

OL.COVN.8250.DGN APR. 22, 2010

FAS RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	1
S.N. 003-3050		CONTRACT NO. 97446		
ILLINOIS		FEDERAL AID PROJECT		

# MAJOR BRIDGE PROGRAM

## DETAIL PLANS FOR FAS 783 (C.H. 19/JAMESTOWN RD.) OVER LOCUST FORK CREEK SECTION 02-00074-00-BR BOND COUNTY PROJECT NO. BRS-0783(107) JOB NO. C-98-308-10

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- 22-25. CROSS SECTIONS EXISTING & PROPOSED ROADWAY

### HIGHWAY STANDARDS

- |           |  |
|-----------|--|
| 280001-05 | TEMPORARY EROSION CONTROL SYSTEMS  |
| 482001-02 | HMA SHOULDER ADJACENT TO FLEXIBLE PAVEMENT                                 |
| 515001-03 | NAME PLATE FOR BRIDGES   |
| 630001-08 | STEEL PLATE BEAM GUARDRAIL   |
| 630201-06 | PCC/HMA STABILIZATION AT STEEL PLATE GUARDRAIL                             |
| 630301-05 | SHOULDER WIDENING FOR TYPE 1, (SPECIAL) GUARDRAIL TERMINALS                |
| 631032-05 | TRAFFIC BARRIER TERMINAL, TYPE 6A  |
| 635006-03 | REFLECTOR AND TERMINAL MARKER PLACEMENT                                    |
| 701006-03 | OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE                   |
| 701306-02 | LANE CLOSURE, 2L, 2W, SLOW MOVING OPERATIONS DAY ONLY, FOR SPEEDS ≥ 45 MPH |
| 701321-10 | LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER                           |
| 701326-03 | LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING, FOR SPEEDS ≥ 45 MPH               |
| 701901-01 | TRAFFIC CONTROL DEVICES  |
| 704001-06 | TEMPORARY CONCRETE BARRIER   |

### DESIGN CLASSIFICATION

LOCAL ROAD A.D.T. = 400 - 2,000  
CURRENT A.D.T. = 850 (2007)  
FUNCTIONAL CLASSIFICATION: MINOR COLLECTOR (NON-URBAN)  
DESIGN A.D.T. = 1,200 (2027)  
DESIGN SPEED = 50 MPH

### UTILITIES:

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

### TELEPHONE:

FRONTIER COMMUNICATIONS  
POCAHONTAS, IL.  
(402) 250-1095

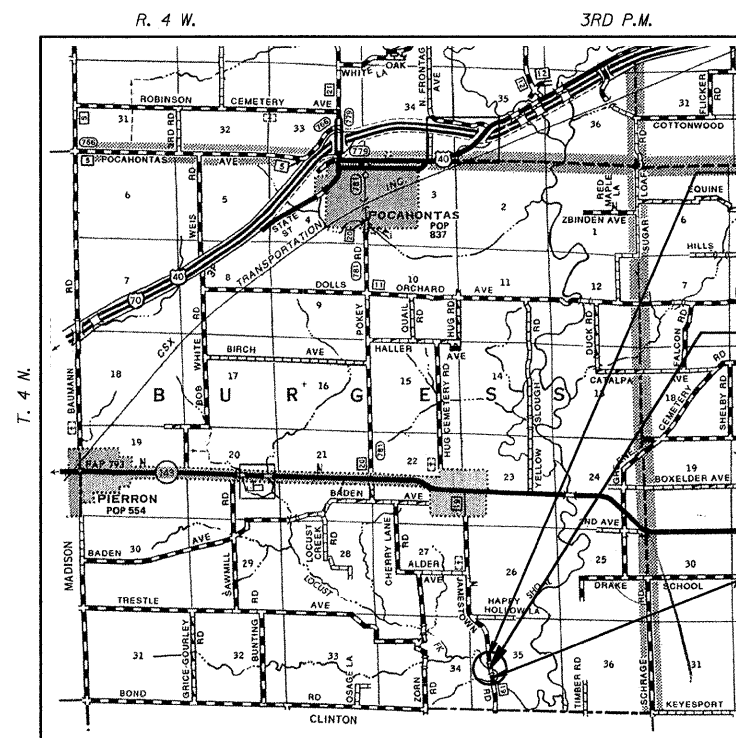
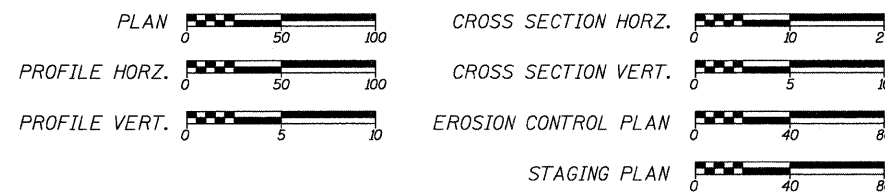
### ELECTRIC:

SOUTHWESTERN ELECTRIC COOP  
GREENVILLE, IL.  
(618) 664-1025

### WATER:

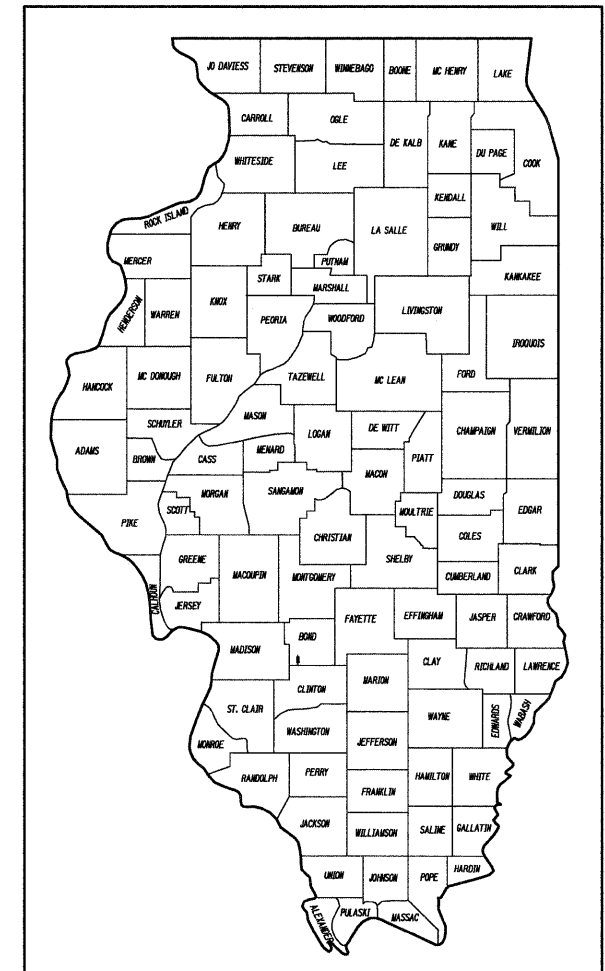
ST. ROSE PUBLIC WATER DISTRICT  
ST. ROSE, IL.  
(618) 228-7816

### SCALES:



### LOCATION MAP

NET LENGTH OF PROJECT = 800 FEET = 0.152 MILES



SECTION 02-00074-00-BR BEGINS STA. 103+50

### PROJECT LOCATION

PROPOSED STRUCTURE NO. 003-3050 STATION 107+52  
THREE SIMPLE SPANS (50', 60', 50'), PRECAST PRESTRESSED CONCRETE DECK BEAMS (27") ON SPILL THRU PILE BENT ABUTMENTS AND PILE BENT PIERS MEASURING 160'-0" BK./BK. OF THE ABUTMENTS WITH A 36'-0" CLEAR ROADWAY WIDTH.

SECTION 02-00074-00-BR ENDS STA. 111+50

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	APRIL 23 2010 [Signature] COUNTY ENGINEER
PASSED	APRIL 23 2010 [Signature] DISTRICT 8 ENGINEER OF LOCAL ROADS AND STREETS
RELEASING FOR BID BASED UPON LIMITED REVIEW	APRIL 23 2010 [Signature] MARY C. LAMIE, P.E. DEPUTY DIRECTOR OF HIGHWAYS REGION FIVE ENGINEER



DATE: 4/22/10  
LARRY D. GOWLER JR.  
REGISTERED PROFESSIONAL  
ENGINEER IN ILLINOIS, NO. 52900



EXPIRES: NOVEMBER 30, 2011

H.M.G. NO. 5250

LOCATION OF WORK		CONSTRUCTION CODES 1000 & X081-2A	
SUMMARY OF QUANTITIES			TOTAL QUANTITY
CODE NO.	ITEM	UNIT	
20100500	TREE REMOVAL, ACRES	ACRE	0.3
20200100	EARTH EXCAVATION	CU. YD.	1,062
20300100	CHANNEL EXCAVATION	CU. YD.	971
20400800	FURNISHED EXCAVATION	CU. YD.	2,872
20800150	TRENCH BACKFILL	CU. YD.	22
25000200	SEEDING, CLASS 2	ACRE	1.3
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	117
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	117
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	117
25100115	MULCH, METHOD 2	ACRE	1.3
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	130
28000305	TEMPORARY DITCH CHECKS	FOOT	136
28000400	PERIMETER EROSION BARRIER	FOOT	1,700
28000500	INLET AND PIPE PROTECTION	EACH	1
28100109	STONE RIPRAP, CLASS A5	SQ. YD.	1,060
28200200	FILTER FABRIC	SQ. YD.	1,060
35100100	AGGREGATE BASE COURSE, TYPE A	TON	263
35600708	HOT-MIX ASPHALT BASE COURSE WIDENING, 8"	SQ. YD.	479
40200100	AGGREGATE SURFACE COURSE, TYPE A	TON	12
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	1,157
40600300	AGGREGATE (PRIME COAT)	TON	18
40600990	TEMPORARY RAMP	SQ. YD.	27
40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	722
40603315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	437
48203100	HOT-MIX ASPHALT SHOULDERS	TON	137
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	45
50200100	STRUCTURE EXCAVATION	CU. YD.	124
50300225	CONCRETE STRUCTURES	CU. YD.	91.6
50300280	CONCRETE ENCASEMENT	CU. YD.	30.6
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ. FT.	5,698
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	10,510
50800515	BAR SPLICERS	EACH	72
50901050	STEEL RAILING, TYPE SM	FOOT	320
51201600	FURNISHING STEEL PILES HP12x53	FOOT	270
51201700	FURNISHING STEEL PILES HP12x74	FOOT	448
51202305	DRIVING PILES	FOOT	270
51203600	TEST PILE STEEL HP12x53	EACH	2
51204650	PILE SHOES	EACH	12
51205200	TEMPORARY SHEET PILING	SQ. FT.	132
51500100	NAME PLATES	EACH	1
542D1075	PIPE CULVERTS, CLASS D, TYPE 2 30"	FOOT	75
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ. YD.	634
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	1,741
63000001	STEEL PLATE BEAM GUARD RAIL, TYPE A, 6 FOOT POSTS	FOOT	325
63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	412
67100100	MOBILIZATION	L SUM	1
70100460	TRAFFIC CONTROL AND PROTECTION, STANDARD 701306	L SUM	1
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	L SUM	1
70101205	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)	EACH	1
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	15
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	3,053
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ. FT.	560
70400100	TEMPORARY CONCRETE BARRIER	FOOT	738
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	663
78200410	GUARDRAIL MARKERS, TYPE A	EACH	8
78200420	GUARDRAIL MARKERS, TYPE B	EACH	6
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2
Z0065000	SETTING PILES IN ROCK	EACH	14
X0323988	TEMPORARY SOIL RETENTION SYSTEM	SQ. FT.	259
X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1	EACH	1
X5020502	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2	EACH	1

### GUARDRAIL SCHEDULE

STEEL PLATE BEAM GUARD RAIL, TYPE A, 6 FOOT POSTS	
STA. 104+30 TO 106+18, RT.	= 187.5 FT.
STA. 106+26 TO 106+39, LT.	= 12.5 FT.
STA. 108+86 TO 109+99, LT.	= 112.5 FT.
STA. 108+66 TO 108+78, RT.	= 12.5 FT.
TOTAL = 325 FT.	

### GUARDRAIL MARKERS

EACH		
LOCATION	TYPE	
S.N. 003-3050	A	B
RT. 105+00	1	-
RT. 105+60	1	-
RT. 106+20	1	-
RT. 106+80	-	1
RT. 107+40	-	1
RT. 108+00	-	1
RT. 108+60	1	-
LT. 106+30	1	-
LT. 106+90	-	1
LT. 107+50	-	1
LT. 108+10	-	1
LT. 108+70	1	-
LT. 109+30	1	-
LT. 109+90	1	-
<b>TOTAL</b>	<b>8</b>	<b>6</b>

### EARTHWORK SCHEDULE (SEE SPECIAL PROVISIONS)

LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA. 103+50 TO 106+72	597	448	2,113	-1,665
BRIDGE OMISSION				
STA. 108+32 TO 111+50	465	349	2,284	-1,935
SUBTOTAL	1,062	797	4,397	-3,600
ALLOWANCE FOR 75% OF CHANNEL EXCAVATION IN EMBANKMENT				+728
<b>TOTAL</b>				<b>-2,872</b>

NOTE: SCHEDULE ASSUMES A 25% SHRINKAGE FACTOR.

#### 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.
- THE ENGINEER SHALL BE THE SOLE JUDGE CONCERNING CURING TIME FOR VARIOUS BITUMINOUS LIFTS.

#### COMMITMENTS

- ALL EMERGENCY, SCHOOL AND POSTAL SERVICES WILL BE NOTIFIED BEFORE CONSTRUCTION BEGINS.

#### APPLICATION RATES

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

NITROGEN FERTILIZER NUTRIENT	90 LBS/ACRE	BITUMINOUS CONCRETE	112 LBS/SY/IN
PHOSPHORUS FERTILIZER NUTRIENT	90 LBS/ACRE	BITUMINOUS MATERIALS (PRIME COAT)	
POTASSIUM FERTILIZER NUTRIENT	90 LBS/ACRE	BITUMINOUS/OIL & CHIP SURFACE	0.08 GAL/SY
MULCH METHOD 2	2 TONS/ACRE	AGGREGATE SURFACE	0.375 GAL/SY
GRANULAR MATERIAL	2.05 TONS/CY	AGGREGATE (PRIME COAT)	
RIPRAP	1.6 TONS/CY	BITUMINOUS/OIL & CHIP SURFACE	3 LBS/SY
		AGGREGATE SURFACE	5 LBS/SY

#### ENTRANCE SCHEDULE

LOCATION		AGG. SURFACE COURSE, TYPE A
STA.	TYPE	TON
104+02	LT. ACCESS	12
111+50	LT. F.E.	0
111+50	RT. F.E.	0

\* THESE ITEMS ARE CONSIDERED SPECIALTY ITEMS.

#### EXTRA BARS FOR TEST SAMPLES

BAR	NO.	SIZE	LENGTH	SHAPE
h1(E)	1	#7	14'-5"	—
h3(E)	1	#4	17'-5"	—
u(E)	1	#6	10'-4"	≡
v(E)	1	#5	6'-4"	—

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.

#### TREE REMOVAL SCHEDULE

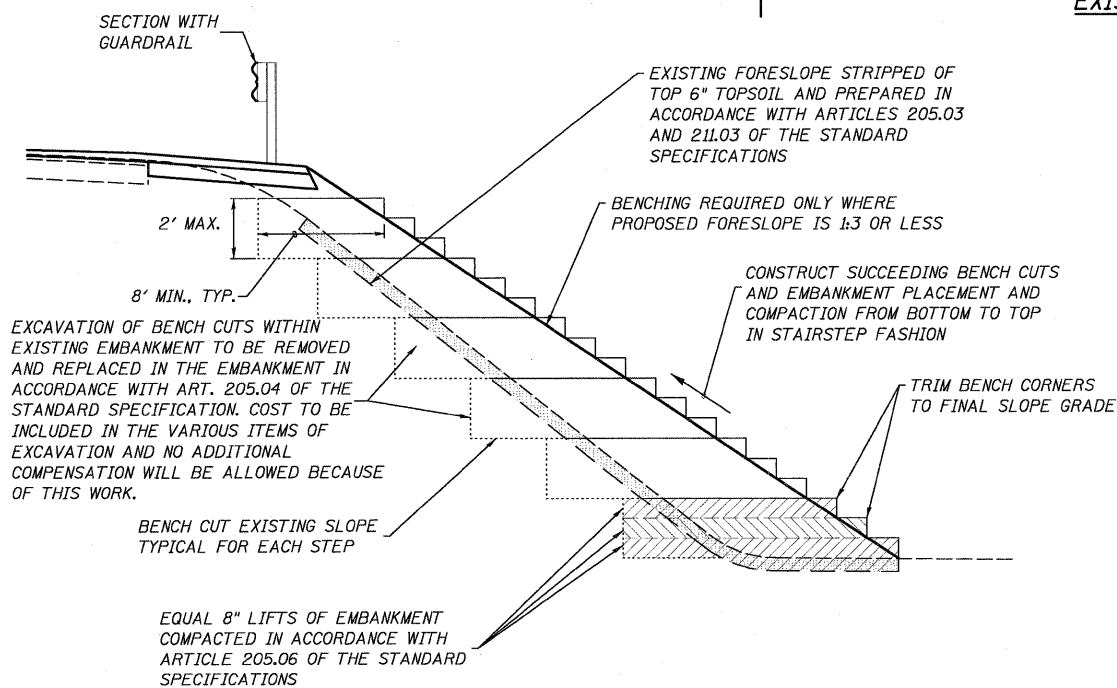
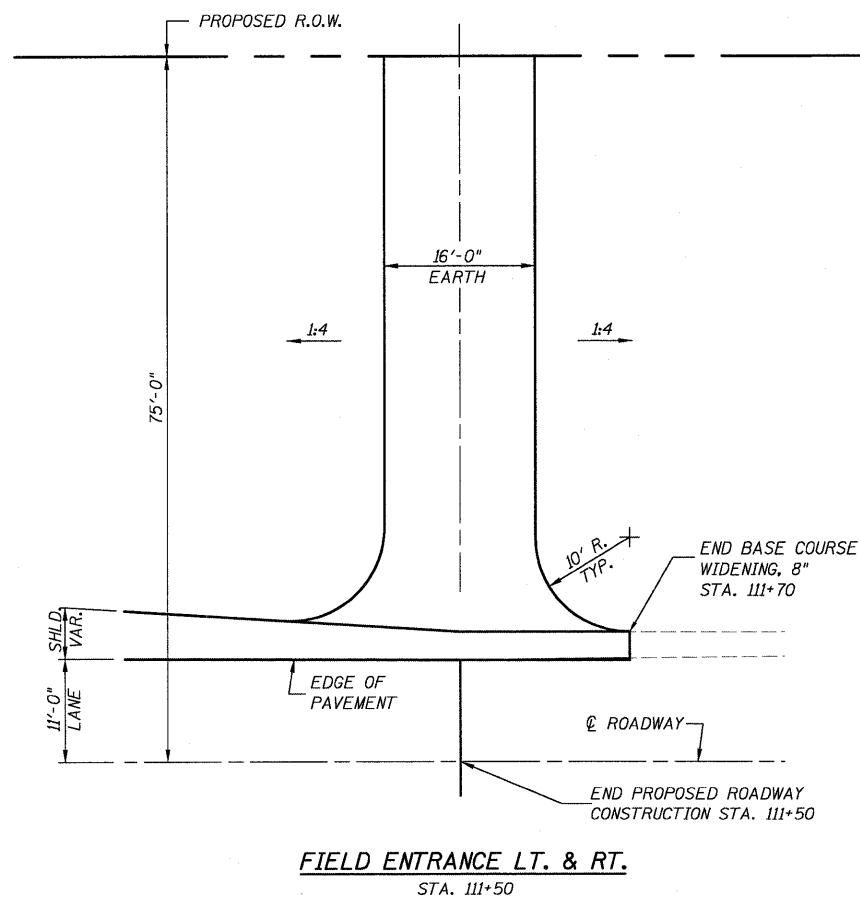
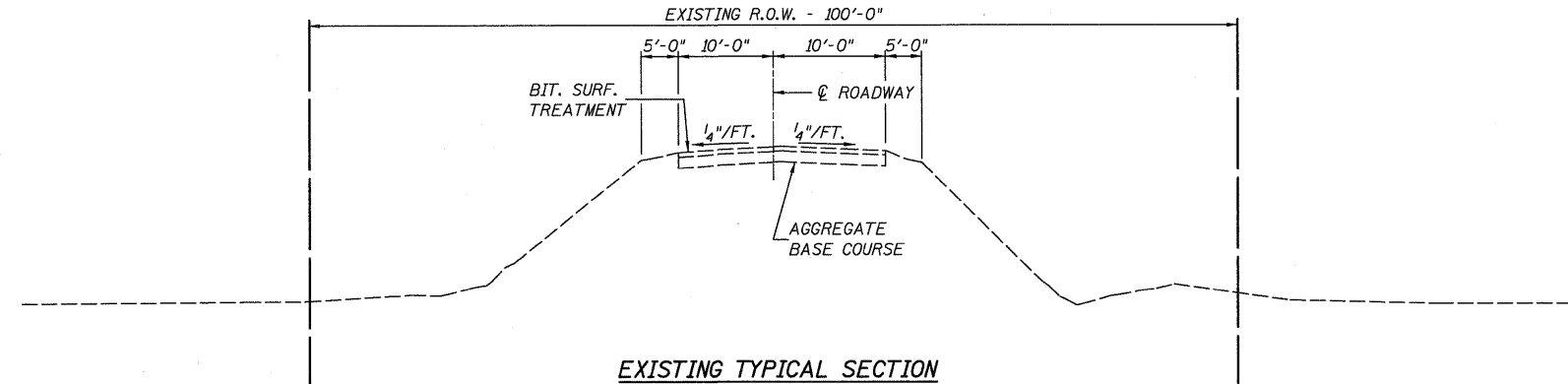
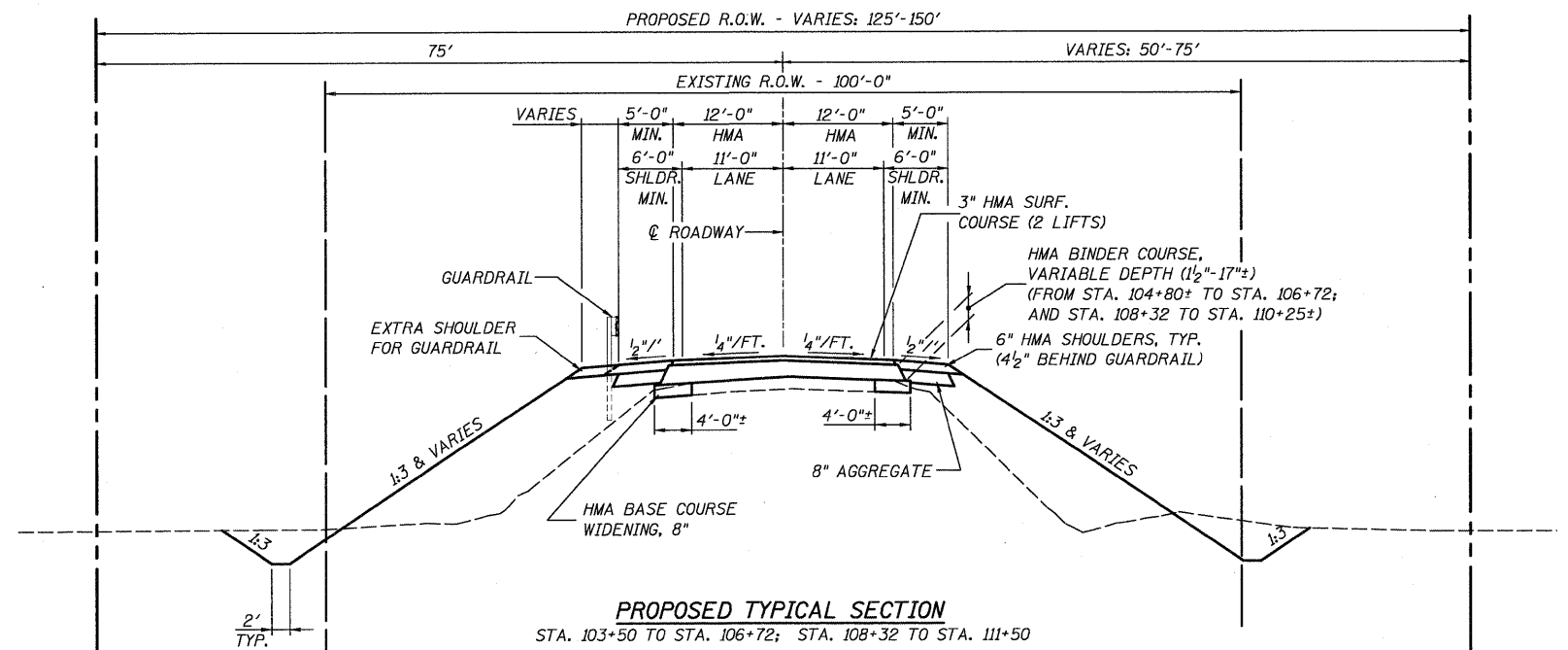
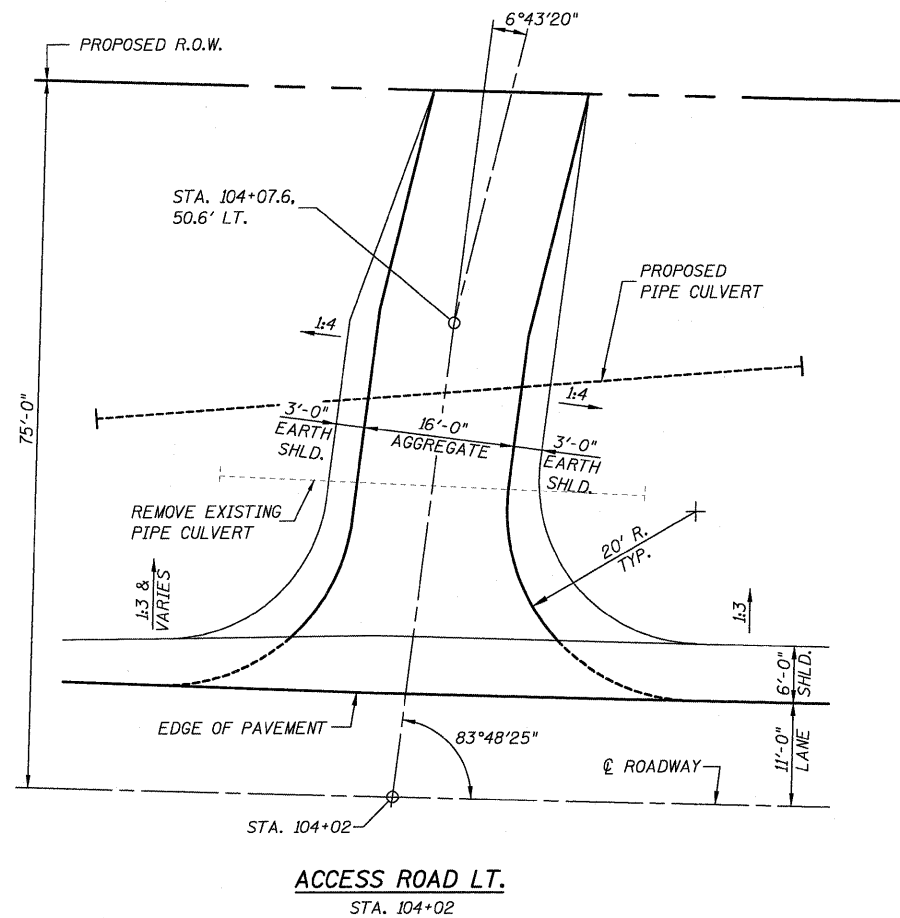
LOCATION	ACRES
STA. 105+34 TO STA. 108+74, LT.	0.18
STA. 105+18 TO STA. 107+66, RT.	0.12
<b>TOTAL</b>	<b>0.3</b>

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		DRAWN: K.H.L.	REVISED: -
		CHECKED: L.D.G.	REVISED: -
		DATE: -	REVISED: -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES  
AND SCHEDULES

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	2
S.N. 003-3050			CONTRACT NO. 97446	
ILLINOIS FED. AID PROJECT				



**MIXTURE REQUIREMENTS - SUPERPAVE PROJECT**

ROUTE	F.A.S. 783 (C.H. 19)
SECTION	02-00074-00-BR
COUNTY	BOND
CONTRACT	97446

DESCRIPTION: JAMESTOWN RD. OVER LOCUST FORK CREEK  
20 YR. ESAL'S: 0.20

MIXTURE USE	SURFACE	BINDER	WIDENING	SHOULDER 6"
AC/PG	PG 64-22	PG 64-22	PG 64-22	PG 58-22
RAP % (MAX)	0%	10%	15%	40%
DESIGN AIR VOIDS	4.0% @ Ndes=70	4.0% @ Ndes=70	4.0% @ Ndes=70	2.0% @ Ndes=70
MIX COMPOSITION (GRADATION MIXTURE)	IL 9.5	IL 19.0	N/A	N/A
FRICTION AGG	MIXTURE C	N/A	N/A	N/A

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PLOT DATE = 4/23/2010	CHECKED - L.D.G.	REVISED -
	DATE	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TYPICAL ROADWAY SECTIONS  
& ENTRANCE DETAILS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	3
S.N. 003-3050		CONTRACT NO. 97446		

**BENCHMARK:** T.B.M. R.R. spike in Power Pole  
Sta. 107+99.86, 50.7' Rt.  
El. 456.080

**CURVE DATA**

PI STA. = 104+57.71  
Δ = 2° 28' 00" (LT)  
D = 0° 30' 00"  
R = 11,459.16'  
T = 246.70'  
L = 493.33'  
E = 2.66'  
P.C. STA. = 102+11.01  
P.T. STA. = 107+04.34

LOCUST FORK ACRES TRUST

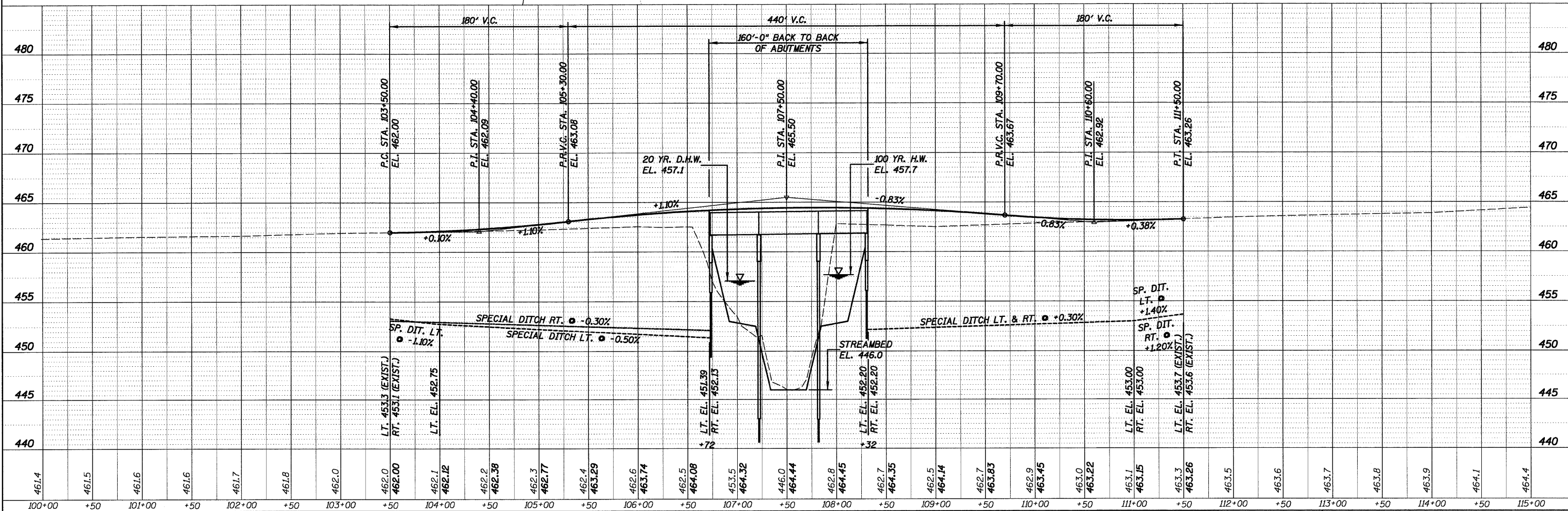
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LINUS W. NEUMANN TRUST

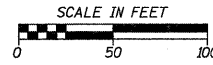
LINUS W. NEUMANN TRUST

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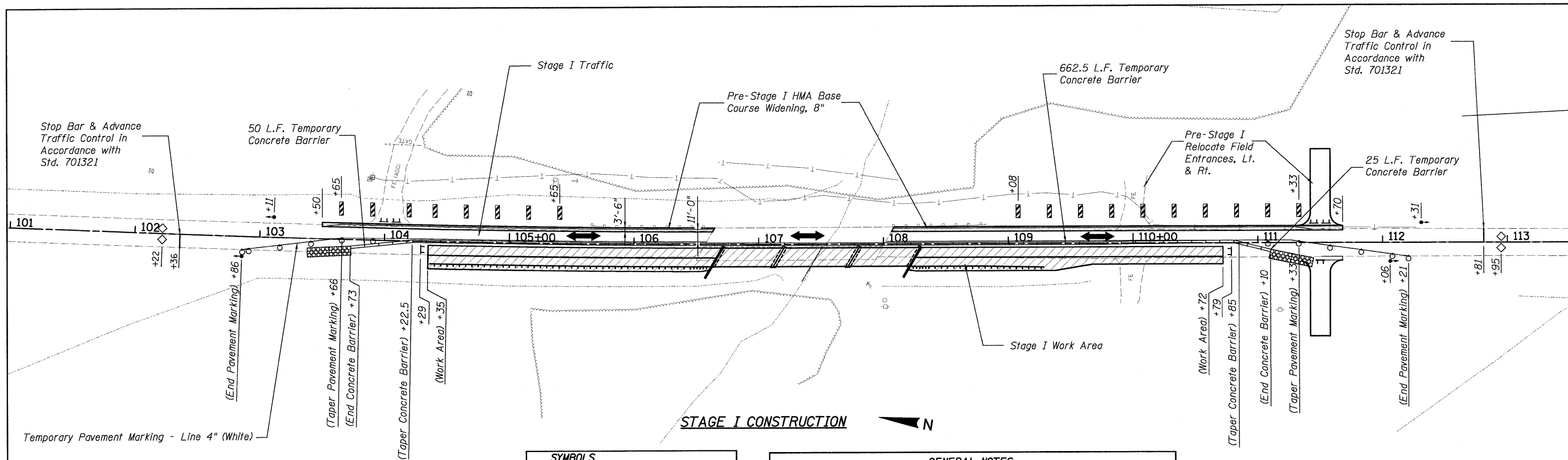
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PLOT SCALE = 49.9999" / IN.	CHECKED - L.D.G.	REVISED -	S.N. 003-3050			CONTRACT NO. 97446				
PLOT DATE = 4/22/2010	DATE	REVISED -	ILLINOIS FED. AID PROJECT							
HENRY, MEISENHEIMER & GENDE, INC. CONSULTING ENGINEERS 1075 LAKE RD., P.O. BOX 70 CARLYLE, ILLINOIS 62231 (618) 594-3711 WWW.HMGENGINEERS.COM										



H.M.G. NO. 5250

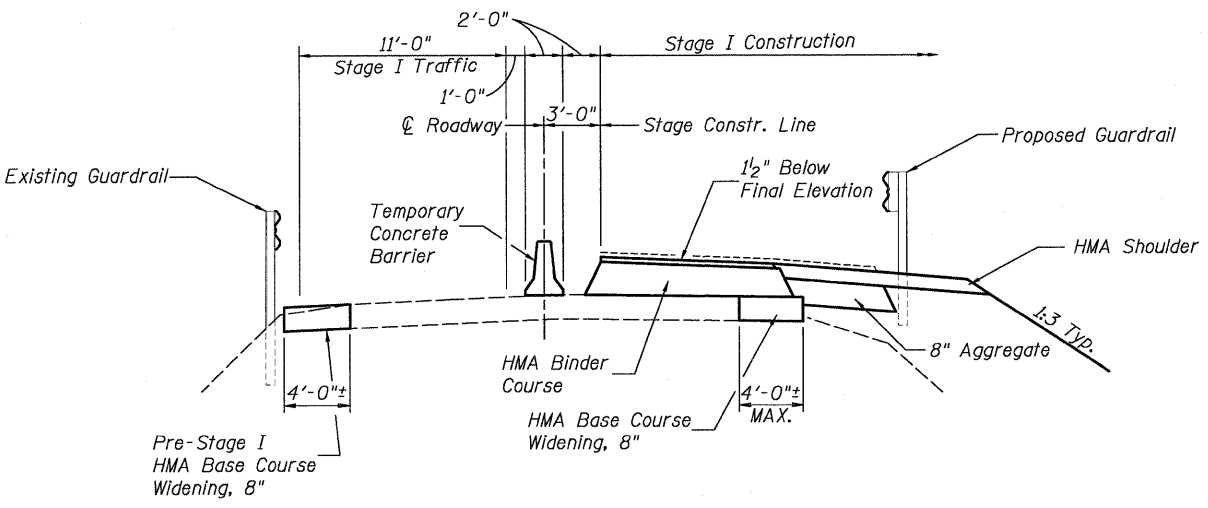
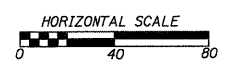


TRAFFIC CONTROL QUANTITIES (This Sheet)		
ITEM	UNIT	TOTAL
Traffic Control and Protection, Std. 701321 (Special)	Each	0.5
Traffic Control Surveillance (Total for Stages I and II)	Cal Da	15
Temporary Bridge Traffic Signals	Each	1
Impact Attenuator, Temporary (Non-Redirective), Test Level 3	Each	2.0
Temporary Concrete Barrier	Foot	738
Temporary Pavement Marking - Line 4"	Foot	1,718
Work Zone Pavement Marking Removal	Sq. Ft.	115

SYMBOLS	
↔	Traffic Signal
○	Drum with Steady Burning Light
▨	Impact Attenuator, Temporary, TL3
▨	Work Area
▬	Temporary Concrete Barrier
▨	Double Vertical Panel
⊥	Type III Barricade (when not working)
◇	Detector Loops

**GENERAL NOTES**

- This work shall supplement and be in accordance with Traffic Control Standard 701321.
- The posted speed limit through the construction site shall be 35 mph.
- Temporary Rumble Strips shall not be used.
- The cost of Drums, Barricades, Reflectors, Vertical Panels and Signing will not be paid for separately, and shall be included in the cost of Traffic Control and Protection, Standard 701321 (Special).



**STAGE I CONSTRUCTION**

**Pre-Stage I Construction:**

- Pre-Stage I Construction shall consist of the construction of 8" of HMA Base Course Widening along the east edge of the pavement and relocating field entrances from Sta. 110+00 to Sta. 111+50 LT and RT.
- Traffic Control shall be in accordance with the applicable portions of Traffic Control and Protection, Standards 701006 and 701326 and as detailed in the Stage Construction Plans.

**Stage I Construction:**

- Stage I Construction shall consist of Stage I Removal of the existing structure and Stage I Construction of the replacement structure, pavement removal, base course widening, grading, HMA binder courses and HMA surface course to within 1/2" of final surface, shoulder, guardrail, riprap, etc. Stage I Structure Construction shall be done in accordance with stage construction as detailed in the bridge plans.
- After Stage I Structure Construction is complete, Temporary Concrete Barriers and Attenuators may be removed and replaced with Barrels as necessary and as approved by Engineer. Costs included in respective pay items and shall not be measured for additional payment.
- Place 5' Temporary Ramps near Stations 104+50 and 110+60, done in conjunction with placement of first surface course lift, for Stage Construction Traffic.
- Traffic Control shall be in accordance with the applicable portions of Traffic Control and Protection, Standards 701306 and 701321 and as detailed in the Stage Construction Plans.

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DRAWN - K.H.L.

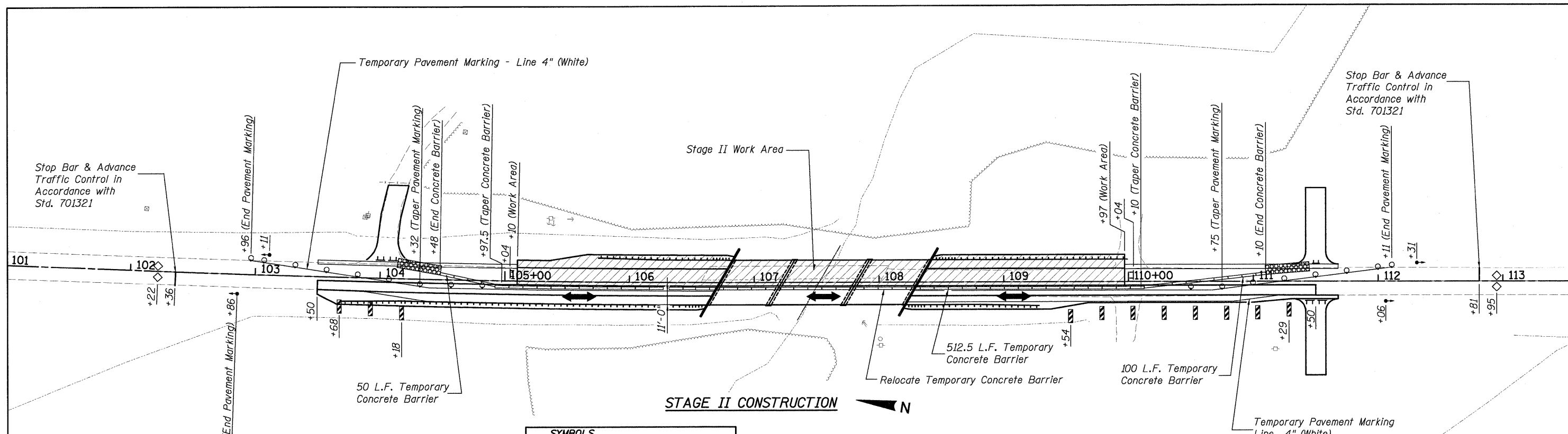
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUGGESTED ROADWAY STAGING PLAN  
STAGE I

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	5
S.N. 003-3050			CONTRACT NO. 97446	
ILLINOIS FED. AID PROJECT				

H.M.G. NO. 5250

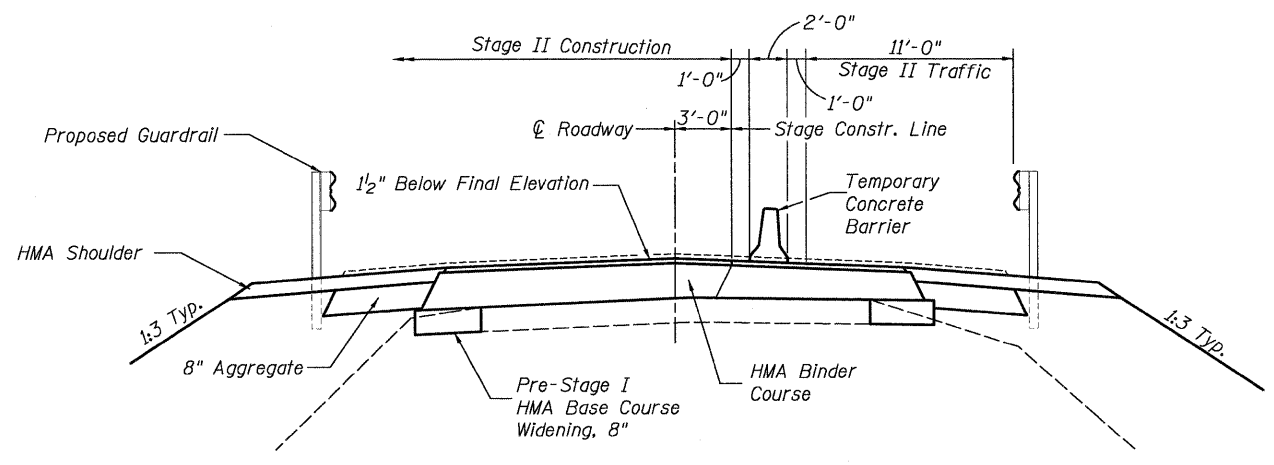
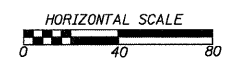


**STAGE II CONSTRUCTION**

TRAFFIC CONTROL QUANTITIES (This Sheet)		
ITEM	UNIT	TOTAL
Traffic Control and Protection, Std. 701321 (Special)	Each	0.5
Impact Attenuator, Relocate (Non-Redirective), Test Level 3	Each	2.0
Relocate Temporary Concrete Barrier	Foot	663
Temporary Pavement Marking - Line 4"	Foot	1,335
Work Zone Pavement Marking Removal	Sq. Ft.	445

SYMBOLS	
•	Traffic Signal
○	Drum with Steady Burning Light
▨	Impact Attenuator, Temporary, TL3
▧	Work Area
▬	Temporary Concrete Barrier
▩	Double Vertical Panel
⊥	Type III Barricade (when not working)
◇	Detector Loops

GENERAL NOTES	
1.	This work shall supplement and be in accordance with Traffic Control Standard 701321.
2.	The posted speed limit through the construction site shall be 35 mph.
3.	Temporary Rumble Strips shall not be used.
4.	The cost of Drums, Barricades, Reflectors, Vertical Panels and Signing will not be paid for separately, and shall be included in the cost of Traffic Control and Protection, Standard 701321 (Special).



**STAGE II CONSTRUCTION**

**Stage II Construction:**

1. Stage II Construction shall consist of Stage II Removal of the existing structure and Stage II Construction of the replacement structure, pavement removal, base course widening, grading, HMA binder courses and HMA surface course to within 1/2" of final surface, shoulder, guardrail, riprap, etc. Stage II Structure Construction shall be done in accordance with stage construction as detailed in the bridge plans.
2. After Stage II Structure Construction is complete, Temporary Concrete Barriers and Attenuators may be removed and replaced with Barrels as necessary. Costs included in respective pay items and shall not be measured for additional payment.
3. Place 5' Temporary Ramps near Stations 104+50 and 110+60, done in conjunction with placement of first surface course lift, for Stage Construction Traffic.
4. Traffic Control shall be in accordance with the applicable portions of Traffic Control and Protection, Standards 701306 and 701321 and as detailed in the Stage Construction Plans.

**Post-Stage Construction:**

1. Post-Stage Construction shall consist of the removal of Temporary Concrete Barriers and placing of final 1/2" surface course. Traffic Control shall be in accordance with Traffic Control and Protection, Standard 701306.

FILE NAME = h:\5250\06\_roadstage\_5250.dgn

USER NAME = USERDESCR...  
 PLOT SCALE = 40,0001" / IN.  
 PLOT DATE = 4/22/2010

DESIGNED - K.M.M.  
 DRAWN - K.H.L.  
 CHECKED - L.D.G.  
 DATE

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

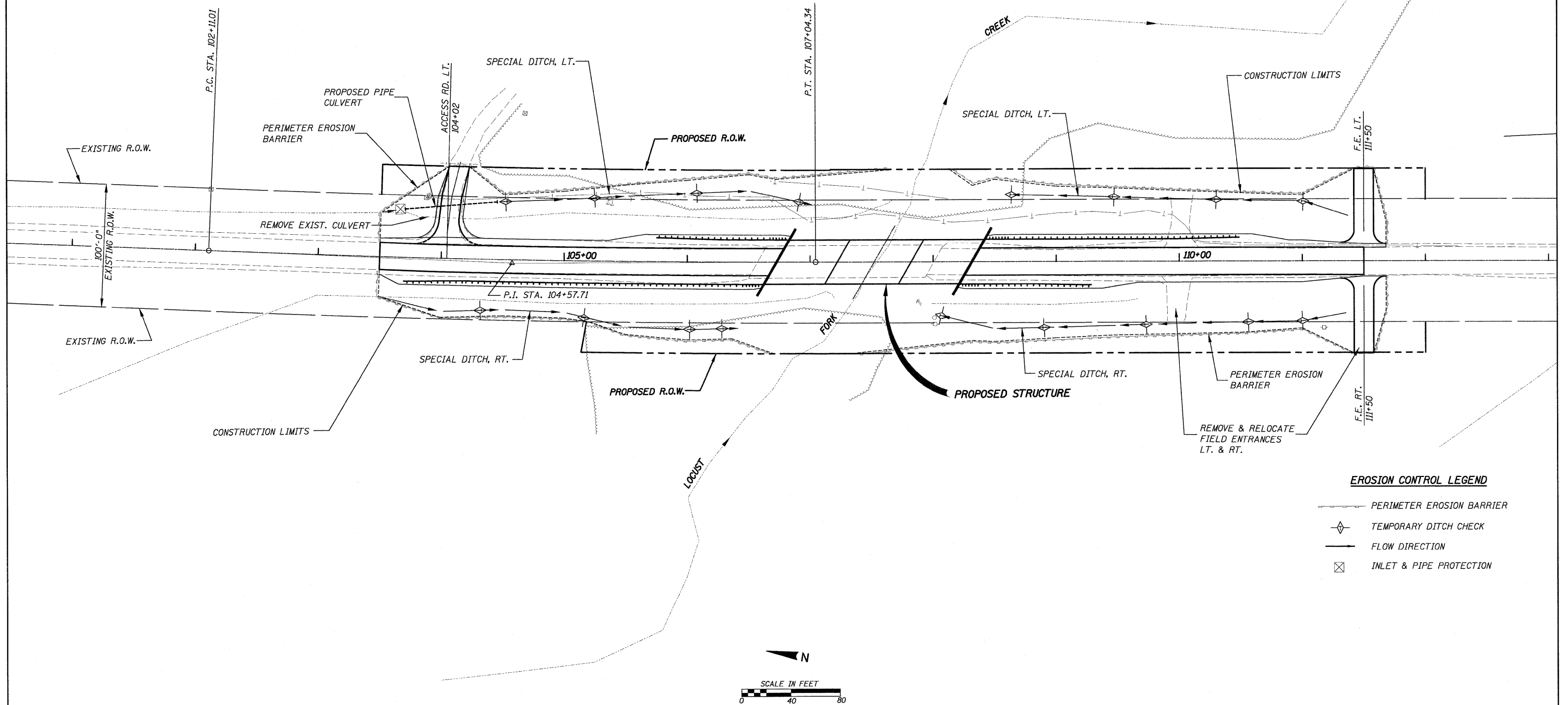
SUGGESTED ROADWAY STAGING PLAN  
 STAGE II

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	6
S.N. 003-3050			CONTRACT NO. 97446	

H.M.G. NO. 5250

**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 DITCH CHECKS.
5. CONTRACTOR SHALL PROVIDE STABILIZED CONSTRUCTION ENTRANCES AS NECESSARY TO MINIMIZE OFF SITE VEHICLE TRACKING OF SOIL AND DEBRIS. SEE SPECS.
6. ALL DISTURBED AREAS SHALL RECEIVE TEMPORARY EROSION CONTROL SEEDING AS DESCRIBED IN SPECS. UNTIL PERMANENT STABILIZATION CAN BE PERFORMED.
7. THE COUNTY WILL ASSUME RESPONSIBILITY FOR MAINTAINING EROSION CONTROL MEASURES THROUGH FINAL STABILIZATION AFTER I.D.O.T. ACCEPTANCE OF WORK BY CONTRACTOR.



**EROSION CONTROL LEGEND**

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

FILE NAME = h:\B5250\B07_errs_5250.dgn	USER NAME = JUSERDESCR	DESIGNED - K.M.M.	REVISED -
		DRAWN - K.H.L.	REVISED -
		CHECKED - L.D.G.	REVISED -
		DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**EROSION CONTROL PLAN**

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	7
S.N. 003-3050		CONTRACT NO. 97446		
ILLINOIS FED. AID PROJECT				

H.M.G. NO. 5250

08. gpd. 5250.DGN APR. 22, 2010

**BENCHMARK:** T.B.M. R.R. spike in Power Pole  
Sta. 107+99.86, 50.7' Rt.  
El. 456.080

**EXISTING STRUCTURE** S.N. 003-3020

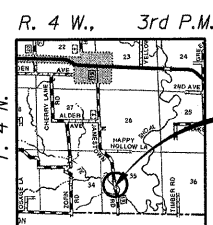
The existing structure, constructed in 1958, consists of four spans (4 @ 36') of precast channel beams with an overall length of 146'-0" back-to-back of abutments on a 30° left forward skew and provides a clear roadway width of 24'-0" between the concrete curbs and a 26'-3" width out to out of the deck. The existing substructure consists of spill through pile bent abutments and pile bent piers on timber piles.

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

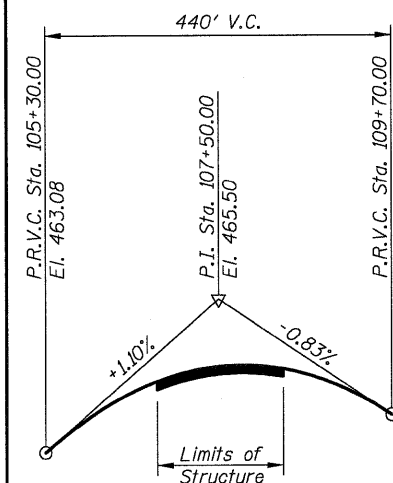
The existing roadway will remain open to one lane of traffic during the construction period utilizing stage construction.

Piers shall be kept for Stage I Traffic.

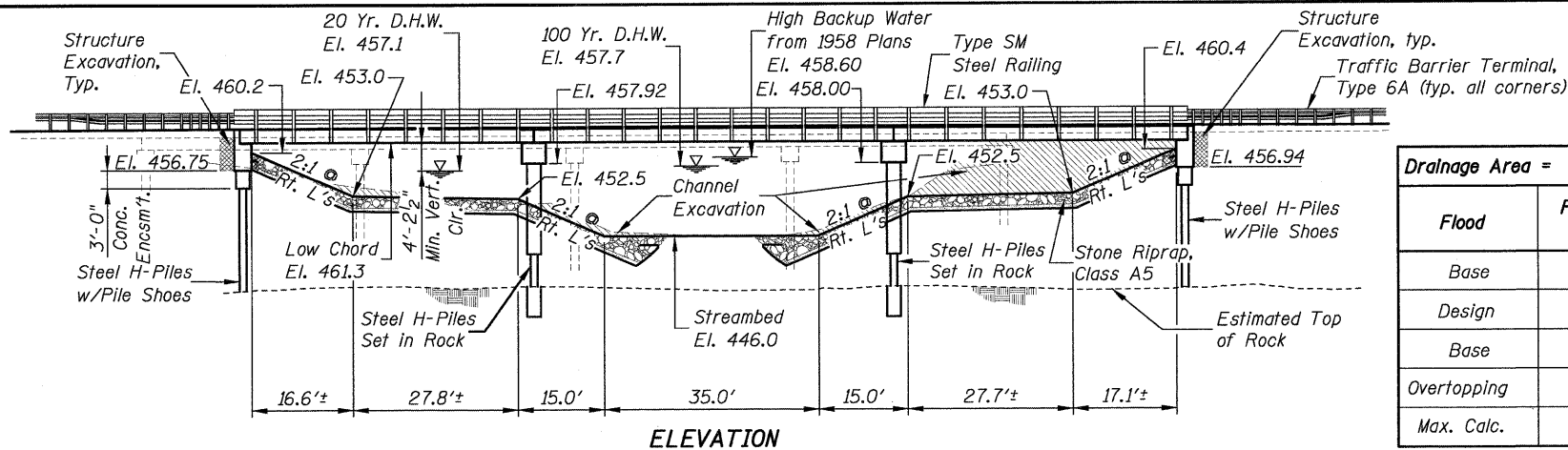
**SALVAGE:** No salvage



**LOCATION SKETCH**



**PROFILE GRADE**  
F.A.S. 783 (C.H. 19)



**ELEVATION**

**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. ( $\frac{1}{2}$ "  $\phi$  Strands)  
 $f'_{si}$  = 201,960 p.s.i. ( $\frac{1}{2}$ "  $\phi$  Strands)

**FIELD UNITS**  
 $f'_c$  = 3,500 p.s.i.  
 $f_y$  = 60,000 p.s.i. (reinf.)  
 $f_y$  = 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 ( $S_{D1}$ ) = 0.239 g  
Design Spectral Acceleration at 0.2 sec ( $S_{D5}$ ) = 0.560 g  
Soil Site Class = D

**Note:**

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

Traffic Barrier Terminal, Type 6A & Type 1 (Special) Tangent & SPBGR Type A, typical all corners. See Roadway Plans.

LOCUST FORK CREEK  
BUILT 201 BY  
BOND COUNTY  
SECTION 02-00074-00-BR  
F.A.S. 783 STATION 107+52  
S.N. 003-3050 LOADING HL93  
PROJ. NO. BRS-0783(107)

**NAME PLATE**

See Std. 515001.  
Locate Name Plate as shown in Plan View.

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (Feet)	N. Abut.	Pier 1	Pier 2	S. Abut.
	453.75	442.00	442.00	453.94

**WATERWAY INFORMATION**

Drainage Area = 17.2 Sq.Mi. Low Grade Elev. = 461.40 Sta. 100+00

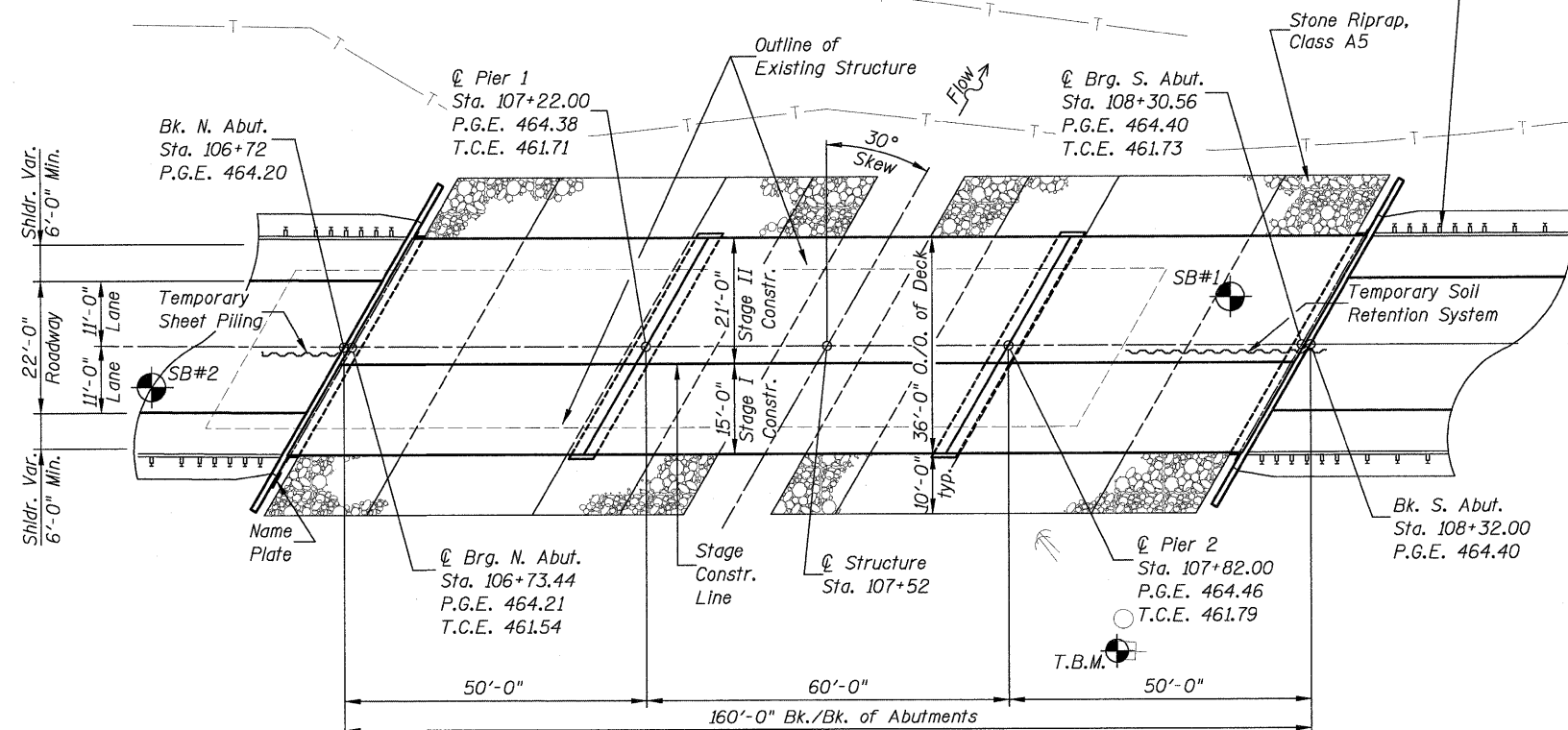
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Base	10	3,070	563	698	456.6	0.6	0.4	457.2	457.0
Design	20	3,770	614	759	457.1	0.8	0.6	457.9	457.7
Base	100	5,780	731	892	457.7	1.8	1.4	459.5	459.1
Overtopping	N/A								
Max. Calc.	500	7,830	978	991	458.5	3.4	1.8	461.9	460.3

**INDEX OF BRIDGE SHEETS**

1. General Plan & Elevation
2. Bridge Staging, Details & General Notes
3. Temporary Concrete Barrier for Stage Construction
4. Superstructure
5. 27" x 36" P.P.C. Deck Beam - Spans 1 & 3
6. 27" x 36" P.P.C. Deck Beam - Span 2
7. 27" x 36" P.P.C. Deck Beam Details
8. Steel Railing, Type SM with Hot-Mix Asphalt Wearing Surface
9. Pile Bent North Abutment
10. Pile Bent South Abutment
11. Piers 1 & 2
12. HP Pile Details
13. Bar Splicer Assembly Details
14. Soil Boring Logs

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER.	SUB.	TOTAL
Channel Excavation	Cu. Yd.			971
Stone Riprap, Class A5	Sq. Yd.			1,060
Filter Fabric	Sq. Yd.			1,060
Hot-Mix Asphalt Surface Course, Mix "C", N70	Ton	151		151
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		124	124
Concrete Structures	Cu. Yd.		91.6	91.6
Concrete Encasement	Cu. Yd.		30.6	30.6
Prec. Pres. Conc. Dk. Bms. (27" Depth)	Sq. Ft.	5,698		5,698
Reinforcement Bars, Epoxy Coated	Pound		10,440	10,440
Bar Splicers	Each		72	72
Steel Railing, Type SM	Foot	320		320
Furnishing Steel Piles HP 12x53	Foot		270	270
Furnishing Steel Piles HP 12x74	Foot		448	448
Driving Steel Piles	Foot		270	270
Test Pile Steel HP 12x53	Each		2	2
Pile Shoes	Each		12	12
Temporary Sheet Piling	Sq. Ft.		132	132
Name Plates	Each		1	1
Waterproofing Membrane System	Sq. Yd.	634		634
Portland Cement Mortar Fairing Course	Foot	1,741		1,741
Setting Piles in Rock	Each		14	14
Temporary Soil Retention System	Sq. Ft.		259	259
Underwater Struct. Excav. Protection-Loc. 1	Each		1	1
Underwater Struct. Excav. Protection-Loc. 2	Each		1	1



**PLAN**

**GENERAL PLAN & ELEVATION**

F.A.S. 783 (C.H. 19/JAMESTOWN RD.)  
OVER LOCUST FORK CREEK  
SECTION 02-00074-00-BR  
BOND COUNTY  
STATION 107+52 STRUCTURE NO. 003-3050

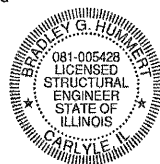
DESIGNED	K.M.M.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

"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 an economical one for the style of structure and complies with requirements of the current 'AASHTO LRFD Bridge Design Specifications' including seismic design."

*Bradley G. Hummert* Date: 4/22/10

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

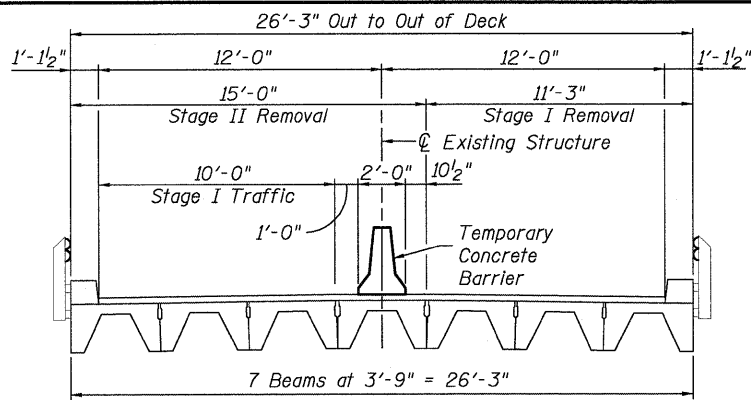
Expires: November 30, 2010



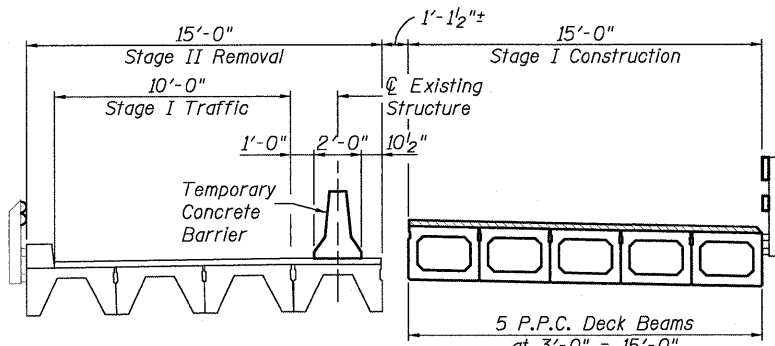
SHEET NO.	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	783	02-00074-00-BR	BOND	25	8
S.N. 003-3050			CONTRACT NO. 97446		
FED. ROAD DIST. NO. _____		ILLINOIS FED. AID PROJECT			

H.M.G. NO. 5250

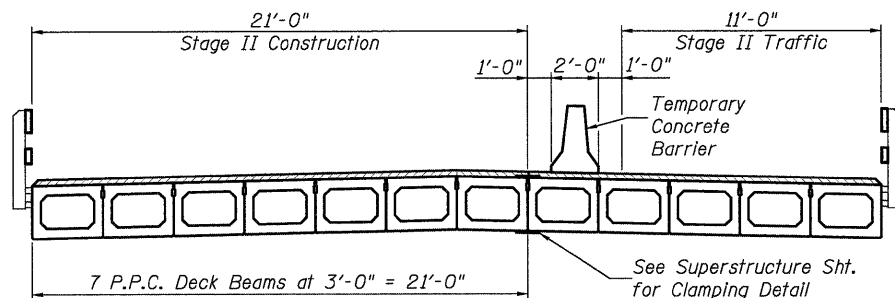




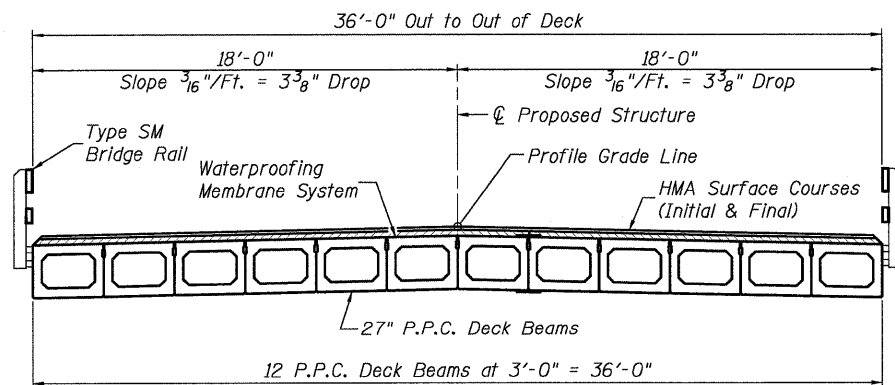
**EXISTING STRUCTURE**  
(Looking South)



**STAGE I CONSTRUCTION**  
(Looking South)

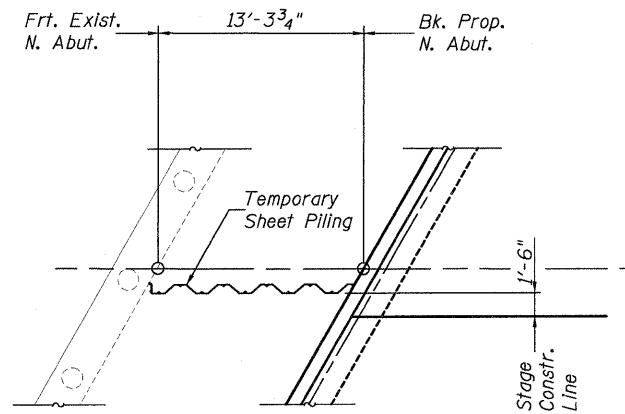


**STAGE II CONSTRUCTION**  
(Looking South)

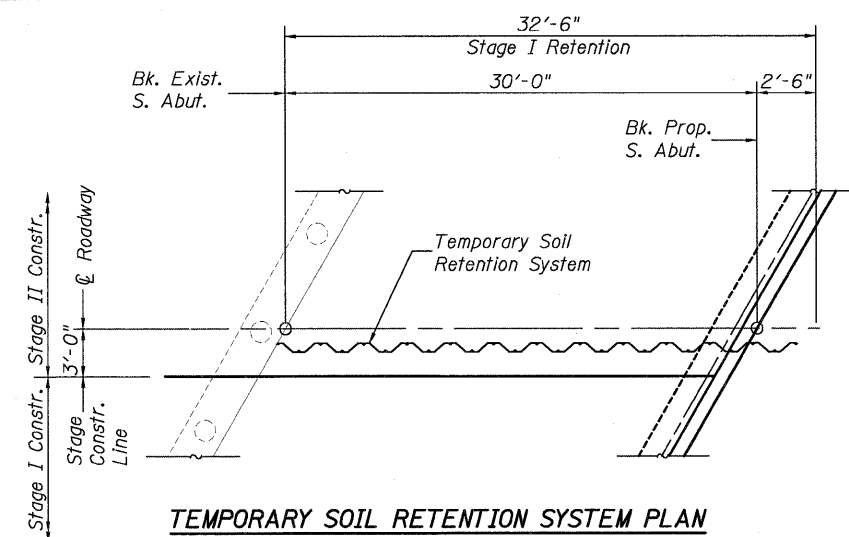


**PROPOSED STRUCTURE**  
(Looking South)

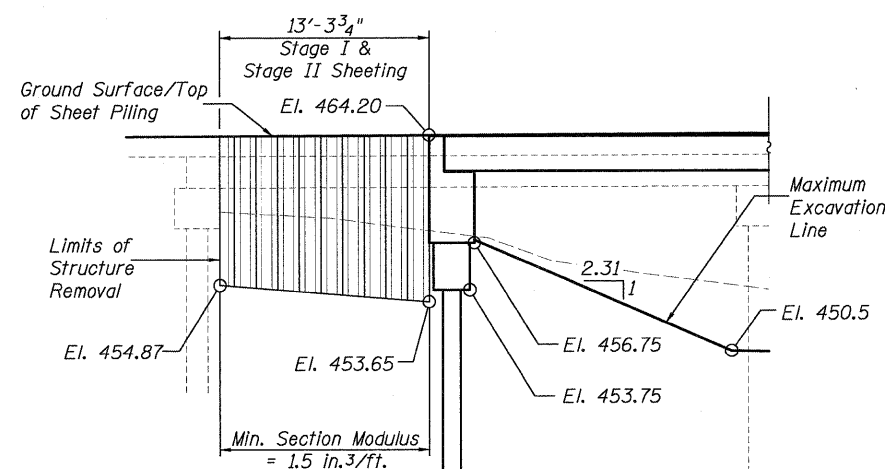
DESIGNED	K.M.M.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.



**TEMPORARY SHEET PILING PLAN**

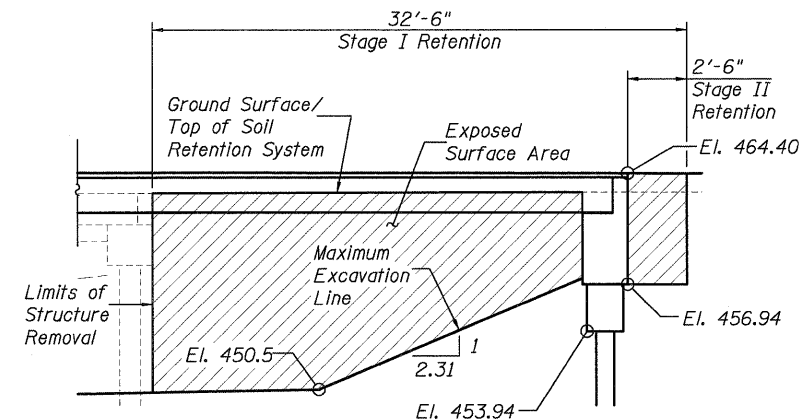


**TEMPORARY SOIL RETENTION SYSTEM PLAN**



**TEMPORARY SHEET PILING ELEVATION**

If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal, including plan details and calculations, will be required for review and acceptance by the Engineer.

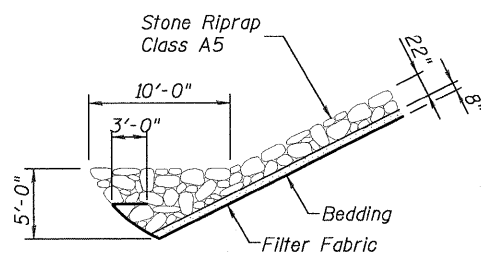


**TEMPORARY SOIL RETENTION SYSTEM ELEVATION**

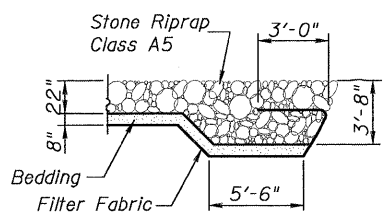
A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design, including plan details and calculations, for review and acceptance by the Engineer.

**GENERAL NOTES**

- 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.
- Hot-mix asphalt surface course overlay for the bridge deck shall be constructed in accordance with applicable portions of Section 582 of the Standard Specifications.
- Waterproofing membrane system for the bridge shall be in accordance with material and construction requirements of the applicable portions of Section 581 of the Standard Specifications.
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
- Reinforcement bars designated (E) shall be epoxy coated.
- Deck beams shall be cleaned to the satisfaction of the Engineer before placing the waterproofing membrane system.
- Current Ratings on file for Existing Structure  
 Inventory: HS2.8  
 Operating: HS13.9  
 Live Load Restrictions: Y (20)  
 Inventory and Operating Ratings and Live Load Restrictions are provided for information only. Inventory and Operating Ratings are based on HS loading and configuration. Live Load Restrictions are based on Illinois legal loads and configurations. The Ratings and Live Load Restrictions are not necessarily representative of capacities to support the Contractor's equipment.
- The Contractor is advised that the existing structure contains members that are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the existing structure when developing construction procedures for the complete or partial removal or replacement of the structure. An Existing Structure Information Package is available upon request as noted in the special provisions.



**STONE RIPRAP ANCHOR DETAIL**

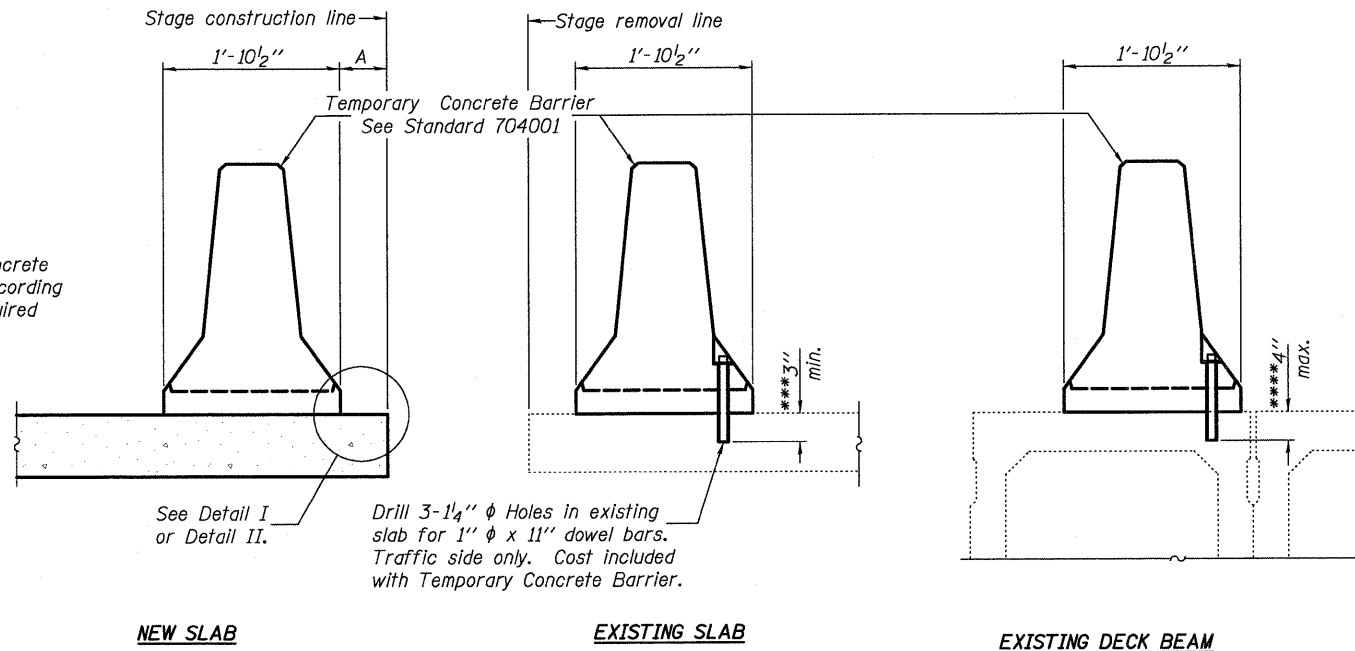


**STONE RIPRAP FLANK DETAIL**

**BRIDGE STAGING, DETAILS & GENERAL NOTES**

SHEET NO. 2	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	783	02-00074-00-BR	BOND	25	9
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



Drill 3-1/4"  $\phi$  Holes in existing slab for 1"  $\phi$  x 11" dowel bars. Traffic side only. Cost included with Temporary Concrete Barrier.

**NOTES**

**Detail I - With Bar Splicer or Couplers:**  
Connect one (1) 1"x7"x10" steel  $\bar{P}$  to the top layer of couplers with 2-5/8"  $\phi$  bolts screwed to coupler at approximate  $\bar{C}$  of each barrier panel.

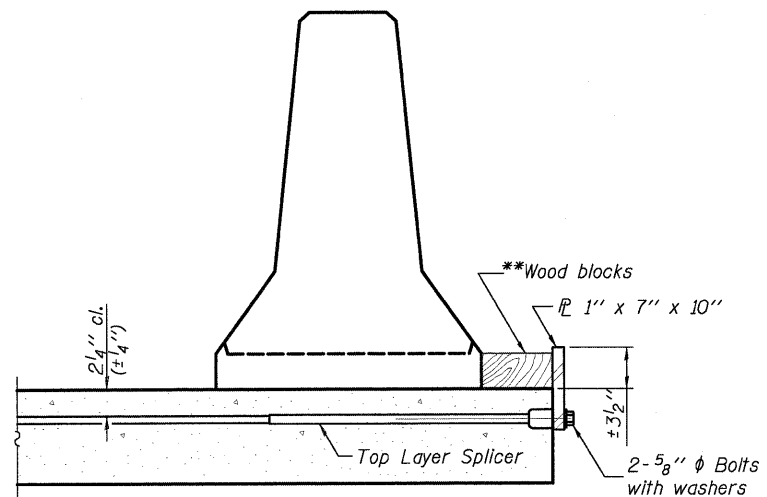
**Detail II - With Extended Reinforcement Bars:**  
Connect one (1) 1"x7"x10" steel  $\bar{P}$  to the concrete slab or concrete wearing surface with 2-5/8"  $\phi$  Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate  $\bar{C}$  of each barrier panel.

Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x 10" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

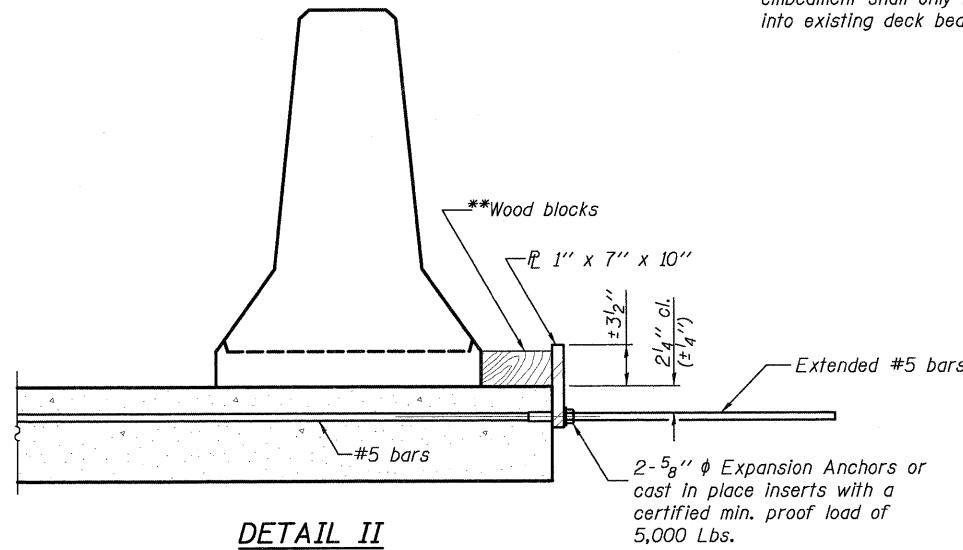
**SECTIONS THRU SLAB OR DECK BEAM**

\*\*\* Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

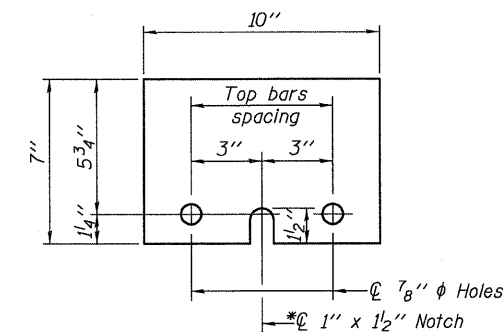
\*\*\*\* If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



**DETAIL I**



**DETAIL II**



**STEEL RETAINER  $\bar{P}$  1" x 7" x 10"**

\* Required only with Detail II

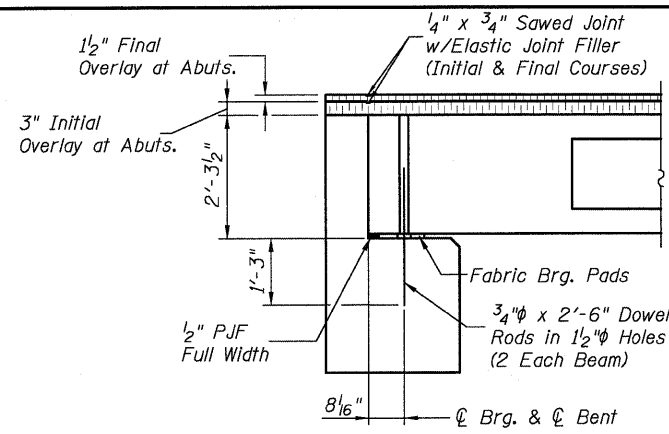
\*\*Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

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

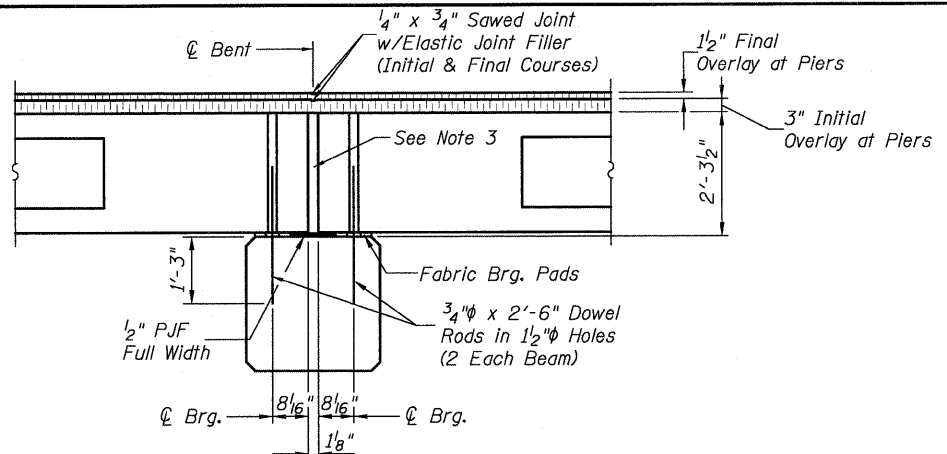
R-27 10-1-08

**TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION**

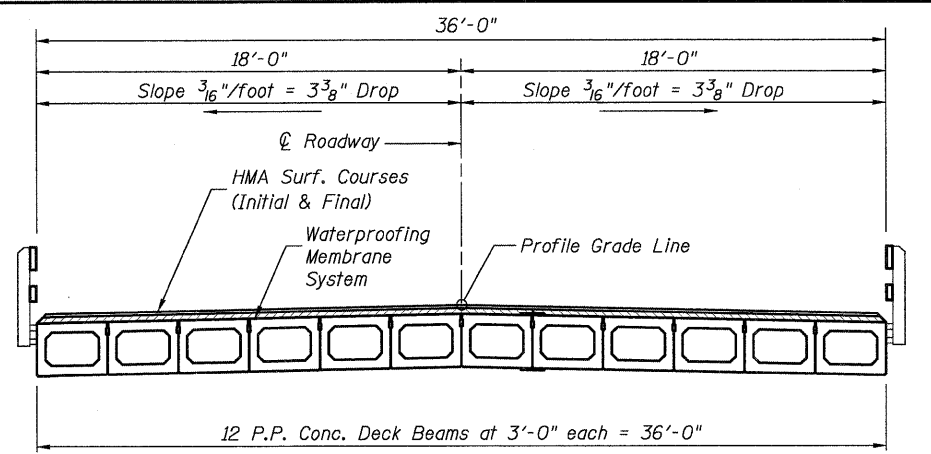
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	783	02-00074-00-BR	BOND	25	10
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT		



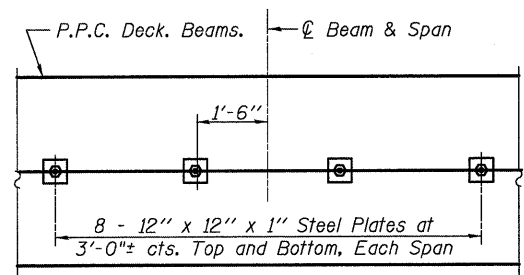
**SECTION AT ABUTS.**  
(Along C Beams)



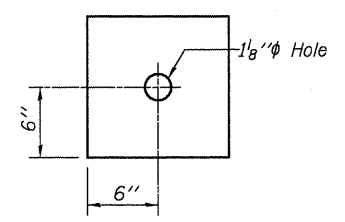
**SECTION AT PIERS**  
(Along C Beams)



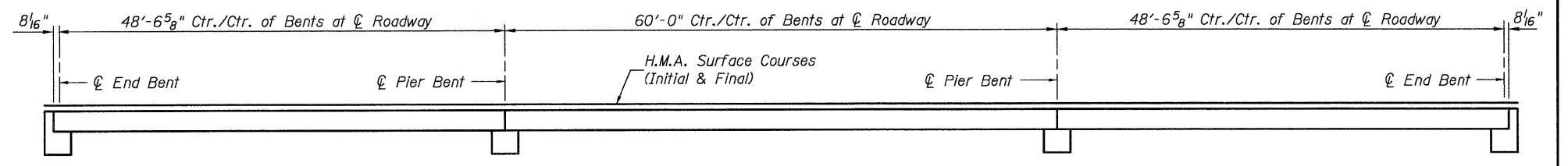
**CROSS SECTION**  
(Looking South)



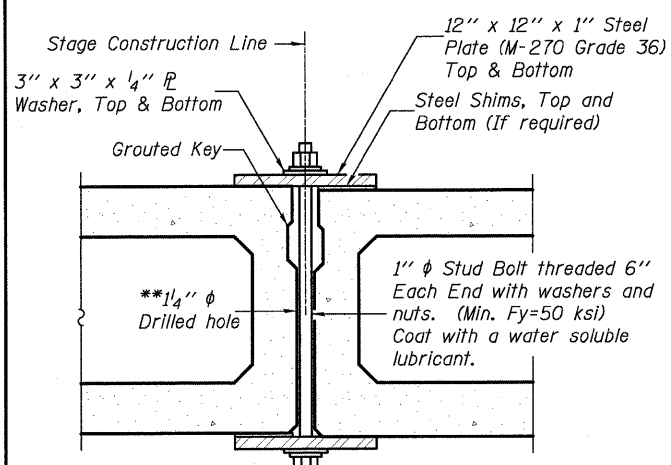
**PLAN**



**CLAMPING PLATE**



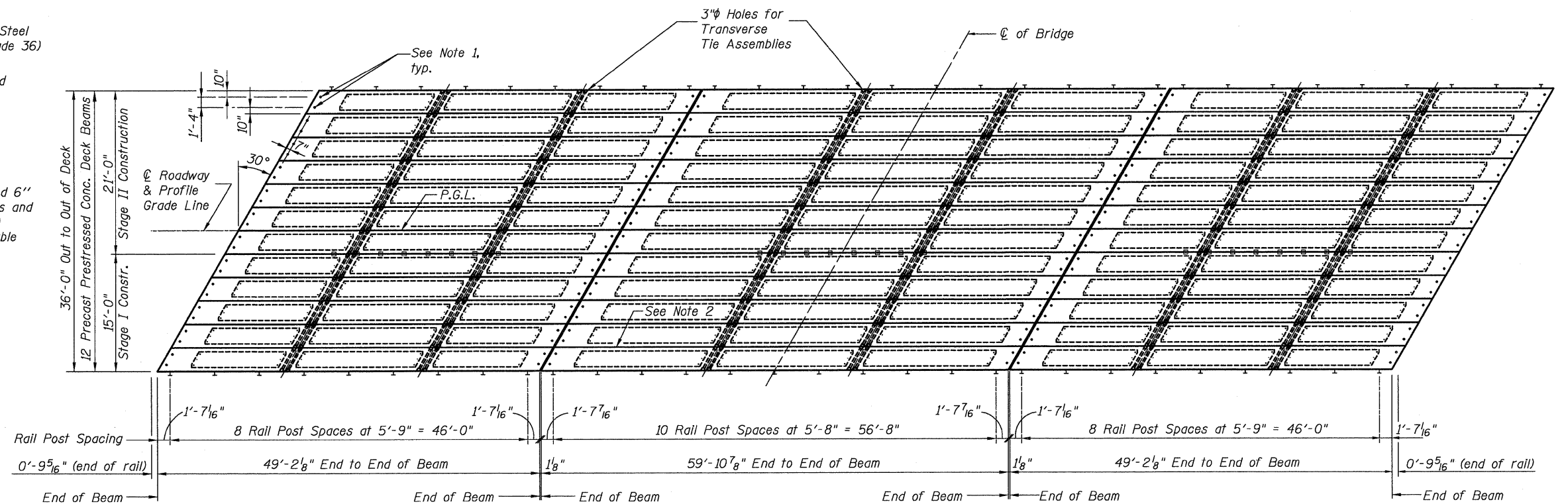
**ELEVATION**



**SECTION**  
**SHEAR KEY CLAMPING DETAILS**  
**AT STAGE CONST. JT.**

Cost included with Precast Prestressed Concrete Deck Beams.  
See Stage Construction Details for traffic lanes.

\*\* As an alternate to the drilled holes, the Contractor may request the Fabricator to cast 2" diameter semi-circular recesses in the sides of each beam adjacent to the stage construction line. These recesses should align to form a hole at the appropriate locations for the clamping device bolts. If the Contractor elects to use this alternate, the details shall be identified on the shop drawings.



**PLAN**

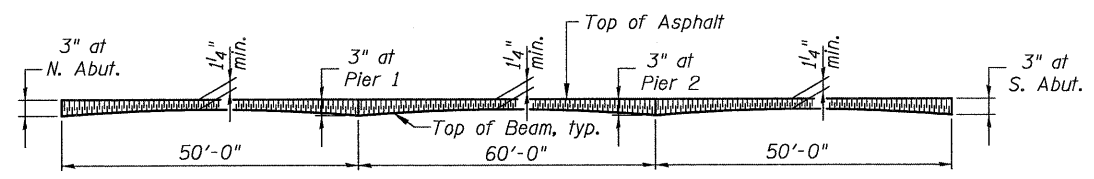
**BILL OF MATERIAL**

Item	Unit	Quantity
Portland Cement Mortar Fairing Course	Foot	1,741
Waterproofing Membrane System	Sq. Yd.	634
Hot-Mix Asphalt Surf. Cse., Mix "C", N70	Ton	151

**NOTES**

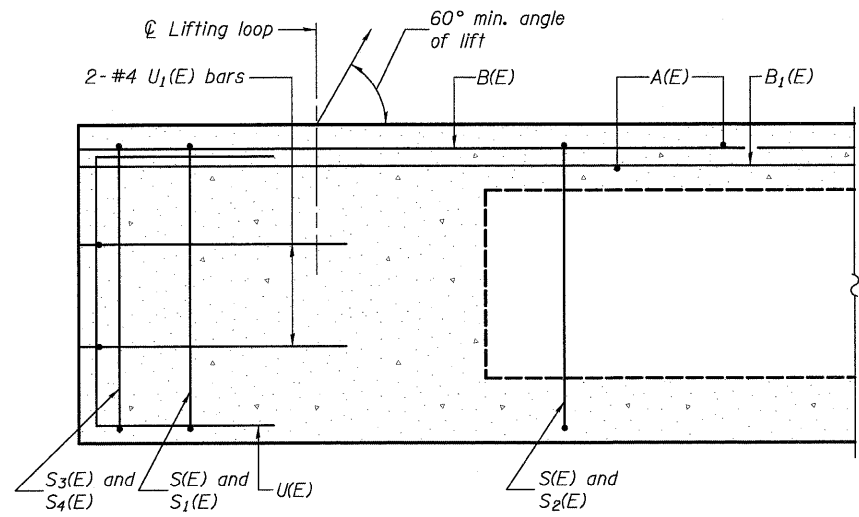
- After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
- Longitudinal keys shall be grouted.
- Nominal 1" joint at C Piers shall be filled with non-shrink grout.

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

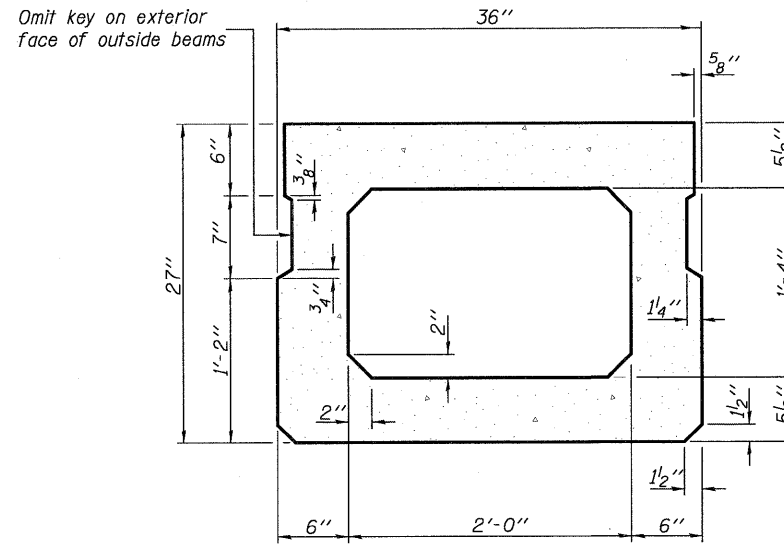


**PROFILE OF INITIAL OVERLAY**  
(1 1/2" Final Overlay)

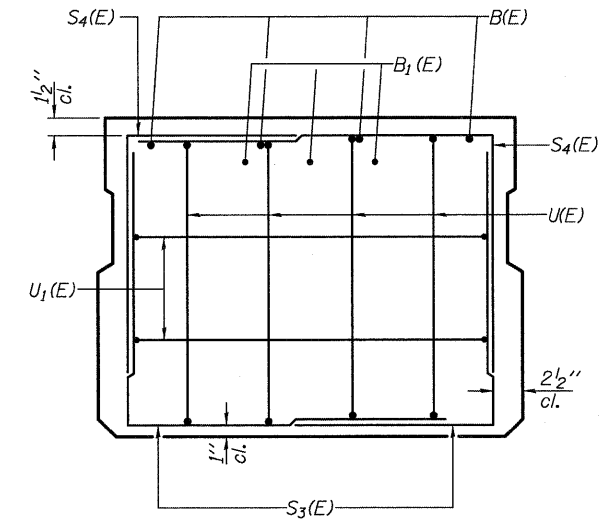
SHEET NO. 4		F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
14 SHEETS		783	02-00074-00-BR	BOND	25	11
S.N. 003-3050			CONTRACT NO. 97446			
FED. ROAD DIST. NO.		ILLINOIS		FED. AID PROJECT		



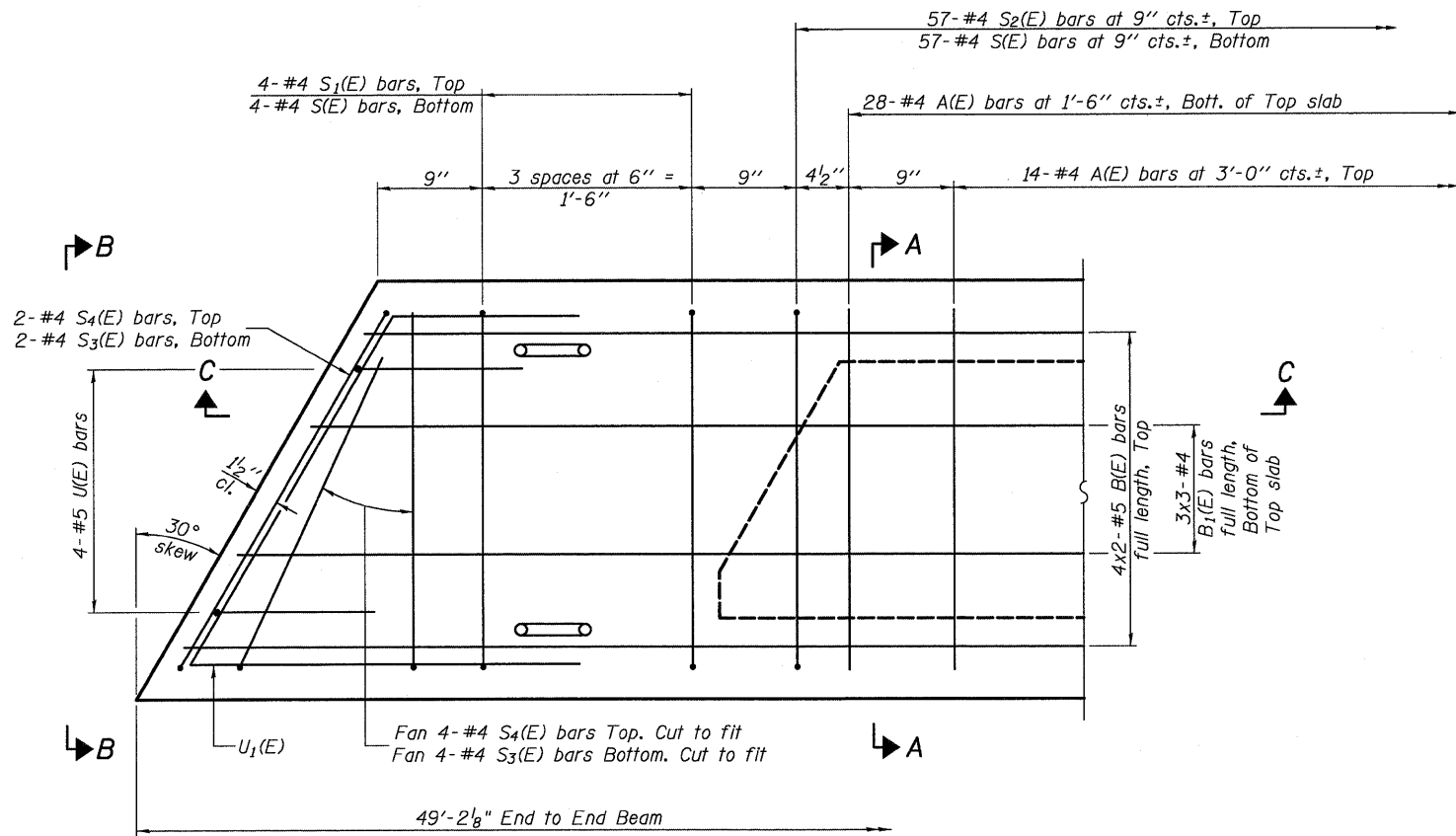
**SECTION C-C**



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

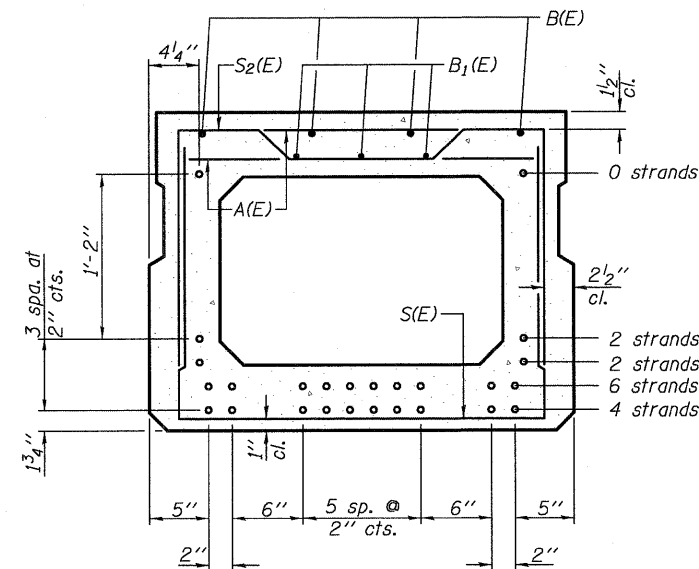


**VIEW B-B**



**PLAN VIEW**

Similar about  $\phi$



**SECTION A-A**

(Showing reinforcement and permissible strand locations)  
14-1/2"  $\phi$  Strands

(4 Strands 1 3/4" up, 6 Strands 3 3/4" up, 2 Strands 5 3/4" up, 2 Strands 7 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**  
**SPANS 1 & 3**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	42	#4	2'-7"	—
B(E)	8	#5	26'-1"	—
B1(E)	9	#4	18'-0"	—
S(E)	65	#4	6'-5"	—
S1(E)	8	#4	5'-11"	┌┐
S2(E)	57	#4	6'-2"	┌┐
S3(E)	12	#4	4'-11"	┌┐
S4(E)	12	#4	4'-8"	┌┐
U(E)	8	#5	4'-6"	┌┐
U1(E)	4	#4	6'-10"	┌┐

Note:  
See sheet 7 of 14 for additional details and Bill of Material.

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

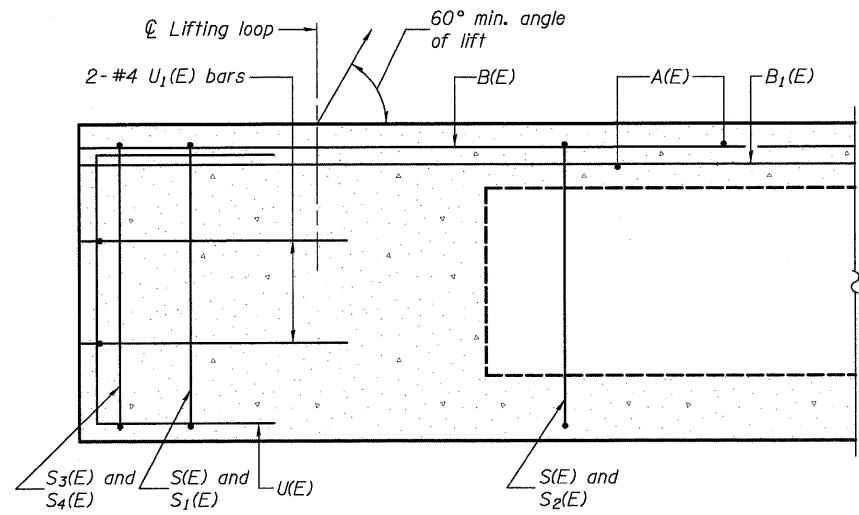
PD-2736-L

10-1-08

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.

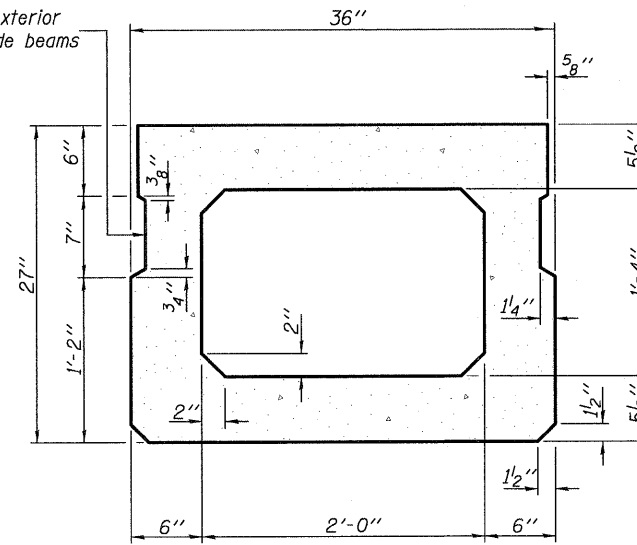
**27" X 36" PPC DECK BEAM**  
**SPANS 1 & 3**

SHEET NO. 5	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	783	02-00074-00-BR	BOND	25	12
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

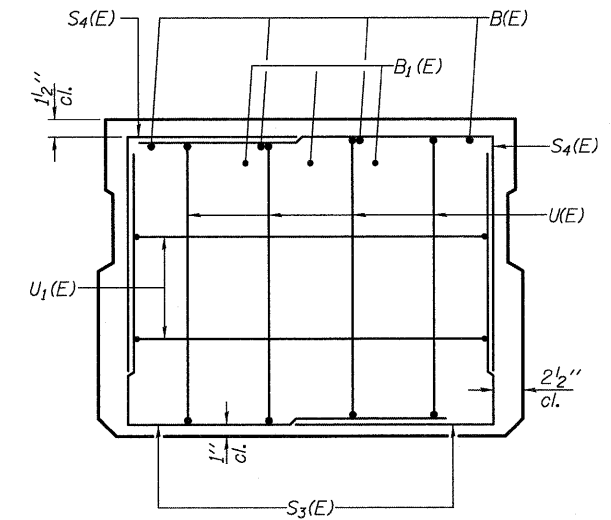


**SECTION C-C**

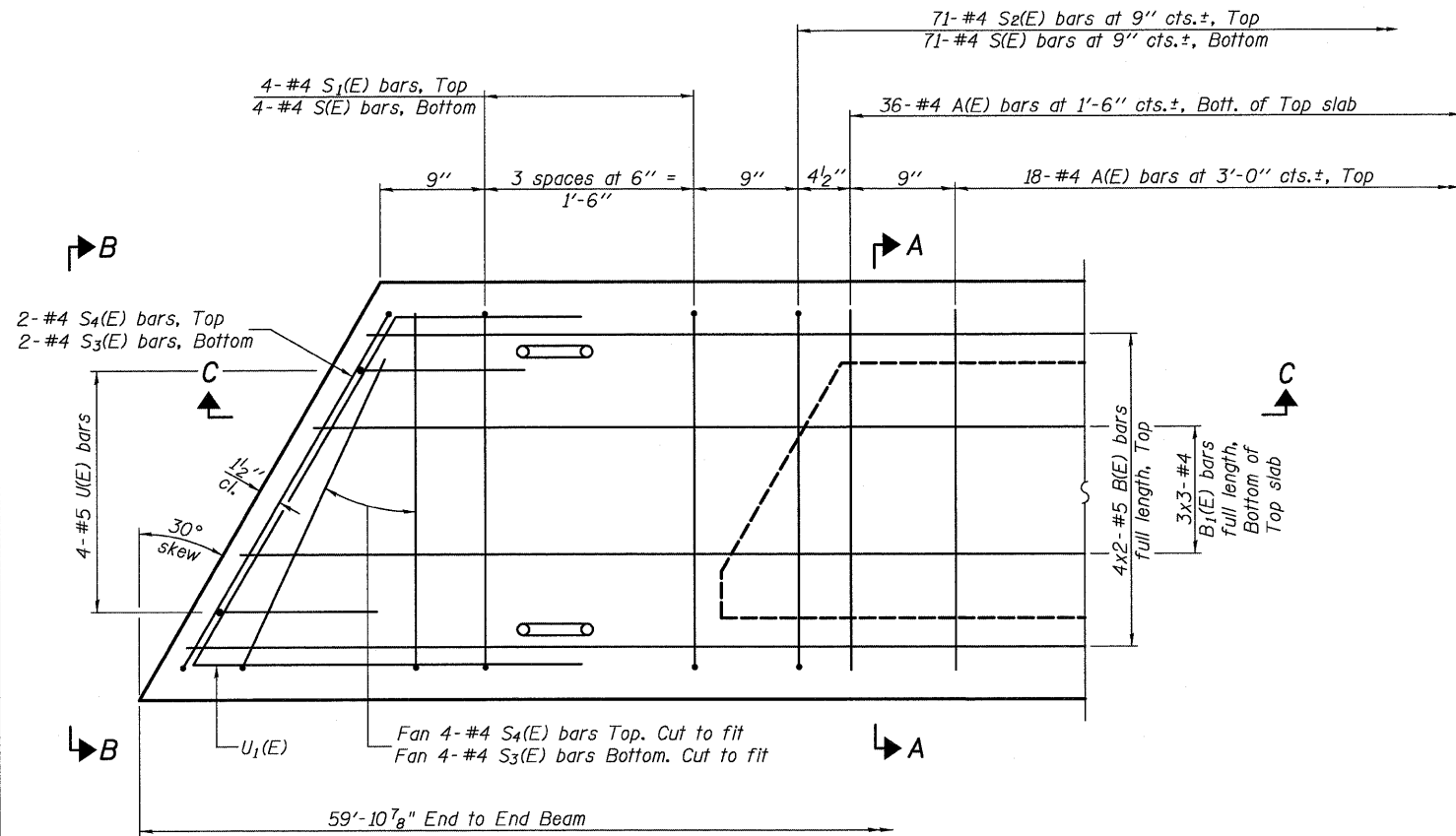
Omit key on exterior face of outside beams



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

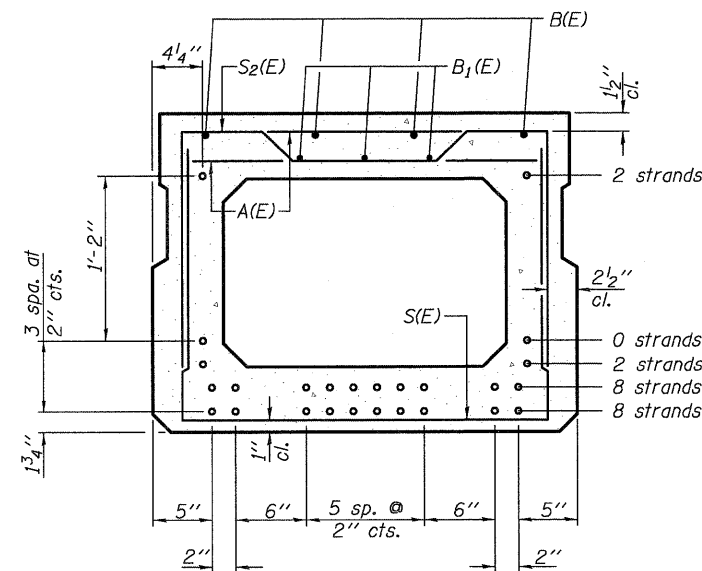


**VIEW B-B**



**PLAN VIEW**

Similar about C



**SECTION A-A**

(Showing reinforcement and permissible strand locations)  
20-1/2" Strands

(8 Strands 1 3/4" up, 8 Strands 3 3/4" up, 2 Strands 5 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**  
**SPAN 2**

(For information only)

Bar	No.	Size	Length	Shape
A(E)	54	#4	2'-7"	—
B(E)	8	#5	31'-5"	—
B1(E)	9	#4	21'-7"	—
S(E)	79	#4	6'-5"	—
S1(E)	8	#4	5'-11"	—
S2(E)	71	#4	6'-2"	—
S3(E)	12	#4	4'-11"	—
S4(E)	12	#4	4'-8"	—
U(E)	8	#5	4'-6"	—
U1(E)	4	#4	6'-10"	—

Note:  
See sheet 7 of 14 for additional details and Bill of Material.

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

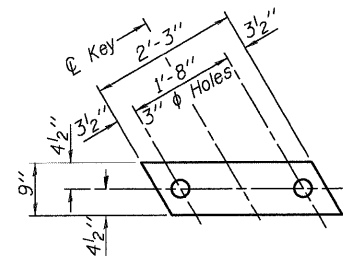
PD-2736-L

10-1-08

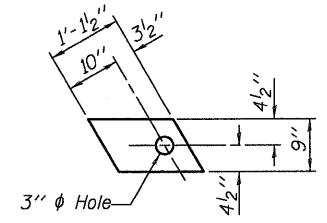
Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

**27" X 36" PPC DECK BEAM**  
**SPAN 2**

SHEET NO. 6	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	783	02-00074-00-BR	BOND	25	13
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



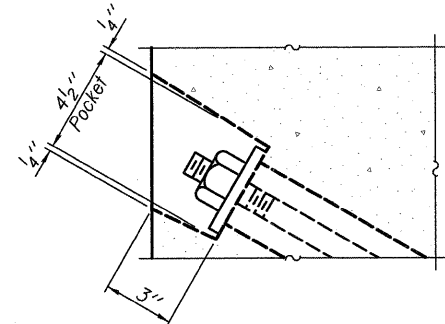
**1/2" FABRIC BEARING PAD**  
(Interior)



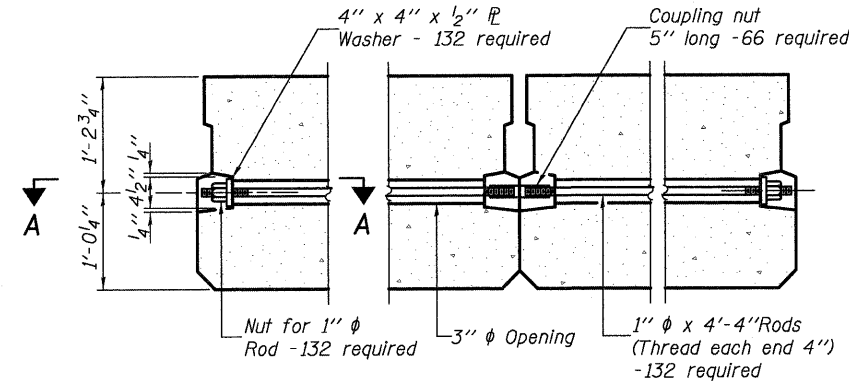
**1/2" FABRIC BEARING PAD**  
(Exterior)

**FIXED**

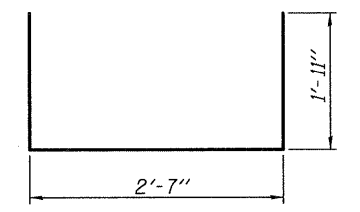
Note: Omit holes when using expansion bearings.



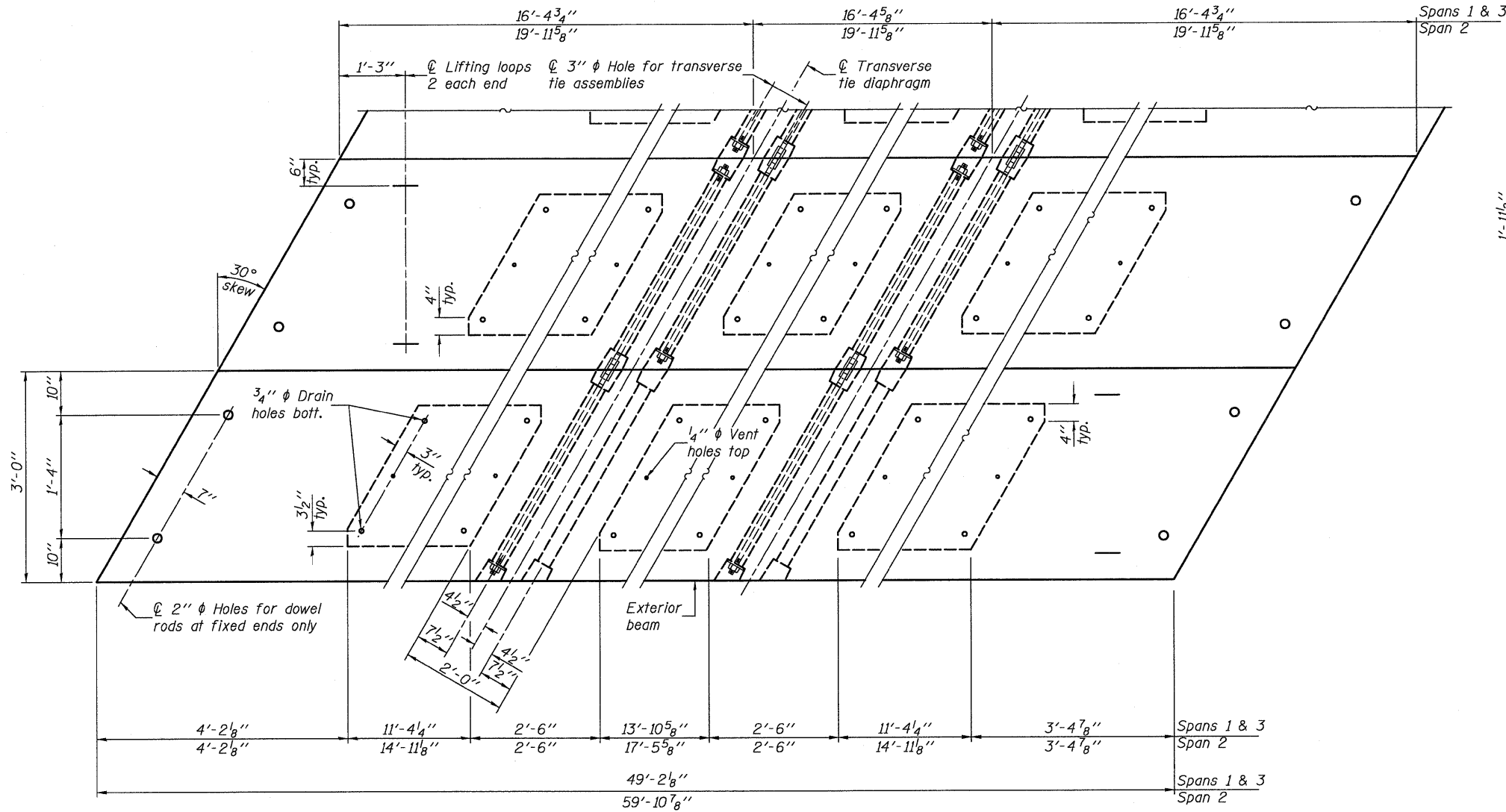
**SECTION A-A**



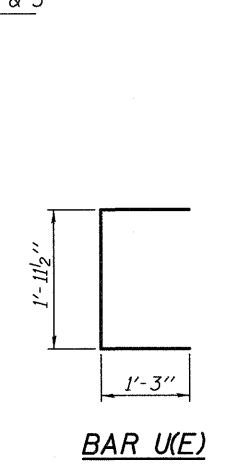
**TYPICAL TRANSVERSE TIE ASSEMBLY**



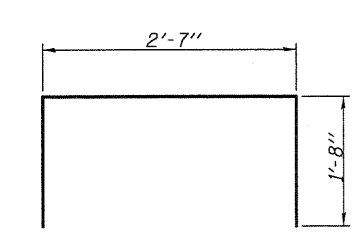
**BAR S(E)**



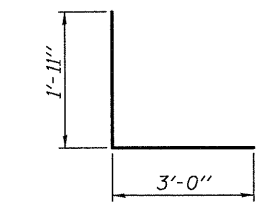
**PLAN VIEW**



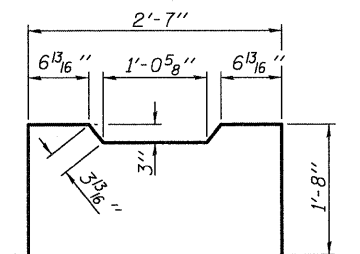
**BAR U(E)**



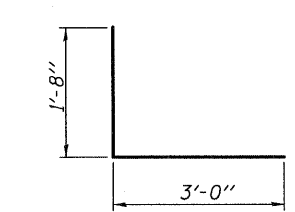
**BAR S1(E)**



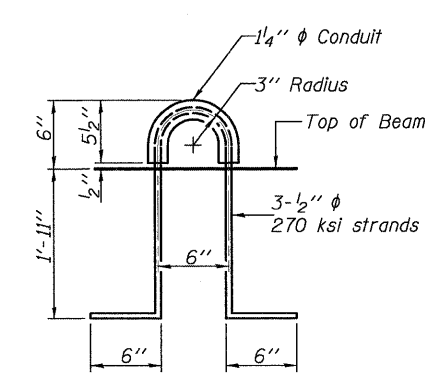
**BAR S3(E)**



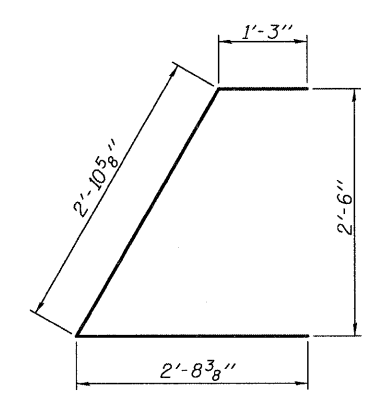
**BAR S2(E)**



**BAR S4(E)**



**LIFTING LOOP DETAIL**



**BAR U1(E)**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	5,698
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**27" X 36" PPC DECK BEAM DETAILS**

SHEET NO. 7	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	783	02-00074-00-BR	BOND	25	14
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

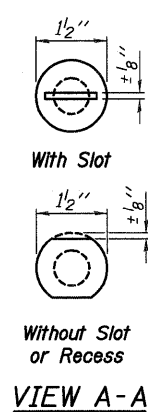
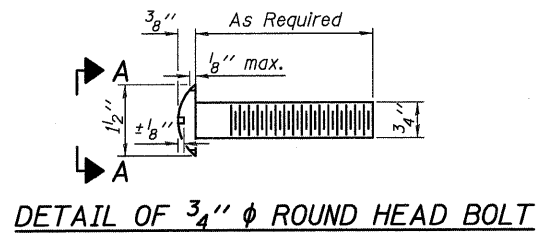
Note: Connect beams in pairs with the transverse tie configuration shown.

**NOTES**

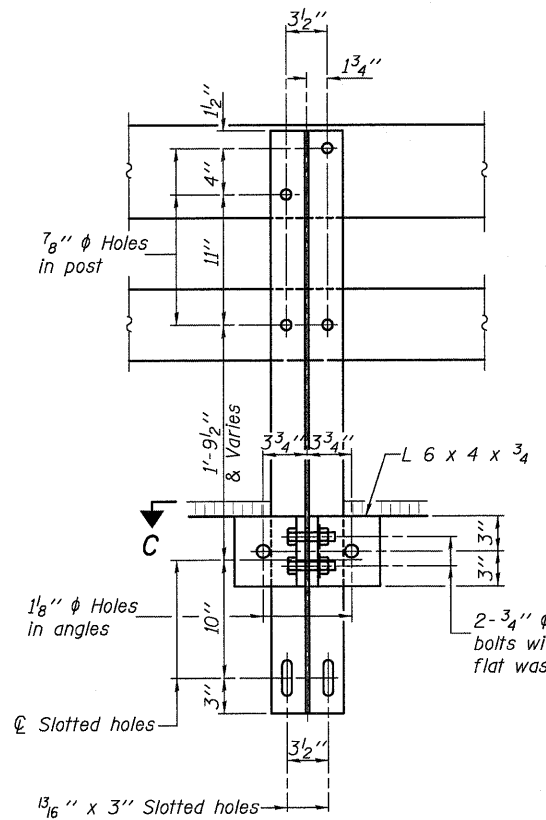
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior 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" diameter 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'ci, shall be 5000 psi.

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

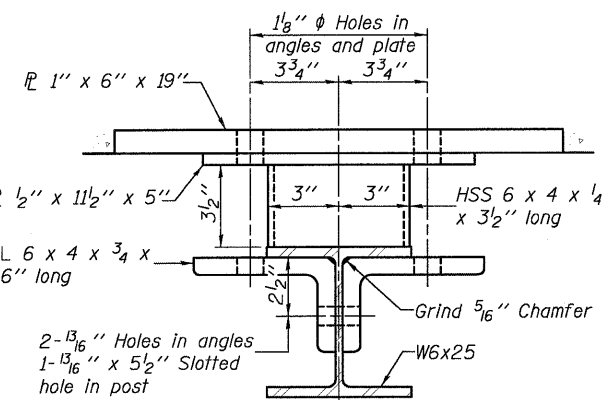
PD-2736-LD 10-1-08



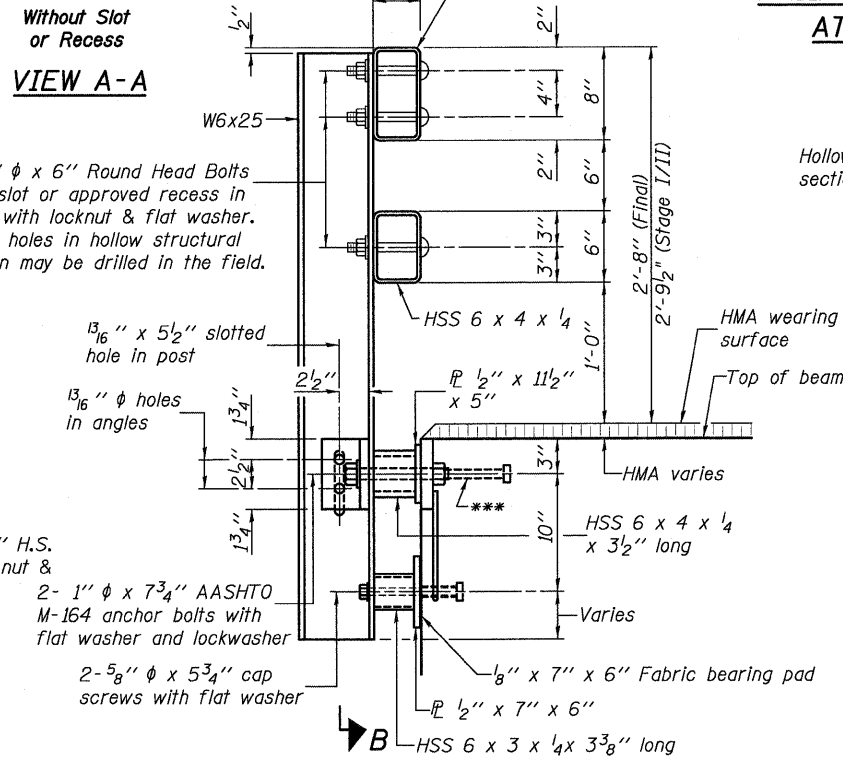
4-3/4"  $\phi$  x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8"  $\phi$  holes in hollow structural section may be drilled in the field.



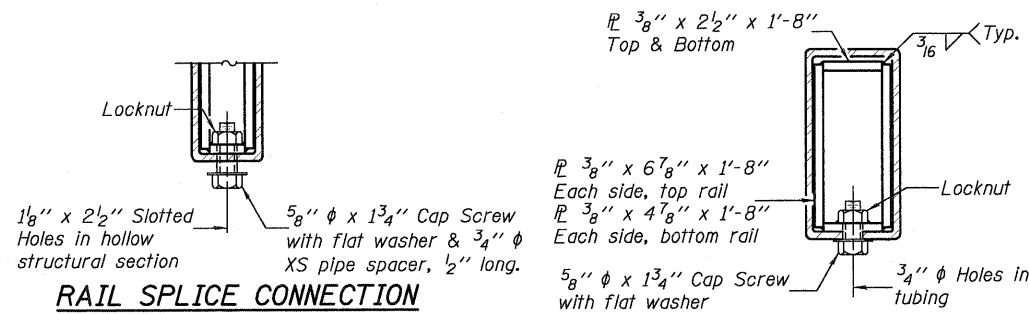
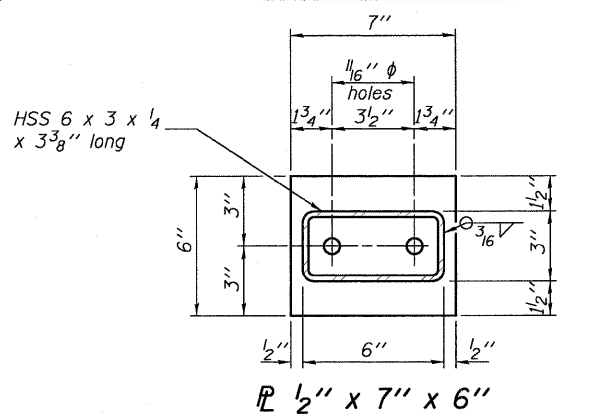
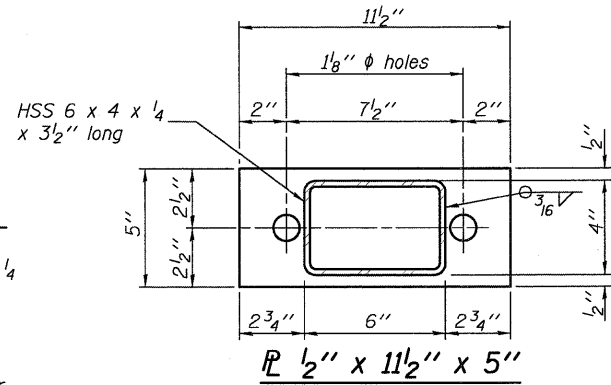
SECTION B-B



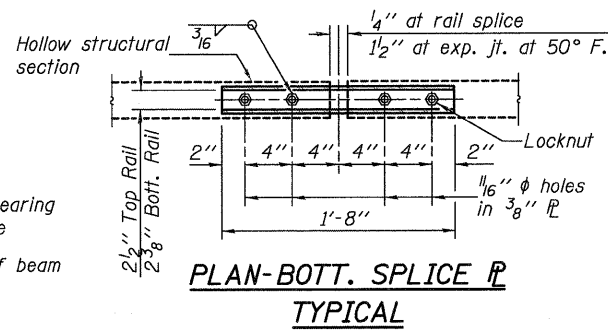
SECTION C-C



SECTION AT RAIL POST

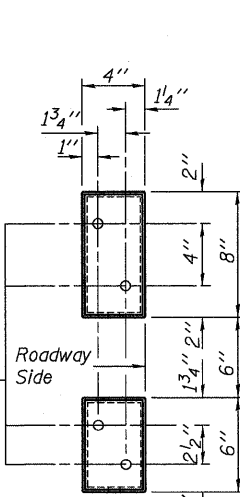


RAIL SPLICE CONNECTION AT EXPANSION JT.

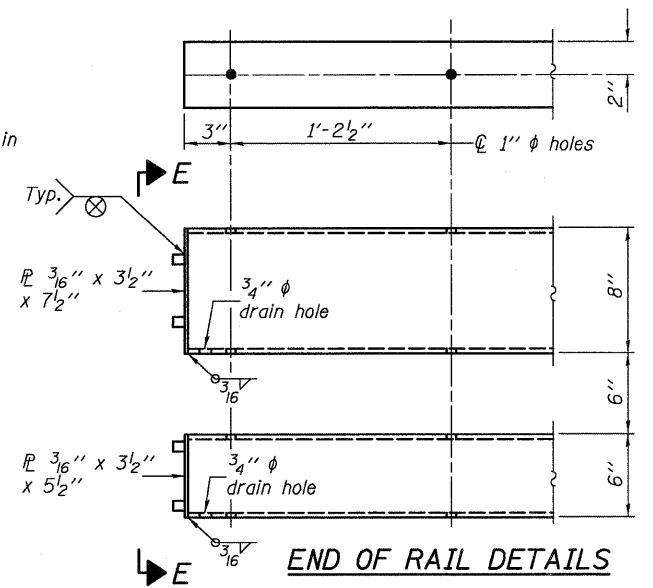


PLAN-BOTT. SPLICE P TYPICAL

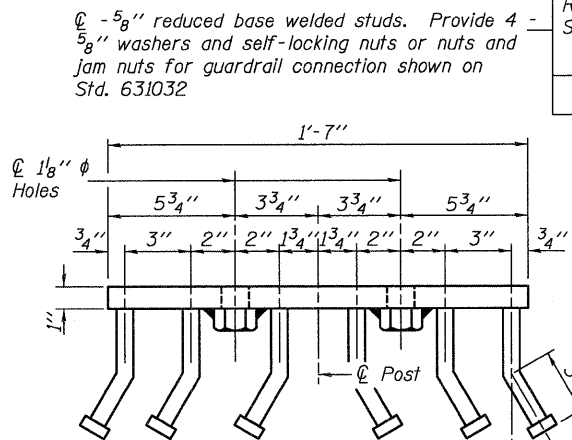
SECTION AT RAIL SPLICE



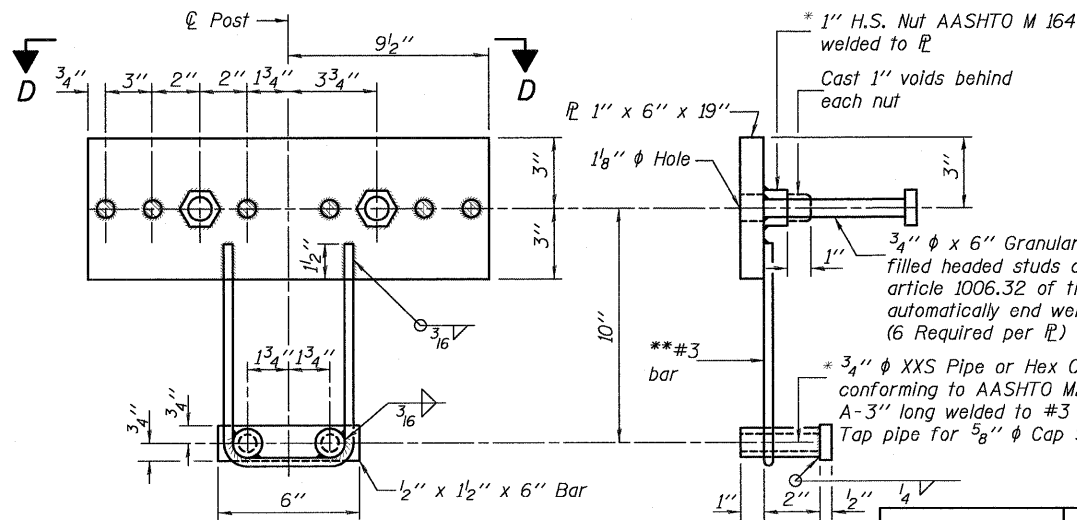
VIEW E-E



END OF RAIL DETAILS



VIEW D-D



ANCHOR DEVICE

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. Cast included with Steel Railing, Type SM.  
 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.

\*\* 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".

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	320

STEEL RAILING, TYPE SM WITH HOT-MIX ASPHALT WEARING SURFACE

SHEET NO.	F.A.S.	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
		783	02-00074-00-BR			
14	SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
		ILLINOIS		FED. AID PROJECT		

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

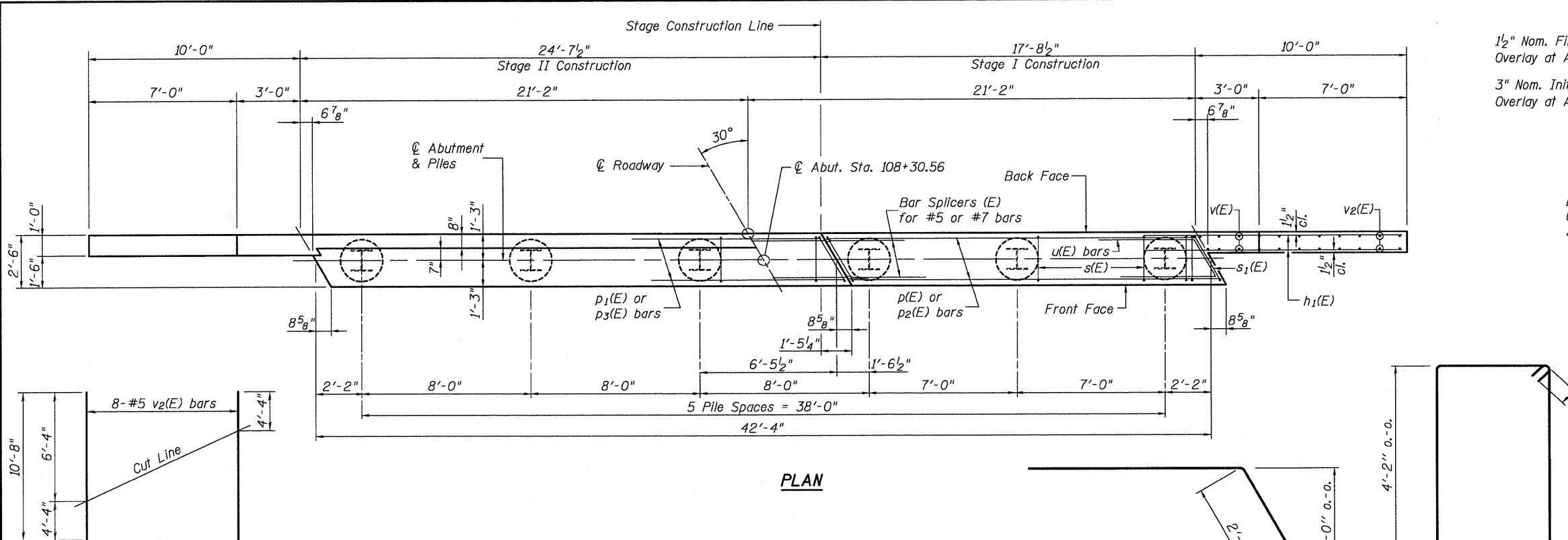
(6'-3" Maximum Post Spacing) (1 1/4" minimum to 3/8" maximum HMA thickness)

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

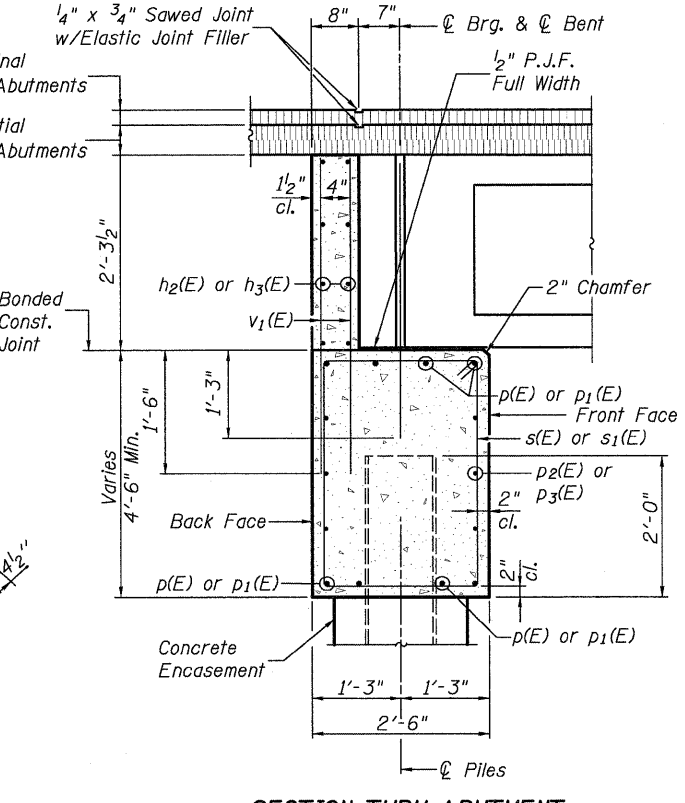




IT:scab\_5250.DGN APR. 21, 2010



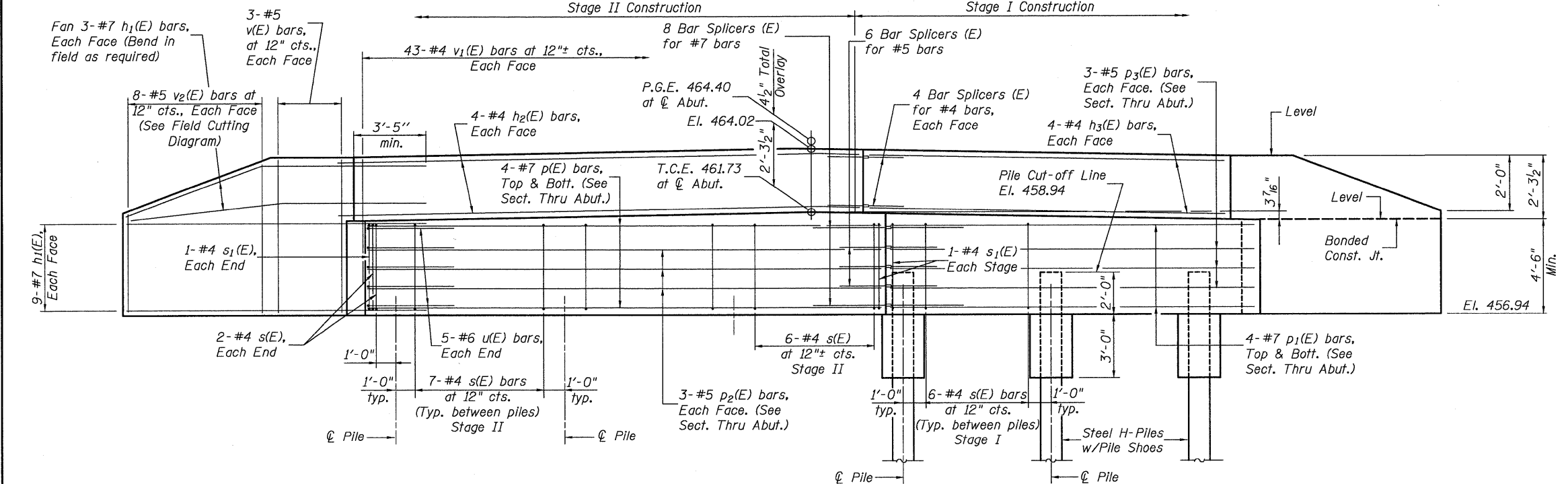
PLAN



SECTION THRU ABUTMENT  
(at Right Angles)

**FIELD CUTTING DIAGRAM**

Order v<sub>2</sub>(E) full length. Cut as shown and use remainder of bars in opposite face.



ELEVATION  
(Looking South)

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h <sub>1</sub> (E)	48	#7	14'-5"	—
h <sub>2</sub> (E)	8	#4	24'-4"	—
h <sub>3</sub> (E)	8	#4	17'-5"	—
p(E)	8	#7	24'-4"	—
p <sub>1</sub> (E)	8	#7	17'-5"	—
p <sub>2</sub> (E)	6	#5	24'-4"	—
p <sub>3</sub> (E)	6	#5	17'-5"	—
s(E)	36	#4	13'-5"	□
s <sub>1</sub> (E)	4	#4	14'-1"	□
u(E)	10	#6	10'-4"	▤
v(E)	12	#5	6'-4"	—
v <sub>1</sub> (E)	86	#4	3'-8"	—
v <sub>2</sub> (E)	16	#5	10'-8"	—
Concrete Structures			Cu. Yd.	25.3
Concrete Encasement			Cu. Yd.	2.1
Reinforcement Bars, Epoxy Coated			Pound	3,570
Furnishing Steel Piles HP 12x53			Foot	135
Driving Piles			Foot	135
Test Pile Steel HP 12x53			Each	1
Pile Shoes			Each	6

For Details of Bar Splicers, see sheet 13 of 14.  
For Details of Piles and Concrete Encasement, see sheet 12 of 14.

**PILE DATA**

S. ABUT.

Type:	Steel HP 12x53 w/Pile Shoes
Nominal Required Bearing:	419 k
Factored Resistance Available:	209 k
Est. Length:	27 ft.±
No. Production Piles:	5
No. Test Piles:	1

**NOTES**

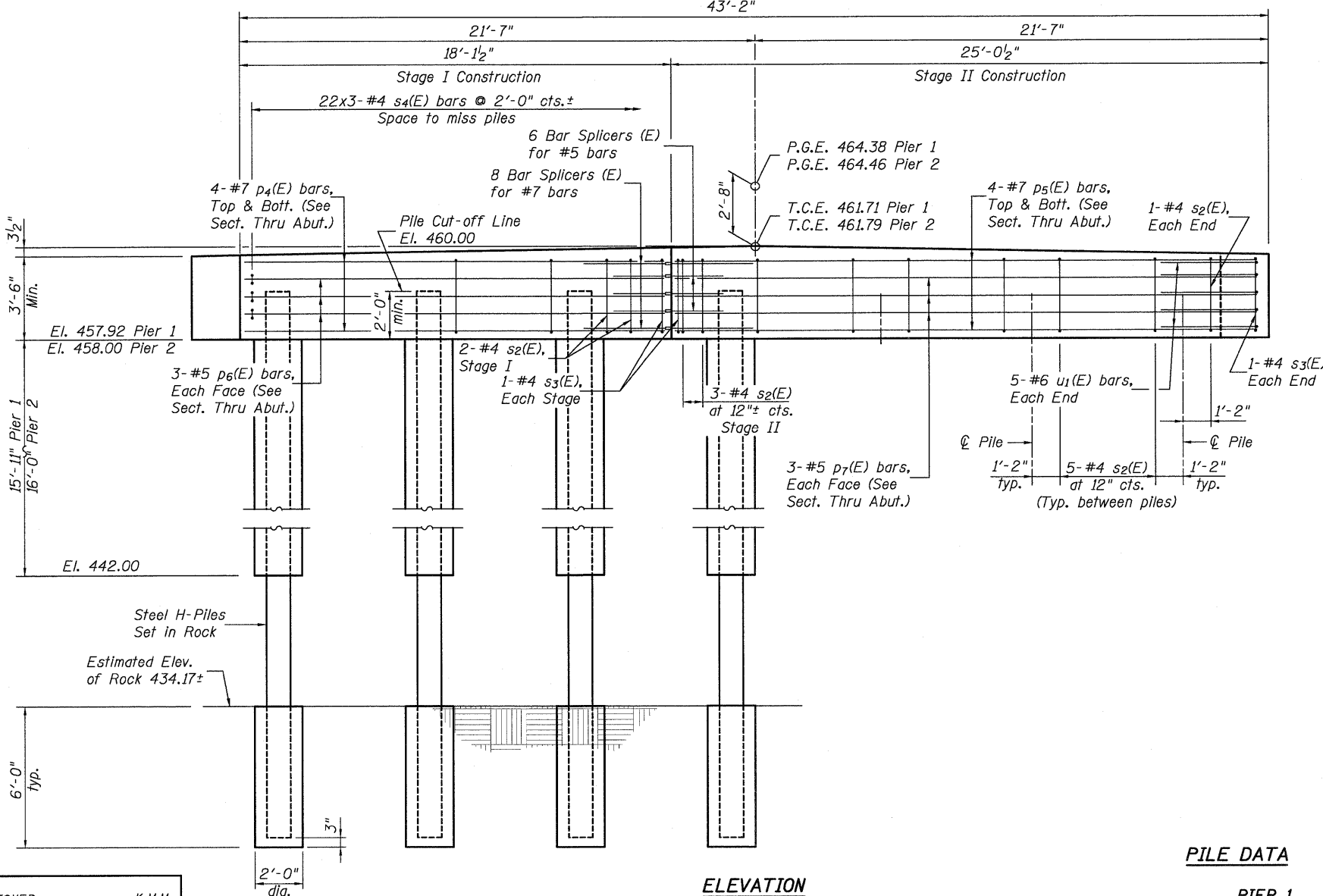
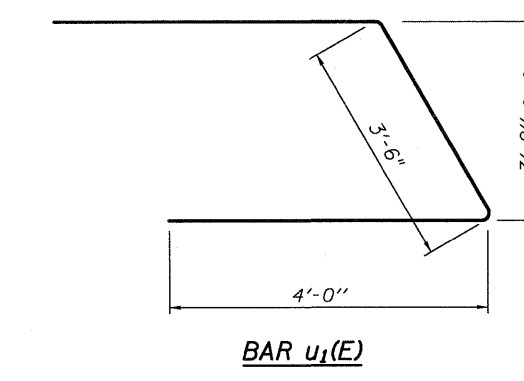
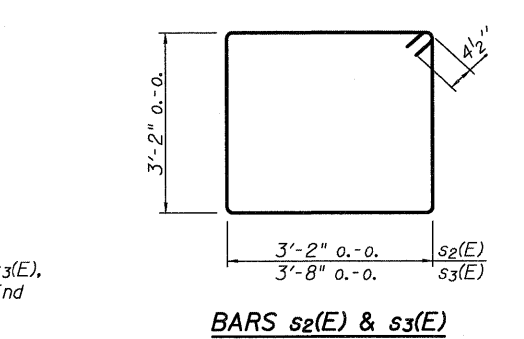
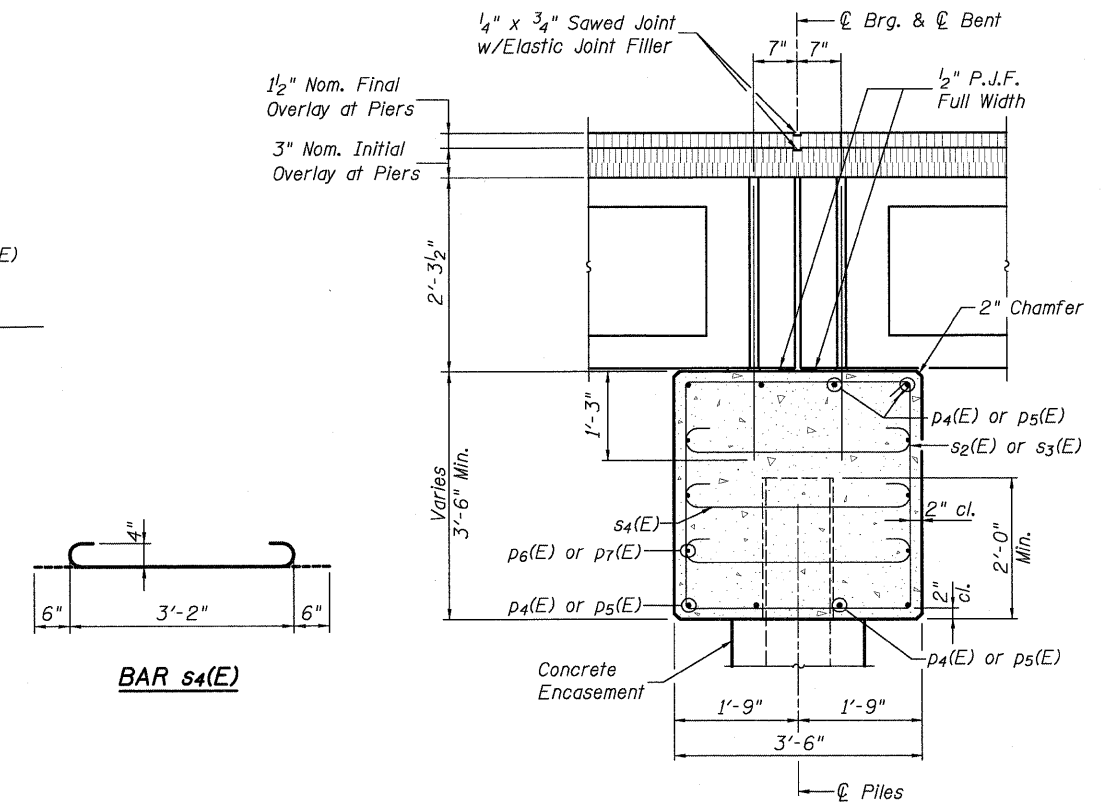
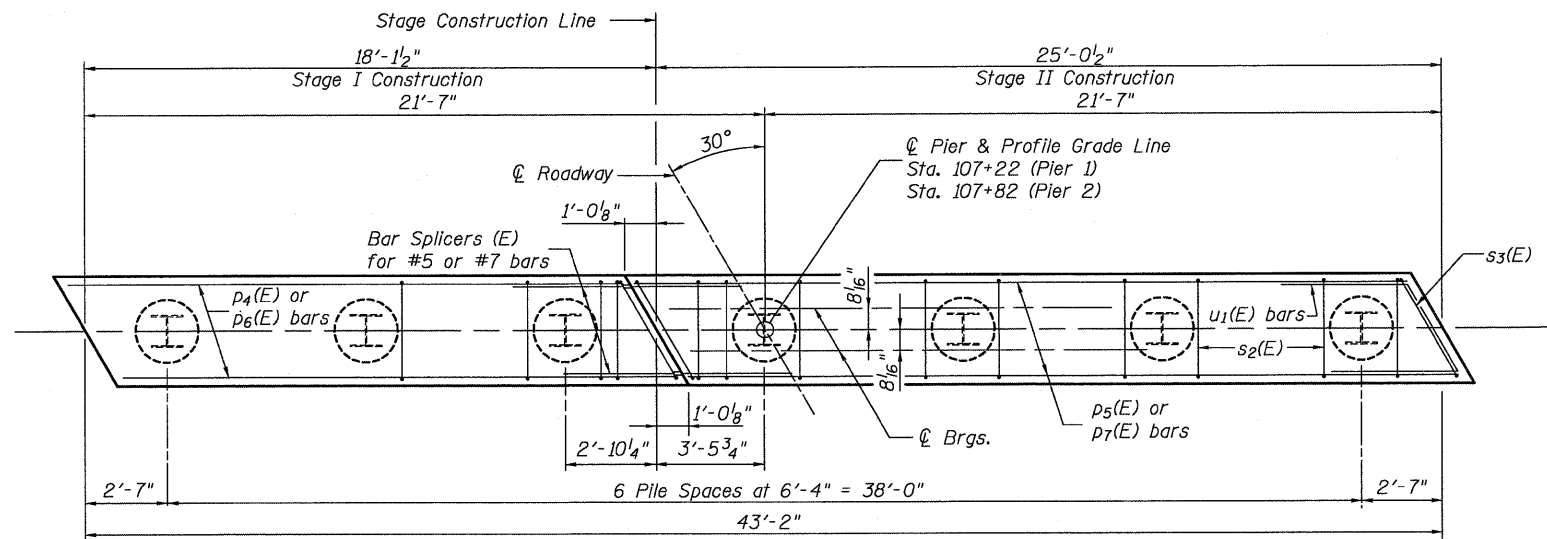
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Space reinforcement in pile cap to miss dowel rods.
- Top of concrete cap and backwall shall be finished parallel to the centerline of the roadway.

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

**PILE BENT SOUTH ABUTMENT**

SHEET NO. 10	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	783	02-00074-00-BR	BOND	25	17
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

H.M.G. NO. 5250



**BILL OF MATERIAL ONE PIER**

Bar	No.	Size	Length	Shape
p <sub>4</sub> (E)	8	#7	17'-10"	—
p <sub>5</sub> (E)	8	#7	24'-9"	—
p <sub>6</sub> (E)	6	#5	17'-10"	—
p <sub>7</sub> (E)	6	#5	24'-9"	—
s <sub>2</sub> (E)	32	#4	13'-5"	□
s <sub>3</sub> (E)	4	#4	14'-5"	□
s <sub>4</sub> (E)	66	#4	4'-2"	⌋
u <sub>1</sub> (E)	10	#6	11'-6"	⌋
Concrete Structures			Cu. Yd.	20.5
Concrete Encasement			Cu. Yd.	13.2
Reinforcement Bars, Epoxy Coated			Pound	1,650
Furnishing Steel Piles HP 12x74			Foot	224
Setting Piles in Rock			Each	7
Underwater Structure Excavation Protection-Location 1-Pier 1			Each	1
Underwater Structure Excavation Protection-Location 2-Pier 2			Each	1

**PILE DATA**

	PIER 1	PIER 2
Type:	Steel HP 12x74	Steel HP 12x74
Nominal Required Bearing:	589 k	589 k
Factored Resistance Available:	294 k	294 k
Est. Length:	32 ft.±	32 ft.±
No. Production Piles:	7	7
No. Test Piles:	0	0

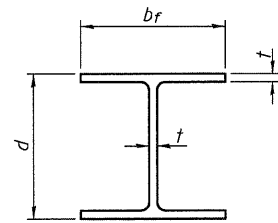
**PIERS 1 & 2**

SHEET NO.	II	F.A.S.	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
			783	02-00074-00-BR			
14 SHEETS		S.N. 003-3050			CONTRACT NO. 97446		
		FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT			

**NOTES**

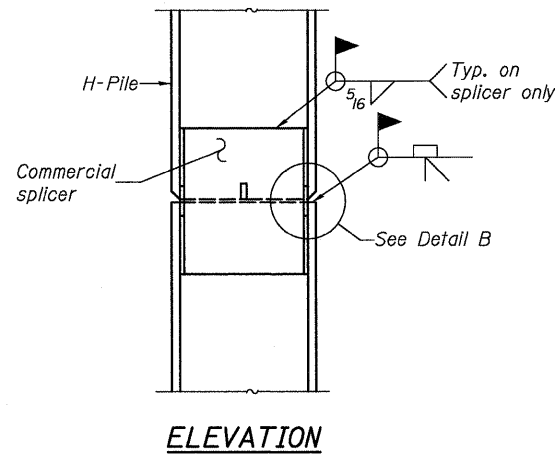
- Space reinforcement in pile cap to miss dowel rods.
- Top of concrete cap shall be finished parallel to the centerline of the roadway.

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

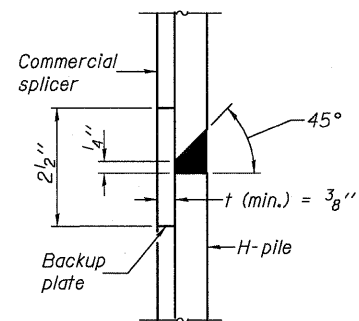


**STEEL PILE TABLE**

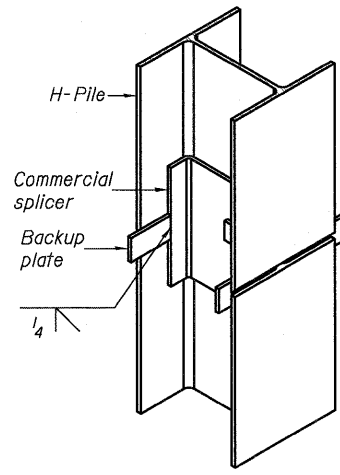
Designation	Depth d	Flange width b <sub>f</sub>	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	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**

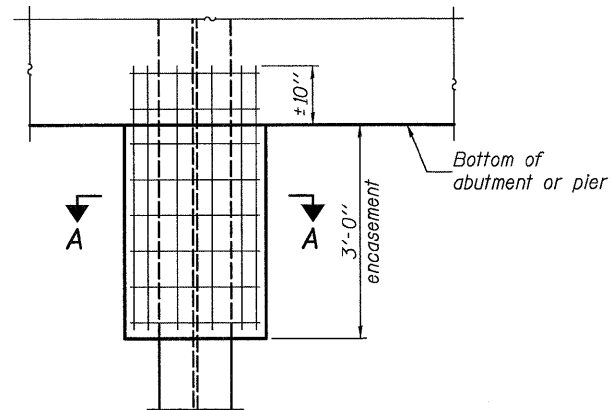


**DETAIL "B"**

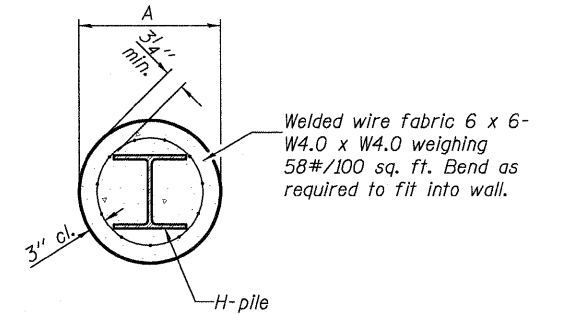


**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE**



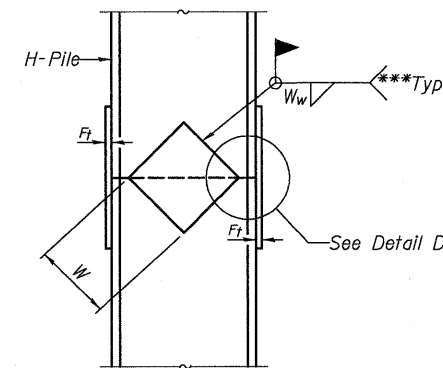
**ELEVATION**



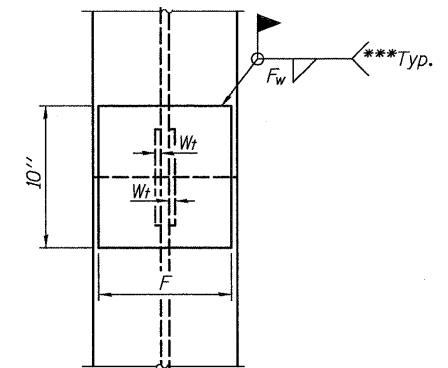
**SECTION A-A**

**PILE ENCASEMENT**

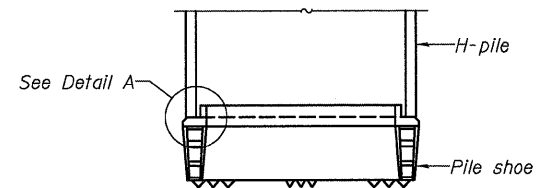
Note:  
Forms for encasement may be omitted when soil conditions permit.



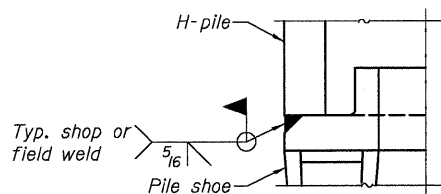
**ELEVATION**



**END VIEW**

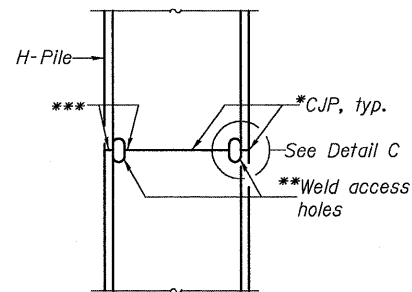


**ELEVATION**

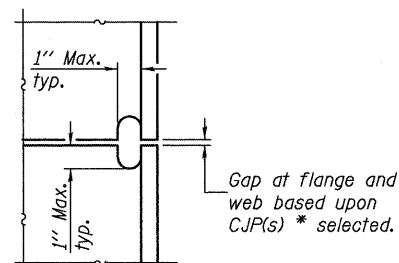


**DETAIL A**

**H-PILE SHOE ATTACHMENT**

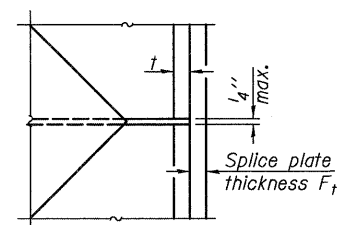


**ELEVATION**



**DETAIL C**

**COMPLETE PENETRATION WELD SPLICE**



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	F <sub>t</sub>	F <sub>w</sub>	W	W <sub>t</sub>	W <sub>w</sub>
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 1/2"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 1/2"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5 1/2"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 1/2"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5 1/2"	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**

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

F-HP 10-1-08

- \* 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.

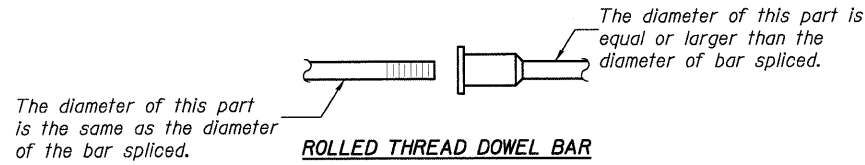
SHEET NO. 12	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	783	02-00074-00-BR	BOND	25	19
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**NOTES**

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
 Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.  
 All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.  
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.  
 Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity =  $1.25 \times f_y \times A_t$   
 (Tension in kips)
  - ② Minimum \*Pull-out Strength =  $0.66 \times f_y \times A_t$   
 (Tension in kips)
- Where  $f_y$  = Yield strength of lapped reinforcement bars in ksi.  
 $A_t$  = Tensile stress area of lapped reinforcement bars.  
 \* = 28 day concrete

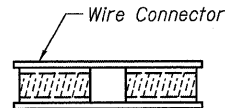
BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	7.9
#5	2'-2"	23.0	12.3
#6	2'-7"	33.1	17.4
#7	3'-5"	45.1	23.8
#8	4'-6"	58.9	31.3
#9	5'-9"	75.0	39.6
#10	7'-3"	95.0	50.3
#11	9'-0"	117.4	61.8



**ROLLED THREAD DOWEL BAR**



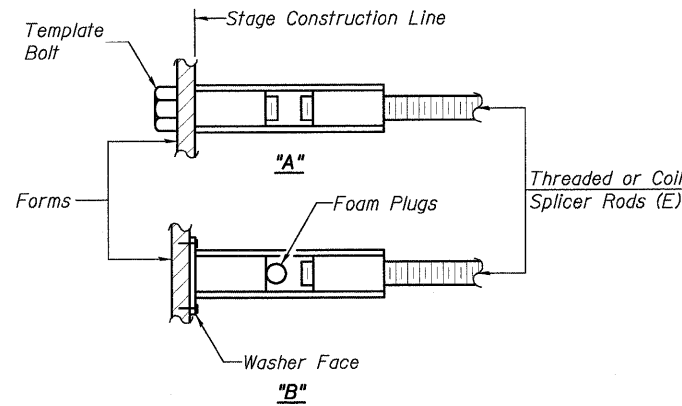
**\*\* ONE PIECE**



**WELDED SECTIONS**

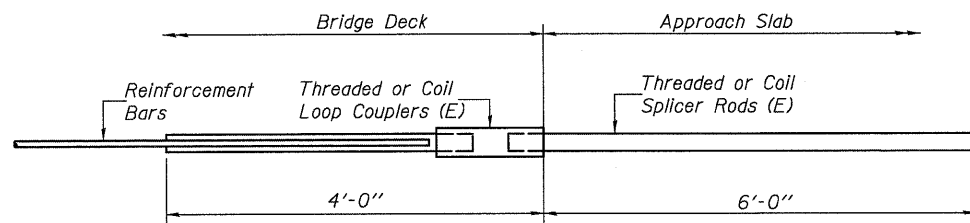
**BAR SPLICER ASSEMBLY ALTERNATIVES**

\*\*Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



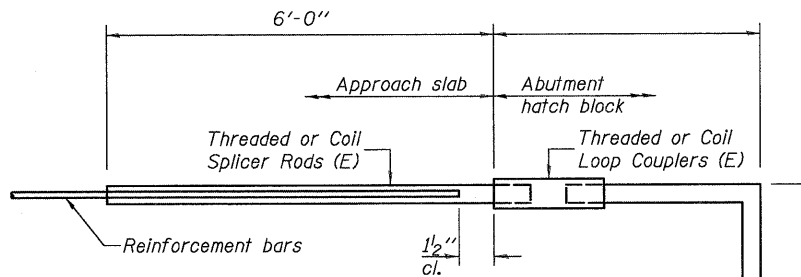
**INSTALLATION AND SETTING METHODS**

"A" : Set bar splicer assembly by means of a template bolt.  
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
 (E) : Indicates epoxy coating.



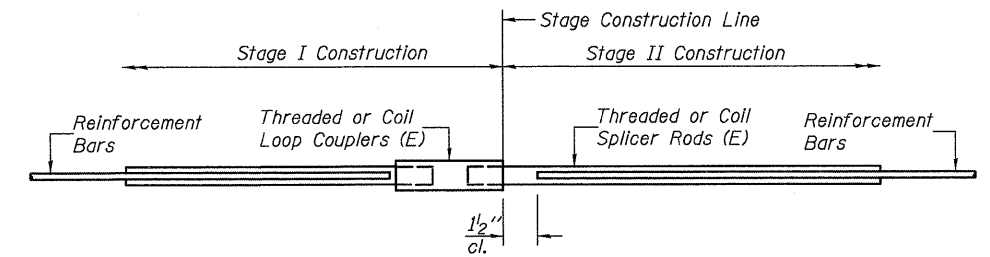
**FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

Bar Splicer for #5 bar	
Min. Capacity =	23.0 kips - tension
Min. Pull-out Strength =	12.3 kips - tension
No. Required =	



**FOR STUB ABUTMENTS**

Bar Splicer for #5 bar	
Min. Capacity =	23.0 kips - tension
Min. Pull-out Strength =	12.3 kips - tension
No. Required =	



**STANDARD**

Bar Size	No. Assemblies Required	Location
#4	8	North Abutment
#5	6	North Abutment
#7	8	North Abutment
#5	6	Pier 1
#7	8	Pier 1
#5	6	Pier 2
#7	8	Pier 2
#4	8	South Abutment
#5	6	South Abutment
#7	8	South Abutment

**BAR SPLICER ASSEMBLY DETAILS**

SHEET NO. 13	F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	783	02-00074-00-BR	BOND	25	20
14 SHEETS	S.N. 003-3050		CONTRACT NO. 97446		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT		

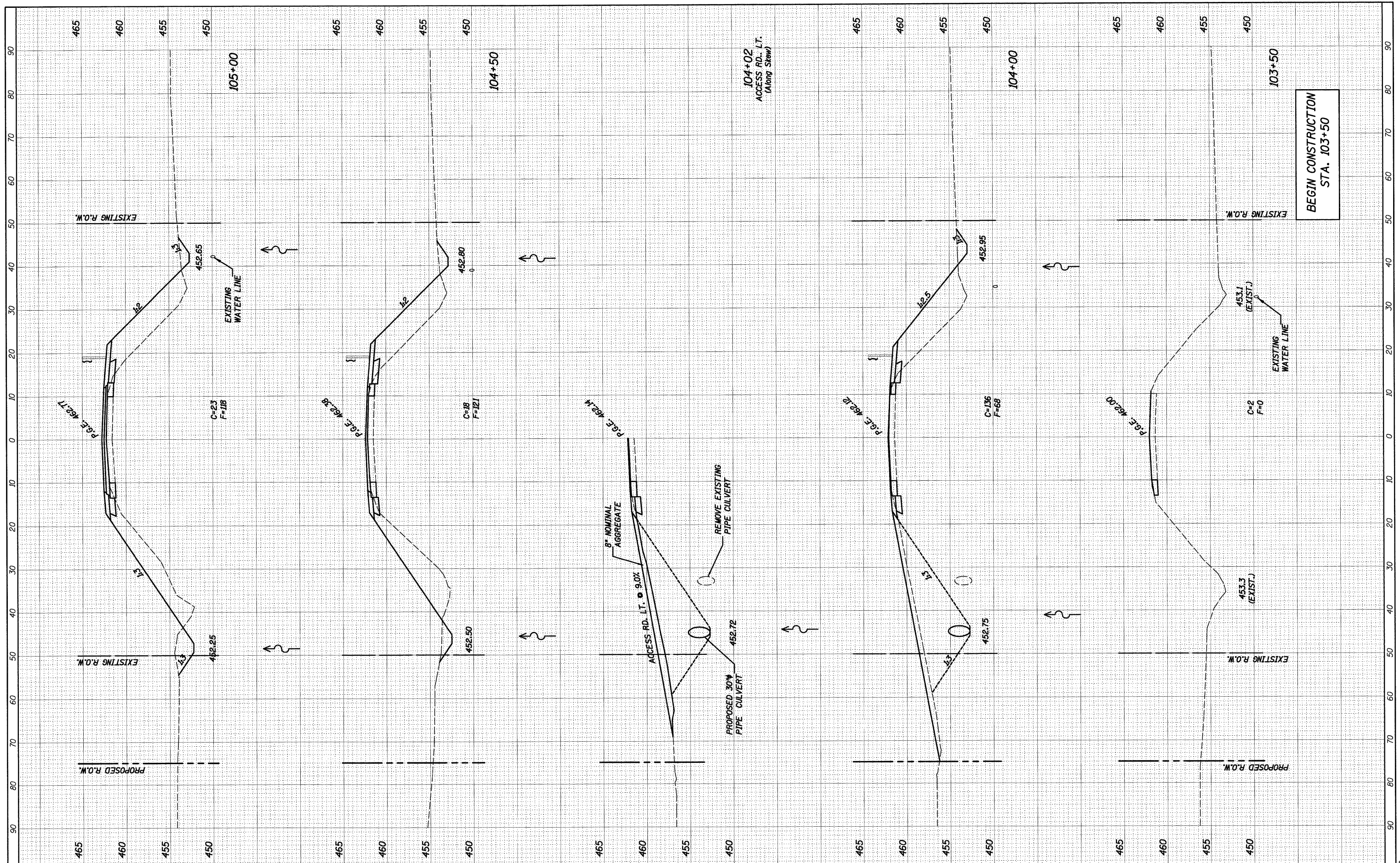
DESIGNED	K.M.M.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

BSD-1 10-1-08



FINAL SURVEY	DATE
SUPERVISED	BY
NOTE BOOK	NO.
AREAS CHECKED	

ORIGINAL SURVEY	DATE
PLOTTED	BY
NOTE BOOK	NO.
AREAS CHECKED	



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 DRAWN - K.H.L.  
 CHECKED - B.G.H.  
 DATE -

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

REVISIONS:  
 REVISED -  
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

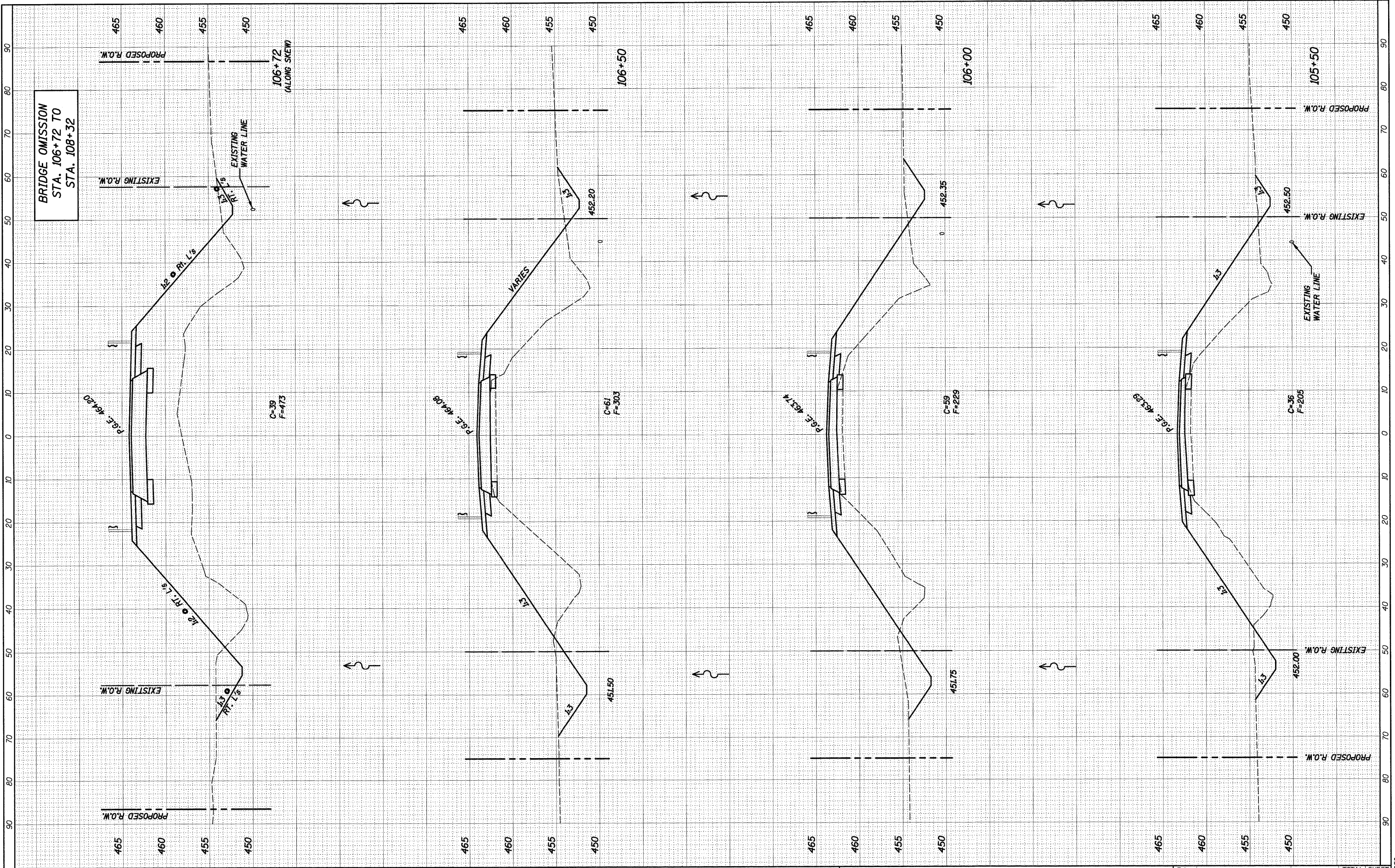
CROSS SECTIONS  
 EXISTING & PROPOSED ROADWAY  
 SCALE: 1" = 10'  
 SHEET NO. 1 OF 4 SHEETS  
 STA. 103+50.00 TO STA. 105+00.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	22
S.N. 003-3050			CONTRACT NO. 97446	
ILLINOIS FED. AID PROJECT				

H.M.G. NO. 5250

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

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



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 DRAWN - K.H.L.  
 CHECKED - B.G.H.  
 DATE - 4/22/2010

REVISER -  
 REVISER -  
 REVISER -  
 REVISER -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

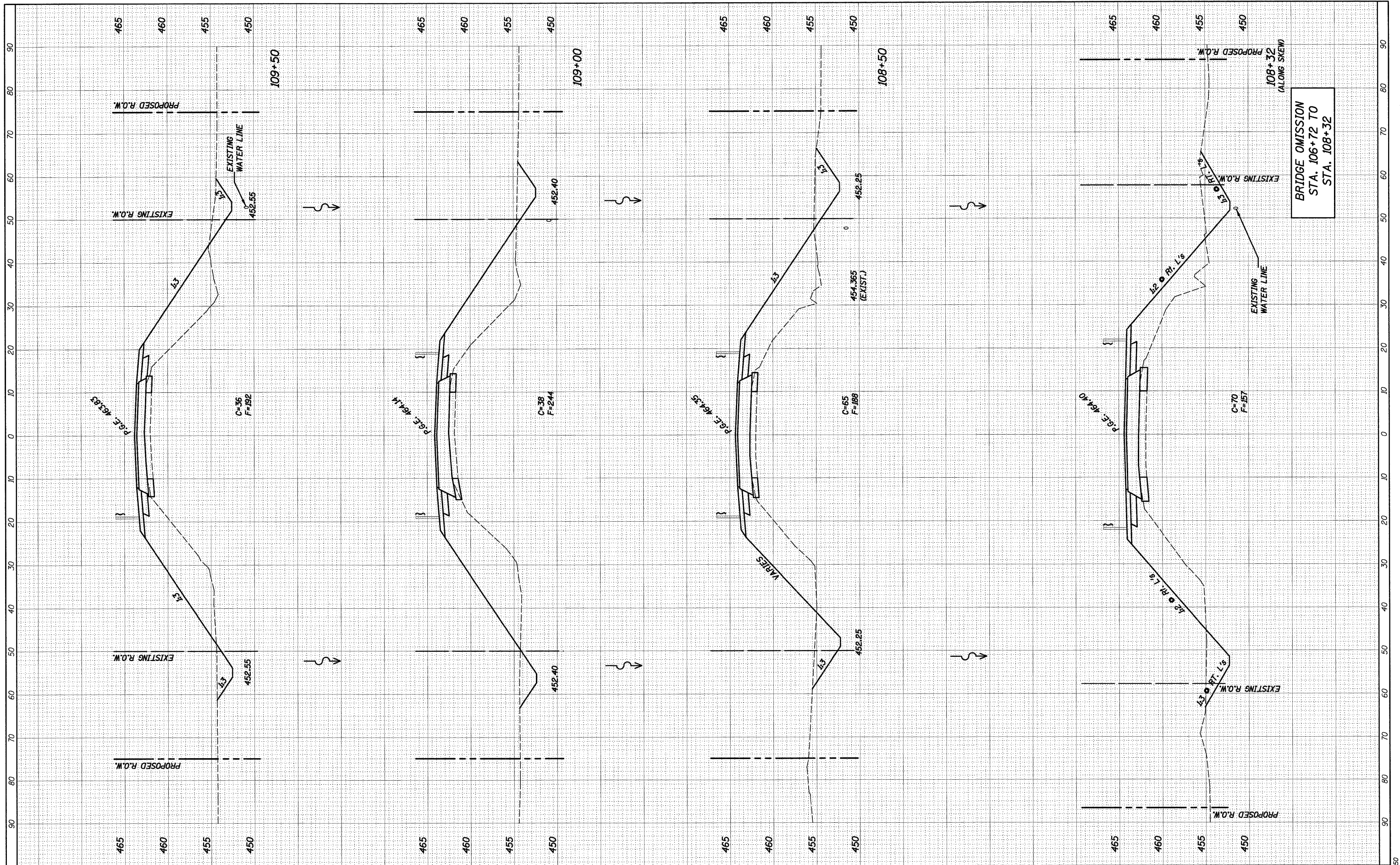
CROSS SECTIONS  
 EXISTING & PROPOSED ROADWAY  
 SCALE: 1" = 10'  
 SHEET NO. 2 OF 4 SHEETS  
 STA. 105+50.00 TO STA. 106+72.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	23
S.N. 003-3050			CONTRACT NO. 97446	
ILLINOIS FED. AID PROJECT				

H.M.G. NO. 5250

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

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



BRIDGE OMISSION  
STA. 106+72 TO  
STA. 108+32

FILE NAME \*  
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USER NAME = \_USERDESCR\_

PLOT SCALE = 10.0000' / IN.

PLOT DATE = 4/22/2010

DESIGNED - L.D.G.

DRAWN - K.H.L.

CHECKED - B.G.H.

DATE -

REVISED -

REVISED -

REVISED -

REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS  
EXISTING & PROPOSED ROADWAY

SCALE: 1" = 10'

SHEET NO. 3 OF 4 SHEETS

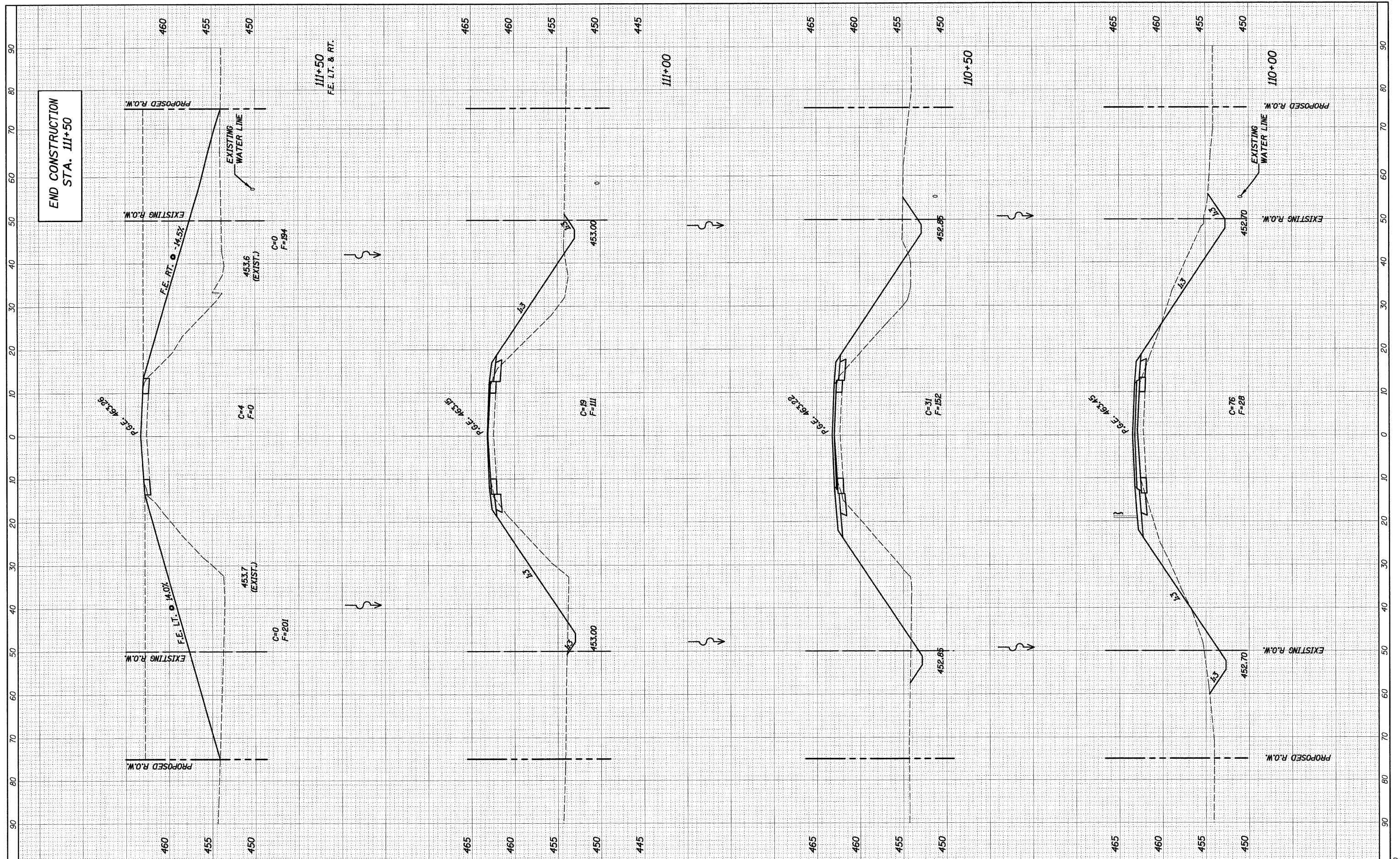
STA. 108+32.00 TO STA. 109+50.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	24
S.N. 003-3050			CONTRACT NO. 97446	
ILLINOIS FED. AID PROJECT				



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

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



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 DRAWN - K.H.L.  
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 DATE -  
 PLOT SCALE = 30,0000' / IN.  
 PLOT DATE = 4/22/2010

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

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CROSS SECTIONS  
EXISTING & PROPOSED ROADWAY**

SCALE: 1" = 10'    SHEET NO. 4 OF 4 SHEETS    STA. 110+00.00 TO STA. 111+50.00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
783	02-00074-00-BR	BOND	25	25
S.N. 003-3050		CONTRACT NO. 97446		
ILLINOIS FED. AID PROJECT				

H.M.G. NO. 5250