

PROJECT ENGINEER
BOB WAGNER 815.294.5358

CHAMLIN & ASSOCIATES
815.223.3344

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
 FEDERAL AID HIGHWAY**
 FAP ROUTE 553 (IL 72)
 SECTION 125VBR-1F
**OVER IOWA CHICAGO AND EASTERN RAILROAD
 STEEL BEAM FABRICATION
 DEKALB COUNTY
 PROJECT NO. BRF-553(038)
 C-92-018-06**

ROUTE NO.	SECTION	COUNTY	DATE SHEETS	SHEET NO.
*	125 VBR-1F	DEKALB	15	1
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

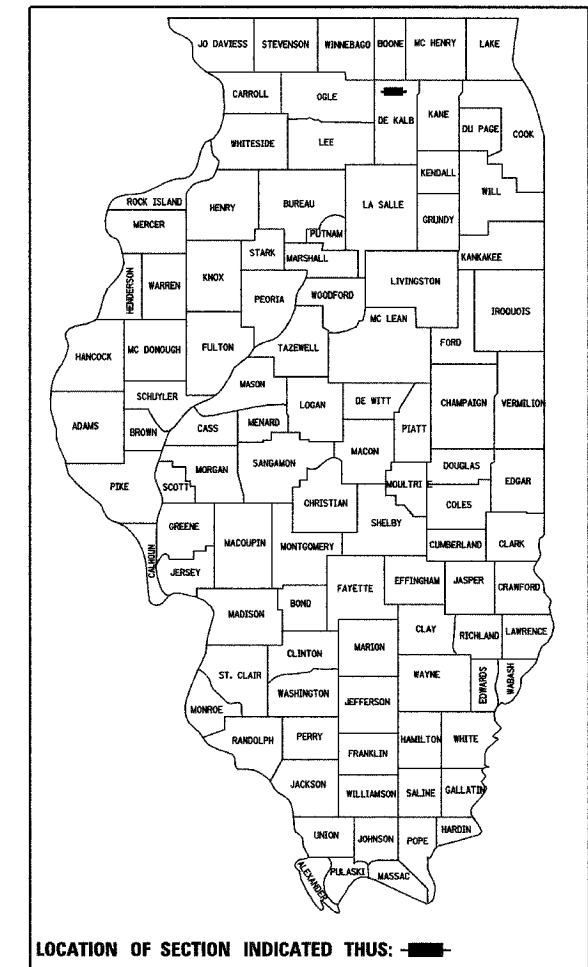
64890

* FAP ROUTE 553 (IL 72)

INDEX OF SHEETS

- COVER SHEET
- SUMMARY OF QUANTITIES AND GENERAL NOTES
- 15. BRIDGE PLAN SHEETS (FOR INFORMATION ONLY)

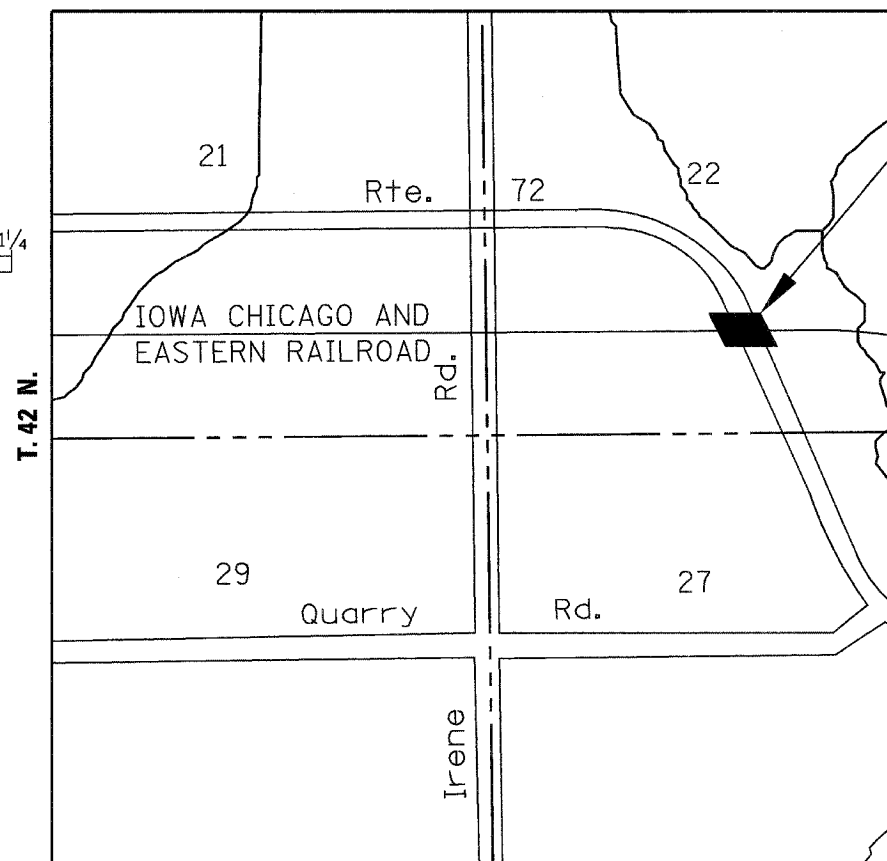
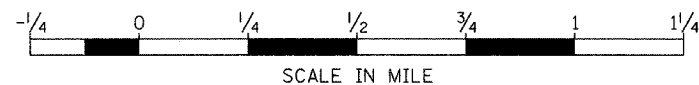
D-92-010-03



LOCATION OF SECTION INDICATED THUS: [black rectangle]

THIS CONTRACT CONSISTS OF THE STEEL BEAM FABRICATION FOR THE REPLACEMENT OF THE EXISTING BRIDGE CARRYING IL 72 OVER IOWA CHICAGO AND EASTERN RAILROAD AT STA. 144+14.40 (EXISTING STRUCTURE NO. 019-0029, PROPOSED STRUCTURE NO. 019-0047)

R. 3 E. 3 P.M.



PROJECT LOCATION
STA. 144 + 14.40



10/19/05
date
 JAMES K. CLINARD
 LICENSED STRUCTURAL ENGINEER
 NO. 081-004655
 STATE OF ILLINOIS
 expires 11-30-2006
 [Signature]
 signature
 PROFESSIONAL DESIGN FIRM
 LICENSE NO. 184-001717

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

SUBMITTED 10/19/05
 [Signature] REGION 2 ENGINEER
 PASSED December 9, 2005
 [Signature] ENGINEER OF DESIGN AND ENVIRONMENT
 APPROVED December 9, 2005
 [Signature] DEPUTY DIRECTOR, DIVISION OF HIGHWAYS

TRAFFIC DATA
 HIGHWAY CLASSIFICATION: RURAL MINOR ARTERIAL
 2008 ADT = 2850
 DESIGN SPEED 55 MPH
 POSTED SPEED 55 MPH

MICROFILMED _____
 REEL NUMBER _____
 AWARDED _____
 RESIDENT ENGINEER _____
 AS BUILT CHANGES WERE MADE
 ON THE FOLLOWING SHEETS _____

JULIE 1-800-892-0123

PROJECT ENGINEER:
 UNIT CHIEF:
 TOWNSHIP: FRANKLIN

CONTRACT NO. 64B90

CHAMLIN & ASSOCIATES
 PERU ILLINOIS MORRIS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 553	125 VBR-1F	DEKALB	15	2
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

Contract #64B90

General Notes

- The new number for this structure will be 019-0047
- The contractor shall submit four copies of the required shop drawings for review and approval to the Bureau of Bridges and Structures, 2300 South Dirksen Parkway, Springfield, IL 62764. After approval of Initial submittal, the contractor shall submit one set of shop drawings to Eric Harm, Engineer of Materials, 126 East Ash Street, Springfield, IL 62706, and eight (8) sets of shop drawings to be distributed to:

District 2 District Engineer (1)
Fabricator (1)
Contractor (2)
Resident Engineer (2)
District 2 Bureau of Materials (2)

80% FED
20% STATE

SUMMARY OF QUANTITIES

X171-5B

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY
50500205	FURNISHING STRUCTURAL STEEL	L SUM	1

SUMMARY OF QUANTITIES AND GENERAL NOTES
FAP ROUTE 553 (IL 72)
SECTION 125VBR-1
DEKALB COUNTY

Bench Mark: Chiseled "□" on N.E. Wingwall of SN 019-0029
Elev. = 788.87

Existing Structure: SN 019-0029 built as SBI Route 12 Sec. 125 VBR in 1976
Three span, 27" deep precast prestressed concrete box beams,
176'-10" bk. to bk. of abutments, 33'-0" o. to o. of deck on pile supported
spill-thru abutment and multi column piers. Road to be closed. Traffic to be
maintained utilizing a detour.
No Salvage

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 1
FAP 553	125 VBR-1F	DEKALB	15	3	13 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

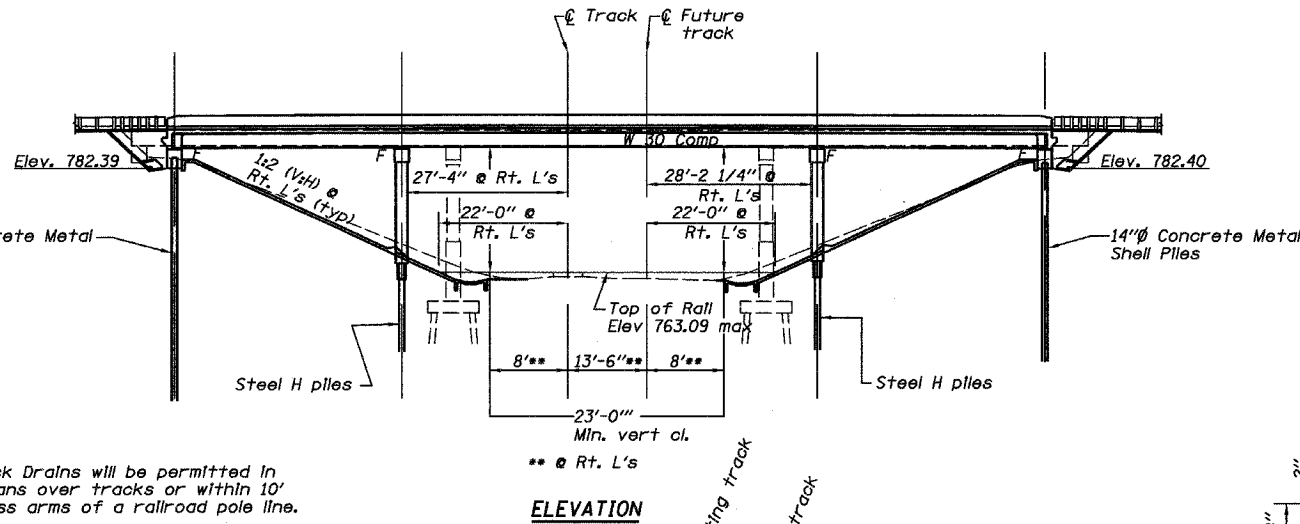
Contract #64890

See Sheet 2 of 13 for Total Bill of Materials and General Notes.

ICE R.R.
BUILT 200 BY
STATE OF ILLINOIS
F.A.P. RT. 553 SEC. 125VBR-1
STA. 144+14.40 LOADING HS20
STR. NO. 019-0047

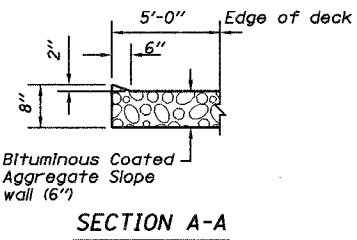
THESE PLANS ARE APPLICABLE TO THE BEAM AND BEARING FABRICATION ONLY. ALL OTHER DETAILS SHOWN ARE FOR INFORMATION ONLY.

NAME PLATE DETAIL
See Std. 515001

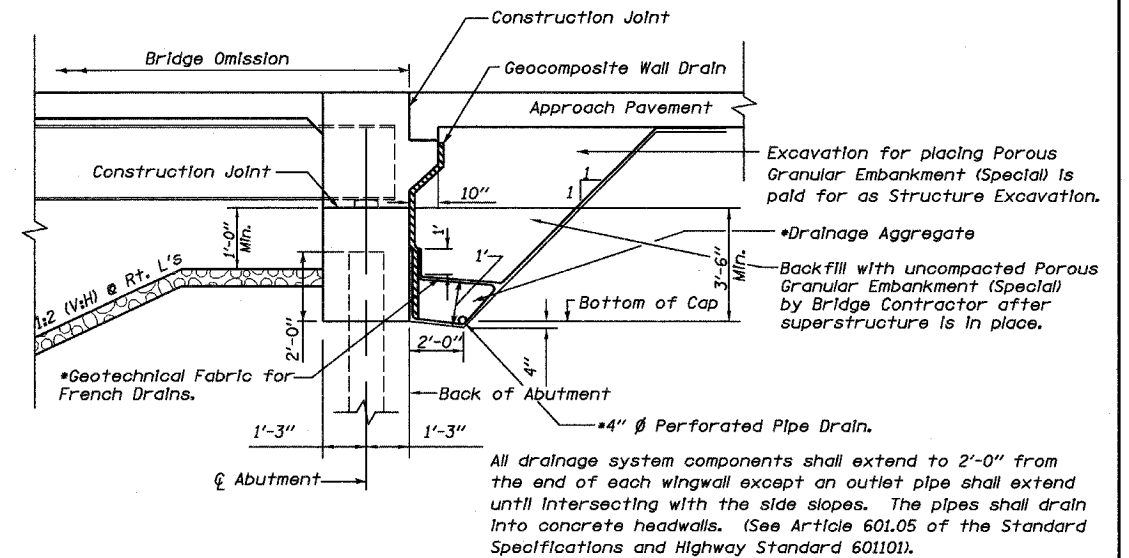
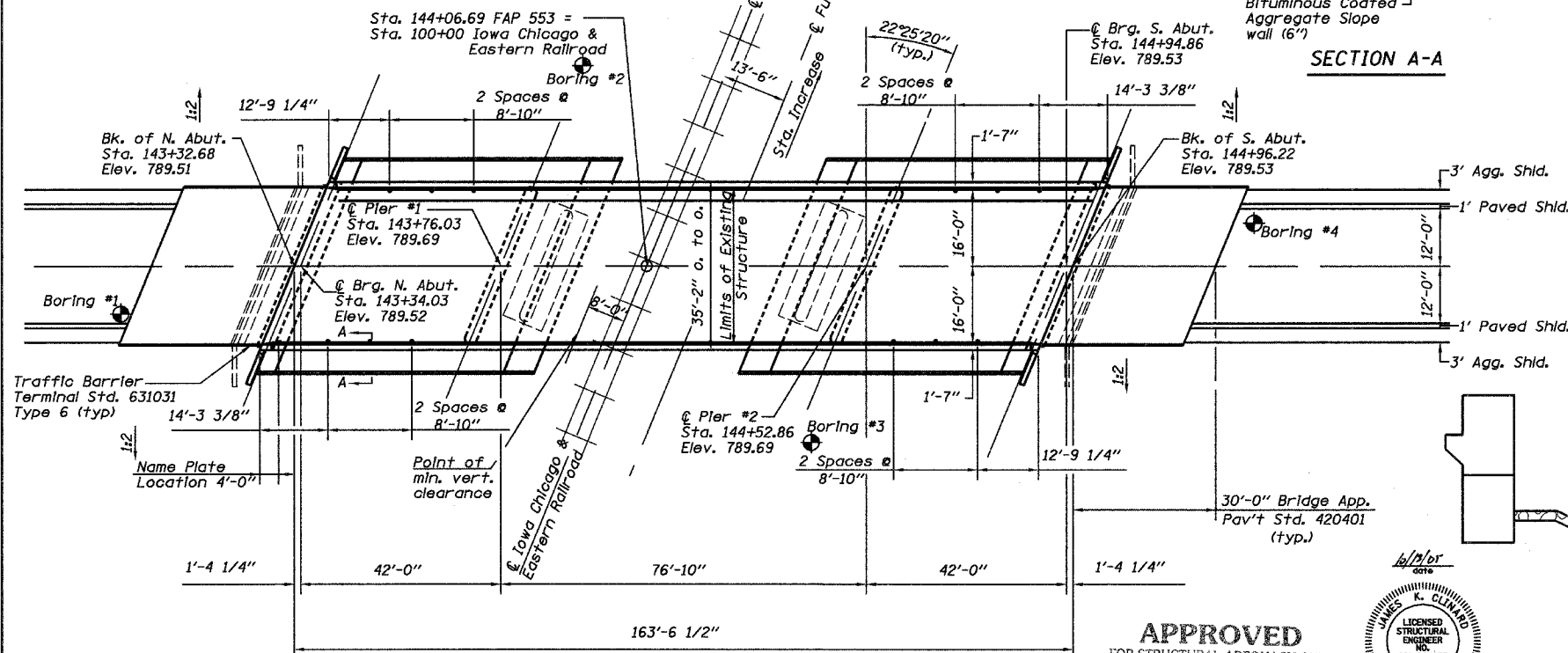


Note: No Deck Drains will be permitted in the spans over tracks or within 10' of cross arms of a railroad pole line.

ELEVATION



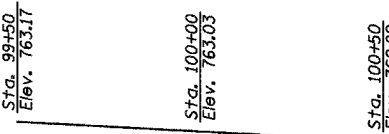
SECTION A-A



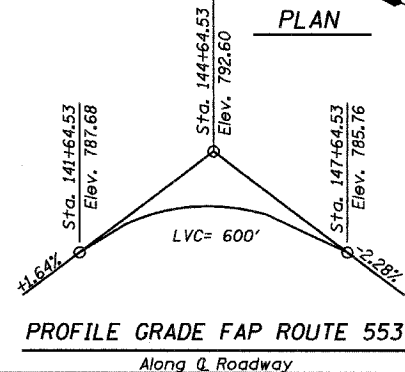
SECTION THRU INTEGRAL ABUTMENT

* Included in the cost of "Pipe Underdrains for Structures"

Mile Post 70.0 = Sta. 75+40.72



TOP OF RAIL ELEVATIONS
IOWA CHICAGO & EASTERN R.R.



PROFILE GRADE FAP ROUTE 553
Along Q Roadway

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

ENGINEER OF BRIDGES AND STRUCTURES



LOADING HS20-44

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

DESIGN SPECIFICATIONS

2002 AASHTO

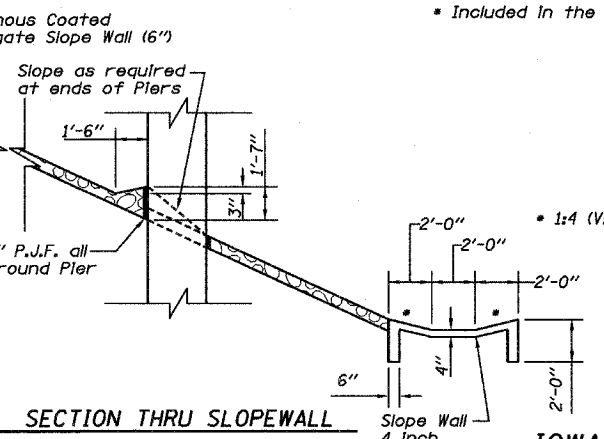
SEISMIC DATA

Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = 0.04g
Site Coefficient (S) = 1.0

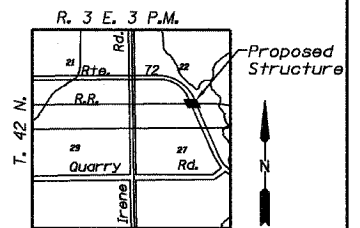
DESIGN STRESSES

FIELD UNITS

$f_c = 3,500$ psi
 $f_y = 50,000$ psi (Struct.) (M270 GRADE 50 W)
 $f_y = 60,000$ psi (Reinf.)



SECTION THRU SLOPEWALL



LOCATION SKETCH

GENERAL PLAN
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

CHAMBLIN & ASSOCIATE
PERU ILLINOIS MORRIS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 2 13 SHEETS
FAP 553	125 VBR-1F	DEKALB	15	4	
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-		

Contract #64B90

General Notes

1. Fasteners shall be high strength bolts AASHTO M 164, Type 3 in unpainted areas and mechanically galvanized AASHTO M 164, Type 1 or 2 in painted areas. Bolts 7/8" ϕ , open holes 13/16" ϕ , unless otherwise noted.
2. Calculated weight of Structural Steel = 121,060 pounds
3. All structural steel shall be AASHTO M 270 Grade 50W.
4. Field welding of construction accessories will not be permitted to beams or girders.
5. The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams and all splice plate material except fill plates.
6. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/8" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.
7. AASHTO M270 Grade 50W structural steel shall only be painted, at the ends of beams, for a distance equal to the depths of embedment into the concrete cap plus 3 inches. Those areas shall be primed in the shop with an inorganic zinc rich primer per AASTHO M 300, Type 1. No field painting shall be required. All structural steel shall be cleaned as specified in the special provision for "Surface Preparation and Painting Requirements for Weathering Steel".

TOTAL BILL OF MATERIALS				
ITEM	UNIT	SUPER	SUB	TOTAL
FURNISHING STRUCTURAL STEEL	L SUM	1	--	1

Index of Bridge Plans

1. General Plan
2. General Notes and Bill of Materials
3. Deck Elevations
4. Superstructure Plan and Section
- 5-6. Superstructure Details
7. Framing Plan
8. Framing Details
9. Bearing Details
10. North Abutment
11. South Abutment
12. Pier #1 & #2
13. Anchor Bolt Details for Bearings

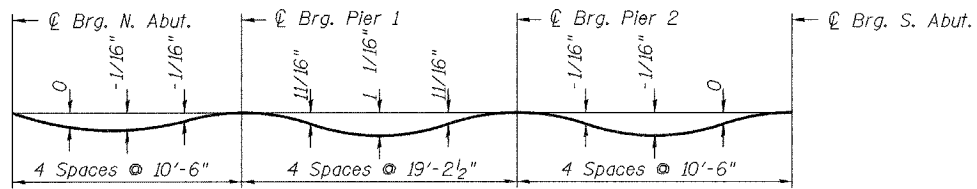
DESIGNED -
CHECKED -
DRAWN ARR
CHECKED JKC

GENERAL NOTES AND BILL OF MATERIALS
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET NO. 3
FAP 553	125 VBR-1F	DEKALB	15	5
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		13 SHEETS

Contract #64B90



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 below.

SCREED ELEVATION FOR BEAM BM1				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BKNAB	143+38.78	14.79	789.2998	789.2998
BRNAB	143+40.13	14.79	789.3066	789.3066
A	143+50.13	14.79	789.3526	789.3526
B	143+60.13	14.79	789.3920	789.3889
C	143+70.13	14.79	789.4250	789.4181
PIER 1	143+82.13	14.79	789.4559	789.4559
D	143+92.13	14.79	789.4744	789.5012
E	144+02.13	14.79	789.4865	789.5450
F	144+12.13	14.79	789.4920	789.5745
G	144+22.13	14.79	789.4910	789.5796
H	144+32.13	14.79	789.4834	789.5594
I	144+42.13	14.79	789.4693	789.5182
J	144+52.13	14.79	789.4487	789.4658
PIER 2	144+58.96	14.79	789.4308	789.4308
K	144+68.96	14.79	789.3992	789.3922
L	144+78.96	14.79	789.3610	789.3570
M	144+88.96	14.79	789.3163	789.3160
BRSAB	145+00.96	14.79	789.2541	789.2541
BKSAB	145+02.32	14.79	789.2464	789.2464

SCREED ELEVATION FOR BEAM BM2				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BKNAB	143+36.34	8.87	789.3944	789.3944
BRNAB	143+37.69	8.87	789.4013	789.4013
A	143+47.69	8.87	789.4489	789.4489
B	143+57.69	8.87	789.4900	789.4869
C	143+67.69	8.87	789.5245	789.5176
PIER 1	143+79.69	8.87	789.5574	789.5574
D	143+89.69	8.87	789.5775	789.6043
E	143+99.69	8.87	789.5911	789.6496
F	144+09.69	8.87	789.5982	789.6807
G	144+19.69	8.87	789.5988	789.6874
H	144+29.69	8.87	789.5928	789.6688
I	144+39.69	8.87	789.5803	789.6292
J	144+49.69	8.87	789.5613	789.5784
PIER 2	144+56.52	8.87	789.5445	789.5445
K	144+66.52	8.87	789.5145	789.5075
L	144+76.52	8.87	789.4779	789.4739
M	144+86.52	8.87	789.4348	789.4345
BRSAB	144+98.52	8.87	789.3745	789.3745
BKSAB	144+99.88	8.87	789.3671	789.3671

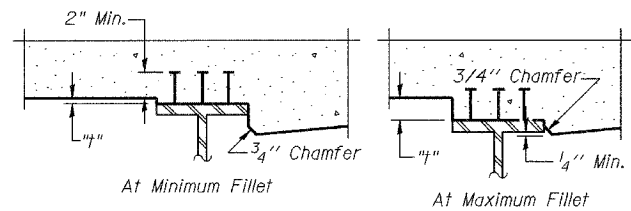
SCREED ELEVATION FOR PGL				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BKNAB	143+32.68	0.00	789.5140	789.5140
BRNAB	143+34.03	0.00	789.5213	789.5213
A	143+44.03	0.00	789.5713	789.5713
B	143+54.03	0.00	789.6147	789.6116
C	143+64.03	0.00	789.6517	789.6448
PIER 1	143+76.03	0.00	789.6873	789.6873
D	143+86.03	0.00	789.7099	789.7367
E	143+96.03	0.00	789.7259	789.7844
F	144+06.03	0.00	789.7354	789.8179
G	144+16.03	0.00	789.7384	789.8270
H	144+26.03	0.00	789.7348	789.8108
I	144+36.03	0.00	789.7247	789.7736
J	144+46.03	0.00	789.7080	789.7251
PIER 2	144+52.86	0.00	789.6929	789.6929
K	144+62.86	0.00	789.6653	789.6583
L	144+72.86	0.00	789.6311	789.6271
M	144+82.86	0.00	789.5904	789.5901
BRSAB	144+94.86	0.00	789.5329	789.5329
BKSAB	144+96.22	0.00	789.5258	789.5258

SCREED ELEVATION FOR BEAM BM5				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BKNAB	143+29.02	-8.87	789.3548	789.3548
BRNAB	143+30.37	-8.87	789.3623	789.3623
A	143+40.37	-8.87	789.4147	789.4147
B	143+50.37	-8.87	789.4606	789.4575
C	143+60.37	-8.87	789.4999	789.4930
PIER 1	143+72.37	-8.87	789.5385	789.5385
D	143+82.37	-8.87	789.5634	789.5902
E	143+92.37	-8.87	789.5818	789.6403
F	144+02.37	-8.87	789.5937	789.6762
G	144+12.37	-8.87	789.5990	789.6876
H	144+22.37	-8.87	789.5978	789.6738
I	144+32.37	-8.87	789.5901	789.6390
J	144+42.37	-8.87	789.5759	789.5930
PIER 2	144+49.20	-8.87	789.5624	789.5624
K	144+59.20	-8.87	789.5371	789.5301
L	144+69.20	-8.87	789.5053	789.5013
M	144+79.20	-8.87	789.4670	789.4667
BRSAB	144+91.20	-8.87	789.4124	789.4124
BKSAB	144+92.56	-8.87	789.4056	789.4056

SCREED ELEVATION FOR BEAM BM3				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BKNAB	143+33.90	2.96	789.4746	789.4746
BRNAB	143+35.25	2.96	789.4817	789.4817
A	143+45.25	2.96	789.5309	789.5309
B	143+55.25	2.96	789.5736	789.5705
C	143+65.25	2.96	789.6097	789.6028
PIER 1	143+77.25	2.96	789.6444	789.6444
D	143+87.25	2.96	789.6662	789.6930
E	143+97.25	2.96	789.6814	789.7399
F	144+07.25	2.96	789.6901	789.7726
G	144+17.25	2.96	789.6923	789.7809
H	144+27.25	2.96	789.6879	789.7639
I	144+37.25	2.96	789.6770	789.7259
J	144+47.25	2.96	789.6595	789.6766
PIER 2	144+54.08	2.96	789.6439	789.6439
K	144+64.08	2.96	789.6154	789.6084
L	144+74.08	2.96	789.5805	789.5765
M	144+84.08	2.96	789.5390	789.5387
BRSAB	144+96.08	2.96	789.4805	789.4805
BKSAB	144+97.44	2.96	789.4733	789.4733

SCREED ELEVATION FOR BEAM BM4				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BKNAB	143+31.46	-2.96	789.4614	789.4614
BRNAB	143+32.81	-2.96	789.4687	789.4687
A	143+42.81	-2.96	789.5195	789.5195
B	143+52.81	-2.96	789.5638	789.5607
C	143+62.81	-2.96	789.6015	789.5946
PIER 1	143+74.81	-2.96	789.6381	789.6381
D	143+84.81	-2.96	789.6615	789.6883
E	143+94.81	-2.96	789.6783	789.7368
F	144+04.81	-2.96	789.6886	789.7711
G	144+14.81	-2.96	789.6923	789.7809
H	144+24.81	-2.96	789.6896	789.7656
I	144+34.81	-2.96	789.6803	789.7292
J	144+44.81	-2.96	789.6644	789.6815
PIER 2	144+51.64	-2.96	789.6498	789.6498
K	144+61.64	-2.96	789.6230	789.6160
L	144+71.64	-2.96	789.5896	789.5856
M	144+81.64	-2.96	789.5497	789.5494
BRSAB	144+93.64	-2.96	789.4932	789.4932
BKSAB	144+95.00	-2.96	789.4862	789.4862

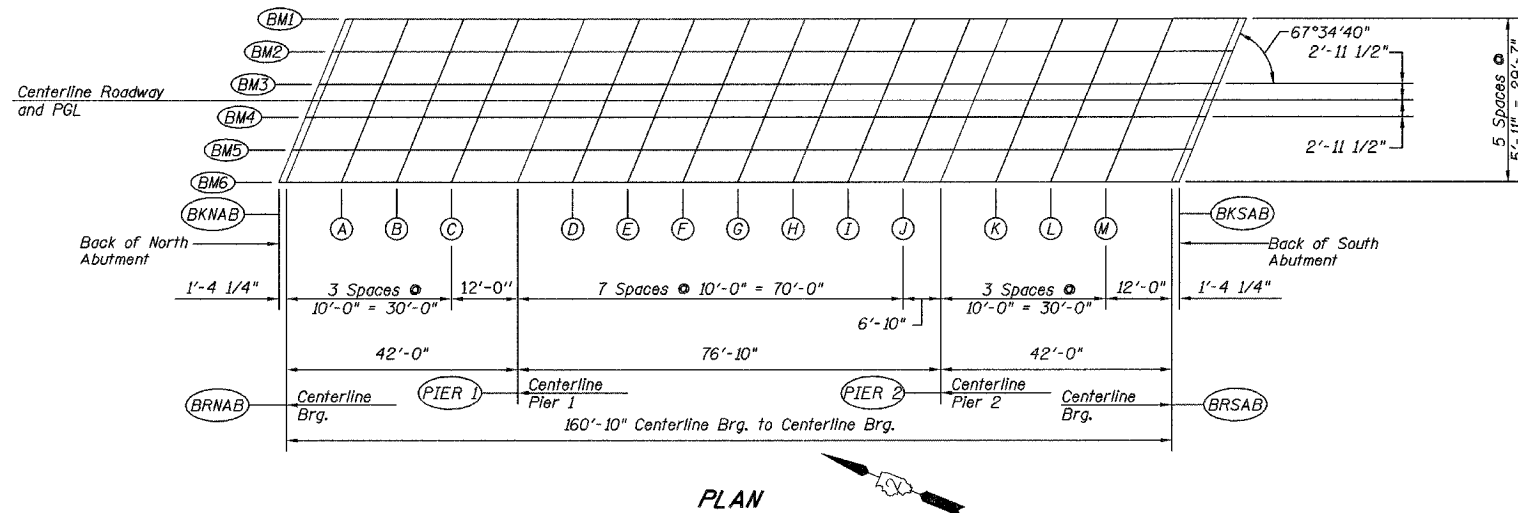
SCREED ELEVATION FOR BEAM BM6				
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BKNAB	143+26.58	-14.79	789.2338	789.2338
BRNAB	143+27.93	-14.79	789.2416	789.2416
A	143+37.93	-14.79	789.2956	789.2956
B	143+47.93	-14.79	789.3430	789.3399
C	143+57.93	-14.79	789.3839	789.3770
PIER 1	143+69.93	-14.79	789.4244	789.4244
D	143+79.93	-14.79	789.4509	789.4777
E	143+89.93	-14.79	789.4709	789.5294
F	143+99.93	-14.79	789.4844	789.5669
G	144+09.93	-14.79	789.4913	789.5799
H	144+19.93	-14.79	789.4917	789.5677
I	144+29.93	-14.79	789.4856	789.5345
J	144+39.93	-14.79	789.4730	789.4901
PIER 2	144+46.76	-14.79	789.4605	789.4605
K	144+56.76	-14.79	789.4369	789.4299
L	144+66.76	-14.79	789.4067	789.4027
M	144+76.76	-14.79	789.3700	789.3697
BRSAB	144+88.76	-14.79	789.3173	789.3173
BKSAB	144+90.12	-14.79	789.3107	789.3107



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

DESIGNED	JKC
CHECKED	JDA
DRAWN	ARR
CHECKED	JKC



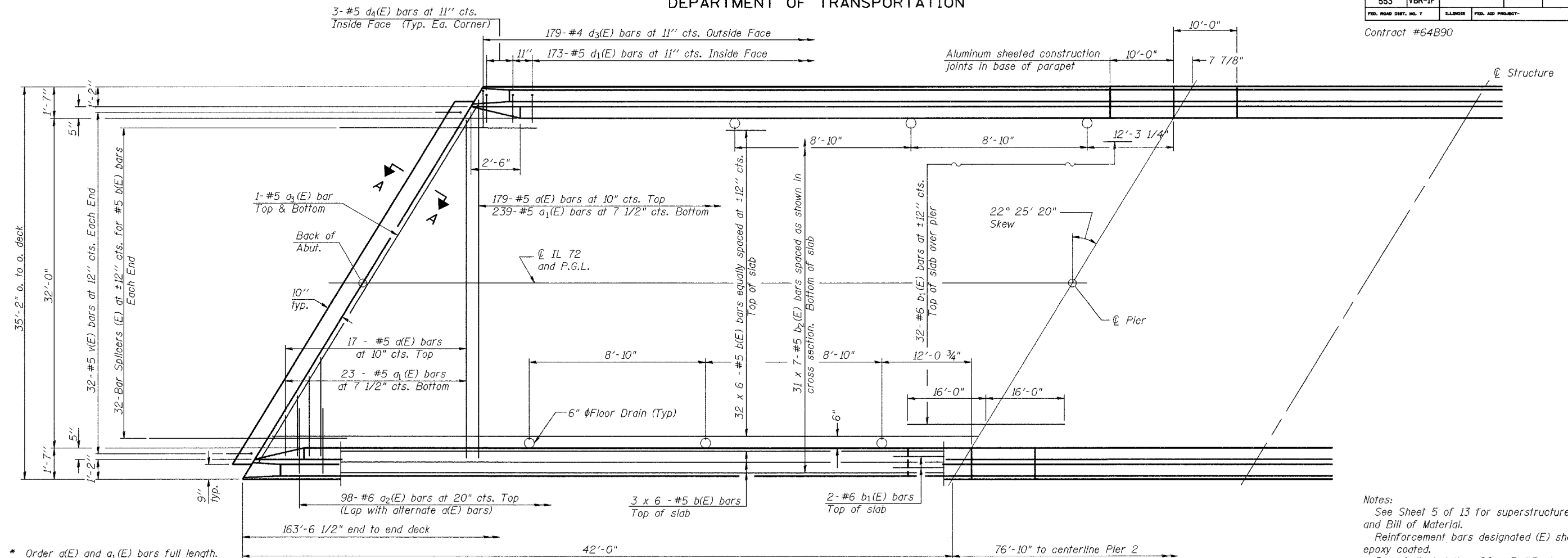
FOR INFORMATION ONLY

DECK ELEVATIONS
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO. FAP 553	SECTION 125 VBR-1F	COUNTY DEKALB	TOTAL SHEETS 15	SHEET NO. 6	SHEET NO. 4 13 SHEETS
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-		

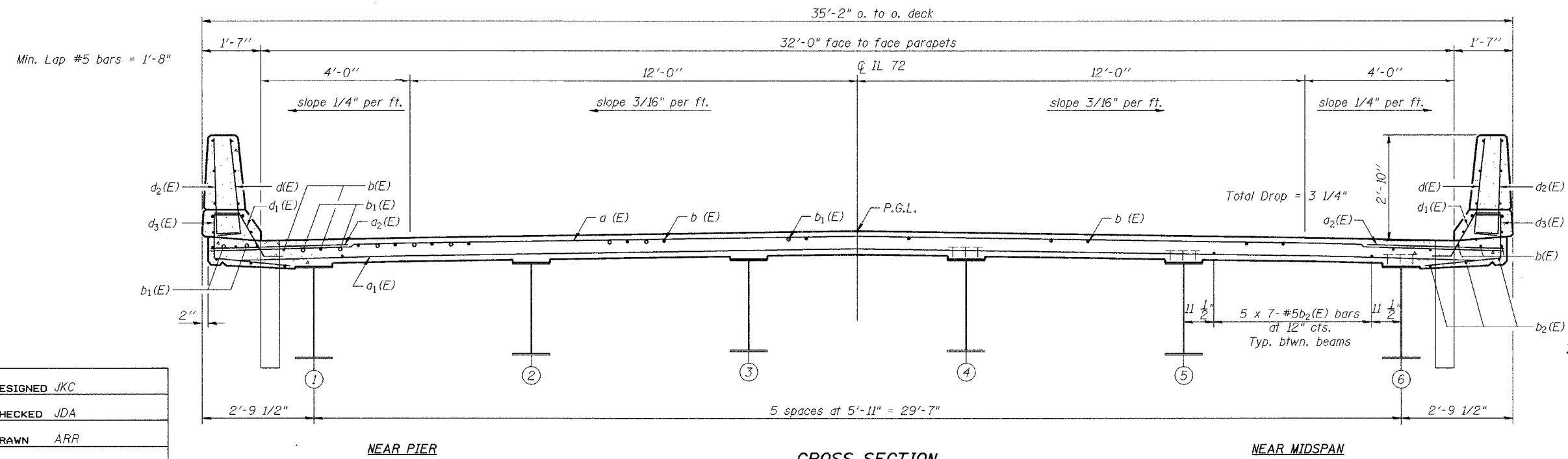
Contract #64B90



* Order $a(E)$ and $a_1(E)$ bars full length. Cut to fit skew and use remainder of bars in opposite end.

Notes:
See Sheet 5 of 13 for superstructure details and Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
See Sheet 5 of 13 for parapet reinforcement.

HALF PLAN



FOR INFORMATION ONLY

SUPERSTRUCTURE PLAN AND SECTION
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

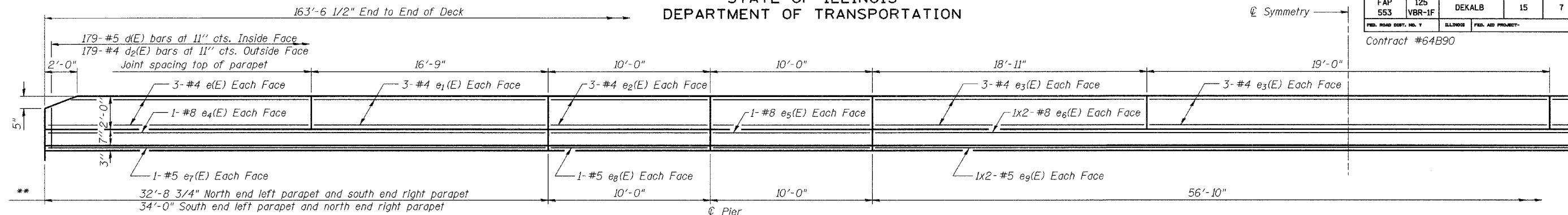
DESIGNED	JKC
CHECKED	JDA
DRAWN	ARR
CHECKED	JKC

SI-2-L 10-22-04

CROSS SECTION
(Looking South)

Note: Composite Span 2 only

Contract #64B90

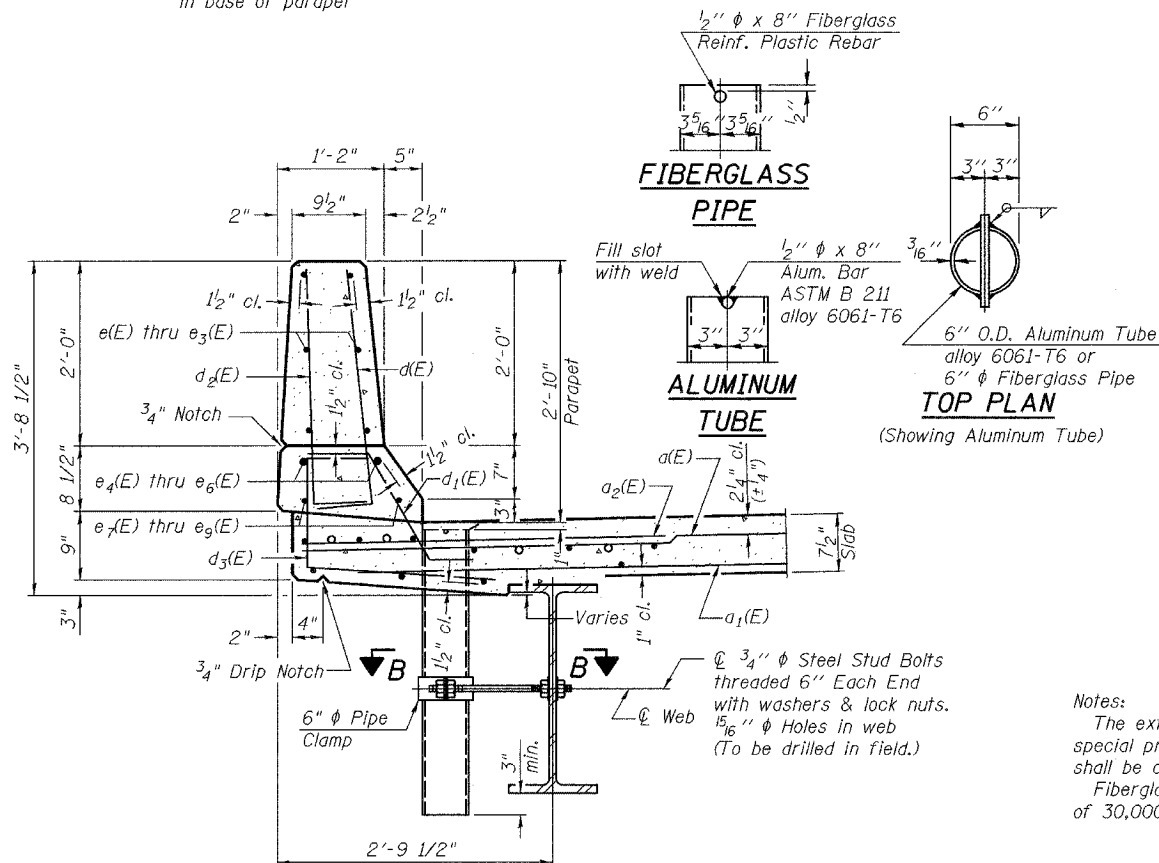


INSIDE ELEVATION OF PARAPET

min lap #5 bar = 1'-8"
min lap #8 bar = 3'-8"

SUPERSTRUCTURE
BILL OF MATERIAL

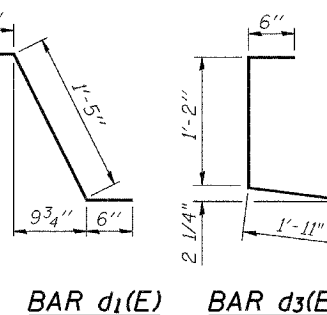
Bar	No.	Size	Length	Shape
a(E)	196	#5	34'-7"	—
a ₁ (E)	262	#5	32'-7"	—
a ₂ (E)	196	#6	4'-6"	—
a ₃ (E)	4	#5	37'-8"	—
b(E)	228	#5	28'-8"	—
b ₁ (E)	72	#6	32'-0"	—
b ₂ (E)	217	#5	24'-10"	—
d(E)	358	#5	3'-0"	—
d ₁ (E)	346	#5	2'-5"	┘
d ₂ (E)	358	#4	3'-0"	—
d ₃ (E)	358	#4	3'-7"	┘
d ₄ (E)	12	#5	2'-4"	┘
e(E)	24	#4	16'-9"	—
e ₁ (E)	24	#4	16'-6"	—
e ₂ (E)	48	#4	9'-9"	—
e ₃ (E)	36	#4	18'-8"	—
e ₄ (E)	8	#8	33'-9"	—
e ₅ (E)	16	#8	9'-9"	—
e ₆ (E)	8	#8	30'-6"	—
e ₇ (E)	8	#5	33'-9"	—
e ₈ (E)	16	#5	9'-9"	—
e ₉ (E)	8	#5	29'-2"	—
m(E)	4	#6	36'-2"	—
m ₁ (E)	6	#6	37'-5"	—
m ₂ (E)	24	#6	8'-7"	—
m ₃ (E)	10	#6	6'-1"	—
m ₄ (E)	4	#6	2'-9"	—
s(E)	62	#5	6'-4"	┘
s ₁ (E)	62	#4	9'-2"	┘
Reinforcement Bars, Epoxy Coated		Pound	42890	
Concrete Superstructure		Cu. Yds.		



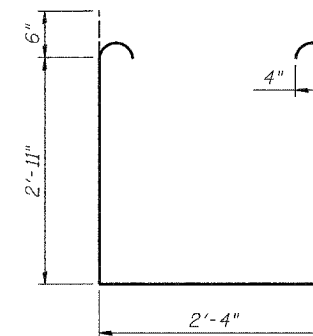
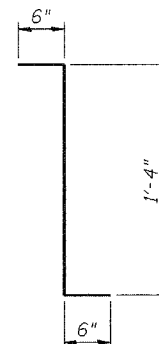
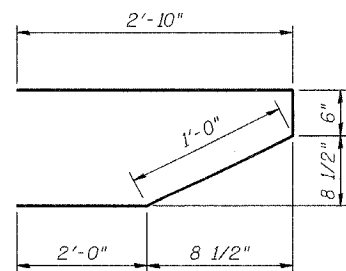
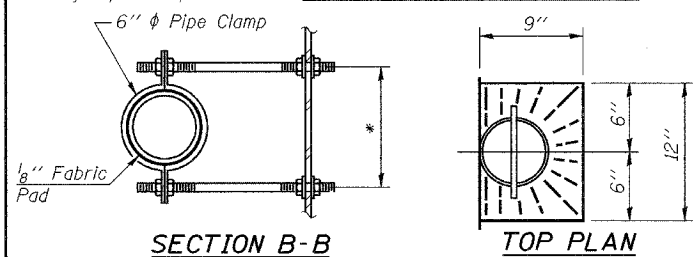
SECTION THRU PARAPET

PARAPET JOINT DETAILS

BARS d(E) & d₂(E)



* Dimension as required by Pipe Clamp



Notes:
The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Steel Structures Painting Council's Spec. SSPC-SP1 prior to painting. Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

FOR INFORMATION ONLY

SUPERSTRUCTURE DETAILS
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

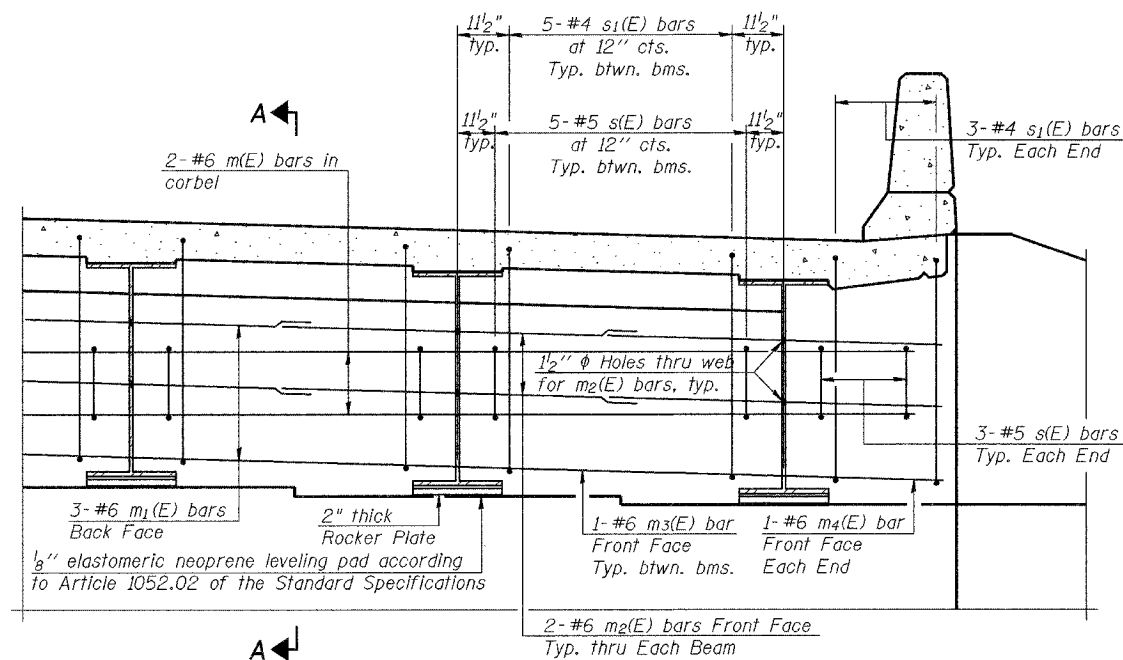
DESIGNED	JKC
CHECKED	JDA
DRAWN	ARR
CHECKED	JKC

S-1-D 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET	PROJECT	SHEET NO.
FAP 553	125 VBR-1F	DEKALB	15	8	13 SHEETS
FED. ROAD DIST. NO. 1		ILLINOIS		FED. AID PROJECT-	

Contract #64B90

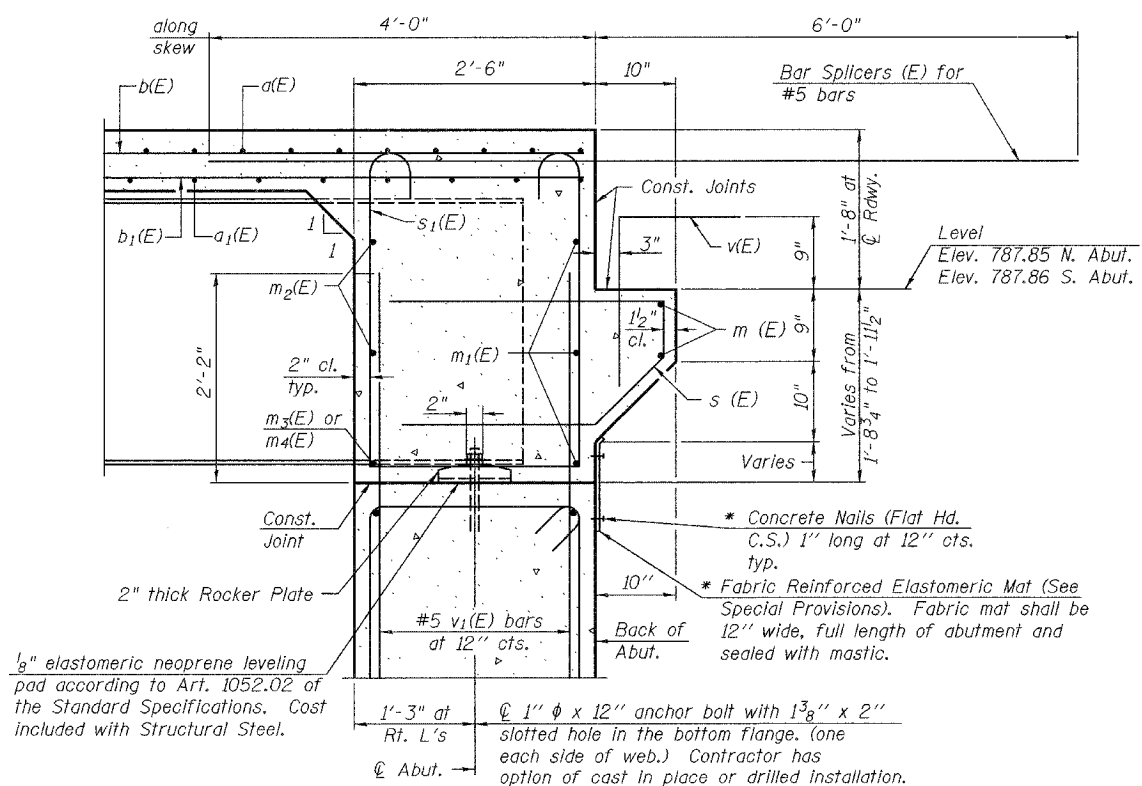


DIAPHRAGM ELEVATION AT ABUTMENT

Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet 5 of 13.
Concrete in diaphragm is included with Concrete Superstructure on sheet 5 of 13.
For details of bars s(E) & s1(E) see sheet 5 of 13.
The s(E) and s1(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.
For anchor bolt details see sheet 13 of 13.

MIN. BAR LAP

#6 bar = 2'-9"



SECTION A-A

Dimensions at right angles to abutment, except as shown.
* Cost included with Concrete Superstructure.

FOR INFORMATION ONLY

SUPERSTRUCTURE DETAILS
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

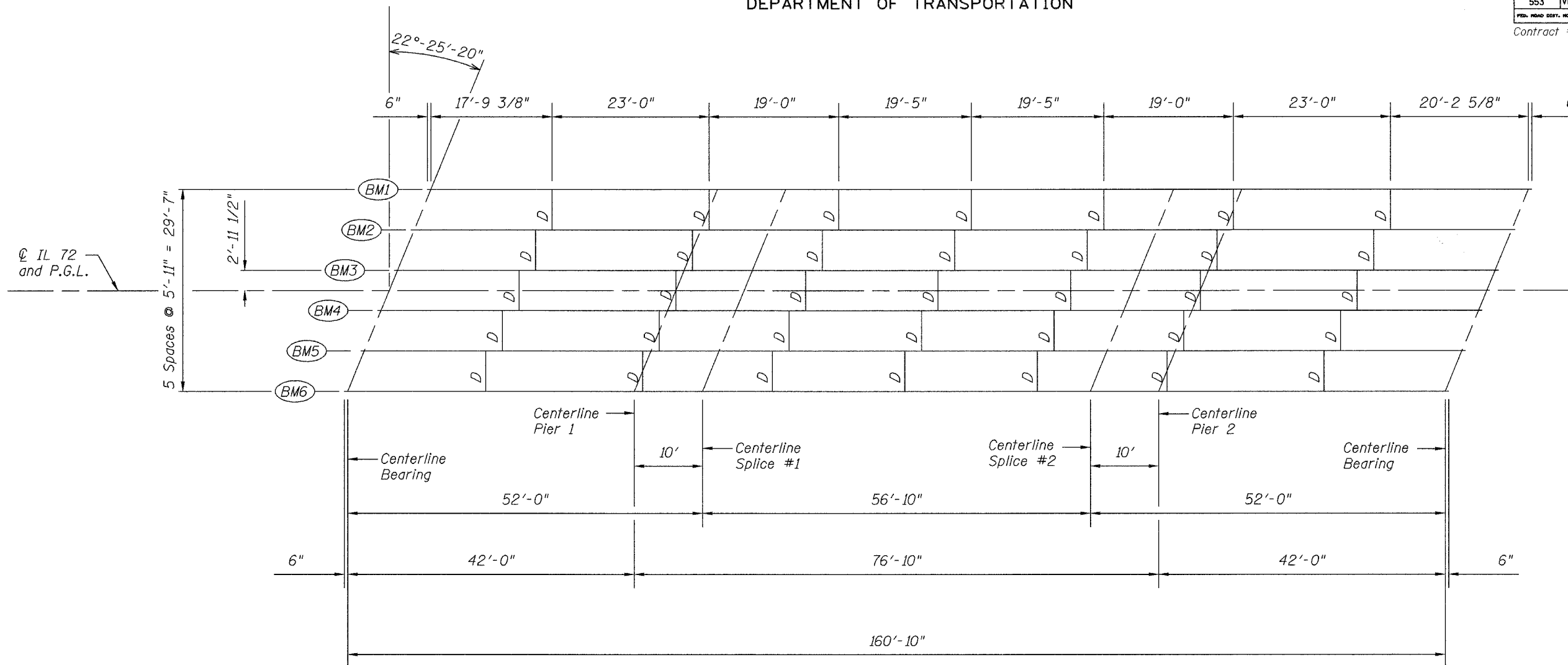
DESIGNED	JKC
CHECKED	JDA
DRAWN	ARR
CHECKED	JKC

SI-DSI 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 7
FAP 553	125 VBR-1F	DEKALB	15	9	13 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Contract #64B90



Legend
D= W16x36

FRAMING PLAN

INTERIOR GIRDER MOMENT TABLE			
	0.4 Sp. 1	Pier	0.5 Sp. 2
I_s (in ⁴)	4470	4470	4470
I_c (n) (in ⁴)	-	-	12534
I_c (3n) (in ⁴)	-	-	9163
S_s (in ³)	299.0	299.0	299.0
S_c (n) (in ³)	-	-	454.5
S_c (3n) (in ³)	-	-	408.9
Z (in ³)	-	-	-
ϕ (k')	1.11	1.11	0.69
$M\phi$ (k)	58.8	437.9	218.1
$s\phi$ (k')	-	-	0.42
$M_s\phi$ (k)	-	-	158.7
$M\phi$ (k)	213.5	214.6	418.0
M (Imp) (k)	64.0	53.6	104.5
$5/8[M\phi + M(Imp)]$ (k)	462.5	447	870.8
M_a (k)	677.7	1150.4	1621.9
M_u (k)	-	-	1878.6
$f_s\phi$ (non-comp) (ksi)	2.36	17.57	8.75
$f_s\phi$ (comp) (ksi)	-	-	4.66
$f_s 5/8(\phi + Imp)$ (ksi)	18.56	17.94	22.99
f_s (Overload) (ksi)	20.92	35.51	36.40
f_s (Total) (ksi)	27.2	46.17	-
VR (k)	48.4	-	51.1

INTERIOR GIRDER REACTION TABLE		
	Abut.	Pier 1 & 2
$R\phi$ (k)	12.8	76.1
$R\phi$ (k)	32.6	41.3
$Imp.$ (k)	9.8	8.5
R (Total) (k)	55.2	125.9

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total & Overload).

I_c (n) and S_c (n) are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

I_c (3n) and S_c (3n) are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)

VR is the maximum Live Load + Impact shear range in span.

Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

M_a (Applied Moment) = $1.3[M\phi + M_s\phi + 5/8(M\phi + M(Imp))]$.
The Plastic Moment capacity (M_u) is computed according to AASHTO 10.48.1 and 10.50.1.1.

f_s (Overload) is the sum of the stresses due to $M\phi + M_s\phi + 5/8(M\phi + M(Imp))$.

f_s (Total) (Non-compact section) is the sum of the stresses due to $1.3[M\phi + M_s\phi + 5/8(M\phi + M(Imp))]$.

Note:
All beams and splice plates shall be NTR (notch toughness-zone 2) and M270 Grade 50W.

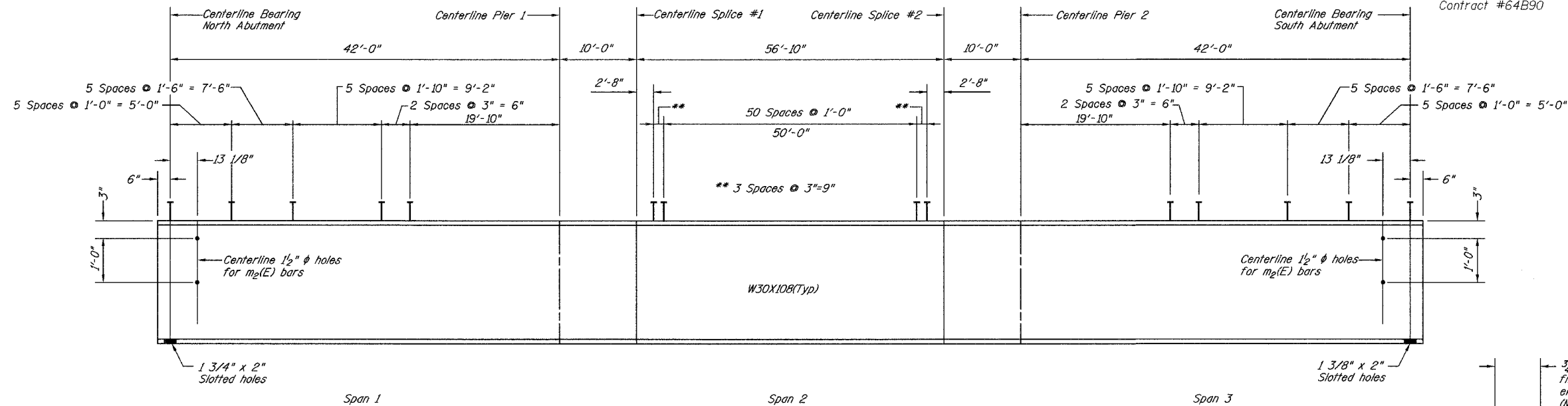
DESIGNED	JKC
CHECKED	JLS
DRAWN	ARR
CHECKED	JKC

FRAMING PLAN
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

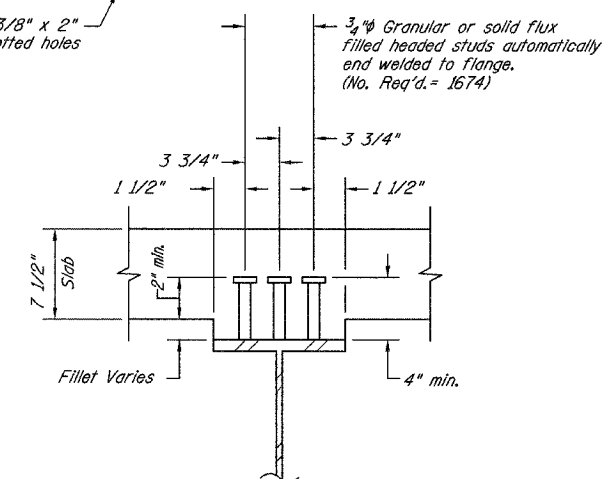
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 8 13 SHEETS
FAP 553	125 VBR-1F	DEKALB	15	10	
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT-			

Contract #64B90



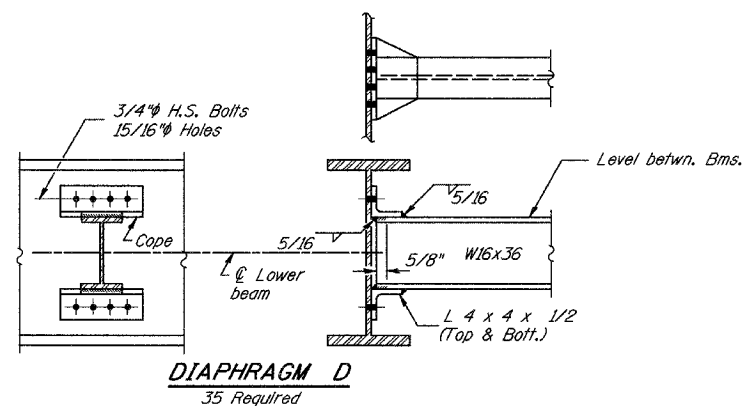
BEAM ELEVATION SHOWING STUDS

(279 Studs Req'd / Beam)



SHEAR CONNECTOR DETAIL

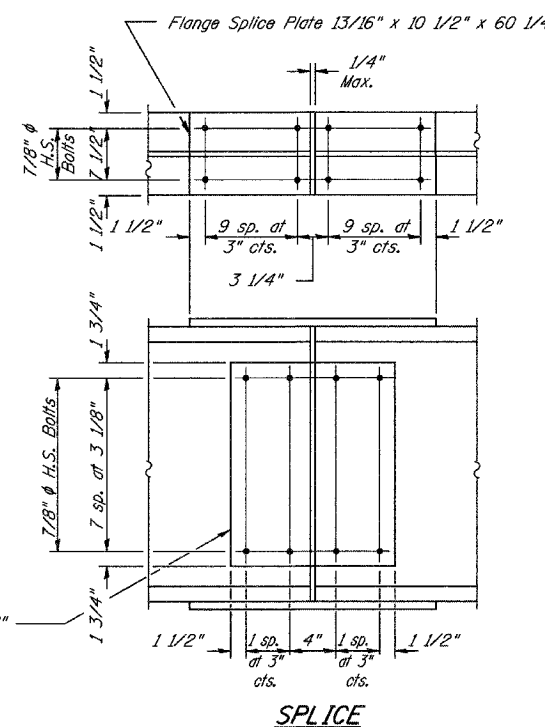
TOP OF BEAM ELEVATION (FOR FABRICATION ONLY)						
Beam	Centerline Brg. N. Abut.	Centerline Pier 1	Centerline Splice 1	Centerline Splice 2	Centerline Pier 2	Centerline Brg. S. Abut.
1	788.62	788.72	788.75	788.73	788.70	788.57
2	788.71	788.82	788.85	788.84	788.81	788.69
3	788.79	788.91	788.94	788.94	788.91	788.79
4	788.78	788.90	788.93	788.94	788.91	788.81
5	788.67	788.80	788.83	788.85	788.83	788.72
6	788.55	788.69	788.72	788.75	788.73	788.63



DIAPHRAGM D

35 Required

Note: Two hardened washers shall be required over all oversize holes for diaphragms.



SPLICE

Note: All beams and splice plates shall be NTR (notch toughness - zone 2) and M270 Grade 50W.

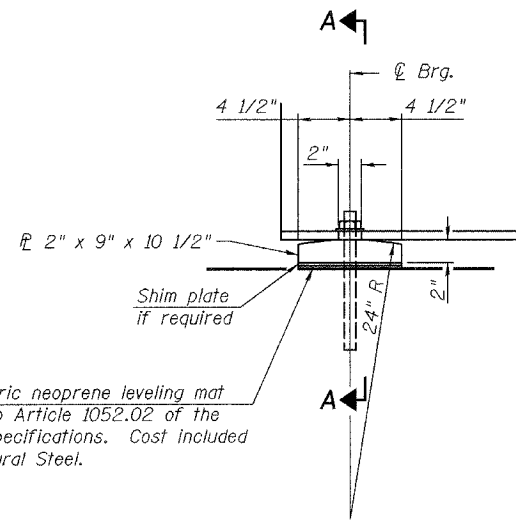
DESIGNED	JKC
CHECKED	JLS
DRAWN	ARR
CHECKED	JKC

FRAMING DETAILS
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

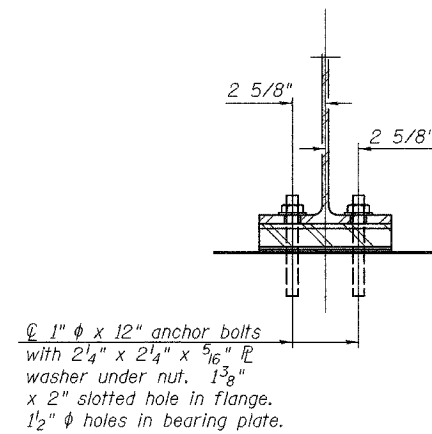
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO.
FAP 553	125 VBR-1F	DEKALB	15	11	13 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Contract #64B90



ELEVATION AT ABUTMENT

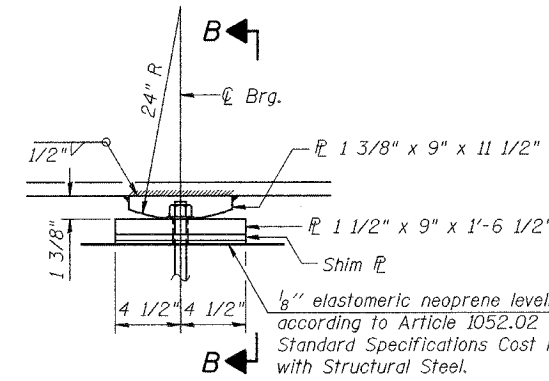


SECTION A-A

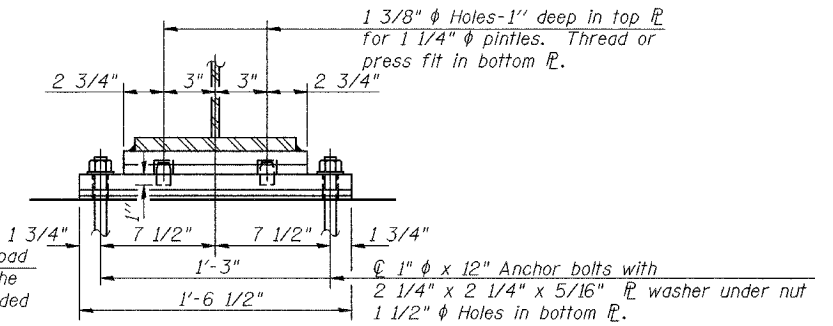
1/2" elastomeric neoprene leveling mat according to Article 1052.02 of the Standard Specifications. Cost included with Structural Steel.

1" diameter x 12" anchor bolts with 2 1/4" x 2 1/4" x 5/16" plate washer under nut. 1 3/8" x 2" slotted hole in flange. 1 1/2" diameter holes in bearing plate.

Notes:
Anchor bolts at fixed bearings may be built into the masonry.
See sheet 13 of 13 for Anchor Bolt installation.

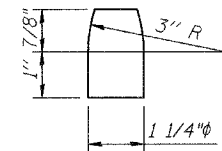


ELEVATION AT PIER



SECTION B-B

FIXED BEARING AT PIER



PINTLE

FIXED BEARING AT ABUTMENT

DESIGNED	JKC
CHECKED	JDA
DRAWN	ARR
CHECKED	JKC

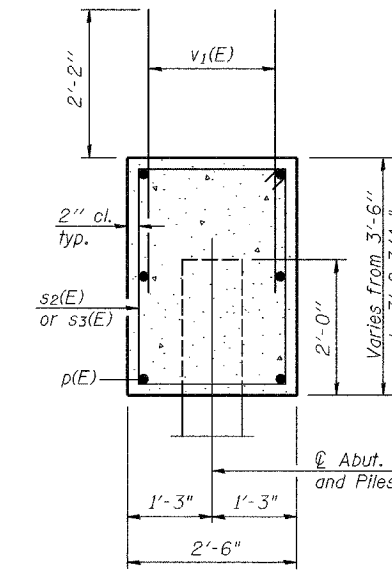
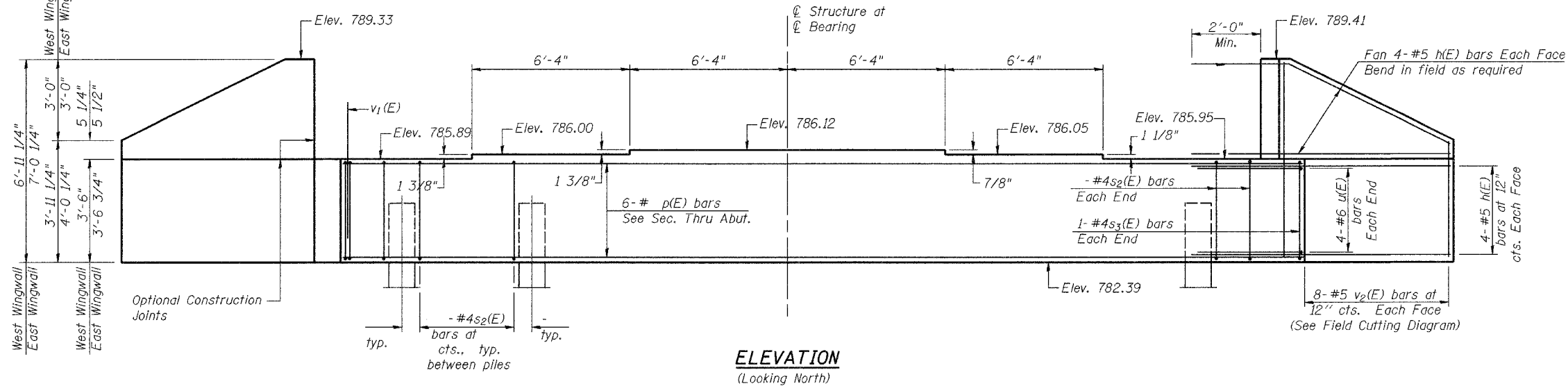
BEARING DETAILS
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 553	125 VBR-1F	DEKALB	15	12
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

Contract #64B90

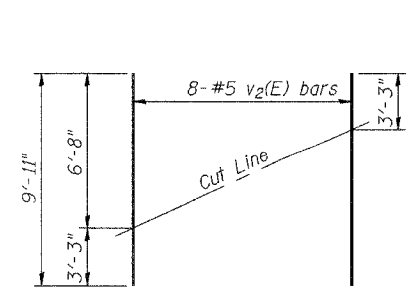
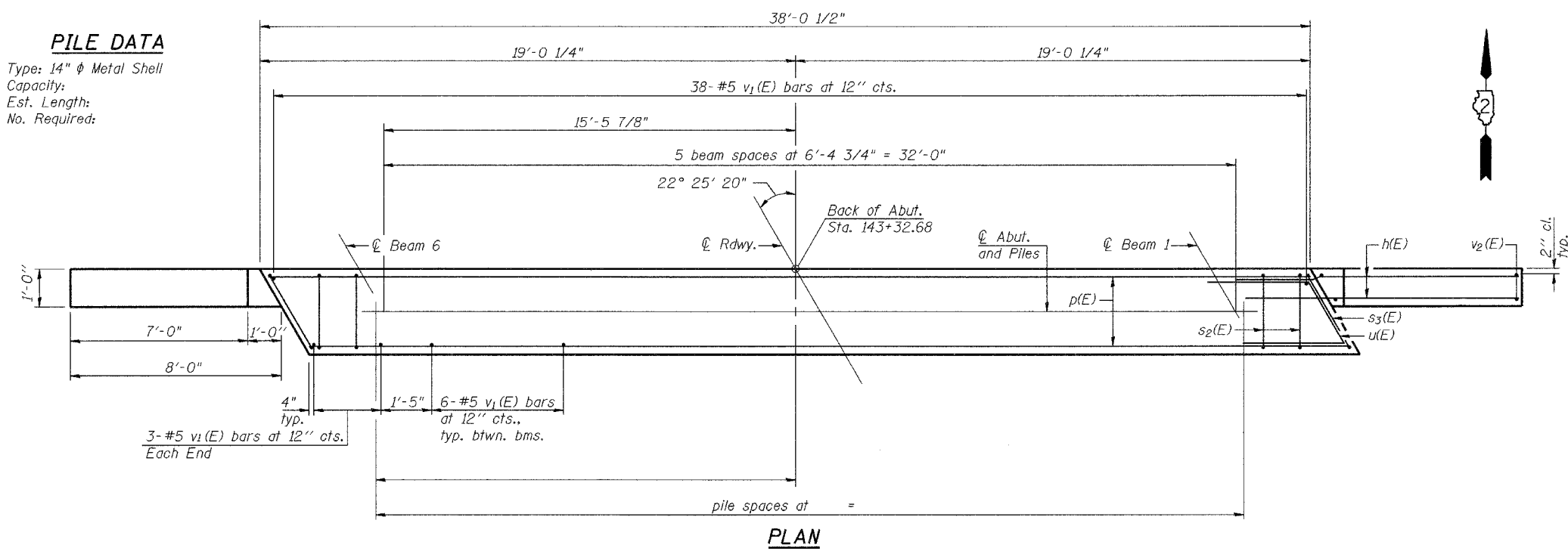
Notes: Pour steps monolithically with cap.
Reinforcement bars designated (E)
shall be epoxy coated.



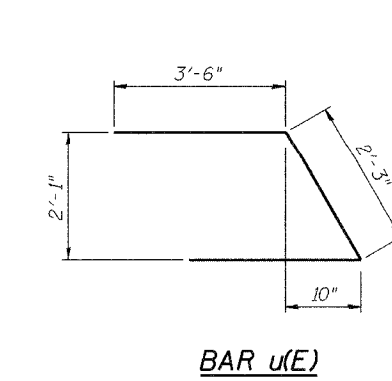
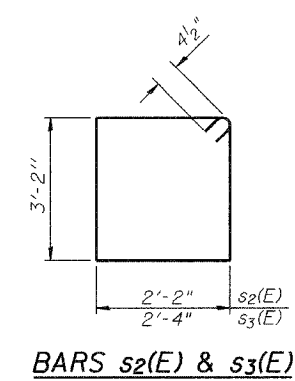
FOR INFORMATION ONLY

PILE DATA

Type: 14" ϕ Metal Shell
Capacity:
Est. Length:
No. Required:



Order $v_2(E)$ full length. Cut as shown and use remainder of bars in opposite face.



BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$h(E)$	32	#5	9'-9"	—
$p(E)$	6	#7	37'-9"	—
$s_2(E)$		#4	11'-5"	□
$s_3(E)$	2	#4	11'-9"	□
$u(E)$	8	#6	9'-3"	△
$v_1(E)$	74	#5	4'-4"	—
$v_2(E)$	16	#5	9'-11"	—
Concrete Structures			Cu. Yd.	
Reinforcement Bars, Epoxy Coated			Pound	
Structure Excavation			Cu. Yd.	

**NORTH ABUTMENT
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047**

DESIGNED	JDA
CHECKED	JKC
DRAWN	ARR
CHECKED	JKC

AI-L 10-22-04

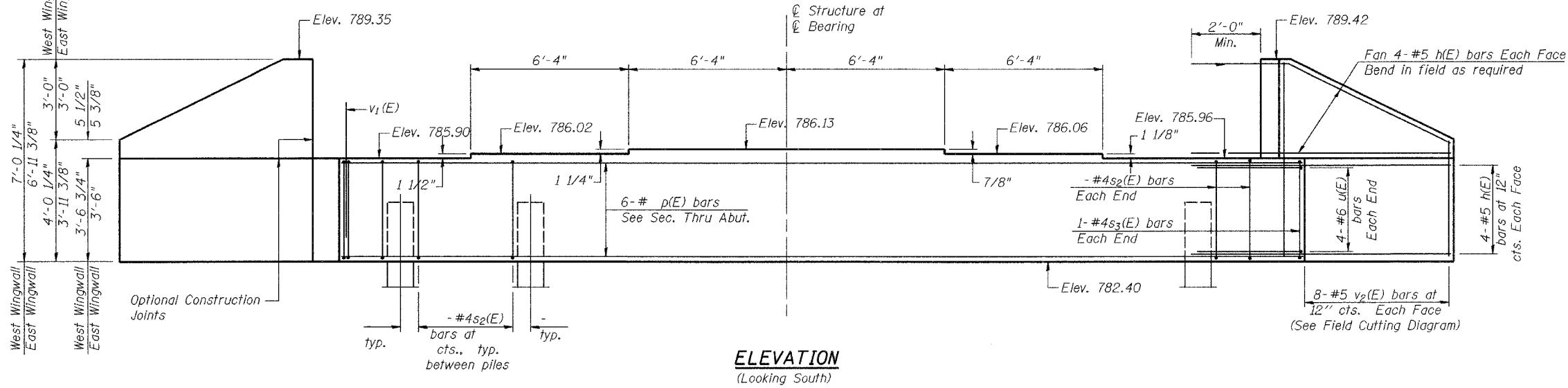
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO. FAP 553	SECTION 125 VBR-1F	COUNTY DEKALB	TOTAL SHEETS 15	SHEET NO. 13
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT-	

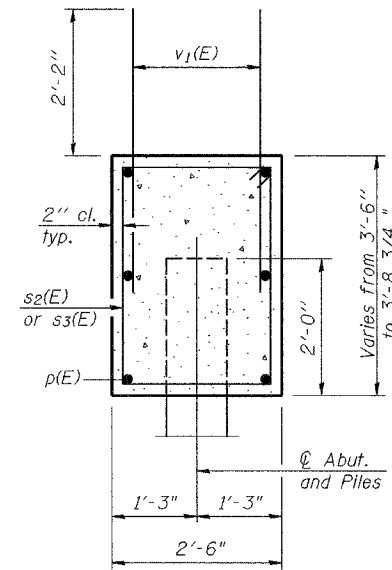
SHEET NO. 11
13 SHEETS

Contract #64B90

Notes: Four steps monolithically with cap.
Reinforcement bars designated (E)
shall be epoxy coated.



ELEVATION
(Looking South)

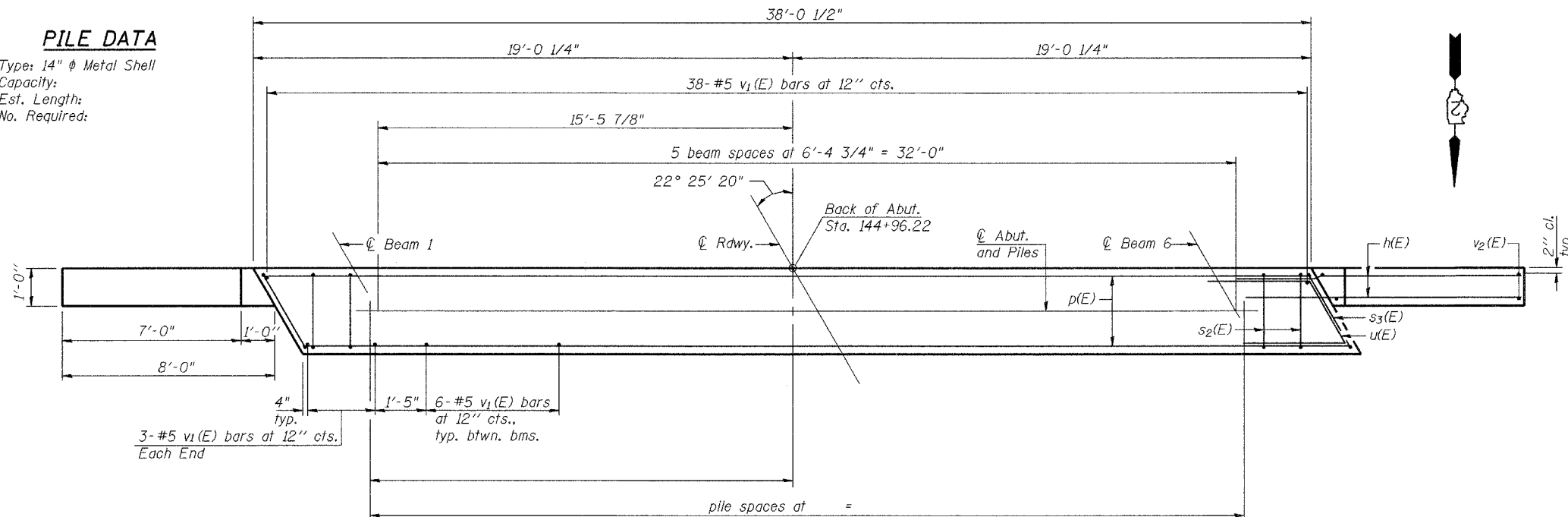


SEC. THRU ABUT.

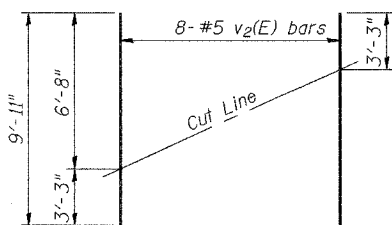
FOR INFORMATION ONLY

PILE DATA

Type: 14" ϕ Metal Shell
Capacity:
Est. Length:
No. Required:

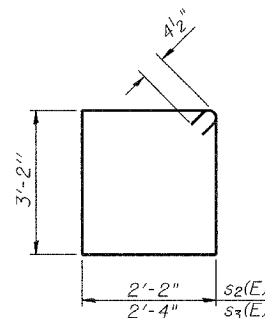


PLAN

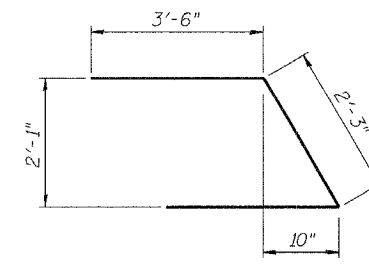


FIELD CUTTING DIAGRAM

Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



BARS s2(E) & s3(E)



BAR u(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	32	#5	9'-9"	—
p(E)	6	#7	37'-9"	—
s2(E)		#4	11'-5"	□
s3(E)	2	#4	11'-9"	□
u(E)	8	#6	9'-3"	∩
v1(E)	74	#5	4'-4"	—
v2(E)	16	#5	9'-11"	—
Concrete Structures			Cu. Yd.	
Reinforcement Bars, Epoxy Coated			Pound	
Structure Excavation			Cu. Yd.	

**SOUTH ABUTMENT
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047**

DESIGNED	JDA
CHECKED	JKC
DRAWN	ARR
CHECKED	JKC

AI-L 10-22-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	DATE	SHEET NO.
FAP 553	125 VBR-1F	DEKALB	15	14
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 12
13 SHEETS

Contract #64B90

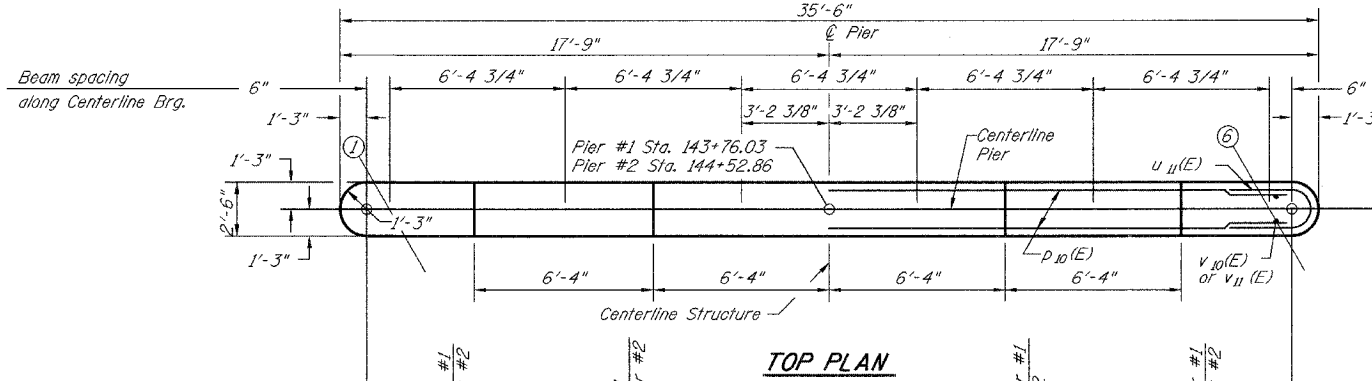
Notes: Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.

PILE DATA

Pier #1
Type: HPI2x
Capacity: ---
Est. Length: ---
No. Req'd: plus 1 Test Pile

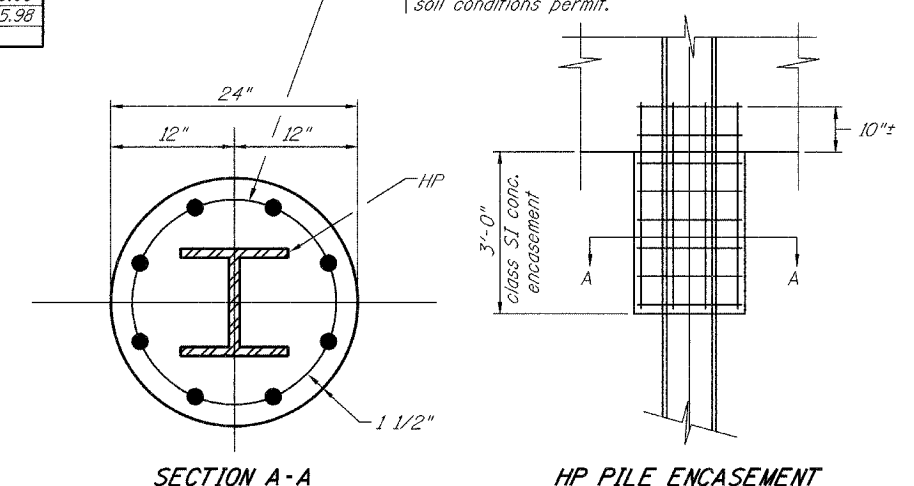
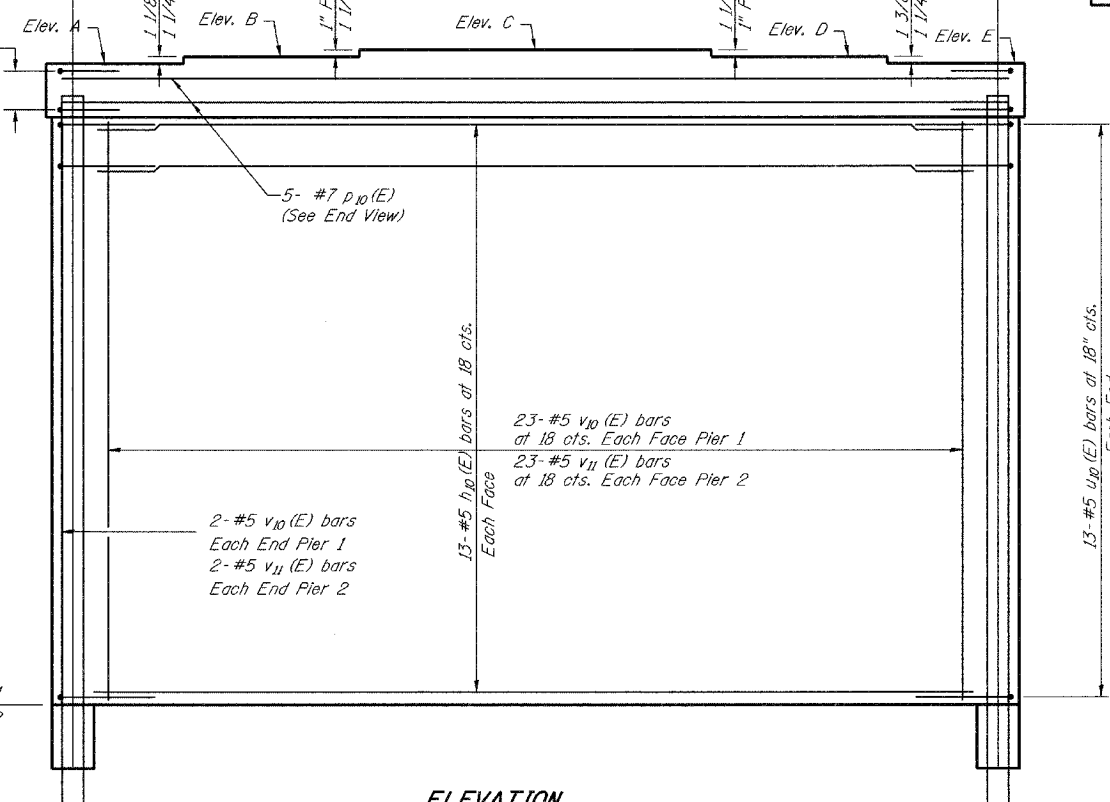
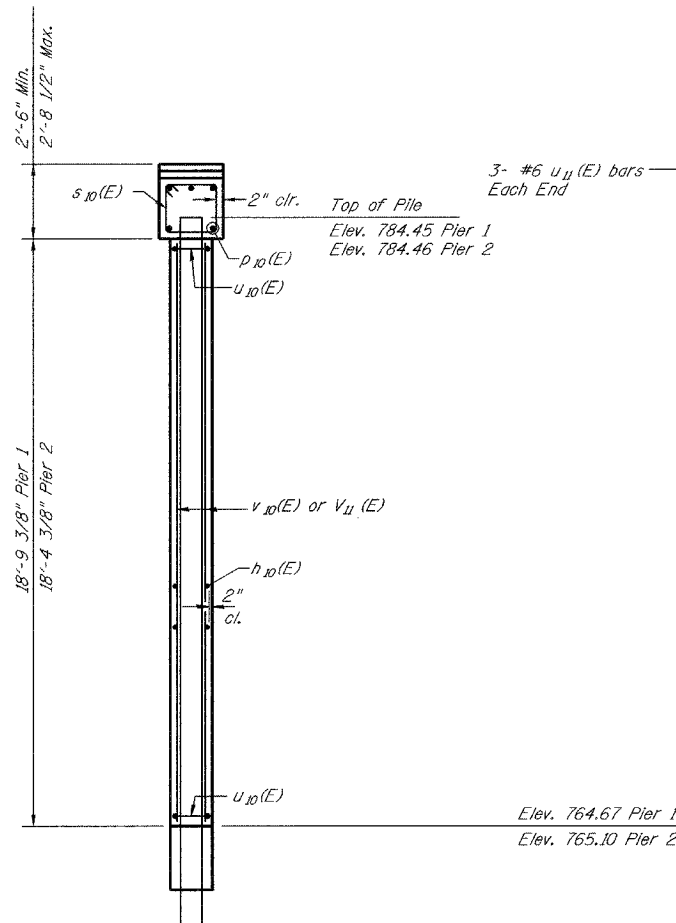
PILE DATA

Pier #2
Type: HPI2x
Capacity: ---
Est. Length: ---
No. Req'd: ---



Loc.	Pier 1	Pier 2
A	785.98	785.96
B	786.08	786.06
C	786.16	786.17
D	786.06	786.08
E	785.95	785.98

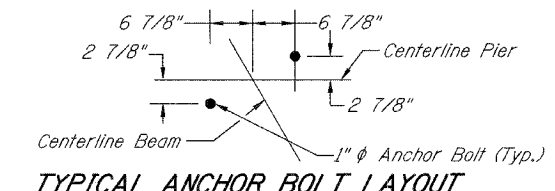
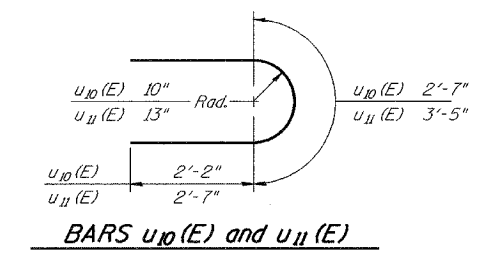
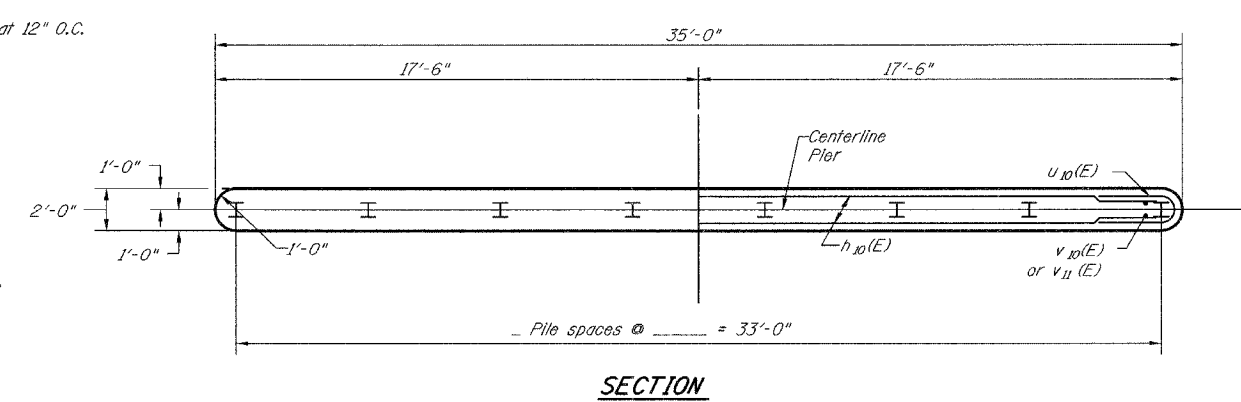
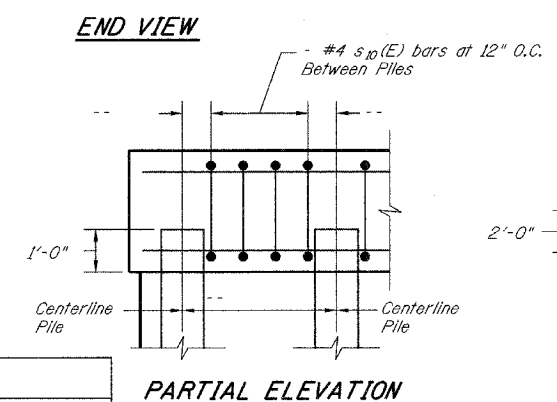
Welded wire fabric 6 x 6-W4.0 x W4.0 with a weight of 58#/100 sq. ft. The cost of Excavation, Class SI Concrete Encasement and Reinforcement is included in the cost of furnishing piles. Forms for encasement may be omitted when soil conditions permit.



BILL OF MATERIAL - 2 PIERS

Bar	No.	Size	Length	Shape
h10(E)	52	#5	33'-0"	—
p10(E)	10	#7	33'-0"	—
s10(E)		#4	9'-5"	□
u10(E)	52	#5	6'-11"	U
u11(E)	12	#6	8'-7"	U
v10(E)	50	#5	18'-6"	—
v11(E)	50	#5	18'-0"	—
Concrete Structures	Cu Yd	112.1		
Reinforcement Bars, Epoxy Coated	Pound	--		
Test Pile Steel HPI2x	Each	1		
Furnishing Steel Piles HPI2x	Foot	--		
Driving Steel Piles	Foot	--		
Structure Excavation	Cu Yd	18.0		

Reinforcement Bars designated (E) shall be epoxy coated.



DESIGNED	JDA
CHECKED	JKC
DRAWN	ARR
CHECKED	JKC

FOR INFORMATION ONLY

PIER #1 & #2
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

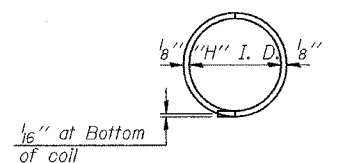
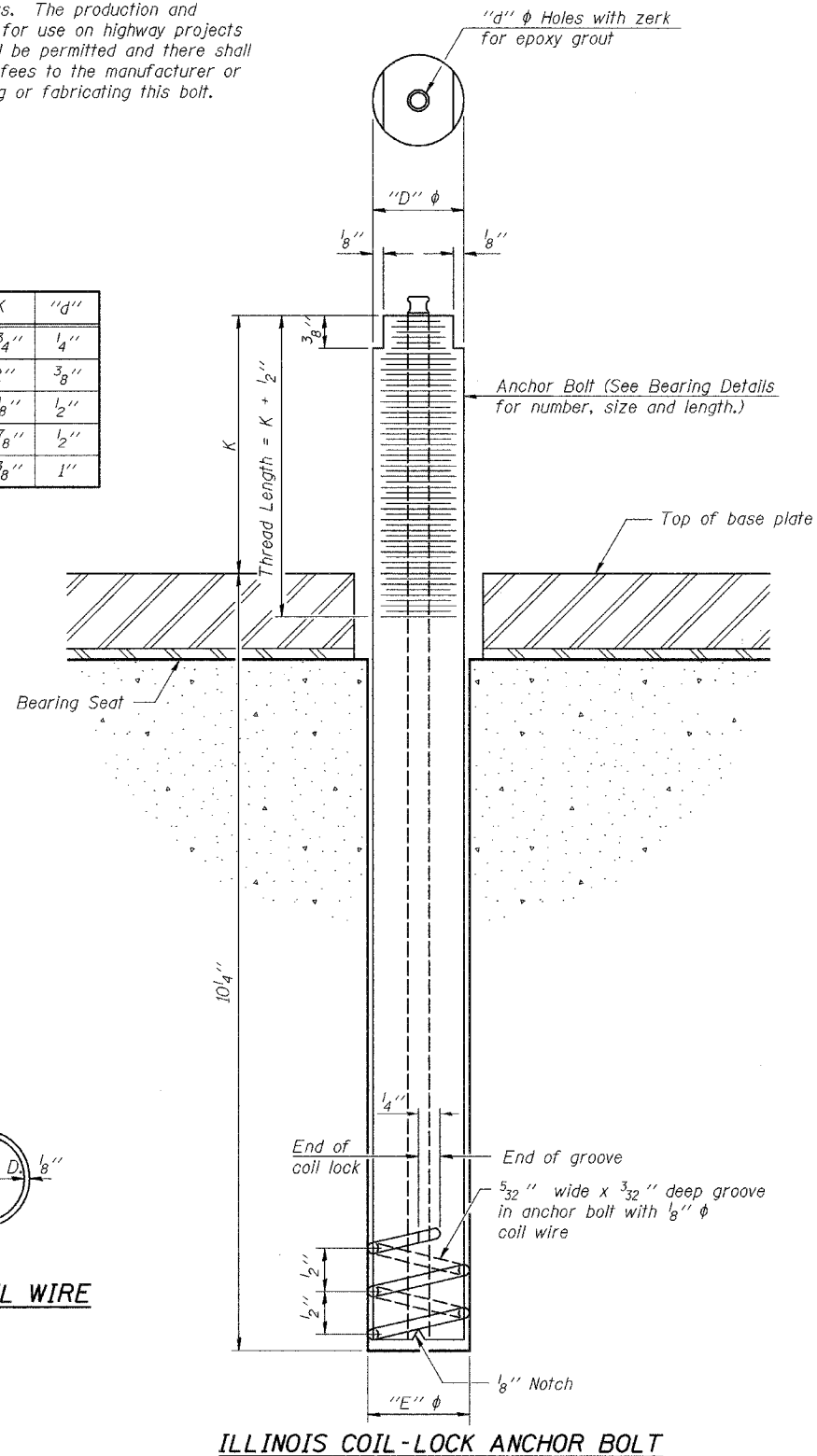
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 553	125 VBR-1F	DEKALB	15	15
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

Contract #64B90

8885 E S 700

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/16"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 3/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



PLAN-COIL WIRE

ILLINOIS COIL-LOCK ANCHOR BOLT

MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.

The coil wire shall be made of any suitable soft steel wire. The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed. The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.

The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:

1. A threaded rod stud with nut and washer of the type specified.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
ABUTS	A307
PIERS	A307

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

GENERAL NOTES

Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.

Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.

The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for Furnishing and Erecting Structural Steel.

FOR INFORMATION ONLY

ANCHOR BOLT DETAILS FOR BEARINGS
IL RTE 72 OVER
IOWA CHICAGO & EASTERN RAILROAD
FAP ROUTE 553
SECTION 125VBR-1F
DEKALB COUNTY
STA. 144+14.40
SN 019-0047

DESIGNED	JKC
CHECKED	JDA
DRAWN	ARR
CHECKED	JKC

ABB-1

10-22-04