

01.CORP\_5208.DGN MAR. 16, 2010

# BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

T. R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
165	96-1415-00-BR	WASHINGTON	#15	1
S.N. 095-3251		CONTRACT NO. 97435		
ILLINOIS		FEDERAL AID PROJECT		

## DETAIL PLANS FOR T.R. 165 (SOUTH GRAND RD.) OVER WILLIAMS CREEK SECTION 96-1415-00-BR PLUM HILL ROAD DISTRICT WASHINGTON COUNTY PROJECT NO. BROS-0189(050) JOB NO. C-98-390-09

### INDEX OF SHEETS

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6. SUPERSTRUCTURE
7. 27" x 36" P.P.C. DECK BEAM
8. 27" x 36" P.P.C. DECK BEAM DETAILS
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### HIGHWAY STANDARDS

- 280001-05 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-03 NAME PLATE FOR BRIDGES
- 701901-01 TRAFFIC CONTROL DEVICES
- BLR 21-8 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
- BLR 22-6 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

### DESIGN CLASSIFICATION

LOCAL ROAD (NON-URBAN) A.D.T. = 0-250  
CURRENT A.D.T. = 25 (2009)  
DESIGN A.D.T. = 25 (2009)  
DESIGN SPEED = 30 M.P.H.

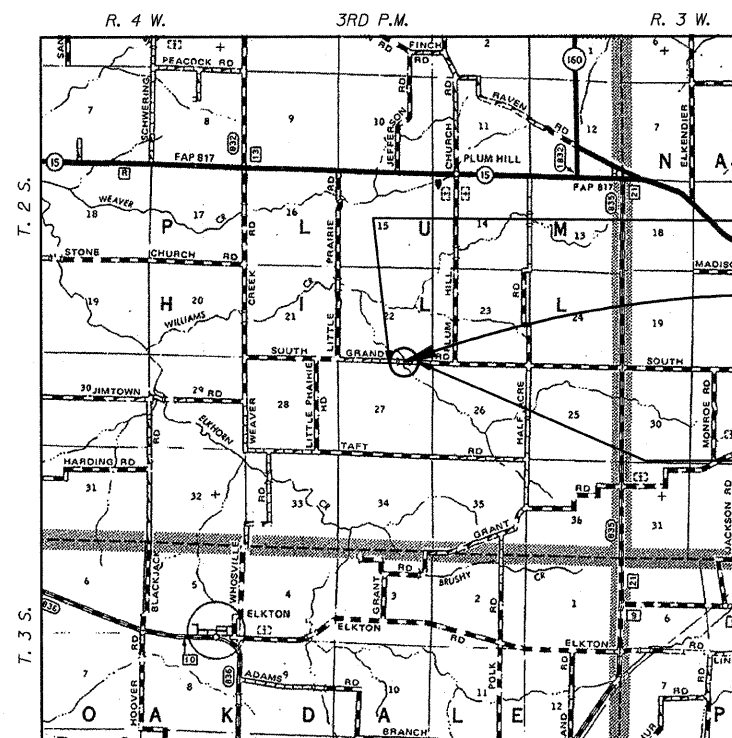
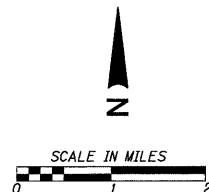
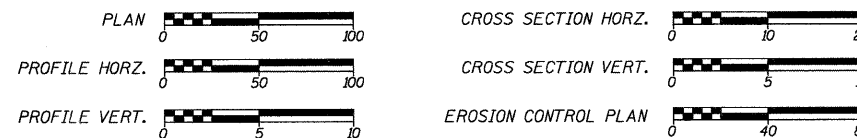
### UTILITIES:

CALL J.U.L.I.E. BEFORE YOU DIG  
1-800-892-0123

### TELEPHONE:

FRONTIER COMMUNICATIONS  
ALTAMONT, IL. 62411  
(618) 483-6205

### SCALES:

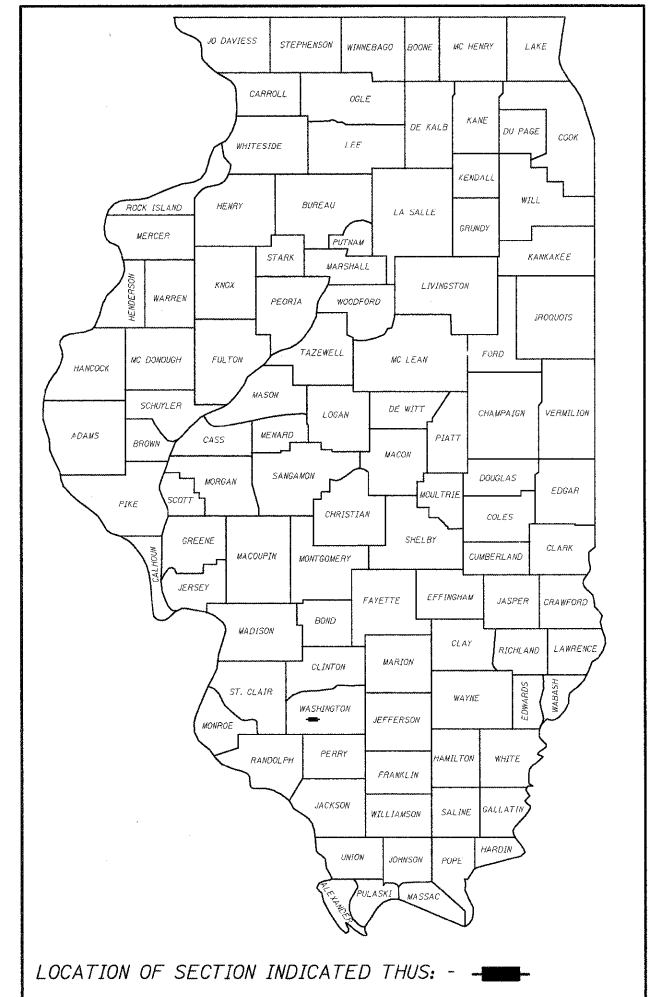


SECTION 96-1415-00-BR  
BEGINS STA. 84+00

### PROJECT LOCATION

PROPOSED STRUCTURE NO. 095-3251 STATION 88+23  
SIMPLE SPAN PRECAST PRESTRESSED CONCRETE  
DECK BEAMS (27" DEPTH) ON SPILL THRU PILE BENT  
ABUTMENTS MEASURING 70'-0" BACK TO BACK OF THE  
ABUTMENTS WITH A 24'-0" CLEAR ROADWAY WIDTH.

SECTION 96-1415-00-BR  
ENDS STA. 91+00



ILLINOIS DEPARTMENT OF TRANSPORTATION			
APPROVED	<u>March 11</u>	20	<u>10</u>
	<u>Martin Stueben</u>		ROAD COMMISSIONER
APPROVED	<u>March 11</u>	20	<u>10</u>
	<u>[Signature]</u>		COUNTY ENGINEER
PASSED	<u>April 16</u>	20	<u>10</u>
	<u>[Signature]</u>		DISTRICT 8 ENGINEER OF LOCAL ROADS AND STREETS
RELEASING FOR BID BASED UPON LIMITED REVIEW	<u>April 16</u>	20	<u>10</u>
	<u>Mary C. Lamie</u>		DEPUTY DIRECTOR OF HIGHWAYS REGION FIVE ENGINEER
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION			

### LOCATION MAP

NET LENGTH OF PROJECT = 700 FEET OR 0.133 MILES.



Larry D. Gowler, Jr. DATE 3/16/10  
LARRY D. GOWLER, JR.  
REGISTERED PROFESSIONAL  
ENGINEER IN ILLINOIS, NO. 52900



EXPIRES: NOVEMBER 30, 2011

H.M.G. NO. 5208

LOCATION OF WORK

CONSTRUCTION CODES  
E000 & X081-2A

SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	0.3
20200100	EARTH EXCAVATION	CU. YD.	2,307
20300100	CHANNEL EXCAVATION	CU. YD.	282
25000200	SEEDING, CLASS 2	ACRE	0.7
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	63
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	63
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	63
25100115	MULCH, METHOD 2	ACRE	0.7
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	70
28000305	TEMPORARY DITCH CHECKS	FOOT	48
28000315	AGGREGATE DITCH CHECKS	TON	10
28000400	PERIMETER EROSION BARRIER	FOOT	1,343
28000500	INLET AND PIPE PROTECTION	EACH	1
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	137
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	541
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU. YD.	36
50300225	CONCRETE STRUCTURES	CU. YD.	31.4
50300280	CONCRETE ENCASEMENT	CU. YD.	2.8
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ. FT.	1,643
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	5,230
* 50900205	STEEL RAILING, TYPE S1	FOOT	138
51201610	FURNISHING STEEL PILES HP12x63	FOOT	120
51202305	DRIVING PILES	FOOT	120
51203610	TEST PILE STEEL HP12x63	EACH	2
51500100	NAME PLATES	EACH	1
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	63
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	480
67100100	MOBILIZATION	L. SUM	1

\* SPECIALTY ITEMS

APPLICATION RATES

THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES.

NITROGEN FERTILIZER NUTRIENT	90 LBS./ACRE
PHOSPHORUS FERTILIZER NUTRIENT	90 LBS./ACRE
POTASSIUM FERTILIZER NUTRIENT	90 LBS./ACRE
MULCH METHOD 2	2 TONS/ACRE
GRANULAR MATERIAL	2.05 TONS/CY
RIPRAP	1.6 TONS/CY

EARTHWORK SCHEDULE

(SEE SPECIAL PROVISIONS)

LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
STA. 84+00 TO 87+88	2,164	1,623	452	+1,171
BRIDGE OMISSION				
STA. 88+58 TO 91+00	143	108	544	-436
SUBTOTAL	2,307	1,731	996	+735
ALLOWANCE FOR 50% CHANNEL EXCAVATION IN EMBANKMENT				+141
TOTAL (TO BE WASTED)				+876

NOTE: SCHEDULE ASSUMES A 25% SHRINKAGE FACTOR.

TREE REMOVAL SCHEDULE

LOCATION	ACRES
STA. 86+79 TO STA. 88+17, RT.	0.05
STA. 84+25 TO STA. 89+75, LT.	0.25
TOTAL	0.30

NOTE:  
LOCAL AGENCY HAS CUT TREES OF POTENTIAL INDIANA BAT HABITAT. STUMPS AND LOGS REMAIN AND ARE TO BE REMOVED BY THE CONTRACTOR.

EXTRA BARS FOR TEST SAMPLES

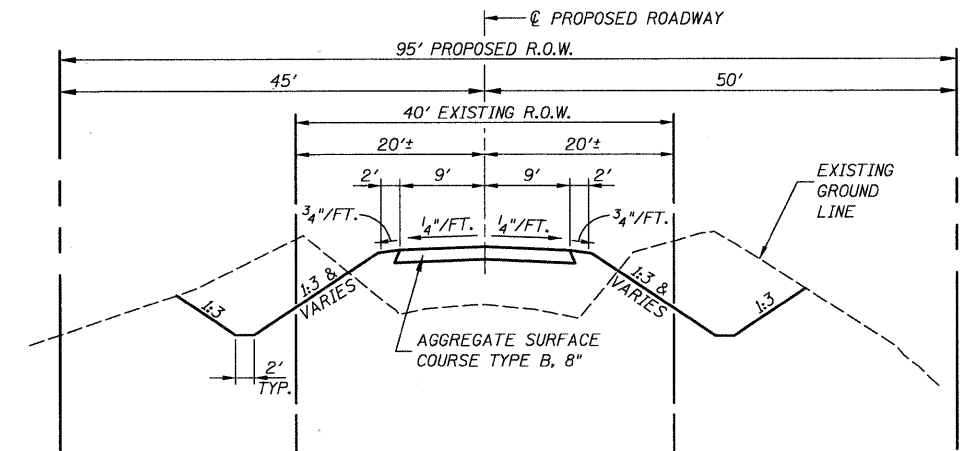
BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	1	#7	12'-2"	—
h <sub>2</sub> (E)	1	#4	29'-4"	—
u(E)	1	#6	11'-1"	□
v(E)	1	#5	8'-10"	—

\* THESE BARS SHALL BE IDENTICAL TO AND DELIVERED WITH THE BARS OF THE SAME MARK LISTED IN THE STRUCTURE SHEETS. ONE BAR OF EACH OF THESE MARKS WILL BE SELECTED BY THE ENGINEER TO BE USED AS A TEST SAMPLE.

\*\* THIS CHART ASSUMES THAT ALL BARS OF THE SAME SIZE ON THE JOB WILL HAVE THE SAME HEAT NUMBER. IF BARS OF THE SAME SIZE ON THE JOB HAVE DIFFERENT HEAT NUMBERS, THEN THE CONTRACTOR SHALL SUPPLY ADDITIONAL BARS FROM OTHER HEAT NUMBERS FOR SAMPLING BY THE ENGINEER AT NO ADDITIONAL COST.

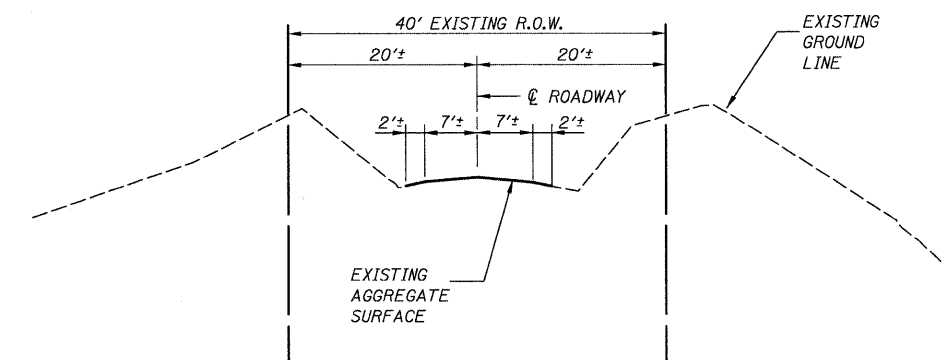
COMMITMENTS

- TREE REMOVAL WILL NOT OCCUR BETWEEN APRIL 1 TO NOVEMBER 15 DUE TO POTENTIAL INDIANA BAT HABITAT.
- WETLAND MITIGATION WILL OCCUR AT 5.5:1 RATIO SO 0.55 ACRES OF MITIGATION ARE REQUIRED AND WILL OCCUR AT SOUTHERN ILLINOIS WETLAND MITIGATION BANK WHICH IS OFF-SITE, IN-BASIN.
- DISTURBANCE OF WETLAND AREAS TO BE LIMITED TO THAT SHOWN ON PLANS.
- ALL EMERGENCY, SCHOOL AND POSTAL SERVICES WILL BE NOTIFIED BEFORE CONSTRUCTION BEGINS.
- FIELD ENTRANCES WILL REMAIN ACCESSIBLE, AS REQUIRED, THROUGHOUT THE TIME OF CONSTRUCTION. THE TOWNSHIP WILL PROVIDE AGGREGATE AS NECESSARY.

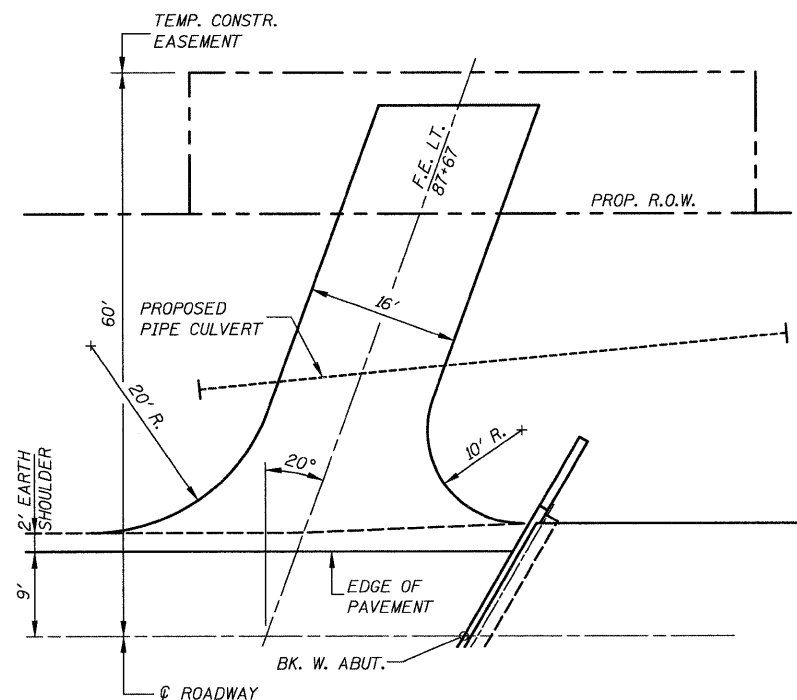


PROPOSED ROADWAY CROSS SECTION

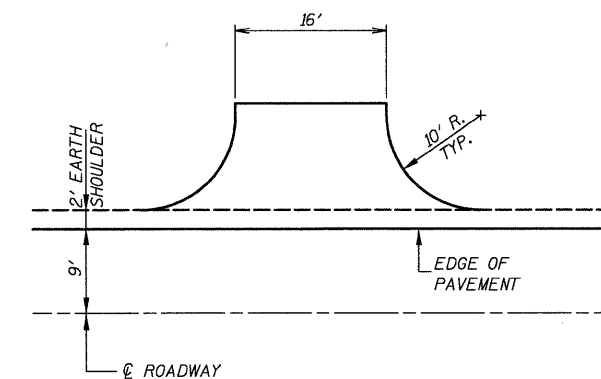
STA. 84+00 TO STA. 87+88; STA. 88+58 TO STA. 91+00



EXISTING ROADWAY CROSS SECTION



FIELD ENTRANCE LT. STA. 87+67



FIELD ENTRANCE LT. STA. 90+00

GENERAL NOTES

- ALL ELEVATIONS REFER TO U.S.G.S. MEAN SEA LEVEL.
- UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION AND THEIR TRUE LOCATION IS NOT GUARANTEED TO BE AS SHOWN ON THE PLANS. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND CARRY ON HIS OPERATIONS ACCORDINGLY.

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DATE -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES AND  
TYPICAL ROADWAY CROSS SECTIONS

F.A.	SECTION	COUNTY	TOTAL SHEET NO.
165	96-14115-00-BR	WASHINGTON	15 2
S.N. 095-3251			CONTRACT NO. 97435
ILLINOIS FED. AID PROJECT			

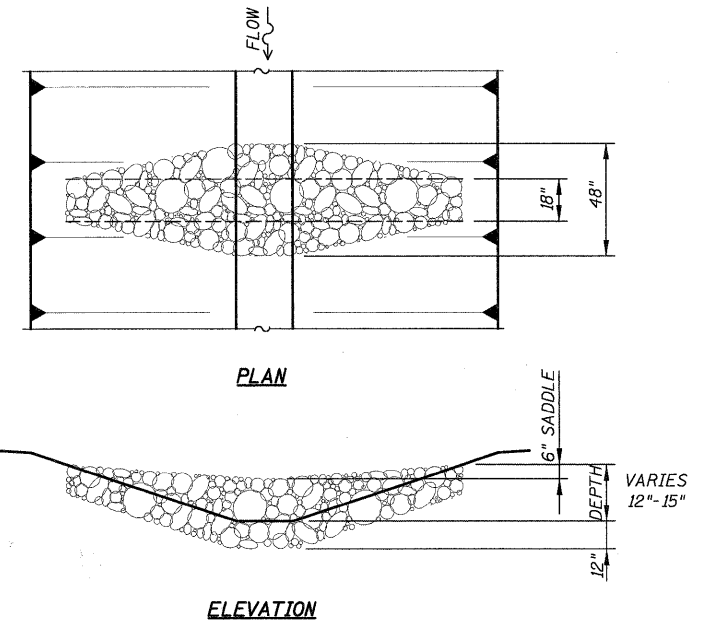
03\_EROS\_5208.DGN MAR. 15, 2010

**GENERAL NOTES:**

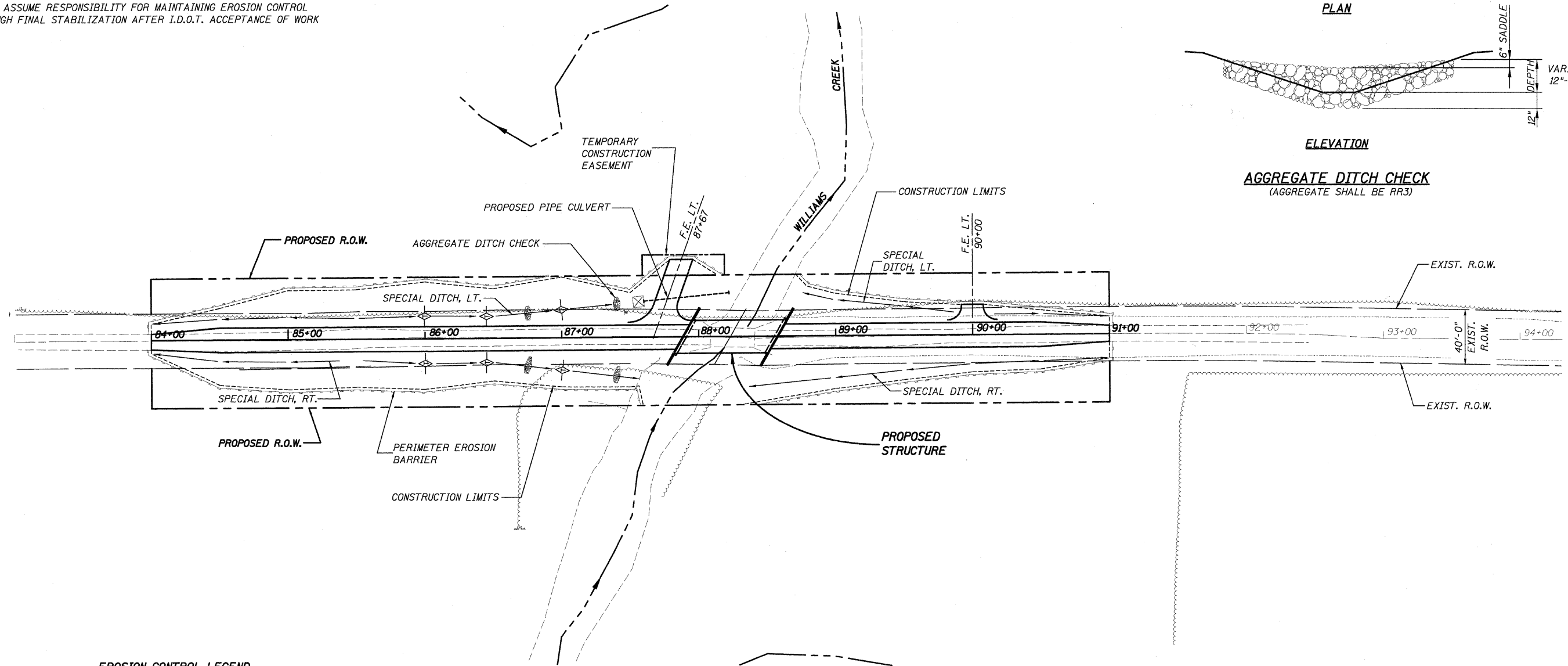
1. CONTRACTOR SHALL CONSULT JOB SPECIFICATIONS FOR MORE INFORMATION.
2. LAYOUT OF EROSION CONTROL MEASURES MAY BE ADJUSTED IN FIELD BY ENGINEER FOR VARYING GROUND CONDITIONS.
3. TEMPORARY DITCH CHECKS SHALL BE URETHANE FOAM/GEOTEXTILE DITCH CHECKS PER STD. 280001.
4. HAY OR STRAW BALES SHALL NOT BE USED FOR TEMPORARY DITCH CHECKS.
5. AGGREGATE DITCH CHECKS SHALL BE PLACED ACCORDING TO DETAILS AND SCHEDULE SHOWN ON THIS SHEET.
6. CONTRACTOR SHALL PROVIDE STABILIZED CONSTRUCTION ENTRANCES AS NECESSARY TO MINIMIZE OFF SITE VEHICLE TRACKING OF SOIL AND DEBRIS. SEE SPECS.
7. ALL DISTURBED AREAS SHALL RECEIVE TEMPORARY EROSION CONTROL SEEDING AS DESCRIBED IN SPECS. UNTIL PERMANENT STABILIZATION CAN BE PERFORMED.
8. THE COUNTY WILL ASSUME RESPONSIBILITY FOR MAINTAINING EROSION CONTROL MEASURES THROUGH FINAL STABILIZATION AFTER I.D.O.T. ACCEPTANCE OF WORK BY CONTRACTOR.

**AGGREGATE DITCH CHECK SCHEDULE**

STATION	DEPTH
86+75 (L.T.)	12"
86+75 (RT.)	12"
87+40 (L.T.)	15"
87+40 (RT.)	12"

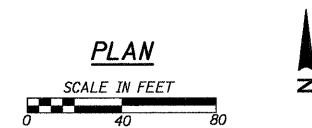


**AGGREGATE DITCH CHECK**  
(AGGREGATE SHALL BE RR3)



**EROSION CONTROL LEGEND**

- PERIMETER EROSION BARRIER
- ◇ TEMPORARY DITCH CHECK
- FLOW DIRECTION
- ⊠ INLET & PIPE PROTECTION



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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

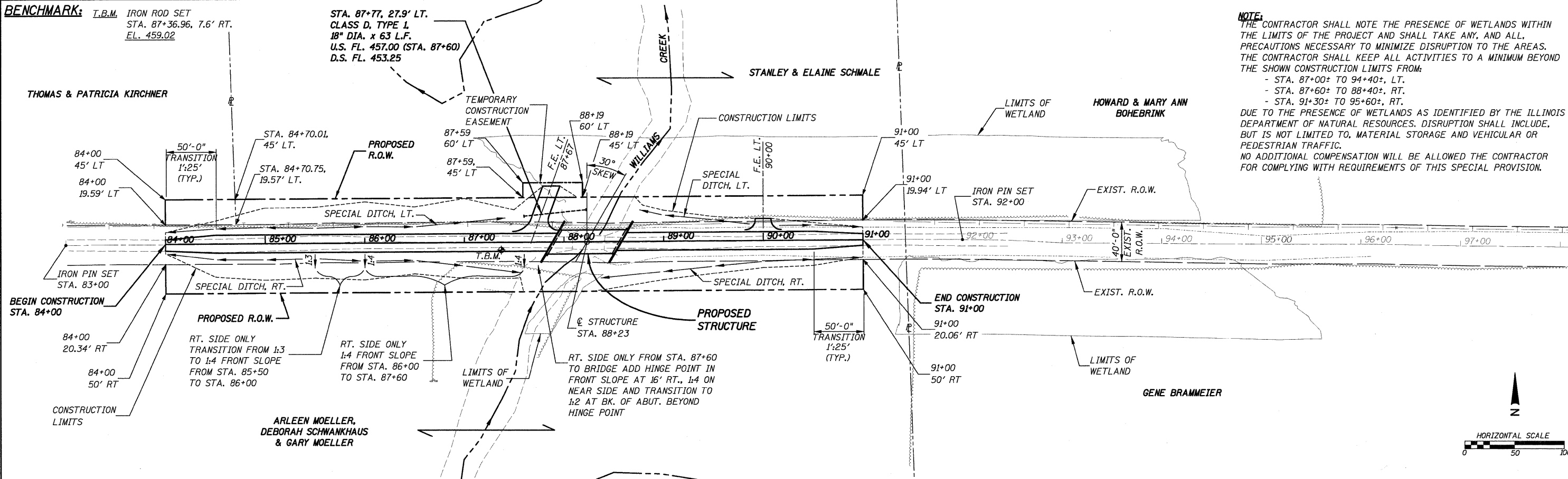
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

EROSION CONTROL PLAN

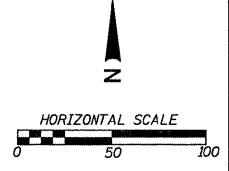
F.A.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
165	96-14115-00-BR	WASHINGTON	15	3
S.N. 095-3251			CONTRACT NO. 97435	
ILLINOIS FED. AID PROJECT				

PLM & G. NO. 5208

04\_PLFPR0208.DWG MAR. 15, 2010

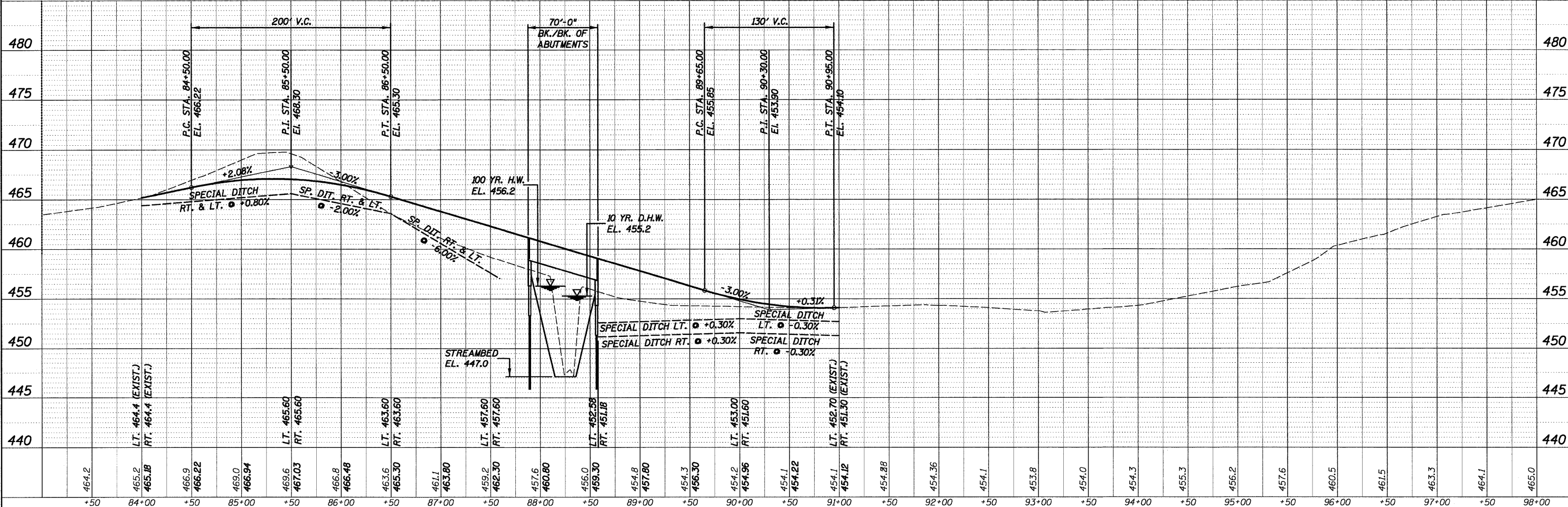


**NOTE:**  
 THE CONTRACTOR SHALL NOTE THE PRESENCE OF WETLANDS WITHIN THE LIMITS OF THE PROJECT AND SHALL TAKE ANY, AND ALL, PRECAUTIONS NECESSARY TO MINIMIZE DISRUPTION TO THE AREAS. THE CONTRACTOR SHALL KEEP ALL ACTIVITIES TO A MINIMUM BEYOND THE SHOWN CONSTRUCTION LIMITS FROM:  
 - STA. 87+00± TO 94+40±, LT.  
 - STA. 87+60± TO 88+40±, RT.  
 - STA. 91+30± TO 95+60±, RT.  
 DUE TO THE PRESENCE OF WETLANDS AS IDENTIFIED BY THE ILLINOIS DEPARTMENT OF NATURAL RESOURCES, DISRUPTION SHALL INCLUDE, BUT IS NOT LIMITED TO, MATERIAL STORAGE AND VEHICULAR OR PEDESTRIAN TRAFFIC. NO ADDITIONAL COMPENSATION WILL BE ALLOWED THE CONTRACTOR FOR COMPLYING WITH REQUIREMENTS OF THIS SPECIAL PROVISION.



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PLOT SCALE = 49.9999' / IN.	CHECKED - L.D.G.	REVISED -	REVISED -			S.N. 095-3251		CONTRACT NO. 97435		ILLINOIS FED. AID PROJECT	
PLOT DATE = 3/19/2010	DATE	REVISED -	REVISED -			STA. 83+00 TO STA. 98+00					
HENRY, MEISENHEIMER & GENDE, INC. CONSULTING ENGINEERS 1075 LAKE RD., P.O. BOX 70 CARLYLE, ILLINOIS 62231 (618) 594-3711 WWW.HMGENGINEERS.COM											

H.M.G. INC. 5208

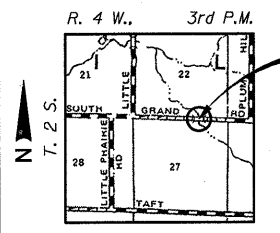
05-GPEL 5208.DGN MAR. 15, 2010

**BENCHMARK:** T.B.M. Iron Rod Set  
Sta. 87+36.96, 7.6' Rt.  
El. 459.02

**EXISTING STRUCTURE** No. 095-3077  
Existing structure, built in 1930, consists of a single span timber deck and steel stringers on closed concrete abutments measuring 32'-0" back to back of abutments and 13'-9" out of out of deck.

The contractor shall remove and dispose of the existing structure in accordance with Section 501 of the Standard Specifications.

**SALVAGE:**  
No salvage

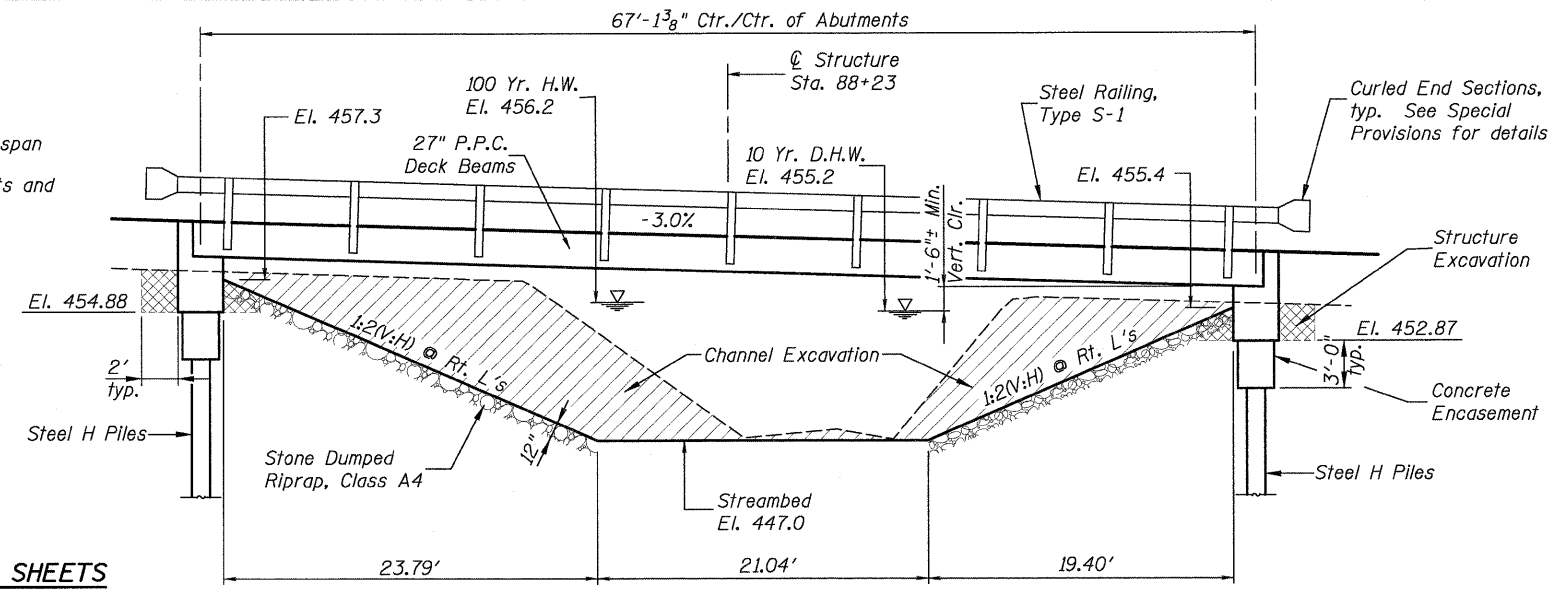


**STRUCTURE LOCATION**

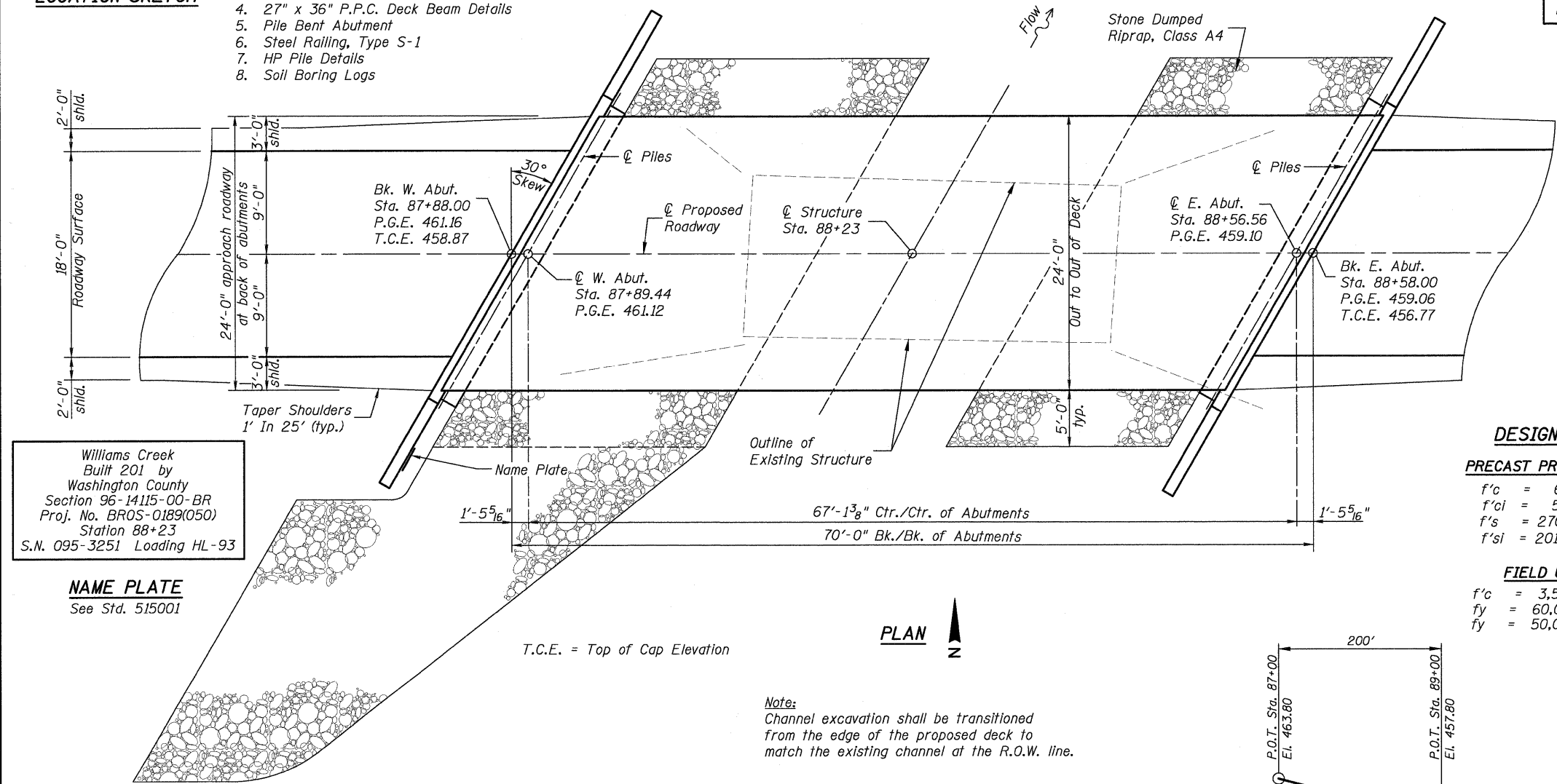
**INDEX OF BRIDGE SHEETS**

1. General Plan & Elevation
2. Superstructure
3. 27" x 36" P.P.C. Deck Beam
4. 27" x 36" P.P.C. Deck Beam Details
5. Pile Bent Abutment
6. Steel Railing, Type S-1
7. HP Pile Details
8. Soil Boring Logs

**LOCATION SKETCH**



**ELEVATION**



**NAME PLATE**  
See Std. 515001

**NAME PLATE**  
See Std. 515001

DESIGNED	B.I.B.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

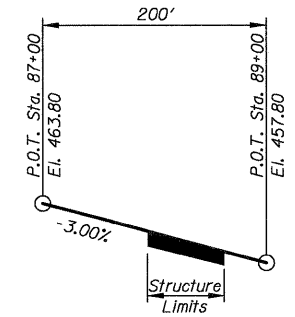
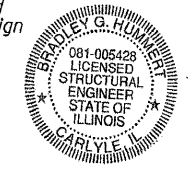
"I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is and economical one for the style of structure and complies with the requirements of the current 'AASHTO LRFD Bridge Design Specifications' including seismic design."

*Bradley G. Hummert* Date: 3/17/10

Bradley G. Hummert  
Licensed Structural Engineer  
in Illinois No. 081-005428

Expires: November 30, 2010

Note:  
Channel excavation shall be transitioned from the edge of the proposed deck to match the existing channel at the R.O.W. line.



**PROFILE GRADE**

Along @ T.R. 165 (South Grand Rd.)

**GENERAL NOTES**

1. The Contractor shall drive test piles to 110% of the nominal required bearing specified in production location at substructures specified or approved by the Engineer before ordering remaining piles.
2. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
3. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
4. Reinforcement bars designated (E) shall be epoxy coated.
5. 4'-0" wide P.P.C. Deck Beams shall not be used.

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (Feet)	W. Abut.	E. Abut.
	451.88	449.87

**WATERWAY INFORMATION**

Flood		Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
Design	Base	Overtopping	Max. Calc.	Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
10	100	<2	500	230	282	455.2	0.4	0.3	455.6	455.5
100	3,080		N/A	240	338	456.2	0.2	0.4	456.4	456.6
				193	231	453.9	0.0	0.0	453.9	453.9

**TOTAL BILL OF MATERIAL**

Item	Unit	Super.	Sub.	Total
Channel Excavation	Cu. Yd.			282
Stone Dumped Riprap, Class A4	Ton			137
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		36	36
Concrete Structures	Cu. Yd.		31.4	31.4
Concrete Encasement	Cu. Yd.		2.8	2.8
Prec. Pres. Conc. Dk. Bms. (27" Depth)	Sq. Ft.	1,643		1,643
Reinforcement Bars, Epoxy Coated	Pound		5,160	5,160
Steel Railing, Type S1	Foot	138		138
Furnishing Steel Piles HP12x63	Foot		120	120
Driving Piles	Foot		120	120
Test Pile Steel HP12x63	Each		2	2
Name Plate	Each			1
Portland Cement Mortar Fairing Course	Foot			480

**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications with 2008 Interims

**DESIGN STRESSES**

**PRECAST PRESTRESSED UNITS**  
f'c = 6,000 p.s.i.  
f'ci = 5,000 p.s.i.  
f's = 270,000 p.s.i. (1/2" strands)  
f'si = 201,960 p.s.i. (1/2" strands)

**FIELD UNITS**

f'c = 3,500 p.s.i.  
fy = 60,000 p.s.i. (reinf.)  
fy = 50,000 p.s.i. (M270 Grade 50)

**LOADING HL-93**

Allow 50 p.s.f. for future wearing surface

**SEISMIC DATA**

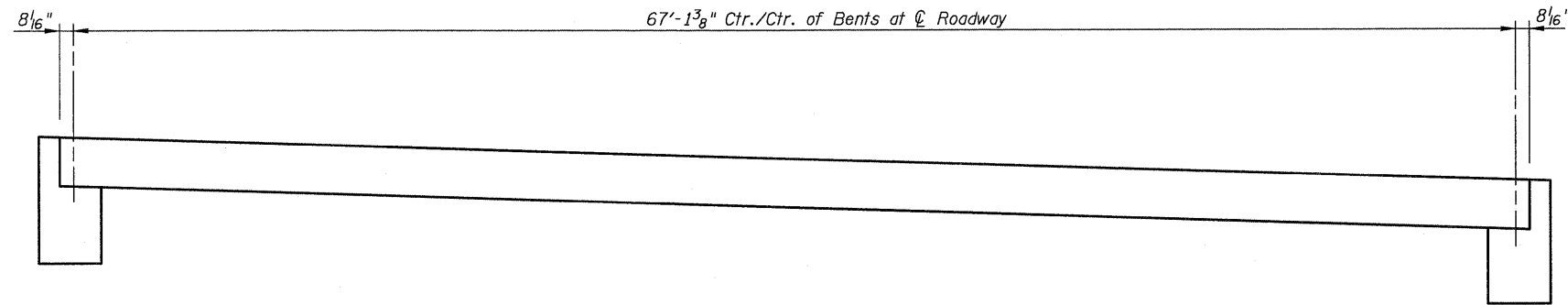
Seismic Performance Zone (SPZ): 2  
Design Spectral Acceleration at 1.0 sec. (S<sub>D1</sub>) = 0.206 g  
Design Spectral Acceleration at 0.2 sec. (S<sub>DS</sub>) = 0.557 g  
Soil Site Class = C

**GENERAL PLAN & ELEVATION**

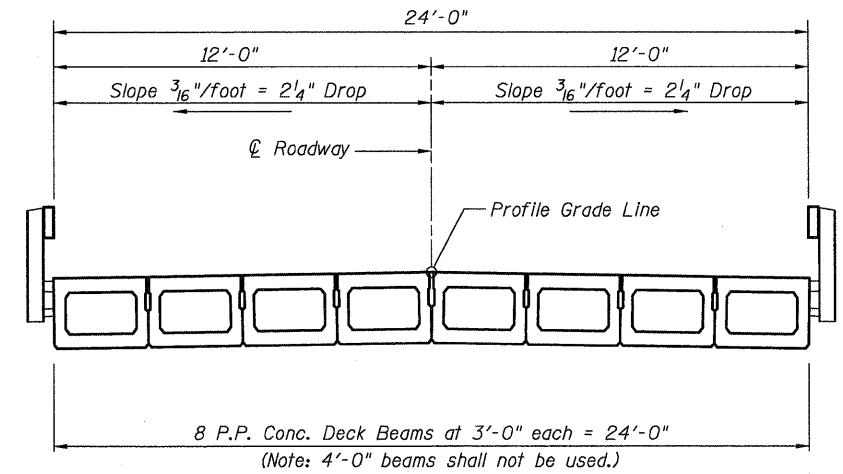
T.R. 165 (SOUTH GRAND RD.)  
OVER WILLIAMS CREEK  
SECTION 96-14115-00-BR  
WASHINGTON COUNTY  
STATION 88+23  
STRUCTURE NO. 095-3251

SHEET NO.	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	165	96-14115-00-BR	WASHINGTON	15	5
S.N. 095-3251			CONTRACT NO. 97435		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

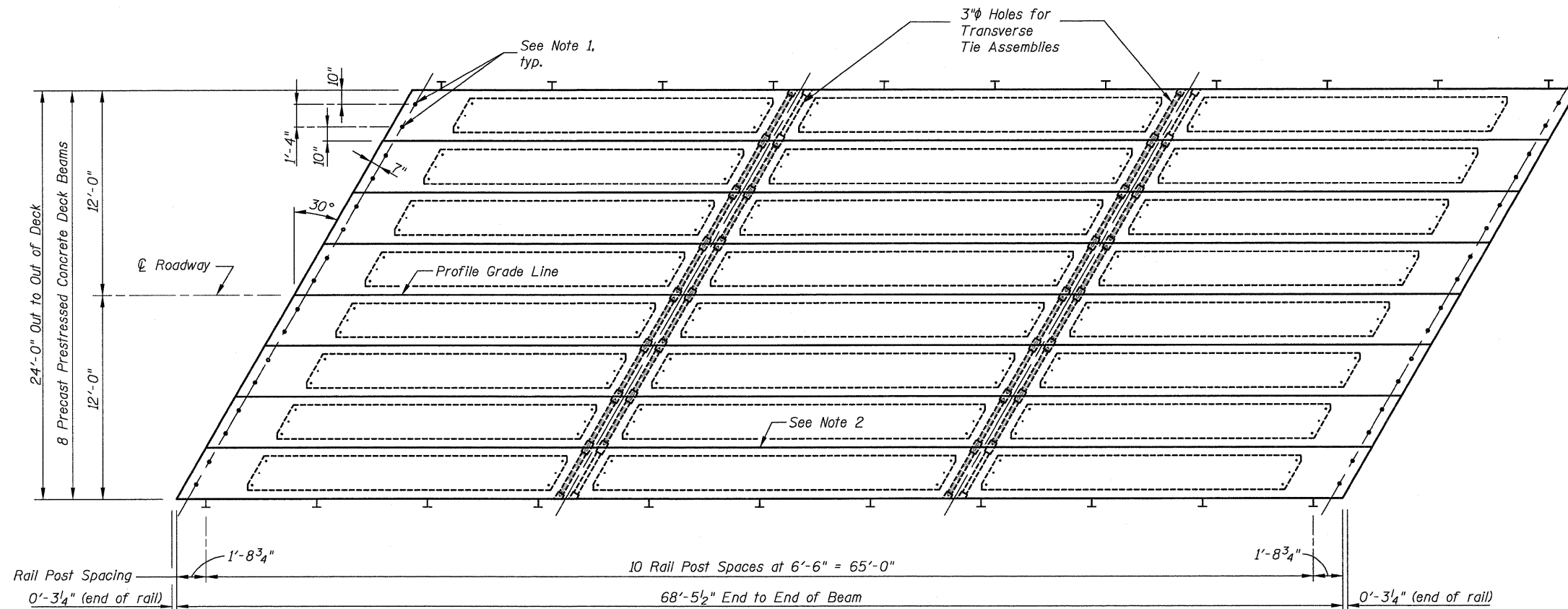
H.M. & G. NO. 5208



**ELEVATION**



**CROSS SECTION**



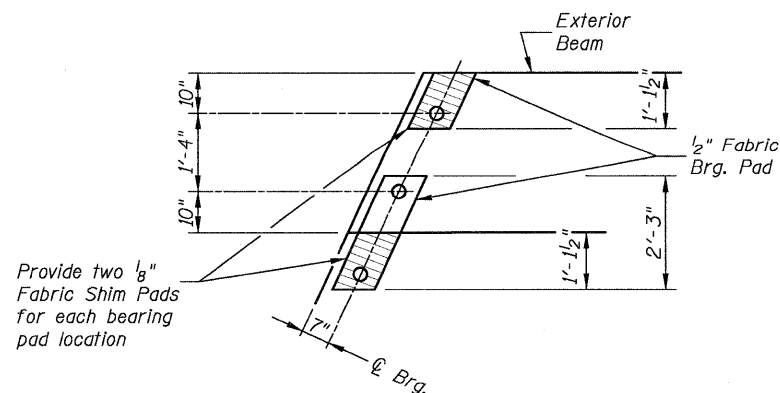
**PLAN**



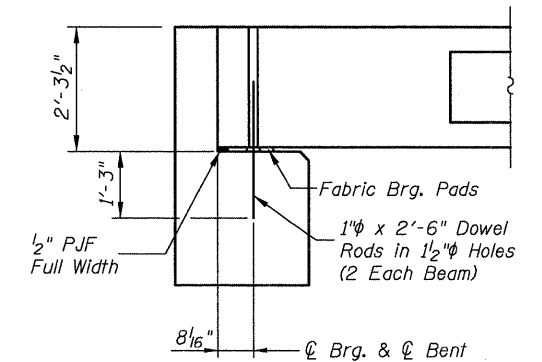
**NOTES**

1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrinkgrout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
2. Longitudinal keys shall be grouted.

DESIGNED	B.I.B.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.



**1/2" FABRIC BRG. PAD DETAILS**



**SECTION AT ABUTS.**

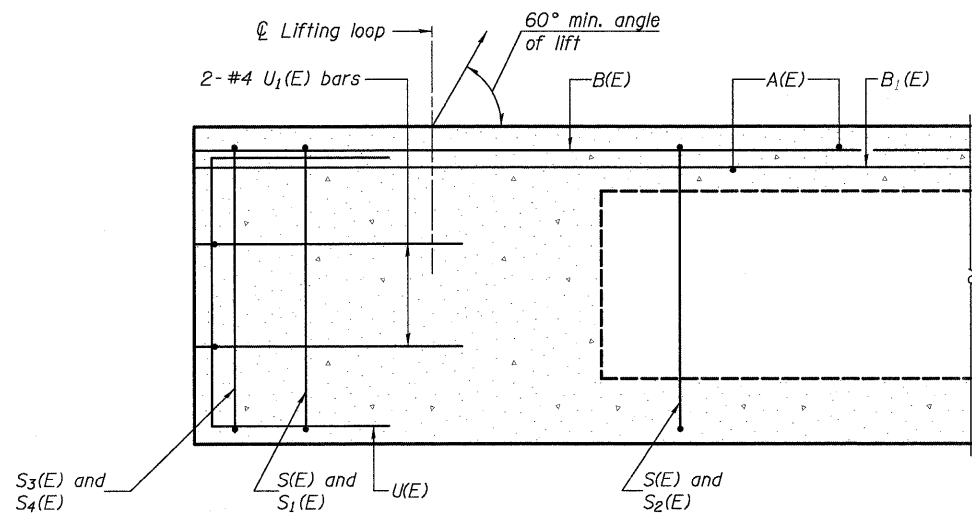
(Along  $\varnothing$  Beams)

**BILL OF MATERIAL**

Item	Unit	Quantity
Portland Cement Mortar Fairing Course	Foot	480

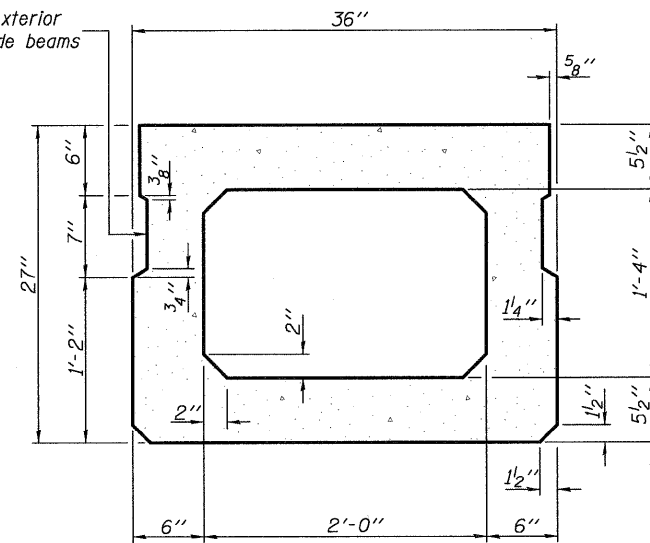
**SUPERSTRUCTURE**

SHEET NO. 2	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	165	96-14115-00-BR	WASHINGTON	15	6
8 SHEETS	S.N. 095-3251		CONTRACT NO. 97435		
	FED. ROAD DIST. NO. -		ILLINOIS FED. AID PROJECT		

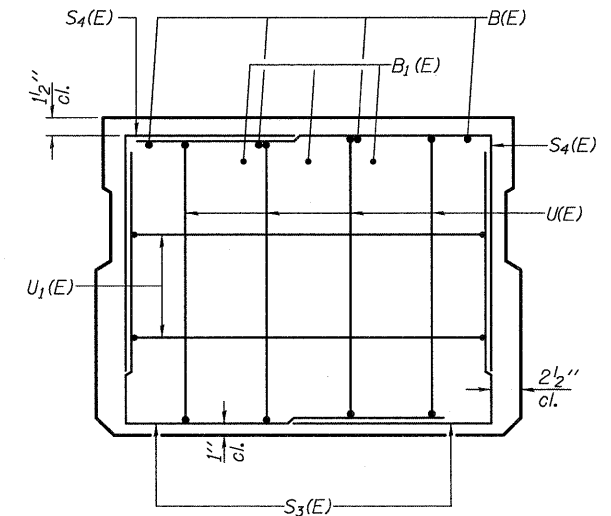


**SECTION C-C**

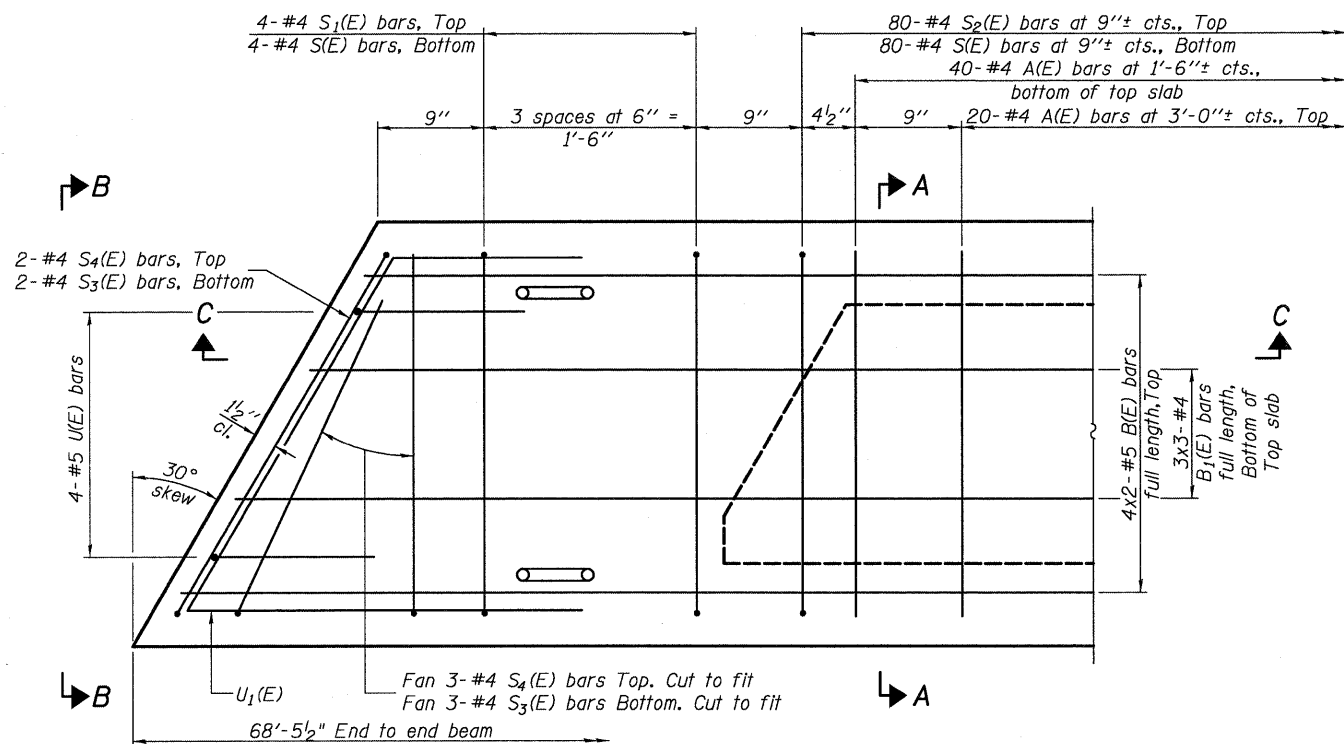
Omit key on exterior face of outside beams



**SECTION A-A**  
(Showing dimensions)



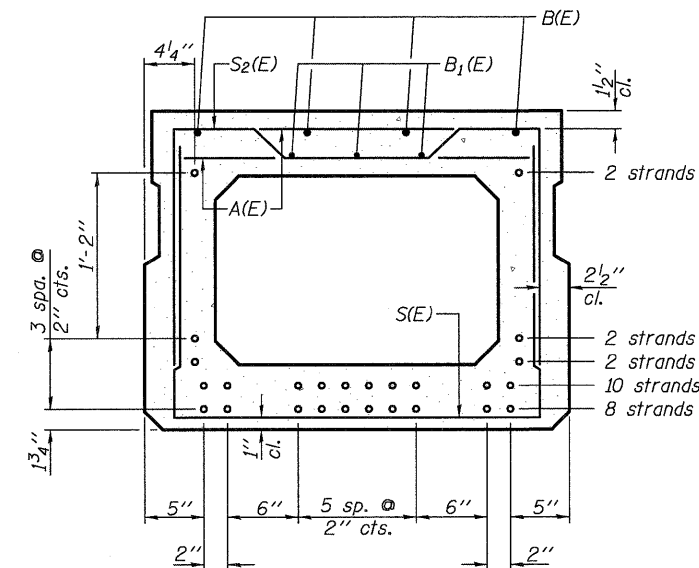
**VIEW B-B**



**PLAN VIEW**

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

Similar about C



**SECTION A-A**

(Showing reinforcement and permissible strand locations)

24 - 1/2" Strands  
(8 Strands 1 3/4" up, 10 Strands 3 3/4" up, 2 Strands 5 3/4" up, 2 Strands 7 3/4" up, 2 Strands 21 3/4" up)

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

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

Bar	No.	Size	Length	Shape
A(E)	60	#4	2'-7"	—
B(E)	8	#5	35'-3"	—
B1(E)	9	#4	23'-11"	—
S(E)	88	#4	6'-5"	U
S1(E)	8	#4	5'-11"	U
S2(E)	80	#4	6'-2"	U
S3(E)	10	#4	4'-11"	U
S4(E)	10	#4	4'-8"	U
U(E)	8	#5	4'-6"	U
U1(E)	4	#4	6'-10"	U

Note: See sheet 4 of 8 for additional details and Bill of Material.

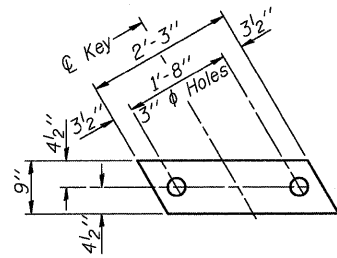
DESIGNED	B.I.B.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

PD-2736-L

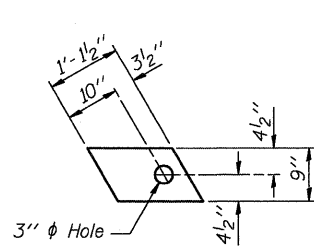
10-1-08

**27" X 36" PPC DECK BEAM**

SHEET NO. 3	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	165	96-14115-00-BR	WASHINGTON	15	7
8 SHEETS	S.N. 095-3251		CONTRACT NO. 97435		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



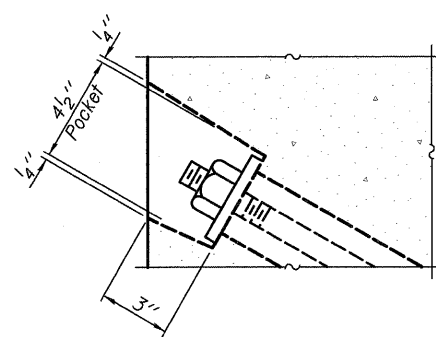
**FABRIC BEARING PAD**  
(Interior)



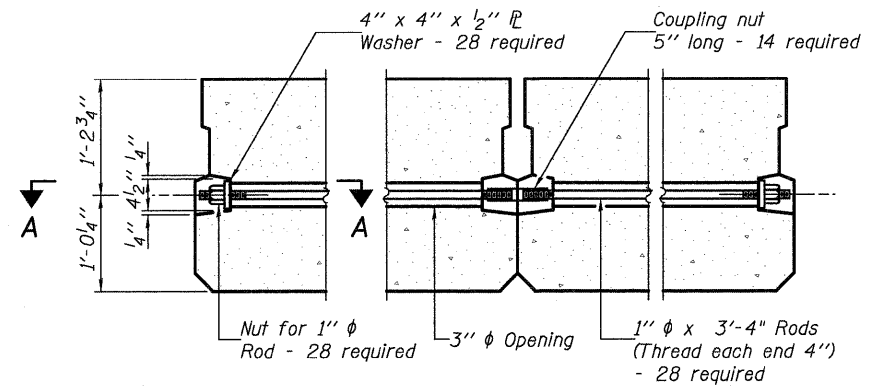
**FABRIC BEARING PAD**  
(Exterior)

**FIXED**

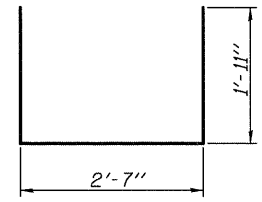
Note: Omit holes when using expansion bearings.



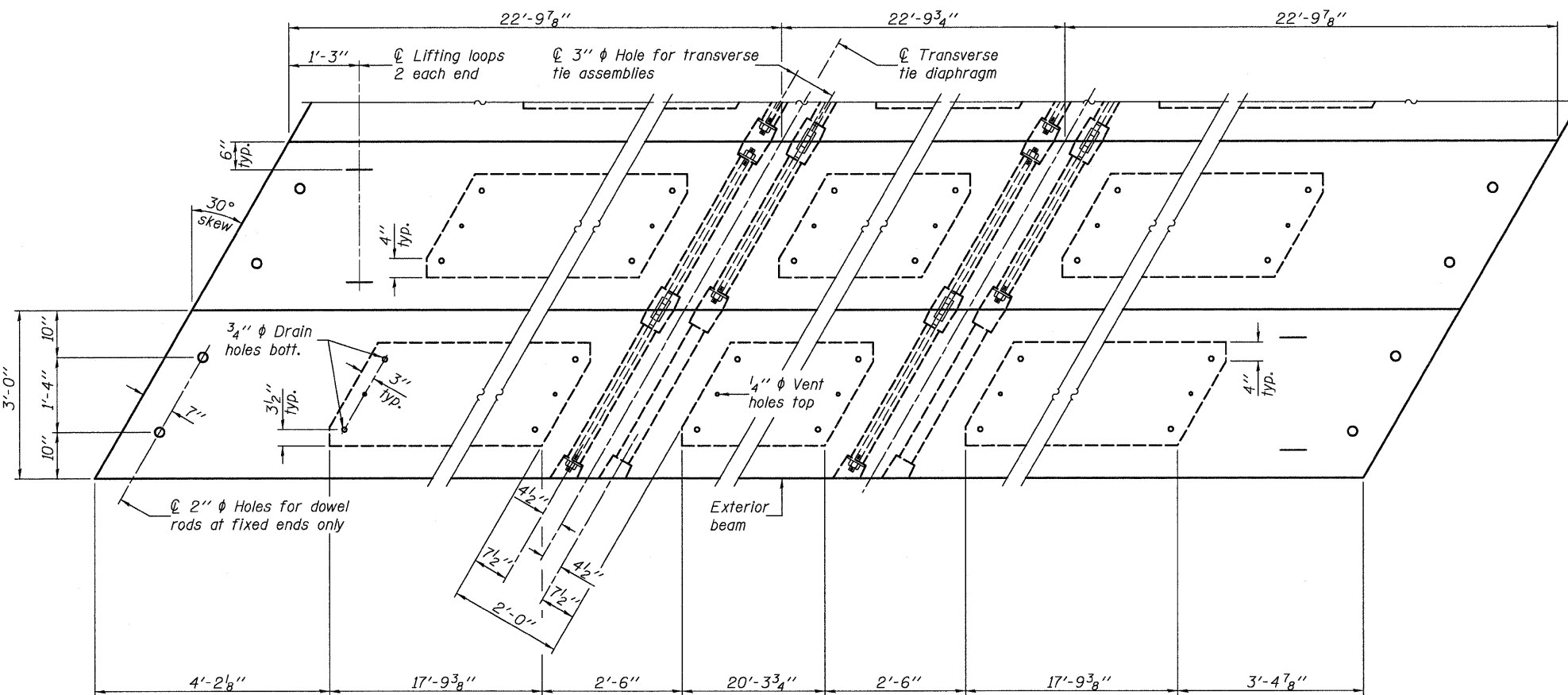
**SECTION A-A**



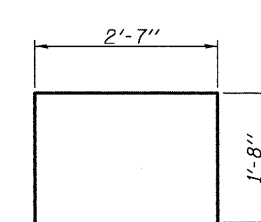
**TYPICAL TRANSVERSE TIE ASSEMBLY**



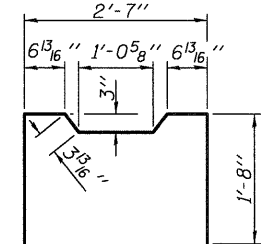
**BAR S(E)**



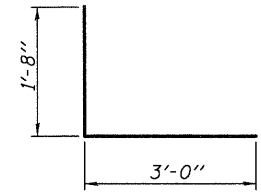
**PLAN VIEW**



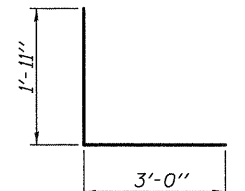
**BAR S<sub>1</sub>(E)**



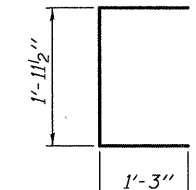
**BAR S<sub>2</sub>(E)**



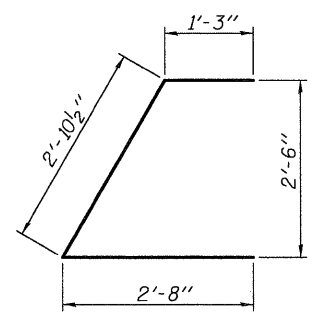
**BAR S<sub>4</sub>(E)**



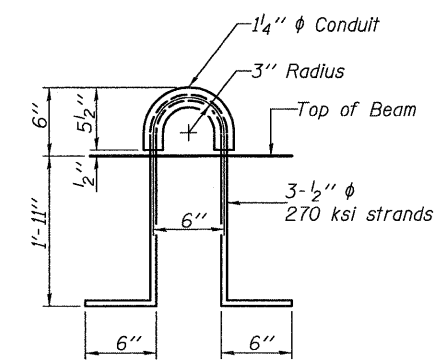
**BAR S<sub>3</sub>(E)**



**BAR U(E)**



**BAR U<sub>1</sub>(E)**



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,643
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**27" X 36" PPC DECK BEAM DETAILS**

Note: Connect beams in pairs with the transverse tie configuration shown.

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" phi rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions). Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" phi lifting pin shall be used to engage the lifting loops during handling. Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Compressive strength of prestressed concrete, f'c, shall be 6000 psi. Compressive strength of prestressed concrete at release, f'cl, shall be 5000 psi.

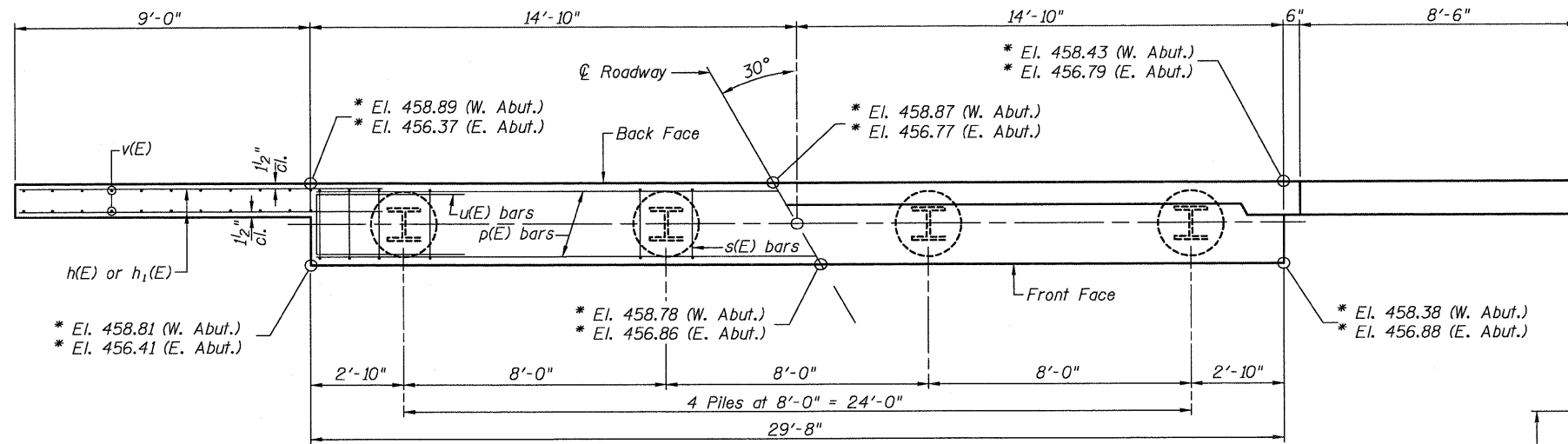
DESIGNED	B.I.B.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

PD-2736-LD

10-1-08

SHEET NO. 4 8 SHEETS	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	165	96-14115-00-BR	WASHINGTON	15	8
S.N. 095-3251			CONTRACT NO. 97435		
FED. ROAD DIST. NO. _		ILLINOIS FED. AID PROJECT			



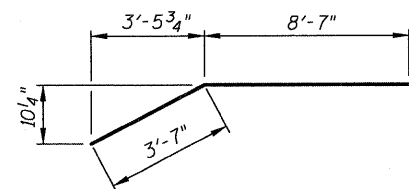


**PLAN**

\* Top of Seat Elevation.

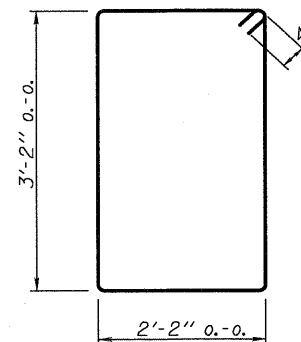
**NOTES**

1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
2. Space reinforcement in pile cap to miss dowel rods.
3. Top of concrete cap and backwall shall be finished parallel to the centerline of the roadway.

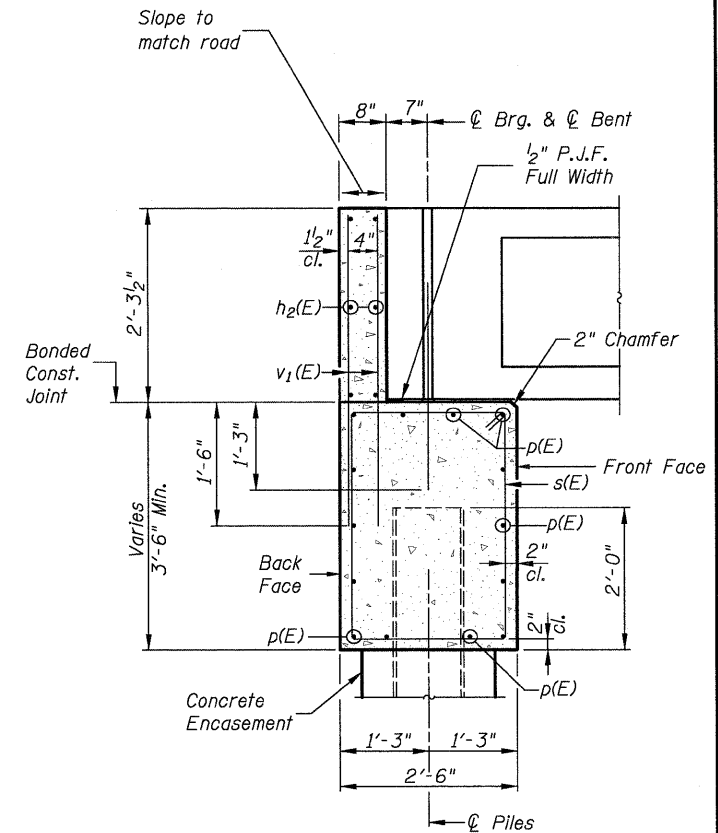


**BAR h<sub>1</sub>(E)**

**BAR u(E)**



**BAR s(E)**

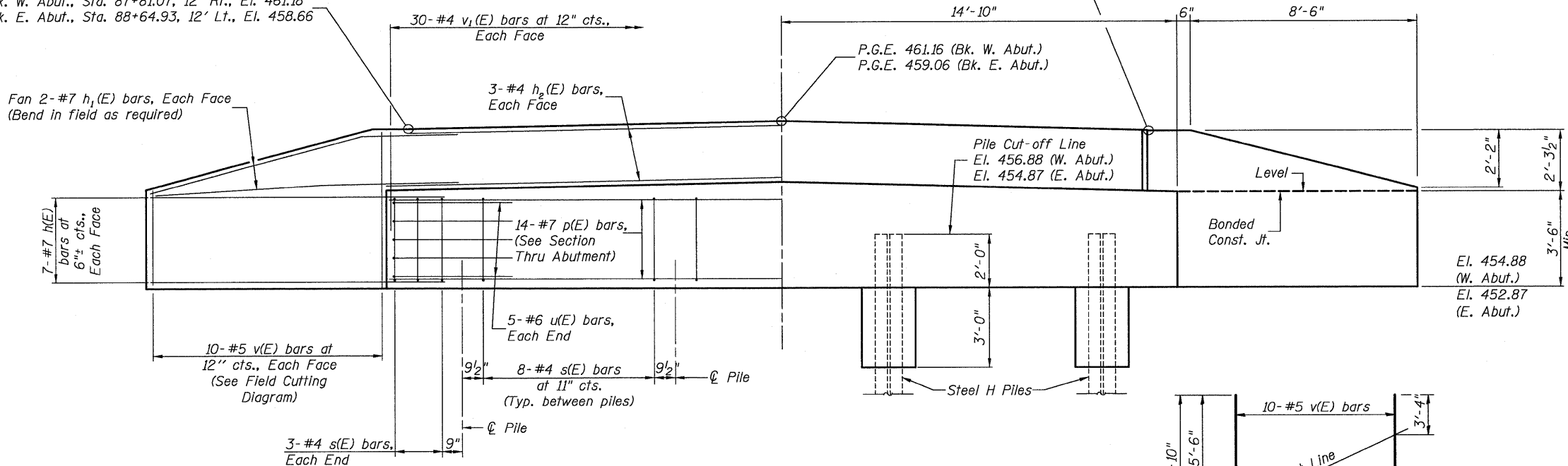


**SECTION THRU ABUTMENT**

(at Right Angles)

Bk. W. Abut., Sta. 87+81.07, 12' Rt., El. 461.18  
 Bk. E. Abut., Sta. 88+64.93, 12' Lt., El. 458.66

Bk. W. Abut., Sta. 87+94.93, 12' Lt., El. 460.76  
 Bk. E. Abut., Sta. 88+51.07, 12' Rt., El. 459.08



**ELEVATION**

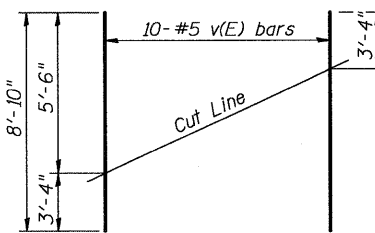
**PILE DATA**

DESIGNED	B.I.B.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

	W. ABUT.	E. ABUT.
Type:	Steel HP12x63	Steel HP12x63
Nominal Required Bearing:	497 k	497 k
Factored Resistance Available:	248 k	248 k
Est. Length:	15 ft.±	25 ft.±
No. Production Piles:	3	3
No. Test Piles:	1	1

**BILL OF MATERIAL FOR ONE ABUTMENT**

Bar	No.	Size	Length	Shape
h(E)	28	#7	12'-2"	—
h <sub>1</sub> (E)	8	#7	12'-2"	—
h <sub>2</sub> (E)	6	#4	29'-4"	—
p(E)	14	#7	29'-4"	—
s(E)	30	#4	11'-5"	□
u(E)	10	#6	11'-1"	—
v(E)	20	#5	8'-10"	—
v <sub>1</sub> (E)	60	#4	3'-8"	—
Concrete Structures			Cu. Yd.	15.7
Reinforcement Bars, Epoxy Coated			Pound	2,580
Concrete Encasement			Cu. Yd.	1.4

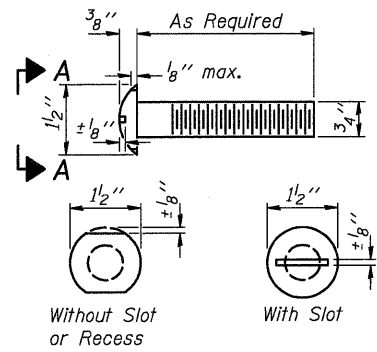


**FIELD CUTTING DIAGRAM**

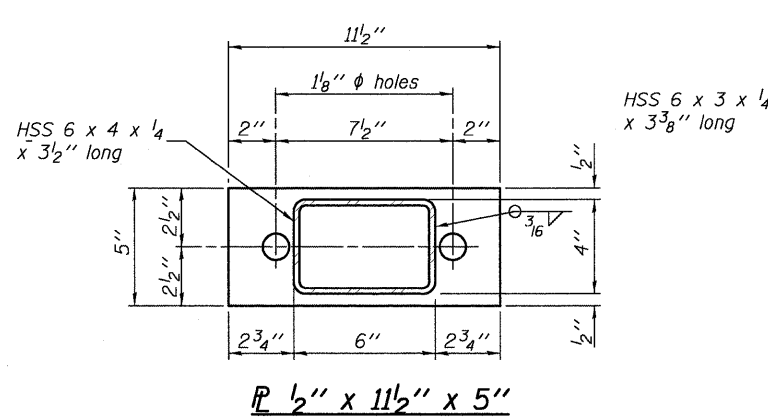
Order v(E) full length. Cut as shown and use remainder of bars in opposite face.

**PILE BENT ABUTMENT**

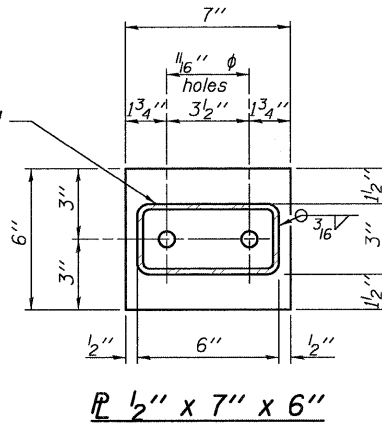
SHEET NO. 5	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	165	96-1415-00-BR	WASHINGTON	15	9
S.N. 095-3251			CONTRACT NO. 97435		
FED. ROAD DIST. NO.		ILLINOIS		FED. AID PROJECT	



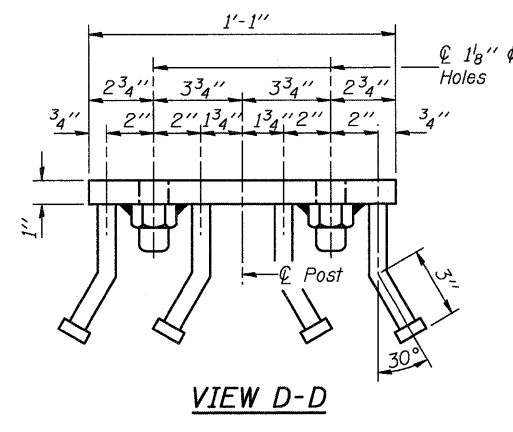
**VIEW A-A**  
**ROUND HEAD BOLT**



**SECTION B-B**  
**PL 1/2" x 11 1/2" x 5"**



**SECTION C-C**  
**PL 1/2" x 7" x 6"**



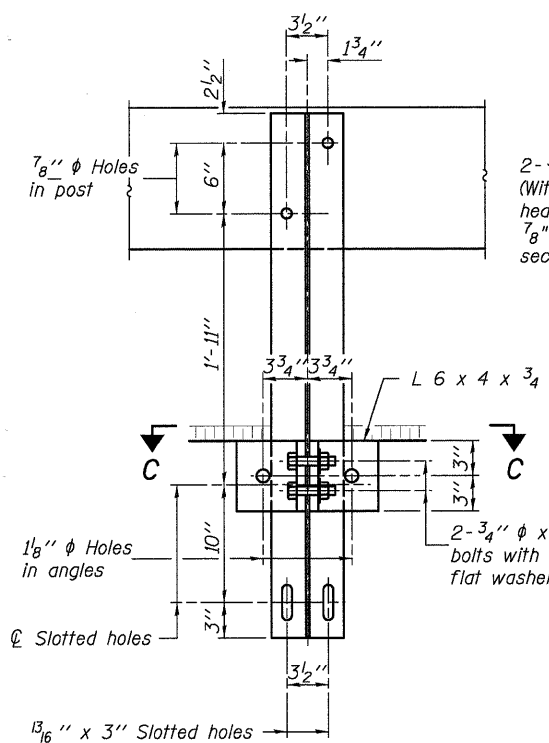
**VIEW D-D**

**Notes:**  
All field drilled holes shall be coated with an approved zinc rich paint before erection.  
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.  
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

\*\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

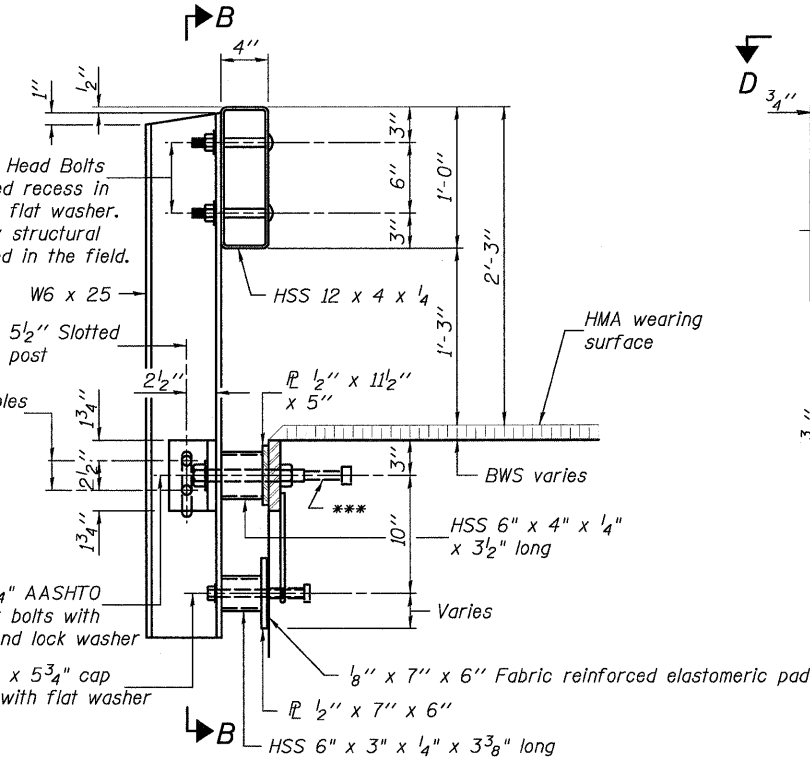
**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	138

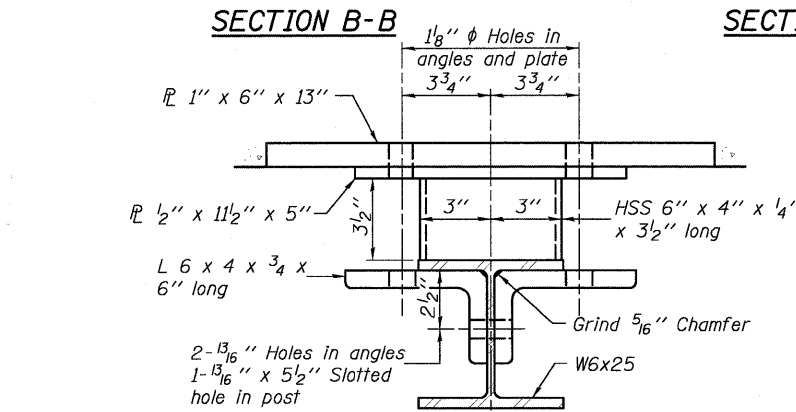


**SECTION B-B**

2-3/4"  $\phi$  x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8"  $\phi$  holes in hollow structural section may be drilled in the field.

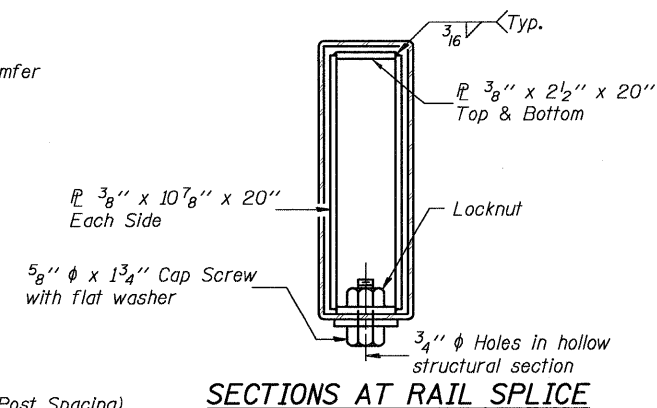


**SECTION AT RAILING POST**

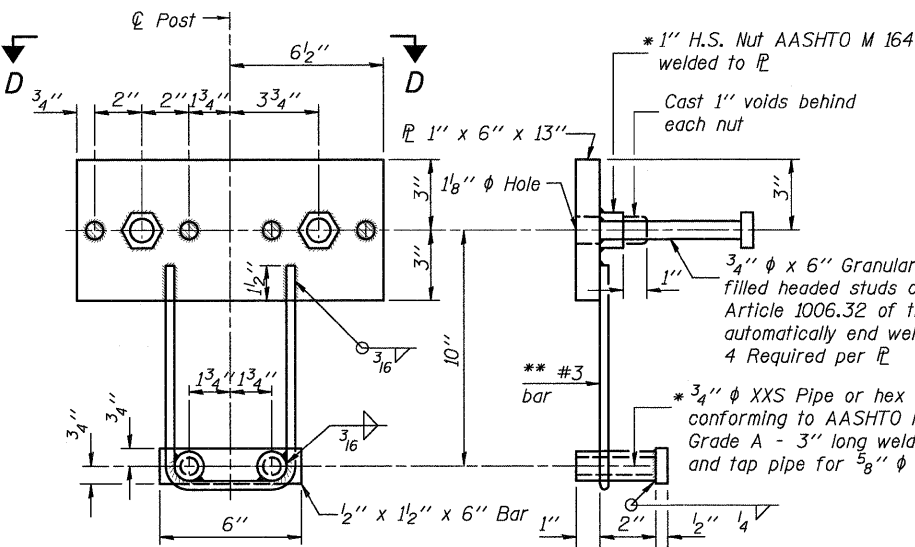


**SECTION C-C**

\*\*\* Whenever the lower insert assemblies interfere with strand 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 1/2".

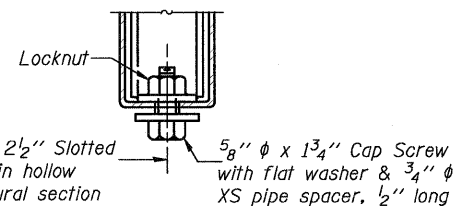


**SECTIONS AT RAIL SPLICE**

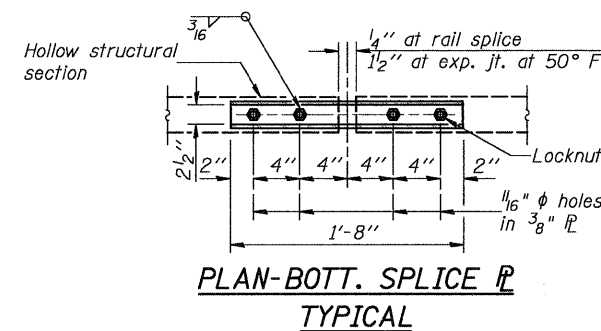


**ANCHOR DEVICE**

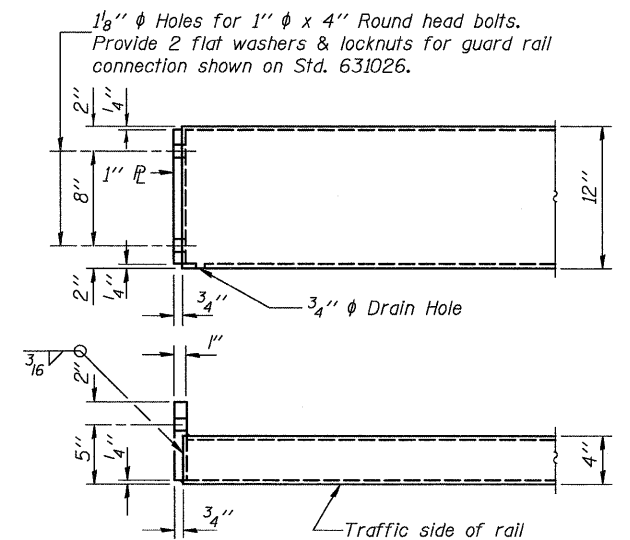
\* Threaded areas shall be plugged or blocked off during casting of beam.



**RAIL SPLICE CONNECTION AT EXPANSION JT.**



**PLAN-BOTT. SPLICE PL TYPICAL**



**END OF RAIL DETAILS**

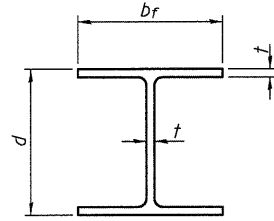
**STEEL RAILING, TYPE S-1**

DESIGNED	B.I.B.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

R-23A 10-1-08

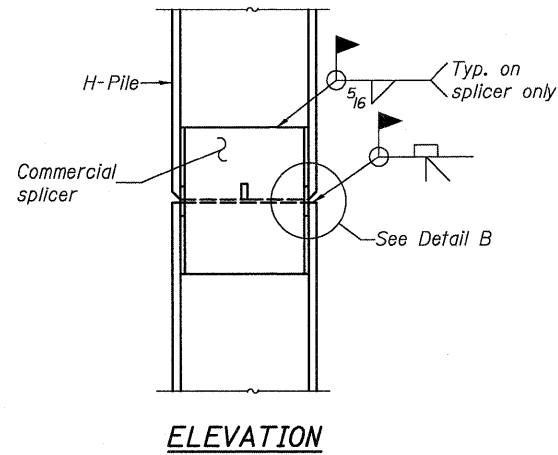
(10'-9" Maximum Post Spacing)

SHEET NO.	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
6	165	96-14115-00-BR	WASHINGTON	15	10
8 SHEETS		S.N. 095-3251		CONTRACT NO. 97435	
FED. ROAD DIST. NO. -		ILLINOIS		FED. AID PROJECT	

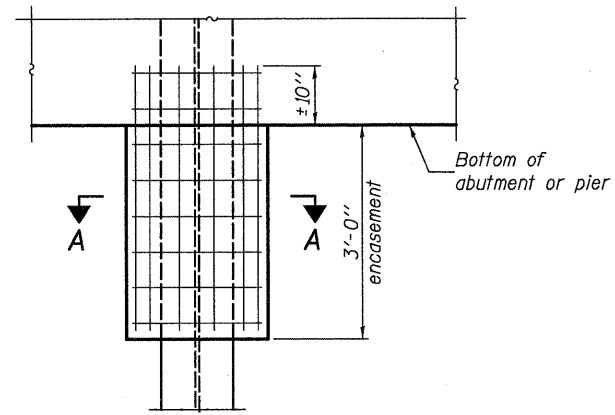


**STEEL PILE TABLE**

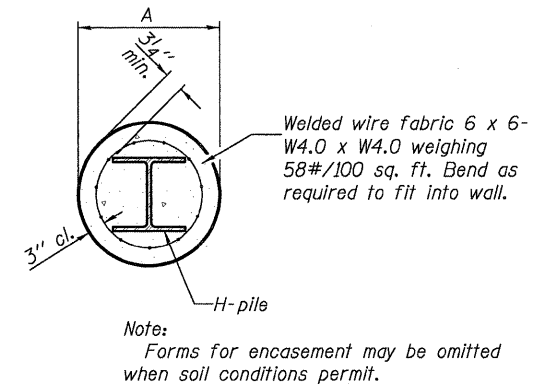
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



**ELEVATION**

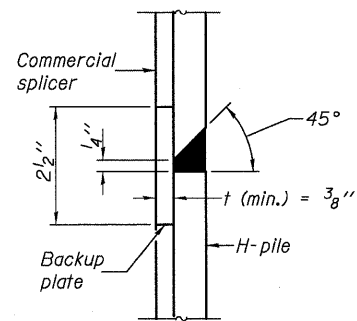


**ELEVATION**

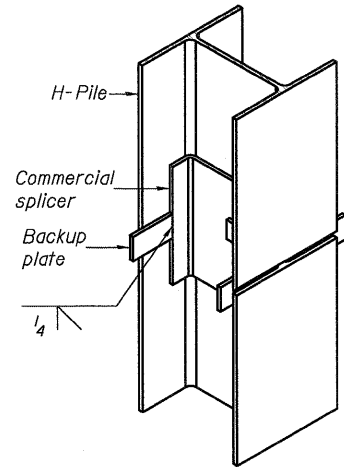


**SECTION A-A**

**PILE ENCASEMENT**

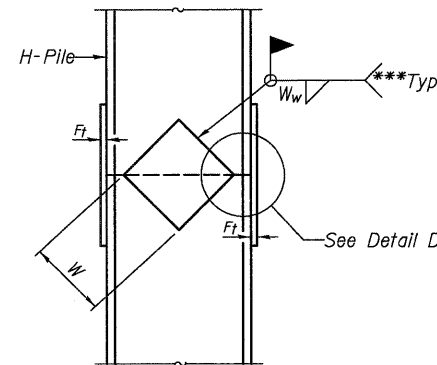


**DETAIL "B"**

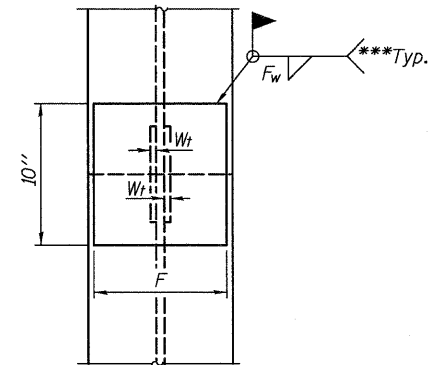


**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE**

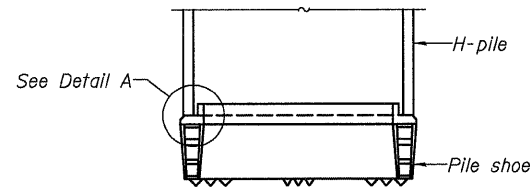


**ELEVATION**

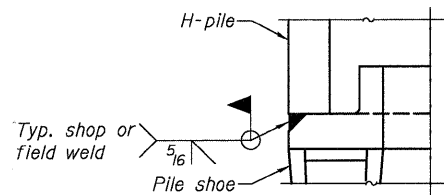


**END VIEW**

**WELDED PLATE FIELD SPLICE**

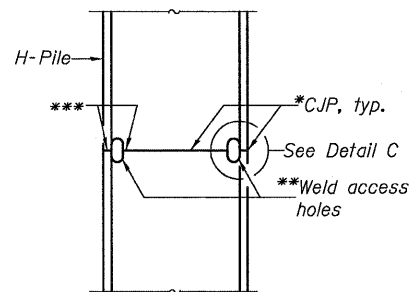


**ELEVATION**

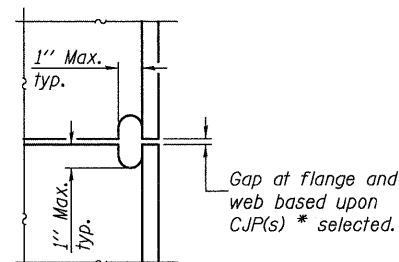


**DETAIL A**

**H-PILE SHOE ATTACHMENT**

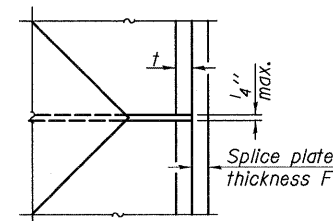


**ELEVATION**



**DETAIL C**

**COMPLETE PENETRATION WELD SPLICE**



**DETAIL D**

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

**HP PILE DETAILS**

- \* Use joint conforming to Figure 3.4 In AWS D1.1, Structure Welding Code - Steel.
- \*\* Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
- \*\*\* Interrupt welds 1/4" from end of each pile.

Note:  
The steel H-piles shall be according to AASHTO M270 Grade 50.

DESIGNED	B.I.B.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

F-HP 10-1-08

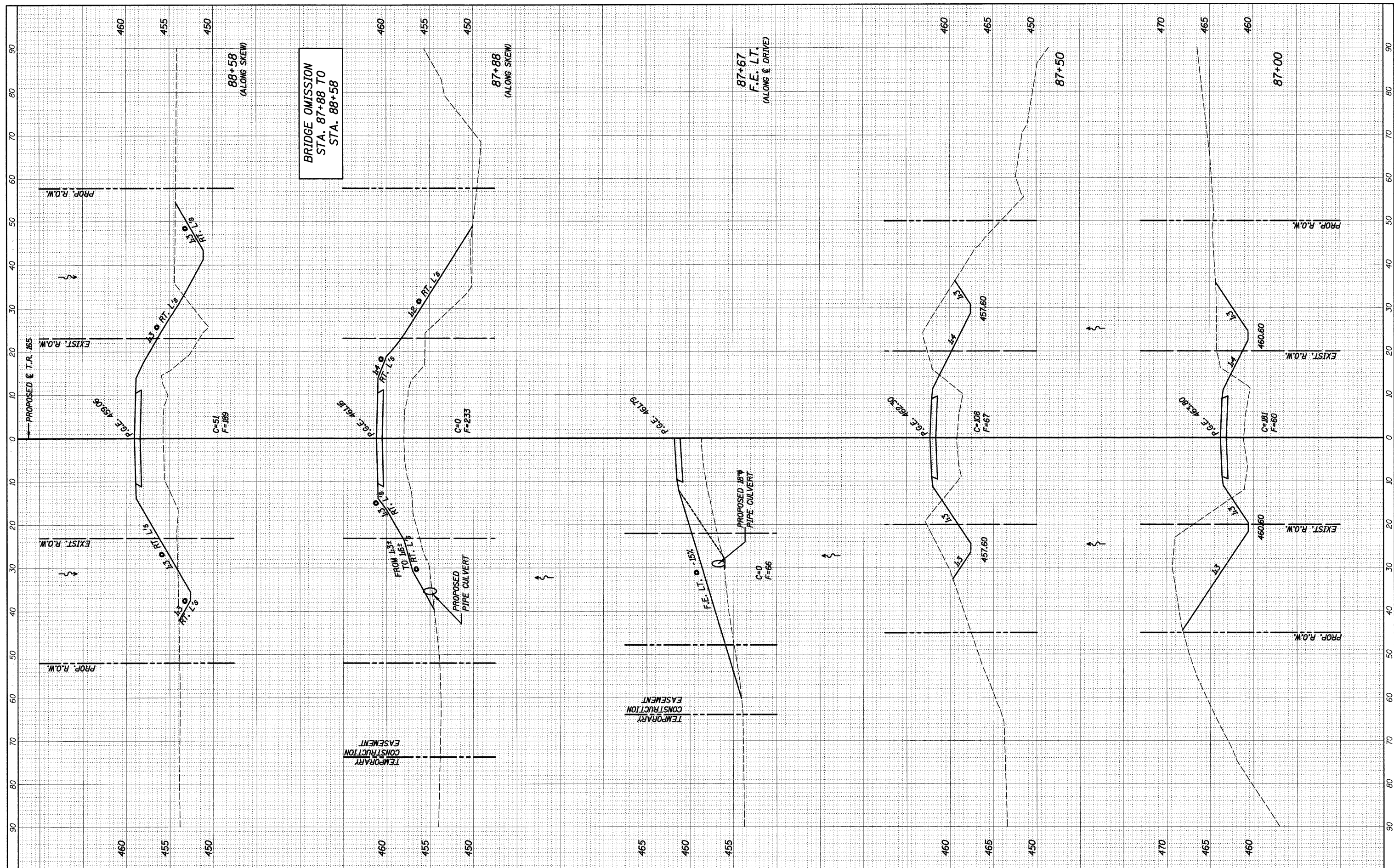
SHEET NO. 7	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	165	96-14115-00-BR	WASHINGTON	15	11
8 SHEETS	S.N. 095-3251		CONTRACT NO. 97435		
	FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				





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

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



FILE NAME =	USER NAME =
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PLOT SCALE =	DESIGNED -
10,0000 / IN.	B.I.B.
PLOT DATE =	DRAWN -
3/16/2010	K.H.L.
	CHECKED -
	L.D.G.
	DATE -
	REVISED -
	REVISED -
	REVISED -
	REVISED -

DESIGNED -	B.I.B.	REVISED -
DRAWN -	K.H.L.	REVISED -
CHECKED -	L.D.G.	REVISED -
DATE -		REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CROSS SECTIONS  
EXISTING & PROPOSED ROADWAY**

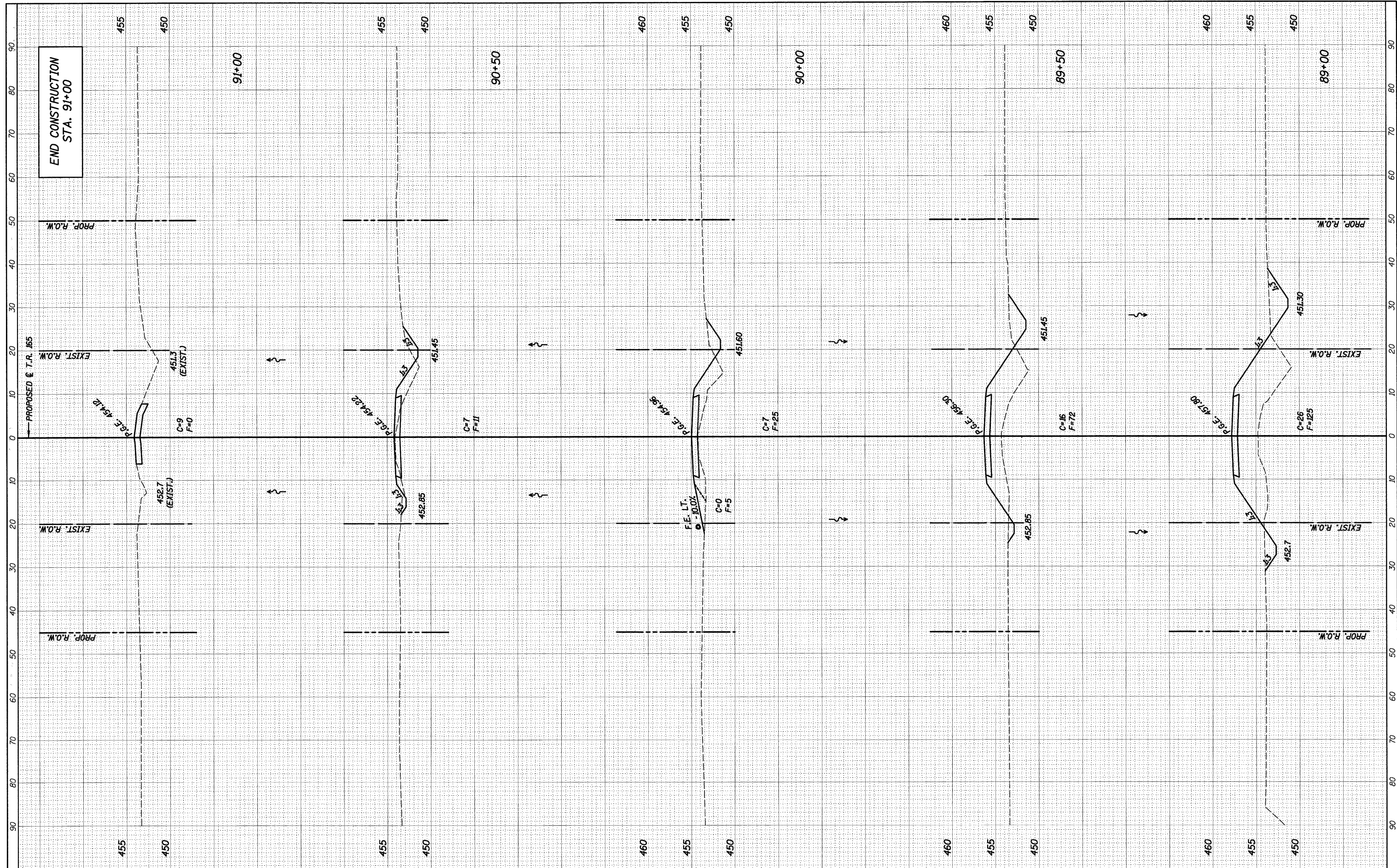
SCALE: SHEET NO. 2 OF 3 SHEETS STA. 87+00.00 TO STA. 88+58.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
165	96-14115-00-BR	WASHINGTON	15	14
S.N. 095-3251		CONTRACT NO. 97435		
ILLINOIS FED. AID PROJECT				

FIG. NO. 5208

FINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
AREAS	TEMPLATE	
AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
AREAS	TEMPLATE	
AREAS CHECKED		



FILE NAME \* h:\2008\1315\_xrfd\_5208.dgn  
 USER NAME \* \_USERDESCR\_

DESIGNED - B.I.B.  
 DRAWN - K.H.L.  
 CHECKED - L.D.G.  
 DATE -  
 PLOT SCALE \* 10,0000' / IN.  
 PLOT DATE = 3/16/2010

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS  
 EXISTING & PROPOSED ROADWAY

SCALE: SHEET NO. 3 OF 3 SHEETS STA. 89+00.00 TO STA. 91+00.00

T.R. RTE. 165	SECTION 96-14115-00-BR	COUNTY WASHINGTON	TOTAL SHEETS 15	SHEET NO. 15
S.N. 095-3251		CONTRACT NO. 97435		
ILLINOIS FED. AID PROJECT				

FIG. NO. 5208