

06-13-14 LETTING ITEM 275

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM – BRIDGE**

**PROJECT BROS-0105(057)
SECTION 11-15127-00-BR
NEBRASKA ROAD DISTRICT
LIVINGSTON COUNTY**

**T.R. 111
PROPOSED STRUCTURE NO. 053-4208
C-93-065-13**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 111	11-15127-00-BR	LIVINGSTON	20	1
FED. ROAD DIST. NO.		ILLINOIS CONTRACT NO. 87561		

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-10.	STATION CROSS SECTIONS
11-18.	BRIDGE PLANS
19-20.	BORINGS

HIGHWAY STANDARDS:

280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-03	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

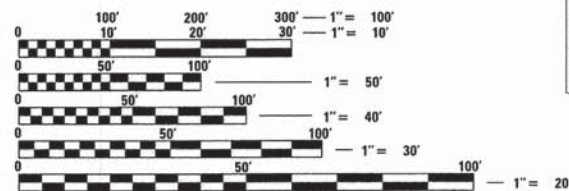
UTILITIES

COMMONWEALTH EDISON
1910 SOUTH BRIGGS STREET
JOLIET, IL 60433

FRONTIER COMMUNICATIONS
120 S. STERLING ST.
STREATOR, IL 61364



FUNCTIONAL CLASSIFICATION: LOCAL ROAD
DESIGN SPEED: 30 MPH
DESIGN TRAFFIC: 75 ADT (2013)

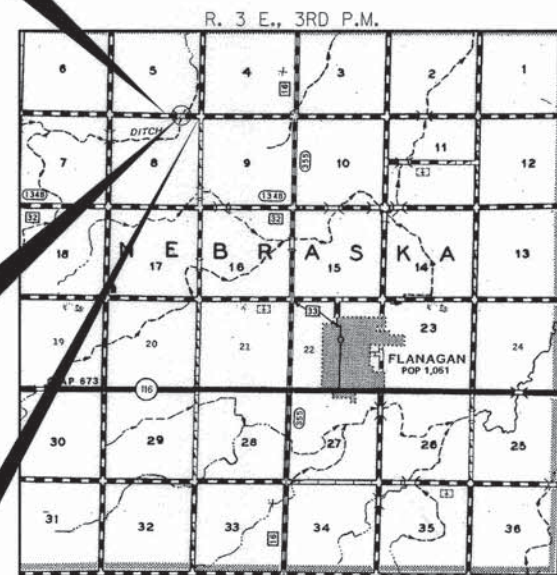


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

STA. 9+95
PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE. SINGLE SPAN @ 63'-0"
27'-0" RDWY.; SKEW = 35°
EXISTING STRUCTURE NO. 053-3234
PROPOSED STRUCTURE NO. 053-4208

IMPROVEMENT BEGINS
STATION 7+50

IMPROVEMENT ENDS
STATION 12+50

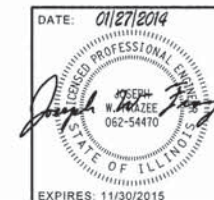


LOCATION MAP

APPROXIMATE SCALE: 0 1 MILE
NET LENGTH OF SECTION = 500 FEET = 0.095 MILES



ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	02/05 2014 <i>Dale Miller</i> COUNTY ENGINEER
APPROVED	02/05 2014 <i>Keith Brown</i> TOWNSHIP COMMISSIONER
PASSED	2/11 2014 <i>Dale Miller</i> DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS
Releasing For Bid Based on Limited Review	2/11 2014 <i>Paul A. Johnson</i> DEPUTY DIRECTOR OF HIGHWAYS REGION TWO ENGINEER STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION



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

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	CONSTRUCTION TYPE CODE 0011	
		UNIT	TOTAL
20200100	EARTH EXCAVATION	CU YD	285
20300100	CHANNEL EXCAVATION	CU YD	165
20400800	FURNISHED EXCAVATION	CU YD	750
28000305	TEMPORARY DITCH CHECKS	FOOT	90
28100107	STONE RIPRAP, CLASS A4	SQ YD	575
28200200	FILTER FABRIC	SQ YD	575
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	455
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	31.2
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,701
50800105	REINFORCEMENT BARS	POUND	3,370
50900205	STEEL RAILING, TYPE S1	FOOT	126
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	360
51202305	DRIVING PILES	FOOT	360
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
542D0220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	38
60100945	PIPE DRAINS 12"	FOOT	10
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X2070302	POROUS GRANULAR EMBANKMENT, SPECIAL	TON	140
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.5
Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	102

^ SEE SPECIAL PROVISIONS
* SPECIALTY ITEM

GENERAL NOTES

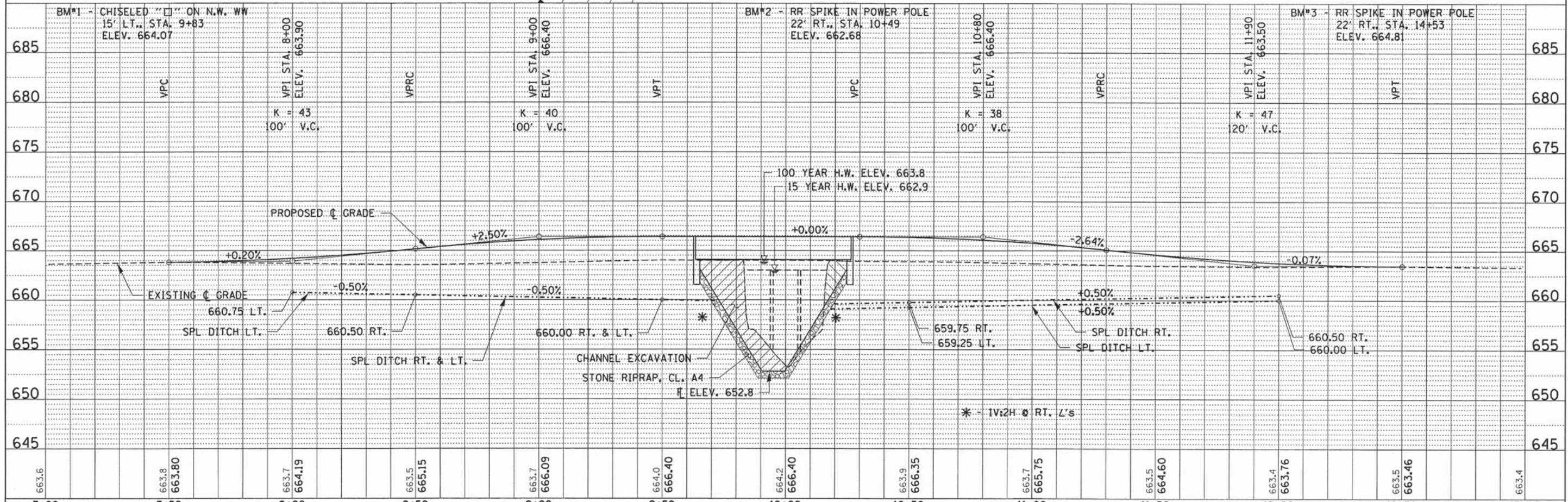
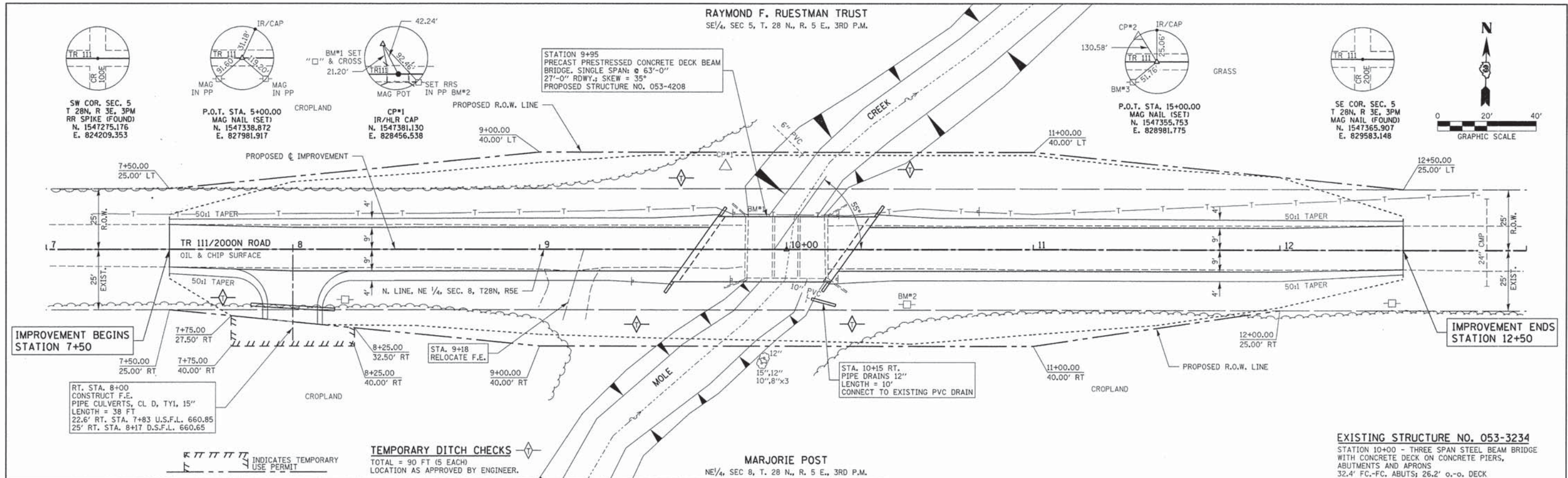
- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED JANUARY 1, 2012", (HERE IN AFTER REFERRED TO AS THE STANDARD SPECIFICATIONS; THE "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS" ADOPTED JANUARY 1, 2014; 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.
- ALL CLEARING, GRUBBING 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.
- 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.
- ANY REFERENCE TO A STANDARD THROUGHOUT THE PLANS OR SPECIAL PROVISIONS SHALL BE INTERPRETED TO BE THE LATEST STANDARD OF THE DEPARTMENT.
- 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.
- THE CONTRACTOR SHALL PROVIDE ACCESS TO ADJUTING PROPERTY AT ALL TIMES DURING CONSTRUCTION OF THE PROJECT.
- THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES

AGGREGATE SURFACE COURSE, TYPE B	2.05 TON/CU YD
POROUS GRANULAR EMBANKMENT	2.00 TON/CU YD
- 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) = 0.5 ACRES
- THE FINAL SURFACE OF ALL EMBANKMENT AREAS SHALL BE SEEDED. THE TOP 4 INCHES OF THE SEEDED AREAS SHALL BE VEGETATIVE SUSTAINING SOIL SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF SHAPING THE SLOPES AND PROVIDING VEGETATION SUSTAINING SOIL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF FURNISHED EXCAVATION.

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 111							
STA 7+50 TO STA 9+62.69	130		25.00%	100.00%	98	481	-383
STA 9+62.69 TO STA 10+27.31		165	25.00%	70.00%	87	0	87
STA 10+27.31 TO STA 12+50	153		25.00%	100.00%	115	556	-441
ENTRANCE EMBANKMENT						11	-11
TOTAL	283	165			300	1048	-748
TOTAL USE	285	165					-750

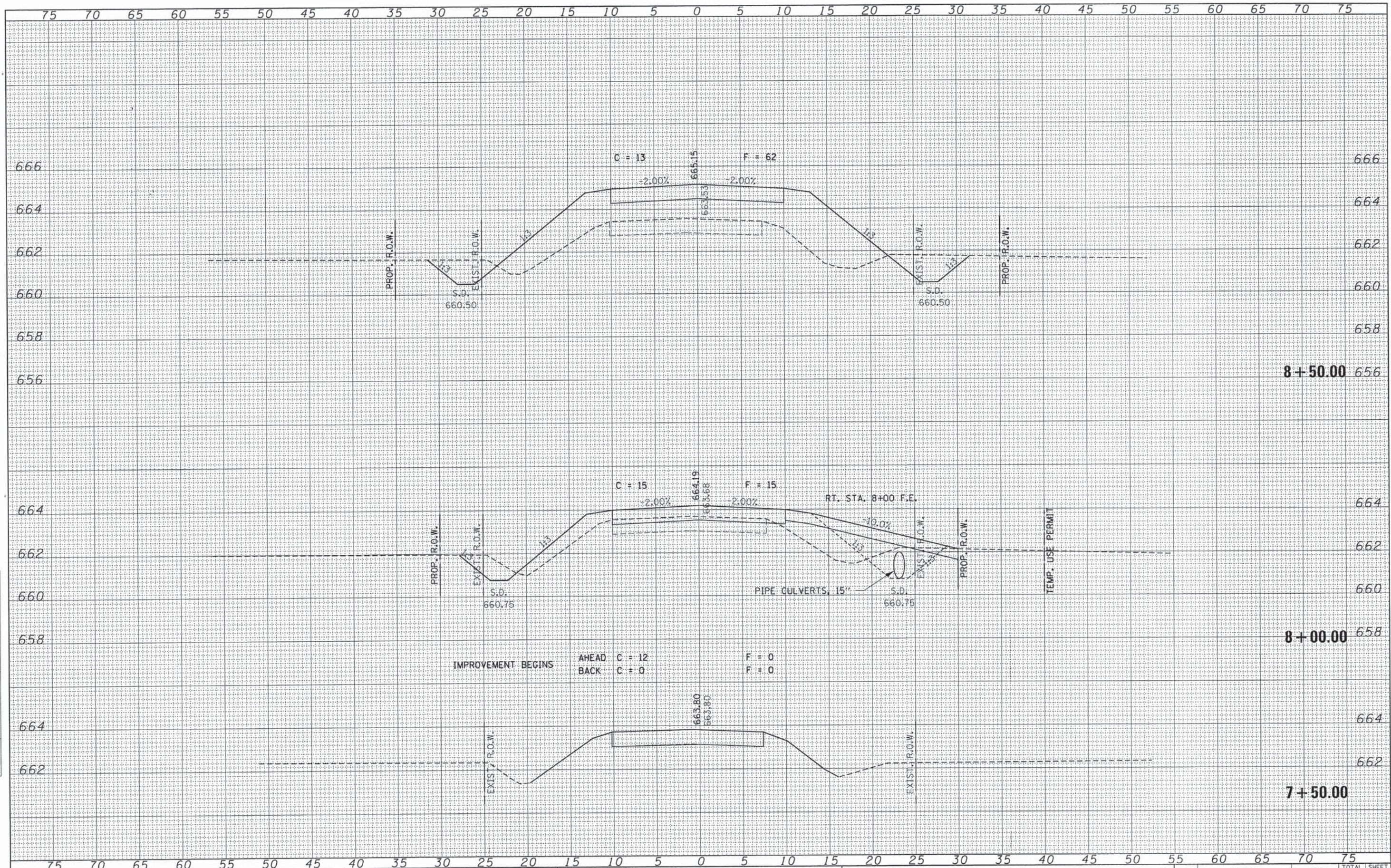
FURNISHED EXCAVATION = 750 CU YDS



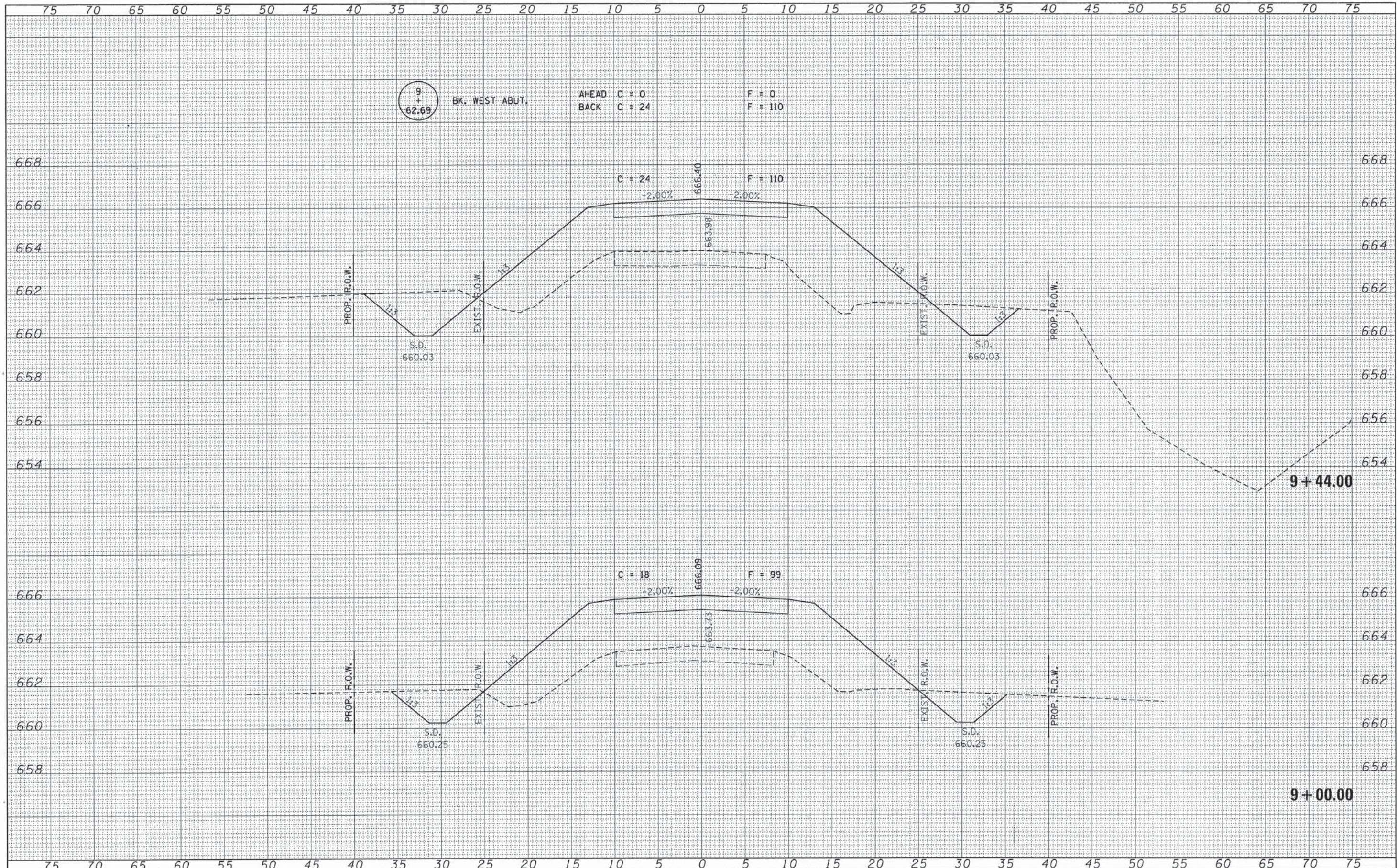
7+00	7+50	8+00	8+50	9+00	9+50	10+00	10+50	11+00	11+50	12+00	12+50	13+00
663.6	663.8	663.7	663.5	663.7	664.0	664.2	663.9	663.7	663.5	663.4	663.5	663.4

DATE	
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FINAL SURVEY	
SHORTED	
NOTE BOOK	
TEMPLATE	
AREAS CHECKED	
NO.	

DATE	
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ORIGINAL SURVEY	
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NOTE BOOK	
TEMPLATE	
AREAS CHECKED	
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FILE NAME = 130205-ht-sss.dgn	USER NAME =	DESIGNED - J.W.F.	REVISED -	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3033 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763		DRAWN - T.W.K.	REVISED -	111	11-15127-00-BR	LIVINGSTON	20	5
ALR ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-000999	PLOT SCALE =	CHECKED - S.W.M.	REVISED -	NEBRASKA ROAD DISTRICT CONTRACT NO. 87561				
	PLOT DATE = 1/27/2014	DATE - 01/27/14	REVISED -	ILLINOIS FED. AID PROJECT				
STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT				STATION CROSS SECTIONS				
				SCALE: 5V:2H SHEET NO. 1 OF 6 SHEETS STA. 7+50.00 TO STA. 8+50.00				

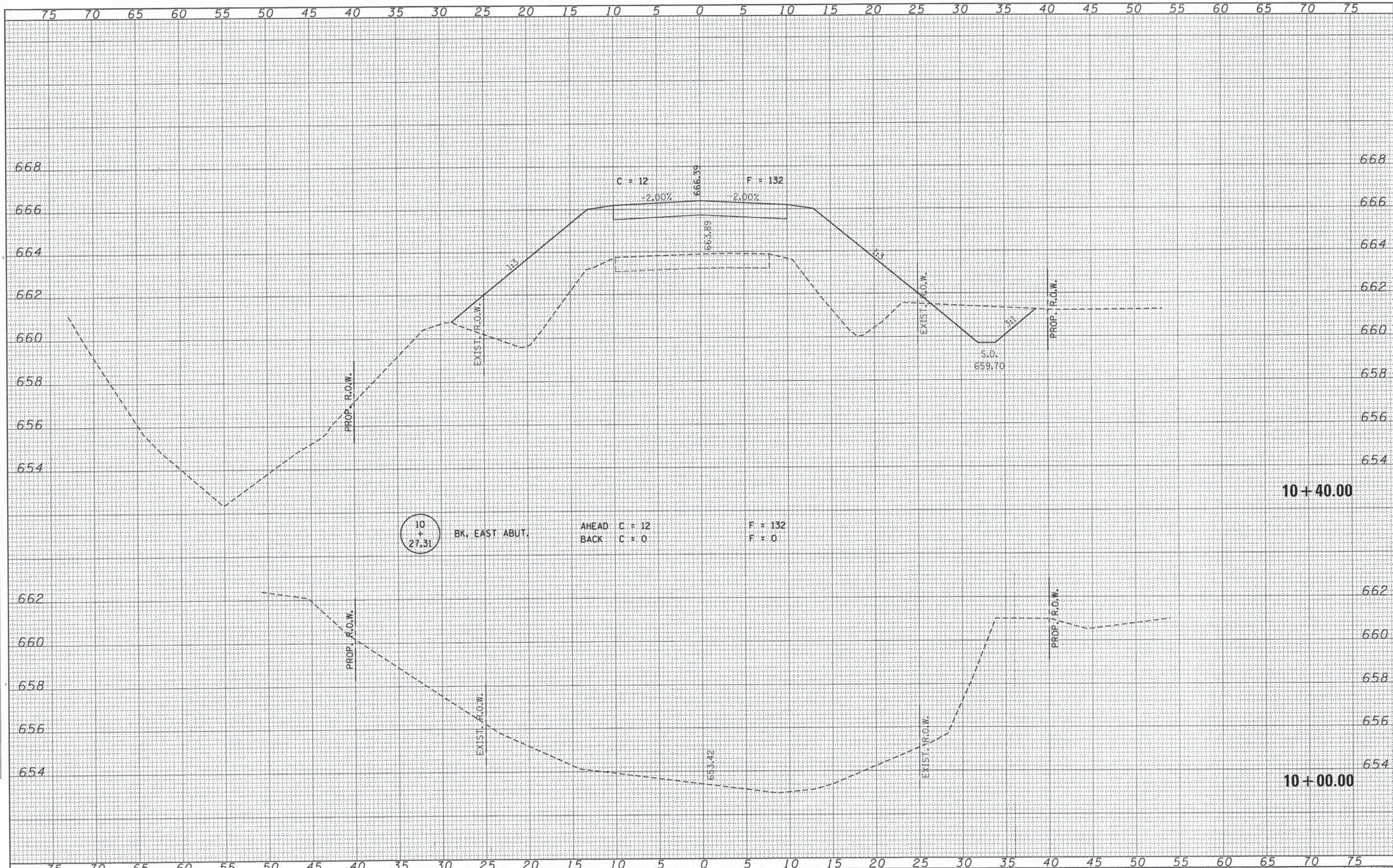


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TEMPLATE	
NOTE BOOK	
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FILE NAME = 130005-sht-sss.dgn
 HAMPTON, LENZINI AND RENWICK, INC.
 2085 STEVENSON DRIVE, SUITE 201
 SPRINGFIELD, ILLINOIS 62761
 ILLINOIS PROFESSIONAL DESIGN FIRM
 L3 / PE / SE CORP. 194,000993

USER NAME =
 DESIGNED - J.W.F.
 DRAWN - T.W.K.
 CHECKED - S.W.M.
 DATE - 01/27/14
 PLOT SCALE =
 PLOT DATE = 1/27/2014

REVISED -
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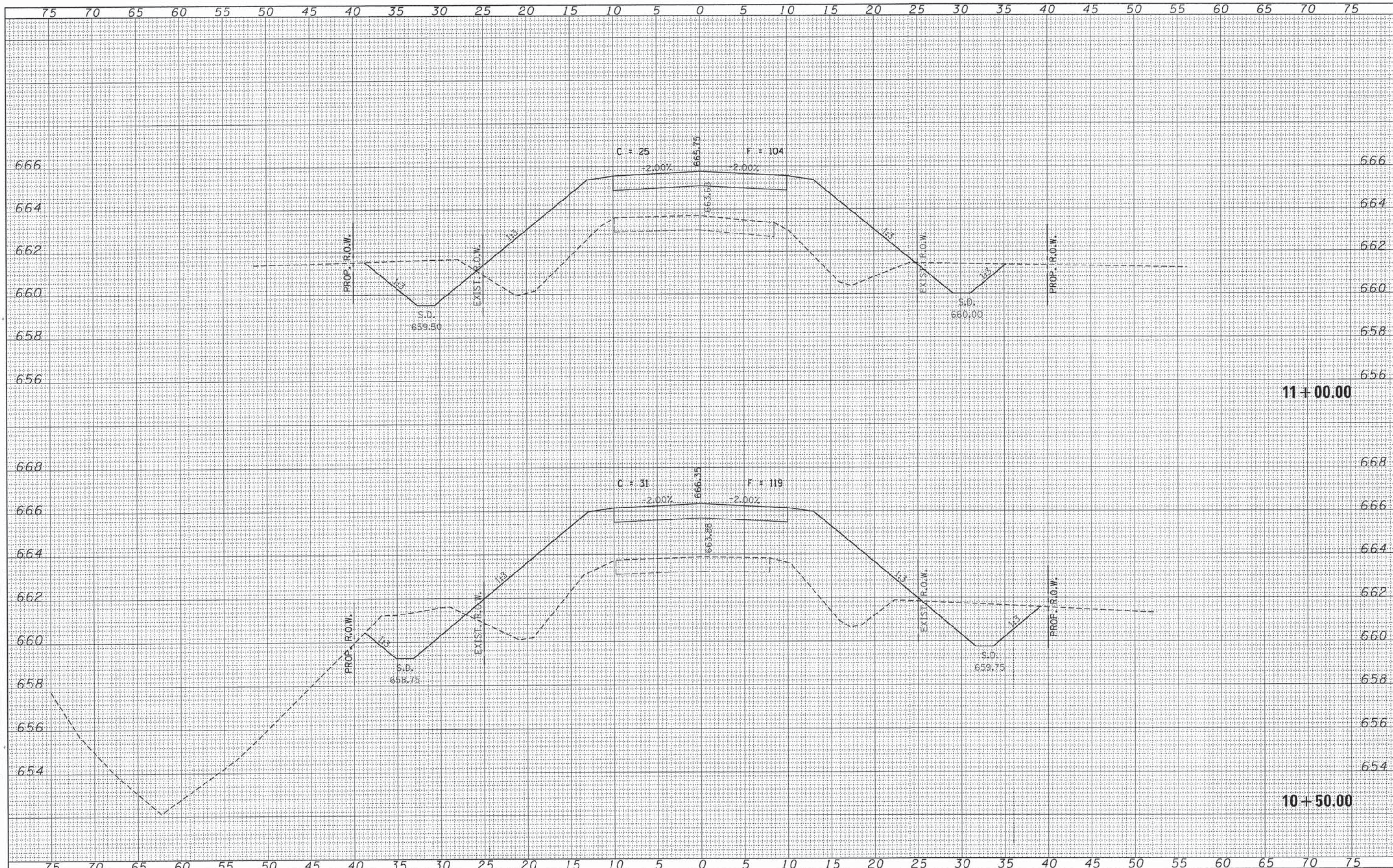
STATE OF ILLINOIS
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS
 SCALE: 5V:2H
 SHEET NO. 3 OF 6 SHEETS
 STA. 10+00.00 TO STA. 10+40.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
111	11-15127-00-BR	LIVINGSTON	20	7
NEBRASKA ROAD DISTRICT			CONTRACT NO. 87561	
ILLINOIS FED. AID PROJECT				

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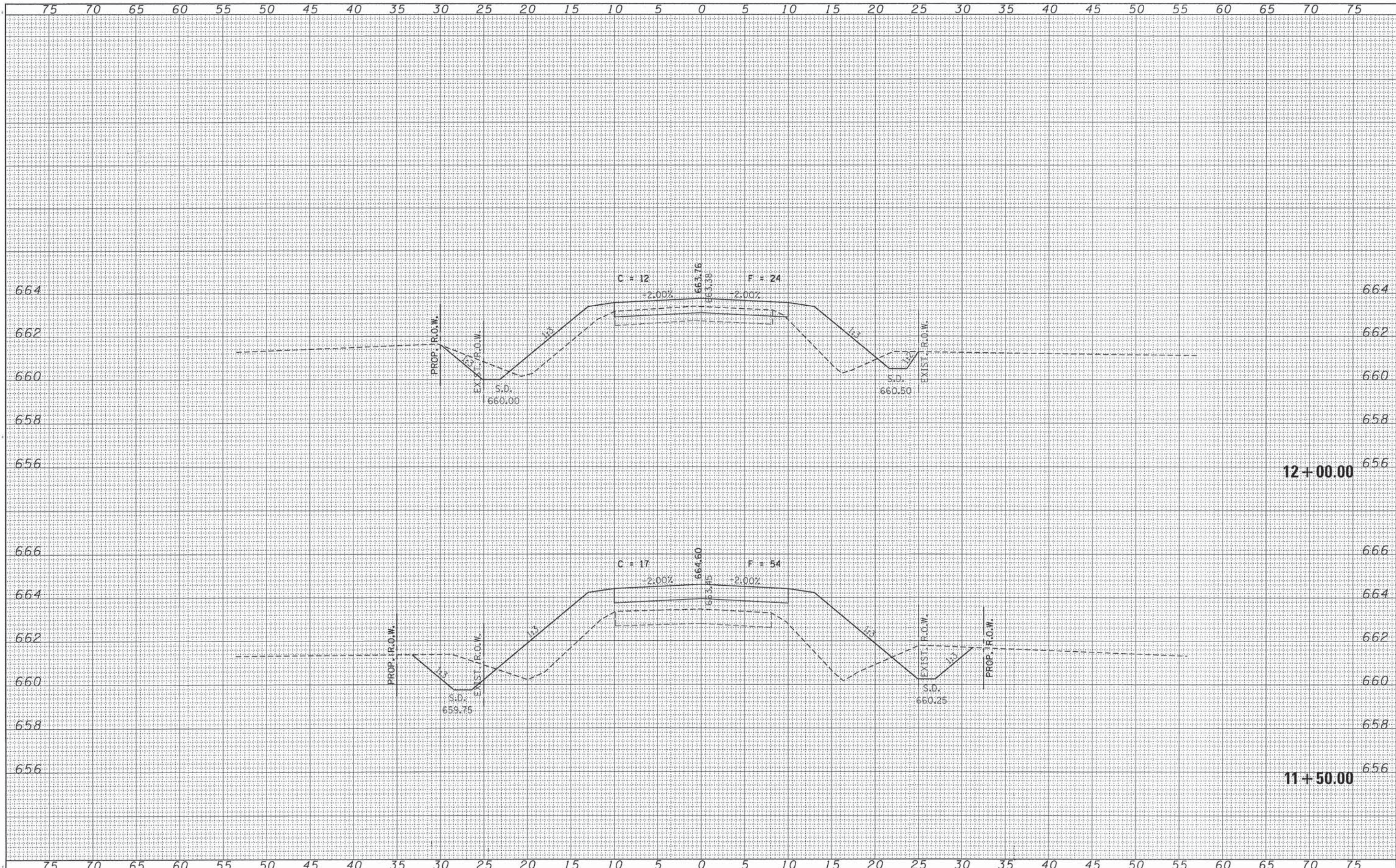
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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -	111	11-15127-00-BR	LIVINGSTON	20	8
3085 STEVENSON DRIVE, SUITE 201		CHECKED - S.W.M.	REVISED -	NEBRASKA ROAD DISTRICT				CONTRACT NO. 87561
SPRINGFIELD, ILLINOIS 62761		DATE - 01/27/14	REVISED -	ILLINOIS FED. AID PROJECT				
ILLINOIS PROFESSIONAL DESIGN FIRM				SCALE: 5V:2H				
LS / PE / SE CORP. 184-000009				SHEET NO. 4 OF 6 SHEETS				
				STA. 10+50.00 TO STA. 11+00.00				

STATE OF ILLINOIS
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS



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FINISHED SURVEY	
PLOTTED	
TEMPLATE	
NOTE BOOK	
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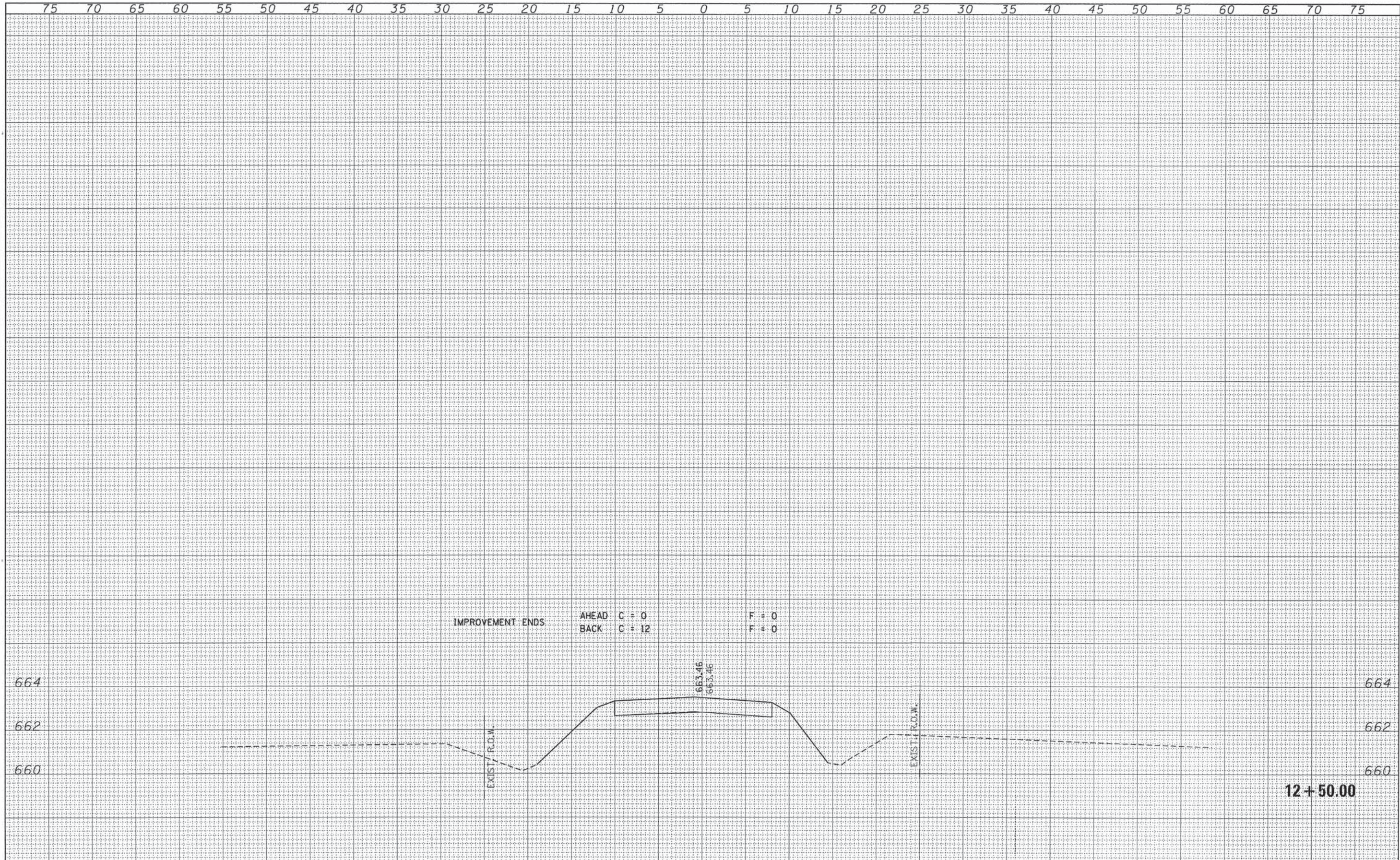
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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -	111	11-15127-00-BR	LIVINGSTON	20	9
1305 GILBERTSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703		CHECKED - S.W.M.	REVISED -	NEBRASKA ROAD DISTRICT				CONTRACT NO. 87561
ILLINOIS PROFESSIONAL DESIGN FIRM LS 1/PB 1/SS CORP. 184-000099	PLOT SCALE =	DATE - 01/27/14	REVISED -	ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS

SCALE: 5V:2H SHEET NO. 5 OF 6 SHEETS STA. 11+50.00 TO STA. 12+00.00



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HAMPTON, LENZINI AND RENWICK, INC.		DRAWN - T.W.K.	REVISED -		111	11-15127-00-BR	LIVINGSTON	20	10		
1805 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	CHECKED - S.W.M.	REVISED -		SCALE: 5Vx2H	SHEET NO. 6 OF 6 SHEETS	STA. 12+50.00 TO STA. 12+50.00	NEBRASKA ROAD DISTRICT		CONTRACT NO. 87561	
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-00089	PLOT DATE = 1/27/2014	DATE - 01/27/14	REVISED -				[ILLINOIS] FED. AID PROJECT				

BENCHMARK: Chiseled "□" on N.W. Wingwall
15' LT., STA. 9+83 Elev. 664.07

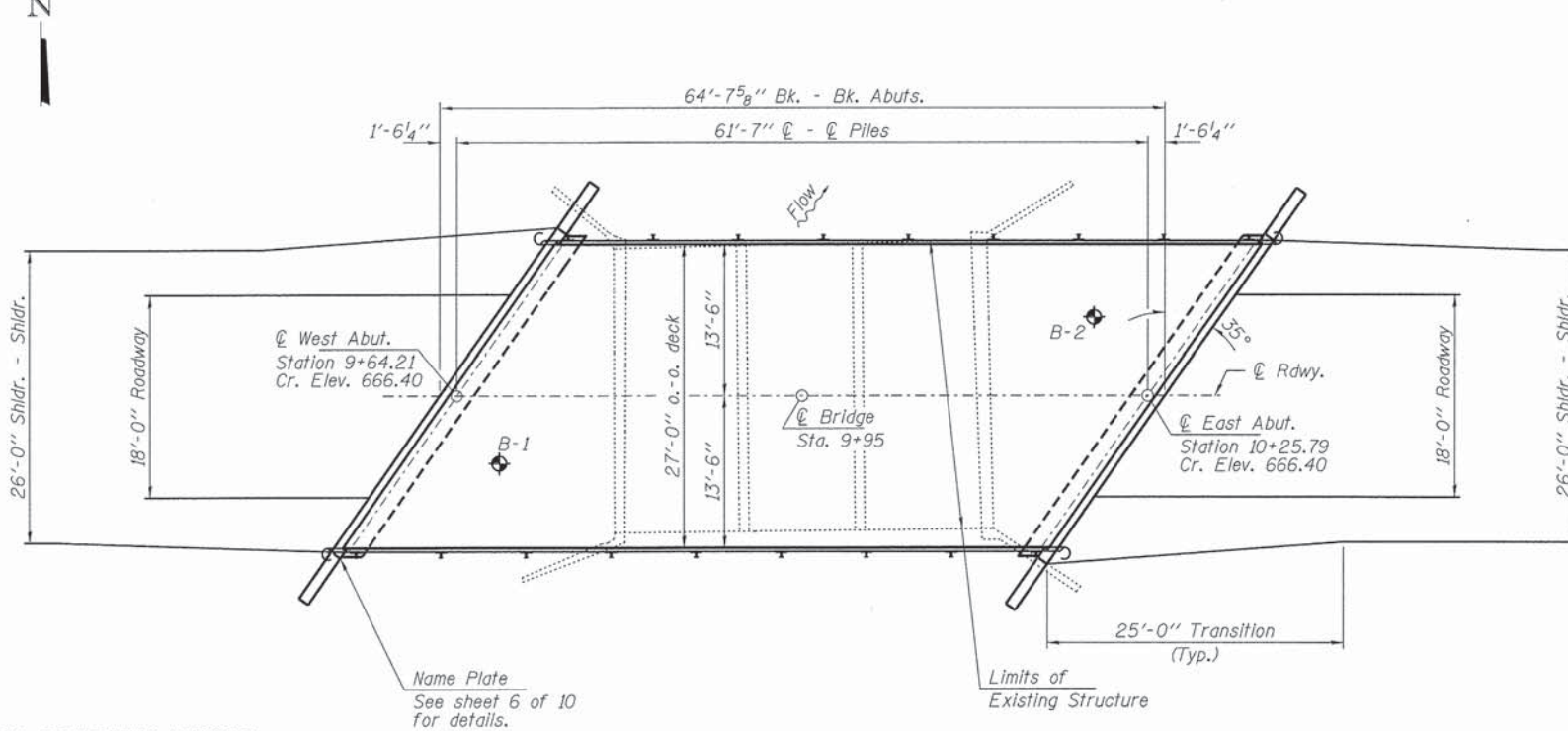
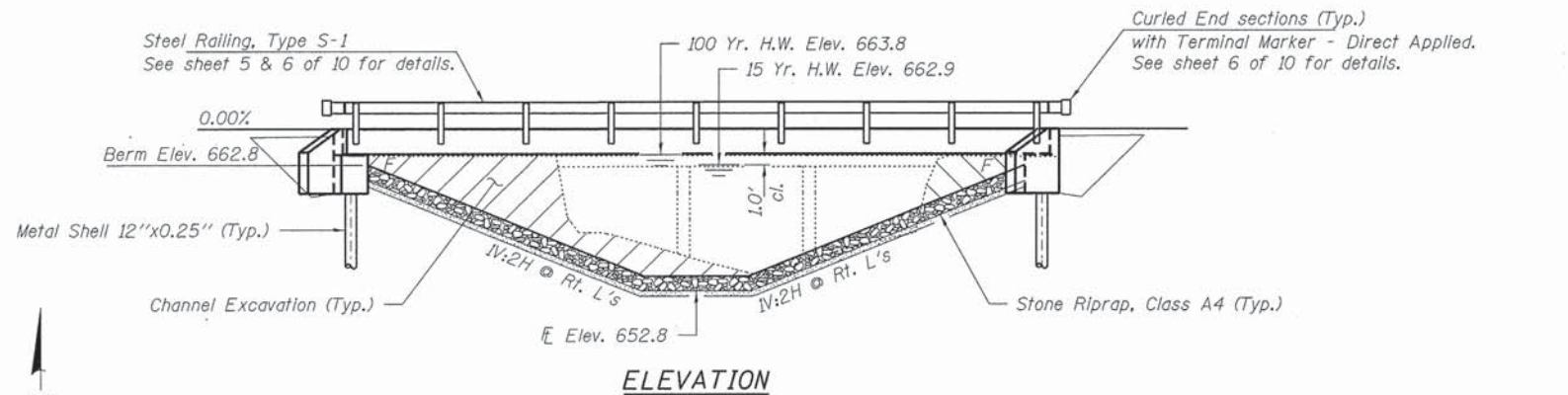
EXISTING STRUCTURE NO. 053-3234; Three span steel beam bridge
with concrete deck on concrete piers, abutments, and aprons.

Structure closed to traffic during construction.

No Salvage

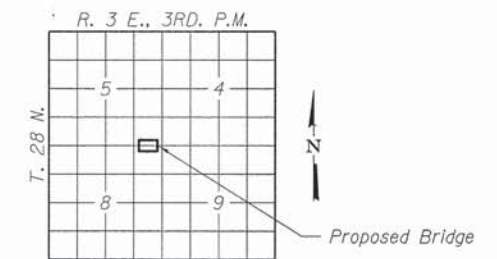
GENERAL NOTES

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 West 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. See Special Provisions.
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. 27"x36" PPC Deck Beam
4. 27"x36" PPC Deck Beam Details
5. Superstructure Details
6. Steel Railing, Type S-1
7. Abutments
8. Metal Shell Pile Details
- 9-10. Borings



LOCATION SKETCH

BUILT 201_ BY
LIVINGSTON COUNTY
SEC. 11-15127-00-BR
NEBRASKA ROAD DISTRICT
STR. NO. 053-4208
LOADING HL-93

NAME PLATE
See Std. 515001

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition with all applicable Interims.

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 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" low lax. strands)
fpbt = 201,960 psi (1/2" low lax. strands)
fy = 60,000 psi (Reinf.)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.108g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.181g
Soil Site Class = D

Design Scour Elevations (ft.)		
	W. Abut.	E. Abut.
Q100	660.3	660.3

WATERWAY INFORMATION

		Existing Low Grade Elev. 663.4 @ Sta. 12+00 Proposed Low Grade Elev. 663.5 @ Sta. 12+50							
Drainage Area = 11.0 Sq. Mi.		Opening Sq. Ft.		Natural H.W.E.	Head - Ft.		Headwater El.		
Flood	Freq. Yr.	Q	C.F.S.	Exist.	Prop.	Exist.	Prop.		
Overtop Existing	10	1616	150	270	662.65	1.30	0.29	663.95	662.94
Design	15	1850	160	280	662.88	1.18	0.45	664.06	663.33
Base	100	3070	180	320	663.80	0.78	0.79	664.58	664.59
Max. Calc.	500	4170	180	330	664.44	0.49	0.71	664.93	665.15

10 Year Velocity Through Existing Bridge = 10.8 fps 10 Year Velocity Through Proposed Bridge = 6.0 fps

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 0112712014
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2014

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			165
Porous Granular Embankment, Special	Ton		140	140
Stone Riprap, Class A4	Sq. Yd.			575
Filter Fabric	Sq. Yd.			575
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		31.2	31.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,701		1,701
Reinforcement Bars	Pound		3,370	3,370
Steel Railing, Type S-1	Foot	126		126
Furnishing Metal Shell Piles 12"x0.25"	Foot		360	360
Driving Piles	Foot		360	360
Test Pile Metal Shells	Each		1	1
Name Plates	Each		1	1
Pipe Underdrains for Structures 4"	Foot		102	102

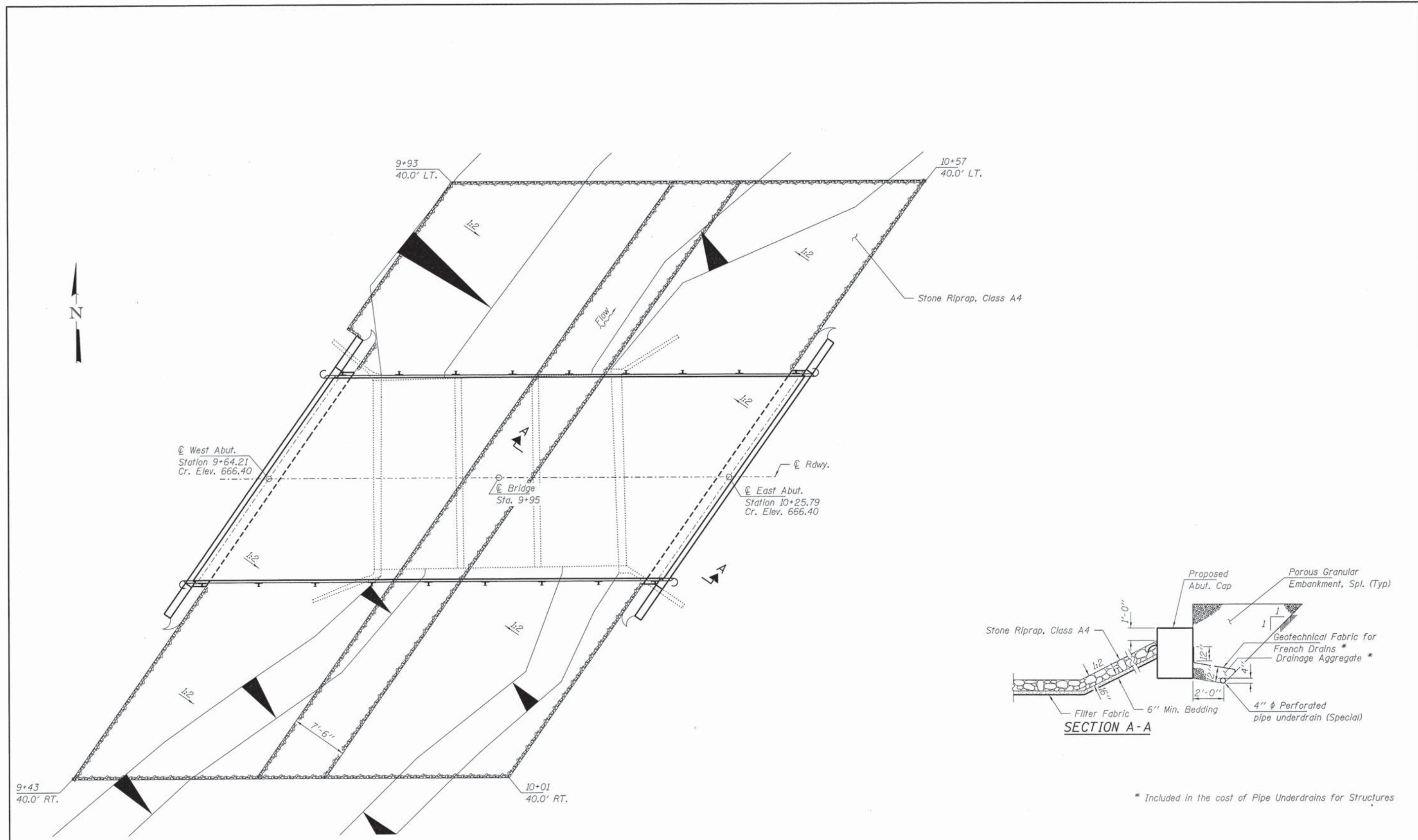
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308 STEVENSON DRIVE, SUITE 307 SPRINGFIELD, ILLINOIS 62763	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM L3 / PE / SE CORP. 184.000099	PLOT DATE = 1/27/2014	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION
STRUCTURE NO. 053-4208

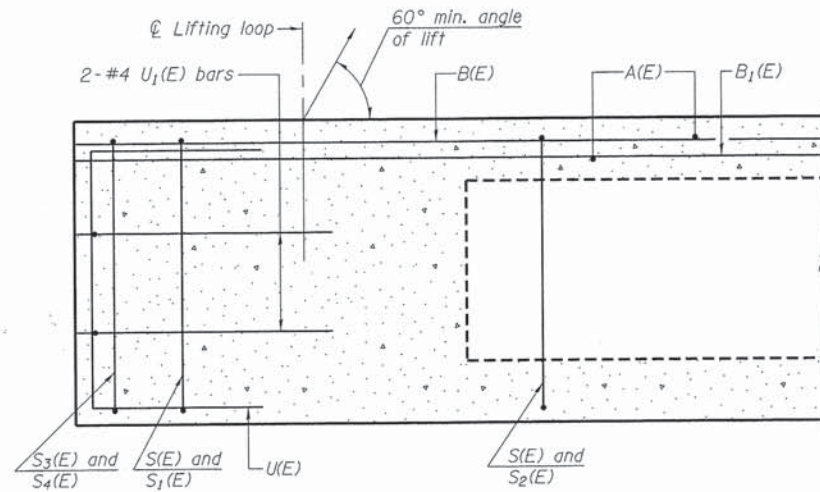
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
111	11-15127-00-BR	LIVINGSTON	20	11
NEBRASKA ROAD DISTRICT			CONTRACT NO. 87561	
ILLINOIS FED. AID PROJECT				

SHEET NO. 1 OF 10 SHEETS



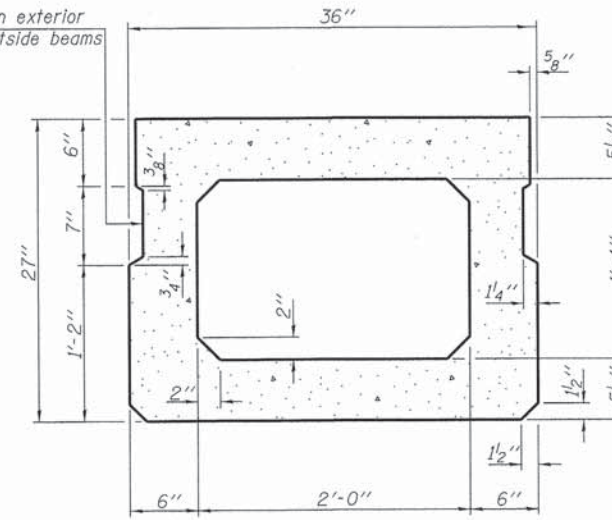
* Included in the cost of Pipe Underdrains for Structures

FILE NAME = 130005-shr-bridge.dgn HAMPTON, LENZINI AND RENWICK, INC. <small>393 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184 000003</small>	USER NAME =	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	RIPRAP LAYOUT STRUCTURE NO. 053-4208 SHEET NO. 2 OF 10 SHEETS	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			111	11-15127-00-BR	LIVINGSTON	20	12
PLOT DATE = 1/27/2014	DRAWN - R.D.H.	REVISED -				NEBRASKA ROAD DISTRICT		CONTRACT NO. 87561		
	CHECKED - S.W.M.	REVISED -				ILLINOIS FED. AID PROJECT				

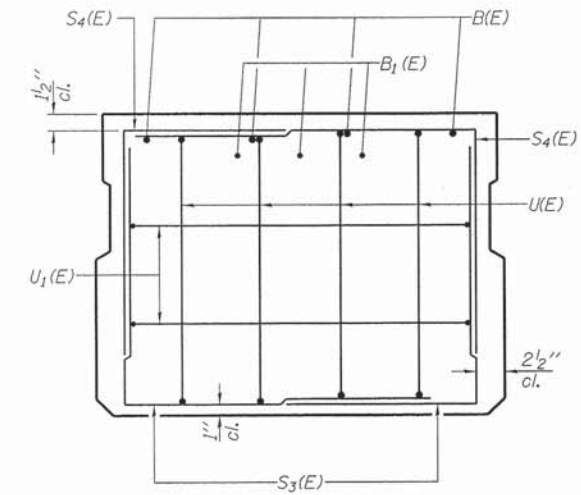


SECTION A-A

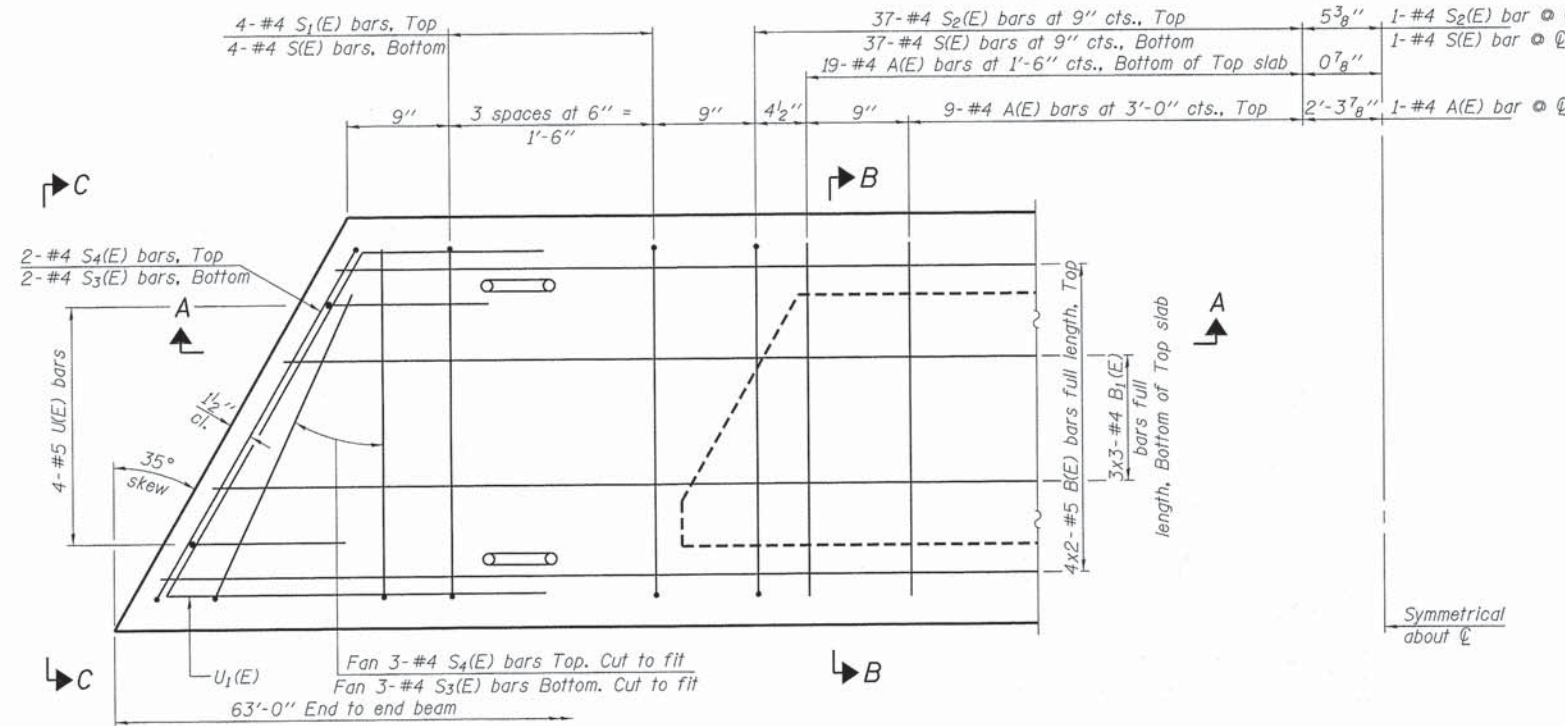
Omit key on exterior face of outside beams



SECTION B-B
(Showing dimensions)



VIEW C-C

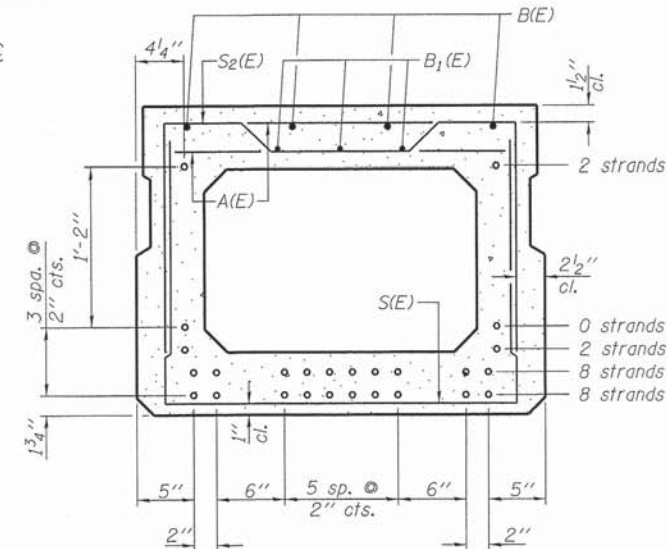


PLAN VIEW

Notes:
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 4x2-#5 etc. indicates 4 lines of bars with 2 lengths per line.

MINIMUM BAR LAP

#4 bar = 2'-0"
#5 bar = 2'-6"



SECTION B-B

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

BAR LIST
ONE BEAM ONLY

(For Information only)

Bar	No.	Size	Length	Shape
A(E)	57	#4	2'-7"	—
B(E)	8	#5	32'-8"	—
B1(E)	9	#4	22'-3"	—
S(E)	83	#4	6'-5"	—
S1(E)	8	#4	5'-11"	┌
S2(E)	75	#4	6'-2"	┌
S3(E)	10	#4	4'-5"	┌
S4(E)	10	#4	4'-2"	┌
U(E)	8	#5	4'-6"	┌
U1(E)	4	#4	7'-4"	┌

Note: See sheet 4 & 5 of 10 for additional details and Bill of Material.

PD-2736-L

7-1-10

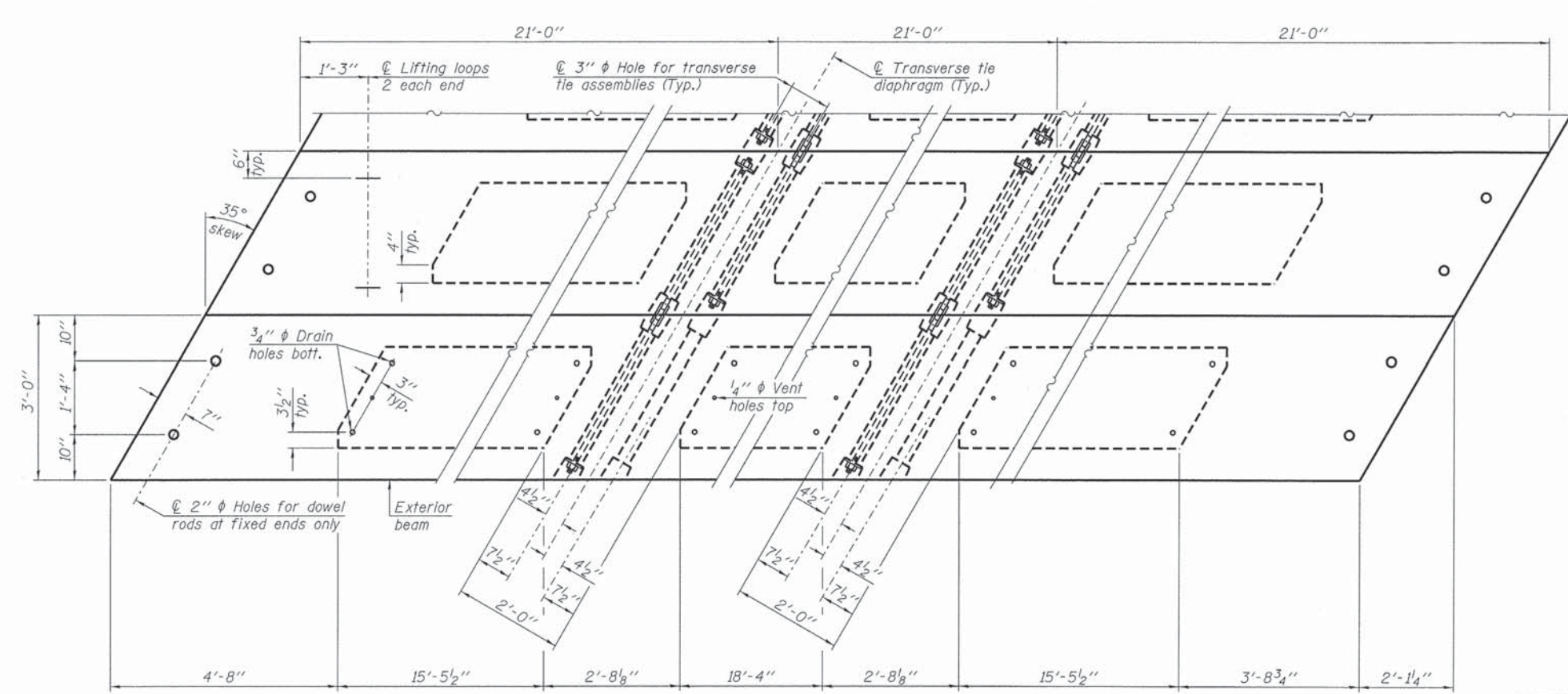
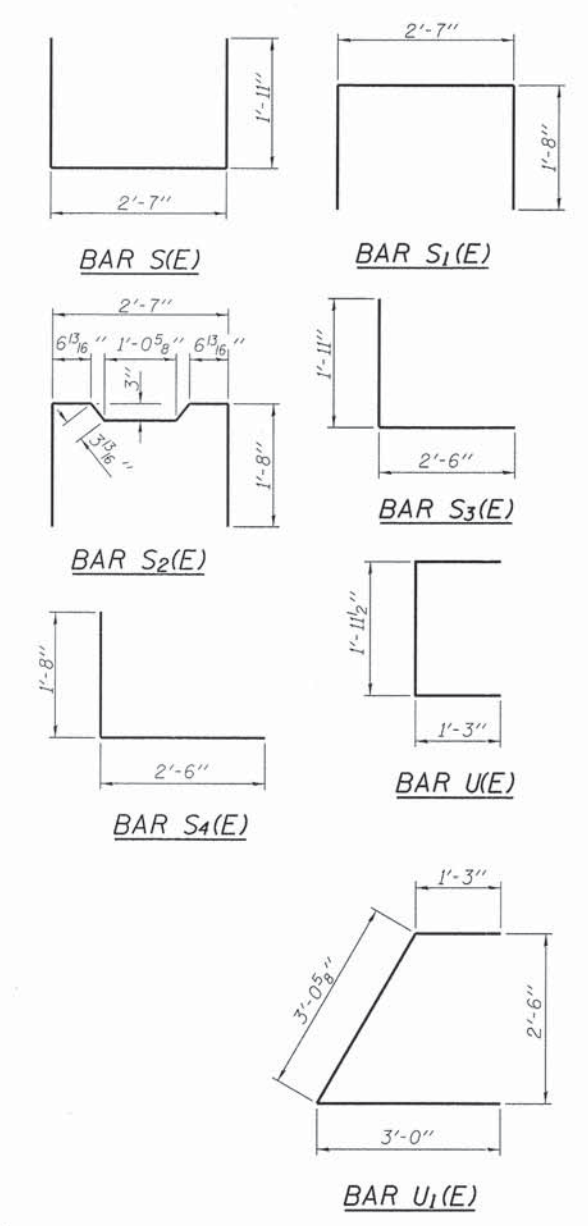
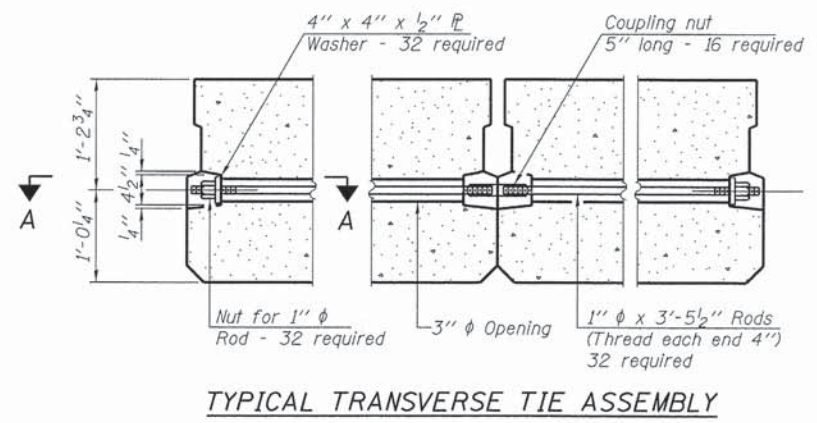
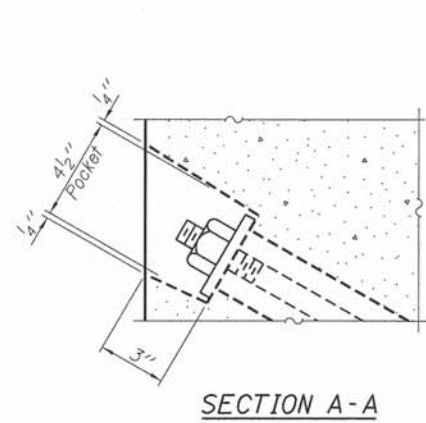
FILE NAME = 130005-shr-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
2048 STEVENSON DRIVE, SUITE 201		DRAWN - R.D.H.	REVISED -
SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM	PLOT DATE = 1/27/2014		
L3/P/E/SE CORP. 184-000009			

STATE OF ILLINOIS
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

27" x 36" PPC DECK BEAM
STRUCTURE NO. 053-4208

SHEET NO. 3 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
111	11-15127-00-BR	LIVINGSTON	20	13
NEBRASKA ROAD DISTRICT		CONTRACT NO. 87561		
ILLINOIS FED. AID PROJECT				

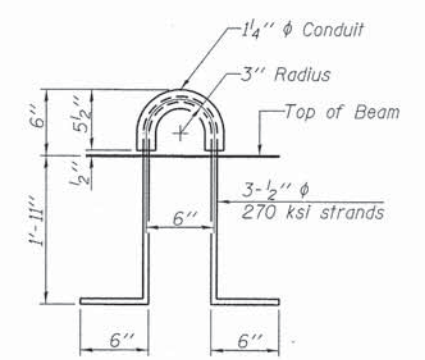


PLAN VIEW

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. Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions). 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)(12) 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.



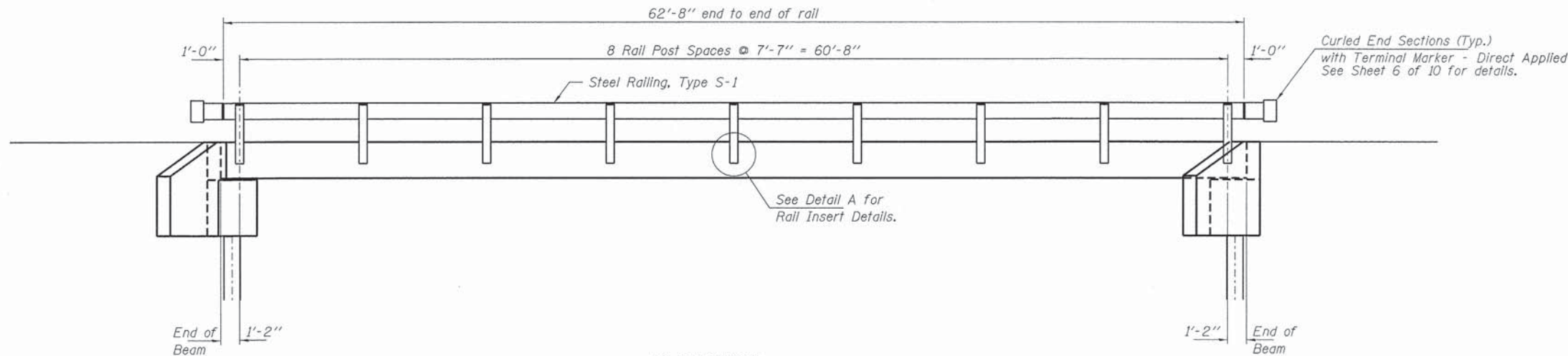
LIFTING LOOP DETAIL

BILL OF MATERIAL

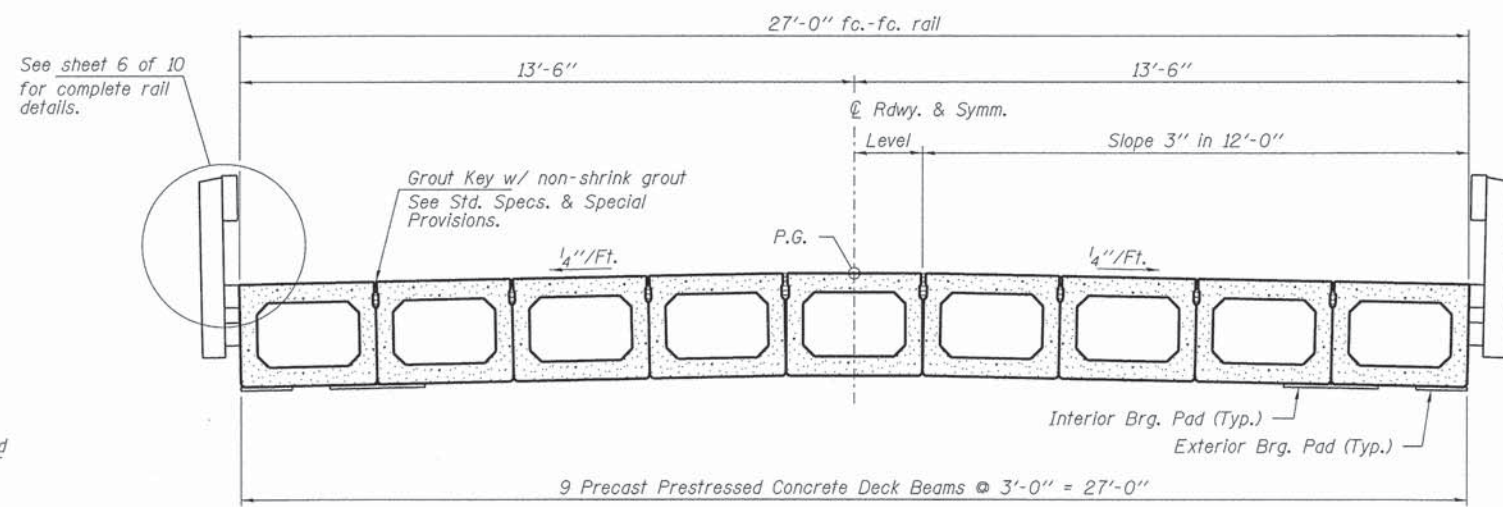
Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1.701
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PD-2736-LD 7-1-10

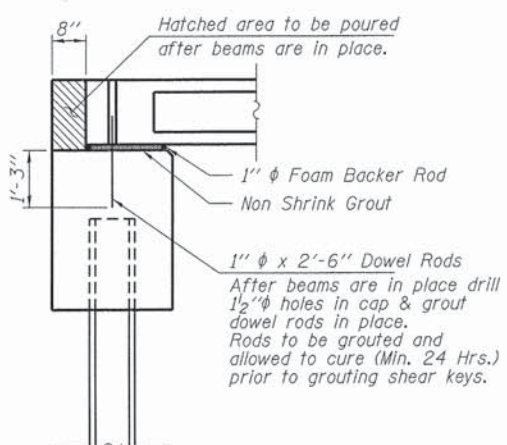
FILE NAME = 132005-sh1-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	27" x 36" PPC DECK BEAM DETAILS STRUCTURE NO. 053-4208	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -			111	11-15127-00-BR	LIVINGSTON	20	14	
3535 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62779	PLOT SCALE =	DRAWN - R.D.H.	REVISED -			NEBRASKA ROAD DISTRICT	CONTRACT NO. 87561				
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000859	PLOT DATE = 1/27/2014	CHECKED - S.W.M.	REVISED -			ILLINOIS FED. AID PROJECT					
						SHEET NO. 4 OF 10 SHEETS					



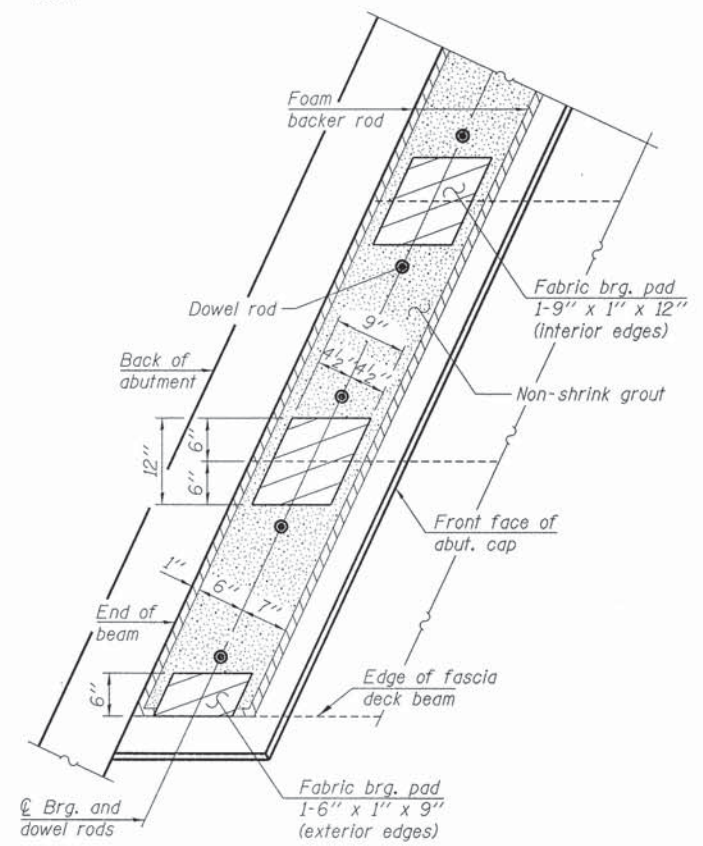
ELEVATION
Showing Rail Post Spaces
See sheet 6 of 10 for Railing Details.



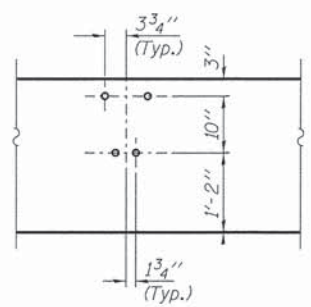
CROSS SECTION
See sheets 3 & 4 of 10 for Superstructure.



SECTION AT ABUTMENTS
© Rt. L's



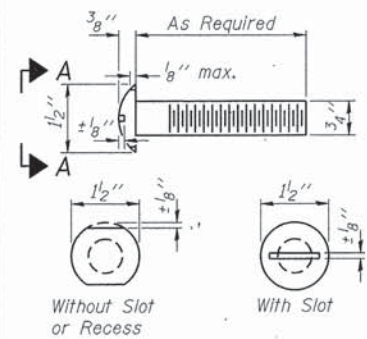
PLAN
(Abutment)



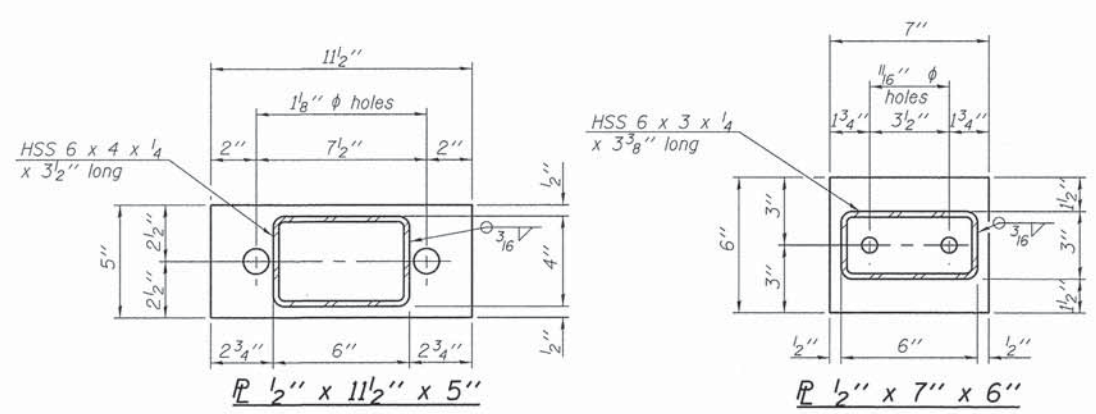
DETAIL A

Notes:
The bearing seat surfaces shall be adjusted by shimming the bearing to assure firm and even bearing prior to placement of grout. 2-1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shown shall be provided for each bearing.

FILE NAME = 130005-shr-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT	SUPERSTRUCTURE DETAILS STRUCTURE NO. 053-4208	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 308 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			111	11-15127-00-BR	LIVINGSTON	20	15	
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000999	PLOT DATE = 1/27/2014	DRAWN - R.D.H.	REVISED -			NEBRASKA ROAD DISTRICT CONTRACT NO. 87561					
		CHECKED - S.W.M.	REVISED -			ILLINOIS FED. AID PROJECT					
						SHEET NO. 5 OF 10 SHEETS					

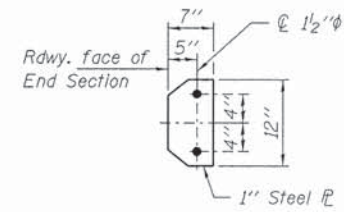


**VIEW A-A
ROUND HEAD BOLT**

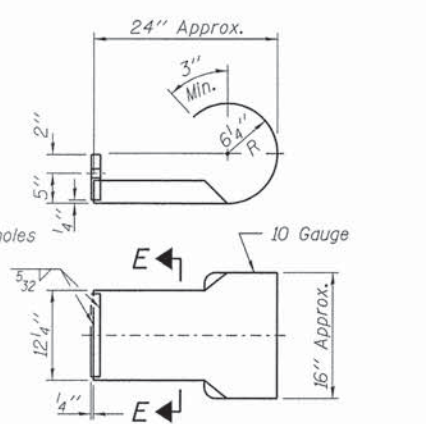


SECTION AT RAILING POST

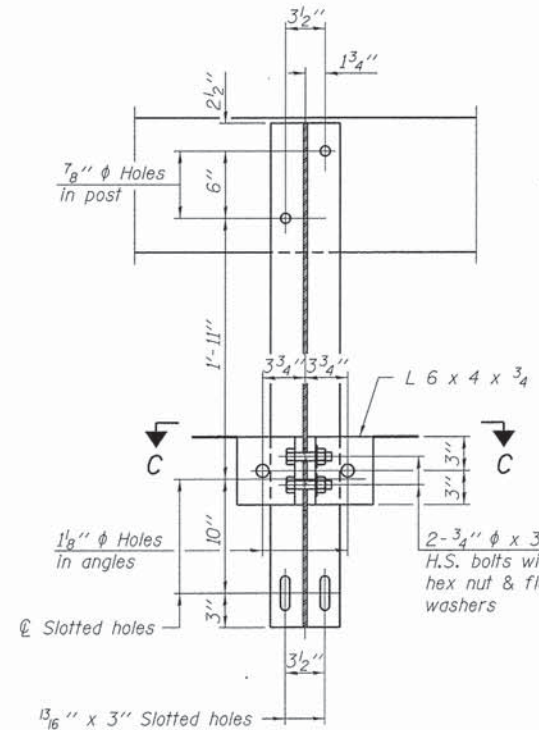
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



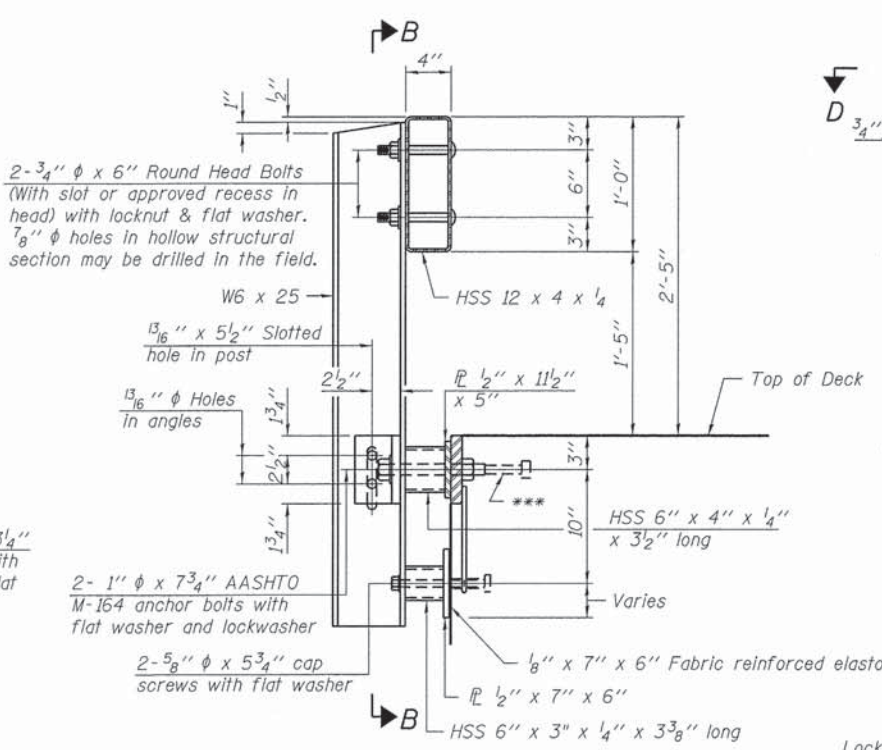
SECTION E-E



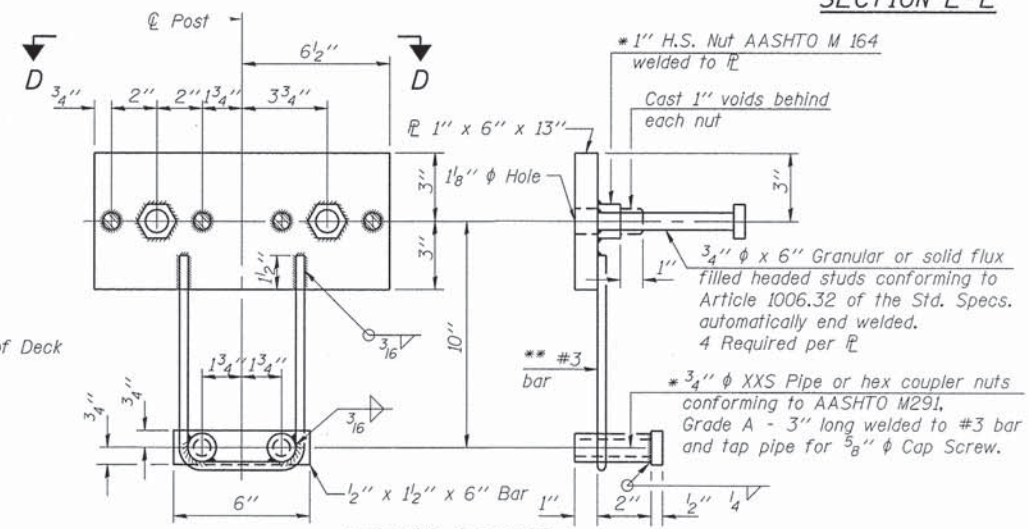
CURLED END SECTION DETAILS



SECTION B-B

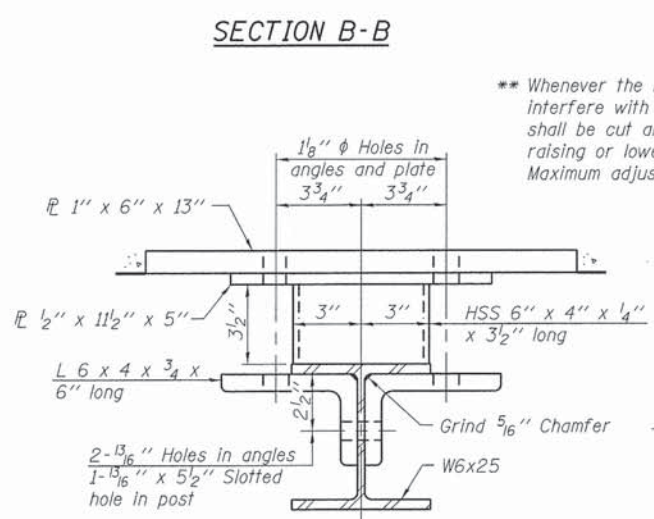


SECTION AT RAILING POST

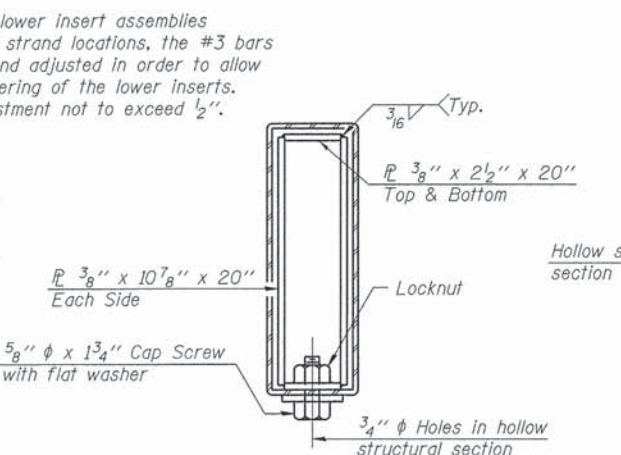


ANCHOR DEVICE

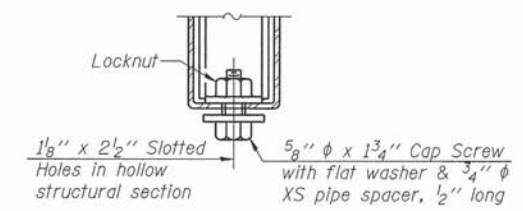
Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4 inch x 6 inch x 1-2 inch galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



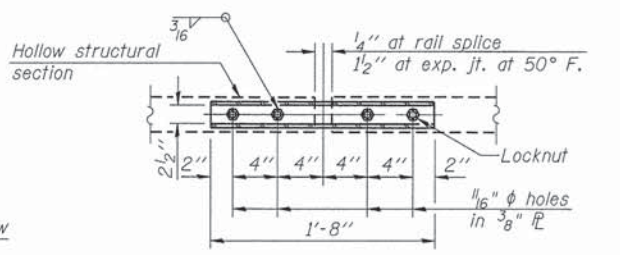
SECTION C-C



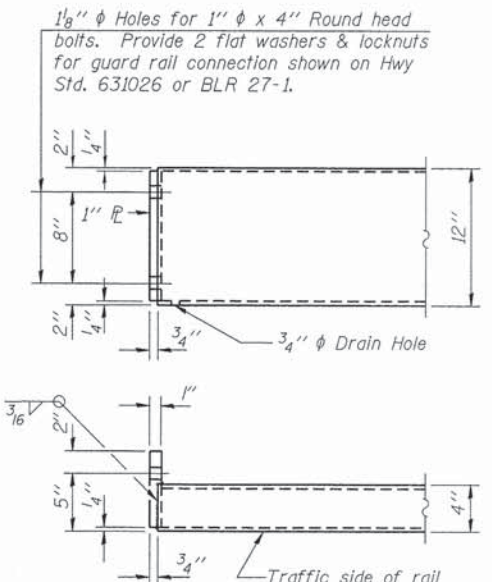
SECTIONS AT RAIL SPLICE



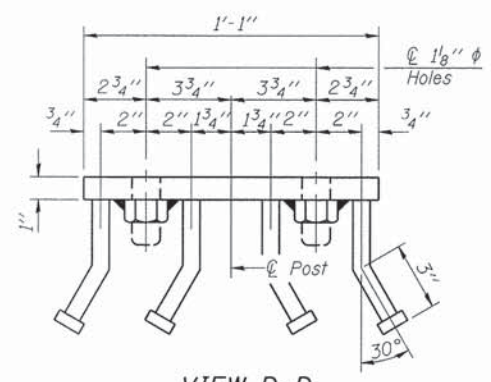
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE R TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	126

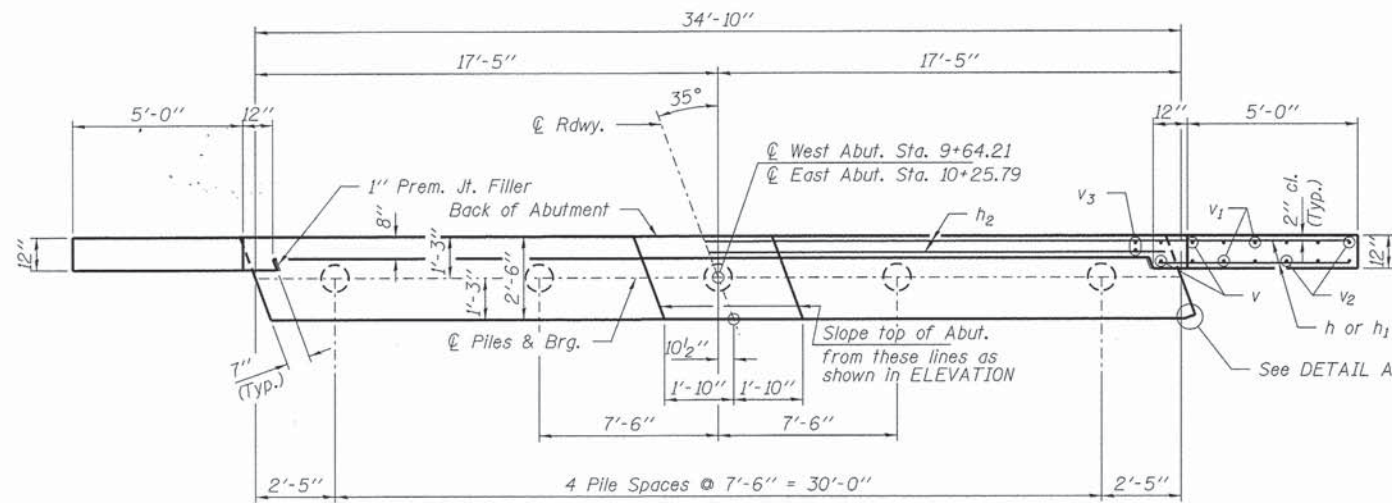
R-23A 7-1-10 (10'-9" Maximum Post Spacing)

FILE NAME = 130005-ah-bridge.dgn	USER NAME =	DESIGNED - L.A.P.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
308 STEVENSON DRIVE, SUITE 201		DRAWN - R.D.H.	REVISED -
SPRINGFIELD, ILLINOIS 62703		CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM			
LS/PE/SE CORP. 184-00089			

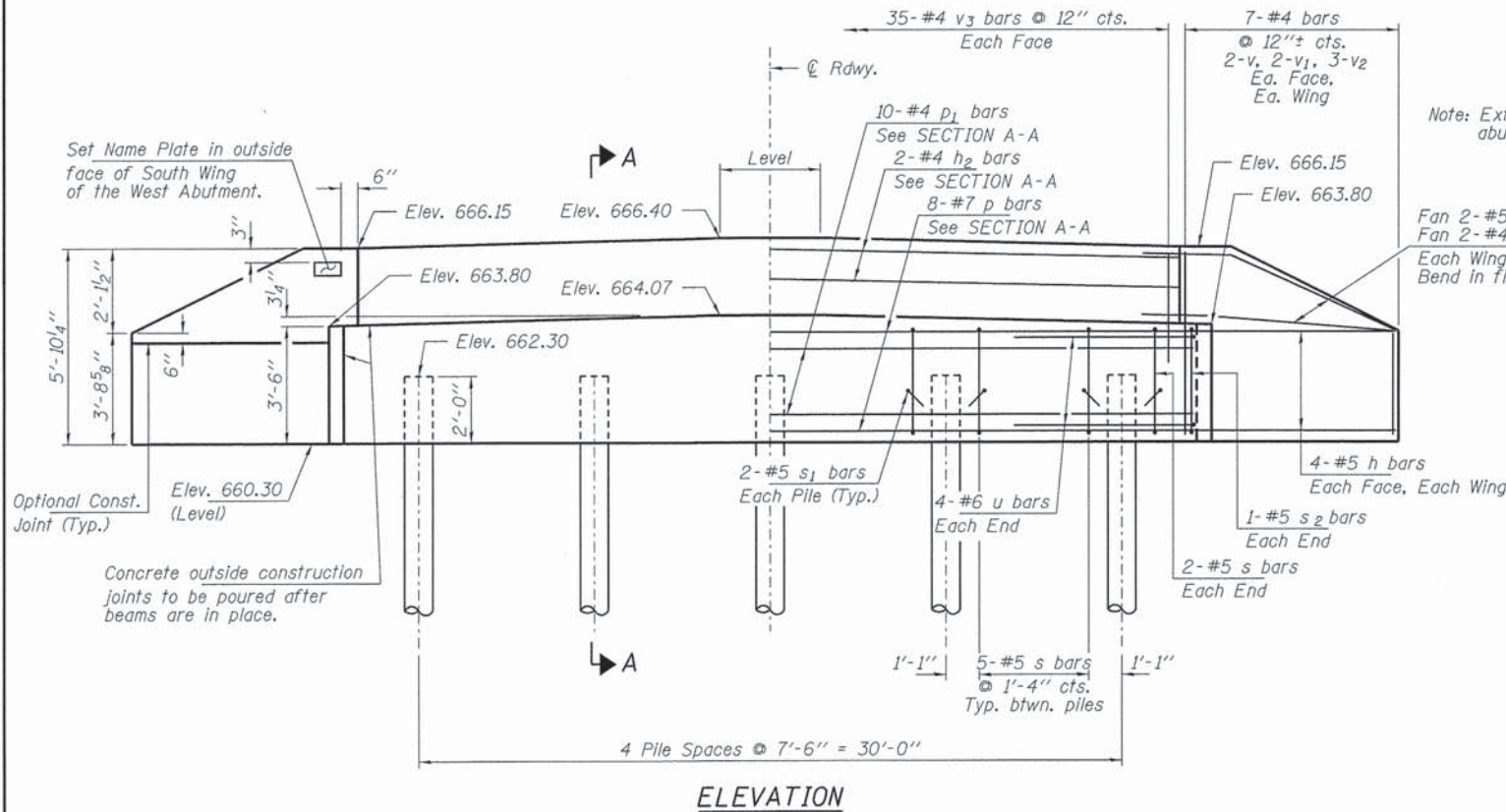
STATE OF ILLINOIS
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE S-1
STRUCTURE NO. 053-4208
SHEET NO. 6 OF 10 SHEETS

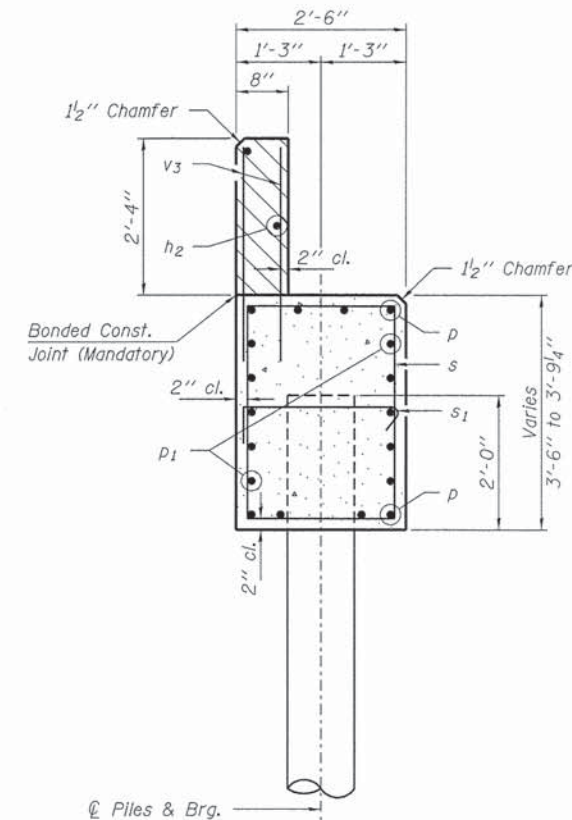
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
111	11-15127-00-BR	LIVINGSTON	20	16
NEBRASKA ROAD DISTRICT			CONTRACT NO. 87561	
[ILLINOIS] FED. AID PROJECT				



PLAN

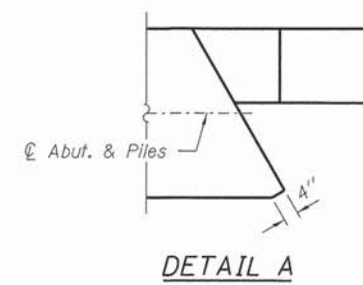


ELEVATION



SECTION A-A

Hatched area to be poured after beams are in place.



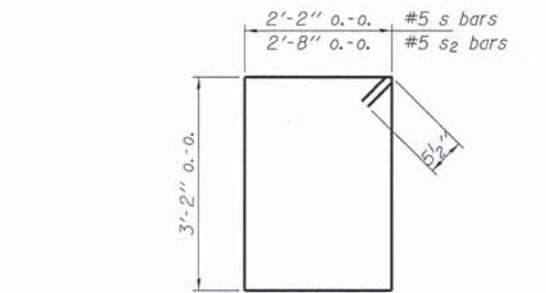
DETAIL A

PILE DATA

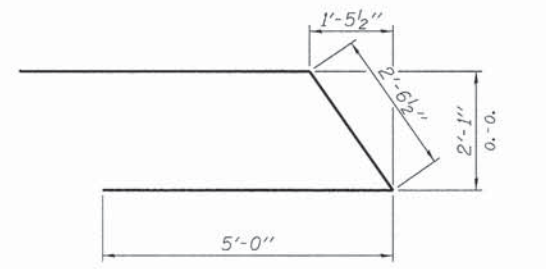
Type ----- Metal Shell 12"x0.25"
 No. Req'd. (2 Abuts.) ----- 10
 Factored Resistance Available (Rf) ----- 157 Kips/Pile
 Nominal Required Bearing (Rn) ----- 286 Kips/Pile
 Est. Length ----- 40 Ft./Pile

Notes: * Includes one test pile to be driven in permanent location at the West Abutment.

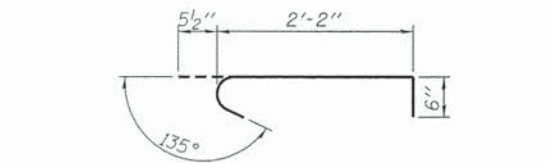
The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.



BAR s & s2



BAR u



BAR s1

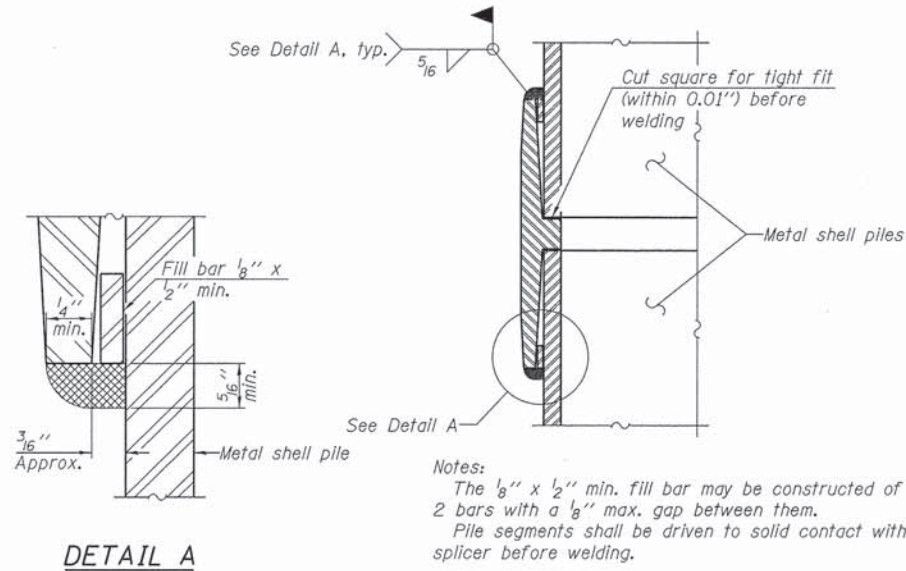
BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h	40	#4	7'-3"	—
h1	8	#4	5'-9"	—
h2	4	#4	34'-6"	—
p	16	#7	34'-6"	—
p1	20	#4	34'-6"	—
s	48	#5	11'-7"	□
s1	20	#5	3'-2"	□
s2	4	#5	12'-7"	□
u	16	#6	12'-7"	—
v	16	#4	5'-5"	—
v1	16	#4	4'-8"	—
v2	24	#4	3'-5"	—
v3	140	#4	3'-2"	—
Concrete Structures			Cu. Yd.	31.2
Reinforcement Bars			Pound	3,370
Metal Shells 12"x0.25"			Foot	360
Test Pile Metal Shell			Each	1
Name Plates			Each	1



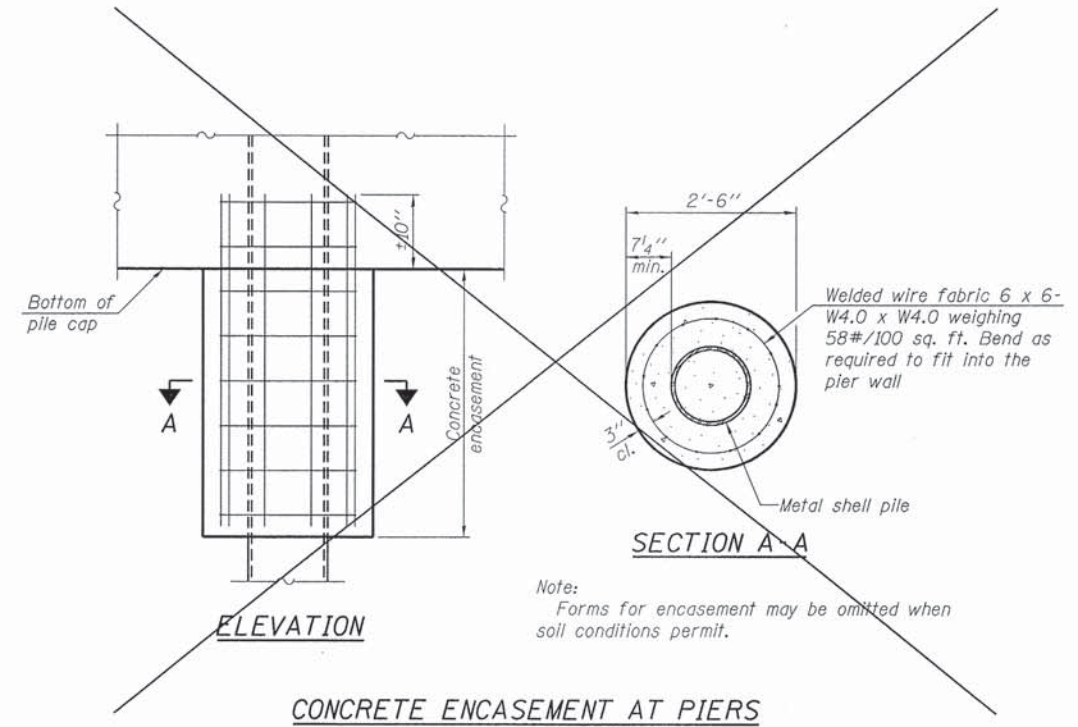
METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361

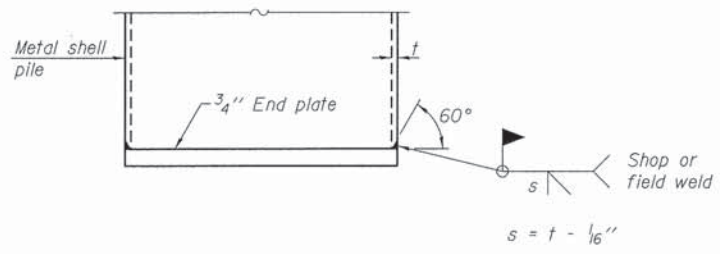


WELDED COMMERCIAL SPLICE

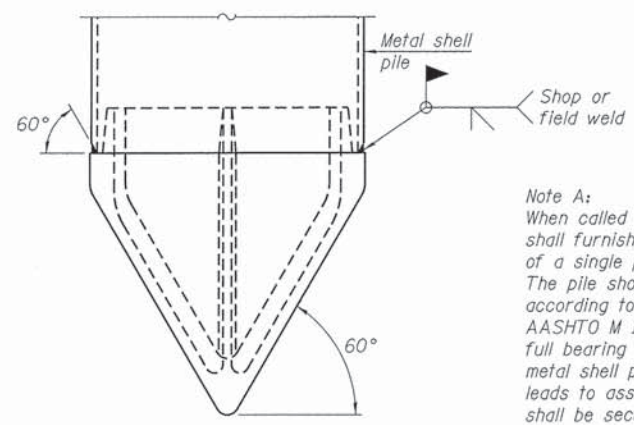
Notes:
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
 Pile segments shall be driven to solid contact with splicer before welding.



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

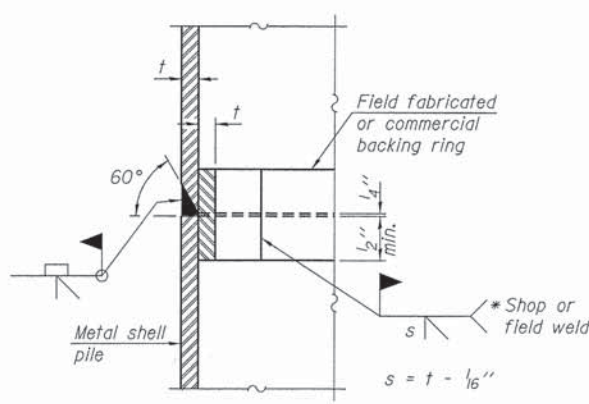


END PLATE ATTACHMENT



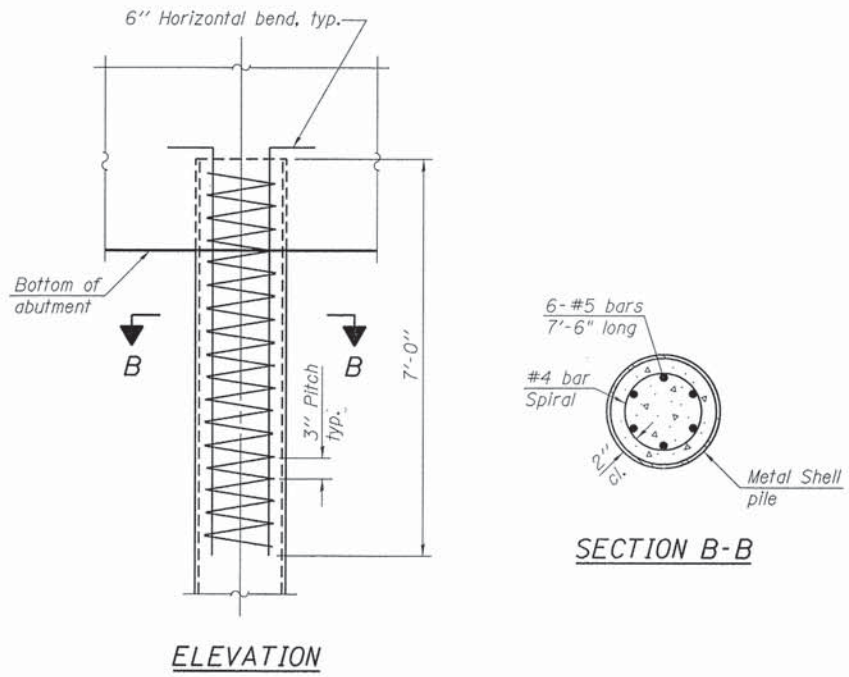
Note A:
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over 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.

METAL SHELL PILE SHOE ATTACHMENT
 (See Note A)

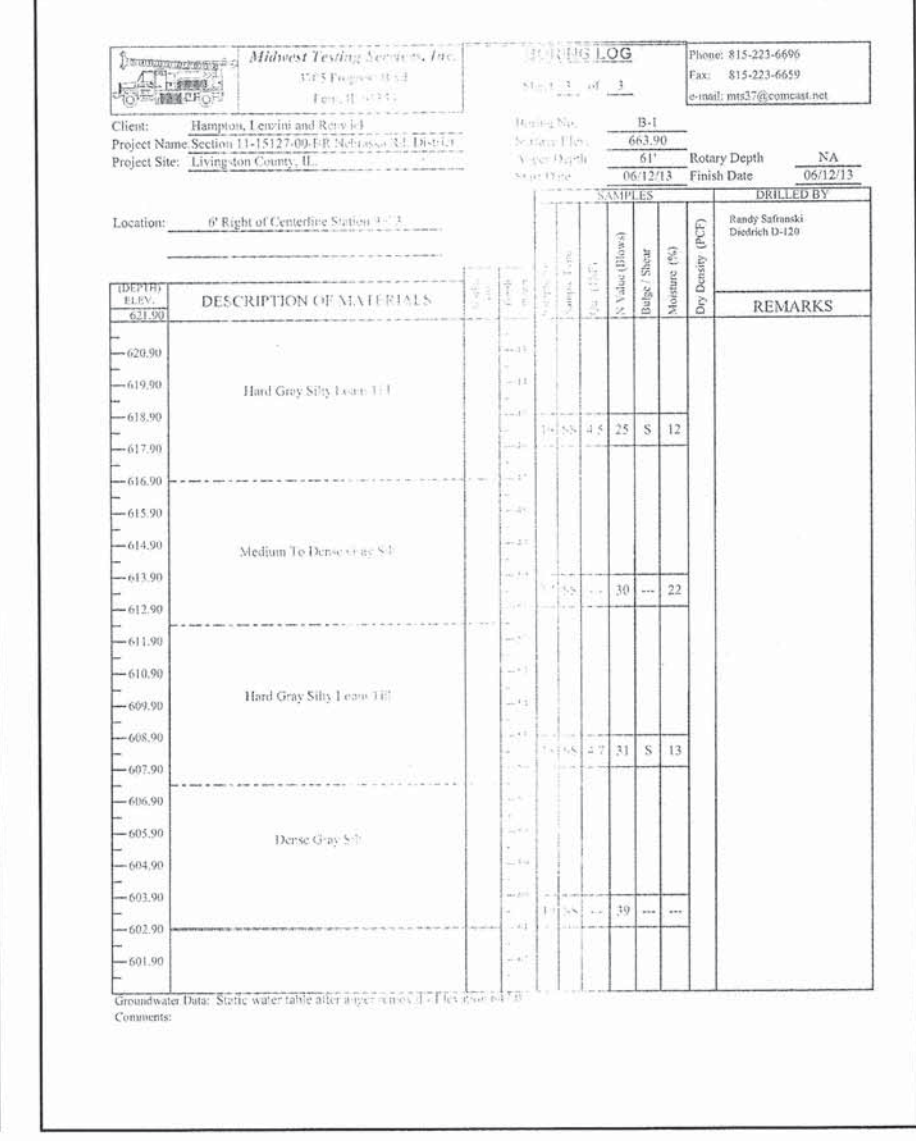
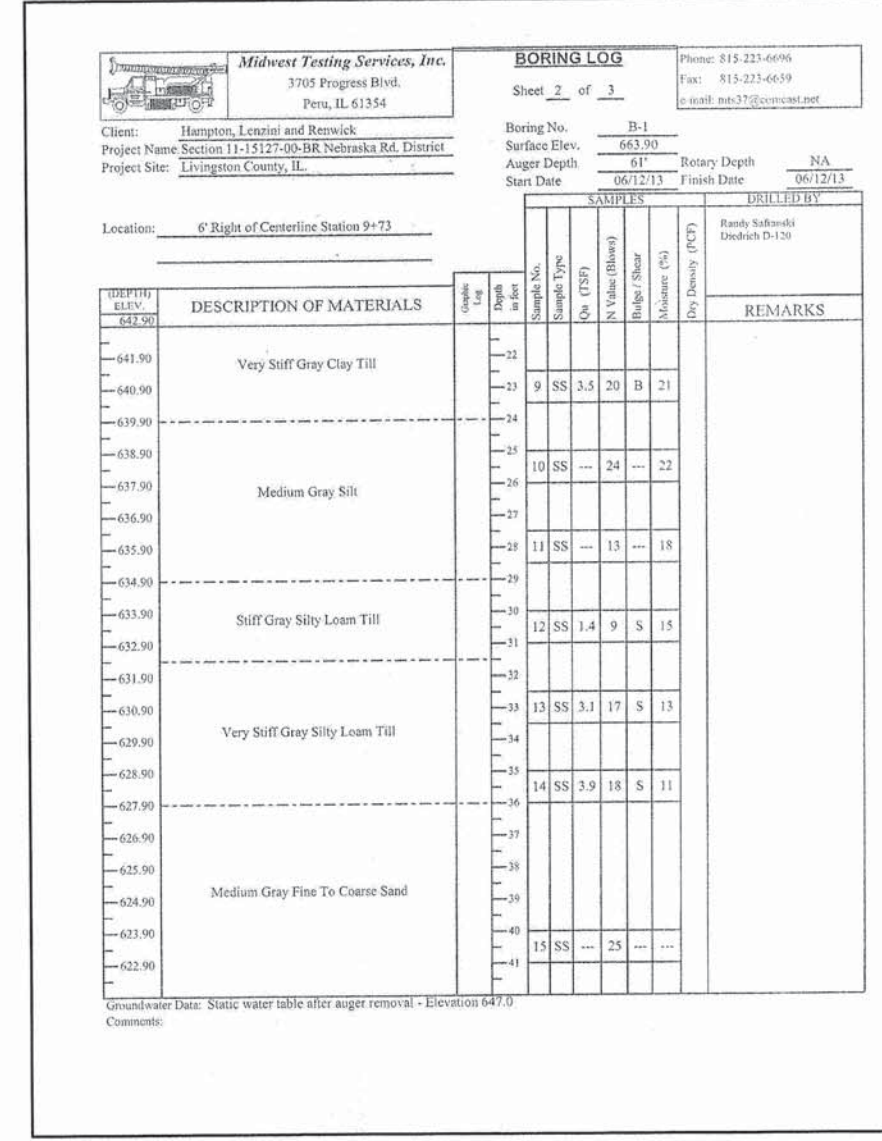
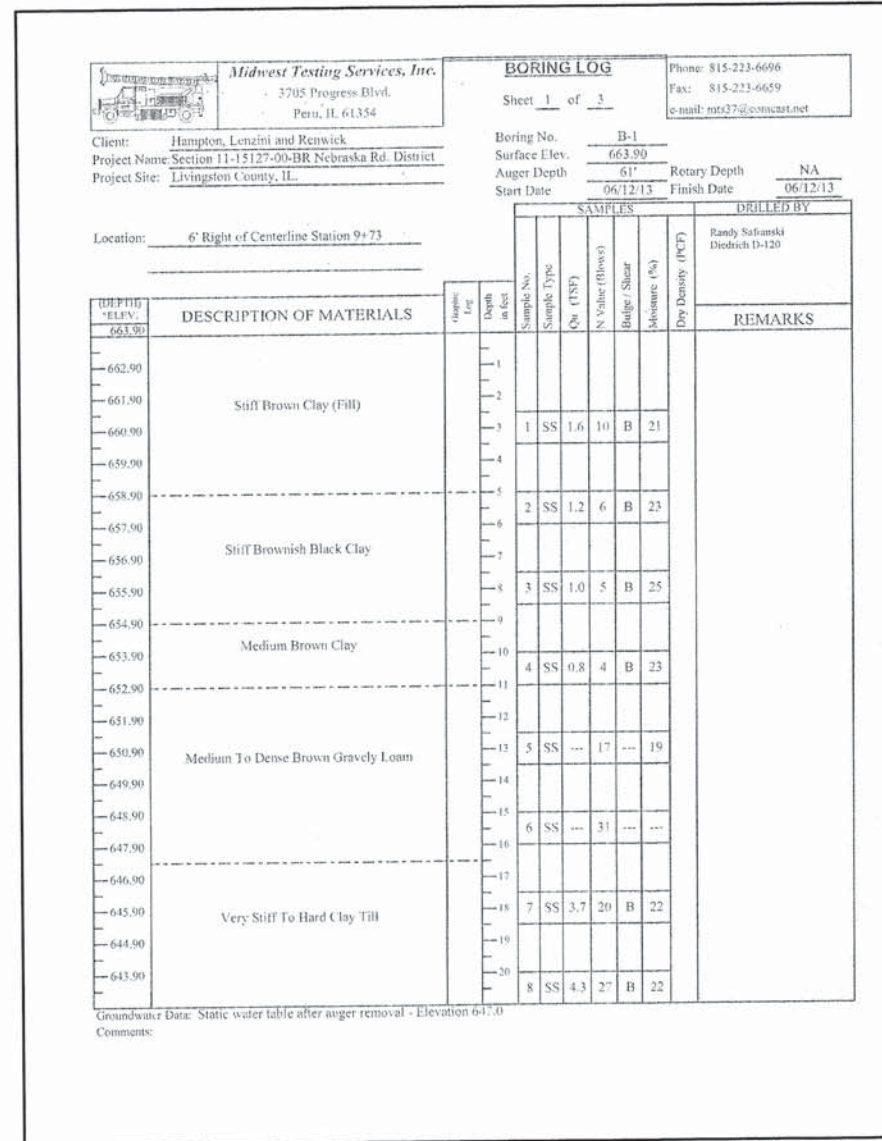


COMPLETE PENETRATION WELD SPLICE

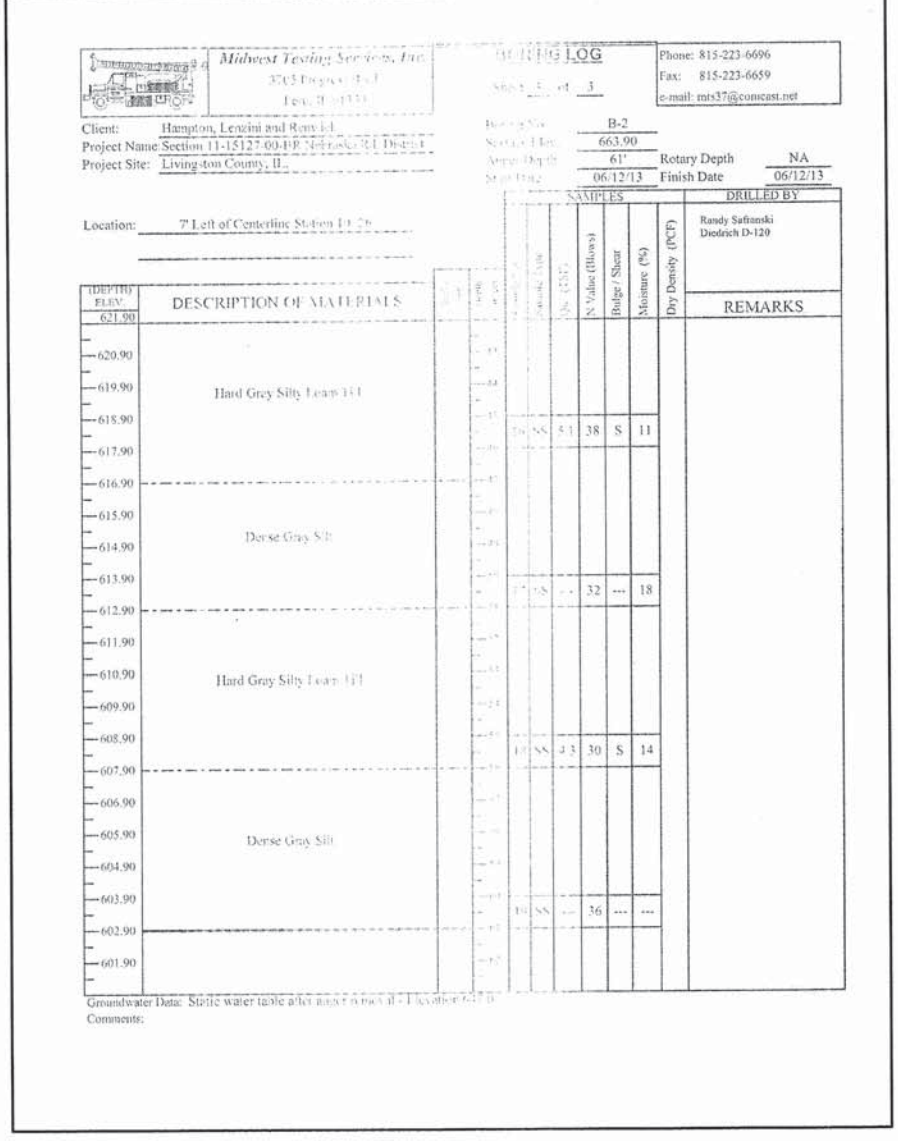
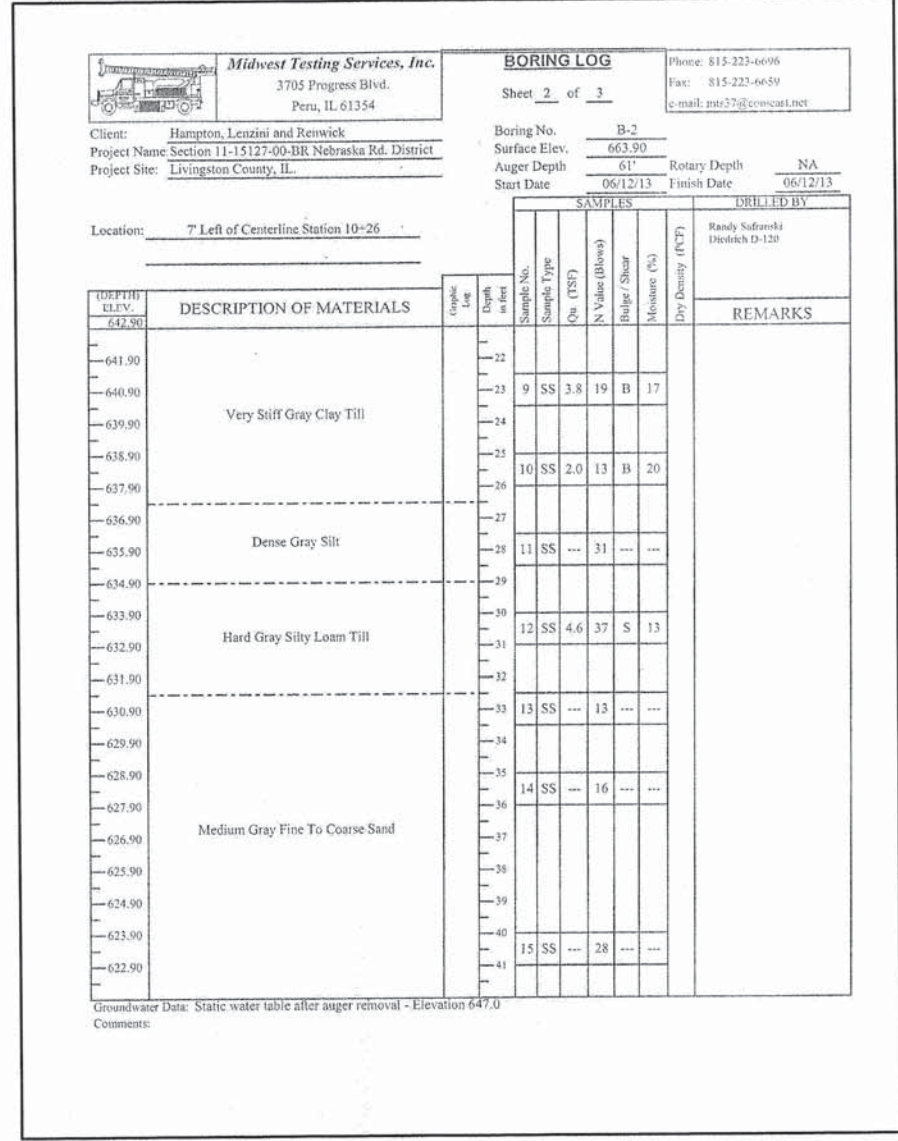
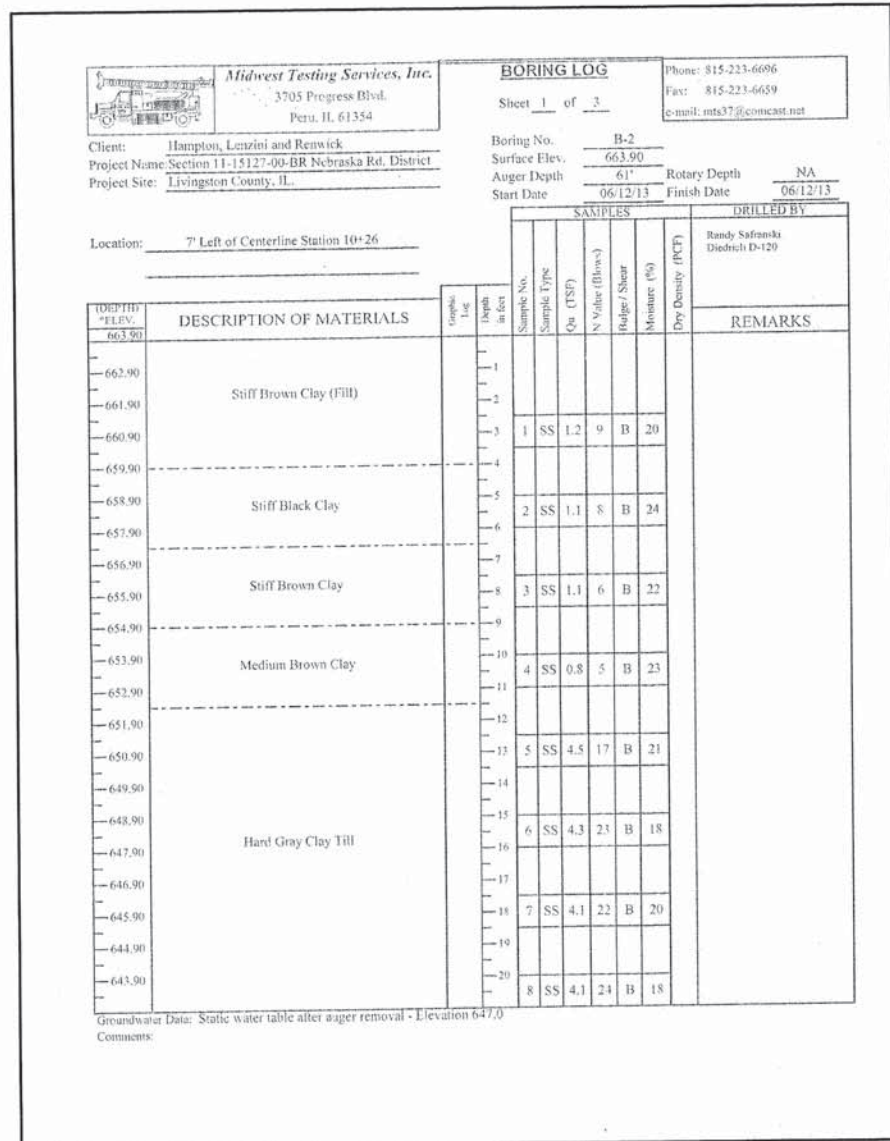
* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



Note:
 The metal shell piles shall be according to ASTM A 252 Grade 3.



BORING 1



BORING 2