

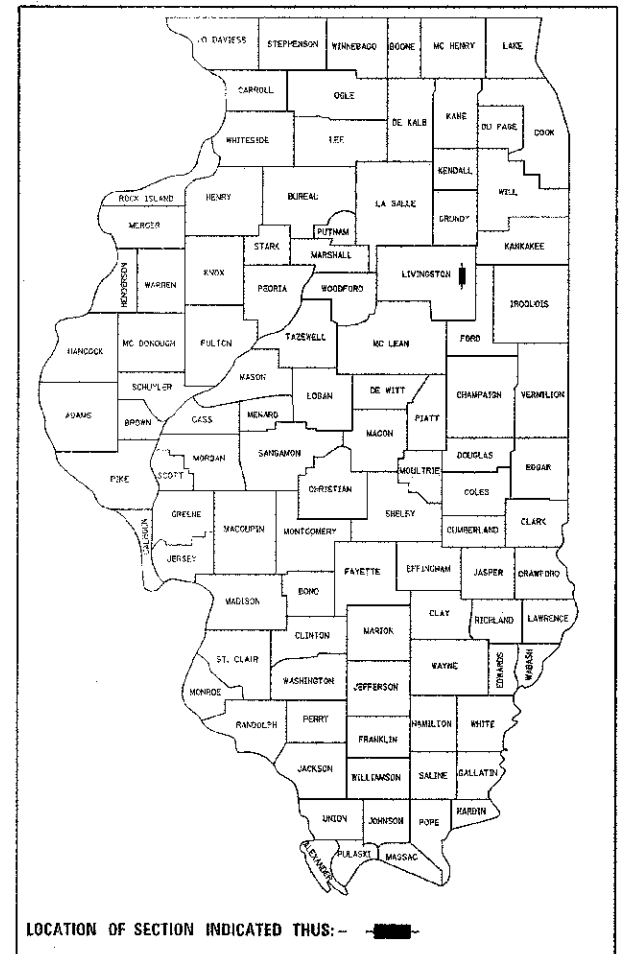
03-08-13 LETTING ITEM 040

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM**

PROJECT BROS-0105(054)  
SECTION 10-11103-03-BR / 10-06124-00-BR  
FORREST / CHATSWORTH ROAD DISTRICT  
LIVINGSTON COUNTY  
T.R. 248A  
PROPOSED STRUCTURE NO. 053-4202  
C-93-110-12

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 248A		LIVINGSTON	19	1
FED. ROAD DIST. NO.	ILLINOIS CONTRACT NO. 87538			

• 10-11103-03-BR / 10-06124-00-BR



**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-9.	STATION CROSS SECTIONS
10-17.	BRIDGE PLANS
18-19.	BORINGS

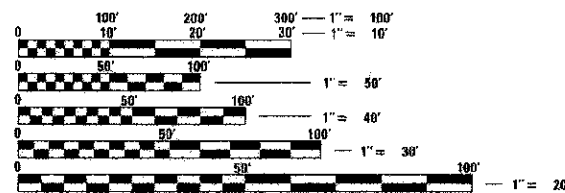
**HIGHWAY STANDARDS:**

000001-06	STANDARD SYMBOLS ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF INCH AND FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-02	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

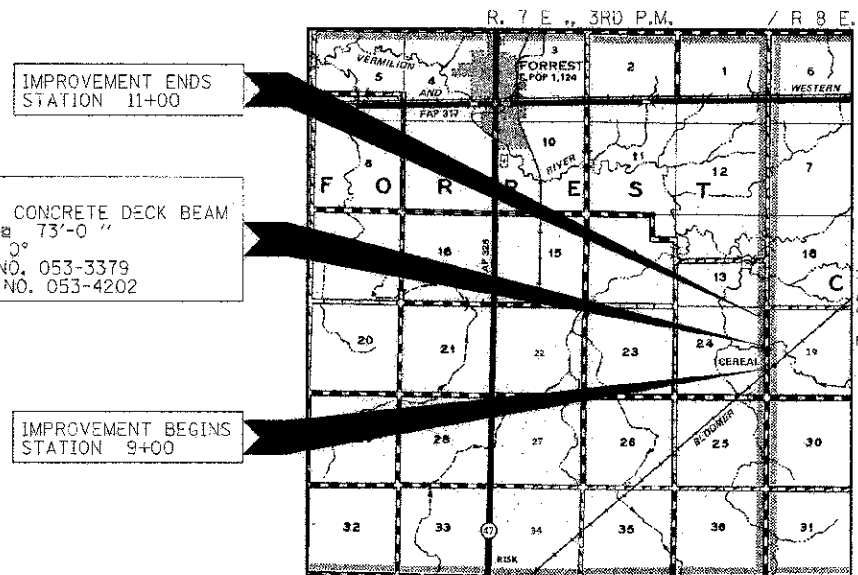
**UTILITIES**

FRONTIER COMMUNICATIONS  
120 S. STERLING STREET  
STREATOR, IL 61364  
ATTN: BILL DANIEL

AMEREN CIPS  
1205 EAST PELLA ST.  
PAXTON, IL 60957  
ATTN: BRUCE KALLAL



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.



**LOCATION MAP**

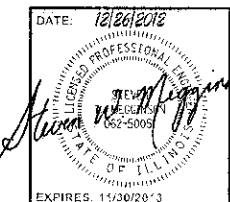
APPROXIMATE SCALE: 0 1 MILE  
NET LENGTH OF SECTION = 200 FEET = 0.038 MILES

FUNCTIONAL CLASSIFICATION: LOCAL ROAD (NON-URBAN)  
DESIGN SPEED: 30 MPH  
DESIGN TRAFFIC: 50 ADT



**ILLINOIS DEPARTMENT OF TRANSPORTATION**

APPROVED	12-27 2012	<i>David A. ...</i>	COUNTY ENGINEER
APPROVED	12-27 2012	<i>Randall ...</i>	FORREST TOWNSHIP COMMISSIONER
APPROVED	12-27 2012	<i>William ...</i>	CHATSWORTH TOWNSHIP COMMISSIONER
PASSED	1-2 2013	<i>Donald R. ...</i>	DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS
Released For Bid Based on Limited Review	1-2 2013	<i>David ...</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	UNIT	TOTAL
			CONSTRUCTION TYPE CODE 0011
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	14
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	18
20200100	EARTH EXCAVATION	CU YD	55
20300100	CHANNEL EXCAVATION	CU YD	245
A 20400800	FURNISHED EXCAVATION	CU YD	30
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	40
28000400	PERIMETER EROSION BARRIER	FOOT	350
A 28100107	STONE RIPRAP, CLASS A4	SQ YD	215
28200200	FILTER FABRIC	SQ YD	215
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	130
A 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	25.4
A 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1971
50800105	REINFORCEMENT BARS	POUND	2740
* 50900205	STEEL RAILING, TYPE S1	FOOT	143
51200957	FURNISHING METAL SHELL PILES 12" x 0.25"	FOOT	270
51202305	DRIVING PILES	FOOT	270
51203200	TEST PILE METAL SHELL	EACH	1
51500100	NAME PLATES	EACH	1
60103600	PIPE DRAINS, CORRUGATED STEEL 15"	FOOT	10
67100100	MOBILIZATION	L SUM	1
A 70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
A X2070302	POROUS GRANULAR EMBANKMENT, SPECIAL	TON	120
A X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
A Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	90

A SEE SPECIAL PROVISIONS \* SPECIALTY ITEM

### GENERAL NOTES

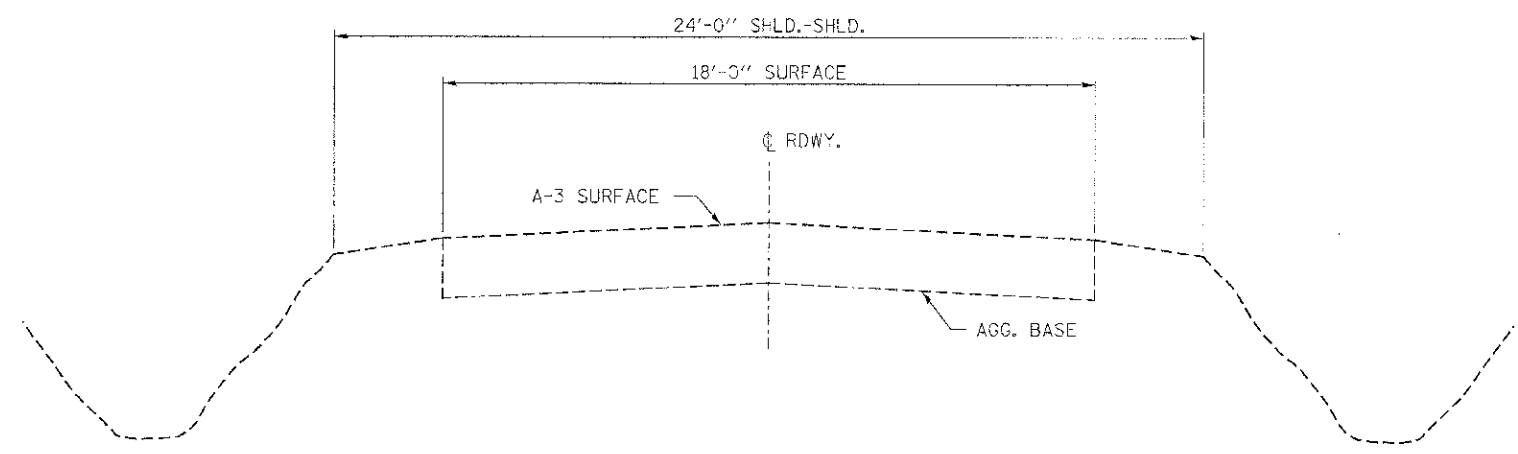
- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED JANUARY 1, 2012." THESE PLANS AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
- THE REVISION NUMBERS OF THE STANDARDS LISTED IN THE PLANS ARE TO BE USED FOR CONSTRUCTING THIS SECTION.
- ALL CLEARING AND GRUBBING, FENCE REMOVAL AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- THE LOCATION OF EXISTING GAS MAINS, ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL 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.
- 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.
- THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES:  
 AGGREGATE SURFACE COURSE 2.05 TON/CU YD  
 STONE RIPRAP 1.75 TON/CU YD  
 STONE BEDDING 1.80 TON/CU YD  
 POROUS GRANULAR EMBANKMENT 2.00 TON/CU YD
- THE AREA TO BE SEEDDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.  
**ESTIMATED QUANTITY: SEEDING, CLASS 2 (SPECIAL) = 0.2 ACRES**

### EARTHWORK SCHEDULE

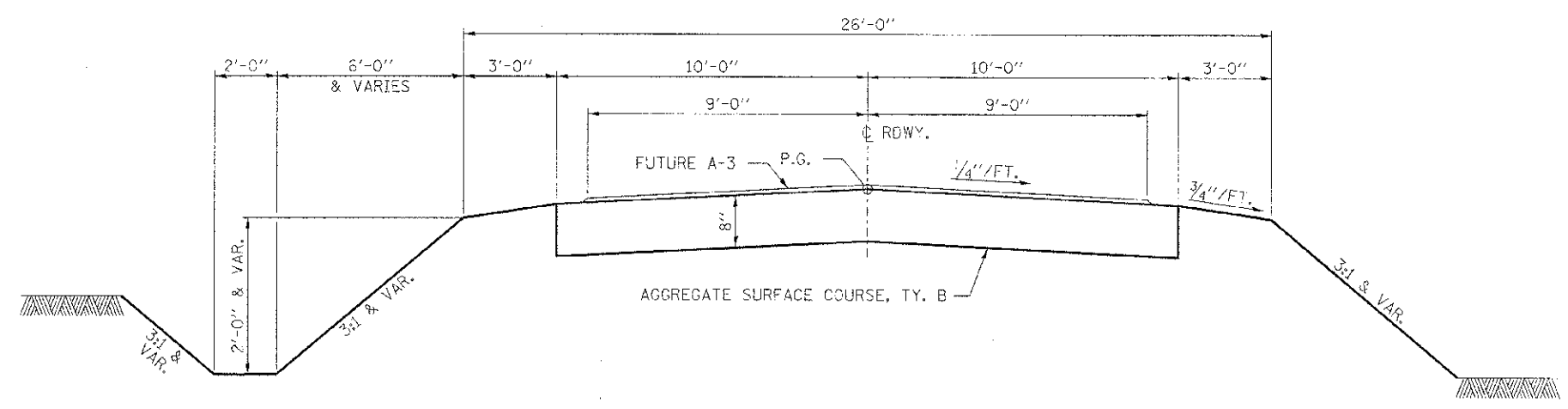
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	20200100	20300100					
	CU YD.	CU YD.			CU YD	CU YD	CU YD.
TR 248A/3000 E RD							
STA 9+00 TO STA 9+69.83	32		25.00%	100.00%	24	91	-67
STA 9+69.83 TO STA 10+44.17	0		25.00%	100.00%	0	40	-40
STA 10+44.17 TO STA 11+00	19		25.00%	100.00%	14	63	-49
CHANNEL EXCAVATION		245	25.00%	70.00%	129		129
ENTRANCE EMBANKMENT							0
TOTAL	51	245			167	194	-27
USE	55	245					-30

FURNISHED EXCAVATION 30 CU YDS

\* 10-1103-03-BR/10-06124-00-BR



**EXISTING CROSS SECTION**  
STA. 9+00 TO 11+00



SUGGESTED CUT SECTION  
CONSTRUCT AS SHOWN IN  
STATION CROSS SECTIONS

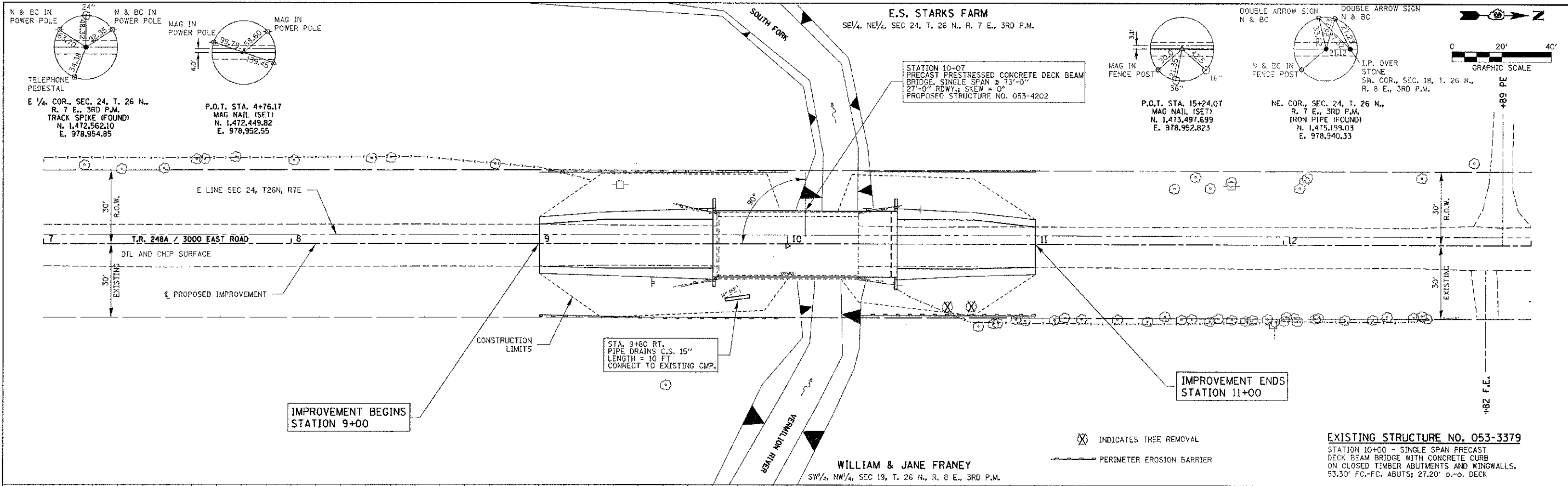
SUGGESTED FILL SECTION  
CONSTRUCT AS SHOWN IN  
STATION CROSS SECTIONS

**PROPOSED TYPICAL CROSS SECTION**  
STA. 9+00 TO 11+00

TRANSITIONS FROM THE PROPOSED ROADWAY TO THE EXISTING ROADWAY ARE TO BE CONSTRUCTED FROM STA. 9+00 TO 9+25 AND STA. 10+75 TO 11+00. SEE SHEET 10 FOR TRANSITION AT BRIDGE.

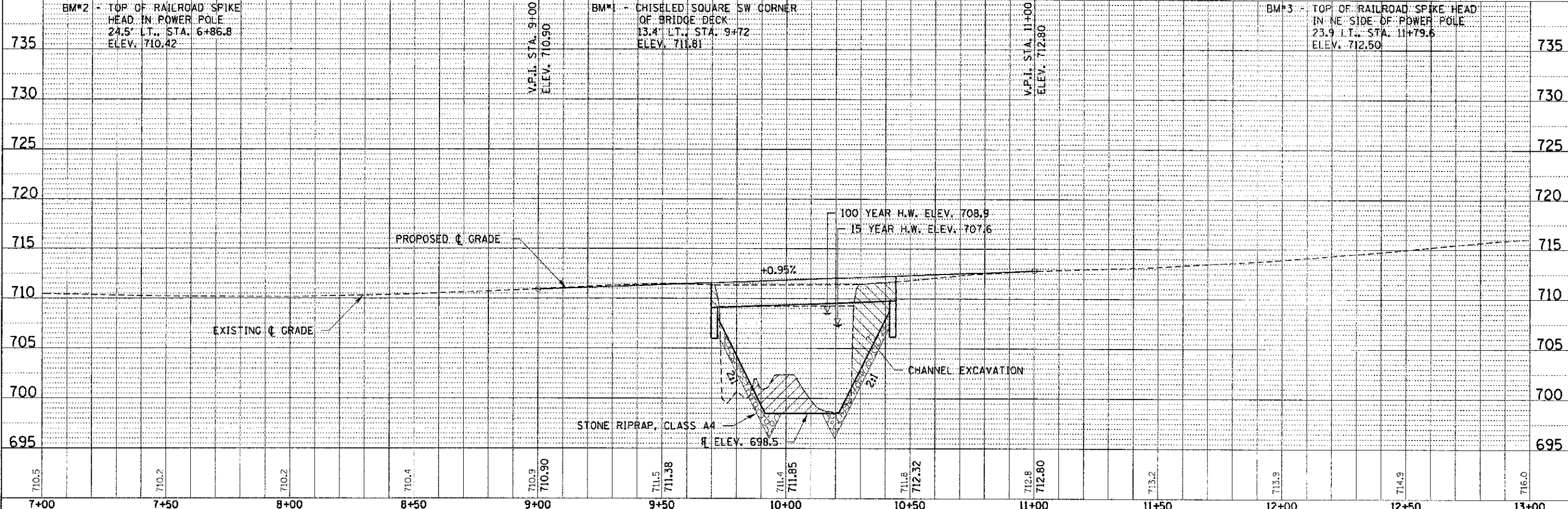
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<b>HAMPTON, LENZINI AND RENWICK, INC.</b> 3845 PFEIFFER DRIVE, SUITE 101 CHICAGO, ILL. 60630		DRAWN - D.A.B.	REVISED -		248A	*	LIVINGSTON	19	3			
<b>ILR</b> ILLINOIS PROFESSIONAL DESIGN FIRM L3 / PE / SE CORP. 184.233928	PLOT SCALE =	CHECKED - S.W.M.	REVISED -		FORREST/CHATSWORTH R.D.			CONTRACT NO. 87538				
	PLOT DATE = 12/26/2012	DATE - 12/26/12	REVISED -		SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT			

\* 10-11103-03-BR / 10-06124-00-BR



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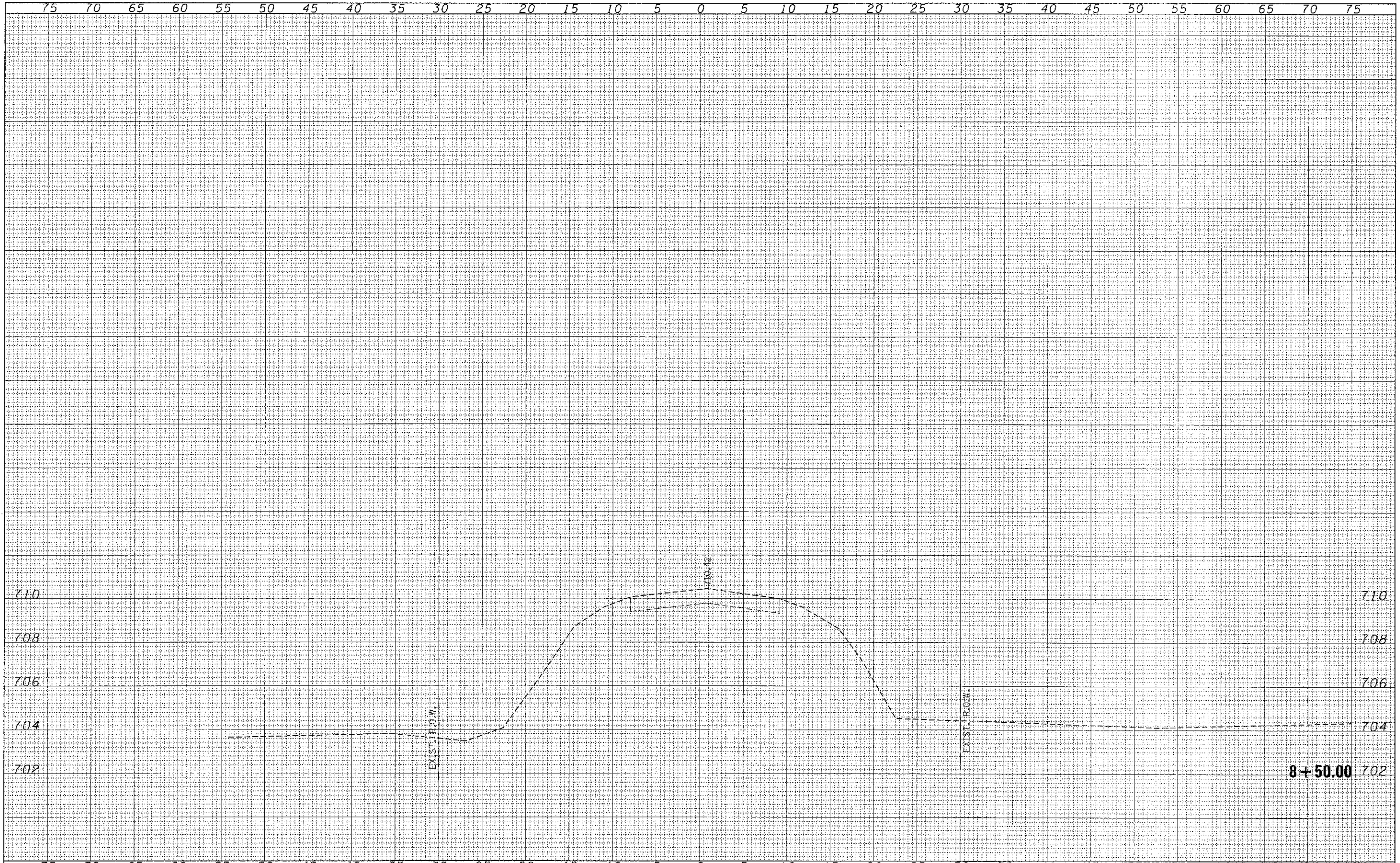
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FILE NAME: 118245-eh1-ppl.dgn	USER NAME: *	DESIGNED: J.W.F.	REVISED: -	<b>STATE OF ILLINOIS</b> <b>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>PLAN &amp; PROFILE</b> SCALE: H20xV5 SHEET NO. 1 OF 1 SHEETS STA. 7+00.00 TO STA. 13+00.00	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		DRAWN: L.G.C.	REVISED: -			248A	10-1103-03-BR / 10-06124-00-BR	LIVINGSTON	19	4
ILLINOIS PROFESSIONAL DESIGNERS		CHECKED: S.W.M.	REVISED: -			FURREST/CHATSWORTH R.D.		LIVINGSTON		
151 PE/SE CORP. 134.002389		DATE: 12/26/12	REVISED: -							CONTRACT NO. 87538
						ILLINOIS FED. AID PROJECT				

FINAL SURVEY	SURVEYED	BY	DATE
NO'E BOOK	PLOTTED		
NO	TEMPLATE		
	AREAS CHECKED		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NO'E BOOK	PLOTTED		
NO	TEMPLATE		
	AREAS CHECKED		
	AREAS CHECKED		



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HAMPTON, LENZINI AND RENWICK, INC. 3603 STEVENAGE DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703		DRAWN - L.G.C.	REVISED -	24RA	10-1103-03-BR/10-06124-00-BR	LIVINGSTON	19 5
ILLINOIS PROFESSIONAL DESIGN # 688 13 1/2 P. 1. 10 27. 10 14. 010000	PL/01 SCALE =	CHECKED - S.W.M.	REVISED -	FOREST/CHATS WORTH ROAD DIS-RICT			CONTRACT NO. 87538
	PLOT DATE = 12/26/2012	DATE - 12/26/12	REVISED -	ILLINOIS FED. AID PROJECT			

STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS

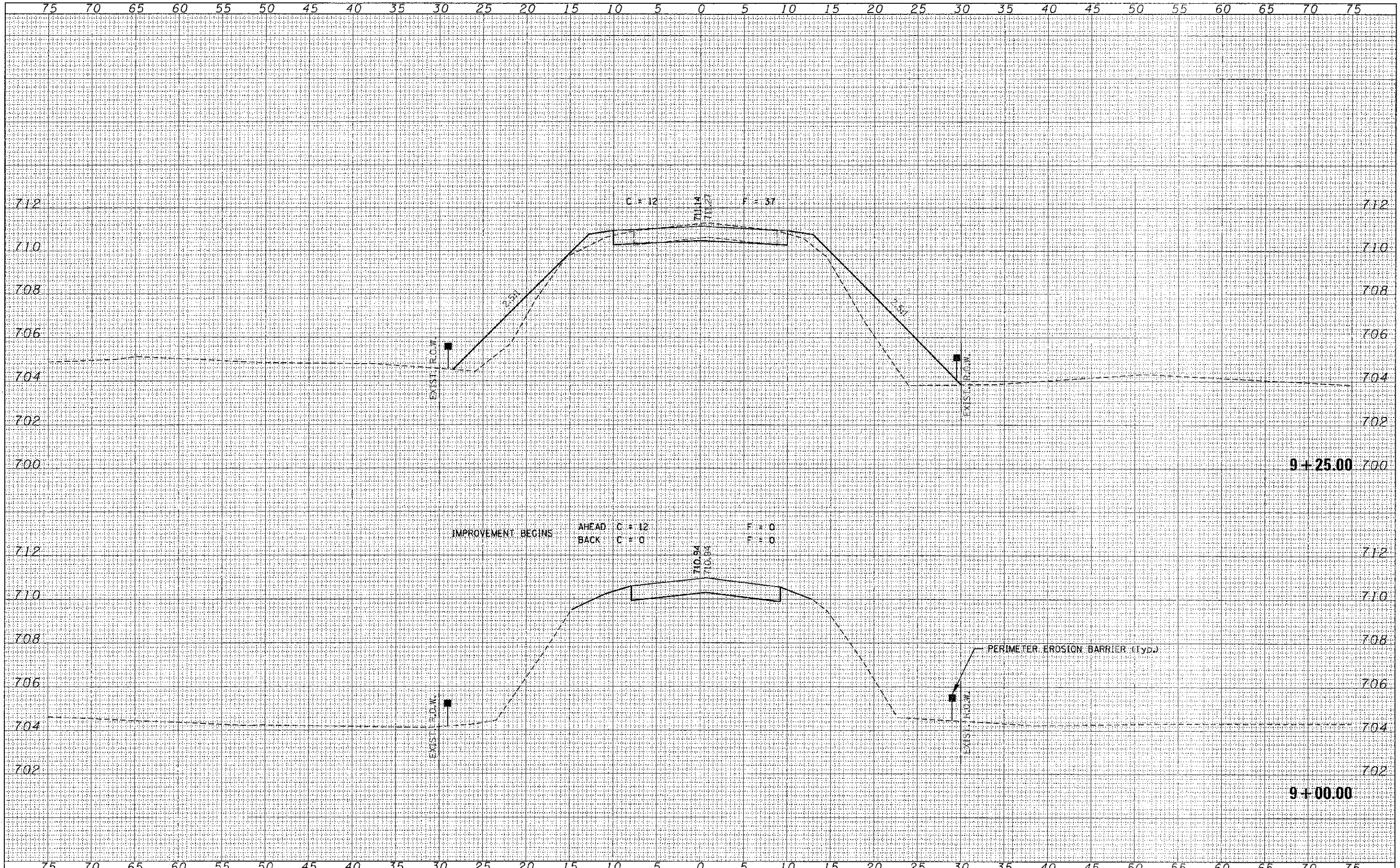
SCALE: H&V2 SHEET NO. 1 OF 5 SHEETS STA. 8+50.00 TO STA. 8+50.00

8+50.00



DATE	
BY	
FINAL SURVEY	
REVISIONS	
NOTE BOOK	
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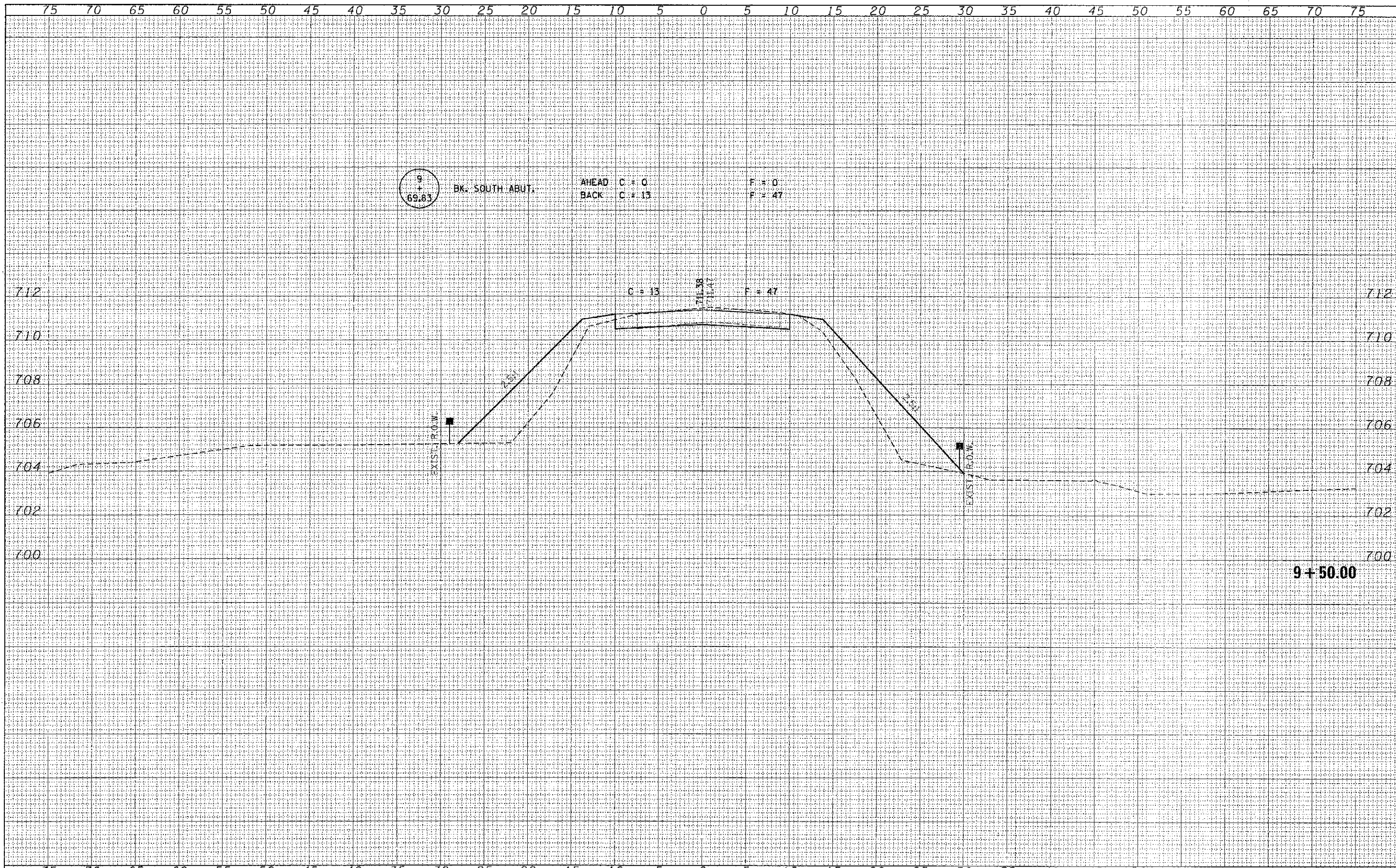
DATE	
BY	
ORIGINAL SURVEY	
REVISIONS	
NOTE BOOK	
NO.	



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<b>HLR</b> HAMPTON, LENZINI AND RENWICK, INC. 3635 BRADLEY BLVD. SUITE 200 SPRINGFIELD, ILLINOIS 62704 ILLINOIS PROFESSIONAL ENGINEER FIRM LS 1127 SE CORP. 184,000,000	PLOT SCALE =	DRAWN - L.C.C.	REVISED -		SCALE: H8:V2	SHEET NO. 2 OF 5 SHEETS	STA. 9+00.00	10' STA. 9+25.00	248A	3D-1103-C3-0R/10-C624-00-0R	LIVINGSTON	19	6
	PLOT DATE = 12/26/2012	CHECKED - S.W.V.	REVISED -						FURNISH/CHAISWORTH ROAD DISTRICT				
		DATE - 12/26/12	REVISED -										CONTRACT NO. 87538
												ILLINOIS FED. AID PROJECT	

FINAL	DATE
SURVEY	BY
PLOTTED	
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NOTE BOOK	
AREAS	
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ORIGINAL	DATE
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NOTE BOOK	
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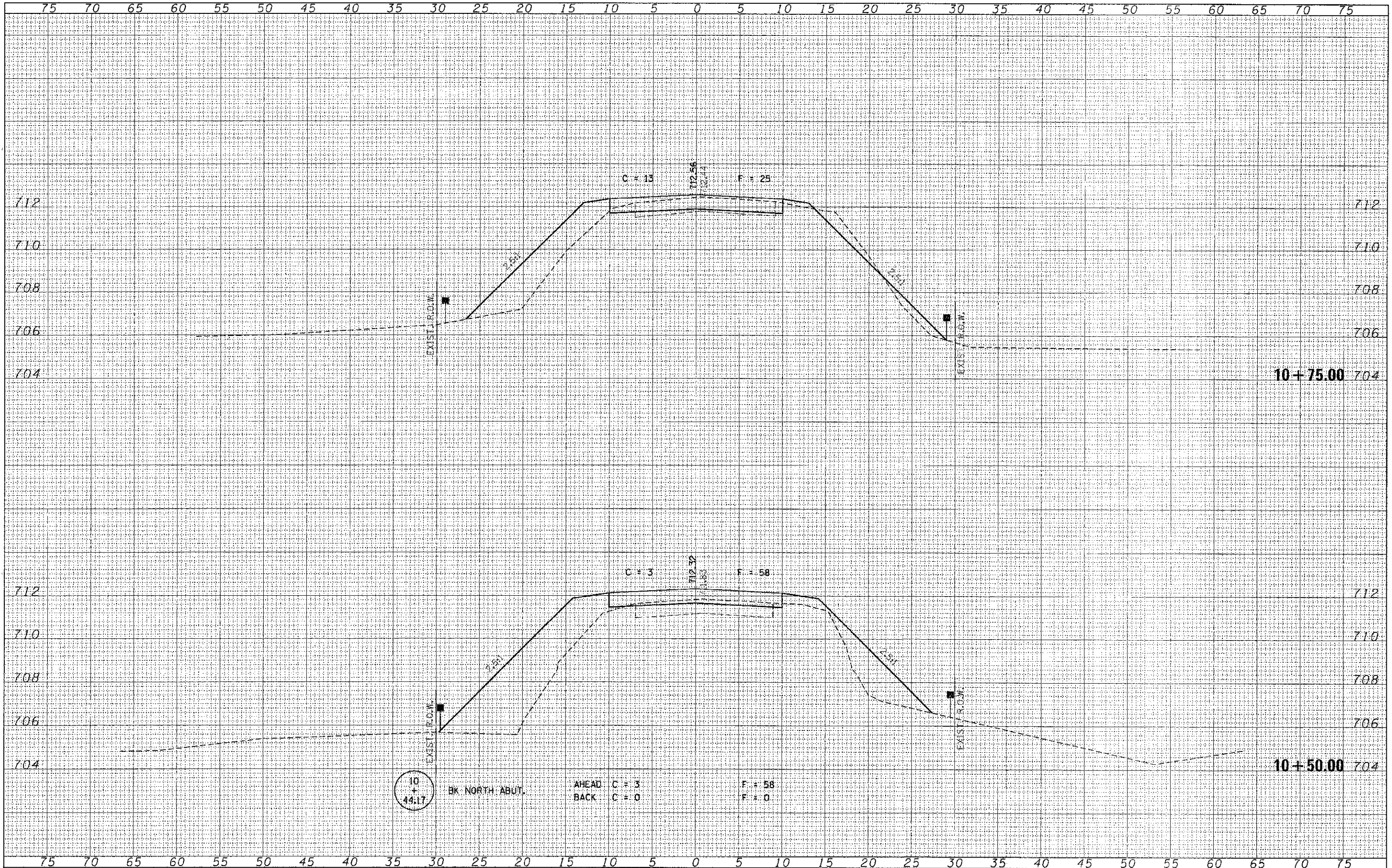
9+50.00

FILE NAME * 110245 sht axssdgn	USER NAME *	DESIGNED - J.W.F.	REVISED -	<p align="center"><b>STATE OF ILLINOIS</b> <b>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b></p>	<p align="center"><b>STATION CROSS SECTIONS</b></p>		T.P.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 2805 STEVENSON DRIVE SUITE 201 SPRINGFIELD, ILLINOIS 62709		DRAWN - L.G.C.	REVISED -		248A	10-1103-03-BR/10-06124-00-5R	LIVINGSTON	19	7		
<b>HLR</b> ILLINOIS PROFESSIONAL DESIGN FIRM 1811 P.E. CORP. 194-01385	PLOT SCALE *	CHECKED - S.W.M.	REVISED -		FORRST/CHATS WORTH ROAD DISTRICT				CONTRACT NO. 87538		
	PLOT DATE - 12/28/2012	DATE - 12/26/12	REVISED -		SCALE: H&VZ	SHEET NO. 3 OF 5 SHEETS	STA. 9+50.00 TO STA. 9+50.00	ILLINOIS FED. AID PROJECT			



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	AREAS CHECKER	

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
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	AREAS CHECKED	
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FILE NAME = 110245-ans-rxs.dgn  
 HAMPSON, LENZINI AND RENWICK, INC.  
 2060 STEADWAY DRIVE, SUITE 201  
 SPRINGFIELD, ILLINOIS 62702  
 ILLINOIS PROFESSIONAL DESIGN # RM  
 ES / REG # 0299 / 18402088

USER NAME =  
 PLLOT SCALE =  
 PLOT DATE = 12/26/2012

DESIGNED - J.W.F.  
 DRAWN - L.G.C.  
 CHECKED - S.W.M.  
 DATE - 12/26/12

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT

SCALE: H5V2  
 SHEET NO. 4 OF 5 SHEETS  
 STA. 10+75.00 TO STA. 11+00.00

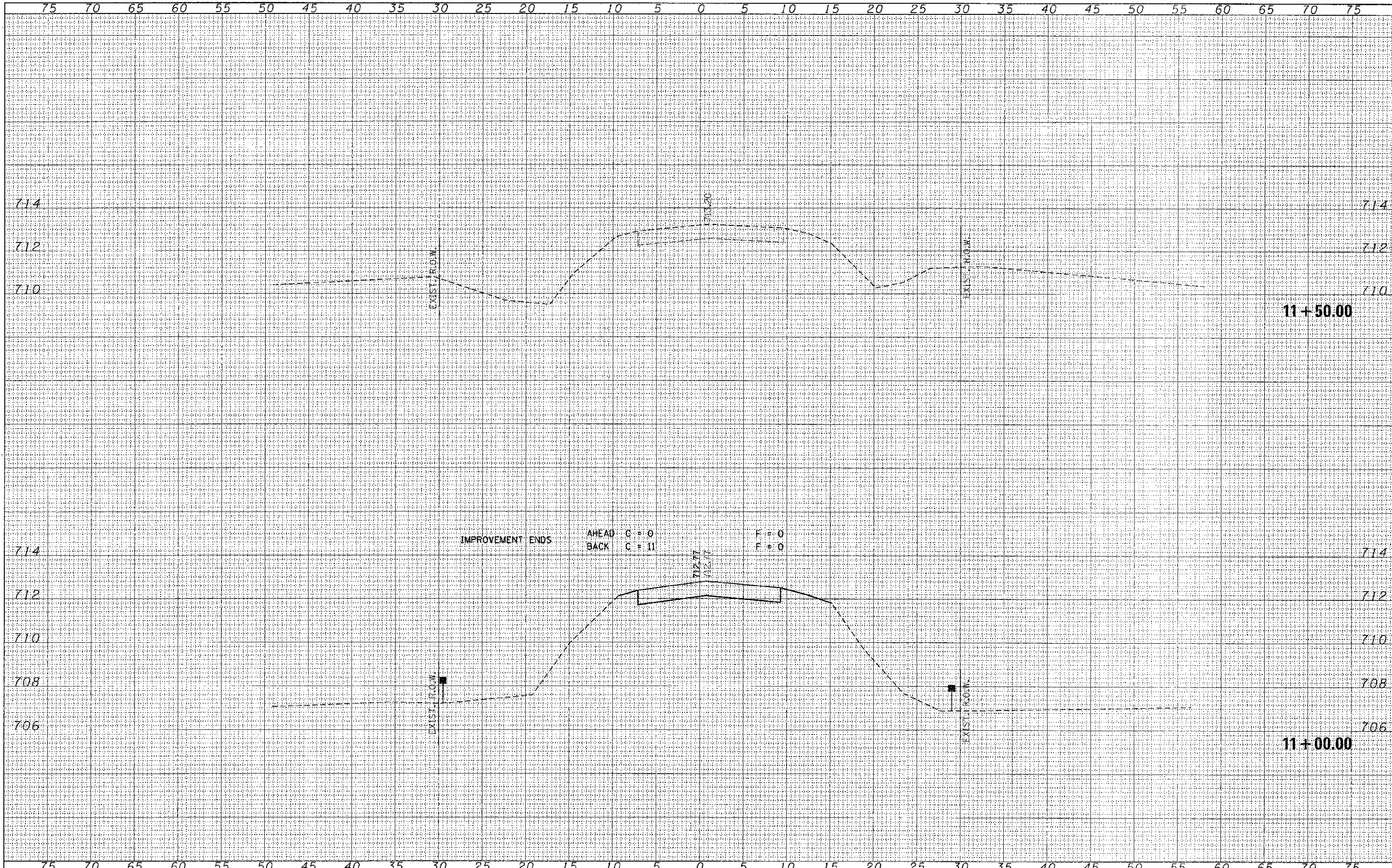
STATION CROSS SECTIONS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
248A	10-1103-03-BR/10-06124-00-BR	LIVINGSTON	19	8
FORREST/CHATSWORTH ROAD DISTRICT			CONTRACT NO. 87538	
ILLINOIS FED. AID PROJECT				



FINAL SURVEY	BY	DATE
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PLOTTED		
TEMPLATE		
NOTE BOOK		
AREAS DESIGNED		
NO.		

ORIGINAL SURVEY	BY	DATE
SURVEYED		
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TEMPLATE		
NOTE BOOK		
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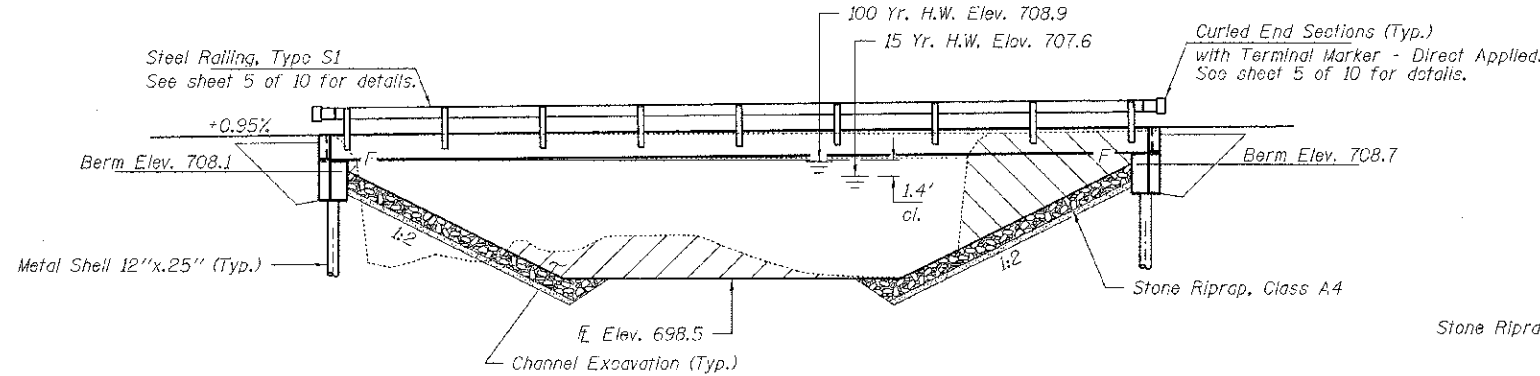


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HAMPTON, LENZINI AND RENWICK, INC. 3840 STEVENSON DRIVE, SUITE 200 SPRINGFIELD, IL 62776	PLOT SCALE =	DRAWN - L.G.C.	REVISED -		24BA	10-1103-03-BR/10-06124-00-BR	LIVINGSTON	19	9			
ILLINOIS PROFESSIONAL DESIGNER FIRM LS 1191 SE 03RD 04-000892	PLOT DATE = 12/26/2012	CHECKED - S.W.M.	REVISED -		SCALE: H5:V2			SHEET NO. 5 OF 5 SHEETS		STA. 11+50.00	TC. STA. 11+50.00	CONTRACT NO. 87538 ILLINOIS FED. AID PROJECT
		DATE - 12/26/12	REVISED -									

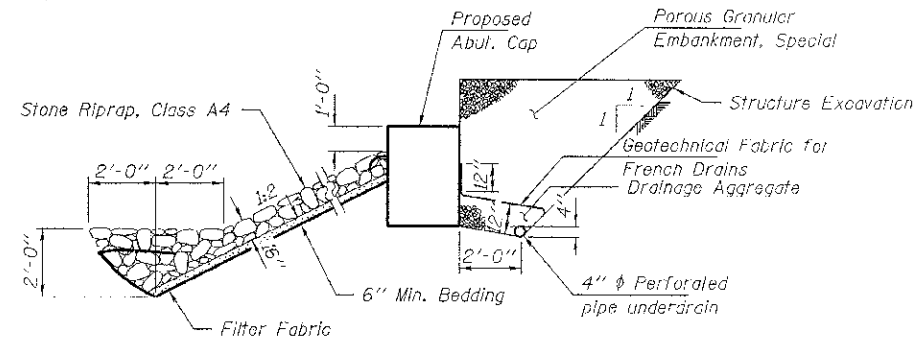
BENCHMARK: Chiseled "□" S.W. of bridge deck, 13.4' Lt., Sta. 9+72, Elev. 711.81

EXISTING STRUCTURE: Sta. 10+00 - Precast Deck Beam Bridge with concrete curb on closed timber abutments and wingwalls. 53.30' FC.-FC Abuts: 27.20' 0.-0. Deck

No Salvage

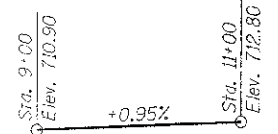


ELEVATION

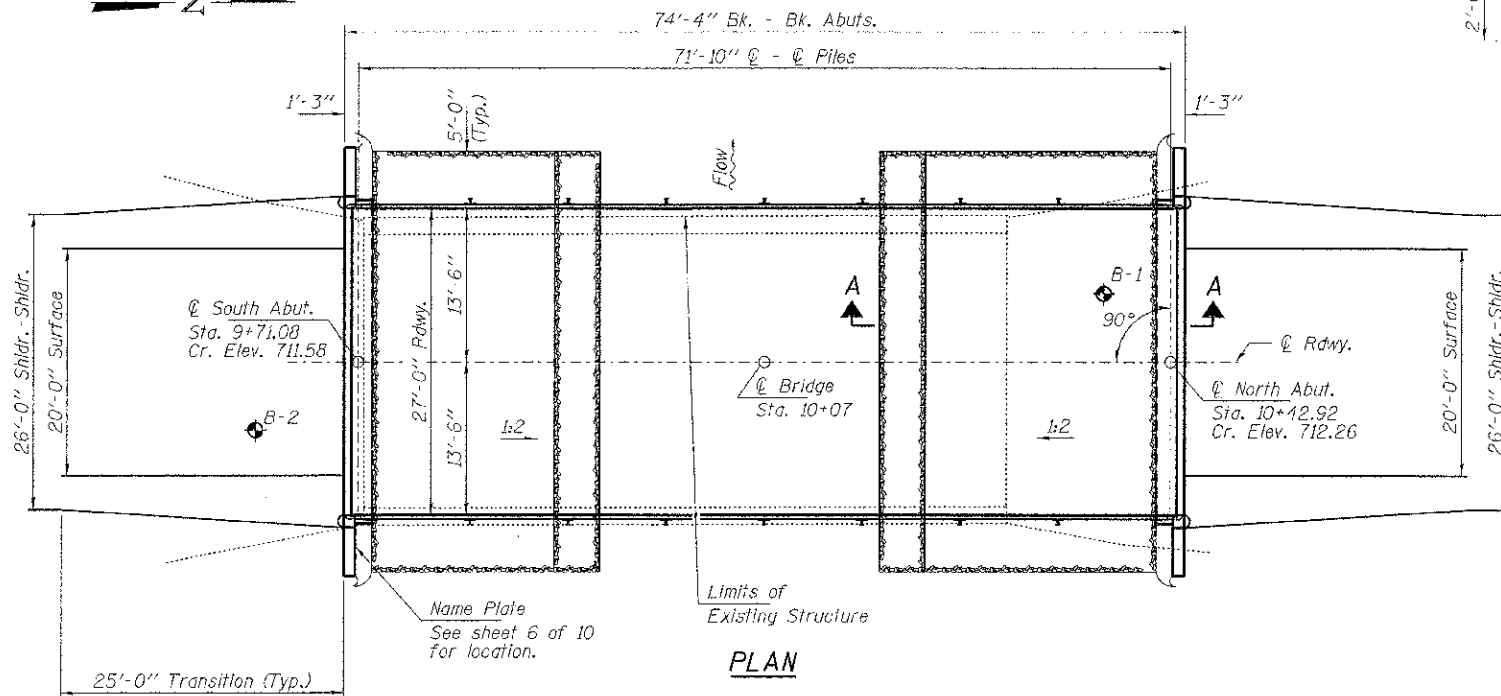


SECTION A-A

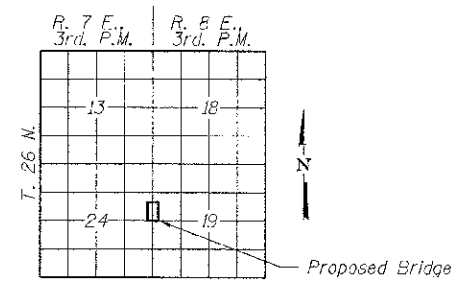
Note: See Special Provisions for Stone Riprap, Class A4.



PROFILE GRADE



PLAN



LOCATION SKETCH

INDEX OF STRUCTURE SHEETS

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

BUILT 201\_ BY  
LIVINGSTON COUNTY  
SEC. 10-11103-03-BR/10-06124-00-BR  
FORREST/CHATSWORTH R.D.  
SIR. NO. 053-4202  
LOADING HL-93

NAME PLATE  
See Std. 515001

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)  
fprt = 201,960 psi (1/2" low lax. strands)  
fy = 50,000 psi (Reinf.)

LOADING HL-93

Design Specifications: 2012 AASHTO LRFD with all applicable interims.  
50#/Sq. Ft. included in dead load for future wearing surface.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.185g  
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.114g  
Soil Site Class = D

DESIGN SCOUR ELEVATION TABLE

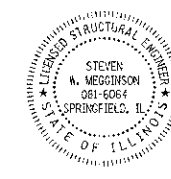
Design Scour Elevation (ft.)	S. Abut.	N. Abut.
	705.4	706.1

WATERWAY INFORMATION

		Existing Low Grade Elev. 710.2 @ Sta. 8+00							
		Proposed Low Grade Elev. 710.2 @ Sta. 8+00							
Drainage Area = 23.4 Sq. Mi.									
Flood	Freq. Yr.	0 C.F.S.	Opening Sq. Ft.	Natural Head - Ft.	Headwater El.				
			Exist.	Prop.	Exist.	Prop.			
Design	10	2050	320	380	707.29	1.05	0.81	708.34	708.10
Base	15	2340	330	400	707.58	1.19	0.91	708.77	708.49
Max. Calc.	100	3790	390	490	708.85	2.03	2.01	710.88	710.86
	500	5090	390	500	709.79	2.18	1.76	711.97	711.55

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. Magnuson 12/26/2012  
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2014

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			245
Stone Riprap, Class A4	Sq. Yd.			215
Filter Fabric	Sq. Yd.			215
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		25.4	25.4
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,971		1,971
Reinforcement Bars	Pound		2,740	2,740
Steel Railing, Type S1	Foot	143		143
Furnishing Metal Shell Piles 12"x.25"	Foot		270	270
Driving Piles	Foot		270	270
Test Pile Metal Shell 12"x.25"	Each		1	1
Name Plates	Each		1	1
Porous Granular Embankment, Special	Ton		120	120
Pipe Underdrains for Structures 4"	Foot		90	90

FILE NAME = 110245	USER NAME =	DESIGNED - S.W.M.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - D.A.B.	REVISED -
2345 STEVENSON DRIVE, SUITE 101 SPRINGFIELD, ILL. 62761-2103	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM L.S. 11-155-0238P 11/14/2008	PLOT DATE = 12/26/2012	CHECKED - D.A.B.	REVISED -

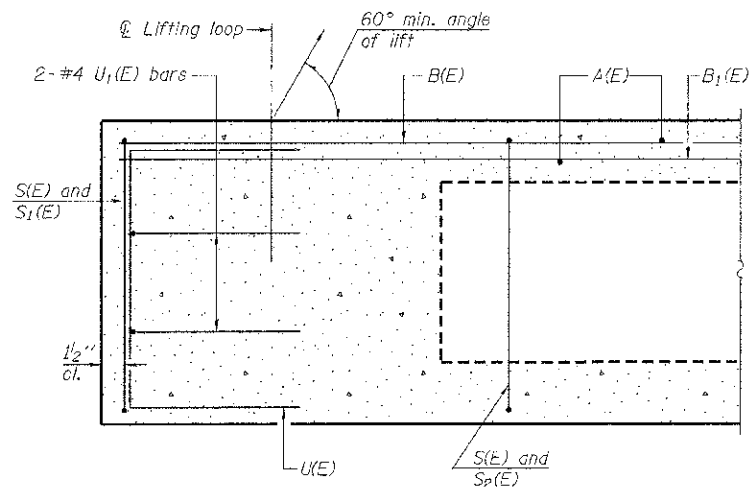
STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION  
STRUCTURE NO. 053-4202

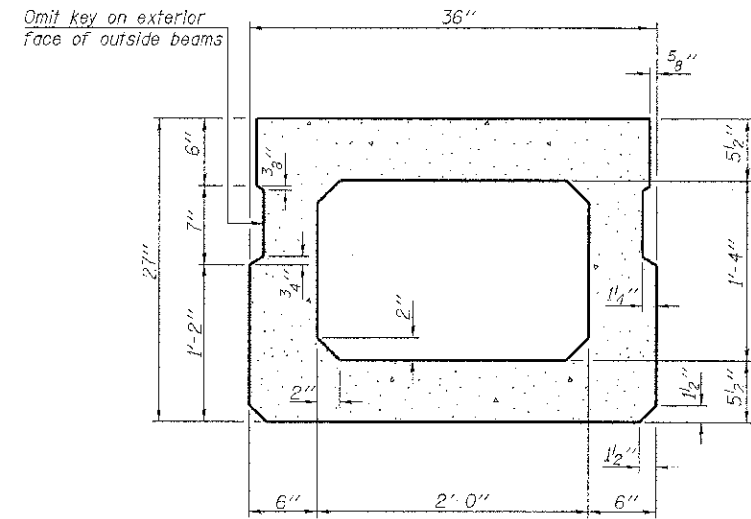
SHEET NO. 1 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
248A	*	LIVINGSTON	19	10
FORREST / CHATSWORTH R.D.		LIVINGSTON	CONTRACT NO. 87538	
ILLINOIS/FED. AID PROJECT				

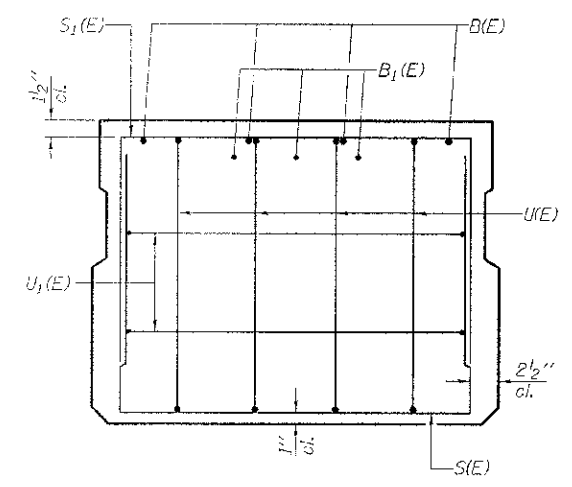
\* 10-11103-03-BR / 10-06124-00-BR



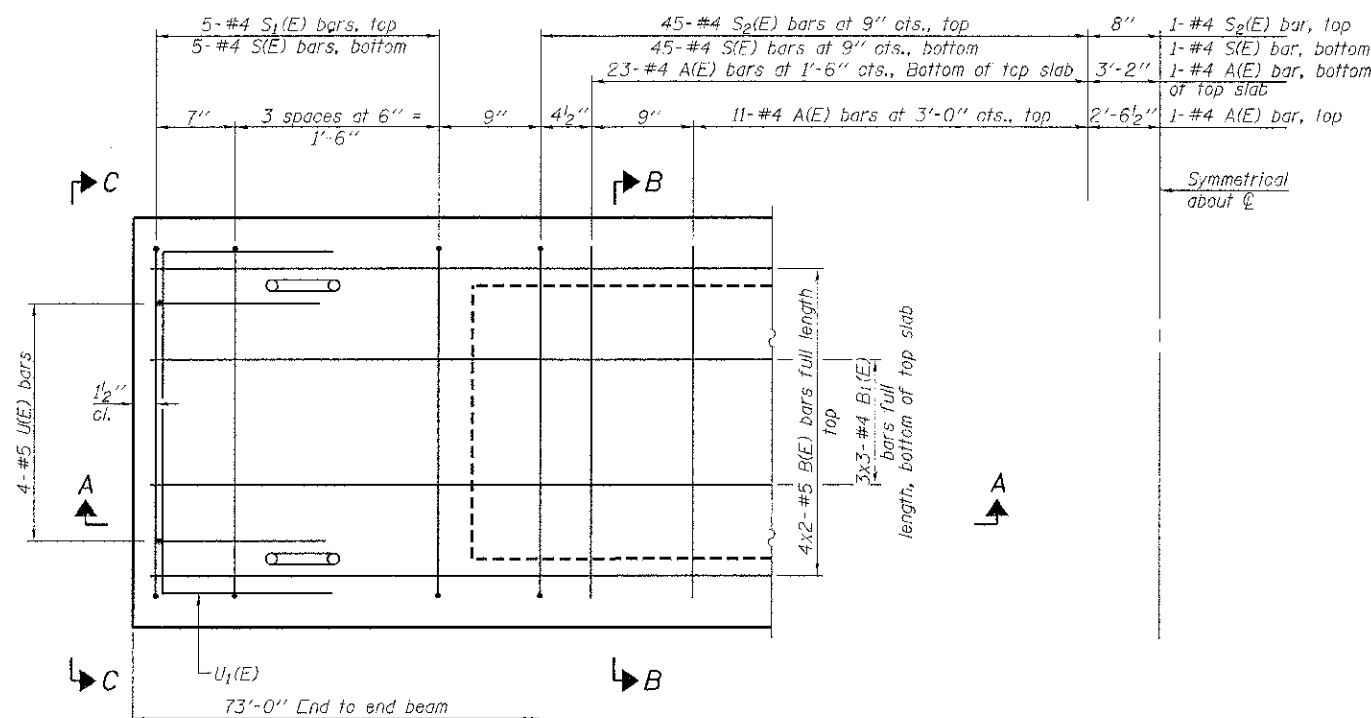
SECTION A-A



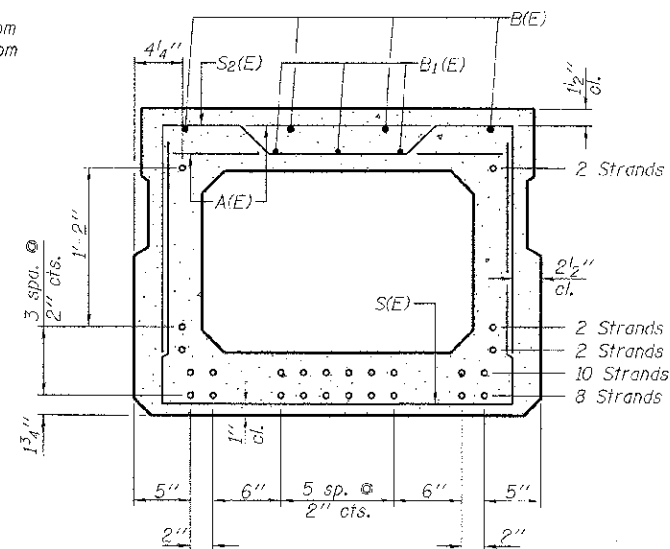
SECTION B-B  
(Showing dimensions)



VIEW C-C



PLAN VIEW



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)	69	#4	2'-7"	—
B(E)	8	#5	37'-8"	—
B1(E)	9	#4	25'-7"	—
S(E)	101	#4	6'-5"	□
S1(E)	10	#4	5'-11"	□
S2(E)	91	#4	6'-2"	□
U(E)	8	#5	4'-6"	□
U1(E)	4	#4	5'-0"	□

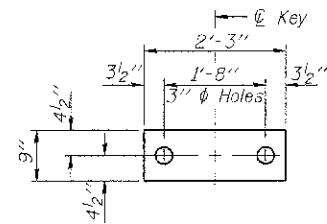
Note: See sheet 3 of 10 for additional details and Bill of Material.

**MINIMUM BAR LAP**

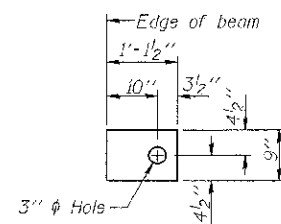
- #4 bar = 2'-0"
- #5 bar = 2'-6"

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.





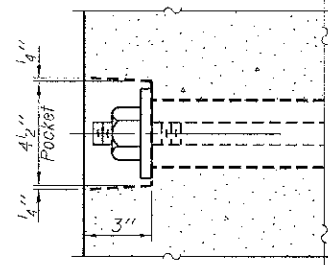
**FABRIC BEARING PAD**  
(Interior - 16 Req'd.)



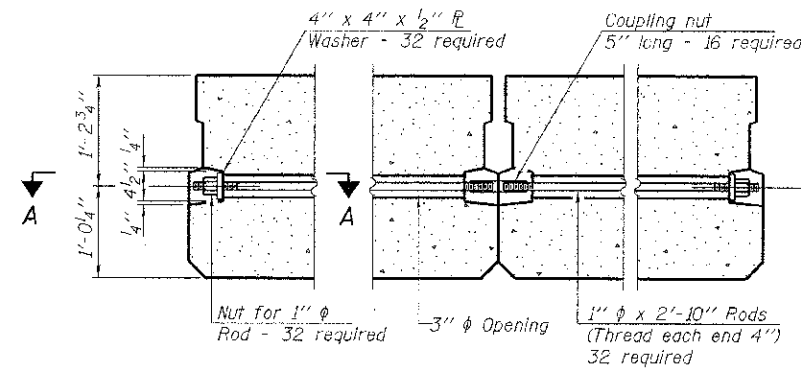
**FABRIC BEARING PAD**  
(Exterior - 4 Req'd.)

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

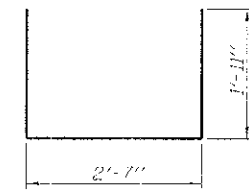
**FIXED**



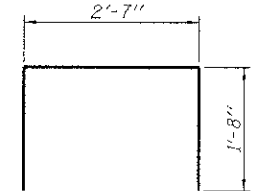
**SECTION A-A**



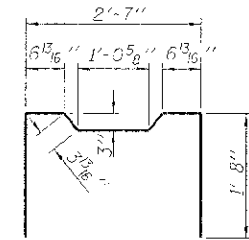
**TYPICAL TRANSVERSE TIE ASSEMBLY**



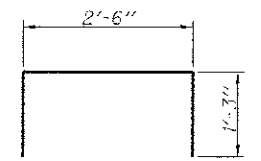
**BAR S1(E)**



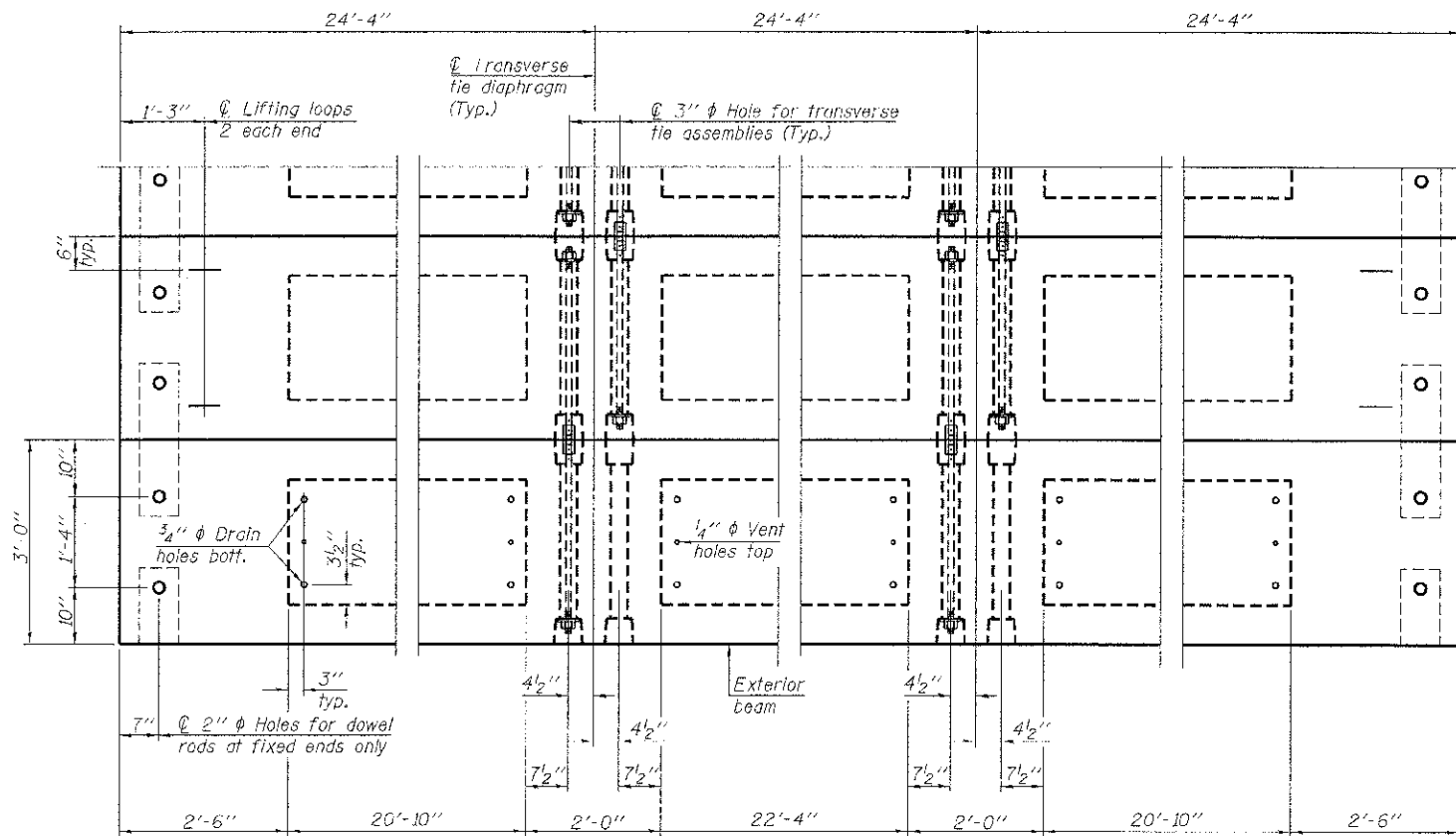
**BAR S2(E)**



**BAR U1(E)**



**BAR U2(E)**

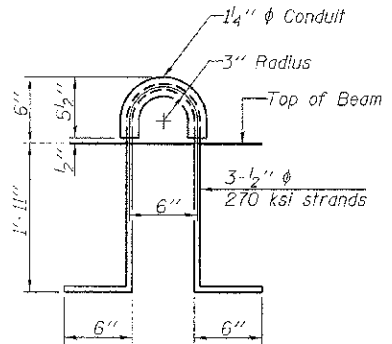


**PLAN VIEW**

**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.  
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" 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.  
All bars 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.	1,971
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PD-2736-0D 7-1-10

FILE NAME = 110245	USER NAME =	DESIGNED - S.W.M.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - D.A.B.	REVISED -
1315 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62760	PLCT SCALE =	DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 164-00388	PLOT DATE = 12/26/2012	CHECKED - D.A.B.	REVISED -

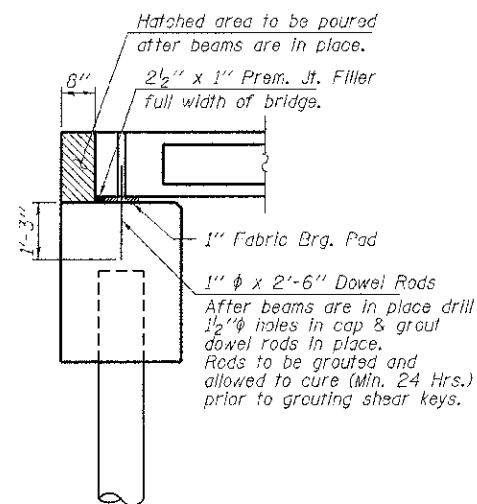
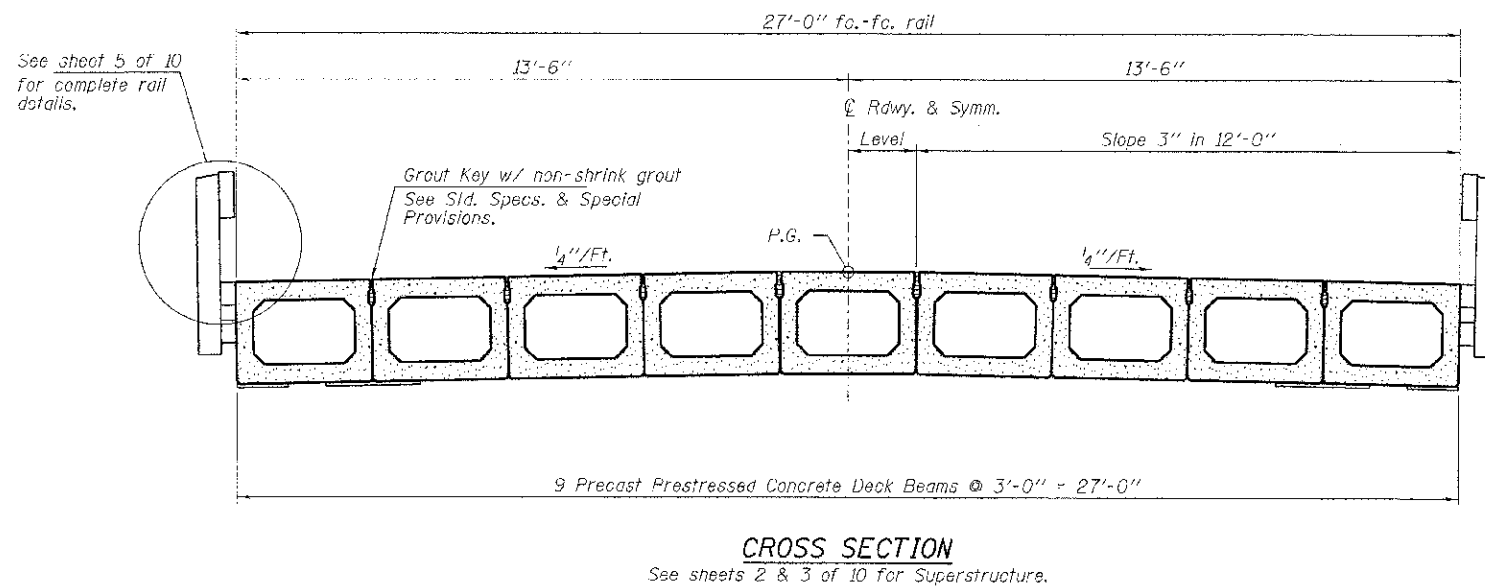
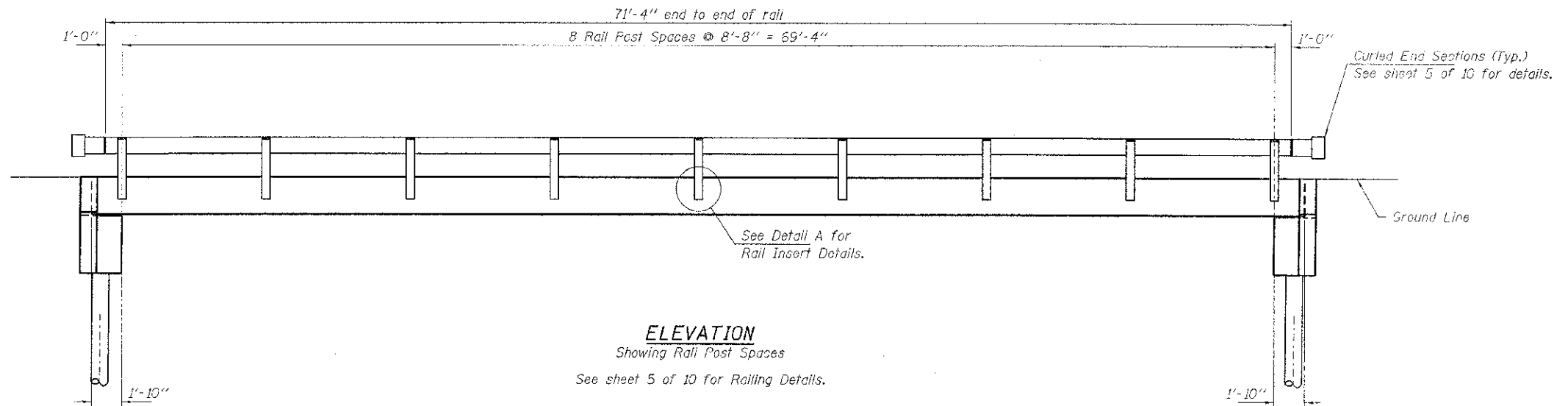
**STATE OF ILLINOIS**  
**LIVINGSTON COUNTY HIGHWAY DEPARTMENT**

**27" x 36" PPC DECK BEAM DETAILS**  
**STRUCTURE NO. 053-4202**

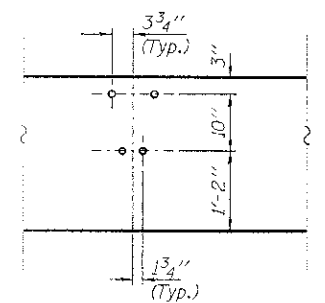
SHEET NO. 3 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
248A	*	LIVINGSTON	19	12
FORREST / CHATSWORTH R.D.			CONTRACT NO. 87538	
ILLINOIS FED. AID PROJECT				

• 10-11103-03-BR / 10-06124-00-BR

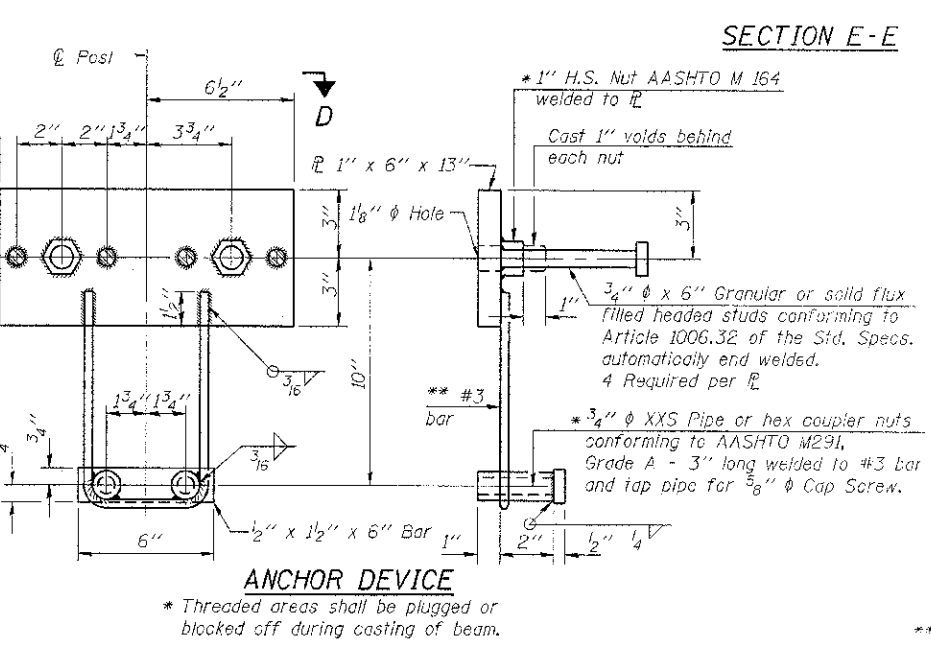
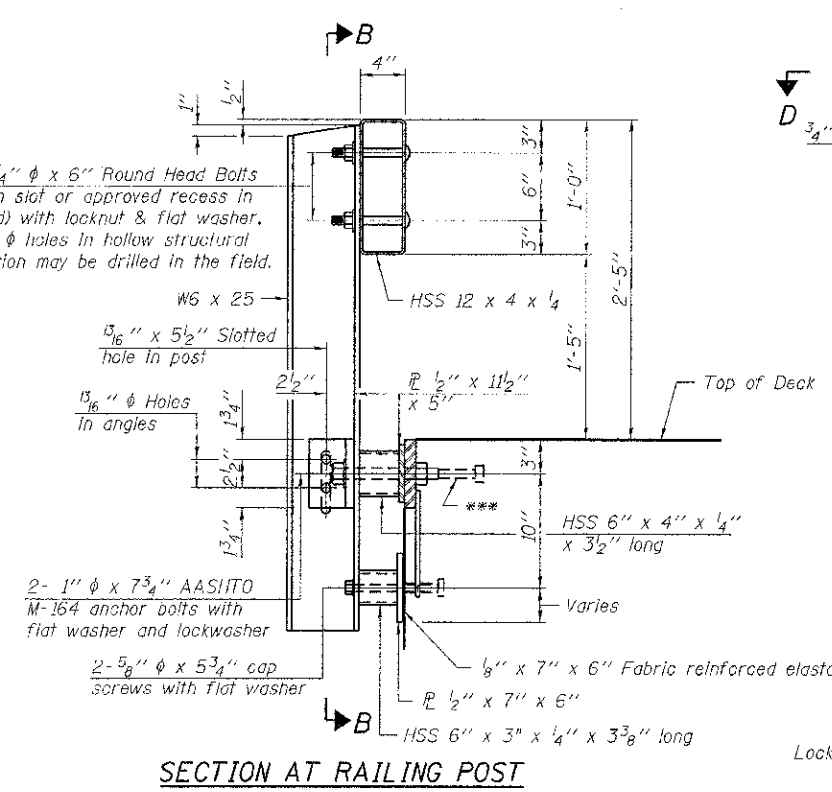
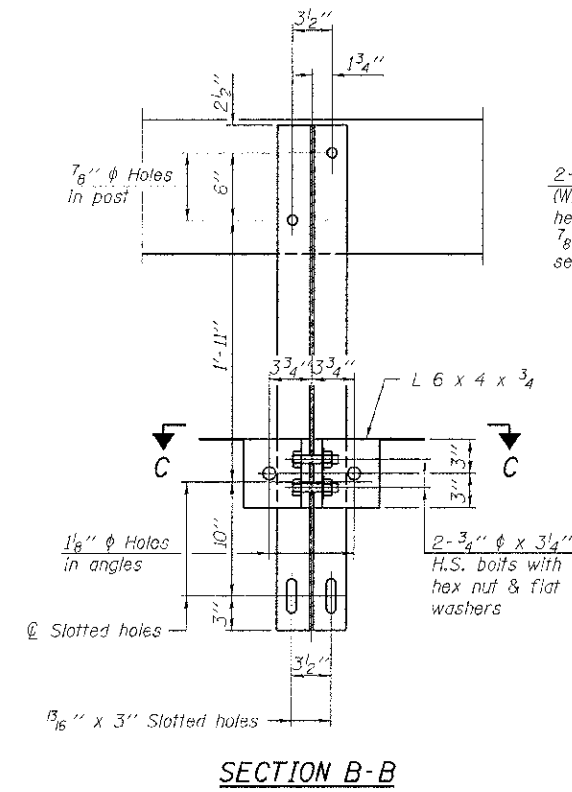
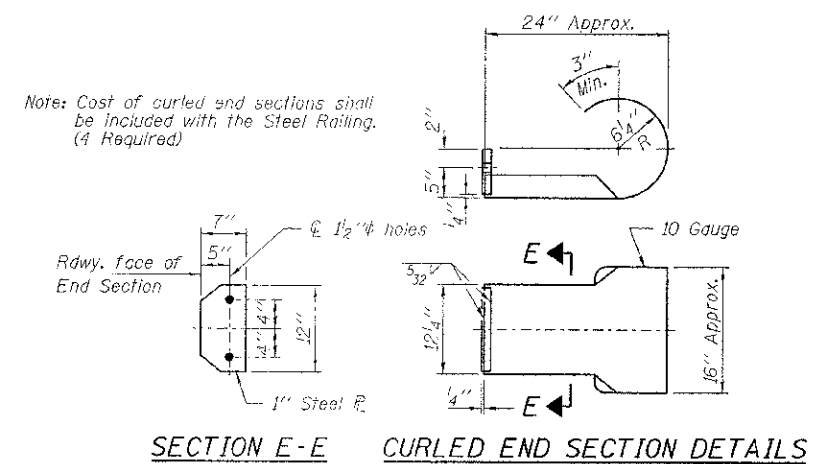
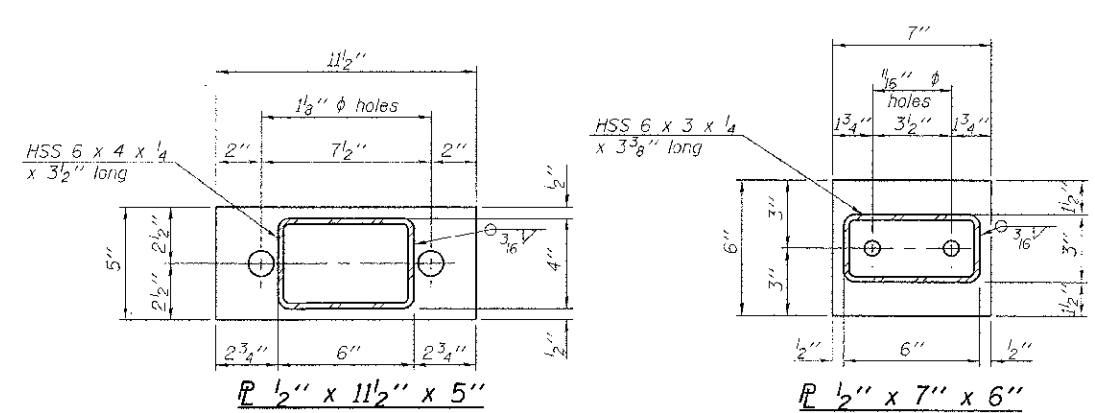
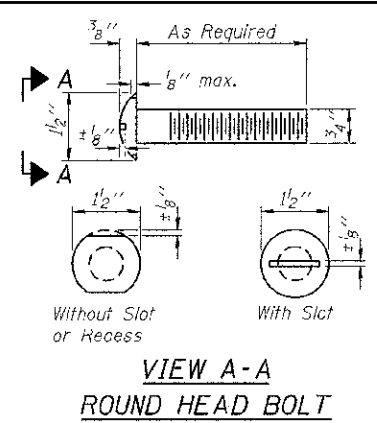


**SECTION AT ABUTMENTS**  
© Rt. L's

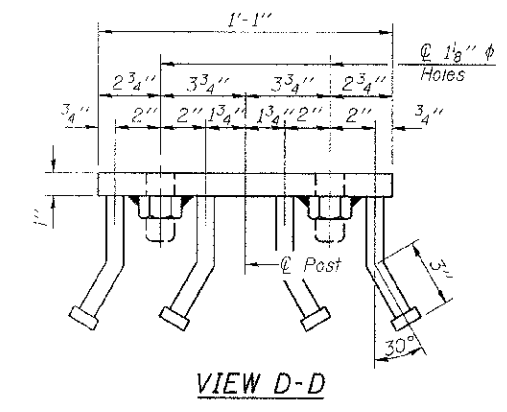
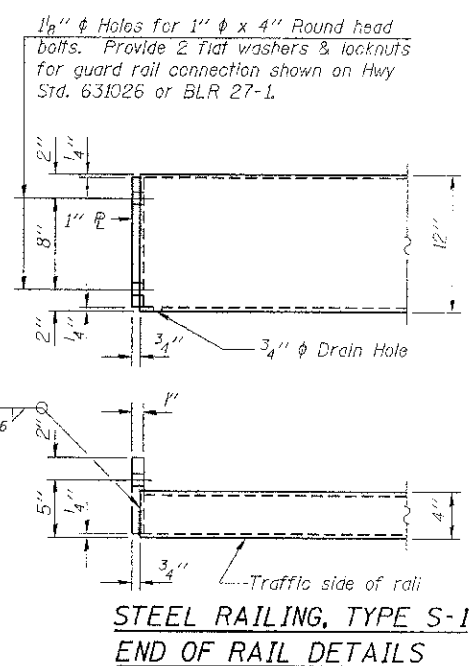
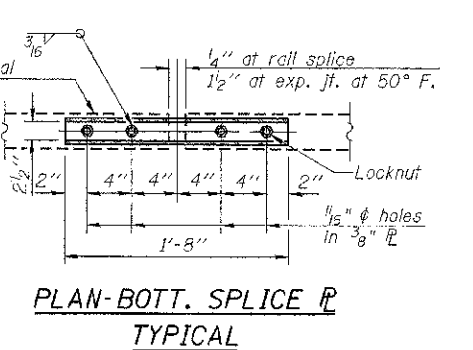
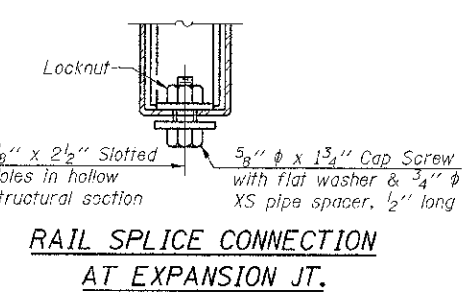
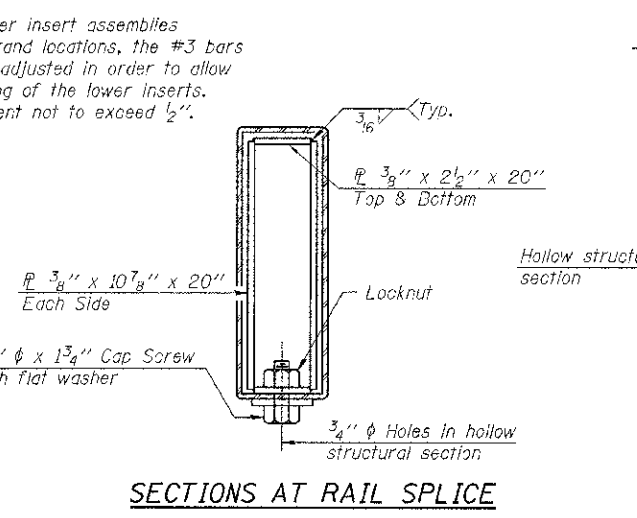
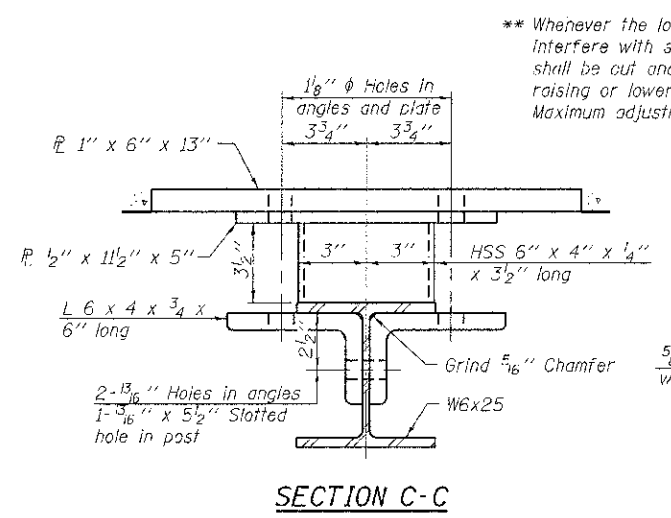


FILE NAME = 110245	USER NAME =	DESIGNED - S.W.M.	REVISED -	<b>STATE OF ILLINOIS LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b>	<b>SUPERSTRUCTURE DETAILS STRUCTURE NO. 053-4202</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - D.A.B.	REVISED -			248A		LIVINGSTON	19	13
1141015 PROFESSIONAL DESIGN FIRM 10 JEFFERSON DRIVE, SUITE 100 SPRINGFIELD, ILLINOIS 62761	PLOT SCALE =	DRAWN - R.D.H.	REVISED -			FORREST / CHATSWORTH R.D.				CONTRACT NO. 87538
	PLOT DATE = 12/26/2012	CHECKED - D.A.B.	REVISED -			SHEET NO. 4 OF 10 SHEETS		ILLINOIS FED. AID PROJECT		

10-11103-03-BR / 10-06124-00-BR



**Notes:**  
All field drilled holes shall be coated with an approved zinc rich paint before erection. 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.



**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	143

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

FILE NAME # 110245	USER NAME #	DESIGNED - S.W.M.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - D.A.B.	REVISED -
3000 S. RIVINGTON DRIVE, SUITE 201 SPRINGFIELD, ILL. 62761	PLOT SCALE #	DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN #1101	PLOT DATE # 12/28/2012	CHECKED - D.A.B.	REVISED -
151 N. PEYTON CORP., 104-00208			

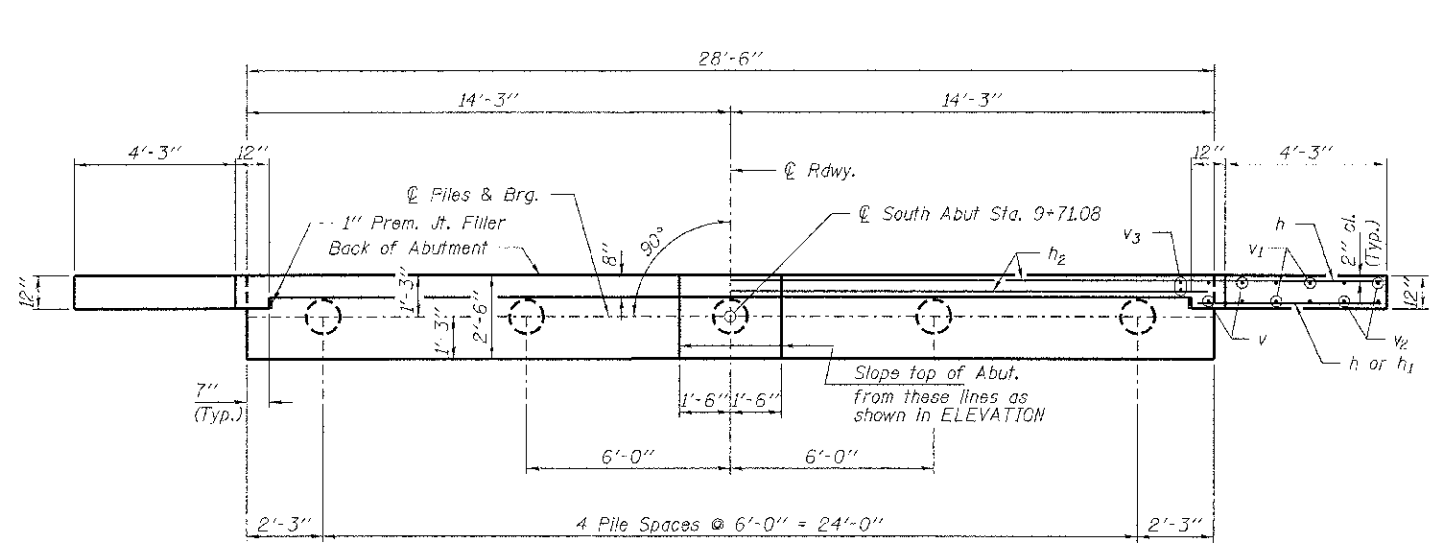
**STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT**

**STEEL RAILING, TYPE S-1  
STRUCTURE NO. 053-4202**

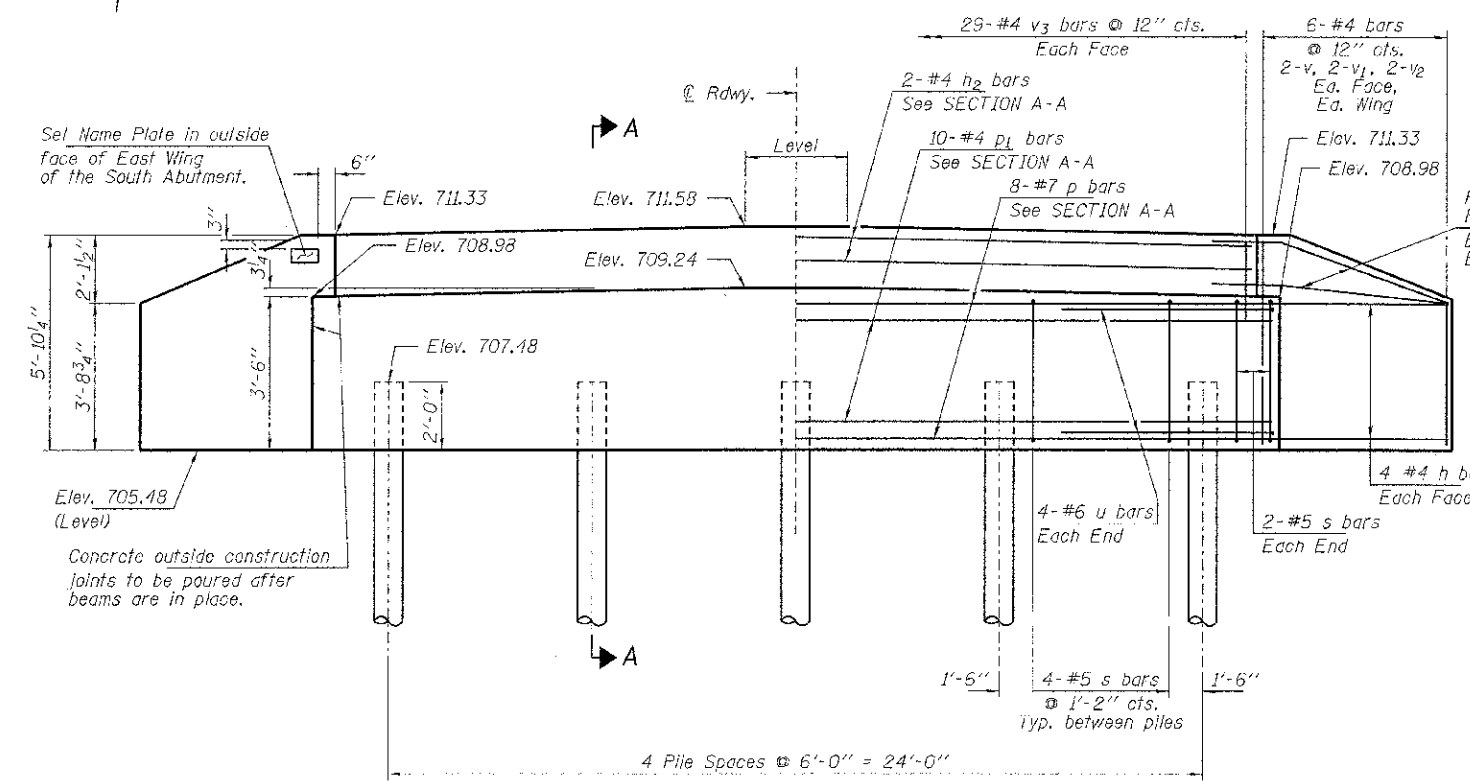
SHEET NO. 5 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
248A	*	LIVINGSTON	19	14
FORREST / CHATSWORTH R.D.			CONTRACT NO. 87538	
ILLINOIS FED. AID PROJECT				

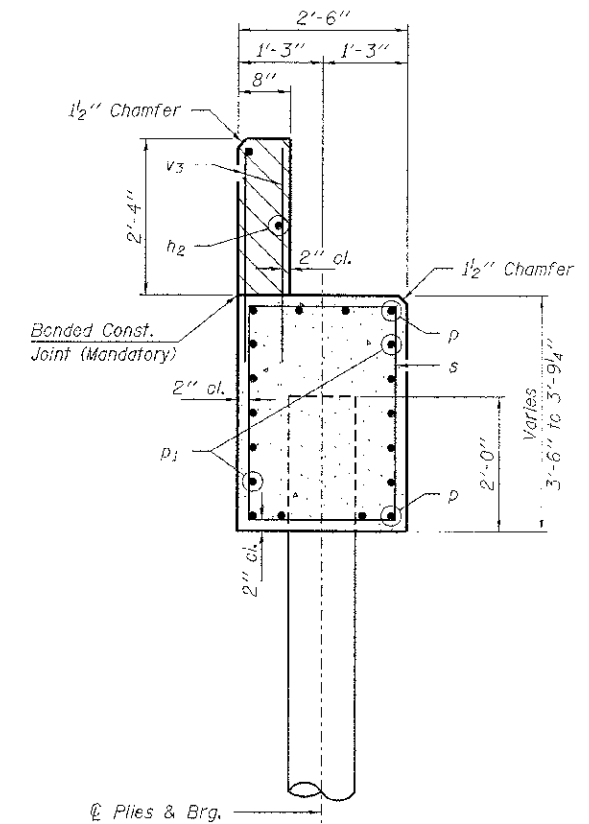




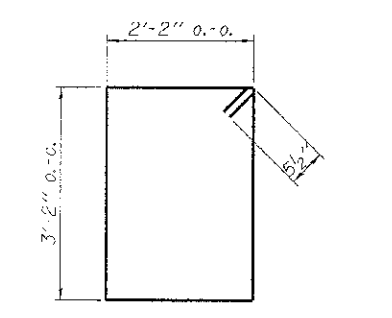
**PLAN**



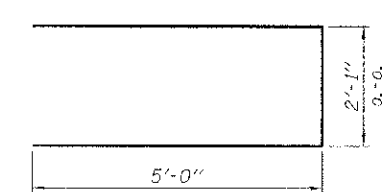
**ELEVATION**  
(Looking South)



**SECTION A-A**



**BAR s**



**BAR u**

Note: Extend h bars into abutment cap.

SECTION A-A  
Hatched area to be poured after beams are in place.

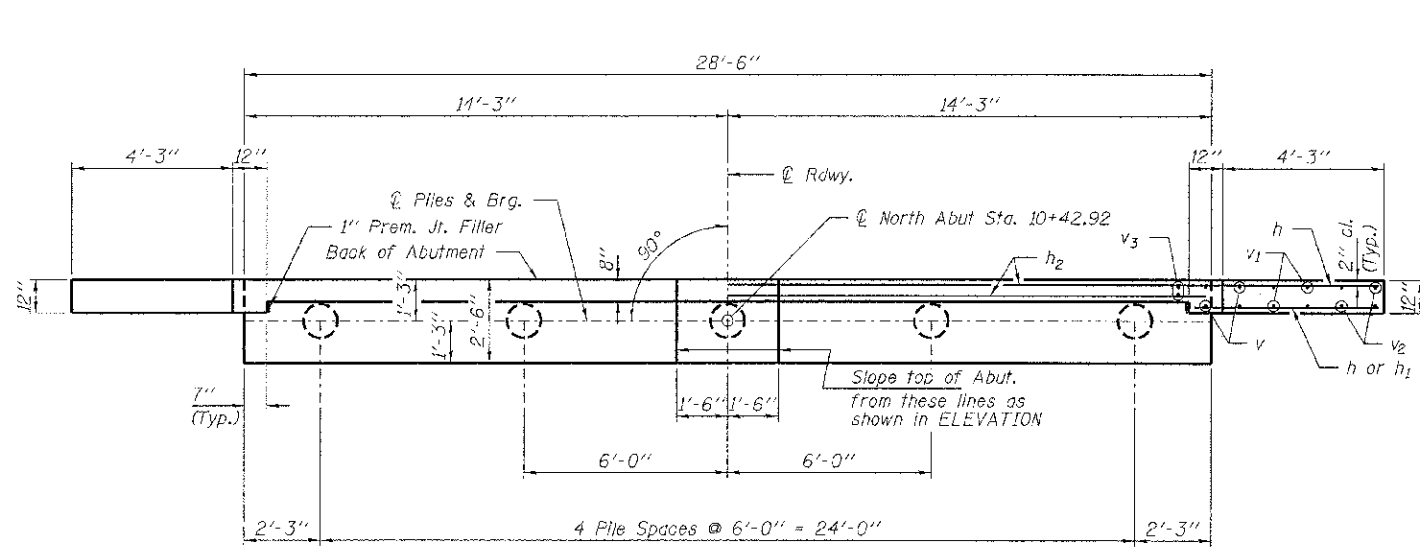
**BILL OF MATERIAL - S. ABUT.**

BAR	NO.	SIZE	LENGTH	SHAPE
h	20	#4	6'-6"	—
h1	4	#4	5'-0"	—
h2	2	#4	28'-2"	—
p	8	#7	28'-2"	—
p1	10	#4	28'-2"	—
s	20	#5	11'-7"	□
u	8	#6	12'-1"	—
v	8	#4	5'-5"	—
v1	8	#4	4'-5"	—
v2	8	#4	3'-5"	—
v3	58	#4	3'-2"	—
Concrete Structures			Cu. Yd.	12.7
Reinforcement Bars			Pound	1,370
Metal Shell Piles 12"x.25"			Foot	120
Test Pile Metal Shell 12"x.25"			Each	1
Name Plates			Each	1

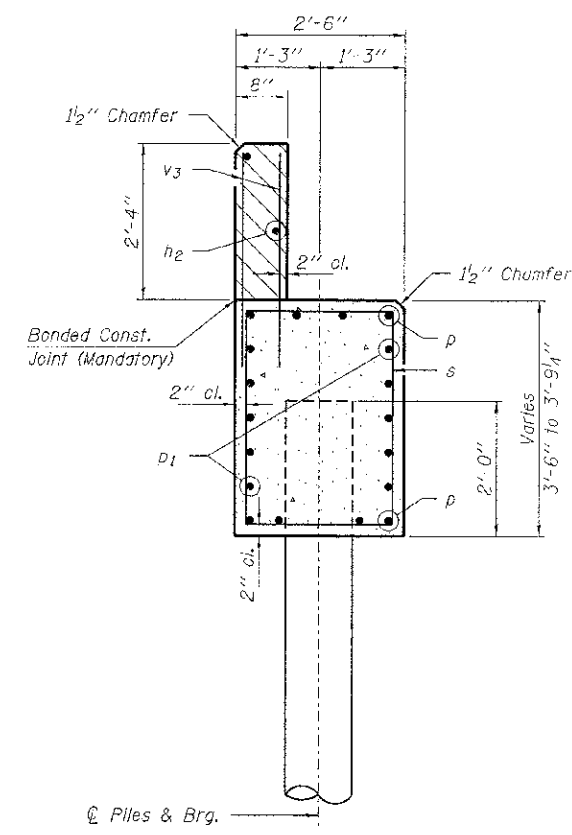
**PILE DATA**

Type ----- Metal Shell 12"x.25"  
 No. Req'd. (S. Abut.) ----- 5  
 Factored Resistance Available (Rf) ----- 165 Kips/Pile  
 Nominal Required Bearing (Rn) ----- 300 Kips/Pile  
 Est. Length ----- 30 Ft/Pile

Notes: \* Includes one test pile to be driven in permanent location at the South Abutment.  
 The test piles shall be driven to 110 percent of the Nominal Required Bearing Indicated in the pile data information.

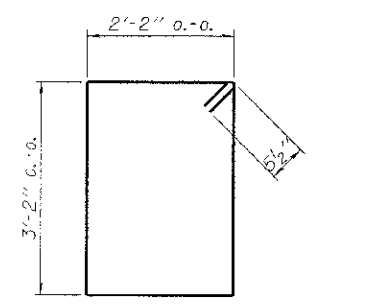


PLAN

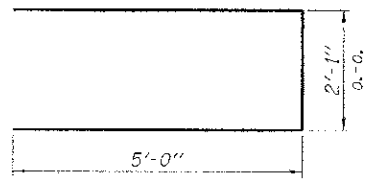


SECTION A-A

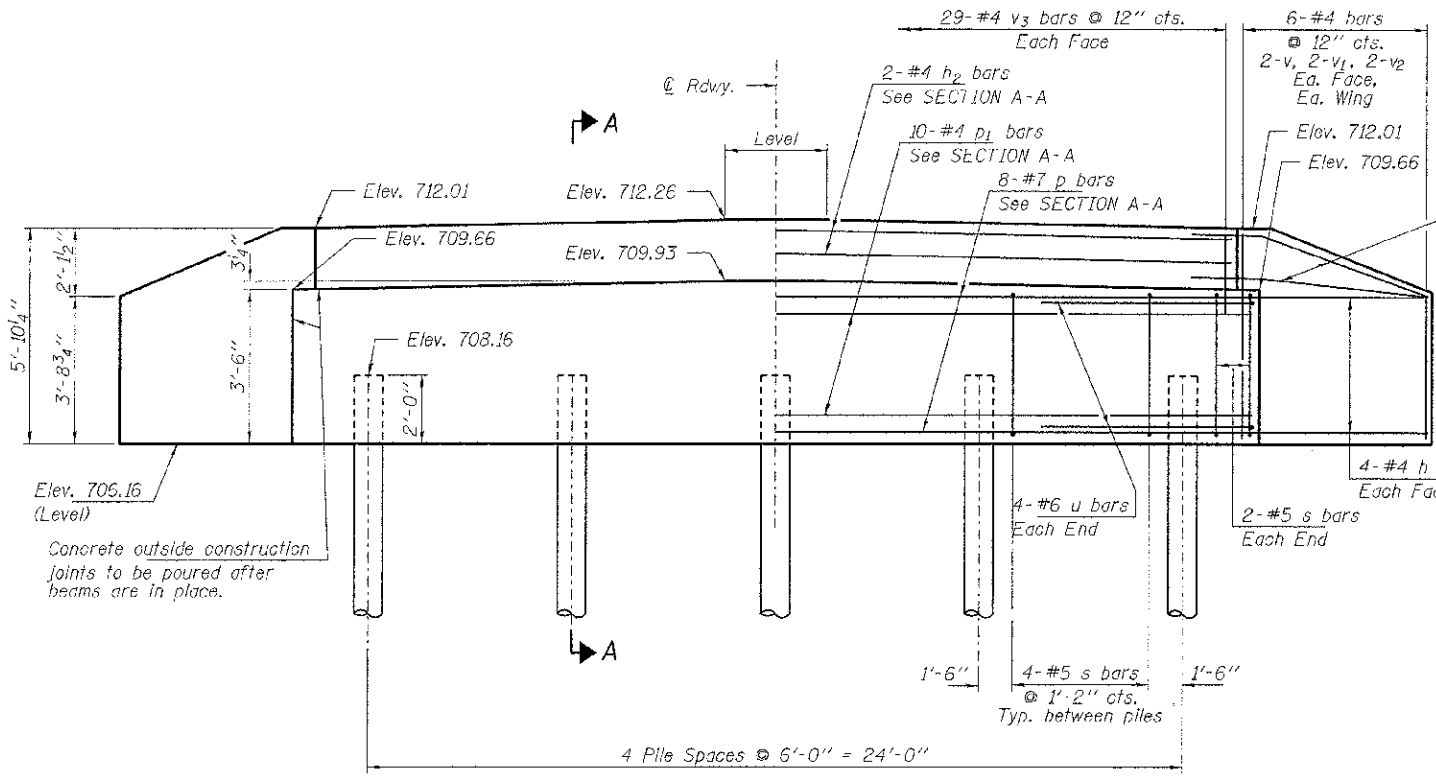
Hatched area to be poured after beams are in place.



BAR s



BAR u



ELEVATION  
(Looking North)

Note: Extend h bars into abutment cap.

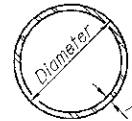
For 2-#4 h bars (S.F.)  
For 2-#4 h1 bars (F.F.)  
Each Wing  
Bend in field.

PILE DATA

Type: Metal Shells 12"x.25"  
No. Req'd. (N. Abut.) 5  
Factored Resistance Available (Rf) 165 Kips/Pile  
Nominal Required Bearing (Rn) 300 Kips/Pile  
Est. Length 30 Ft/Pile

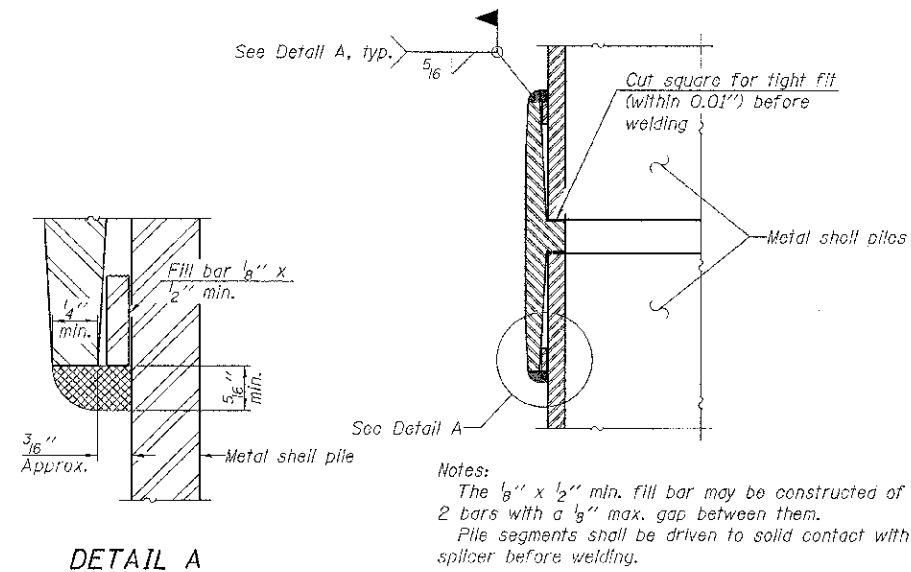
BILL OF MATERIAL - N. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h	20	#4	6'-6"	—
h1	4	#4	5'-0"	—
h2	2	#4	28'-2"	—
p	8	#7	28'-2"	—
p1	10	#4	28'-2"	—
s	20	#5	11'-7"	□
u	8	#6	12'-1"	—
v	8	#4	5'-5"	—
v1	8	#4	4'-5"	—
v2	8	#4	3'-5"	—
v3	5	#4	3'-2"	—
Concrete Structures			Cu. Yd.	12.7
Reinforcement Bars			Pound	1,370
Metal Shell Piles 12"x.25"			Foot	150



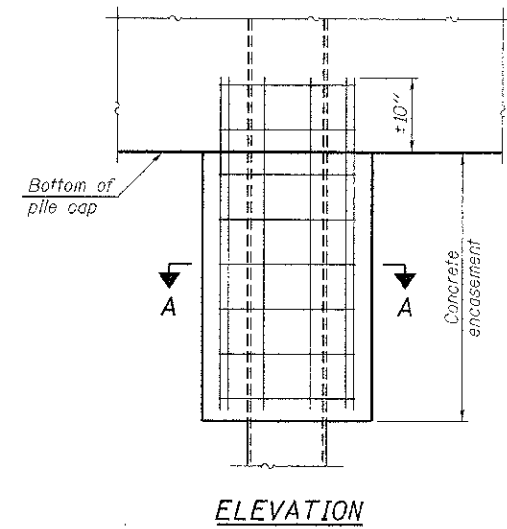
**METAL SHELL PILE TABLE**

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

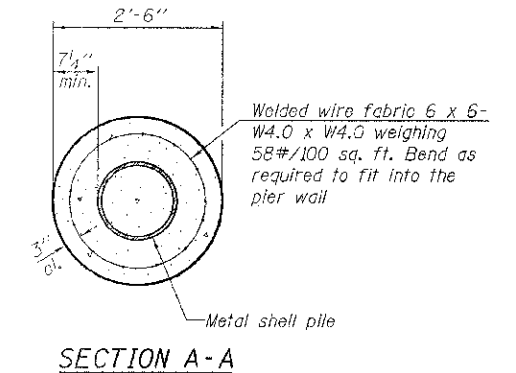


**Notes:**  
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.

**WELDED COMMERCIAL SPLICE**

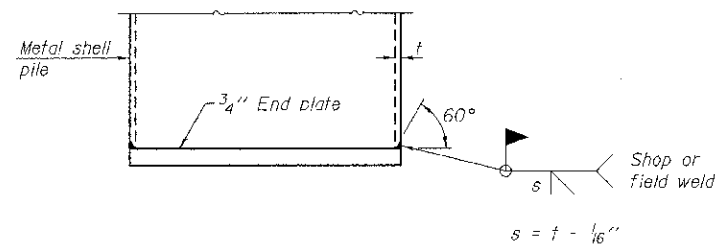


**ELEVATION**

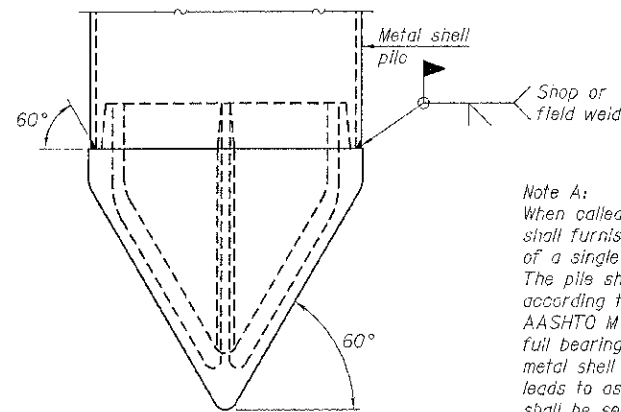


**Note:**  
 Forms for encasement may be omitted when soil conditions permit.

**CONCRETE ENCASEMENT AT PIERS**



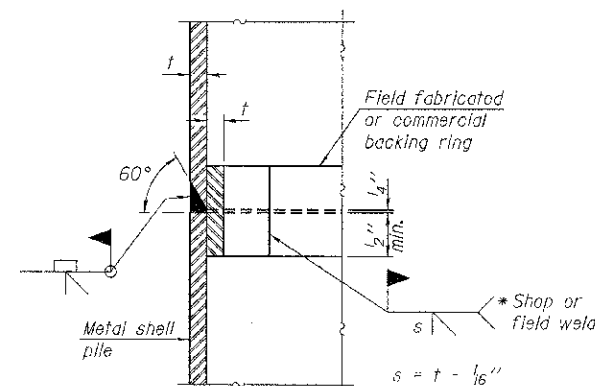
**END PLATE ATTACHMENT**



**METAL SHELL PILE SHOE ATTACHMENT**

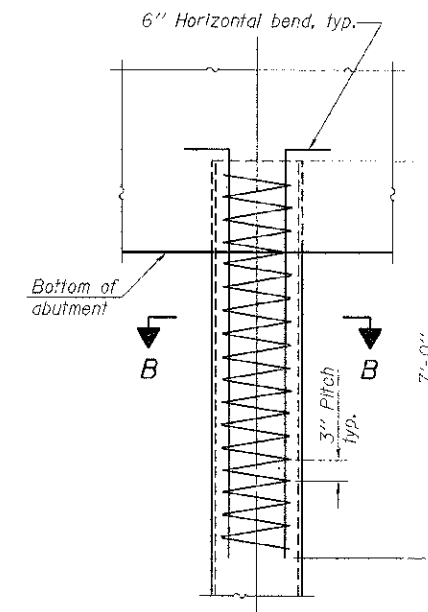
(See Note A)

**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.



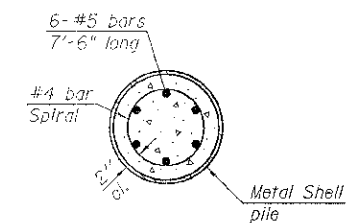
**COMPLETE PENETRATION WELD SPLICE**

\* 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**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**



**SECTION B-B**

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

F-MS

1-27-12

FILE NAME = 118245	USER NAME =	DESIGNED - S.W.M.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - D.A.B.	REVISED -
3037 STATE VISION DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62765	PLOT SCALE =	DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM 15 1/2 E. W. COOPER 184-903689	PLOT DATE = 12/28/2012	CHECKED - D.A.B.	REVISED -

**STATE OF ILLINOIS  
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT**

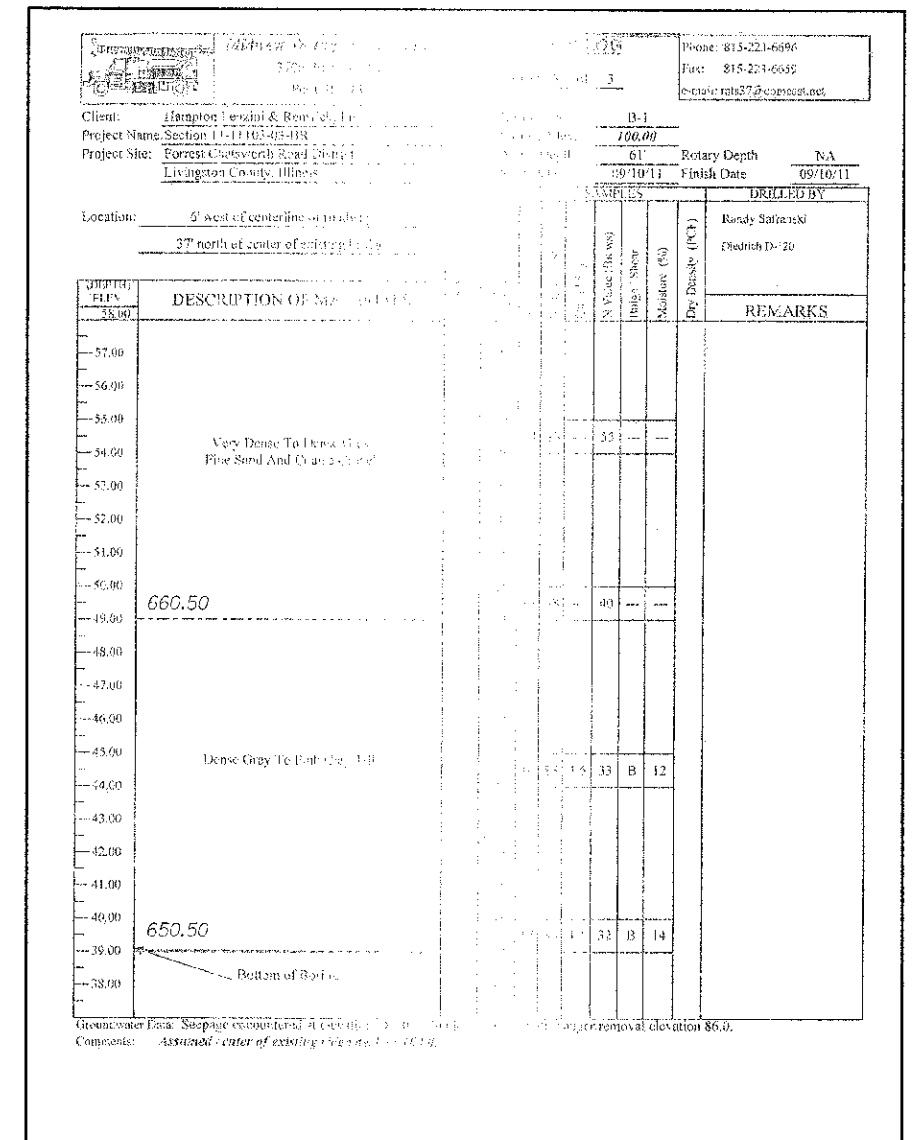
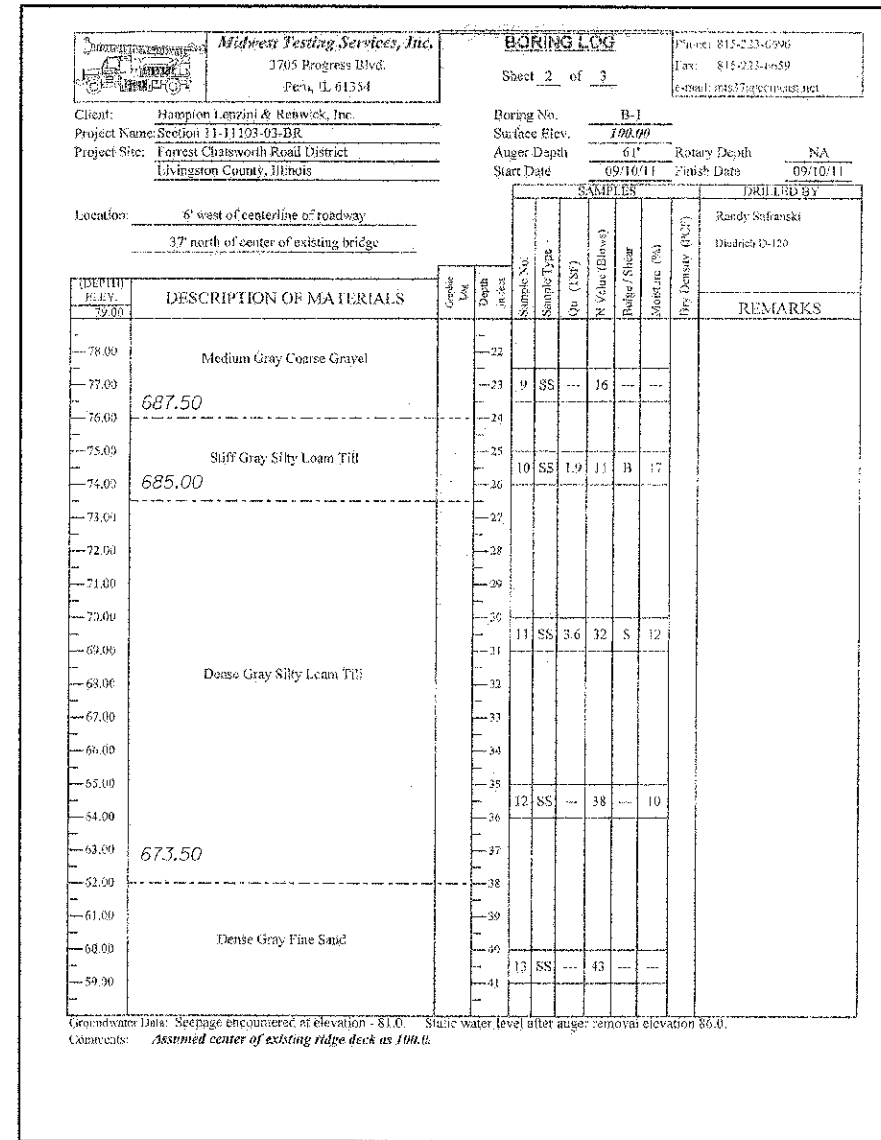
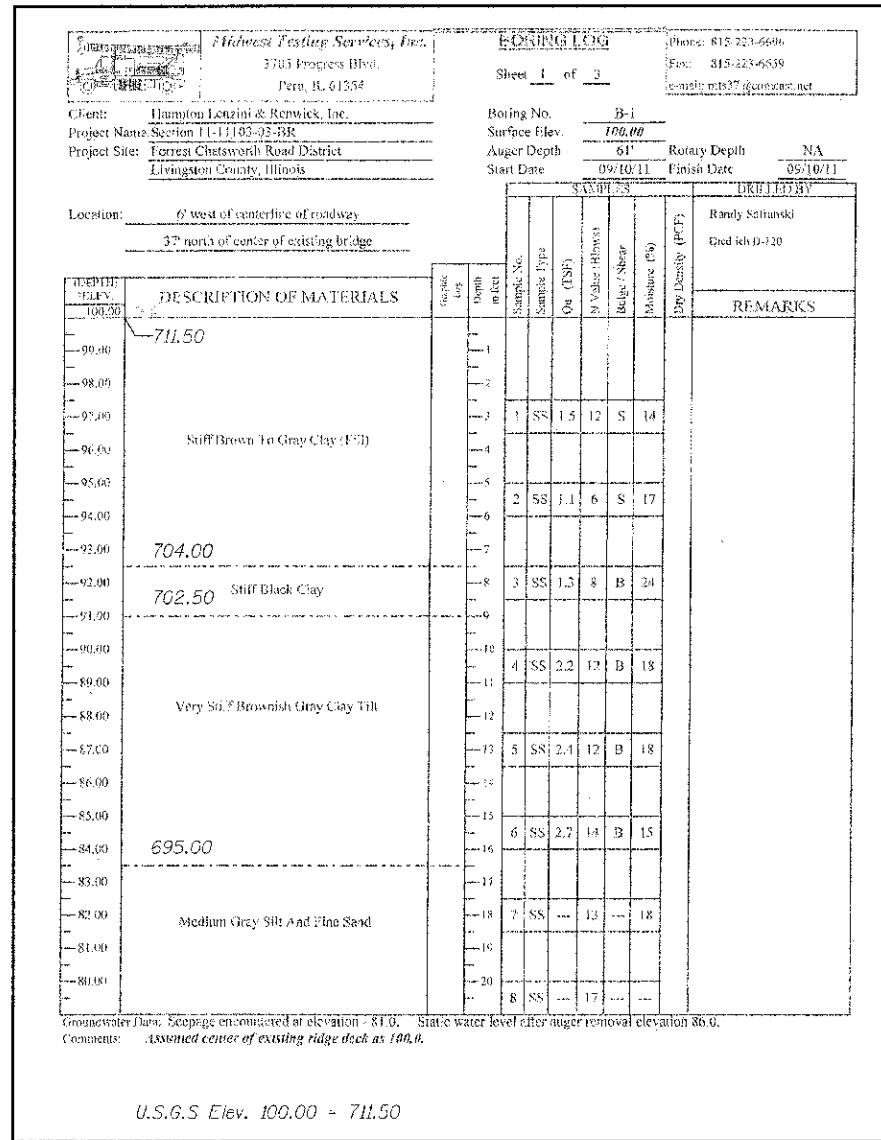
**METAL SHELL PILE DETAILS  
 STRUCTURE NO. 053-4202**

SHEET NO. 8 OF 10 SHEETS

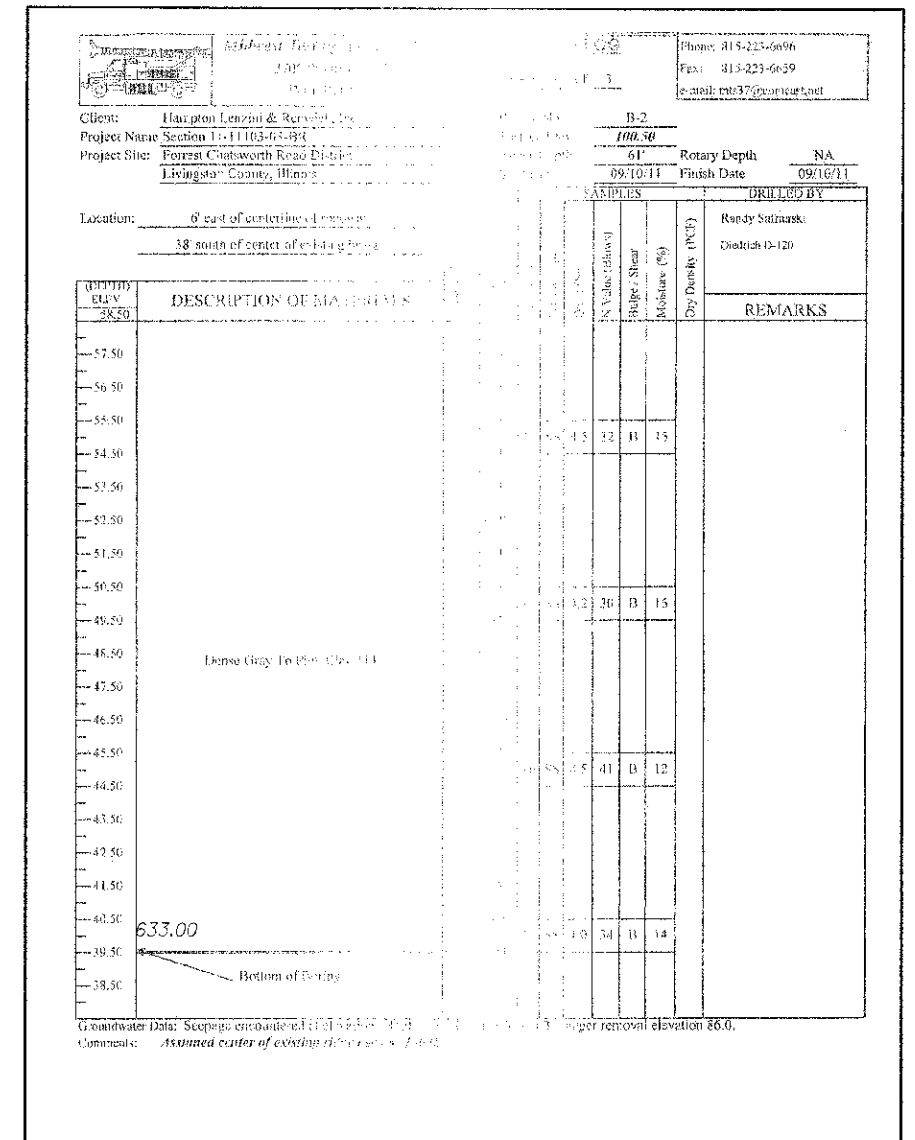
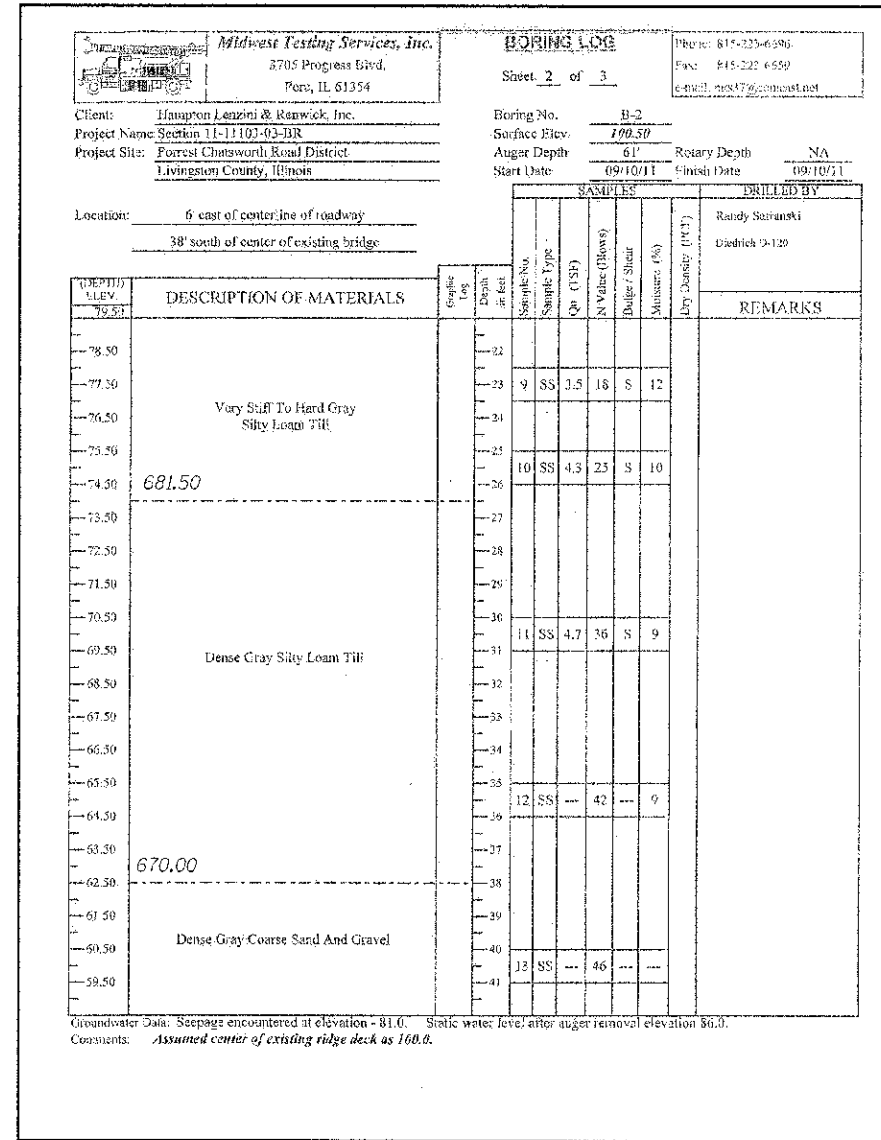
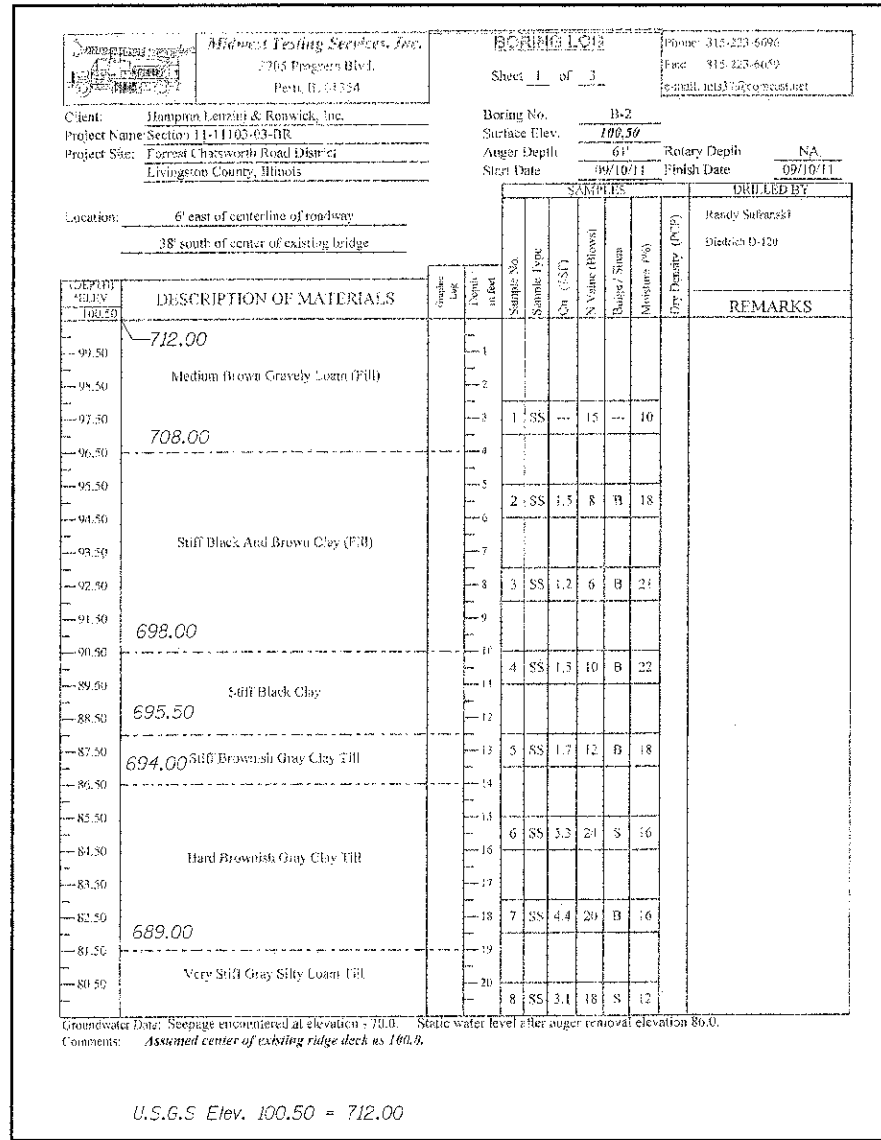
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
248A		LIVINGSTON	19	17
FORREST / CHATSWORTH R.D.			CONTRACT NO. 87538	
ILLINOIS FED. AID PROJECT				

\* 10-11103-03-BR / 10-06124-00-BR





B-1



B-2