CONTRACT NO. 97823 **04-26-2024 LETTING ITEM 179**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	1
		CONTRACT NO: 97823		
GCL JOB NO. 20-6041				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
LOCAL BRIDGE FORMULA PROGRAM (OFF-SYSTEM)

TR 46 (KLINE ROAD) OVER FLAT CREEK
SECTION 19-11004-00-BR
PROJECT NO. 6ZQT (622)
PATOKA ROAD DISTRICT
MARION COUNTY
JOB NO. C-98-019-23

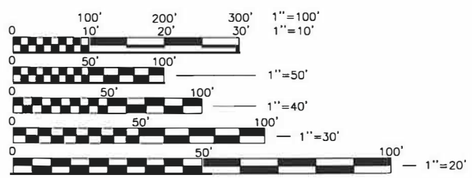
INDEX OF SHEETS

SEE SPECIFICATIONS FOR APPLICABLE HIGHWAY STANDARDS

000001-08	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
515001-04	NAME PLATE FOR BRIDGES
701901-09	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)

DESIGN CLASSIFICATION: RURAL LOCAL ROAD
ADT$_{2022}$: 50
DESIGN SPEED: 30 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.

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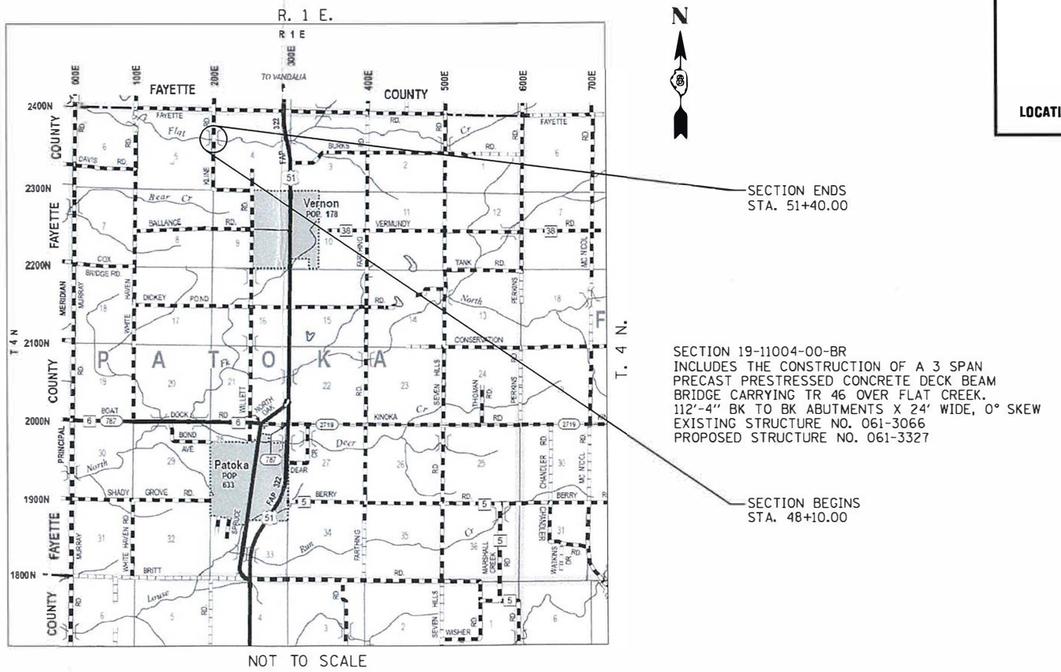
JULIE ILLINOIS ONE-CALL SYSTEM

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
1-800-892-0123 OR 811 www.illinois1call.corn



NOT TO SCALE

SECTION 19-11004-00-BR
INCLUDES THE CONSTRUCTION OF A 3 SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE CARRYING TR 46 OVER FLAT CREEK.
112'-4" BK TO BK ABUTMENTS X 24' WIDE, 0° SKEW
EXISTING STRUCTURE NO. 061-3066
PROPOSED STRUCTURE NO. 061-3327

LOCATION: NEAR THE SE 1/4 OF THE NE 1/4 OF SECTION 5, T4N, R1E, 3RD P.M.
GROSS LENGTH OF PROJECT: 330.00 FT = .0625 MI
NET LENGTH OF PROJECT: 330.00 FT = .0625 MI

LOCATION OF PROJECT INDICATED THUS: -

MARION COUNTY
HIGHWAY DEPARTMENT

APPROVED DEPT. , 20 23
MARION COUNTY ENGINEER

PASSED 10/18 , 20 23
DISTRICT EIGHT ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW 10/18 , 20 23
DEPUTY DIRECTOR OF HIGHWAYS, REGION FIVE ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

BRENT L. TAYLOR
062-066114
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

09/07/2023

BRENT L. TAYLOR
SALEM, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 062-066114
EXPIRES NOV. 30, 2023

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SALEM, IL 62881
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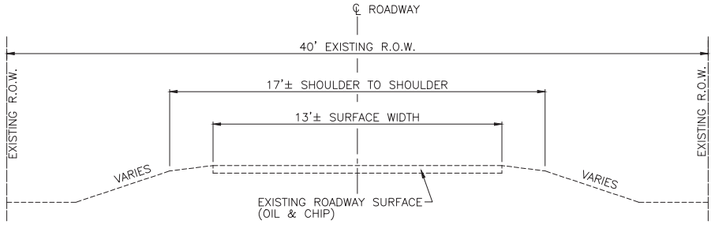
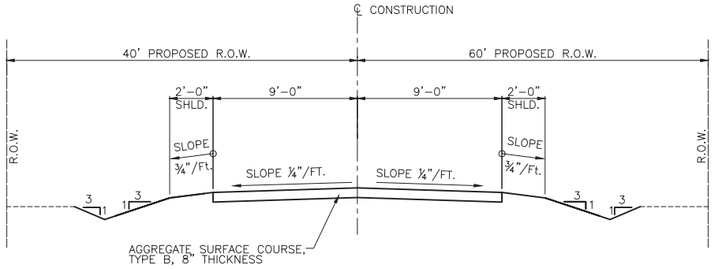


TYPICAL SECTIONS
EXISTING APPROACH ROADWAY



TYPICAL SECTIONS
PROPOSED APPROACH ROADWAY

LEGEND

P.P.	EXISTING POWER POLE
	EXISTING GUY WIRE
— OE — OE — OE — OE —	EXISTING OVERHEAD ELECTRIC LINE
— W — W —	EXISTING WATER LINE
	EXISTING TREE LINE
	EXISTING TREE
— X — X —	EXISTING FENCE
SB-#	EXISTING SOIL BORING
I.P.	EXISTING IRON PIN
	EXISTING SURFACE DRAINAGE
HC#1	HORIZONTAL CONTROL POINT
TBM#1	VERTICAL CONTROL POINT
	PROPOSED SURFACE DRAINAGE

UTILITES

J.U.L.I.E. DESIGN PHASE LOCATE
DIG NO.: X223401057-00X (12/06/2022)

ELECTRIC:
AMEREN ILLINOIS – (SOUTH)
SAM KASSING
PHONE: 618-972-1965
SKASSING@AMEREN.COM

WATER:
FMC. WATER CO.
CONSOLIDATED WATER SERVICES
JASON GREEN
PHONE: 618-532-8569/618-292-7622
CWSWATER@NETWITZ.NET

TELEPHONE:
FRONTIER COMMUNICATIONS
KALIN HINSHAW
PHONE: 815-895-1515
KALIN.HINSHAW@FTR.COM

GENERAL NOTES

1. THIS SECTION SHALL BE CONSTRUCTED ACCORDING TO THE PLANS, THE SPECIAL PROVISIONS, AND THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2022.
2. ROADWAY CENTERLINE PROFILES REFER TO THE FINISHED SURFACE.
3. EXISTING UTILITIES SHOWN ARE LOCATED FROM SURFACE OBSERVATIONS OR INFORMATION PROVIDED BY THE RESPECTIVE UTILITIES AND MUST BE CONSIDERED APPROXIMATE AND ARE ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. THERE MAY BE OTHERS, THE EXACT LOCATION OF WHICH ARE UNKNOWN AND NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE RESPECTIVE UTILITIES BEFORE WORK IS BEGUN. FIELD MARKING OF UNDERGROUND UTILITIES MAY BE OBTAINED BY PROVIDING A MINIMUM OF 48 HOURS ADVANCE NOTICE THROUGH THE J.U.L.I.E. SYSTEM BY CALLING 1-800-892-0123, 811, OR BY DIRECT CONTACT WITH NON-MEMBERS OF J.U.L.I.E.
4. FACTORS USED FOR QUANTITY CALCULATIONS ARE AS FOLLOWS:

STONE RIPRAP	130 POUNDS/CU FT
AGGREGATE SURFACE COURSE	2.1 TON/CU YD
POROUS GRANULAR EMBANKMENT	2.1 TON/CU YD

COMMITMENTS

NO TREE CLEARING WILL BE ALLOWED OR PERFORMED FROM APRIL 1 THROUGH SEPTEMBER 30, IN AN EFFORT TO CONSERVE THE NORTHERN LONG-EARED BAT AND THE INDIANA BAT.

EXISTING FENCE REPLACEMENT WITHIN THE LIMITS OF CONSTRUCTION WILL BE DONE BY OTHERS AND WILL BE COORDINATED BY THE TOWNSHIP.

THE COUNTY ENGINEER WILL NOTIFY PUBLIC SERVICE PROVIDERS PRIOR TO THE START OF CONSTRUCTION.

SUMMARY OF QUANTITIES

	CODE NO.	ITEM	UNIT	TOTAL QUANITY
#	20100500	TREE REMOVAL, ACRES	ACRE	0.4
	20200100	EARTH EXCAVATION	CU YD	80
	20300100	CHANNEL EXCAVATION	CU YD	635
	20400800	FURNISHED EXCAVATION	CU YD	315
	40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	184
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50300225	CONCRETE STRUCTURES	CU YD	45.4
	50300280	CONCRETE ENCASEMENT	CU YD	29.8
	50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	2640
	50800105	REINFORCEMENT BARS	POUND	6730
*	50900205	STEEL RAILING, TYPE S1	FOOT	225
	51201600	FURNISHING STEEL PILES HP12x53	FOOT	406
	51201800	FURNISHING STEEL PILES HP14x73	FOOT	460
	51202305	DRIVING PILES	FOOT	866
	51203600	TEST PILE STEEL HP12x53	EACH	1
	51203800	TEST PILE STEEL HP14x73	EACH	1
	51500100	NAME PLATES	EACH	1
	67100100	MOBILIZATION	L SUM	1
*	72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
	X2070302	POROUS GRANULAR EMBANKMENT (SPECIAL)	TON	86
	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.25
**	X2810808	STONE DUMPED RIPRAP, CLASS A4 (SPECIAL)	TON	328
	X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1

** STONE DUMPED RIPRAP, CLASS A4 AS CALLED OUT IN THE PLANS REFERS TO STONE DUMPED RIPRAP, CLASS A4 (SPECIAL)

*** SPECIALTY ITEMS**

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DRAWN - JMW, HBM	REVISED -	
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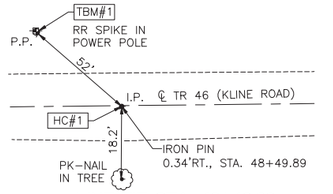
DATE - 09/07/2023	REVISED -	

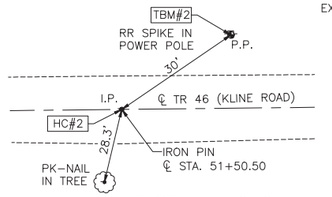
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES, TYPICAL SECTIONS, GENERAL NOTES, AND COMMITMENTS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	2
		CONTRACT NO. 97823		
GCL JOB NO. 20-6041				



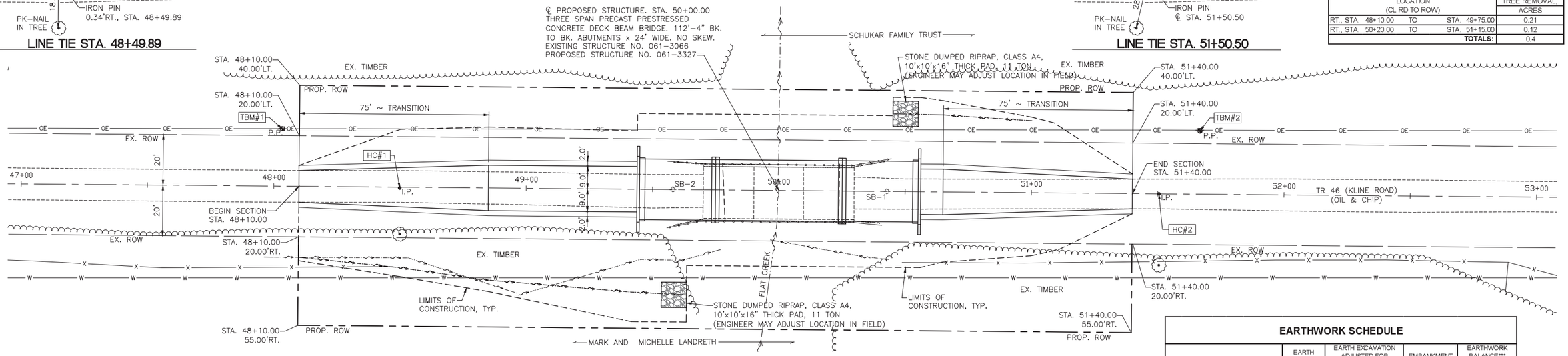
LINE TIE STA. 48+49.89



LINE TIE STA. 51+50.50

EXIST. STRUCTURE: STRUCTURE NO. 061-3066. THREE SPAN BRIDGE WITH A PRECAST CONCRETE CHANNEL BEAM SUPERSTRUCTURE ON CLOSED TIMBER ABUTMENTS WITH TIMBER WINGWALLS AND TIMBER PILE BENT PIERS. 60'+/- L. x 22.5'+/- W. TO BE REMOVED.

TREE REMOVAL, ACRES				
LOCATION (CL RD TO ROW)				TREE REMOVAL, ACRES
RT., STA. 48+10.00	TO	STA. 49+75.00		0.21
RT., STA. 50+20.00	TO	STA. 51+15.00		0.12
			TOTALS:	0.4

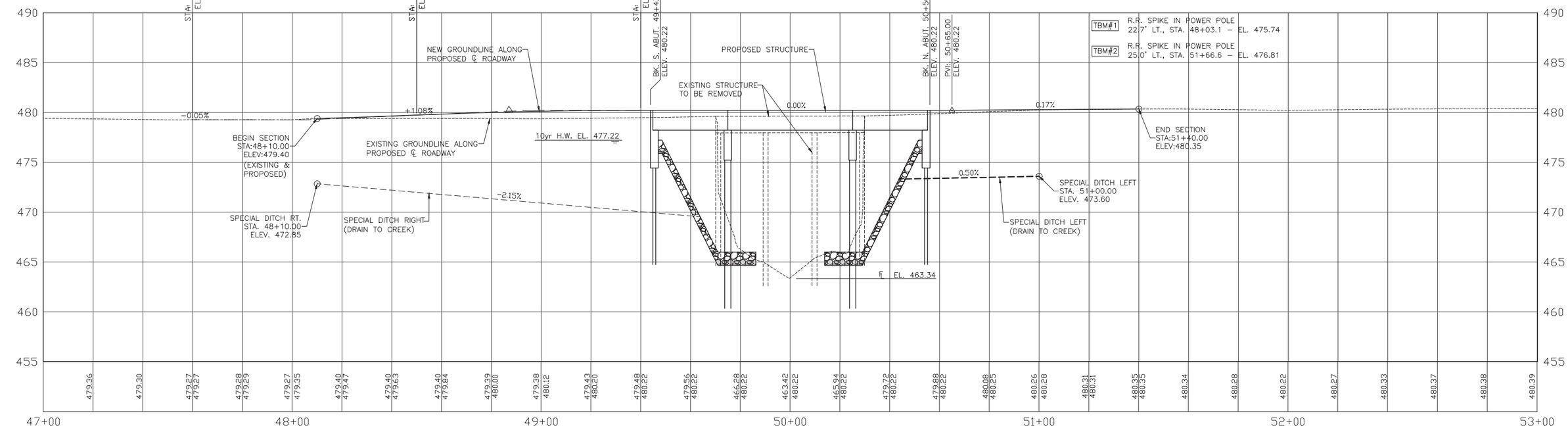


NOTE:
THE EXISTING RIGHT OF WAY SHOWN HEREON HAS BEEN PROTRACTED FROM EXISTING RECORDS AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. FURTHERMORE, NO COMPLETE SURVEY OF SAID R.O.W. IS IMPLIED BY THIS DRAWING.

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION (CUT)	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE FACTOR (25%)	EMBANKMENT (FILL)	EARTHWORK BALANCE*** WASTE (+) OR SHORTAGE (-)
	CU. YD.	CU. YD.	CU. YD.	CU. YD.
STA. 48+10.00 TO STA. 49+43.83	41	31	276	-245
STA. 50+56.17 TO STA. 51+40.00	36	27	95	-68
TOTALS:	77	58	371	-313

*** FURNISHED EXCAVATION



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	CHECKED - BLT	REVISED -	
	DATE - 09/07/2023	REVISED -	

PLAN AND PROFILE OF ROADWAY
STA. 47+00 TO STA. 53+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	3
		CONTRACT NO. 97823		
GCL JOB NO. 20-6041				

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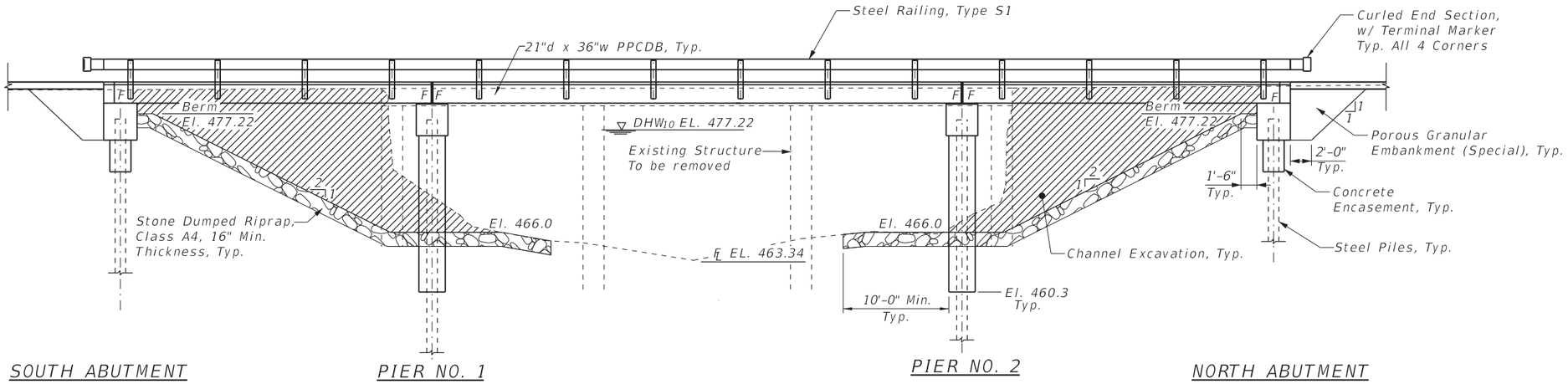
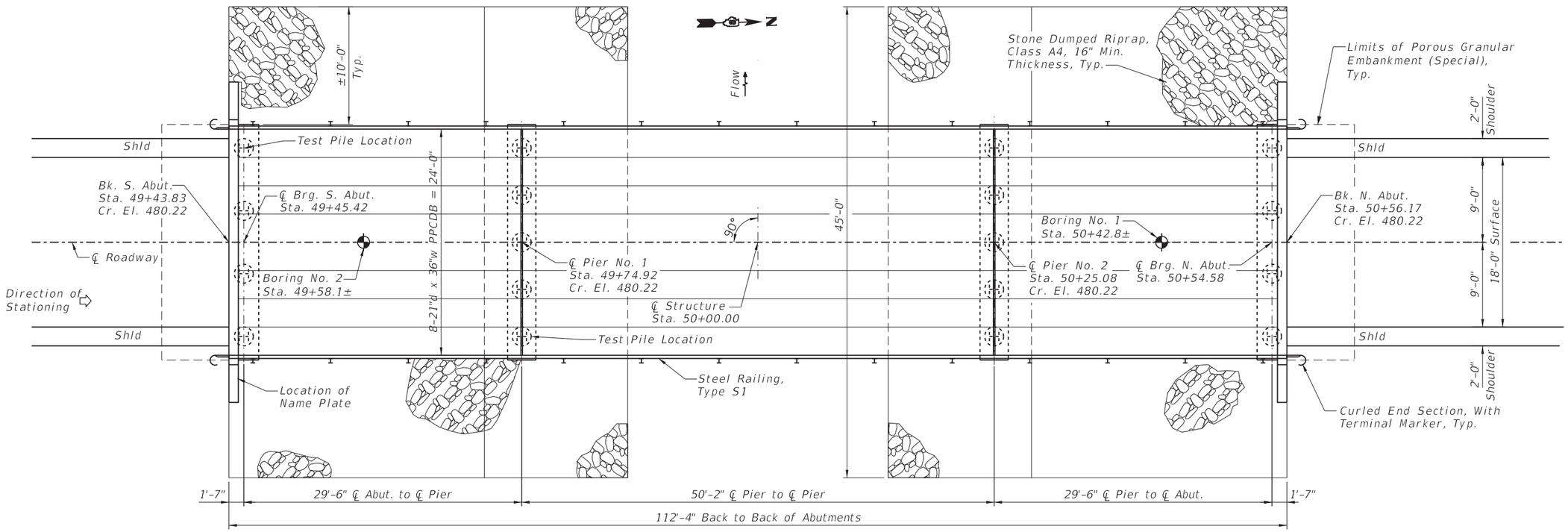
BENCH MARK: TBM #1 - RR Spike in Power Pole
22.7' Lt. of Sta. 48+03.1 - Elev. 475.74

TBM #2 - RR Spike in Power Pole
25.0' Lt. of Sta. 51+66.6 - Elev. 476.81

Existing Structure: Sta. 50+00, Structure No. 061-3066. Three span bridge with a precast concrete channel beam superstructure on pile supported closed timber abutments with timber wingwalls and timber pile bent piers. 60'+/- L. x 22.5'+/- W. To be removed.



ELEVATION



PLAN

Note: See Sheet 5 for Bridge General Data.

GCL JOB NO. 20-6041

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DRAWN - JMW	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
PROPOSED SN 061-3327

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	4
		CONTRACT NO. 97823		

GENERAL NOTES

Do not scale these drawings.

See Section 502 of the Standard Specifications for Structure Excavation.

Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel 30ft Lt. and Rt. from ℄ of Roadway. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment. See Roadway Plans.

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

See Special Provisions for Soil Borings.

The abutment bearing seat surfaces for the precast prestressed concrete deck beams shall be adjusted by shimming to assure firm and even bearing. As required, ⅛" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing. The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

LOADING HL-93

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

DESIGN SPECIFICATIONS

2020 (9th Ed.)
AASHTO LRFD Bridge Design Specifications.

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi

f_y = 60,000 psi (reinforcement)

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi

f'_{ci} = 5,000 psi

f_{pu}= 270,000 psi (½"∅ low lax. strands)

f_{pbt}= 201,960 psi (½"∅ low lax. strands)

f_y = 60,000 psi (reinforcement)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Soil Site Classification = D
S_{D1} = 0.245 S_{DS}= 0.558

BILL OF MATERIALS (BRIDGE ONLY)

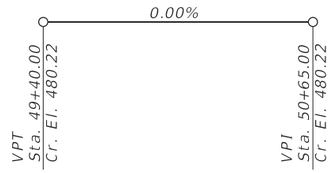
	ITEM	UNIT	TOTAL
	Channel Excavation	Cu Yd	635
	Removal of Existing Structures	Each	1
	Concrete Structures	Cu Yd	45.4
	Concrete Encasement	Cu Yd	29.8
	PPCDB (21" Depth)	Sq Ft	2,640
	Reinforcement Bars	Pound	6,730
	Steel Railing, Type S1	Foot	225
	Furnishing Steel Piles HP12x53	Foot	406
	Furnishing Steel Piles HP14x73	Foot	460
	Driving Piles	Foot	866
	Test Pile Steel HP12x53	Each	1
	Test Pile Steel HP14x73	Each	1
	Name Plates	Each	1
	Terminal Marker - Direct Applied	Each	4
	Porous Granular Embankment (Special)	Ton	86
*	Stone Dumped Riprap, Class A4 (Special)	Ton	306

* Stone Dumped Riprap, Class A4 as called out in the plans refers to Stone Dumped Riprap, Class A4 (Special)

WATERWAY INFORMATION

Drainage Area = 21.17 sq. mi.
Existing Low Grade Elev. 479.27 @ Sta. 48+00.00
Proposed Low Grade Elev. 479.21 @ Sta. 47+77.94

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head – Ft. Exist.	Head – Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	10	3,060	592	888	477.22	0.94	0.74	478.16	477.96
Base	100	5,670	631	935	478.45	1.29	0.79	479.74	479.24
Max. Calc.	500	7,640	631	935	479.16	2.12	0.73	481.28	479.89



GRADE ON STRUCTURE

(along ℄ TR 46)

FLAT CREEK
BUILT 20___ BY
MARION COUNTY
SEC. 19-11004-00-BR
T.R. 46 STA. 50+00
STRUCTURE NO. 061-3327
LOADING HL-93

NAME PLATE

See Std. 515001

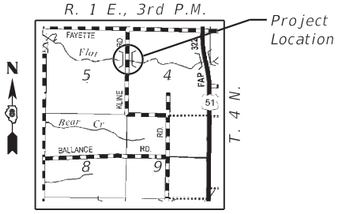
EXTRA BARS FOR TEST SAMPLES

Bar	No.	Size	Length	Shape
h1	1	#5	23-8"	——
h	2	#6	8'-6"	——
p	1	#7	24-8"	——
Reinforcement Bars			Pound	110

These bars shall be identical to and delivered with the bars of the same mark listed on the bridge sheets. This chart assumes that all bars of the same size on the job will have the same heat numbers. If bars of the same size on the job have different heat numbers, then the Contactor shall supply additional bars from other heat numbers for sampling by the Engineer at no additional cost.

The weight of the extra bars has been included in the Summary of Quantities for the Project.

The Contractor shall cut test bars as directed by the Engineer (as required for transport, etc.) and the cost for cutting the bars shall be included in reinforcement bars and no additional compensation will be allowed.



LOCATION SKETCH

DESIGN SCOUR TABLE

Event/Limit State	Design Scour Elevations (ft.) S. Abut.	Pier 1	Pier 2	N. Abut.	Item 113 (Abut.)	Item 113 (Piers)
Q_{100}	NA	452.5	452.5	NA	8	5
Q_{200}	NA	448.8	448.8	NA		
Design	474.6	452.5	452.5	474.6		
Check	474.6	448.8	448.8	474.6		

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.

JOHN S. PERADOTTI
081-005671
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

John Peradotti 09/07/2023
John S. Peradotti

11/30/2024
Date of License Expiration

GCL JOB NO. 20-6041

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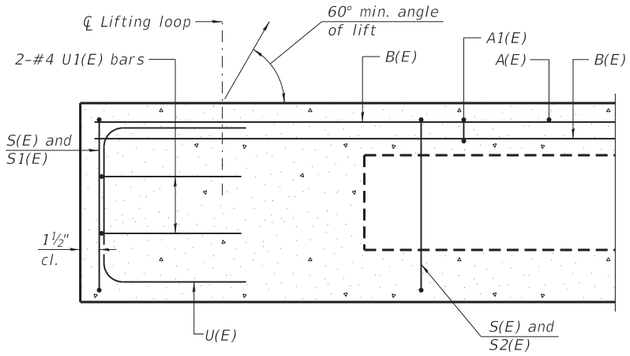
DRAWN -	JMW	REVISED -
CHECKED -	BLT	REVISED -
DATE -	09/07/2023	REVISED -

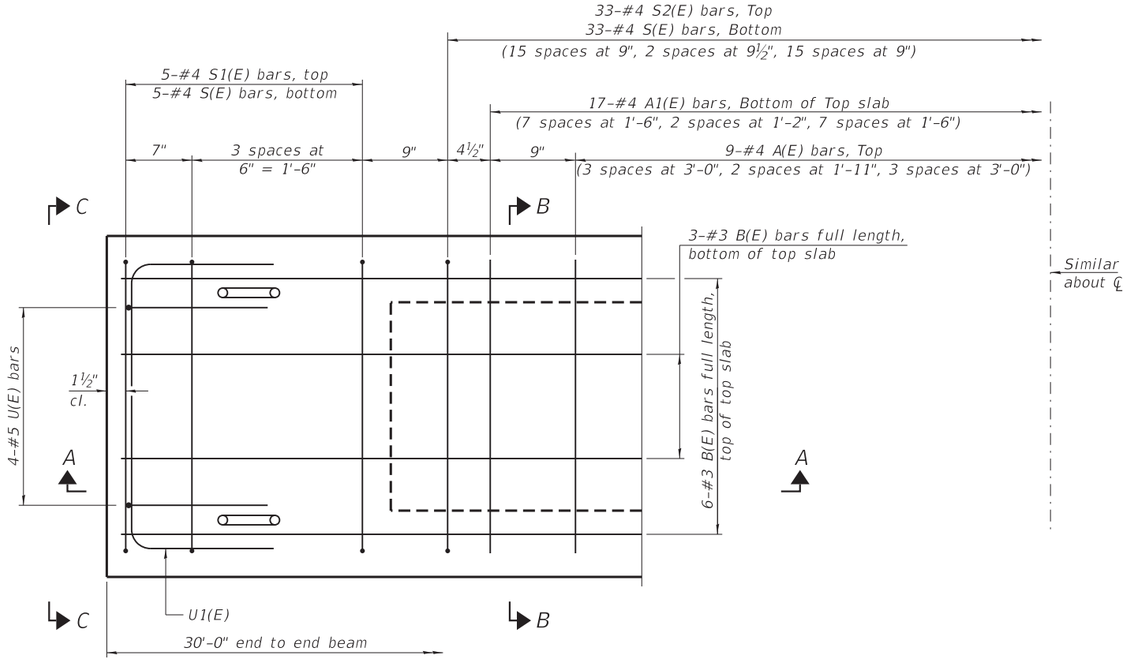
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL DATA

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	5
		CONTRACT NO. 97823		

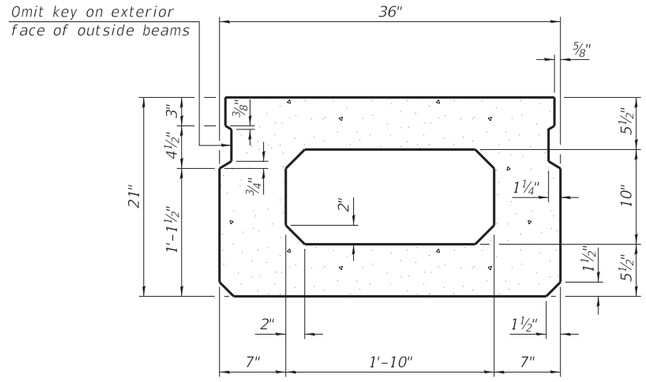


SECTION A-A

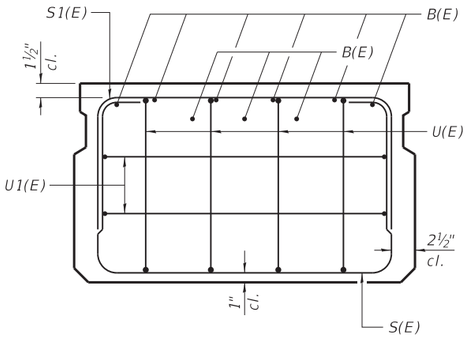


PLAN VIEW

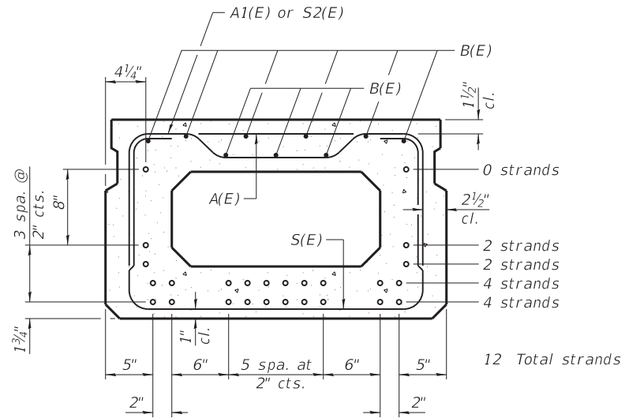
Similar about ℄



SECTION B-B
(Showing dimensions)

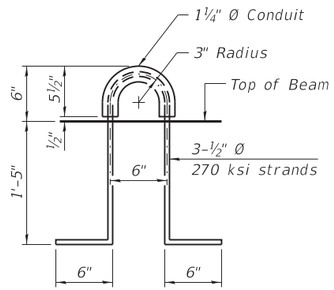


VIEW C-C



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

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



LIFTING LOOP DETAIL

Note:
Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

Bars indicated thus: 3x3-#3 etc. indicates 3 lines of bars with 3 lengths per line.

MINIMUM BAR LAP
#3 bar = 1'-6"

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	9	#4	2'-7"	—
A1(E)	17	#4	2'-10"	~
B(E)	9	#3	29'-9"	—
S(E)	43	#4	6'-5"	⊔
S1(E)	10	#4	4'-11"	⊓
S2(E)	33	#4	5'-2"	⊓
U(E)	8	#5	4'-0"	⊏
U1(E)	4	#4	5'-0"	⊓

Note:
See Sheet 7 for additional details and Bill of Material.

SPAN 1 OR 3

GCL JOB NO. 20-6041

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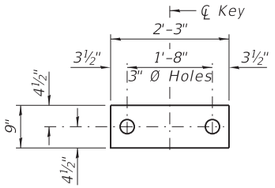
DESIGNED - JSP	REVISED -	
DRAWN - JMW	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

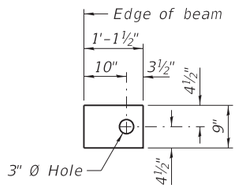
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

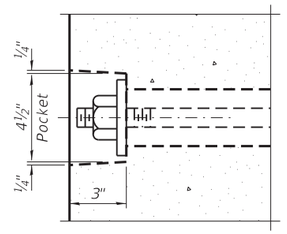
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	6
		CONTRACT NO. 97823		



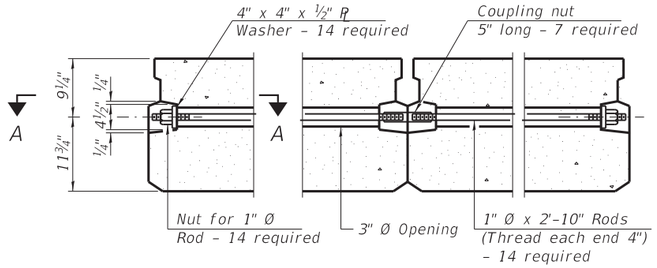
FABRIC BEARING PAD
(Interior)



FABRIC BEARING PAD
(Exterior)



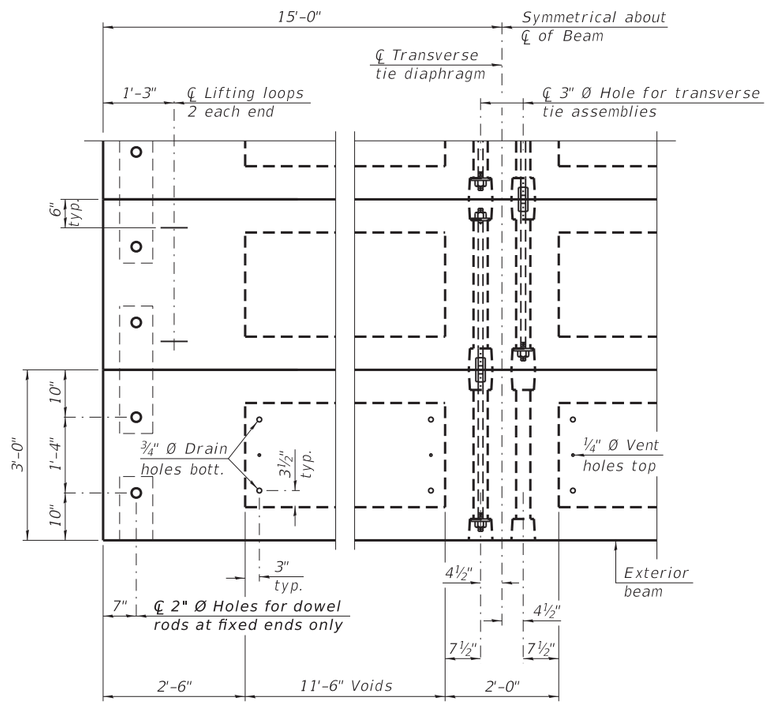
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY

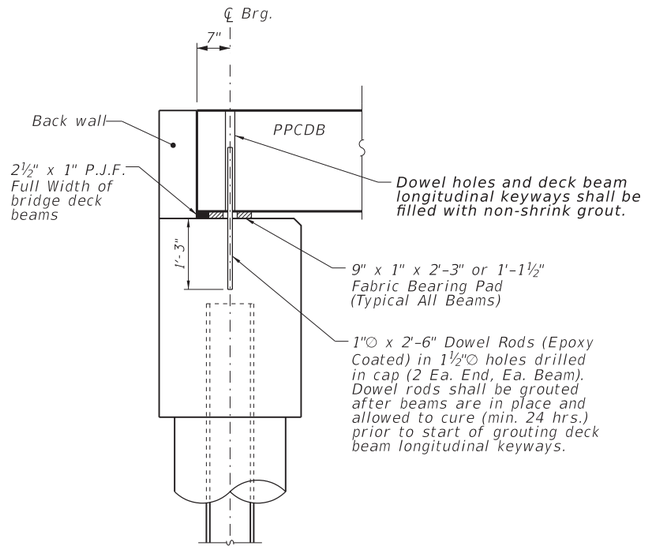
FIXED

Notes: All bearing pads shall be 1" thick.

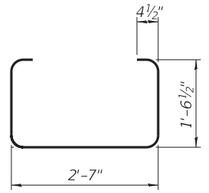


PLAN VIEW

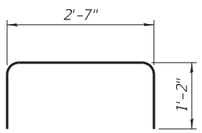
Note:
Connect beams in pairs with the transverse tie configuration shown.



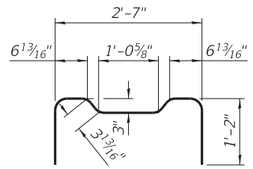
FIXED BEARING
ABUTMENT
(Normal to ℄)



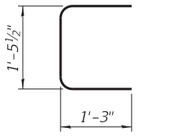
BAR S(E)



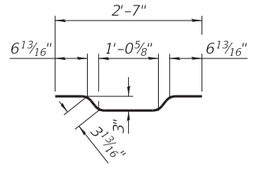
BAR S1(E)



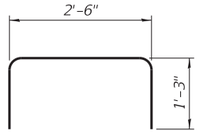
BAR S2(E)



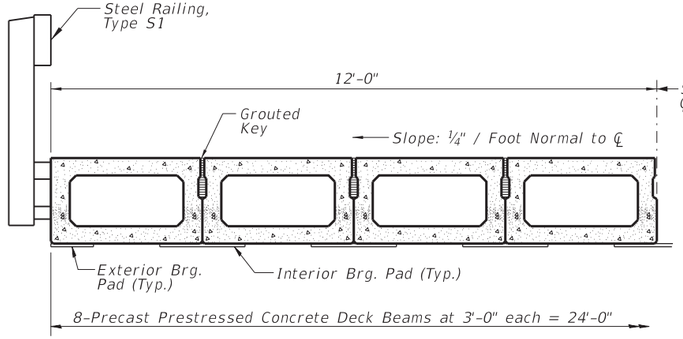
BAR U(E)



BAR A1(E)



BAR U1(E)



HALF CROSS SECTION

Note: See Sheet 10 for the details showing the spacing and mounting of posts and rails to the PPCDB.

NOTES

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

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

Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60 (IL Modified).

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

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

Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

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

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

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1440

SPAN 1 OR 3

GCL JOB NO. 20-6041

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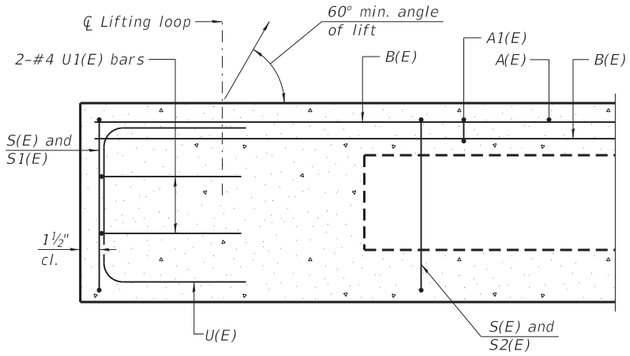
DESIGNED - JSP	REVISED -	
DRAWN - JMW	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

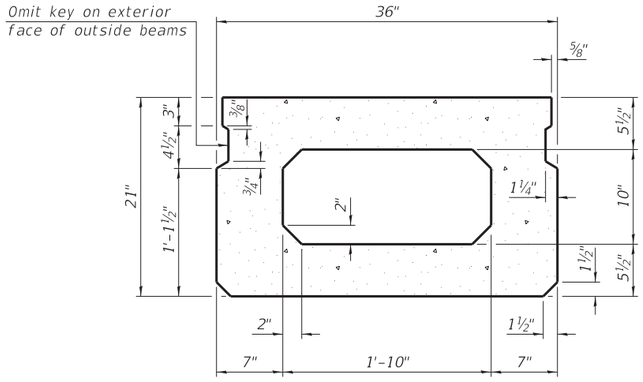
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

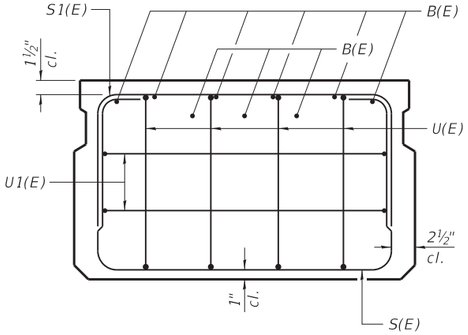
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	7
		CONTRACT NO. 97823		



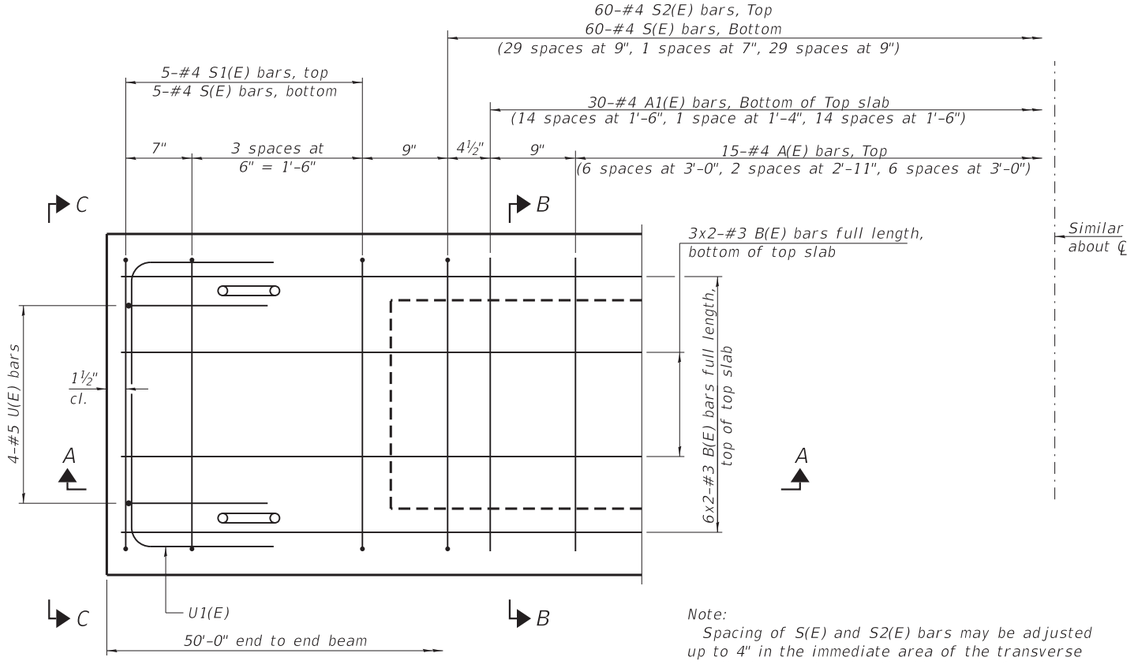
SECTION A-A



SECTION B-B
(Showing dimensions)



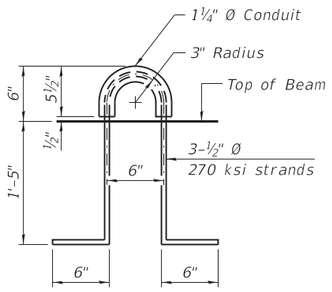
VIEW C-C



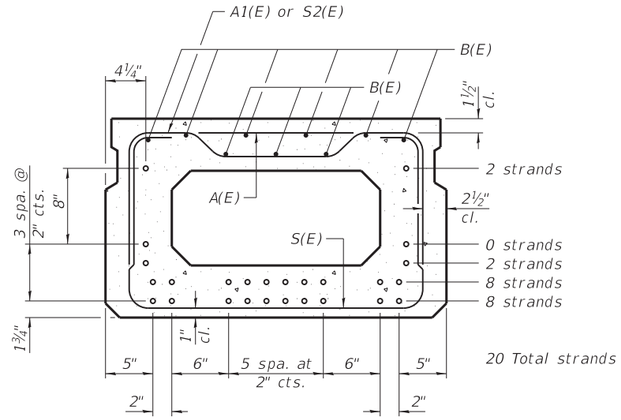
PLAN VIEW

Note:
Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

Bars indicated thus: 6x3-#3 etc. indicates 6 lines of bars with 3 lengths per line.



LIFTING LOOP DETAIL



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

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

MINIMUM BAR LAP
#3 bar = 1'-6"

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	15	#4	2'-7"	—
A1(E)	30	#4	2'-10"	~
B(E)	18	#3	25'-8"	—
S(E)	70	#4	6'-5"	⊔
S1(E)	10	#4	4'-11"	⊓
S2(E)	60	#4	5'-2"	⊓
U(E)	8	#5	4'-0"	⊏
U1(E)	4	#4	5'-0"	⊓

Note:
See Sheet 9 for additional details and Bill of Material.

SPAN 2

GCL JOB NO. 20-6041

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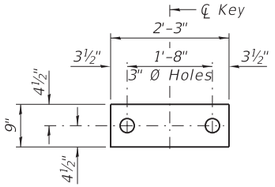
DESIGNED - JSP	REVISED -	
DRAWN - JMW	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

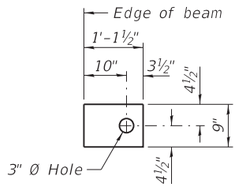
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

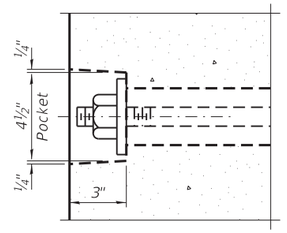
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	8
		CONTRACT NO. 97823		



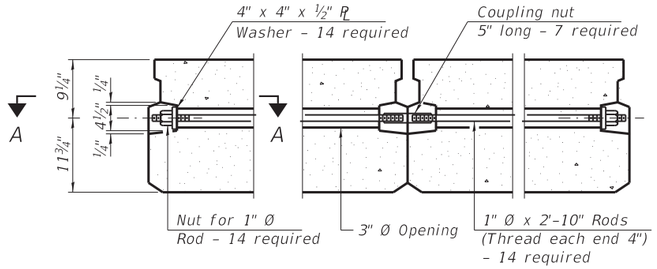
FABRIC BEARING PAD
(Interior)



FABRIC BEARING PAD
(Exterior)



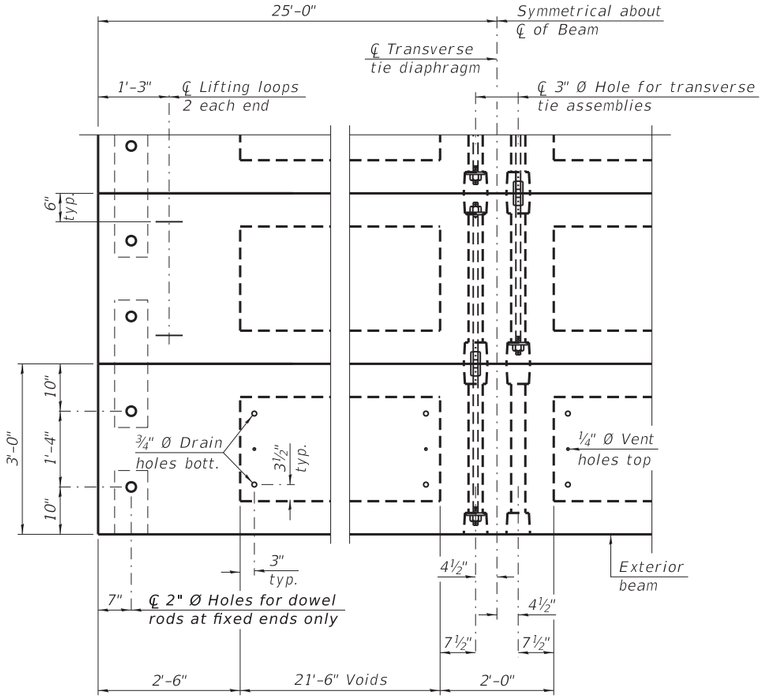
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY

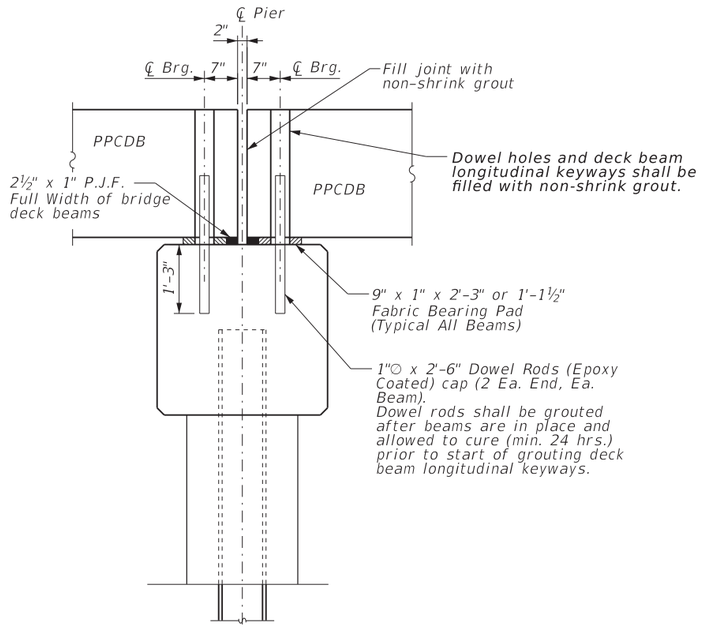
FIXED

Notes: All bearing pads shall be 1" thick.

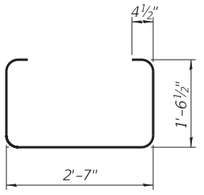


PLAN VIEW

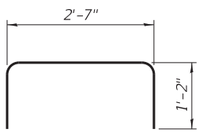
Note:
Connect beams in pairs with the transverse tie configuration shown.



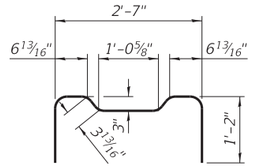
FIXED BEARING
PIER



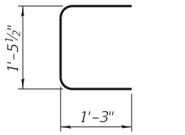
BAR S(E)



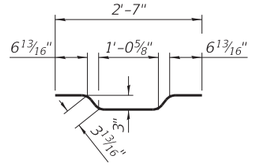
BAR S1(E)



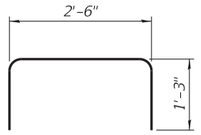
BAR S2(E)



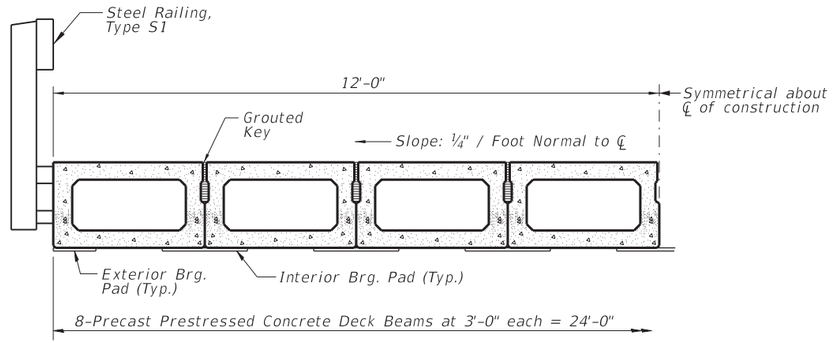
BAR U(E)



BAR A1(E)



BAR U1(E)



HALF CROSS SECTION

Note: See Sheet 10 for the details showing the spacing and mounting of posts and rails to the PPCDB.

NOTES

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

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

Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60 (IL Modified).

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

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

Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

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

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

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1200

SPAN 2

GCL JOB NO. 20-6041

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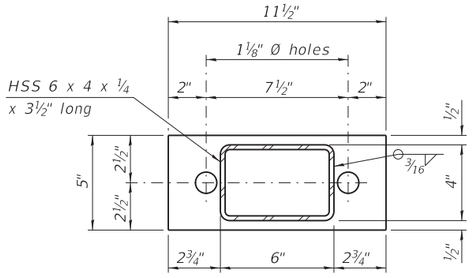
DATE	09/07/2023	REVISED	-

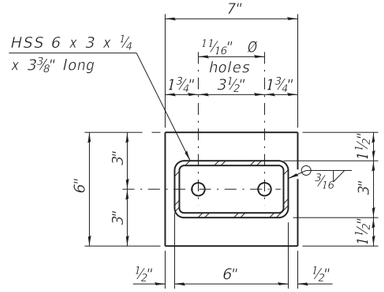
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	9
		CONTRACT NO. 97823		

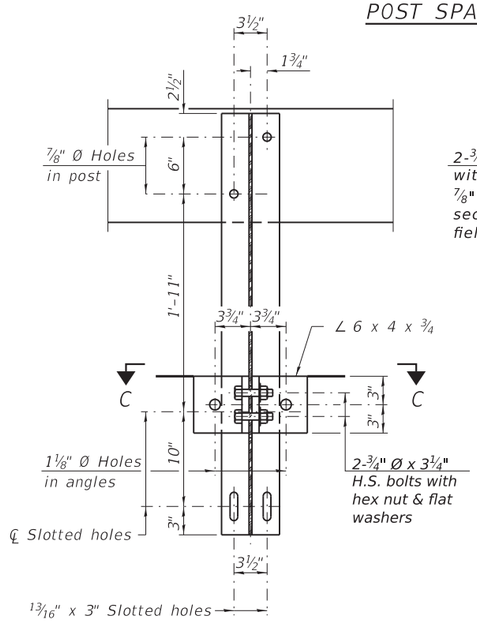


PL ½" x 11½" x 5"

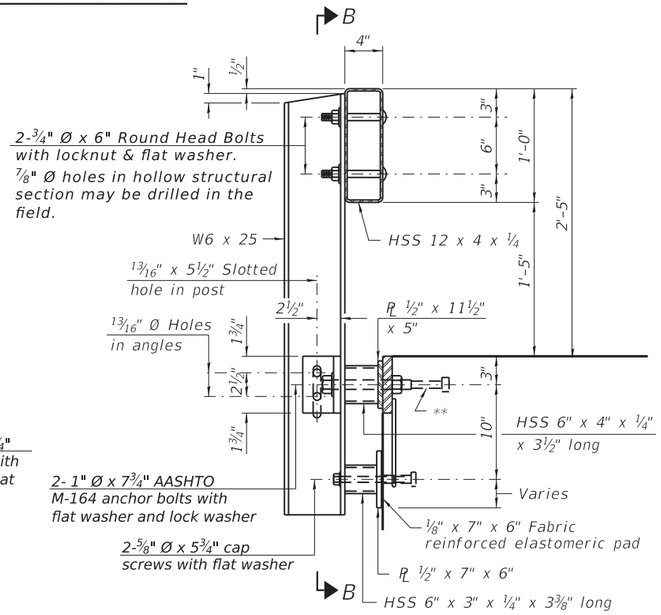


PL ½" x 7" x 6"

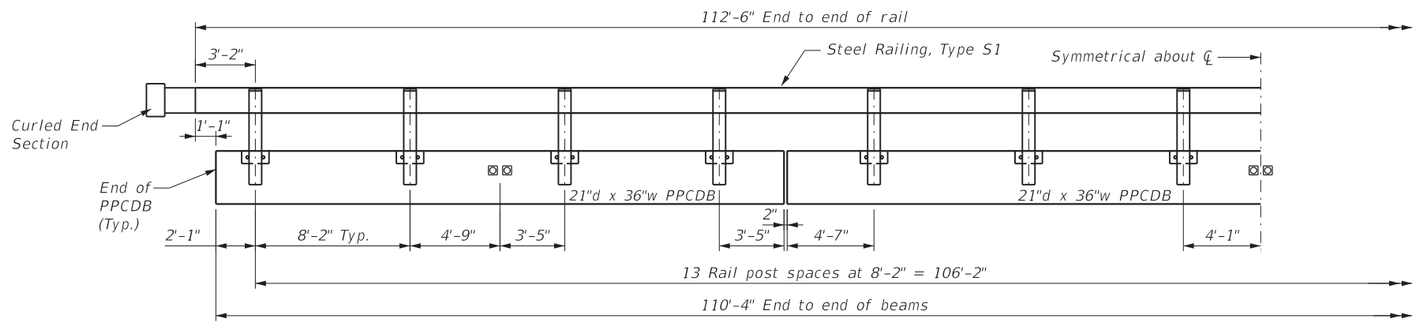
POST SPACER DETAILS



SECTION B-B

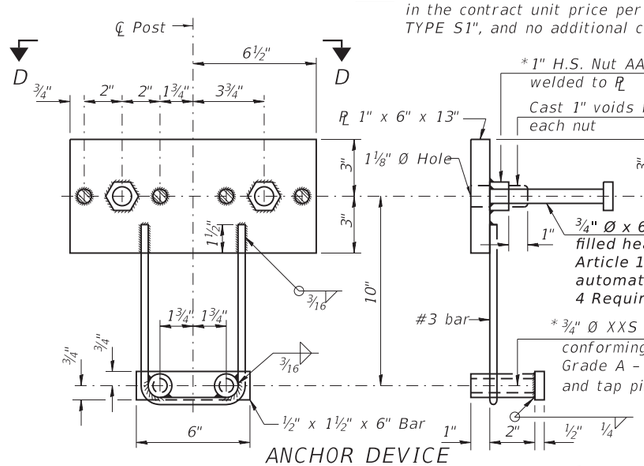


SECTION AT RAILING POST



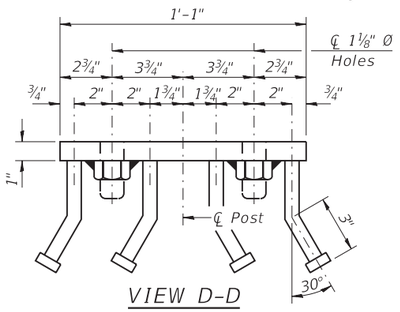
RAIL POST SPACING

Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.

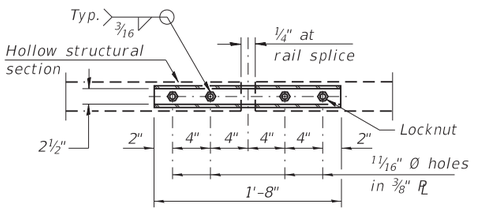


ANCHOR DEVICE

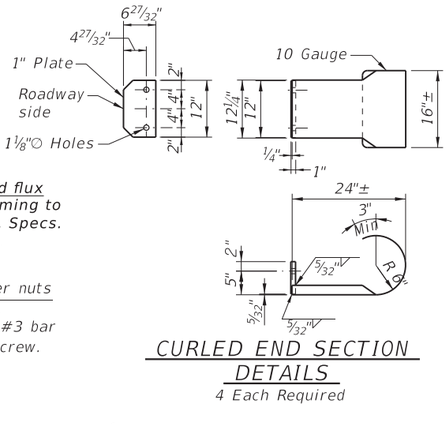
* Threaded areas shall be plugged or blocked off during casting of beam.



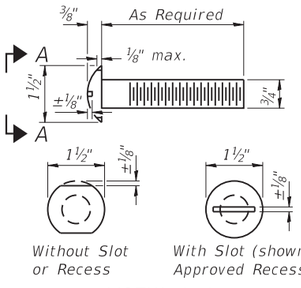
VIEW D-D



PLAN-BOTT. SPLICE PL
TYPICAL

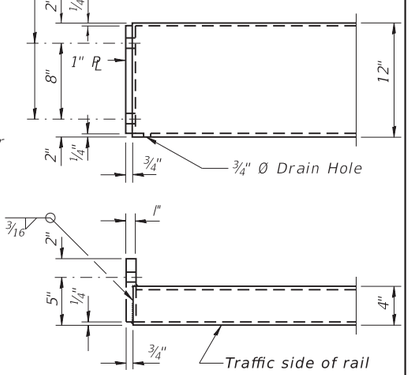


CURLED END SECTION
DETAILS
4 Each Required



VIEW A-A
ROUND HEAD BOLT

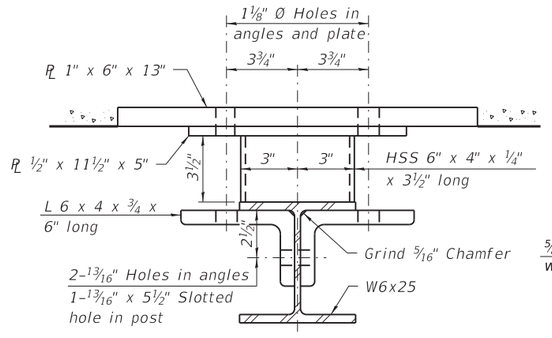
1⅛" Ø Holes for 1" Ø x 4" Round head bolts. Provide 2 flat washers & locknuts for guard rail connection shown on Hwy Std. 631026 or BLR 27-1.



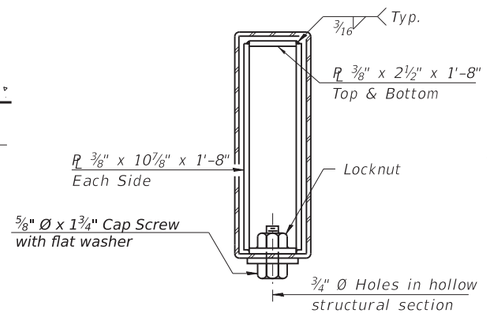
END OF RAIL DETAILS

Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient ¼" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down ½" to accommodate the top reinforcement bar placement.



SECTION C-C



SECTIONS AT RAIL SPLICE

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	225

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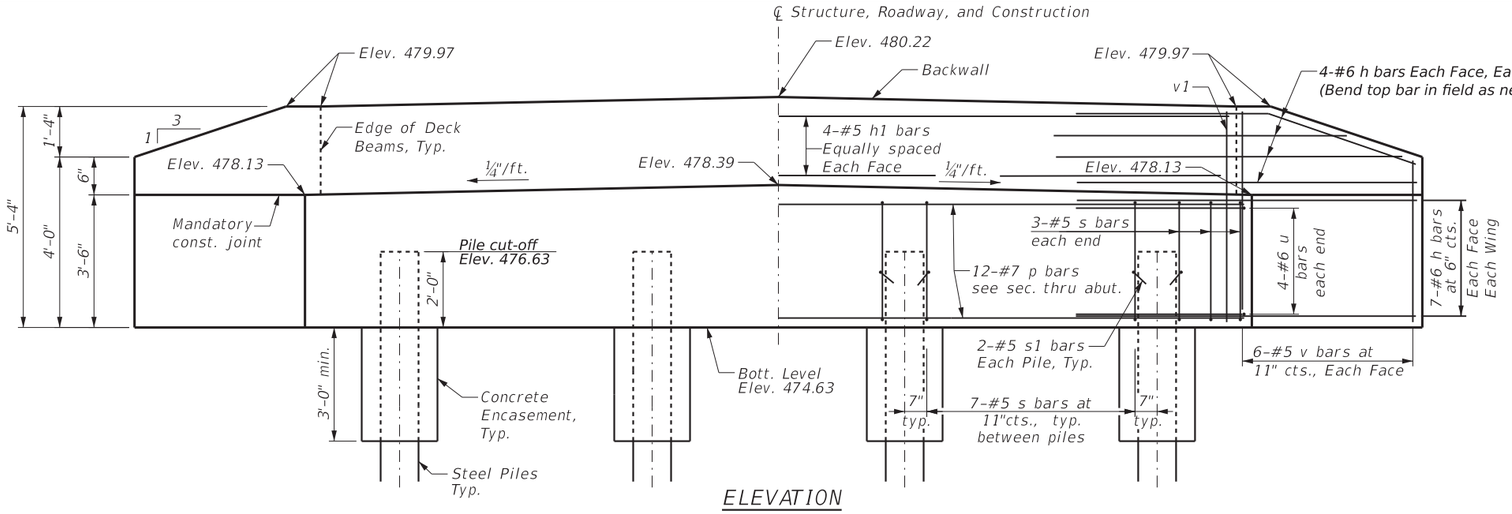
ILLINOIS PROFESSIONAL DESIGN FIRM 184.004564

DESIGNED - JSP	REVISED -	
DRAWN - JMW	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE S1 DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	10
		CONTRACT NO. 97823		



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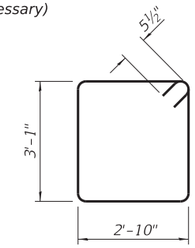
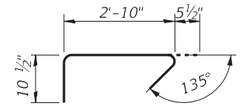
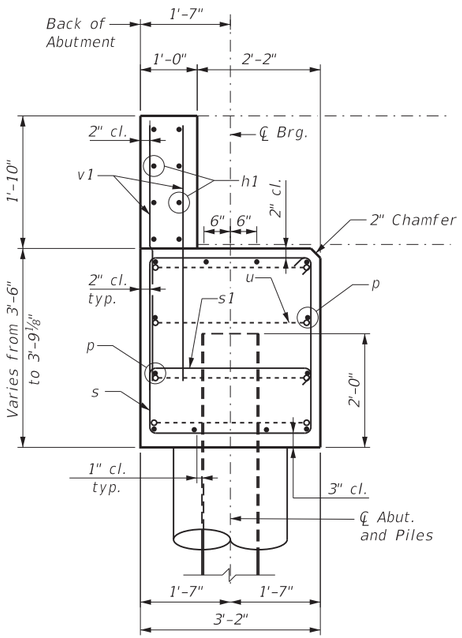


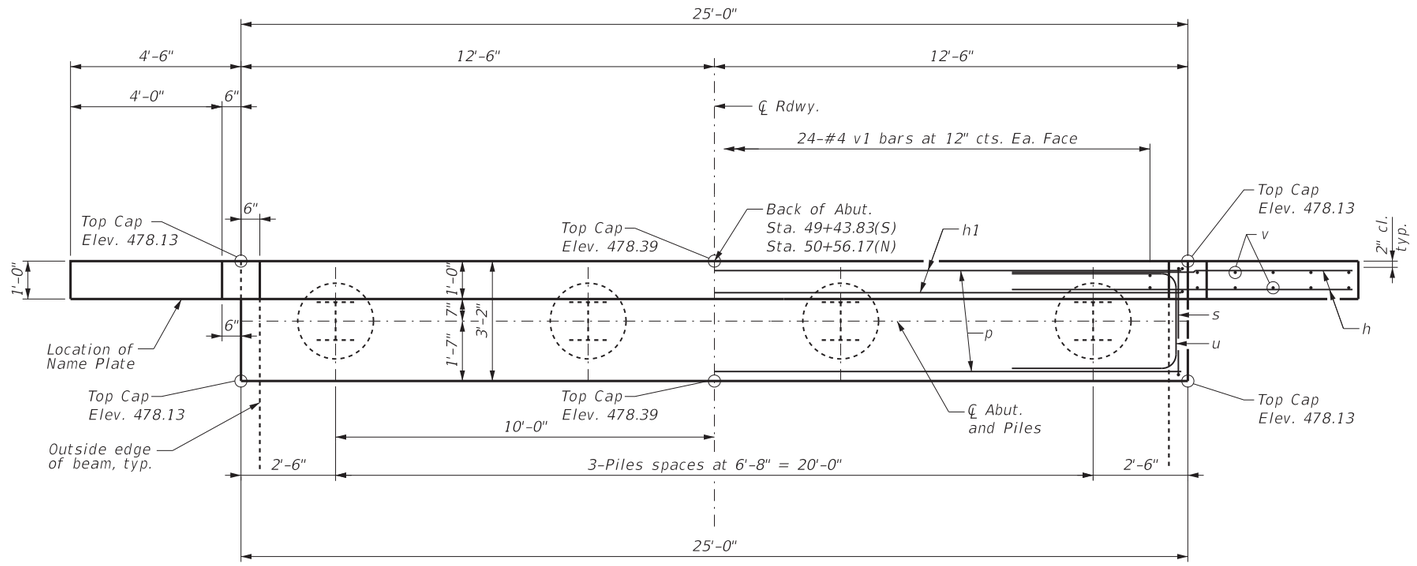
BAR s



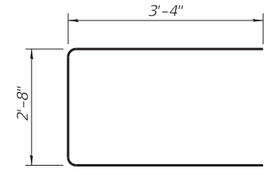
BAR s1



SECTION THRU ABUTMENT



PLAN



BAR u

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	44	#6	8'-6"	
h1	8	#5	23'-8"	
p	12	#7	24'-8"	
s	27	#5	12'-9"	
s1	8	#5	4'-2"	
u	8	#6	9'-4"	
v	24	#5	5'-0"	Cut in Field
v1	48	#5	3'-10"	
Concrete Structures		Cu Yd	14.0	
Concrete Encasement		Cu Yd	1.4	
Reinforcement Bars		Pound	2190	
Furnishing Steel Piles HP12x53	Foot	S. Abut.	186	
		N. Abut.	220	
Driving Piles	Foot	S. Abut.	186	
		N. Abut.	220	
Test Pile, Steel HP12x53	Each	S. Abut.	1	
		N. Abut.	0	

Notes:
For details of Piles and Concrete Encasement, see Sheet 13.

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).

All exposed edges shall have standard ¾" chamfer, unless otherwise noted or as directed by the Engineer.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

The Steel H-piles shall be according to AASHTO M270 Grade 50.

The Contractor shall drive one (1) Test Pile of the size indicated in a permanent location as shown on the plans or as directed by the Engineer before ordering the remainder of the piles.

The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

The back wall and portion of the wingwalls above the construction joint shall be cast against the in-place deck beams.

The position of the 90° & 135° hooked ends of the s1 bar shall be alternated between adjacent bars horizontally.

PILE DATA SOUTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	268 kips
Factored Resistance Available:	147 kips
Est. Length:	62'/pile
No. Production Piles:	3
No. Test Piles:	1

PILE DATA NORTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	289 kips
Factored Resistance Available:	159 kips
Est. Length:	55'/pile
No. Production Piles:	4
No. Test Piles:	0

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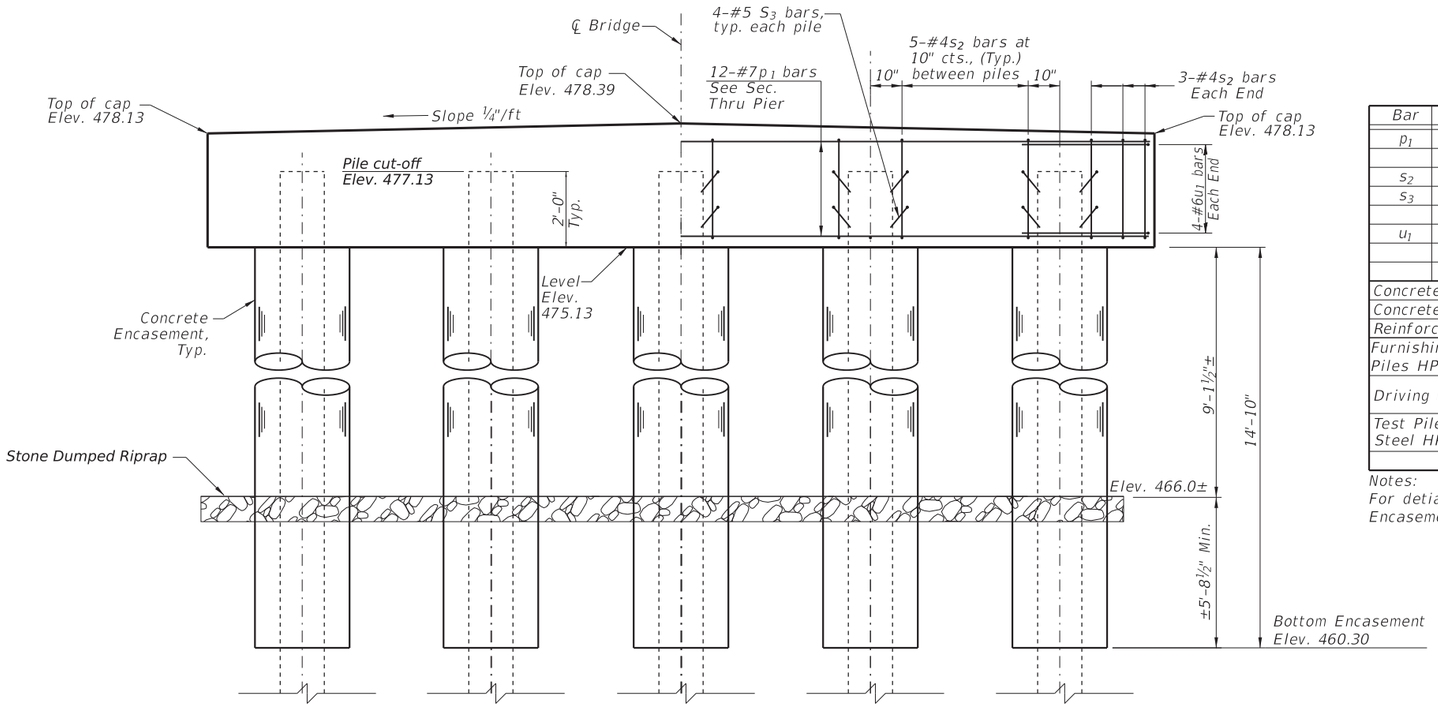
DRAWN - JMW	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	11
		CONTRACT NO. 97823		



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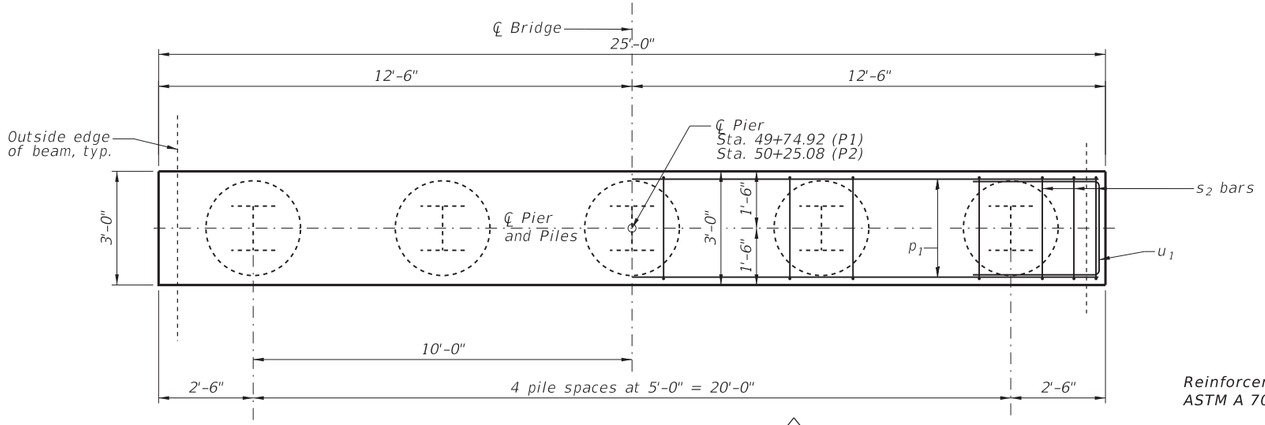


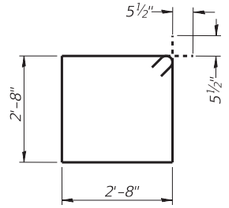
PLAN

Direction of Stationing

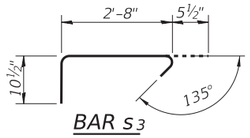
BILL OF MATERIAL (FOR ONE PIER)

Bar	No.	Size	Length	Shape
p_1	12	#7	24'–8"	
s_2	26	#5	11'–7"	
s_3	20	#5	4'–0"	
u_1	8	#6	9'–2"	
Concrete Structures			Cu Yd	8.7
Concrete Encasement			Cu Yd	13.5
Reinforcement Bars			Pound	1120
Furnishing Steel Piles HP14x73		Foot	S. Pier	220
			N. Pier	240
Driving Piles		Foot	S. Pier	220
			N. Pier	240
Test Pile, Steel HP14x73		Each	S. Pier	1
			N. Pier	0

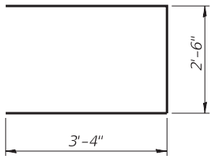
Notes:
For detials of Piles and Concrete Encasement, see Sheet 13.



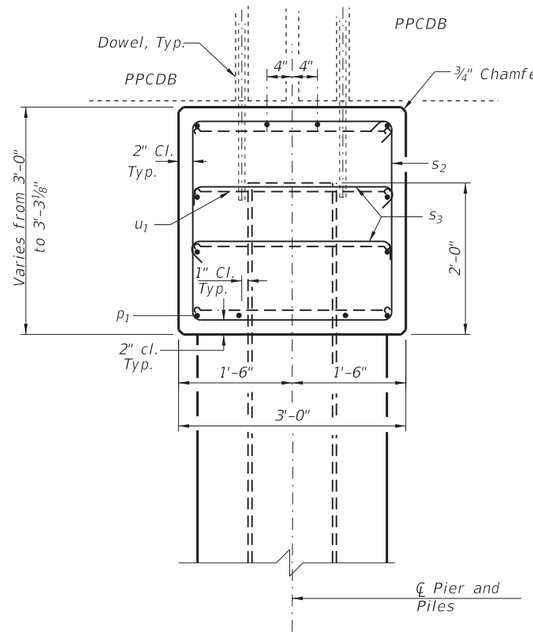
BAR s_2



BAR s_3



BAR u_1



SEC. THRU PIER

(Normal to ℄)

PILE DATA
PIER NO. 1 (South)

Type:	Steel HP14x73
Nominal Required Bearing:	298 kips
Factored Resistance Available:	164 kips
Estimated Length:	55'/pile
No. Production Piles	4
No. Test Piles	1

PILE DATA
PIER NO. 2 (North)

Type:	Steel HP14x73
Nominal Required Bearing:	298 kips
Factored Resistance Available:	164 kips
Estimated Length:	48'/pile
No. Production Piles	5
No. Test Piles	0

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).

All exposed edges shall have standard ¾" chamfer, unless otherwise noted or as directed by the Engineer.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

The Steel H-piles shall be according to AASHTO M270 Grade 50.

The position of the 90° & 135° hooked ends of the s_3 bar shall be alternated between adjacent bars, as shown both vertically and horizontally.

If a portion of the 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.

The Contractor shall drive one (1) Test Pile of the size indicated in a permanent location as shown on the plans or as directed by the Engineer before ordering the remainder of the piles.

The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

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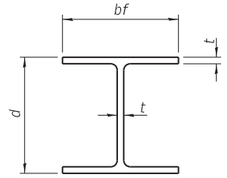
DRAWN - JMW	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

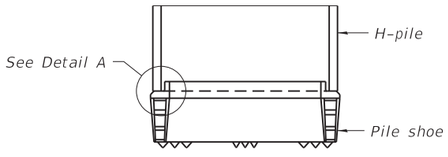
PIER DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	12
		CONTRACT NO. 97823		



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"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



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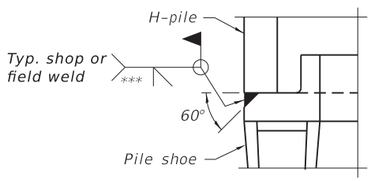
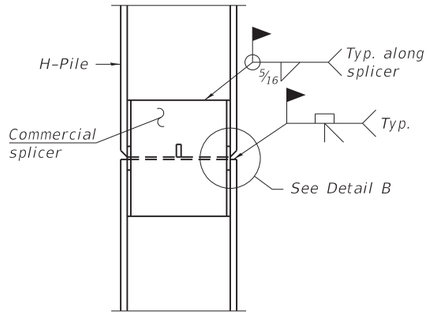


DETAIL A

SHOE ATTACHMENT

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



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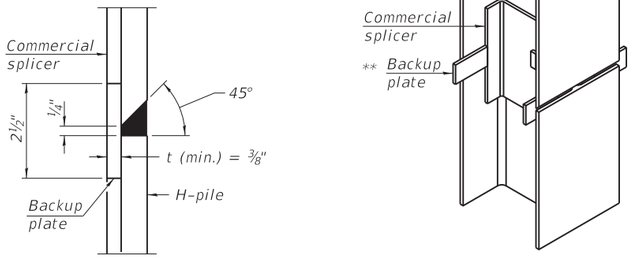
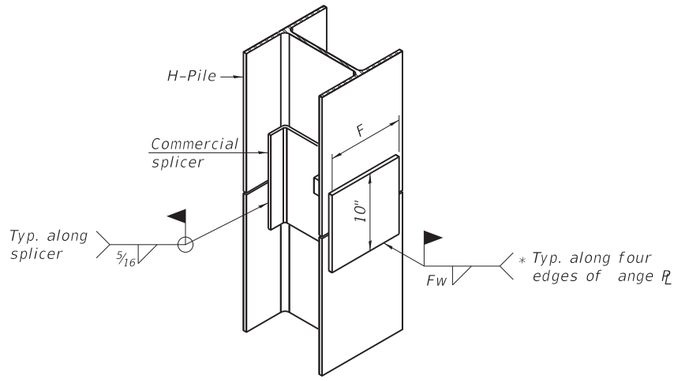


DETAIL "B"

ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



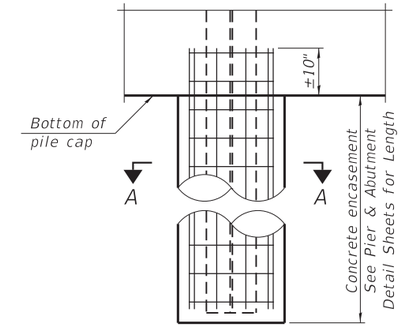
ISOMETRIC VIEW

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.).



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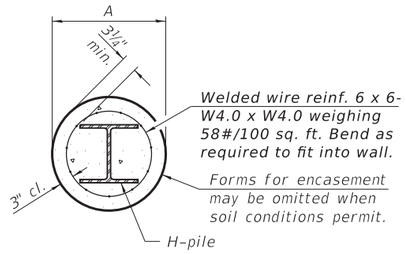
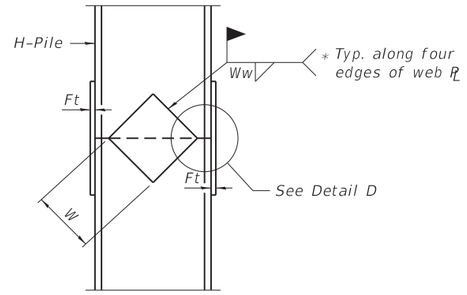


SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASEMENT



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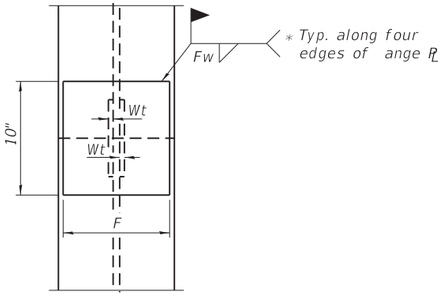
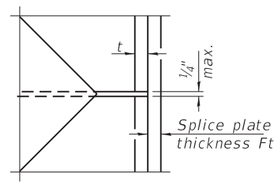


END VIEW



DETAIL D

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"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

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DRAWN	JMW	REVISED	-
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DATE	09/07/2023	REVISED	-

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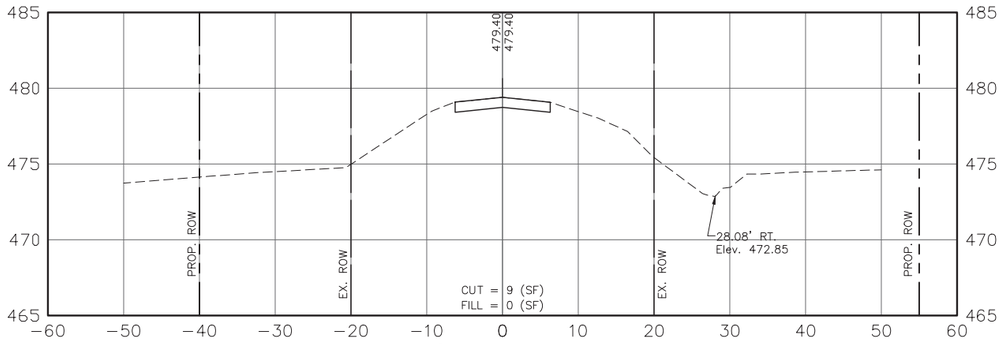
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS

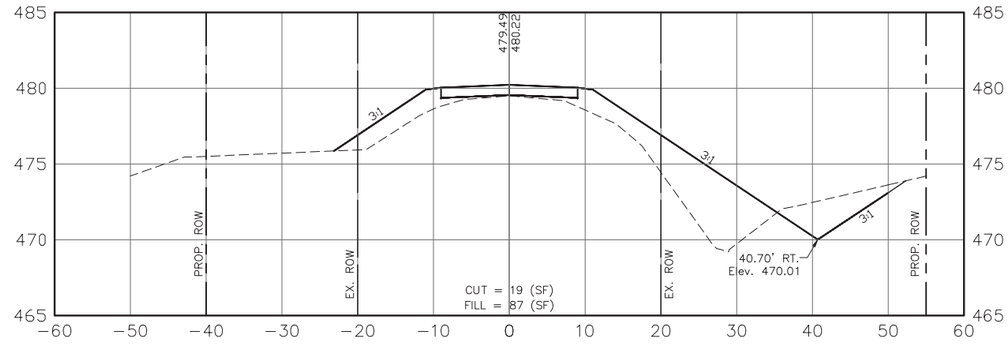
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	13
		CONTRACT NO. 97823		

NOTE: RIPRAP LINED DITCHES ARE NOT SHOWN. SEE PLAN & PROFILE SHEET. ENSURE POSITIVE DRAINAGE TO CREEK.



STA. 48+10

BRIDGE



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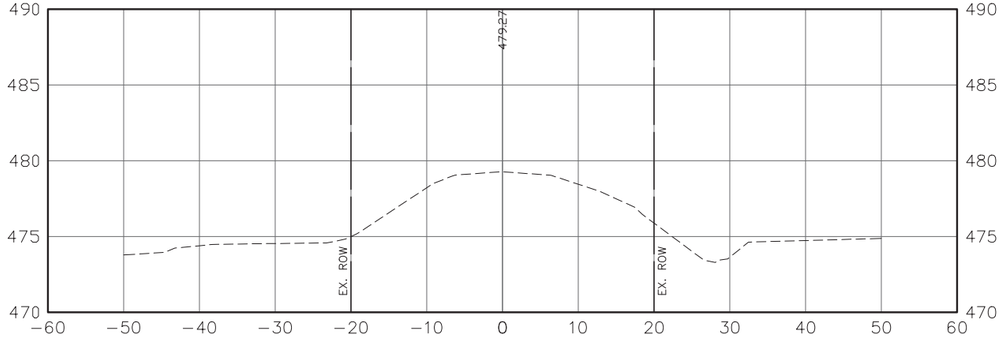
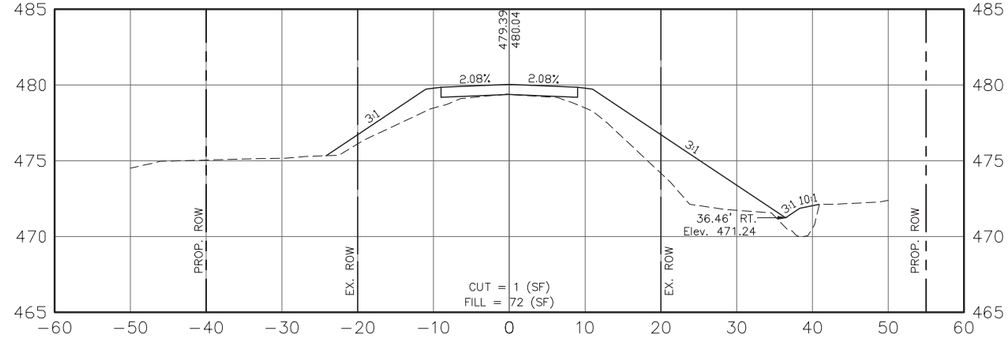


STA. 48+00



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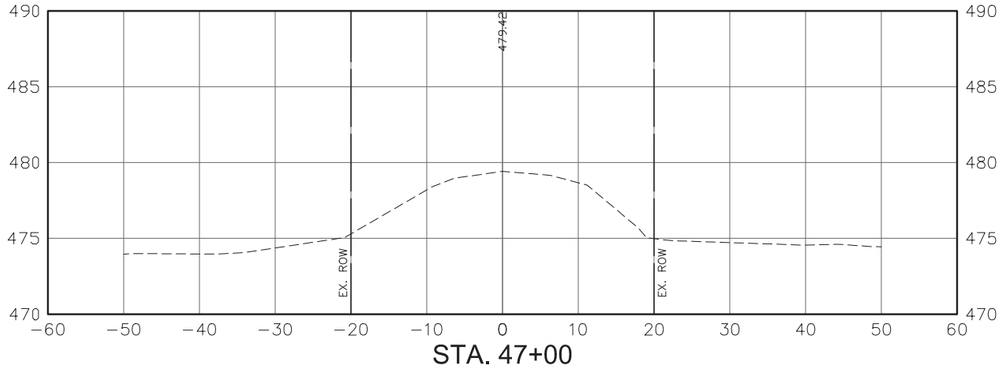
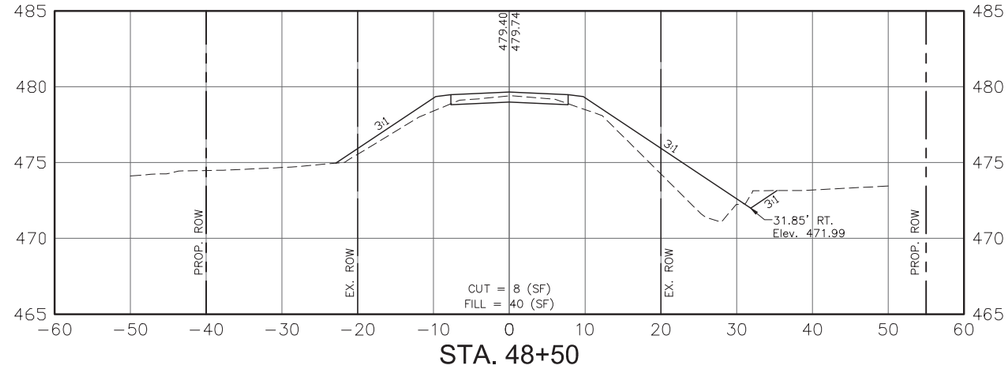


STA. 47+00



STA. 48+50

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CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY
STA. 47+00 TO STA. 49+42

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	14
		CONTRACT NO. 97823		
GCL JOB NO. 20-6041				

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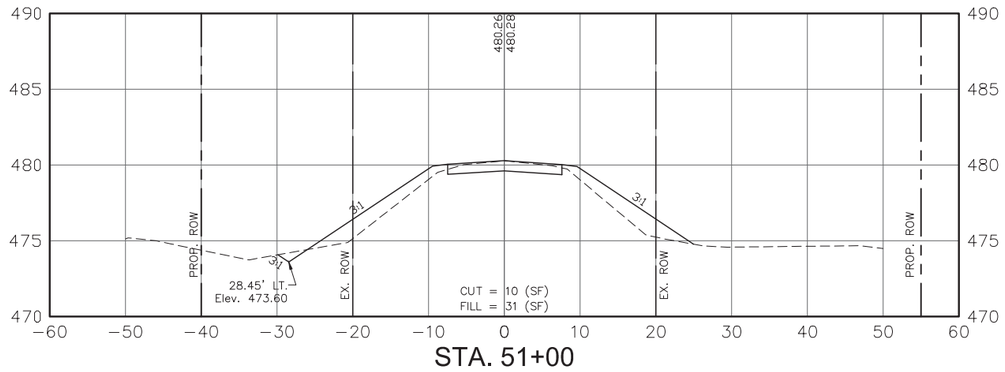
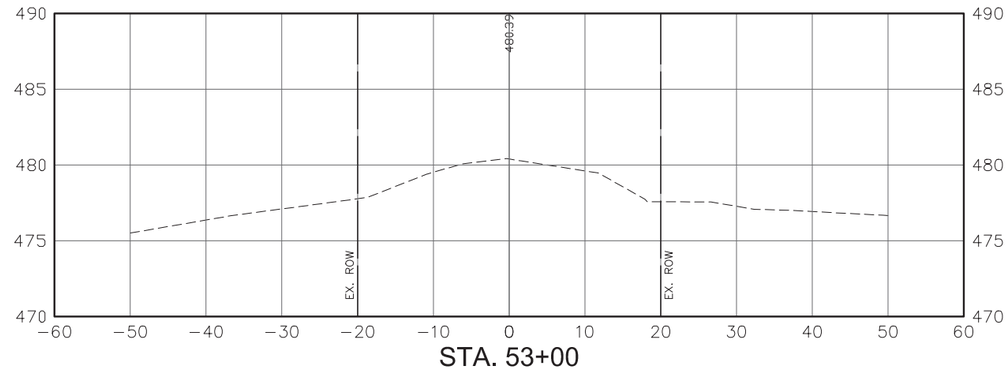
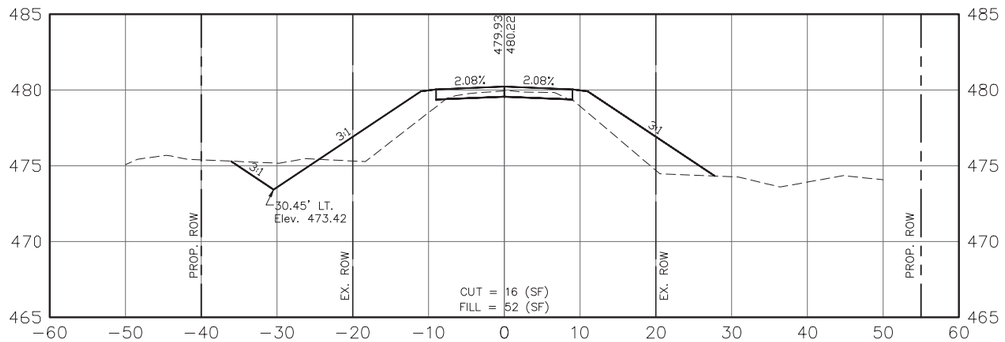


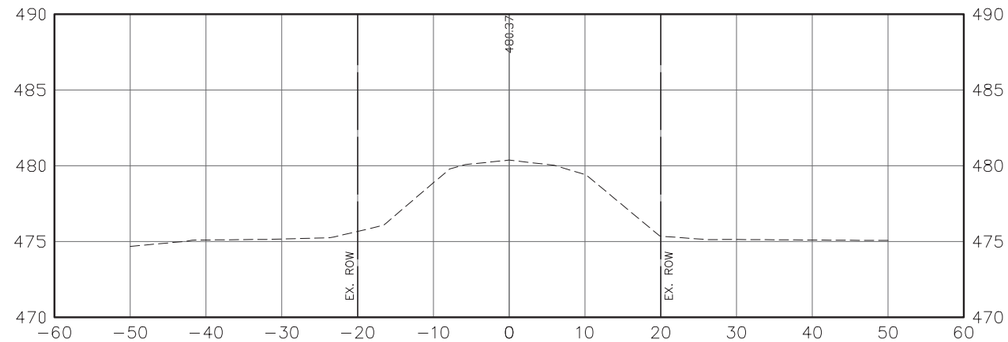
STA. 51+00



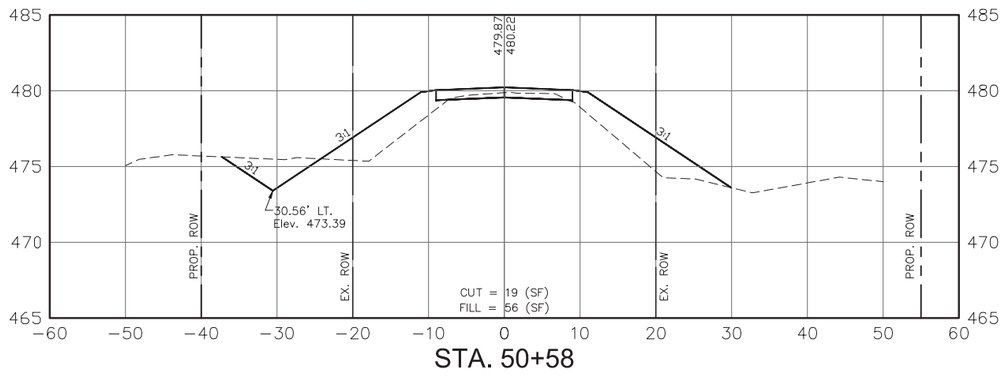
STA. 53+00



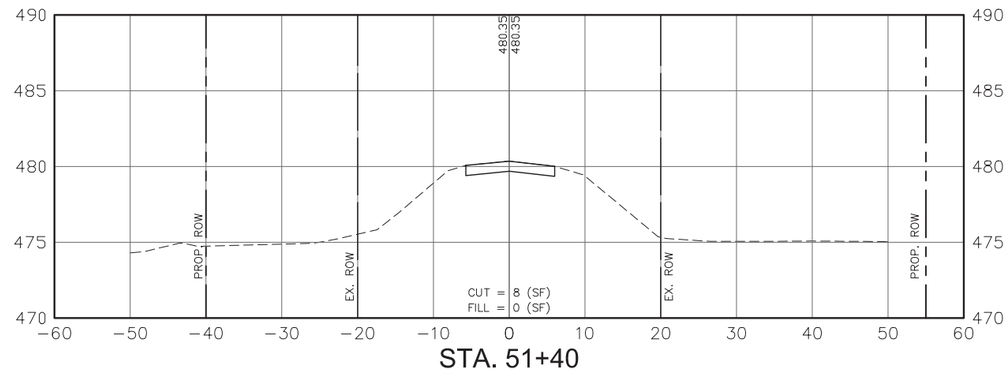
STA. 50+65



STA. 51+50



STA. 50+58



STA. 51+40

S:\Projects\2020\20-641 Marion Co Kline Road Bridge over Flat Creek\20 Design\CAD\003-Xtopo-20641.dwg, Plotted on: 9/8/2023 9:23 AM

GONZALEZ COMPANIES, LLC
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DESIGNED - BLT	REVISED -	
DRAWN - JMW, HBM	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 09/07/2023	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY
STA. 50+58 TO STA. 53+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 46	19-11004-00-BR	MARION	15	15
		CONTRACT NO. 97823		
GCL JOB NO. 20-6041				