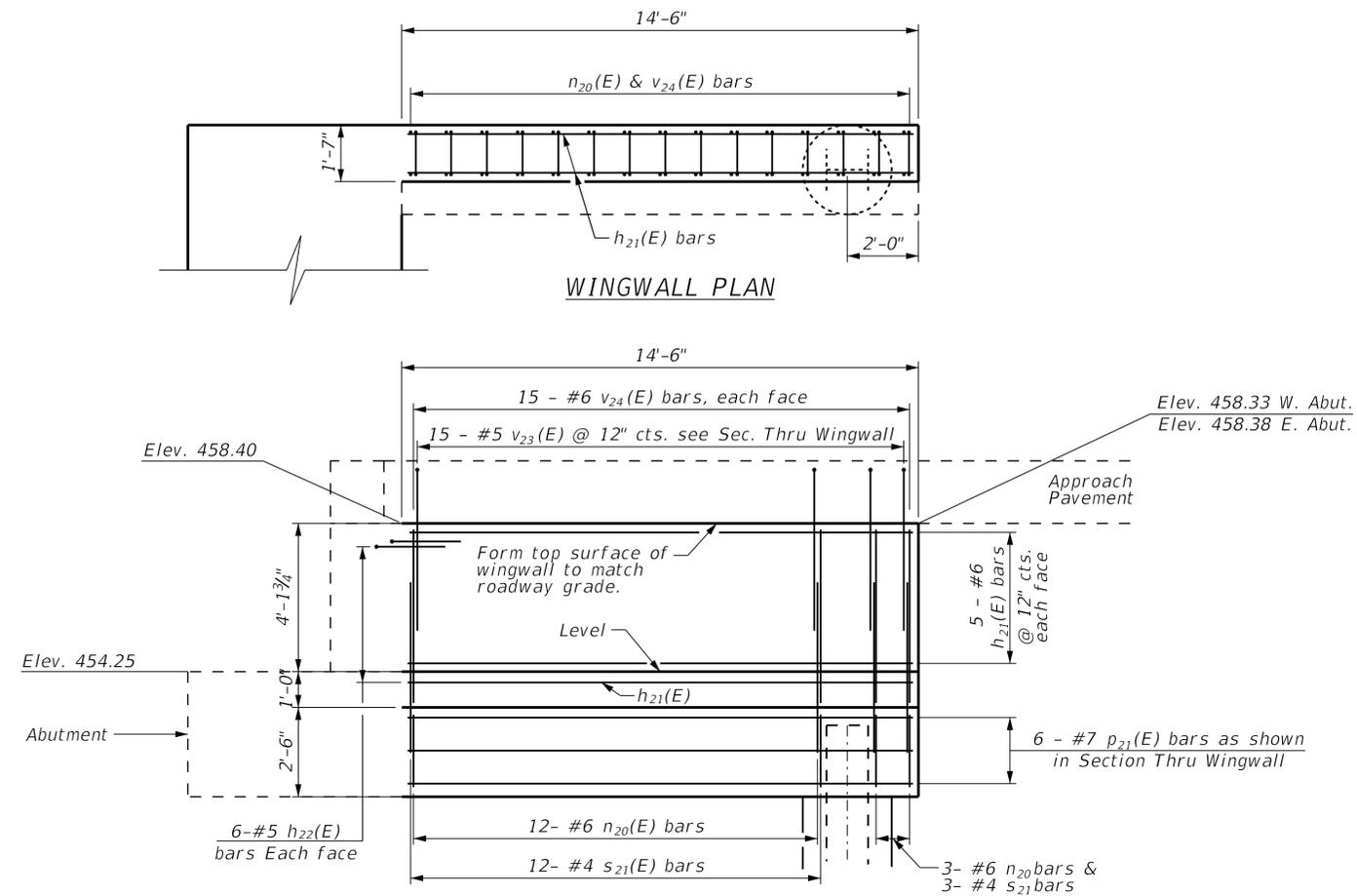
BAR s22(E)



BAR v22(E)



BAR n20(E)

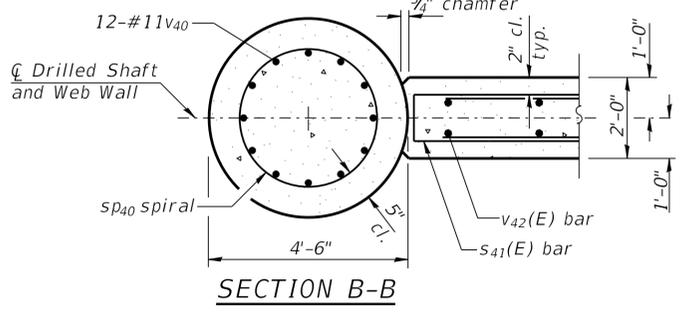
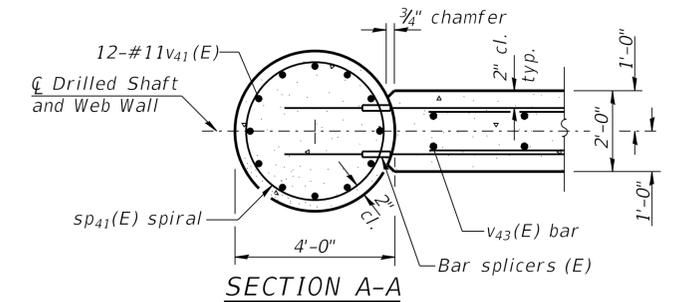
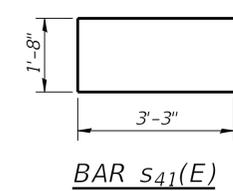
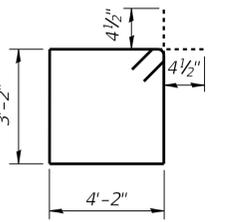
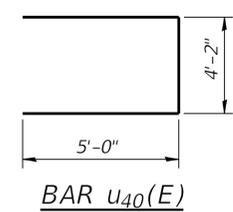
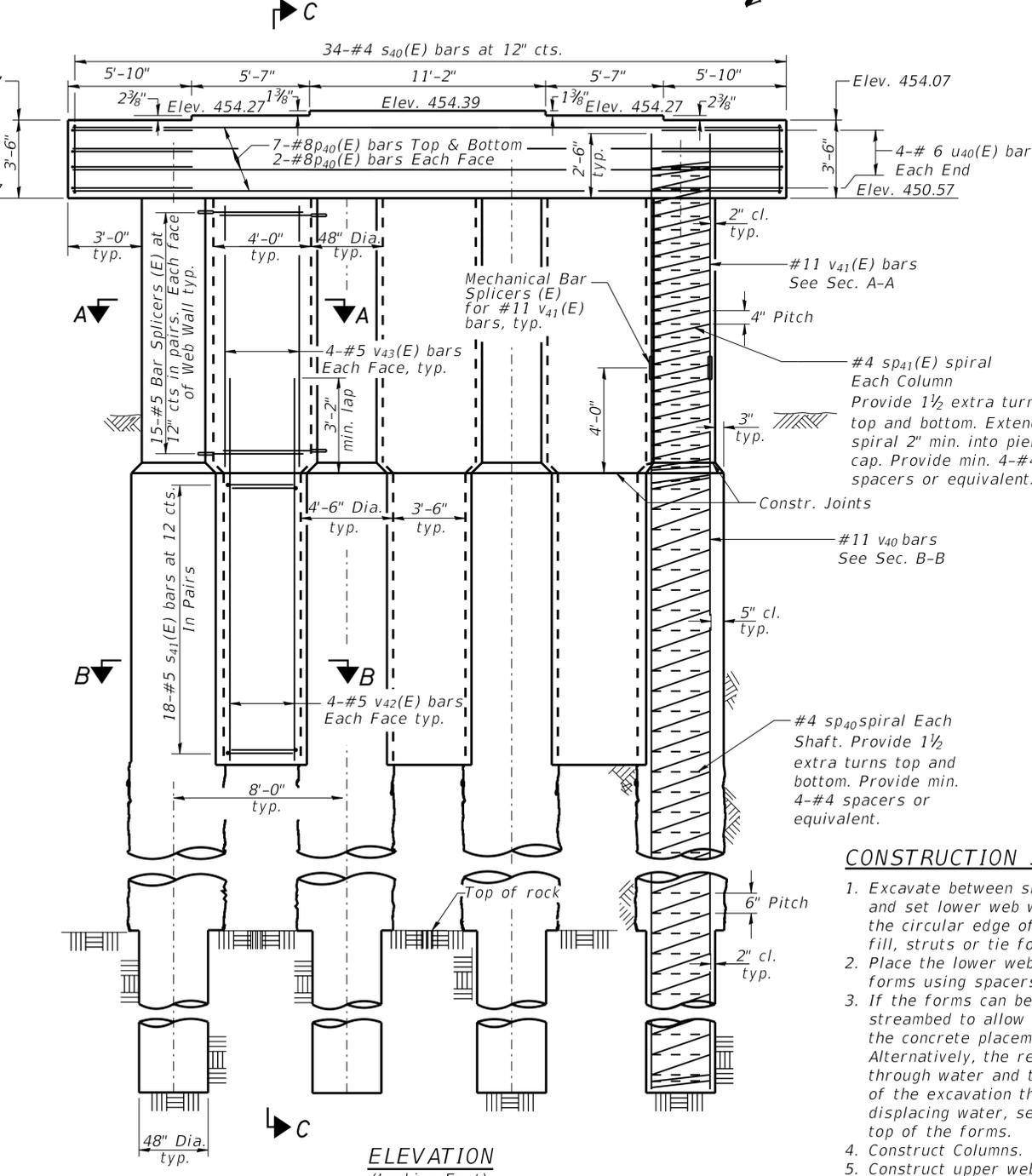
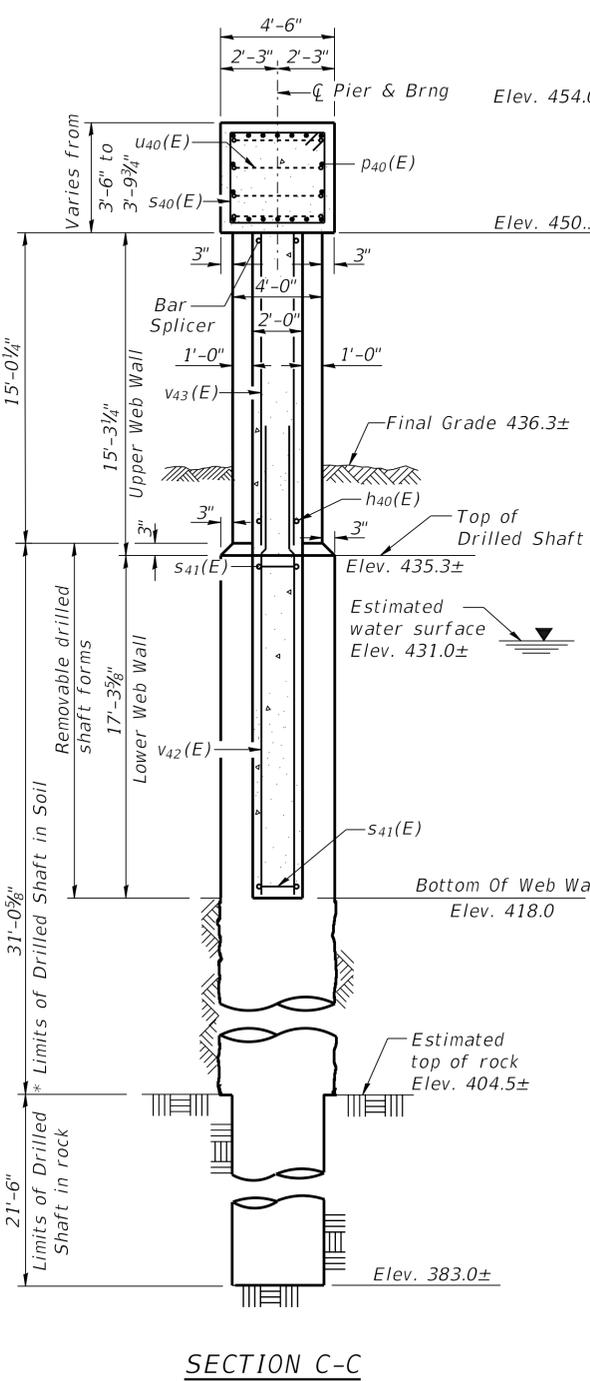
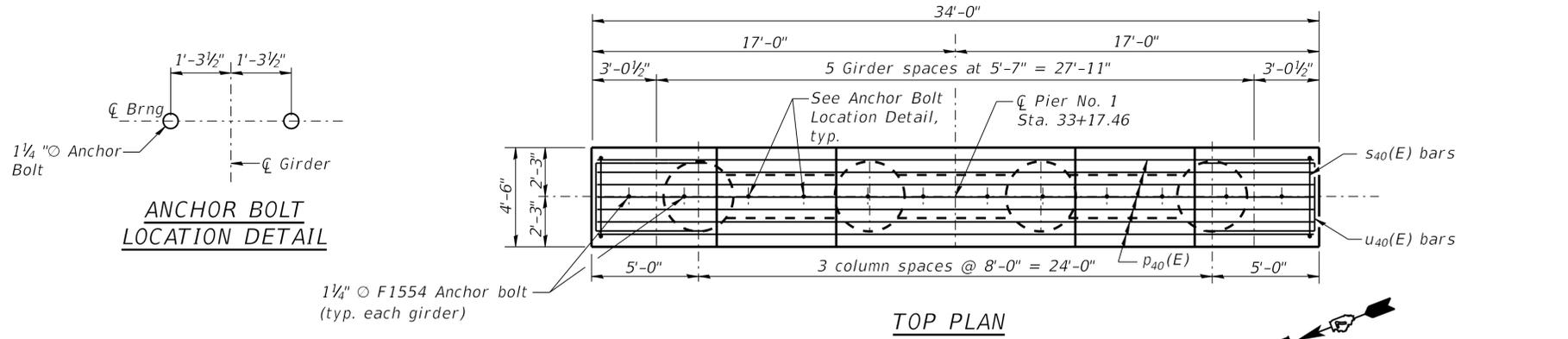


BILL OF MATERIAL FOR TWO ABUTMENTS

Bar	No.	Size	Length	Shape
$h_{20}(E)$	30	#5	31'-8"	—
$h_{21}(E)$	48	#5	14'-2"	—
$h_{22}(E)$	48	#5	8'-0"	┘
$n_{20}(E)$	60	#6	10'-4"	□
$p_{20}(E)$	28	#8	31'-8"	—
$p_{21}(E)$	24	#7	20'-2"	—
$s_{20}(E)$	56	#4	18'-5"	□
$s_{21}(E)$	60	#4	9'-3"	□
$s_{22}(E)$	32	#4	3'-3"	┘
$u_{20}(E)$	16	#6	12'-3"	□
$v_{20}(E)$	64	#5	7'-6"	—
$v_{21}(E)$	64	#5	6'-0"	—
$v_{22}(E)$	64	#5	3'-9"	—
$v_{23}(E)$	60	#5	3'-9"	┘
$v_{24}(E)$	120	#5	3'-10"	—
$v_{25}(E)$	64	#5	4'-3"	┘
Concrete Structures		Cu Yd	102.1	
Concrete Encasement		Cu Yd	9.8	
Structure Excavation		Cu Yd	376	
Reinforcement Bars, Epoxy Coated		Pound	10020	
Furnishing Steel Piles, HP14x89		Foot	928	
Driving Piles		Foot	928	
Test Pile, Steel HP14x89		Each	2	
Bar Splicers		Each	68	
Concrete Sealer		Sq Ft	756	

GENERAL NOTES

- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (Illinois Modified).
- The Steel H-piles shall be according to AASHTO M270 Grade 50.
- All exposed edges shall have standard 3/4" chamfer, unless otherwise noted or as directed by the Engineer.
- The Contractor shall drive one (1) Test Pile in a production location of the type, size, and location as indicated on the plans and as directed by the Engineer before ordering the remainder of the piles.
- All clearances between rebar and form surface shall be 2", unless otherwise noted.
- The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.
- Space reinforcement in cap to miss anchor bolts.
- For details of piles and Concrete Encasement see Sheet 37 of 40.
- The position of the 90° & 135° hooked ends of the s_{22} bar shall be alternated between adjacent bars as shown, both vertically and horizontally.
- The abutments shall have all exposed surfaces of backwalls, bridge seat and front faces of pile caps treated with Concrete Sealer.
- Hatched area to be poured after superstructure falsework has been removed. Quantity of concrete included with Concrete Superstructure.
- See sheet 38 of 40 for Bar Splicer details.
- Pour steps monolithically with cap.



* If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the Contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

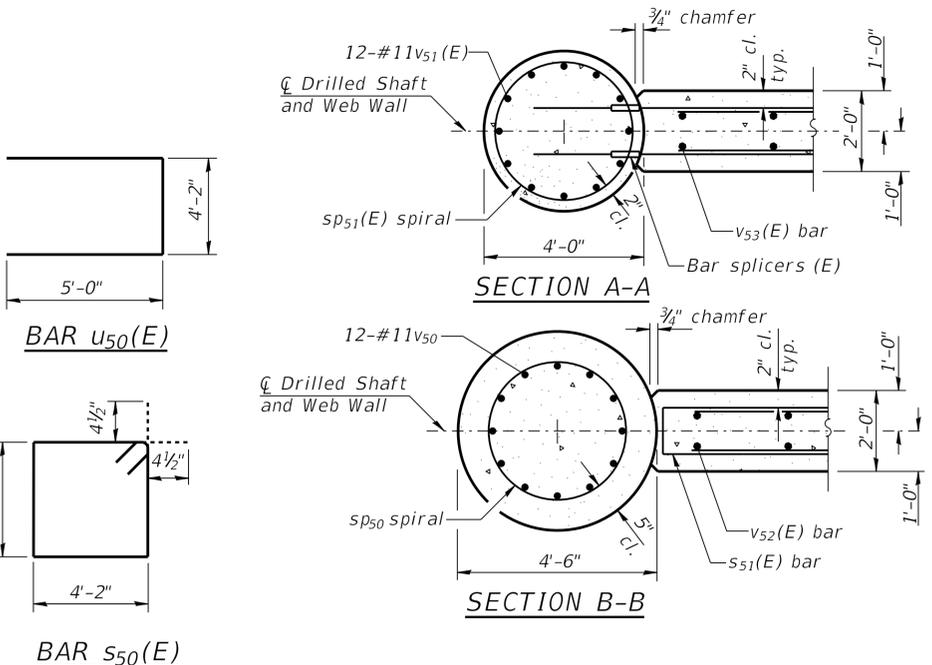
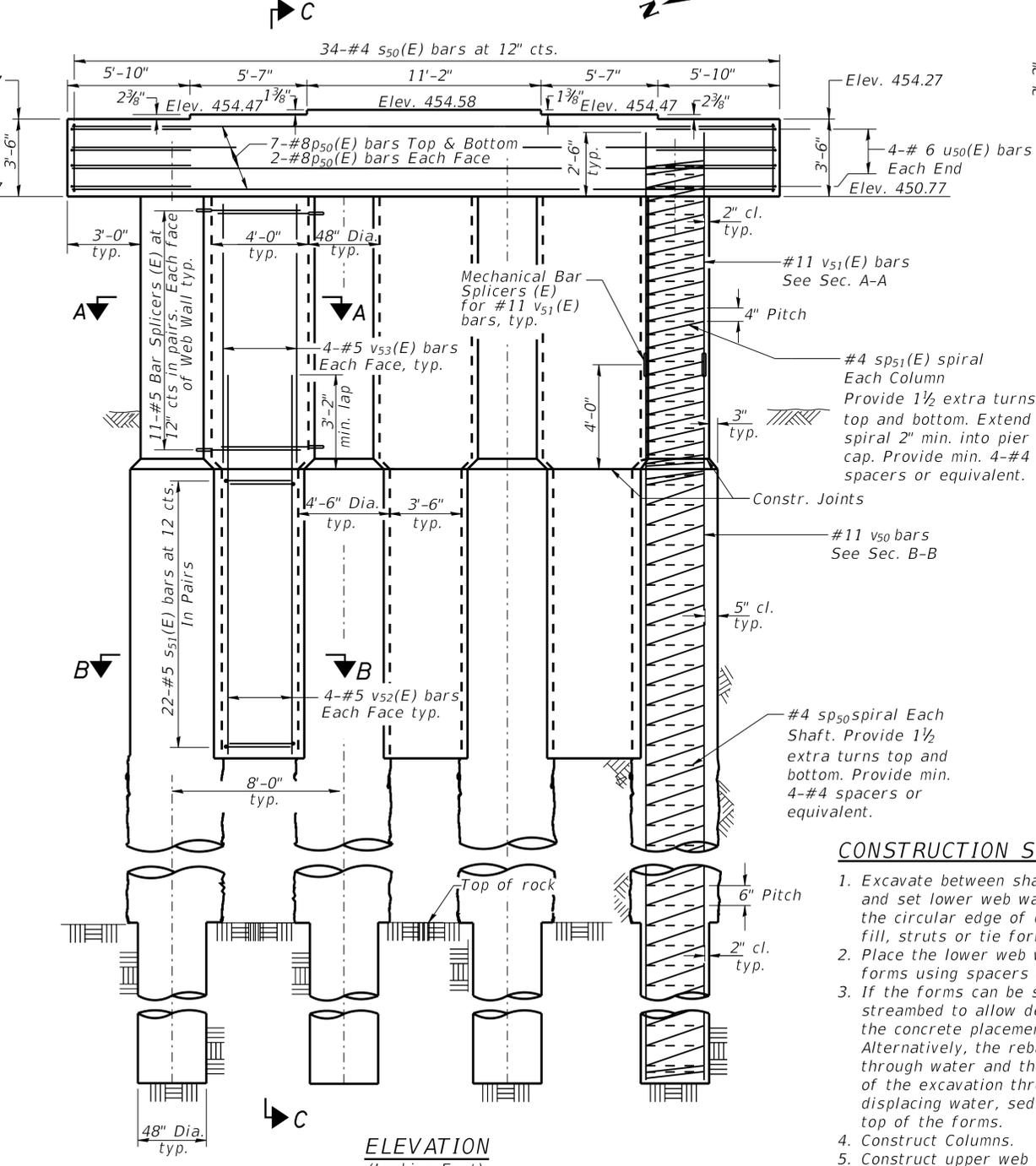
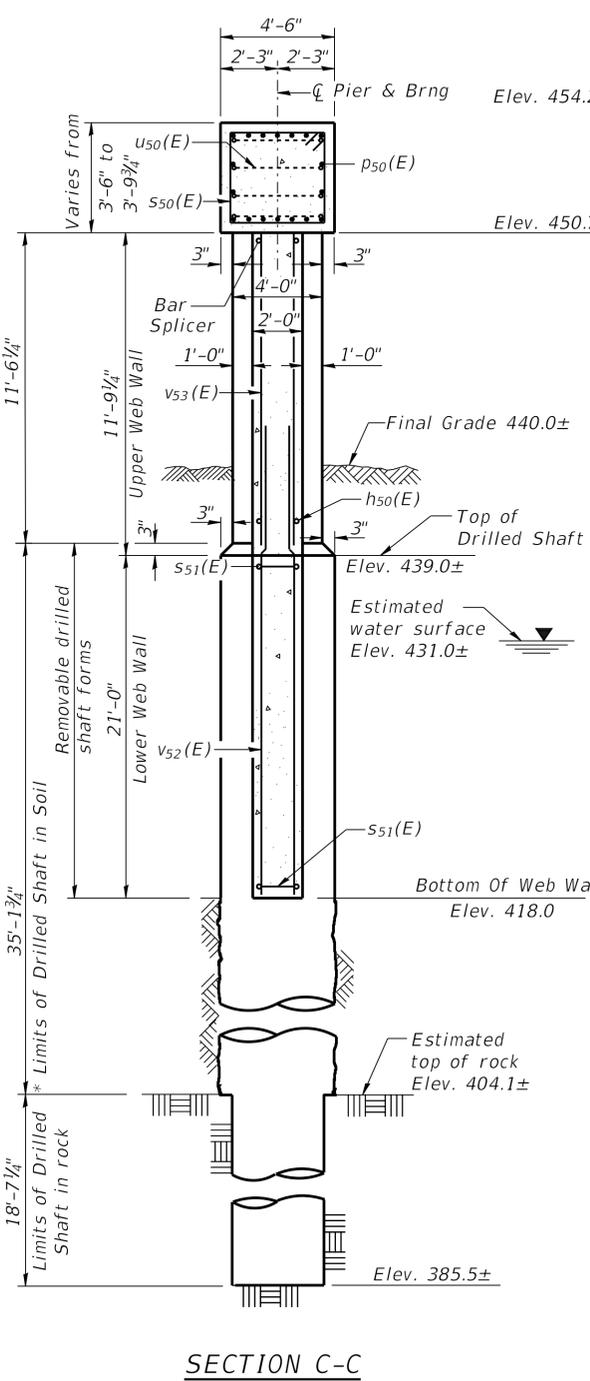
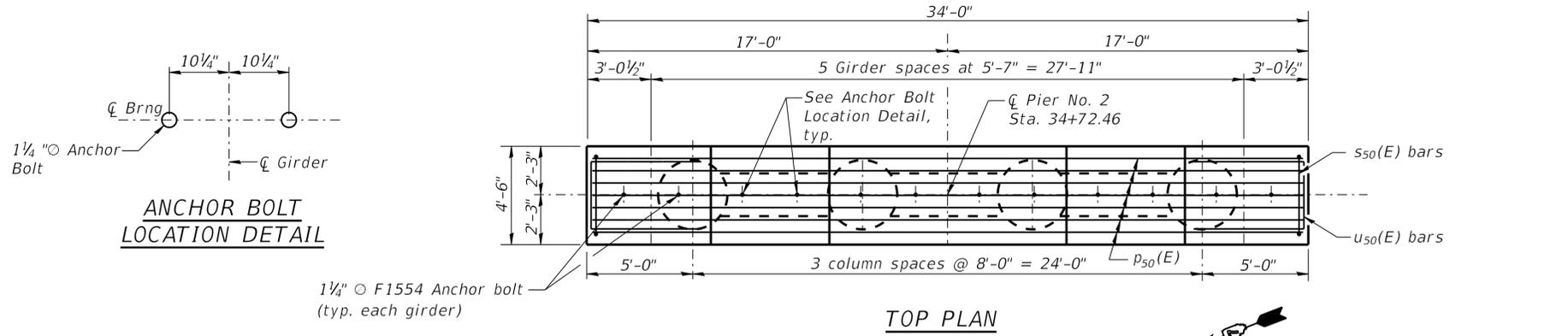
CONSTRUCTION SEQUENCE FOR WEB WALL:

1. Excavate between shafts to elevation of web wall base and set lower web wall forms through water to bear on the circular edge of drilled shafts. Secure in place with fill, struts or tie forms together as required.
2. Place the lower web wall reinforcement cage into the forms using spacers to maintain proper clearances.
3. If the forms can be sealed against the shafts and streambed to allow dewatering, the reinforcement and the concrete placement may be completed in the dry. Alternatively, the rebar cage can be lowered into position through water and the concrete discharged at the base of the excavation through a tremie pipe or pump hose, displacing water, sediment, and tainted concrete out the top of the forms.
4. Construct Columns.
5. Construct upper web walls.

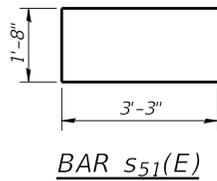
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p40(E)	18	#8	33'-8"	—
s40(E)	34	#4	15'-5"	□
s41(E)	108	#5	8'-2"	□
** SP40	4	#4	52'-3"	⋈
** SP41(E)	4	#4	16'-6"	⋈
u40(E)	8	#6	14'-2"	□
v40	48	#11	56'-3"	—
v41(E)	48	#11	13'-6"	—
v42(E)	24	#5	20'-6"	—
v43(E)	24	#5	15'-0"	—
Concrete Structures	Cu Yd		76.2	
Reinforcement Bars	Pound		17670	
Reinforcement Bars, Epoxy Coated	Pound		9010	
Bar Splicers	Each		180	
Mechanical Splicers	Each		48	
Thermal Integrity Profile Testing	Each		4	
Thermal Integrity Profile Data Collection	Foot		210	

See Sheet 36 of 40 for Cofferdam and Drilled Shaft details.
 Reinforcement Bars designated (E) shall be epoxy coated.
 Cast steps monolithically with cap.
 Space cap reinforcement to miss anchor bolts.
 Splices in spiral reinforcement shall be lap splices of 48 bar or wire diameters but not less than 12 inches, or shall be welded.
 **Length is height of spiral.



* If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the Contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.



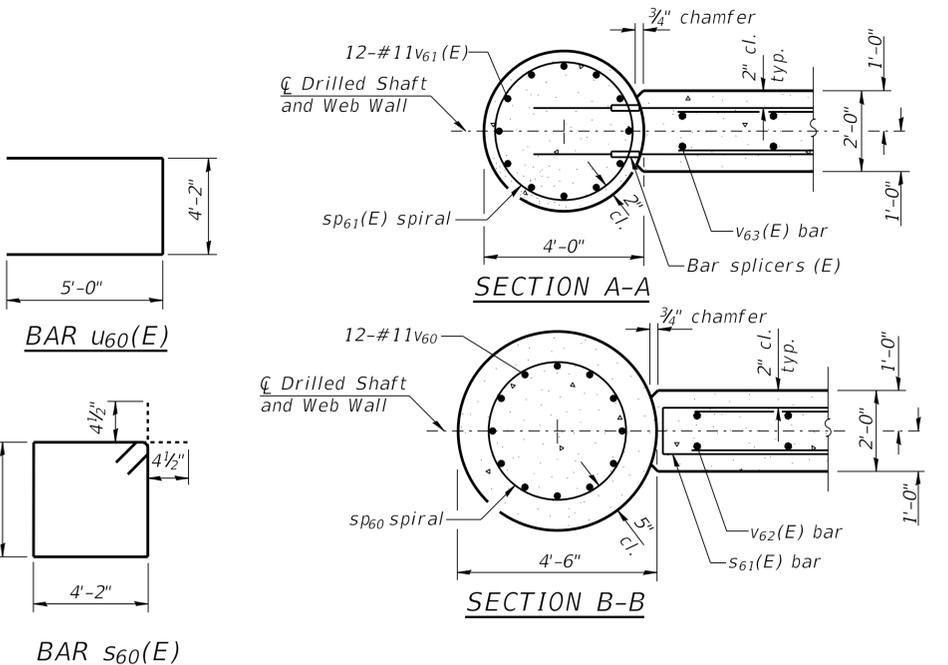
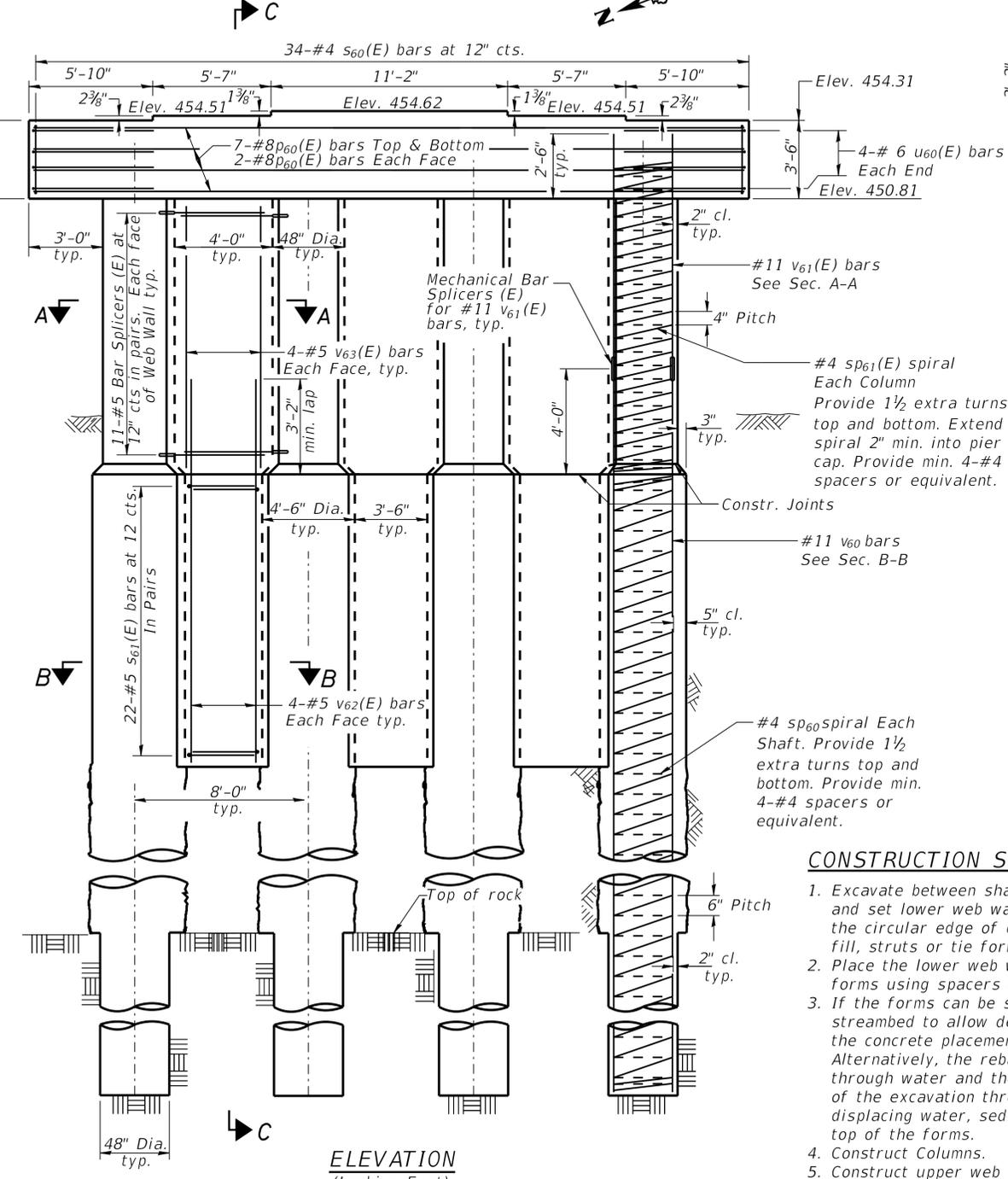
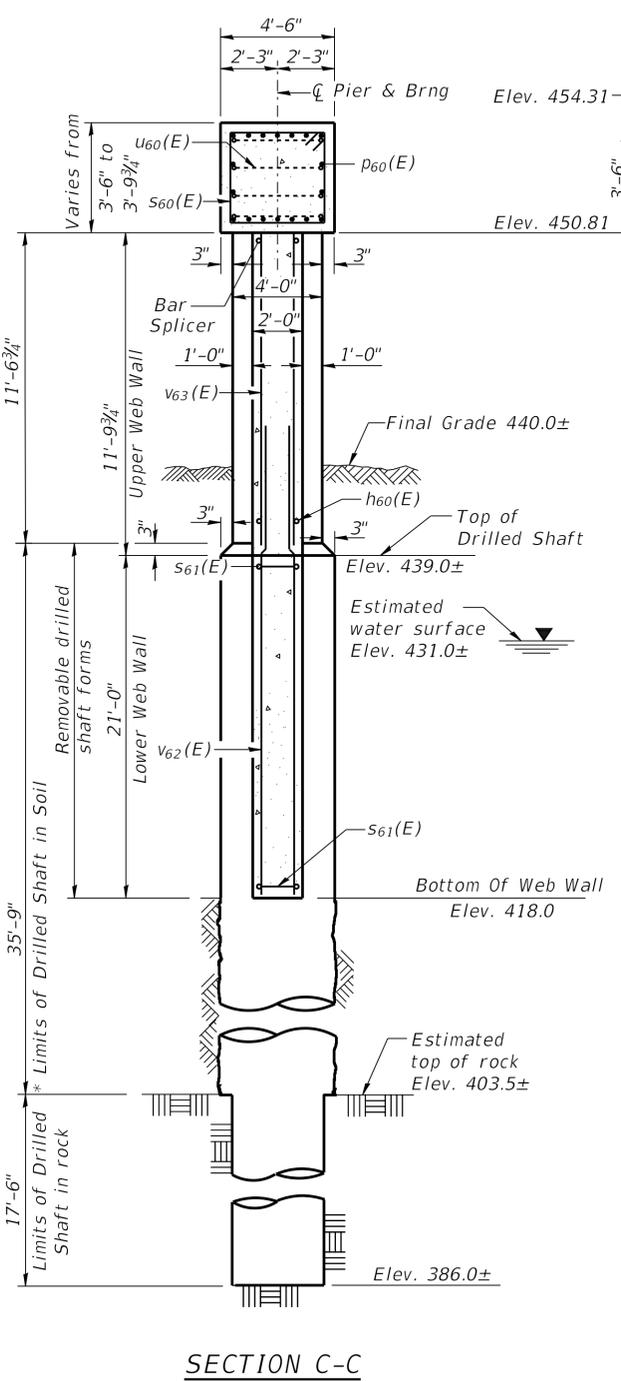
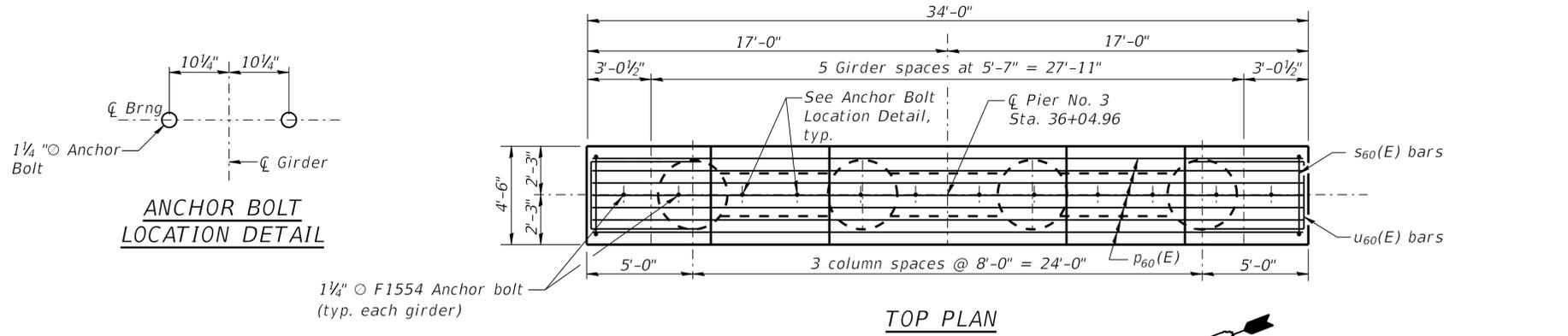
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p50(E)	18	#8	33'-8"	—
s50(E)	34	#4	15'-5"	□
s51(E)	132	#5	8'-2"	□
** sp50	4	#4	53'-6"	⋈
** sp51(E)	4	#4	12'-10"	⋈
u50(E)	8	#6	14'-2"	□
v50	48	#11	57'-6"	—
v51(E)	48	#11	10'-3"	—
v52(E)	24	#5	24'-2"	—
v53(E)	24	#5	11'-5"	—
Concrete Structures	Cu Yd		69.4	
Reinforcement Bars	Pound		18050	
Reinforcement Bars, Epoxy Coated	Pound		8050	
Bar Splicers	Each		132	
Mechanical Splicers	Each		48	
Thermal Integrity Profile Testing	Each		4	
Thermal Integrity Profile Data Collection	Foot		215	

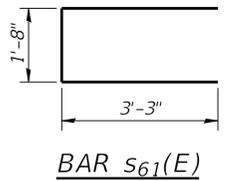
CONSTRUCTION SEQUENCE FOR WEB WALL:

1. Excavate between shafts to elevation of web wall base and set lower web wall forms through water to bear on the circular edge of drilled shafts. Secure in place with fill, struts or tie forms together as required.
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4. Construct Columns.
5. Construct upper web walls.

See Sheet 36 of 40 for Cofferdam and Drilled Shaft details. Reinforcement Bars designated (E) shall be epoxy coated. Cast steps monolithically with cap. Space cap reinforcement to miss anchor bolts. Splices in spiral reinforcement shall be lap splices of 48 bar or wire diameters but not less than 12 inches, or shall be welded. **Length is height of spiral.



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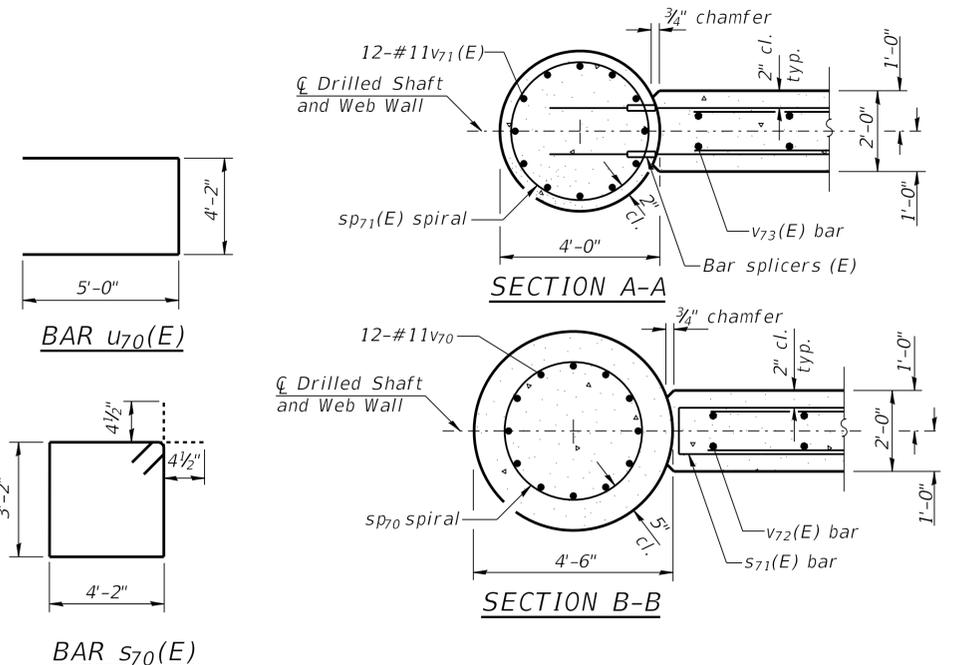
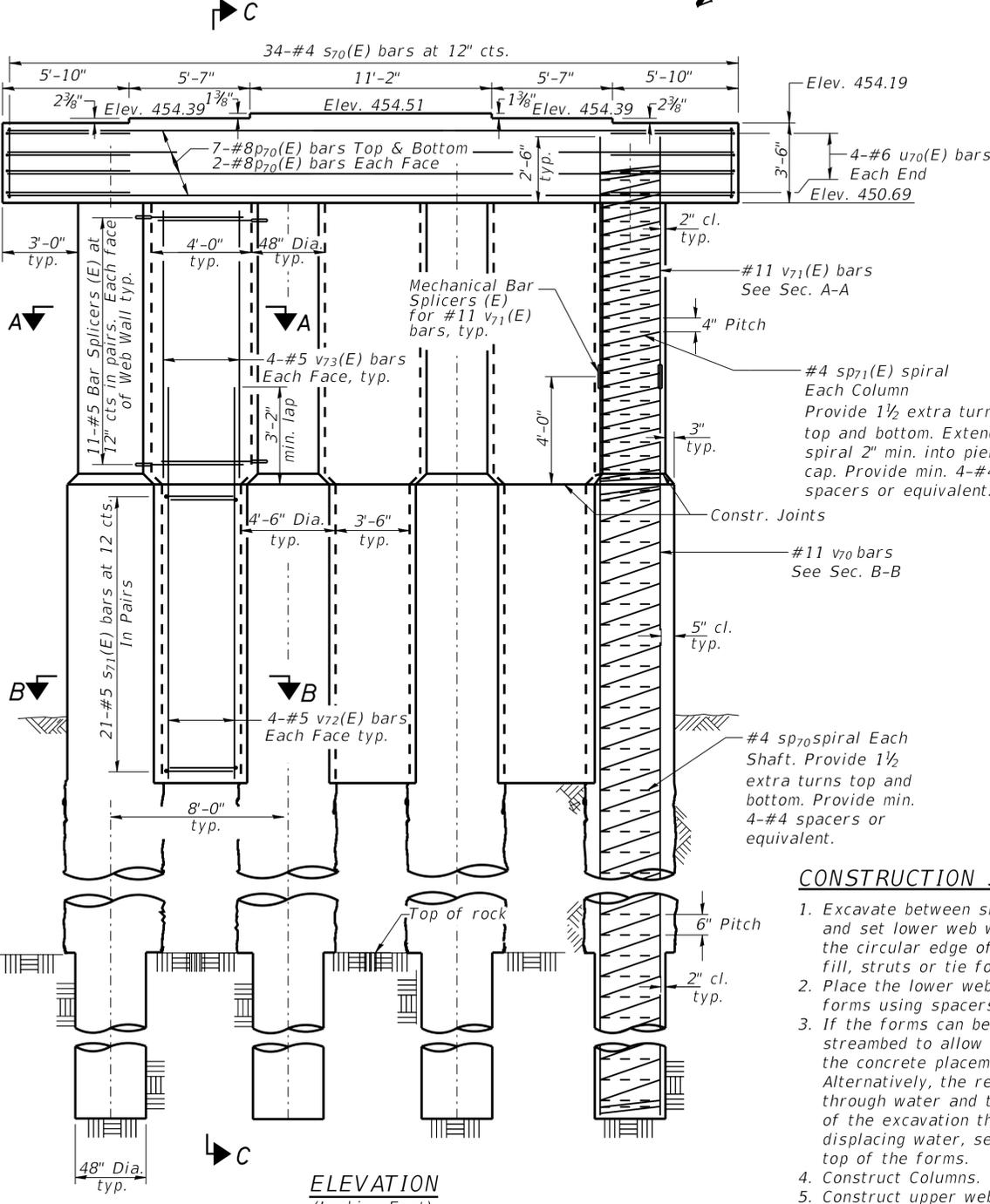
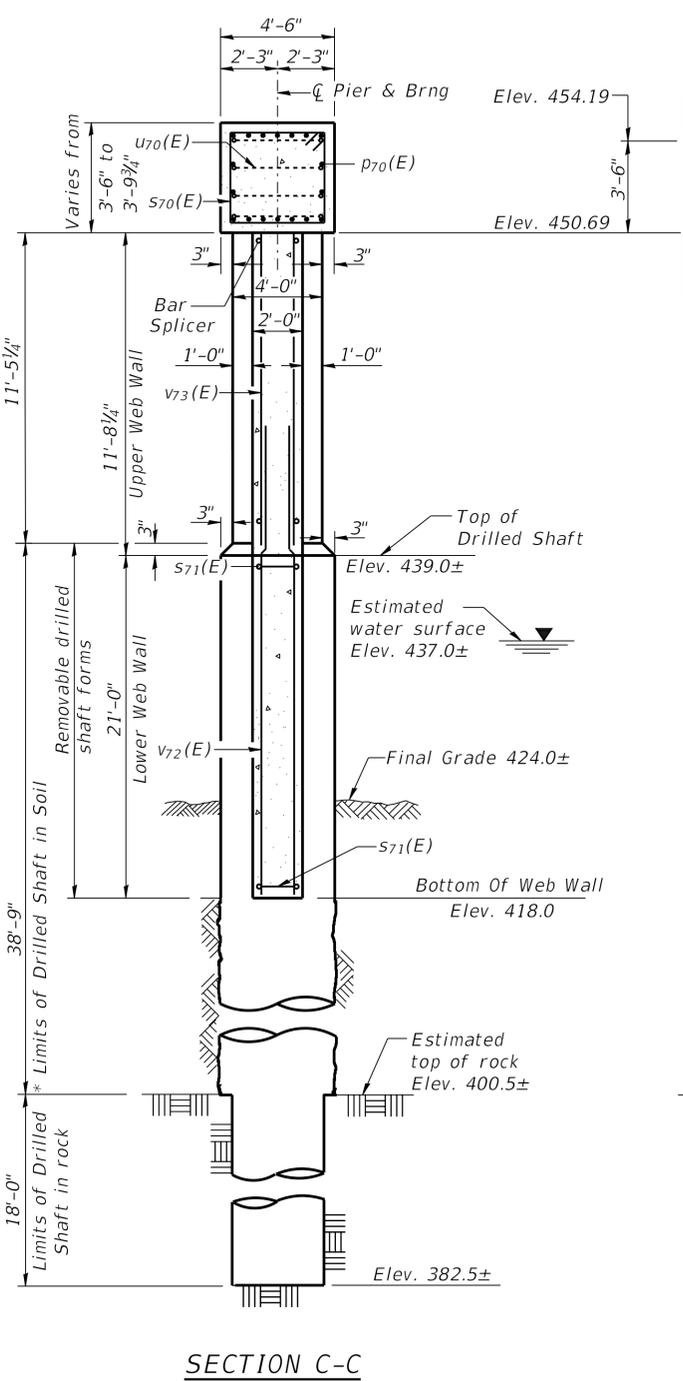
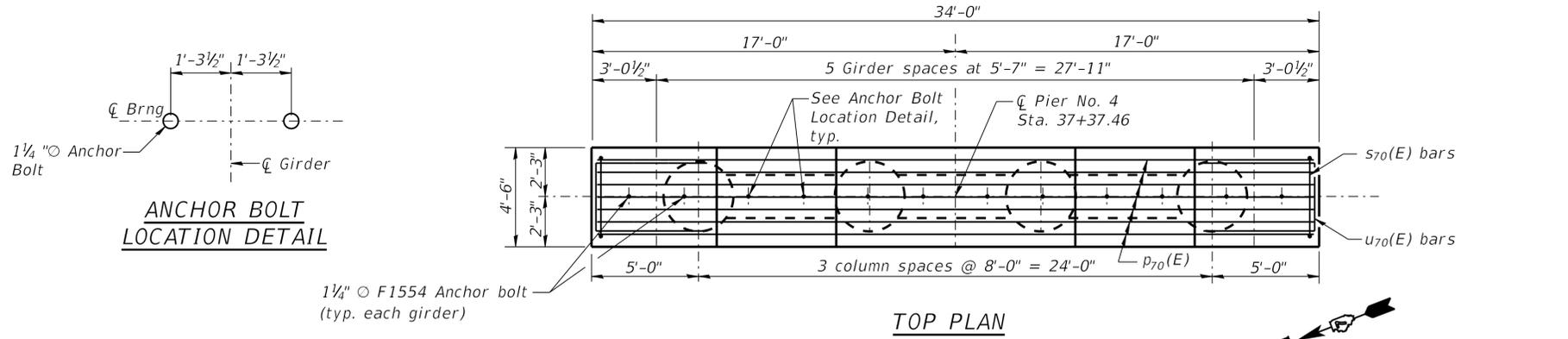


BILL OF MATERIAL				
Bar	No.	Size	Length	Shape
p60(E)	18	#8	33'-8"	—
s60(E)	34	#4	15'-5"	□
s61(E)	132	#5	8'-2"	□
** sp60	4	#4	53'-0"	⋈
** sp61(E)	4	#4	12'-10"	⋈
u60(E)	8	#6	14'-2"	□
v60	48	#11	57'-0"	—
v61(E)	48	#11	10'-4"	—
v62(E)	24	#5	24'-0"	—
v63(E)	24	#5	11'-6"	—
Concrete Structures	Cu Yd		69.4	
Reinforcement Bars	Pound		17900	
Reinforcement Bars, Epoxy Coated	Pound		8040	
Bar Splicers	Each		132	
Mechanical Splicers	Each		48	
Thermal Integrity Profile Testing	Each		4	
Thermal Integrity Profile Data Collection	Foot		213	

CONSTRUCTION SEQUENCE FOR WEB WALL:

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See Sheet 36 of 40 for Cofferdam and Drilled Shaft details. Reinforcement Bars designated (E) shall be epoxy coated. Cast steps monolithically with cap. Space cap reinforcement to miss anchor bolts. Splices in spiral reinforcement shall be lap splices of 48 bar or wire diameters but not less than 12 inches, or shall be welded. **Length is height of spiral.



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BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p70(E)	18	#8	33'-8"	—
s70(E)	34	#4	15'-5"	□
s71(E)	126	#5	8'-2"	□
** sp70	4	#4	56'-6"	≡
** sp71(E)	4	#4	12'-8"	≡
u70(E)	8	#6	14'-2"	□
v70	48	#11	60'-5"	—
v71(E)	48	#11	10'-3"	—
v72(E)	24	#5	24'-2"	—
v73(E)	24	#5	11'-8"	—
Concrete Structures	Cu Yd		69.4	
Reinforcement Bars	Pound		18980	
Reinforcement Bars, Epoxy Coated	Pound		7990	
Bar Splicers	Each		132	
Mechanical Splicers	Each		48	
Thermal Integrity Profile Testing	Each		4	
Thermal Integrity Profile Data Collection	Foot		227	

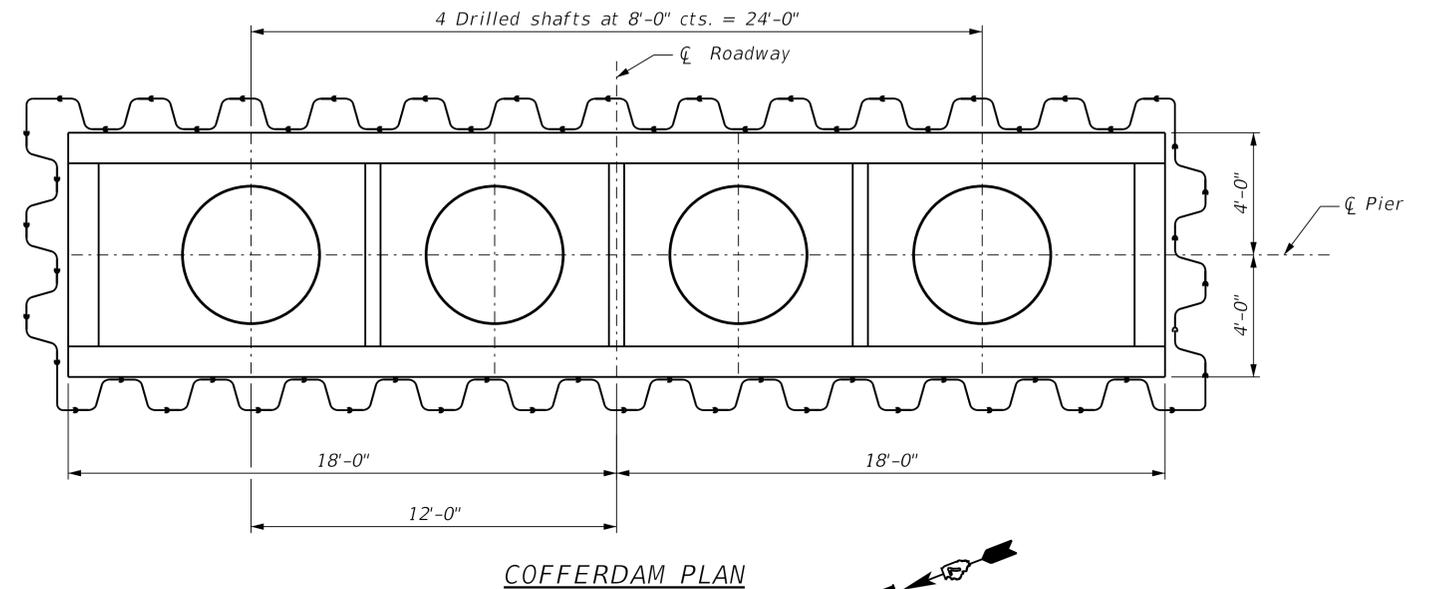
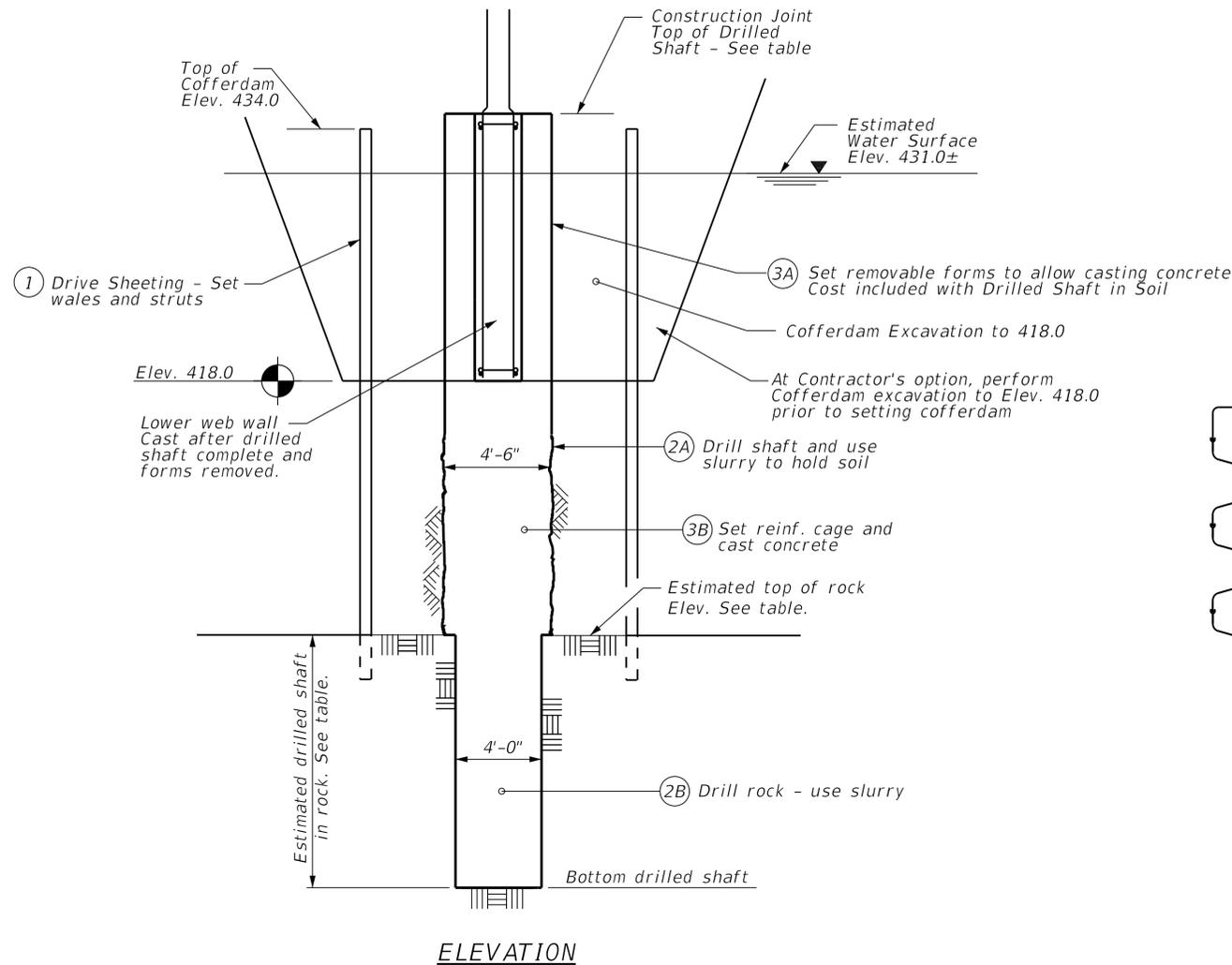
CONSTRUCTION SEQUENCE FOR WEB WALL:

1. Excavate between shafts to elevation of web wall base and set lower web wall forms through water to bear on the circular edge of drilled shafts. Secure in place with fill, struts or tie forms together as required.
2. Place the lower web wall reinforcement cage into the forms using spacers to maintain proper clearances.
3. If the forms can be sealed against the shafts and streambed to allow dewatering, the reinforcement and the concrete placement may be completed in the dry. Alternatively, the rebar cage can be lowered into position through water and the concrete discharged at the base of the excavation through a tremie pipe or pump hose, displacing water, sediment, and tainted concrete out the top of the forms.
4. Construct Columns.
5. Construct upper web walls.

See Sheet 36 of 40 for Cofferdam and Drilled Shaft details. Reinforcement Bars designated (E) shall be epoxy coated. Cast steps monolithically with cap. Space cap reinforcement to miss anchor bolts. Splices in spiral reinforcement shall be lap splices of 48 bar or wire diameters but not less than 12 inches, or shall be welded. **Length is height of spiral.

	Top of Drilled Shaft	Est. Water Surf. Elev.	Est. Top of Rock	Est. Drilled Shaft in Rock
Pier 1	435.3	431	404.5	21.5 ft.
Pier 2	439.0	431	404.1	18.6 ft.
Pier 3	439.0	431	403.5	17.5 ft.
Pier 4	439.0	431*	400.5	18.0 ft.

* Pump and lower water Elev. to 431 or lower. Cost included with Cofferdam (Type 1) (Location 4)



COFFERDAM PLAN

CONSTRUCTION SEQUENCE FOR LOWER WEB WALL

- Excavate between shafts to elevation of web wall base and set lower web wall forms through water to bear on the circular edge of drilled shafts. Secure in place with fill, struts or tie forms together as required.
- Place the lower web wall reinforcement cage into the forms using spacers to maintain proper clearances.
- If the forms can be sealed against the shafts and streambed to allow dewatering, the reinforcement and the concrete placement may be completed in the dry. Alternatively, the rebar cage can be lowered into position through water and the concrete discharged at the base of the excavation through a tremie pipe or pump hose, displacing water, sediment, and tainted concrete out the top of the forms.

CONSTRUCTION SEQUENCE FOR DRILLED SHAFT AND COFFERDAM

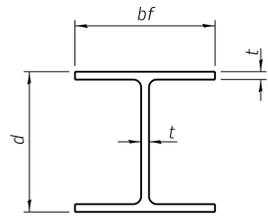
- Set Cofferdam.
- 2A & 2B Drill shaft in soil and shaft in rock.
- 3A & 3B Set removable drilled shaft forms, set reinforcement and cast concrete.
- Construct remainder of Pier, backfill, and remove Cofferdam.

NOTES

- If a portion of the drilled shaft web walls or concrete encasement is under water, reinforcement may be placed underwater 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.
- If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the Contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure.
- The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface.
- The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.
- See individual Pier sheets for reinforcement, concrete, and details.

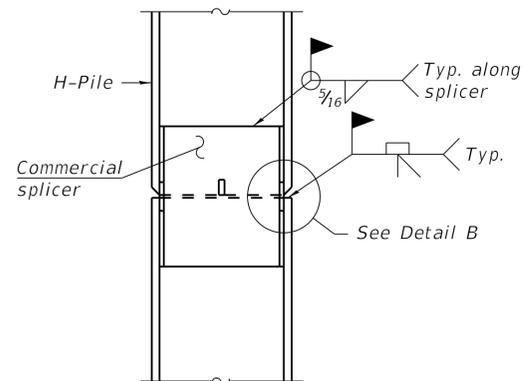
BILL OF MATERIAL

Item	Unit	Quantity
Cofferdam Excavation	Cu Yd	917
Cofferdam (Type 1) (Location - 1)	Each	1
Cofferdam (Type 1) (Location - 2)	Each	1
Cofferdam (Type 1) (Location - 3)	Each	1
Cofferdam (Type 1) (Location - 4)	Each	1
Drilled Shaft in Soil	Cu Yd	342.5
Drilled Shaft in Rock	Cu Yd	140.7

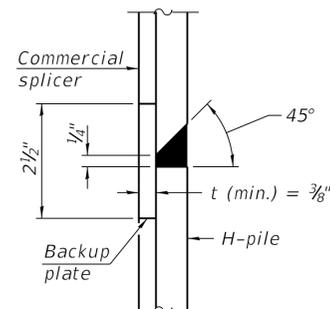


STEEL PILE TABLE

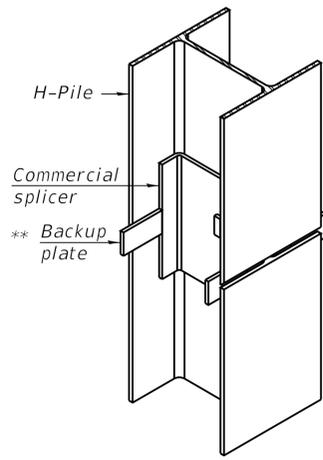
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
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

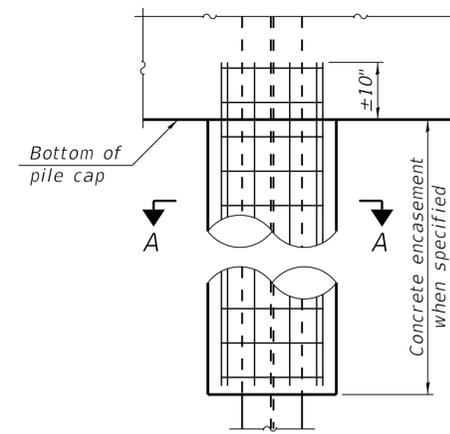


DETAIL "B"

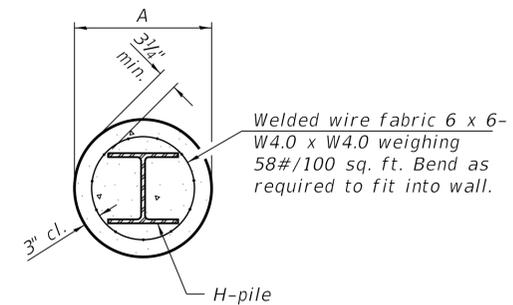


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

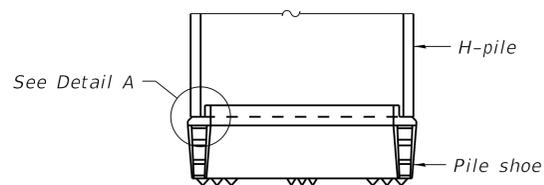


ELEVATION

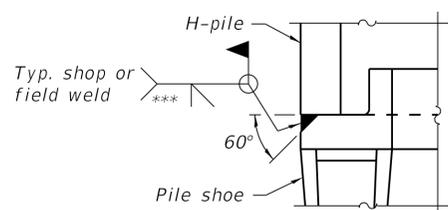


SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASUREMENT
(Forms for encasement may be omitted when soil conditions permit).



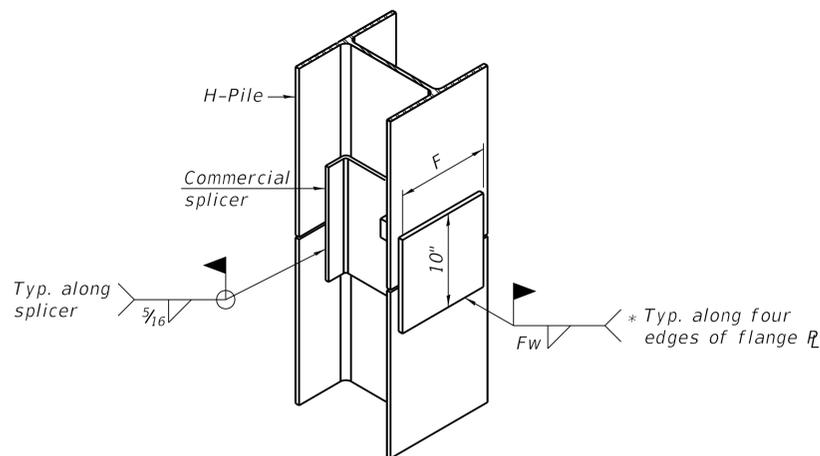
ELEVATION



DETAIL A

SHOE ATTACHMENT

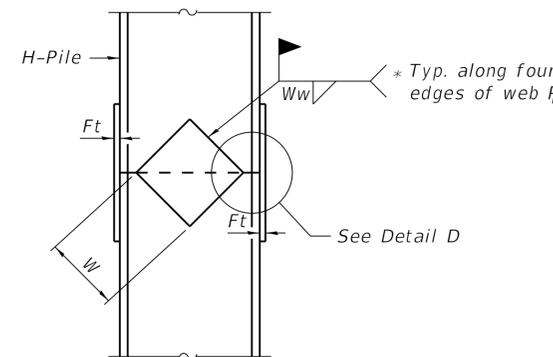
Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.



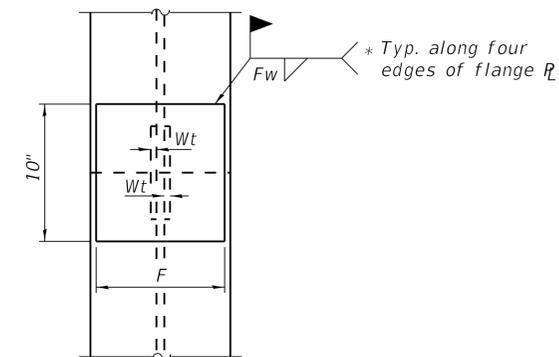
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

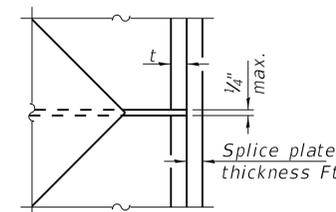
- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- *** Weld size per pile shoe manufacturer (5/16" min.).



ELEVATION



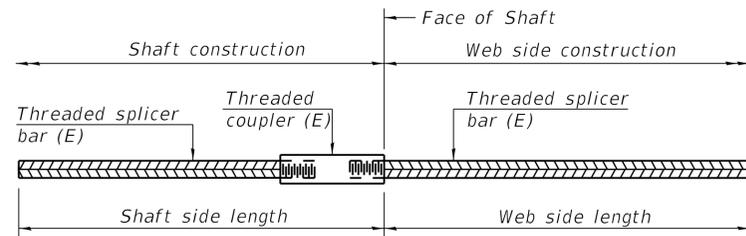
END VIEW



DETAIL D

WELDED PLATE FIELD SPLICE

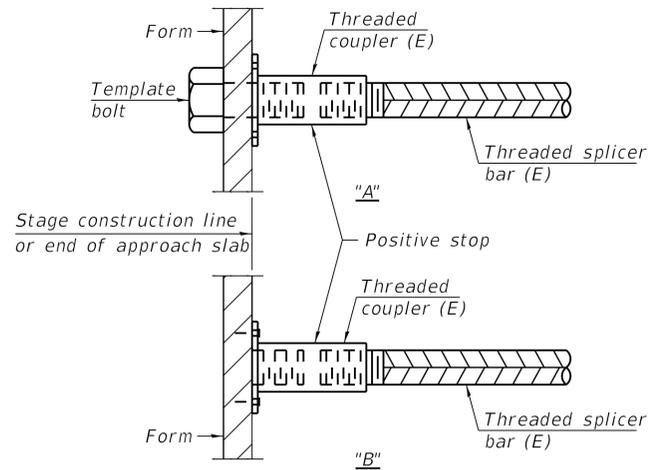
Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	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"



STANDARD BAR SPLICER ASSEMBLY

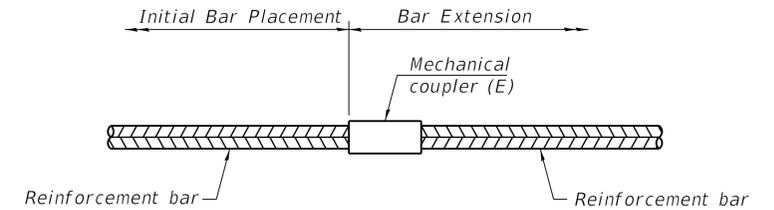
Threaded splicer bar length = min. lap length + 1/2" + thread length

Location	Bar size	No. assemblies required	Shaft side length	Web side length
Pier 1	#5	180	2'-7"	3'-8"
Pier 2	#5	132	2'-7"	3'-8"
Pier 3	#5	132	2'-7"	3'-8"
Pier 4	#5	132	2'-7"	3'-8"



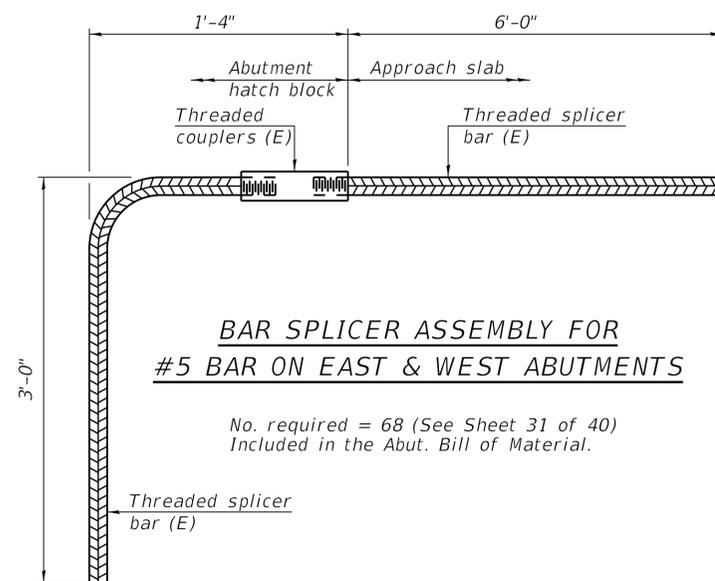
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
 (E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required
Pier 1	#11	48
Pier 2	#11	48
Pier 3	#11	48
Pier 4	#11	48



BAR SPLICER ASSEMBLY FOR #5 BAR ON EAST & WEST ABUTMENTS

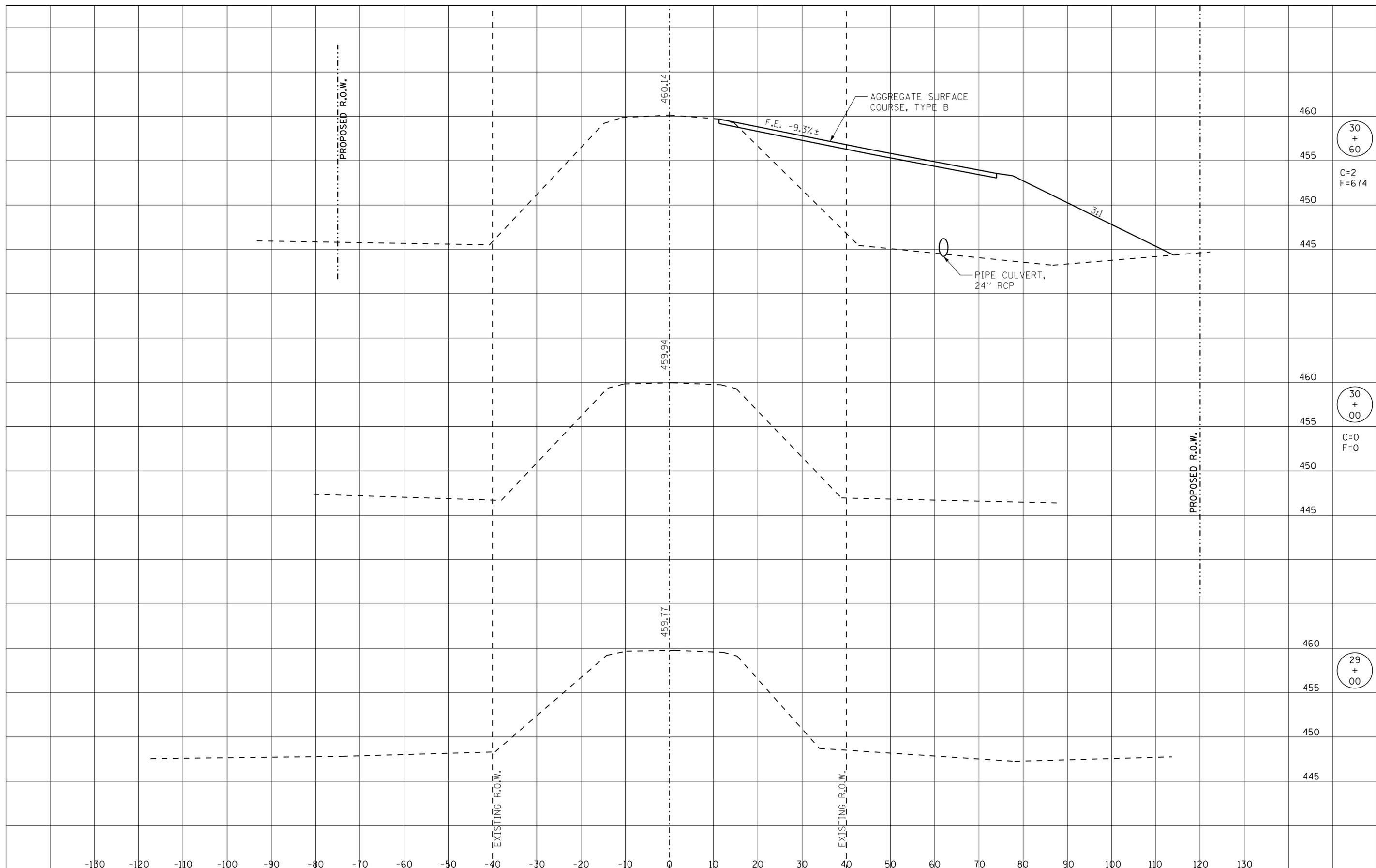
No. required = 68 (See Sheet 31 of 40)
 Included in the Abut. Bill of Material.

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
 All reinforcement shall be lapped and tied to the splicer bars.
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	CHECKED		



30
+
60

C=2
F=674

30
+
00

C=0
F=0

29
+
00

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
SALEM, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	-	BLT	REVISED	-
DRAWN	-	JN	REVISED	-
CHECKED	-	GLH	REVISED	-
DATE	-	08/01/2019	REVISED	-

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

CROSS SECTIONS OF ROADWAY

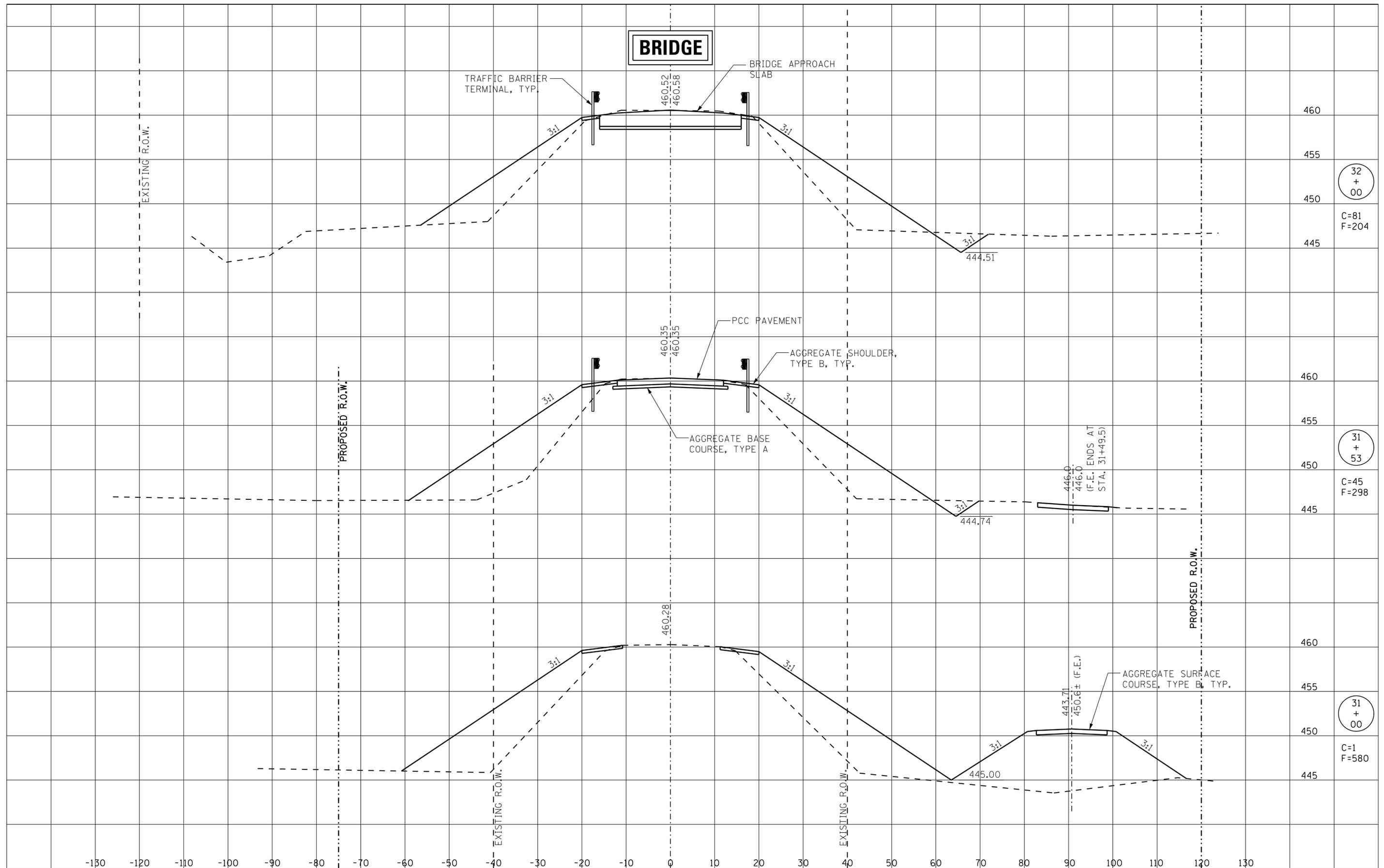
STA. 29+00 TO STA. 30+60

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	48
CONTRACT NO. 95863				

RAAI JOB NO. 54115

FINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS CHECKED	

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS CHECKED	



460				
455				32 + 00
450				C=81 F=204
445				
460				
455				31 + 53
450				C=45 F=298
445				
460				
455				31 + 00
450				C=1 F=580
445				

RAAI JOB NO. 54115

RHUTASEL and ASSOCIATES, INC.
 CONSULTING ENGINEERS • LAND SURVEYORS
 SALEM, ILLINOIS FREEBURG, ILLINOIS
 ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	-	BLT	REVISED	-
DRAWN	-	JN	REVISED	-
CHECKED	-	GLH	REVISED	-
DATE	-	08/01/2019	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

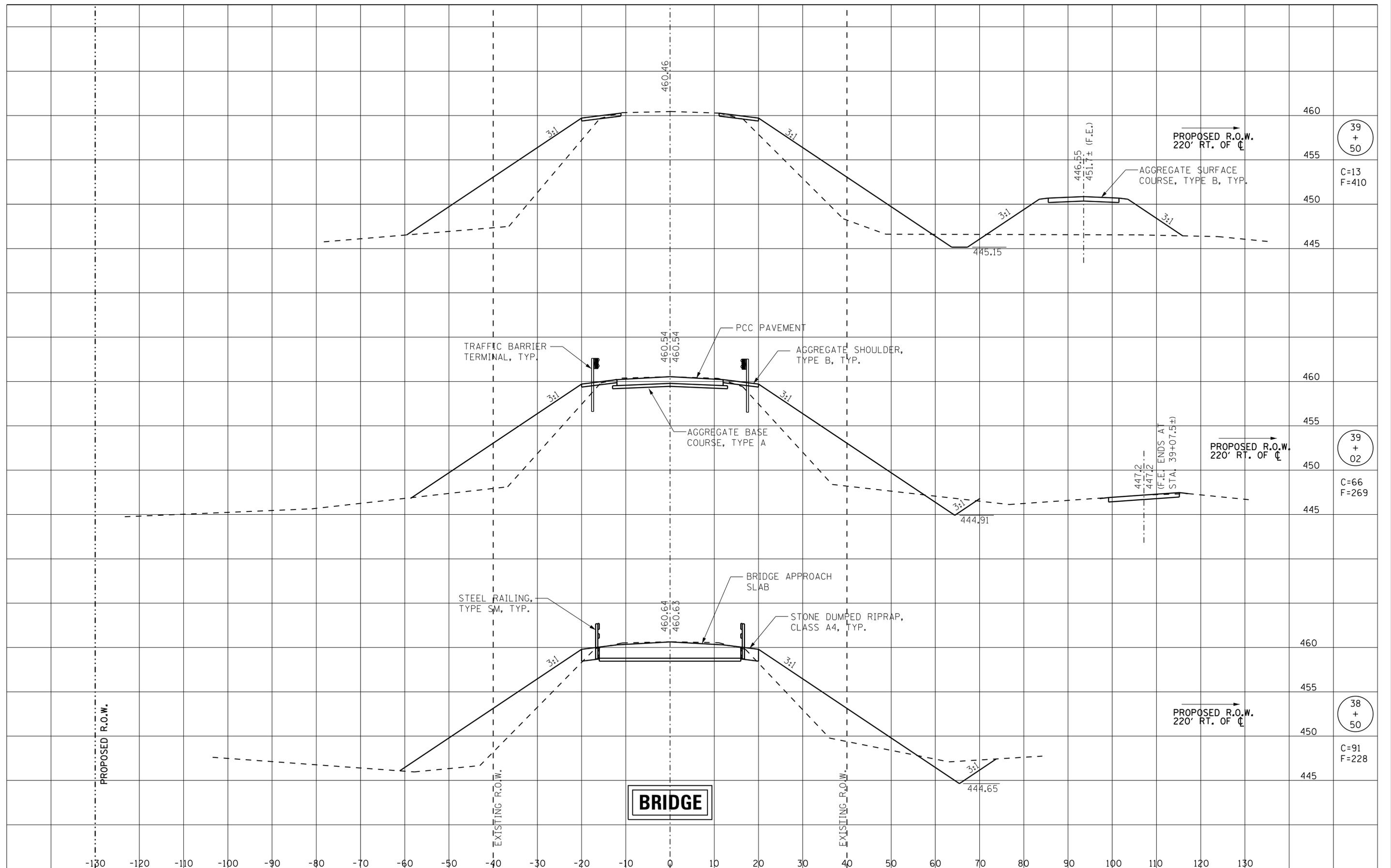
CROSS SECTIONS OF ROADWAY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA5 799	14-00090-00-BR	CLAY	51	49
				CONTRACT NO. 95863

STA. 31+00 TO STA. 32+00

FINAL SURVEY	DATE
SURVEYED	BY
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
NO.	

ORIGINAL SURVEY	DATE
SURVEYED	BY
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
NO.	



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 ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED -	BLT	REVISED -	
DRAWN -	JN	REVISED -	
CHECKED -	GLH	REVISED -	
DATE -	08/01/2019	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY

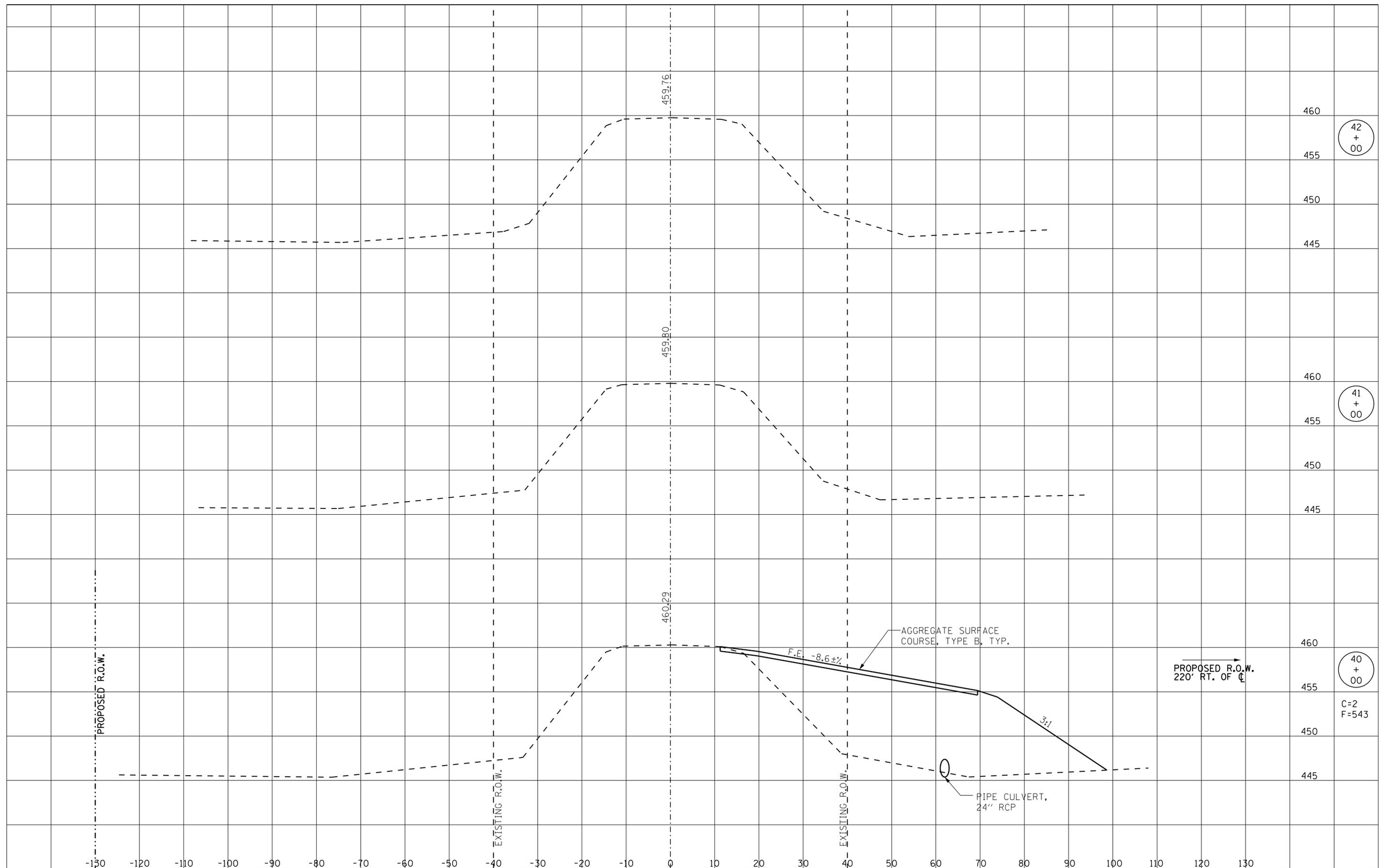
STA. 38+50 TO STA. 39+50

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	50
				CONTRACT NO. 95863

RAAI JOB NO. 54115

FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS CHECKED		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS CHECKED		
	AREAS CHECKED		



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 ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	-	BLT	REVISED	-
DRAWN	-	JN	REVISED	-
CHECKED	-	GLH	REVISED	-
DATE	-	08/01/2019	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY

STA. 40+00 TO STA. 42+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 799	14-00090-00-BR	CLAY	51	51
				CONTRACT NO. 95863

RAAI JOB NO. 54115