3-7-08 Letting, Item 013

CONTRACT NO. 78025				
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	1

INDEX OF SHEETS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

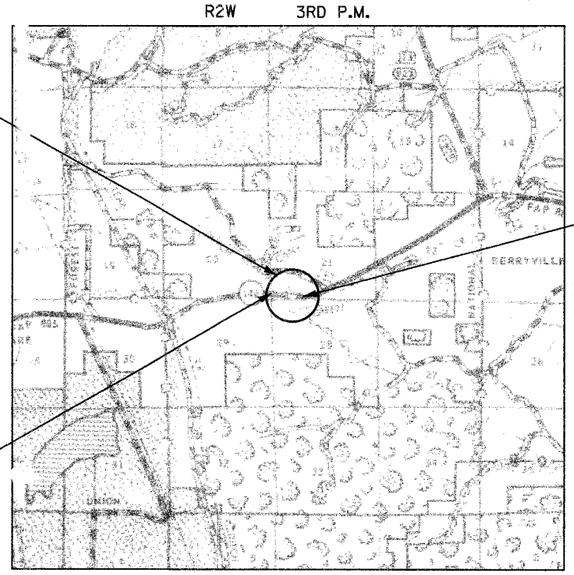
PROPOSED HIGHWAY PLANS

FAP ROUTE 885 (IL 146)
SECTION 104BR-1
PROJECT: *BHF-0885(037)*
UNION COUNTY
C-99-005-08

PPC DECK BEAM SUPERSTRUCTURE REPLACEMENT OVER DUTCH CREEK

D-99-005-08

LOCATION OF SECTION INDICATED THUS:- ▬



138'-11 1/2" BK TO BK ABUTMENTS
45'-0" STRUCTURE WIDTH
PPC DECK BEAM SUPERSTRUCTURE
REPLACEMENT SN 091-0059,
℄ BRIDGE STA 268+27.00

IMPROVEMENTS END
STA 271+00.00

IMPROVEMENTS BEGIN
STA 265+87.00

LOCATION MAP NOT TO SCALE

0 50' 100' — 1"= 40' STAGE I & II TRAFFIC CONTROL PLAN
0 50' 100' — 1"= 20' SN 091-0095 (DUTCH CREEK) PLAN & PROFILE

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

DISTRICT 9 NO. (618) 549-2171
PROJECT ENGINEER: DAVID PICHE
UNIT CHIEF:
TOWNSHIP: JONESBORO
CONTRACT NO. 78025

GROSS AND NET LENGTH OF PROJECT = 513.00 FEET = 0.097 MILES
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL
DESIGN SPEED: 55 MPH POSTED SPEED: 55 MPH
ADT: 4300(2005) PV: 82.6% TRUCKS: 17.4%

MARY COOMBE BLOXDORF 43208 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

MARY COOMBE BLOXDORF, P.E. S.E.
DATE Dec 3 2007
EXPIRES NOVEMBER 30, 2009

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED Dec 6 20 07
Mary C Ramie
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
February 1 20 08
Eric E Harm PE
Interim ENGINEER OF DESIGN AND ENVIRONMENT
February 1, 20 08
Christine M. Reed PE
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

CONTRACT NO. 78025

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	2
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LIST OF HIGHWAY STANDARDS

STANDARD NO.	DESCRIPTION
000001-05	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
001001-01	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-04	TEMPORARY EROSION CONTROL SYSTEMS
420001-07	PAVEMENT JOINTS
515001-02	NAME PLATE FOR BRIDGES
630001-07	STEEL PLATE BEAM GUARDRAIL
631032-03	TRAFFIC BARRIER TERMINAL, TYPE 6A
635001	DELINEATORS
635006-02	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-01	REFLECTOR MARKER AND MOUNTING DETAILS
701001-01	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 4.5 m (15') AWAY
701006-02	OFF-RD OPERATIONS, 2L, 2W, 4.5 m (15') TO 600 M (24") AWAY FROM PAVEMENT EDGE
701011-01	OFF-RD MOVING OPERATIONS, 2L, 2W, DAY ONLY
701201-02	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS ≥ 45 MPH
701301-02	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701311-02	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS - DAY ONLY
701321-09	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701326-02	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING, FOR SPEEDS ≥ 45 MPH
701901	TRAFFIC CONTROL DEVICES
704001-04	TEMPORARY CONCRETE BARRIER
780001-01	TYPICAL PAVEMENT MARKINGS
781001-02	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS

GENERAL NOTES

1. THE ENGINEER SHALL BE THE SOLE JUDGE CONCERNING CURING TIME FOR THE VARIOUS HMA LIFTS.

2. EXCEPT AS NOTED ON THE PLANS, PAVEMENT GRADES SHOWN ARE AT THE TOP OF PAVEMENT SURFACES.

3. ANY REFERENCE TO A STANDARD IN THESE PLANS SHALL BE INTERPRETED TO MEAN THE EDITION AS INDICATED BY THE SUBNUMBER LISTED ON THE INDEX OF SHEETS OR THE COPY OF THE STANDARD INCLUDED IN THESE PLANS.

4. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL MONUMENTS UNTIL AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR REESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS.

5. FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:

ALL HOT MIX ASPHALT	2.392 METRIC TONS/CU. METER (2.016 TONS/CU.YD.)
ALL AGGREGATE	2.43 METRIC TONS/CU. METER (2.05 TONS/CU.YD.)
BITUMINOUS MATERIALS:	
ON PAVEMENT	0.41 LITERS/SQ. METER (0.09 GAL./SQ.YD.)
INTERMEDIATE LIFTS(FOG COAT)	0.20 LITERS/SQ. METER (0.04 GAL./SQ.YD.)
ON AGGREGATE SURFACE	1.45 LITERS/SQ. METER (0.32 GAL./SQ.YD.)
AGGREGATE (PRIME COAT)	0.0016 METRIC TONS/SQ. METER (0.0015 TONS/SQ.YD.)

6. ALL SAWCUTTING OF EXISTING PAVEMENT SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEMS INVOLVED. THE MINIMUM SAW DEPTH IN THE PAVEMENT SHALL BE 1½" UNLESS OTHERWISE NOTED.

7. THE THICKNESS OF HOT MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HOT MIX ASPHALT MIXTURE IS PLACED.

8. ATTAINMENT OF PROPER CROWN OR SUPERELEVATION SHALL BE FULLY ACCOMPLISHED WITH THE HOT MIX ASPHALT SURFACE REMOVAL OR HOT MIX ASPHALT BINDER COURSE OR LEVELING BINDER, WHEN SPECIFIED.

9. THE ALGEBRAIC DIFFERENCE BETWEEN THE PAVEMENT AND SHOULDER SLOPES SHALL NOT EXCEED 8%. THE SHOULDER ON THE OUTSIDE OF SUPERELEVATED CURVES SHALL BE FLATTENED ACCORDINGLY.

10. WHEN WIDENING FLEXIBLE BASE PAVEMENT, THE CONTRACTOR SHALL TRIM EXISTING SURFACE AND BASE TO A FIRM, NEAR VERTICAL PLANE BEFORE CONSTRUCTING THE WIDENING. THE COST OF THIS REQUIREMENT IS INCLUDED IN THE UNIT PRICE BID FOR THE BASE COURSE WIDENING.

11. ON ALL SUPERELEVATED CURVES, THE PROPOSED BASE COURSE WIDENING SHALL BE CONSTRUCTED WITH A SLOPE CONFORMING TO THE RATE OF SUPERELEVATION OF THE EXISTING PAVEMENT.

13. ABANDONED UNDERGROUND UTILITIES THAT CONFLICT WITH CONSTRUCTION SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE RIGHT OF WAY ACCORDING TO ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.31 OF THE STANDARD SPECIFICATIONS. THE JULIE NUMBER IS 800-892-0123. A MINIMUM OF 48 HOURS ADVANCE NOTICE IS REQUIRED.

15. TREES SHALL BE PRESERVED THROUGHOUT THIS SECTION AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. GENERALLY, TREES OUTSIDE THE CLEAR ZONE, AND WHICH DO NOT INTERFERE WITH CONSTRUCTION, SHALL NOT BE DISTURBED.

16. EXISTING TRAFFIC BARRIER TERMINALS TO BE REMOVED SHALL BE PAID FOR AS GUARDRAIL REMOVAL.

17. ALL ELEVATIONS REFERENCE TO U.S.G.S. MEAN SEA LEVEL DATUM.

18. THE QUANTITY OF SHORT TERM PAVEMENT MARKING SHOWN IN THE PLANS IS BASED ON ONE APPLICATION EACH FOR THE PRIME COAT, SURFACE COURSE, AND BINDER COURSE.

19. THE CONTRACTOR SHALL STAMP STATIONING IN THE PROPOSED HOT MIX ASPHALT SURFACE AT 100 m (300 FT.) INTERVALS ON ALTERNATING SIDES OF THE PAVEMENT AND AS DIRECTED BY THE ENGINEER. THE STATION SYMBOL STAMPS USED SHALL BE FURNISHED BY THE CONTRACTOR. THEY SHALL BE 140 mm (5½ IN.) TALL, OF A DESIGN APPROVED BY THE ENGINEER, AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

20. THE CENTERLINE PAVEMENT MARKING SHOULD BE REMOVED FROM THE STOP BAR TO THE SAND ATTENUATORS OR DRUMS. EDGE LINE PAVEMENT MARKING SHOULD BE REMOVED IF A 10 FOOT LANE WIDTH CANNOT BE MAINTAINED. TEMPORARY EDGE LINES SHOULD BE INSTALLED WHEN THE EDGE LINES ARE REMOVED.

21. VERTICAL PANELS SHOWN ON STANDARD 701321 WILL NOT BE REQUIRED ON THE STAGE II NEW BRIDGE RAILING. THE GUARDRAIL MARKERS SHALL BE INSTALLED PRIOR TO OPENING TO TRAFFIC.

22. ANY TIME THE CONCRETE BARRIER IS NOT IN THE PROPER POSITION, FLAGGERS SHALL BE IN PLACE TO CONTROL TRAFFIC. THE TEMPORARY TRAFFIC SIGNALS SHALL BE TURNED OFF OR COVERED.

23. ALL OBSTRUCTIONS WHICH ARE WITHIN 18 FOOT OF THE EDGE OF PAVEMENT, AND ARE NOT SHIELDED BY THE PROPOSED GUARDRAIL, SHALL BE REMOVED BETWEEN STATION 265+87.00 AND STATION 271+00.00. TYPICAL OBSTRUCTIONS ARE HEADWALLS, FOUNDATIONS, ETC. WHICH PROJECT 4 IN. OR MORE ABOVE THE GROUNDLINE; AND TREES WHICH WILL MATURE TO A DIAMTER OF 4 IN. OR GREATER.

24. THE ADVANCE DETECTOR LOOPS ARE TYPICALLY LOCATED 300 FEET IN ADVANCE OF THE STOP BAR. THE BUREAU OF OPERATIONS SHOULD APPROVE THE LOOP LOCATIONS PRIOR TO INSTALLATION.

25. COMMITMENTS: NONE AS OF DECEMBER 14, 2007, REFER TO COMMITMENT FILE FOR ANY COMMITMENTS AFTER THIS DATE.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREPARED BY: _____
DISTRICT STUDIES & PLANS ENGINEER

EXAMINED BY: _____
DISTRICT LAND ACQUISITION ENGINEER

EXAMINED BY: _____
DISTRICT PROGRAM DEVELOPMENT ENGINEER

EXAMINED BY: _____
DISTRICT OPERATIONS ENGINEER

EXAMINED BY: _____
DISTRICT CONSTRUCTION ENGINEER

EXAMINED BY: _____
DISTRICT MATERIALS ENGINEER

EXAMINED BY: _____
DISTRICT PROJECT IMPLEMENTATION ENGINEER

EXAMINED BY: _____
ASSISTANT REGIONAL ENGINEER

EXAMINED BY: _____
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

DATE Dec 6 2007

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

GENERAL NOTES AND STANDARDS
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

SCALE:
DATE
DRAWN BY CFC
CHECKED BY MCB

PLOT DATE = 12/03/2007
FILE NAME = ...\085856-01\d\general-notes.dgn
PLOT SCALE = 1.000000 / IN.
PLOT SCALE = 1.000000 / IN.
USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION
SUMMARY OF QUANTITIES

LOCATION OF WORK			HBP FUNDING 80% FEDERAL 20% STATE
			CONSTRUCTION TYPE CODE
CODE NO.	ITEM	UNIT	XO8O-2A
20200500	EARTH EXCAVATION (WIDENING)	CU YD	99
25000210	SEEDING, CLASS 2A	ACRE	0.25
25000350	SEEDING, CLASS 7	ACRE	0.25
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	7
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	7
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	7
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.2
25100115	MULCH, METHOD 2	ACRE	0.25
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	8
28000400	PERIMETER EROSION BARRIER	FOOT	753
35600716	HOT-MIX ASPHALT BASE COURSE WIDENING, 10"	SQ YD	508
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	46
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	87
40600300	AGGREGATE (PRIME COAT)	TON	1
40600645	LEVELING BINDER (MACHINE METHOD), N90	TON	47
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	498
40600990	TEMPORARY RAMP	SQ YD	86
40603320	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N90	TON	84
44004250	PAVED SHOULDER REMOVAL	SQ YD	307
48100500	AGGREGATE SHOULDERS, TYPE A 6"	SQ YD	244
48203100	HOT-MIX ASPHALT SHOULDERS	TON	76
50101500	REMOVAL OF EXISTING SUPERSTRUCTURES	EACH	1
50102400	CONCRETE REMOVAL	CU YD	6.3
50300225	CONCRETE STRUCTURES	CU YD	6.2
50300260	BRIDGE DECK GROOVING	SQ YD	678
50300300	PROTECTIVE COAT	SQ YD	679
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	6103
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	9640
50800515	BAR SPLICERS	EACH	150
50901050	STEEL RAILING, TYPE SM	FOOT	272
51500100	NAME PLATES	EACH	1
52000110	PREFORMED JOINT STRIP SEAL	FOOT	100
58700300	CONCRETE SEALER	SQ FT	510
59000200	EPOXY CRACK INJECTION	FOOT	138

ILLINOIS DEPARTMENT OF TRANSPORTATION
SUMMARY OF QUANTITIES

LOCATION OF WORK			HBP FUNDING 80% FEDERAL 20% STATE
			CONSTRUCTION TYPE CODE
CODE NO.	ITEM	UNIT	XO8O-2A
* 63000000	STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	37.5
* 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1(SPECIAL) TANGENT	EACH	3
63200310	GUARDRAIL REMOVAL	FOOT	350
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	4
67100100	MOBILIZATION	L SUM	1
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	L SUM	1
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	10
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1
70106700	TEMPORARY RUMBLE STRIP	EACH	6
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	4
70300100	SHORT-TERM PAVEMENT MARKING	FOOT	422
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	1755
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	1427
70400100	TEMPORARY CONCRETE BARRIER	FOOT	400
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	375
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1755
* 78200410	GUARDRAIL MARKERS, TYPE A	EACH	9
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	3
78300100	PAVEMENT MARKING REMOVAL	SQ FT	547
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	9
X0325305	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	44
X5030305	CONCRETE WEARING SURFACE, 5"	SQ YD	679
XX003412	REMOVAL AND REINSTALLATION OF EXISTING TRAFFIC BARRIER TERMINAL, SPECIAL	EACH	1
XX006661	UNINTERRUPTIBLE POWER SUPPLY	EACH	2
Z0001900	ASBESTOS BEARING PAD REMOVAL	EACH	60
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2

* SPECIALTY ITEM

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USER NAME = CFC

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

REVISIONS	
NAME	DATE

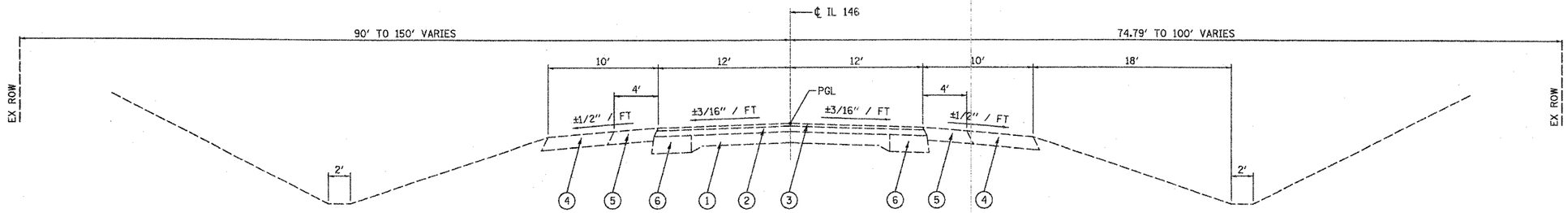
ILLINOIS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

SCALE:
DATE
DRAWN BY CFC
CHECKED BY MCB

CONTRACT NO. 78025

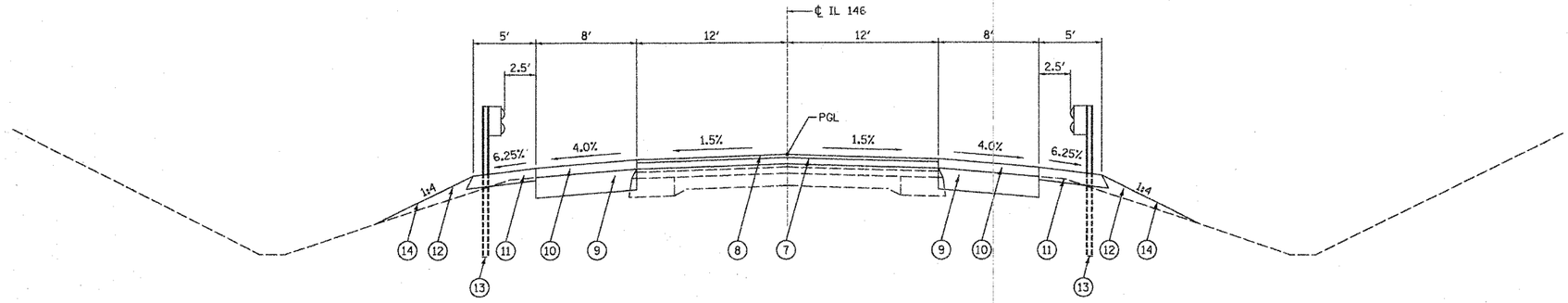
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	4
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



EXISTING TYPICAL SECTION

STA 265+87.00 TO STA 271+00.00

BRIDGE OMISSION SN 091-0059
STA 267+58.07 TO STA 268+95.93



PROPOSED TYPICAL SECTION

STA 265+87.00 TO STA 271+00.00

BRIDGE OMISSION SN 091-0059
STA 267+58.07 TO STA 268+95.93

1. EX 9-6-9 PCC PAVEMENT
2. EX BAM BASE COURSE, 3" - 18"
3. EX HOT-MIX ASPHALT SURFACE CSE, 1 1/2"
4. EX AGGREGATE SHOULDER, 6"
5. EX HOT-MIX ASPHALT SHOULDER, 6" - TO BE REMOVED
6. EX BASE COURSE WIDENING, 9"
7. PR LEVELING BINDER (MACHINE METHOD) N90, VAR DEPTH
8. PR HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N90 1 1/2"
9. PR HOT-MIX ASPHALT BASE COURSE WIDENING, 10" (FOR STAGE LANES)
10. PR HOT-MIX ASPHALT SHOULDER, VAR DEPTH
11. PR AGGREGATE SHOULDER TY A, 6"
12. PR EARTH SHOULDER
13. PR STEEL PLATE BEAM GUARDRAIL, TY A OR TERMINALS
14. RP MULCH METHOD 2 AND SEEDING CLASS 2A

HMA MIXTURE REQUIREMENTS

LOCATION(S):	HMA SURF CSE & LEVELING BIND	BASE COURSE WIDENING	HOT MIX ASPHALT SHOULDERS
MIXTURE USE(S):	HMA SURF CSE, MIX C, N90	HMA BIND CSE, N90, IL-19.0	HOT-MIX ASPHALT SHOULDERS
AC/PG:	PG 64-22	PG 64-22	PG 58-22
RAP % (MAX):	10	10	50
DESIGN AIR VOIDS:	4.0%, 90 GYRATION DESIGN	4.0%, 90 GYRATION DESIGN	2.0%, 30 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-9.5 mm OR IL 12.5 mm	IL 19.0 mm	HMA SHOULDERS
FRICTION AGGREGATE:	C SURFACE	NONE	NONE

NOTES:

1 EXISTING SE TRANSITION STA 266+00 TO STA 266+61
PT STA 260+12.2
Δ = 34° 36'
D = 3° 15'
SE = 0.07 FT/FT
ATT 253+36 TO 255+26
REM 264+59 TO 266+61

2 MATCH EXISTING SE TRANSITION STA 266+00 TO STA 266+61

3 STA 266+00 TO STA 266+30 AND STA 270+50 TO STA 271+00 OMIT PAVED SHOULDER REMOVAL AND BASE COURSE WIDENING, MILL AND OVERLAY 4' HMA SHOULDER AND GRADE 6' EARTH SHOULDER

4 WIDTH OF AGGREGATE SHOULDER WILL VARY AT GUARDRAIL TERMINALS, SEE PLANS FOR DETAILS

5 EXISTING PAVED SHOULDER WIDTH WILL VARY AT CORNERS OF THE STRUCTURE; SEE PLANS FOR DETAIL. THESE SHOULDERS WILL BE REMOVED AS PART OF THIS CONTRACT

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY

SCALE: NTS
DATE

DRAWN BY CFC
CHECKED BY MCB

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

PLOT DATE = 12/03/2007
FILE NAME = ...\d9\typical-sections.dgn
PLOT SCALE = 51.827 ' / IN.
USER NAME = CFC

CONTRACT NO. 78025

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	5
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SUMMARY OF EARTHWORK					
LOCATION	EARTH EXCAVATION WIDENING	EMBANKMENT	FILL * 1.3	WASTE (BORROW)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CU YD	CU YD (1)		CU YD (2)	CU YD
STA 266+00 TO 267+58.07	45.0	8.9	11.57	33.40	33.40
STA TO	BRIDGE OMISSION				
STA 268+95.93 TO 271+00	54.0	26.8	34.84	19.13	19.13
TOTAL	99	36	46	53	53

NOTES:
1- NO SHRINKAGE FACTOR APPLIED TO THE EMBANKMENT QUANTITY
2- A 30% EXPANSION FACTOR WAS USED IN COMPUTING BORROW QUANTITY
3- NO PAYMENT WILL BE ALLOWED FOR OVERHAUL
4- EXCAVATION REQUIRED FOR HMA SHOULDERS, AGGREGATE SHOULDERS, AND GUARDRAIL IS MEASURED AND PAID FOR AS EARTH EXCAVATION WIDENING

SEEDING SCHEDULE								
STATION TO STATION	SEEDING CLASS 2A	SEEDING CLASS 2A	NITROGEN FERTILIZER NUTRIENTS	PHOSPHOROUS FERTILIZER NUTRIENTS	POTASSIUM FERTILIZER NUTRIENTS	AGRICULTURAL GROUND LIMESTONE	MULCH METHOD 2	TEMPORARY EROSION CONTROL SEEDING
	SQ FT	ACRES	LBS	LBS	LBS	TON	ACRES	LBS
LT STA 266+00 TO 267+58.07	418.355	0.010	0.9	0.9	0.9	0.02	0.010	0.960
BR OMISSION STA 267+58.07 TO STA 268+95.93								
LT STA 268+95.93 TO 271+00	949.1	0.022	2.0	2.0	2.0	0.04	0.022	2.179
RT STA 266+00 TO 267+58.07	1250.26	0.029	2.6	2.6	2.6	0.06	0.029	2.870
BR OMISSION STA 267+58.07 TO STA 268+95.93								
RT STA 268+95.93 TO 271+00	895.11	0.021	1.8	1.8	1.8	0.04	0.021	2.055
TOTALS	3512.825	0.25 *	7.3	7.3	7.3	0.2	0.25 *	8.1

* TOTALS ARE ROUNDED UP TO MINIMUM VALUE SHOWN IN BDE FIG. 64-1A

GUARDRAIL SCHEDULE						
STATION	SPBGR TY A	TBT TY 6A	TBT TY 1, SP	REM & RE-ERECT TBT, TY 1, SP	G/R MKR TY A	TERM MKR DIR. APP.
	FOOT	EACH	EACH	EACH	EACH	EACH
LT STA 266+41.18 TO STA 266+91.18			1			1
LT STA 266+91.18 TO STA 267+03.68	12.5				1	
LT STA 267+03.68 TO STA 267+50.40		1				
BRIDGE RAIL LT					2	
LT STA 268+85.44 TO STA 269+29.33		1				
LT STA 269+29.33 TO STA 269+41.83	12.5				1	
LT STA 269+41.83 TO STA 269+91.83			1		1	1
RT STA 267+24.66 TO STA 267+71.24		1			1	
BRIDGE RAIL RT					2	
RT STA 269+03.59 TO STA 269+50.31		1				
RT STA 269+50.31 TO STA 269+62.81	12.5				1	
RT STA 269+62.81 TO STA 270+12.81			1	1		1
TOTALS	37.5	4	3	1	9	3

GUARDRAIL REMOVAL SCHEDULE	
LOCATION	G/R REM
	FT
SE QUADRANT SN 091-0059	101
NE QUADRANT SN 091-0059	47
SW QUADRANT SN 091-0059	101
NW QUADRANT SN 091-0059	101
TOTAL	350

WORK ZONE PAVEMENT MARKING REMOVAL SCHEDULE		
LOCATION STATION TO STATION	LENGTH (FT)	REMOVAL (SQ FT)
STOP BAR STAGE II - STA 264+23.06	12	24
STOP BAR STAGE II - STA 272+14.5	12	24
TEMPORARY EDGE LINES STAGE I - STA 264+23.06 TO STA 272+14.5	780	373.76
TEMPORARY EDGE LINES STAGE II - STA 264+23.06 TO STA 272+14.5	780	373.76
SHORT-TERM EDGE LINES STA 264+23.06 TO 272+14.5 PRIOR TO SURF CSE	780	20.8
SHORT-TERM SKIP-DASH STA 264+23.06 TO 272+14.5 PRIOR TO SURF CSE	780	26
TEMPORARY EDGE LINES STA 264+23.06 TO 272+14.5 PRIOR TO FINAL MKG	780	520
TEMPORARY SKIP-DASH STA 264+23.06 TO 272+14.5 PRIOR TO FINAL MKG	780	65
TOTAL		1427

PAINT PAVEMENT MARKING SCHEDULE				
LOCATION STATION TO STATION (FROM STOP BAR TO STOP BAR)	LENGTH	4" YELLOW SKIP-DASH	4" WHITE SOLID	4" TEMP PVT MARKING LN
	FT	FT	FT	FT
IL 146 STA 264+23.06 TO STA 272+14.5	780.00	195.0	1560.0	1755
TOTAL	780.0	1755		1755

RAISED REFLECTIVE PAVEMENT MARKER SCHEDULE			
STATION	R.R.P.M.	R.R.P.M. BRIDGE	R.R.P.M. REMOVAL
	EACH	EACH	EACH
264+23.06 TO 267+58.07	5		5
267+58.07 TO 268+95.93		1	
268+95.93 TO 272+14.5	4		4
TOTALS	9	1	9

SHORT TERM PAVEMENT MARKING SCHEDULE		
LOCATION STATION TO STATION	LENGTH	SHORT TERM (3 APPS)
	FT	FT
4" SKIP-DASH CENTERLINE STA 264+23.06 TO STA 272+14.5	780	234
SHORT-TERM EDGE LINES STA 264+23.06 TO STA 272+14.5	780	188
TOTAL		422

PAVEMENT MARKING REMOVAL SCHEDULE		
LOCATION STATION TO STATION	LENGTH	REMOVAL
	FT	SQ FT
CENTERLINE (4") STA 270+54.50 TO STA 272+14.50	160	13.33
CENTERLINE (4") STA 270+54.50 TO STA 272+14.50	160	13.33
EDGE LINES (4") STA 264+23.06 TO STA 272+14.50	780	520.07
TOTAL		547

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REVISIONS	
NAME	DATE

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

ILLINOIS DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

SCALE:
DATE
DRAWN BY CFC
CHECKED BY MCB

CONTRACT NO. 78025

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	6
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

RESURFACING SCHEDULE (MAINLINE PAVEMENT)

LOCATION STATION TO STATION		HMA SURF REM, BUTT JOINT	BIT (PRIME COAT)	AGG (PRIME COAT)	LVL BINDER MM N90	HMA SURF CSE SUPER, MIX C, N90 1-1/2"
		SQ YD	GAL	TON	TON	TON
266+00	267+05	306.7	25.20	0.42	0.00	23.52
267+05	267+58.07		12.74	0.21	6.60	13.01
BR. OMISSION STA. 267+58.07 TO STA. 268+95.93						
268+95.93	269+50		12.98	0.22	22.84	12.11
269+50	270+45		22.80	0.38	17.96	22.68
270+45	271+00	191.1	13.20	0.22	0.00	12.32
TOTALS		498	87	1	47	84

AGGREGATE SHOULDER SCHEDULE

LOCATION (STATION TO STATION)	AGG SHLD WIDTH	AGG SHLD, TY A, 6"
	FT	SQ YD
LT STA 266+30 TO STA 267+47.86	5' & VAR.	65.35
RT STA 267+07.82 TO STA 267+70.29	5'	32.53
LT STA 268+83.71 TO STA 270+20.32	5' & VAR.	80.75
RT STA 269+06.14 TO STA 270+24.82	5' & VAR.	65.80
TOTAL		244

HMA SHOULDER SCHEDULE

LOCATION (STATION TO STATION)	HMA SHOULDER WIDTH	HMA SHOULDER, VAR. DEPTH
	FT	TON
LT STA 266+00 TO STA 266+30	4	1.31
RT STA 266+00 TO STA 266+30	4	1.31
LT STA 266+30 TO STA 267+52.98	8	9.56
RT STA 266+30 TO STA 267+67.40	8	9.56
LT STA 268+86.60 TO STA 270+50	8	26.5
RT STA 269+01.52 TO STA 270+50	8	26.5
LT STA 270+50 TO STA 271+00	4	0.41
RT STA 270+50 TO STA 271+00	4	0.41
TOTAL		76

ENTRANCE IMPROVEMENT SCHEDULE

LOCATION (STA)	TYPE	AGG SURF CSE, TY B
		TON
RT STA 266+90.56	PE (O&C)	23.4
LT STA 270+44.02	S/R (Tractor Man Ln) - AGG	22.2
RT STA 270+68.29	FE (EARTH)	*
TOTAL		46

* FE (EARTH/AGG) QUANTITY NOT CALCULATED HERE. QUANTITY IS CALCULATED WITH AGG SHLD.

TEMPORARY RAMP SCHEDULE

APPROX. LOCATION	WIDTH	STREET NAME	TEMP RAMP
	FT		SQ. YD
266+00	24	BEGINNING OF JOB	13.33
267+58.07	24	BR. OMISSION	30.93
268+95.93	24	BR. OMISSION	28.80
271+00	24	END OF JOB	13.33
TOTAL			86

HMA BASE COURSE WIDENING SCHEDULE

LOCATION	BASE COURSE WIDENING, 10"
	SQ YD
LT STA 266+30 TO LT STA 267+52.48	108.9
RT STA 266+30 TO RT STA 267+67.40	122.1
LT STA 268+86.60 TO LT STA 270+50	145.2
RT STA 269+01.52 TO STA 270+50	132
TOTAL	508

TEMPORARY CONCRETE BARRIER SCHEDULE

LOCATION	TEMP CONC BARRIER	TEMP CONC BARRIER, RELOCATE
	FT	FT
STAGE I		
STA 266+37.82 TO STA 267+37.5	100	
STA 267+37.5 TO STA 269+12.5	175	
STA 269+12.5 TO STA 270+12.18	100	
STAGE II		
STA 266+25.36 TO STA 266+37.82	12.5	
STA 266+37.82 TO STA 267+37.5		100
STA 267+37.5 TO STA 269+12.5		175
STA 269+12.5 TO STA 270+ 12.18		100
STA 270+12.18 TO STA 270+24.90	12.5	
TOTALS	400	375

IMPACT ATTENUATORS, TEMPORARY (NON REDIRECTIVE), TEST LEVEL 3

LOCATION	IMPACT ATTENUATOR	IMPACT ATTENUATOR, RELOCATE
	EACH	EACH
STAGE I		
STA 266+08	1	
STA 270+12	1	
STAGE II		
STA 265+95		1
STA 270+25		1
TOTALS	2	2

PAVED SHOULDER REMOVAL

LOCATION	PAVED SHLD REM
	SQ YD
LT STA 266+30 TO LT STA 267+52.48	61.07
RT STA 266+30 TO RT STA 267+67.40	67.77
LT STA 268+86.60 TO LT STA 270+50	79.17
RT STA 269+01.52 TO STA 270+50	98.93
TOTAL	307

PERIMETER EROSION BARRIER

LOCATION	PERIMETER EROSION BARRIER
	FT
NE QUADRANT	206
SE QUADRANT	158
NW QUADRANT	179
SW QUADRANT	210
TOTALS	753

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REVISIONS	
NAME	DATE

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

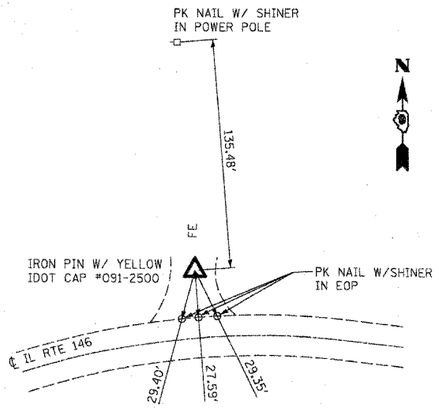
ILLINOIS DEPARTMENT OF TRANSPORTATION

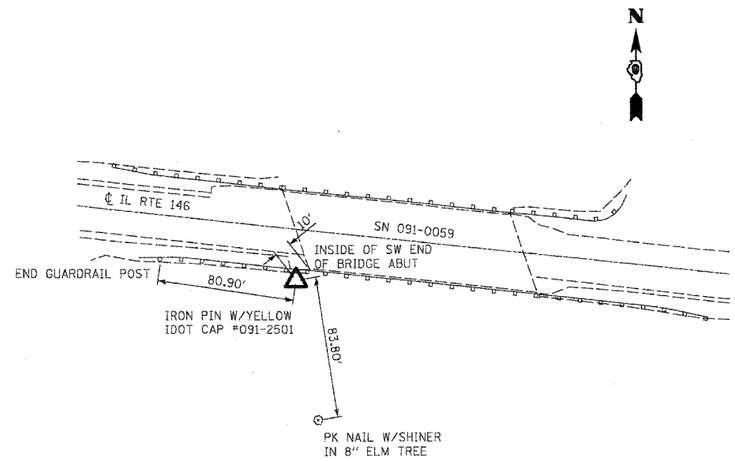
SCHEDULE OF QUANTITIES
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

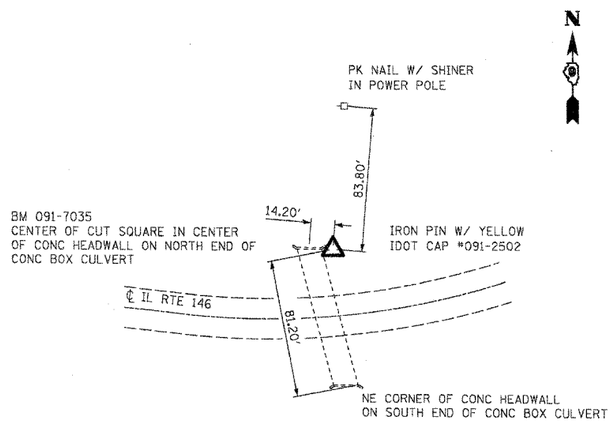
SCALE:
DATE
DRAWN BY CFC
CHECKED BY MCB

CONTRACT NO. 78025

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	7
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		







BENCHMARKS

BM 101 ELEVATION 383.587 "88" ADJUSTED
RR SPIKE IN PP APPROX 110' NORTH OF ℄ IL 146

BM 091-7034 ELEVATION 360.372 "88" ADJUSTED
SQUARE CUT IN SW CORNER OF WINGWALL AT A 5'x7' BOX CULVERT
RUNNING UNDER IL 146 AT 42' SOUTH OF ℄ IL 146

BM 091-0059 ELEVATION 371.279 "88" ADJUSTED
SQUARE CUT IN N CENTER OF HEADWALL OF A 6'x8' BOX CULVERT
RUNNING UNDER IL 146, 45' N OF ℄

BM 102 ELEVATION 373.943 "88" ADJUSTED
SQUARE CUT IN CENTER OF OLD LIGHT POLE FOUNDATION AT REST
AREA ON S SIDE OF IL 146

BM 091-7038 ELEVATION 380.400 "88" ADJUSTED
SQUARE CUT IN CENTER OF CROSS ROAD CULVERT ON SOUTH SIDE OF
IL 146 APPROX 40' SOUTH OF ℄

BM 091-7039 ELEVATION 396.891 "88" ADJUSTED
SQUARE CUT IN CENTER OF A CROSS ROAD CULVERT ON SOUTH SIDE
OF IL 146 APPROX 42' SOUTH OF ℄

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COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

BENCHMARKS AND CROSS-TIES
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

SCALE:
DATE
DRAWN BY CFC
CHECKED BY MCB

CONTRACT NO. 78025

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	8
STA. 265+50.00	TO STA.271+50.00			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

267+00.00 EX ROW 268+00.00

265+50.00

SN 091-0059 STA 268+27.00
SUPERSTRUCTURE REPLACEMENT
SEE STRUCTURE PLANS FOR DETAILS

BEGIN IMPROVEMENTS
STA 265+87.00

BUTT JOINT
STA 266+00.00

PR HMA SHOULDER
OVER EX HMA SHOULDER

PR HMA SHOULDER OVER
PR 8' BASE COURSE WIDENING, 10"
LT STA 266+30.00 TO STA 267+52.48

PR 5' AND VARIES
AGG SHOULDER TY A, 6"
SEE DETAIL SHEET

TBT - TY 6A OR
SPBGR, TY A OR
TBT - TY 1 (SP) TANGENT

101' EX G/R REMOVAL

111'

150'

71'

266 267 268 269 270+00 271

4' 12' 12' 8' 4'

10'

PR AGG SURF
CSE, TY B 6"

PR HMA SHOULDER
OVER EX HMA SHOULDER

HMA SURFACE COURSE, 1 1/2" OVER
LEVELING BINDER (MACHINE METHOD)
VARIABLE TO ATTAIN PROFILE

+90.56 PE AGG

105' RAMP

PR AGG SURFACE
CSE, TY B

PR 5' AND VARIES
AGG SHOULDER TY A, 6"
SEE DETAIL SHEET

EXISTING SHOULDER WIDTH
TAPER FROM 10.5' AT BRIDGE
CORNERS TO 4'

47' EX G/R REMOVAL

PR HMA SHOULDER OVER
PR 8' BASE COURSE WIDENING, 10"
RT STA 266+30.00 TO STA 267+67.40

TBT - TY 6A CONNECT TO EX SPBGR
AT NEAREST POST STA 267+24.66

270+00.00

PR 5' AND VARIES
AGG SHOULDER TY A, 6"
SEE DETAIL SHEET

TBT - TY 6A OR
SPBGR, TY A OR
TBT - TY 1 (SP) TANGENT

LIMITS OF
CONSTRUCTION

PR HMA SHOULDER OVER
PR 8' BASE COURSE WIDENING, 10"
LT STA 268+86.60 TO STA 270+50.00

101' EX G/R REMOVAL

PR AGG SURFACE
CSE, TY B

+44.02 S/R AGG

PR HMA SHOULDER
OVER EX HMA SHOULDER

PR AGG SURF
CSE, TY B 6"

55' RAMP

90'

17'

4' 8' 12' 12' 8' 4'

101' EX G/R REMOVAL

PR HMA SHOULDER OVER
PR 8' BASE COURSE WIDENING, 10"
RT STA 269+01.53 TO STA 270+50.00

TBT - TY 6A OR
SPBGR, TY A
REM & REINST
TBT - TY 1 (SP)

PR HMA SHOULDER
OVER EX HMA SHOULDER

PR 5' AND VARIES
AGG SHOULDER TY A, 6"
SEE DETAIL SHEET

LIMITS OF CONSTRUCTION

+88.21 FE EARTH

100'

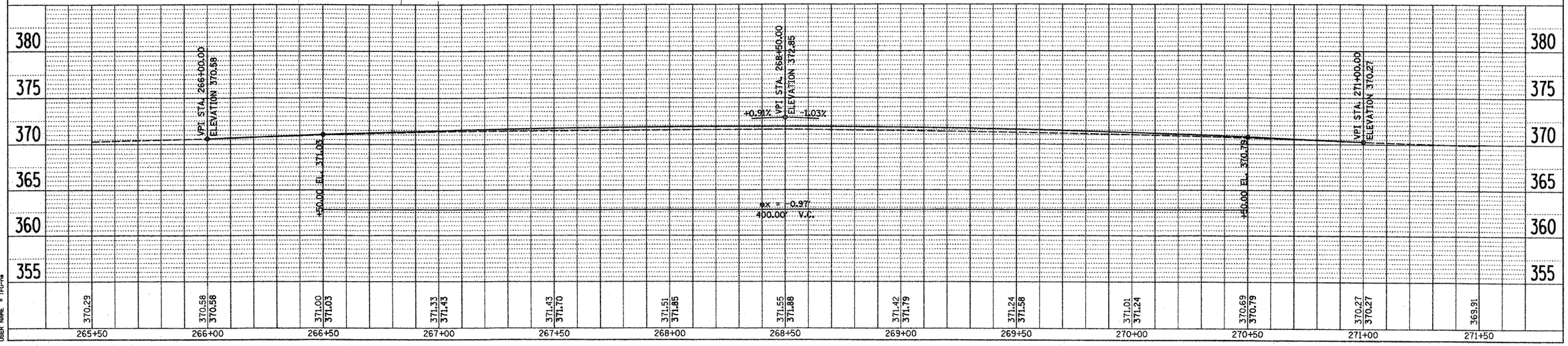
269+50.00

BUTT JOINT
STA 271+00.0
END OF IMPROVEMENT

EX ROW

HMA SURFACE COURSE 1-1/2" OVER
LEVELING BINDER (MACHINE METHOD),
VARIABLE TO ATTAIN PROFILE

HMA SURFACE REMOVAL - BUTT JOINT



SN091-0059 (DUTCH CREEK) PLAN AND PROFILE

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PLOTTED
GRADES CHECKED
ALIGNMENT CHECKED
STRUCTURE NOTATIONS CHKD
NOTE BOOK
NO.
DATE
BY

PROFILE
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DATE
BY

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CONTRACT NO. 78025

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	9
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PRIOR TO STAGE I CONSTRUCTION

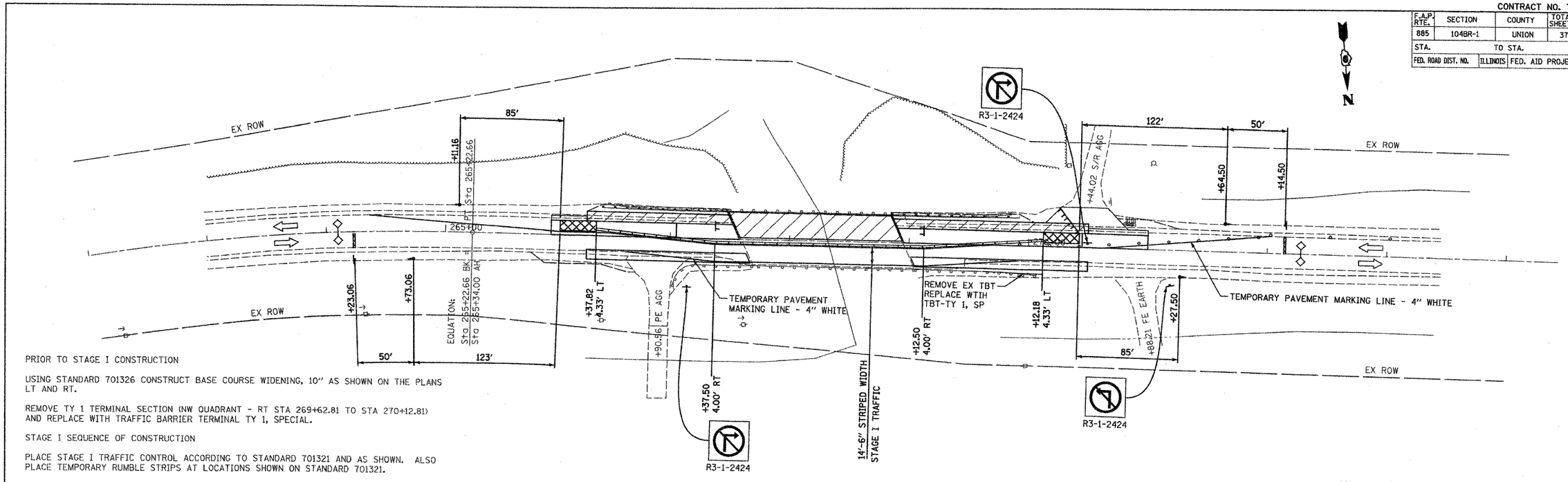
USING STANDARD 701326 CONSTRUCT BASE COURSE WIDENING, 10" AS SHOWN ON THE PLANS LT AND RT.

REMOVE TY 1 TERMINAL SECTION (NW QUADRANT - RT STA 269+62.81 TO STA 270+12.81) AND REPLACE WITH TRAFFIC BARRIER TERMINAL TY 1, SPECIAL.

STAGE I SEQUENCE OF CONSTRUCTION

PLACE STAGE I TRAFFIC CONTROL ACCORDING TO STANDARD 701321 AND AS SHOWN. ALSO PLACE TEMPORARY RUMBLE STRIPS AT LOCATIONS SHOWN ON STANDARD 701321.

DIRECT TRAFFIC TO STAGE I ROADWAY AND COMPLETE STAGE I STRUCTURAL, GUARDRAIL, SHOULDER WORK AND TEMPORARY RAMPS.



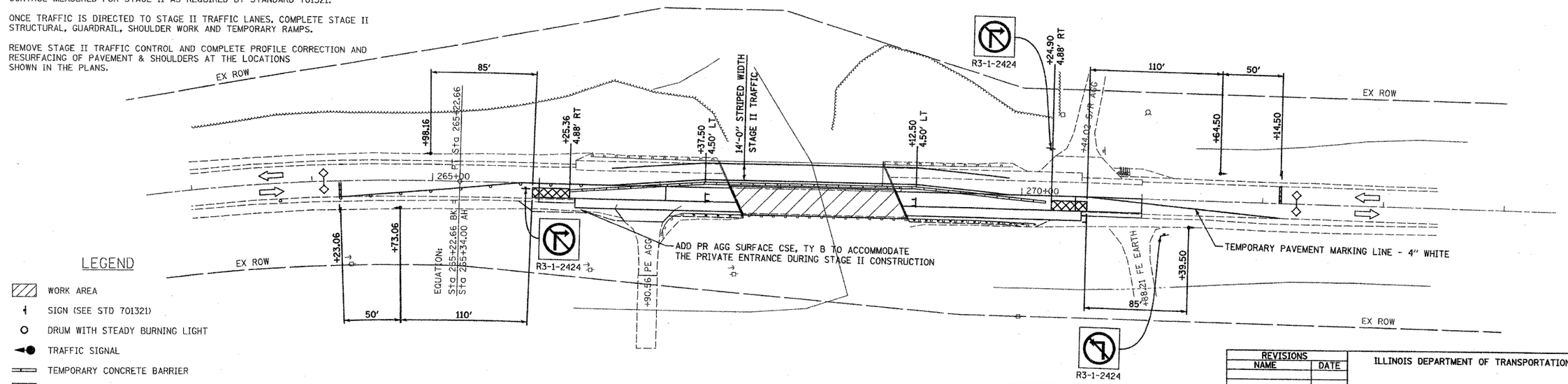
STAGE I TRAFFIC CONTROL

STAGE II SEQUENCE OF CONSTRUCTION

RELOCATE BARRIER WALL AND IMPACT ATTENUATORS AND PUT IN PLACE OTHER TRAFFIC CONTROL MEASURED FOR STAGE II AS REQUIRED BY STANDARD 701321.

ONCE TRAFFIC IS DIRECTED TO STAGE II TRAFFIC LANES, COMPLETE STAGE II STRUCTURAL, GUARDRAIL, SHOULDER WORK AND TEMPORARY RAMPS.

REMOVE STAGE II TRAFFIC CONTROL AND COMPLETE PROFILE CORRECTION AND RESURFACING OF PAVEMENT & SHOULDERS AT THE LOCATIONS SHOWN IN THE PLANS.



LEGEND

- WORK AREA
- SIGN (SEE STD 701321)
- DRUM WITH STEADY BURNING LIGHT
- TRAFFIC SIGNAL
- TEMPORARY CONCRETE BARRIER
- IMPACT ATTENUATOR, TEMPORARY
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE

STAGE II TRAFFIC CONTROL

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REVISIONS NAME	DATE

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

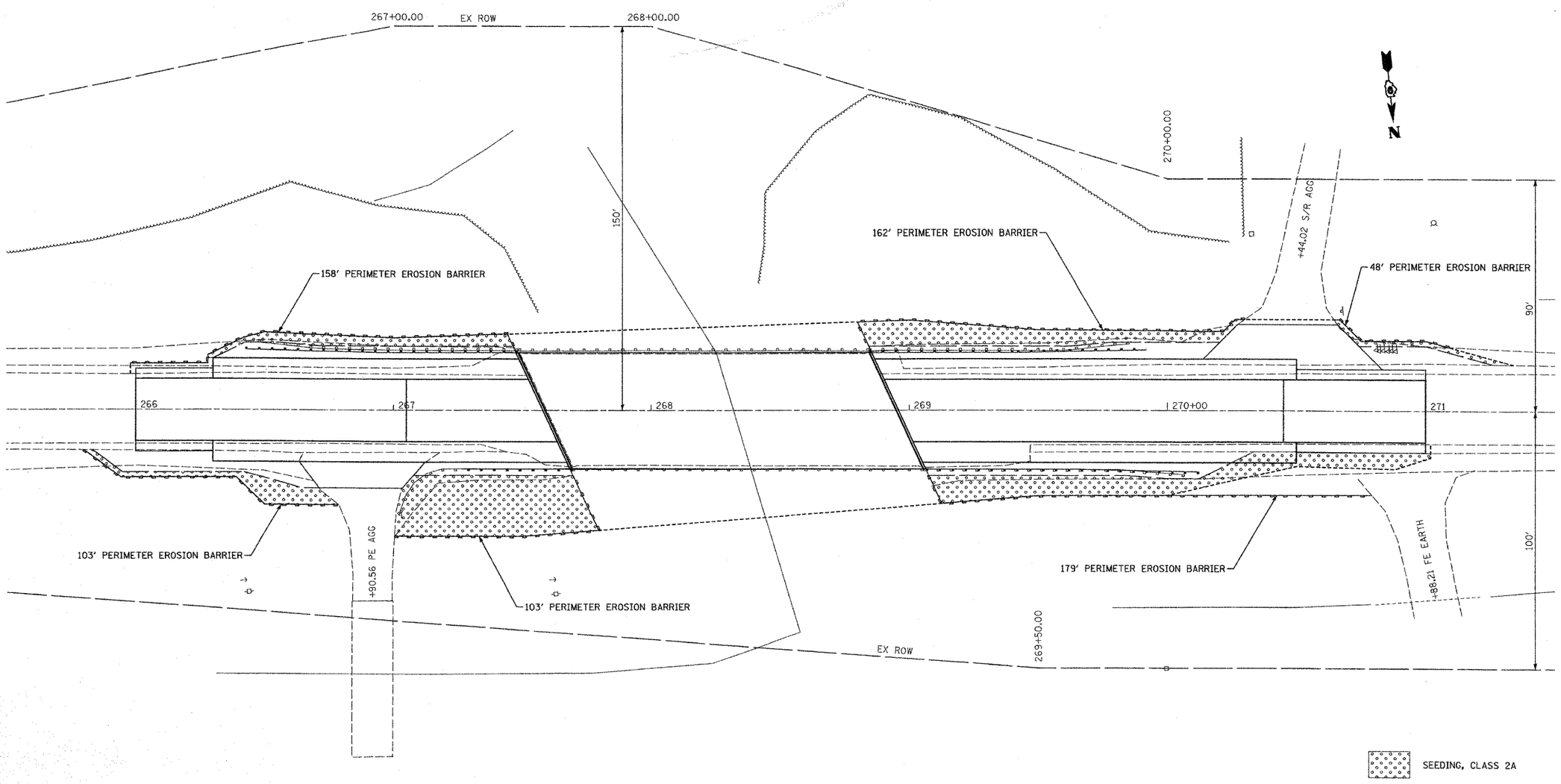
ILLINOIS DEPARTMENT OF TRANSPORTATION

STAGE I & II TRAFFIC CONTROL PLAN
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

SCALE: 1"=40' DRAWN BY CFC
DATE CHECKED BY MCB

CONTRACT NO. 78025

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	10
STA. 265+50.00	TO STA. 271+50.00			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SEEDING, CLASS 2A

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COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

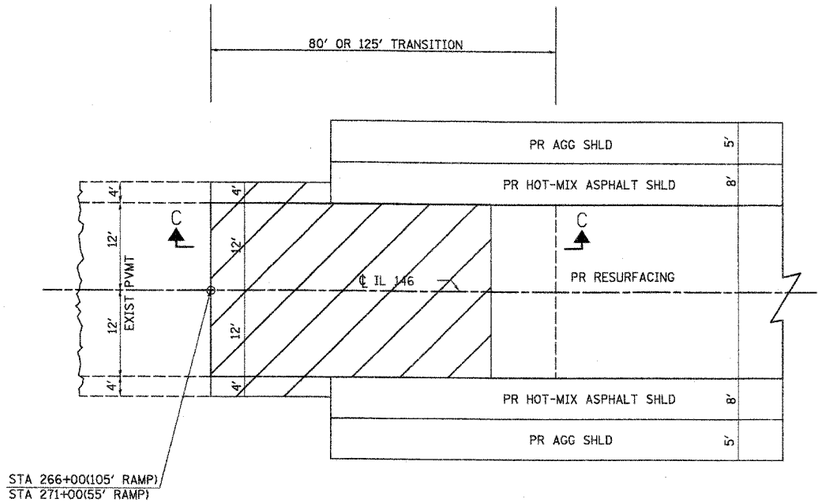
EROSION CONTROL PLAN
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

SCALE: 1" = 20'
DATE

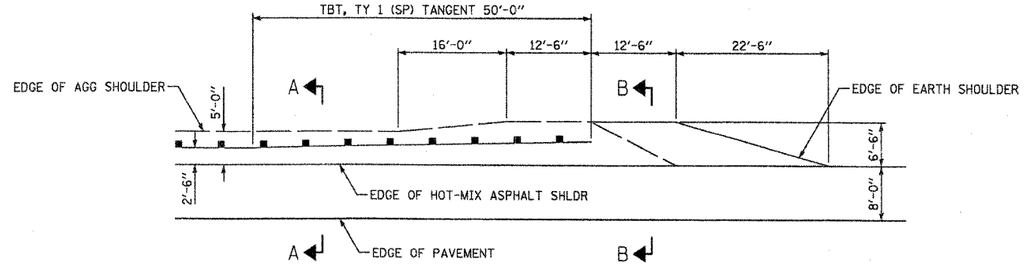
DRAWN BY CFC
CHECKED BY MCB

CONTRACT NO. 78025

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	11
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

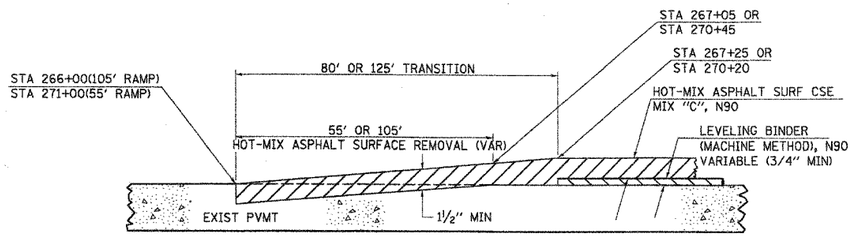


BUTT JOINT

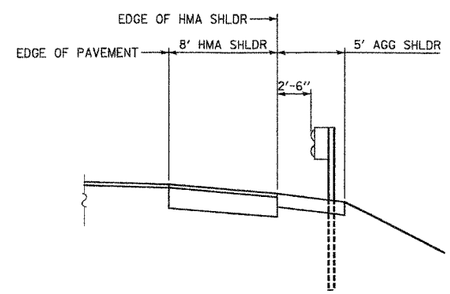


SHOULDER DETAILS
AT GUARDRAIL TERMINAL

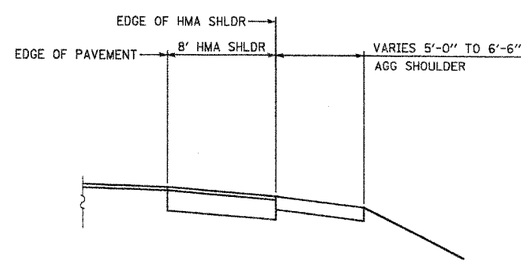
HMA SURFACE REM - BUTT JOINT



SECTION C-C



SECTION A-A



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USER NAME = CFC

REVISIONS NAME	DATE

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

ILLINOIS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS
IL ROUTE 146 OVER DUTCH CREEK
FAP RT 885 SECTION 104BR-1
UNION COUNTY

SCALE:
DATE
DRAWN BY CFC
CHECKED BY MCB

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	Union	37	12
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 1
13 SHEETS

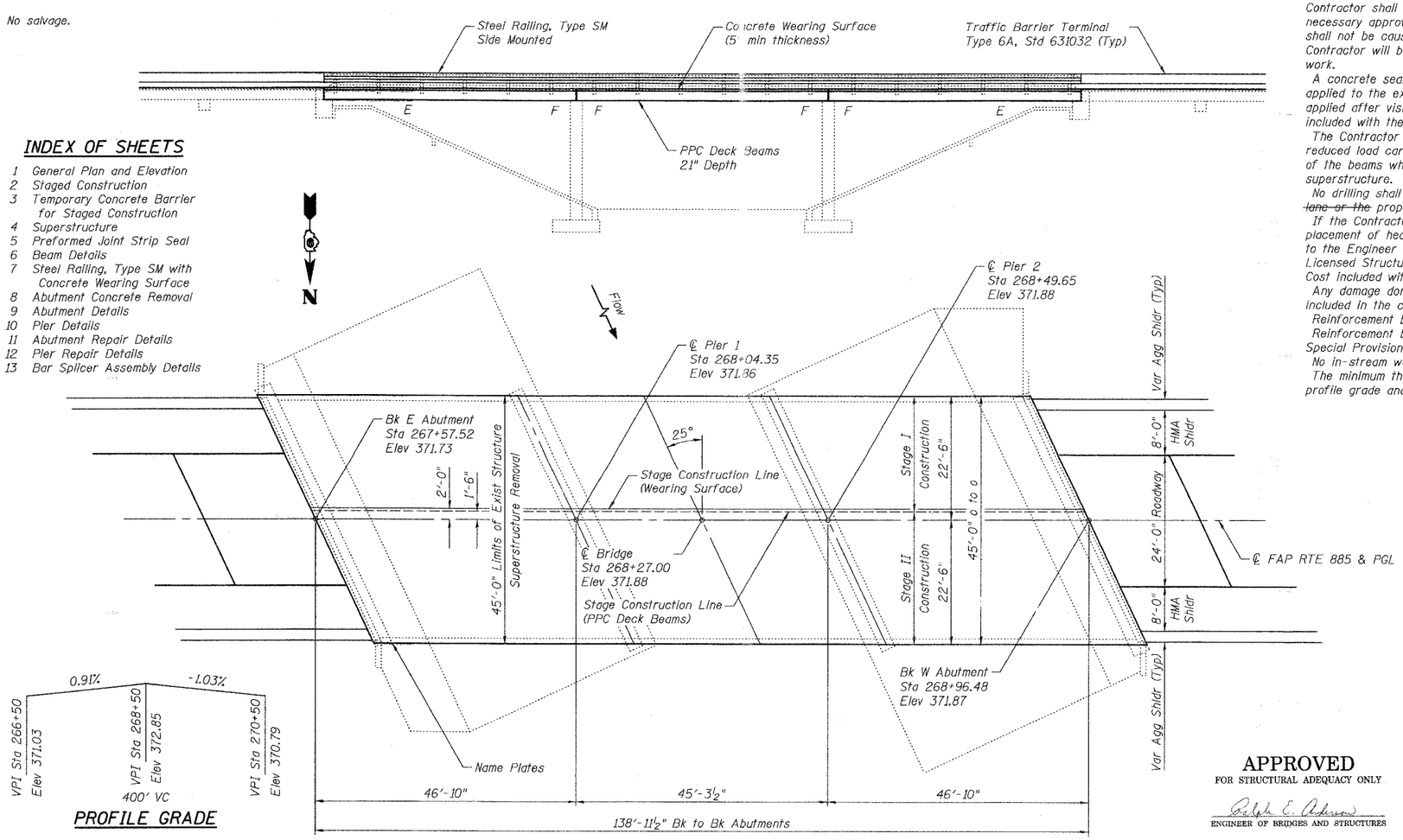
Contract # 78025

Benchmark: Chiseled square on N.E. headwall SN 091-0059. Elevation 371.279

Existing Structure: SN 091-0059 built in 1974 Sta 268+27.00 as FA Rte 51 Section 104B-1. Structure is a 3-span precast prestressed concrete deck beam superstructure 138'-11½" bk to bk abutments and 45'-0" out to out deck on concrete pile supported stub abutments and solid wall concrete hammerhead piers on timber pile supported footings. 25° Skew RF.
Bridge superstructure shall be removed and replaced with new beams and reinforced concrete wearing surface. Stage construction shall be utilized allowing one lane of traffic during construction.

No salvage.

INDEX OF SHEETS



PROFILE GRADE

STATION 268+27.00
REBUILT 20__ BY
STATE OF ILLINOIS
FAP RTE 885 SEC 104BR-1
LOADING HS20
STRUCTURE NO. 091-0059

NAME PLATE

See Std. 515001

The existing name plate shall be cleaned and relocated next to the new name plate. Cost included with Name Plates.

DESIGN SPECIFICATIONS

2002 AASHTO

DESIGN STRESSES

FIELD UNITS - EXISTING

fc = 1,400 psi (Substructure)
fs = 20,000 psi (Reinforcement)

DESIGN STRESSES

FIELD UNITS - PROPOSED

f'c = 3,500 psi (Substructure)
f'c = 5,000 psi (Concrete wearing surface)
f'y = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS

f'_c = 5,000 psi
f'_{ci} = 4,000 psi
f'_s = 270,000 psi ($\frac{1}{2}$" ϕ Low Relaxation Strands)
f_{si} = 201,960 psi ($\frac{1}{2}$" ϕ Low Relaxation Strands)

LOADING HS 20-44

No allowance for future wearing surface.

GENERAL NOTES

Concrete Removal and Structural Repair of Concrete shall occur prior to placement of the new deck beams.

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

A concrete sealer meeting the requirements of Section 587 of the Standard Specifications shall be applied to the exterior face and 9" in on the underside of the fascia beams. The sealer shall be applied after visible crack growth has subsided. This work shall be performed by the producer and included with the cost of the beam.

The Contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.

No drilling shall be permitted into the ~~existing precast deck beams to be used for Stage I traffic lane or the~~ proposed deck beams.

If the Contractor's procedures for existing beam removal or placement of new beams involves placement of heavy equipment on the new deck beams, a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, sealed by an Illinois Licensed Structural Engineer, verifying the structural adequacy of the beams for the proposed loads. Cost included with Precast Prestressed Concrete Deck Beams (21" Depth).

Any damage done to the bridge during beam removal shall be repaired by the Contractor. Cost to be included in the cost of Removal of Existing Superstructures.

Reinforcement bars designated (E) shall be epoxy coated.

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

No in-stream work will be allowed on this project.

The minimum thickness of concrete overlay shall be 5" and varies as required to adjust for the new profile grade and beam camber.

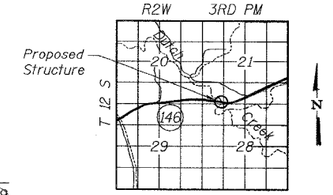
TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total
Removal of Existing Superstructures	Each	1		1
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	6103		6103
Reinforcement Bars, Epoxy Coated	Pound	8510	1130	9640
Steel Railing, Type SM	Foot	272		272
Name Plates	Each	1		1
Bar Splicers	Each	138	12	150
Concrete Wearing Surface, 5"	Sq. Yd.	679		679
Protective Coat	Sq. Yd.	679		679
Bridge Deck Grooving	Sq. Yd.	678		678
Preformed Joint Strip Seal	Foot	100		100
Structural Repair of Concrete (Depth Equal to or Less Than 5 In.)	Sq. Ft.		44	44
Epoxy Crack Injection	Foot		138	138
Asbestos Bearing Pad Removal	Each		60	60
Concrete Structures	Cu. Yd.		6.2	6.2
Concrete Removal	Cu. Yd.		6.3	6.3
Concrete Sealer	Sq. Ft.		510	510

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

LICENSED STRUCTURAL ENGINEER
MARY COOMBE BLOXDORF 4859 SPRINGFIELD
STATE OF ILLINOIS

ILLINOIS STRUCTURE NO 4859
EXPIRES: 11-30-08
DATE: 12-03-07



LOCATION SKETCH

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
GENERAL PLAN AND ELEVATION

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/26/07
DRAWN BY TFG/CFC
CHECKED BY MCB
DRAWING NO. 1

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

OF 13 SHTS

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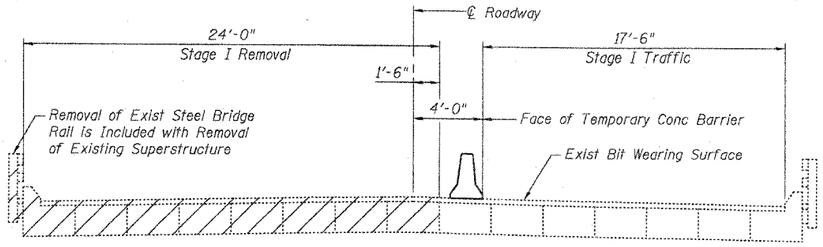
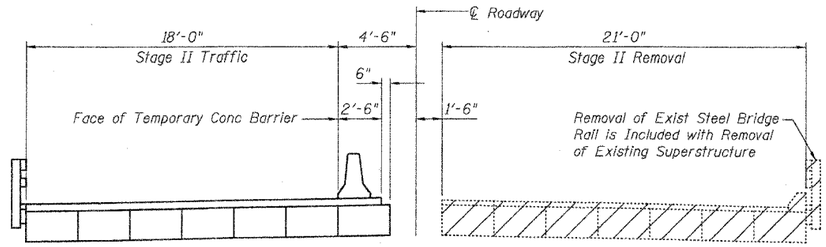
FAP 885	104BR-1	UNION	37	13
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 2
13 SHEETS

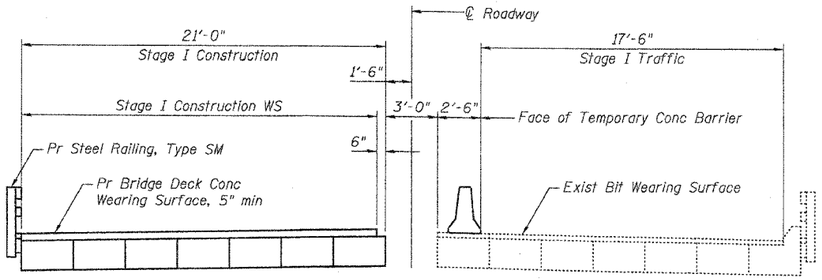
Contract # 78025



STAGE I REMOVAL
(Looking West)



STAGE II REMOVAL
(Looking West)



STAGE I CONSTRUCTION
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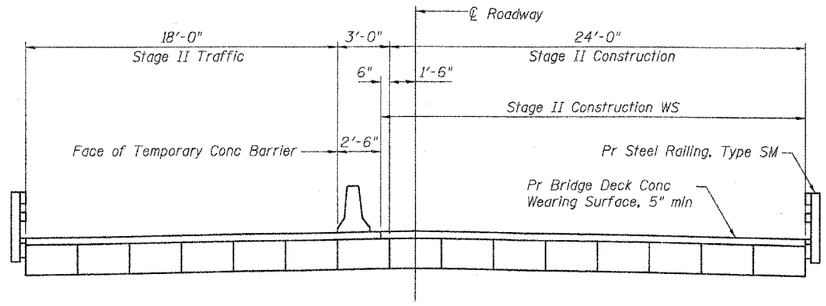

STAGE II CONSTRUCTION
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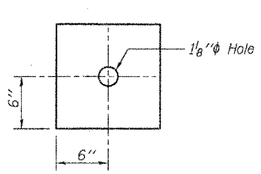
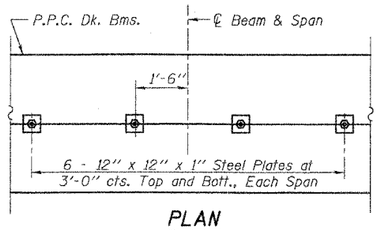
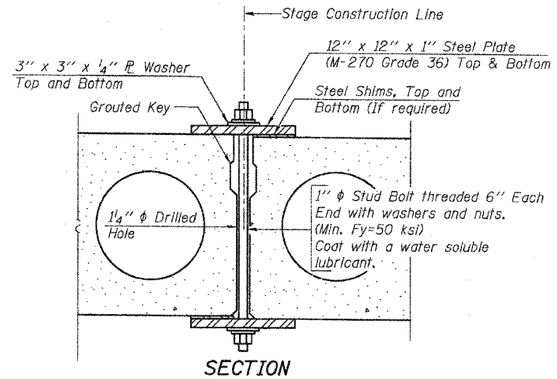


CLAMPING PLATE



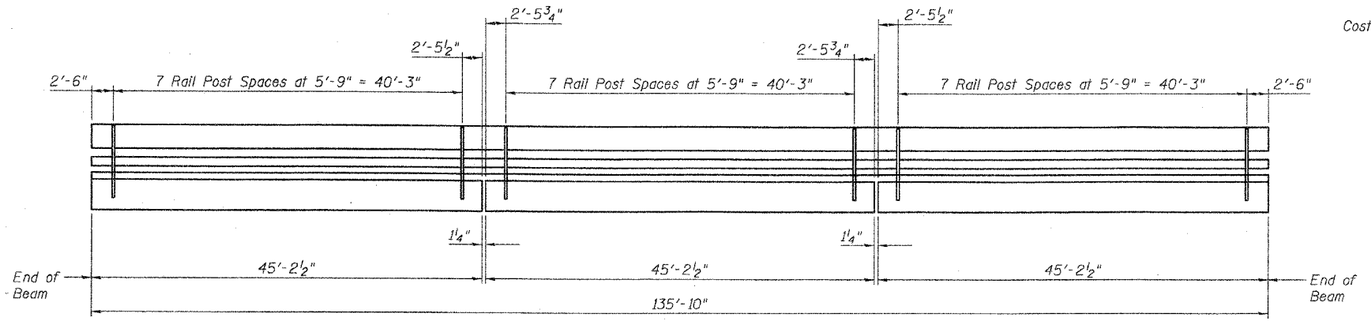
PLAN



SECTION

SHEAR KEY CLAMPING DETAILS AT STAGE CONST. JT.

Cost of clamping device included in the cost of Precast Prestressed Concrete Deck Beams.



RAILING ELEVATION

Notes:
Hatched areas indicate Removal of Existing Superstructures.
See Roadway plans for quantity of Temporary Concrete Barrier.

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: STAGED CONSTRUCTION

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/26/07
DRAWN BY TFG
CHECKED BY BD/MCB
DRAWING NO. 2

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

OF 13 SHTS

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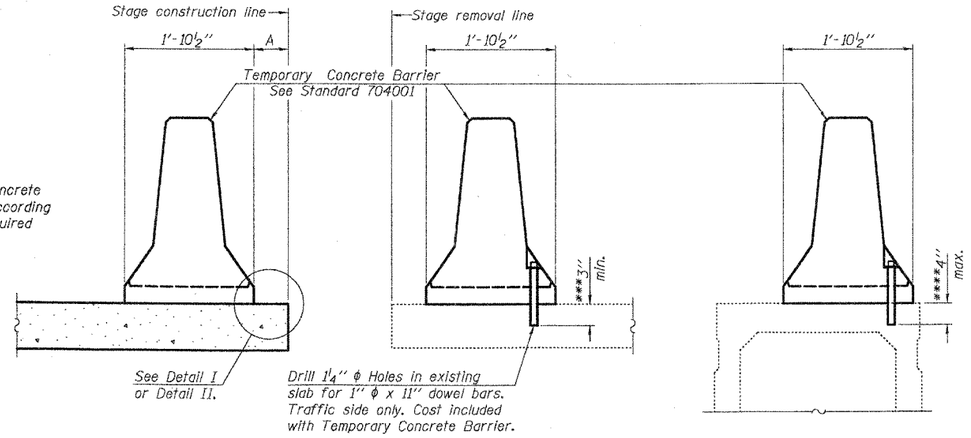
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	14
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 3
13 SHEETS

Contract # 78025



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".

NEW SLAB | EXISTING SLAB | EXISTING DECK BEAM

NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x7"x10" steel ℙ to the top layer of couplers with 2-⅝" ϕ bolts screwed to coupler at approximate ℄ of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x10" steel ℙ to the concrete slab or concrete wearing surface with 2-⅝" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each barrier panel.

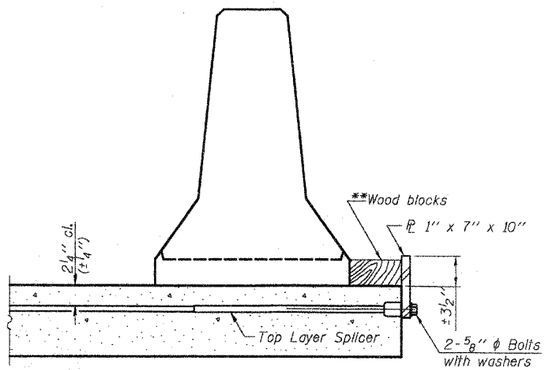
Cost of anchorage is included with Temporary Concrete Barrier.

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.

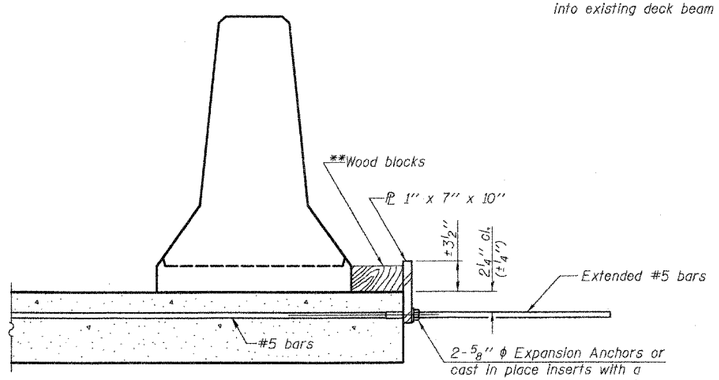
SECTIONS THRU SLAB OR DECK BEAM

***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.

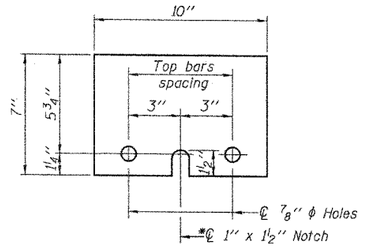
****If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



DETAIL I



DETAIL II



STEEL RETAINER 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.

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY TFG/CFC
CHECKED BY MCB/BD
DRAWING NO. 3 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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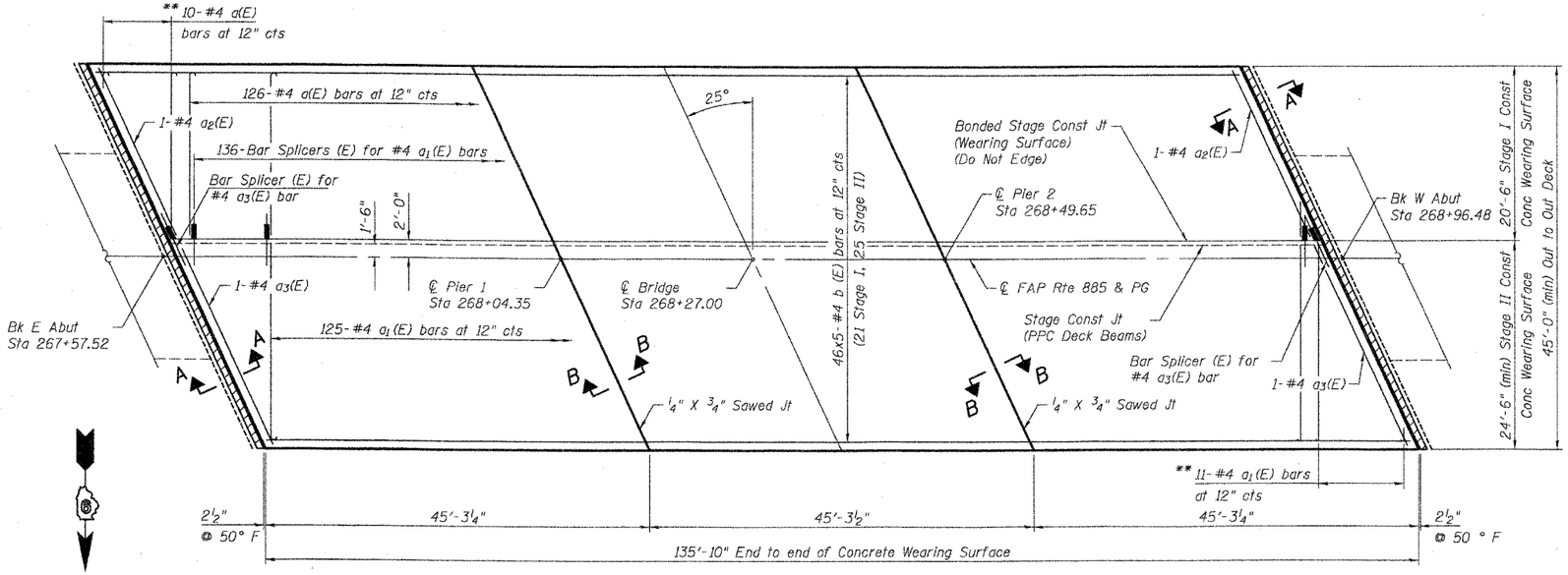
R-27

9-3-07

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	15
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

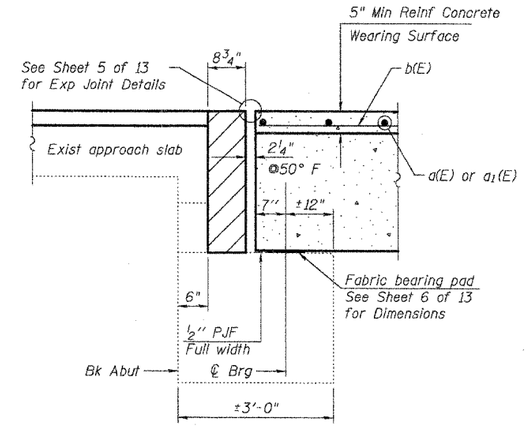
SHEET NO. 4
13 SHEETS

Contract # 78025



PLAN
(Concrete Wearing Surface)

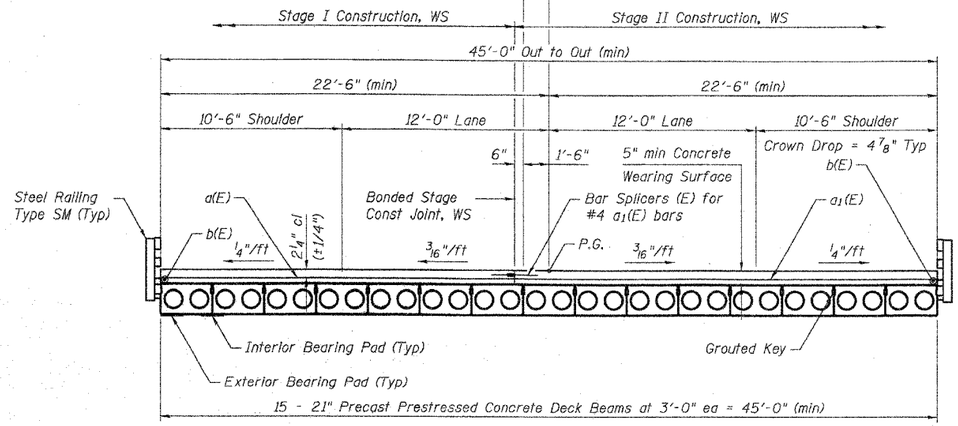
** Cut a (E) and a_1(E) bars to fit skew. Use remainder at other end.



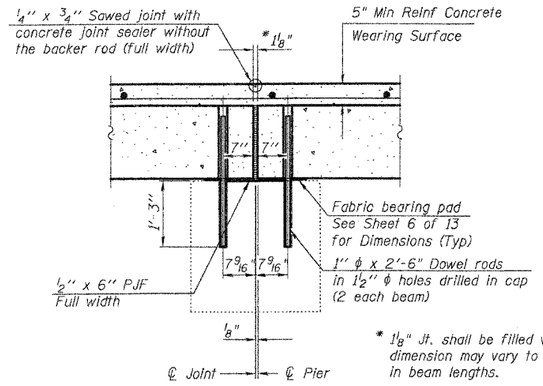
SECTION A-A
(Dim at right angles)

NOTES

For details of hatched area see Sheet 9 of 13.
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.
The 5" wearing surface shall be poured after the beams are erected and the joints have been grouted.
See Sheet 2 & 7 of 13 for for rail details.
See Sheet 13 of 13 for bar splicer details.

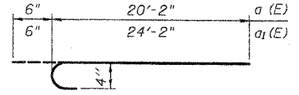


CROSS SECTION
(Looking West)



SECTION B-B
(Dim at right angles)

* 1 1/8" Jt. shall be filled with non-shrink grout. 1 1/8" dimension may vary to accommodate tolerance in beam lengths.



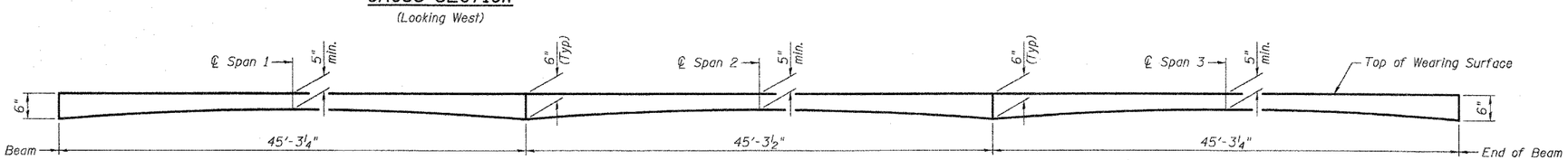
a(E) or a_1(E) BAR

MIN LAP LENGTH
#4 Bars = 1'-4"

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	136	#4	20'-8"	
a_1(E)	136	#4	24'-8"	
a_2(E)	2	#4	22'-3"	
a_3(E)	2	#4	26'-8"	
b(E)	230	#4	28'-2"	
Concrete Wearing Surface, 5"			Sq. Yds.	679
Reinforcement Bars, Epoxy Coated			Lbs.	8510
Bar Splicers			Each	138

Bars indicated thus 46 x 5 -#4 etc. indicates 46 lines of bars with 5 lengths per line.



REINFORCED CONCRETE WEARING SURFACE PROFILE

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: SUPERSTRUCTURE

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY TFG/CFC
CHECKED BY MCB/BD
DRAWING NO. 4 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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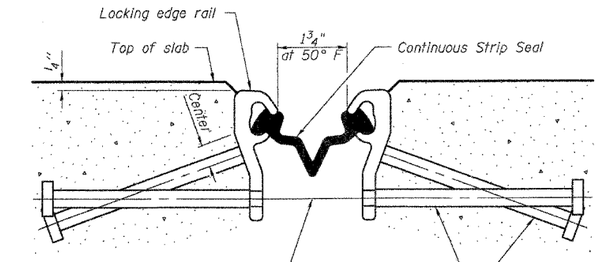
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	16
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 5
13 SHEETS

Contract # 78025

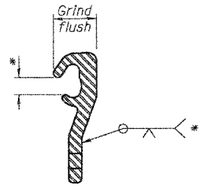


7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

Place 1/2" ϕ x 6" granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded at 1'-0" alt. cts. (200 required)

SECTION THRU STRIP SEAL JOINT FOR OVERLAY OVER DECK BEAMS

LOCKING EDGE RAIL



*Omit weld at seal opening.

LOCKING EDGE RAIL SPLICE

BILL OF MATERIAL

Item	Unit	Quantity
Preformed Joint Strip Seal	Foot	100

NOTES

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails.

The height and thickness of the Locking Edge Rails shown are minimum dimensions. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed.

The inside of the Locking Edge Rail groove shall be free of weld residue.

Locking Edge Rails may be spliced at slope discontinuities and stage construction joints.

The manufacturer's recommended installation methods shall be followed.

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

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: PREFORMED JOINT STRIP SEAL

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY TFG/CFC
CHECKED BY MCB/BD
DRAWING NO. 5
OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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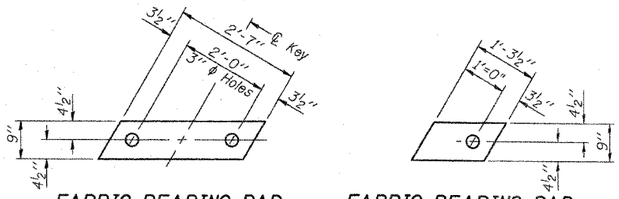
FAP 885	104BR-1	UNION	37	17
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 6
13 SHEETS

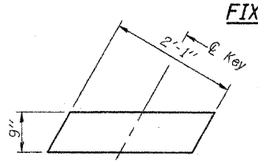
Contract # 78025



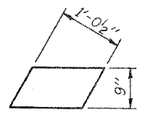
FABRIC BEARING PAD
(Interior)

FABRIC BEARING PAD
(Exterior)

FIXED

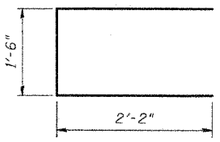


FABRIC BEARING PAD
(Interior)

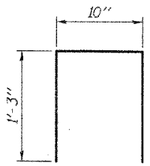


FABRIC BEARING PAD
(Exterior)

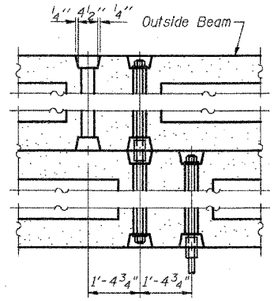
EXPANSION

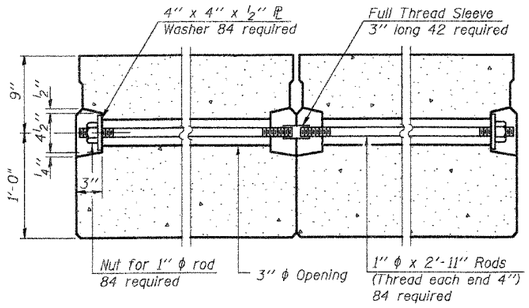


BAR U_1

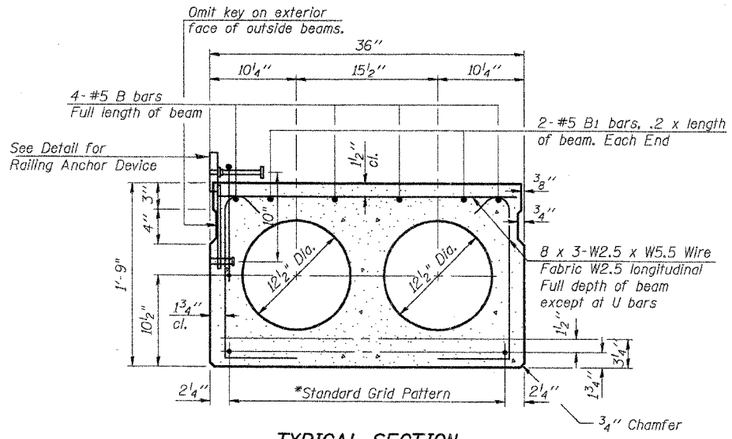


BAR D(E)



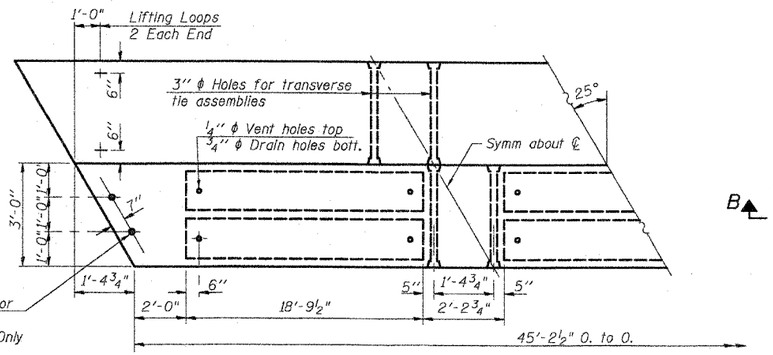


TYPICAL TRANSVERSE TIE ASSEMBLY

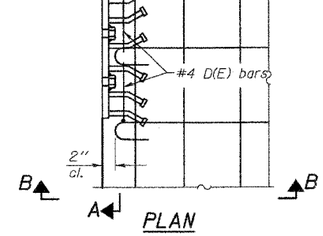


TYPICAL SECTION

12 - ½" ϕ Strands, Each Strand Stressed to 30,900 Lbs.
4 Strands 1¾" up, 8 Strands 3¼" up



PLAN



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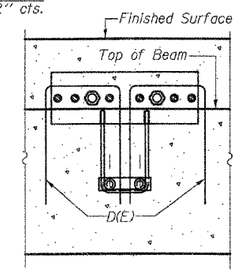
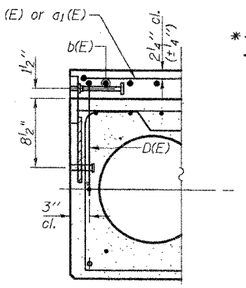
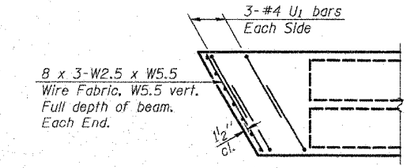


SECTION A-A

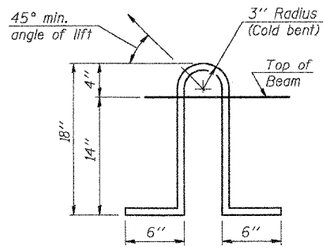


SECTION B-B

RAILING ANCHOR DEVICE DETAIL



END PLAN



LIFTING LOOP DETAIL

*TRANSVERSE STRAND PLACEMENT GUIDELINES

1) Place strands symmetrically about centerline of beam.
2) The minimum distance from center to center of strands in all directions shall be 2".
3) The minimum clearance from strand to dowel hole shall be ½".
4) The minimum clearance from strand to void shall be 1½".

Vertical placement of strands shall not be adjusted to satisfy the above guidelines.

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2 - ½" ϕ-270 ksi strands, as shown.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

Non prestressing steel shall conform to ASTM A 706 (IL MOD), Grade 60.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two ⅛" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.

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.

Required Release Strength, f'ci, shall be 4000 p.s.i.

The Rail Anchorage shall be cast with the beam and the wearing surface shall be cast in the field. Formwork necessary for the wearing surface may be secured using the bottom rail anchorage inserts and/or additional inserts cast into the beam. Drilling into the beam will not be permitted. Cost included with Precast Prestressed Concrete Deck Beams.

See sheet 4 of 13 for cross section.
See sheet 2 of 13 for rail post spacing and sheet 7 of 13 for rail details.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" Depth)	Sq. Ft.	6103

Weight of beam = 26000 pounds

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: BEAM DETAILS

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 6 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

PD-3-R 11-1-06

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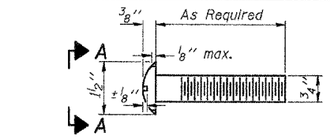
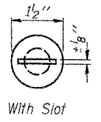
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 7
13 SHEETS

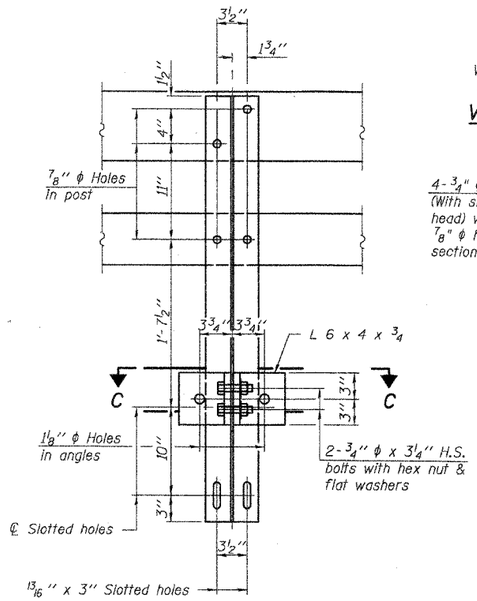
Contract # 78025



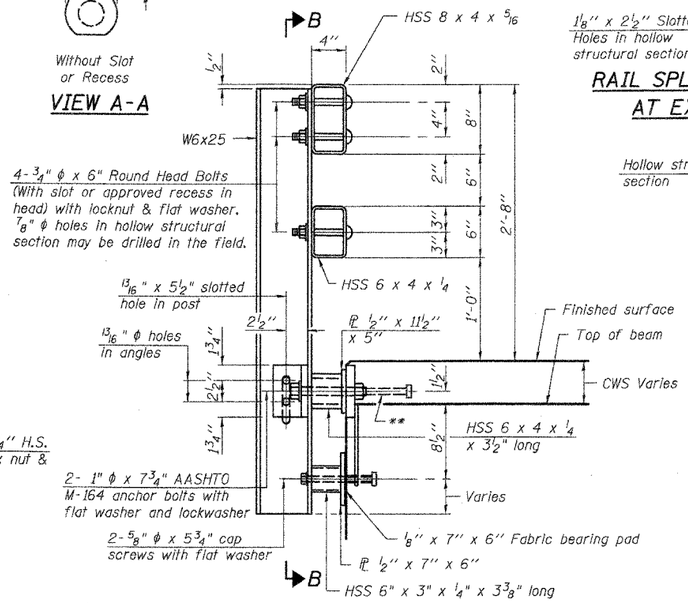
DETAIL OF 3/4" ϕ ROUND HEAD BOLT



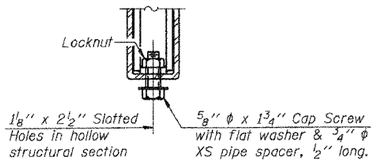
VIEW A-A



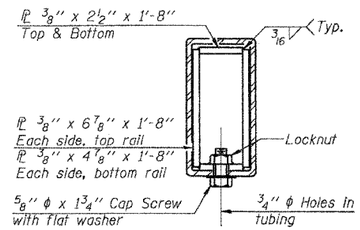
SECTION B-B



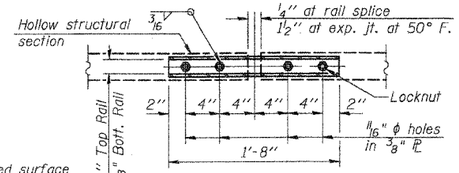
SECTION AT RAIL POST



RAIL SPLICE CONNECTION AT EXPANSION JT.

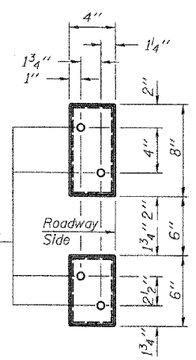


SECTION AT RAIL SPLICE

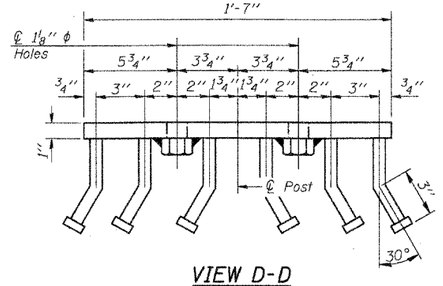


PLAN-BOTT. SPLICE PL TYPICAL

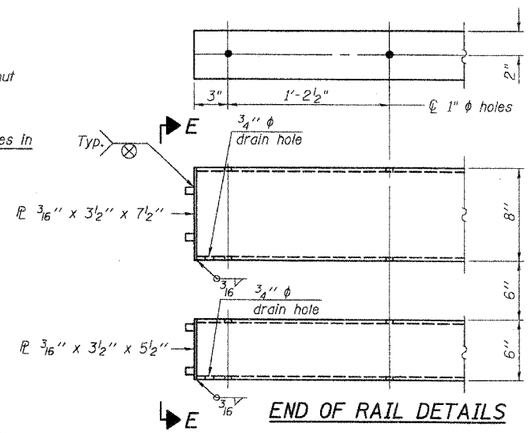
℄ - 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032



VIEW E-E



VIEW D-D



END OF RAIL DETAILS

Notes:

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

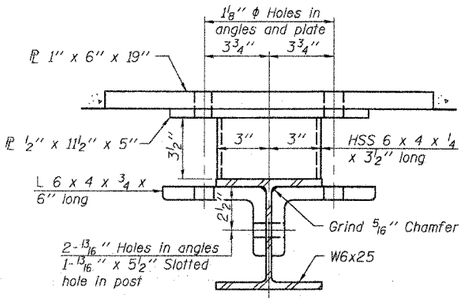
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Bridge Rail, Type SM.

Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

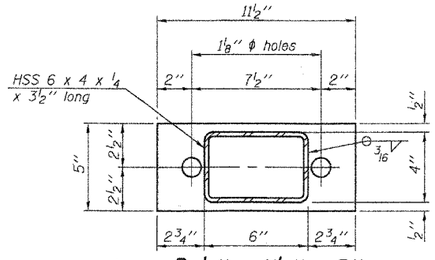
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

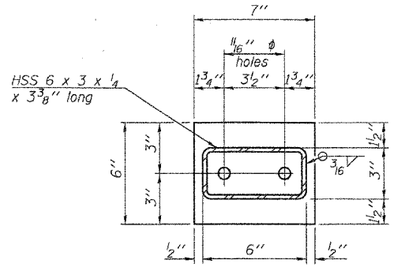
Item	Unit	Quantity
Steel Railing, Type SM	Foot	272



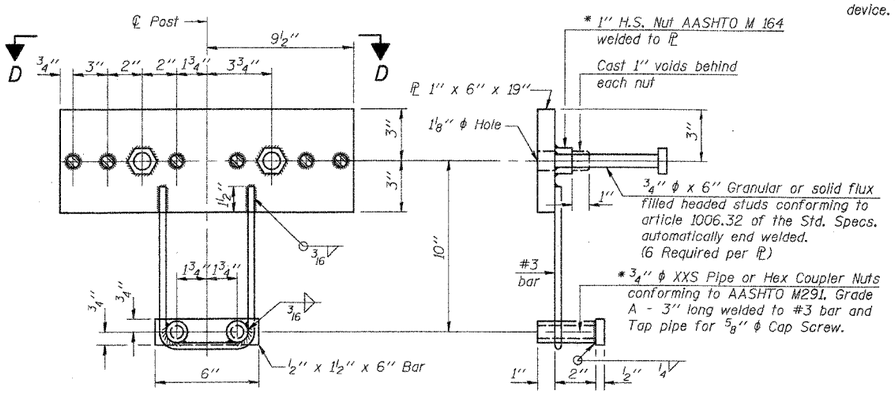
SECTION C-C



PL 1/2" x 11 1/2" x 5"



PL 1/2" x 7" x 6"



ANCHOR DEVICE

3/4" ϕ x 6" Granular or solid flux filled headed studs conforming to article 1006.32 of the Std. Specs. automatically end welded. (6 Required per PL)

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

R-34CWS 11-1-06 (6'-3" Maximum Post Spacing) (5" minimum to 7 1/8" maximum CWS thickness)

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 7 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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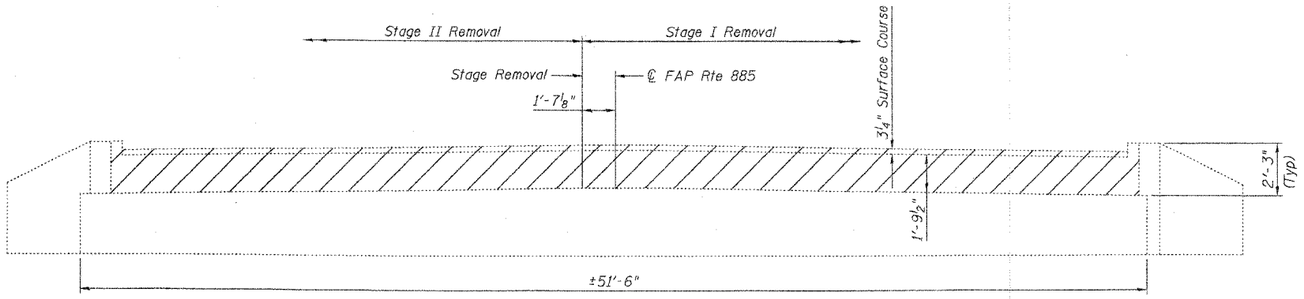
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

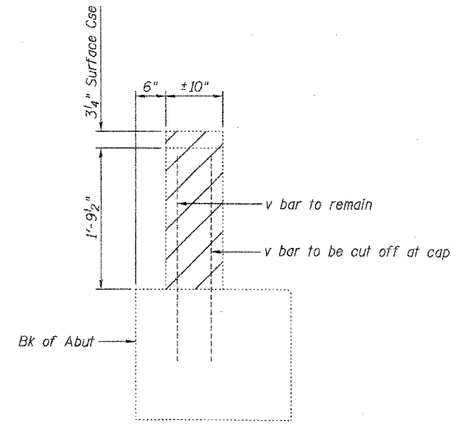
SHEET NO. 8
13 SHEETS

Contract # 78025



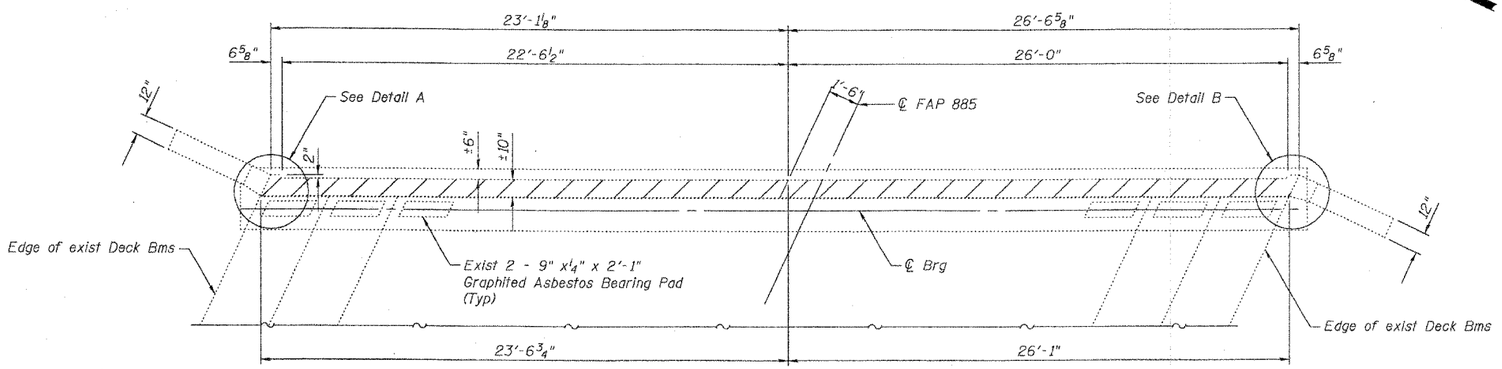
ELEVATION

(East Abutment Shown, West Abutment Opposite)



SECTION THRU ABUTMENT

(Dim at right angles)



TOP VIEW

(East Abutment Shown, West Abutment Opposite)

BILL OF MATERIAL
2 - ABUTMENTS

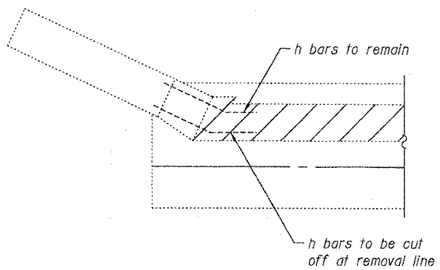
ITEM	UNIT	TOTAL
Concrete Removal	Cu. Yd.	6.3
Asbestos Bearing Pad Removal	Each	60

Notes:

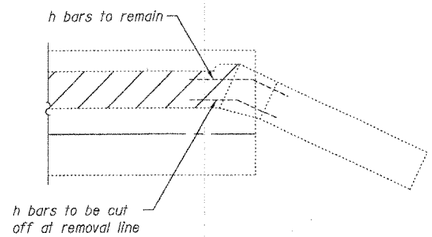
Hatched area indicates Concrete Removal.

Existing v bars in front face of end block and h bars in front face of wingwalls shall be cut off at the removal line. Cost included with Concrete Removal.

Existing v bars in back face of end block and h bars in back face of wingwalls shall be cleaned and straightened before incorporating into new construction. Any reinforcement bars damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.



DETAIL A



DETAIL B

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: ABUTMENT CONCRETE REMOVAL

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 8 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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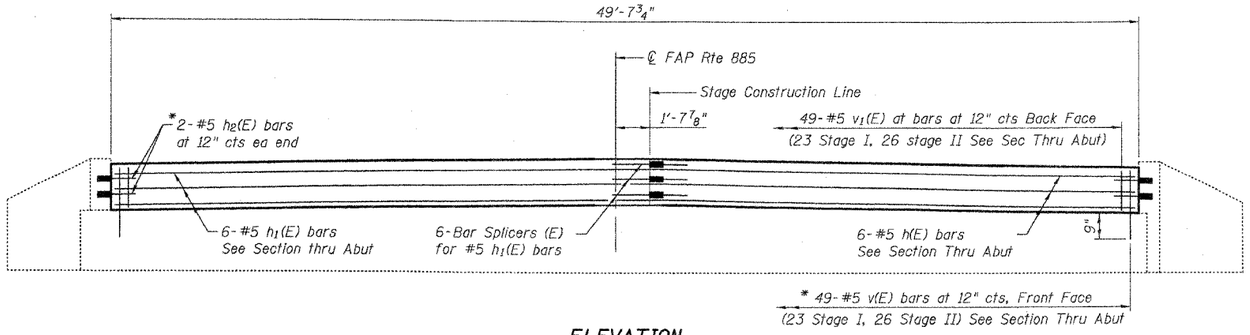
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 9
13 SHEETS

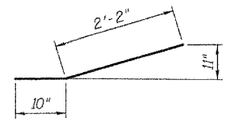
Contract # 78025



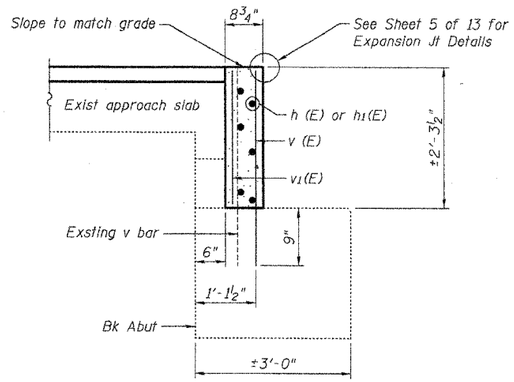
ELEVATION

(East Abutment Shown, West Abutment Opposite)

* Epoxy Grout v(E) & h_2(E) bars in 9" deep min drilled holes according to Sec 584 of the Standard Specifications The center of the hole for the h_2(E) bars shall be drilled a min of 4" from the front face of the existing wingwall

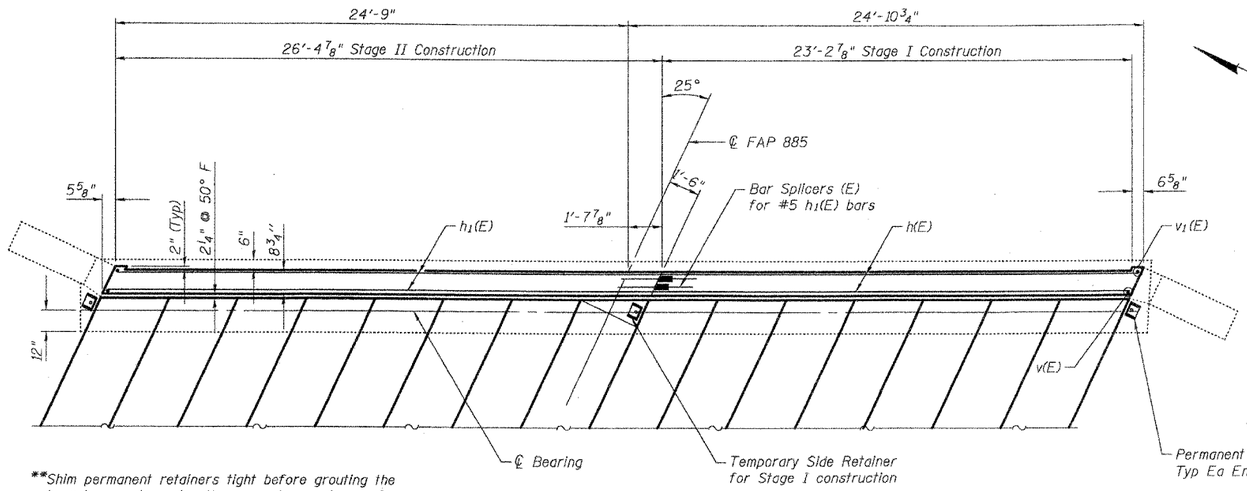


BAR h_2(E)



SECTION THRU ABUTMENT

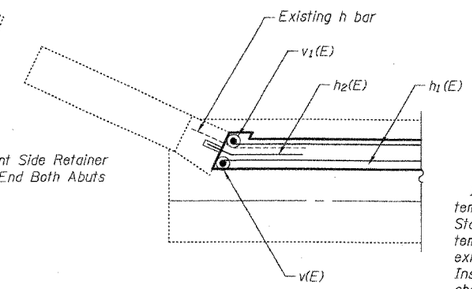
(Dim at right angles)



**Shim permanent retainers tight before grouting the shear keys and pouring the concrete wearing surface. Remove shims after the concrete wearing surface has cured.

TOP VIEW

(East Abutment Shown, West Abutment Opposite)



DETAIL A

BILL OF MATERIAL
2 - ABUTMENTS

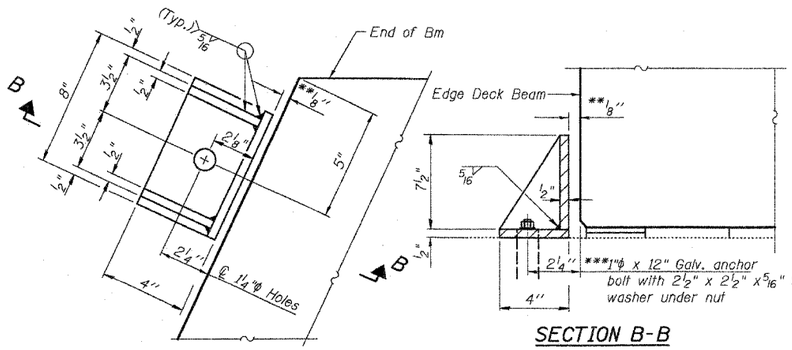
Bar	No.	Size	Length	Shape
h(E)	12	#5	22'-9"	——
h_1(E)	12	#5	26'-1"	——
h_2(E)	8	#5	3'-0"	——
v(E)	98	#5	2'-10"	——
v_1(E)	98	#5	2'-0"	——
Concrete Structures			Cu. Yd.	6.2
Reinforcement Bars, Epoxy Coated			Pound	1130
Bar Splicers			Each	12

NOTES

Install permanent retainers at abutment at South end of abutment cap and temporary retainer at Stage Line prior to grouting Stage I shear keys. After Stage I concrete and concrete wearing surface is poured and cured, the temporary retainer shall be removed. Burn existing anchor bolts flush with existing abutment surface. Grind anchor bolts smooth and seal with epoxy. Install permanent retainer at North end of abutment prior to grouting Stage II shear keys. Cost of retainers, accessories and removal of temporary retainer is included with Precast Prestressed Concrete Deck Beams.

The side retainers shall be galvanized after shop fabrication according to AASHTO M111 and ASTM 385.

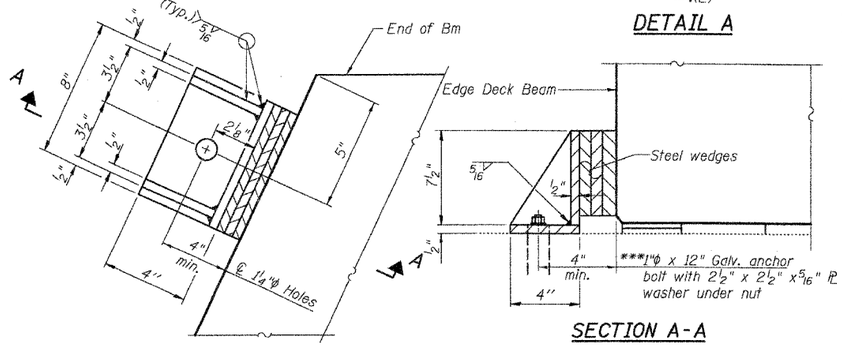
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates for side retainers.



PLAN PERMANENT SIDE RETAINERS

SECTION B-B

***Anchor bolts shall be approved threaded rods placed in drilled holes and grouted in place. Cost included with Precast Prestressed Concrete Deck Beams (21" deep).



PLAN TEMPORARY SIDE RETAINERS

SECTION A-A

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: ABUTMENT DETAILS

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY TFG/CFC
CHECKED BY MCB/BD
DRAWING NO. 9 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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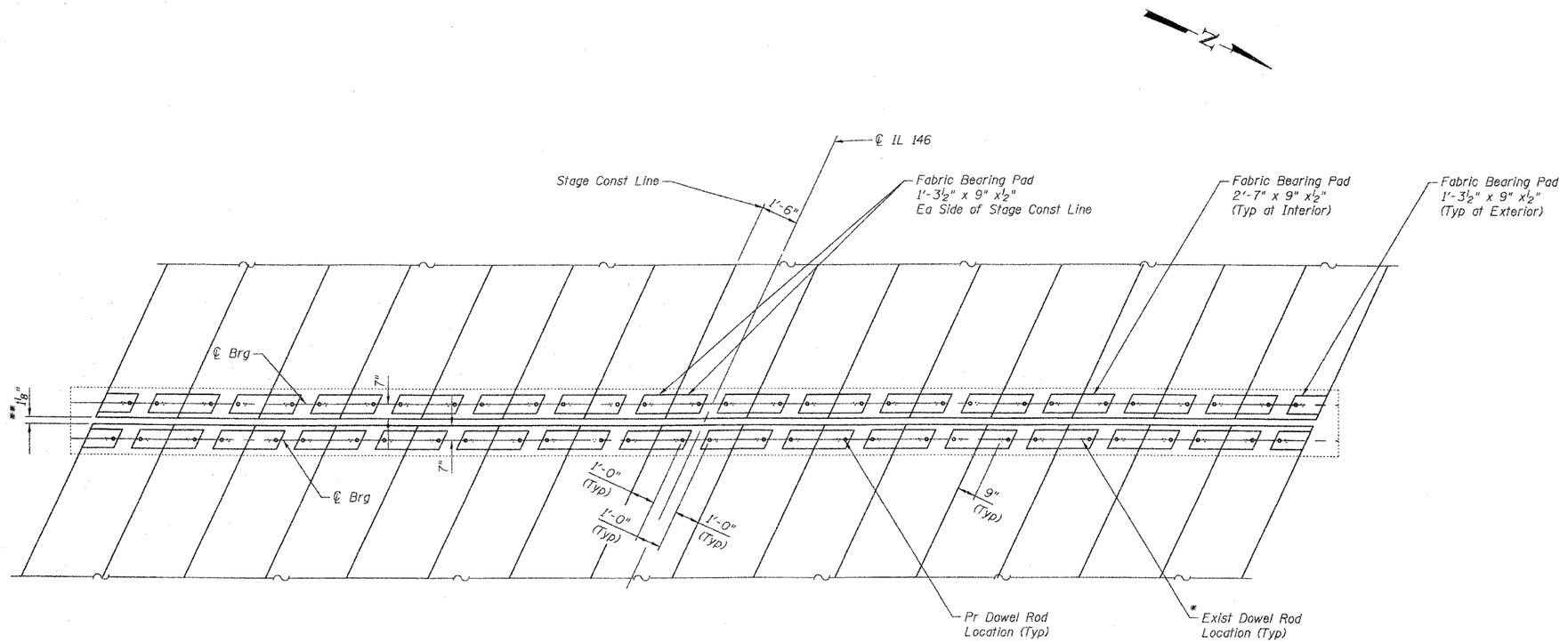
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	21
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 10
13 SHEETS

Contract # 78025



PIER PLAN

(Showing Dowel Rod and Bearing Locations)

* Burn existing dowel rods flush with top of existing abutment cap. Grind existing dowel rods smooth and seal with epoxy. Cost is included with Removal of Existing Superstructures.

** Dimension may vary to accomodate tolerance in beam lengths.

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
PIER DETAILS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 10 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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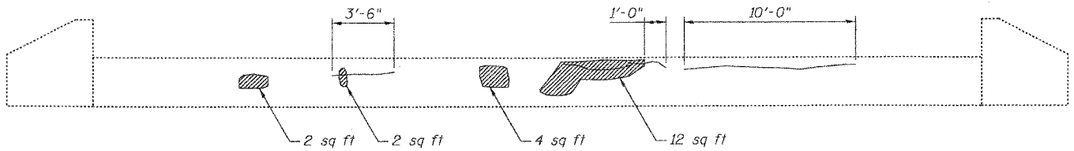
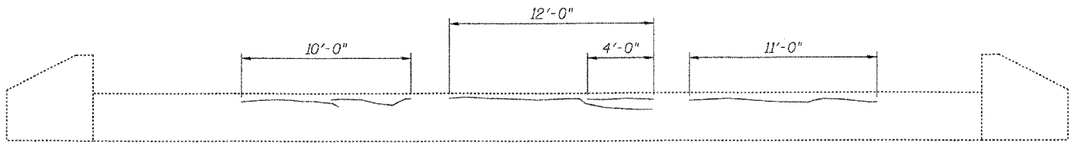
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 11
13 SHEETS

Contract # 78025



EAST ABUTMENT



WEST ABUTMENT

LEGEND

Denotes Structural Repair of Concrete (Depth Less Than or Equal to .5")

Denotes Epoxy Crack Injection

BILL OF MATERIAL
TWO ABUTMENTS

Structural Repair of Concrete (Depth Equal to or Less Than 5 In.)	Sq. Ft.	30
Epoxy Crack Injection	Ft.	62
Concrete Sealer	Sq. Ft.	510

NOTES

Epoxy Crack Injection Lengths and Structural Repair of Concrete Areas are estimated from inspection. Actual locations and quantities of repairs shall be shown by the Engineer on the As-Built plans for this section.

The existing bearing seats shall be inspected by the Engineer after the beams are removed and deteriorated areas shall be repaired. Estimated 10 sq ft of Structural Repair of Concrete (Depth Equal to or Less Than 5 In.) and 10' of Epoxy Crack Injection. Concrete Sealer shall be applied to the vertical face of the new backwalls, the horizontal abutment seat areas and the exposed vertical surface of the front face of the abutments.

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
ABUTMENT REPAIR DETAILS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY TFG/CFC
CHECKED BY MCB/BD
DRAWING NO. 11 OF 13 SHTS

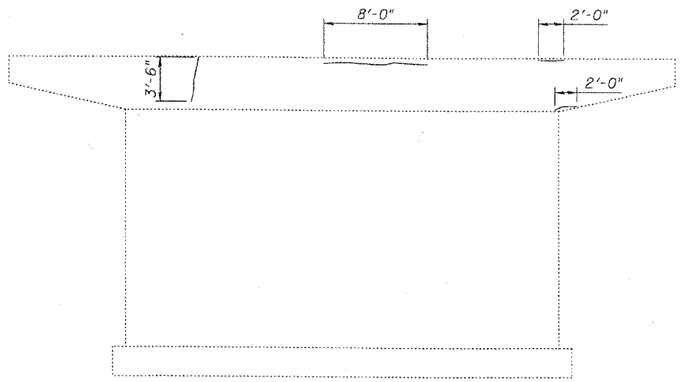
COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

FILE NAME = ..\Bl-abutment-repair-details.dgn
PLOT SCALE = 40.0000 '/' IN.
USER NAME = CFC

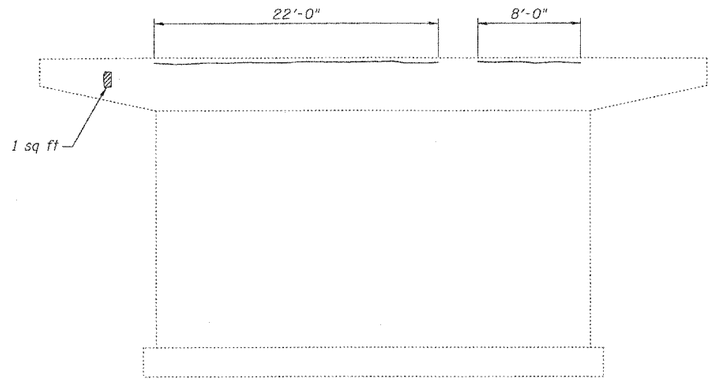
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	23
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 12
13 SHEETS

Contract # 78025



WEST FACE - WEST PIER



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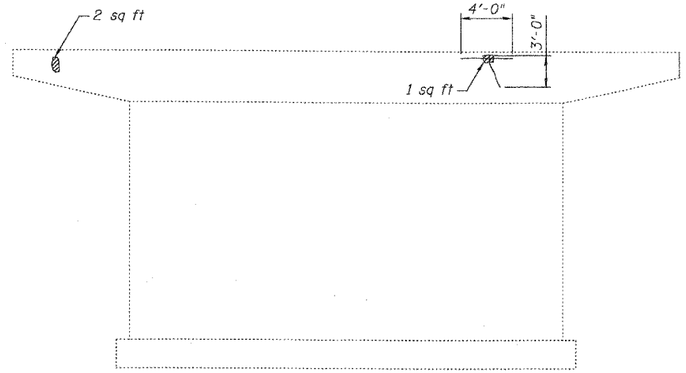
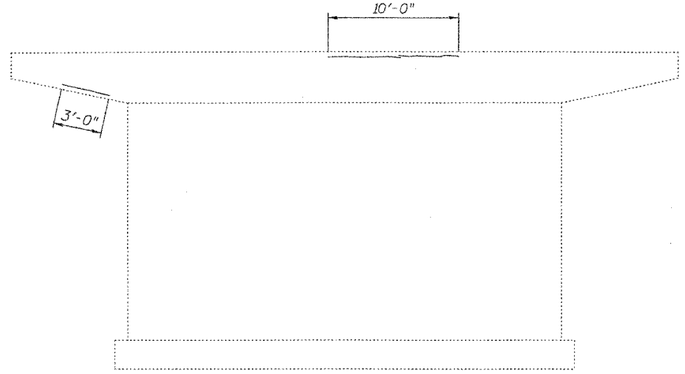


EAST FACE - WEST PIER



EAST FACE - EAST PIER

LEGEND

Denotes Structural Repair of Concrete (Depth Less Than or Equal to 5")

Denotes Epoxy Crack Injection

BILL OF MATERIAL
TWO PIERS

Structural Repair of Concrete (Depth Equal to or Less Than 5 In.)	Sq. Ft.	14
Epoxy Crack Injection	Ft.	76

NOTES

Epoxy Crack Injection Lengths and Structural Repair of Concrete Areas are estimated from inspection. Actual locations and quantities of repairs shall be shown by the Engineer on the As-Built plans for this section.

The existing bearing seats shall be inspected by the Engineer after the beams are removed and deteriorate areas shall be repaired. Estimated 10 sq ft of Structural Repair of Concrete (Depth Equal to or Less Than 5 In.) and 10' of Epoxy Crack Injection.

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: PIER REPAIR DETAILS

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY TFG/CFC
CHECKED BY MCB/BD
DRAWING NO. 12
OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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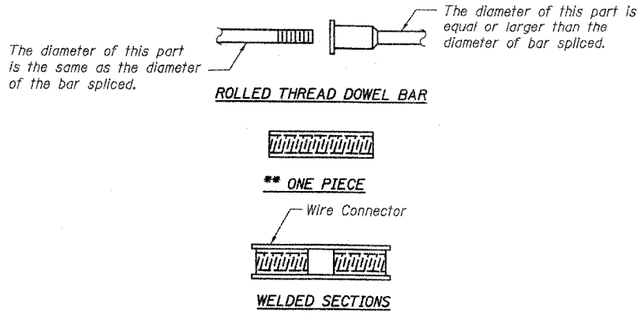
USER NAME = CFC

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	24
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

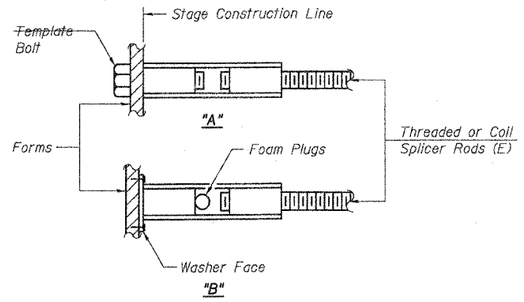
SHEET NO. 13
13 SHEETS

Contract # 78025



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.

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.

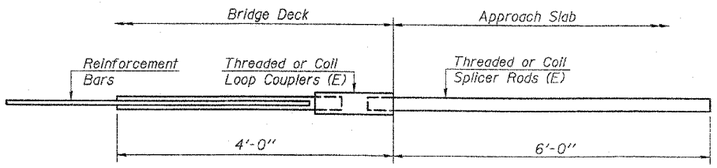
Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

① Minimum Capacity (Tension in kips) = $1.25 \times f_y \times A_t$

② Minimum *Pull-out Strength (Tension in kips) = $0.66 \times f_y \times A_t$

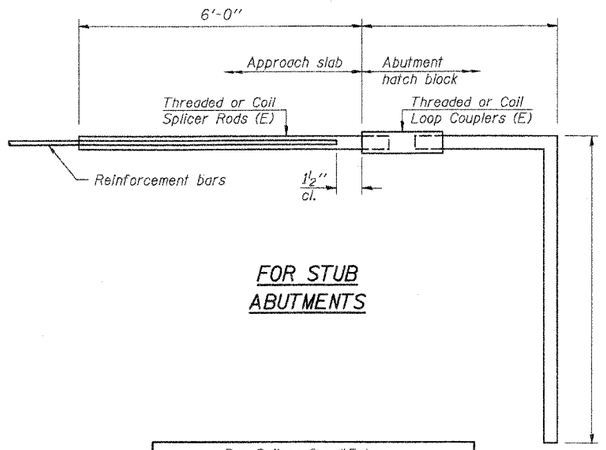
Where f_y = Yield strength of lapped reinforcement bars in ksi.
A_t = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

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'-0"	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



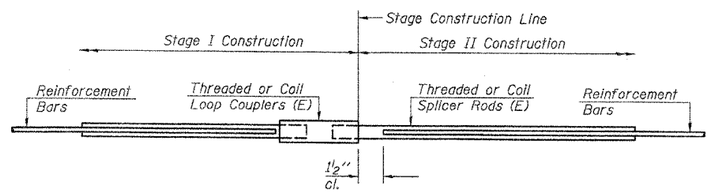
FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

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	138	Conc W.S.
#5	12	E & W Abut

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: BAR SPLICER ASSEMBLY DETAILS

PROJECT: IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE 11/30/07
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 13 OF 13 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

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BSD-1

11-1-06

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	25
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT=		

SHEET NO. 1
9 SHEETS

Contract # 78025

B.M.= Sq. cut in N.E. Wingwall 16' Rt. Sta. 267+44 El. 370.14
Existing Structure - Pony Truss - 120'-0" Span, 22'-0" Roadway, 2 C.
Closed Abut.s Built 1932 as Sec. 104BC Sta. 268+05
S.N.I.Pt. 146. Existing Structure to be removed prior to new Bridge construction. No salvage.

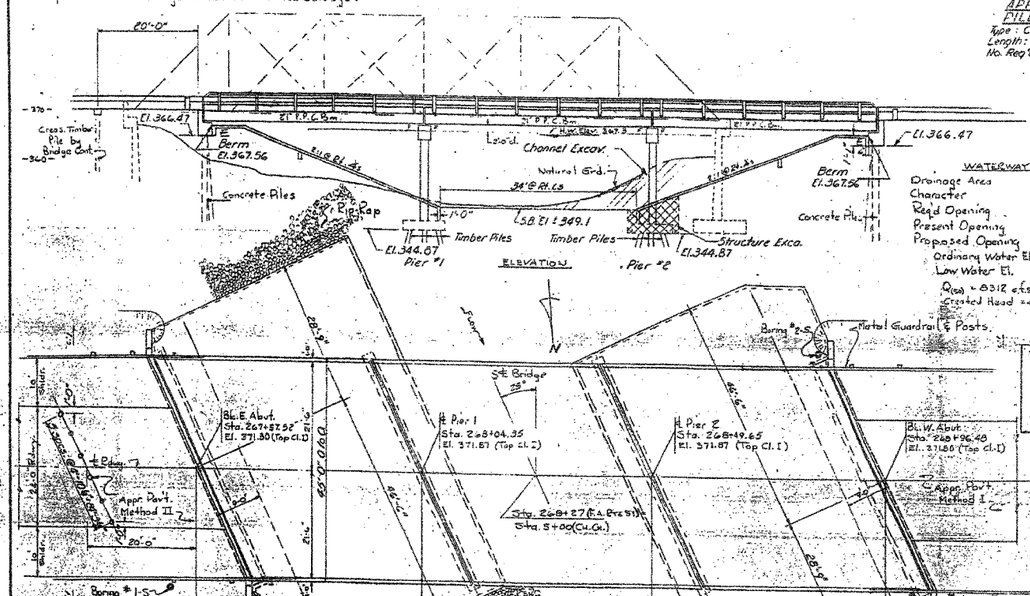
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STATE	DISTRICT	COUNTY	TOTAL SHEETS	SHEET NO.
ILL. F.A. RT. 51	DIST. 4	UNION	21	13
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT=		

SHEET NO. 1
9 SHEETS

APPROACH PILE DATA

Type: Creosoted
Length: 10'
No. Req'd.: 6



WATERWAY INFORMATION

Drainage Area	31.0 Sq. mi.
Character	
Read Opening	1190'
Present Opening	1190'
Proposed Opening	1190'
Ordinary Water El.	352
Low Water El.	350
Q(100) = 8312 c.f.s.	
Created Head = .20'	

STATION 268+27
BUILT 19 BY
STATE OF ILLINOIS
F.A. RT. 51 SEC. 104BI

LOADING HS20

NAME PLATE
See Std. 2113

GENERAL NOTES

All reinforcement bars shall be lapped 24 diameters unless otherwise shown.

The basic lead silico chromate paint system shall be used for two coats of shop painting of structural steel.

Expansion guards which are not cast in the precast unit shall be fabricated and erected in accordance with Article 903.07 (c) of the Standard Specifications and are included in quantity of structural steel.

Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 38# per 100 sq. ft.

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

The Contractor shall drive one test pile each in a permanent location at E. Abutment and Pier 2 as directed by the Engineer before ordering the remainder of piles.

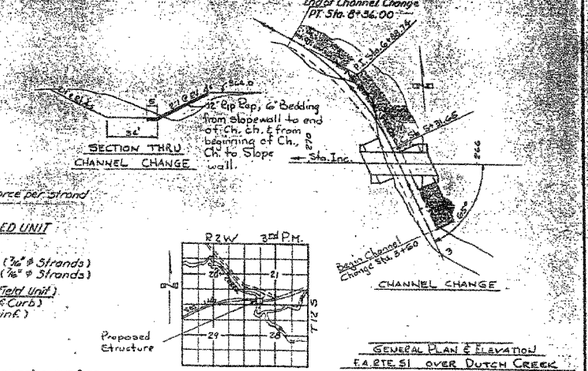
Protective Coat shall not be applied to surfaces to which Waterproofing Membrane System is applied.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub	Total
Bit. Concrete Surface Course Class I	Tons	116		116
Removal of Existing Structures	Each			1
Channel Excavation *	Cu. Yds.		7539	7539
Class X Concrete	Cu. Yds.	9.3	224.9	234.2
P.P.C. Deck Beams 21"	Sq. Ft.	6006		6006
Structural Steel	Lbs.	9040		9040
Steel Railing, Type T	Lin. Ft.	272		272
Reinforcement Bars	Lbs.	370	17430	17800
Name Plates	Each		1	1
Protective Coat	Sq. Yds.	45		45
Waterproofing Membrane System	Sq. Yds.	656		656
Untreated Piles up to 30'	Lin. Ft.		825	825
Untreated Piles 30' to 45'	Lin. Ft.		1024	1024
Concrete Piles	Lin. Ft.		818	818
Test Piles Timber	Each		1	1
Test Piles Concrete	Each		1	1
Structure Excavation	Cu. Yds.		240	240
Slope Wall 6"	Sq. Yds.		890	890
Preformed Jt. Sealer 2"	Lin. Ft.	100		100
Stone Riprap	Sq. Yd.		1905	1905
Creosoted Piles Up to 20' Ft.	Lin. Ft.		60	60
Pavement Removal	Sq. Yds.	60		60

* Bit. Surfacing quantity is end to end of Deck Brns.

End of Channel Change
PT. Sta. 8+36.00



* The initial jacking force per strand shall be 21,700 lbs.

PRECAST PRESTRESSED UNIT

f'_c = 5000 p.s.i.
f'_{ci} = 4000 p.s.i.
f_s = 270,000 p.s.i. (7/16" ϕ Strands)
* f_{si} = 188,700 p.s.i. (7/16" ϕ Strands)

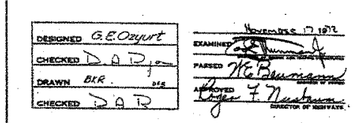
DESIGN STRESSES (Field Unit)

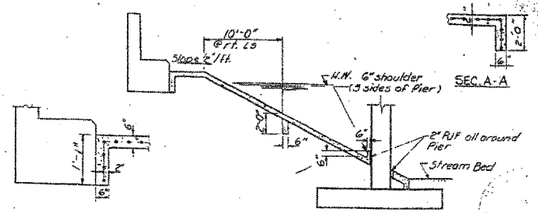
f_c = 1400 p.s.i. (Sub & Curb)
f_s = 20,000 p.s.i. (Reinf.)
n = 10
v = 90 p.s.i.

Allow 25#/s.f. for future wearing surface.

Design Specifications AASHO, 1969 as applicable

LOADING HS 20-44





GENERAL PLAN & ELEVATION
F.A. RTE. 51 OVER DUTCH CREEK
F.A. RTE. 51 SEC. 104B-1
UNION COUNTY
STA. 268+27

PLOT DATE = 12/03/2007
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USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 1
OF 9 SHTS

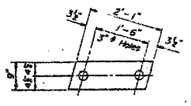
COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	26
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 2
9 SHEETS

Contract # 78025

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



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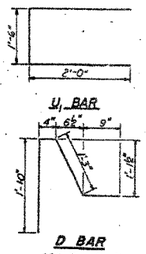
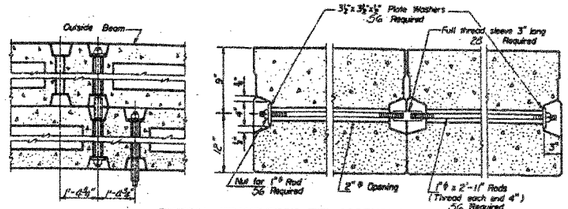
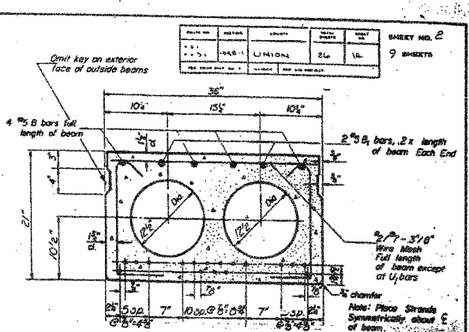


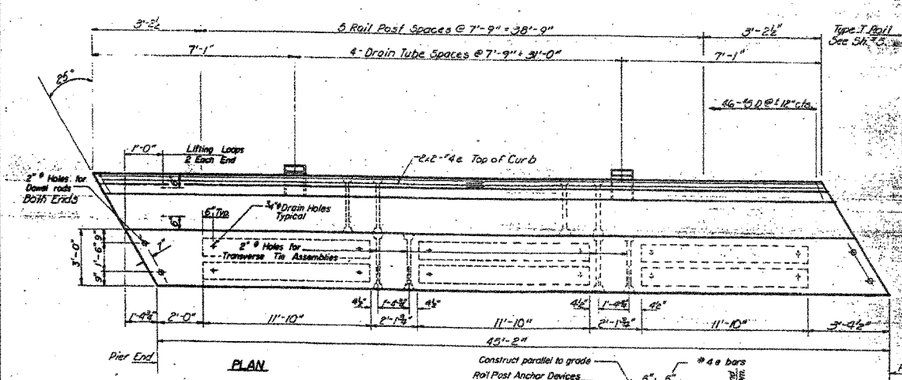
D BAR
(92 Required)

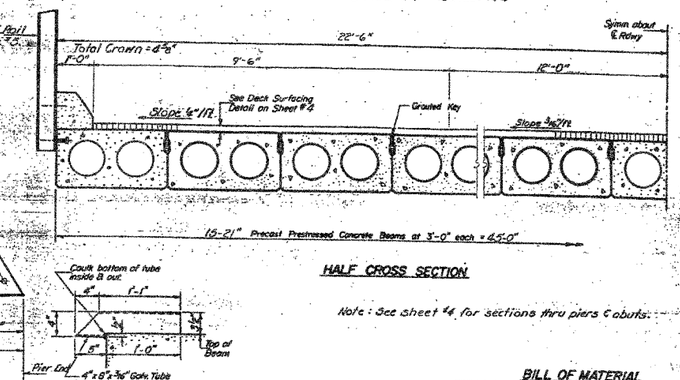


TYPICAL TRANSVERSE TIE ASSEMBLY

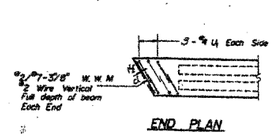


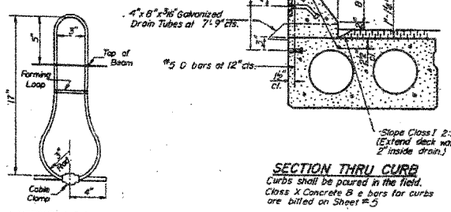
TYPICAL SECTION
17-½" ø Strands Each Strand Stressed to 21,700 lbs.
5 Strands 13½" up 12 Strands 3½" up





Note: See sheet #4 for sections thru piers & abuts.





DRAIN DETAIL
Cost of drains incidental to contract.

GENERAL NOTES

Prestressing steel shall be non-galv. extra high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.115 sq. in., a minimum ultimate tensile strength of 29,000 lbs.

Lifting loops shall be "8" diameter, 6x25 class wire rope with fiber core and shall have The 1" ø rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside beam shall be filled with grout after transverse tie assembly is in place.

Longitudinal shear keys shall be packed with a very dry mix of 2:1 sand and P.C. mortar. After beams have been erected, holes for the dowel anchors shall be drilled into the sub-structure and the anchor sleeves shall be grouted in place.

Dowel rods shall be A.S.T.M. A-306 or A.S.T.M. A-615. Transverse tie rods shall be A.S.T.M. A-306, Grade 70-80.

After fabrication the transverse tie assemblies (tie rods, nuts, washers and sleeves) shall be hot-dipped galvanized in accordance with A.S.T.M. Designation - A 153.

Cost of reinforcement and accessories cast into the beam, of bearing pads, of armor angles, and of grouting longitudinal shear keys is included in unit price bid for "Precast Prestressed Concrete Deck Beams."

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
Precast Prestressed Concrete Deck Beams 21"			Sq. Ft.	2038

SUPERSTRUCTURE - SPAN 2
F.A. RT. 51 - SEC. 104 B-1
UNION COUNTY
STA. 268 + 27.00

DESIGNED	G.E. Ozyurt
CHECKED	D.A. Ryan
DRAWN	Bev. Robinson
CHECKED	D.A.R.

EXAMINED Nov. 17 1977
PASSED W.C. Baumann
APPROVED Roger F. Neubauer
DIRECTOR OF HIGHWAYS

W-SR-3 (11-15-71)

PLOT DATE = 12/03/2007
FILE NAME = ...\B4-32-existing-structure.dgn
PLOT SCALE = 0.0100 '/ IN.
USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 2
OF 9 SHTS

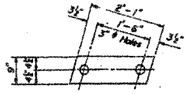
COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	27
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 3
9 SHEETS

Contract # 78025

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



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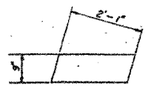

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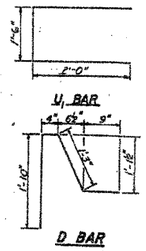
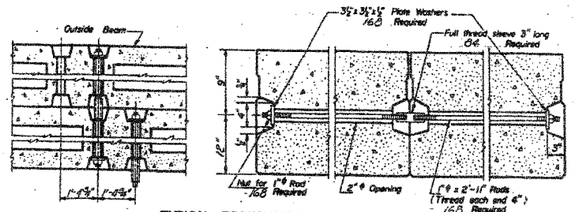
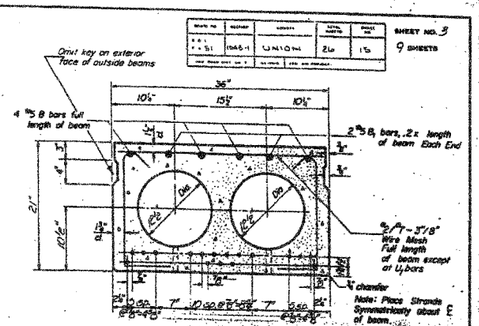


U₁ BAR

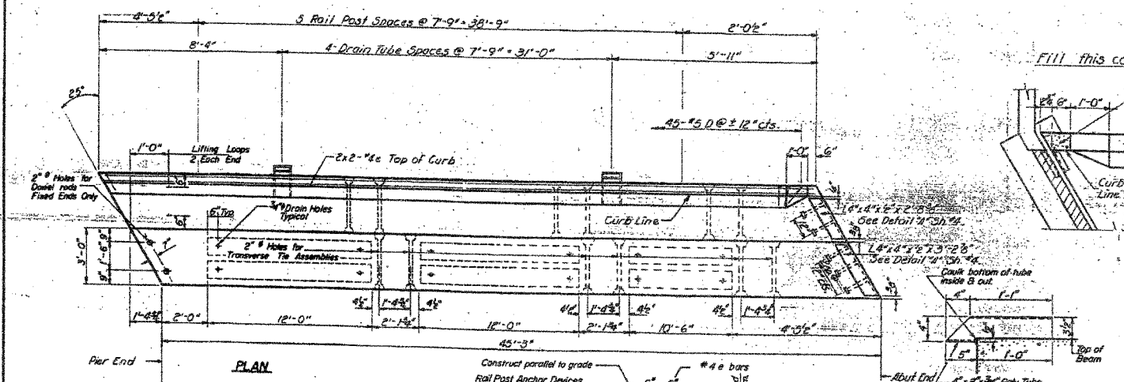
D BAR
180 Required



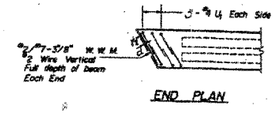
TYPICAL TRANSVERSE TIE ASSEMBLY



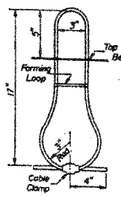
TYPICAL SECTION
17-½" ø Strands Each Strand Stressed to 21,700 lbs.
5 Strands 1⅛" up 12 Strands 3¼" up



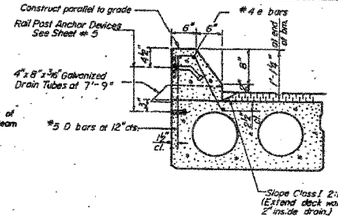
PLAN



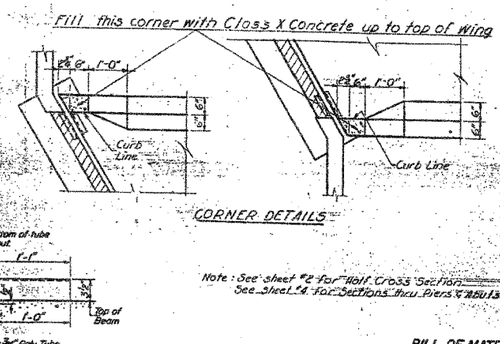
END PLAN



LIFTING LOOP DETAIL
(4 Req'd. Eq. Beam)



SECTION THRU CURB
Curbs shall be poured in the field.
Class X Concrete & e bars for curbs are billed on Sheet #5



CORNER DETAILS

DRAIN DETAIL
Cost of drains incidental to contract

Note: See sheet #2 for Half Cross Section
See sheet #4 for Sections thru Piers & Abut's

GENERAL NOTES

Prestressing steel shall be non-galv. extra high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.115 sq. in.
Lifting loops shall be ⅞" diameter, 6 x 25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 29,000 lbs.
The 1" ø rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside beam shall be filled with grout after transverse tie assembly is in place.
Longitudinal shear keys shall be packed with a very dry mix of 2:1 sand and P.C. mortar. After beams have been erected, holes for the dowel anchors shall be drilled into the sub-structure and the anchor dowels shall be grouted in place.
Dowel rods shall be A.S.T.M. A-306 or A.S.T.M. A-615. Transverse tie rods shall be A.S.T.M. A-306, Grade 70-80.
After fabrication the transverse tie assemblies (tie rods, nuts, washers and sleeves) shall be "hot-dipped" galvanized in accordance with A.S.T.M. Designation: A 153.
Cost of reinforcement and accessories cast into the beam, of bearing pads, of armor angles, and of grouting longitudinal shear keys is included in unit price bid for "Precast Prestressed Concrete Deck Beams."

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
Precast Prestressed Concrete Deck Beams 21"			Sq. Ft.	4073

DESIGNED	G.E.Ozyurt		
CHECKED	D.A.R.		
DRAWN	Bev Robinson		
CHECKED	D.A.R.		

EXAMINED Nov 17 1972
PASSED
APPROVED
DIRECTOR OF HIGHWAYS

SUPERSTRUCTURE
SPANS 16.9
F.A. RT. 51 SEC. 104 B-1
UNION COUNTY
STA. 268+27.00

W-SR-3 (11-15-71)

PLOT DATE = 12/03/2007
FILE NAME = ...824-32-existing-structure.dgn
PLOT SCALE = 0.6L0000 '/" / IN.
USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 3
OF 9 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	28
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

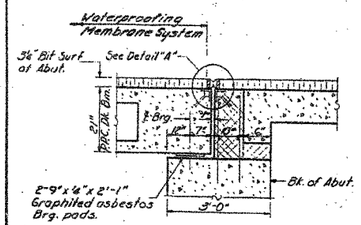
SHEET NO. 4
9 SHEETS

Contract # 78025

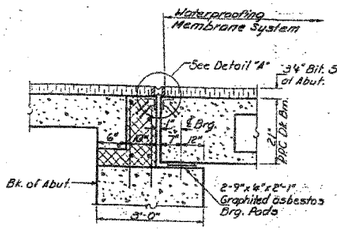
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 51	1948-1	UNION	21	16
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

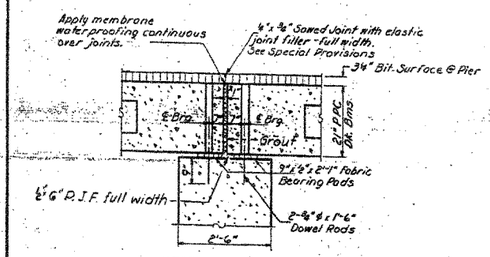
SHEET NO. 4
9 SHEETS



SECTION THRU W. ABUT.
NEAR ℄ RDWY
(@ Rt. Ls)



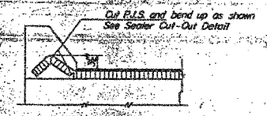
SECTION THRU E. ABUT.
NEAR ℄ RDWY
(@ Rt. Ls)



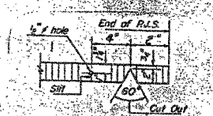
SECTION THRU PIERS
(@ Rt. Ls)

* 1" Joint shall be packed with a very dry mix of 2:1 sand and P.C. mortar above R.I.F.

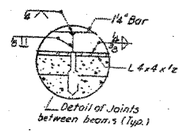
NOTE:
For Waterproofing Membrane System see Special Provisions.

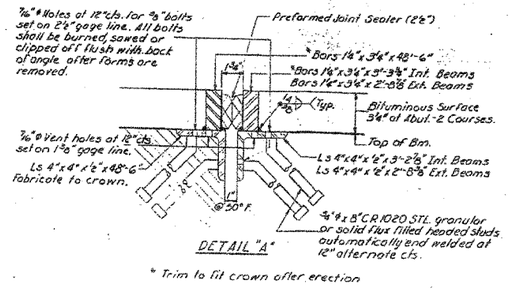


END OF SEALER TREATMENT



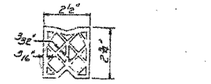
SEALER CUT-OUT DETAIL





DETAIL "A"

* Trim to fit crown after erection



PREFORMED JOINT SEALER (2 1/2")

DESIGNED	G.E. Ozyurt
CHECKED	D.A.P.
DRAWN	Bev Robinson
CHECKED	D.A.P.

Nov. 17 19 87
EXAMINED
PASSED
APPROVED
DIRECTOR OF HIGHWAYS

GENERAL DETAILS
F.A. RT. 51 SEC. 104 B-1
UNION COUNTY
STA. 268+27.00

PLOT DATE = 12/03/2007
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USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 4
OF 9 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	29
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

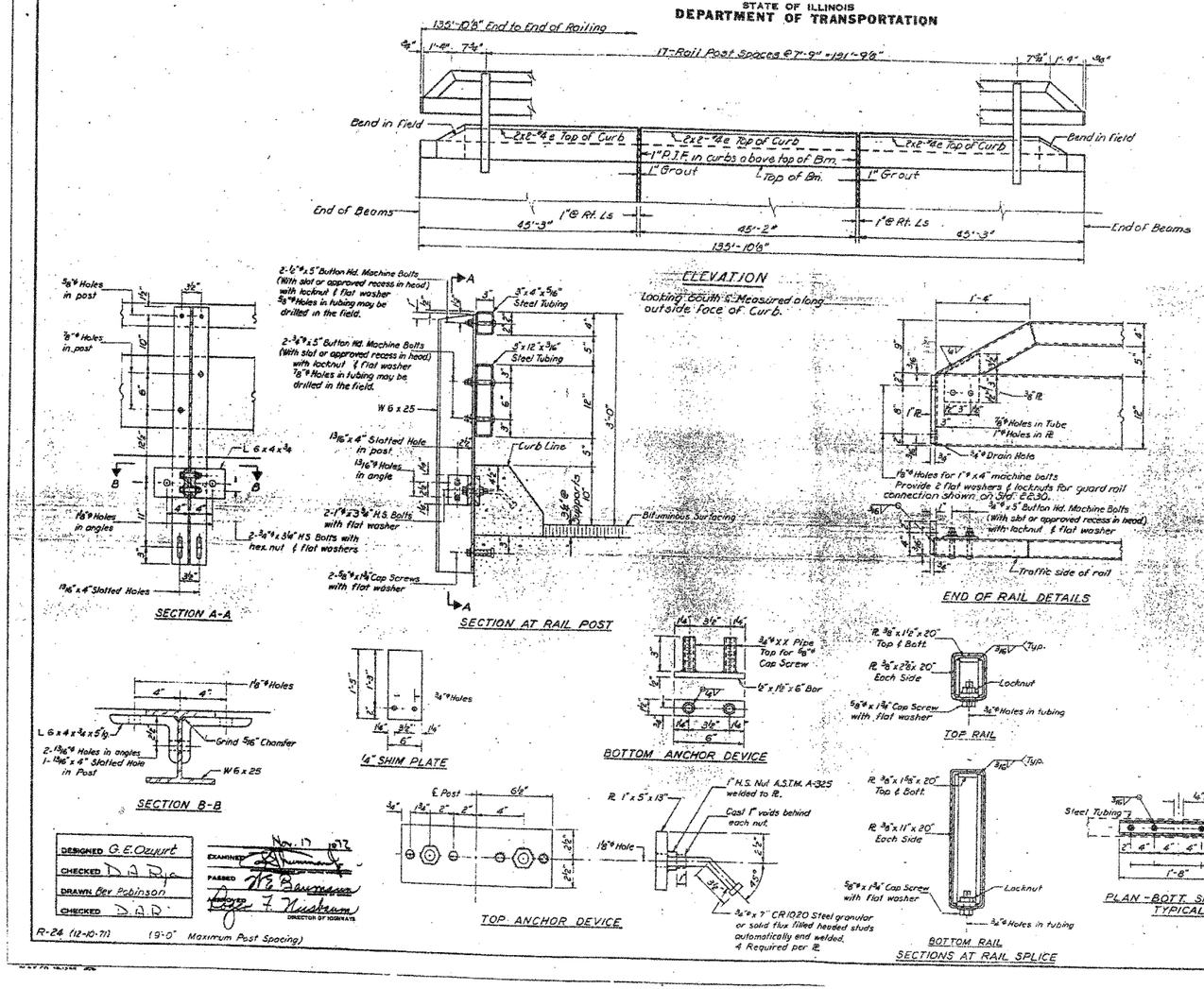
SHEET NO. 5
9 SHEETS

Contract # 78025

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 1151	104B-1	UNION	26	17
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 5
9 SHEETS



ELEVATION
Looking South & Measured along outside face of Curb.

SECTION A-A

SECTION AT RAIL POST

END OF RAIL DETAILS

NOTES

Hollow structural steel tubing shall conform to the requirements of A.S.T.M. designation A-500 Grade B or A-501 Structural Steel Tubing.

All other steel shapes and plates shall conform to the requirements of A.S.T.M. designation A-36 except posts shall conform to A.S.T.M. A-441.

Bolts, cap screws, and nuts shall conform to the requirement of A.S.T.M. designation A-307 except for high strength bolts, nuts and washers noted which shall conform to A.S.T.M. designation A-325.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with A.S.T.M. designation A-153.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with A.S.T.M. designation A-123 and A-385. Galvanized rail shall not be painted.

Railing shall be in accordance with Section 508 of the Standard Specifications, except as noted, and shall be paid for at the contract unit price per linear foot for STEEL RAILING, TYPE T.

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

The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 714.08 Type B or place ⅛" fabric bearing pad between the post and concrete.

The ¾"ø high strength bolts used to connect the 6 x 4 x ¾ angles to the post shall be tightened in accordance with Article 710.11 of the Standard Specifications. The 1"ø high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional ½ turn.

For multi-span bridges, sufficient 4"ø x 6'-1"± galvanized steel sleeves shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing.

SECTION B-B

¼" SHIM PLATE

BOTTOM ANCHOR DEVICE

SECTIONS AT RAIL SPLICE

TOP ANCHOR DEVICE

PLAN - BOTT. SPLICE PL TYPICAL

CURB & RAIL
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
c	24	#4	23'-0"	
Reinforcement Bars			Lbs.	370
Class X Concrete			Cu. Yds.	9.3
Steel Railing, Type T			Lin. Ft.	272

TYPE T
STEEL RAILING
F.A. RT. 31 SEC. 104B-1
UNION COUNTY
STA. 268+27.00

DESIGNED	G.E. Oswurt
CHECKED	D.A.D.
DRAWN	Rev. Robinson
CHECKED	D.A.D.

EXAMINED Nov. 17 1977
PASSED W. E. Bauersfeld
DIRECTOR OF HIGHWAYS
Roger F. Hinsbrum

R-24 (12-10-71) (9'-0" Maximum Post Spacing)

PLOT DATE = 12/03/2007
FILE NAME = I:\24-32-existing-structure.dgn
PLOT SCALE = 0.0000 '/ IN.
USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 5

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

OF 9 SHTS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	30
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 6
9 SHEETS

Contract # 78025

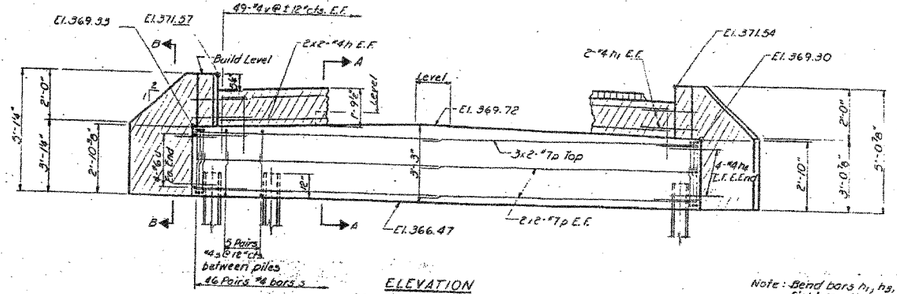
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 51	104BR-1	UNION	26	18
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 6
9 SHEETS

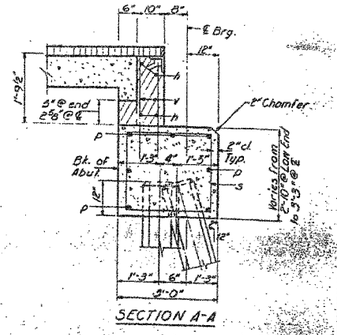
PILE DATA

Type : Concrete
Capacity : 36 Tons
Est. Length : 46'-0" @ E. Abut. 50'-0" @ W. Abut.
No. Req'd. : 17 plus 1 test pile in a permanent location @ the E. Abut.

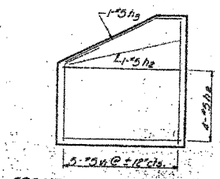


ELEVATION
Looking East at East Abut.
Looking West at West Abut.

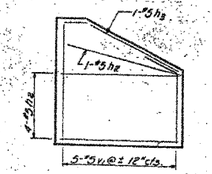
Note : Bend bars h1, hs, h2 & h4 in field to fit.



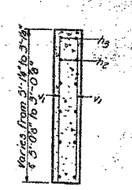
SECTION A-A



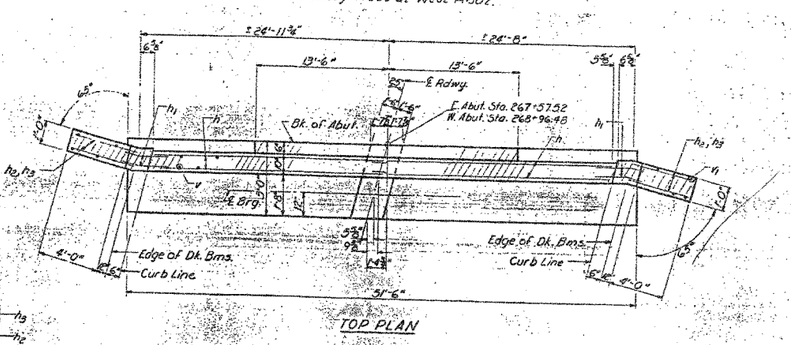
FRONT FACE WINGWALL REINF.



BACK FACE WINGWALL REINF.

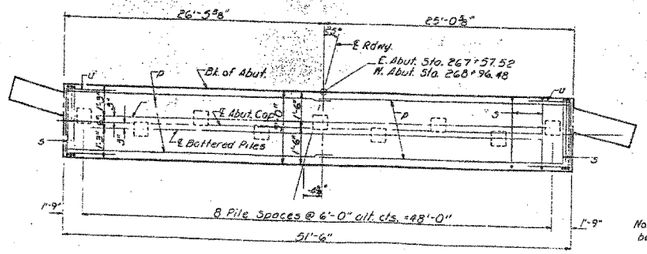


SECTION B-B



TOP PLAN

BAR s BAR u



PLAN

Notes : Notched area indicates areas to be poured after deck beams are in place. All edges shall have Standard ¾" chamfers except as noted.

TWO ABUTMENTS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h	16	#4	24'-9"	
h1	16	#4	2'-9"	
h2	40	#5	3'-9"	
h3	8	#5	5'-6"	
h4	32	#4	2'-6"	
p	28	#7	26'-6"	
s	184	#4	6'-8"	
u	16	#6	11'-1"	
v	196	#6	2'-9"	
v1	40	#5	2'-9"	
Class X Concrete		Cu. Yds.	42.7	
Reinforcement Bars		Lbs.	3710	
Concrete Piles		Lin. Ft.	818	
Test Pile Concrete		Each	1	

EAST & WEST ABUTMENTS
F.A.R.T. 51 SEC. 104 B-1
UNION COUNTY
STA. 268+27.00

DESIGNED	G.E.Ozuut
CHECKED	D.A.R.
DRAWN	Bev Robinson
CHECKED	D.A.R.

EXAMINED Nov 17 1992
PASSED
APPROVED
DIRECTOR OF HIGHWAYS

PLOT DATE = 12/03/2007
FILE NAME = c:\824-32-existing-structure.dgn
PLOT SCALE = 0.0000 '= / IN.
USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

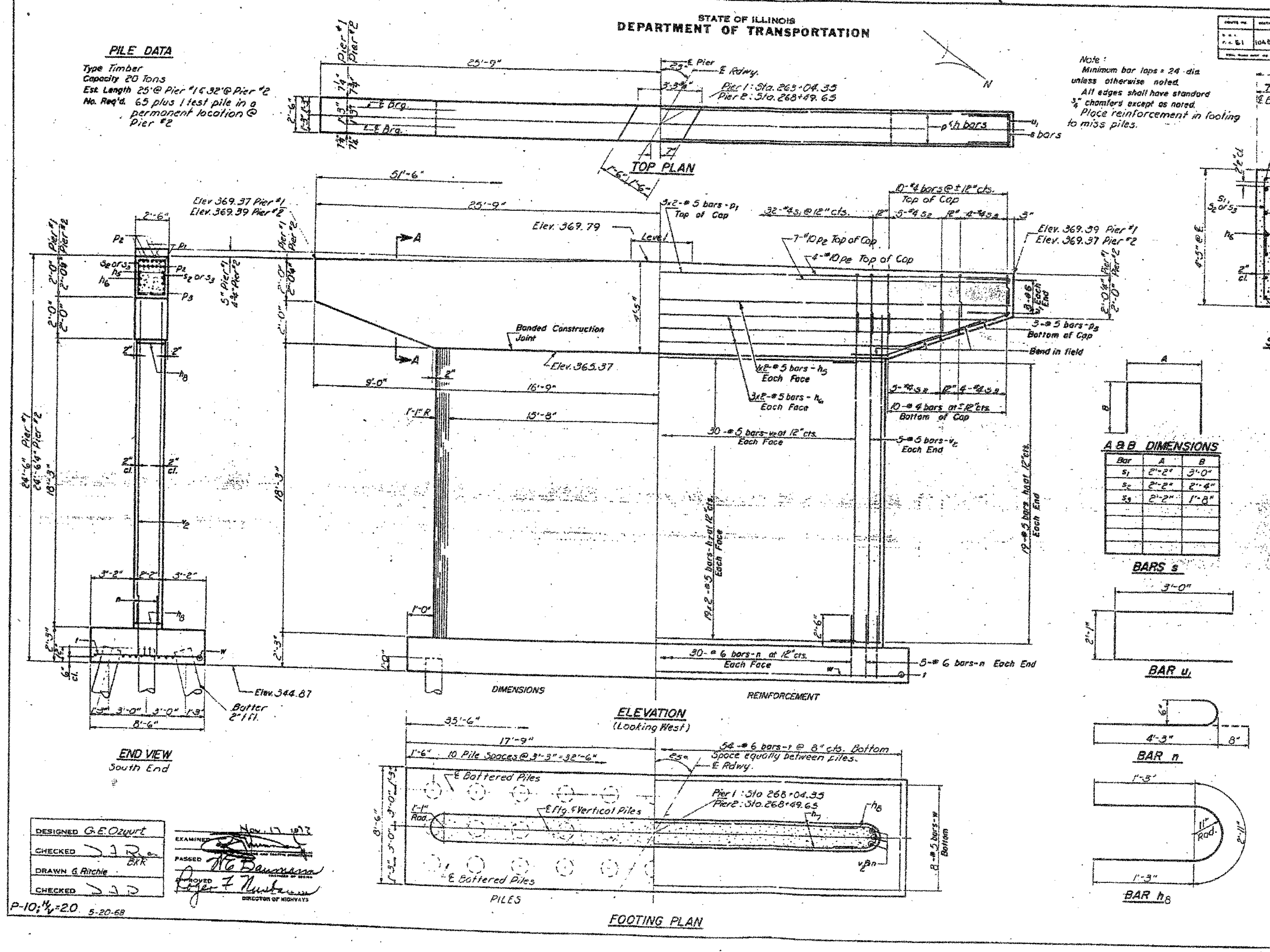
PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 6
OF 9 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	31
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 7
9 SHEETS

Contract # 78025



A & B DIMENSIONS

Bar	A	B
s1	2'-2"	3'-0"
s2	2'-2"	2'-4"
s3	2'-2"	1'-8"

PIERS 1 & 2
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h5	8	#5	26'-3"	—
h6	24	#5	24'-3"	—
h7	152	#5	16'-3"	—
h8	76	#5	5'-3"	⊐
n	140	#6	4'-11"	⊃
p1	12	#5	26'-6"	—
p2	44	#10	14'-0"	—
p3	12	#5	10'-3"	—
s1	64	#4	8'-2"	⊓
s2	40	#4	6'-10"	⊓
s3	40	#4	5'-6"	⊓
t	108	#6	8'-3"	—
u1	12	#6	8'-1"	⊏
v2	140	#5	20'-6"	—
w	16	#5	35'-3"	—
Class X Concrete		Cu. Yds.	182.2	
Reinforcement Bars		Lbs.	13720	
Untreated Piles		Lin. Ft.	1849	
Test Pile Timber		Each	1	

PIERS 1 & 2
F.A. RT. 51 SEC. 104 B-1
UNION COUNTY
STA. 268+27.00

DESIGNED G.E. Ozyurt
CHECKED [signature]
DRAWN G. Ritchie
CHECKED [signature]
EXAMINED Nov. 17 1973
PASSED [signature] ENGINEER OF DESIGN
APPROVED Roger F. Nusbaum DIRECTOR OF HIGHWAYS

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 7 OF 9 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

PLOT DATE = 12/03/2007
FILE NAME = ...824-32-existing-structure.dgn
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	32
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

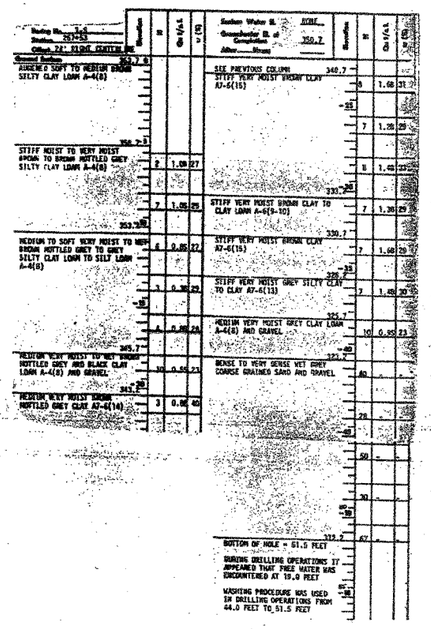
SHEET NO. 8
9 SHEETS

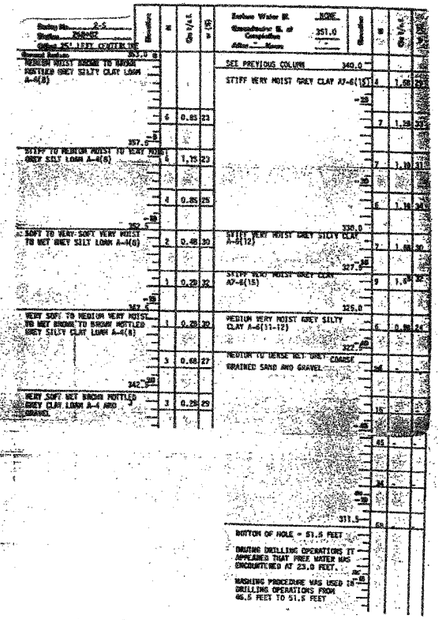
Contract # 78025

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.S. 51	104B-1	UNION	26	20
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 8
9 SHEETS





N-Standard Penetration Test - Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 # hammer falling 30"

Qu-Unconfined Compressive Strength - T/ft²

w - Water Content - percentage of oven dry weight - %

Type Failure
B-Bulge Failure
S-Shear Failure
E-Estimated Value
P-Penetrometer

DESIGNED	G.E.Ozinrt
CHECKED	D.A.R.
DRAWN	Bcy Robinson
CHECKED	D.A.R.

EXAMINED Nov. 17 1972
PASSED W.G. Bauman
APPROVED Ryan F. Mushinski
DIRECTOR OF HIGHWAYS

BORING DATA
F.A. RT. 51 SEC. 104B-1
UNION COUNTY
STA. 268+27.00

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USER NAME = CFC

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 8

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

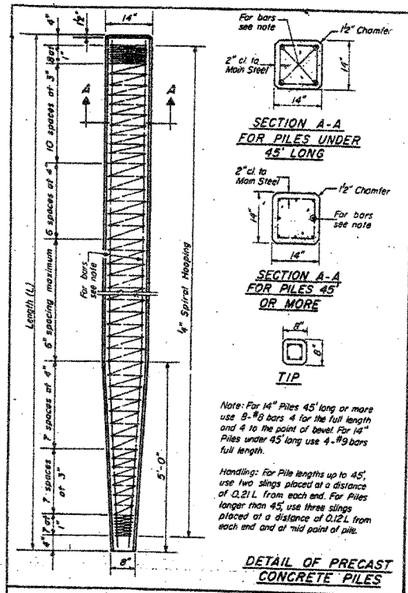
OF 9 SHTS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	37	33
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 9
9 SHEETS

Contract # 78025

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



DETAIL OF PRECAST CONCRETE PILES

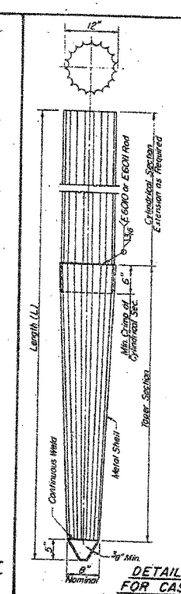
SECTION A-A
FOR PILES UNDER 45' LONG

SECTION A-A
FOR PILES 45' OR MORE

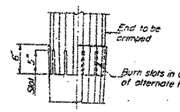
TIP

Note: For 14" Piles 45' long or more use 8-#8 bars 4 for the full length and 4 to the point of bevel. For 14" Piles under 45' long use 4-#9 bars full length.

Handling: For Pile lengths up to 45', use two slings placed at a distance of 0.21 L from each end. For Piles longer than 45' use three slings placed at a distance of 0.12 L from each end and at mid point of pile.

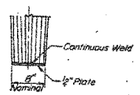


DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



FIELD CRIMP DETAIL

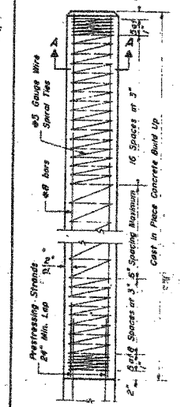
Note: 6" Crimp shall either be supplied on the cylindrical section or made in the field as detailed.



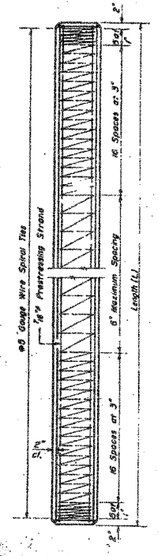
OPTIONAL FLAT END

ALLOWABLE TAPER SECTIONS
10' Length - Taper 1" in 2'-6"
17' Length - Taper 1" in 4'-0"
25' Length - Taper 1" in 7'-0"
30' Length - Taper 1" in 7'-0"

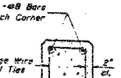
NOTE:
The thickness of the shell shall be 0.1793 inches with a tolerance of 5%.



PILE BUILD UP

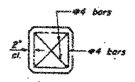


PILE PLAN



SECTION A-A

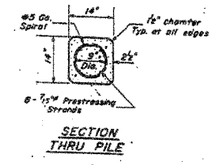
ELEVATION
(End Reinforcement)



PLAN
(End Reinforcement)

ROUTE NO.	SECTION NO.	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 885	104BR-1	UNION	26	21
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 9
9 SHEETS



SECTION THRU PILE

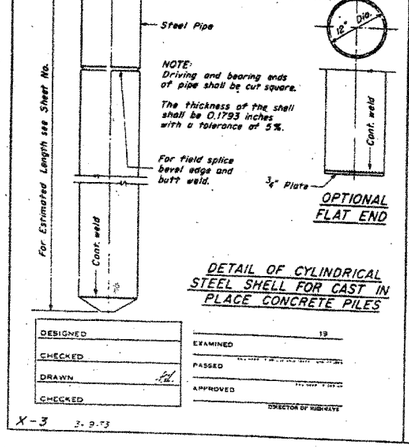
DESIGN STRESSES
f'c = 5,000 psi.
f'ci = 4,000 psi.
fs = 268,000 psi. (31,300 lbs.)
fsi = 189,000 psi. (21,700 lbs.)

NOTES

Prestressing steel shall be non-galvanized extra high strength stress-relieved 7-wire strand. The nominal diameter shall be ½" and the minimum nominal cross-sectional area shall be 0.155 square inch.

For Pile lengths up to 65', use two slings placed at a distance of 0.21 L = from each end. For Piles longer than 65', use three slings placed at a distance of 0.12 L = from each end and at mid-point of pile. = L = Over all length of pile to be handled.

PRECAST PRESTRESSED CONCRETE PILE

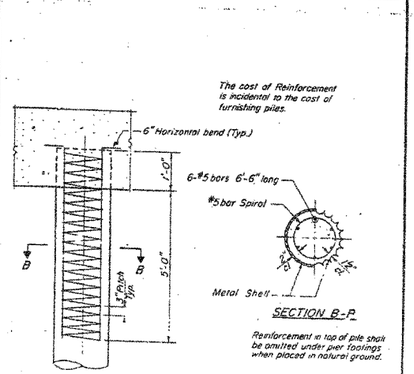


OPTIONAL FLAT END

DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES

DESIGNED		EXAMINED 19
CHECKED		PASSED
DRAWN	Fd	APPROVED
CHECKED		DIRECTOR OF HIGHWAYS

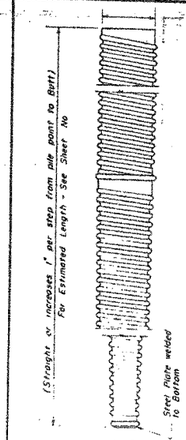
X-3 3-9-73

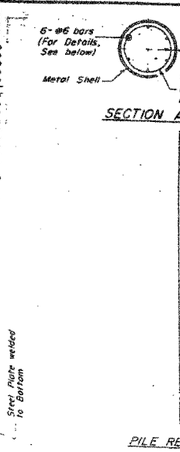


SECTION B-P

Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground.

DETAIL OF REINFORCEMENT FOR METAL SHELLS

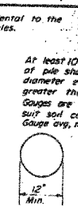




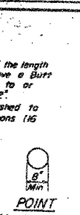
SECTION A-A

PILE REINFORCEMENT

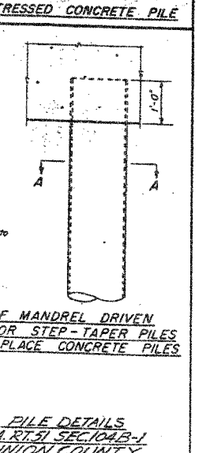
At least 10% of the length of pile shall have a Butt diameter equal to or greater than 12". Gauges are furnished to suit soil conditions (16 Gauge only, min.)



BUTT



POINT
(Applies only to Step Taper type pile)



DETAIL OF MANDREL DRIVEN STRAIGHT OR STEP-TAPER PILES FOR CAST IN PLACE CONCRETE PILES

PILE DETAILS
FA RT 51 SECTION B-1
UNION COUNTY
STA. 268+27.00

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ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
EXISTING STRUCTURE PLANS

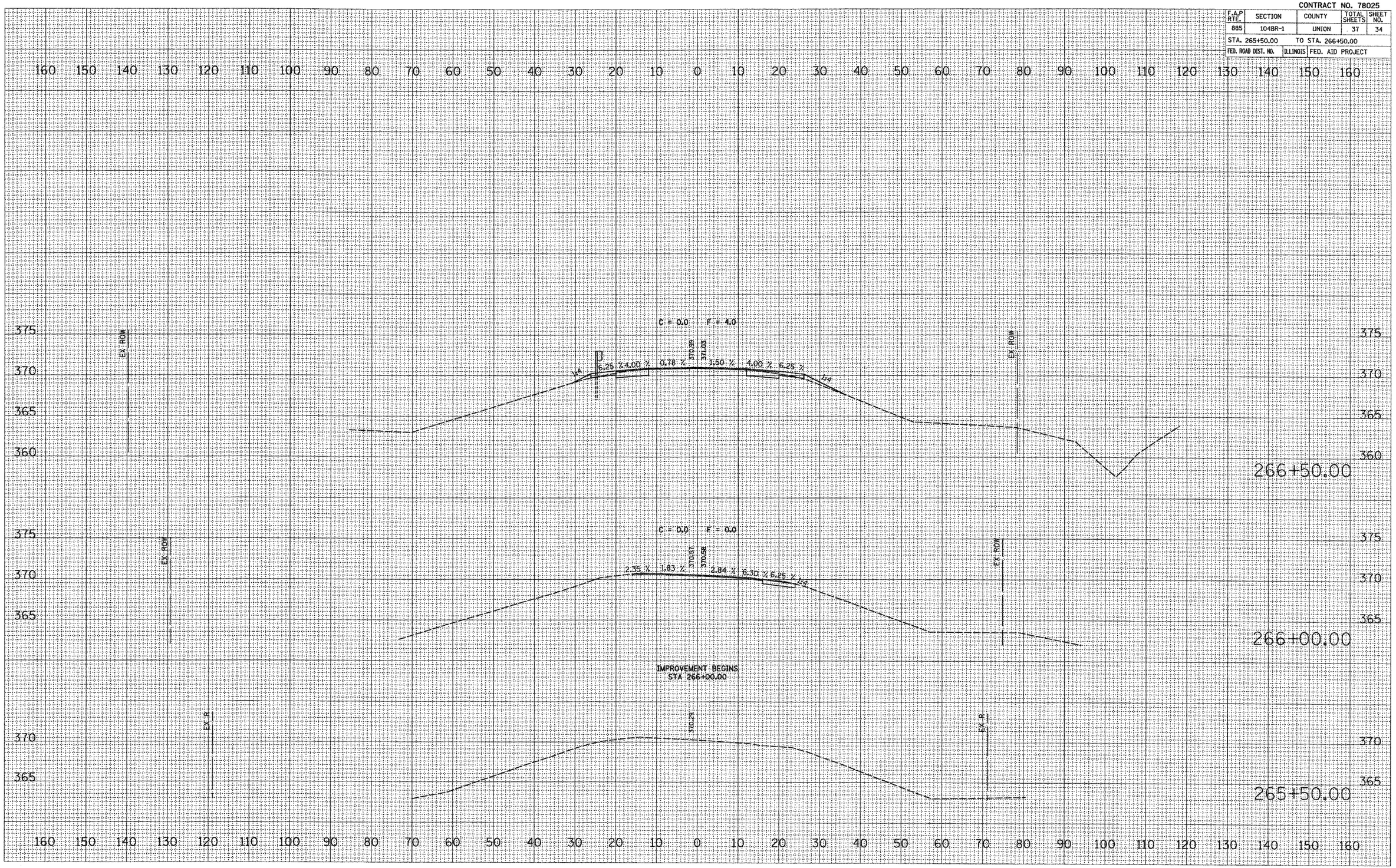
PROJECT
IL ROUTE 146 OVER DUTCH CREEK
FAP ROUTE 885 SECTION 104BR-1
UNION COUNTY
STATION 268+27.00
STRUCTURE NUMBER 091-0059

PROJECT NO. 06056-5
SCALE
DATE / /
DRAWN BY CFC
CHECKED BY MCB/BD
DRAWING NO. 9
OF 9 SHTS

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

CONTRACT NO. 78025

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	34
STA. 265+50.00	TO STA. 266+50.00			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SURVEYED
PLOTTED
TEMPLATE
AREAS CHECKED
ORIGINAL SURVEY
NOTE BOOK
NO.

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USER NAME = DPC

SN091-0059 (DUTCH CREEK) CROSS SECTIONS

CONTRACT NO. 78025

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	1048R-1	UNION	37	35
STA. 266+90.56	TO STA. 267+50.00			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

267+50.00

C = 0.0 F = 0.8

EX. ROW

371.43

370.70

1.50 % 4.00 % 6.5%

1:4

EX. ROW

267+00.00

C = 0.0 F = 0.3

EX. ROW

1:4

16.25

4.00 % 1.50 % 371.33 371.43 1.50 % 4.00 % 4.43 %

EX. ROW

266+90.56
PE RT

C = 0.0 F = 0.0

371.27

371.36

1.50 % 4.00 % 3.50 %

EX. ROW

375 370 365 360

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

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

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

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SN091-0059 (DUTCH CREEK) CROSS SECTIONS

CONTRACT NO. 78025

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	36
STA. 269+00.00	TO STA. 270+44.02			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

375 370 365 360 355

270+44.02
SIDE RD LT

C = 0.0 F = 0.0
EX. ROW
5.52 %
4.00 %
1.50 %
370.73
370.85

270+00.00

C = 0.0 F = 7.1
EX. ROW
EX. ROW
6.25 %
4.00 %
1.50 %
1.50 %
4.00 %
6.25 %
1:4
1:4
371.00
371.24

269+50.00

C = 0.0 F = 6.5
EX. ROW
EX. ROW
6.25 %
4.00 %
1.50 %
1.50 %
4.00 %
6.25 %
1:4
1:4
371.23
371.58

269+00.00

C = 0.0 F = 3.8
EX. ROW
6.25 %
4.00 %
1.50 %
1:4
371.43
371.79

BRIDGE OMISSION
SN 091-0059
STA 267+58.07 TO STA 268+95.93

FINAL SURVEY
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SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED

ORIGINAL SURVEY
NOTE BOOK
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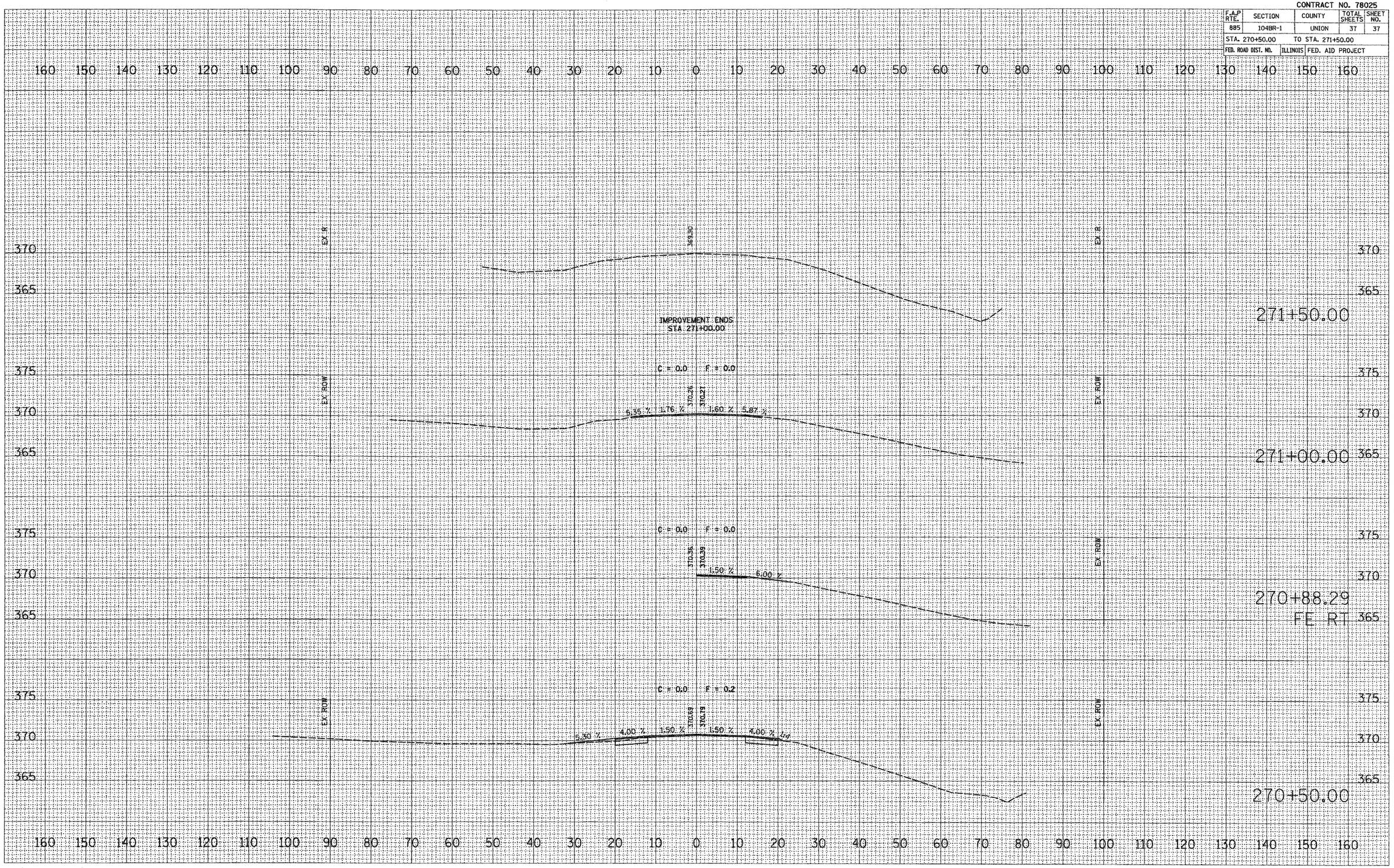
CONTRACT NO. 78025

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104BR-1	UNION	37	37
STA. 270+50.00	TO STA. 271+50.00			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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PLOTTED
TEMPLATE
AREAS CHECKED
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NOTE BOOK
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ORIGINAL SURVEY
NOTE BOOK
NO.

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