

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 268	19-04115-00-BR	LIVINGSTON	24	1
FED. ROAD DIST. NO.		ILLINOIS	CONTRACT NO. 87796	

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-12.	BRIDGE PLANS
13-14.	BORINGS
15-24.	STATION CROSS SECTIONS

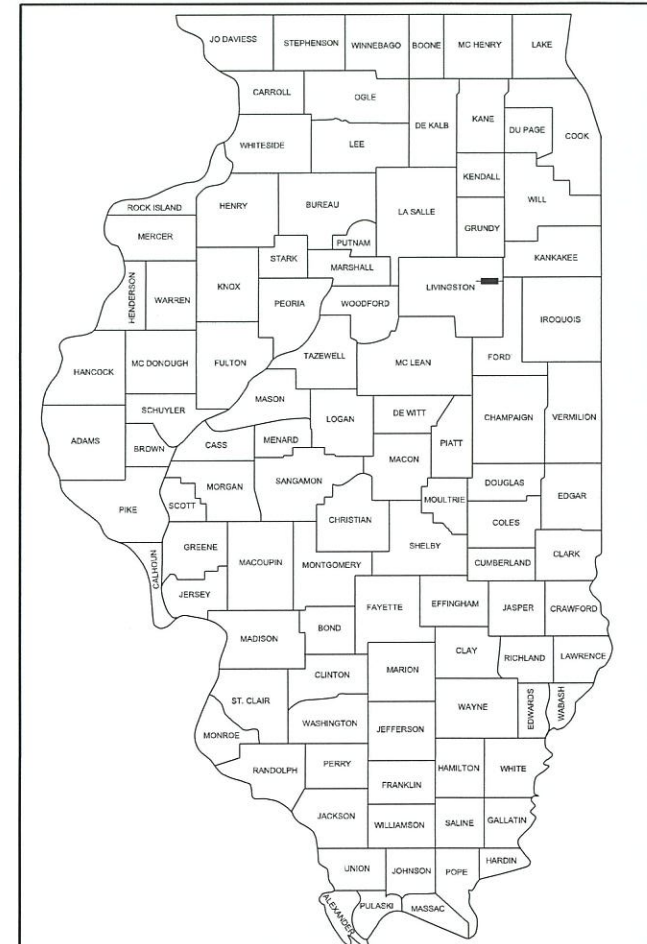
HIGHWAY STANDARDS:

000001-08	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
515001-04	NAME PLATE FOR BRIDGES
601101-02	CONCRETE HEADWALL FOR PIPE UNDERDRAINS
701901-08	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

PLANS FOR PROPOSED

SURFACE TRANSPORTATION PROGRAM – BRIDGE

T.R. 268 /3200 E. ROAD
SECTION 19-04115-00-BR
PROJECT PKXU(134)
EXISTING STRUCTURE NO. 053-3397
PROPOSED STRUCTURE NO. 053-4232
STRACHAN BRIDGE
BROUGHTON ROAD DISTRICT
LIVINGSTON COUNTY
C-93-009-23



LOCATION OF SECTION INDICATED THUS: - [Symbol] -

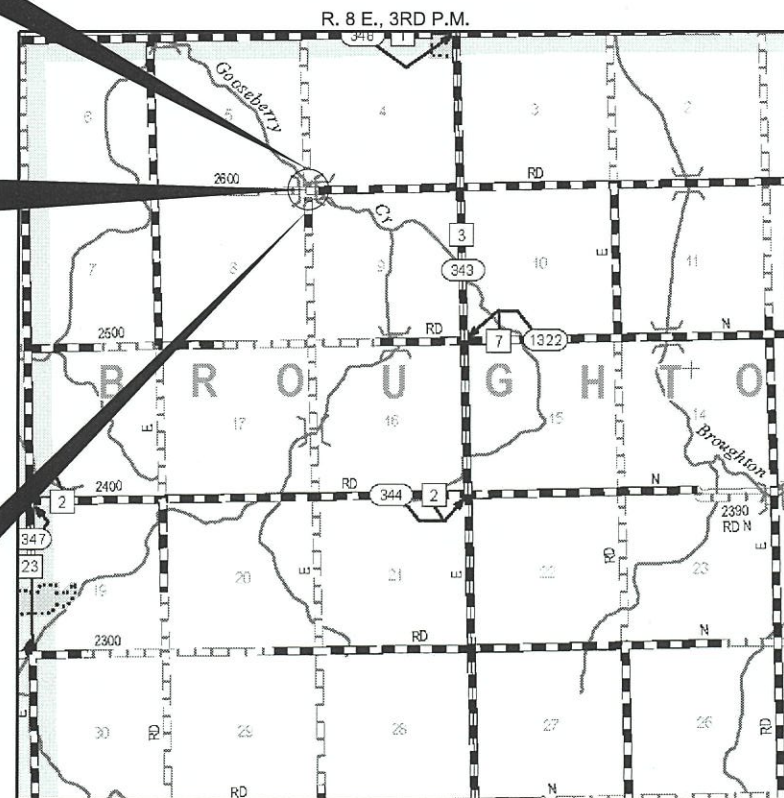
UTILITIES

FRONTIER COMMUNICATIONS
112 W. ELM ST.
SYCAMORE, IL 60178

STA. 10+02
PRECAST PRESTRESSED CONCRETE DECK BEAM
BRIDGE. SINGLE SPAN @ 53'-0"
27'-0" RDWY.; SKEW = 15°
EXISTING STRUCTURE NO. 053-3397
PROPOSED STRUCTURE NO. 053-4232

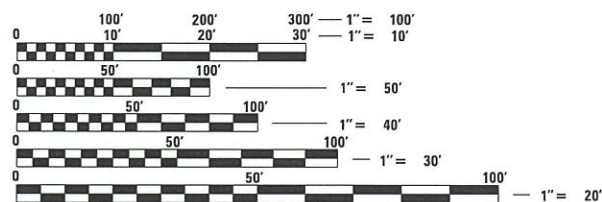
IMPROVEMENT ENDS
STATION 12+10

IMPROVEMENT BEGINS
STATION 8+50



LOCATION MAP

APPROXIMATE SCALE: 0 1/2 MILE
NET LENGTH OF SECTION = 360 FEET = 0.0682 MILES



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.

FUNCTIONAL CLASSIFICATION: LOCAL ROAD
DESIGN SPEED: 30 MPH
DESIGN TRAFFIC: 100 ADT



WARNING

CALL 811
BEFORE YOU DIG
DIG NO: X221361525

ILLINOIS DEPARTMENT OF TRANSPORTATION

APPROVED 12/22 2022
Clay Metcalfe
COUNTY ENGINEER

APPROVED 12/22 2022
E. J. [Signature]
TOWNSHIP COMMISSIONER

PASSED JANUARY 5 2023
[Signature]
DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS
JANUARY 5 2023
[Signature]
REGION TWO ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DATE: 12/22/2022

EXPIRES: 11/30/2024

HAMPTON, LENZINI AND RENWICK, INC.
CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hlrengineering.com

184.000959
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

PROJECT NUMBER: 21.0061.130 DATE: 12/22/2022

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	CONSTRUCTION TYPE CODE 0010	
		UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	185
20300100	CHANNEL EXCAVATION	CU YD	190
20400800	FURNISHED EXCAVATION	CU YD	40
28100107	STONE RIPRAP, CLASS A4	SQ YD	350
28200200	FILTER FABRIC	SQ YD	350
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	347
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	22.2
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	1,431
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3,150
50900205	STEEL RAILING, TYPE S1	FOOT	104
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	385
51202305	DRIVING PILES	FOOT	385
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	115
60100060	CONCRETE HEADWALLS FOR PIPE DRAINS	EACH	2
60146304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	106
67100100	MOBILIZATION	L SUM	1
72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X2070302	POROUS GRANULAR EMBANKMENT, SPECIAL	TON	90
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3

^ SEE SPECIAL PROVISIONS

* SPECIALTY ITEMS

ROADWAY SCHEDULE	
LOCATION	AGGREGATE SURFACE COURSE, TYPE B
TR 268/3200E	40200800 TON
STA. 8+50.00 TO STA. 9+74.81	106
STA. 10+29.19 TO STA. 12+10.00	201
ENTRANCES	40
TOTAL	347

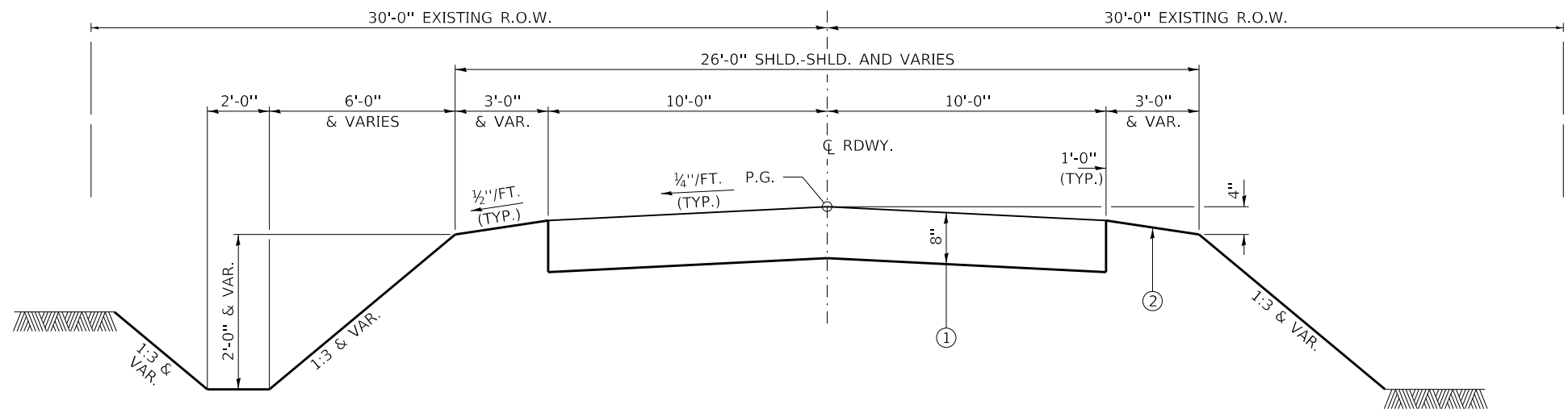
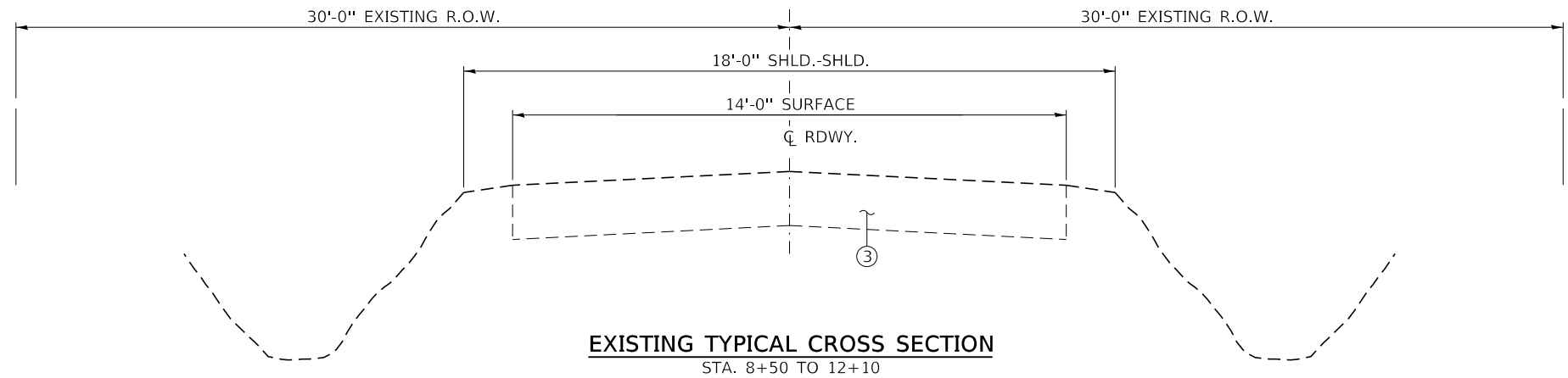
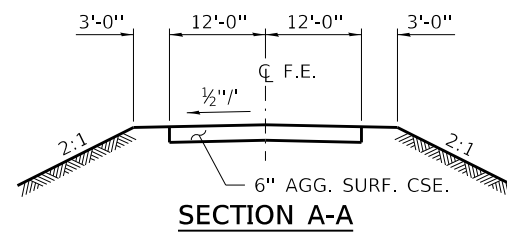
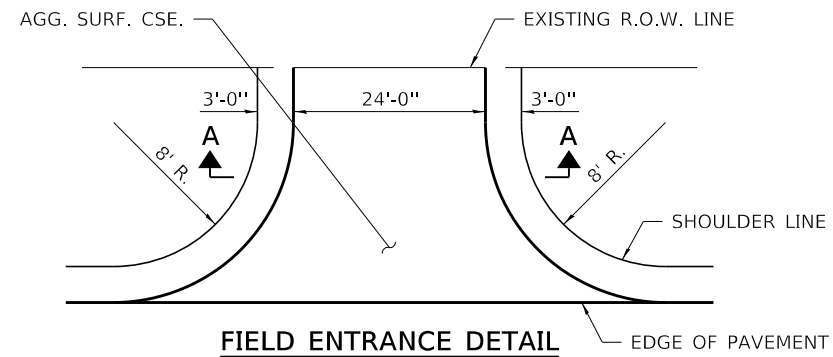
GENERAL NOTES

- 1) ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED JANUARY 1, 2022", (HERE IN AFTER REFERRED TO AS THE STANDARD SPECIFICATIONS; THE LATEST EDITION OF THE "ILLINOIS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS"; THE DETAILS IN THE PLANS AND THE "SPECIAL PROVISIONS" INCLUDED IN THE DOCUMENTS.
- 2) ALL CLEARING, GRUBBING, FENCE REMOVAL, PAVEMENT REMOVAL, AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. ALL AGGREGATE AND BITUMINOUS PAVEMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. REMOVAL AND DISPOSAL OF PAVEMENT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 3) WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- 4) ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS OR SPECIAL PROVISIONS SHALL BE INTERPRETED TO BE THE LATEST STANDARD OF THE DEPARTMENT.
- 5) THE LOCATION ON THE PLANS OF EXISTING DRAINAGE STRUCTURES, TELEPHONE LINES, ELECTRIC LINES, WATER SERVICE LINES, GAS MAINS, AND OTHER UTILITY FACILITIES AS SHOWN ON THE PLANS ARE BASED ON FIELD INVESTIGATIONS AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION.
- 6) THE CONTRACTOR SHALL CONSULT THE ENGINEER IN REGARD TO THE EXACT LENGTH OF PIPE CULVERTS AND PIPE DRAINS BEFORE ORDERING THESE ITEMS.
- 7) THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES
 AGGREGATE BASE COURSE 2.05 TON/CU YD
 STONE RIPRAP, CLASS A4 2 TON/CU YD
 POROUS GRANULAR EMBANKMENT 2.0 TON/CU YD
- 8) THE FINAL SURFACE OF ALL EMBANKMENT AREAS SHALL BE SEEDED. THE TOP 4 INCHES OF THE SEEDED AREAS SHALL BE TOPSOIL SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF SHAPING THE SLOPES AND PROVIDING TOP SOIL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- 9) THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY OR AS DIRECTED BY THE ENGINEER.
 SEEDING, CLASS 2 (SPECIAL) = 0.3 ACRES
- 10) ALL WASTE MATERIAL FROM EXCAVATIONS SHALL BE DISPOSED OF BY THE CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	CU.YD.	CU.YD.			CU.YD.	CU.YD.	CU.YD.
TR 268/3200E							
STA. 8+50.00 TO STA. 9+74.81	84		25.00%	100.00%	63	54	9
STA. 9+74.81 TO STA. 10+29.19		190	25.00%	70.00%	100		100
STA. 10+29.19 TO STA. 12+10.00	101		25.00%	100.00%	75	76	-1
ENTRANCE STA. 10+78.00						146	-146
TOTAL	184	190			238	276	-38
USE	185	190					40

FURNISHED 40 CU YDS



SUGGESTED CUT SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

PROPOSED TYPICAL CROSS SECTION

STA. 8+50 TO 12+10
BRIDGE STA. 9+74.81 TO 10+29.19
TRANSITIONS FROM THE PROPOSED ROADWAY TO THE EXISTING
ROADWAY ARE TO BE CONSTRUCTED FROM STA. 8+50 TO 9+55
AND STA. 11+50 TO STA. 12+10. SEE SHEET 5 FOR TRANSITION
AT BRIDGE.

SUGGESTED FILL SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

LEGEND

- ① AGGREGATE SURFACE COURSE, TYPE B (8")
- ② EARTH SHOULDERS
- ③ EXISTING AGGREGATE SURFACE

BENCHMARK: Chisled "X" PN S.W. Wingwall. 11'Lt., Sta. 9+83. Elev. 655.66

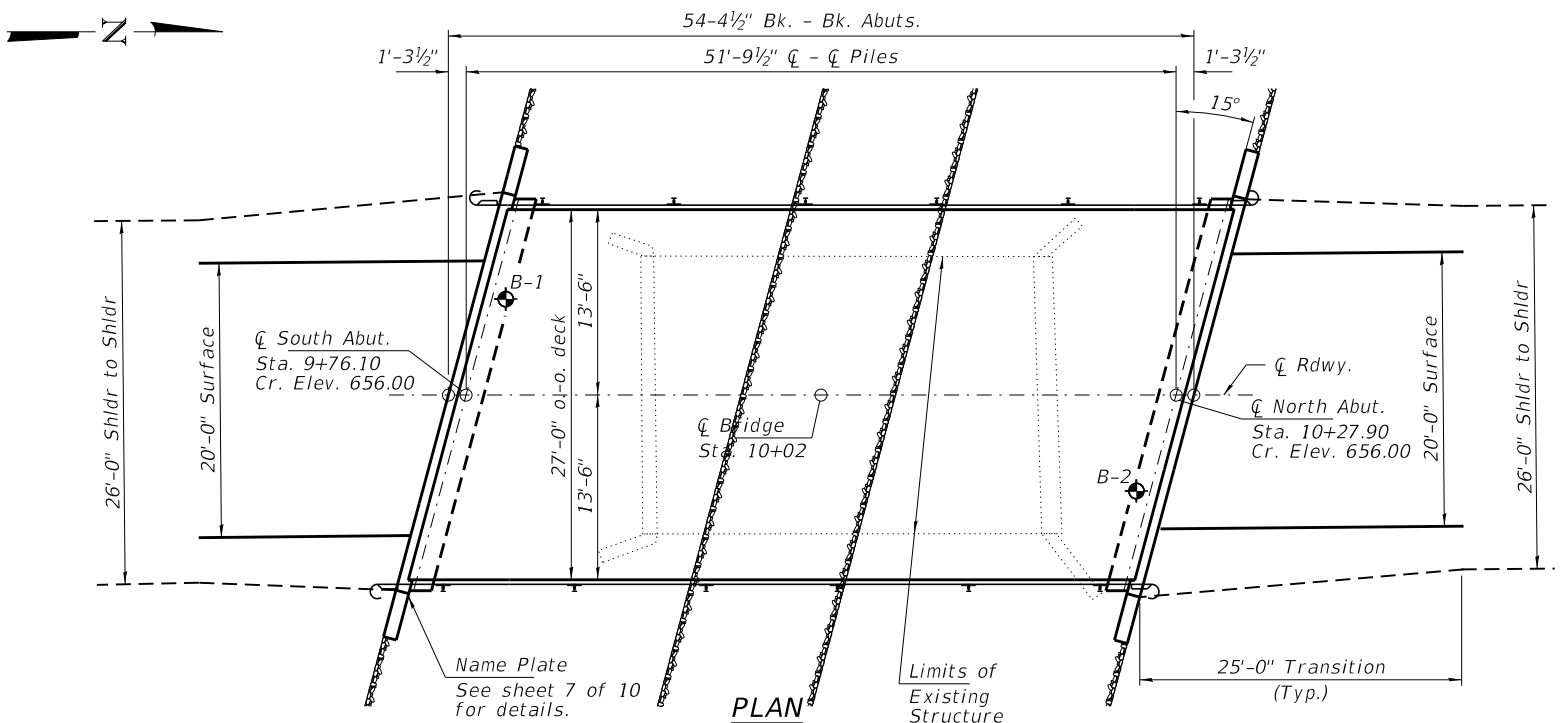
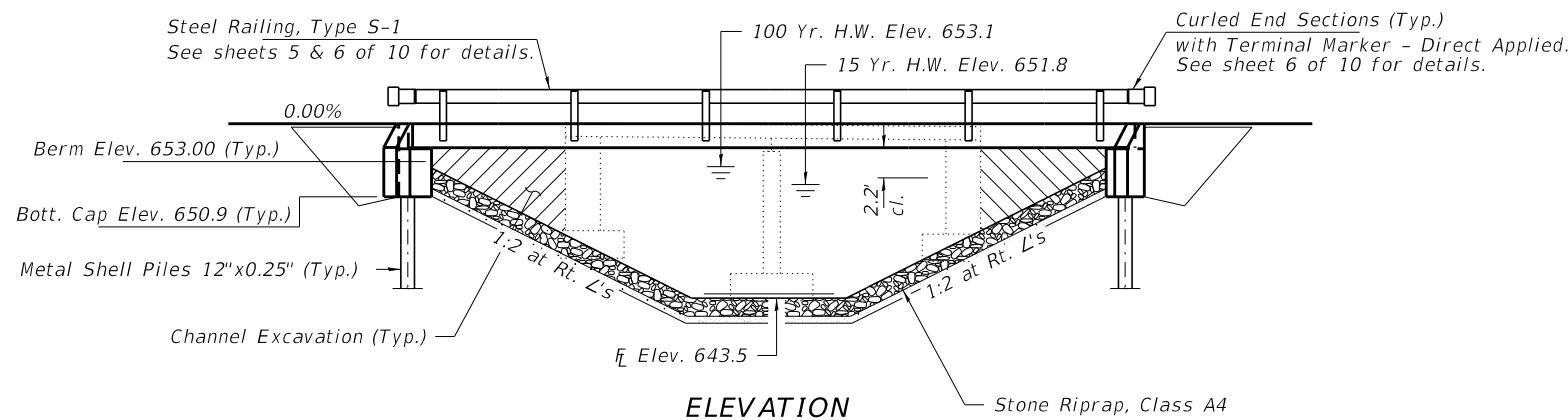
EXISTING STRUCTURE NO. 053-3397: Sta. 10+00 - Two span steel beam bridge. With closed concrete abutments, wing walls, and concrete piers. 30.0' bk.-bk. abuts., 20.0' o.-o. deck.

Structure closed to traffic during construction.

No Salvage

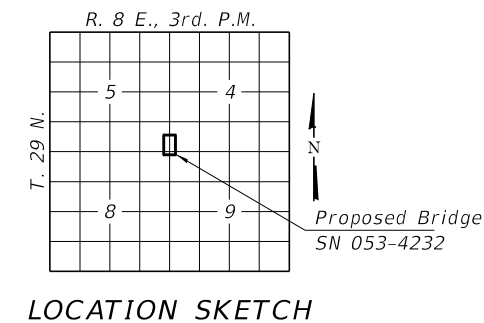
GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
 The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at North Abutment or approved by the Engineer before ordering the remainder of piles.
 Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.
 All bars to be epoxy coated.
 Excavation required to construct the Abutments shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.
 All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act.
 The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.



INDEX OF STRUCTURE SHEETS

1. General Plan & Elevation
2. Riprap Layout
3. PPC Deck Beam (21"x36")
4. PPC Deck Beam Details (21"x36")
5. Superstructure Details
6. Steel Railing, Type S-1
7. Abutments
8. Metal Shell Pile Details
- 9-10. Borings



GOOSEBERRY CREEK
 BUILT 202 BY
 LIVINGSTON COUNTY
 SEC. 19-04115-00-BR
 BROUGHTON ROAD DISTRICT
 STR. NO. 053-4232
 LOADING HL-93

NAME PLATE
 See Std. 515001

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition with all interims.

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

f'c = 4,000 psi
 fy = 60,000 psi (Reinf.)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
 f'ci = 5,000 psi
 fpu = 270,000 psi (1/2"Ø low lax. strands)
 fpbt = 201,960 psi (1/2"Ø low lax. strands)
 fy = 60,000 psi (Reinf.)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (SD1) = 0.075g
 Design Spectral Acceleration at 0.2 sec. (SDS) = 0.13g
 Soil Site Class = C

WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Nat. H.W.E.	Head - Ft.		Headwater El.		
					Exist.	Prop.	Exist.	Prop.	
Exist Overtop	10	719	140	200	651.4	0.5	0.0	651.9	651.4
Design	15	810	150	210	651.8	0.5	0.0	652.3	651.8
Base	100	1,260	180	270	653.1	0.7	0.3	653.8	653.4
Scour Check	200	1,430	190	280	653.3	0.8	0.5	654.1	653.8
Max. Calc.	500	1,660	200	300	653.6	1.0	0.7	654.6	654.3

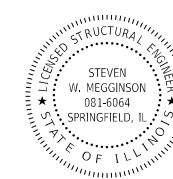
Existing Low Grade Elev. 654.3 @ Sta. 13+00
 Proposed Low Grade Elev. 654.3 @ Sta. 13+00
 Drainage Area = 11.8 Sq. Mi.
 10 Year Velocity through Existing Bridge = 5.1 fps 10 Year Velocity through Proposed Bridge = 3.6 fps

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elev. (ft.)		Item 113
	W. Abut.	E. Abut.	
Q100	650.9	650.9	8
Q200	650.9	650.9	
Design	650.9	650.9	
Check	650.9	650.9	

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 LRFD Specifications."

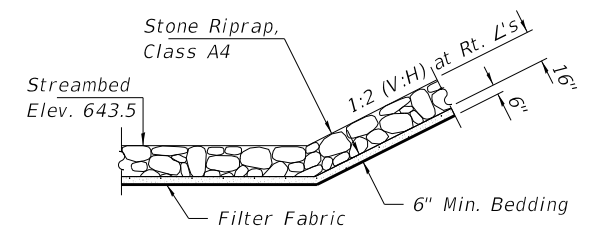
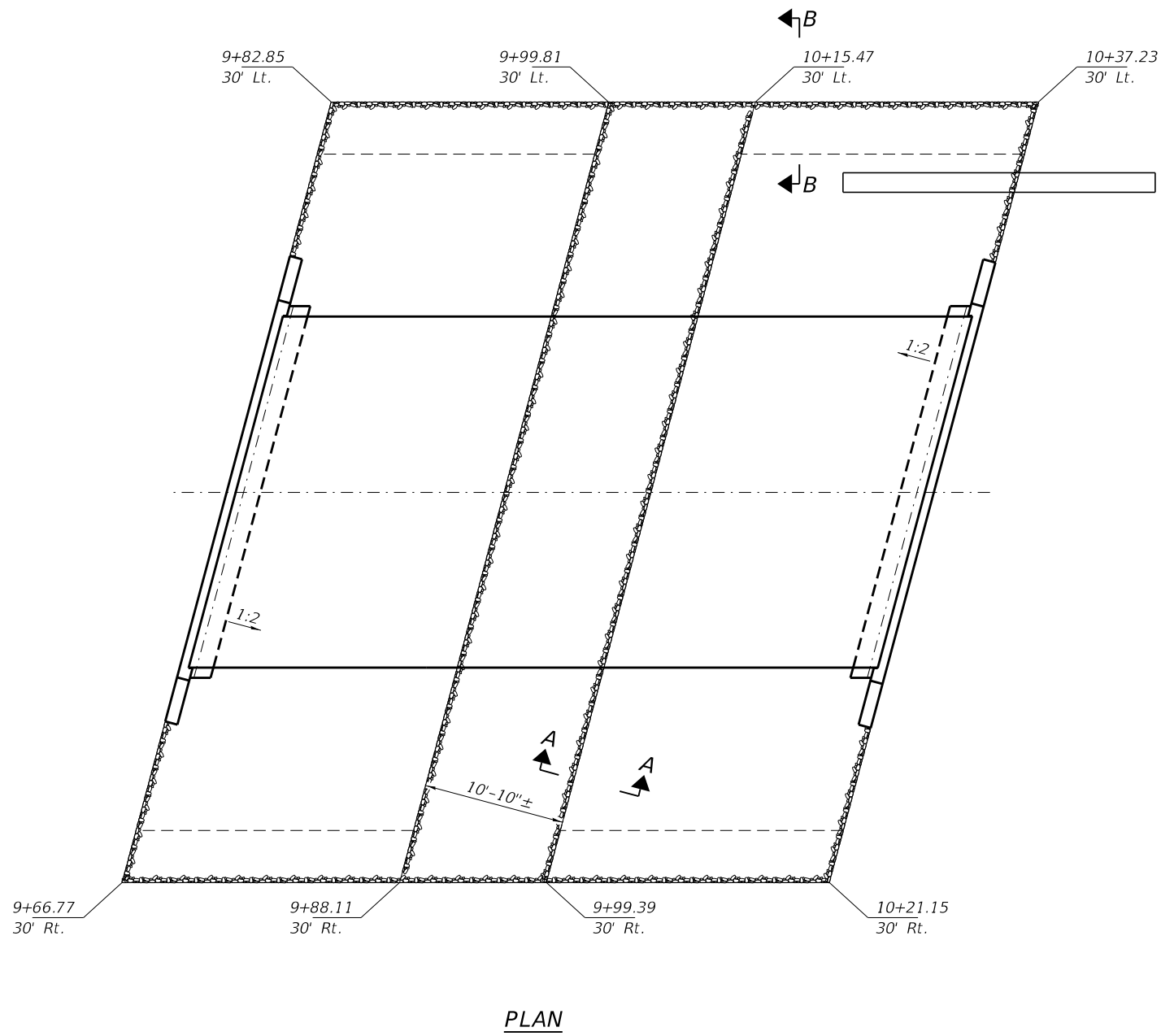
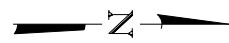
Steven W. Megginson 12/22/2022
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2024

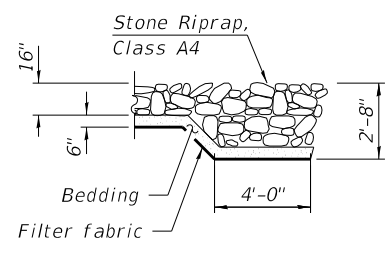
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.		190	190
Stone Riprap, Class A4	Sq. Yd.		350	350
Filter Fabric	Sq. Yd.		350	350
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		22.2	22.2
Precast Prestressed Conc. Deck Beams (21" Depth)	Sq. Ft.	1,431		1,431
Reinforcement Bars, Epoxy Coated	Pound		3,150	3,150
Steel Railing, Type S-1	Foot	104		104
Furnishing Metal Shell Piles 12"x0.250"	Foot		385	385
Driving Piles	Foot		385	385
Test Pile Metal Shells	Each		1	1
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4
Porous Granular Embankment, Special	Ton		90	90
Pipe Underdrains for Structures 4"	Foot		106	106
Concrete Headwalls For Pipe Drains	Each			4



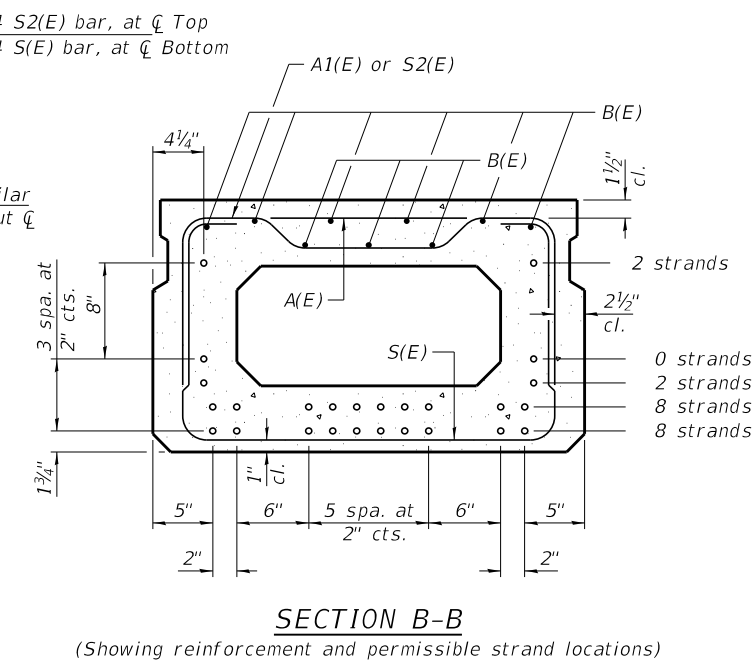
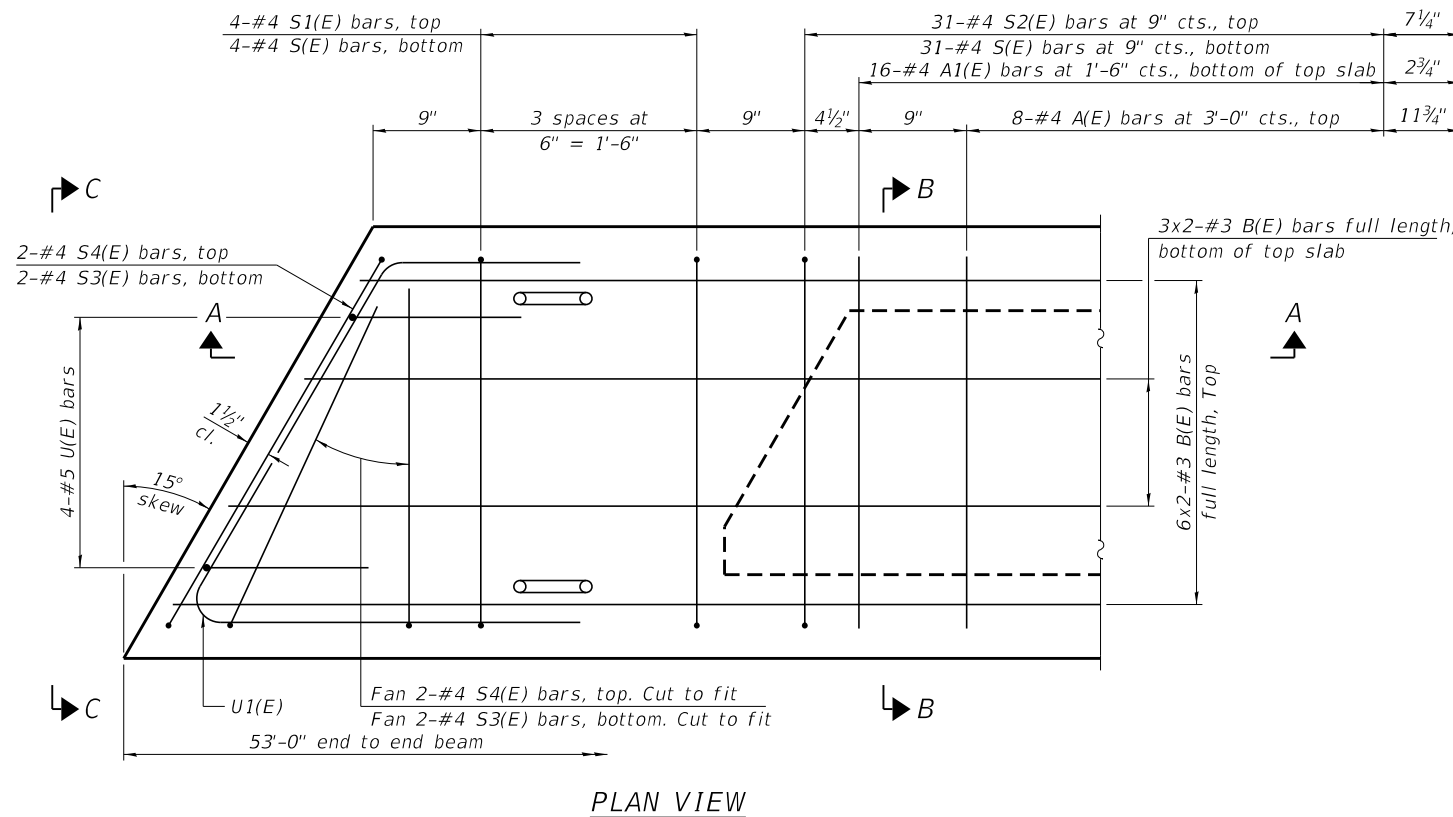
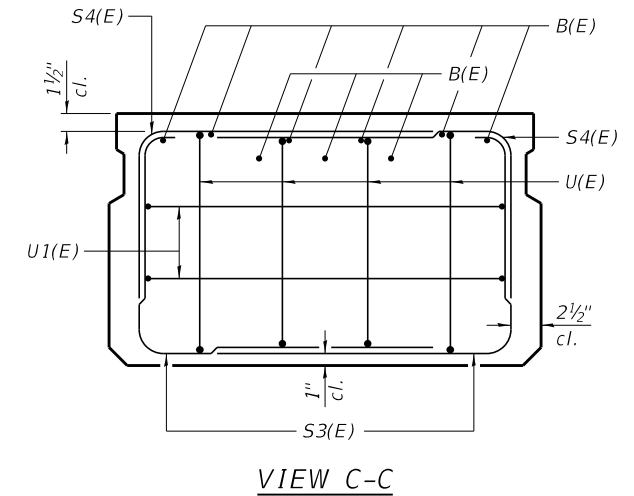
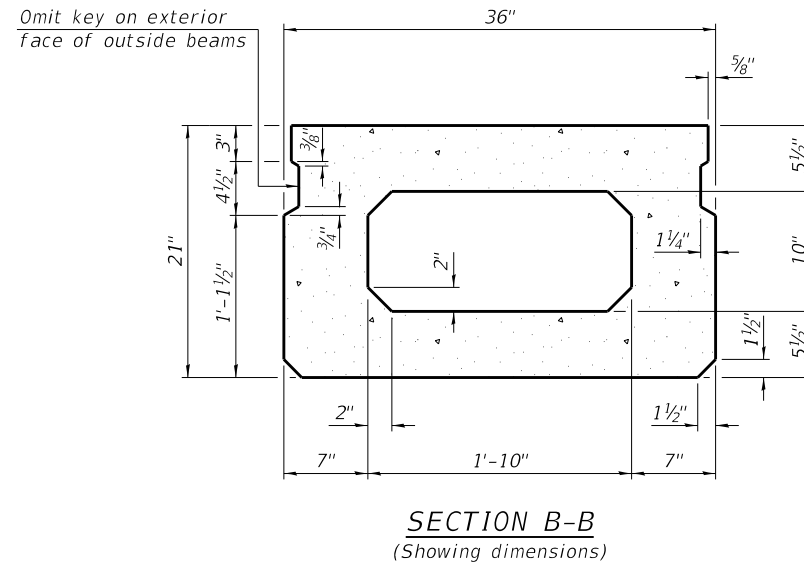
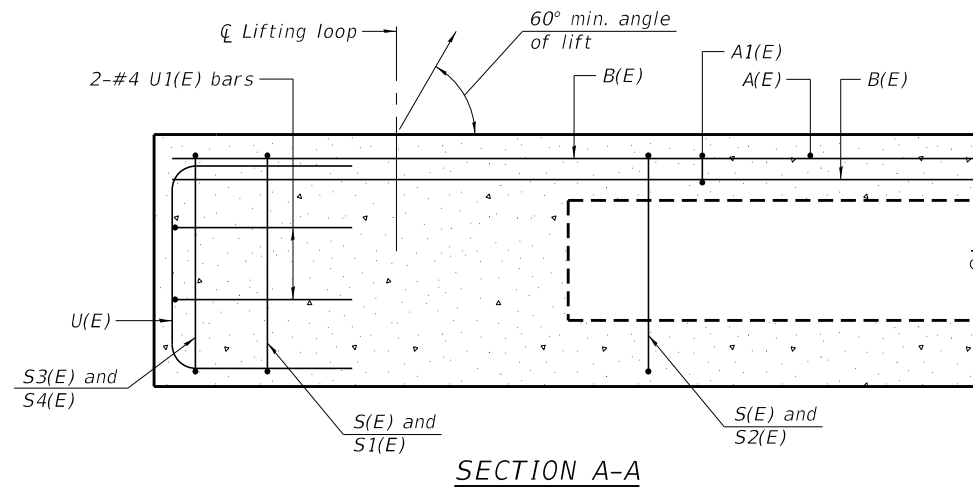
SECTION A-A

Note: See Special Provisions for Stone Riprap, Class A4.



SECTION B-B

FILE NAME = 210061-shi-bridge.dgn	USER NAME = dfoley	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	RIPRAP LAYOUT STRUCTURE NO. 053-4232	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	CHECKED - S.W.M.	REVISED -	268			19-04115-00-BR	LIVINGSTON	24	6	
PLOT SCALE = \$SCALE\$	DRAWN - A.C.	REVISED -	BROUGHTON ROAD DISTRICT			CONTRACT NO. 87796				
PLOT DATE = 12/22/2022	CHECKED - S.W.M.	REVISED -	ILLINOIS			FED. AID PROJECT				



BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	16	#4	2'-7"	—
A1(E)	32	#4	2'-10"	—
B(E)	18	#3	27'-2"	—
S(E)	75	#4	6'-5"	⌊
S1(E)	8	#4	4'-11"	⌊
S2(E)	67	#4	5'-2"	⌊
S3(E)	8	#4	4'-4"	⌊
S4(E)	8	#4	3'-7"	⌊
U(E)	8	#5	4'-0"	⌊
U1(E)	4	#4	5'-9"	⌊

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

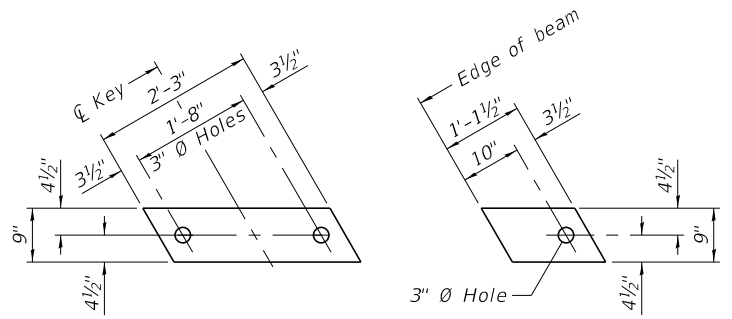
MINIMUM BAR LAP
#3 bar = 1'-6"

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 6x2-#3 etc. indicates 6 lines of bars with 2 lengths per line

PD-2136-L 1-1-2020

FILE NAME = 210061-shi-bridge.dgn	USER NAME = dfoley	DESIGNED - J.W.F.	REVISIONS -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	21" x 36" PPC DECK BEAM STRUCTURE NO. 053-4232	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184.000959	PLOT SCALE = \$SCALE\$	CHECKED - S.W.M.	REVISIONS -			288	19-04115-00-BR	LIVINGSTON	24	7
PLOT DATE = 12/22/2022	DRAWN - A.C.	REVISIONS -	BROUGHTON ROAD DISTRICT			CONTRACT NO. 87796				
	CHECKED - S.W.M.	REVISIONS -	ILLINOIS			FED. AID PROJECT				

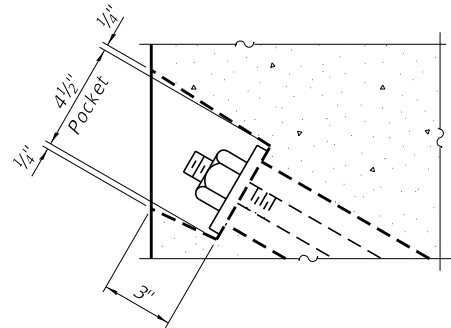


FABRIC BEARING PAD
(Interior - 16 Req'd.)

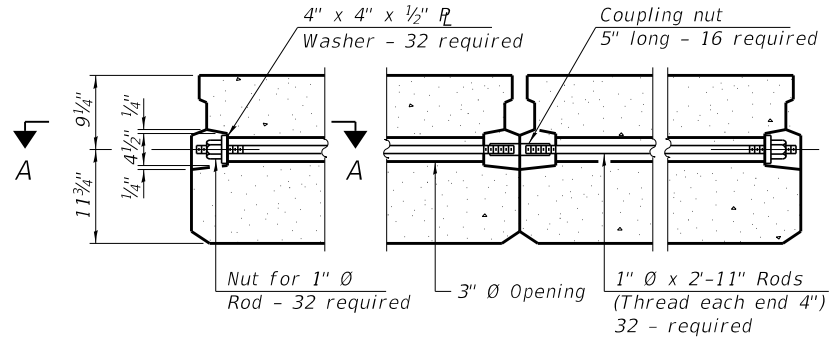
FABRIC BEARING PAD
(Exterior - 4 Req'd.)

FIXED

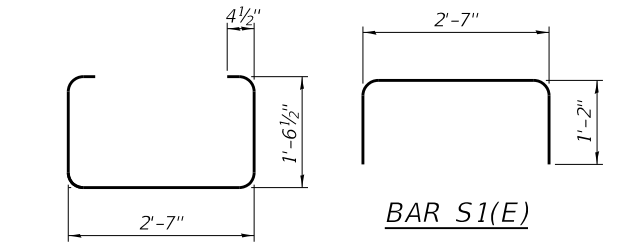
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pads shall be bonded to the substructure.



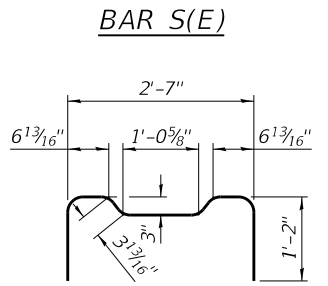
SECTION A-A



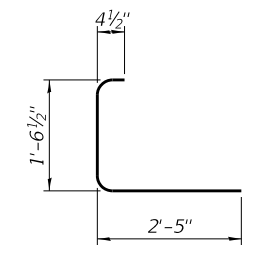
TYPICAL TRANSVERSE TIE ASSEMBLY



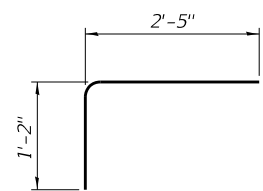
BAR S1(E)



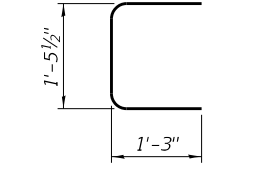
BAR S2(E)



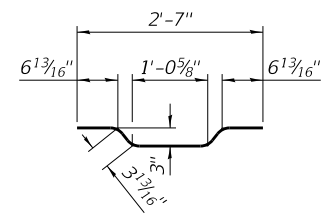
BAR S3(E)



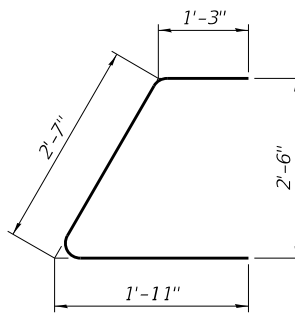
BAR S4(E)



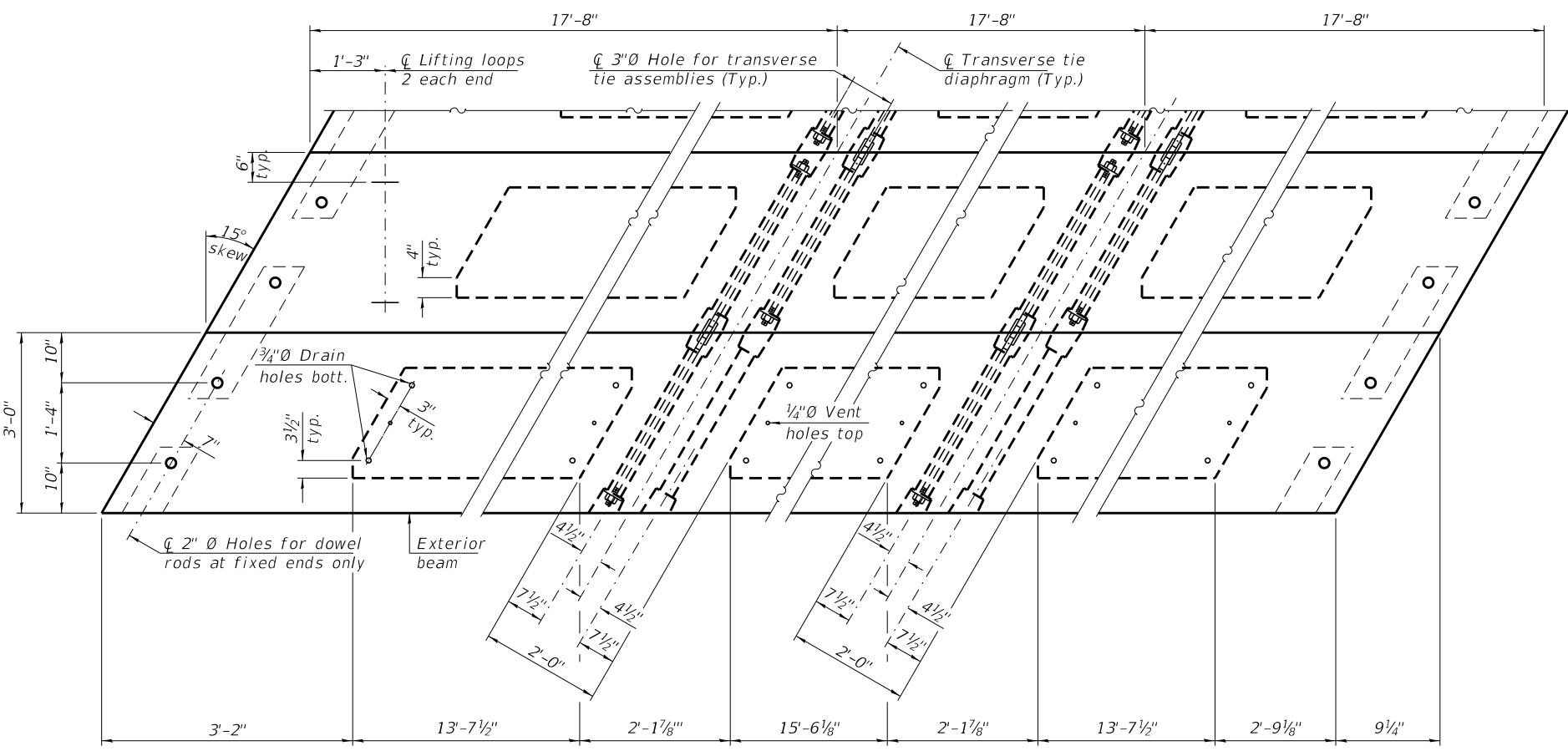
BAR U(E)



BAR A1(E)



BAR U1(E)



NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" diameter 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.

Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.

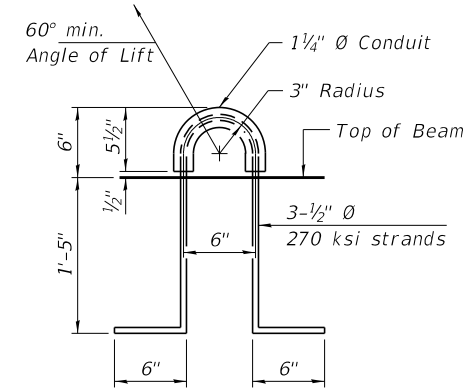
Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

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

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

Reinforcement bars designated (E) shall be epoxy coated.

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



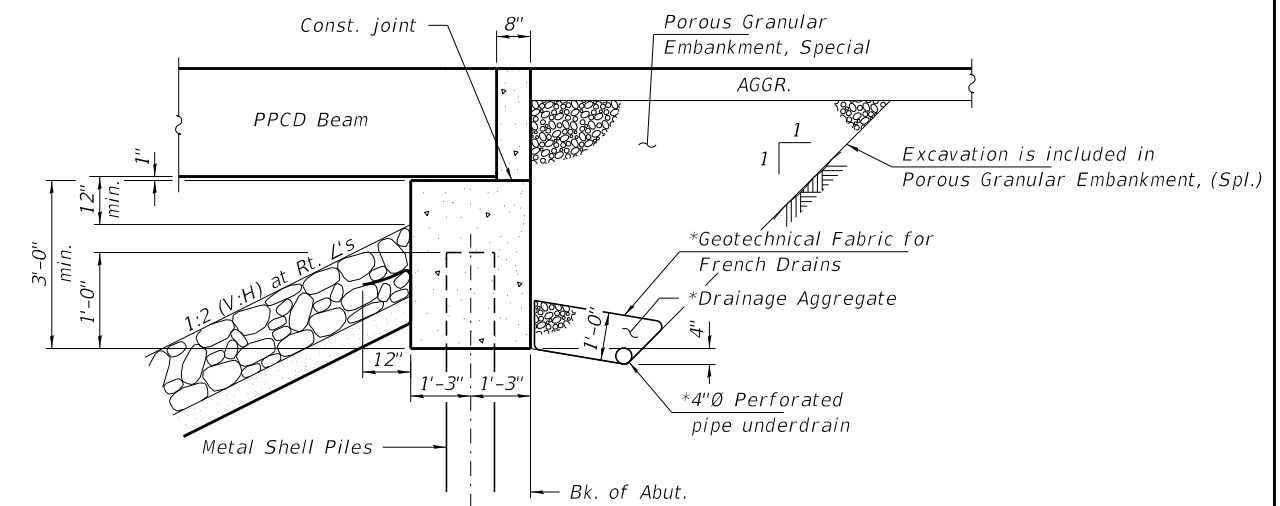
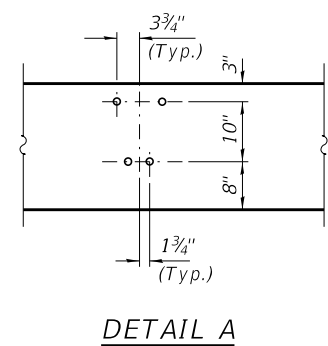
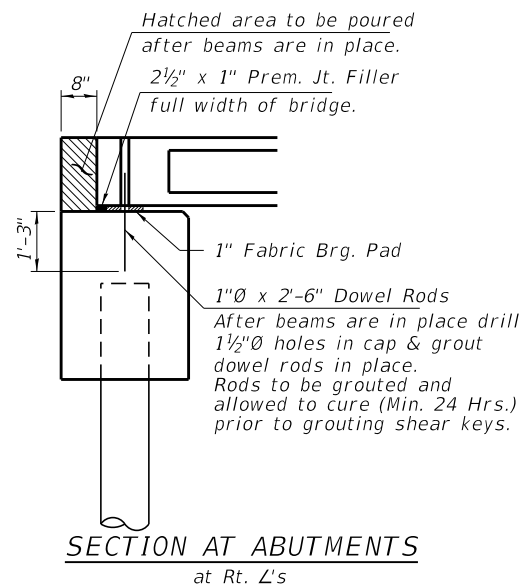
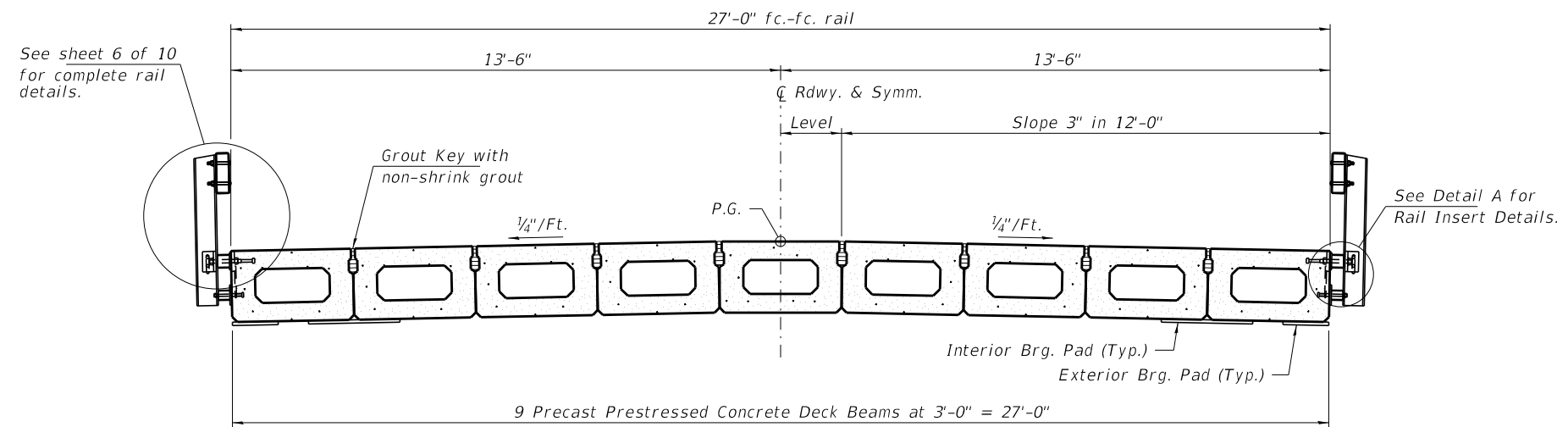
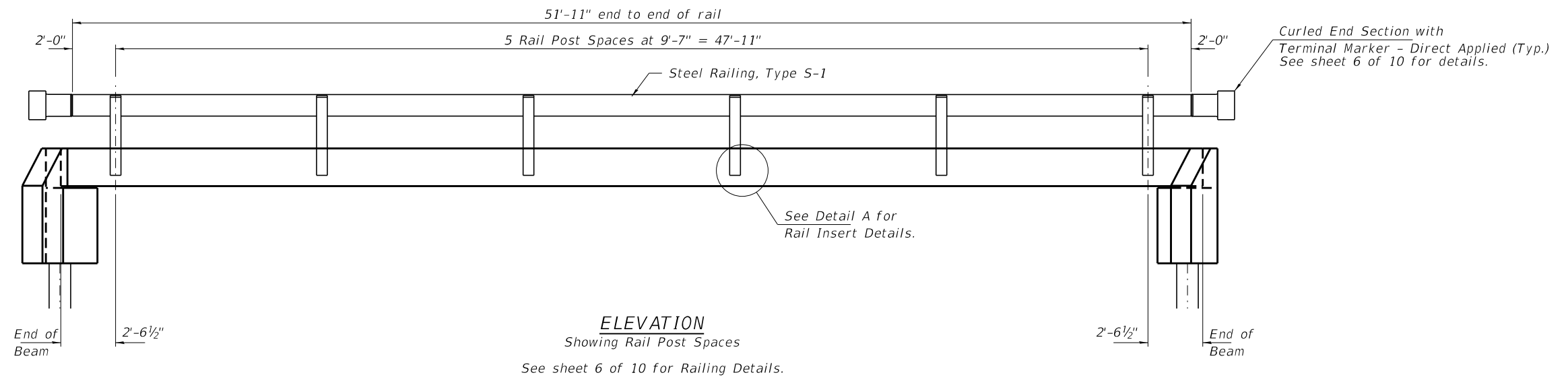
LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1,431
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PDD-2136-L 1-1-2020

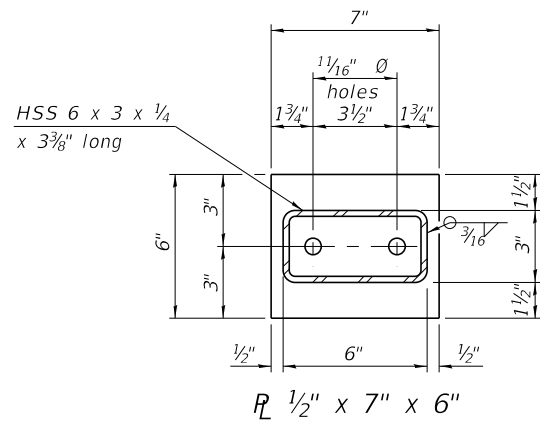
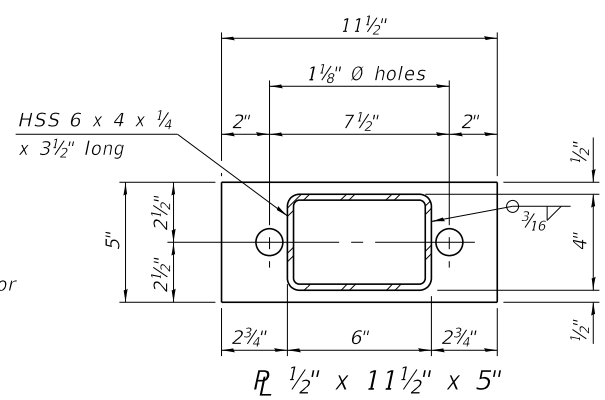
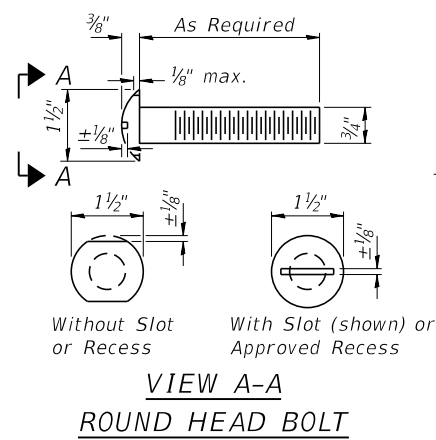
FILE NAME = 210061-shi-bridge.dgn	USER NAME = dfoley	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	21" x 36" PPC DECK BEAM DETAILS STRUCTURE NO. 053-4232	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L5 / PE / SE CORP. 184.000959	PLOT SCALE = \$SCALE\$	CHECKED - S.W.M.	REVISED -			288	19-04115-00-BR	LIVINGSTON	24	8
	PLOT DATE = 12/22/2022	DRAWN - A.C.	REVISED -			BROUGHTON ROAD DISTRICT		CONTRACT NO. 87796		
		CHECKED - S.W.M.	REVISED -			SHEET NO. 4 OF 10 SHEETS		ILLINOIS FED. AID PROJECT		



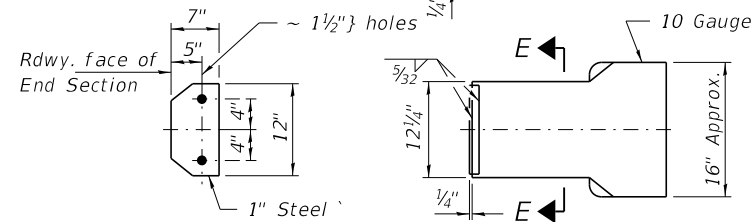
*Included in the cost of Pipe Underdrains for Structures. (See Special Provisions)

Note:
Outlet pipe underdrains to the West only as directed by the Engineer.

FILE NAME = 210061-shi-bridge.dgn	USER NAME = dfoley	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	SUPERSTRUCTURE DETAILS STRUCTURE NO. 053-4232	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
HAMPTON, LENZINI AND RENWICK, INC. <small>3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959</small>						CHECKED - S.W.M.	REVISED -	268	19-04115-00-BR	LIVINGSTON	24	9
PLOT SCALE = \$SCALE\$ PLOT DATE = 12/22/2022						DRAWN - A.C.	REVISED -	BROUGHTON ROAD DISTRICT		CONTRACT NO. 87796		
						CHECKED - S.W.M.	REVISED -			ILLINOIS FED. AID PROJECT		



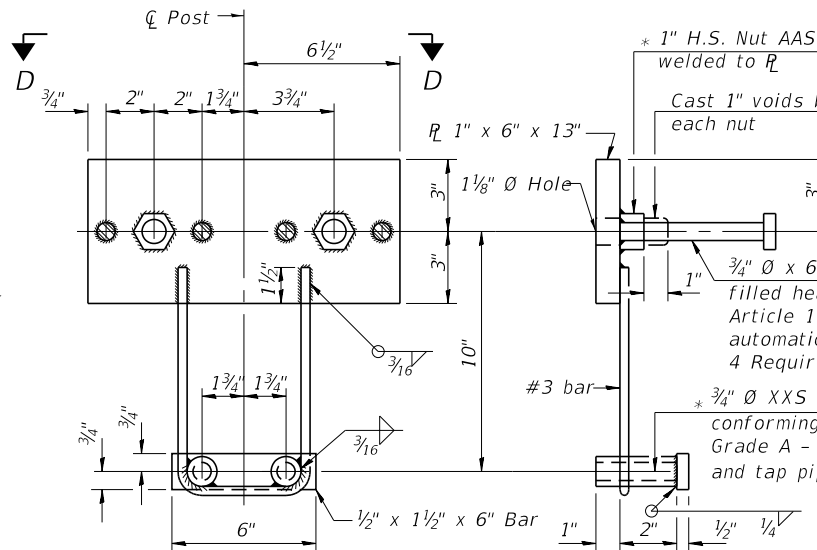
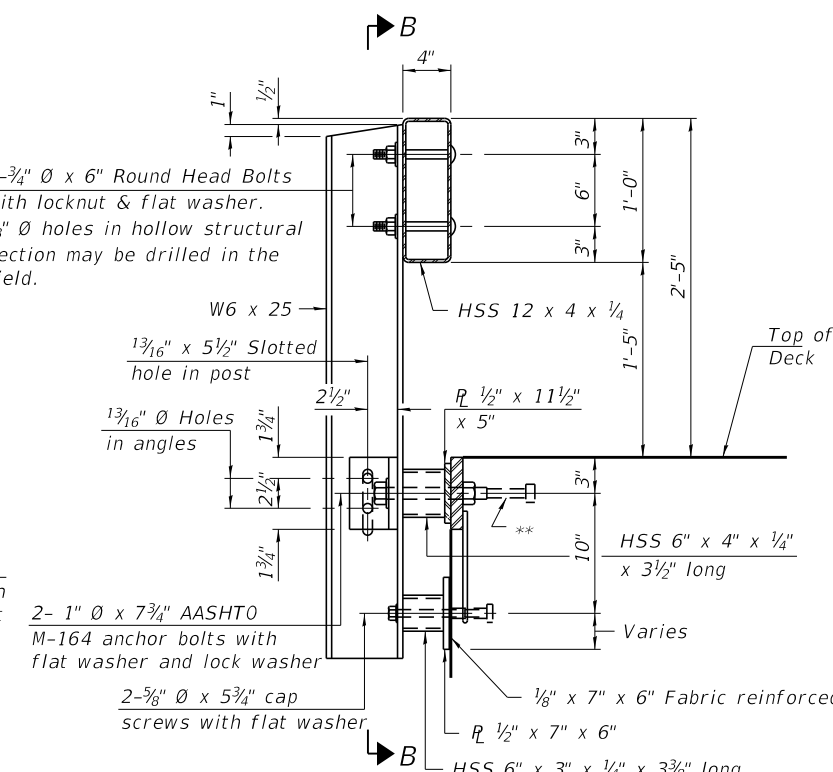
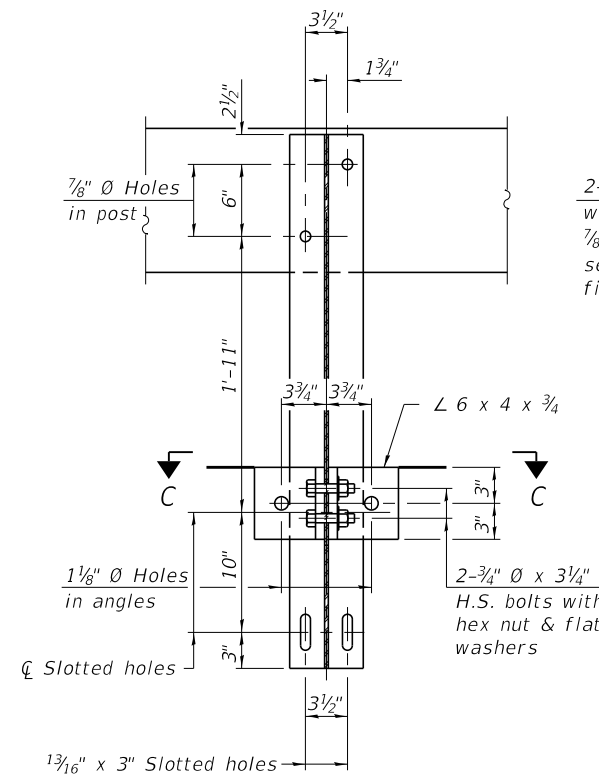
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



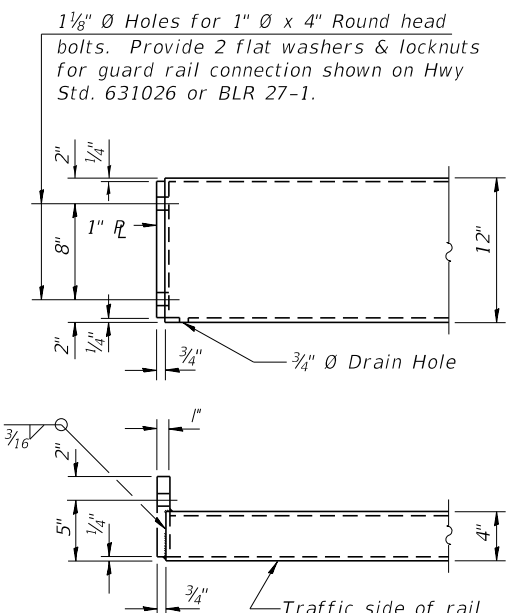
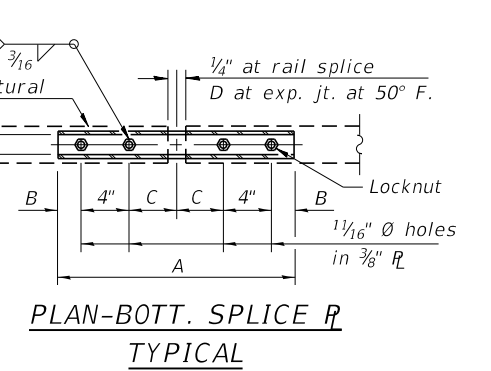
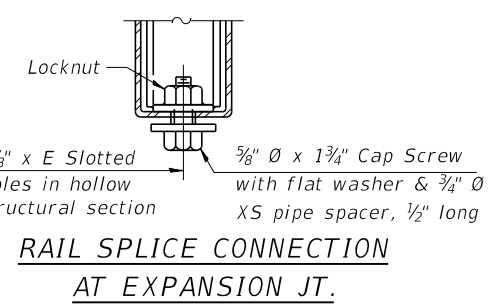
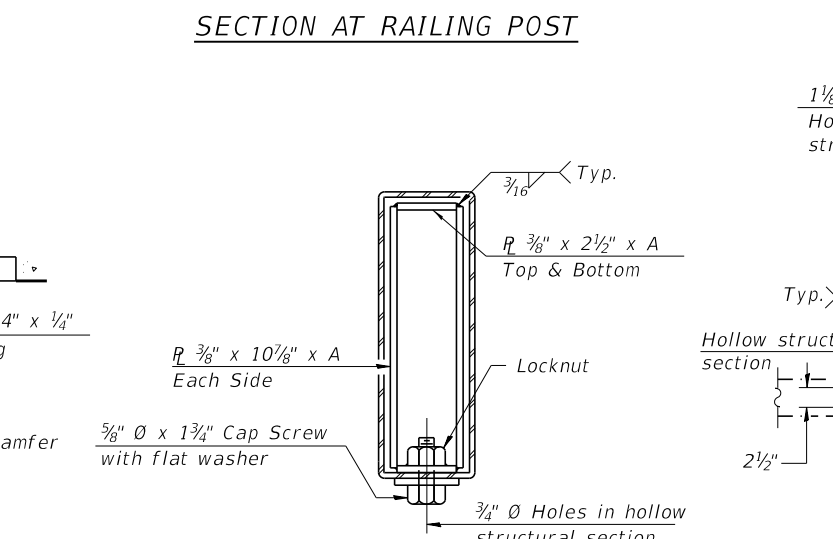
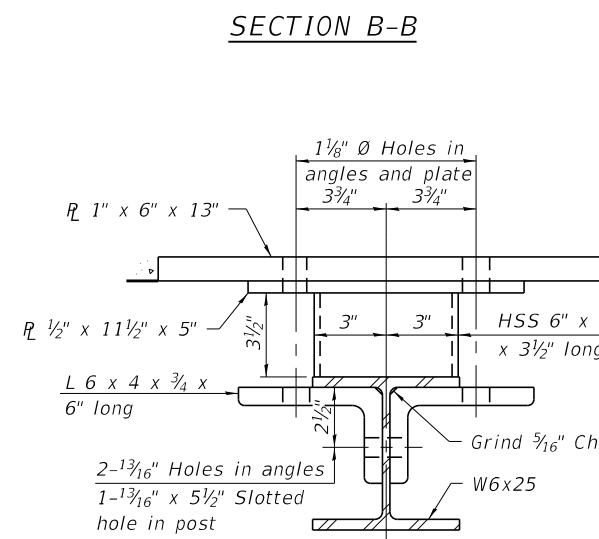
SECTION E-E CURLED END SECTION DETAILS
SPLICE DIMENSIONS

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.

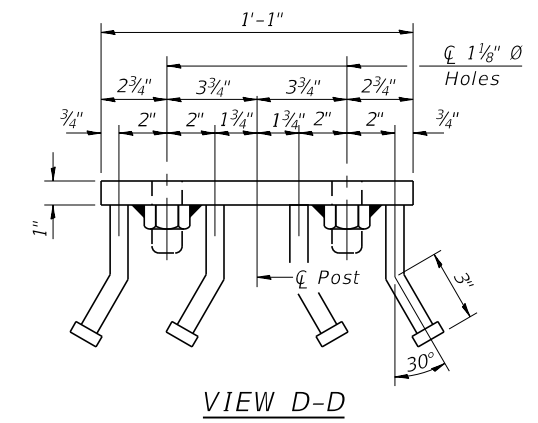


ANCHOR DEVICE
* Threaded areas shall be plugged or blocked off during casting of beam.



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 S-1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

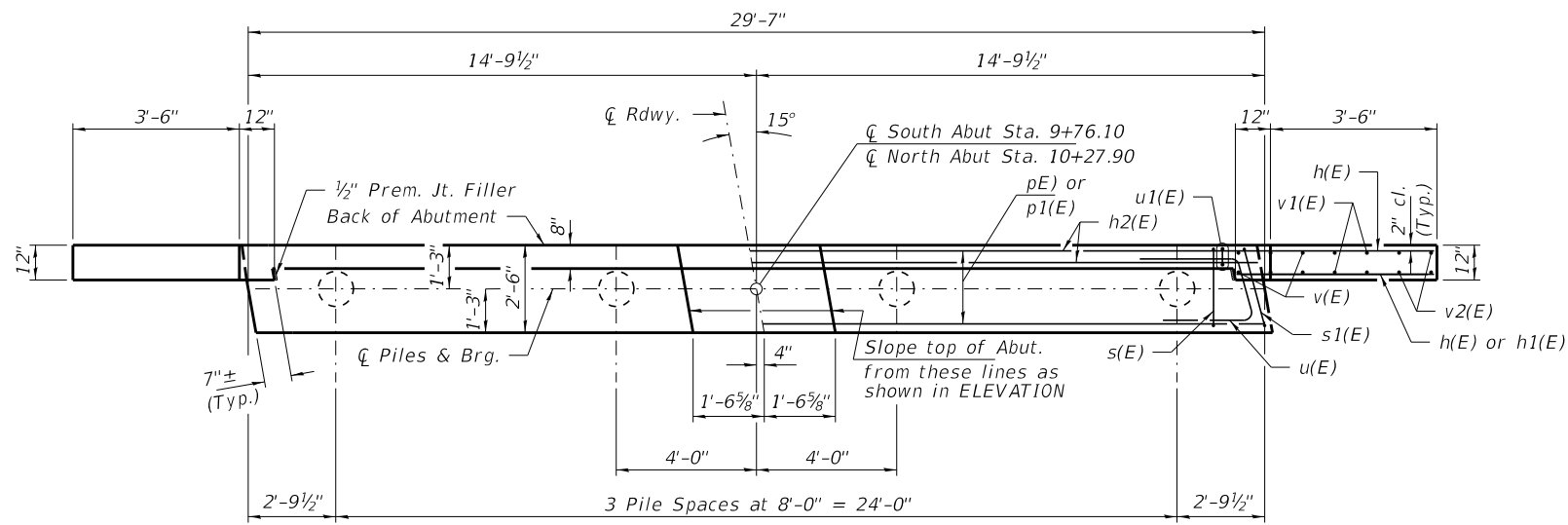
**The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.



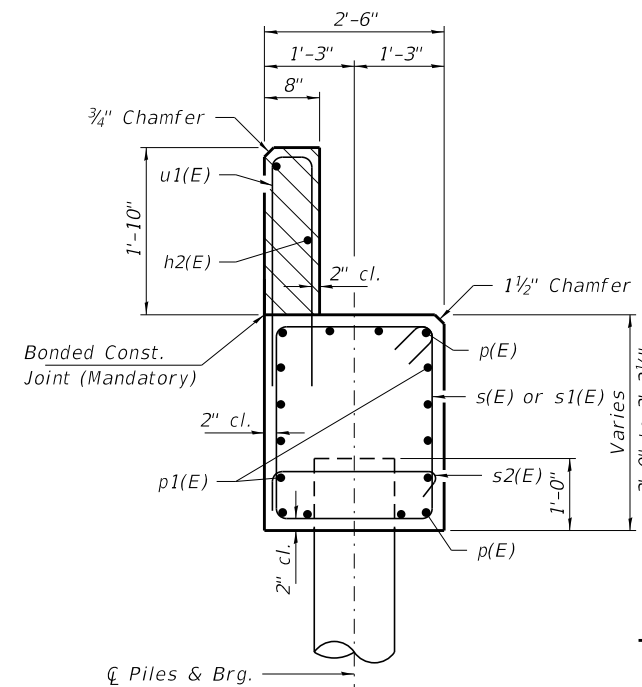
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	104

R-23A 8-11-2017 (10'-9" Maximum Post Spacing)



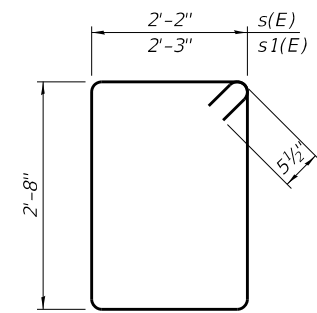
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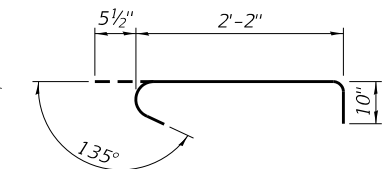
SECTION A-A

Hatched area to be poured after beams are in place.

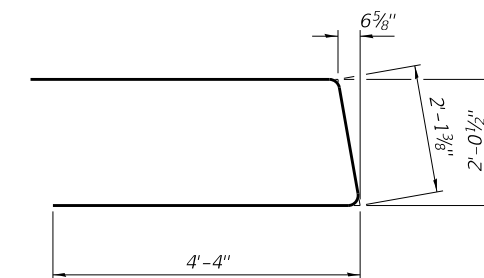
Cast top of wingwall flush with exterior beam face after beams have been erected.



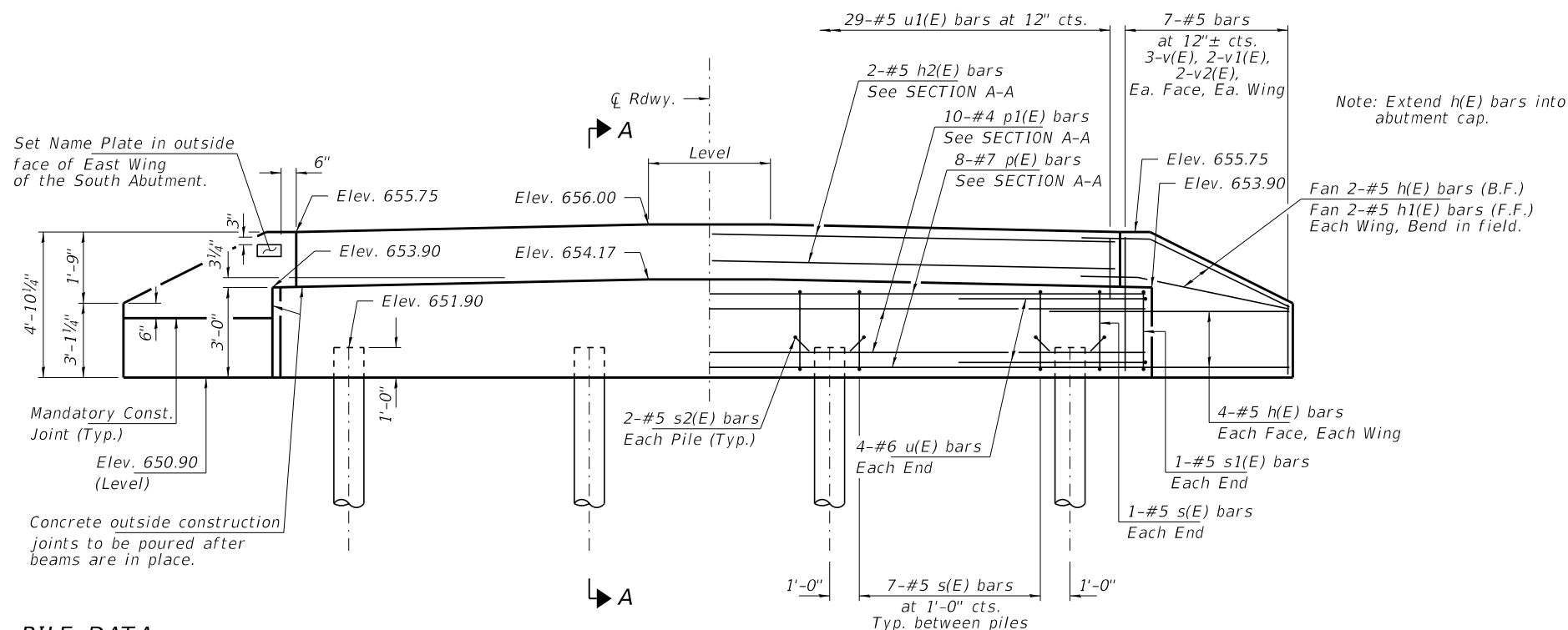
BARS s(E) & s1(E)



BAR s2(E)



BAR u(E)



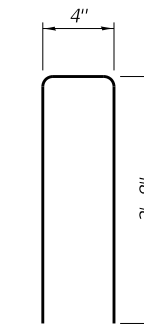
ELEVATION

PILE DATA

Type: Metal Shell Piles 12"x0.250"
 Nominal Required Bearing: 335 Kips/Pile
 Factored Resistance Available: 184 Kips/Pile
 Est. Length: 55 Ft/Pile
 No. Production Piles: 7
 No. Test Piles: 1

Notes: One test pile shall be driven in a permanent location at the North Abutment.

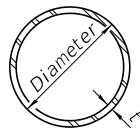
The test pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.



BAR u1(E)

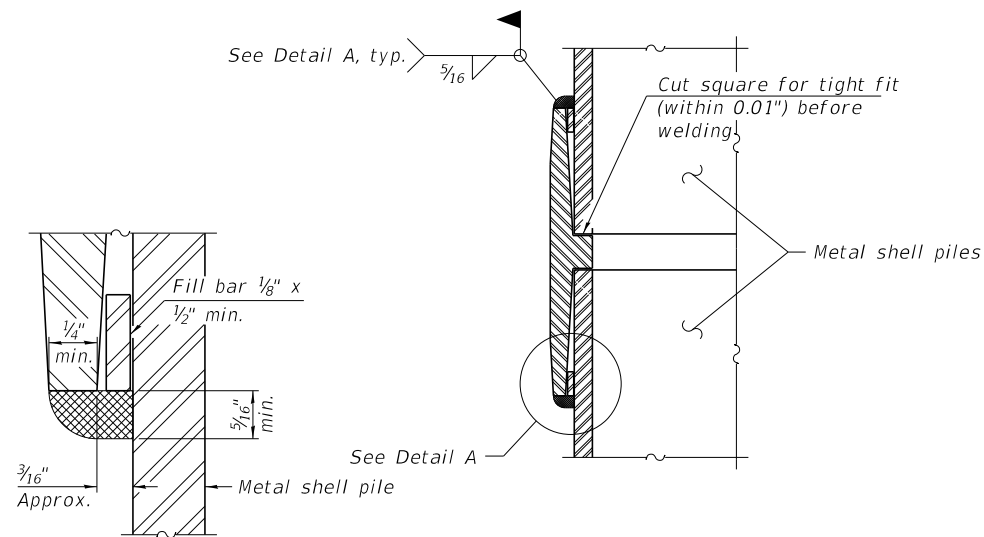
BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	40	#5	5'-9"	—
h1(E)	8	#5	4'-3"	—
h2(E)	4	#5	29'-3"	—
p(E)	16	#7	29'-3"	—
p1(E)	20	#4	29'-3"	—
s(E)	46	#5	10'-7"	□
s1(E)	4	#5	10'-9"	□
s2(E)	16	#5	3'-6"	┌┐
u(E)	16	#6	10'-10"	—
u1(E)	58	#5	5'-8"	—
v(E)	24	#5	4'-0"	—
v1(E)	16	#5	3'-1"	—
v2(E)	16	#5	2'-2"	—
Concrete Structures			Cu. Yd.	22.2
Reinf. Bars, Epoxy Coated			Pound	3,150
Metal Shell Piles 12"x0.250"			Foot	385
Test Pile Metal Shells			Each	1
Name Plates			Each	1



METAL SHELL PILE TABLE

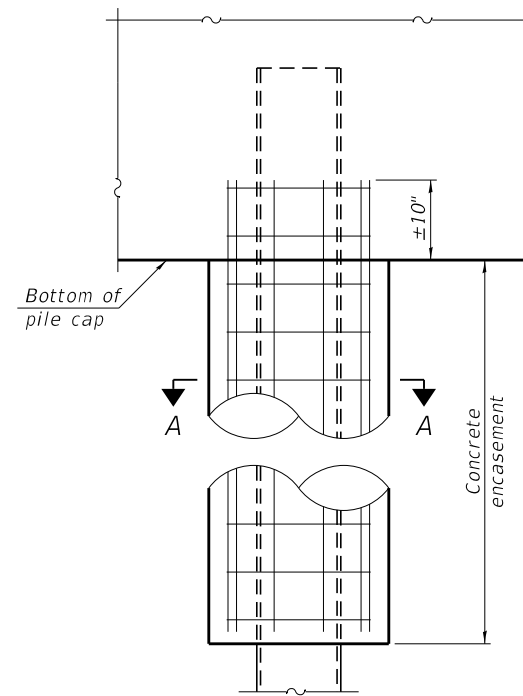
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361
PP16	0.312"	52.32	0.0478
PP16	0.375"	62.64	0.0470



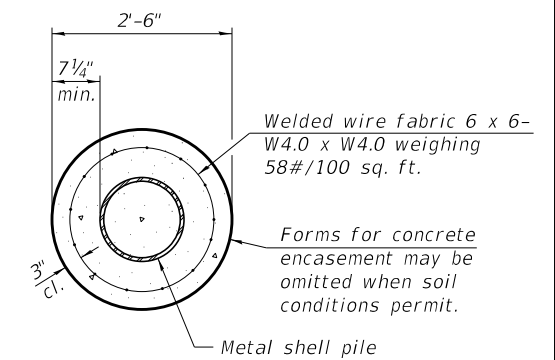
DETAIL A

WELDED COMMERCIAL SPLICE

Notes:
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
 Pile segments shall be driven to solid contact with splicer before welding.

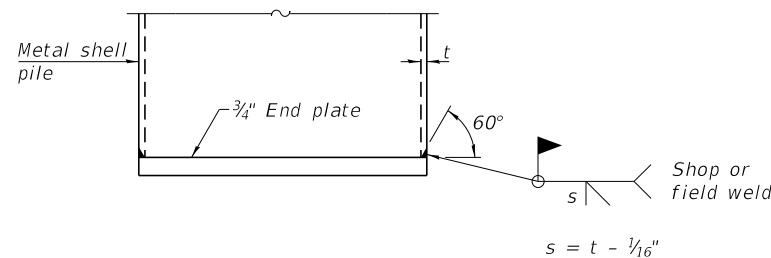


ELEVATION

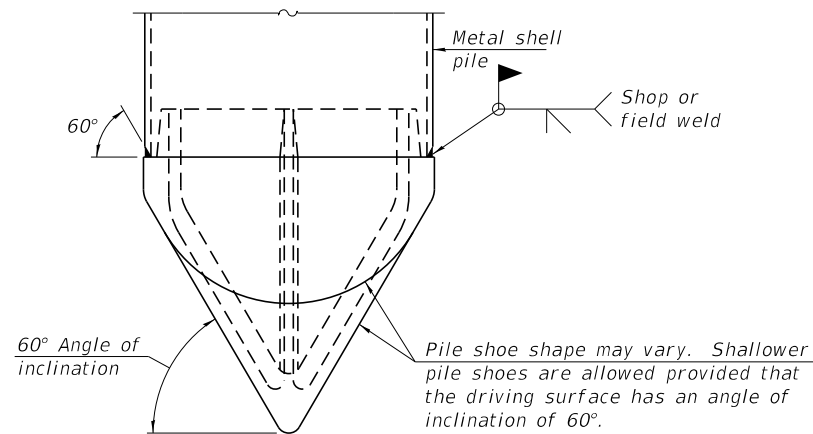


SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASUREMENT
 (When specified)

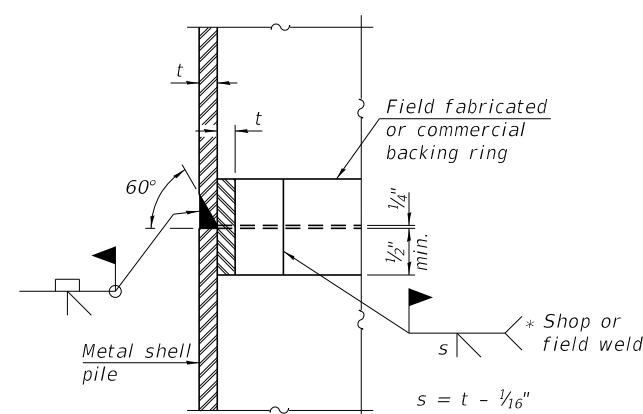


END PLATE ATTACHMENT



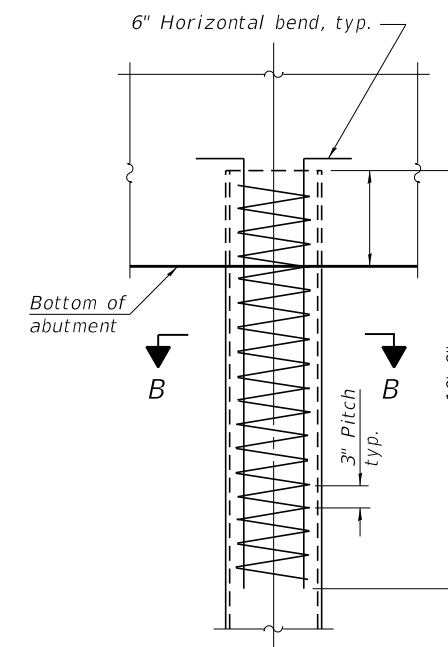
PILE SHOE ATTACHMENT

(When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 80-50 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld).



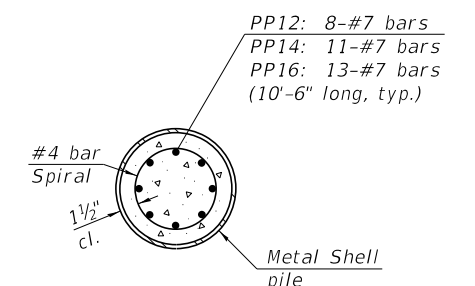
COMPLETE PENETRATION WELD SPLICE

* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



ELEVATION

REINFORCEMENT AT ABUTMENTS
 (Omit when concrete encasement is specified)



SECTION B-B

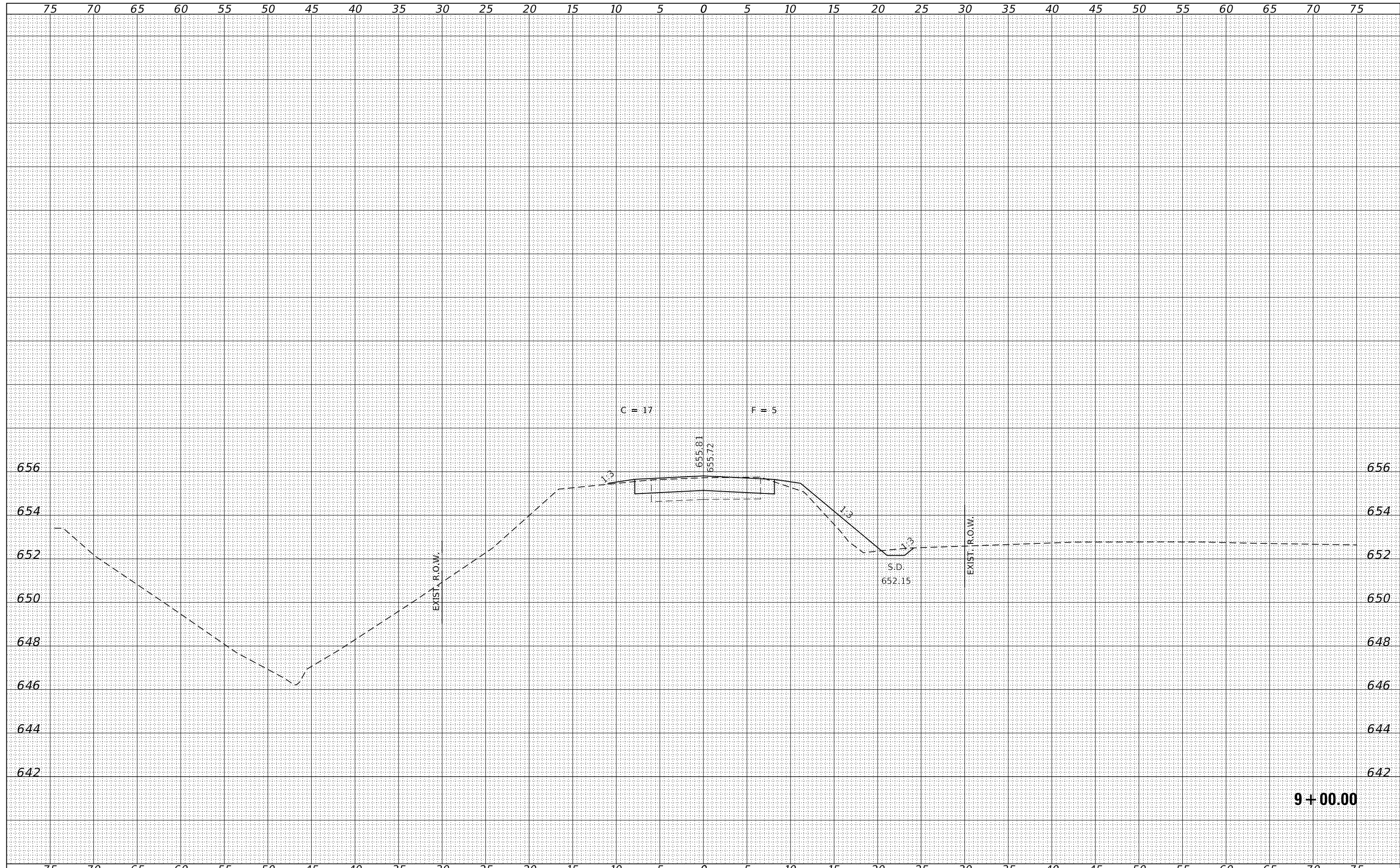
Note:
 The metal shell piles shall be according to Article 1006.05 of the Standard Specifications.

F-MS 1-1-2020

FILE NAME = 210061-shi-bridge.dgn	USER NAME = dfoley	DESIGNED - J.W.F.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	METAL SHELL PILE DETAILS STRUCTURE NO. 053-4232	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE = \$SCALE\$	CHECKED - S.W.M.	REVISED -			268	19-04115-00-BR	LIVINGSTON	24	12
	PLOT DATE = 12/22/2022	DRAWN - A.C.	REVISED -			BROUGHTON ROAD DISTRICT		CONTRACT NO. 87796		
		CHECKED - S.W.M.	REVISED -			SHEET NO. 8 OF 10 SHEETS		ILLINOIS FED. AID PROJECT		

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

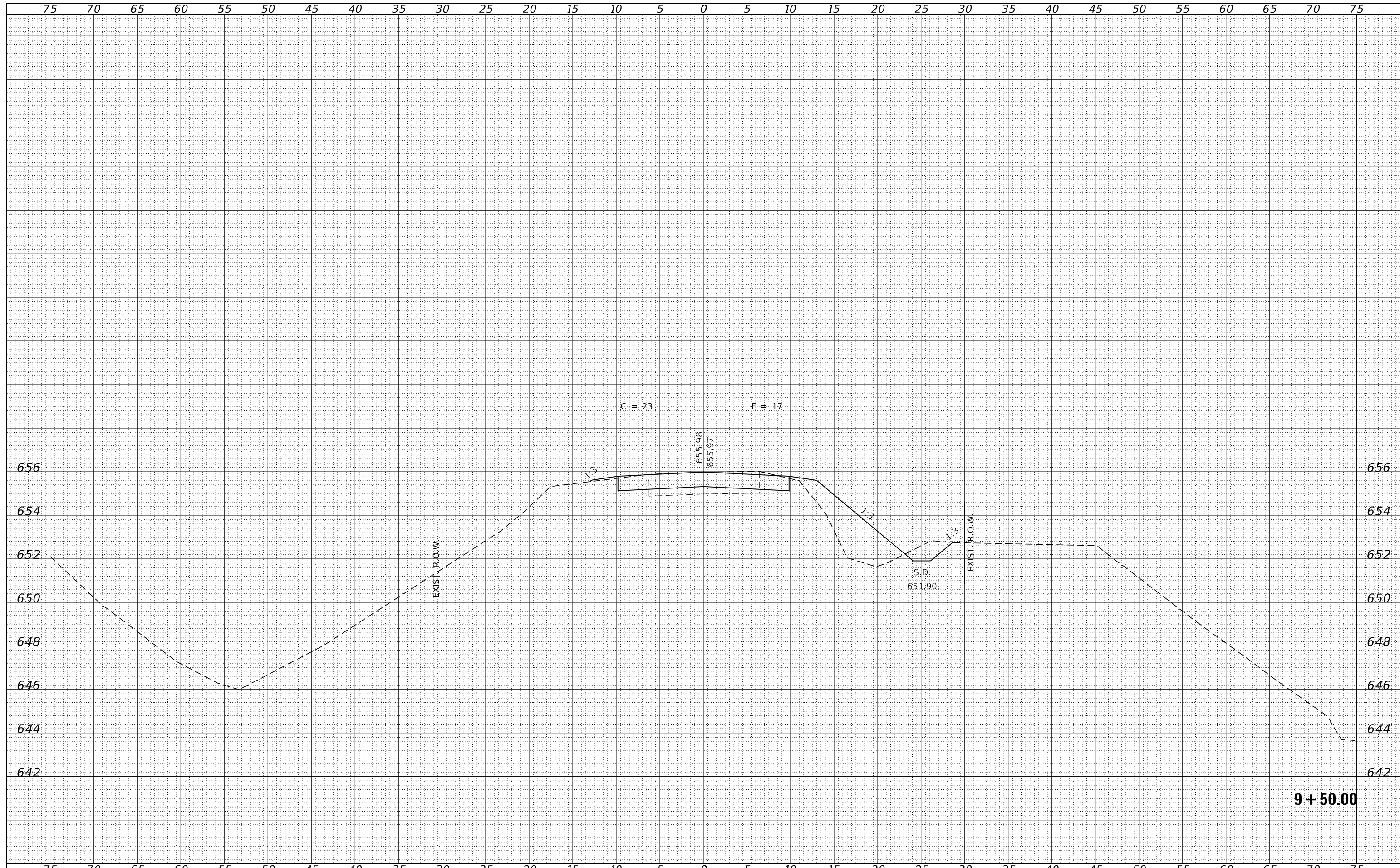
DATE	
BY	
ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS
	CHECKED



FILE NAME = 210061-shl-xssht.dgn	USER NAME = dfoley	DESIGNED - S.A.A.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	STATION CROSS SECTIONS			T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -		288	19-04115-00-BR	LIVINGSTON	24	16			
3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184-009958		CHECKED - J.W.F.	REVISED -		BROUGHTON ROAD DIST.			CONTRACT NO. 87796				
		DATE - 12/22/22	REVISED -		SCALE: 5H:2V	SHEET NO.	OF SHEETS	STA. 9+00.00	TO STA. 9+00.00	ILLINOIS FED. AID PROJECT		

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

DATE	
BY	
ORIGINAL SURVEY	SURVEYED
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NO.	TEMPLATE
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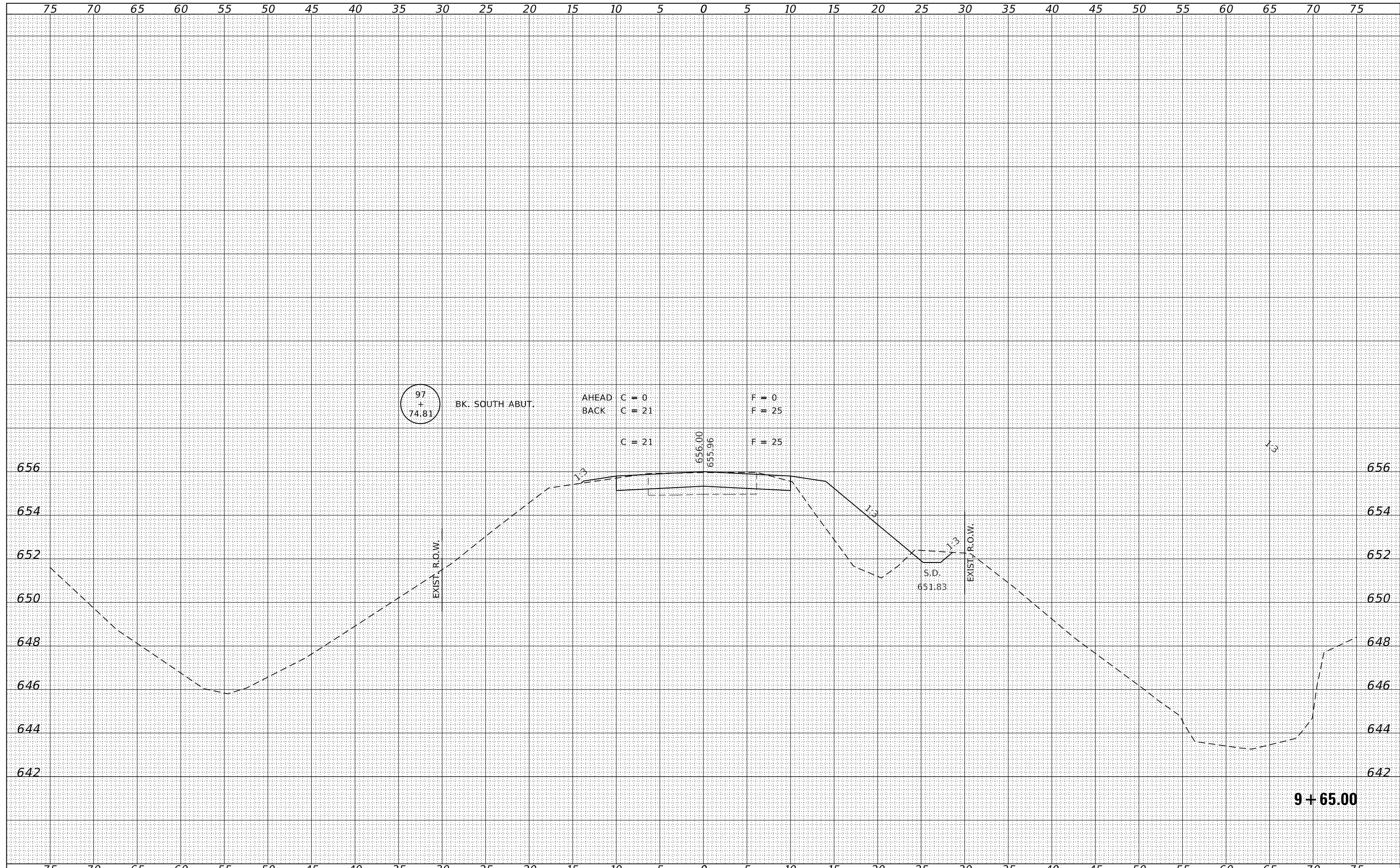


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3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L/S / PE / SE CORP. 184-000958		CHECKED - J.W.F.	REVISD -		BROUGHTON ROAD DIST.			CONTRACT NO. 87796				
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9 + 50.00

DATE	
BY	
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NOTE BOOK	PLOTTED
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	AREAS
	CHECKED

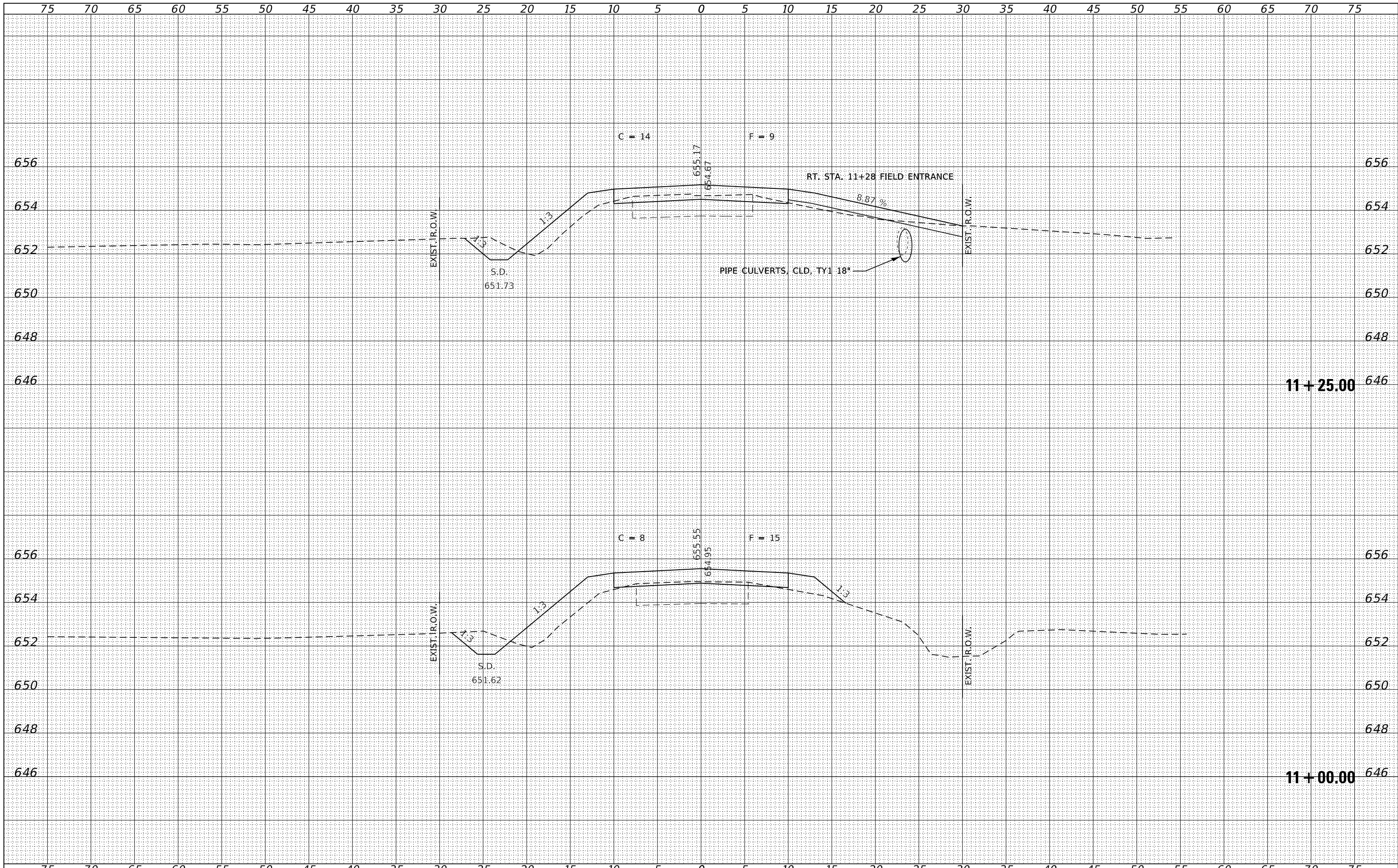
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NOTE BOOK	PLOTTED
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	AREAS
	CHECKED



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3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184-000958		CHECKED - J.W.F.	REVISD -		BROUGHTON ROAD DIST.			CONTRACT NO. 87796				
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DATE	
BY	
SURVEYED	
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NOTE BOOK	
NO.	

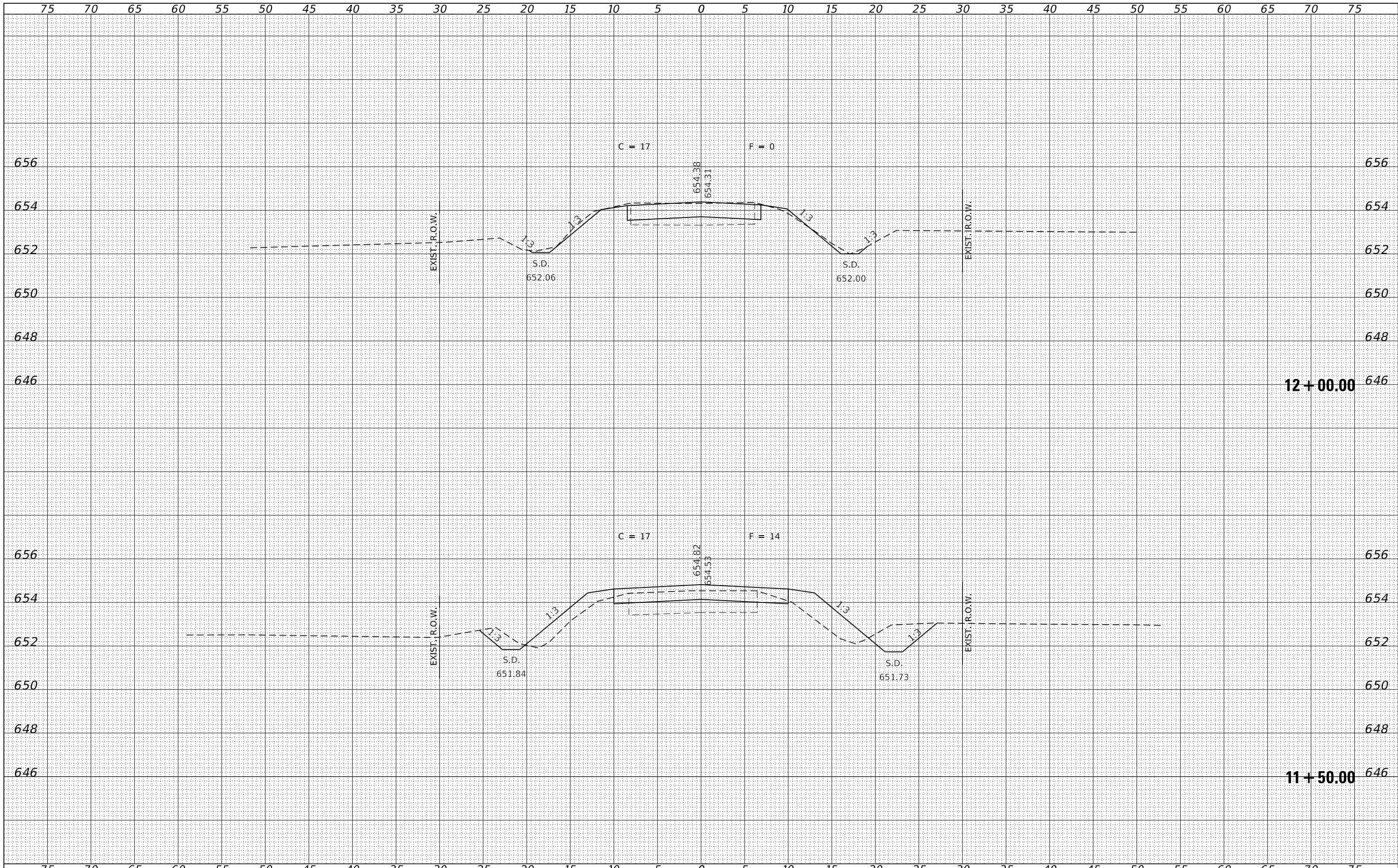
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ORIGINAL SURVEY	
NOTE BOOK	
NO.	



FILE NAME = 210061-shl-vssht.dgn	USER NAME = dfoley	DESIGNED - S.A.A.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	STATION CROSS SECTIONS			T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184.000958	PLOT SCALE = \$SCALES	DRAWN - T.W.K.	REVISED -		288	19-04115-00-BR	LIVINGSTON	24	22			
PLOT DATE = 12/22/2022	DATE - 12/22/22	CHECKED - J.W.F.	REVISED -		BROUGHTON ROAD DIST.			CONTRACT NO. 87796				
		REVISOR -	REVISED -		SCALE: 5H:2V	SHEET NO.	OF SHEETS	STA. 11+00.00	TO STA. 11+25.00	ILLINOIS FED. AID PROJECT		

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

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



FILE NAME = 210061-shl-vssht.dgn	USER NAME = dfoley	DESIGNED - S.A.A.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	STATION CROSS SECTIONS			T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -		288	19-04115-00-BR	LIVINGSTON	24	23			
3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184-009958		CHECKED - J.W.F.	REVISED -		BROUGHTON ROAD DIST.			CONTRACT NO. 87796				
		DATE - 12/22/22	REVISED -		SCALE: 5H:2V	SHEET NO.	OF SHEETS	STA. 11+50.00	TO STA. 12+00.00	ILLINOIS FED. AID PROJECT		

