

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	1
WHA# 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				



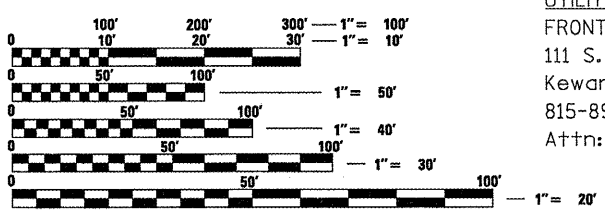
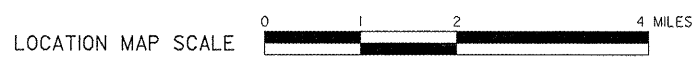
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- 14 = 27"x48" PPC DECK BEAM DETAILS
- 15 = 33"x48" PPC DECK BEAM
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- 17 = FIXED BEARING DETAILS
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- 22 = STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE
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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**PLANS FOR PROPOSED**  
**FEDERAL AID PROJECT**  
**HIGHWAY BRIDGE PROGRAM**  
**FAS ROUTE 1180 (COUNTY HIGHWAY 12 - KEIGWIN ROAD)**  
**SECTION 11-00318-00-BR**  
**PROJECT BRS-1180(003)**  
**STRUCTURE REPLACEMENT**  
**LEE COUNTY**  
**C-92-102-12**

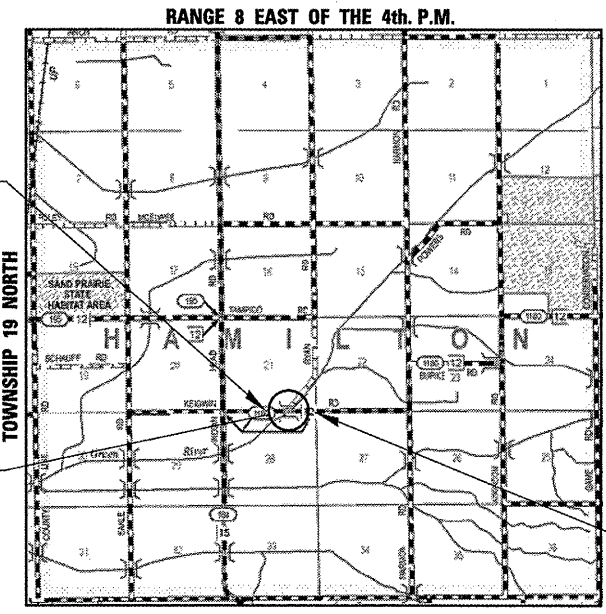
**STANDARDS**

- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
- 280001-06 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-03 NAME PLATE FOR BRIDGES
- 701006-03 OFF-RD OPERATIONS, 2L, 2W, 15' (4.5m) TO 24" (600 mm) FROM PAVEMENT EDGE
- 701301-04 LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
- 701901-02 TRAFFIC CONTROL DEVICES
- 720011-01 METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
- 728001-01 TELESCOPING STEEL SIGN SUPPORT
- 729001-01 APPLICATIONS OF TYPE A & B METAL POSTS (FOR SIGNS & MARKERS)
- B.L.R. 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS



**UTILITIES:**  
FRONTIER COMMUNICATIONS  
111 S. Main Street  
Kewanee, IL 61443  
815-895-1532  
Attn: Terry Spurgeon

CONSTRUCTION BEGINS  
STATION 17+75



CONSTRUCTION ENDS  
STATION 22+25

PROPOSED STRUCTURE: S.N. 052-3416  
A THREE SPAN (51'-3", 78'-0", 51'-3") PRECAST  
PRESTRESSED CONCRETE DECK BEAM BRIDGE ON  
SPILL-THRU ABUTMENTS & PILE BENT PIERS AT  
STATION 20+00. SKEWED 40° LEFT AHEAD.

GROSS LENGTH = 450 FT. = 0.085 MILE  
NET LENGTH = 450 FT. = 0.085 MILE

**PROJECT ENGINEER - BSK**  
**PROJECT MANAGER - BKC**  
**CONTRACT NO. 85557**

**MAJOR COLLECTOR (NON-URBAN)**  
**DESIGN SPEED 40 MPH**  
**2012 ADT = 60**  
**3R GUIDELINES**



*Brian K. Converse*  
DATE: 2/6/2012  
EXPIRES 11/30/2013

LEE COUNTY HIGHWAY DEPARTMENT		
APPROVED	02/07 <i>David M. Anker</i> LEE COUNTY ENGINEER	2012
PASSED	FEB. 24 <i>Lois R.S. Owen</i> DISTRICT 2 PROJECT IMPLEMENTATION ENGINEER	2012
RELEASING FOR BID BASED ON LIMITED REVIEW	FEB. 24 <i>Lois R.S. Owen</i> DEPUTY DIRECTOR OF HIGHWAYS REGION 3 ENGINEER	2012

FILE: S:\PROJECTS\2011\1224D11.Lee.Co\DESIGN\STRUCT\Drawings\1224D11\_Cover.dgn

**SUMMARY OF QUANTITIES**

CONSTRUCTION TYPE CODE: 0011

PAY CODE	DESCRIPTION	UNIT	QUANTITY
20300100	Channel Excavation	Cu. Yd.	405
25100630	Erosion Control Blanket	Sq. Yd.	1,560
28000250	Temporary Erosion Control Seeding	Pound	32
28000400	Perimeter Erosion Barrier	Foot	671
28100807	Stone Dumped Riprap, Class A4	Ton	1,129
*35101400	Aggregate Base Course, Type B	Ton	435
*40200800	Aggregate Surface Course, Type B	Ton	124
*40600100	Bituminous Materials (Prime Coat)	Gallon	318
*40800050	Incidental Hot-Mix Asphalt Surfacing	Ton	106
*48101200	Aggregate Shoulders, Type B	Ton	29
*50100100	Removal of Existing Structures	Each	1
50200100	Structure Excavation	Cu. Yd.	206
50300225	Concrete Structures	Cu. Yd.	87.0
50300260	Bridge Deck Grooving	Sq. Yd.	527
50300300	Protective Coat	Sq. Yd.	568
*50400505	Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	2,870
*50400605	Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2,184
50800205	Reinforcement Bars, Epoxy Coated	Pound	18,240
Δ 50901050	Steel Railing, Type SM	Foot	365
51200958	Furnishing Metal Shell Piles 14"x0.250"	Foot	315
51200959	Furnishing Metal Shell Piles 14"x0.312"	Foot	470
51202305	Driving Piles	Foot	785
51203200	Test Pile Metal Shells	Each	4
51500100	Name Plates	Each	1
67100100	Mobilization	L. Sum	1
72500300	Object Marker - Type 3	Each	4
72900100	Metal Post - Type A	Foot	44
Z0013798	Construction Layout	L. Sum	1
*X2020410	Earth Excavation (Special)	Cu. Yd.	317
*X2070302	Porous Granular Embankment, Special	Ton	310
*X2501000	Seeding, Class 2 (Special)	Acre	0.32
*X5030305	Concrete Wearing Surface, 5"	Sq. Yd.	568
*X7010216	Traffic Control and Protection, (Special)	L. Sum	1

\*See the contract documents for Special Provisions.

Δ Specialty Items

FILE: S:\PROJECTS\2011\1224011.Lee.Co.DESIGN\STRUCT\00-quantity\SummofQuantities.dgn



DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MICHAEL WAGNER	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

**SUMMARY OF QUANTITIES**  
**STRUCTURE NO. 052-3416**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	2
WHA# 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				

**GENERAL NOTES**

Existing structures (including foundations, walls, cisterns, wells, or other underground structures) within the right of way shall be removed in accordance with Article 501.04 and 501.05 of the Standard Specifications, without additional compensation, unless otherwise noted in the Plans or Special Provisions.

The Contractor shall seed all disturbed areas within the project limits.

The final top four inches of soil in any right of way area disturbed by the Contractor must be a cohesive soil capable of supporting vegetation and approved by the Engineer.

No overhaul has been computed and none shall be paid for from any source.

The Contractor shall be responsible for protecting utility property during construction operations as outlined in Article 107.31 of the Standard Specifications.

All telephone and electric poles, gas pipes, etc. in the way of the improvements shall be moved by the utilities prior to construction and shall not be included in the contract. The Contractor shall notify the respective utilities to make the necessary adjustments prior to this construction.

The location and elevation of the various underground utilities as shown on the plans are not to be taken as exact. The Contractor shall use special care when conducting construction operations near them to prevent damage.

The utilities located within the project limits or immediately adjacent to the project construction limits include:

Frontier Communications  
Attn: Terry Spurgeon  
111 S. Main Street  
Kewanee, IL 61443  
Ph: (815) 895-1532

A minimum of 48 hours advance notice is required for non-emergency work.

A Nationwide 404 Permit has been issued for this project and the conditions of that Permit must be adhered to.

Only surface disturbance will be allowed along the Green River dike. Excavation of the channel slopes will not be allowed for any reason.

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 markers, monuments, and right of way pins until the Owner, an Authorized Surveyor, or Agent has witnessed or otherwise referenced their location. Any property markers, section or subsection monuments unless referenced, damaged by the Contractor shall be replaced at the expense of the Contractor.

Existing mail boxes, street signs, and traffic signs that are within the construction limits shall be removed and reset by the Contractor unless otherwise noted. Cost of removing and resetting to be included in the contract unit price bid per Cubic Yard for Earth Excavation (Special).

**SCHEDULE OF QUANTITIES**

**AGGREGATE BASE COURSE, TYPE B**

LOCATION	TON	REMARKS
STA. 17+75 - 19+19	218	11"
STA. 20+81 - 22+25	217	11"
<b>TOTAL</b>	<b>435</b>	<b>35101400*</b>

**AGGREGATE SURFACE COURSE, TYPE B**

LOCATION	TON	REMARKS
FIELD ENTRANCE RT. STA. 18+74	25	8"
RYAN ROAD - LT. STA. 18+83	42	12"
FIELD ENTRANCE RT. STA. 21+08	25	8"
FIELD ENTRANCE LT. STA. 21+20	32	8"
<b>TOTAL</b>	<b>124</b>	<b>40200800*</b>

**BITUMINOUS MATERIALS (PRIME COAT)**

LOCATION	GALLON	REMARKS
STA. 17+75 - 19+18	32	0.1 GAL/SY (OVER BIT)
STA. 20+82 - 22+25	32	0.1 GAL/SY (OVER BIT)
STA. 17+75 - 19+18	127	0.4 GAL/SY (OVER AGG)
STA. 20+82 - 22+25	127	0.4 GAL/SY (OVER AGG)
<b>TOTAL</b>	<b>318</b>	<b>40600100*</b>

**INCIDENTAL HOT-MIX ASPHALT SURFACING**

LOCATION	TON	REMARKS
STA. 17+75 - 19+18	53	2 - 1 1/2" LIFTS
STA. 20+82 - 22+25	53	2 - 1 1/2" LIFTS
<b>TOTAL</b>	<b>106</b>	<b>40800050*</b>

**AGGREGATE SHOULDERS, TYPE B**

LOCATION	TON	REMARKS
LT. STA. 17+75 - 19+21	8	4"
RT. STA. 17+75 - 19+00	7	4"
RT. STA. 20+79 - 22+25	8	4"
LT. STA. 21+00 - 22+25	6	4"
<b>TOTAL</b>	<b>29</b>	<b>48101200*</b>

**OBJECT MARKER - TYPE 3**

LOCATION	EACH	REMARKS
STA. 18+96 RT. 14.5'	1	OM3-R
STA. 19+20 LT. 14.5'	1	OM3-L
STA. 20+80 RT. 14.5'	1	OM3-L
STA. 21+04 LT. 14.5'	1	OM3-R
<b>TOTAL</b>	<b>4</b>	<b>72500300</b>

**METAL SIGN POST - TYPE A**

LOCATION	FOOT	REMARKS
STA. 18+96 RT. 14.5'	11	OM3-R
STA. 19+20 LT. 14.5'	11	OM3-L
STA. 20+80 RT. 14.5'	11	OM3-L
STA. 21+04 LT. 14.5'	11	OM3-R
<b>TOTAL</b>	<b>44</b>	<b>72900100</b>

**PAINT PAVEMENT MARKING - LINE 4"**

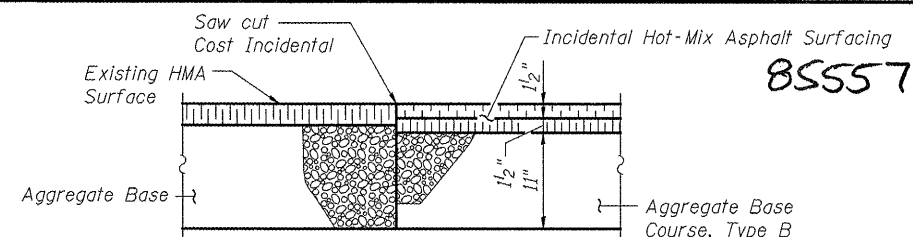
LOCATION	FOOT	REMARKS
STA. 17+75 - 19+05	32.5	CENTERLINE - DASHED YELLOW
STA. 19+05 - 20+95	190.0	CENTERLINE - SOLID YELLOW
STA. 20+95 - 22+25	32.5	CENTERLINE - DASHED YELLOW
STA. 17+75 - 22+25	450.0	CENTERLINE - SOLID YELLOW
<b>TOTAL</b>	<b>705</b>	<b>78001110</b>

**EARTH EXCAVATION (SPECIAL)**

LOCATION	CU YD	REMARKS
STA. 17+75 - 22+25	317	
<b>TOTAL</b>	<b>317</b>	<b>X2020410*</b>

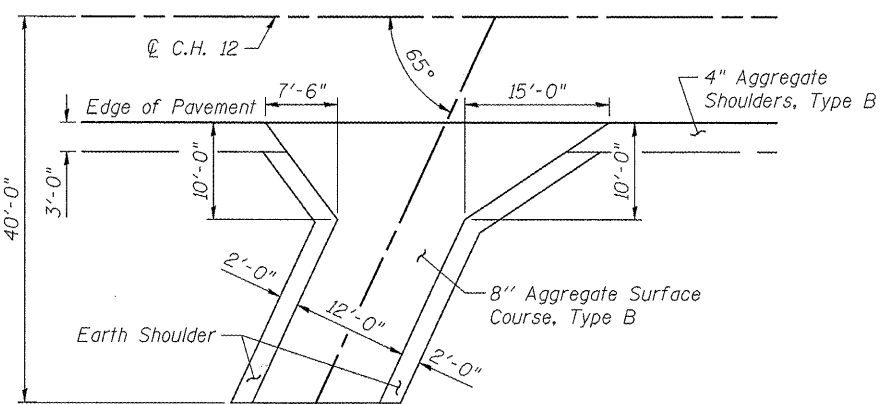
**SEEDING, CLASS 2 (SPECIAL)**

LOCATION	ACRE	REMARKS
LT. STA. 17+75 - 22+25	0.16	
RT. STA. 17+75 - 22+25	0.16	
<b>TOTAL</b>	<b>0.32</b>	<b>X2501000*</b>



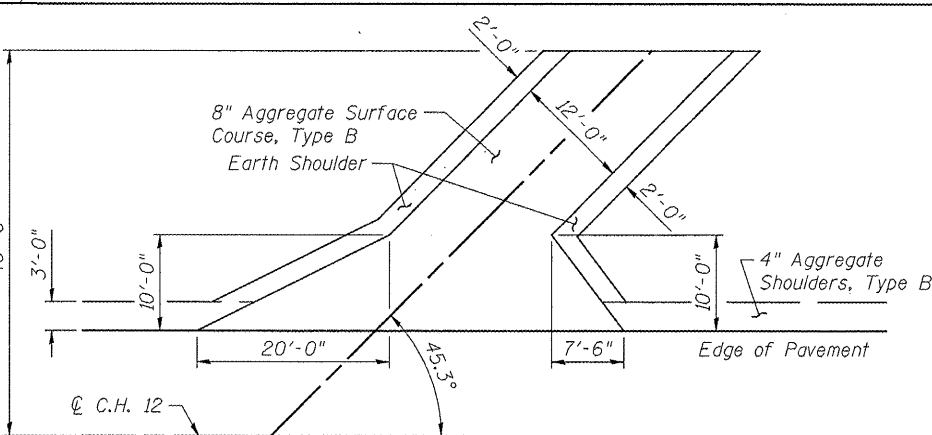
**CORE JOINT DETAIL**

(Sta. 17+75 & Sta. 22+25)



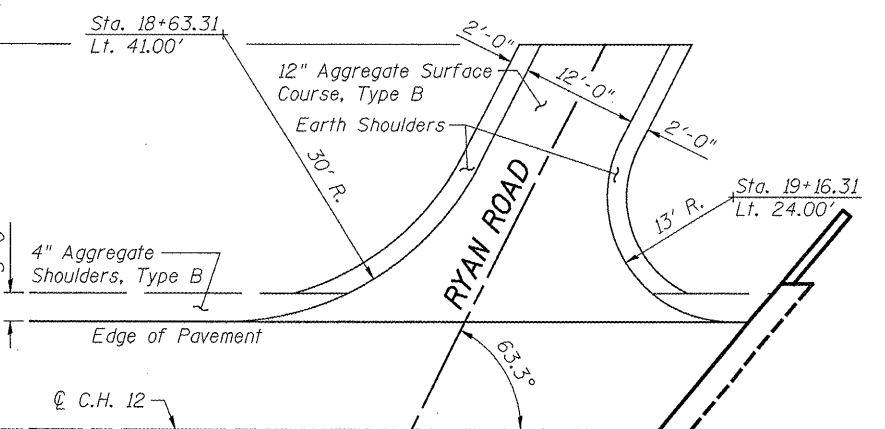
**FIELD ENTRANCE DETAIL**

(Sta. 18+74 & 21+08)



**FIELD ENTRANCE DETAIL**

(Sta. 21+20)



**RYAN ROAD INTERSECTION DETAIL**

(Sta. 18+83)

**SCHEDULE OF QUANTITIES**

**EROSION CONTROL BLANKET**

LOCATION	SQ YD	REMARKS
LT. STA. 17+75 - 22+25	775	
RT. STA. 17+75 - 22+25	785	
<b>TOTAL</b>	<b>1,560</b>	<b>25100630</b>

**TEMPORARY EROSION CONTROL SEEDING**

LOCATION	POUND	REMARKS
LT. STA. 17+75 - 22+25	16	
RT. STA. 17+75 - 22+25	16	
<b>TOTAL</b>	<b>32</b>	<b>28000250</b>

**PERIMETER EROSION BARRIER**

LOCATION	FOOT	REMARKS
LT. STA. 17+75 - 18+97	122	
RT. STA. 17+75 - 18+49	74	
RT. STA. 18+62 - 19+05	53	
LT. STA. 19+10 - 19+76	90	
RT. STA. 20+24 - 20+83	80	
LT. STA. 20+95 - 21+51	66	
RT. STA. 20+96 - 22+25	129	
LT. STA. 21+68 - 22+25	57	
<b>TOTAL</b>	<b>671</b>	<b>28000400</b>



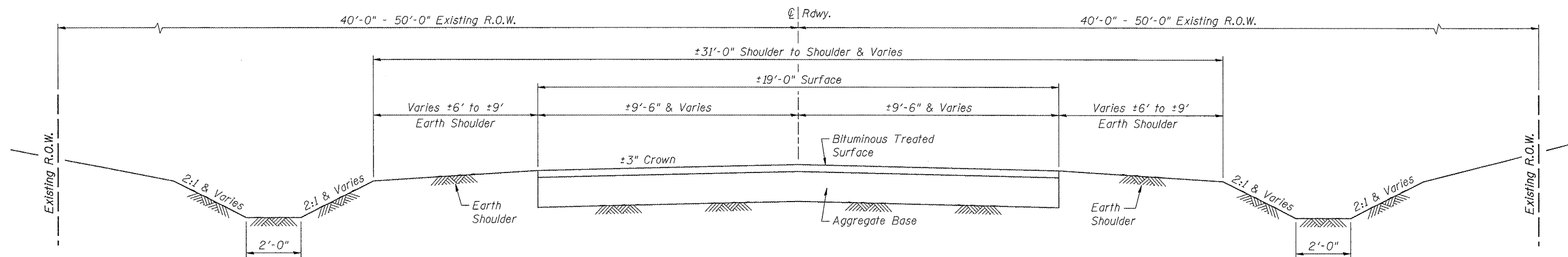
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CHECKED - MEGAN CACKLEY	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MICHAEL WAGNER	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

**GENERAL NOTES, SCHEDULE OF QUANTITIES & DETAILS**  
**STRUCTURE NO. 052-3416**

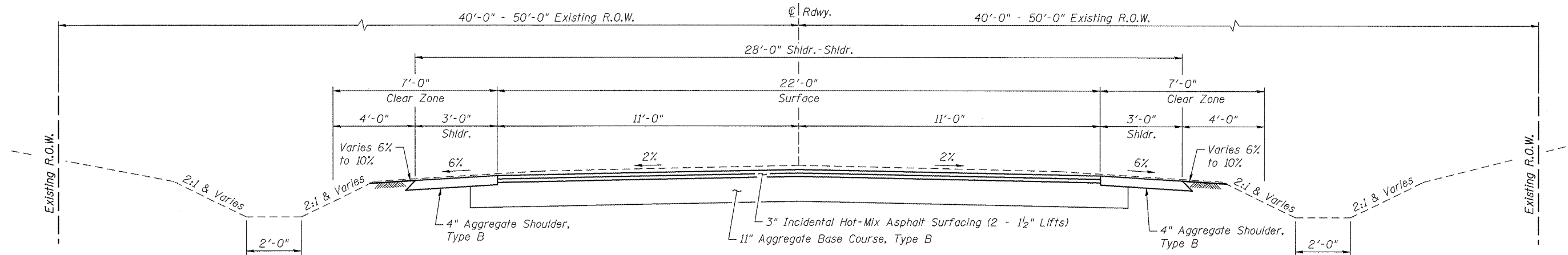
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WHA# 1224D11			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				

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**EXISTING ROADWAY TYPICAL SECTION**

Sta. 17+75.00 to Sta. 19+11.30  
Sta. 20+88.70 to Sta. 22+25.00



**PROPOSED ROADWAY TYPICAL SECTION**

Sta. 17+75.00 to Sta. 19+08.77  
Sta. 20+91.23 to Sta. 22+25.00

**PAVEMENT MIXTURE REQUIREMENTS**

PG:	PG 64-22
Design Air Voids	3.0 @ N50
Mixture Composition (Gradation Mixture)	IL 9.5 or 12.5
Friction Aggregate	C
Mix Unit Weight	112 lbs./s.y./in.

**PAVEMENT STRUCTURAL DESIGN - C.H. 12**

Structural Design Traffic (S.D.T.) = Year 2022  
Class IV Street  
80,000# Truck Design

P.V. 53  
S.U. 5 } 60 ADT  
M.U. 2

E<sub>ri</sub> : (Assumed) 2 ksi  
HCV = 7

USE  
3" - Incidental Hot-Mix Asphalt Surfacing (2 - 1/2" Lifts)  
11" - Aggregate Base Course, Type B

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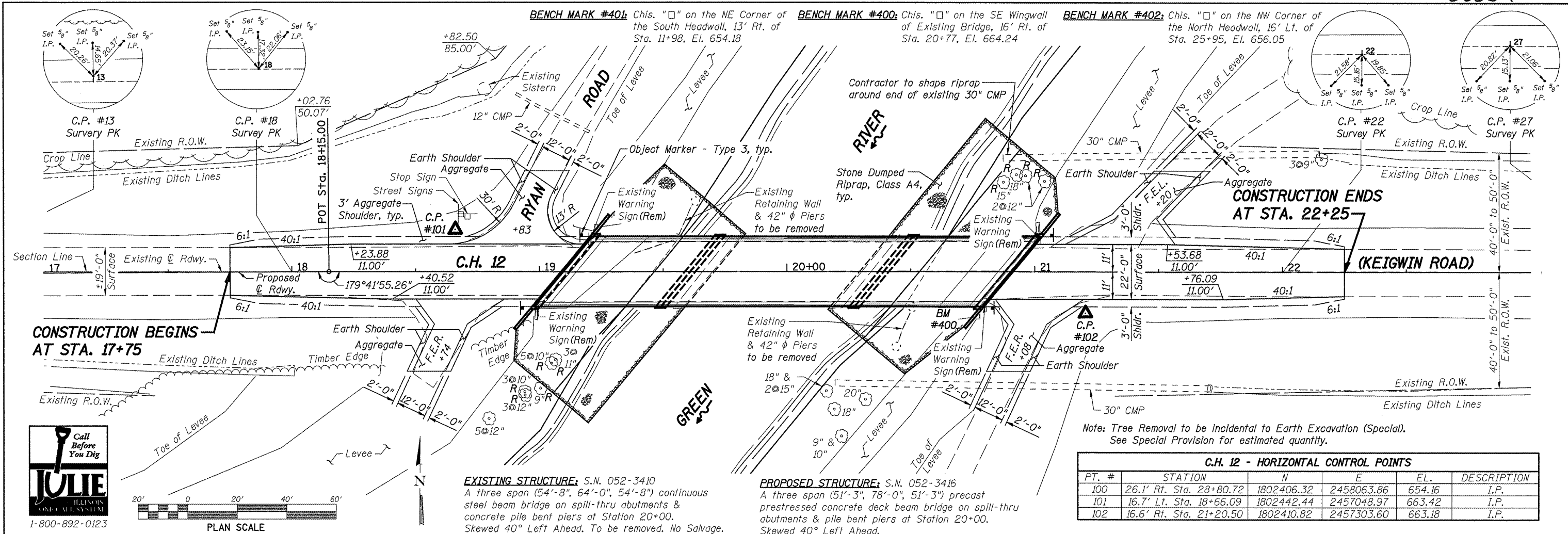


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DRAWN - RON ALLEN	REVISED -
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**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

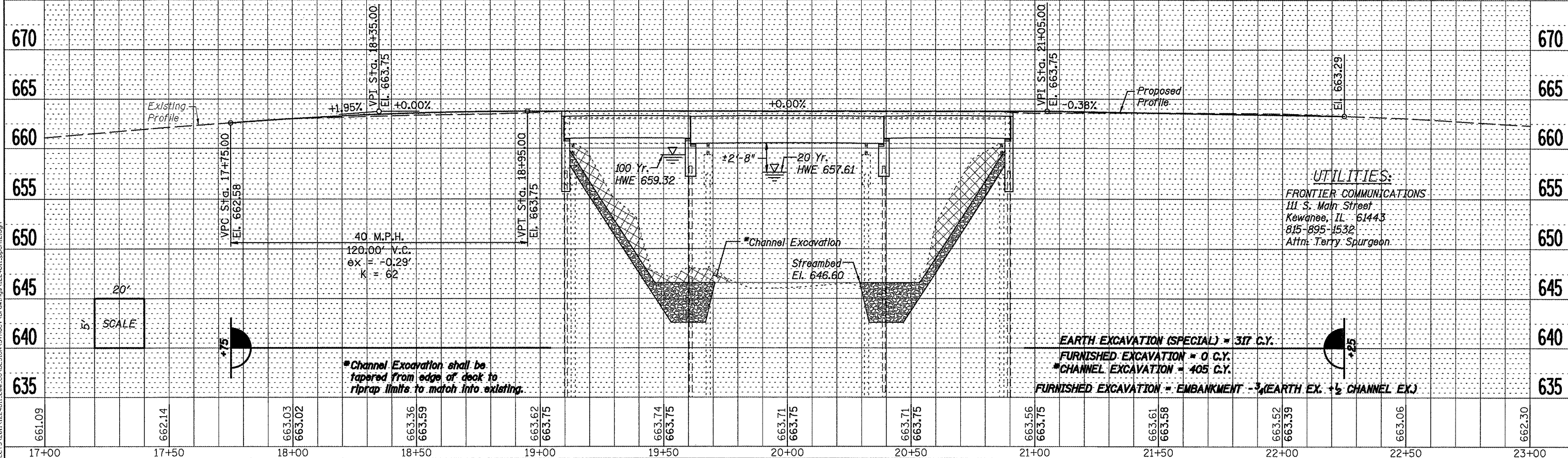
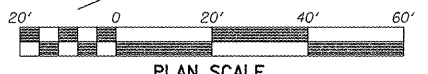
**TYPICAL SECTIONS**  
**STRUCTURE NO. 052-3416**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	4
WHA# 1224011			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				



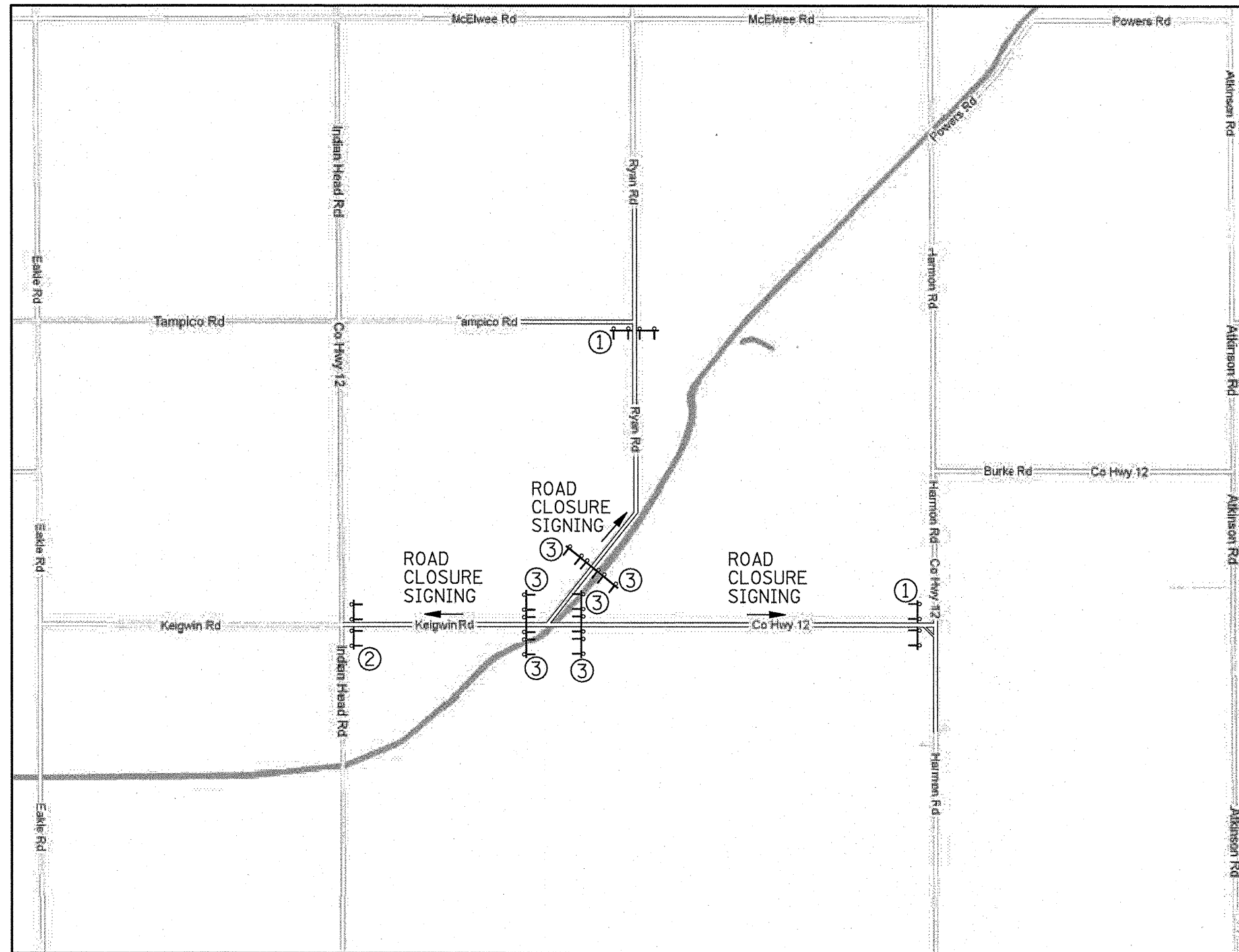
**C.H. 12 - HORIZONTAL CONTROL POINTS**

PT. #	STATION	N	E	EL.	DESCRIPTION
100	26.1' Rt. Sta. 28+80.72	1802406.32	2458063.86	654.16	I.P.
101	16.7' Lt. Sta. 18+66.09	1802442.44	2457048.97	663.42	I.P.
102	16.6' Rt. Sta. 21+20.50	1802410.82	2457303.60	663.18	I.P.



**EARTH EXCAVATION (SPECIAL) = 317 C.Y.**  
**FURNISHED EXCAVATION = 0 C.Y.**  
**\*CHANNEL EXCAVATION = 405 C.Y.**  
**FURNISHED EXCAVATION = EMBANKMENT - 1/2 (EARTH EX. + CHANNEL EX.)**

**UTILITIES:**  
**FRONTIER COMMUNICATIONS**  
 111 S. Main Street  
 Kewanee, IL 61443  
 815-895-1532  
 Attn: Terry Spurgeon



①

**ROAD CLOSED  
1 MILE AHEAD  
LOCAL TRAFFIC ONLY**

R11-3-6030

②

**ROAD CLOSED  
1/2 MILE AHEAD  
LOCAL TRAFFIC ONLY**

R11-3-6030

③

**ROAD  
CLOSED**

R11-2-4830



**WILLETT HOFMANN  
ASSOCIATES INC**  
ENGINEERING ARCHITECTURE LAND SURVEYING  
809 EAST 2ND STREET, DIXON, IL 61021-0367  
TEL: 815-284-3381 DESIGN FORM: #188-00218

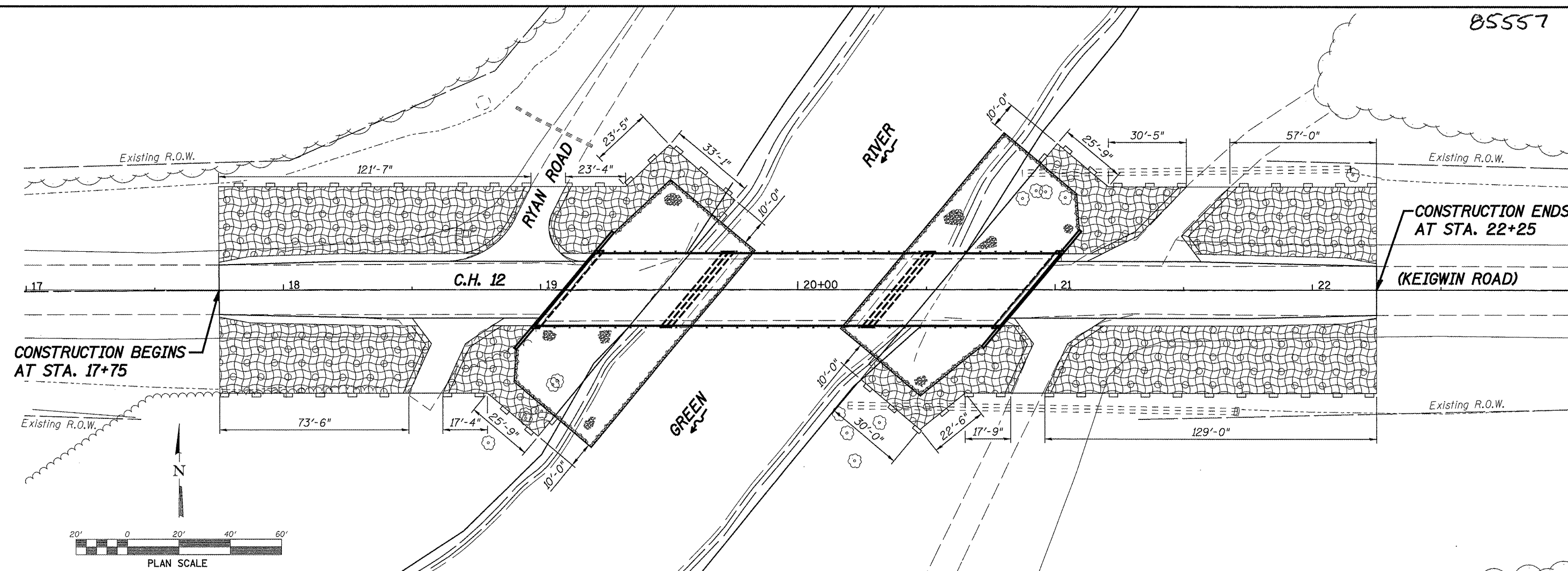
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**LEE COUNTY  
C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
STATION 20 + 00**

**ROAD CLOSURE PLAN  
STRUCTURE NO. 052-3416**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	6
WHA* 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				

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**EROSION CONTROL NOTES**

The soil erosion and sediment control practices will be inspected weekly and after 1/2" of rain or more by the individual on site in charge of soil erosion and sediment control during the construction of the project.

Perimeter erosion barrier shall comply with Section 280 of the Standard Specifications and shall be placed as shown on this Erosion Control Plan and in accordance with stations shown on the Schedule of Quantities sheet or as directed by the Engineer.

Silt fence shall be installed following the completion and stabilization of all areas adjacent to the on-site drainages. the silt fence will remain in place until the contributing area is stabilized.

For Seeding, Class 2 (Special) see Special Provisions.

Erosion control blanket shall be placed on all disturbed areas as shown on this Erosion Control Plan sheet and in accordance with Section 251 of the Standard Specifications for Road and Bridge Construction.




The use of green dye in the erosion control blanket is not acceptable.

Stockpiles of soil and other building materials to remain in place more than 3 days shall be furnished with erosion and sediment control measures (i.e. perimeter silt fence). Stockpiles to remain in place for 14 days or more shall receive temporary seeding.

All adjacent streets must be kept clear of debris. Inspected daily and cleaned when necessary.

**LEGEND**



-  Perimeter Erosion Barrier
-  Seeding, Class 2 (Special)
-  Erosion Control Blanket

**BILL OF MATERIAL**

Item	Unit	Quantity
Erosion Control Blanket	Sq. Yd.	1,560
Temporary Erosion Control Seeding	Pound	32
Perimeter Erosion Barrier	Foot	671
Seeding, Class 2 (Special)	Acre	0.32

FILE: S:\PROJECTS\2011\224011.Lee.Co.DESIGN\STRUCT\Drawings\224011.Erosion.dgn



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**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

**EROSION CONTROL PLAN**  
**STRUCTURE NO. 052-3416**

SCALE: 1" = 20' SHEET NO. 1 OF 1 SHEET STA. 17+00.00 TO STA. 23+00.00

F.A.S. RTE. 1180	SECTION 11-00318-00-BR	COUNTY LEE	TOTAL SHEETS 29	SHEET NO. 7
WHA# 1224D11			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				

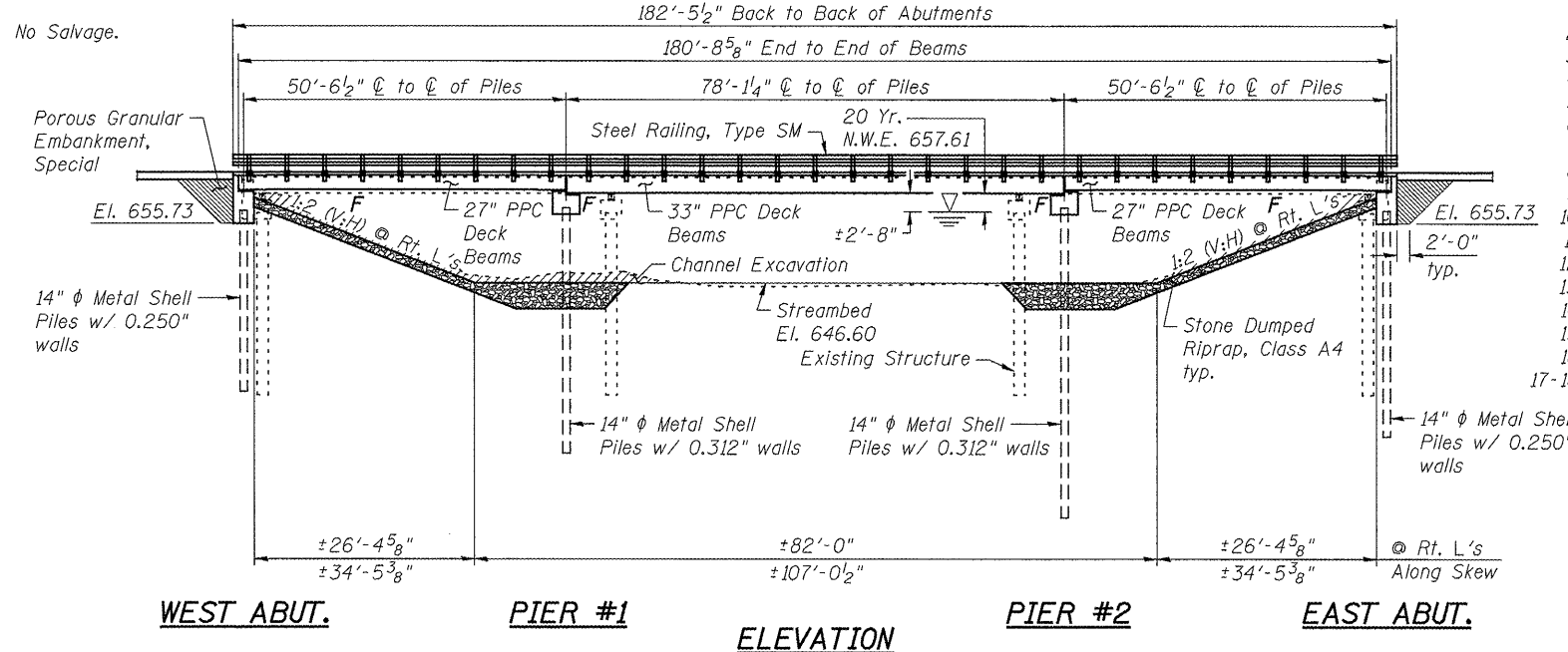
**EXISTING STRUCTURE:** S.N. 052-3410  
Originally built in 1964 under Section 129B-MFT. A three span (54'-8", 64'-0", 54'-8") continuous steel beam bridge on spill-thru abutments & concrete pile bent piers at Station 20+00. Skewed 40° Left Ahead. To be removed.

**BENCH MARK:** Chis. "□" on the NE Corner of the South Headwall, 13' Rt. of Sta. 11+98, El. 654.18

**BENCH MARK:** Chis. "□" on the SE Wingwall of Existing Bridge, 16' Rt. of Sta. 20+77, El. 664.24

**BENCH MARK:** Chis. "□" on the NW Corner of the North Headwall, 16' Lt. of Sta. 25+95, El. 656.05

85557



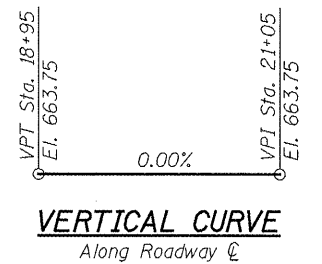
**INDEX OF SHEETS**

- 1 General Plan & Elevation
- 2 Riprap & Pile Layout
- 3 Superstructure Spans 1 & 3
- 4 Superstructure Span 2
- 5 Superstructure Details
- 6 27"x48" PPC Deck Beam
- 7 27"x48" PPC Deck Beam Details
- 8 33"x48" PPC Deck Beam
- 9 33"x48" PPC Deck Beam Details
- 10 Fixed Bearing Details
- 11 West Abutment Details
- 12 East Abutment Details
- 13 Pier #1 Details
- 14 Pier #2 Details
- 15 Steel Railing, Type SM with Concrete Wearing Surface
- 16 Metal Shell Pile Details
- 17-18 Boring Logs

GREEN RIVER  
BUILT 2012 BY  
LEE COUNTY  
SECTION 11-00318-00-BR  
F.A.S. RTE. 1180 STATION 20+00  
STR. NO. 052-3416    LOADING HL-93

**NAME PLATE LETTERING**

Refer to Std. 515001-03



**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
** Channel Excavation	Cu. Yd.	—	405	405
Stone Dumped Riprap, Class A4	Ton	—	1,129	1,129
* Removal of Existing Structures	Each	—	—	1
Structure Excavation	Cu. Yd.	—	206	206
Concrete Structures	Cu. Yd.	—	87.0	87.0
Bridge Deck Grooving	Sq. Yd.	527	—	527
Protective Coat	Sq. Yd.	568	—	568
* Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	2,870	—	2,870
* Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2,184	—	2,184
Reinforcement Bars, Epoxy Coated	Pound	8,600	9,640	18,240
Steel Railing, Type SM	Foot	365	—	365
Furnishing Metal Shell Piles 14" x 0.250"	Foot	—	315	315
Furnishing Metal Shell Piles 14" x 0.312"	Foot	—	470	470
Driving Piles	Foot	—	785	785
Test Pile Metal Shells	Each	—	4	4
Name Plates	Each	1	—	1
* Porous Granular Embankment, Special	Ton	—	310	310
* Concrete Wearing Surface, 5"	Sq. Yd.	568	—	568

**GENERAL NOTES**

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

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

\* See Special Provisions.

\*\* Channel to be transitioned to fit proposed structure inside proposed riprap limits.

**WATERWAY INFORMATION**

Drainage Area = 288 sq. mi.    Low Grade El. 660.31 @ Sta. 19+51.32

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	20	6,000	998	1,101	657.61	0.07	0.08	657.68	657.69
Base	100	7,865	1,189	1,311	659.32	0.10	0.11	659.42	659.43

**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

2010 AASHTO LRFD Bridge Design Specifications, 5th. Edition and 2011 Interim

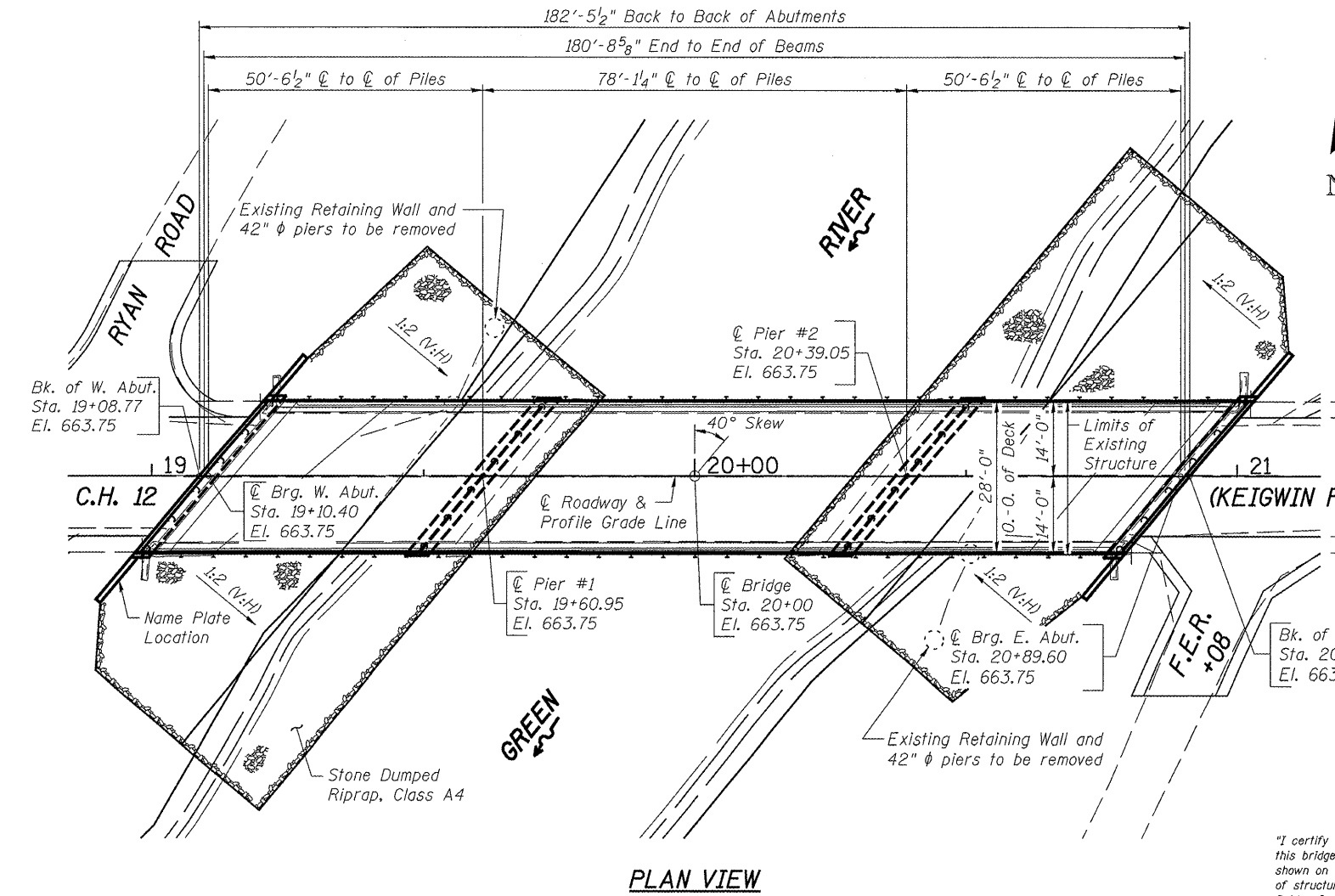
**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.090g  
Design Spectral Acceleration at 0.2 sec. (SD5) = 0.149g  
Soil Site Class = D

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	W. Abut.	Pier #1	Pier #2	E. Abut.
	656.73	642.60	642.60	656.73

**GENERAL PLAN & ELEVATION**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**F.A.S. RTE. 1180 - SEC. 11-00318-00-BR**  
**LEE COUNTY**  
**STATION 20+00**  
**STRUCTURE NO. 052-3416**



**DESIGN STRESSES**

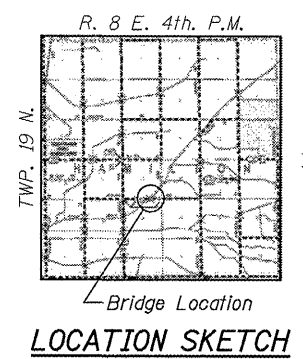
**FIELD UNITS**  
f'c = 3,500 psi  
fy = 60,000 psi (Reinforcement)

**PRECAST PRESTRESSED UNITS**  
f'c = 6,000 psi  
f'ci = 5,000 psi  
fpu = 270,000 psi (1/2" φ Low Lax Strands)  
fpbt = 201,960 psi (1/2" φ Low Lax Strands)



Brian K. Converse  
DATE: 2/6/2012  
EXPIRES 11/30/12

"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 Bridge Design Specifications."



**WILLETT HOFMANN & ASSOCIATES INC.**  
ENGINEERING ARCHITECTURE LAND SURVEYING  
809 EAST 2ND STREET, DIXON, IL 61021-0367  
T: 815-284-3381    DESIGN FIRM: #184-000918

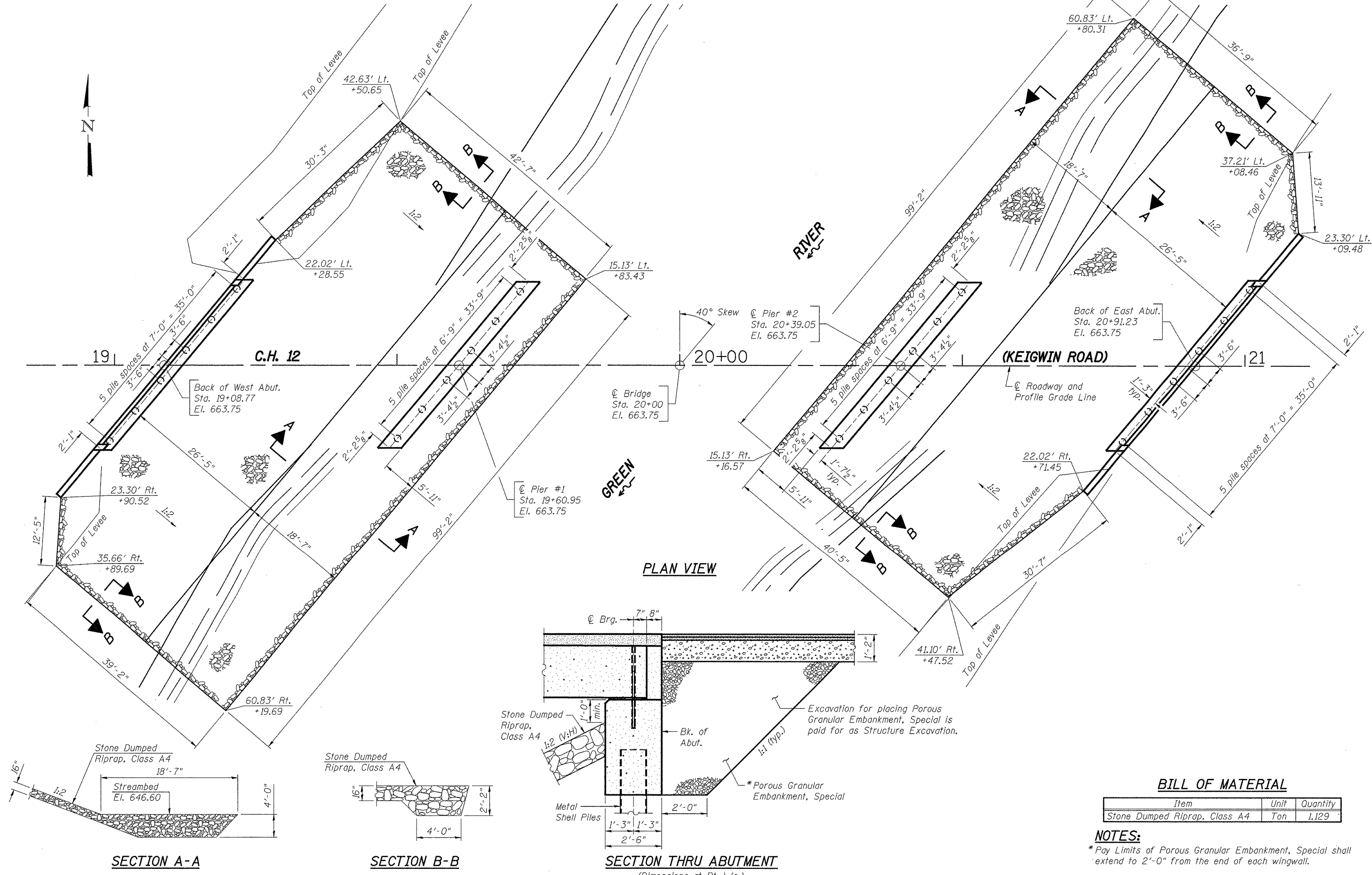
DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

STRUCTURAL SHEET NO. 1 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	8
WHA# 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-11801003				





**BILL OF MATERIAL**

Item	Unit	Quantity
Stone Dumped Riprap, Class A4	Ton	1,129

**NOTES:**  
 \*Pay Limits of Porous Granular Embankment, Special shall extend to 2'-0" from the end of each wingwall.

**WILLET HOFMANN ASSOCIATES INC.**  
 ENGINEERING ARCHITECTURE LANDSCAPE ARCHITECTURE  
 809 EAST 2ND STREET, DIXON, IL 61021-0387  
 TEL: 815-284-9381 DESIGN FIRM: #184-00918

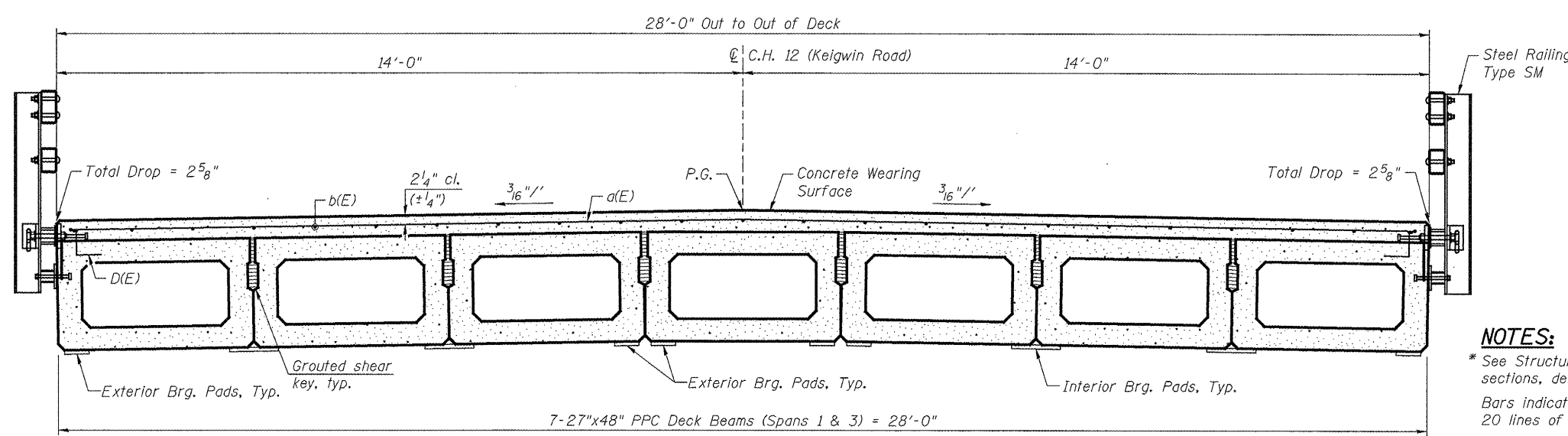
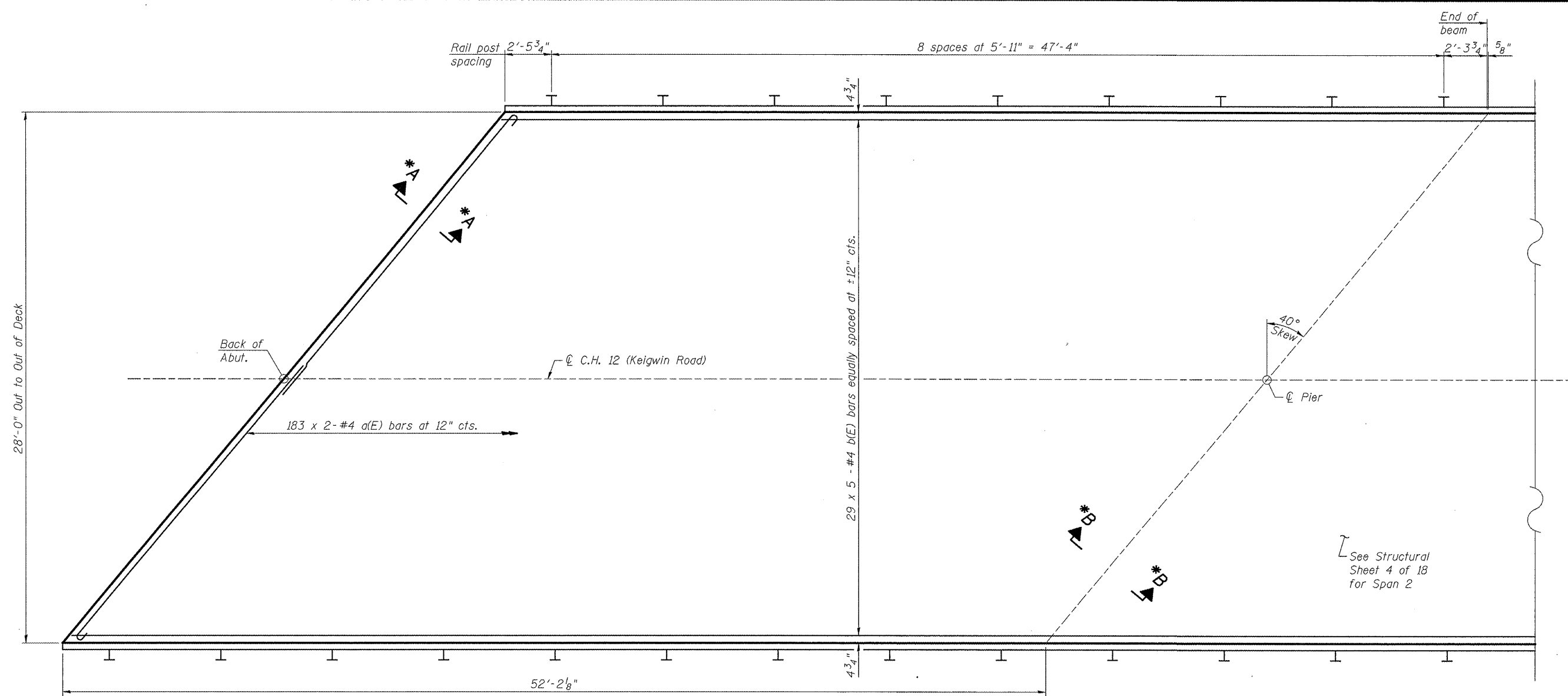
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CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

**RIPRAP & PILE LAYOUT**  
**STRUCTURE NO. 052-3416**  
 STRUCTURAL SHEET NO. 2 OF 18 SHEETS

F.A.S. RTE. 1180	SECTION 11-00318-00-BR	COUNTY LEE	TOTAL SHEETS 29	SHEET NO. 9
WHA# 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				

FILE: S:\PROJECTS\2011\1224D11\Lee\_Co\DESIGN\STRUCT\02-earings\1224D11\_Riprap.dgn



**NOTES:**

- \* See Structural Sheet 5 of 18 for superstructure sections, details and Bill of Material.
- Bars indicated thus 20 x 2-#4 etc. indicates 20 lines of bars with 2 lengths per line.
- Spacing of a(E) bars shall be measured along the C of structure.
- See Structural Sheet 10 of 18 for bearing pad details.

FILE: S:\PROJECTS\2011\224011.Lee.Co.DESIGN\STRUCTURE\224011.Superstructure.Spans.1&3.dgn

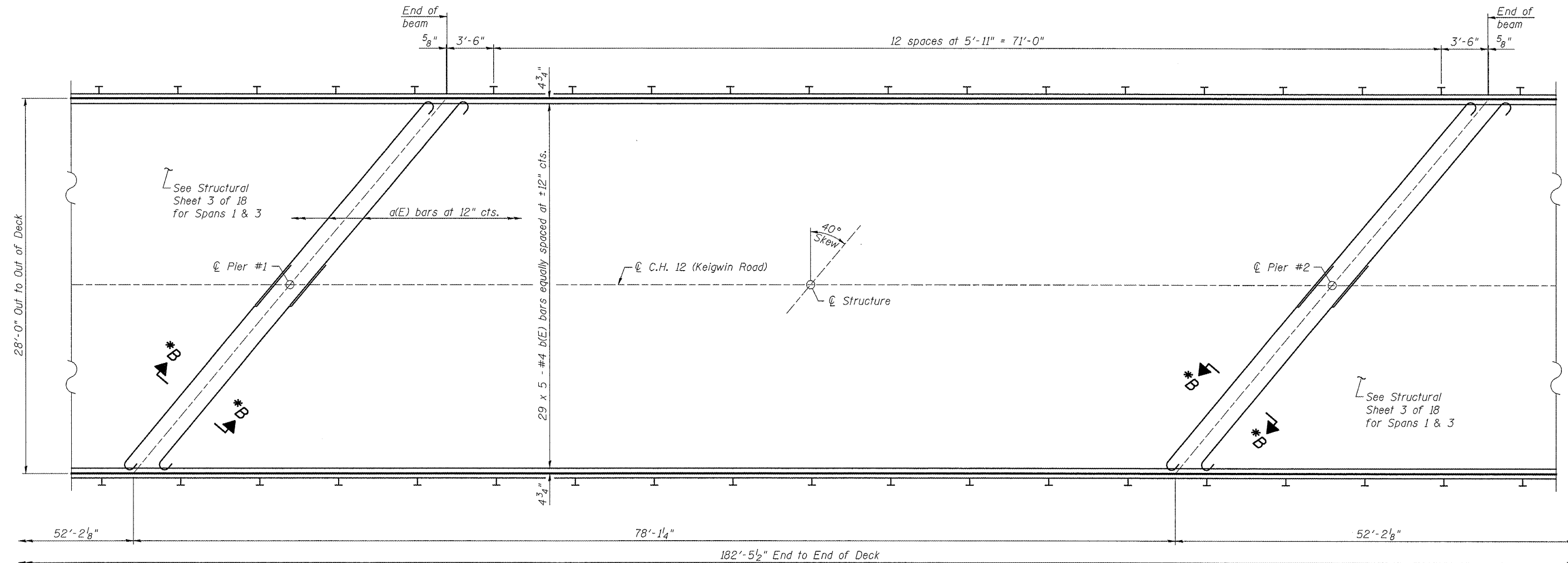


DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

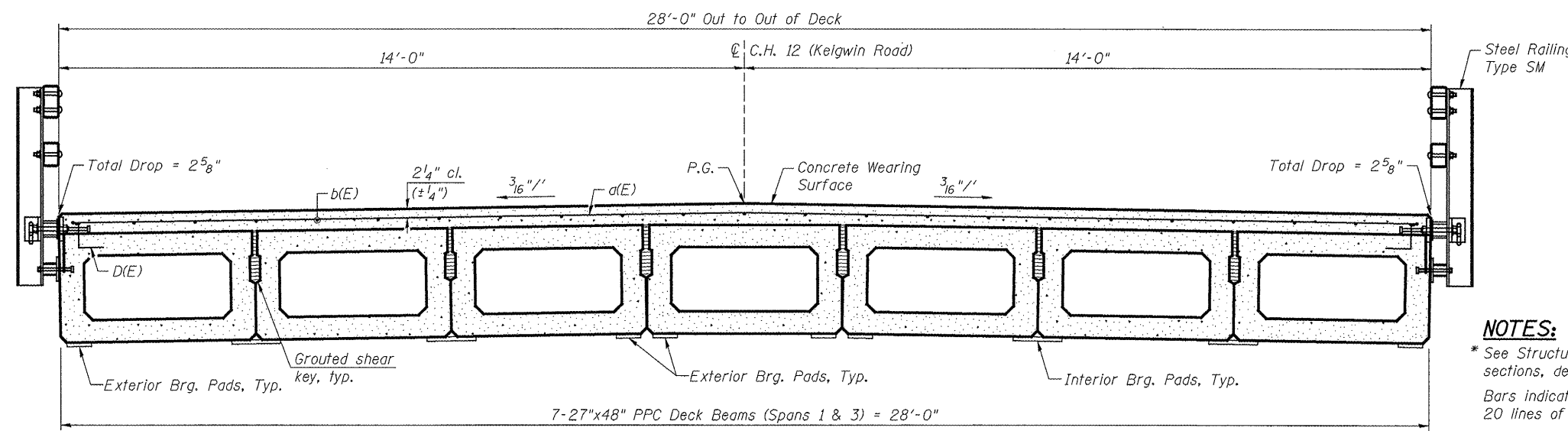
**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

**SUPERSTRUCTURE SPANS 1 & 3**  
**STRUCTURE NO. 052-3416**  
STRUCTURAL SHEET NO. 3 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	10
WHA# 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				



PLAN



CROSS SECTION  
(Looking East)

**NOTES:**

- \* See Structural Sheet 5 of 18 for superstructure sections, details and Bill of Material.
- Bars indicated thus 20 x 2-#4 etc. indicates 20 lines of bars with 2 lengths per line.
- Spacing of a(E) bars shall be measured along the  $\phi$  of structure.
- See Structural Sheet 10 of 18 for bearing pad details.

FILE - S:\PROJECTS\2011\224011.Lee.Co.DESIGN\STRUCT\Drawings\224011.Superstructure.Span.2.dwg

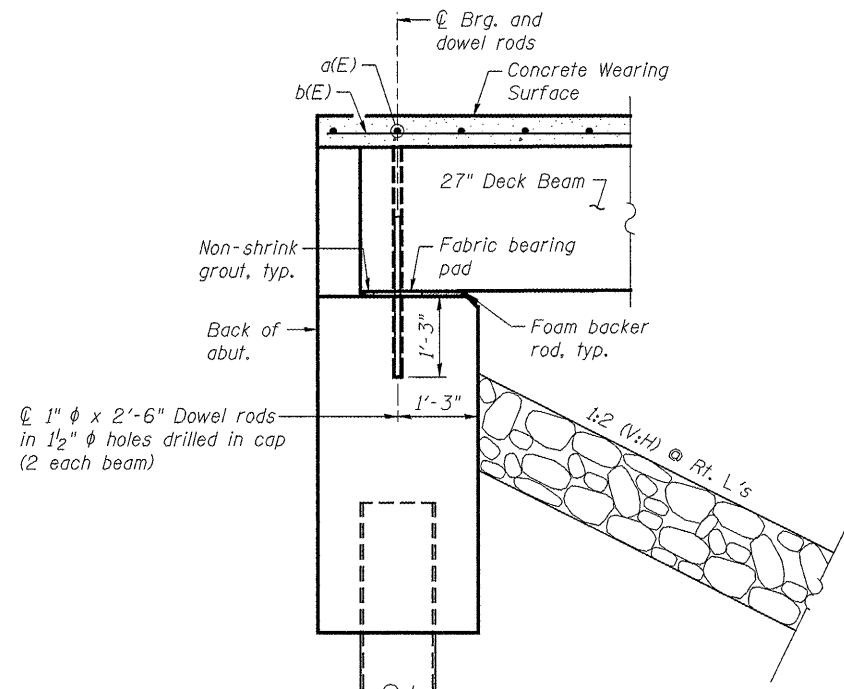


DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20 + 00**

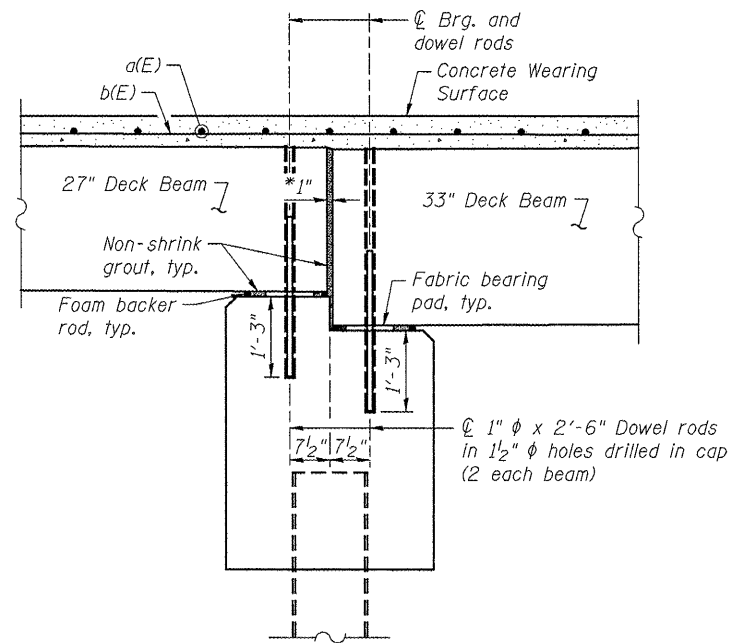
**SUPERSTRUCTURE SPAN 2**  
**STRUCTURE NO. 052-3416**  
STRUCTURAL SHEET NO. 4 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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WHA* 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				



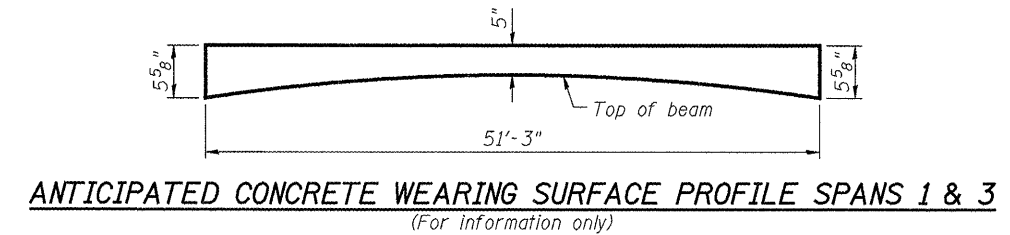
**SECTION A-A**  
(Dimensions are at Rt. L's)

**NOTES:**  
See Structural Sheet 10 of 18 for fabric bearing pad details.

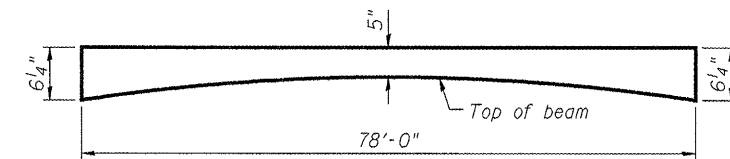


**SECTION B-B**  
(Dimensions are at Rt. L's)

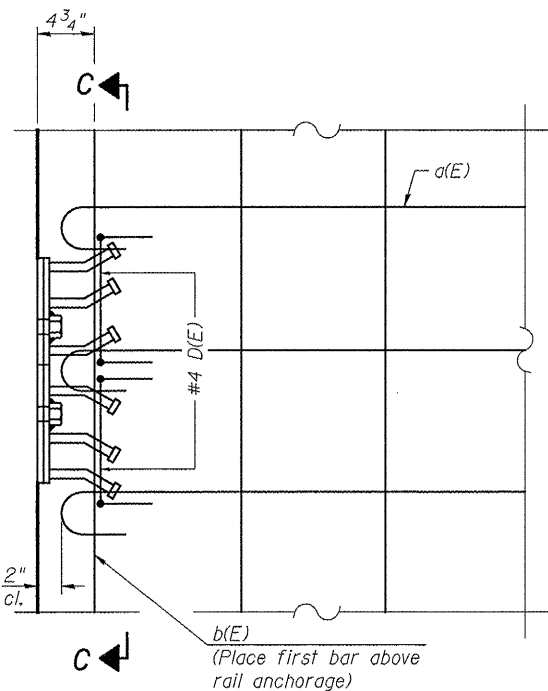
**NOTES:**  
See Structural Sheet 10 of 18 for fabric bearing pad details.



**ANTICIPATED CONCRETE WEARING SURFACE PROFILE SPANS 1 & 3**  
(For information only)

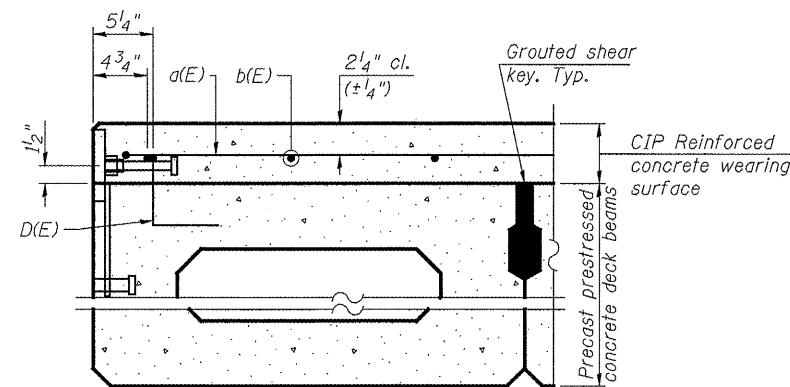


**ANTICIPATED CONCRETE WEARING SURFACE PROFILE SPAN 2**  
(For information only)

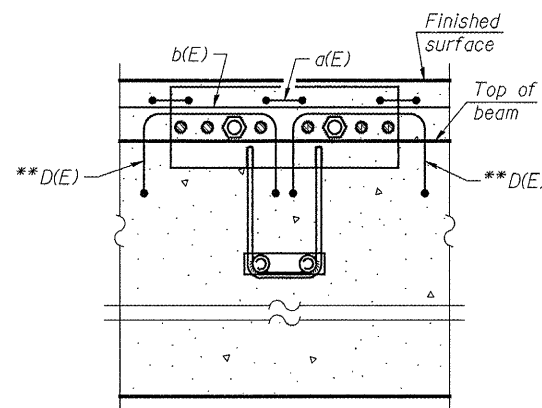


**PLAN**

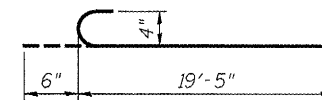
**NOTE:**  
Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam.



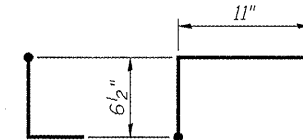
**SECTION THRU FASCIA BEAM**



**SECTION C-C**



**BAR a(E)**



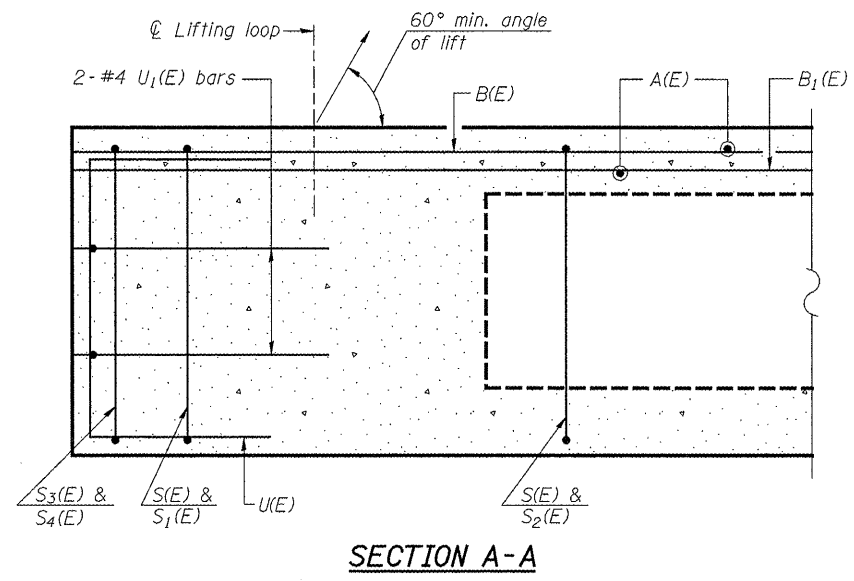
**BAR D(E)**

**MINIMUM BAR LAP**  
#4 bar = 2'-7"

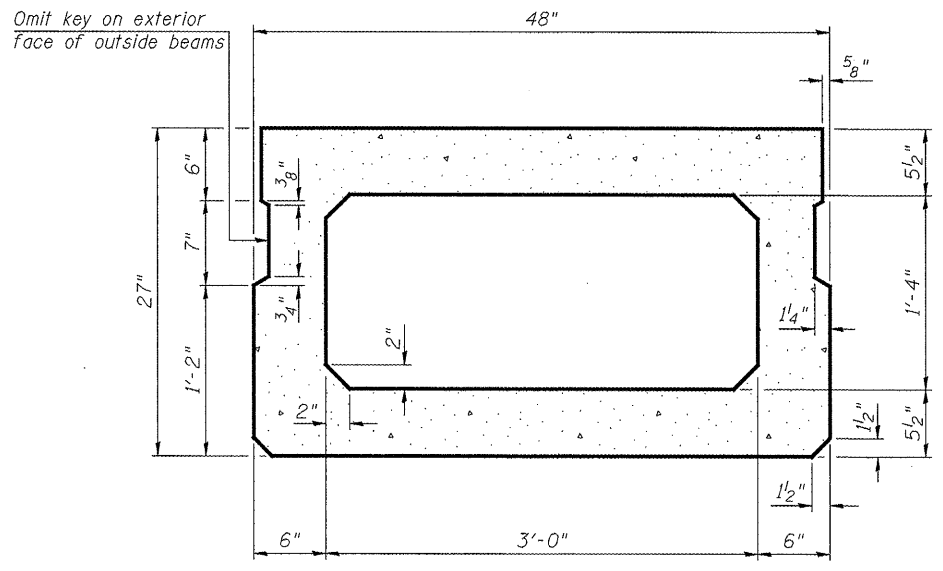
**SUPERSTRUCTURE  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	366	#4	19'-11"	
b(E)	145	#4	38'-6"	
Bridge Deck Grooving		Sq. Yd.	527	
Protective Coat		Sq. Yd.	568	
Reinforcement Bars, Epoxy Coated		Pound	8,600	
Concrete Wearing Surface, 5"		Sq. Yd.	568	

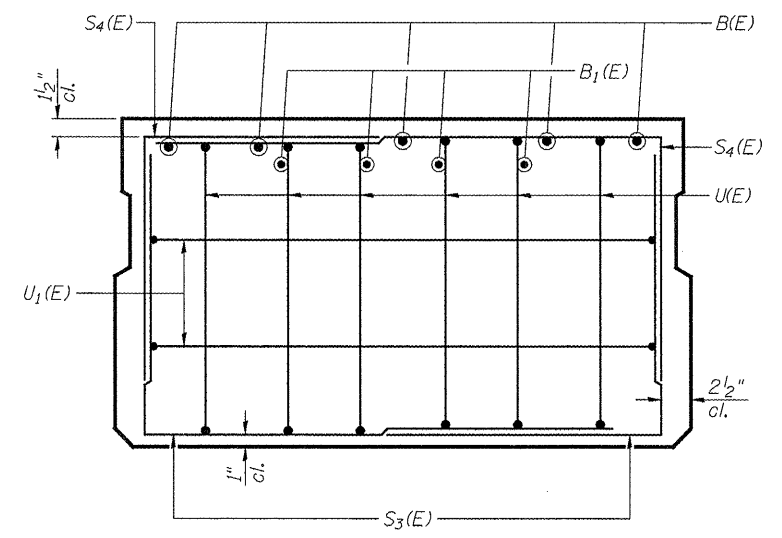
**NOTE:**  
\* 1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.  
\*\* Place 2- #4 D(E) bars in beam at each post location as shown. D(E) bar included in cost of beam.



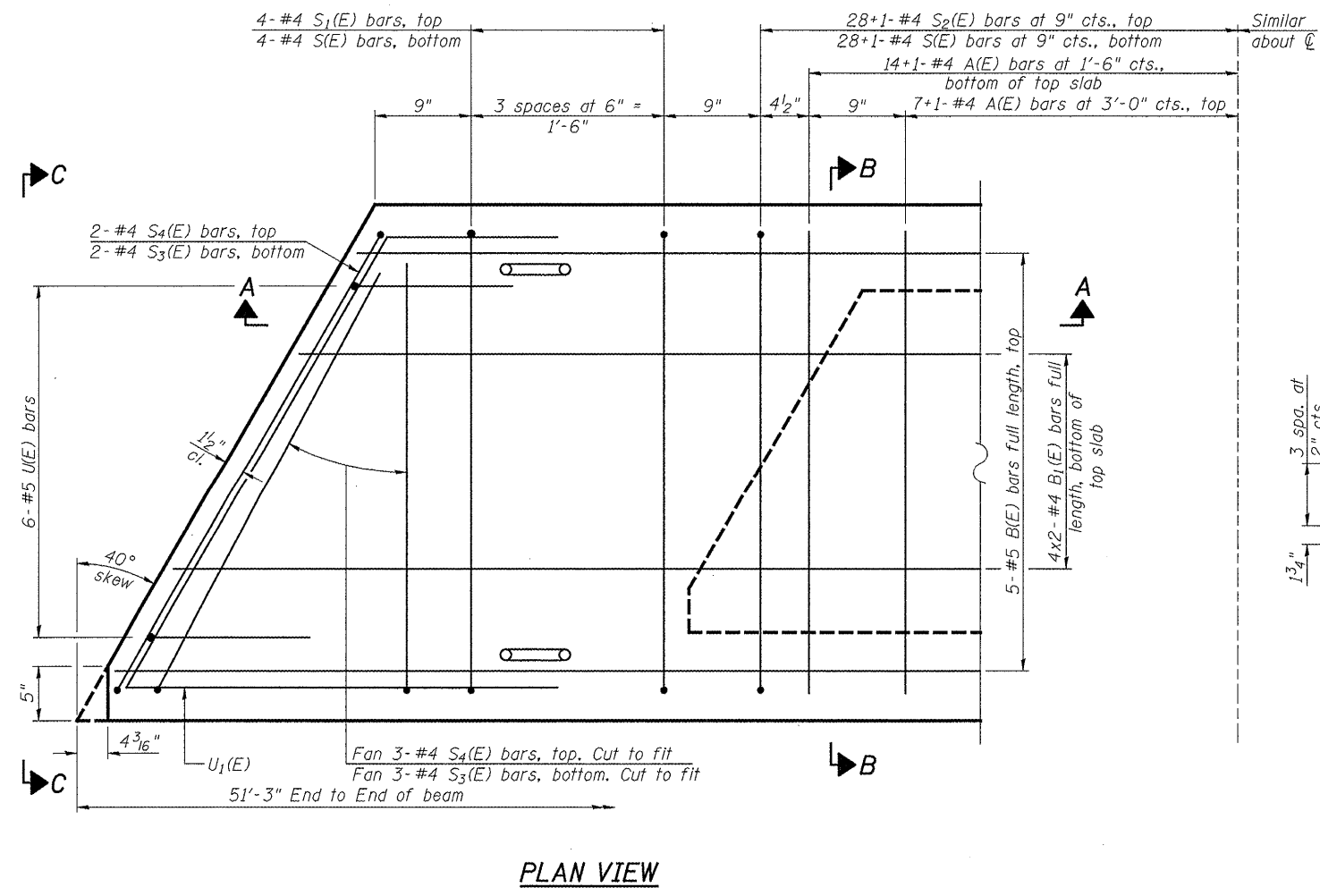
SECTION A-A



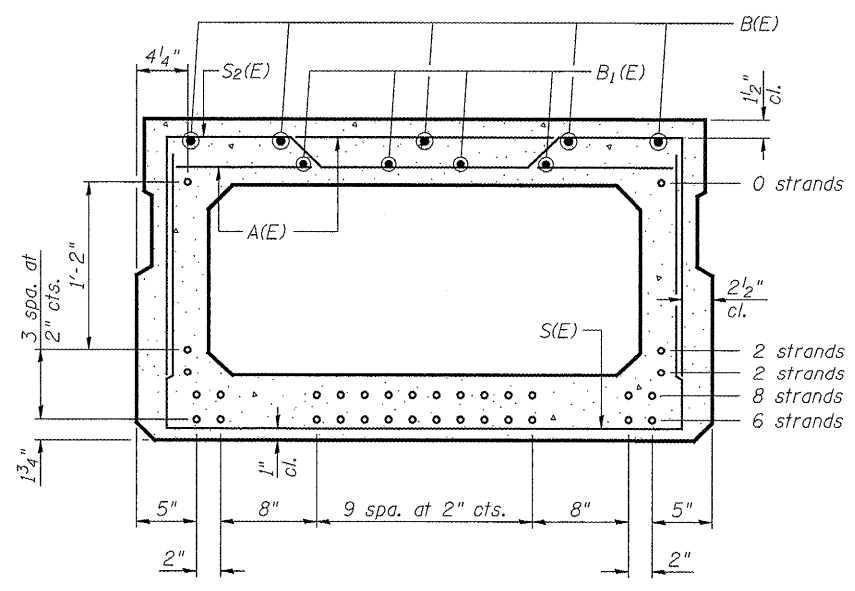
SECTION B-B  
(Showing dimensions)



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.

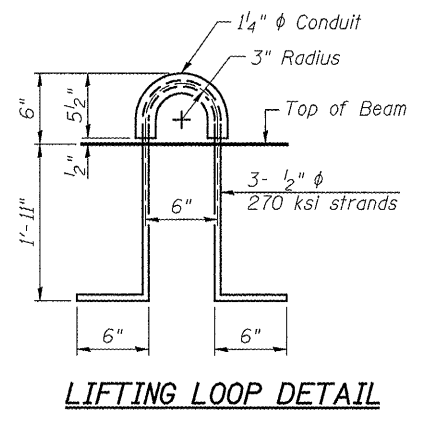
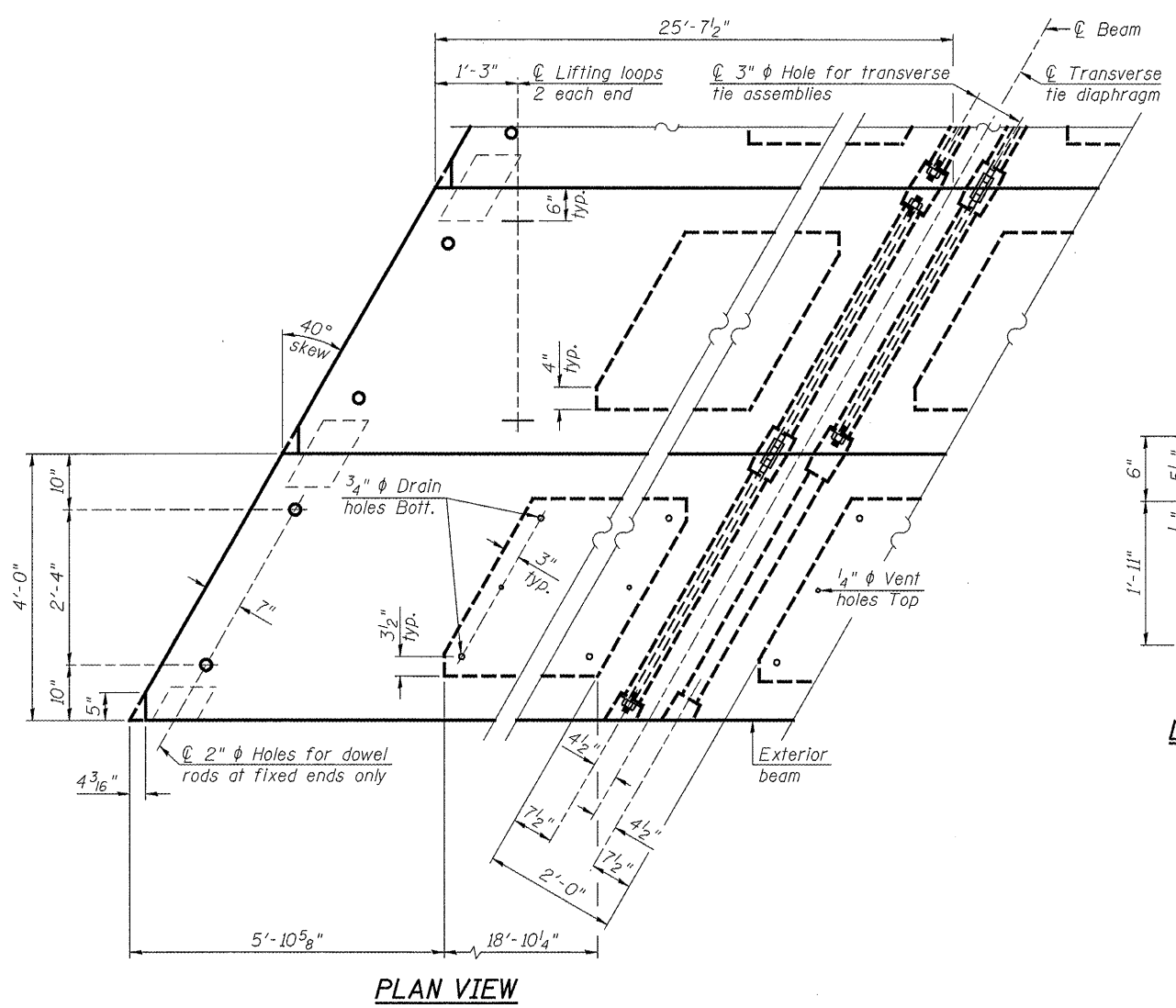
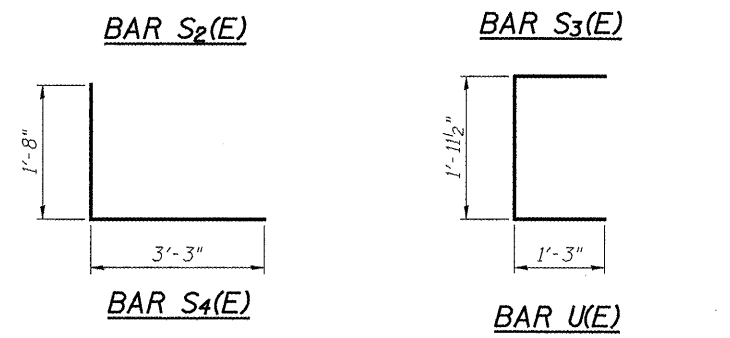
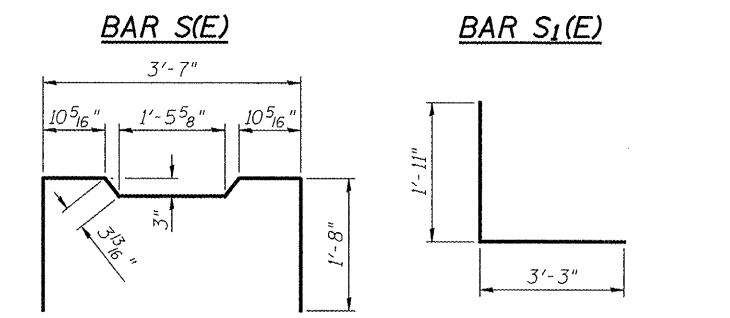
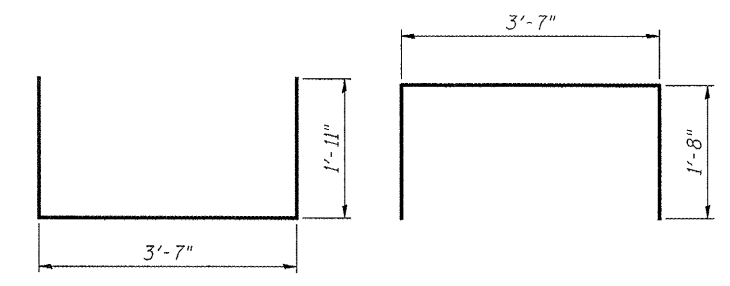
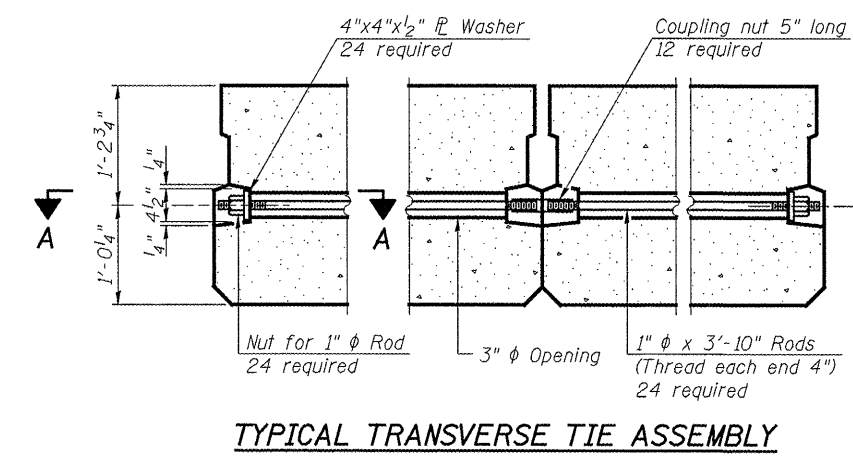
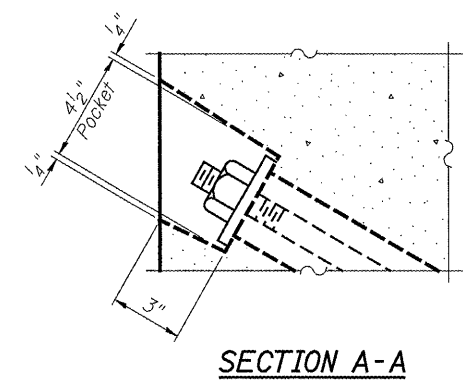
**MINIMUM BAR LAP**  
#4 bar = 2'-0"  
#5 bar = 2'-6"

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

Bar	No.	Size	Length	Shape
A(E)	44	#4	3'-7"	—
B(E)	5	#5	51'-0"	—
B1(E)	8	#4	26'-7"	—
S(E)	65	#4	7'-5"	┌
S1(E)	8	#4	6'-11"	┌
S2(E)	57	#4	7'-2"	┌
S3(E)	10	#4	5'-2"	┌
S4(E)	10	#4	4'-11"	┌
U(E)	12	#5	4'-6"	┌
U1(E)	4	#4	10'-0"	┌

**NOTES:**  
See Structural Sheet 7 of 18 for additional details and Bill of Material.  
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 5x2-#5 etc. indicates 5 lines of bars with 2 lengths per line.  
Bars indicated thus 11+1-#4 etc. indicates 11 bars each side of centerline plus 1 additional bar at centerline.

FILE: S:\PROJECTS\2011\224011.Lee\_Co.Designs\STRUCT\Drawings\1224011\_27.in\_DeckBeam.dgn

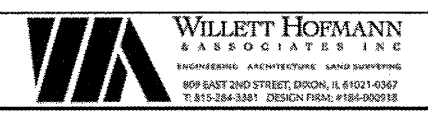


**BILL OF MATERIAL**

Item	Unit	Quantity
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	2,870

- NOTES:**
- See Structural Sheet 10 of 18 for Fabric Bearing Pad Details.
  - Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal  $\phi$  shall be  $\frac{1}{2}$ " and the nominal cross-sectional area shall be 0.153 sq. in.
  - The 1"  $\phi$  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).
  - A minimum  $2\frac{1}{2}$ "  $\phi$  lifting pin shall be used to engage the lifting loops during handling.
  - Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 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 6,000 psi.
  - Compressive strength of prestressed concrete at release,  $f'ci$ , shall be 5,000 psi.

**NOTE:**  
Connect beams in pairs with the transverse tie configuration shown.  
Unused transverse tie hole on exterior beams can be omitted.



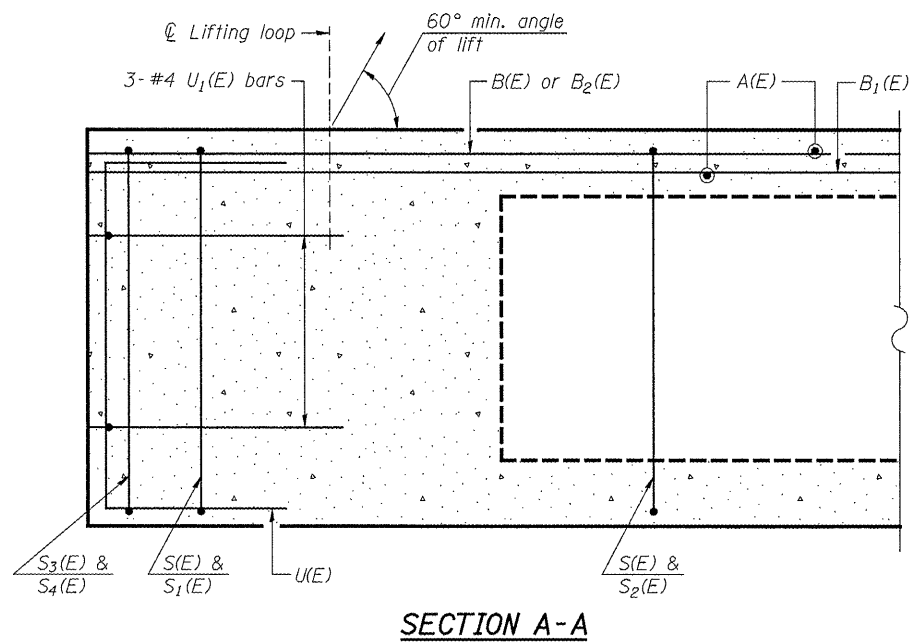
DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

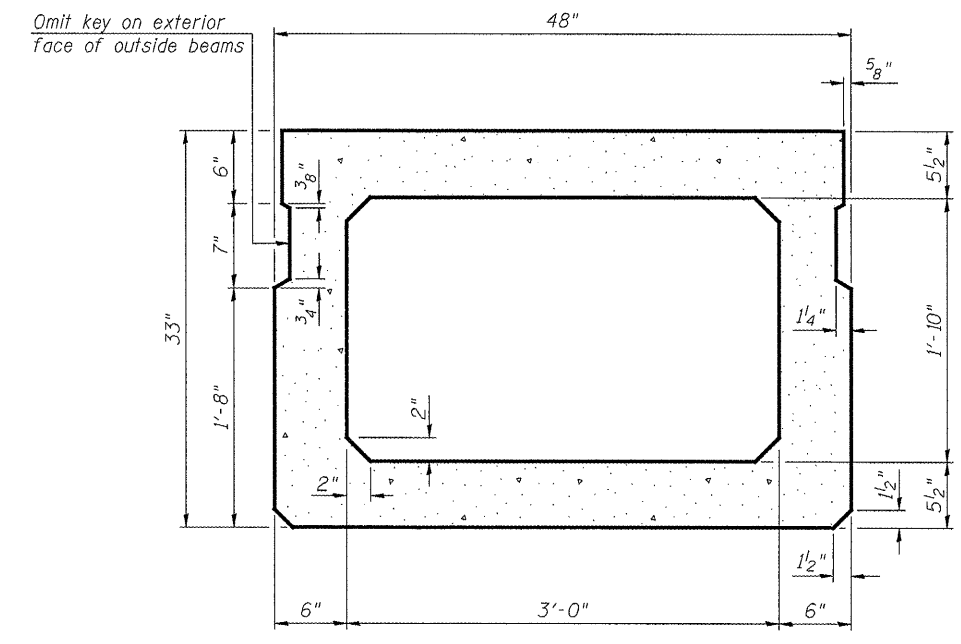
**27" x 48" PPC DECK BEAM DETAILS**  
**STRUCTURE NO. 052-3416**  
STRUCTURAL SHEET NO. 7 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	14
WHA* 1224D11			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				

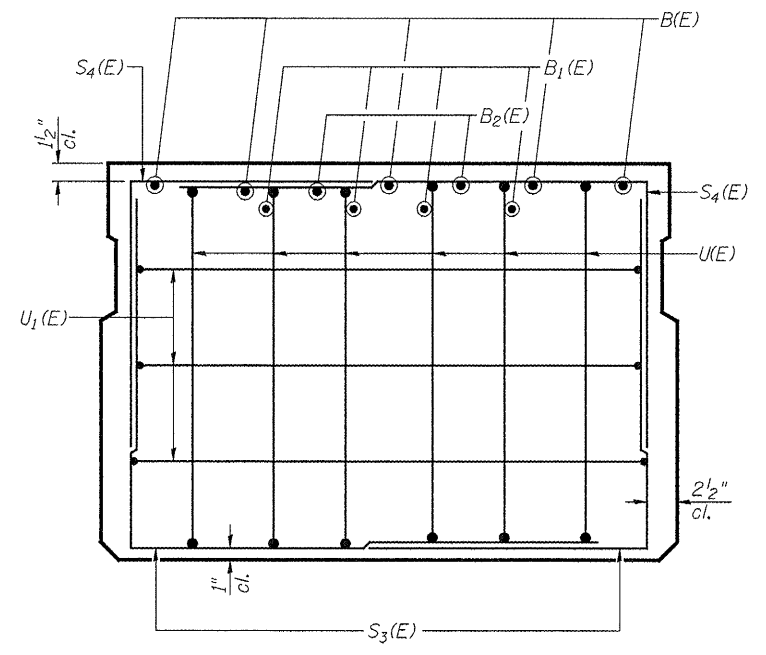
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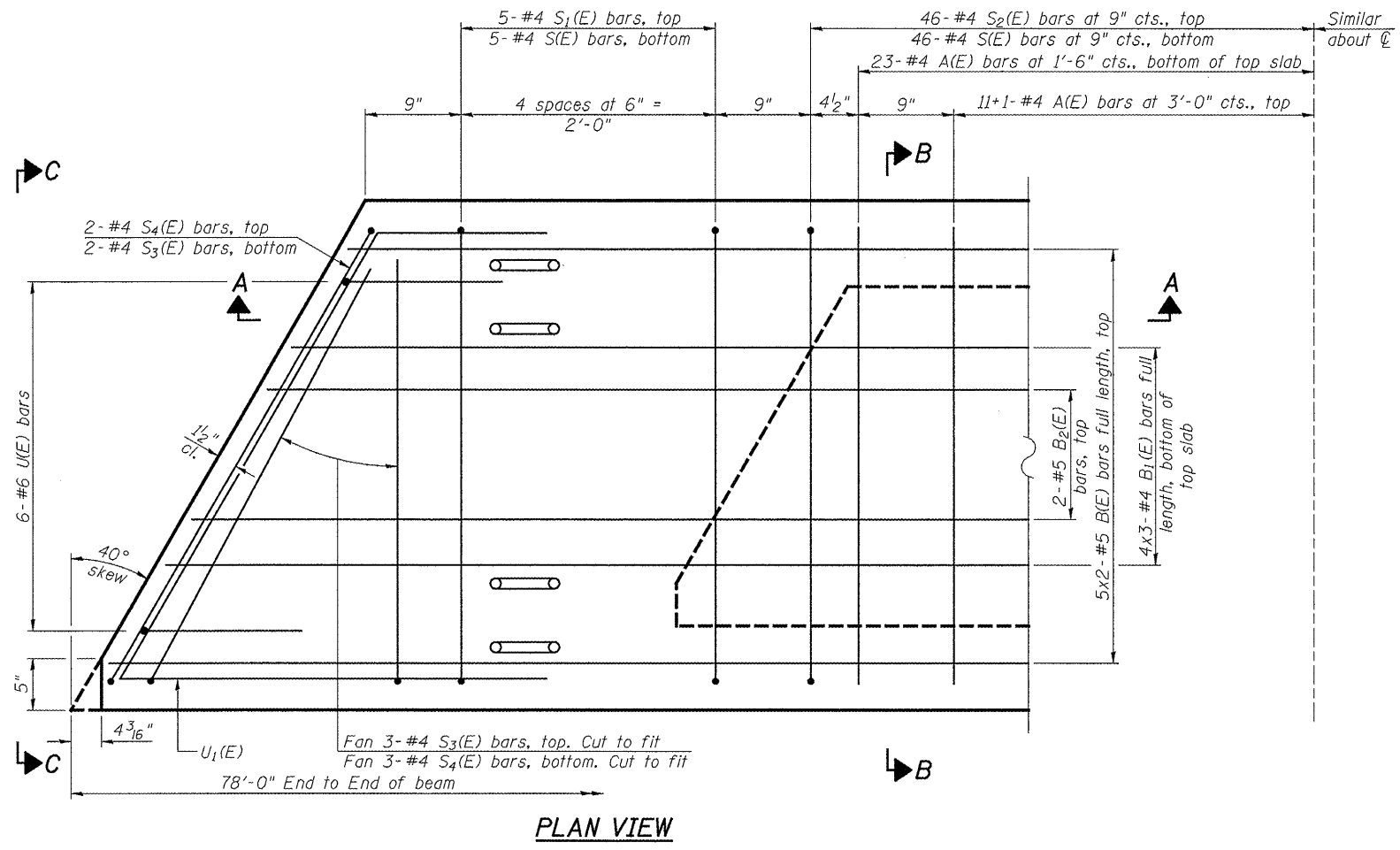
SECTION A-A



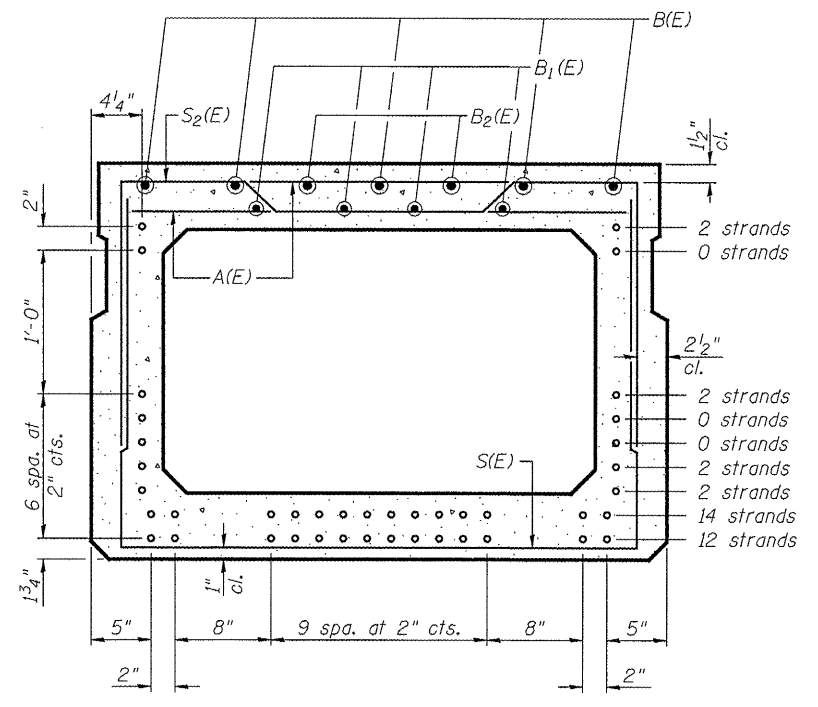
SECTION B-B  
(Showing dimensions)



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	3'-7"	—
B(E)	10	#5	40'-1"	—
B1(E)	12	#4	27'-3"	—
B2(E)	4	#5	10'-0"	—
S(E)	102	#4	8'-5"	┌┐
S1(E)	10	#4	7'-3"	┌┐
S2(E)	92	#4	7'-6"	┌┐
S3(E)	10	#4	5'-2"	┌┐
S4(E)	10	#4	4'-11"	┌┐
U(E)	12	#6	5'-0"	┌┐
U1(E)	6	#4	10'-0"	┌┐

**NOTES:**  
See Structural Sheet 9 of 18 for additional details and Bill of Material.

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

Bars indicated thus 11+1-#4 etc. indicates 11 bars each side of centerline plus 1 additional bar at centerline.

**MINIMUM BAR LAP**  
#4 bar = 2'-0"  
#5 bar = 2'-6"

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**WILLETT HOPMANN ASSOCIATES INC.**  
ENGINEERING ARCHITECTURE LAND SURVEYING  
809 EAST 2ND STREET, DIXON, IL 61021-0367  
TEL: 815-284-3881 DESIGN FIRM: #184-960918

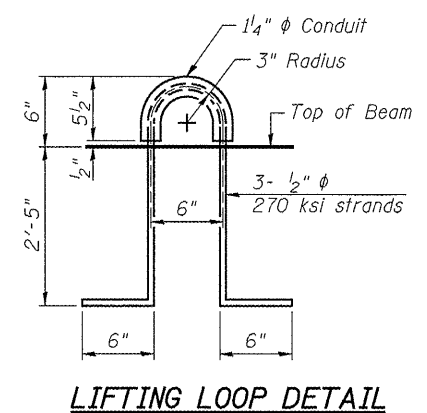
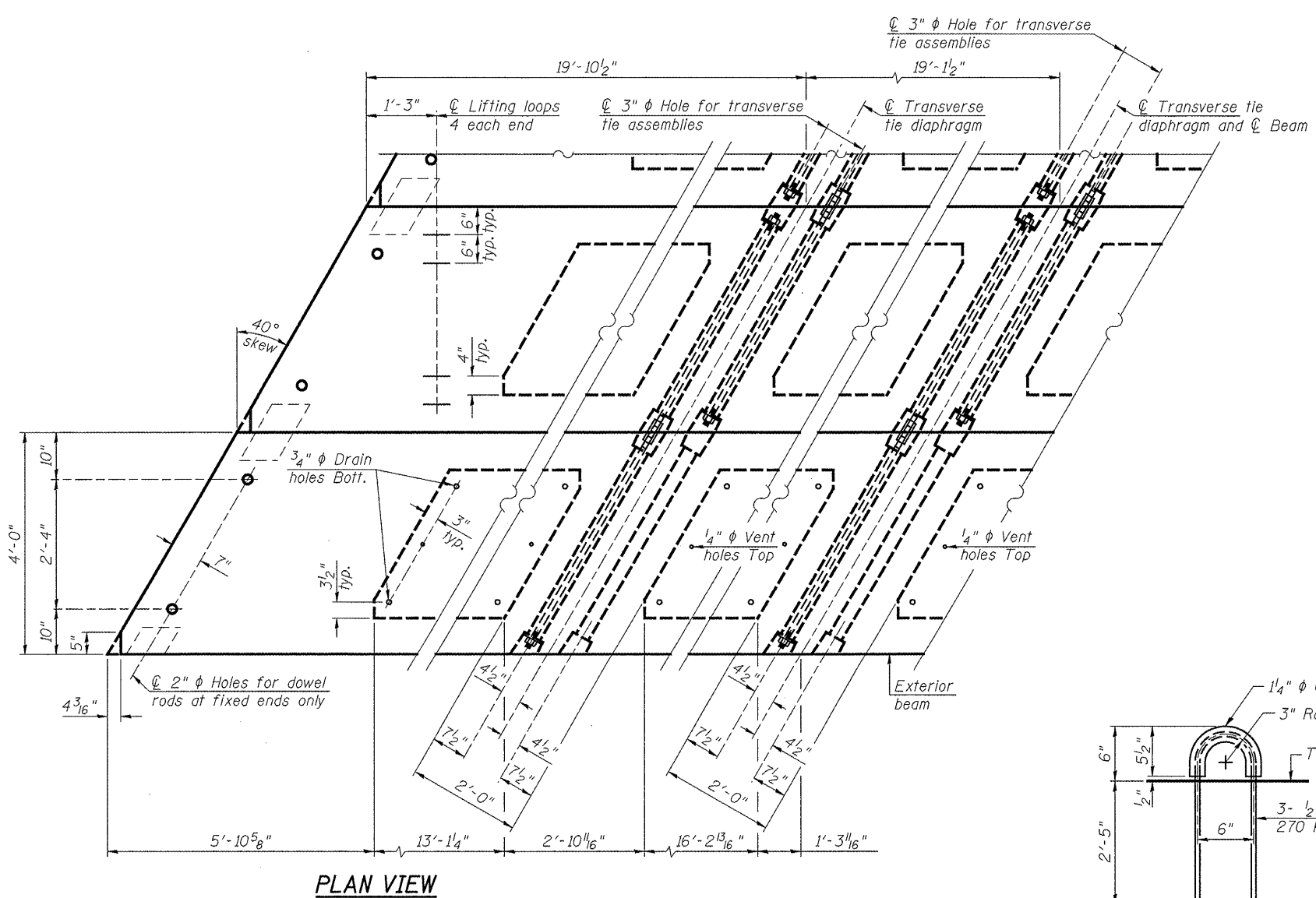
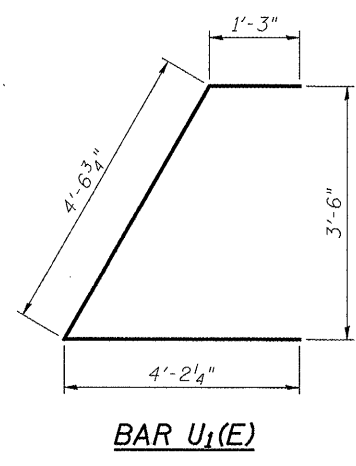
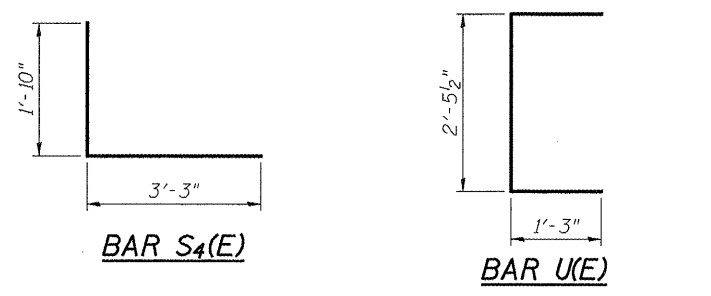
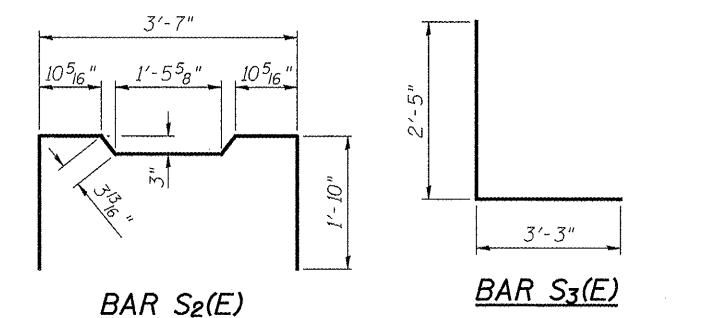
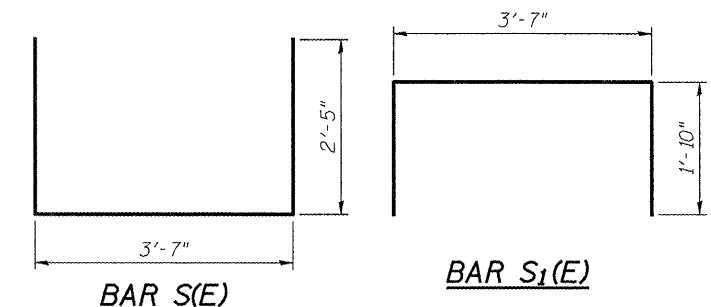
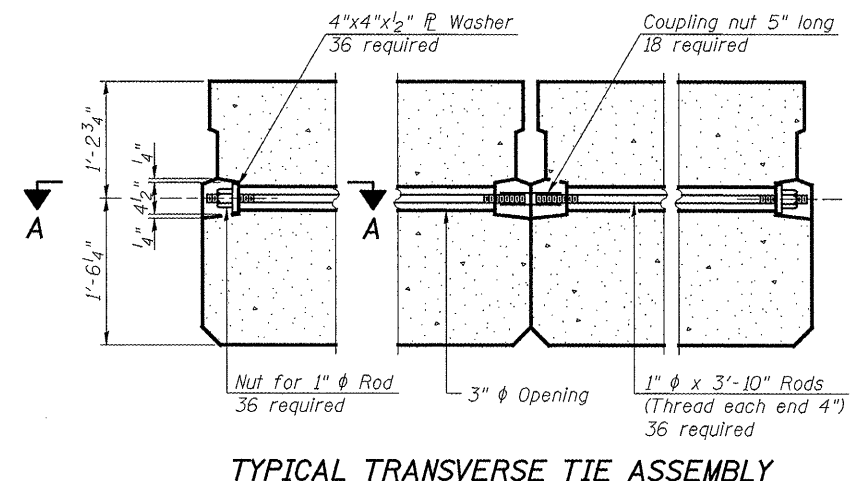
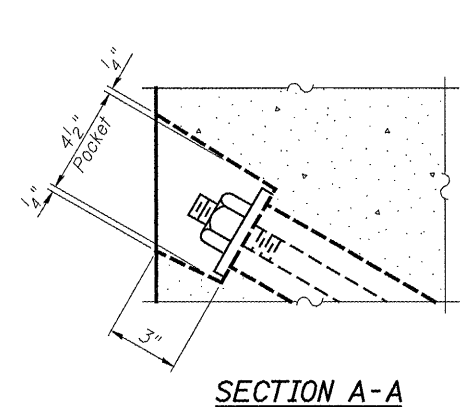
DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

**LEE COUNTY  
C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
STATION 20+00**

**33" x 48" PPC DECK BEAM  
STRUCTURE NO. 052-3416**

STRUCTURAL SHEET NO. 8 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	15
WHA# 1224D11			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				



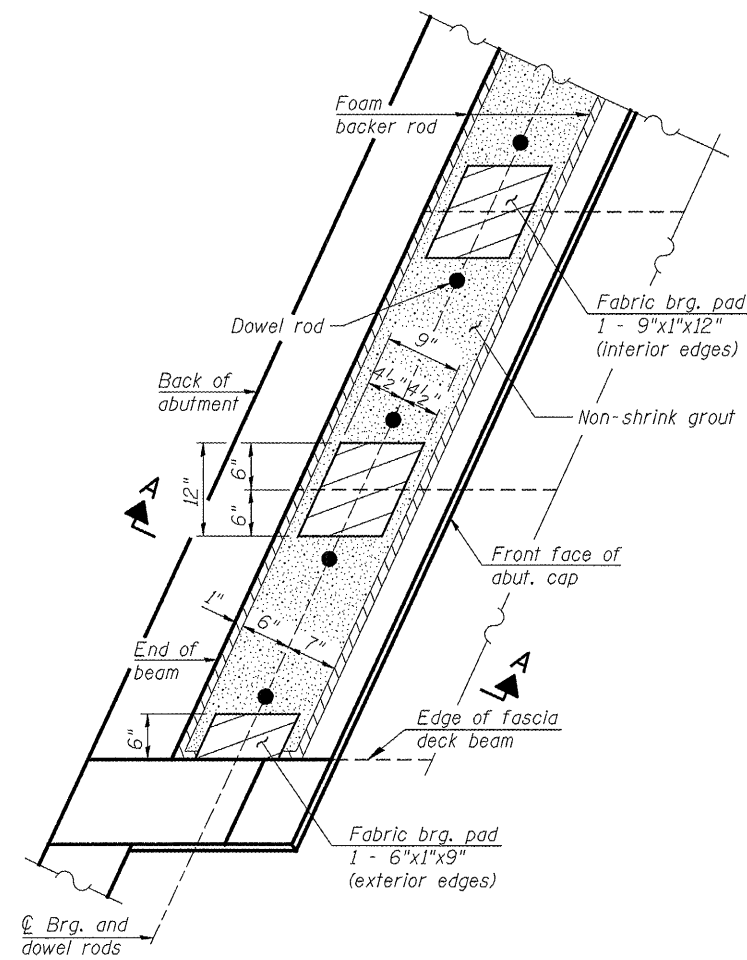
**NOTE:**  
Connect beams in pairs with the transverse tie configuration shown.  
Unused transverse tie hole on exterior beams can be omitted.

**BILL OF MATERIAL**

Item	Unit	Quantity
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2,184

**NOTES:**  
See Structural Sheet 10 of 18 for Fabric Bearing Pad Details.  
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal  $\phi$  shall be  $\frac{1}{2}$ " and the nominal cross-sectional area shall be 0.153 sq. in.  
The 1"  $\phi$  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).  
A minimum 2 1/2"  $\phi$  lifting pin shall be used to engage the lifting loops during handling.  
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 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 6,000 psi.  
Compressive strength of prestressed concrete at release,  $f'ci$ , shall be 5,000 psi.

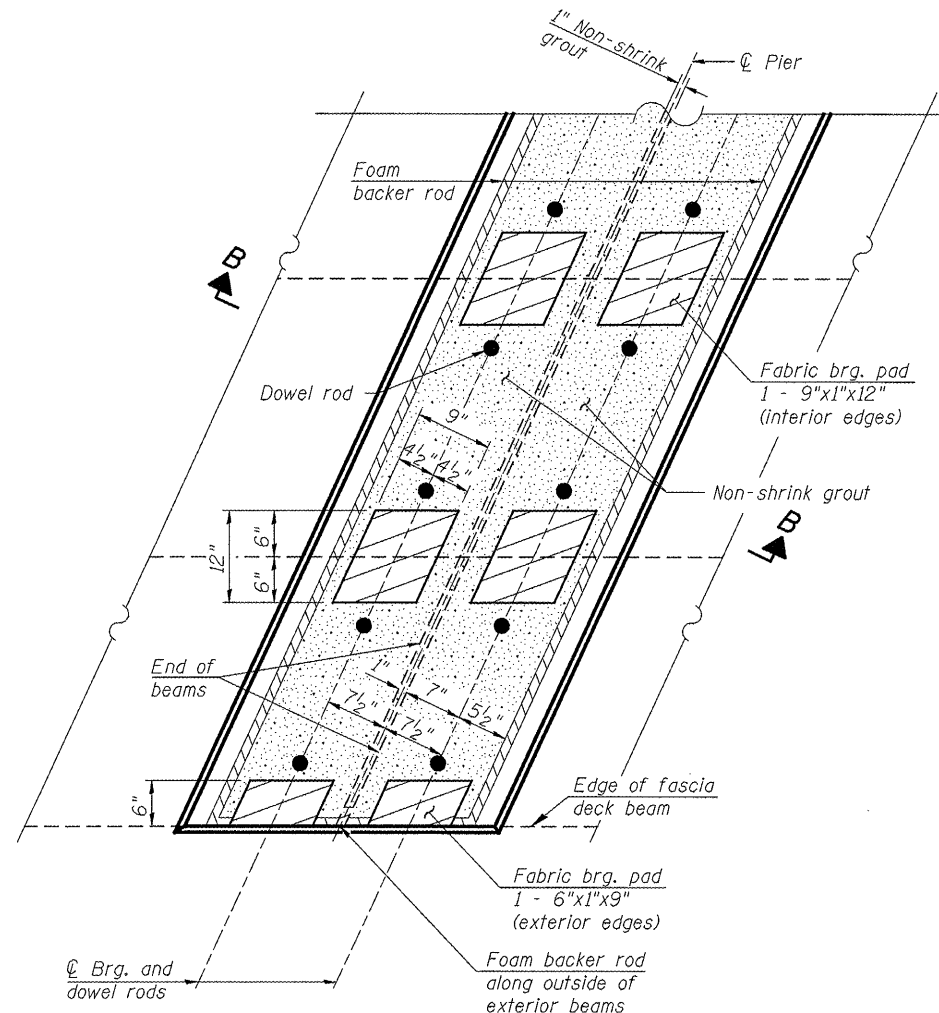




PLAN

**NOTE:**

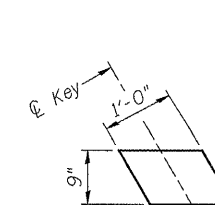
The bearing seat surfaces shall be adjusted by shimming the bearing to assure firm and even bearing prior to placement of grout. 2-1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shown shall be provided for each bearing.



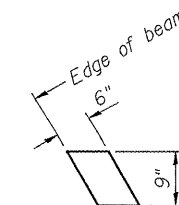
PLAN

**NOTE:**

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.



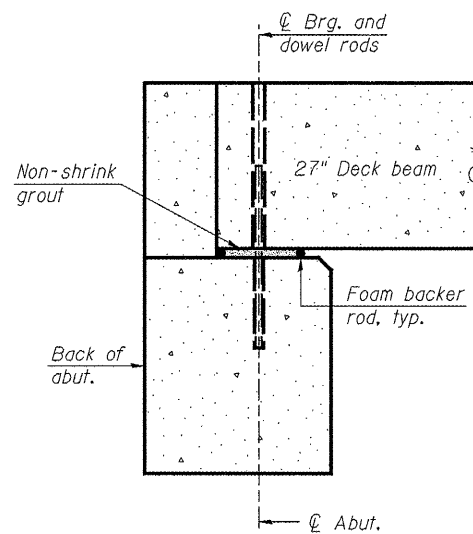
FABRIC BEARING PAD  
(Interior)



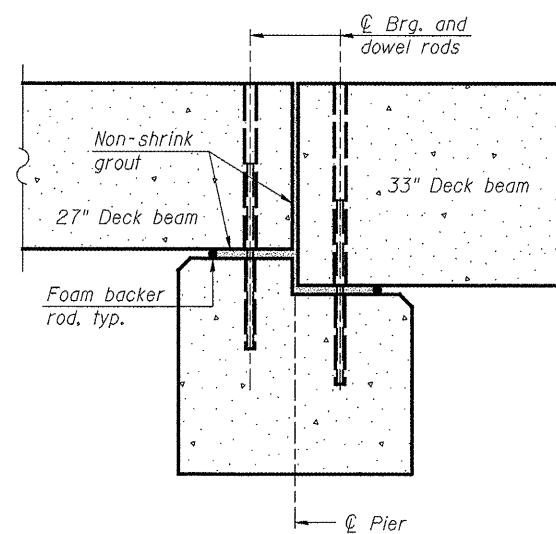
FABRIC BEARING PAD  
FIXED  
(Exterior)

**NOTE:**

All bearing pads shall be 1" thick.  
Exterior bearing pads shall be used at crown break.  
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.



SECTION A-A



SECTION B-B

FILE: S:\PROJECTS\2011\224011.Lee.Co.DESIGN\STRUCTURE\Drawings\1224011.Fixed.Bearing.Details.dgn



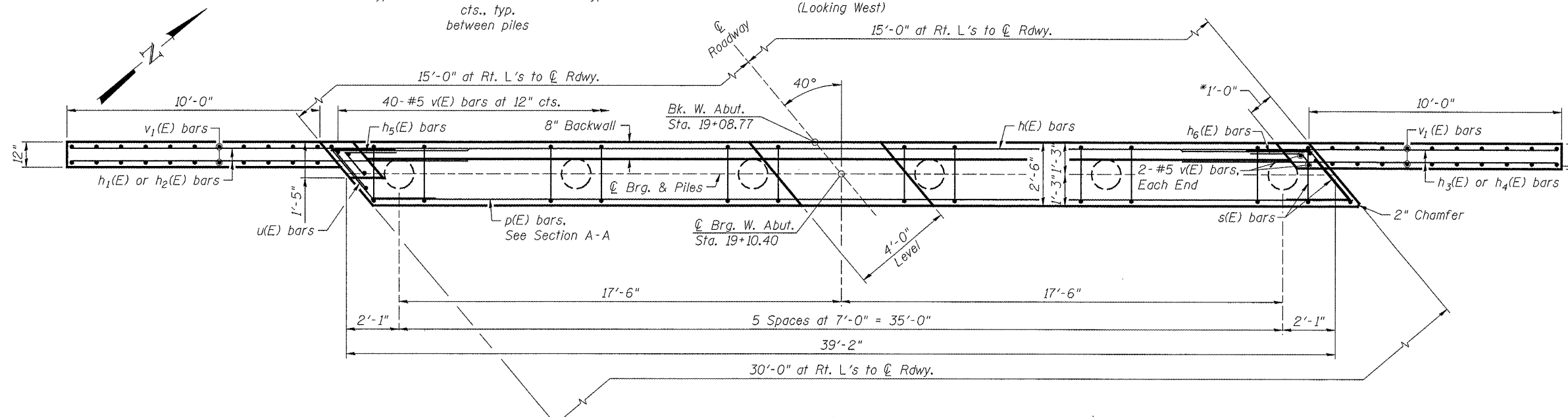
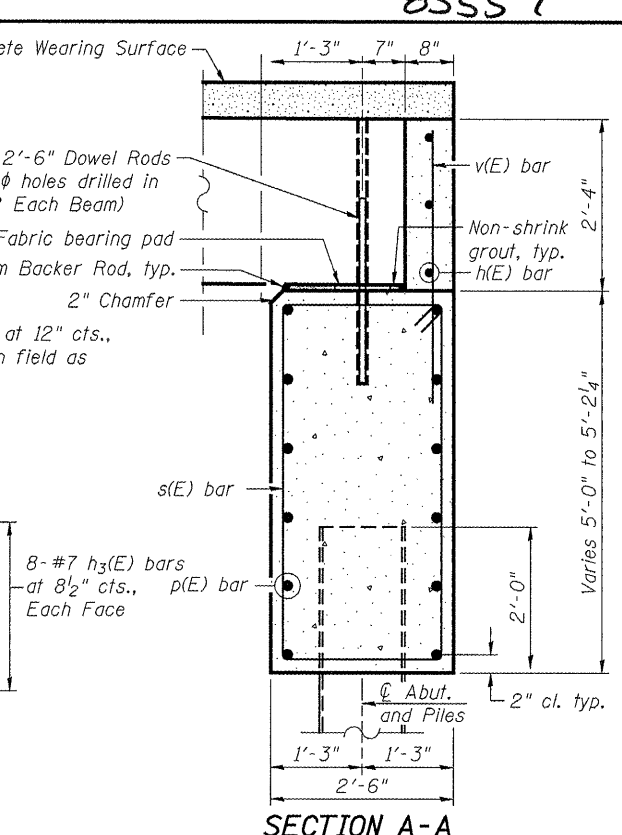
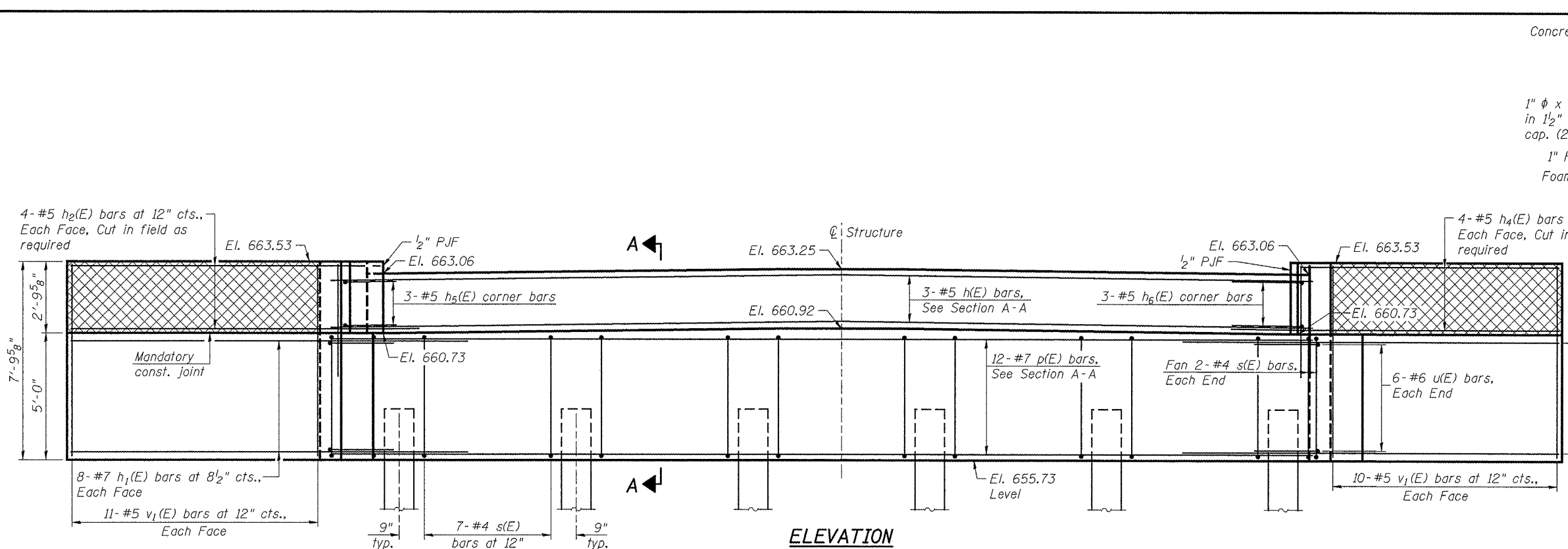
DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

LEE COUNTY  
C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
STATION 20+00

FIXED BEARING DETAILS  
STRUCTURE NO. 052-3416

STRUCTURAL SHEET NO. 10 OF 18 SHEETS

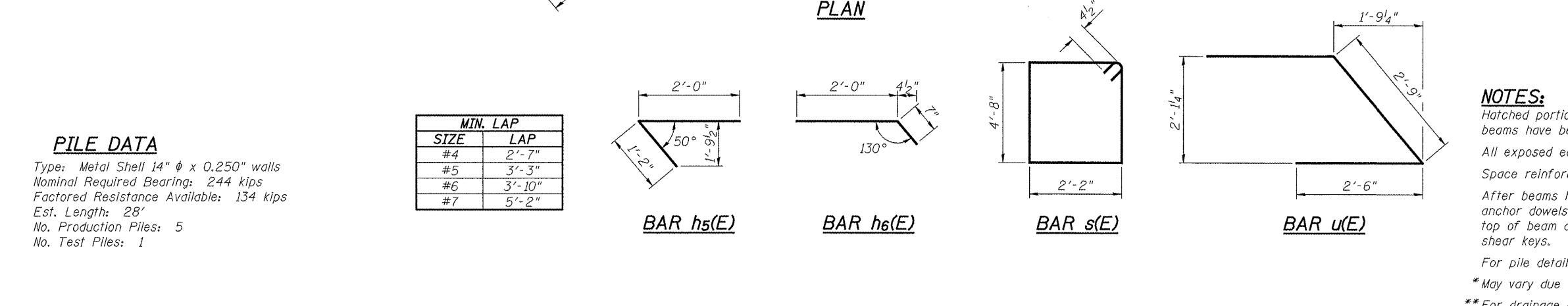
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	17
WHA* 1224011			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				



**SECTION A-A**  
(Dimensions are at Rt. L's)

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	3	#5	38'-8"	—
h1(E)	16	#7	15'-11"	—
h2(E)	8	#5	14'-0"	—
h3(E)	16	#7	15'-1"	—
h4(E)	8	#5	13'-2"	—
h5(E)	3	#5	3'-2"	∇
h6(E)	3	#5	2'-7"	∇
p(E)	12	#7	38'-8"	—
s(E)	39	#4	14'-5"	□
u(E)	12	#6	7'-9"	∩
v(E)	44	#5	4'-4"	—
v1(E)	42	#5	6'-5"	—
Structure Excavation		Cu. Yd.	104	
Concrete Structures		Cu. Yd.	26.1	
Reinforcement Bars, Epoxy Coated		Pound	3,330	
Furnishing Metal Shell Piles 14" x 0.250"		Foot	140	
Driving Piles		Foot	140	
Test Pile Metal Shells		Each	1	
** Porous Granular Embankment, Special		Ton	155	

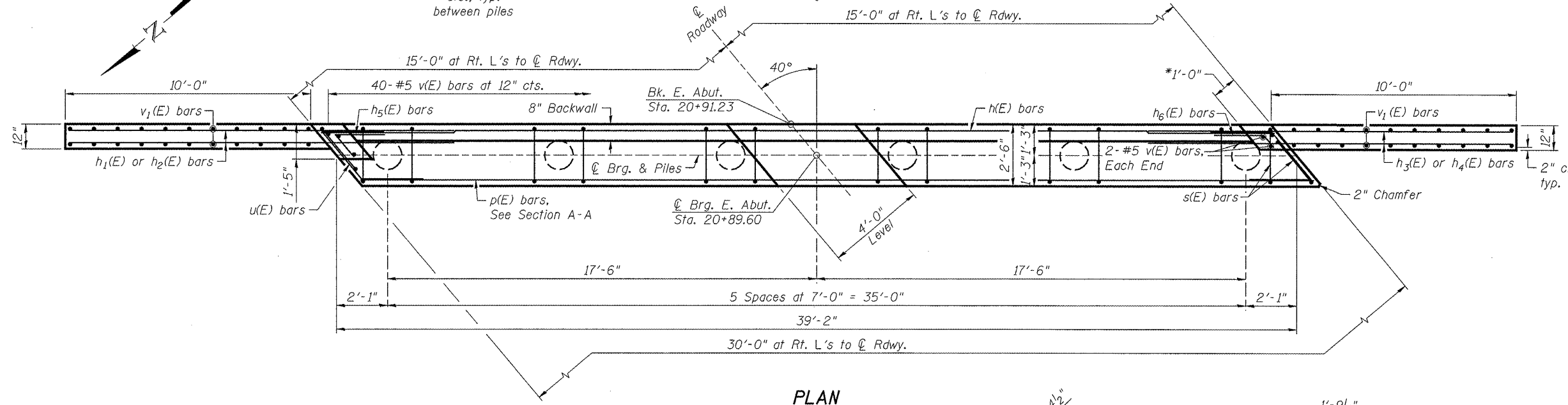
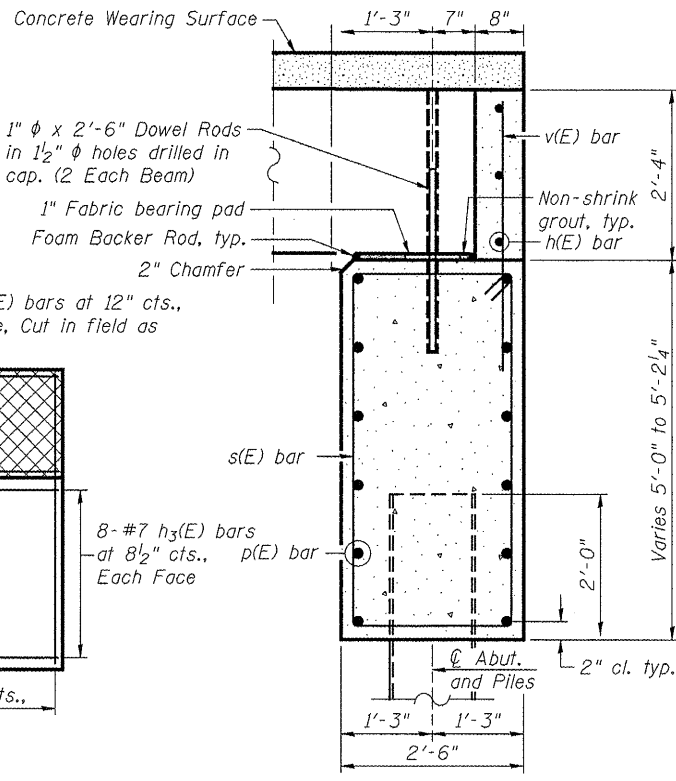
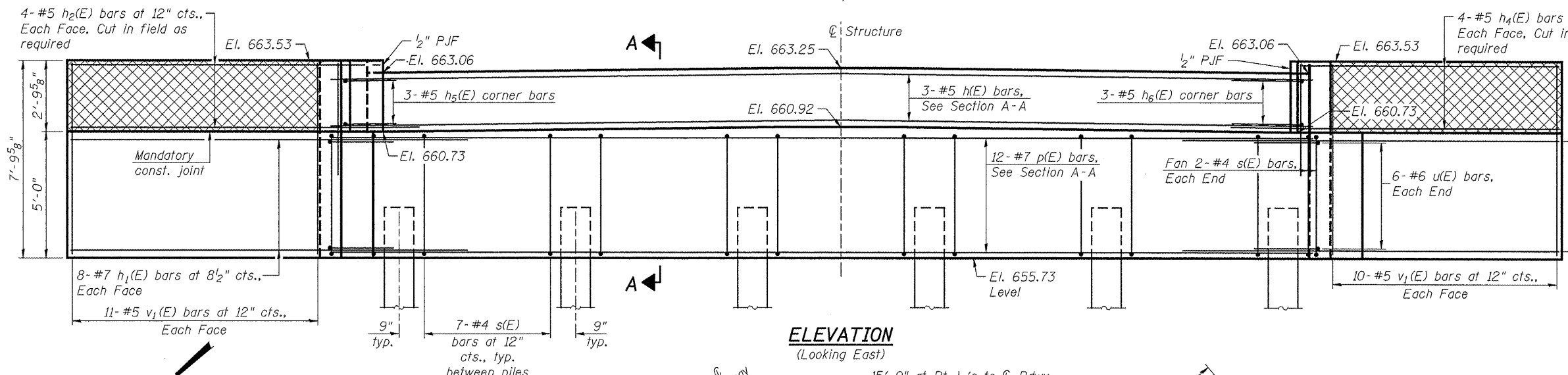


**PILE DATA**  
 Type: Metal Shell 14" φ x 0.250" walls  
 Nominal Required Bearing: 244 kips  
 Factored Resistance Available: 134 kips  
 Est. Length: 28'  
 No. Production Piles: 5  
 No. Test Piles: 1

SIZE	LAP
#4	2'-7"
#5	3'-3"
#6	3'-10"
#7	5'-2"

**NOTES:**  
 Hatched portion of wingwalls to be poured with the backwall after the deck beams have been installed and grout has cured for a minimum of 24 hours.  
 All exposed edges shall have standard 3/4" chamfers, except as noted.  
 Space reinforcement in cap to miss dowel rods.  
 After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a min. of 24 hours prior to grouting the shear keys.  
 For pile details, see Structural Sheet 16 of 18.  
 \* May vary due to overrun of beams.  
 \*\* For drainage details, see Structural Sheet 2 of 18.

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SECTION A-A

(Dimensions are at Rt. L's)

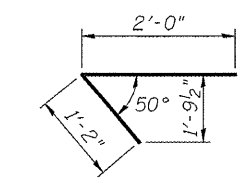
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	3	#5	38'-8"	—
h <sub>1</sub> (E)	16	#7	15'-11"	—
h <sub>2</sub> (E)	8	#5	14'-0"	—
h <sub>3</sub> (E)	16	#7	15'-1"	—
h <sub>4</sub> (E)	8	#5	13'-2"	—
h <sub>5</sub> (E)	3	#5	3'-2"	∇
h <sub>6</sub> (E)	3	#5	2'-7"	∇
p(E)	12	#7	38'-8"	—
s(E)	39	#4	14'-5"	□
u(E)	12	#6	7'-9"	∩
v(E)	44	#5	4'-4"	—
v <sub>1</sub> (E)	42	#5	6'-5"	—
Structure Excavation		Cu. Yd.	102	
Concrete Structures		Cu. Yd.	26.1	
Reinforcement Bars, Epoxy Coated		Pound	3,330	
Furnishing Metal Shell Piles 14" x 0.250"		Foot	175	
Driving Piles		Foot	175	
Test Pile Metal Shells		Each	1	
** Porous Granular Embankment, Special		Ton	155	

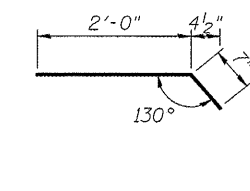
PILE DATA

Type: Metal Shell 14"  $\phi$  x 0.250" walls  
 Nominal Required Bearing: 244 kips  
 Factored Resistance Available: 134 kips  
 Est. Length: 35'  
 No. Production Piles: 5  
 No. Test Piles: 1  
 Drive piles to a minimum elevation of 623.00

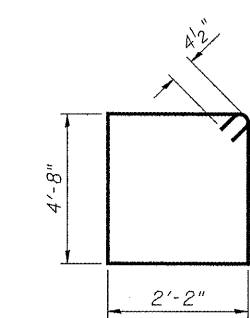
MIN. LAP	SIZE	LAP
	#4	2'-7"
	#5	3'-3"
	#6	3'-10"
	#7	5'-2"



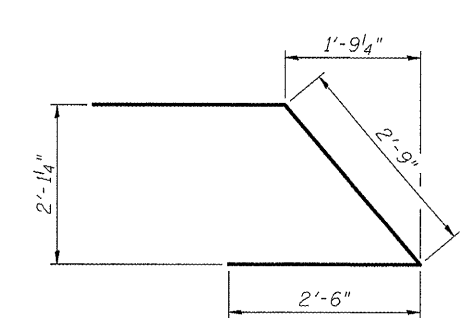
BAR h<sub>5</sub>(E)



BAR h<sub>6</sub>(E)



BAR s(E)



BAR u(E)

NOTES:

- Hatched portion of wingwalls to be poured with the backwall after the deck beams have been installed and grout has cured for a minimum of 24 hours.
- All exposed edges shall have standard  $\frac{3}{4}$ " chamfers, except as noted.
- Space reinforcement in cap to miss dowel rods.
- After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a min. of 24 hours prior to grouting the shear keys.
- For pile details, see Structural Sheet 16 of 18.
- \* May vary due to overrun of beams.
- \*\* For drainage details, see Structural Sheet 2 of 18.



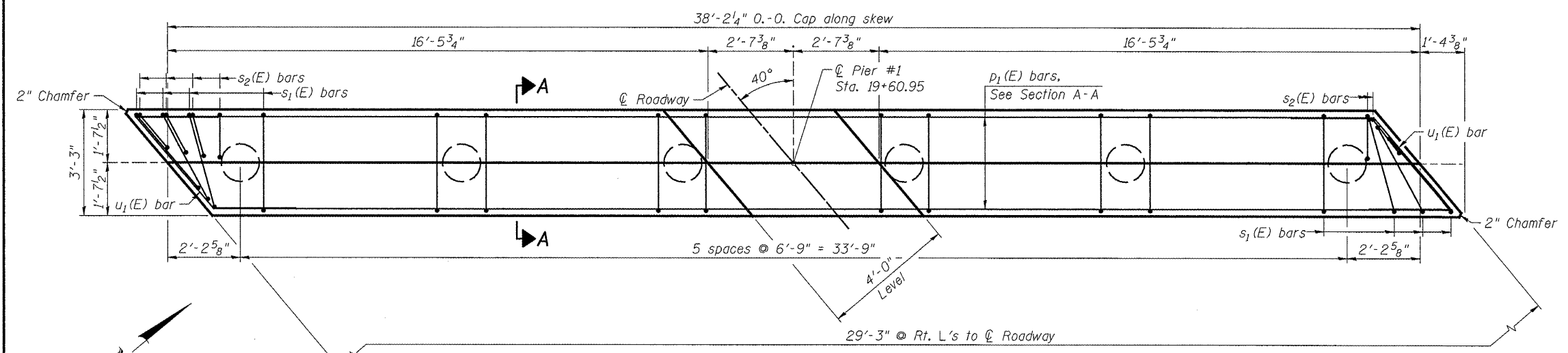
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CHECKED	BRIAN CONVERSE	REVISED	-
DRAWN	RON ALLEN	REVISED	-
CHECKED	MEGAN CACKLEY	REVISED	-

LEE COUNTY  
 C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
 STATION 20+00

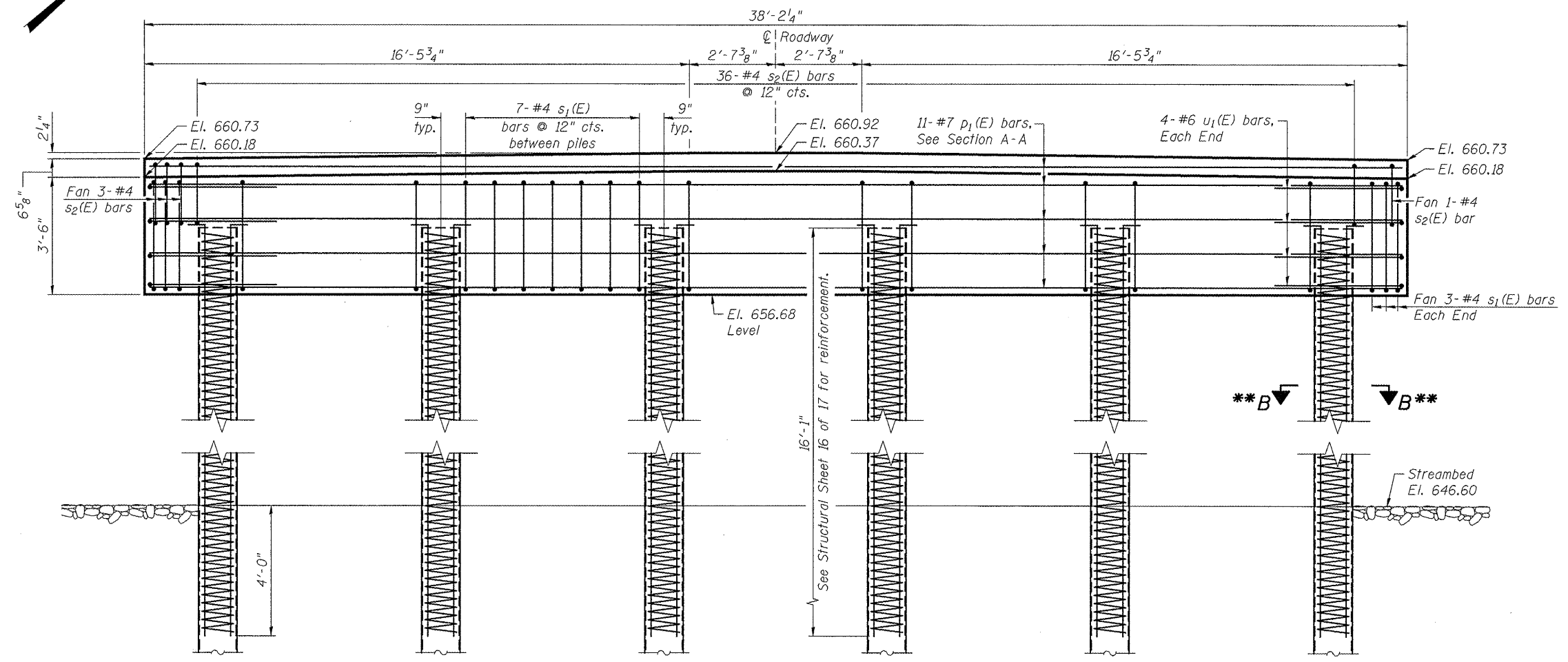
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 STRUCTURE NO. 052-3416  
 STRUCTURAL SHEET NO. 12 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	19
WHA# 1224D11			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				

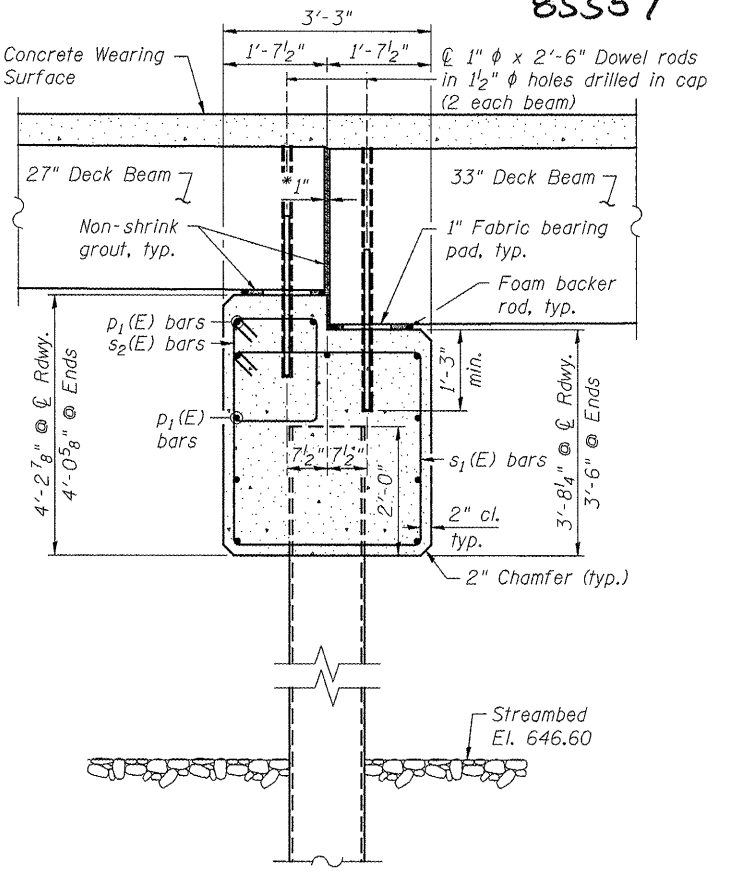
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PLAN



ELEVATION (Looking West)



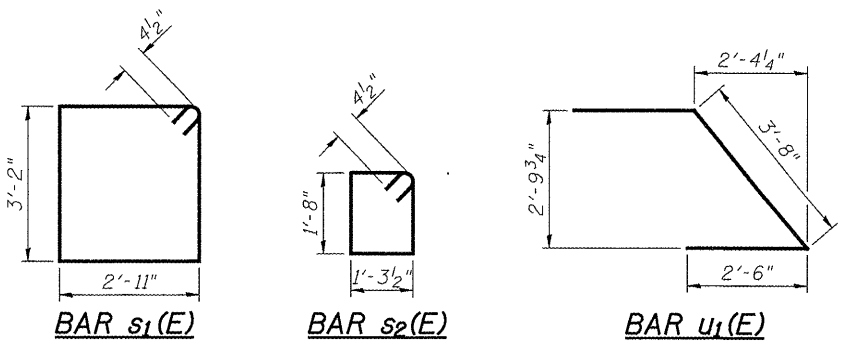
SECTION A-A (Dimensions are at Rt. L's)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p <sub>1</sub> (E)	11	#7	37'-9"	—
s <sub>1</sub> (E)	41	#4	12'-11"	□
s <sub>2</sub> (E)	40	#4	6'-8"	□
u <sub>1</sub> (E)	8	#6	8'-8"	∟
Concrete Structures	Cu. Yd.		17.4	
Reinforcement Bars, Epoxy Coated	Pound		1,490	
Furnishing Metal Shell Piles 14" x 0.312"	Foot		230	
Driving Piles	Foot		230	
Test Pile Metal Shells	Each		1	

NOTES:

- All exposed edges shall have standard 3/4" chamfers, except as noted.
- Space reinforcement in cap to miss dowel rods.
- After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a min. of 24 hours prior to grouting the shear keys.
- \* May vary due to overrun of beams.
- \*\* For pile & pile reinforcement details, see Structural Sheet 16 of 18.



PILE DATA

Type: Metal Shell 14" φ x 0.312" Walls  
 Nominal Required Bearing: 237 kips  
 Factored Resistance Available: 431 kips  
 Est. Length: 46'  
 No. Production Piles: 5  
 No. Test Piles: 1  
 Drive piles to a minimum elevation of 613.00



DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

LEE COUNTY  
 C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
 STATION 20 + 00

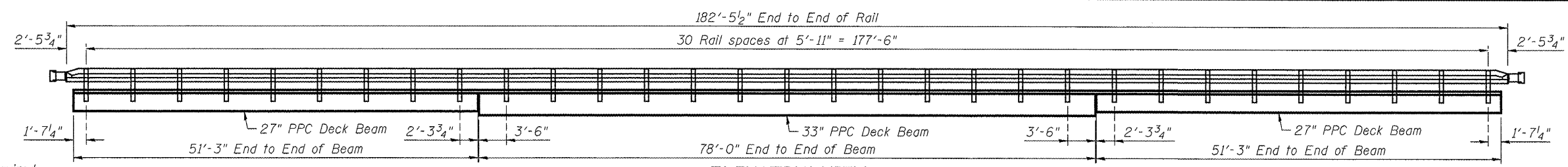
PIER #1 DETAILS  
 STRUCTURE NO. 052-3416  
 STRUCTURAL SHEET NO. 13 OF 18 SHEETS

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WHA* 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				

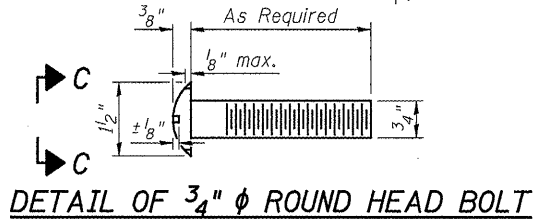
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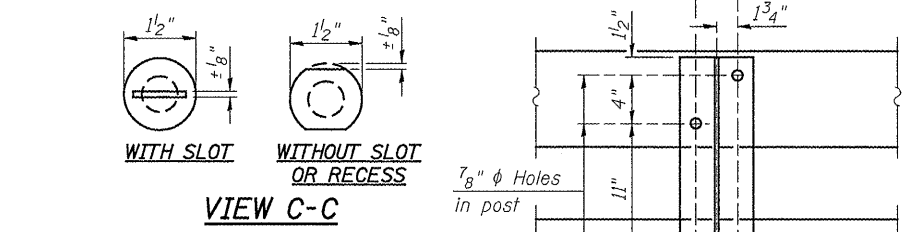
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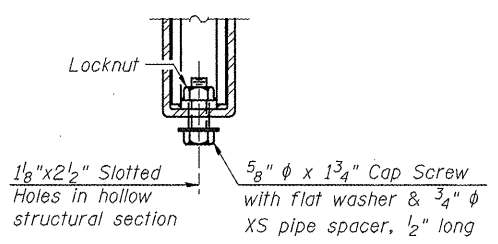
ELEVATION VIEW



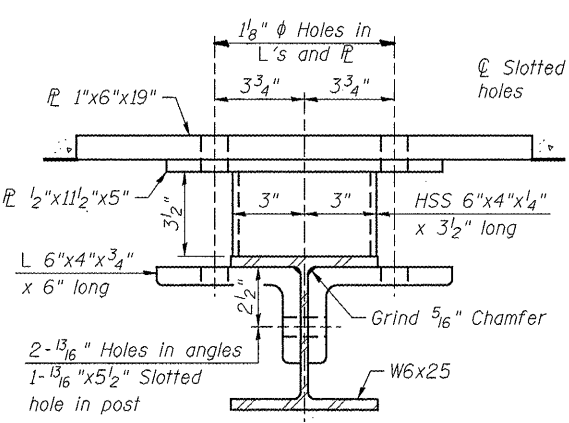
DETAIL OF 3/4" φ ROUND HEAD BOLT



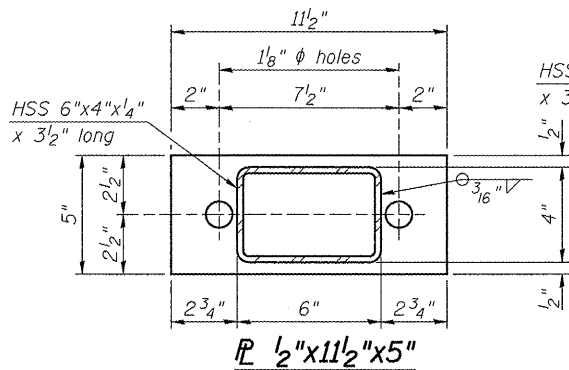
VIEW C-C



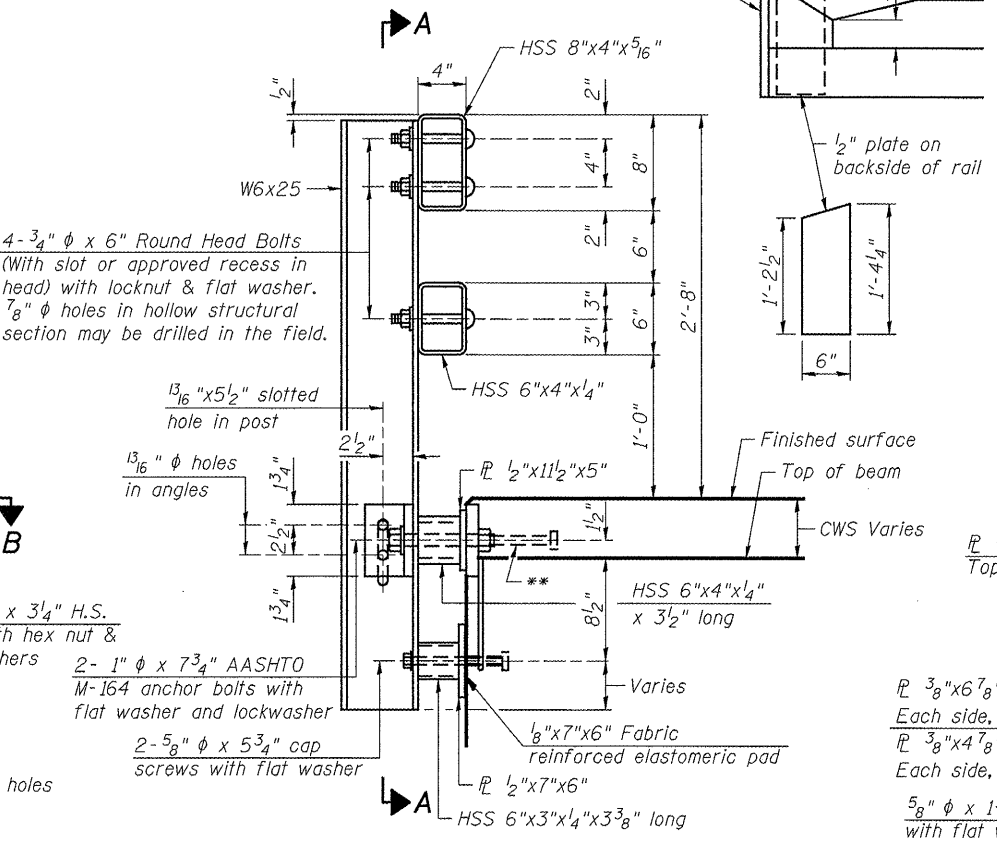
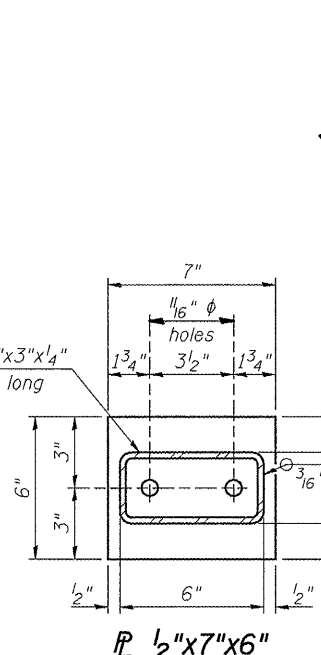
RAIL SPLICE CONNECTION AT EXPANSION JT.



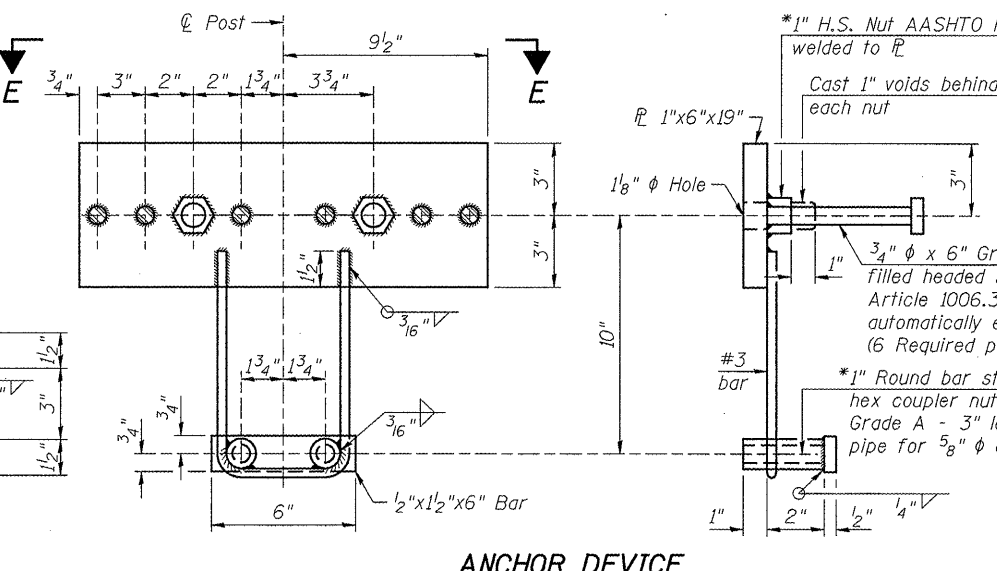
SECTION B-B



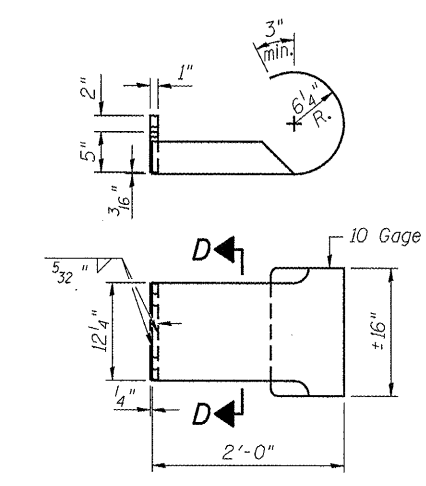
SECTION A-A



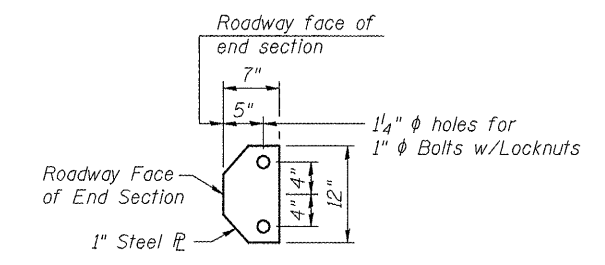
SECTION AT RAIL POST



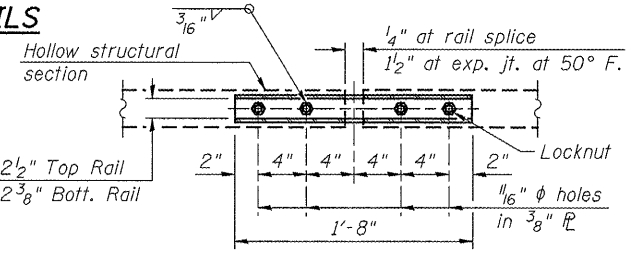
ANCHOR DEVICE



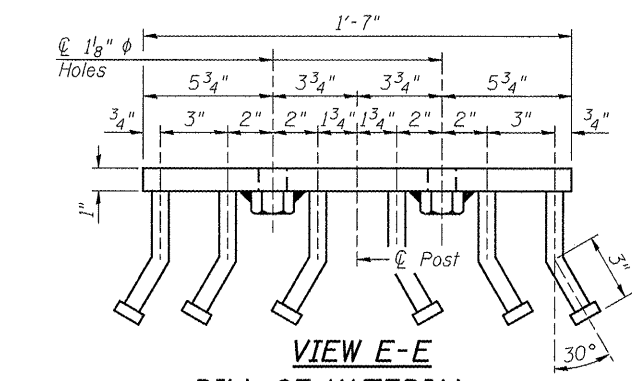
CURLLED END SECTION DETAILS



SECTION D-D



PLAN-BOTT. SPLICE PL TYPICAL



VIEW E-E  
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	365

NOTES:

- All field drilled holes shall be coated with an approved zinc rich paint before erection.
- For multi-span bridges, sufficient 1/4"x6"x1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
- Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
- \* Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.
- \*\* 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.
- \*\*\* Cost of Curled End Sections to be included with Steel Railing, Type SM.

**WILLETT HOFMANN & ASSOCIATES INC.**  
ENGINEERING ARCHITECTURE LAND SURVEYING  
809 EAST 2ND STREET, DIPON, IL 61021-0367  
TEL: 815-294-3301 DESIGN FIRM: 0186-009918

DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

LEE COUNTY  
C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
STATION 20+00

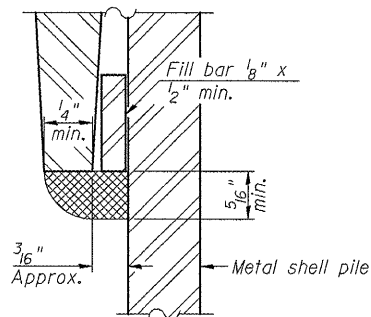
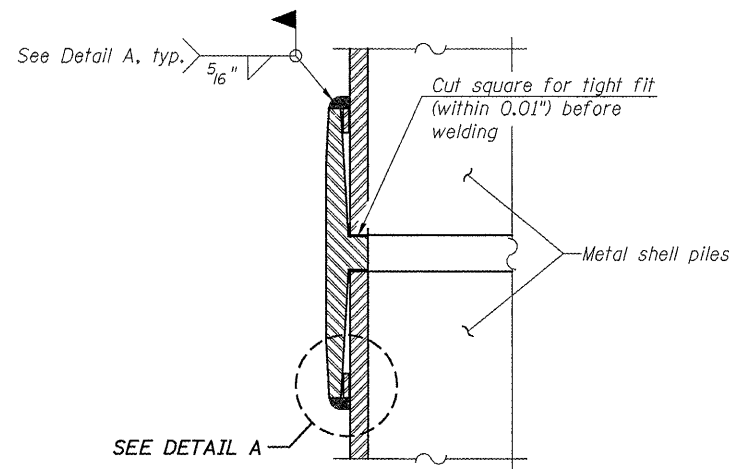
STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE  
STRUCTURE NO. 052-3416  
STRUCTURAL SHEET NO. 15 OF 18 SHEETS

F.A.S. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	22
WHA# 1224D11			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				



**METAL SHELL PILE TABLE**

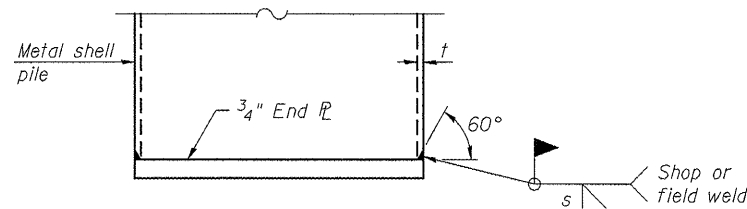
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



**DETAIL A**

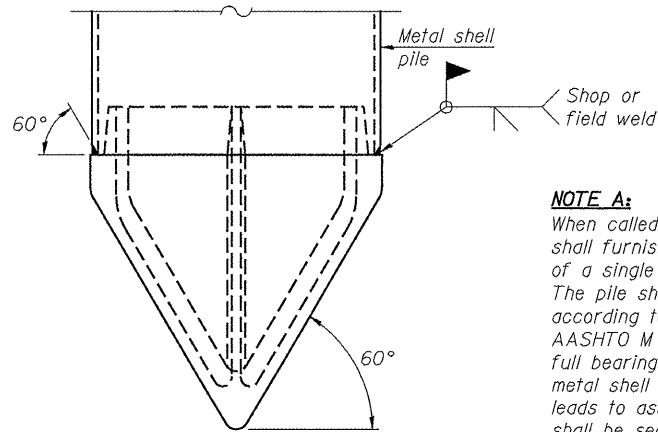
**NOTES:**  
 The 1/8"x1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.

**WELDED COMMERCIAL SPLICE**



**END LAP ATTACHMENT**

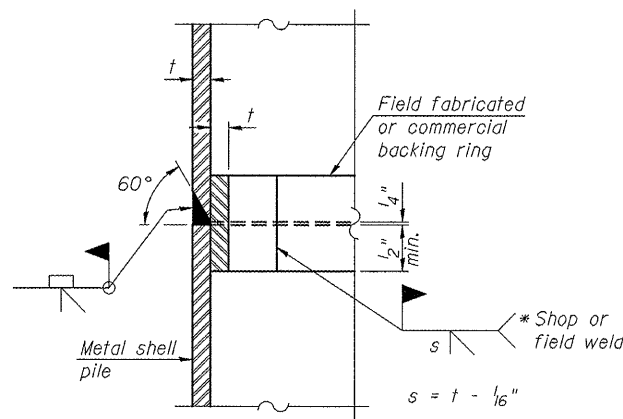
$s = t - 1/16"$



**METAL SHELL PILE SHOE ATTACHMENT**

(See Note A)

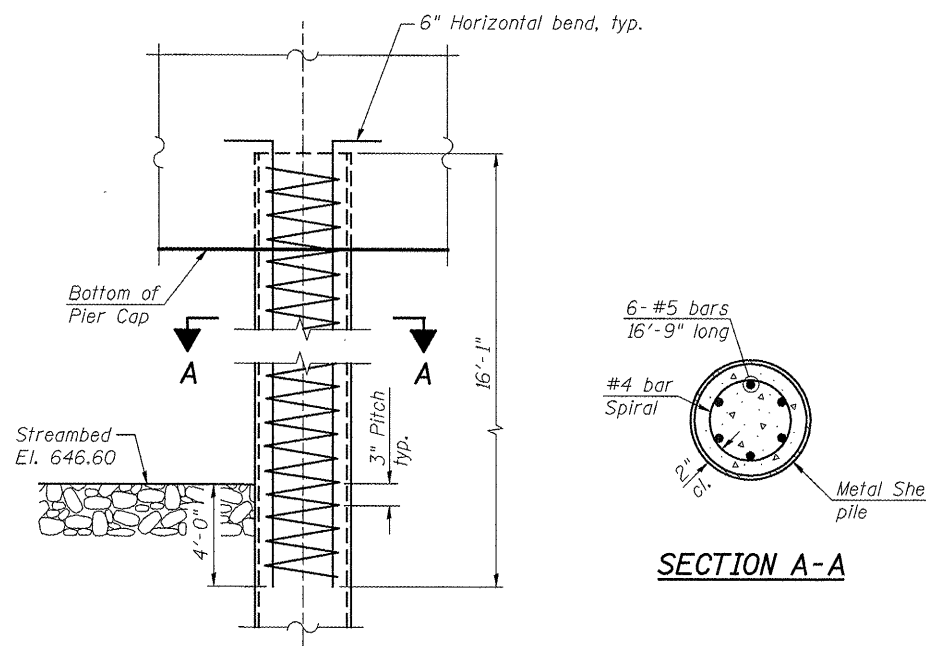
**NOTE A:**  
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing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

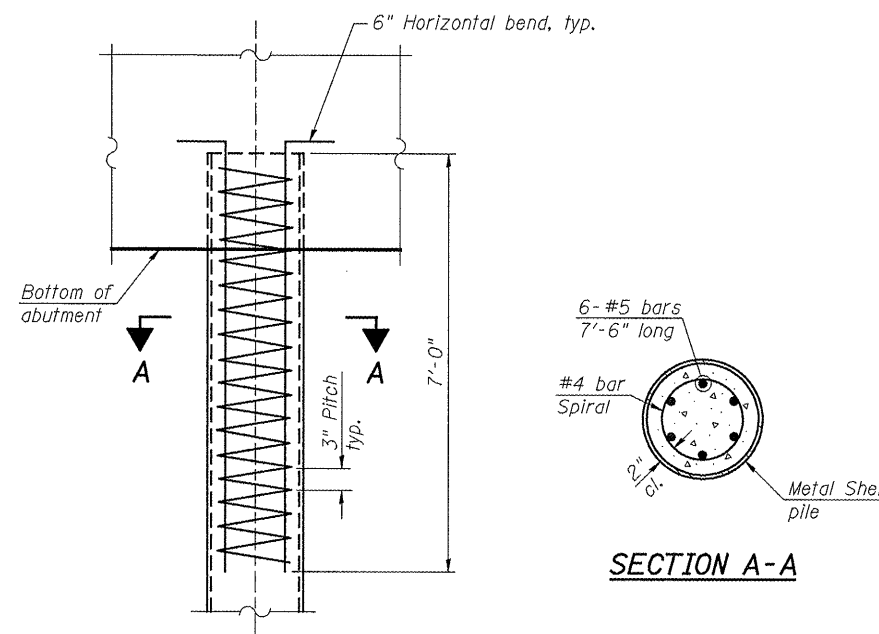
\*Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.

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



**ELEVATION**

**METAL SHELL REINFORCEMENT AT PIERS**



**ELEVATION**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**

FILE: S:\PROJECTS\2011\224011.Lee.Co.DESIGN\STRUCT\0-awing\1224011.Metal.Shell.Piles.dgn



DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20 + 00**

**METAL SHELL PILE DETAILS**  
**STRUCTURE NO. 052-3416**

STRUCTURAL SHEET NO. 16 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	23
WHA* 1224011			CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				

WEST ABUTMENT & PIER BORINGS

Form No. B. D. 137 Rev. 9-60

Sh. 1 of 2 Sh.

BRIDGE FOUNDATION BORING LOG

PROJECT ROUTE SEC. 1298-MFT COUNTY Lee  
 W. Abut. Boring No. 2 Station Offset 10' RT  
 BRIDGE #38 STA. Date January 31, 1964 Bored By Hirsch Checked By

Description	Elevation	N	Qu t/s.f.	w (%)	Surface Water El.		Groundwater El. at Completion	
Ground Surface Augered 3.5' to Seat Auger	655.5	0						
As above.	-25	20						
Brown Sandy Loam								
As above.	-5	6						
Yellow Brown Sandy Loam Mottled Grey								
As above.	-5	6						
Very dense, grey, silty sand								
As above.	-30	72						
Loose, Fine, Gray brown Sand								
As above.	-10	8						
Medium, grey sand								
As above.	-35	23						
Loose, Grey Sand								
As above.	-15	11						
Medium, Fine, Grey Sand Very fluid								
As above.	-40	29						
No Sample. Wash water indicates medium grey sand.								
As above.	-20	16						
Same as above.								
As above.	-45	30						

N - Standard Penetration Test - Blows per foot to drive 2" O. D. Split Spoon Sampler 12" with 140# hammer falling 30'.  
 Qu - Unconfined Compressive Strength - t/sf  
 w - Water Content - percentage of oven dry weight - %  
 Type failure:  
 B - Bulge Failure  
 S - Shear Failure  
 E - Estimated Value

Borings done by Hirsch in January of 1964 and taken from existing bridge plans.

Form No. B. D. 137 Rev. 9-60

Sh. 2 of 2

BRIDGE FOUNDATION BORING LOG

PROJECT ROUTE SEC. 1298-MFT COUNTY Lee  
 W. Abut. Boring No. 2 Station Offset 10' RT  
 BRIDGE #38 STA. Date February 3, 1964 Bored By Hirsch Checked By

Description	Elevation	N	Qu t/s.f.	w (%)	Surface Water El.		Groundwater El. at Completion	
Ground Surface	45	0						
As above.								
No sample, wash water indicates loose, grey sand								
As above.	-25	27						
As above.								
No sample, wash water indicates loose, grey sand								
As above.	-30	28						
As above.								
No sample, wash water indicates medium, grey sand and gravel								
As above.	-35	24						
As above.								
No sample, wash water indicates medium grey sand								
As above.	-40	22						
As above.								
No sample, wash water indicates medium grey sand								
As above.	-45	18						
As above.								
No sample, wash water indicates medium grey sand								
As above.	-20	19						

N - Standard Penetration Test - Blows per foot to drive 2" O. D. Split Spoon Sampler 12" with 140# hammer falling 30'.  
 Qu - Unconfined Compressive Strength - t/sf  
 w - Water Content - percentage of oven dry weight - %  
 Type failure:  
 B - Bulge Failure  
 S - Shear Failure  
 E - Estimated Value

FILE: S:\PROJECTS\2011\1224011\Lee-County\DESIGN\STRUCTURE\224011-Borings.dgn



DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - BRIAN CONVERSE	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -

LEE COUNTY  
 C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
 STATION 20+00

BORING LOGS  
 STRUCTURE NO. 052-3416  
 STRUCTURAL SHEET NO. 17 OF 18 SHEETS

F.A.S. RTE. 1180	SECTION 11-00318-00-BR	COUNTY LEE	TOTAL SHEETS 29	SHEET NO. 24
WHA# 1224011		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				



EAST ABUTMENT & PIER BORINGS

Sh. 1 of 2 Sh.

Form No. B.D. 137 Rev. 9-60

BRIDGE FOUNDATION BORING LOG

PROJECT \_\_\_\_\_ BRIDGE #38 Date January 29, 1964  
 ROUTE \_\_\_\_\_ Bored By Hirsch  
 SEC 129-B-NFT STA \_\_\_\_\_ Checked By \_\_\_\_\_

Ground Surface Elevation	N	Qu t/s.f.	w (%)	Surface Water El. Groundwater El. at Completion After _____ Hours	Elevation	N	Qu t/s.f.	w (%)
859.1	0							
					-25	13		
	7					15		
	8				-30	21		
	8					18		
	10				-35	11		
	18					15		
	14				-40	20		
	13					18		
	14				-45	19		

N - Standard Penetration Test - Blows per foot to drive 2"  
 O.D. Split Spoon Sampler 12" with 140# hammer falling 30"  
 Qu - Unconfined Compressive Strength - t/sf  
 w - Water Content - percentage of oven dry weight - %  
 Type failure: B - Bulge Failure, S - Shear Failure, E - Estimated Value

Borings done by Hirsch in January of 1964 and taken from existing bridge plans.

Form No. B.D. 137 Rev. 9-60

Sh. 2 of 2 Sh.

BRIDGE FOUNDATION BORING LOG

PROJECT \_\_\_\_\_ BRIDGE #38 Date January 29, 1964  
 ROUTE \_\_\_\_\_ Bored By Hirsch  
 SEC 129B-NFT STA \_\_\_\_\_ Checked By \_\_\_\_\_

Ground Surface Elevation	N	Qu t/s.f.	w (%)	Surface Water El. Groundwater El. at Completion After _____ Hours	Elevation	N	Qu t/s.f.	w (%)
450								
					-25			
	43							
	38				-30			
	33							
	23				-35			
	23				-40			
	23				-45			

N - Standard Penetration Test - Blows per foot to drive 2"  
 O.D. Split Spoon Sampler 12" with 140# hammer falling 30"  
 Qu - Unconfined Compressive Strength - t/sf  
 w - Water Content - percentage of oven dry weight - %  
 Type failure: B - Bulge Failure, S - Shear Failure, E - Estimated Value

FILE: S:\PROJECTS\281\224011.Lee.Co.DESIGN\STRUCT\Drawings\1224011.Borings.dgn



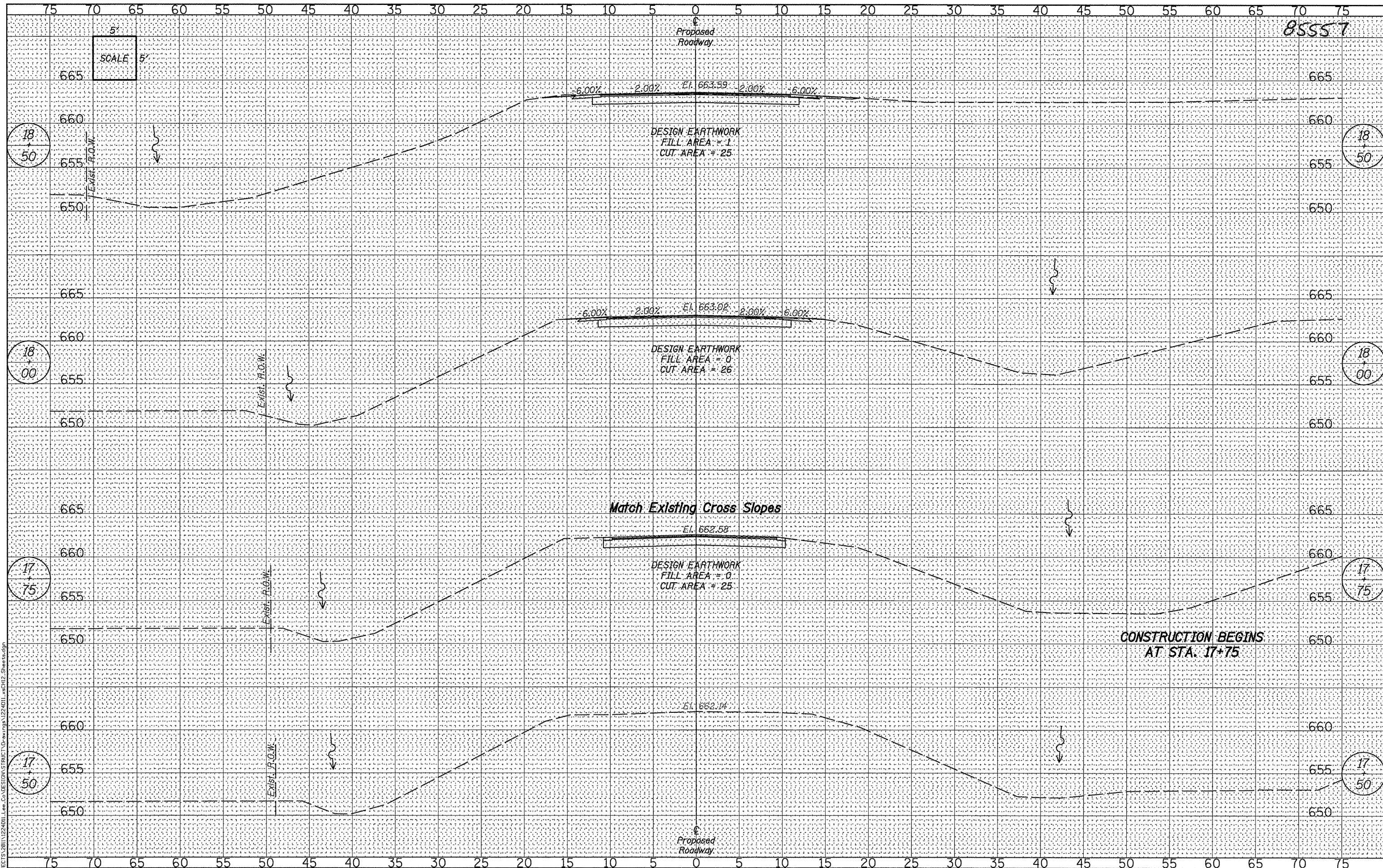
DESIGNED - BRADLEY KLEINMAIER REVISIONS -  
 CHECKED - BRIAN CONVERSE REVISIONS -  
 DRAWN - RON ALLEN REVISIONS -  
 CHECKED - MEGAN CACKLEY REVISIONS -

LEE COUNTY  
 C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
 STATION 20 + 00

BORING LOGS  
 STRUCTURE NO. 052-3416

STRUCTURAL SHEET NO. 18 OF 18 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	25
WHA* 1224011		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				



85557

5'  
SCALE 5'

DESIGN EARTHWORK  
FILL AREA = 1  
CUT AREA = 25

DESIGN EARTHWORK  
FILL AREA = 0  
CUT AREA = 26

Match Existing Cross Slopes

DESIGN EARTHWORK  
FILL AREA = 0  
CUT AREA = 25

CONSTRUCTION BEGINS  
AT STA. 17+75

FILE = S:\PROJECTS\2011\224011 - Lee Co DESIGN STRUCTURE - 052-3416 - V224011 - 052-3416 - Sheets.dgn



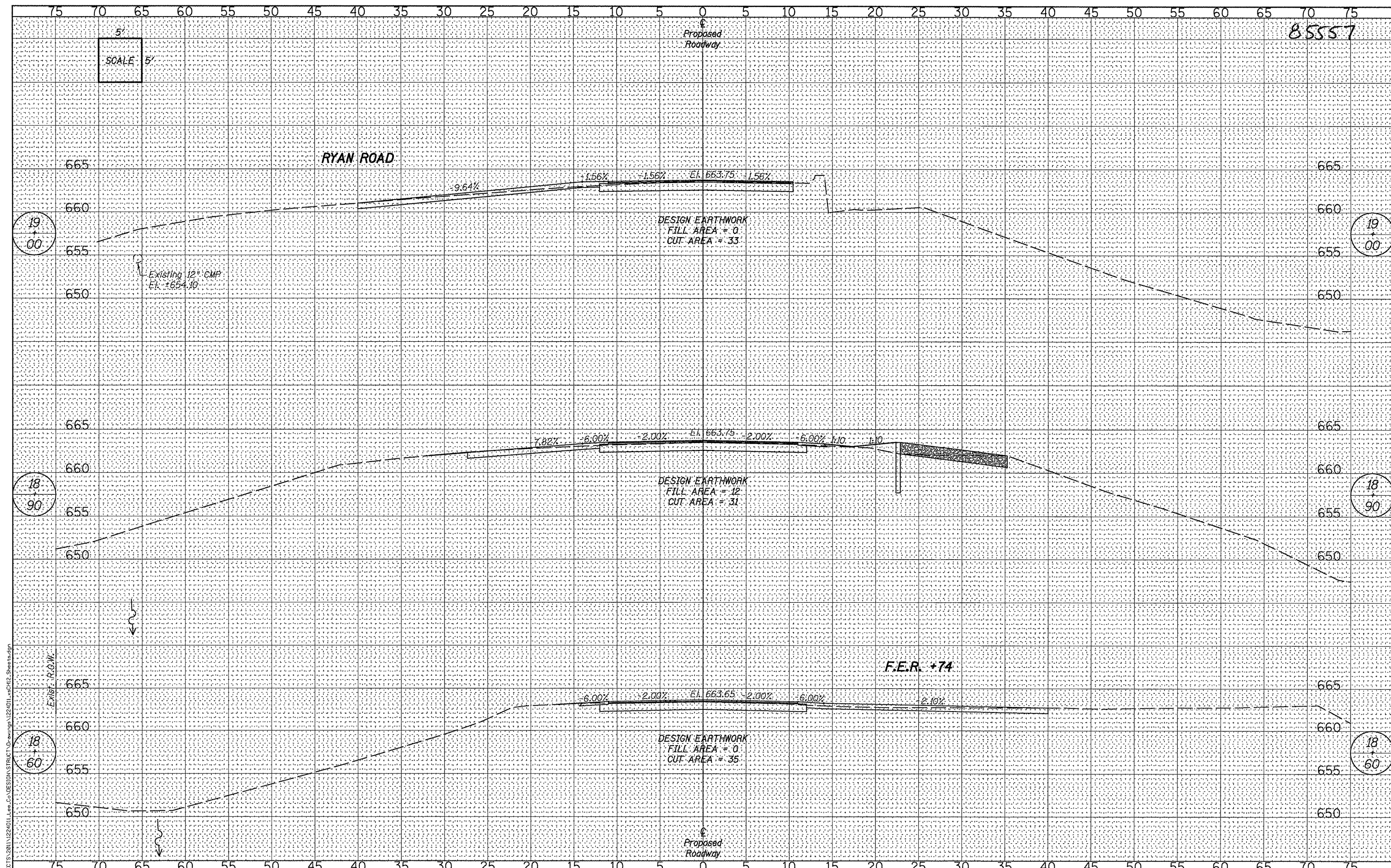
DESIGNED -	BRADLEY KLEINMAIER	REVISED -	
CHECKED -	MEGAN CACKLEY	REVISED -	
DRAWN -	RON ALLEN	REVISED -	
CHECKED -	MICHAEL WAGNER	REVISED -	

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

**CROSS SECTIONS**  
**STRUCTURE NO. 052-3416**

SHEET NO. 1 OF 4 SHEETS    STA. 17+50.00 TO STA. 18+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	26
WHA* 1224D11			CONTRACT NO. 85557	
ILLINOIS/FED. AID PROJECT BR5-1180(003)				



85557

5'  
SCALE 5'

RYAN ROAD

DESIGN EARTHWORK  
FILL AREA = 0  
CUT AREA = 33

DESIGN EARTHWORK  
FILL AREA = 12  
CUT AREA = 31

DESIGN EARTHWORK  
FILL AREA = 0  
CUT AREA = 35

F.E.R. +74

FILE: S:\PROJ\11224D11\Lee Co\DESIGN\STRUCT\Drawings\1224D11\_sheets.dgn

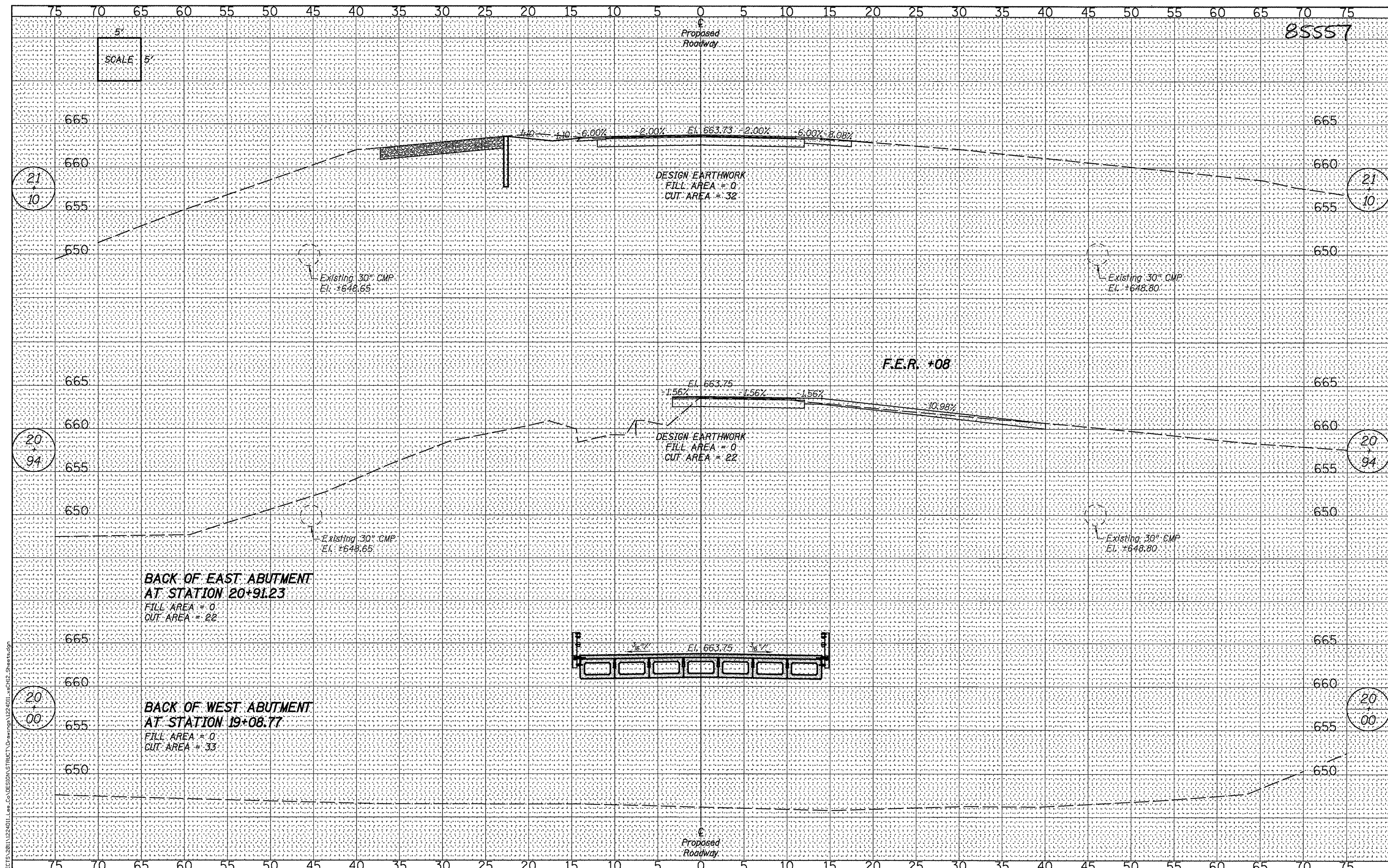


DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MICHAEL WAGNER	REVISED -

LEE COUNTY  
C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER  
STATION 20+00

CROSS SECTIONS	
STRUCTURE NO. 052-3416	
SHEET NO. 2 OF 4 SHEETS	STA. 18+60.00 TO STA. 19+00.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	27
WHA# 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				



85557

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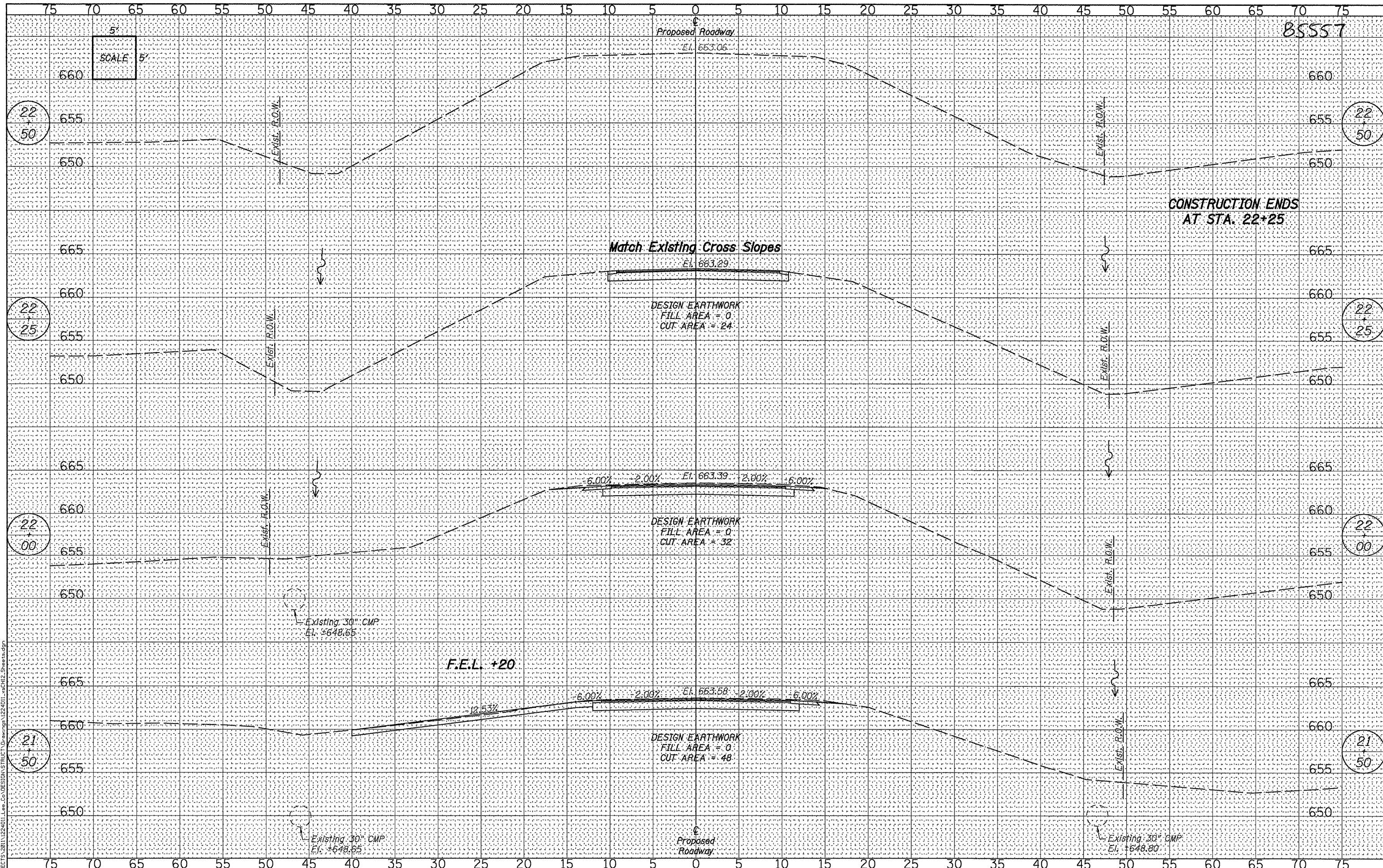


DESIGNED -	BRADLEY KLEINMAIER	REVISED -	
CHECKED -	MEGAN CACKLEY	REVISED -	
DRAWN -	RON ALLEN	REVISED -	
CHECKED -	MICHAEL WAGNER	REVISED -	

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

CROSS SECTIONS	
STRUCTURE NO. 052-3416	SHEET NO. 3 OF 4 SHEETS
STA. 20+00.00 TO STA. 21+10.00	

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	28
	WHA# 1224011		CONTRACT NO. 85557	
ILLINOIS FED. AID PROJECT BRS-1180(003)				



FILE: S:\PROJECTS\2011\224011 Lee Co DESIGN\STRUCTURE\Drawings\224011-04.CAD SHEET.dwg  
 3/15/2011 10:58:11 AM



DESIGNED - BRADLEY KLEINMAIER	REVISED -
CHECKED - MEGAN CACKLEY	REVISED -
DRAWN - RON ALLEN	REVISED -
CHECKED - MICHAEL WAGNER	REVISED -

**LEE COUNTY**  
**C.H. 12 (KEIGWIN ROAD) OVER GREEN RIVER**  
**STATION 20+00**

<b>CROSS SECTIONS</b>	
<b>STRUCTURE NO. 052-3416</b>	
SHEET NO. 4 OF 4 SHEETS	STA. 21+50.00 TO STA. 22+50.00

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1180	11-00318-00-BR	LEE	29	29
WHA* 1224D11		CONTRACT NO. 85557		
ILLINOIS FED. AID PROJECT BRS-1180(003)				