

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 118	18-09110-00-BR	LIVINGSTON	26	1
FED. ROAD DIST. NO.		ILLINOIS	CONTRACT NO. 87755	

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	SCHEDULE OF QUANTITIES
4.	TYPICAL CROSS SECTIONS
5.	PLAN AND PROFILE
6-14.	BRIDGE PLANS
15-16.	BORINGS
17-26.	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 OFF SYSTEM BRIDGE

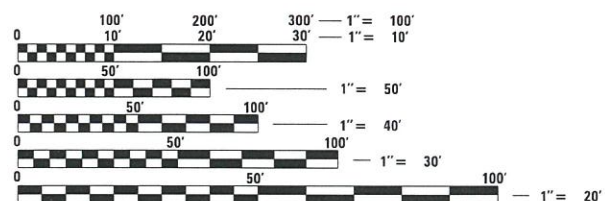
**PROJECT K3R0(823)  
SECTION 18-09110-02-BR  
ESMEN ROAD DISTRICT  
LIVINGSTON COUNTY  
T.R. 118 / 1400E ROAD  
PROPOSED STRUCTURE NO. 053-4226  
C-93-022-21  
PFAFF BRIDGE**

**UTILITIES**

COMED  
PUBLIC RELOCATION DEPARTMENT  
ONE LINCOLN CENTRE, SUITE 600  
OAKBROOK TERRACE, IL. 60181

FAIRPOINT COMMUNICATIONS  
48 WEST 1ST STREET  
EL PASO, IL. 61738

STA. 9+95  
PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE,  
SINGLE SPAN @ 63'-0"  
27'-0" RDWY.; SKEW = 20°  
EXISTING STRUCTURE NO. 053-3245  
PROPOSED STRUCTURE NO. 053-4226

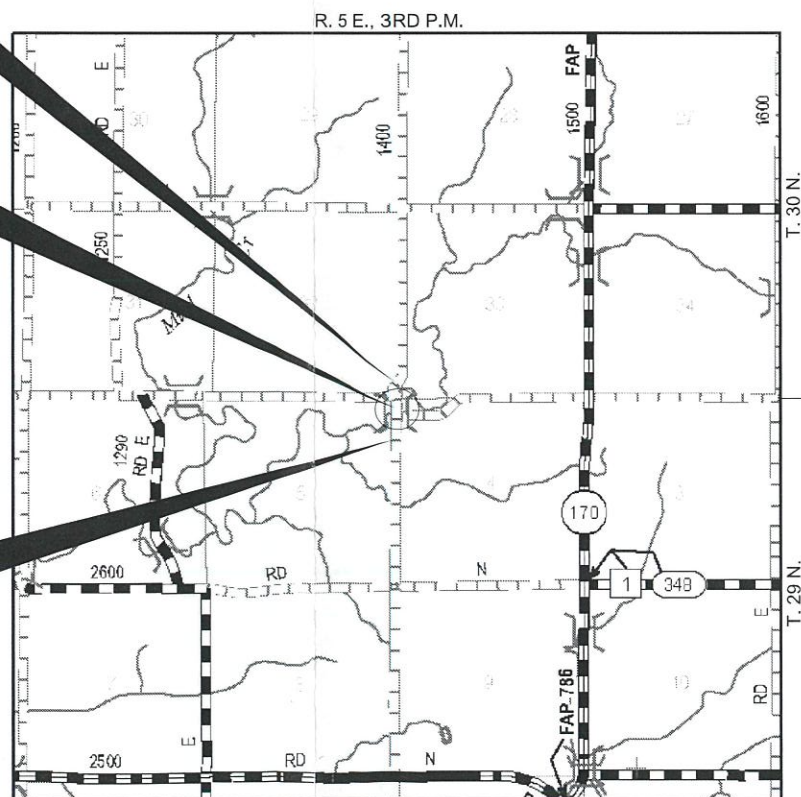


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

FUNCTIONAL CLASSIFICATION: LOCAL ROAD  
DESIGN SPEED: 30 MPH  
DESIGN TRAFFIC: 25 ADT

IMPROVEMENT ENDS  
STATION 12+10

IMPROVEMENT BEGINS  
STATION 7+90



LOCATION MAP

APPROXIMATE SCALE: 0 1/2 MILE  
NET LENGTH OF SECTION = 420 FEET = 0.080 MILES



**WARNING**

CALL 811  
BEFORE YOU DIG  
DIG NO: X2281157

**ILLINOIS DEPARTMENT OF TRANSPORTATION**

APPROVED 11/3 2020  
*Clay Metcalf*  
COUNTY ENGINEER

APPROVED 11/3 2020  
*Bruce Nelson*  
TOWNSHIP COMMISSIONER

PASSED NOVEMBER 12, 2020  
*[Signature]*  
DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS  
NOVEMBER 12, 2020  
*[Signature]*  
REGION TWO ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DATE: 11/02/2020

*[Signature]*  
LICENSED PROFESSIONAL ENGINEER  
STATE OF ILLINOIS

**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

EXPIRES: 11/30/2021 PROJECT NUMBER: 19,0485,130 DATE: 11/02/2020

**SUMMARY OF QUANTITIES**

ITEM NO.	ITEM	CONSTRUCTION TYPE CODE 0010	
		UNIT	TOTAL
20100500	TREE REMOVAL, ACRES	ACRE	0.1
^ 20200100	EARTH EXCAVATION	CU YD	138
20300100	CHANNEL EXCAVATION	CU YD	190
^ 20400800	FURNISHED EXCAVATION	CU YD	170
28100107	STONE RIPRAP, CLASS A4	SQ YD	403
28200200	FILTER FABRIC	SQ YD	403
35100100	AGGREGATE BASE COURSE, TYPE A	TON	645
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	1,785
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	176
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	110
40604050	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N50	TON	66
48101200	AGGREGATE SHOULDERS, TYPE B	TON	75
^ 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	25.8
^ 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,701
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3,260
* 50900205	STEEL RAILING, TYPE S1	FOOT	124
51200957	FURNISHING METAL SHELL PILES 12"X0.250"	FOOT	540
51202305	DRIVING PILES	FOOT	540
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
^ 542C1081	PIPE CULVERTS, CLASS C, TYPE 2 36"	FOOT	46
* 66500105	WOVEN WIRE FENCE, 4'	FOOT	559
67100100	MOBILIZATION	L SUM	1
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
^ X2070302	POROUS GRANULAR EMBANKMENT, SPECIAL	TON	110
^ X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
^ Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	108

^ SEE SPECIAL PROVISIONS

\* SPECIALTY ITEMS

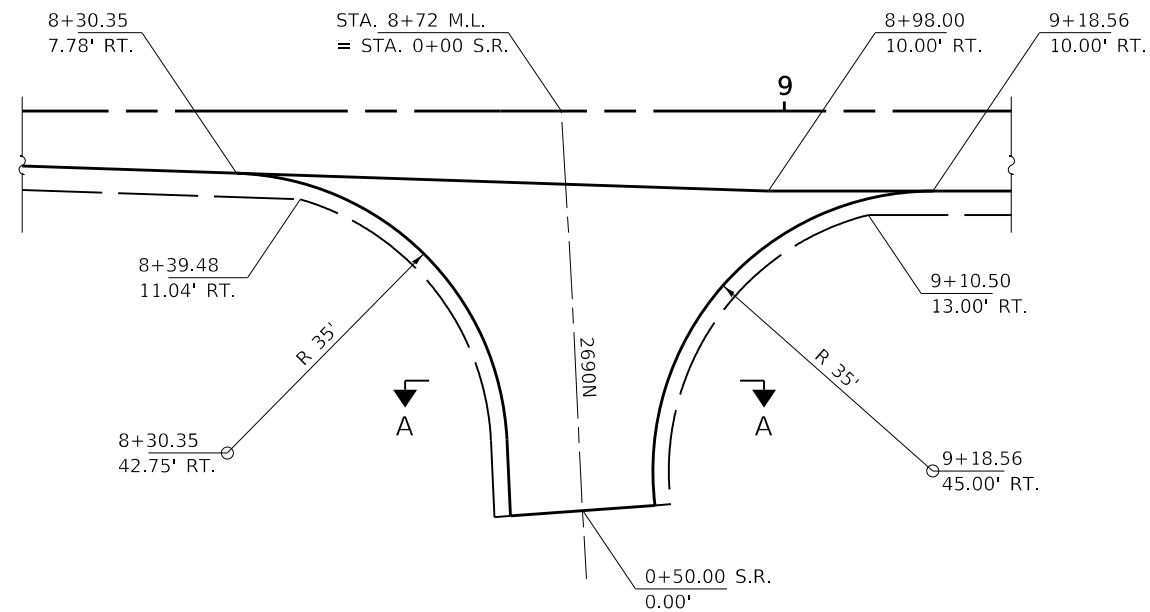
**GENERAL NOTES**

- 1) ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED APRIL 1, 2016". (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 BITUMINOUS MATERIAL SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. REMOVAL AND DISPOSAL OF BITUMINOUS MATERIAL 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 PROVIDE ACCESS TO ABUTTING PROPERTY AT ALL TIMES DURING CONSTRUCTION OF THE PROJECT.
- 7) THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES  
 AGGREGATE BASE COURSE                      2.05 TON/CU YD  
 HOT MIX ASPHALT                                112 LBS/SQ YD./INCH THICKNESS  
 POROUS GRANULAR EMBANKMENT            2.0 TON/CU YD

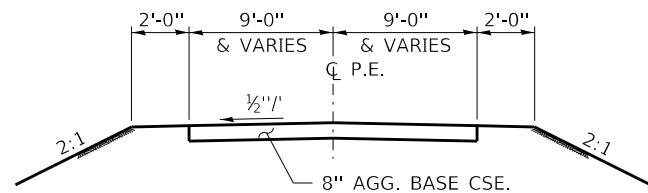
**BITUMINOUS MATERIALS RATES**

SURFACE TYPE	RESIDUAL RATE
AGGREGATE BASE	0.250 LB/SQ FT
MILLED HMA OR PCC (TACK COAT)	0.050 LB/SQ FT
EXISTING PAVEMENT (TACK COAT)	0.050 LB/SQ FT
TACK COAT (BETWEEN LIFTS)	0.025 LB/SQ FT

- 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.
- 11) COMMITMENTS:  
 1.) A BAT ASSESSMENT SHALL BE CONDUCTED IF WORK OCCURS TO EXISTING STRUCTURE AFTER SEPTEMBER 16, 2021.



**INTERSECTION DETAIL**



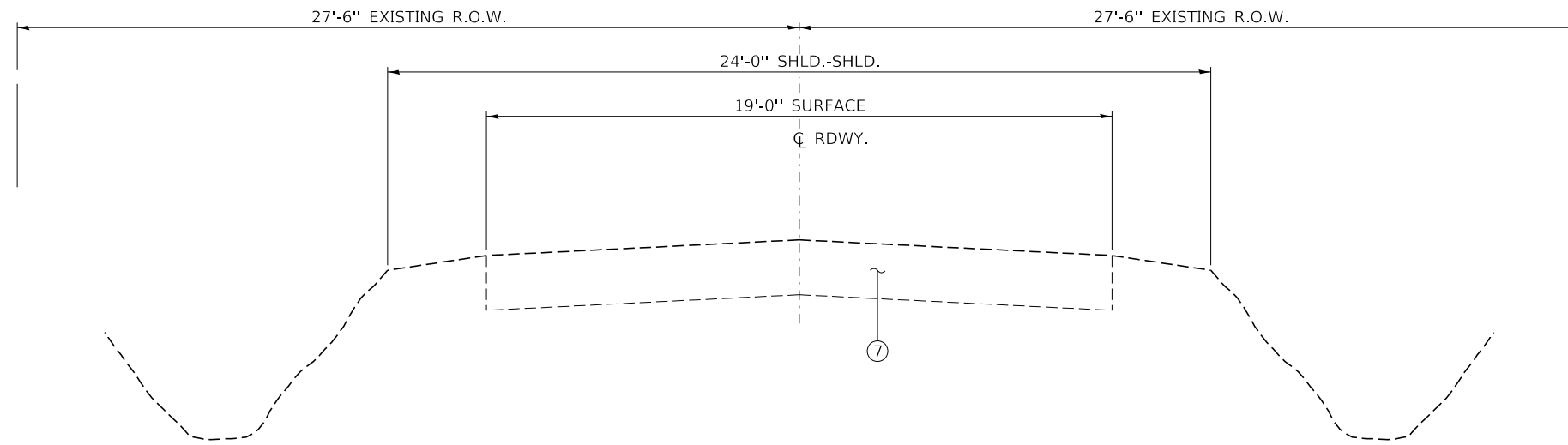
**SECTION A-A**

ROADWAY SCHEDULE							
LOCATION	AGGREGATE BASE COURSE TYPE A	BITUMINOUS MATERIALS (PRIME COAT)	BITUMINOUS MATERIALS (TACK COAT)	HOT-MIX ASPHALT BINDER COURSE IL 19.0, N50	HOT-MIX ASPHALT SURFACE COURSE. IL-9.5, MIX "C", N50	AGGREGATE SHOULDERS, TYPE B	POROUS GRANULAR EMBANKMENT, SPECIAL
TR 118 / 1400 E Road	35100100	40600275	40600290	40603080	40604050	48101200	X2070302
	TON	POUND	POUND	TON	TON	TON	TON
STA. 7+90 TO STA. 9+62.79	280	859	85	53	32	32	55
STA. 10+27.21 TO STA. 12+10	302	926	91	57	34	43	55
SIDE ROAD	63						
TOTAL	645	1785	176	110	66	75	110

WOVEN WIRE FENCE, 4'	
LOCATON	FOOT
LT. STA. 7+90 TO STA. 9+52	162
LT. STA. 10+29 TO STA. 12+10	181
RT. STA. 9+00 TO STA. 9+50	50
RT. STA. 10+44 TO STA. 12+10	166
TOTAL	559

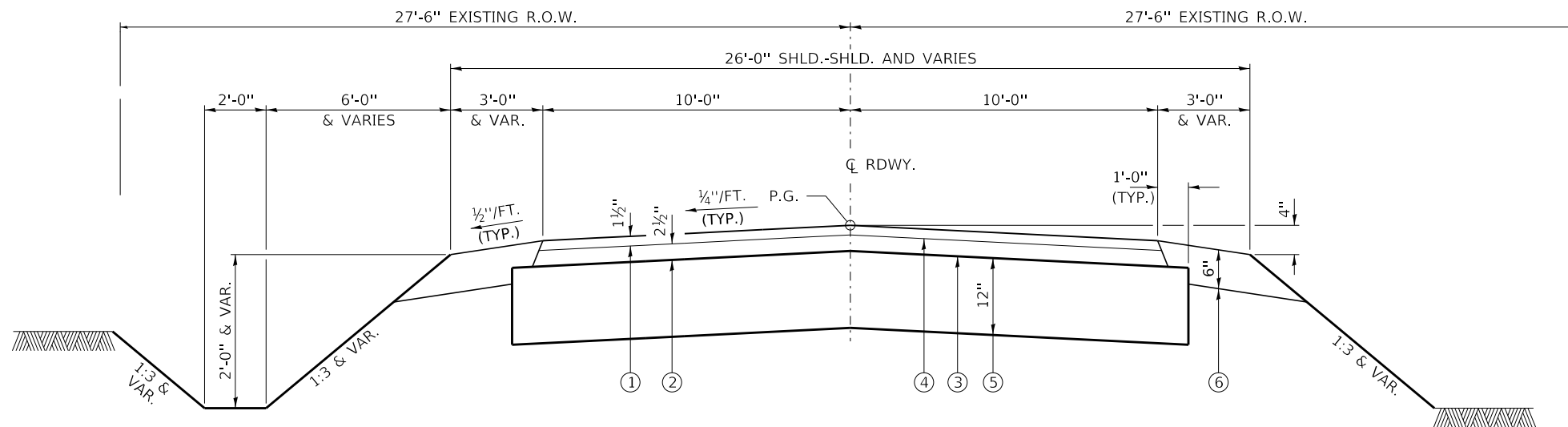
EARTHWORK SCHEDULE							
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	CU.YD.	CU.YD.			CU.YD.	CU.YD.	CU.YD.
TR 118 / 1400 E Road							
STA. 7+90 TO STA. 9+62.79	84		25.00%	100.00%	63	108	-45
STA. 9+62.79 TO STA. 10+27.21		190	25.00%	70.00%	100		100
STA. 10+27.21 TO STA. 12+10	54		25.00%	100.00%	41	266	-225
TOTAL	138	190			204	373	-170
USE	138	190					170

FURNISHED 170 CU YDS



**EXISTING TYPICAL CROSS SECTION**

STA. 7+90 TO 12+10



**PROPOSED TYPICAL CROSS SECTION**

STA. 7+90 TO 12+10

SUGGESTED CUT SECTION  
CONSTRUCT AS SHOWN IN  
STATION CROSS SECTIONS

TRANSITIONS FROM THE PROPOSED ROADWAY TO THE EXISTING  
ROADWAY ARE TO BE CONSTRUCTED FROM STA. 7+90 TO 8+98  
AND STA. 11+60 TO STA. 12+10. SEE SHEET 7 FOR TRANSITION  
AT BRIDGE.

SUGGESTED FILL SECTION  
CONSTRUCT AS SHOWN IN  
STATION CROSS SECTIONS

**LEGEND**

- ① HMA SURFACE COURSE, IL-9.5, MIX C, N50 (1½" THICKNESS)
- ② HMA BINDER COURSE, IL-19.0, N50 (2½" THICKNESS)
- ③ BITUMINOUS MATERIALS (PRIME COAT)
- ④ BITUMINOUS MATERIALS (TACK COAT)
- ⑤ AGGREGATE BASE COURSE, TYPE A (12")
- ⑥ AGGREGATE SHOULDERS, TYPE B (6")
- ⑦ EXISTING OIL & CHIP SURFACE ON AGGREGATE BASE

**HOT-MIX ASPHALT MIXTURE REQUIREMENTS**

LOCATIONS(S)	TR 118 / 1400 E Road	TR 118 / 1400 E Road
MIXTURE USE(S):	HOT-MIX ASPHALT SURFACE COURSE	HOT-MIX ASPHALT BINDER COURSE
PG:	PG 64-22	PG 64-22
DESIGN AIR VOIDS:	4% @ 50 Gyr.	4% @ 50 Gyr.
MIXTURE COMPOSITION: (MIXTURE GRADATION)	IL 9.5	IL 19.0
FRICTION AGGREGATE:	MIXTURE C	NONE
DENSITY TEST METHOD	CORES	CORES
MIXTURE WEIGHT:	112 LBS / SY / INCH THICKNESS	112 LBS / SY / INCH THICKNESS
QUALITY MANAGEMENT PROGRAM	QC/QA	QC/QA

FILE NAME = 190485-shit-tysec@ons.dgn	USER NAME = djett	DESIGNED - J.W.F.	REVISED -
<b>HAMPTON, LENZINI AND RENWICK, INC.</b> 3088 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE = \$SCALE\$	DRAWN - R.D.H.	REVISED -
PLOT DATE = 11/02/2020	DATE - 11/02/2020	CHECKED - S.W.M.	REVISED -
		DATE - 11/02/2020	REVISED -

**STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT**

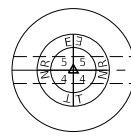
**TYPICAL CROSS SECTIONS**

SCALE: SHEET NO. 1 OF 1 SHEETS STA. TO STA.

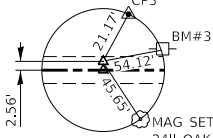
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
118	19-09110-02-BR	LIVINGSTON	26	4
ESMEN ROAD DISTRICT		CONTRACT NO. 87755		
		ILLINOIS FED. AID PROJECT K3R0(823)		



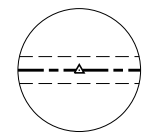
BANK OF PONTIAC LAND TRUST #2999  
NE 1/4, SEC 5, T. 29 N., R. 5 E., 3RD P.M.



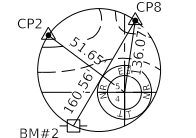
E. 1/4 COR SEC 5  
FOUND 3/8" IR  
N. 1582695.614  
E. 893295.461



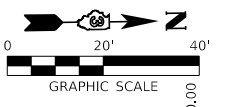
P.O.T. STA. 6+50.05  
PK NAIL (SET)  
N. 1584594.120  
E. 893316.074



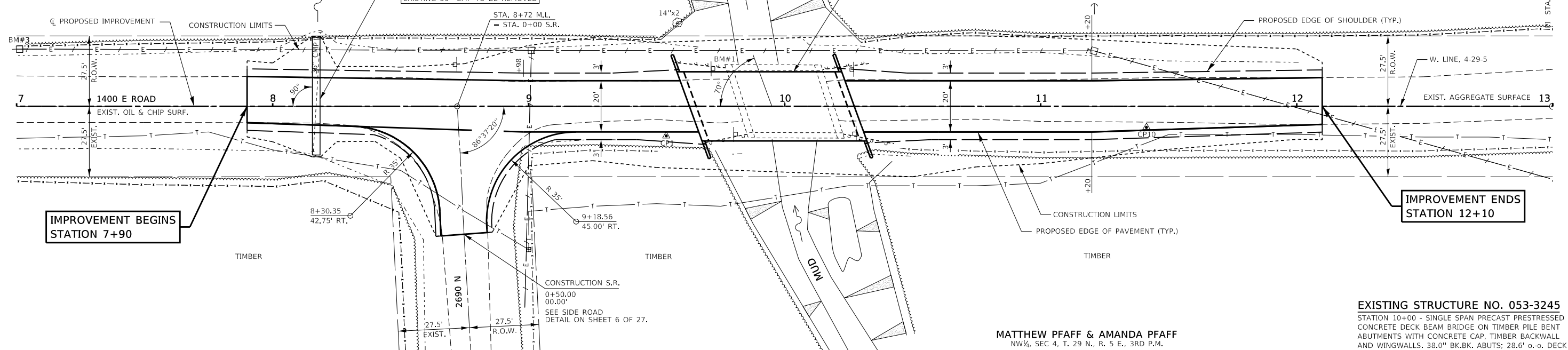
P.O.T. STA. 13+00.00  
TO BE SET  
N. 1585243.986  
E. 893326.589



NE CORNER, SEC. 5  
STA. 13+93  
FOUND 3/8" IR  
N. 1585337.098  
E. 893327.729



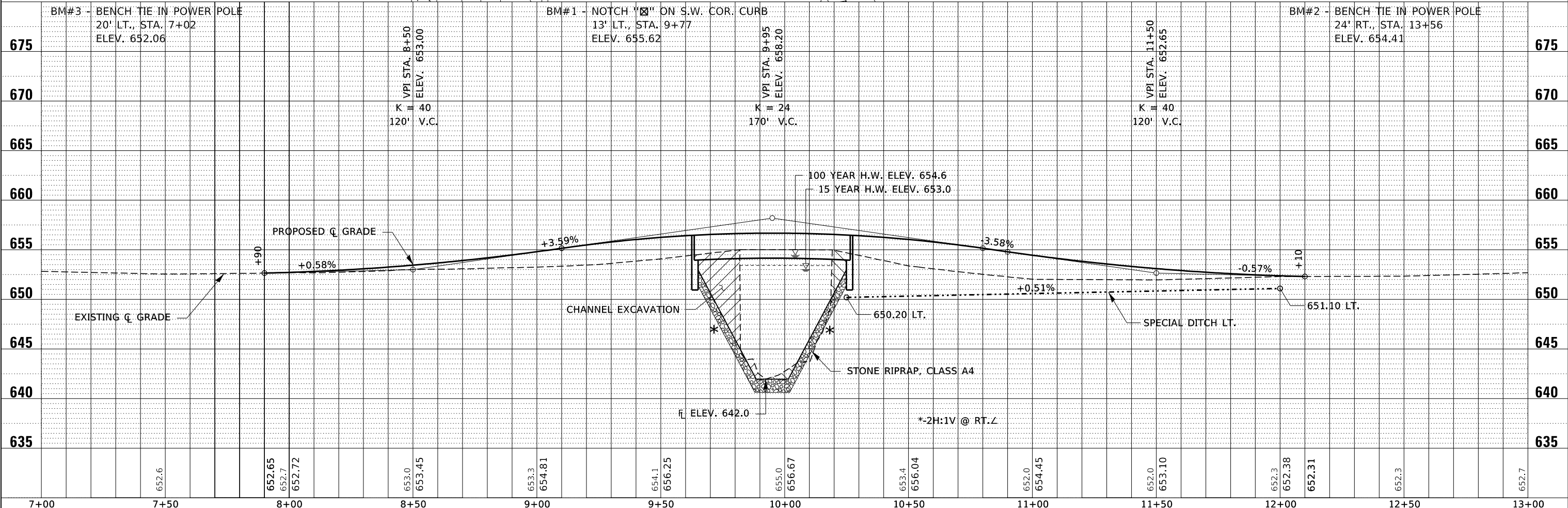
DATE	
BY	
REVIEWED	
PLANNED	
NOTED	
NO.	



MATTHEW PFAFF & AMANDA PFAFF  
NW 1/4, SEC 4, T. 29 N., R. 5 E., 3RD P.M.

EXISTING STRUCTURE NO. 053-3245  
STATION 10+00 - SINGLE SPAN PRECAST PRESTRESSED  
CONCRETE DECK BEAM BRIDGE ON TIMBER PILE BENT  
ABUTMENTS WITH CONCRETE CAP, TIMBER BACKWALL  
AND WINGWALLS. 38.0' BK.BK. ABUTS; 28.6' o.-o. DECK

DATE	
BY	
REVIEWED	
PLANNED	
NOTED	
NO.	



FILE NAME = 190485-eh-plnprf.dgn	USER NAME = djett	DESIGNED - J.W.F.	REVISED -	<p align="center"><b>STATE OF ILLINOIS</b> <b>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b></p> <p>SCALE: 5V:20H    SHEET NO. 1 OF 1 SHEETS    STA. 7+00.00 TO STA. 13+00.00</p>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62761 ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184.000959	PLOT SCALE = \$SCALE\$	DRAWN - T.W.K.	REVISED -		ESMERN ROAD DISTRICT	18-09110-02-BR	LIVINGSTON	26	5
PLOT DATE = 11/2/2020		CHECKED - S.W.M.	REVISED -		CONTRACT NO. 87755				
DATE = 10/26/2020		REVISOR -	REVISED -		ILLINOIS FED. AID PROJECT K3R0(823)				

BENCHMARK: Cross Notch in square on SW corner curb, 13' Lt., Sta. 9+77, Elev. 655.62

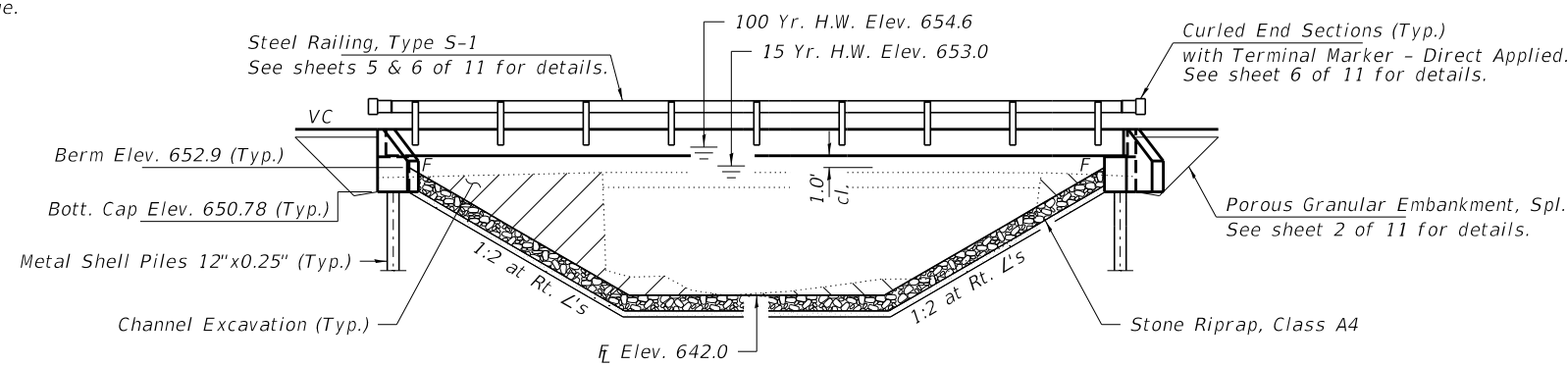
EXISTING STRUCTURE NO. 053-3245: Sta. 10+00 - Single span PPCD bridge on timber pile bent abutments with concrete cap, Timber backwall and wingwalls. 38.0' bk.-bk. abuts.; 28.6' o.-o. deck

Structure closed to traffic during construction.

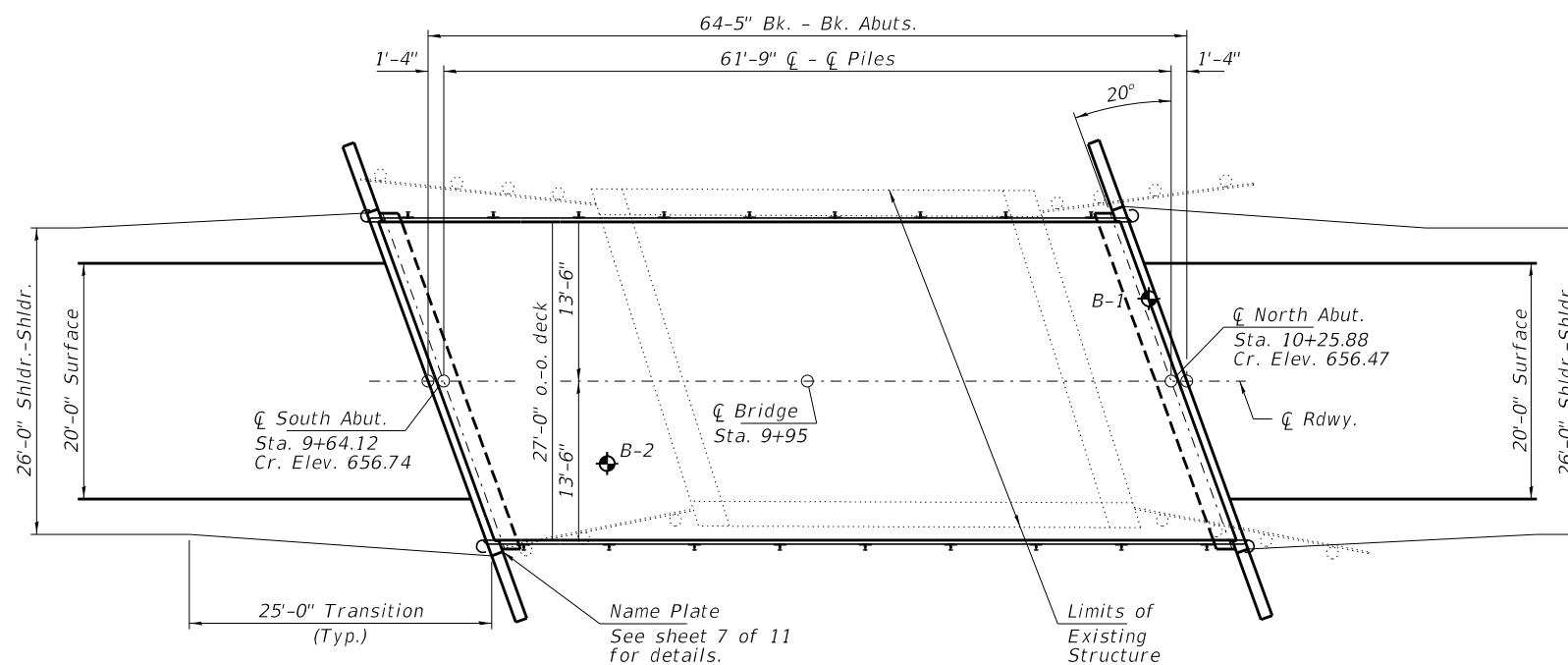
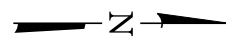
No Salvage.

**GENERAL NOTES**

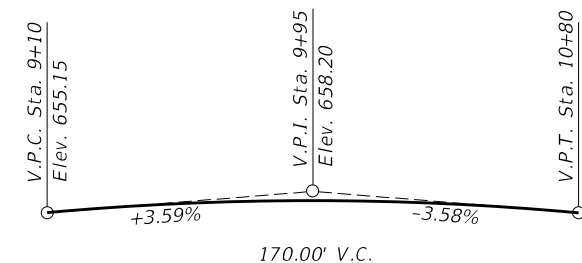
Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
 The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at South Abutment or approved by the Engineer before ordering the remainder of piles.  
 Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (1L 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.



**ELEVATION**



**PLAN**



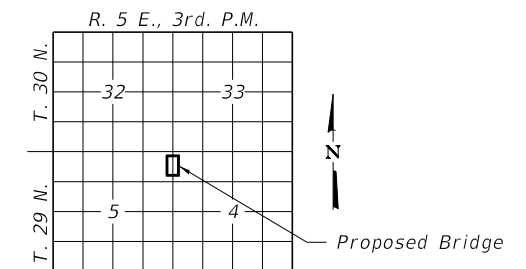
**PROFILE GRADE**  
T.R. 118

**INDEX OF STRUCTURE SHEETS**

1. General Plan & Elevation
2. Riprap Layout
3. 27"x36" PPC Deck Beam
4. 27"x36" PPC Deck Beam Details
5. Superstructure Details
6. Steel Railing, Type S-1
7. North Abutment
8. South Abutment
9. Metal Shell Pile Details
- 10-11. Borings

MUD CREEK  
 BUILT 202\_ BY  
 LIVINGSTON COUNTY  
 SEC. 18-09110-02-BR  
 ESMEN ROAD DISTRICT  
 STR. NO. 053-4226  
 LOADING HL-93

**NAME PLATE**  
See Std. 515001



**LOCATION SKETCH**

**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**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinf.)

**PRECAST PRESTRESSED UNITS**

$f'_c = 6,000$  psi  
 $f'_ci = 5,000$  psi  
 $f_{pu} = 270,000$  psi (1/2"Ø low lax. strands)  
 $f_{pbt} = 201,960$  psi (1/2"Ø low lax. strands)  
 $f_y = 60,000$  psi (Reinf.)

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.075g  
 Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.13g  
 Soil Site Class = C

**WATERWAY INFORMATION**

Drainage Area = 8.1 Sq. Mi. Existing Low Grade Elev. 652.0 at Sta. 11+50  
 Proposed Low Grade Elev. 654.0 at Sta. 12+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. Head - Ft.			Headwater El.	
			Exist.	Prop.	H.W.E. Exist.	Prop.	Exist.	Prop.	
Ten-Year	10	1620	290	340	652.6	0.3	0.4	652.9	653.1
Design	15	1880	300	360	653.0	0.6	0.4	653.6	653.5
Base	100	3110	310	420	654.6	0.1	0.3	654.7	655.0
Scour Check	200	3600	310	420	655.2	0.3	0.1	655.5	655.4
Max. Calc.	500	4240	310	420	655.8	0.3	0.1	656.1	656.0

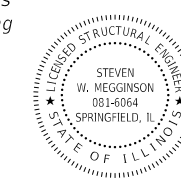
10 Year Velocity through Existing Bridge = 5.6 fps 10 Year Velocity through Proposed Bridge = 4.8 fps

**DESIGN SCOUR ELEVATION TABLE**

Event/Limit State	Design Scour Elev. (ft.)		Item 113
	S. Abut.	N. Abut.	
Q100	650.8	650.8	8
Q200	650.8	650.8	
Design	650.8	650.8	
Check	650.8	650.8	

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."

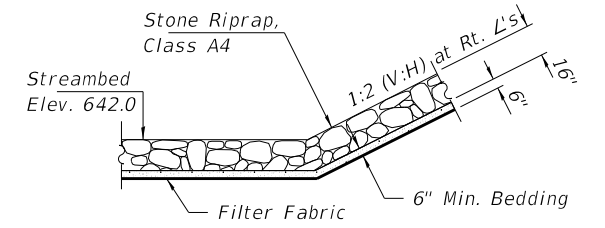
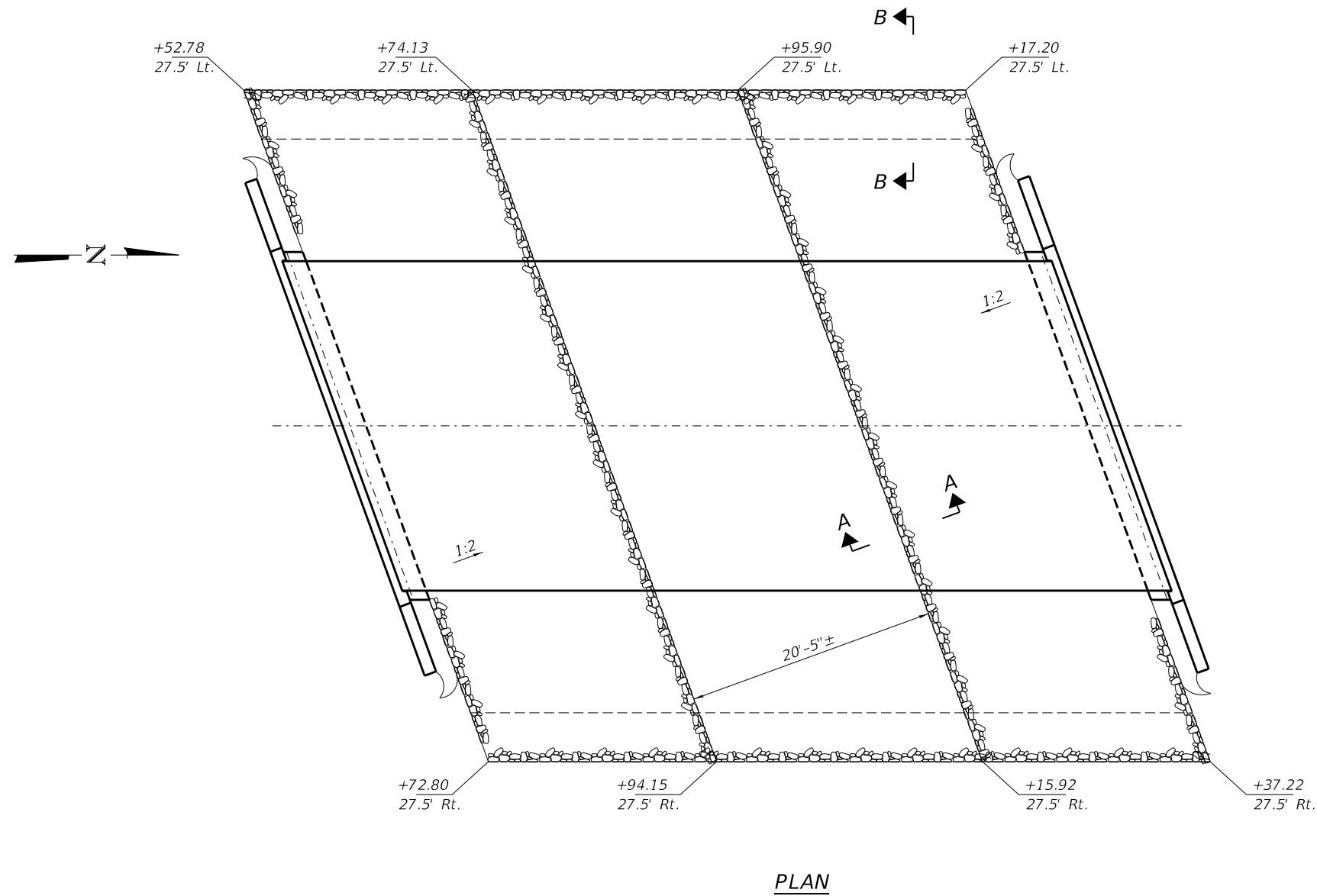
*Steven W. Megginson* 11/02/2020  
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2022

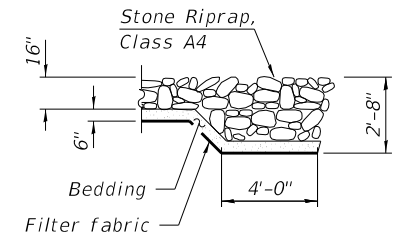
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			190
Stone Riprap, Class A4	Sq. Yd.			403
Filter Fabric	Sq. Yd.			403
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		25.8	25.8
Precast Prestressed Conc. Deck Beams (27" Depth)	Sq. Ft.	1,701		1,701
Reinforcement Bars, Epoxy Coated	Pound		3,260	3,260
Steel Railing, Type S-1	Foot	124		124
Furnishing Metal Shell Piles 12"x0.250"	Foot		720	720
Driving Piles	Foot		720	720
Test Pile Metal Shells	Each		1	1
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4
Porous Granular Embankment, Special	Ton		110	110
Pipe Underdrains for Structures 4"	Foot		108	108

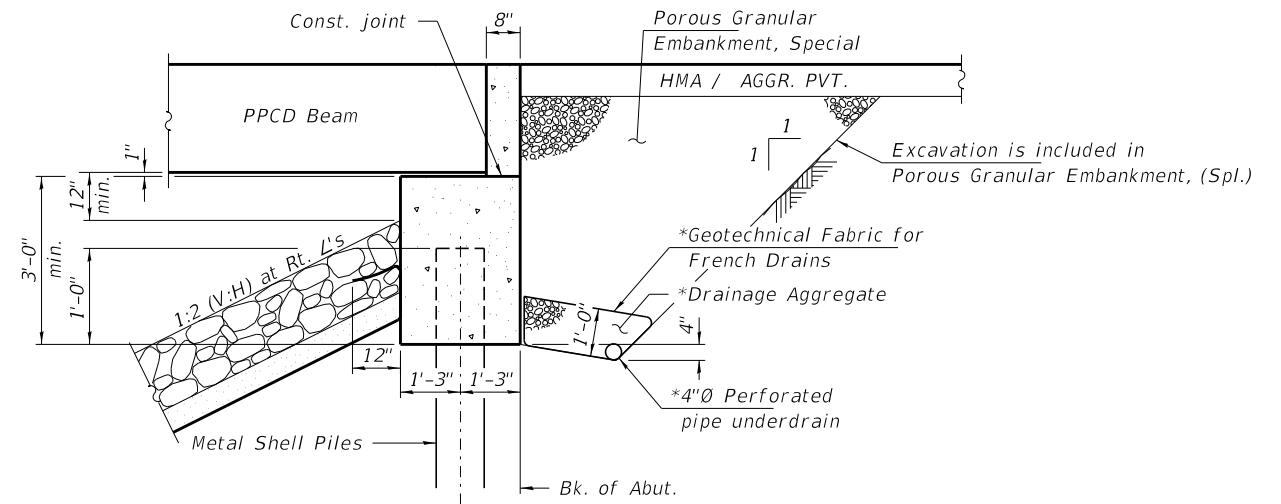


**SECTION A-A**

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



**SECTION B-B**



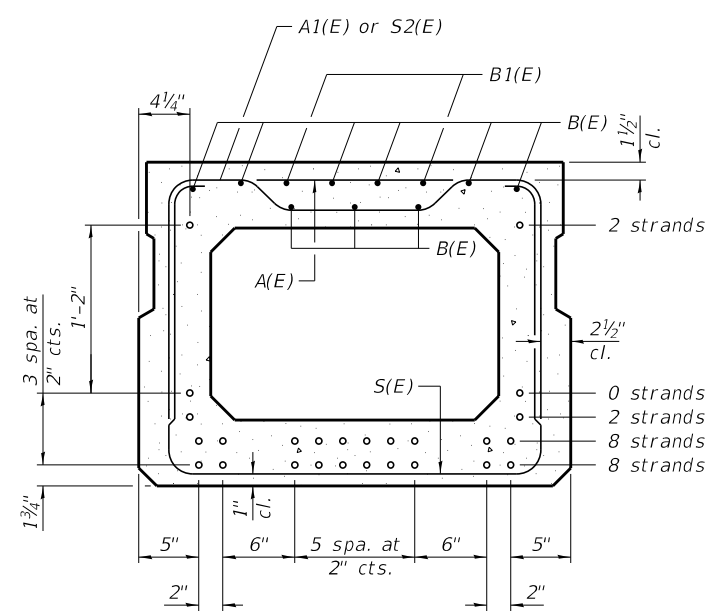
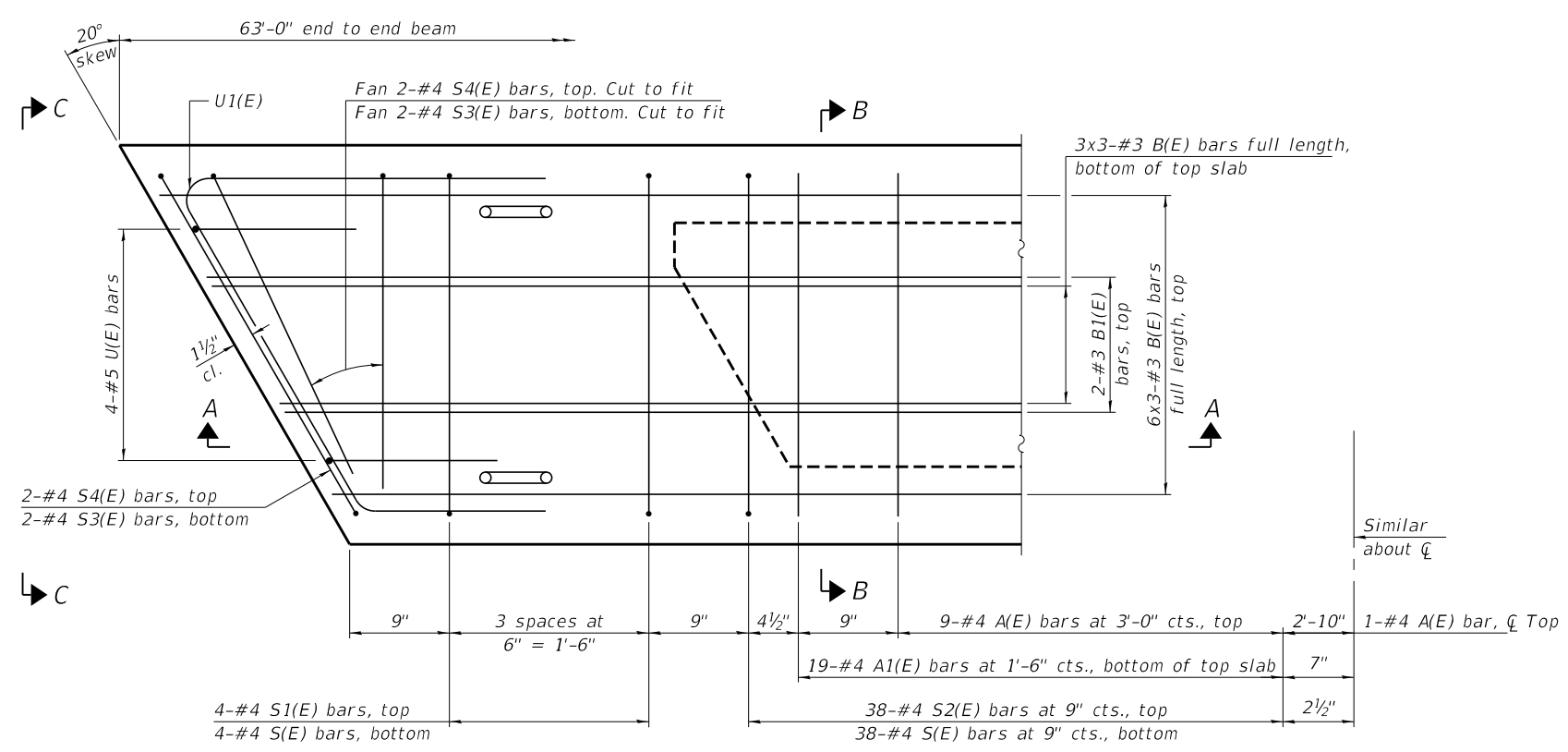
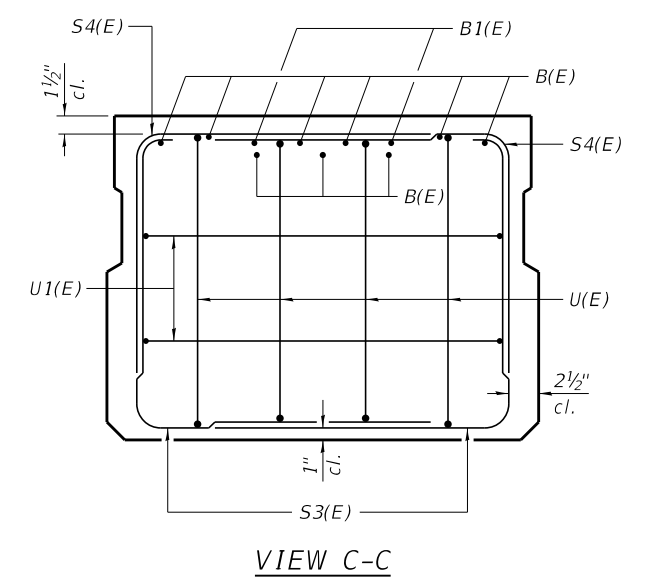
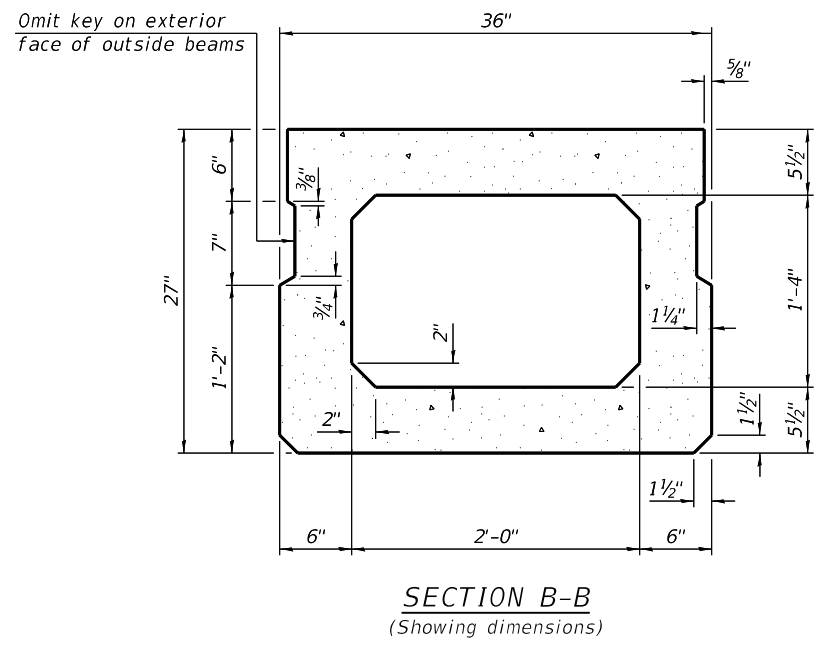
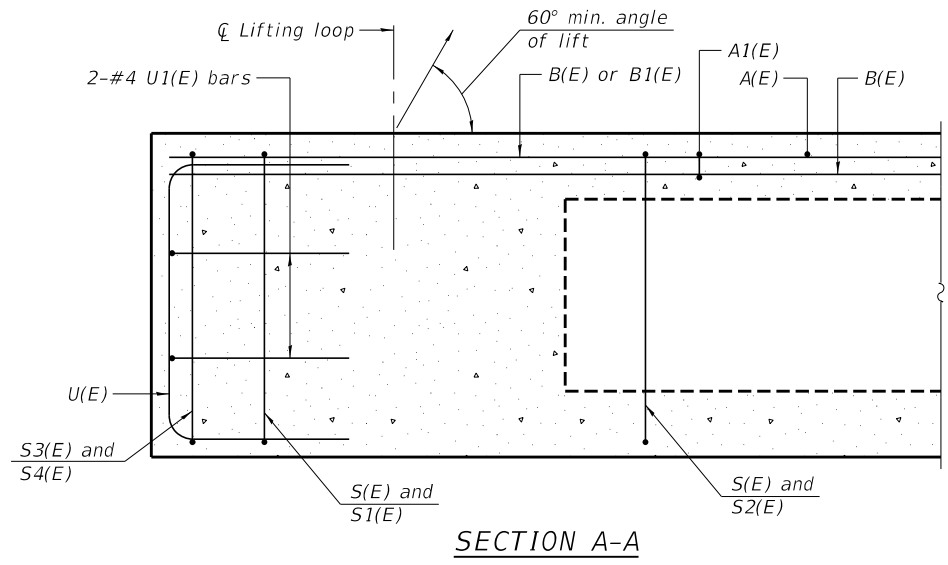
**SECTION THRU ABUTMENT**

(Horiz. dim. at Rt. L's)

\*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 = 190485-shi-bridge.dgn	USER NAME = djett	DESIGNED - R.D.H.	REVISED -	<b>STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>RIPRAP LAYOUT STRUCTURE NO. 053-4226</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
<b>HAMPTON, LENZINI AND RENWICK, INC.</b> 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.W.M.	REVISED -			118	18-09110-02-BR	LIVINGSTON	26	7
	PLOT SCALE = \$SCALE\$	DRAWN - R.D.H.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87755		
	PLOT DATE = 11/2/2020	CHECKED - S.W.M.	REVISED -			SHEET NO. 2 OF 11 SHEETS		ILLINOIS FED. AID PROJECT K3R0(823)		



**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	19	#4	2'-7"	—
A1(E)	38	#4	2'-10"	—
B(E)	27	#3	21'-11"	—
B1(E)	4	#3	10'-0"	—
S(E)	84	#4	7'-5"	U
S1(E)	8	#4	5'-11"	U
S2(E)	76	#4	6'-2"	U
S3(E)	8	#4	4'-10"	U
S4(E)	8	#4	4'-1"	U
U(E)	8	#5	4'-6"	U
U1(E)	4	#4	6'-1"	U

Note:  
See sheet 4 & 5 of 11 for additional details and Bill of Material.

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

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

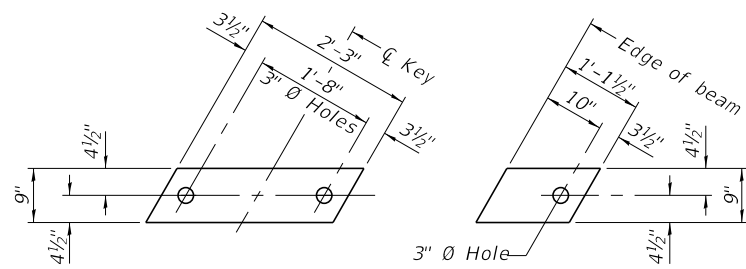
Note:  
Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

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

PD-2736-R 1-1-2020

FILE NAME = 190485-shl-bridge.dgn	USER NAME = djett	DESIGNED - R.D.H.	REVISED -	<b>STATE OF ILLINOIS</b> <b>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>27" x 36" PPC DECK BEAM</b> <b>STRUCTURE NO. 053-4226</b>	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.	REVISED -			118	18-09110-02-BR	LIVINGSTON	26	8
	PLOT DATE = 11/2/2020	DRAWN - R.D.H.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87755		
		CHECKED - S.W.M.	REVISED -			SHEET NO. 3 OF 11 SHEETS		ILLINOIS FED. AID PROJECT K3R0(823)		



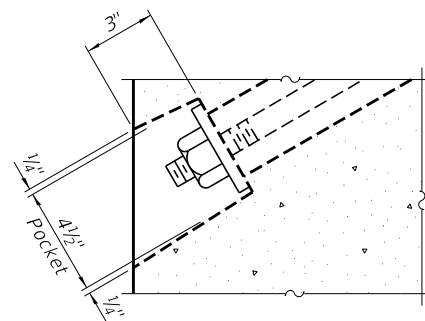


**FABRIC BEARING PAD**  
(Interior - 16 req'd)

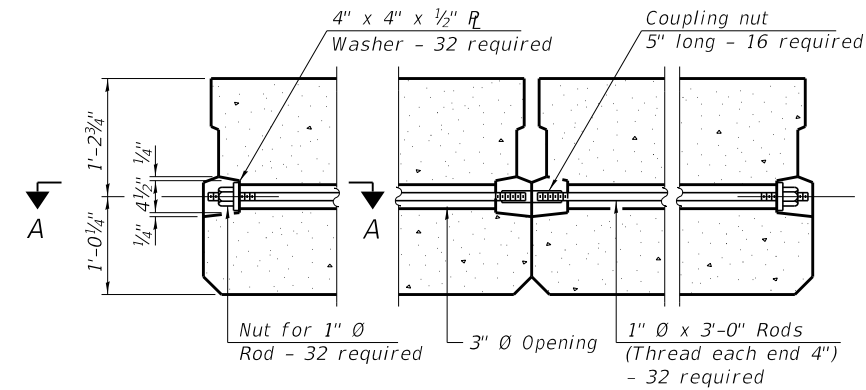
**FABRIC BEARING PAD**  
(Exterior - 4 req'd)

**FIXED**

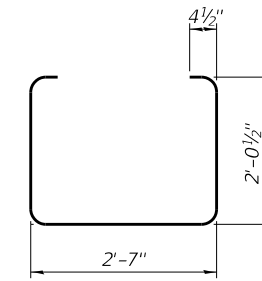
Notes:  
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pads shall be bonded to the substructure.



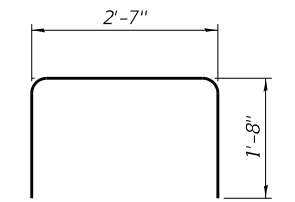
**SECTION A-A**



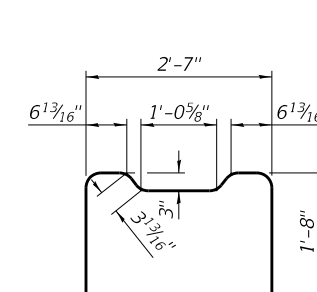
**TYPICAL TRANSVERSE TIE ASSEMBLY**



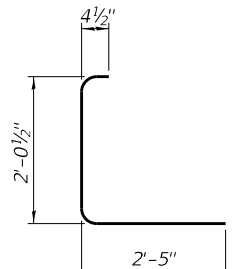
**BAR S(E)**



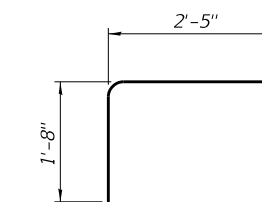
**BAR S1(E)**



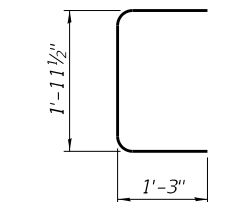
**BAR S2(E)**



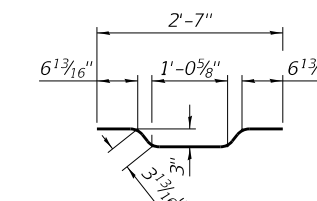
**BAR S3(E)**



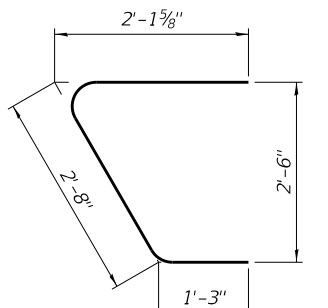
**BAR S4(E)**



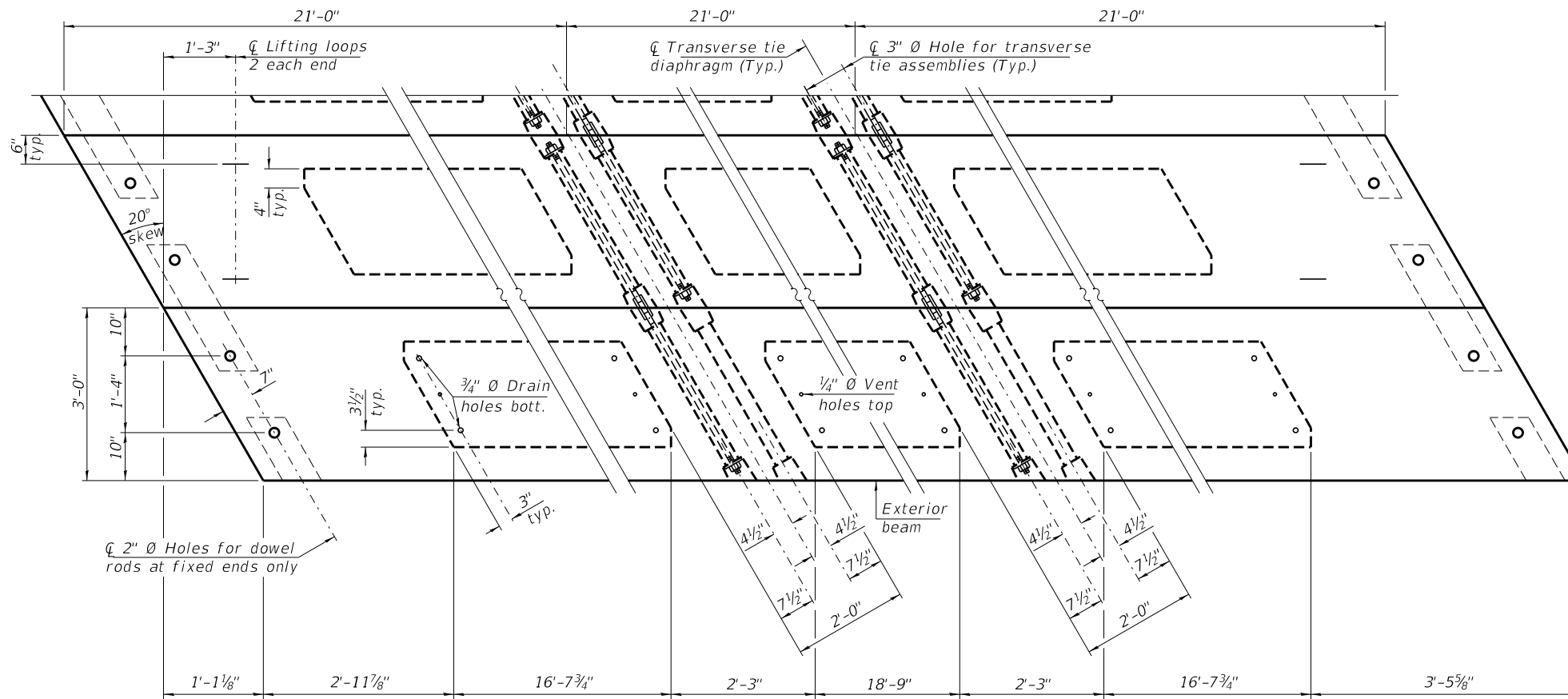
**BAR U(E)**



**BAR A1(E)**



**BAR U1(E)**

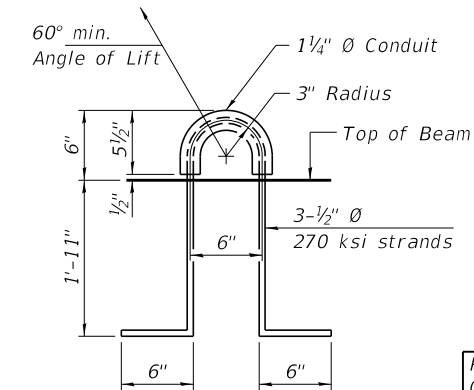


**PLAN VIEW**

**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" 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.



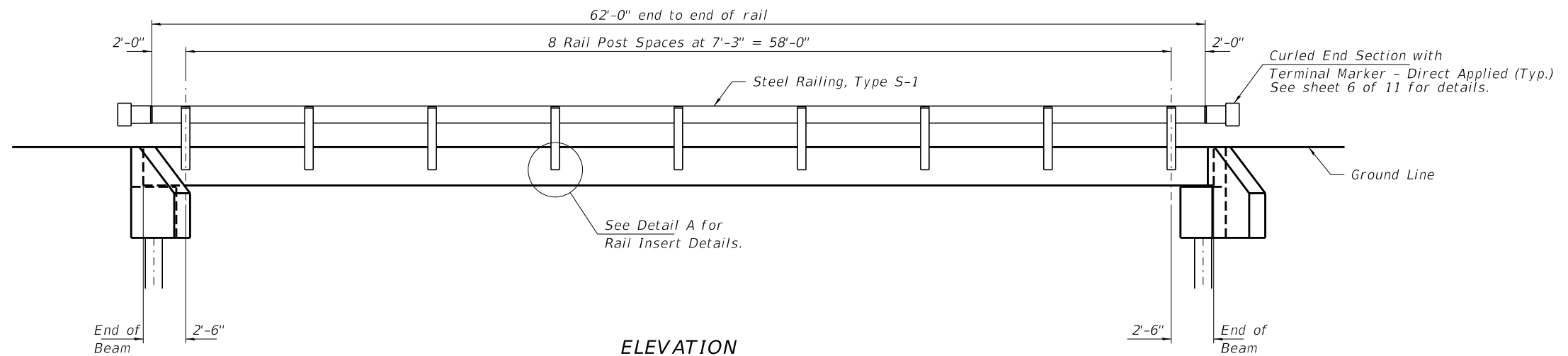
**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

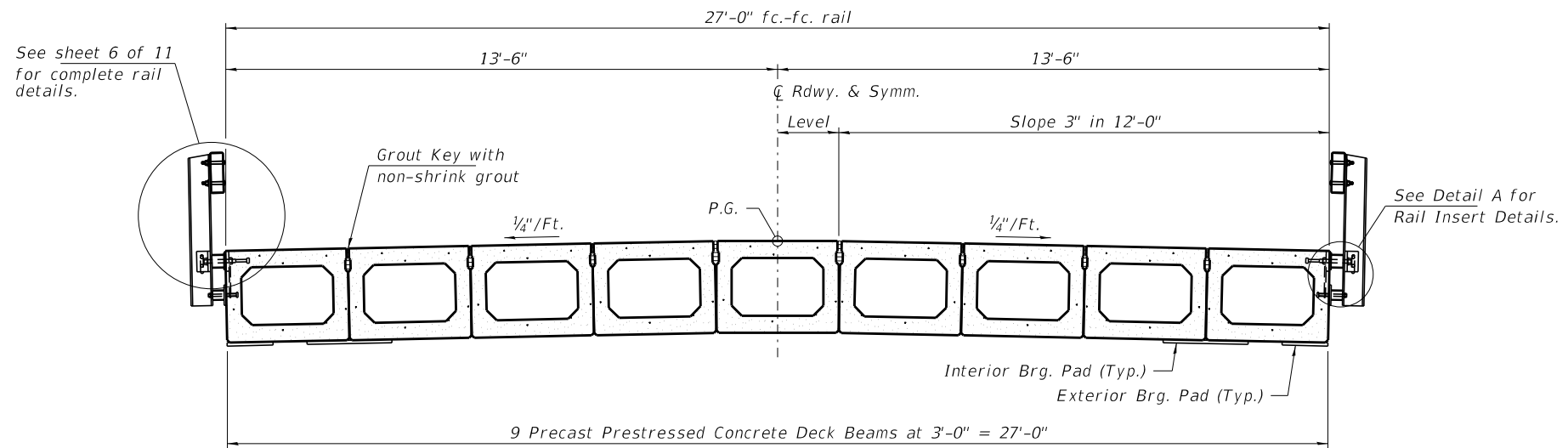
Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,701
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PDD-2736-R 1-1-2020

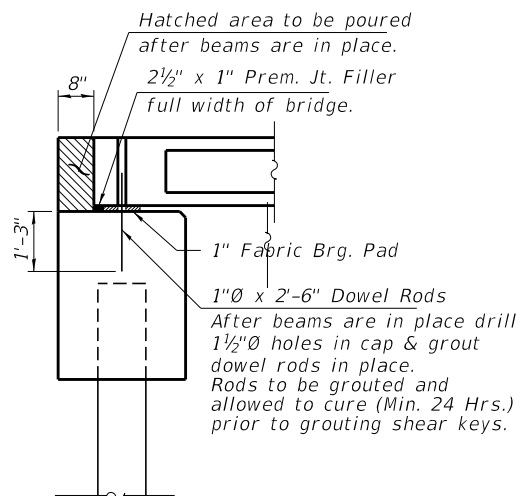
FILE NAME = 190485-shl-bridge.dgn	USER NAME = djett	DESIGNED - R.D.H.	REVISED -	<b>STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>27" x 36" PPC DECK BEAM DETAILS STRUCTURE NO. 053-4226</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184.000959	PLOT SCALE = \$SCALE\$	CHECKED - S.W.M.	REVISED -			118	18-09110-02-BR	LIVINGSTON	26	9
	PLOT DATE = 11/2/2020	DRAWN - R.D.H.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87755		
		CHECKED - S.W.M.	REVISED -			SHEET NO. 4 OF 11 SHEETS		ILLINOIS FED. AID PROJECT K3R0(823)		



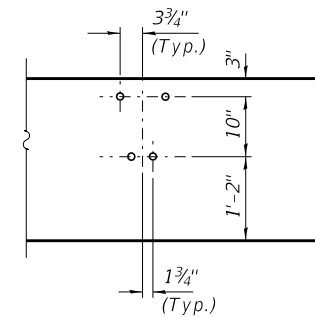
**ELEVATION**  
Showing Rail Post Spaces  
See sheet 6 of 11 for Railing Details.



**CROSS SECTION**  
See sheets 3 & 4 of 11 for Superstructure.



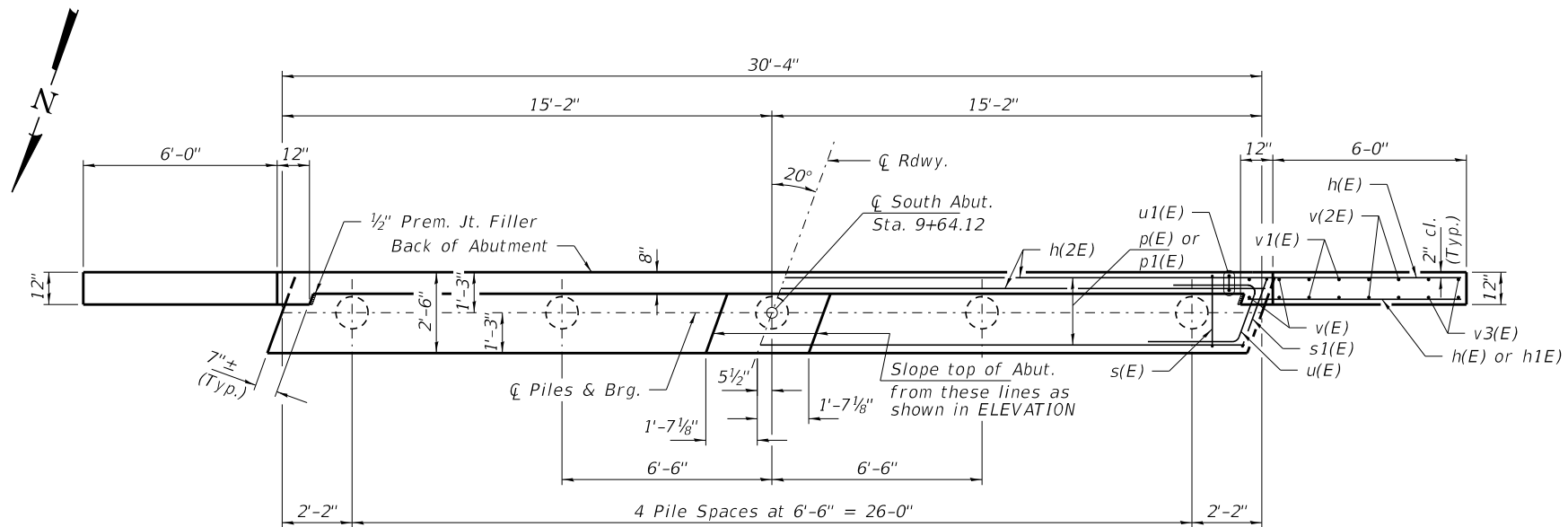
**SECTION AT ABUTMENTS**  
at Rt. L's



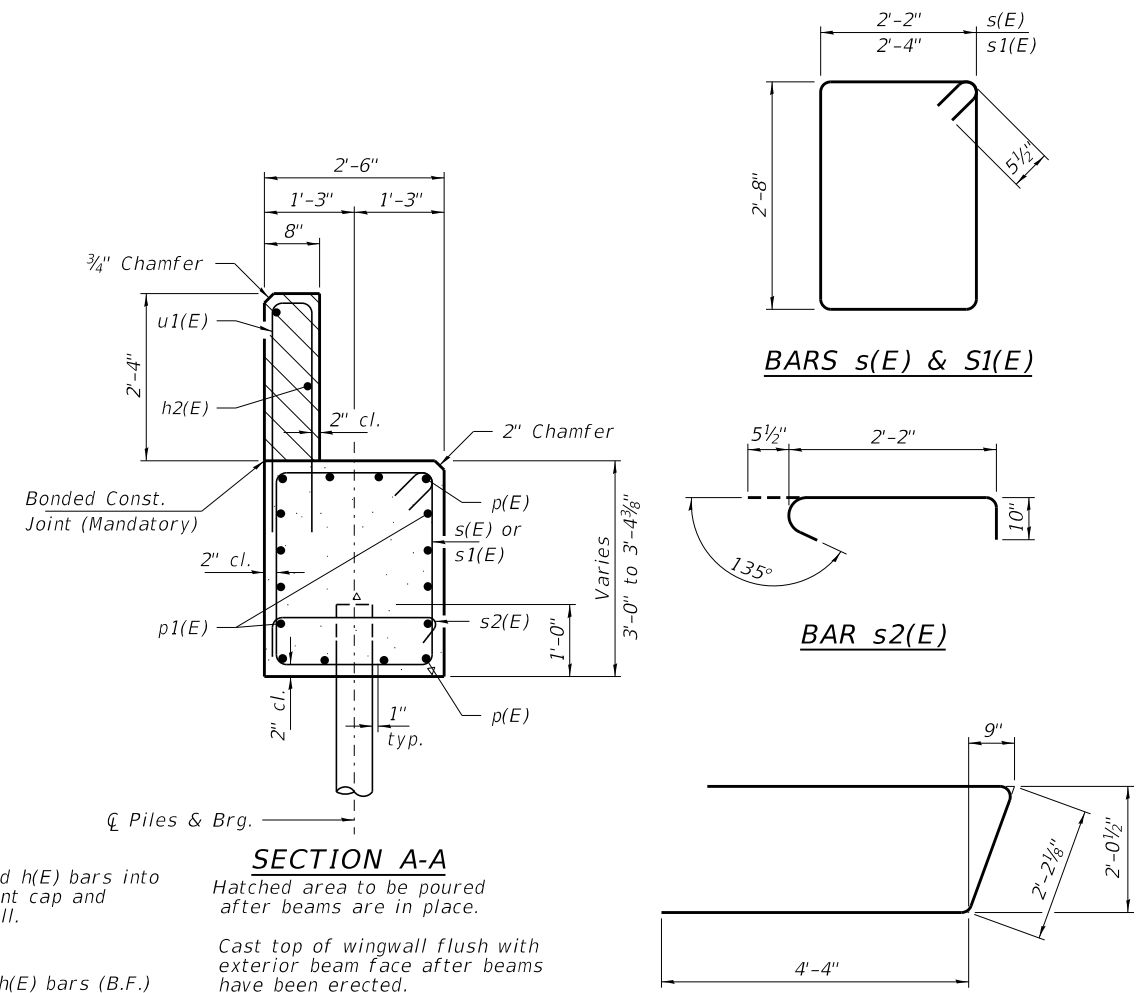
**DETAIL A**

FILE NAME = 190485-shi-bridge.dgn	USER NAME = djett	DESIGNED - R.D.H.	REVISED -	<b>STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>SUPERSTRUCTURE DETAILS STRUCTURE NO. 053-4226</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
<b>HAMPTON, LENZINI AND RENWICK, INC.</b> 3035 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 -			118	18-09110-02-BR	LIVINGSTON	26	10
PLOT DATE = 11/2/2020	DRAWN - R.D.H.	CHECKED - S.W.M.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87755		
						SHEET NO. 5 OF 11 SHEETS		ILLINOIS FED. AID PROJECT K3R0(823)		



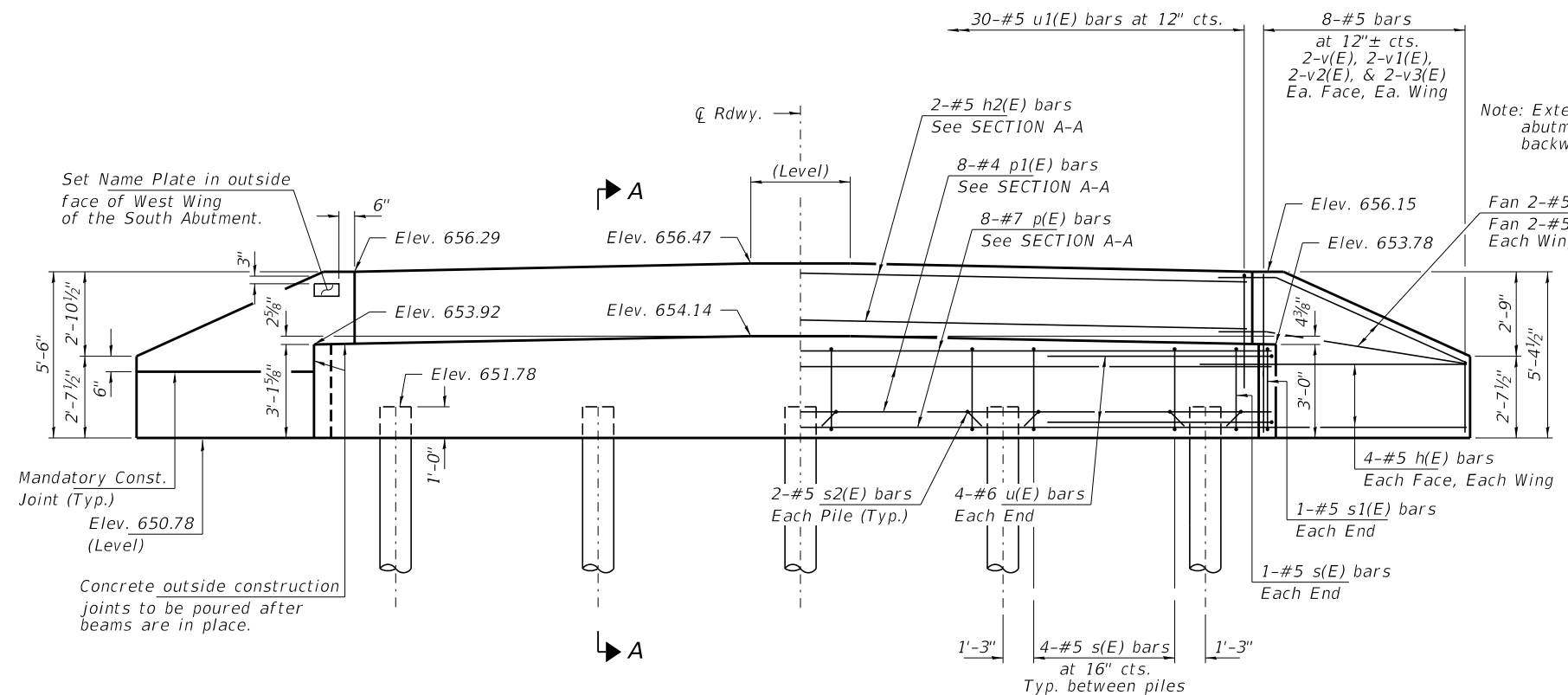


**PLAN**



**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.



**ELEVATION**  
(Looking South)

**PILE DATA**

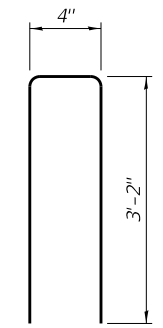
Type: Metal Shells 12"x0.250"  
 Nominal Required Bearing: 273 Kips/Pile  
 Factored Resistance Available: 150 Kips/Pile  
 Est. Length: 60 Ft/Pile  
 No. Production Piles: 4  
 No. Test Piles: 1

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

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

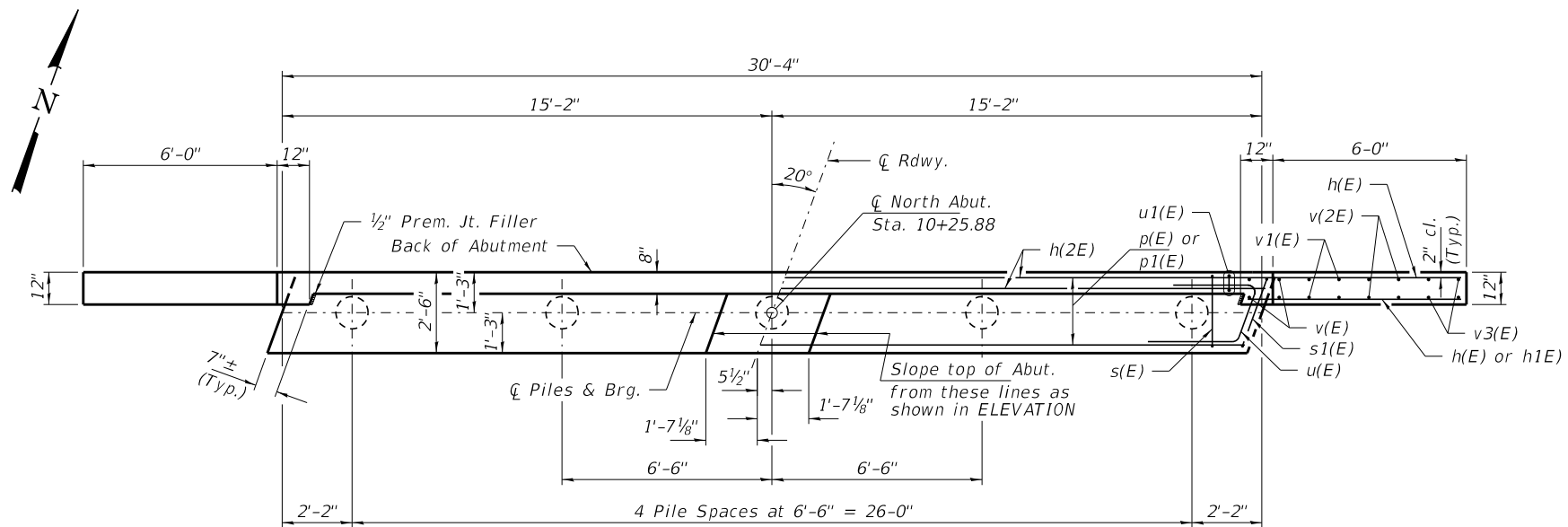
**BILL OF MATERIAL - S. ABUT.**

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	20	#5	8'-3"	—
h1(E)	4	#5	6'-9"	—
h2(E)	2	#5	30'-0"	—
p(E)	8	#7	30'-0"	—
p1(E)	8	#4	30'-0"	—
s(E)	18	#5	10'-7"	□
s1(E)	2	#5	10'-11"	□
s2(E)	10	#5	3'-6"	┌
u(E)	8	#6	10'-11"	U
u1(E)	30	#5	6'-8"	U
v(E)	8	#5	4'-11"	—
v1(E)	8	#5	4'-1"	—
v2(E)	8	#5	3'-2"	—
v3(E)	8	#5	2'-4"	—
Concrete Structures			Cu. Yd.	12.9
Reinf. Bars, Epoxy Coated			Pound	1,630
Metal Shell Piles 12"x0.250"			Foot	240
Test Pile Metal Shells			Each	1
Name Plates			Each	1

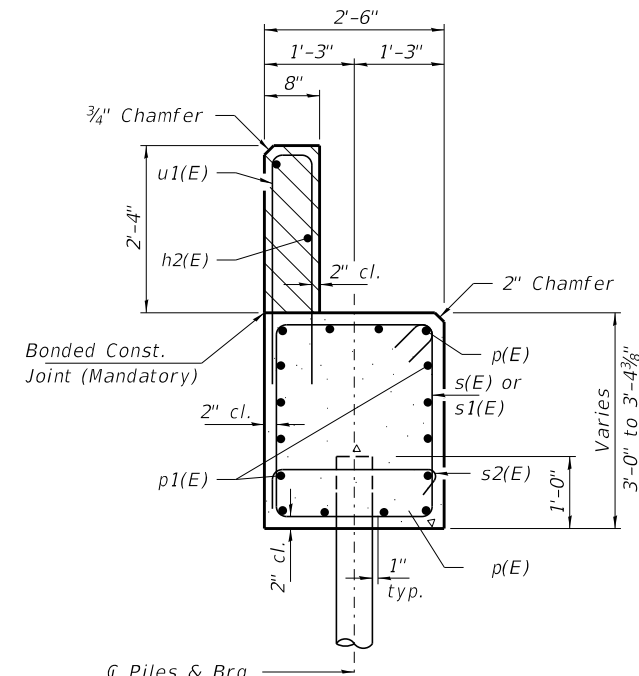


**BAR u1(E)**



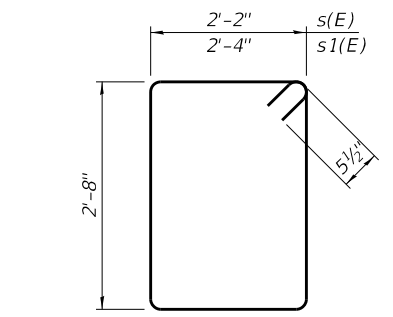


**PLAN**

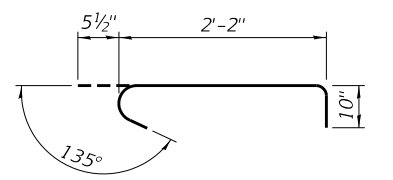


**SECTION A-A**

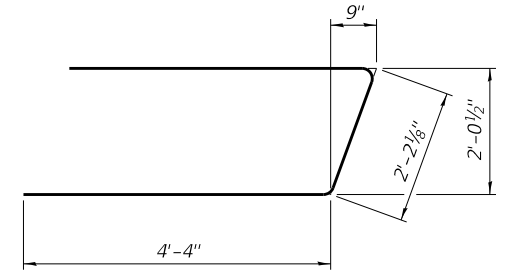
Hatched area to be poured after beams are in place.  
Cast top of wingwall flush with exterior beam face after beams have been erected.



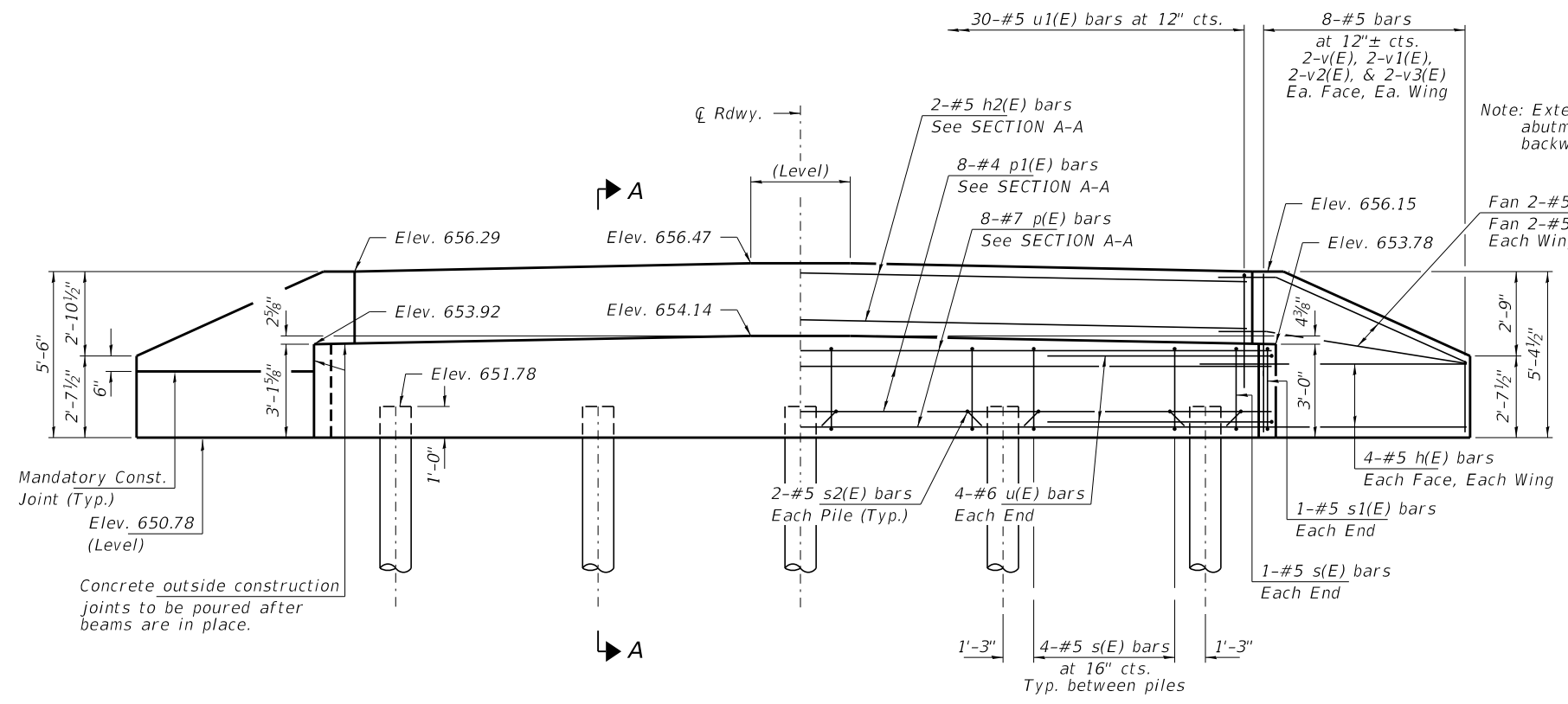
**BARS s(E) & s1(E)**



**BAR s2(E)**



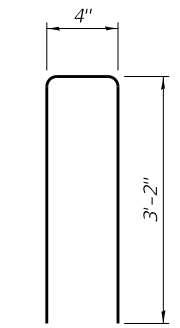
**BAR u(E)**



**ELEVATION**  
(Looking North)

**PILE DATA**

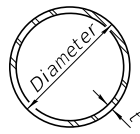
Type: Metal Shells 12"x0.250"  
Nominal Required Bearing: 273 Kips/Pile  
Factored Resistance Available: 150 Kips/Pile  
Est. Length: 60 Ft/Pile  
No. Production Piles: 5  
No. Test Piles: 0



**BAR u1(E)**

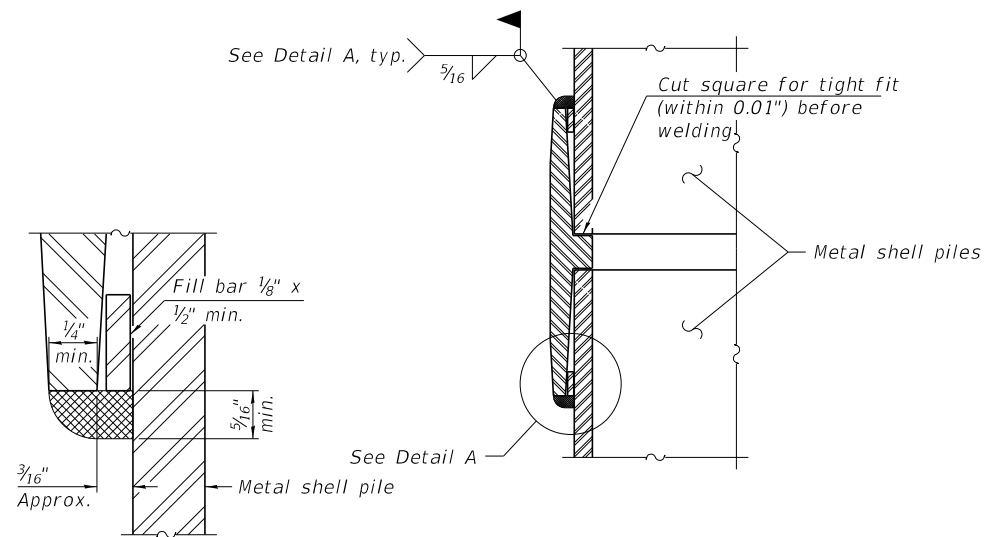
**BILL OF MATERIAL - N. ABUT.**

BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	20	#5	8'-3"	—
h1(E)	4	#5	6'-9"	—
h2(E)	2	#5	30'-0"	—
p(E)	8	#7	30'-0"	—
p1(E)	8	#4	30'-0"	—
s(E)	18	#5	10'-7"	□
s1(E)	2	#5	10'-11"	□
s2(E)	10	#5	3'-6"	┌
u(E)	8	#6	10'-11"	≡
u1(E)	30	#5	6'-8"	≡
v(E)	8	#5	4'-11"	—
v1(E)	8	#5	4'-1"	—
v2(E)	8	#5	3'-2"	—
v3(E)	8	#5	2'-4"	—
Concrete Structures			Cu. Yd.	12.9
Reinf. Bars, Epoxy Coated			Pound	1,630
Metal Shell Piles 12"x0.250"			Foot	300

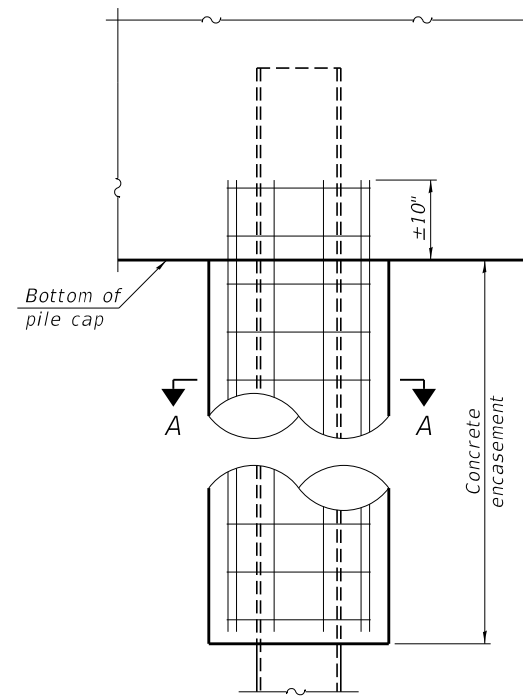


**METAL SHELL PILE TABLE**

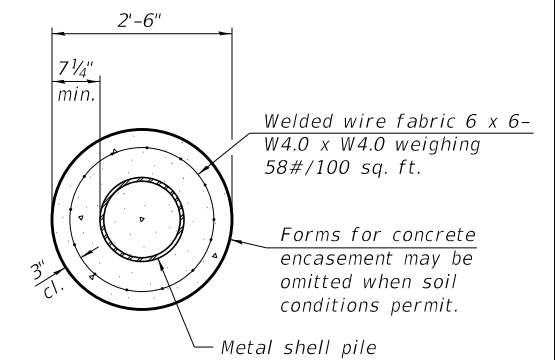
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361
PP16	0.312"	52.32	0.0478
PP16	0.375"	62.64	0.0470



**DETAIL A**

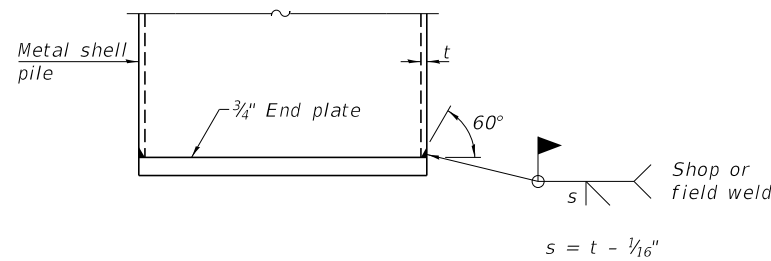


**ELEVATION**



**SECTION A-A**

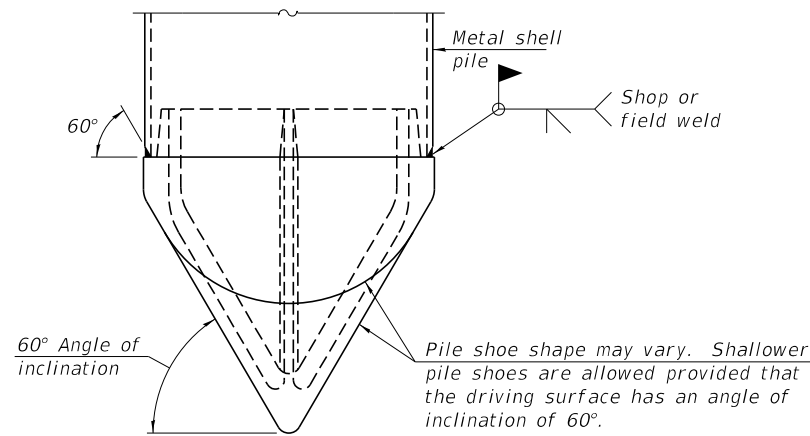
**INDIVIDUAL PILE CONCRETE ENCASUREMENT**  
(When specified)



**END PLATE ATTACHMENT**

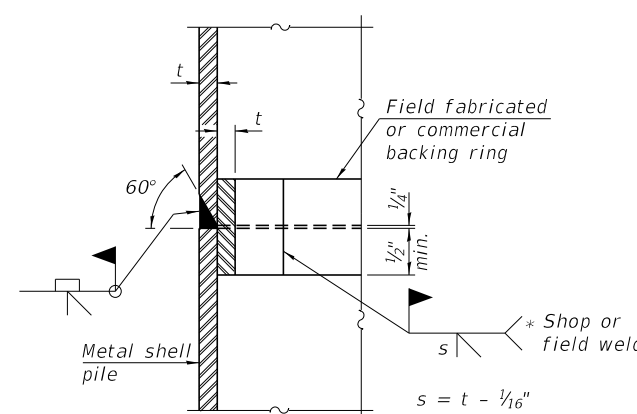
**WELDED COMMERCIAL SPLICE**

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.



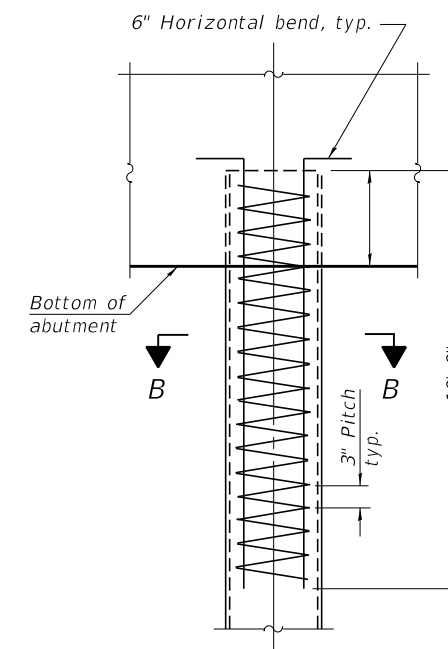
**PILE SHOE ATTACHMENT**

(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).

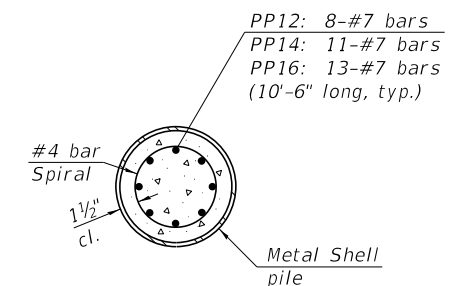


**COMPLETE PENETRATION WELD SPLICE**

\* 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**



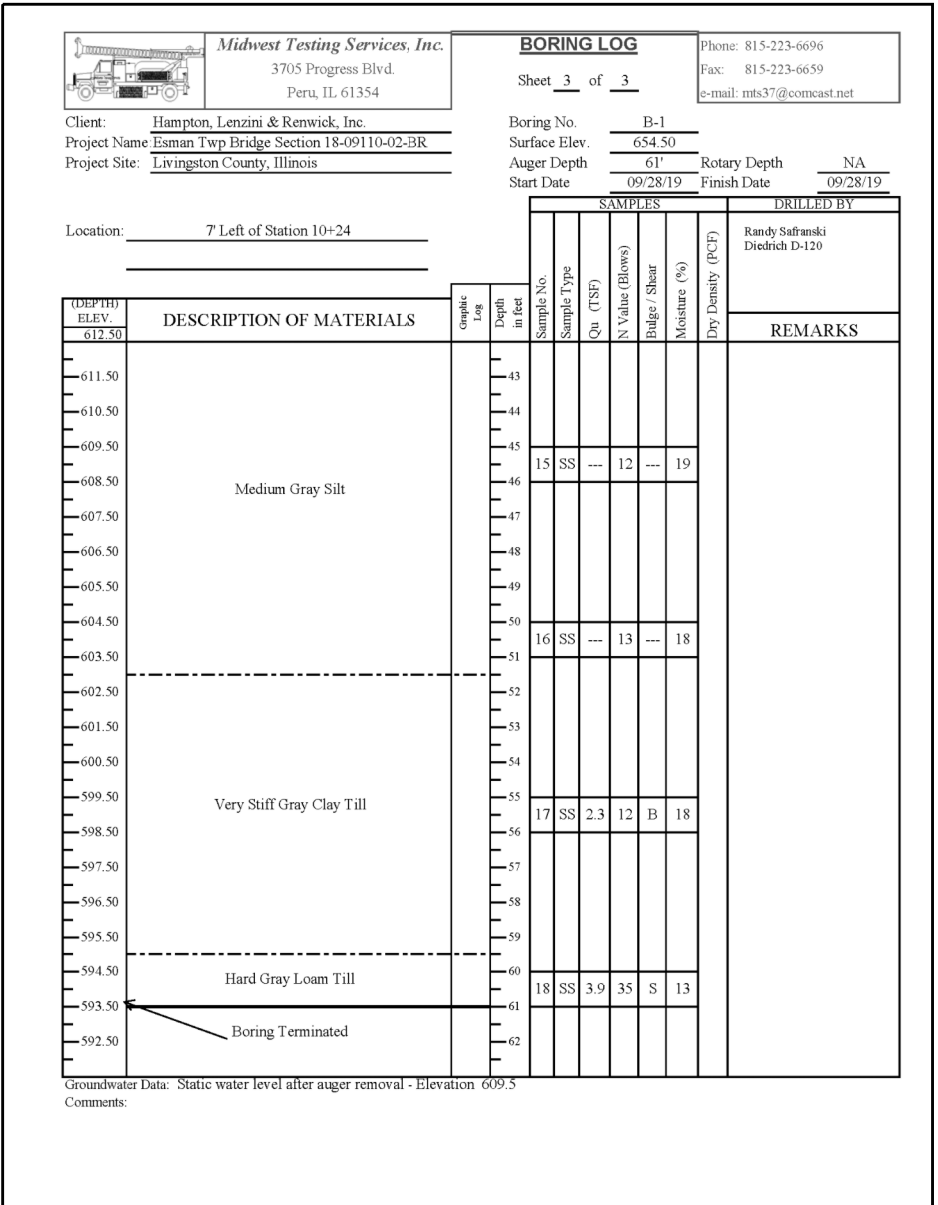
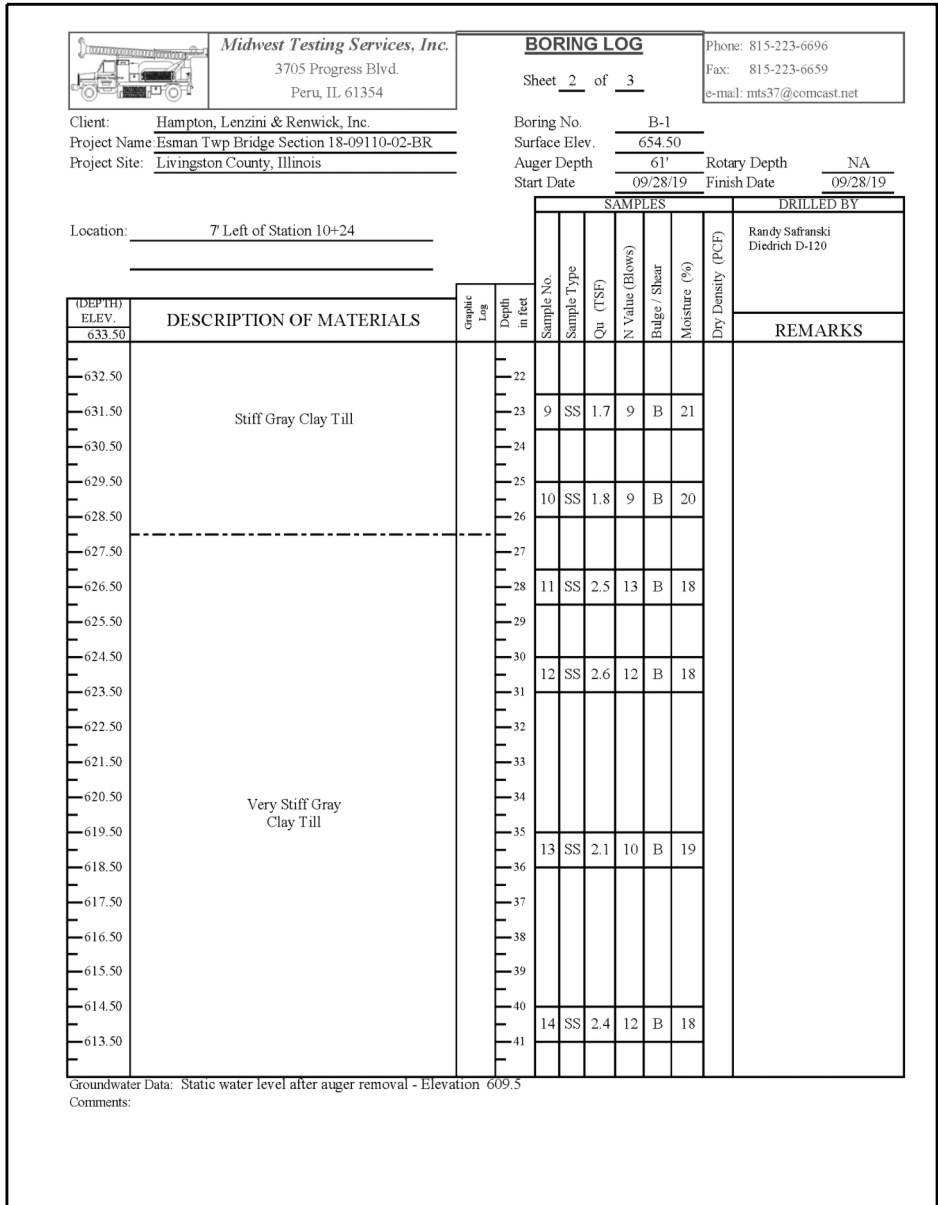
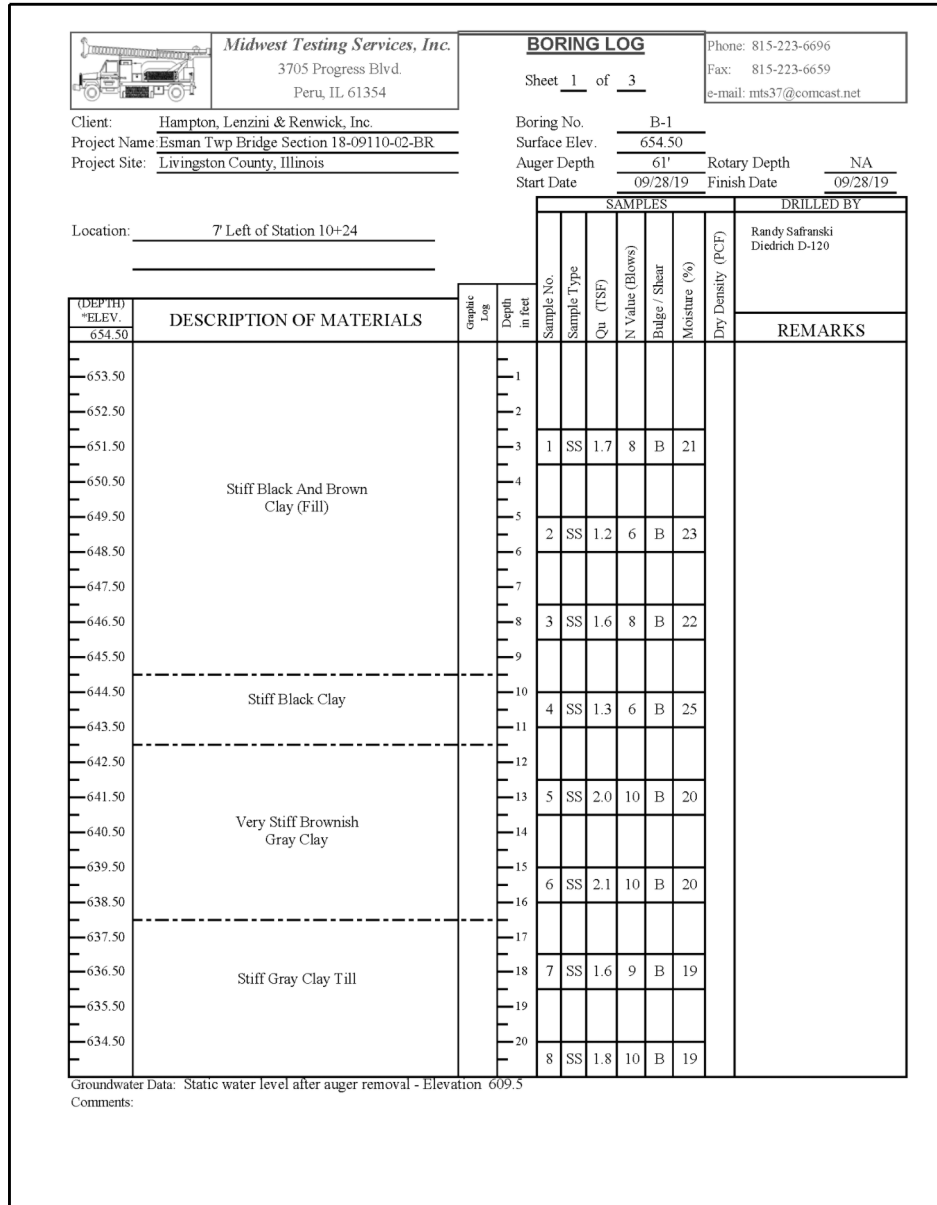
**SECTION B-B**

**REINFORCEMENT AT ABUTMENTS**  
(Omit when concrete encasement is specified)

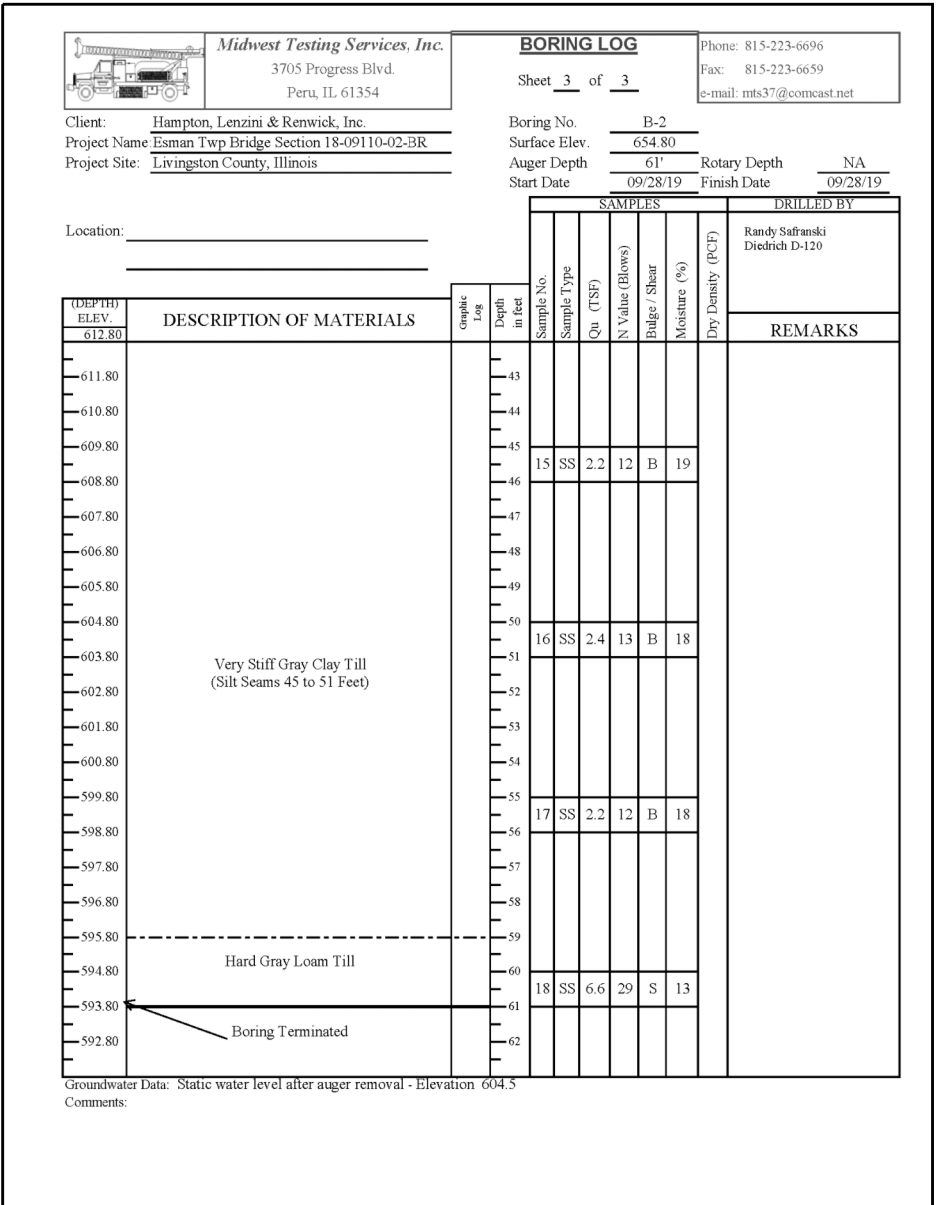
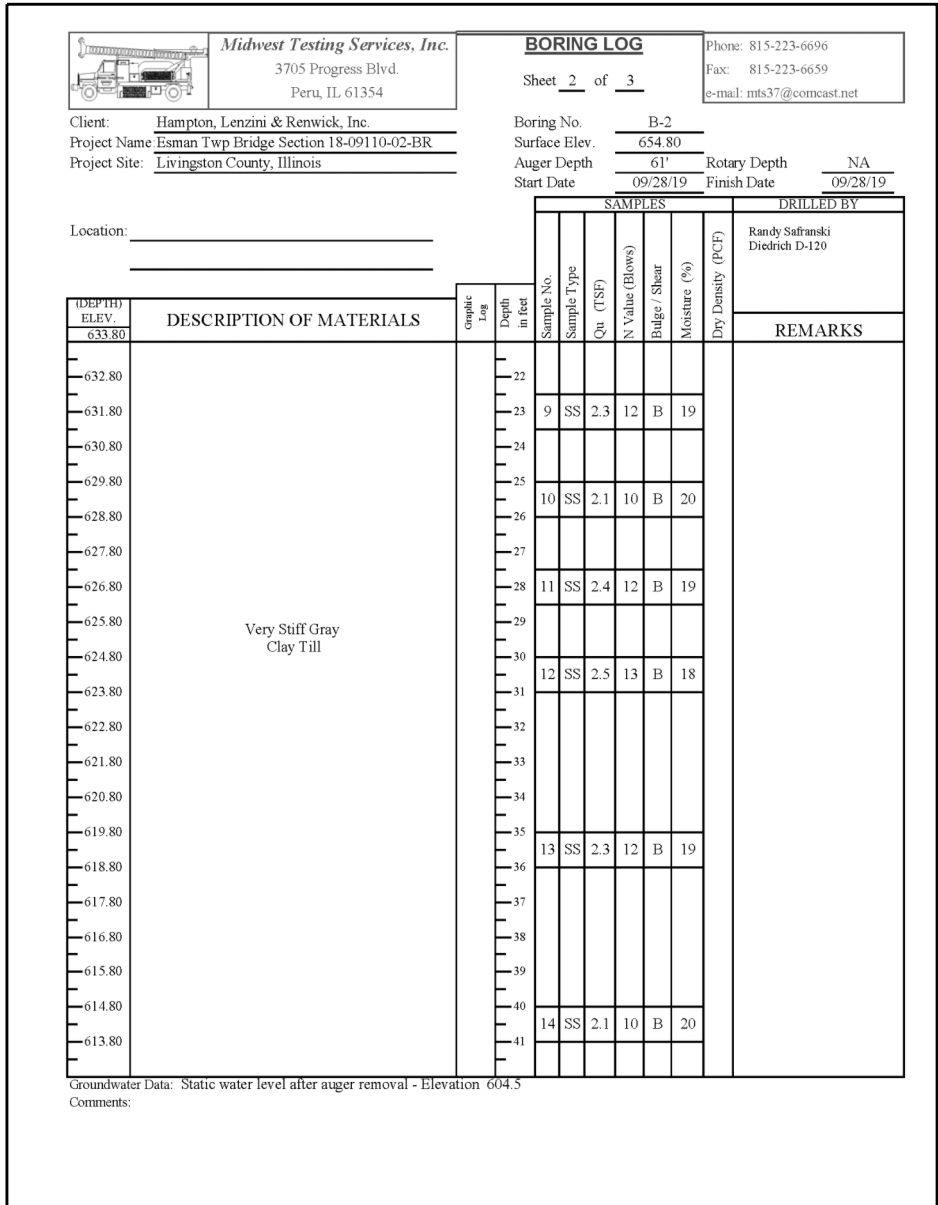
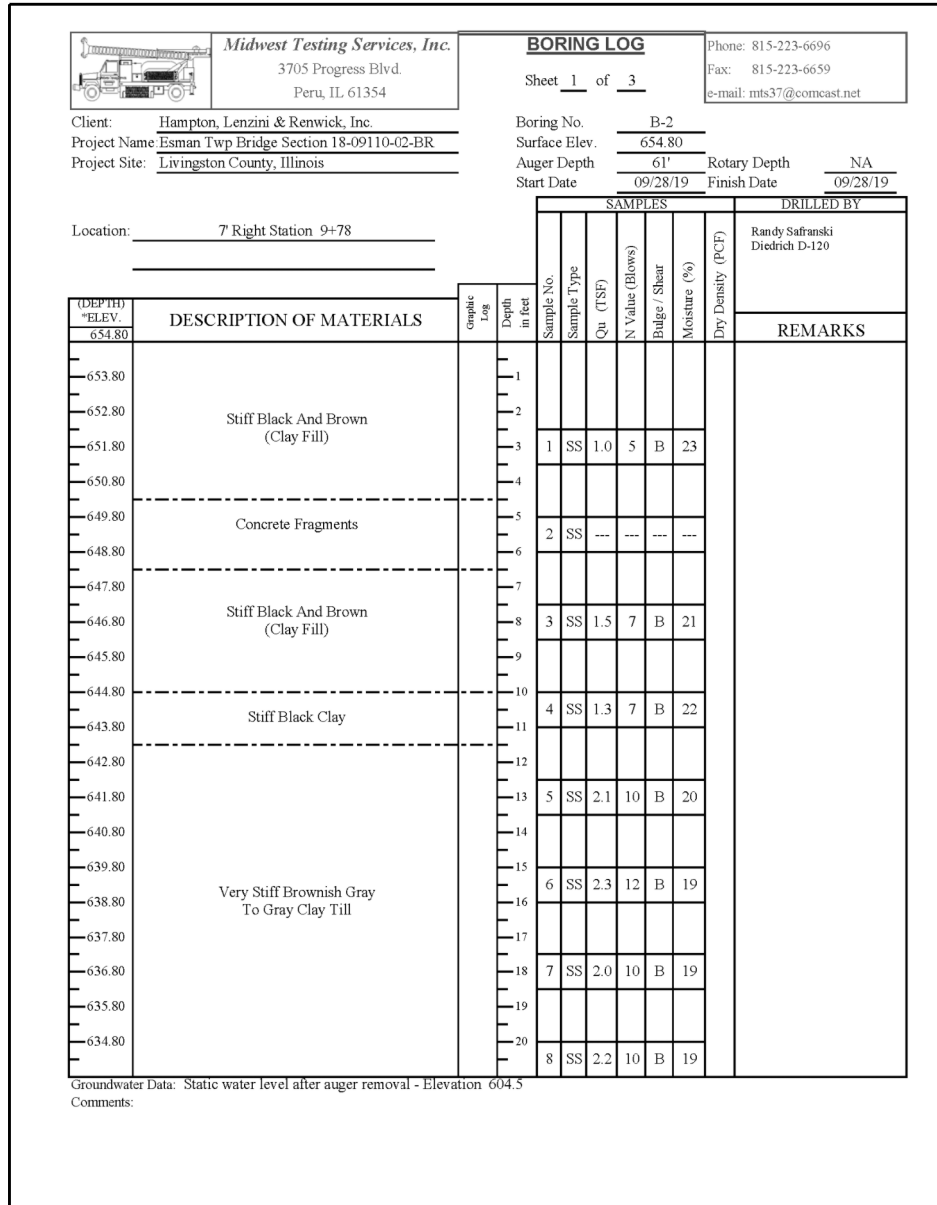
Note:  
The metal shell piles shall be according to Article 1006.05 of the Standard Specifications.

F-MS 1-1-2020

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HAMPTON, LENZINI AND RENWICK, INC. 3035 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 -			118	18-09110-02-BR	LIVINGSTON	26	14
	PLOT DATE = 11/2/2020	DRAWN - R.D.H.	REVISED -			ESMEN ROAD DISTRICT		CONTRACT NO. 87755		
		CHECKED - S.W.M.	REVISED -			SHEET NO. 9 OF 11 SHEETS		ILLINOIS FED. AID PROJECT K3R0(823)		



**BORING-1**



**BORING-2**

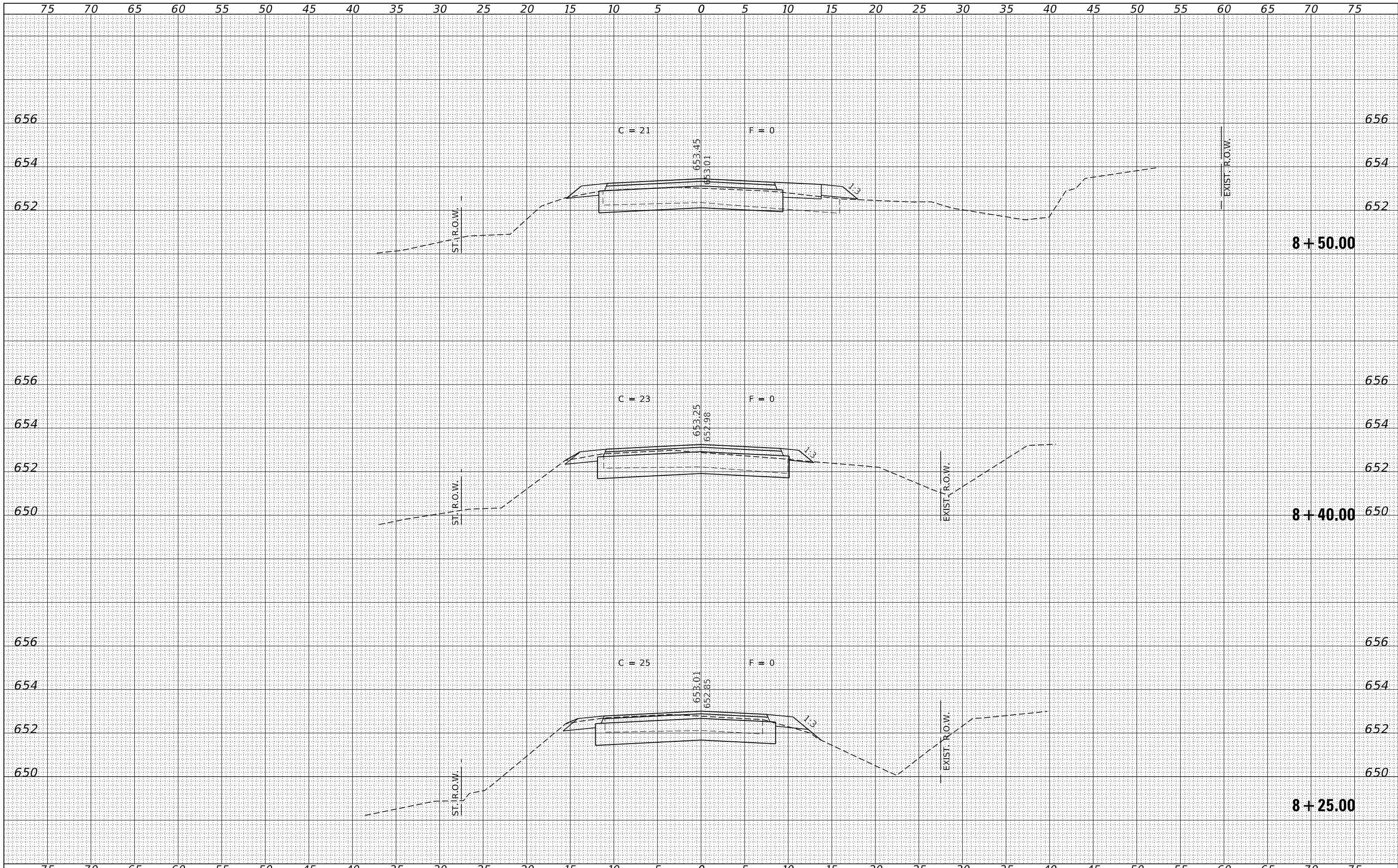






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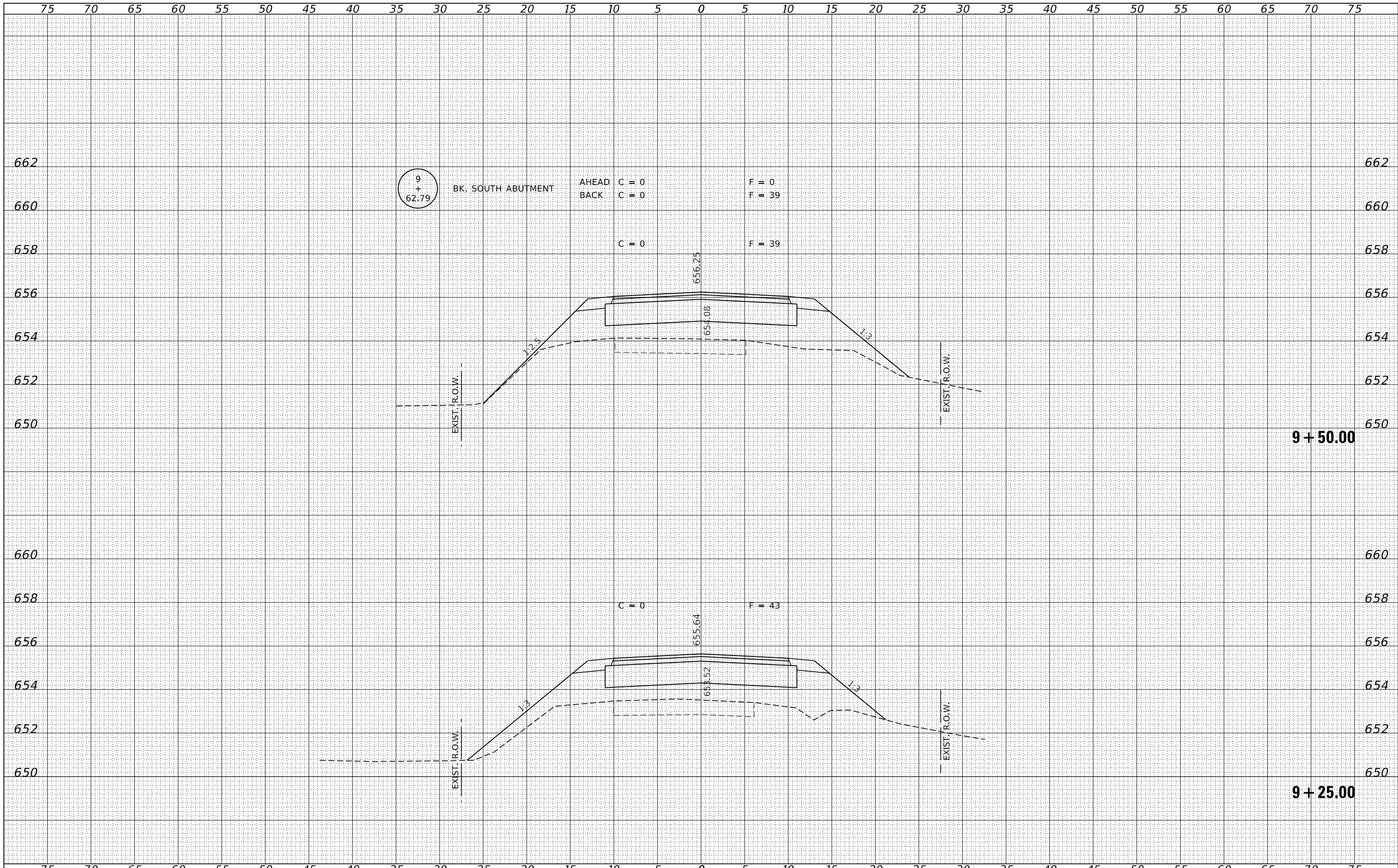
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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -		118	18-09110-02-BR	LIVINGSTON	26	19		
3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L3 / PE / SE CORP. 184.000958		CHECKED - S.W.M.	REVISED -		ESMEN ROAD DISTRICT		CONTRACT NO. 87755				
		DATE - 11/02/2020	REVISED -		SCALE: 5H:2V	SHEET NO. 3 OF 10 SHEETS	STA. 8+25.00 TO STA. 8+50.00	ILLINOIS FED. AID PROJECT K3R0(823)			





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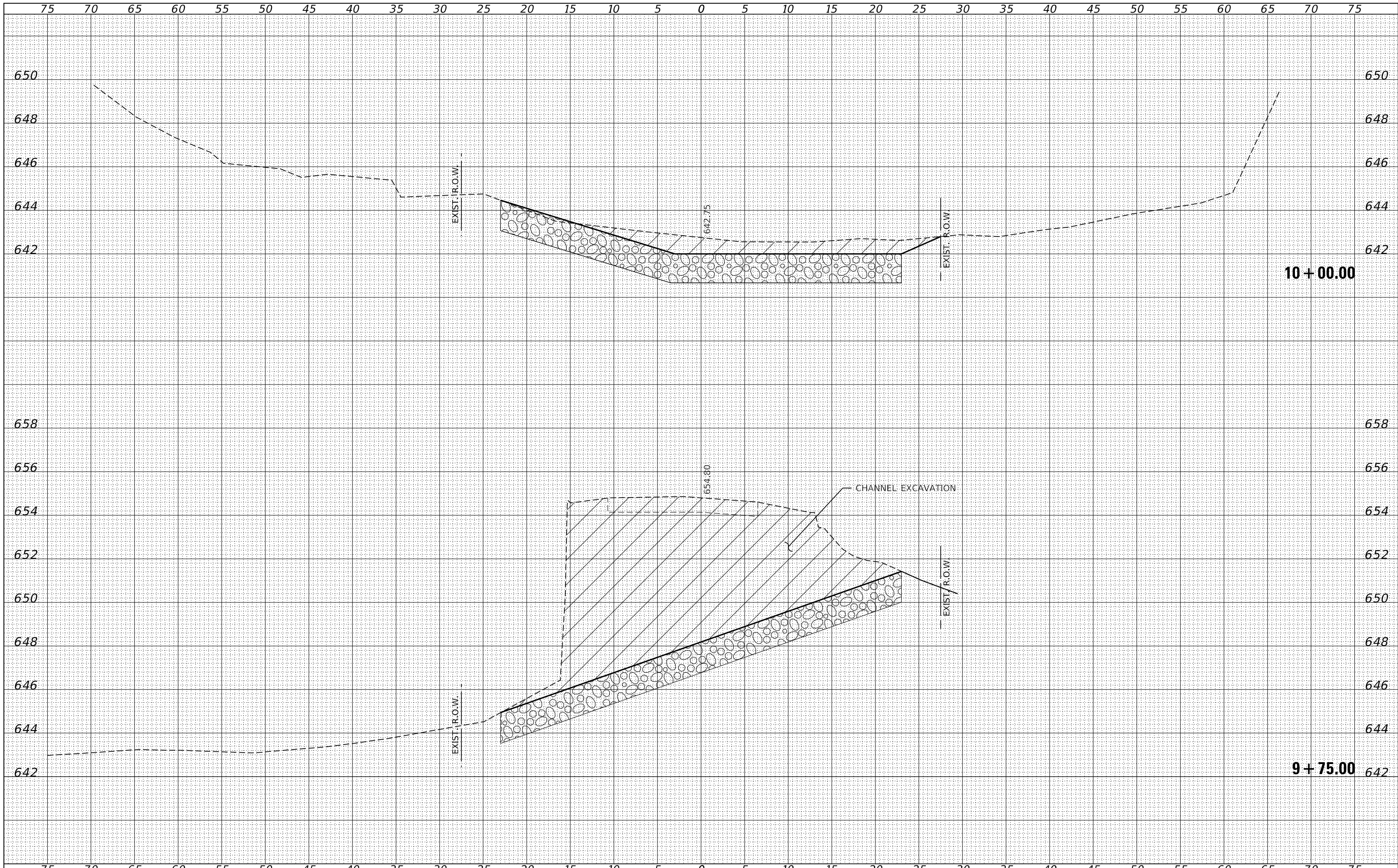
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HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000958	PLOT SCALE = \$SCALES	DRAWN - T.W.K.	REVISED -		118	18-09110-02-BR	LIVINGSTON	26	21			
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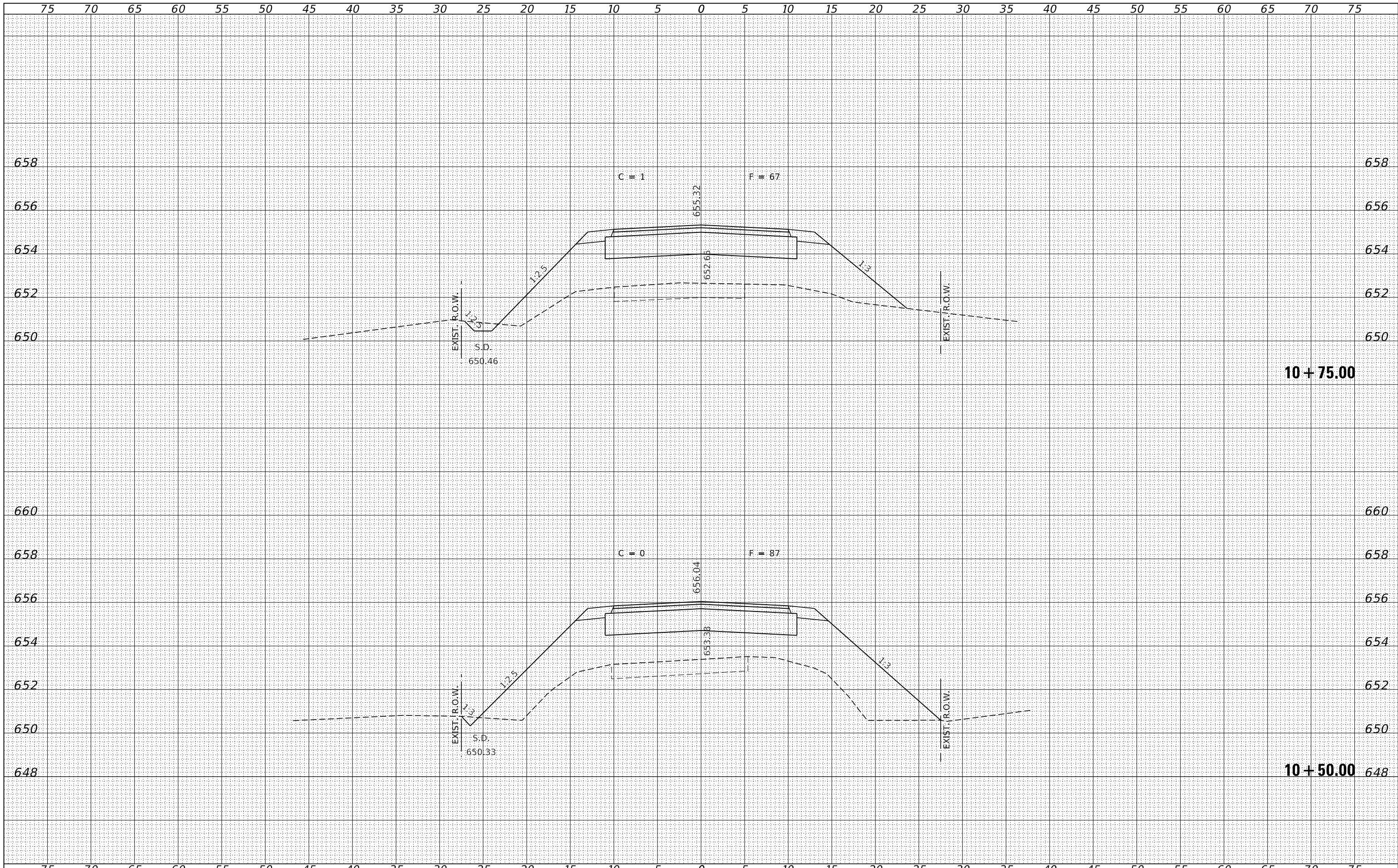


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HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L/S / PE / SE CORP. 184.000958	PLOT SCALE = \$SCALES	DRAWN - T.W.K.	REVISD -		118	18-09110-02-BR	LIVINGSTON	26	22			
PLOT DATE = 11/02/2020	DATE - 11/02/2020	CHECKED - S.W.M.	REVISD -		ESMEN ROAD DISTRICT			CONTRACT NO. 87755				
		DATE - 11/02/2020	REVISD -		SCALE: 5H:2V	SHEET NO. 6 OF 10 SHEETS	STA. 9+75.00	TO STA. 10+00.00	ILLINOIS FED. AID PROJECT K3R0(823)			



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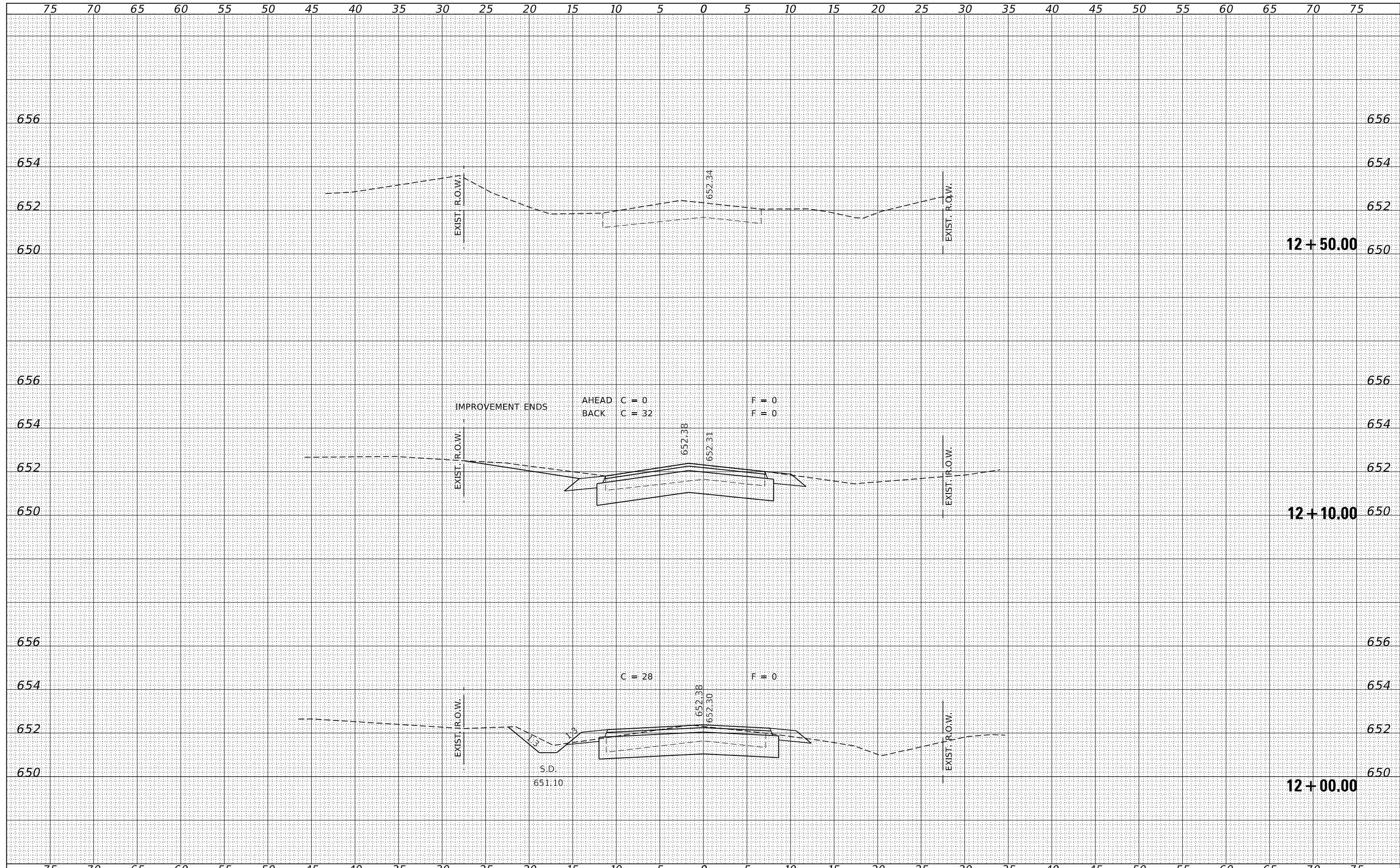


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HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.009958	PLOT SCALE = \$SCALES	DRAWN - T.W.K.	REvised -		ESMEN ROAD DISTRICT	18-09110-02-BR	LIVINGSTON	26	24			
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		DATE - 11/02/2020	REvised -									



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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -		118	18-09110-02-BR	LIVINGSTON	26	26		
3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184.009958		CHECKED - S.W.M.	REVISED -		ESMEN ROAD DISTRICT		CONTRACT NO. 87755				
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