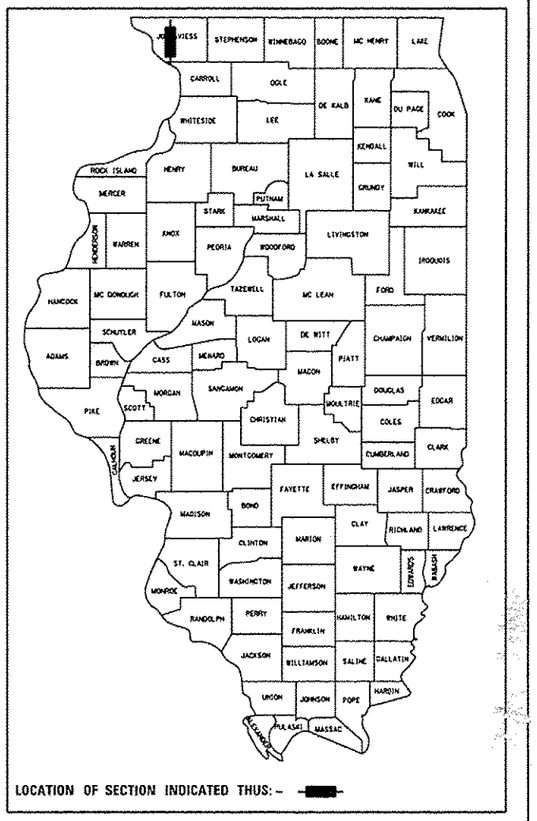
06-14-13 LETTING ITEM 110

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4	11-00138 -00-BR	JO DAVIESS	34	1
ROAD DIST.	ILLINOIS			

CONTRACT NO. 85585

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

SECTION 11–00138–00–BR
JO DAVIESS COUNTY
PROJECT NO. BHS–0071(123)
C.H. 4 (FAS 71)
ELIZABETH SCALES MOUND ROAD
C–92–017–13
CONTRACT NO. 85585



LOCATION OF SECTION INDICATED THUS:– ■

CLASSIFICATION: MAJOR COLLECTOR (NON–URBAN)
DESIGN VOLUME: 400–1000 ADT
CURRENT ADT: 934 (2013)
DESIGN SPEED: 40 MPH
3R DESIGN GUIDELINES

TOLL FREE JOINT UTILITY LOCATING
INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
TELEPHONE NUMBER 1-800-892-0123

INDEX OF SHEETS

SHEET NO.	TITLE
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES, GENERAL NOTES & TYPICAL SECTIONS
3.	PLAN AND PROFILE SHEET
4.	SHOULDER AND GUARDRAIL DETAIL
5.	TRAFFIC CONTROL PLAN
6.–30.	BRIDGE PLANS
31.–34	STATION CROSS SECTIONS

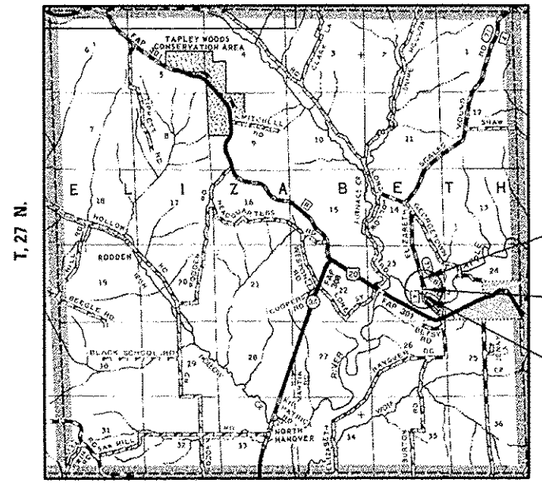
STANDARDS

280001–07	TEMPORARY EROSION CONTROL SYSTEMS
515001–03	NAME PLATE FOR BRIDGES
601101–01	CONCRETE HEADWALL FOR PIPE DRAIN
630001–10	STEEL PLATE BEAM GUARDRAIL
630301–06	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
701006–04	OFF–RD OPERATIONS, 2L, 2W, 15' (4.5m) TO 24" (600MM) FROM PAVEMENT EDGE
701301–04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701901–02	TRAFFIC CONTROL DEVICES
720011–01	METAL POSTS FOR SIGNS, MARKERS AND DELINEATORS
728001–01	TELESCOPING STEEL SIGN SUPPORT
729001–01	APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS AND MARKERS)
BLR 21–9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
BLR 27–1	TRAFFIC BARRIER TERMINAL, TYPE 5A

SCALES

PLAN ..... 0' 50' 100'
PROFILE HORIZ. ..... 0' 50' 100'
PROFILE VERT. ..... 0' 5' 10'
CROSS SECTIONS ..... 0' 5' 10'

R. 2 E., 4TH P.M.



IMPROVEMENT BEGINS
STA. 106 + 41.25

STA. 109 + 75
DECK REPLACEMENT AND REHABILITATION 28'–6" 0–0
EXISTING S.N. 043–3008

IMPROVEMENT ENDS
STA. 112 + 00.00

LOCATION PLAN

GROSS LENGTH OF SECTION = 558.75 FEET = 0.106 MILES
NET LENGTH OF SECTION = 558.75 FEET = 0.106 MILES

0 1 2 3 4 5
SCALE IN MILES

APPROVED 3-29 2013
COUNTY ENGINEER

PASSED 4-12 2013
DISTRICT ENGINEER OF LOCAL ROADS & STREETS

RELEASED FOR BID BASED ON LIMITED REVIEW 4-12 2013
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GARY J. CARTWRIGHT 43408 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Gary J. Cartwright 3-28-13
ILLINOIS PROFESSIONAL NO. 43408
EXPIRES 11-30-13

4440 ASH GROVE
SPRINGFIELD, IL. 62711
(217) 793-8600
www.fehr-graham.com

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*11-194

SUMMARY OF QUANTITIES

	CODE NO.	ITEM CONSTRUCTION TYPE CODE: 0014	UNIT	TOTAL QUANTITY
	20200100	EARTH EXCAVATION	CU YD	163
	20400800	FURNISHED EXCAVATION	CU YD	1146
	28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	60
	28000400	PERIMETER EROSION BARRIER	FOOT	828
	35101400	AGGREGATE BASE COURSE, TYPE B	TON	486
	40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	278
	40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	78
	40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	52
	44000100	PAVEMENT REMOVAL	SQ YD	621
	48101200	AGGREGATE SHOULDERS, TYPE B	TON	252
•	50102400	CONCRETE REMOVAL	CU YD	17.6
•	50104720	REMOVAL OF EXISTING CONCRETE DECK	EACH	1
	50200100	STRUCTURE EXCAVATION	CU YD	72
	50300225	CONCRETE STRUCTURES	CU YD	25.4
	50300255	CONCRETE SUPERSTRUCTURE	CU YD	162.7
	50300260	BRIDGE DECK GROOVING	SQ YD	573
	50300300	PROTECTIVE COAT	SQ YD	688
	50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	3530
	50500505	STUD SHEAR CONNECTORS	EACH	2130
	50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	48940
	51100300	SLOPE WALL 6 INCH	SQ YD	13
	51500100	NAME PLATES	EACH	1
	52000110	PREFORMED JOINT STRIP SEAL	FOOT	57
	52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	5
	52100020	ELASTOMERIC BEARING ASSEMBLY, TYPE II	EACH	5
	52100510	ANCHOR BOLTS 3/4"	EACH	20
	58700300	CONCRETE SEALER	SQ FT	50
	59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	42
	59300100	CONTROLLED LOW STRENGTH MATERIAL	CU YD	65.4
△	63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	337.5
△	63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
△	63100167	TRAFFIC BARRIER TERMINAL, TYPE 1, (SPECIAL) TANGENT	EACH	3
△	63100169	TRAFFIC BARRIER TERMINAL, TYPE 1, (SPECIAL) FLARED	EACH	1
	63200310	GUARDRAIL REMOVAL	FOOT	839
	67100100	MOBILIZATION	L SUM	1
△•	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
•	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.5
•	X5860110	GRANULAR BACKFILL FOR STRUCTURES	CU YD	54
•	X7010216	TRAFFIC CONTROL AND PROTECTION, SPECIAL	L SUM	1
•	Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	10
△•	Z0007112	CONTAINMENT AND DISPOSAL OF LEAD PAINT RESIDUES	L SUM	1
△•	Z0010501	CLEANING AND PAINTING STEEL BRIDGE NO. 1	L SUM	1
•	Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	14.5
•	Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	89
△•	XX006199	STEEL BRIDGE RAIL, TYPE SM (SPECIAL)	FOOT	390

•SEE SPECIAL PROVISIONS △ SPECIALTY ITEMS

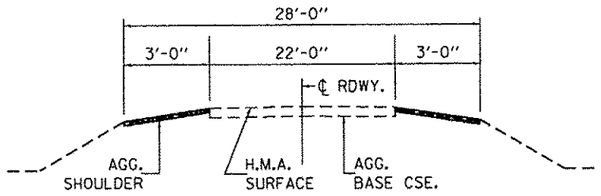
GENERAL NOTES

WHERE SECTION OF 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 AND AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

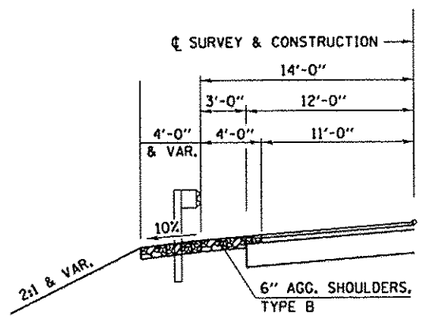
THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY, AS DIRECTED BY THE ENGINEER.

SEEDING, CLASS 2 (SPECIAL) = 0.5 ACRE

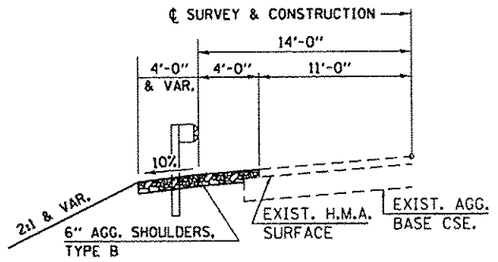
HOT-MIX ASPHALT MIXTURE REQUIREMENTS		
MIXTURE USE(S)	SURFACE	BINDER
PG:	PG 64-22	PG 64-22
DESIGN AIR VOIDS:	3.0 @ N50	3.0 @ N50
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL 9.5 OR 12.5	IL 19.0
FRICTION AGGREGATE	C	N/A
20 YEAR ESAL	0.1	0.1
MIX UNIT WEIGHT	112 LBS/SQYD/IN	112 LBS/SQYD/IN



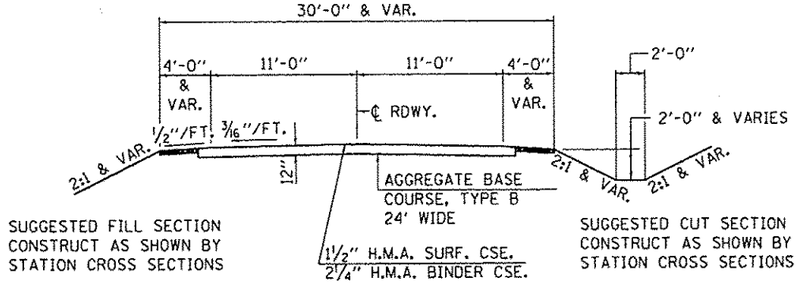
TYPICAL EXISITNG CROSS SECTION



SHOULDER DETAIL
(WHEN GUARDRAIL IS PRESENT)

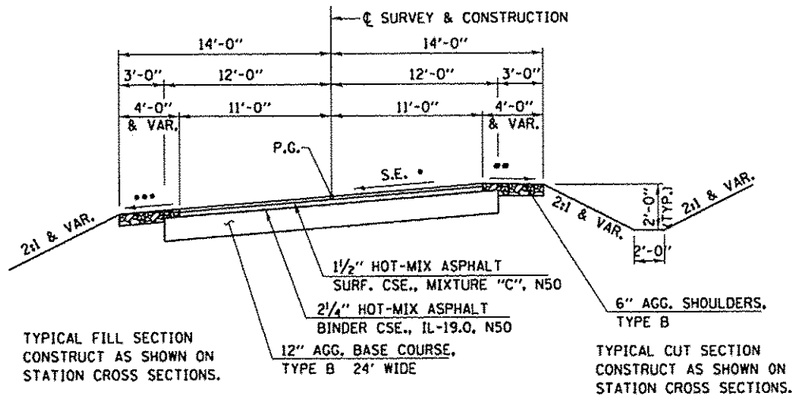


GUARDRAIL SHOULDER WIDENING DETAIL
(WITH NO SURFACE OR PAVEMENT REPLACEMENT)



TYPICAL PROPOSED CROSS SECTION

STA. 108+63.00 TO STA. 108+76.60 AND
STA. 110+73.39 TO STA. 110+75.00



PROPOSED TYPICAL CROSS SECTION

CURVE 1 - LOOKING DOWNSTATION
CURVE 2 - LOOKING UPSTATION

STA. 107+50 TO STA. 108+63
STA. 110+75 TO STA. 112+00
• 0.07'/FT AND VARIES
•• 0.04'/FT
••• VARIES 0.04'/FT TO 0.07'/FT

APPLICATION RATES USED IN QUANTITY CALCULATIONS

STONE RIPRAP, CLASS A5	1.65 TON/CU YD
AGGREGATE DITCH (SPECIAL)	1.65 TON/CU YD
AGGREGATE BASE COURSE AND SURFACE COURSE	2.05 TON/CU YD
BITUMINOUS MATERIALS (PRIME COAT) - (AGG.)	0.35 GAL/SQ YD
BITUMINOUS MATERIALS (PRIME COAT) - (HMA)	0.10 GAL/SQ YD
HOT-MIX ASPHALT (BINDER & SURFACE COURSE)	112•/SQ YD/IN

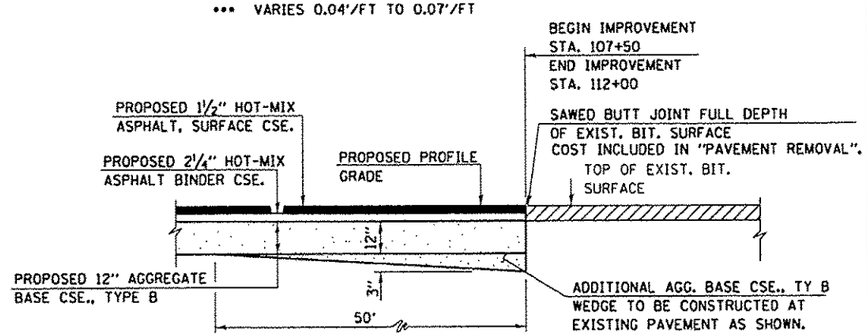
THE ABOVE NOTED APPLICATION RATES FOR BITUMINOUS MATERIALS (PRIME COAT) ARE FOR QUANTITY CALCULATIONS ONLY. THE APPLICATION RATE TO BE APPLIED WILL BE DETERMINED BY THE ENGINEER AT THE TIME OF PLACEMENT.

PAVEMENT DESIGN

Structural Diesgn Traffic (S.D.T.) : Year 2022; P.V. = 1025, S.U. = 10, M.U. = 10
Class III Road

Minimum Soil Support: I.B.R. = 3.0 (Assumed) (> 3 k.s.i.)

Percent of S.D.T. In Design Lane: P = 50%, S = 50%, M = 50%
T.F. = 0.051
TEMP. = 72°; EAC = 655; DESIGN STRAIN 364



ELEVATION AT BEGINNING AND END OF IMPROVEMENT

JOINT DETAILS

FILE NAME = 11-194.SUMTYP.dgn	DESIGNED - GC	REVISED -	
USER NAME = oshav	DRAWN - AS	REVISED -	
PLOT SCALE = @SCALE@	CHECKED - RF	REVISED -	
PLOT DATE = 3/29/2013	DATE -	REVISED -	

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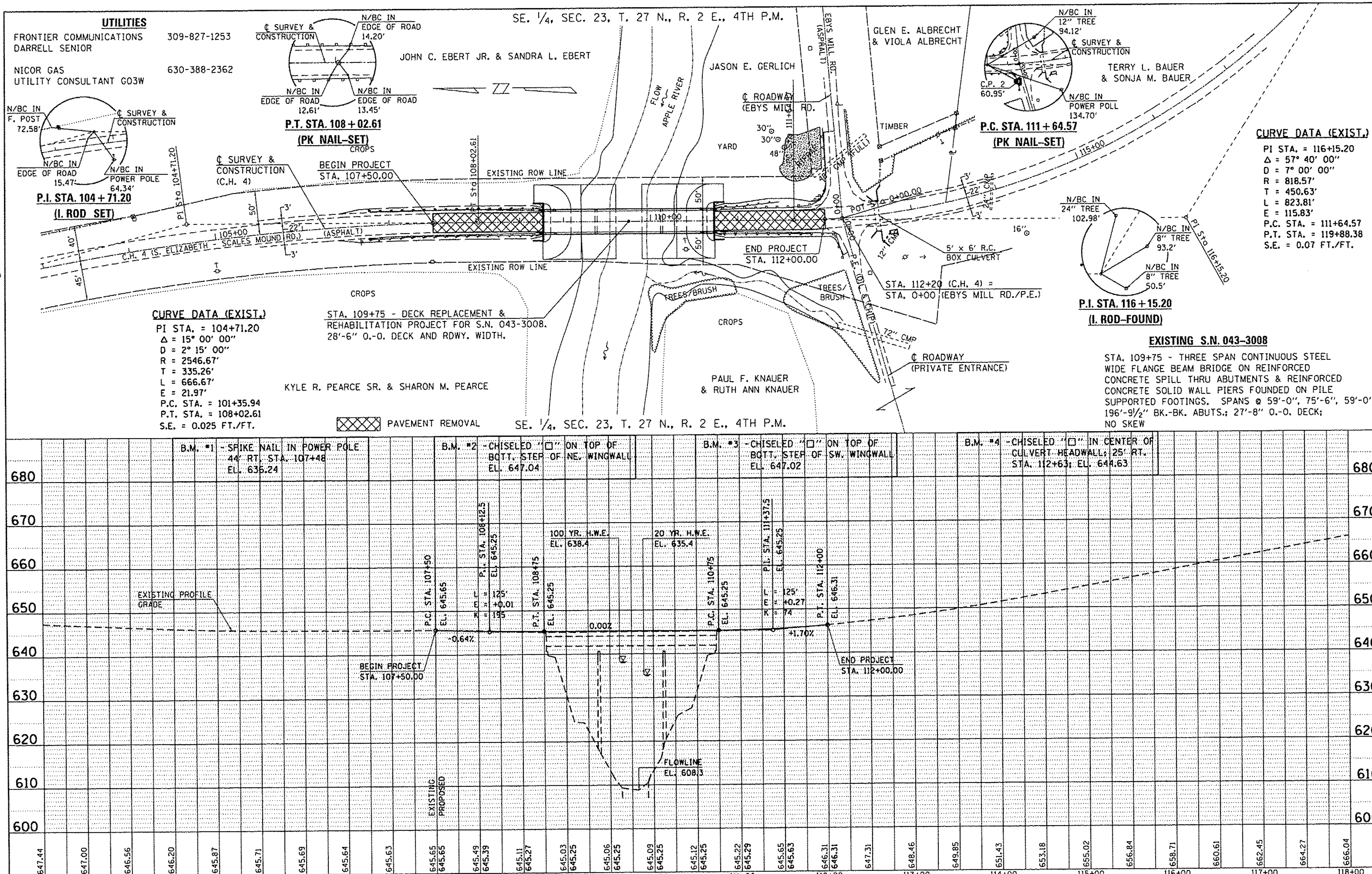
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

SUMMARY OF QUANTITIES, GENERAL NOTES AND TYPICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | PROPOSED STRUCTURE @ STA. 109+75

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	34	2
		CONTRACT NO. 85585		
	ILLINOIS			

*11-194



UTILITIES
FRONTIER COMMUNICATIONS 309-827-1253
DARRELL SENIOR
NICOR GAS 630-388-2362
UTILITY CONSULTANT GO3W
SE. 1/4, SEC. 23, T. 27 N., R. 2 E., 4TH P.M.
JOHN C. EBERT JR. & SANDRA L. EBERT
GLEN E. ALBRECHT & VIOLA ALBRECHT
JASON E. GERLICH
TERRY L. BAUER & SONJA M. BAUER
P.T. STA. 108+02.61
(PK NAIL-SET)
P.I. STA. 104+71.20
(I. ROD SET)
P.C. STA. 111+64.57
(PK NAIL-SET)
P.I. STA. 116+15.20
(I. ROD-FOUND)
CURVE DATA (EXIST.)
PI STA. = 116+15.20
Δ = 57° 40' 00"
D = 7° 00' 00"
R = 818.57'
T = 450.63'
L = 823.81'
E = 115.83'
P.C. STA. = 111+64.57
P.T. STA. = 119+88.38
S.E. = 0.07 FT./FT.
CURVE DATA (EXIST.)
PI STA. = 104+71.20
Δ = 15° 00' 00"
D = 2° 15' 00"
R = 2546.67'
T = 335.26'
L = 666.67'
E = 21.97'
P.C. STA. = 101+35.94
P.T. STA. = 108+02.61
S.E. = 0.025 FT./FT.
℄ SURVEY & CONSTRUCTION (C.H. 4)
BEGIN PROJECT STA. 107+50.00
END PROJECT STA. 112+00.00
EXISTING ROW LINE
C.H. 4 (S. ELIZABETH - SCALES MOUND RD.)
(ASPHALT)
FLOW APPLE RIVER
℄ ROADWAY (EBYS MILL RD.)
EBYS MILL RD. (ASPHALT)
YARD
TIMBER
CROPS
TREES/BRUSH
5' x 6' R.C. BOX CULVERT
STA. 112+20 (C.H. 4) = STA. 0+00 (EBYS MILL RD./P.E.)
72" CMP
℄ ROADWAY (PRIVATE ENTRANCE)
STA. 109+75 - DECK REPLACEMENT & REHABILITATION PROJECT FOR S.N. 043-3008. 28'-6" O.-O. DECK AND RDWY. WIDTH.
KYLE R. PEARCE SR. & SHARON M. PEARCE
PAUL F. KNAUER & RUTH ANN KNAUER
PAVEMENT REMOVAL
EXISTING S.N. 043-3008
STA. 109+75 - THREE SPAN CONTINUOUS STEEL WIDE FLANGE BEAM BRIDGE ON REINFORCED CONCRETE SPILL THRU ABUTMENTS & REINFORCED CONCRETE SOLID WALL PIERS FOUNDED ON PILE SUPPORTED FOOTINGS. SPANS @ 59'-0", 75'-6", 59'-0"; 196'-9 1/2" BK.-BK. ABUTS.; 27'-8" O.-O. DECK; NO SKEW
B.M. #1 - SPIKE NAIL IN POWER POLE 44' RT. STA. 107+48 EL. 636.24
B.M. #2 - CHISELED "□" ON TOP OF BOTT. STEP OF NE. WINGWALL EL. 647.04
B.M. #3 - CHISELED "□" ON TOP OF BOTT. STEP OF SW. WINGWALL EL. 647.02
B.M. #4 - CHISELED "□" IN CENTER OF CULVERT HEADWALL; 25' RT. STA. 112+63; EL. 644.63
EXISTING PROFILE GRADE
100 YR. H.W.E. EL. 638.4
20 YR. H.W.E. EL. 635.4
FLOWLINE EL. 608.3
P.C. STA. 107+50 EL. 645.65
P.I. STA. 108+12.5 EL. 645.25
L = 125' E = +0.01 K = 195
P.T. STA. 108+75 EL. 645.25
P.C. STA. 110+75 EL. 645.25
P.I. STA. 111+37.5 EL. 645.25
L = 125' E = +0.27 K = 74
P.T. STA. 112+00 EL. 646.31
-0.64%
0.00%
+1.70%
BEGIN PROJECT STA. 107+50.00
END PROJECT STA. 112+00.00
EXISTING
PROPOSED

Designed - G.J.C.	Revised -
Drawn - S.A.P.	Revised -
Checked - R.D.F.	Revised -
Date - 12/09/11	Revised -

FILE NAME = 11-194_P&P.DGN
PLOTTED BY = S.A.P.
CHECKED BY = R.J.C.
PLOT DATE = 12/09/11

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ROCHELLE, IL SPRINGFIELD, IL
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PLAN AND PROFILE - C.H. 4 OVER APPLE RIVER

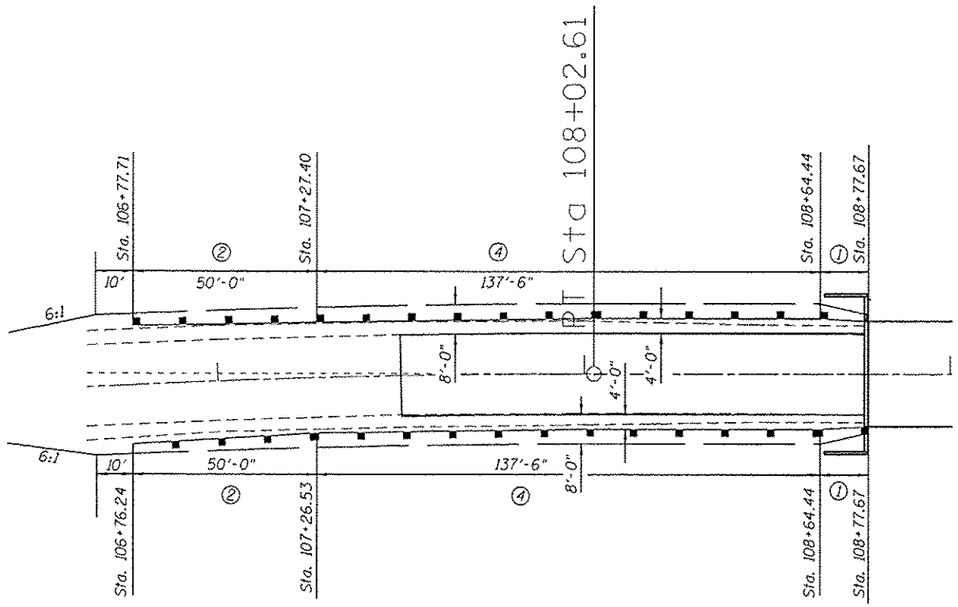
STA. 103+00.00 TO STA. 118+00.00

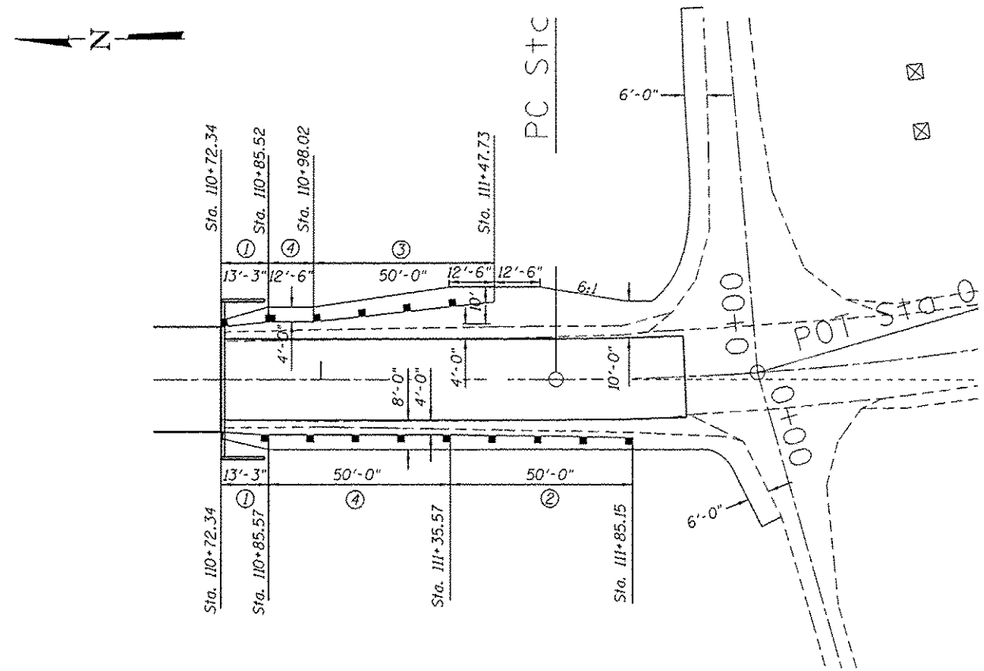
C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	34	3

CONTRACT NO. 85585

ILLINOIS

*11-194





GUARDRAIL & SHOULDER DETAIL

TRAFFIC BARRIER TERMINAL, TYPE 5A

15' LT. STA. 108+64.44 TO 14.25' LT. STA. 108+77.67	=	1 EACH
15' RT. STA. 108+64.44 TO 14.25' RT. STA. 108+77.67	=	1 EACH
14.25' LT. STA. 110+72.34 TO 15.6' LT. STA. 110+85.52	=	1 EACH
14.25' RT. STA. 110+72.34 TO 15' RT. STA. 110+85.57	=	1 EACH
TOTAL	=	4 EACH

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

16' RT. STA. 106+76.24 TO 15' RT. STA. 107+26.53	=	1 EACH
16' LT. STA. 106+77.71 TO 15' LT. STA. 107+27.40	=	1 EACH
15' RT. STA. 111+35.57 TO 16' LT. STA. 111+85.15	=	1 EACH
TOTAL	=	3 EACH

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) FLARED

15.6' LT. STA. 110+98.02 TO 21' LT. STA. 111+47.73	=	1 EACH
TOTAL	=	1 EACH

STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS

15' LT. STA. 107+27.40 TO 15' LT. STA. 108+64.44	=	137.5 FOOT
15' RT. STA. 107+26.53 TO 15' RT. STA. 108+64.44	=	137.5 FOOT
15.6' LT. STA. 110+85.52 TO 15.6' LT. STA. 110+98.02	=	12.5 FOOT
15' RT. STA. 110+85.57 TO 15' RT. STA. 111+35.57	=	50 FOOT
TOTAL	=	337.5 FOOT

LEGEND

① TRAFFIC BARRIER TERMINAL, TYPE 5A

② TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

③ TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) FLARED

④ STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS

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USER NAME = ashaw	DRAWN - AS	REVISED -
PLOT SCALE = $SCALE$	CHECKED - RF	REVISED -
PLOT DATE = 4/5/2013	DATE -	REVISED -

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ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

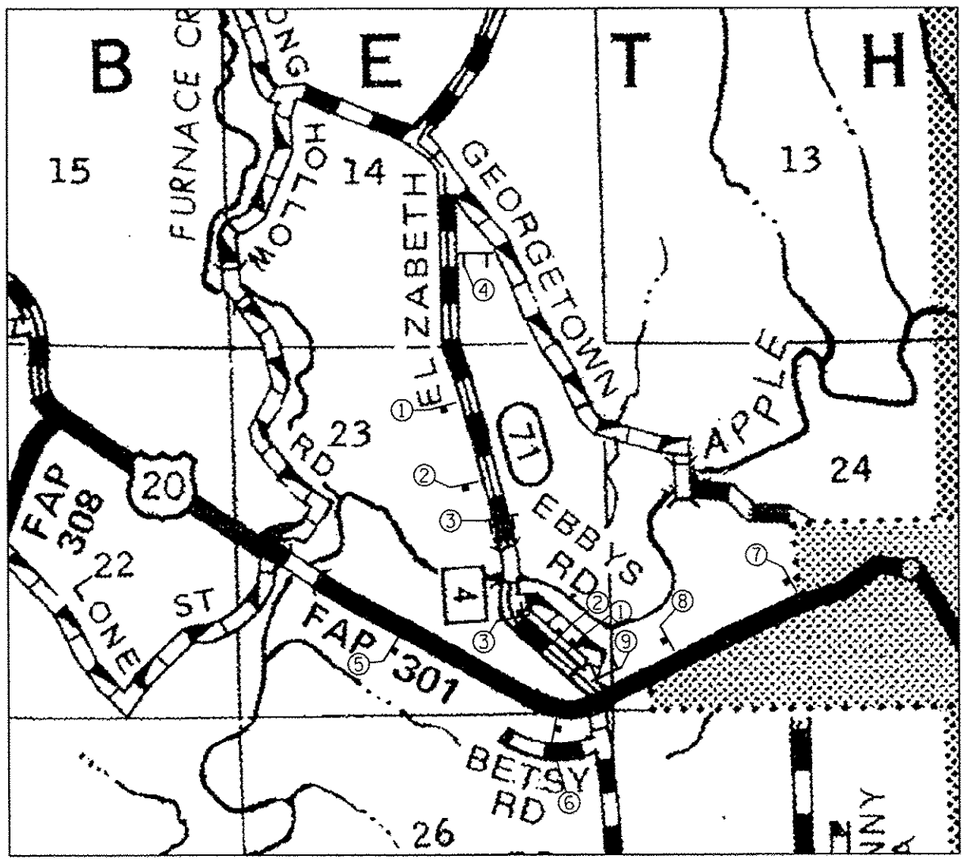
SHOULDER AND GUARDRAIL DETAIL

SCALE:

PROPOSED STRUCTURE @ STA. 109+75

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	34	4
		CONTRACT NO. 85585		
	ILLINOIS			

*11-194



ZZ

⑨ ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY
R11-3-6030
MOUNTED ON TYPE III BARRICADE WITH 2 FLASHING LIGHTS

① ROAD CLOSED AHEAD
W20-3(0)48
POST MOUNTED SIGN WITH TYPE A FLASHING LIGHT

② ROAD CLOSED 500 FT
W20-3(0)48
POST MOUNTED SIGN WITH TYPE A FLASHING LIGHT

③ ROAD CLOSED
R11-2-4830
MOUNT ON TYPE III BARRICADES AS SHOWN ON STD. 701901 DETAIL FOR "ROAD CLOSED TO ALL TRAFFIC". EACH TYPE III BARRICADE SHALL HAVE TWO TYPE A FLASHING LIGHTS.

④ ROAD CLOSED 1 MILE AHEAD LOCAL TRAFFIC ONLY
R11-3-6030
MOUNTED ON TYPE III BARRACADE WITH 2 FLASHING LIGHTS

⑤ ROAD CLOSED AHEAD
W20-3(0)48
W1-6(0)
(36X18)
POST MOUNTED SIGN WITH TYPE A FLASHING LIGHT

⑥ ROAD CLOSED 500 FT
W20-3(0)48
W1-6(0)
(36X18)
POST MOUNTED SIGN WITH TYPE A FLASHING LIGHT

⑦ ROAD CLOSED AHEAD
W20-3(0)48
W1-6(0)
(36X18)
POST MOUNTED SIGN WITH TYPE A FLASHING LIGHT

⑧ ROAD CLOSED 500 FT
W20-3(0)48
W1-6(0)
(36X18)
POST MOUNTED SIGN WITH TYPE A FLASHING LIGHT

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USER NAME = rfitzenko	DRAWN - AS	REVISED -
PLOT SCALE = @SCALE@	CHECKED - RF	REVISED -
PLOT DATE = 3/19/2013	DATE -	REVISED -

4440 ASH GROVE
SPRINGFIELD, IL. 62711
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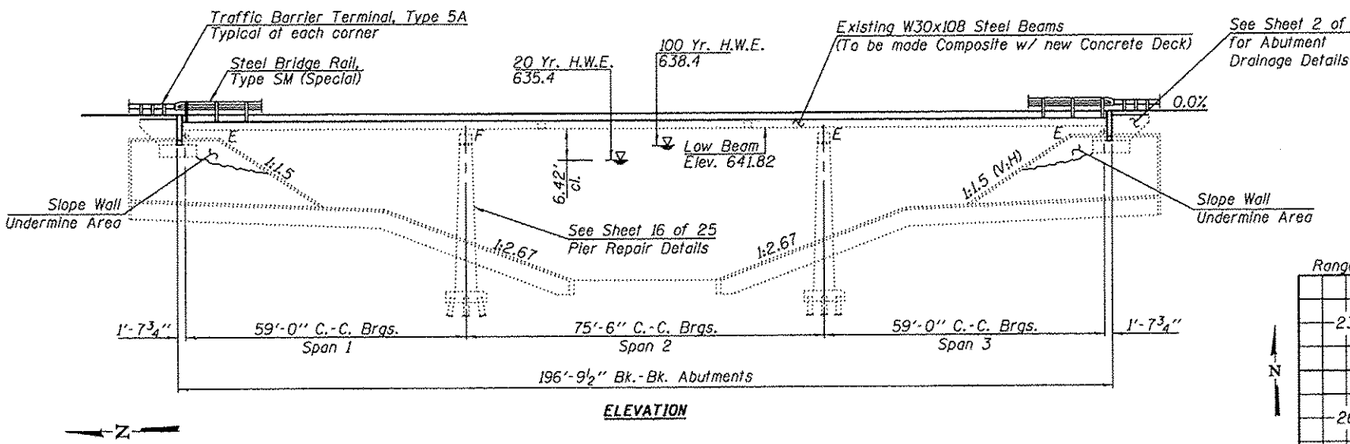
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO 184-003525
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

TRAFFIC CONTROL PLAN

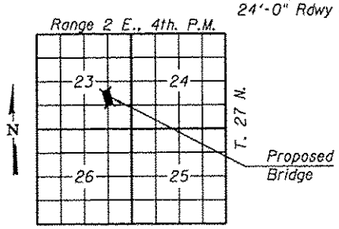
SCALE: ____ PROPOSED STRUCTURE @ STA. 109+75

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	34	5
		CONTRACT NO. 85585		
	ILLINOIS			

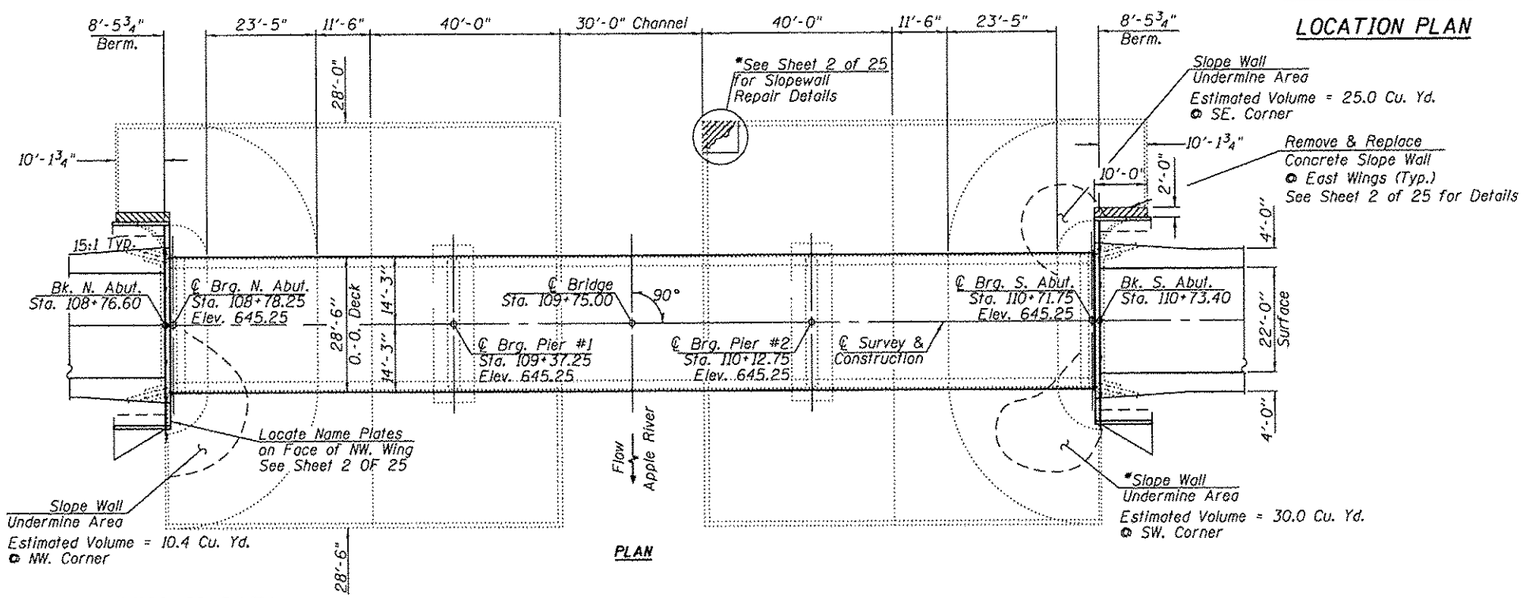
*11-194



ELEVATION



LOCATION PLAN



PLAN

SEISMIC DATA

Seismic Performance Category (SPC)	=	A
Bedrock Acceleration Coefficient (A)	=	0.023g
Site Coefficient (S)	=	1.0

WATERWAY INFORMATION

Drainage Area	188.0 Sq. Mi.
Existing Opening (20 Yr.)	2542 Sq. Ft.
Required Opening (20 Yr.)	2542 Sq. Ft.
Proposed Opening (20 Yr.)	2542 Sq. Ft.
Design Dischorge (20 Yr.)	12,234 C.F.S.
Created Head (20 Yr.)	0.3 Ft.
100 Year Discharge	18400 C.F.S.
100 Yr. Created Head	0.4 Ft.

DESIGN STRESSES

EXISTING CONSTRUCTION

f'_c = 1,400 p.s.i. (Superstr. Concrete)
f'_s = 20,000 p.s.i. (Reinf. & Structural Steel)
n = 10
LOADING H15-S12

PROPOSED CONSTRUCTION

f'_c = 5,000 p.s.i. (Superstr. & Sub Concrete)
f_y = 60,000 p.s.i. (Reinf. Bars)
F_y = 36,000 p.s.i. (A36 Struct. Steel)
LOADING HS20-44

No allowance for future wearing surface included in dead load.

DESIGN SPECIFICATIONS

AASHTO Standard Specifications - 2002

BM #2: Chiseled Square on Top of Btm. Step of NE Wingwall. Elev. 647.04

BM #3: Chiseled Square on Top of Btm. Step of SW Wingwall. Elev. 647.02

Exist. Structure: S.N. 043-3008 Built 1961 as Section 76B In F.A. Project S-71-1(1) ℄ Sta. 109+75. Three-span Continous Steel Wide Flange Beam Bridge with 7" depth C.I.P. RC Deck and Metal Handrail on Concrete Pile supported Stub Spill-Through Abutments and Solid Shaft Concrete Piers on Untreated Timber Pile supported concrete footings. Structure Length 196'-9½" Bk.-Bk. Abutments, 27'-8" O.-O. Deck, 24'-0" Rdwy (Fc.-Fc. Curbs). Skew = 0°.

INDEX OF SHEETS

PROPOSED SCOPE OF BRIDGE REHABILITATION WORK

1. Remove concrete bridge deck and steel bridge railing with care to avoid damage to existing stuctural steel framing. Remove existing nameplate for later installation into new construction.
2. With deck removed, the existing structural steel shall be cleaned and painted in accord with GBSP #25-Cleaning and Painting Existing Steel Structures and GBSP #26-Containment and Disposal of Lead Paint Residues. See Proposal Booklet.
3. With deck removed, existing beams shall be jacked and shored for removal of existing steel rocker expansion bearings, bearing seat construction, and replacement with Elastomeric Expansion bearings at abutments.
4. With the deck removed, install retrofit plates at the ends of the existing top flange cover plates.
5. Perform concrete removal operations on existing abutment backwalls and wings to construct necessary modifications to accommodate the proposed deck, install expansion joints, geocomposite wall drains and pipe underdrains, construct dog ear type wingwalls and L-wing extensions. Repair spalled pier stem areas.
6. Concrete slope wall undermine areas exist at the abutment corner locations shown. These areas are to be filled with Controlled Low Strength Material. The Contractor will be permitted to remove existing portions of slopewall as required to facilitate access to perform this work. Existing 6" slope wall, toe walls, or flank walls removed for this purpose shall be replaced and will not be measured for payment.
7. Install stud shear connectors on midspan areas of steel beams after new deck forming system is in place.
8. Construct the new bridge deck with Preformed Joint Strip Seal expansion joints. Perform bridge deck grooving following mandatory curing period. Apply protective coat to deck surface, deck fascia's, and wingwalls.
9. Replace the slopewall and toe failure at the southeast toe corner area. Remove and replace slopewall sections adjacent to East wing L-type walls.
10. Remove vegetation growth in contact with the stucture; removed drift and flood debris present within the bridge opening.
11. Erect Steel Railing Type SM Special and Type 5A Traffic Barrier Terminals.

*Note: Removal of debris required to perform repairs is included in the cost of "Control Low Slump Material" or "Slope Wall 6" ".

"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 specified 'AASHTO Standard Specifications for Highway Bridges'".

John A. Morris 3-28-13
ILLINOIS STRUCTURAL NO. 4277 (Expires 11/30/14)

LICENSED STRUCTURAL ENGINEER * JOHN A. MORRIS NO. 81-4277 * STATE OF ILLINOIS

GENERAL PLAN & ELEVATION
COUNTY HIGHWAY 4
SECTION 11-00138-00-BR
JoDAVIESS COUNTY
STATION 109+75.00
S.N. 043-3008

FILE NAME = 11-194.GPE.dgn	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - S.F.M.	REVISED -
	PLOT SCALE = $SCALE$	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003585
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI

GENERAL PLAN & ELEVATION
STRUCTURE NO. 043-3008
SHEET NO. 1 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	6
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194

GENERAL NOTES

Calculated weight of Structural Steel = 3,530 Pounds

No field welding is permitted except as specified in the contract documents.

The Contractor shall test the existing welds by non-destructive methods within 2 ft. of the end of the existing cover plates for cracks after removal of the existing concrete deck. Dye penetrant (PT), magnetic particle (MT), or other approved testing method shall be performed by qualified personnel approved by the Engineer. If cracks are found, report them to the Engineer for disposition. The cost of testing is included in Removal of Existing Concrete Deck. The cost of crack repair, if necessary, will be paid for according to Article 109.04 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Grade 60.

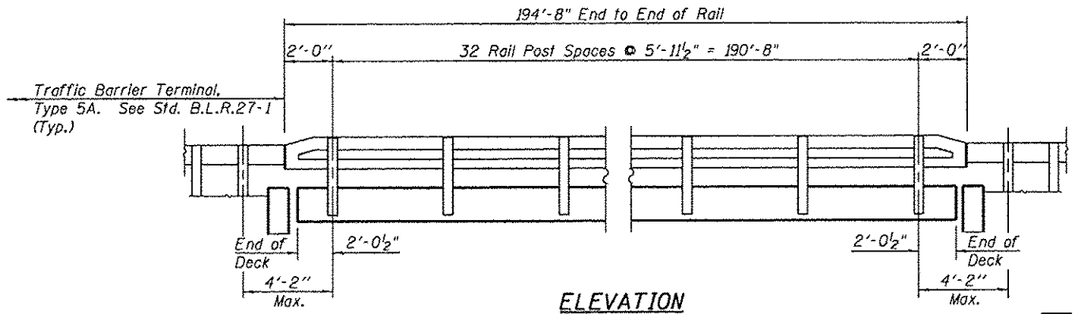
Reinforcement bars designated (E) shall be epoxy coated.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

As directed by the Engineer, existing construction accessories welded to the top flange of beams shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that can not be removed by grinding 1/4 in. deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractorshall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

The existing structural steel coating contains lead. The Contractor shall take appropriate precaustions to deal with the presence of lead on this project.

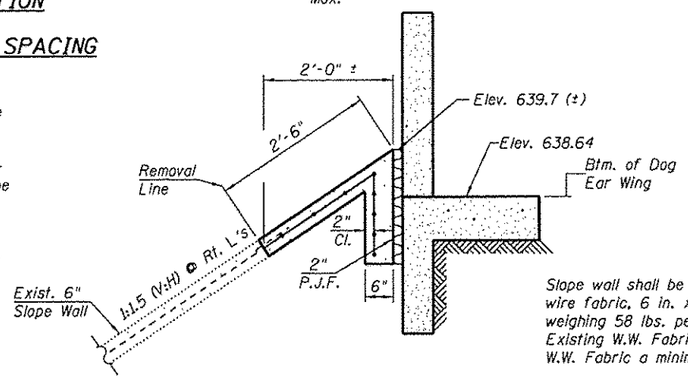


ELEVATION

RAIL POST SPACING

Cleaning and painting of the existing structural steel shall be as specified in the special provision for "Cleaning and Painting Existing Steel Structures". All existing steel shall be cleaned per Near White Blast Cleaning - SSPC-SP10. All existing steel shall be painted according to the requirements of Paint System 1 - OZ/E/U. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No 5b 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Gray (Munsell No. 5B 7/1).

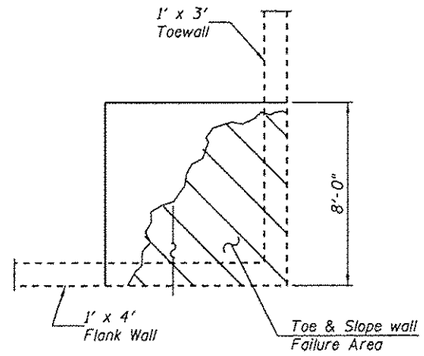
A minimum of two (2) air monitor(s) will be required to monitor abrasive blasting operations at this site. See special provision for "Containment and Disposal of Lead Paint Cleaning Residues."



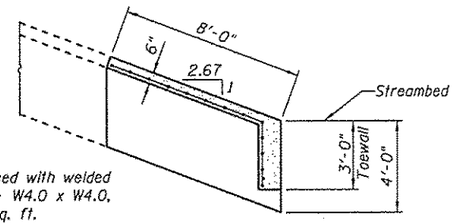
Note: Also replace removed anchor wall sections at North & South Ends.

SLOPE WALL REPAIR

@ East Wings

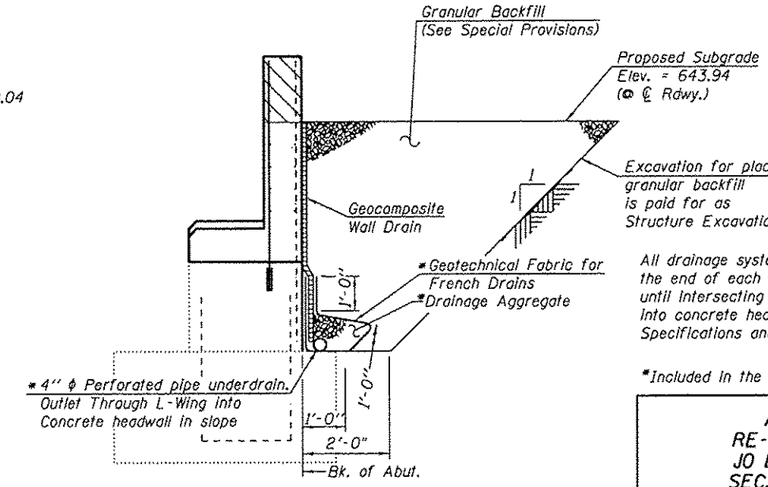


PLAN



Slope wall shall be reinforced with welded wire fabric, 6 in. x 6 in. - W4.0 x W4.0, weighing 58 lbs. per 100 sq. ft. Existing W.W. Fabric shall lap with new W.W. Fabric a minimum of 6".

ELEVATION



ABUTMENT DRAINAGE DETAIL

Section Thru. Abutment

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101)

*Included in the cost of Pipe Underdrains for Structures.

APPLE RIVER
RE-BUILT 20__ BY
JO DAVIESS COUNTY
SEC. 11-00138-00-BR
F.A. PROJ. BHS-007(123)
STR. NO. 043-3008
LOADING HS-20

LETTERING FOR NAME PLATE

See Std. 515001

Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Granular Backfill for Structures	Cu. Yd.		54	54
Removal of Existing Concrete Deck	Each	1		1
Concrete Removal	Cu. Yd.		17.6	17.6
Concrete Superstructure	Cu. Yd.	162.7		162.7
Bridge Deck Grooving	Sq. Yd.	573		573
Protective Coat	Sq. Yd.	688		688
Elastomeric Bearing Assembly, Type I	Each	5		5
Elastomeric Bearing Assembly, Type II	Each	5		5
Furnishing and Erecting Structural Steel	Pound	3530		3530
Stud Shear Connectors	Each	2130		2130
Jack and Remove Existing Bearings	Each	10		10
Reinforcement Bars, Epoxy Coated	Pound	44950	3990	48940
Steel Bridge Rail, Type SM (Special)	Foot	390		390
Name Plates	Each		1	1
Anchor Bolts ¾"	Each		20	20
Concrete Structures	Cu. Yd.		25.4	25.4
Cleaning and Painting Steel Bridge No. 1	L. Sum	1		1
Slope Wall 6"	Sq. Yd.		13	13
Controlled Low Strength Material	Cu. Yd.		65.4	65.4
Containment and Disposal of Lead Paint Cleaning Residues	L. Sum	1		1
Preformed Joint Strip Seal	Foot	57		57
Structural Repair of Concrete (Depth Equal To or Less Than 5in.)	Sq. Ft.		14.5	14.5
Pipe Underdrains for Structures 4"	Foot		89	89
Geocomposite Wall Drain	Sq. Yd.		42	42
Structure Excavation	Cu. Yd.		72	72
Concrete Sealer	Sq. Ft.		50	50

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		CHECKED - S.F.M.	REVISED -
	PLOT SCALE = *SCALE1*	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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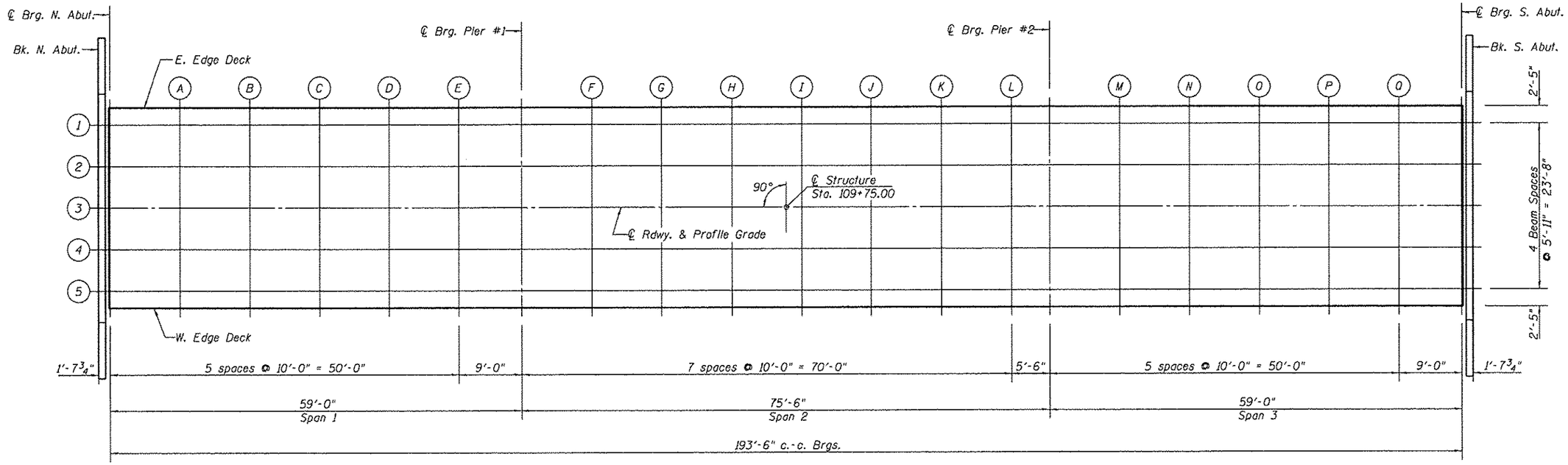
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-002525
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

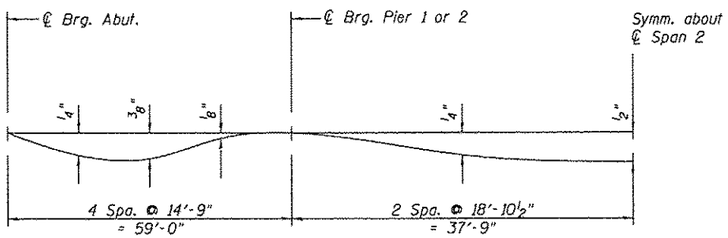
GENERAL NOTES AND BILL OF MATERIALS
STRUCTURE NO. 043-3008
SHEET NO. 2 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	7
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194



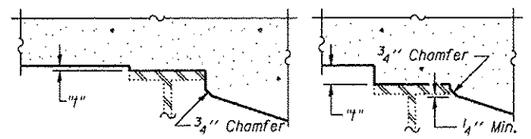
PLAN



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets 4 & 5 of 25.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

FILE NAME = 11-194_SLAB.dgn	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -	FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003243	FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI	TOP OF SLAB ELEVATIONS STRUCTURE NO. 043-3008	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - A.L.S.	REVISED -				4	11-00138-00-BR	JODAVIESS	34	8
	PLOT SCALE = #SCALE1#	DRAWN - A.D.S.	REVISED -						CONTRACT NO. 85585		
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -			SHEET NO. 3 OF 25 SHEETS			ILLINOIS FED. AID PROJECT		

*11-194

EAST EDGE DECK

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	108+76.60	-14.250	645.027	645.027
℄ Brg. N. Abut.	108+78.25	-14.250	645.027	645.027
A	108+88.25	-14.250	645.027	645.044
B	108+98.25	-14.250	645.027	645.054
C	109+08.25	-14.250	645.027	645.056
D	109+18.25	-14.250	645.027	645.045
E	109+28.25	-14.250	645.027	645.035
℄ Brg. Pier 1	109+37.25	-14.250	645.027	645.027
F	109+47.25	-14.250	645.027	645.040
G	109+57.25	-14.250	645.027	645.052
H	109+67.25	-14.250	645.027	645.062
I	109+77.25	-14.250	645.027	645.068
J	109+87.25	-14.250	645.027	645.058
K	109+97.25	-14.250	645.027	645.047
L	110+07.25	-14.250	645.027	645.034
℄ Brg. Pier 2	110+12.75	-14.250	645.027	645.027
M	110+22.75	-14.250	645.027	645.036
N	110+32.75	-14.250	645.027	645.046
O	110+42.75	-14.250	645.027	645.056
P	110+52.75	-14.250	645.027	645.054
Q	110+62.75	-14.250	645.027	645.043
℄ Brg. S. Abut.	110+71.75	-14.250	645.027	645.027
Bk. S. Abut.	110+73.40	-14.250	645.027	645.027

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	108+76.60	-11.833	645.065	645.065
℄ Brg. N. Abut.	108+78.25	-11.833	645.065	645.065
A	108+88.25	-11.833	645.065	645.082
B	108+98.25	-11.833	645.065	645.092
C	109+08.25	-11.833	645.065	645.094
D	109+18.25	-11.833	645.065	645.082
E	109+28.25	-11.833	645.065	645.073
℄ Brg. Pier 1	109+37.25	-11.833	645.065	645.065
F	109+47.25	-11.833	645.065	645.078
G	109+57.25	-11.833	645.065	645.090
H	109+67.25	-11.833	645.065	645.100
I	109+77.25	-11.833	645.065	645.106
J	109+87.25	-11.833	645.065	645.095
K	109+97.25	-11.833	645.065	645.084
L	110+07.25	-11.833	645.065	645.072
℄ Brg. Pier 2	110+12.75	-11.833	645.065	645.065
M	110+22.75	-11.833	645.065	645.074
N	110+32.75	-11.833	645.065	645.084
O	110+42.75	-11.833	645.065	645.094
P	110+52.75	-11.833	645.065	645.091
Q	110+62.75	-11.833	645.065	645.080
℄ Brg. S. Abut.	110+71.75	-11.833	645.065	645.065
Bk. S. Abut.	110+73.40	-11.833	645.065	645.065

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	108+76.60	-5.917	645.158	645.158
℄ Brg. N. Abut.	108+78.25	-5.917	645.158	645.158
A	108+88.25	-5.917	645.158	645.175
B	108+98.25	-5.917	645.158	645.184
C	109+08.25	-5.917	645.158	645.186
D	109+18.25	-5.917	645.158	645.175
E	109+28.25	-5.917	645.158	645.165
℄ Brg. Pier 1	109+37.25	-5.917	645.158	645.158
F	109+47.25	-5.917	645.158	645.170
G	109+57.25	-5.917	645.158	645.182
H	109+67.25	-5.917	645.158	645.192
I	109+77.25	-5.917	645.158	645.198
J	109+87.25	-5.917	645.158	645.188
K	109+97.25	-5.917	645.158	645.177
L	110+07.25	-5.917	645.158	645.164
℄ Brg. Pier 2	110+12.75	-5.917	645.158	645.158
M	110+22.75	-5.917	645.158	645.166
N	110+32.75	-5.917	645.158	645.176
O	110+42.75	-5.917	645.158	645.187
P	110+52.75	-5.917	645.158	645.184
Q	110+62.75	-5.917	645.158	645.173
℄ Brg. S. Abut.	110+71.75	-5.917	645.158	645.158
Bk. S. Abut.	110+73.40	-5.917	645.158	645.158

BEAM 3 & ℄ RDWY

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	108+76.60	0.000	645.250	645.250
℄ Brg. N. Abut.	108+78.25	0.000	645.250	645.250
A	108+88.25	0.000	645.250	645.267
B	108+98.25	0.000	645.250	645.277
C	109+08.25	0.000	645.250	645.279
D	109+18.25	0.000	645.250	645.267
E	109+28.25	0.000	645.250	645.258
℄ Brg. Pier 1	109+37.25	0.000	645.250	645.250
F	109+47.25	0.000	645.250	645.262
G	109+57.25	0.000	645.250	645.275
H	109+67.25	0.000	645.250	645.285
I	109+77.25	0.000	645.250	645.291
J	109+87.25	0.000	645.250	645.280
K	109+97.25	0.000	645.250	645.269
L	110+07.25	0.000	645.250	645.257
℄ Brg. Pier 2	110+12.75	0.000	645.250	645.250
M	110+22.75	0.000	645.250	645.258
N	110+32.75	0.000	645.250	645.268
O	110+42.75	0.000	645.250	645.279
P	110+52.75	0.000	645.250	645.276
Q	110+62.75	0.000	645.250	645.265
℄ Brg. S. Abut.	110+71.75	0.000	645.250	645.250
Bk. S. Abut.	110+73.40	0.000	645.250	645.250

E-S

7-1-10

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		CHECKED - A.L.S.	REVISED -
	PLOT SCALE = @SCALE@	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003565
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 043-3008
SHEET NO. 4 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	9
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	108+76.60	5.917	645.158	645.158
℄ Brg. N. Abut.	108+78.25	5.917	645.158	645.158
A	108+88.25	5.917	645.158	645.175
B	108+98.25	5.917	645.158	645.184
C	109+08.25	5.917	645.158	645.186
D	109+18.25	5.917	645.158	645.175
E	109+28.25	5.917	645.158	645.165
℄ Brg. Pier 1	109+37.25	5.917	645.158	645.158
F	109+47.25	5.917	645.158	645.170
G	109+57.25	5.917	645.158	645.182
H	109+67.25	5.917	645.158	645.192
I	109+77.25	5.917	645.158	645.198
J	109+87.25	5.917	645.158	645.188
K	109+97.25	5.917	645.158	645.177
L	110+07.25	5.917	645.158	645.164
℄ Brg. Pier 2	110+12.75	5.917	645.158	645.158
M	110+22.75	5.917	645.158	645.166
N	110+32.75	5.917	645.158	645.176
O	110+42.75	5.917	645.158	645.187
P	110+52.75	5.917	645.158	645.184
Q	110+62.75	5.917	645.158	645.173
℄ Brg. S. Abut.	110+71.75	5.917	645.158	645.158
Bk. S. Abut.	110+73.40	5.917	645.158	645.158

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	108+76.60	11.833	645.065	645.065
℄ Brg. N. Abut.	108+78.25	11.833	645.065	645.065
A	108+88.25	11.833	645.065	645.082
B	108+98.25	11.833	645.065	645.092
C	109+08.25	11.833	645.065	645.094
D	109+18.25	11.833	645.065	645.082
E	109+28.25	11.833	645.065	645.073
℄ Brg. Pier 1	109+37.25	11.833	645.065	645.065
F	109+47.25	11.833	645.065	645.078
G	109+57.25	11.833	645.065	645.090
H	109+67.25	11.833	645.065	645.100
I	109+77.25	11.833	645.065	645.106
J	109+87.25	11.833	645.065	645.095
K	109+97.25	11.833	645.065	645.084
L	110+07.25	11.833	645.065	645.072
℄ Brg. Pier 2	110+12.75	11.833	645.065	645.065
M	110+22.75	11.833	645.065	645.074
N	110+32.75	11.833	645.065	645.084
O	110+42.75	11.833	645.065	645.094
P	110+52.75	11.833	645.065	645.091
Q	110+62.75	11.833	645.065	645.080
℄ Brg. S. Abut.	110+71.75	11.833	645.065	645.065
Bk. S. Abut.	110+73.40	11.833	645.065	645.065

WEST EDGE DECK

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	108+76.60	14.250	645.027	645.027
℄ Brg. N. Abut.	108+78.25	14.250	645.027	645.027
A	108+88.25	14.250	645.027	645.044
B	108+98.25	14.250	645.027	645.054
C	109+08.25	14.250	645.027	645.056
D	109+18.25	14.250	645.027	645.045
E	109+28.25	14.250	645.027	645.035
℄ Brg. Pier 1	109+37.25	14.250	645.027	645.027
F	109+47.25	14.250	645.027	645.040
G	109+57.25	14.250	645.027	645.052
H	109+67.25	14.250	645.027	645.062
I	109+77.25	14.250	645.027	645.068
J	109+87.25	14.250	645.027	645.058
K	109+97.25	14.250	645.027	645.047
L	110+07.25	14.250	645.027	645.034
℄ Brg. Pier 2	110+12.75	14.250	645.027	645.027
M	110+22.75	14.250	645.027	645.036
N	110+32.75	14.250	645.027	645.046
O	110+42.75	14.250	645.027	645.056
P	110+52.75	14.250	645.027	645.054
Q	110+62.75	14.250	645.027	645.043
℄ Brg. S. Abut.	110+71.75	14.250	645.027	645.027
Bk. S. Abut.	110+73.40	14.250	645.027	645.027

E-S 7-1-10

FILE NAME = 11-194_SLAB.dgn	USER NAME = eshaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - A.L.S.	REVISED -
	PLOT SCALE = *SCALE1*	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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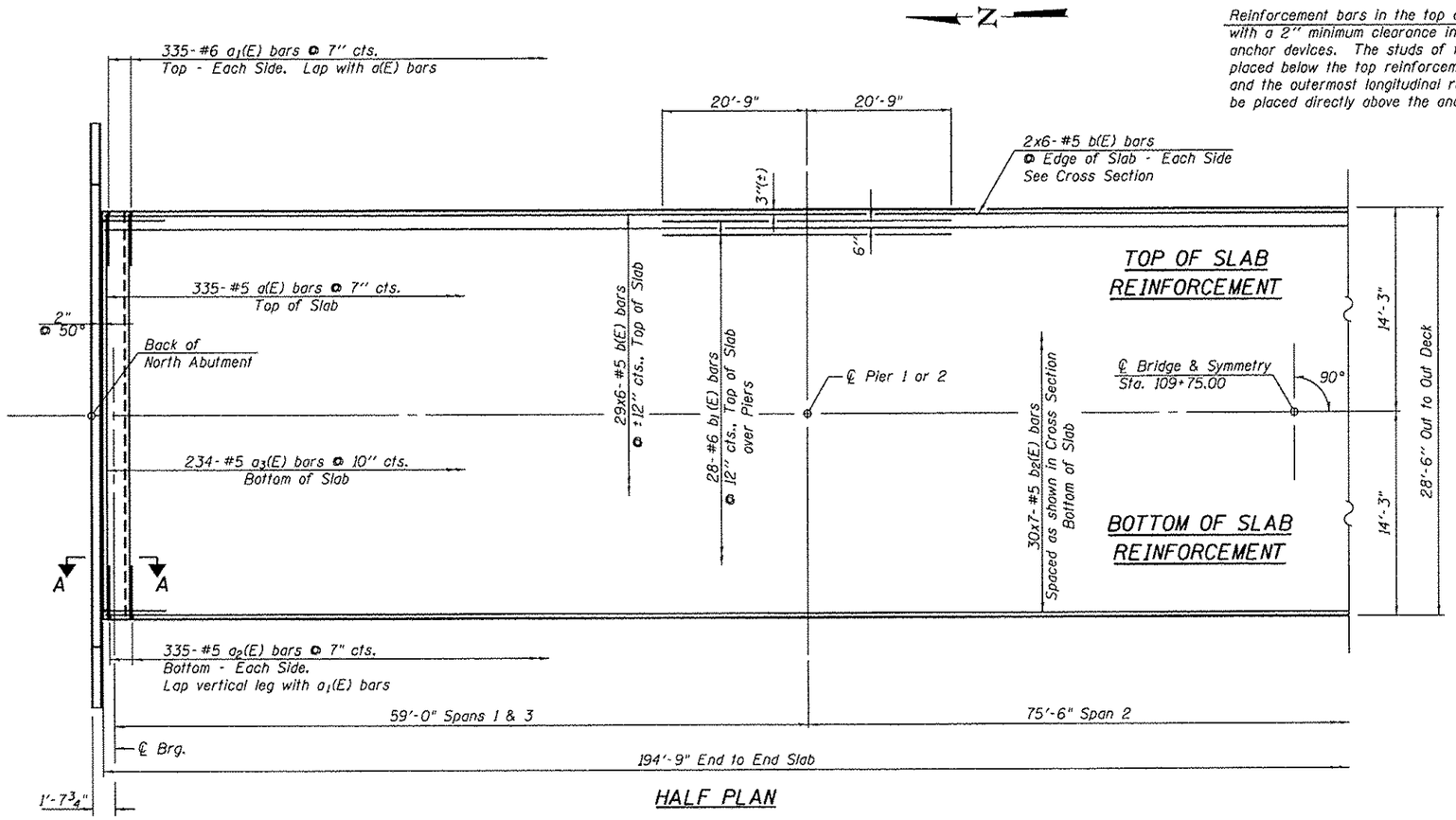
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003505
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 043-3008
SHEET NO. 5 OF 25 SHEETS

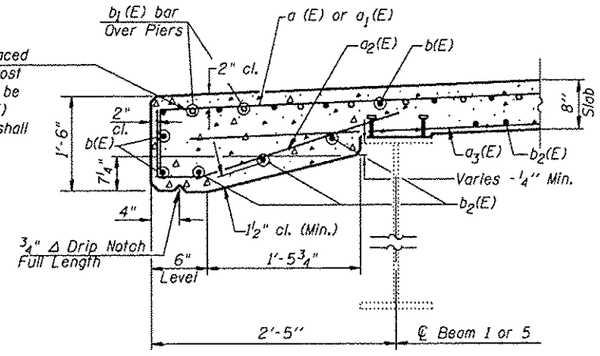
C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	10
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194

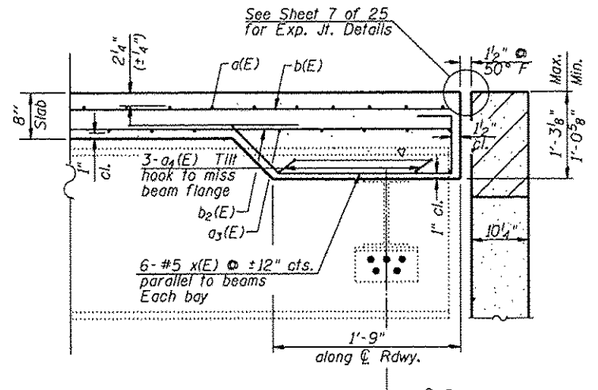


HALF PLAN

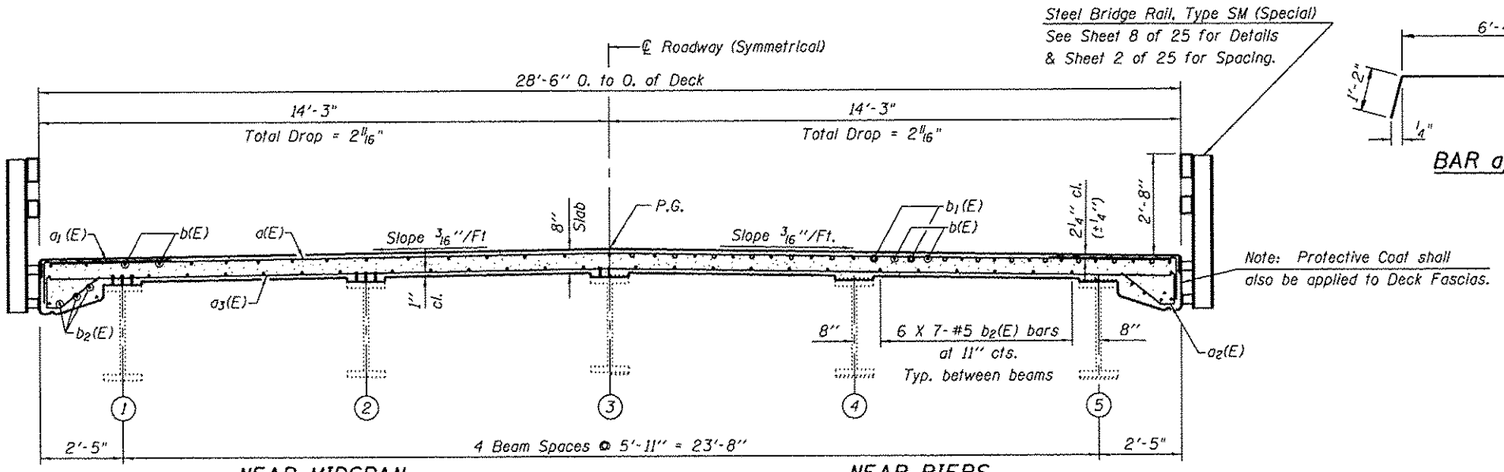
Reinforcement bars in the top of the deck shall be placed with a 2" minimum clearance in the area of the rail post anchor devices. The studs of the anchor device shall be placed below the top reinforcement bars a(E) and a_1(E) and the outermost longitudinal reinforcement bar b(E) shall be placed directly above the anchor device studs.



SECTION THRU EDGE OF SLAB



SECTION A-A



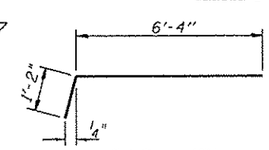
NEAR MIDSPAN

CROSS SECTION
(Looking South)

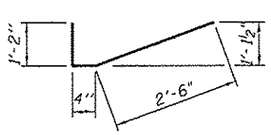
NEAR PIERS

MIN. BAR LAPS

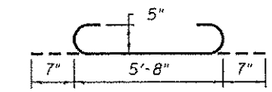
#5 _____ 3'-3"
#6 _____ 3'-10"



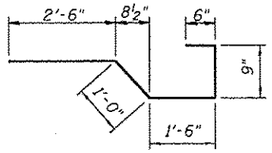
BAR a_1(E)



BAR a_2(E)



BAR a_4(E)



BAR x(E)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a (E)	335	#5	28'-2"	
a_1(E)	670	#6	7'-6"	
a_2(E)	670	#5	4'-0"	
a_3(E)	234	#5	27'-10"	
a_4(E)	24	#5	6'-10"	
b(E)	198	#5	35'-3"	
b_1(E)	56	#6	41'-6"	
b_2(E)	210	#5	30'-8"	
x(E)	48	#5	6'-3"	
Protective Coat			Sq. Yd.	688
Conc. Superstructure			Cu. Yd.	162.7
Reinforcement Bars, Epoxy Coated			Pound	44950
Bridge Deck Grooving			Sq. Yd.	573

Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

FILE NAME = 11-194_SUPER.DGN	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
11-194_SUPER.dgn		CHECKED - S.F.M.	REVISED -
	PLOT SCALE = @SCALE@	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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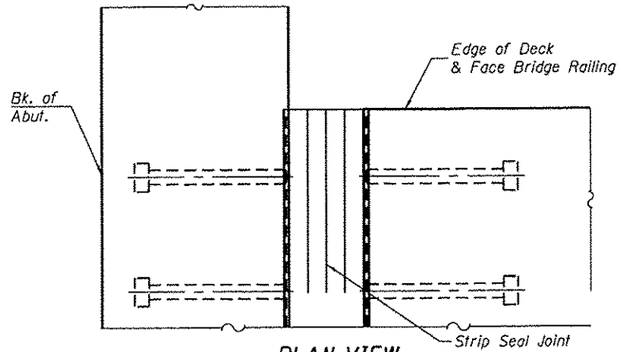
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

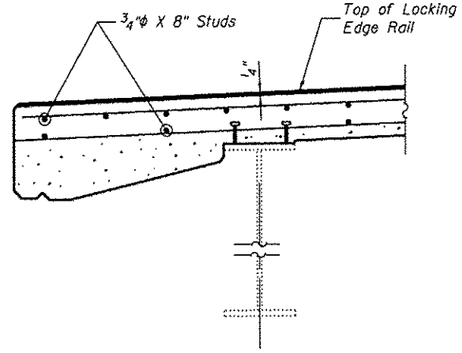
SUPERSTRUCTURE
STRUCTURE NO. 043-3008
SHEET NO. 6 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	11
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

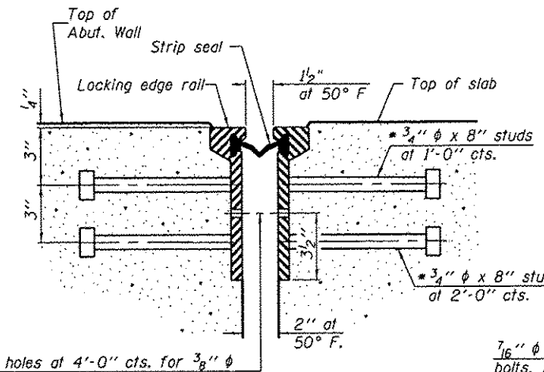
*11-194



PLAN VIEW

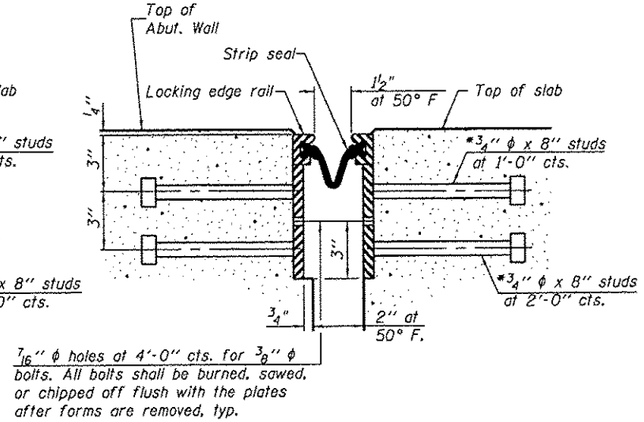


TYPICAL END TREATMENT AT EDGE OF SLAB



7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU ROLLED RAIL JOINT



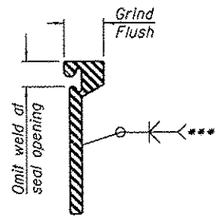
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU WELDED RAIL JOINT

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

ROLLED EXTRUDED RAIL

WELDED RAIL



*** Back gouge not required if complete joint penetration is verified by mock-up.

LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.

Rolled rail shown, welded rail similar.

LOCKING EDGE RAILS

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.

The manufacturer's recommended installation methods shall be followed.

The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

Maximum space between rail segments shall be 3/16", sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	57

1-27-12

FILE NAME = 11-194_JOINT.dgn	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - S.F.M.	REVISED -
	PLOT SCALE = #SCALE1#	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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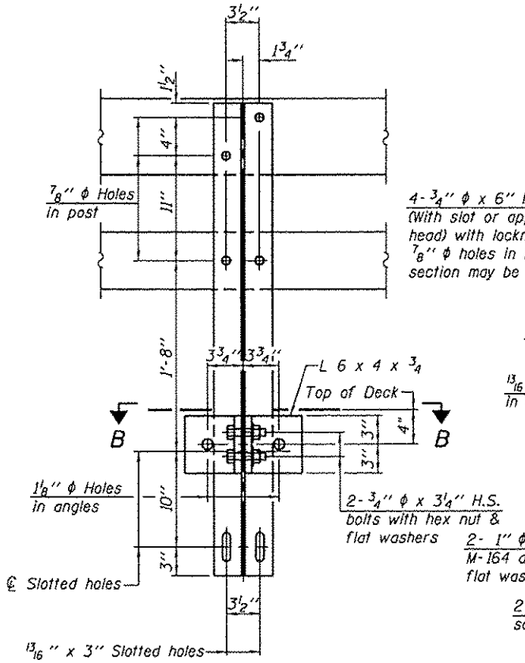
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003565
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI

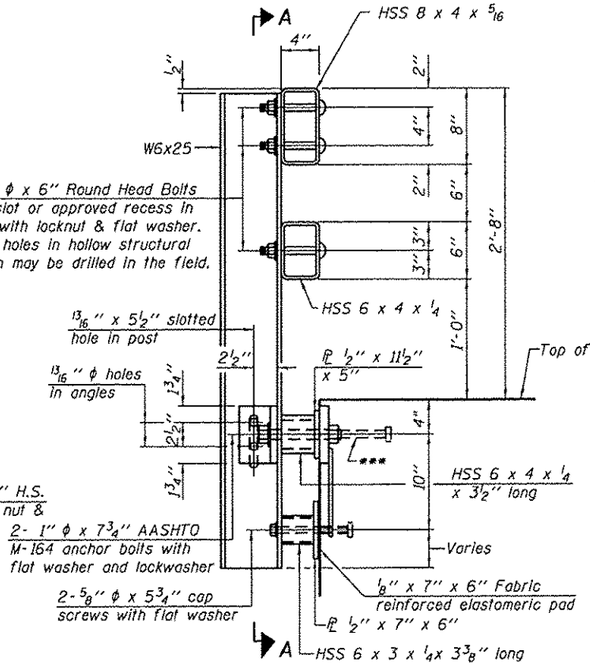
PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 043-3008
SHEET NO. 7 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	12
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

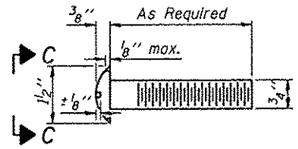
*11-194



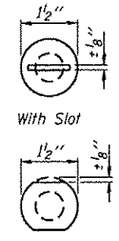
SECTION A-A



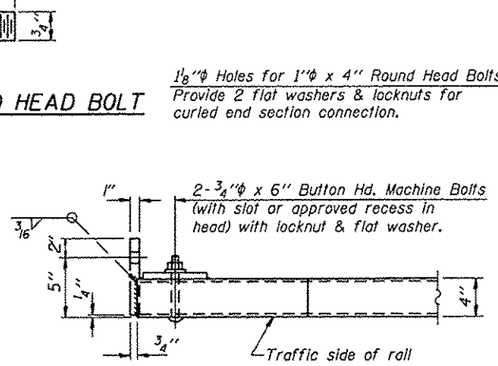
SECTION AT RAIL POST



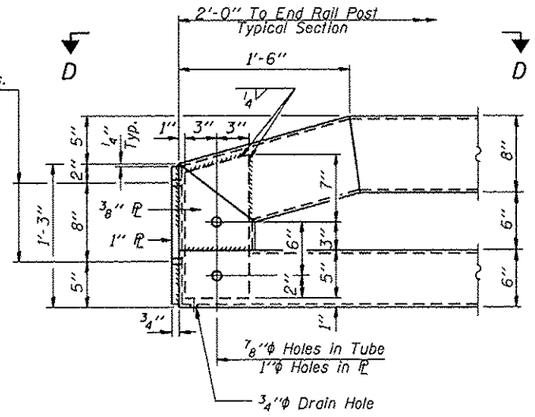
DETAIL OF ¾" ϕ ROUND HEAD BOLT



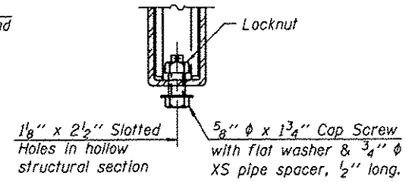
VIEW C-C



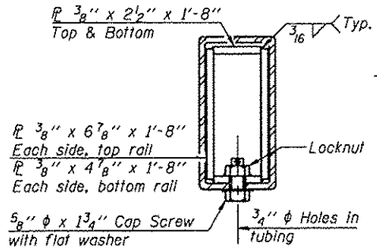
VIEW D-D



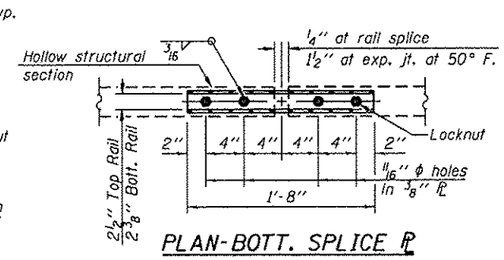
END OF RAIL DETAILS



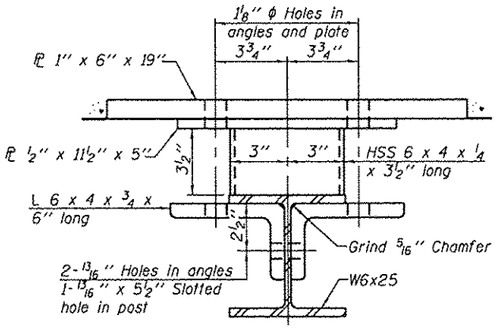
RAIL SPLICE CONNECTION AT EXPANSION JT.



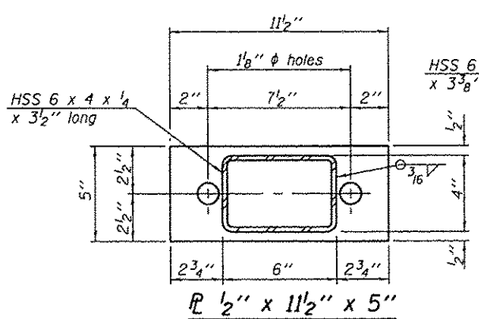
SECTION AT RAIL SPLICE



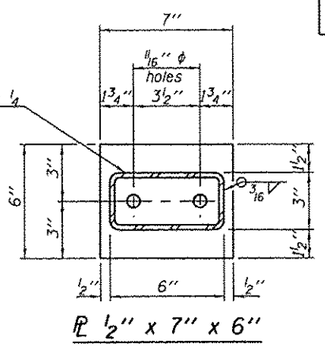
PLAN-BOTT. SPLICE PL TYPICAL



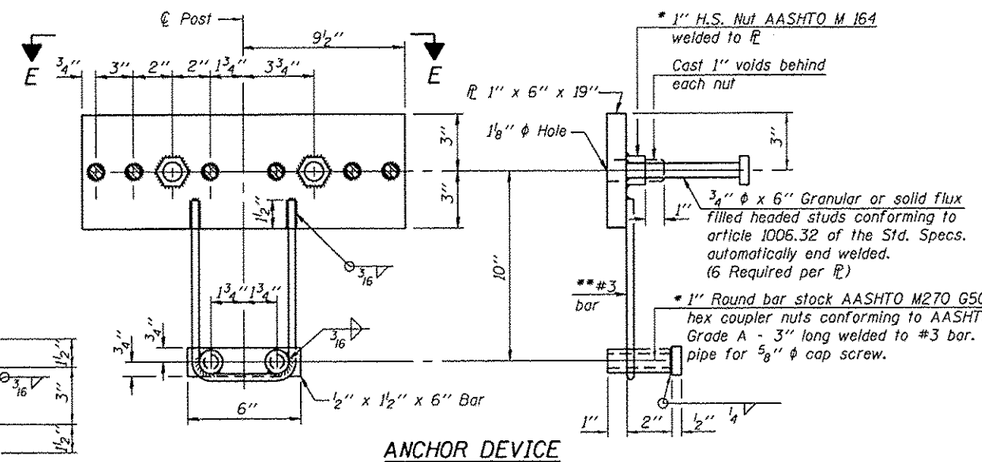
SECTION B-B



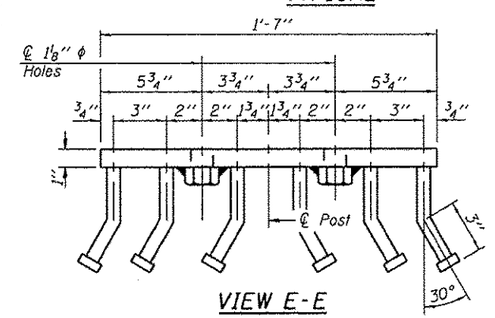
PL ½" x 11½" x 5"



PL ½" x 7" x 6"



ANCHOR DEVICE



VIEW E-E

Notes:

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

All steel rail members 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.

See sheet 2 of 25 for Rail Post Spacing.

*Threaded areas shall be plugged or blocked off during the placement of deck concrete. Galvanized after fabrication.

** Whenever the lower insert assemblies interfere with reinforcement bar locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed ½".

7-1-10 (6'-3" Maximum Post Spacing)

BILL OF MATERIAL

Item	Unit	Quantity
Steel Bridge Rail, Type SM (Special)	Foot	390

FILE NAME = 11-194_SM-RAIL.DGN	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
11-194_SM-RAIL.dgn		CHECKED - S.F.M.	REVISED -
	PLOT SCALE = #SCALE1#	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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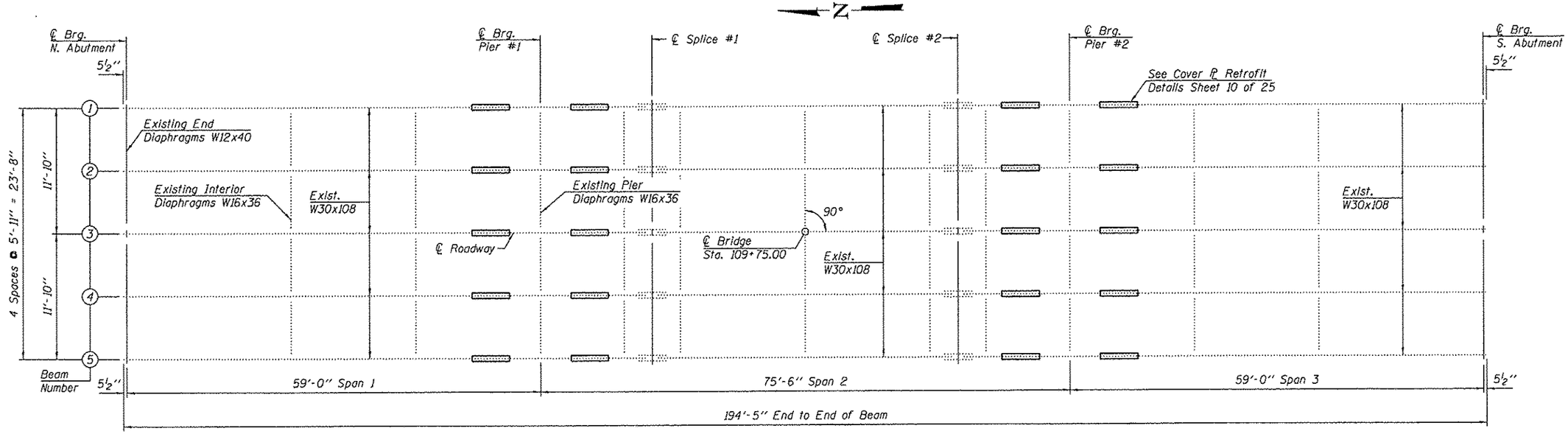
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003523
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

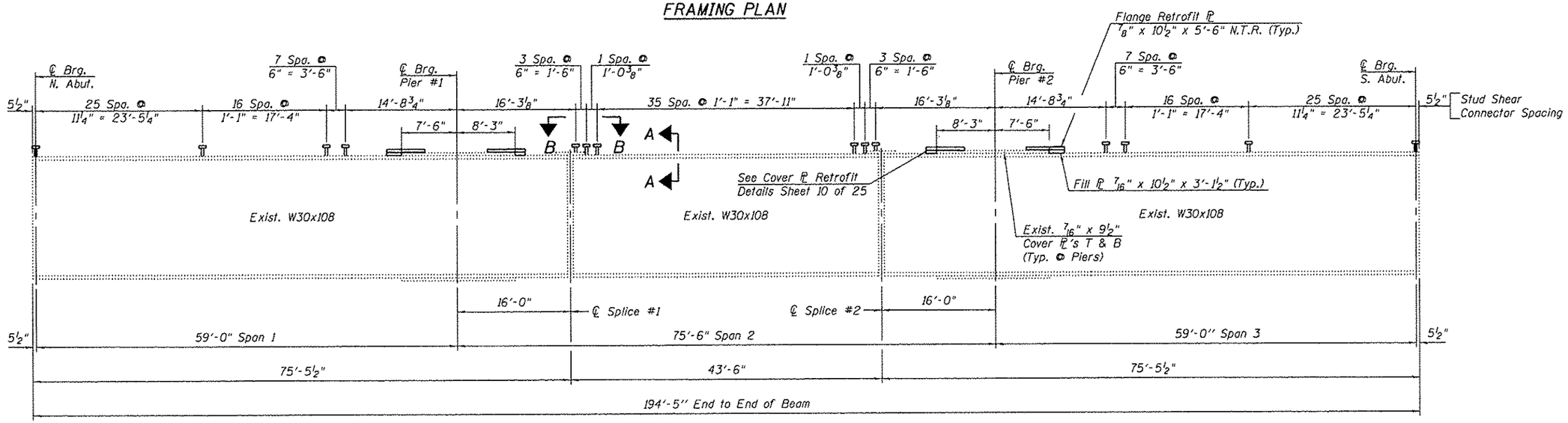
STEEL BRIDGE RAIL, TYPE SM (SPECIAL)
STRUCTURE NO. 043-3008
SHEET NO. 8 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	13
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

*11-194

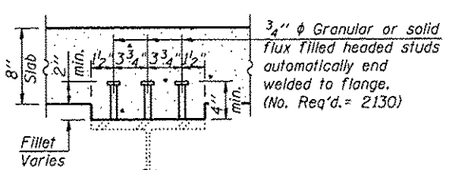


FRAMING PLAN



Note: N.T.R. Indicates that Notch Toughness Requirements are applicable.

ELEVATION



¾" ϕ Granular or solid flux filled headed studs automatically end welded to flange. (No. Req'd.= 2130)

SECTION A-A

Note: See Sheet 10 of 25 for View B-B.

Load carrying components designated "N.T.R." shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

FILE NAME = 11-194_STEEL.dgn	USER NAME = oshaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - A.L.S.	REVISED -
	PLOT SCALE = #SCALE#	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003515
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI

STRUCTURAL STEEL
STRUCTURE NO. 043-3008
SHEET NO. 9 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	14
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194

EXTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier	0.5 Sp. 2
I_s	(in^4)	4470	6370	4470
$I_c(n)$	(in^4)	12865	--	12865
$I_c(3n)$	(in^4)	9756	--	9756
S_s	(in^3)	299	415	299
$S_c(n)$	(in^3)	459	--	459
$S_c(3n)$	(in^3)	417	--	417
Z	(in^3)	656	466	656
ℓ	(k/')	0.880	0.910	0.880
$M\ell$	('k)	196	441	199
$S\ell$	(k/')	0.030	0.030	0.030
$M_S\ell$	('k)	8	12	9
M_L	('k)	382	251	418
M_I	('k)	104	65	105
$5/3\,[M_L+I]$	('k)	810	527	872
M_a	('k)	1318	1274	1404
* M_u	('k)	1968	1399	1968
$f_s\ell$ non-comp	(ksi)	7.9	12.8	8.0
$f_s\ell$ (comp)	(ksi)	0.2	0.3	0.3
$f_s\,5/3\,[M_L+M_I]$	(ksi)	21.2	15.2	22.8
f_s(Overload)	(ksi)	29.3	28.3	31.1
f_s(Total)	(ksi)	--	--	--
VR	(k)	47.6	--	40.5

EXTERIOR BEAM REACTION TABLE			
		Abuts.	Pier
$R\ell$	(k)	20.1	68.7
R_L	(k)	33.3	42.4
R_I	(k)	9.0	11.0
R_{Total}	(k)	62.4	122.1

* Compact section

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s(Total and Overload) due to non-composite dead loads (in^4 and in^3).

$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads (in^4 and in^3).

$I_c(3n)$, $S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s(Total and Overload) due to long-term composite (superimposed) dead loads (in^4 and in^3).

Z: Plastic Section Modulus of the steel section in non-composite areas (in^3).

DL: Un-factored non-composite dead load (kips/ft.).

M_{DL}: Un-factored moment due to non-composite dead load (kip-ft.).

s_{DL}: Un-factored long term composite (superimposed) dead load (kips/ft.).

M_{SDL}: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_{LL}: Un-factored live load moment (kip-ft.).

M_I: Un-factored moment due to impact (kip-ft.).

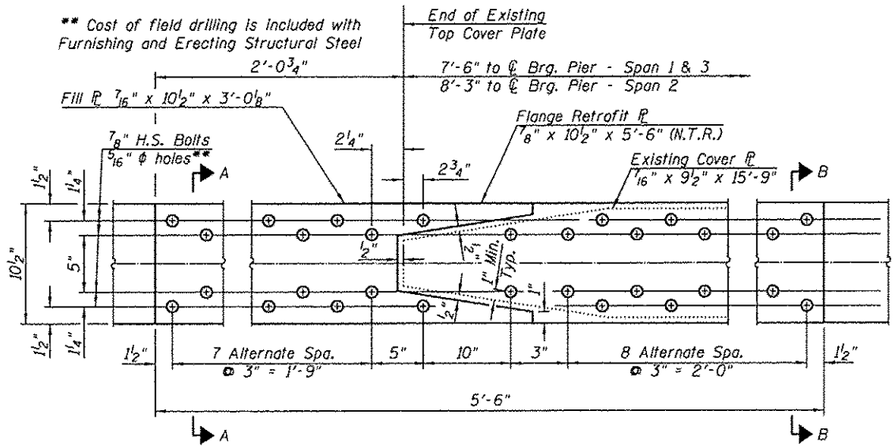
M_a: Factored design moment (kip-ft.).
$1.3[M_{DL} + M_{SDL} + 5/3(M_{LL} + M_I)]$

M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f_s(Overload): Sum of stresses as computed from the moments below (ksi).
$M_{DL} + M_{SDL} + 5/3(M_{LL} + M_I)$

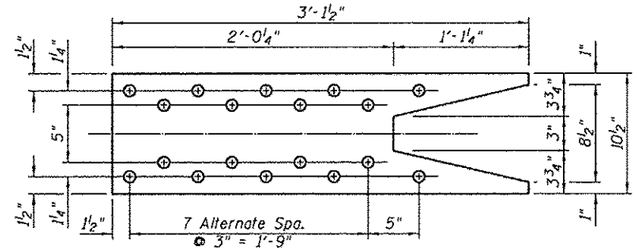
f_s(Total): Sum of stresses computed from the moments below on non-compact section (ksi).
$1.3[M_{DL} + M_{SDL} + 5/3(M_{LL} + M_I)]$

VR: Maximum LL + Impact shear range within the composite portion of the span for stud shear connector design (kips).



Note: One Fill PL and one Flange Retrofit plate required at each end of each top flange existing cover plate.

COVER PLATE RETROFIT DETAILS



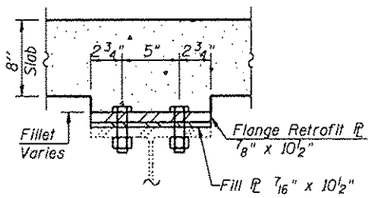
FILL PLATE

Notes:

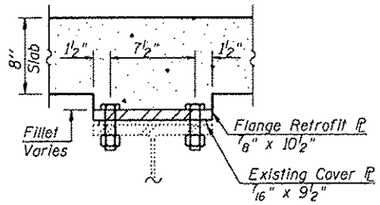
Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8" ϕ, holes 15/16" ϕ, unless otherwise noted.

All structural steel shall be ASSHTO M270 Grade 36, except that AASHTO M270 Grade 50 may be used as an alternate.

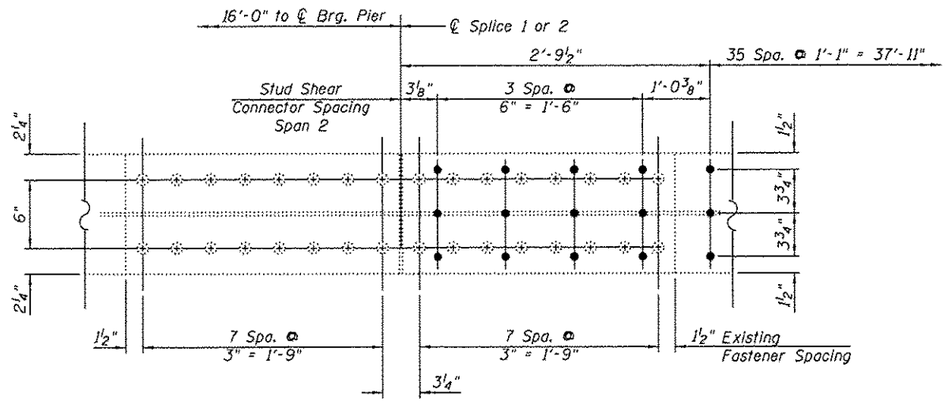
Load carrying components designated "N.T.R." shall conform to the Impact Testing Requirement, Zone 2.



SECTION A-A



SECTION B-B



VIEW B-B EXISTING FLANGE SPLICE DETAIL

Showing location of new 3/4"ϕ granular or solid flux filled headed studs on existing top flange splice PL.

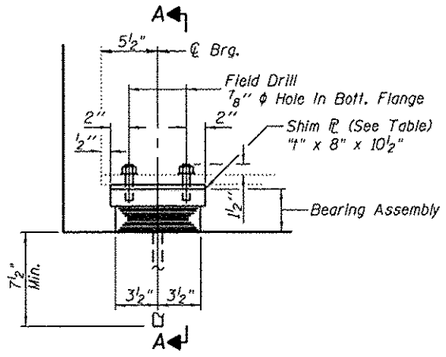
FILE NAME = 11-194_STEEL.dgn	USER NAME = aahow	DESIGNED - A.R.K.	REVISED -
		CHECKED - A.L.S.	REVISED -
	PLOT SCALE = @SCALE@	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003565
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI

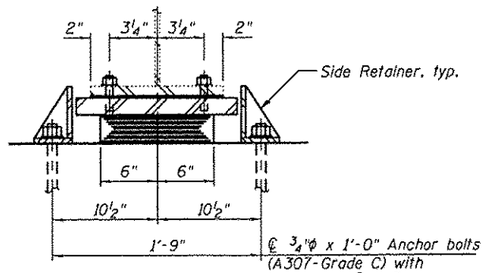
STRUCTURAL STEEL
STRUCTURE NO. 043-3008
SHEET NO. 10 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	15
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

*11-194



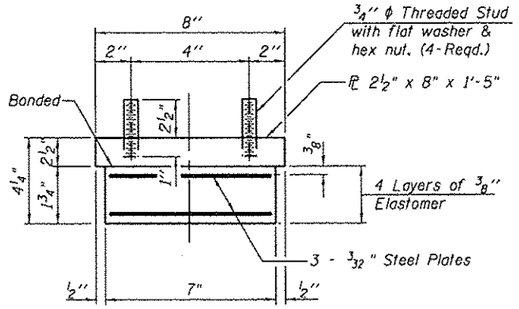
ELEVATION AT ABUT.



SECTION A-A

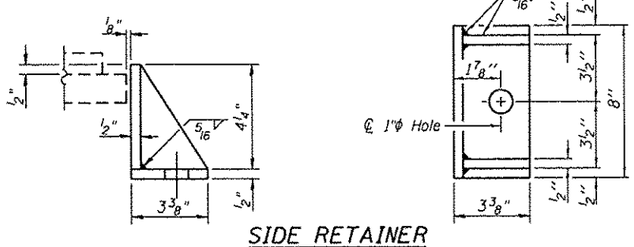
TYPE I ELASTOMERIC EXP. BRG. - N. ABUT.

(5 Req'd)



BEARING ASSEMBLY

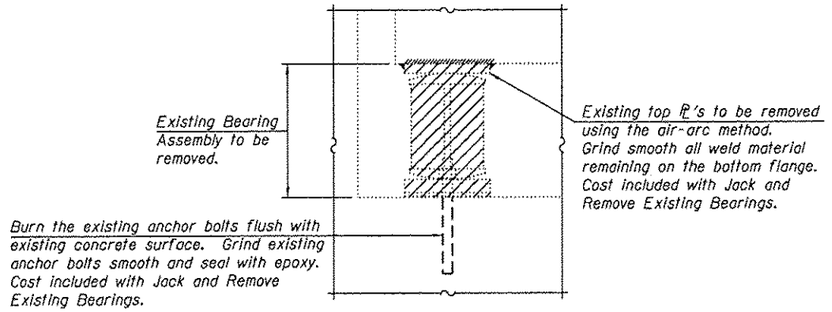
Note:
Shim plates shall not be placed under Bearing Assembly.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.



JACK AND REMOVE EXISTING BEARING PROCEDURE

1. *The contractor shall submit for approval by the engineer, plans for jacking existing beams and installing new bearings prior to commencing any related work. The maximum dead load reaction per beam (weight of steel only) is 3.5 kips at the abutments. Minimum jack capacity is 7.0 kips at abutments. Plans submitted for jacking existing beams and installing new bearings shall be sealed and certified by an Illinois Licensed Structural Engineer.*
2. *Prior to ordering any material, the contractor shall verify shim plate thickness required at each bearing.*
3. *Jack and remove existing bearings shall be done after the existing deck is removed and prior to placing the new deck.*
4. *The new bearings and shim plates shall be in place and the jacks shall be lowered before the new concrete deck is poured.*

Note: Hatched area indicates Removal of Existing Bearings.

SHIM PLATE THICKNESS "t"

Beam No.	1	2	3	4	5
"t"	--	--	⅜"	--	--

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	5
Anchor Bolts, ¾"	Each	10
Jack and Remove Existing Bearings	Each	10

I-2E-1 1-27-12

FILE NAME = 11-194_BEARING.dgn	USER NAME = ashav	DESIGNED - A.R.K.	REVISED -
		CHECKED - J.A.M.	REVISED -
	PLOT SCALE = @SCALE@	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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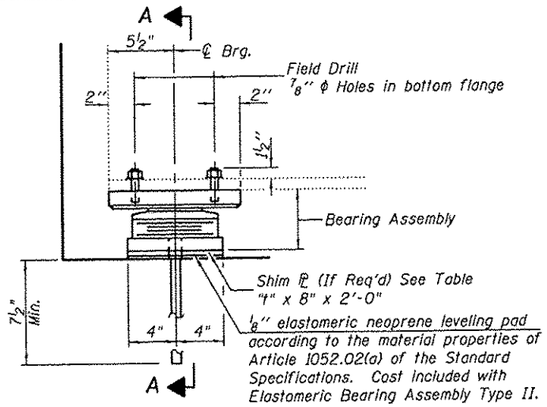
ILLINOIS DESIGN FIRM NO 184-003593
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

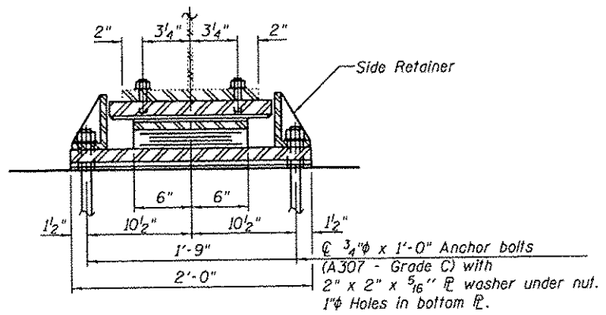
ABUTMENT BEARING DETAILS
STRUCTURE NO. 043-3008
SHEET NO. 11 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	16
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

*11-194



ELEVATION AT ABUT.



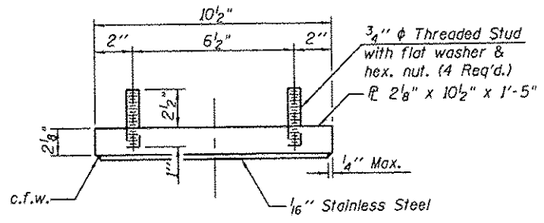
SECTION A-A

SHIM PLATE THICKNESS "t"

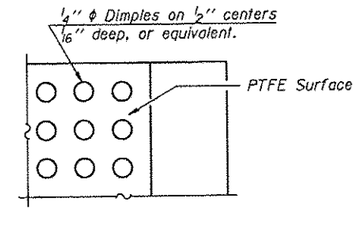
Beam No.	1	2	3	4	5
"t"	--	--	⅜"	--	--

TYPE II ELASTOMERIC EXP. BRG. - S. ABUT.

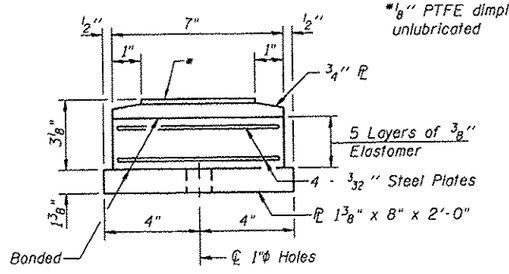
(5 Req'd)



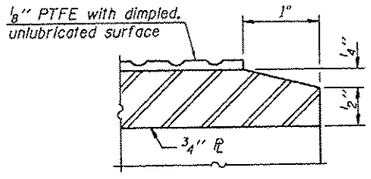
TOP BEARING ASSEMBLY



PLAN-PTFE SURFACE

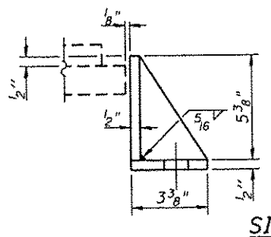


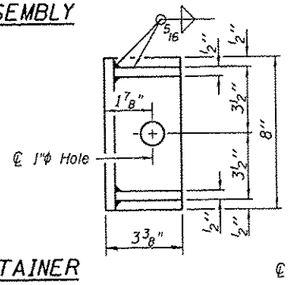
*⅛" PTFE dimpled, unlubricated



SECTION THRU PTFE

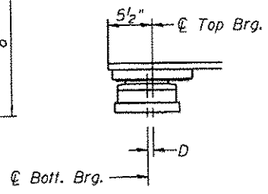
BOTTOM BEARING ASSEMBLY



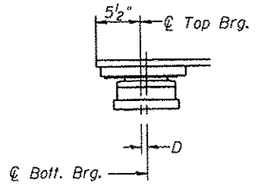


SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



BELOW 50°F.
(Move bott. brg. away from fixed brg.)



ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

Notes:

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts for Type II bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place. Side retainers shall be placed after bolts are installed.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type II.

The ⅛" PTFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of ⅛" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	5
Anchor Bolts, ¾"	Each	10

I-2E-2 1-27-12

FILE NAME = 11-194_BEARING.dgn	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - J.A.M.	REVISED -
	PLOT SCALE = *SCALE1*	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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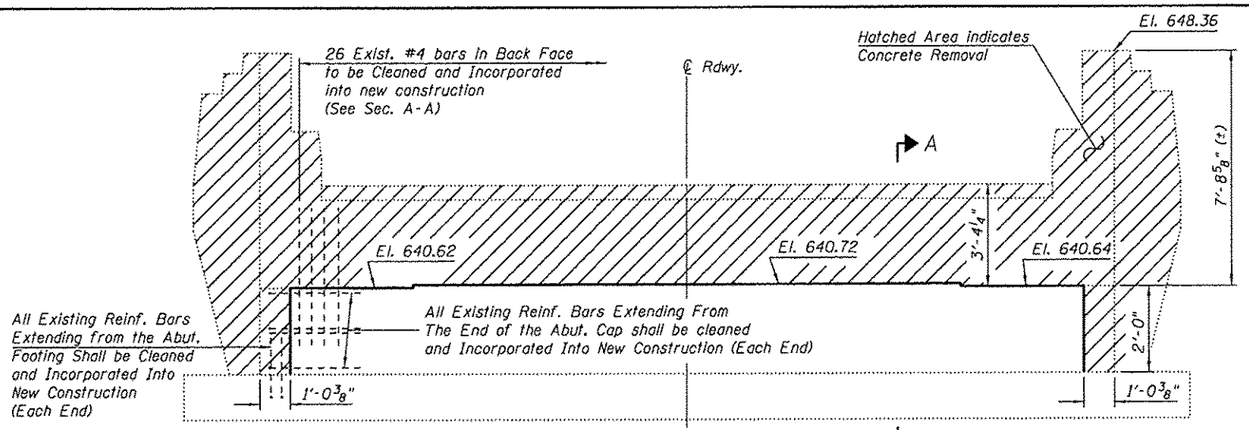
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-005509
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

BEARING DETAILS
STRUCTURE NO. 043-3008
SHEET NO. 12 OF 25 SHEETS

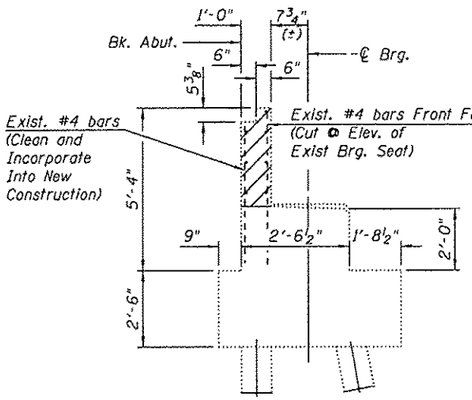
C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	17
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

*11-194



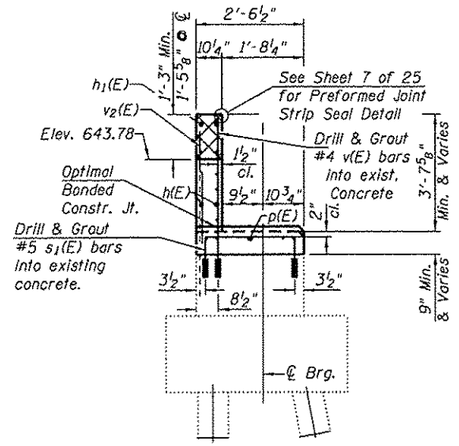
ELEVATION - (CONCRETE REMOVAL)

(Looking North)



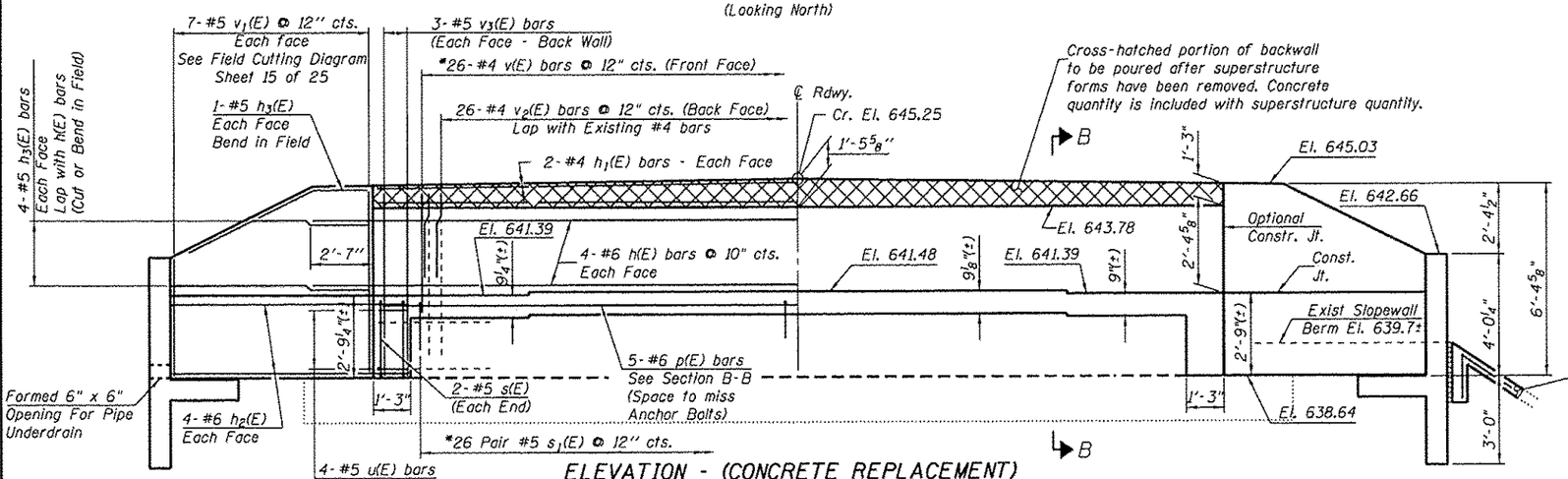
SECTION A-A

(Existing Construction)



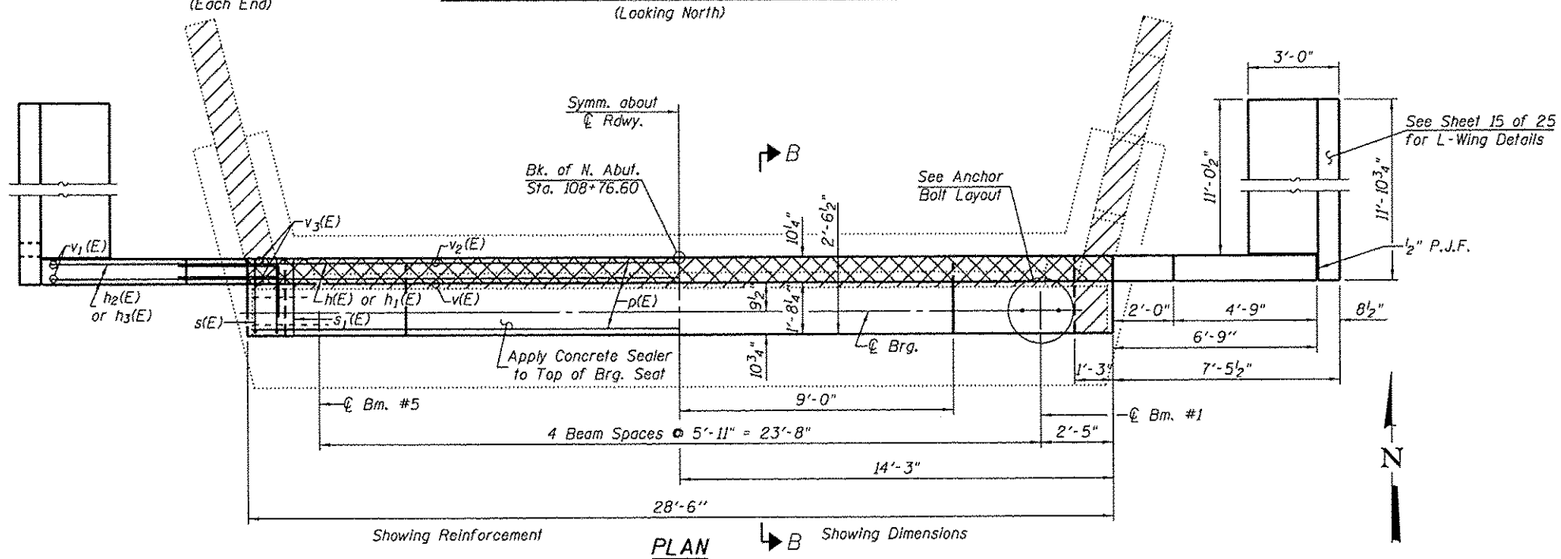
SECTION B-B

(Proposed Construction)



ELEVATION - (CONCRETE REPLACEMENT)

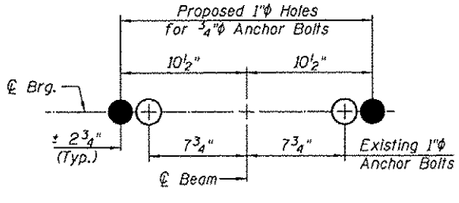
(Looking North)



Showing Reinforcement

PLAN

B Showing Dimensions



ANCHOR BOLT LAYOUT

*Note:
New #4 v(E) bars and #5 $s_1(E)$ bars to be grouted into existing concrete in accordance with Section 584 of the Standard Specifications. Based on the requirements of the approved Chemical Adhesive Resin System chosen by the Contractor, v(E) bars and the vertical leg of $s_1(E)$ bars shall be cut in the field to accommodate the depth of drilling required for bar anchorage. The cost of grouting reinforcement bars into existing concrete is included in the cost of "Reinforcement Bars, Epoxy Coated".

Note:
For reinforcement bar details and Bill of Material see Sheet 15 of 25

FILE NAME = 11-194.ABUTS.dgn	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - J.A.M.	REVISED -
	PLOT SCALE = @SCALE@	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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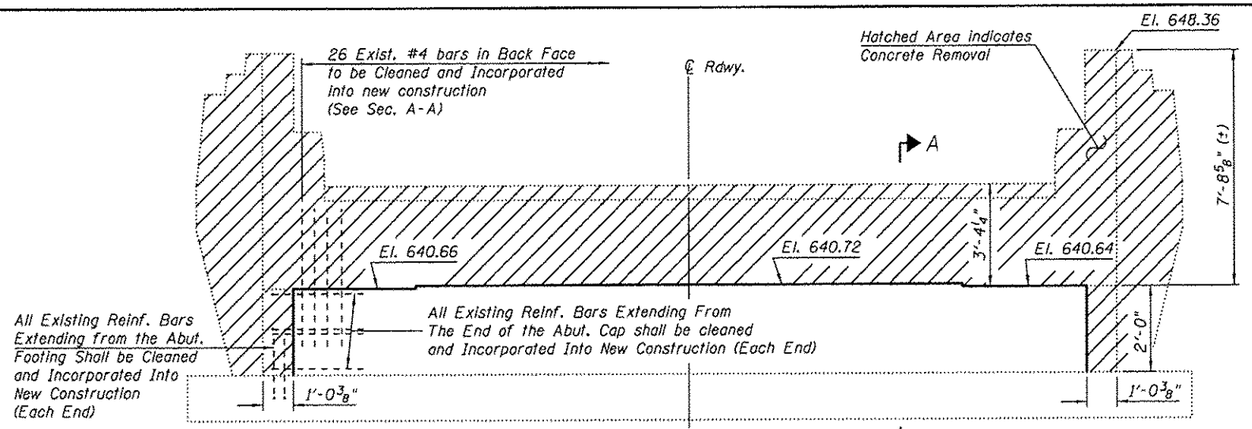
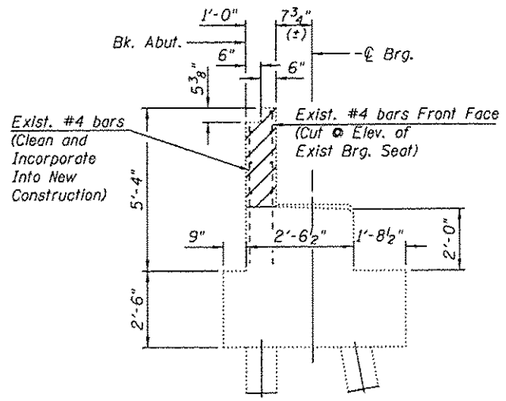
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003283
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

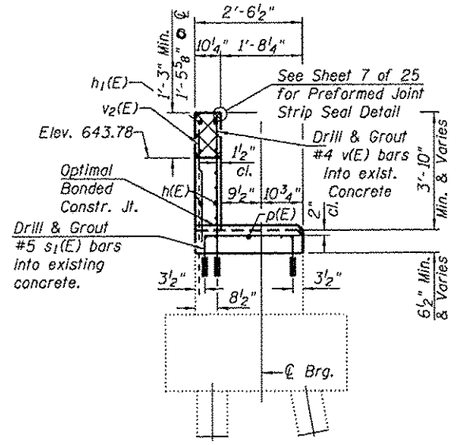
NORTH ABUTMENT
STRUCTURE NO. 043-3008
SHEET NO. 13 OF 25 SHEETS

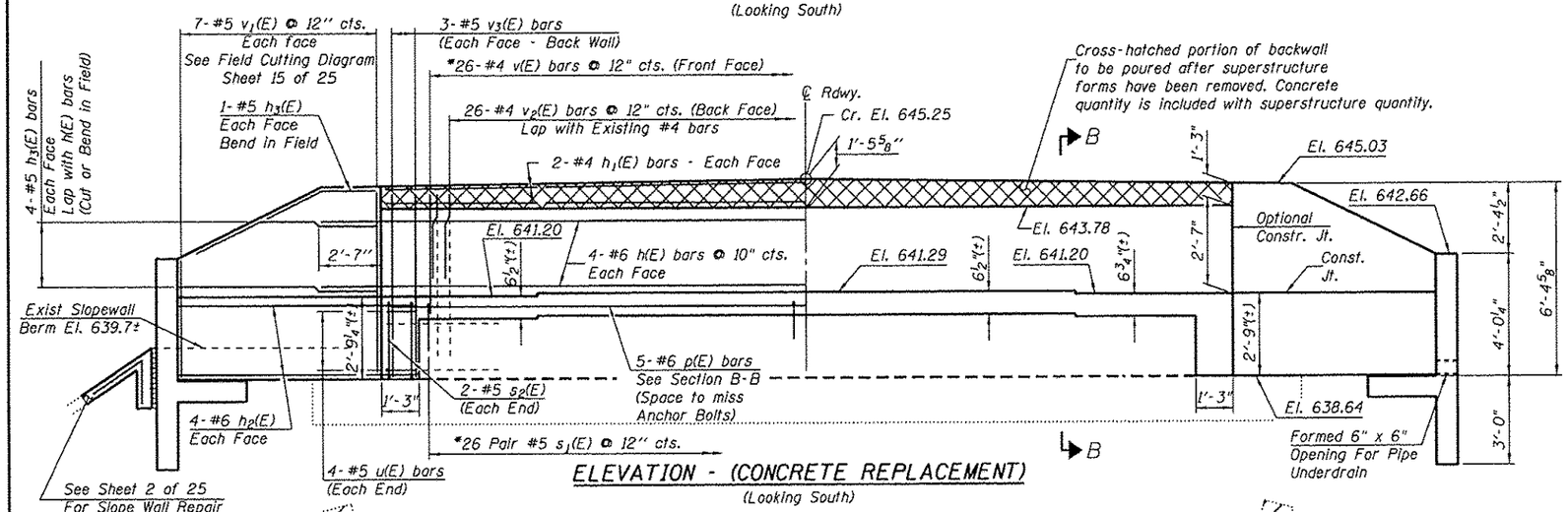
C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	18
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

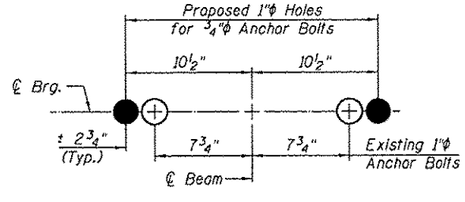
*11-194











*Note:
New #4 v(E) bars and #5 $s_1(E)$ bars to be grouted into existing concrete in accordance with Section 584 of the Standard Specifications. Based on the requirements of the approved Chemical Adhesive Resin System chosen by the Contractor, v(E) bars and the vertical leg of $s_1(E)$ bars shall be cut in the field to accommodate the depth of drilling required for bar anchorage. The cost of grouting reinforcement bars into existing concrete is included in the cost of "Reinforcement Bars, Epoxy Coated".

Note:
For reinforcement bar details and Bill of Material see Sheet 15 of 25

FILE NAME = 11-194_ABUTS.dgn	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - J.A.M.	REVISED -
	PLOT SCALE = #SCALE#	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

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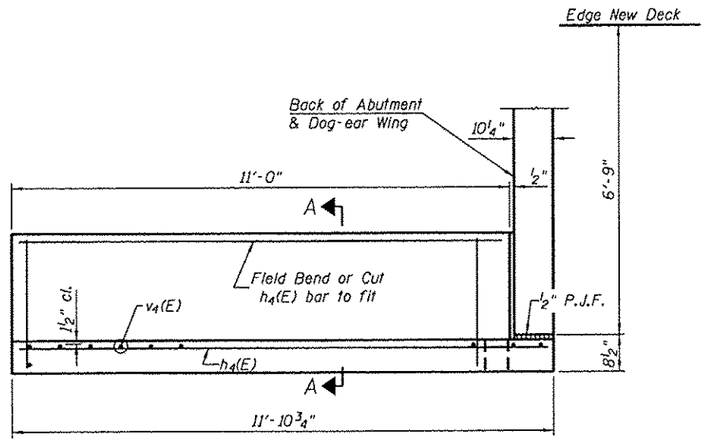
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-002925
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

SOUTH ABUTMENT
STRUCTURE NO. 043-3008
SHEET NO. 14 OF 25 SHEETS

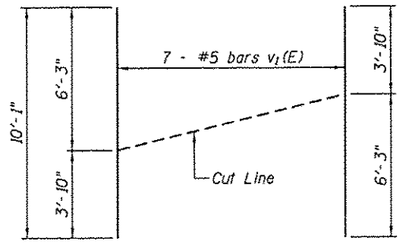
C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	19
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

*11-194



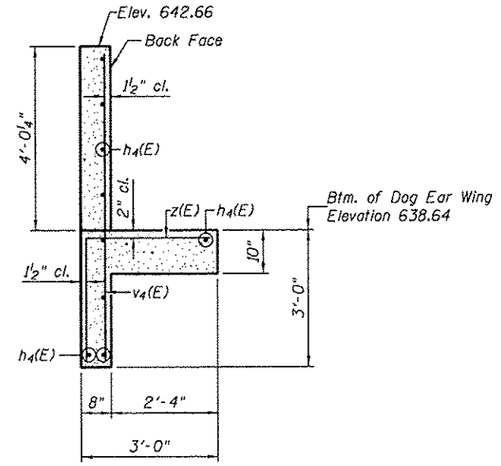
L-WING PLAN - (TYPICAL)

(Built Parallel to ℄ Rdwy.)

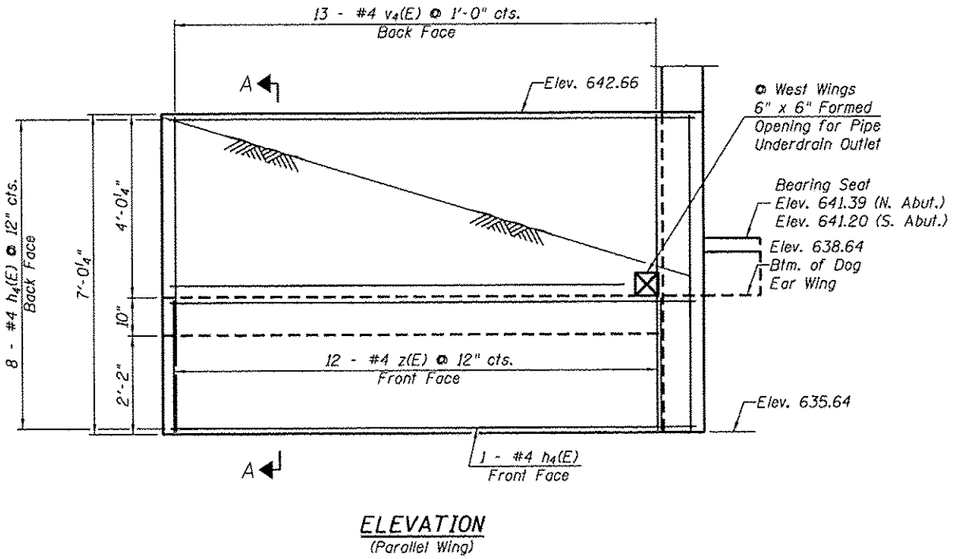


BAR $V_1(E)$ FIELD CUT DIAGRAM

Order $v_1(E)$ bars full length and cut in field. Use remainder of bar in opposite face of wing.

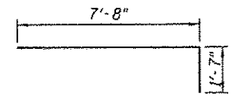


SECTION A-A

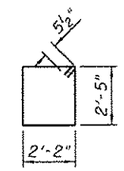


ELEVATION

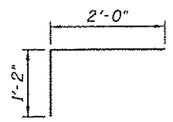
(Parallel Wing)



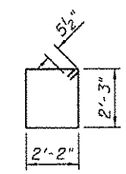
Bar $h_2(E)$



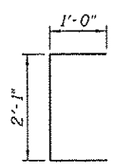
Bar s(E)



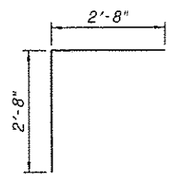
Bar $s_1(E)$



Bar $s_2(E)$



Bar u(E)



Bar z(E)

TWO ABUTS. BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	16	#6	33'-8"	——
$h_1(E)$	8	#4	28'-3"	——
$h_2(E)$	32	#6	9'-3"	——
$h_3(E)$	40	#5	6'-6"	——
$h_4(E)$	40	#4	11'-8"	——
p(E)	10	#6	28'-2"	——
s(E)	4	#5	10'-1"	
$s_1(E)$	104	#5	3'-2"	
$s_2(E)$	4	#5	9'-9"	
u(E)	16	#5	4'-1"	
v(E)	52	#4	4'-10"	——
$v_1(E)$	28	#5	10'-1"	——
$v_2(E)$	52	#4	4'-3"	——
$v_3(E)$	24	#5	6'-1"	——
$v_4(E)$	52	#4	6'-9"	——
z(E)	24	#4	5'-4"	
Concrete Structures			Cu. Yds.	25.4
Reinforcement Bars, Epoxy Coated			Pound	3990
Concrete Removal			Cu. Yds.	17.6
Concrete Sealer			Sq. Ft.	50

Work this Sheet with Sheets 13 & 14 of 25

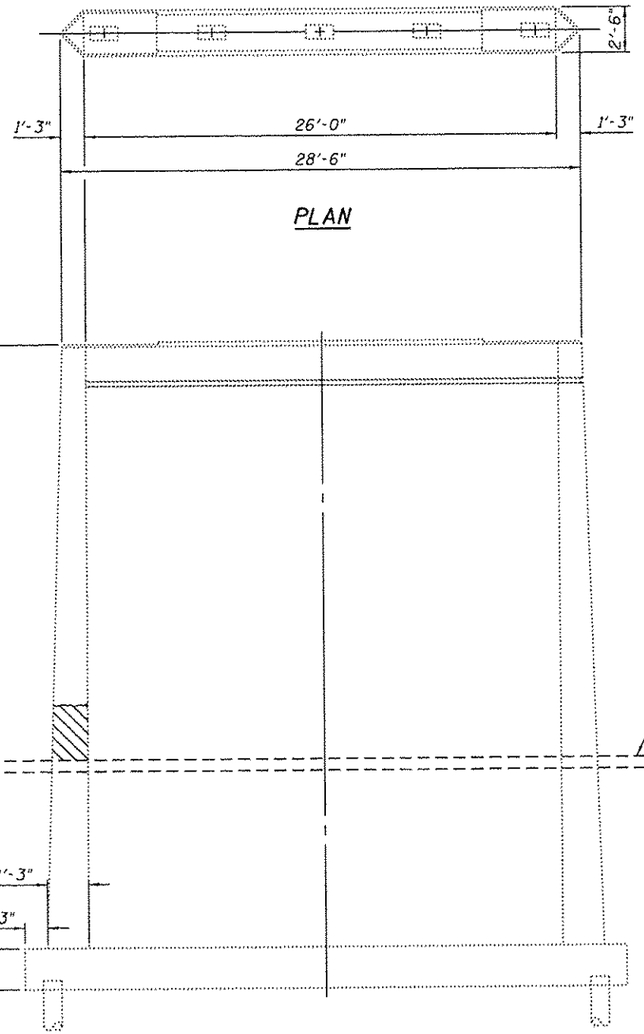
FILE NAME = 11-194_ABUTS.dgn	USER NAME = oshaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - J.A.M.	REVISED -
	PLOT SCALE = *SCALE1*	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

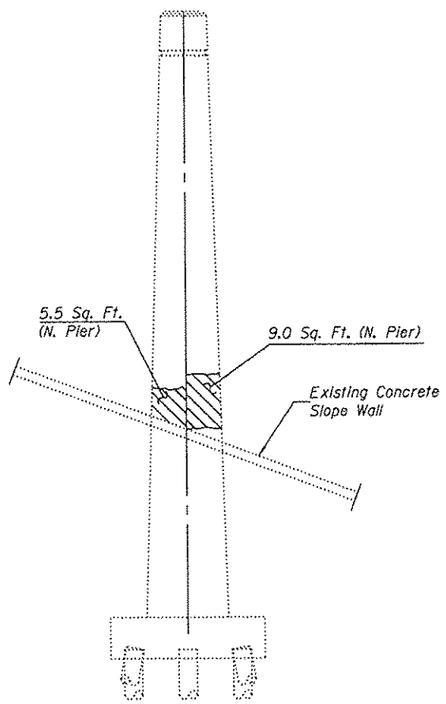
FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003569
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

ABUTMENT DETAILS
STRUCTURE NO. 043-3008
SHEET NO. 15 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	20
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194





END ELEVATION

(Looking East)

SOUTH ELEVATION - PIER #1

(Looking North)

N

Note: Flood debris shall be removed from bridge opening as required to complete concrete repairs. Cost to be included in "Structural Repair of Concrete (Depth Equal to or less Than 5 in.)".

LEGEND

Structural Repair of Concrete
Depth Equal To or Less Than 5 Inches.

BILL OF MATERIAL

Item	Unit	Qty.
Structural Repair of Concrete (Depth Equal To or Less Than 5 In.)	SQ. FT.	14.5

FILE NAME = 11-194_PIERS.dgn	USER NAME = ashaw	DESIGNED - A.R.K.	REVISED -
		CHECKED - S.F.M.	REVISED -
	PLOT SCALE = $SCALE$	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/29/2013	CHECKED - A.R.K.	REVISED -

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003585
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

PIERS REPAIR DETAILS
STRUCTURE NO. 043-3008
SHEET NO. 16 OF 25 SHEETS

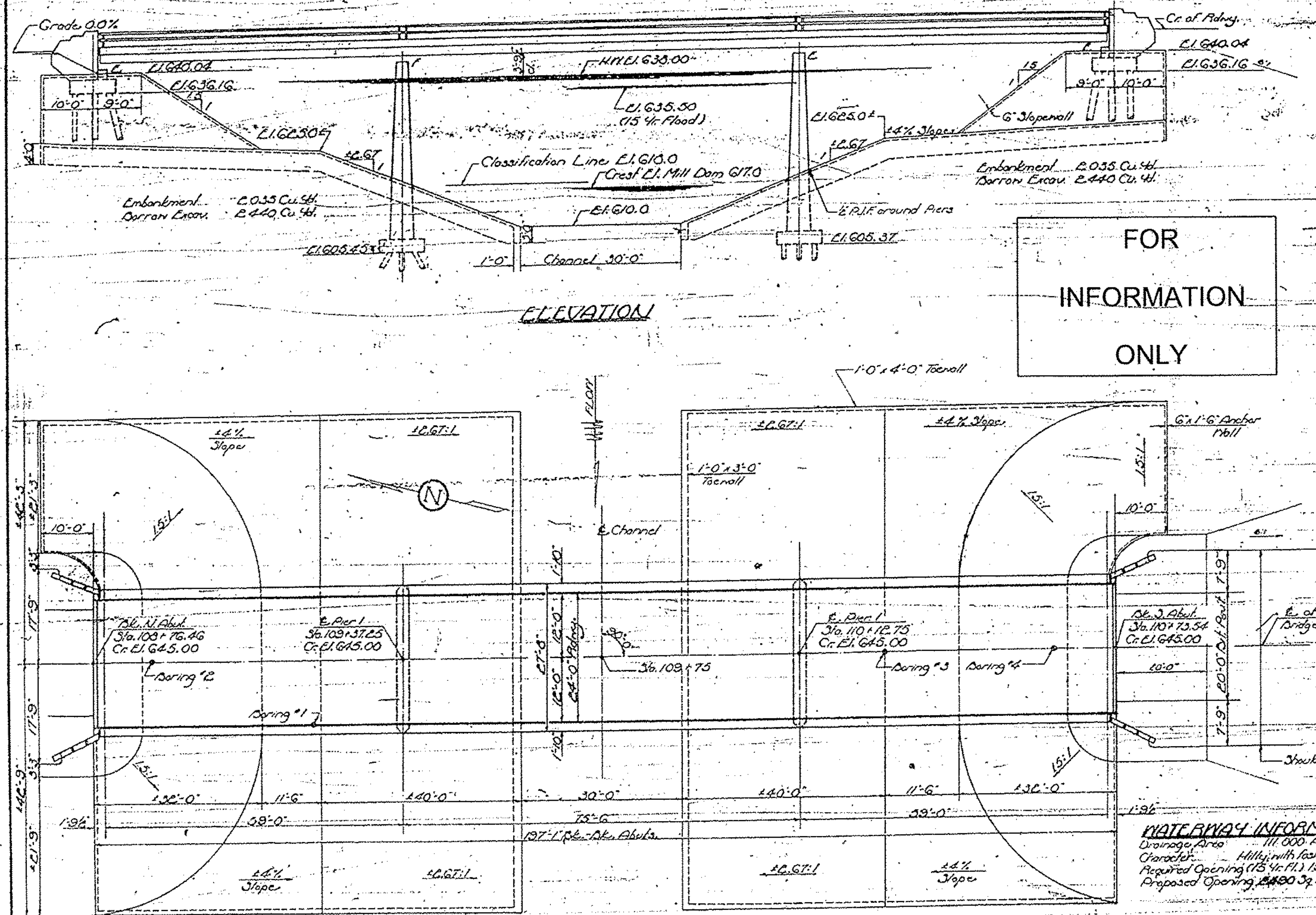
C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	21
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

9 SHEETS

BM: - R.R. Spike in N. Root of 40" Stump 55' Rt. Sta. 100+00; El. 647.05
Existing Structure: To be removed by others after new structure has been built. 140' Steel Truss & C@17' I-Bm Approach Spans.



FOR INFORMATION ONLY

GENERAL NOTES

Class X Concrete shall be used throughout except in Piers.

Class A Concrete shall be used in Piers.

The concrete floor slab shall be finished in accordance with Article 51.19 of the Standard Specifications.

Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, #4 wires, weighing 58# per 100 sq. ft..

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

Rivets ¾" ∅; Open holes 13/16" ∅, unless noted.

All rollers, rockers, bearing plates, lead plates, pintles and anchor bolts shall be fabricated and set in accordance with Article 51.15 of the Standard Specifications and are included in quantity of Structural Steel. Estimated Weight = 4870 lbs.

Anchor bolts shall be set before riveting diaphragms over supports.

Except as otherwise provided, all structural steel shall receive one shop coat of red lead paint and two field coats of aluminum paint. See Articles 56.1 to 56.5 inclusive of the Standard Specifications.

The Contractor shall drive 2 test piles in permanent locations as directed by the Engineer before ordering or casting the remainder of piles - One concrete test pile at N. Abut. and one timber test pile at Pier 1.

Starling Angles shall contain 0.2% copper and are included in quantity of Structural Steel.

Cohesive material to be used for embankment. See Special Prov.

All structural steel shall be A-7 except beams, cover plates, and splice plates which shall be A-36.

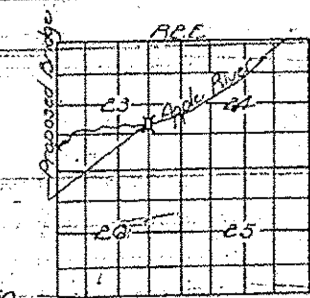
Coarse aggregate which is to be used in end posts must be free of chert, flint, limonite, lignite and soft sandstone.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Borrow Excavation	Cu. Yd.			4000
Class A Exc. Struct.	Cu. Yd.			80
Class B Exc. Struct.	Cu. Yd.			400
Class A Concrete	Cu. Yd.		202.4	202.4
Class X Concrete	Cu. Yd.	145.7	57.3	203.0
Structural Steel	Pound	133440	2400	135840
Metal Handrail	Lin. Ft.	390		390
Reinforcement Bars	Pound	23460	10640	34100
Untreated Piles	Lin. Ft.		885	885
Test Piles (Timber)	Each		1	1
Concrete Piles	Lin. Ft.		585	585
Test Piles (Concrete)	Each		1	1
Name Plates	Each			1
Slope Wall (6")	Sq. Yd.			2410

WATERWAY INFORMATION

Drainage Area 111 000 Acres
Character Hilly, with fast run off
Required Opening (15 Yr. Fl.) 1500 Sq. Ft.
Proposed Opening 2480 Sq. Ft. - Below El. 635.50



LOCATION PLAN

DESIGNED	P.H. Hoyer
CHECKED	C.W. Glick
DRAWN	P.H.H.
CHECKED	C.W.G.

May 12 1961

EXAMINED / PASSED / APPROVED

STATION 109+75
APPLE RIVER BRIDGE
BUILT 196_
F.A.S. RT. 71 - SEC. 76 B
F.A. PROJ. 3
LOADING H15-S12

NAME PLATE
See Std. 2113

DESIGN STRESSES

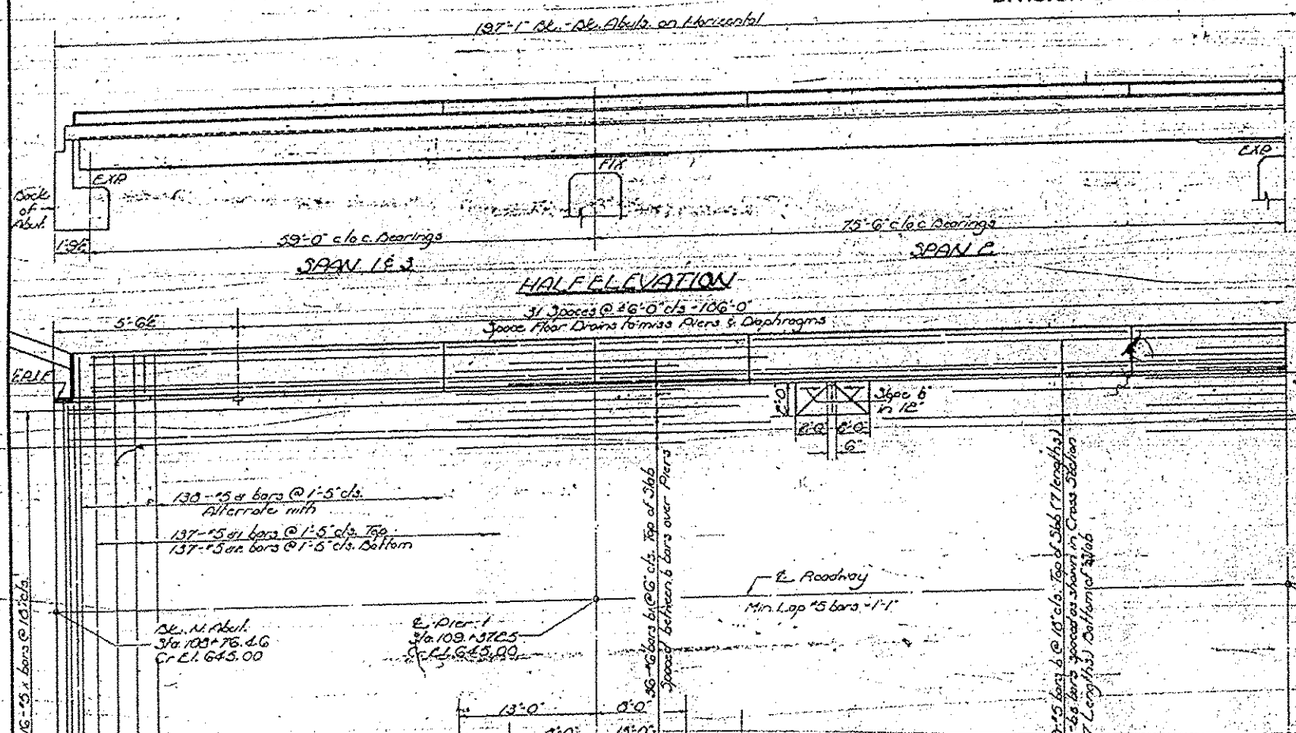
fc - 1400 p.s.i. Super
fs - 20 000 p.s.i. Reinf. & Struct.
fs - 18 000 p.s.i. Struct.
vc - 75 p.s.i. Pier Ftgs.
n - 10
LOADING H15-S12-44

GENERAL PLAN & ELEVATION
APPLE RIVER BRIDGE
F.A.S. RT. 71 - SEC. 76 B
PROJECT 3
JO DAVIESS COUNTY
STA. 109 + 75

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

9 SHEETS

HALF ELEVATION



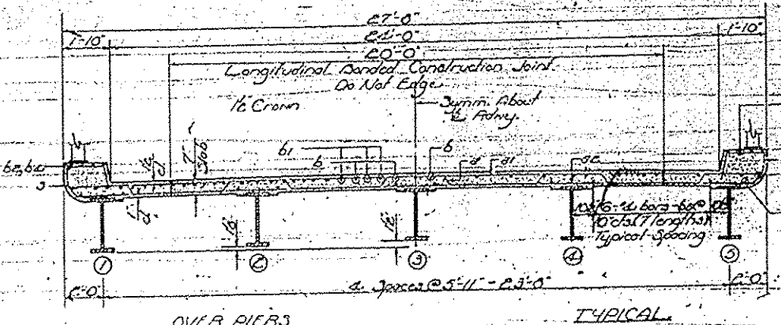
HALF PLAN

"METHOD OF DETERMINING FILLET HEIGHT"
After all Structural Steel has been erected, elevations of the top flanges of the beams shall be taken at the stations from Sheet 3. These elevations subtracted from the Theoretical Grade Elevations Adjusted for Dead Load Deflection shown on Sheet 3 minus Slab Thickness equals the fillet heights above top of beams.

DESIGNED	G.W. Meyerson
CHECKED	C.W. Glick
DRAWN	G.W.M. M.Jacobs
CHECKED	C.W.G.

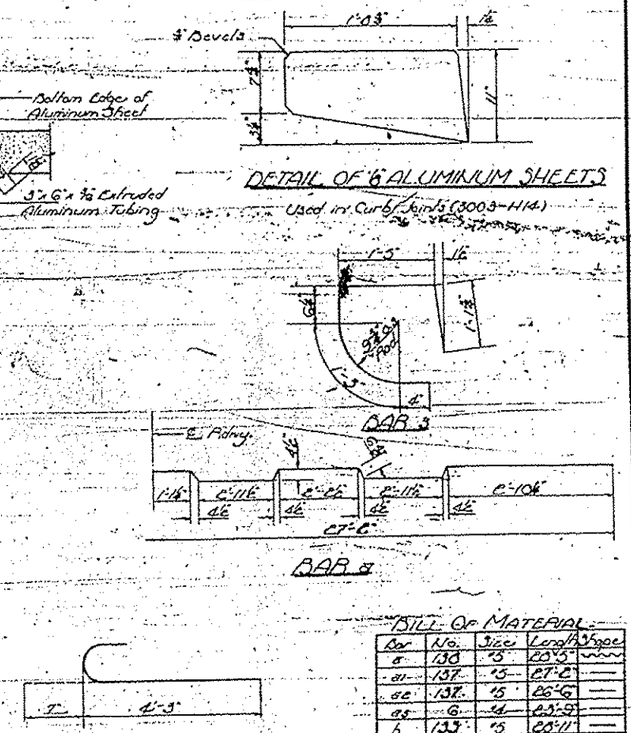
MAY 12 1961

EXAMINED M.E. Baumann
PASSED
APPROVED



OVER PIERS — TYPICAL

CROSS SECTION



BILL OF MATERIAL

Bar	No.	Size	Length	Space
a	130	#5	20'-5"	
a1	137	#5	27'-0"	
a2	137	#5	26'-6"	
a3	6	#4	23'-9"	
b	133	#5	20'-11"	
b1	72	#6	21'-0"	
b2	32	#4	25'-3"	
b3	16	#4	20'-6"	
b4	32	#4	9'-6"	
b5	180	#4	20'-10"	
3	196	#4	6'-8"	□
X	32	#5	4'-10"	⊏
Class A Concrete			Cu. Yd.	1157
Reinforcement Bars			Lb.	23460
Structural Steel			Lb.	33440
Name Plate			Ea.	1

* Weight of Rollers, Rockers, Bearing Plates, Lead Plates and Anchor Bolts included as Structural Steel.
Est. Weight = 40700 lbs.

FOR INFORMATION ONLY

SUPERSTRUCTURE.
APPLE RIVER BRIDGE
F.A.S. RT. 71 ~ SEC. 76-B
JO DAVIESS COUNTY
STA. 109+75

FILE NAME = 11-194_EX-PLANS.dgn	USER NAME = rfitzenko	DESIGNED - A.R.K.	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE = @SCALE1@	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/14/2013	CHECKED - A.R.K.	REVISED -

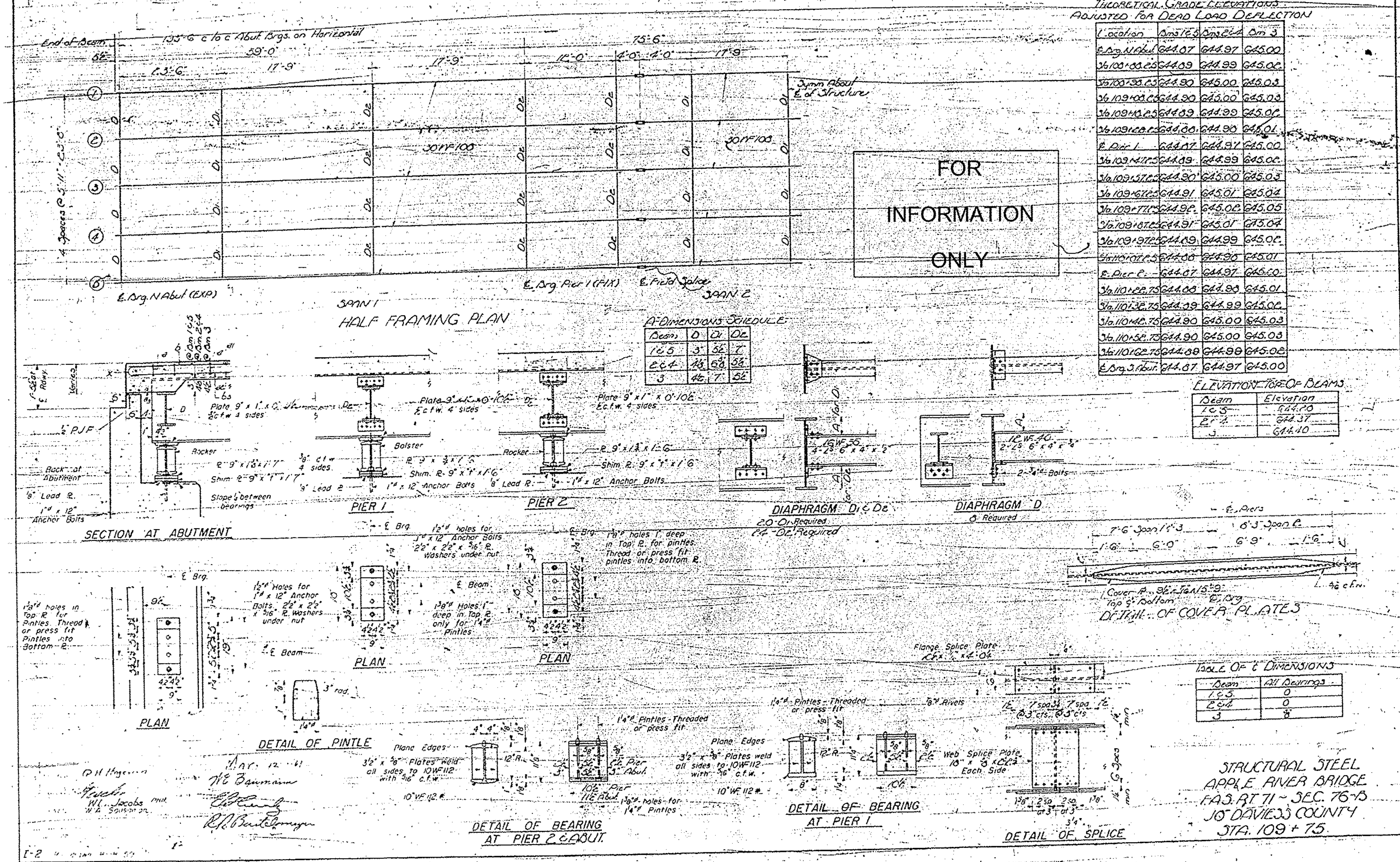
FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003905
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

FOR INFORMATION ONLY
STRUCTURE NO. 043-3008
SHEET NO. 18 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	23
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194

DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS



FOR INFORMATION ONLY

THEORETICAL GRADE ELEVATIONS
ADJUSTED FOR DEAD LOAD DEFLECTION

Location	Bms 1 & 5	Bms 2 & 4	Bm 3
E Brg. N Abut	644.87	644.97	645.00
Sta 108+88.25	644.89	644.99	645.02
Sta 108+98.25	644.90	645.00	645.03
Sta 109+08.25	644.90	645.00	645.03
Sta 109+18.25	644.89	644.99	645.02
Sta 109+28.25	644.88	644.98	645.01
E Pier 1	644.87	644.97	645.00
Sta 109+47.25	644.89	644.99	645.02
Sta 109+57.25	644.90	645.00	645.03
Sta 109+67.25	644.91	645.01	645.04
Sta 109+77.25	644.92	645.02	645.05
Sta 109+87.25	644.91	645.01	645.04
Sta 109+97.25	644.89	644.99	645.02
Sta 110+07.25	644.88	644.98	645.01
E Pier 2	644.87	644.97	645.00
Sta 110+22.75	644.88	644.98	645.01
Sta 110+32.75	644.89	644.99	645.02
Sta 110+42.75	644.90	645.00	645.03
Sta 110+52.75	644.90	645.00	645.03
Sta 110+62.75	644.89	644.99	645.02
E Brg. S Abut.	644.87	644.97	645.00

A-DIMENSIONS SCHEDULE

Beam	D	D1	D2
1 & 5	3	5 1/2	7
2 & 4	4 1/2	5 3/4	5 1/2
3	4 1/2	7	5 1/2

ELEVATION TOP OF BEAMS

Beam	Elevation
1 & 5	644.20
2 & 4	644.37
3	644.40

TABLE OF C DIMENSIONS

Beam	All Bearings
1 & 5	0
2 & 4	0
3	0

STRUCTURAL STEEL
APPLE RIVER BRIDGE
F.A.S. RT. 71 ~ SEC. 76-B
JO DAVIESS COUNTY
STA. 109 + 75

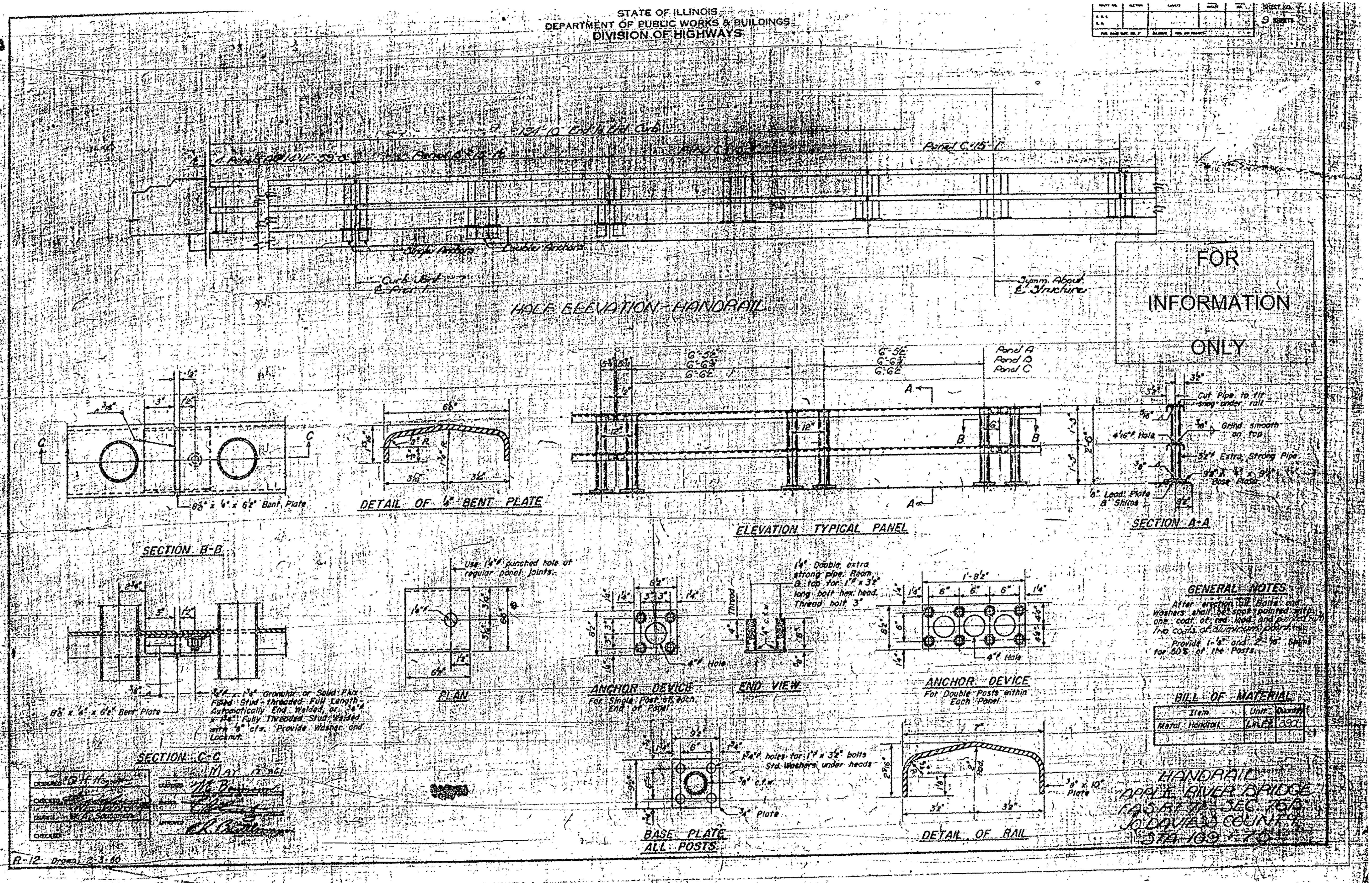
FILE NAME = 11-194_EX-PLANS.dgn	USER NAME = rfitzenko	DESIGNED - A.R.K.	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE = #SCALE#	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/14/2013	CHECKED - A.R.K.	REVISED -

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI

FOR INFORMATION ONLY
STRUCTURE NO. 043-3008
SHEET NO. 19 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	24
		CONTRACT NO. 85585		

ILLINOIS FED. AID PROJECT
*11-194


STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS
FOR INFORMATION ONLY
HALF ELEVATION - HANDRAIL
Single Anchors
Double Anchors
Curb Joint
Symm. About ℄ Structure
DETAIL OF 1/4" BENT PLATE
ELEVATION TYPICAL PANEL
Panel A
Panel B
Panel C
SECTION A-A
Cut Pipe to fit snug under rail
Grind smooth on top
Extra Strong Pipe
Base Plate
Lead Plate & Shims
SECTION B-B
Bent Plate
SECTION C-C
PLAN
Use punched hole at regular panel joints.
ANCHOR DEVICE
For Single Post at each End of Panel
END VIEW
Thread
Double extra strong pipe. Ream & tap for long bolt hex head. Thread bolt 3"
ANCHOR DEVICE
For Double Posts within Each Panel
BASE PLATE ALL POSTS
Std. Washers under heads
Plate
DETAIL OF RAIL
GENERAL NOTES
After erection all Bolts and Washers shall be spot painted with one coat of red lead and painted with two coats of aluminum paint.
Provide 1-1/8" and 2-1/16" Shims for 50% of the Posts.
BILL OF MATERIAL
Item
Unit
Quantity
Metal Handrail
Lin. Ft.
HANDRAIL
APPLE RIVER BRIDGE
JO DAVIESS COUNTY
R-12 Drawn 2-3-60

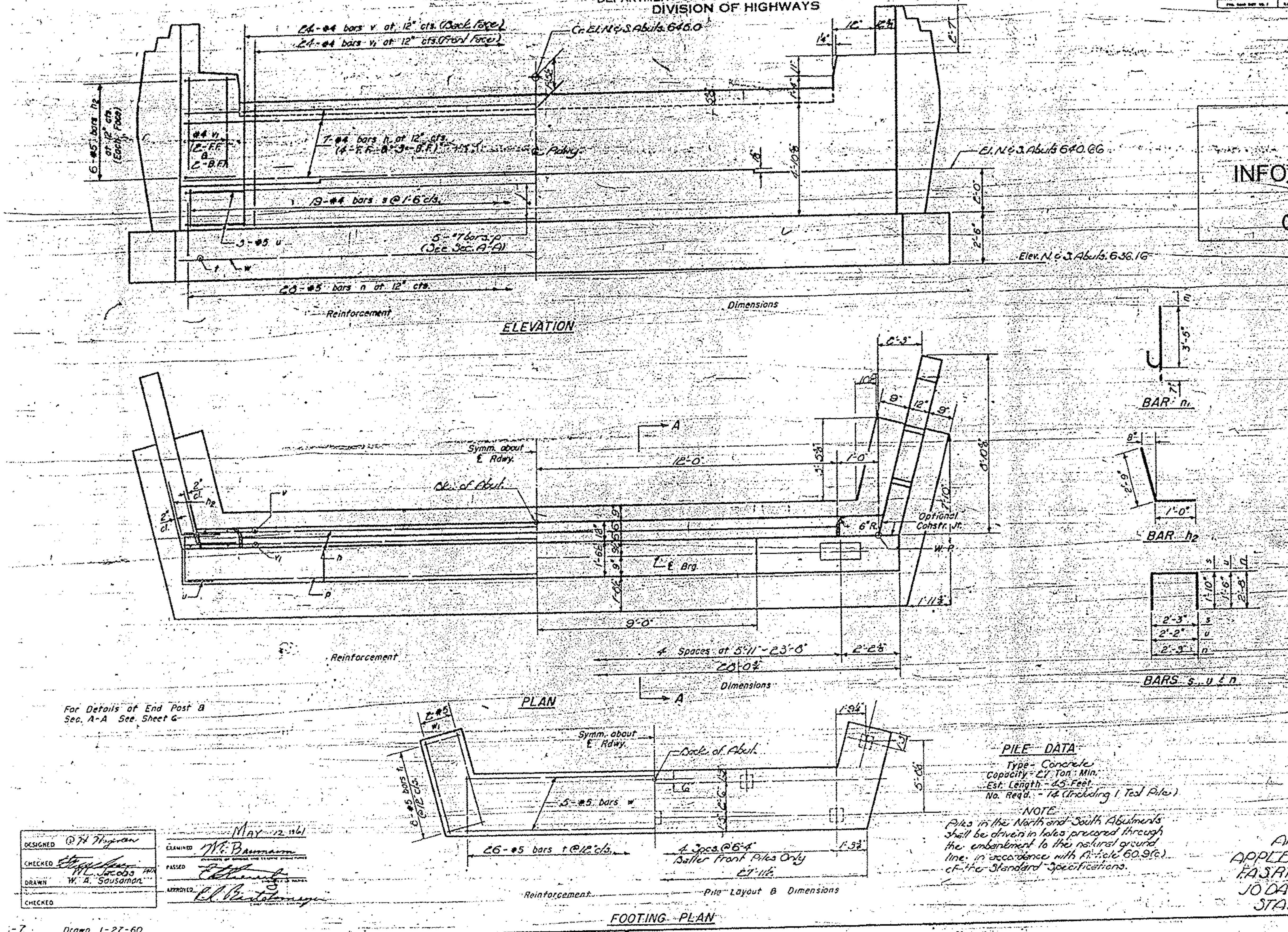
FILE NAME = 11-194.EX-PLANS.dgn	USER NAME = rfitzenko	DESIGNED - A.R.K.	REVISED -	**FEHR GRAHAM** ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525 FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI	FOR INFORMATION ONLY STRUCTURE NO. 043-3008
		CHECKED -	REVISED -		
	PLOT SCALE = #SCALE#	DRAWN - A.D.S.	REVISED -		
	PLOT DATE = 3/14/2013	CHECKED - A.R.K.	REVISED -		SHEET NO. 20 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	25
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

*11-194

9 SHEETS

FOR INFORMATION ONLY



2-ABUTMENTS BAR LIST

Bar	No.	Size	Length	Shape
h	14	#4	27'-9"	—
h₂	40	#5	3'-9"	
n	56	#5	7'-7"	
n₁	40	#5	4'-0"	
p	10	#7	27'-9"	—
s	38	#4	5'-11"	
t	52	#5	4'-9"	—
t₁	32	#5	2'-3"	—
u	12	#5	5'-2"	
v	48	#4	2'-6"	—
v₁	64	#4	5'-0"	—
w	10	#5	27'-3"	—
w₁	8	#5	7'-6"	—

2-ABUTMENTS BILL OF MATERIAL

Item	Unit	Quantity
Class X Concrete	Cu. Yds.	57.3
Reinforcement Bars	Lbs.	3330
Concrete Piles	Lin. Ft.	585
Test Piles (Conc)	Each	1

Note: Bill of Material includes Reinforcement and Class X Concrete for End Posts.

PILE DATA

Type - Concrete
Capacity - 27 Ton Min.
Est. Length - 45 Feet
No. Reqd. - 14 (Including 1 Test Pile)

NOTE
Piles in the North and South Abutments shall be driven in holes precored through the embankment to the natural ground line, in accordance with Article 60.9(c) of the Standard Specifications.

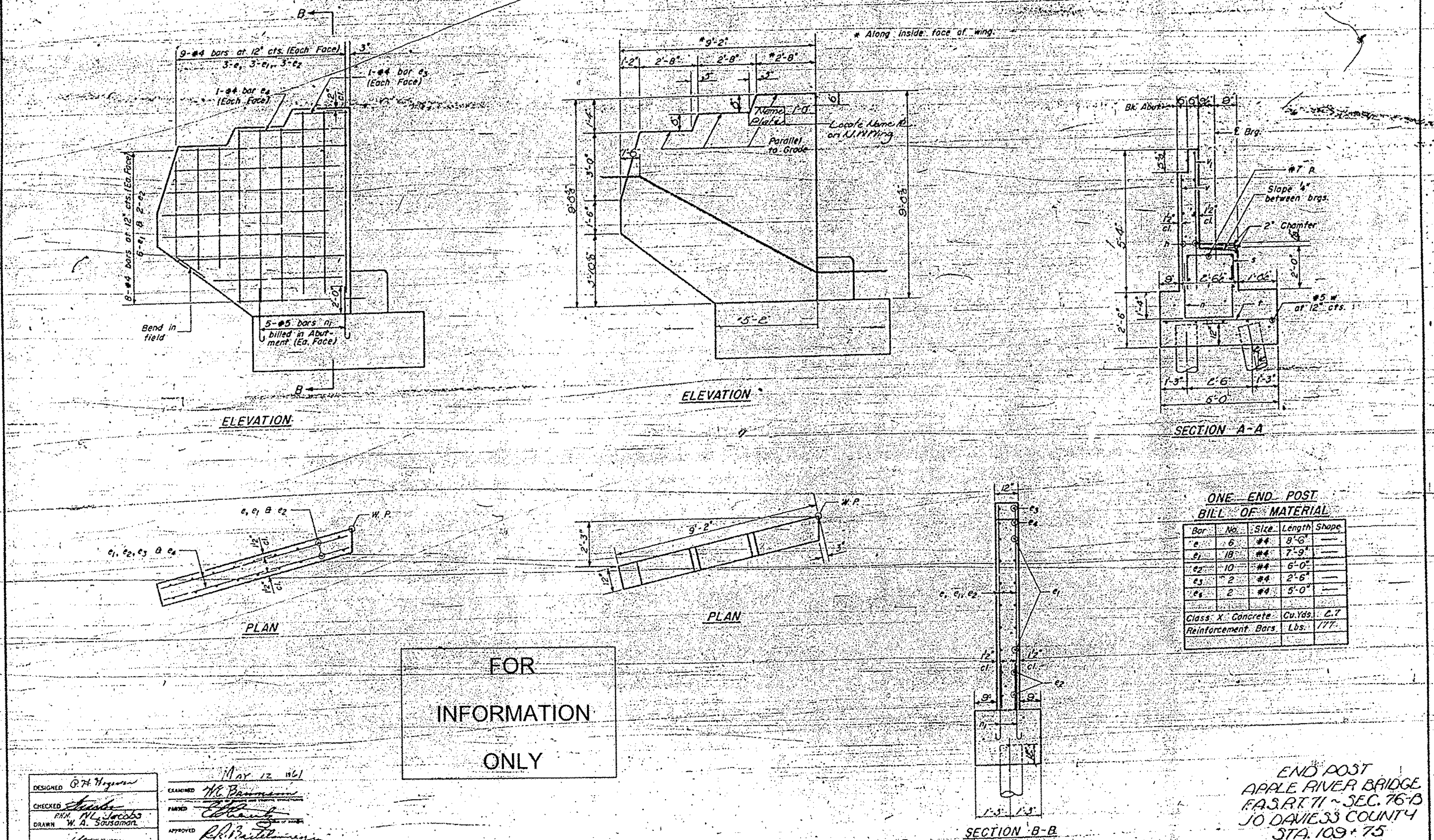
ABUTMENTS
APPLE RIVER BRIDGE
F.A.S. RT. 71 ~ SEC. 76-B
JO DAVIESS COUNTY
STA. 109 + 75

DESIGNED	[signature]
CHECKED	[signature] W.C. Jacobs
DRAWN	W. A. Sousamon
CHECKED	

MAY 12 1961
EXAMINED [signature]
PASSED [signature]
APPROVED [signature]

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

SHEET NO. 9 — 9 SHEETS



ONE END POST
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
e	6	#4	8'-6"	—
e1	18	#4	7'-9"	—
e2	10	#4	6'-0"	—
e3	2	#4	2'-6"	—
e4	2	#4	5'-0"	—
Class X Concrete			Cu. Yds.	2.7
Reinforcement Bars			Lbs.	177

DESIGNED P.H. Hogeson — CHECKED — DRAWN W. A. Sausaman — CHECKED
EXAMINED H.C. Baumann — PASSED — APPROVED — May 12 1961

AW-2 Drawn 2-2-60

FILE NAME = 11-194_EX-PLANS.dgn	USER NAME = rfitzenko	DESIGNED - A.R.K.	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE = #SCALE#	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/14/2013	CHECKED - A.R.K.	REVISED -

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ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI

FOR INFORMATION ONLY
STRUCTURE NO. 043-3008
SHEET NO. 22 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	27

CONTRACT NO. 85585
ILLINOIS FED. AID PROJECT
*11-194

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

9 SHEETS

PILE DATA

Type Untreated Timber
Capacity 20 Tons
Est. Length 15'-0"
No. Reqd. 60 (2 Piers)(No. Includes One Test Pile)
1 Test Pile at Pier 1

Pier #1
Sta. 11+43.75
℄ El. 645.00
Pier #2
Sta. 110+12.13
℄ El. 645.00

TOP PLAN

ELEVATION

END VIEW

Roller Piles on Pier 1 Only

FOOTING PLAN

NOTCH DETAIL

DETAIL OF BARS h1, h2, h3 & h4

BAR n & n1

SEE A-A

STARTING ANGLES

2 PIERS

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h	88	#5	26'-0"	—
h1	20	#5	6'-1"	⌐
h2	24	#5	6'-8"	⌐
h3	20	#5	7'-6"	⌐
h4	24	#5	8'-2"	⌐
n	44	#6	4'-5"	C
n1	44	#5	4'-4"	C
r	44	#5	8'-3"	—
v	88	#5	32'-6"	—
w	12	#4	17'-0"	—
Class A Concrete			Cu. Yds.	288.4
Reinforcement Bars			Lbs.	7060
Untreated Piles				385
Test Piles (Timber)			Each	1
Steel Sheet			Lbs.	2400

FOR INFORMATION ONLY

PIERS 1 & 2
APPLE RIVER BRIDGE
FAS RT. 11 ~ SEC. 76B
JO DAVIESS COUNTY
STA. 109+75

P-1 Re-drawn 7-21-59 Rev. 11-25-59

FILE NAME = 11-194.EX-PLANS.dgn	USER NAME = rfitzenko	DESIGNED - A.R.K.	REVISED -	
		CHECKED -	REVISED -	
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	PLOT DATE = 3/14/2013	CHECKED - A.R.K.	REVISED -	

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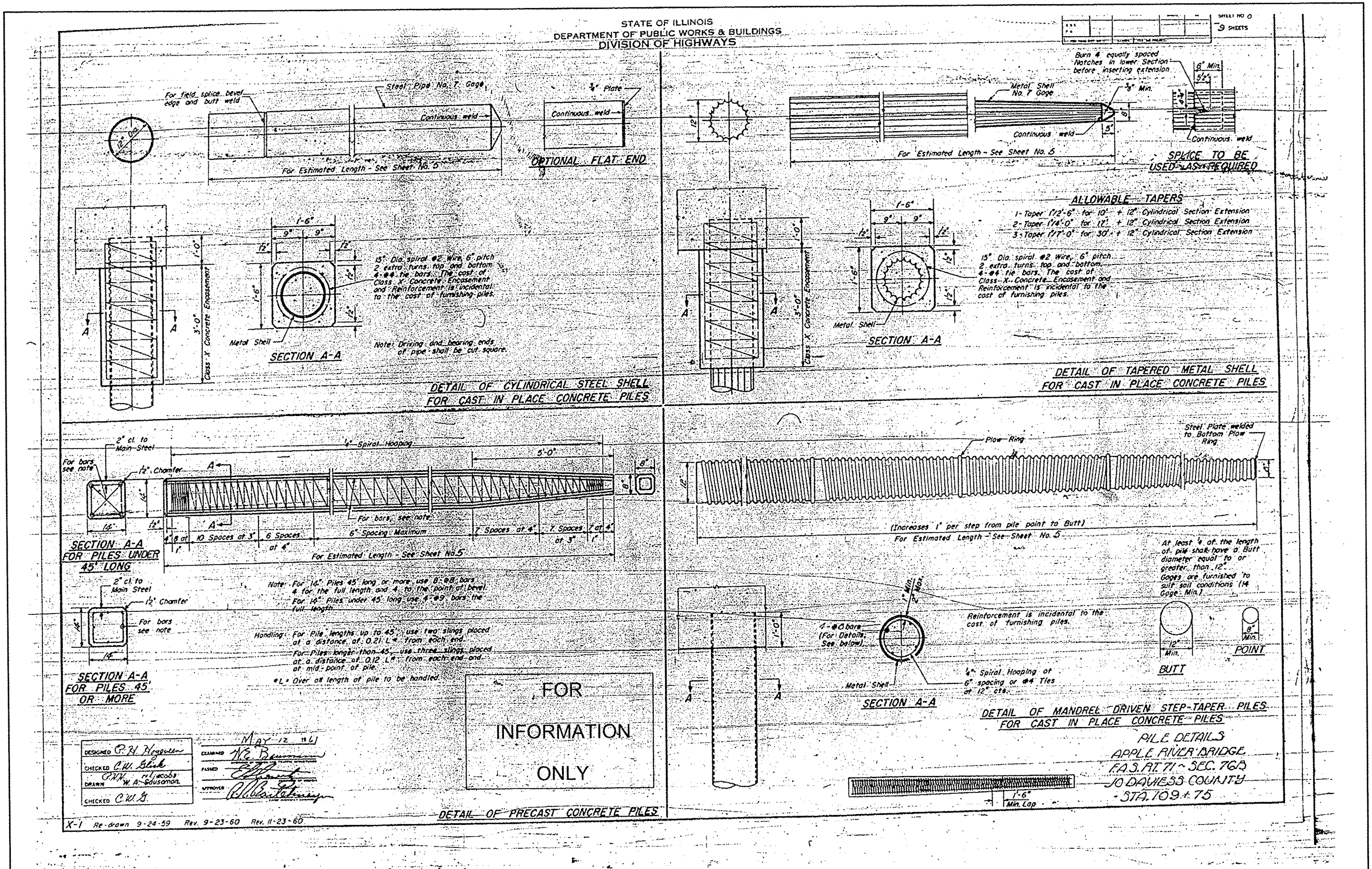
ILLINOIS DESIGN FIRM NO. 184-002525
FREEPORT, IL ROCKFORD, IL
ROCHELLE, IL SPRINGFIELD, IL
MONROE, WI

FOR INFORMATION ONLY
STRUCTURE NO. 043-3008
SHEET NO. 23 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	28
		CONTRACT NO. 85585		
	ILLINOIS FED. AID PROJECT			

*11-194


STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS
For field splice bevel edge and butt weld
Steel Pipe No. 7 Gage
Continuous weld
For Estimated Length - See Sheet No. 5
1/4" Plate
OPTIONAL FLAT END
15" Dia. spiral #2 Wire, 6" pitch. 2 extra turns top and bottom. 4-#4 tie bars. The cost of Class X Concrete Encasement and Reinforcement is incidental to the cost of furnishing piles.
Metal Shell
SECTION A-A
Note: Driving and bearing ends of pipe shall be cut square.
Class X Concrete Encasement
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES
Burn 4 equally spaced Notches in lower Section before inserting extension
Metal Shell No. 7 Gage
SPLICE TO BE USED AS REQUIRED
ALLOWABLE TAPERS
1-Taper 1/2"-6' for 10' + 12" Cylindrical Section Extension
2-Taper 1/4"-0" for 17' + 12" Cylindrical Section Extension
3-Taper 1/7"-0" for 30' + 12" Cylindrical Section Extension
DETAIL OF TAPERED METAL SHELL FOR CAST IN PLACE CONCRETE PILES
2" cl. to Main Steel
1/2" Chamfer
For bars see note
1/4" Spiral Hooping
SECTION A-A FOR PILES UNDER 45' LONG
SECTION A-A FOR PILES 45' OR MORE
For Estimated Length - See Sheet No. 5
6" Spacing Maximum
Note: For 14" Piles 45' long or more use 8-#8 bars 4 for the full length and 4 to the point of bevel. For 14" Piles under 45' long use 4-#9 bars the full length.
Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21 L* from each end. For Piles longer than 45' use three slings placed at a distance of 0.12 L* from each end and at mid-point of pile.
*L = Over all length of pile to be handled.
DETAIL OF PRECAST CONCRETE PILES
Plow Ring
Steel Plate welded to Bottom Plow Ring
(Increases 1" per step from pile point to Butt)
For Estimated Length - See Sheet No. 5
At least 1/4 of the length of pile shall have a Butt diameter equal to or greater than 12". Gages are furnished to suit soil conditions (14 Gage Min.)
Reinforcement is incidental to the cost of furnishing piles.
4-#8 bars (For Details See below)
1/4" Spiral Hooping at 6" spacing or #4 Ties at 12" cts.
BUTT
POINT
DETAIL OF MANDREL DRIVEN STEP-TAPER PILES FOR CAST IN PLACE CONCRETE PILES
1'-6" Min. Lap
PILE DETAILS
APPLE RIVER BRIDGE
F.A.S. RT. 71 - SEC. 76B
JO DAVIESS COUNTY
STA. 709 + 75
FOR INFORMATION ONLY
X-1 Re-drawn 9-24-59 Rev. 9-23-60 Rev. 11-23-60
MAY 12 1961

FILE NAME = 11-194_EX-PLANS.dgn	USER NAME = rfitzenko	DESIGNED - A.R.K.	REVISED -	FEHR GRAHAM ENGINEERING & ENVIRONMENTAL	FREEPORT, IL ROCKFORD, IL ROCHELLE, IL SPRINGFIELD, IL MONROE, WI	FOR INFORMATION ONLY
		CHECKED -	REVISED -			STRUCTURE NO. 043-3008
	PLOT SCALE = #SCALE#	DRAWN - A.D.S.	REVISED -			
	PLOT DATE = 3/14/2013	CHECKED - A.R.K.	REVISED -			SHEET NO. 24 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	29
		CONTRACT NO. 85585		
		ILLINOIS FED. AID PROJECT		

*11-194

DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

9 SHEETS

Boring No. 1

Station 109+18
Offset 12 Ft Rt C.L.
Ground Surface 626.9

Elevation	Description	N	Qu	w (%)
626.9 – 619.9	Medium to stiff brown silty clay.			
619.9 – 614.9	Very soft dark brown silty clay loam.	3	0.5	
614.9 – 609.9	Very loose dark brown silty loam.	3, 4		
609.9 – 607.4	Dense gray subangular poorly graded gravel.	36		
607.4 – 604.9	Very dense gray subangular poorly graded gravel.	62		
604.9 – 597.4	Medium gray silty loam.	25, 22, 24		
597.4 – 594.9	Stiff gray very silty clay.	16	1.3	
594.9 – 589.9	Medium gray silty loam.	17, 15		
589.9 – 587.4	Very dense gray sandy loam, limestone cobbles.	81		
587.4 – 584.9	Very dense gray limestone gravel.	130		
584.9 – 582.4	Dense gray limestone gravel.	47		
582.4 – 579.9	Very dense gray limestone gravel and cobbles.	250		

Boring No. 2

Station 109+88
Offset on C.L.
Ground Surface 627.1

Elevation	Description	N	Qu	w (%)
627.1 – 624.1	Stiff black silty clay.			
624.1 – 620.1	Medium brown silty clay loam.	9	0.6	
620.1 – 615.1	Loose brown sandy loam.	10, 10		
615.1 – 612.6	Very loose brown silty loam.	4		
612.6 – 610.1	Very loose black silty loam. Contains shells.	2		
610.1 – 607.6	Medium dark gray sandy loam.	19		
607.6 – 605.1	Dense gray sandy loam, occasional gravel.	36		
605.1 – 601.6	Dense gray sandy loam, occasional gravel.	40		
601.6 – 599.1	Stiff gray silty clay.	12	1.0	
599.1 – 586.5	Medium gray silty loam. Occasional pebbles.	13, 15, 17, 17, 21		
586.5 – 581.1	Medium gray gravelly silty loam.	28, 19		
581.1	Refusal on boulder or limestone.			

Boring No. 3

Station 110+23
Offset on C.L.
Ground Surface 625.3

Elevation	Description	N	Qu	w (%)
625.3 – 618.3	Medium to stiff brown silty clay.			
618.3 – 611.3	Very loose brown silty loam. Free water level El. 612.7	4		
611.3 – 608.3	Loose gray silty loam. Contains shells.	7		
608.3 – 601.3	Dense gray limestone gravel.	35, 31		
	Dense gray limestone gravel.			
601.3 – 598.3	Medium gray clay.	8	Ruptured Sample	
598.3 – 595.8	Very stiff gray clay.	20	2.6	
595.8 – 592.3	Medium gray sandy loam.	17		
592.3 – 590.3	Brown thin bedded limestone.	Refusal / Core		

Boring No. 4

Station 110+62
Offset on C.L.
Ground Surface 626.0

Elevation	Description	N	Qu	w (%)
626.0 – 621.5	Medium to stiff dark brown silty clay.			
621.5 – 618.0	Loose brown silty loam.	5		
618.0 – 613.0	Very loose brown silty loam.	4, 2		
613.0 – 610.5	Loose brown silty loam. Free water level 612.4	5		
610.5 – 605.5	Very loose gray silty loam. Contains shells.	2, 2		
605.5	Medium gray angular limestone gravel.	16		
– 598.0	Medium gray angular limestone gravel.	10, 9		
598.0 – 593.0	Very stiff gray silty clay.	15, 17	3.6 B, 3.5 B	
593.0 –	Very dense brown fine sand.	100		
– 589.5	Refusal on limestone or boulders.	Refusal		

FOR INFORMATION ONLY

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

BORING DATA
APPLE RIVER BRIDGE
F.A.S. RT. 71 - SEC. 76B
JO DAVIESS COUNTY
STA. 109 + 75

DESIGNED P. H. Hoyer...
CHECKED C. W. Glick
DRAWN ...
CHECKED C. W. G.
EXAMINED ... May 12 1961
PASSED ...
APPROVED ...

FILE NAME = 11-194_EX-PLANS.dgn	USER NAME = rfitzenko	DESIGNED - A.R.K.	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE = $SCALE$	DRAWN - A.D.S.	REVISED -
	PLOT DATE = 3/14/2013	CHECKED - A.R.K.	REVISED -

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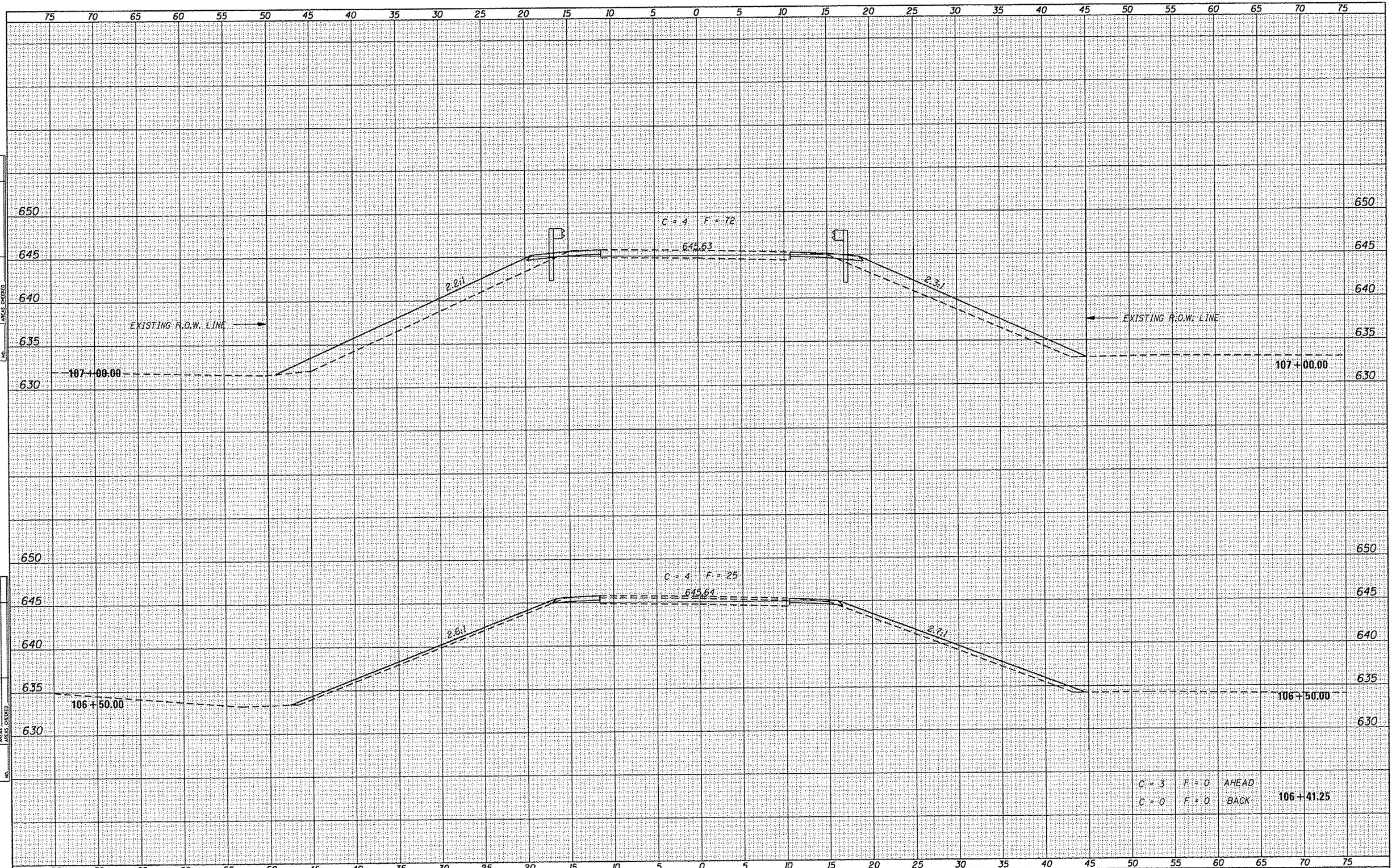
FOR INFORMATION ONLY
STRUCTURE NO. 043-3008
SHEET NO. 25 OF 25 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JODAVIESS	34	30
		CONTRACT NO. 85585		

ILLINOIS FED. AID PROJECT

*11-194



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

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

FILE NAME = 11-194_EX-XS_SHEETS.DGN	DESIGNED - C.J.C.	REVISED -
PLOTTED BY = S.A.P.	DRAWN - S.A.P.	REVISED -
CHECKED BY = R.J.C.	CHECKED - R.D.F.	REVISED -
PLOT DATE = 12/14/11	DATE - 12/02/11	REVISED -

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FREEPORT, IL ROCKFORD, IL
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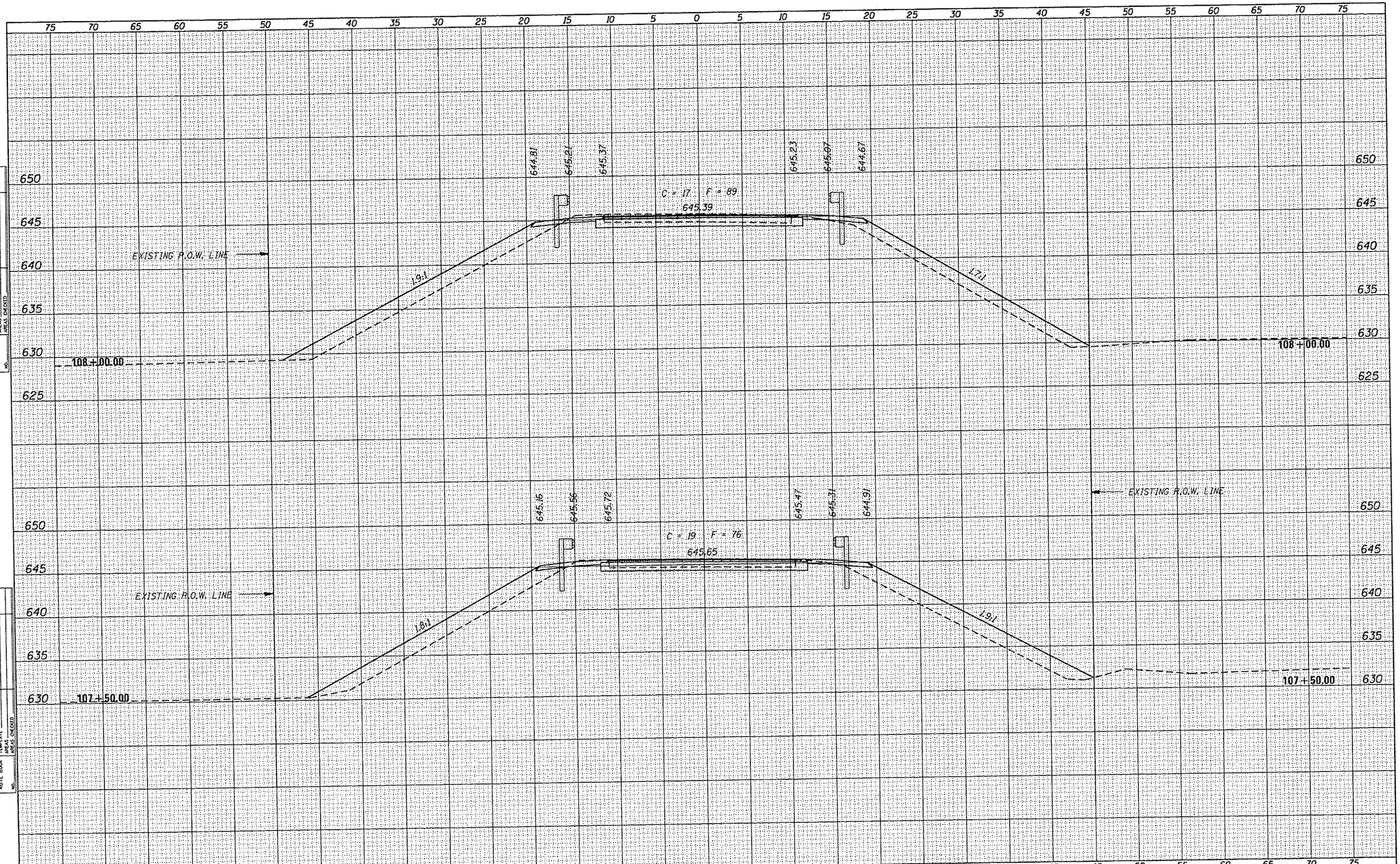
MONROE, WI

ROADWAY CROSS SECTIONS – C.H. 4

STA. 106+41.25 TO STA. 107+00.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	34	31
	ILLINOIS	CONTRACT NO. 85585		

*11-194



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

FILE NAME = 11-194_EX-XS_SHEETS.DGN	DESIGNED - G.J.C.	REVISED -
PLOTTED BY = S.A.P.	DRAWN - S.A.P.	REVISED -
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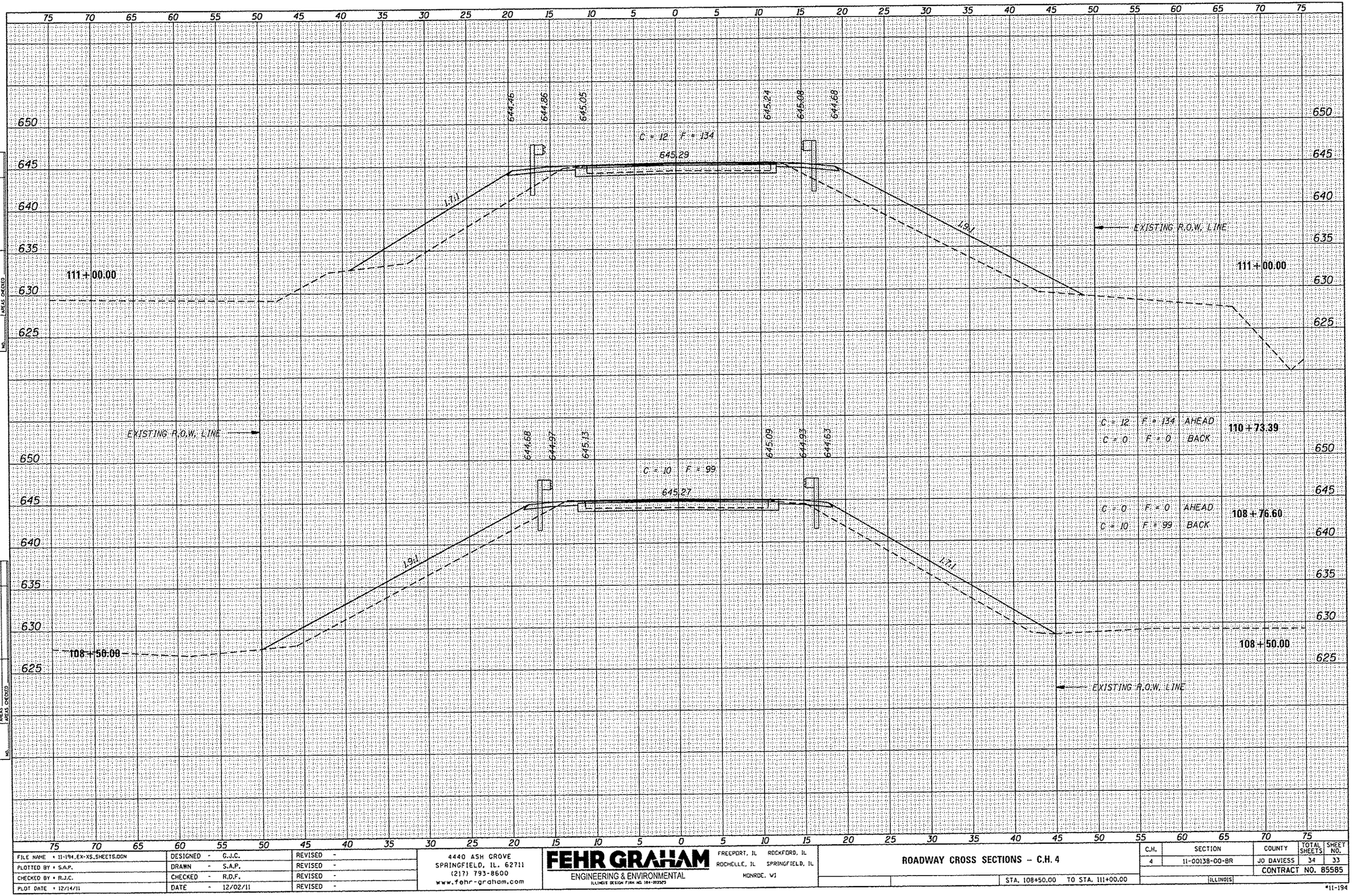
MONROE, WI

ROADWAY CROSS SECTIONS – C.H. 4

STA. 107+50.00 TO STA. 108+00.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	14	32
		CONTRACT NO. 85585		
ILLINOIS				#11-194



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

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

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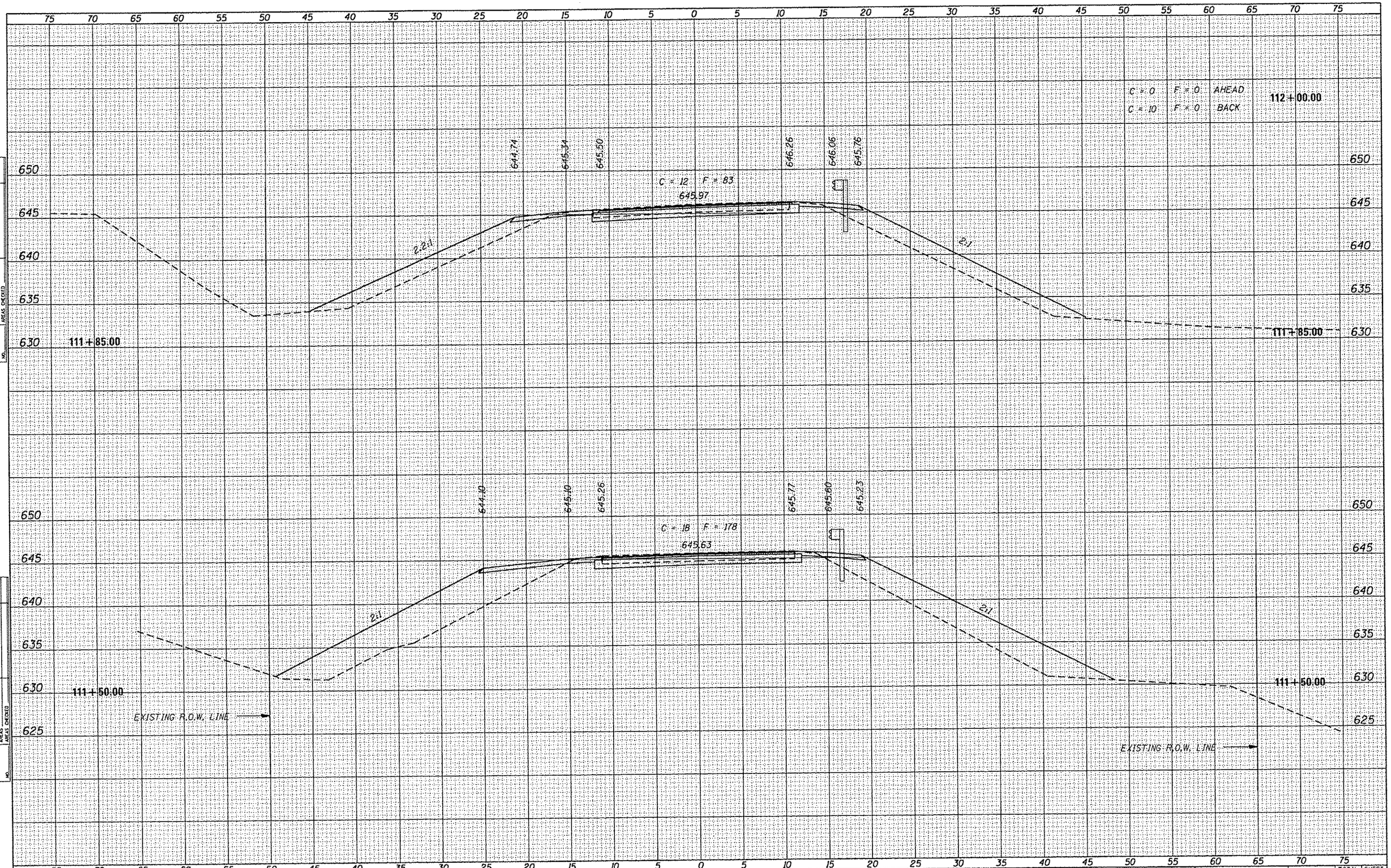
MONROE, WI

ROADWAY CROSS SECTIONS – C.H. 4

STA. 108+50.00 TO STA. 111+00.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	34	33
		CONTRACT NO. 85585		
	ILLINOIS			

*11-194



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

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MONROE, WI

ROADWAY CROSS SECTIONS – C.H. 4

STA. 111+50.00 TO STA. 111+85.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	11-00138-00-BR	JO DAVIESS	34	34
		CONTRACT NO. 85585		
	ILLINOIS			*11-194