

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
352	56 B-1-2	LAKE	26	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 60D91		

D-91-125-08

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**PROPOSED  
HIGHWAY PLANS**

FAP 352 (IL 137)  
OVER DES PLAINES RIVER  
SECTION: 56 B-1-2  
BRIDGE DECK OVERLAY  
LAKE COUNTY

C-91-125-08

PROJECT: ESP-0352 (010)

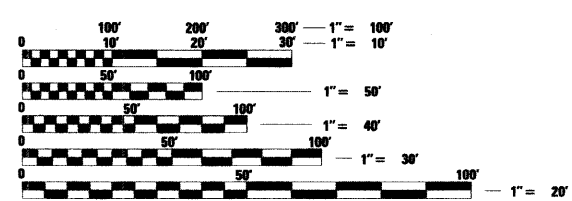


FOR INDEX OF SHEETS, SEE SHEET NO. 2

**TRAFFIC DATA**

EXISTING ADT  
IL 137 (BUCKLEY ROAD) - 27100 (2006)  
SPEED LIMIT 45 MPH - IL 137 (BUCKLEY ROAD)

IMPROVEMENT LOCATED  
IN THE VILLAGE OF LIBERTYVILLE

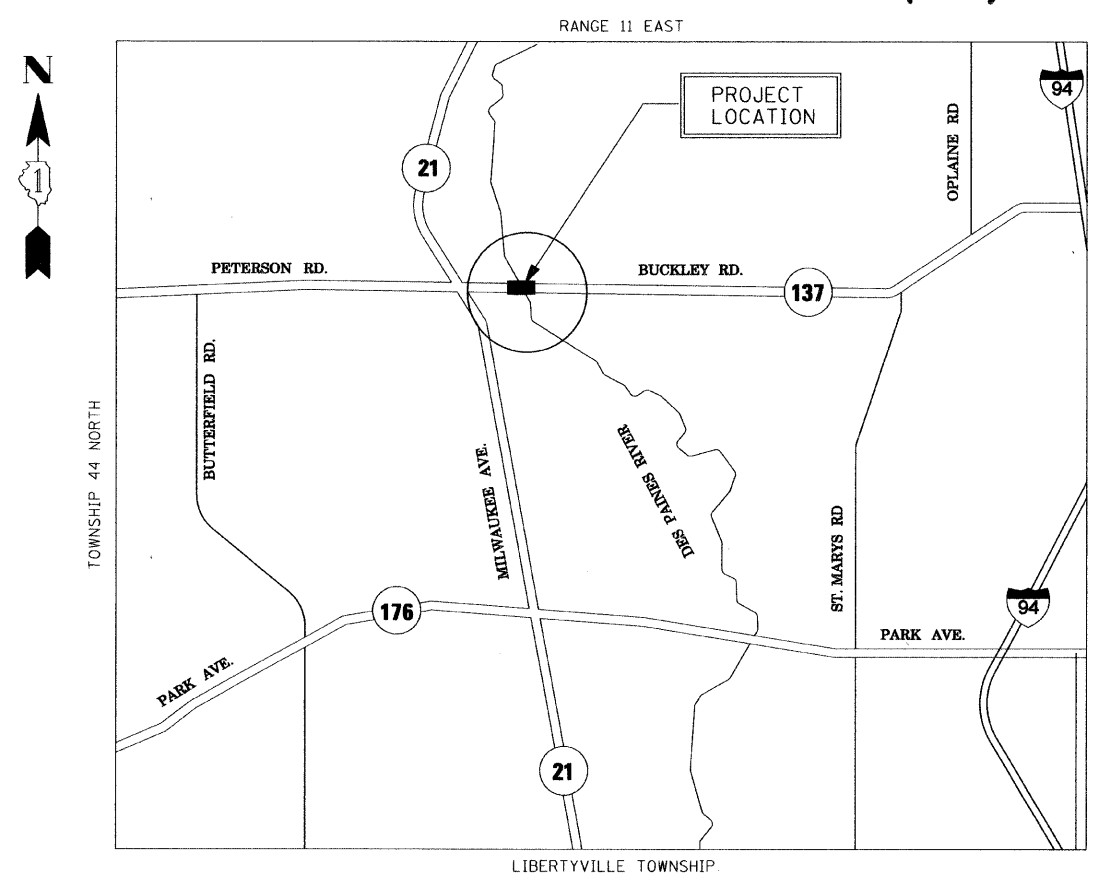


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811

PROJECT ENGINEER PETE JOHNSTON, P.E. 773-399-0112  
PROJECT MANAGER KEN ENG, P.E. 847-705-4247

CONTRACT NO. 60D91



GROSS AND NET LENGTH OF PROJECT: 223 FT (0.042 MI)

*Pete Johnston*  
1-6-09  
PETER M. JOHNSTON  
062-047647  
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS  
Exp. 11-30-09

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SUBMITTED JANUARY 7, 2009  
*Diane M. O'Keefe*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER  
March 13, 2009  
*Charles G. Ingersoll*  
ENGINEER OF DESIGN AND ENVIRONMENT  
March 13, 2009  
*Christina M. Reed*  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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OF THE STATE OF ILLINOIS

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26	ARTERIAL ROAD INFORMATION SIGN

**HIGHWAY STANDARDS**

NO.	DESCRIPTION
000001-05	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
701606-06	URBAN LANE CLOSURE, MULTI LANE, 2W WITH MOUNTABLE MEDIAN
701901-01	TRAFFIC CONTROL DEVICES
704001-05	TEMPORARY CONCRETE BARRIER
720001-01	SIGN PANEL MOUNING DETAILS
720006-02	SIGN PANEL ERECTION DETAILS
720011-01	METAL POSTS FOR SIGNS, MARKERS & DELINEATORS
780001-02	TYPICAL PAVEMENT MARKINGS
781001-03	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS

**GENERAL NOTES**

1. THE STRUCTURE WILL RETAIN EXISTING BRIDGE NUMBER
2. AT BRIDGE EXPANSION JOINTS, IF TEMPORARY EXPANSION JOINT BULKHEADS ARE ATTACHED TO ADJACENT DECK SLABS OR ABUTMENTS FOR SUPPORT, THE CONTRACTOR SHALL CUT THE ATTACHMENTS AS SOON AS THE CONCRETE HAS SET TO PREVENT JOINT DAMAGE DUE TO HORIZONTAL CONTRACTION OR EXPANSION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY DURING CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.31 OF THE SRANDARD SPECIFICATIONS. A MINIMUM OF 48 HOURS ADVANCE NOTICE IS REQUIRED FOR NON-EMERGENCY WORK. THE J.U.L.I.E. NUMBER IS 800-892-0123.
4. THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT PERMISSION FROM THE DEPARTMENT.
5. WHEN ARTIFICIAL LIGHTING IS USED IN NIGHT OPERATIONS, THE CONTRACTOR SHALL EXERCISE THE UTMOST PRECAUTIONS IN PREVENTING ADVERSE VISIBILITY TO THE MOTORING PUBLIC AND ADJOINING RESIDENTIAL AREAS.
6. QUANTITIES FOR DECK SLAB REPAIR ARE APPROXIMATE. LOCATIONS WILL BE DETERMINED BY THE RESIDENT ENGINEER FOLLOWING REMOVAL OF THE HMA SURFACE COURSE AND HYDRO-SCARIFICATION. ACTUAL REPAIR LOCATIONS SHALL BE SHOWN ON THE AS-BUILT PLANS.
7. ACCESS SHALL BE PROVIDED AT ALL TIMES TO PROPERTIES ABUTTING THE PROPOSED IMPROVEMENT.
8. FOR PAVEMENT MARKING, REFER TO DISTRICT ONE TYPICAL MARKINGS FOR DETAILS NOT SHOWN.
9. MATCH EXISTING PAVEMENT MARKINGS AT PROJECT LIMITS.
10. THE RESIDENT ENGINEER SHALL CONTACT THE TRAFFIC CONTROL SUPERVISER AT (847) 705-4470 A MINIMUM OF 72 HOURS PRIOR TO THE PLACEMENT OF ANY TEMPORARY TRAFFIC CONTROL DEVICES.
11. THE RESIDENT ENGINEER SHALL CONTACT MS. DEBBIE HANLON, AREA TRAFFIC FIELD ENGINEER AT (847) 438-2300 TWO WEEKS PRIOR TO THE INSTALLATION OF PERMANENT PAVEMENT MARKINGS.
12. BUTT JOINTS WILL BE INSTALLED AT THE ENDS OF ALL RESURFACING (WHERE RESURFACING MEETS EXISTING PAVEMENT), IN ACCORDANCE WITH THE "BUTT JOINT AND HMA TAPER DETAILS" SHEET INCLUDED IN THE PLANS, UNLESS OTHERWISE SPECIFIED.

FILE NAME =	USER NAME = .USER.	DESIGNED - WS	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>INDEX OF SHEETS, GENERAL NOTES AND HIGHWAY STANDARDS</b>	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
*FILEL*		DRAWN - AJR	REVISED -			352	56 B-1-2	LAKE	26	2	
		CHECKED - RJS	REVISED -			CONTRACT NO. 60D91					
		DATE - 01/14/09	REVISED -			SCALE: NTS	SHEET NO. OF SHEETS	STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT	

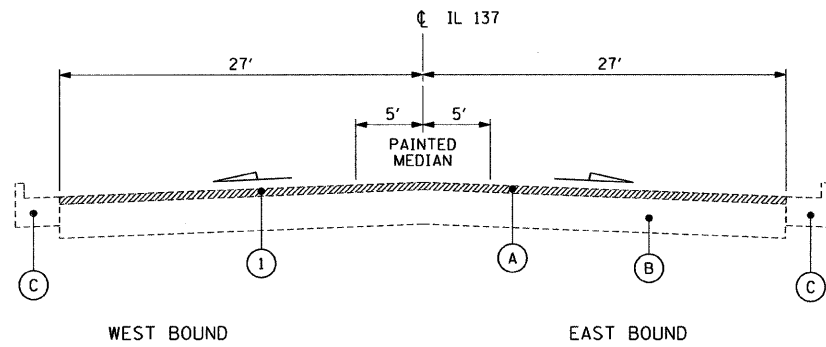
**SUMMARY OF QUANTITIES**

URBAN  
100% F&D.

PAY ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT	QUANTITY X071-2A
40603595	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, MIX "F", N90	TON	46
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	120
44000157	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	348
44000915	HOT-MIX ASPHALT SURFACE REMOVAL (DECK)	SQ YD	889
50102400	CONCRETE REMOVAL	CU YD	21
50157300	PROTECTIVE SHIELD	SQ YD	105
50300255	CONCRETE SUPERSTRUCTURE	CU YD	21
50300260	BRIDGE DECK GROOVING	SQ YD	877
50300300	PROTECTIVE COAT	SQ YD	1,240
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	6,780
50500715	JACK AND REMOVE EXISTING BEARINGS	EACH	16
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3,340
50800515	BAR SPLICERS	EACH	24
52000110	PREFORMED JOINT STRIP SEAL	FOOT	146
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	16
52100520	ANCHOR BOLTS, 1"	EACH	32
67000400	ENGINEERS FIELD OFFICE, TYPE A	CAL MO	3
67100100	MOBILIZATION	L SUM	1
70101800	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	70
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	1,134
70300510	PAVEMENT MARKING TAPE, TYPE III-LETTERS AND SYMBOLS	SQ FT	73
70300520	PAVEMENT MARKING TAPE, TYPE III 4"	FOOT	7,907
70300540	PAVEMENT MARKING TAPE, TYPE III 6"	FOOT	90
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	3,296
70400100	TEMPORARY CONCRETE BARRIER	FOOT	383
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	383
* 78000100	THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS	SQ FT	73
* 78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	8,542
* 78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	180
* 78000600	THERMOPLASTIC PAVEMENT MARKING - LINE 12"	FOOT	664
* 78006110	PREFORMED THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	688
* 78006150	PREFORMED THERMOPLASTIC PAVEMENT MARKING - LINE 12"	FOOT	46
* 78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	199
* 78100105	RAISED REFLECTIVE PAVEMENT MARKER (BRIDGE)	EACH	16
78300100	PAVEMENT MARKING REMOVAL	SQ FT	4,230
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	215
X0322256	TEMPORARY INFORMATION SIGNING	SQ FT	51
X0322489	BRIDGE DECK LATEX CONCRETE OVERLAY, 2 1/2"	SQ YD	889
X0325305	STRUCTURAL REPAIR OF CONCRETE (DEPTH ≤ 5")	SQ FT	63
X4067107	POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50	TON	20
<del>70101800</del>	CHANGEABLE MESSAGE SIGN	CAL MO	6
Z0006204	BRIDGE DECK HYDRO-SCARIFICATION, 1/2"	SQ YD	889
Z0013798	CONSTRUCTION LAYOUT	L SUM	1
Z0016001	DECK SLAB REPAIR (FULL DEPTH, TYPE I)	SQ YD	5
Z0016002	DECK SLAB REPAIR (FULL DEPTH, TYPE II)	SQ YD	42
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2

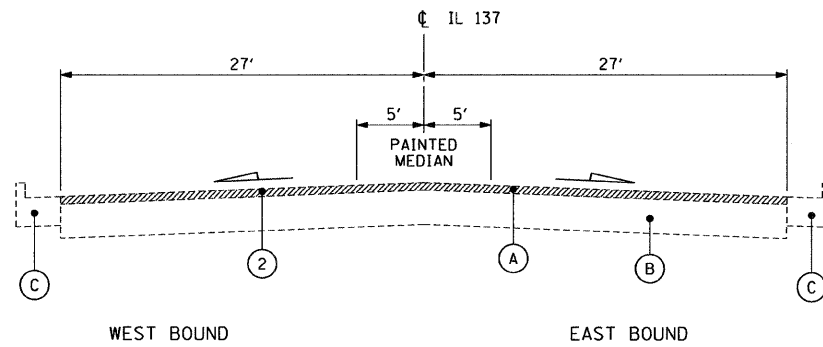
\* DENOTES SPECIALTY ITEM

FILE NAME =	USER NAME = .USER.	DESIGNED - WS	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SUMMARY OF QUANTITIES</b>				F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT SCALE = 10.0000' / IN.	CHECKED - RJS	REVISED -		SCALE: NTS	SHEET NO. OF SHEETS	STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT	CONTRACT NO. 60D91			
	PLOT DATE = 1/13/2009	DATE - 01/14/09	REVISED -		H:\Jobs\2006\20063028-44\CAD\Site\dgn\00\Summary of Quantities-44_V8.dgn 1/13/2009 2:43:33 PM								



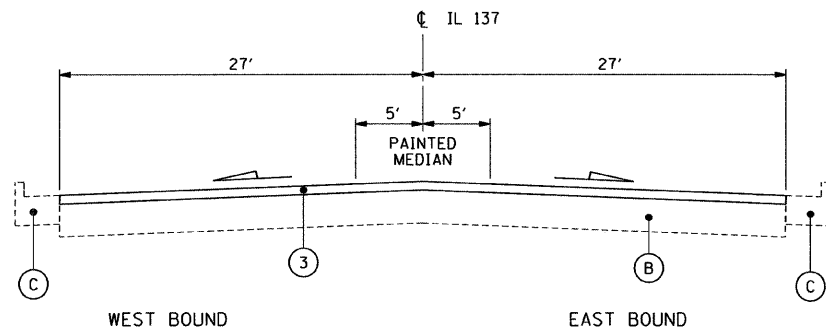
**EXISTING TYPICAL SECTION**

STA. 63+48.01 TO STA. 63+58.01  
 STA. 65+69.63 TO STA. 65+79.63  
 (LOOKING EAST)



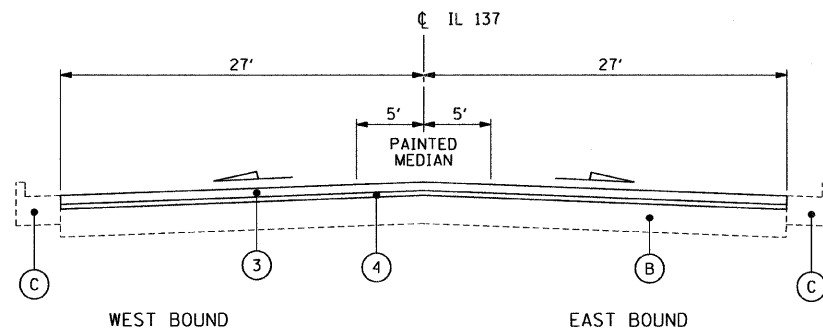
**EXISTING TYPICAL SECTION**

STA. 63+58.01 TO STA. 63+86.95  
 STA. 65+40.69 TO STA. 65+69.63  
 (LOOKING EAST)



**PROPOSED TYPICAL SECTION**

STA. 63+48.01 TO STA. 63+58.01  
 STA. 65+69.63 TO STA. 65+79.63  
 (LOOKING EAST)



**PROPOSED TYPICAL SECTION**

STA. 63+58.01 TO STA. 63+86.95  
 STA. 65+40.69 TO STA. 65+69.63  
 (LOOKING EAST)

**LEGEND:**

**EXISTING CONDITIONS:**

- (A) HOT-MIX ASPHALT SURFACE AND BINDER COURSE, 3" AND VARIES
- (B) ROADWAY BASE COURSE
- (C) COMBINATION CONCRETE CURB & GUTTER
- [Hatched Box] ITEM TO BE REMOVED

**PROPOSED IMPROVEMENTS:**

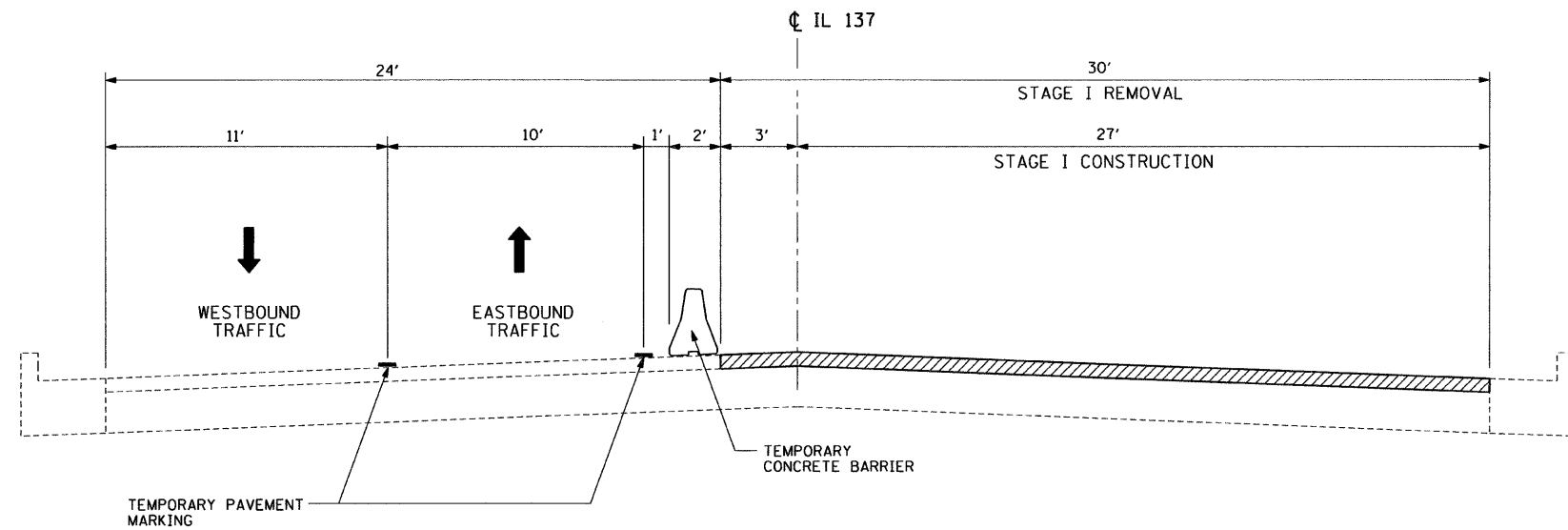
- ① HOT-MIX ASPHALT SURFACE REMOVAL, 1 1/4"-1 3/4"
- ② HOT-MIX ASPHALT SURFACE REMOVAL, 2"
- ③ POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, MIX "F", N90, 1 3/4"
- ④ POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50, 3/4"

HOT MIX ASPHALT MIXTURE REQUIREMENTS			
OPERATION	MIXTURE TYPE	AC TYPE	AIR VOIDS
ROADWAY	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, MIX "F", IL 9.5 mm, N90, (1 3/4")	SBS/SBR PG 70-22	4% @ 90 GYR
	POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50, (3/4")	SBS/SBR PG 76-28/-22	4% @ 50 GYR

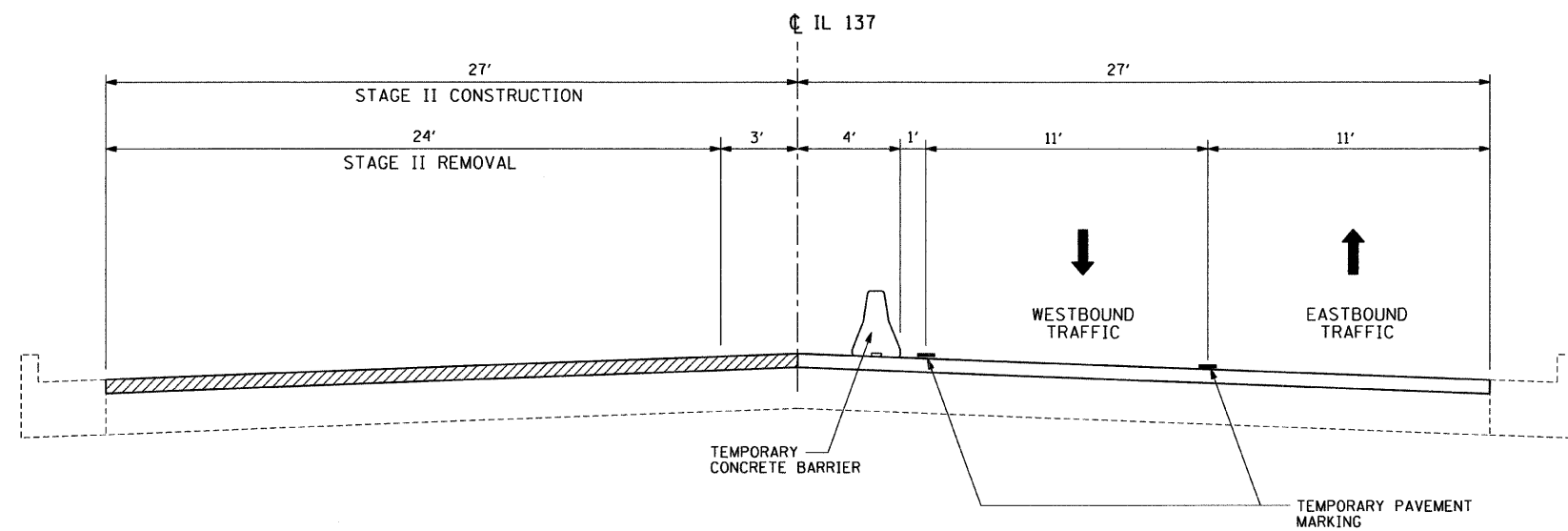
THE UNIT WEIGHT USED FOR CALCULATING HOT-MIX QUANTITIES IS 112 PDS/SQ YD, INCH

FILE NAME =	USER NAME = .USER.	DESIGNED - WS	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TYPICAL SECTIONS AND HOT MIX ASPHALT MIXTURE REQUIREMENTS</b>	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
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	PLOT DATE = 1/13/2009	DATE - 01/14/09	REVISED -			ILLINOIS FED. AID PROJECT					

SCALE: NTS SHEET NO. OF SHEETS | STA. TO STA. | FED. ROAD DIST. NO. | ILLINOIS FED. AID PROJECT

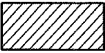
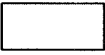



**TYPICAL SECTION  
STAGE I REMOVAL & CONSTRUCTION**  
(LOOKING EAST)

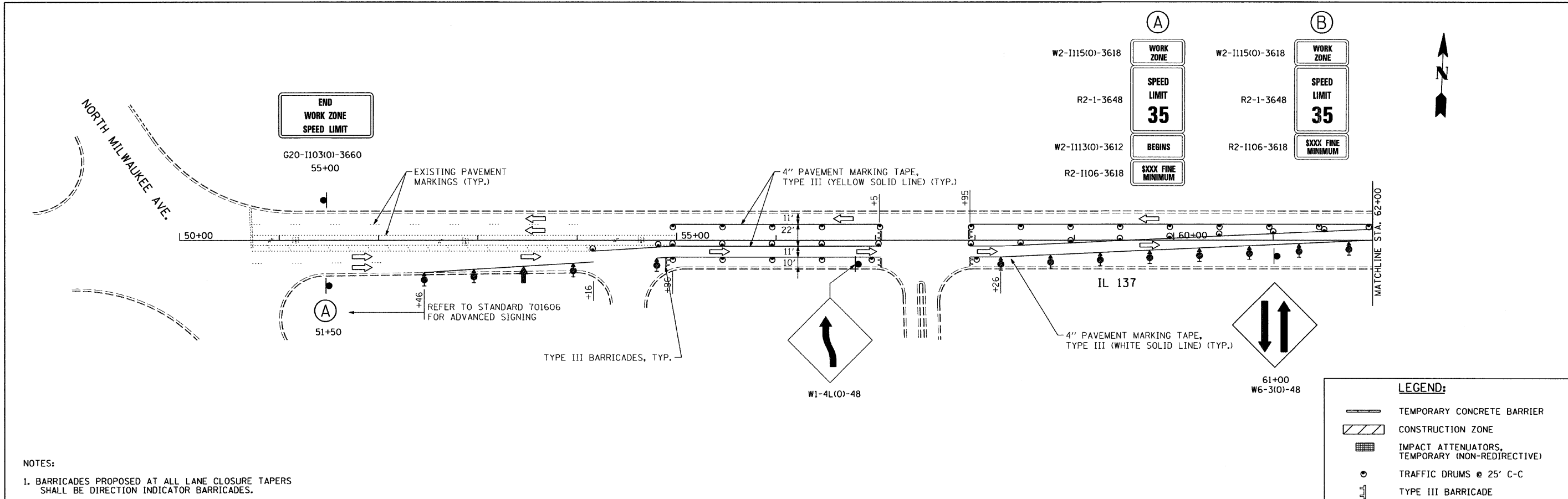


**TYPICAL SECTION  
STAGE II REMOVAL & CONSTRUCTION**  
(LOOKING EAST)

**LEGEND :**

-  - AREA OF PROPOSED CONSTRUCTION
-  - COMPLETED WORK
-  - DIRECTION OF TRAFFIC

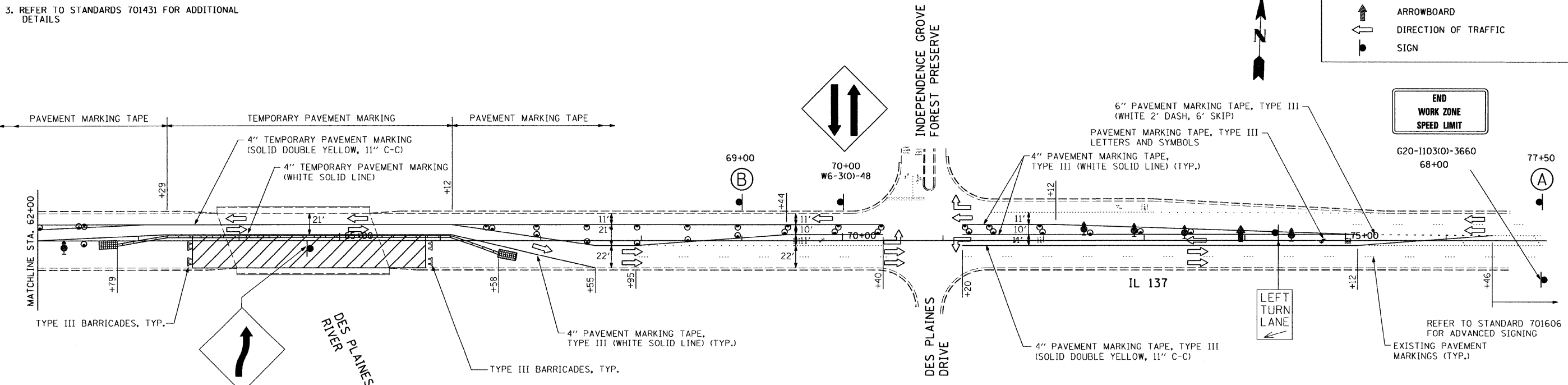
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PLOT SCALE = 1/8" = 1'-0"	CHECKED - RJS	REVISED -	CONTRACT NO. 60D91							
PLOT DATE = 1/13/2009	DATE - 01/14/09	REVISED -	ILLINOIS FED. AID PROJECT							
				SCALE: NTS	SHEET NO. OF SHEETS	STA. TO STA.				



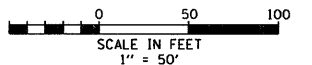
- NOTES:
1. BARRICADES PROPOSED AT ALL LANE CLOSURE TAPERS SHALL BE DIRECTION INDICATOR BARRICADES.
  2. SEE BRIDGE CONSTRUCTION STAGING PLAN FOR BRIDGE STAGING AND DIMENSIONS
  3. REFER TO STANDARDS 701431 FOR ADDITIONAL DETAILS

**LEGEND:**

	TEMPORARY CONCRETE BARRIER
	CONSTRUCTION ZONE
	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE)
	TRAFFIC DRUMS @ 25' C-C
	TYPE III BARRICADE
	DIRECTIONAL INDICATOR BARRICADE
	ARROWBOARD
	DIRECTION OF TRAFFIC SIGN
	END WORK ZONE SPEED LIMIT



- STAGE I**
1. INSTALL VEHICULAR TRAFFIC CONTROL AS SHOWN
  2. SHIFT EASTBOUND TRAFFIC TO WESTBOUND LANES AND MEDIAN
  3. RECONSTRUCT SOUTHERN PORTION OF BRIDGE AND BRIDGE APPROACH PAVEMENT.



FILE NAME =	USER NAME = .USER.	DESIGNED - WS	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SUGGESTED MAINTENANCE OF TRAFFIC STAGE I</b>	F.A. RTE. 352	SECTION 56 B-1-2	COUNTY LAKE	TOTAL SHEETS 26	SHEET NO. 6		
*FILEL#	PLOT SCALE = 50.5353' / IN.	DRAWN - AJR	REVISED -			SCALE: 50'	SHEET NO. OF SHEETS   STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT	CONTRACT NO. 60D91		
	PLOT DATE = 1/13/2009	CHECKED - RJS	REVISED -									
		DATE - 01/04/09	REVISED -									

NORTH MILWAUKEE AVE.

END  
WORK ZONE  
SPEED LIMIT

G20-1103(0)-3660  
51+50

EXISTING PAVEMENT  
MARKINGS (TYP.)

4" PAVEMENT MARKING TAPE,  
TYPE III (YELLOW SOLID LINE) (TYP.)

4" PAVEMENT MARKING TAPE,  
TYPE III (WHITE SOLID LINE) (TYP.)

50+00

55+00

60+00

MATCHLINE STA. 62+00

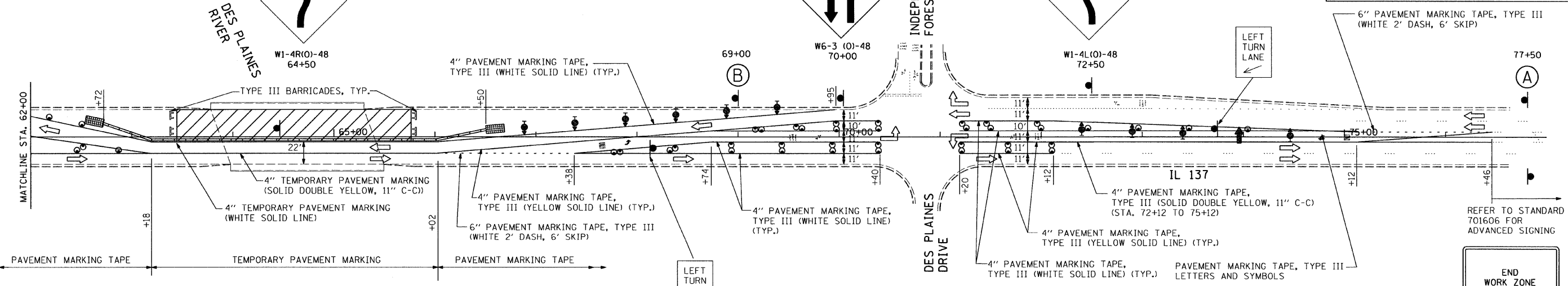
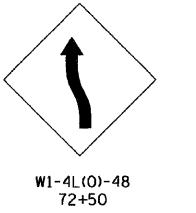
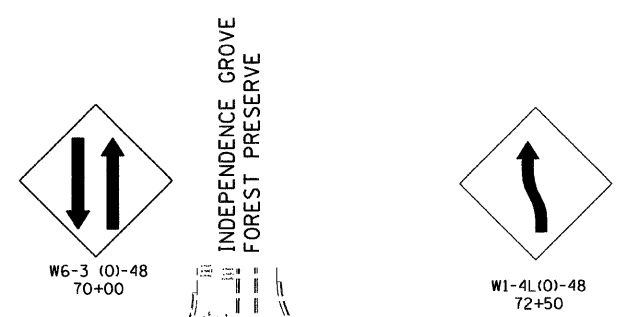
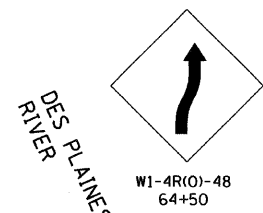
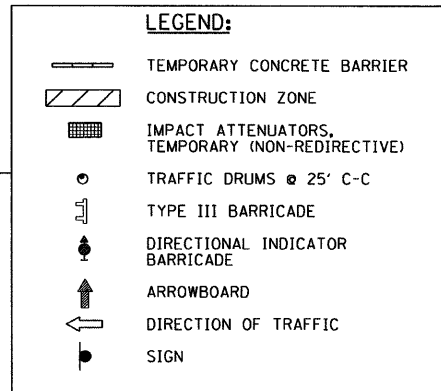
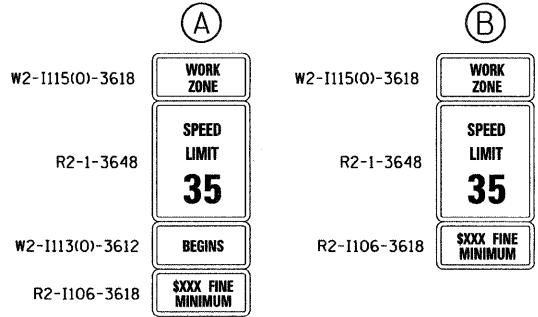
(A)  
51+50

REFER TO STANDARD 701606  
FOR ADVANCED SIGNING

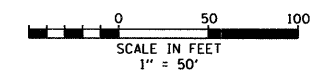
(B)

IL 137

- NOTES:
1. BARRICADES PROPOSED AT ALL LANE CLOSURE TAPERS SHALL BE DIRECTION INDICATOR BARRICADES.
  2. SEE BRIDGE CONSTRUCTION STAGING PLAN FOR BRIDGE STAGING AND DIMENSIONS
  3. REFER TO STANDARDS 701431 FOR ADDITIONAL DETAILS



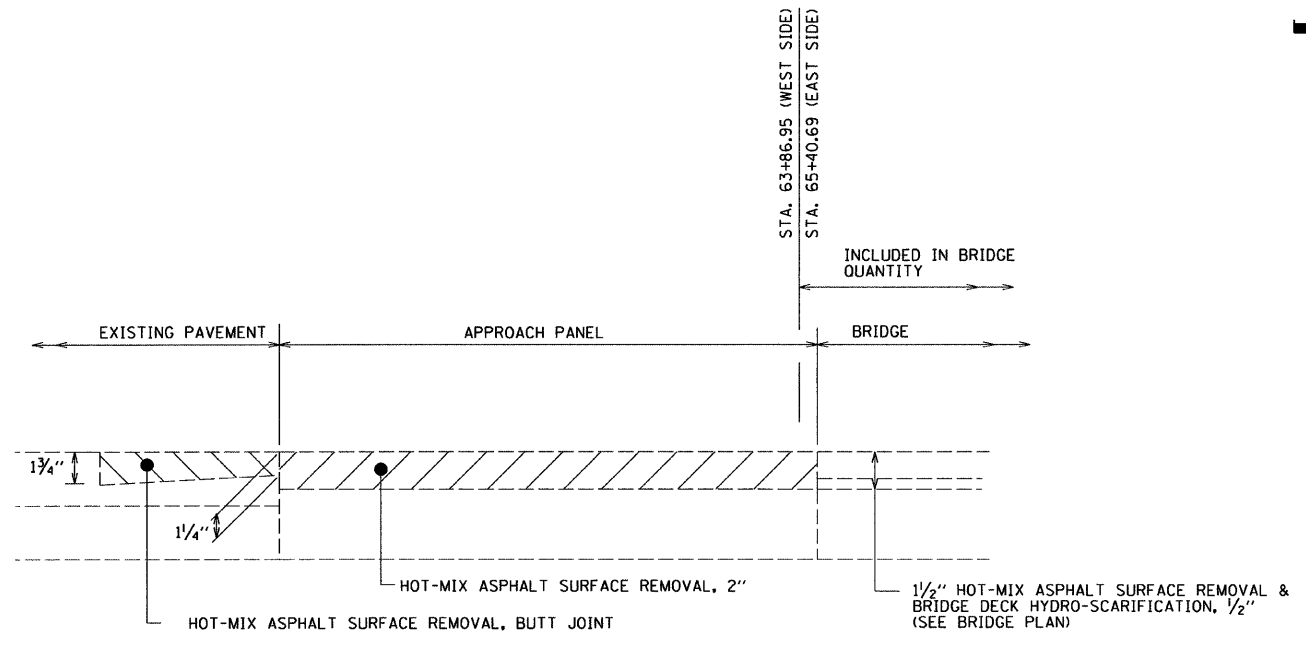
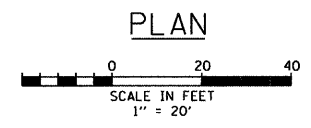
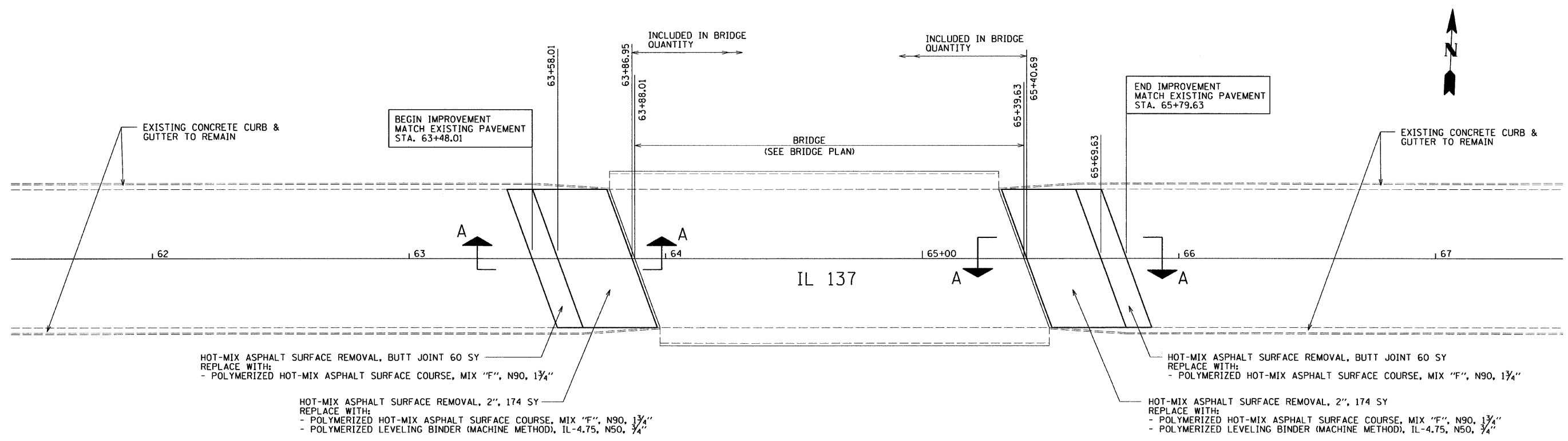
- STAGE II
1. INSTALL VEHICULAR TRAFFIC CONTROL AS SHOWN
  2. SHIFT WESTBOUND TRAFFIC TO EASTBOUND LANES AND MEDIAN
  3. RECONSTRUCT NORTHERN PORTION OF BRIDGE AND BRIDGE APPROACH PAVEMENT



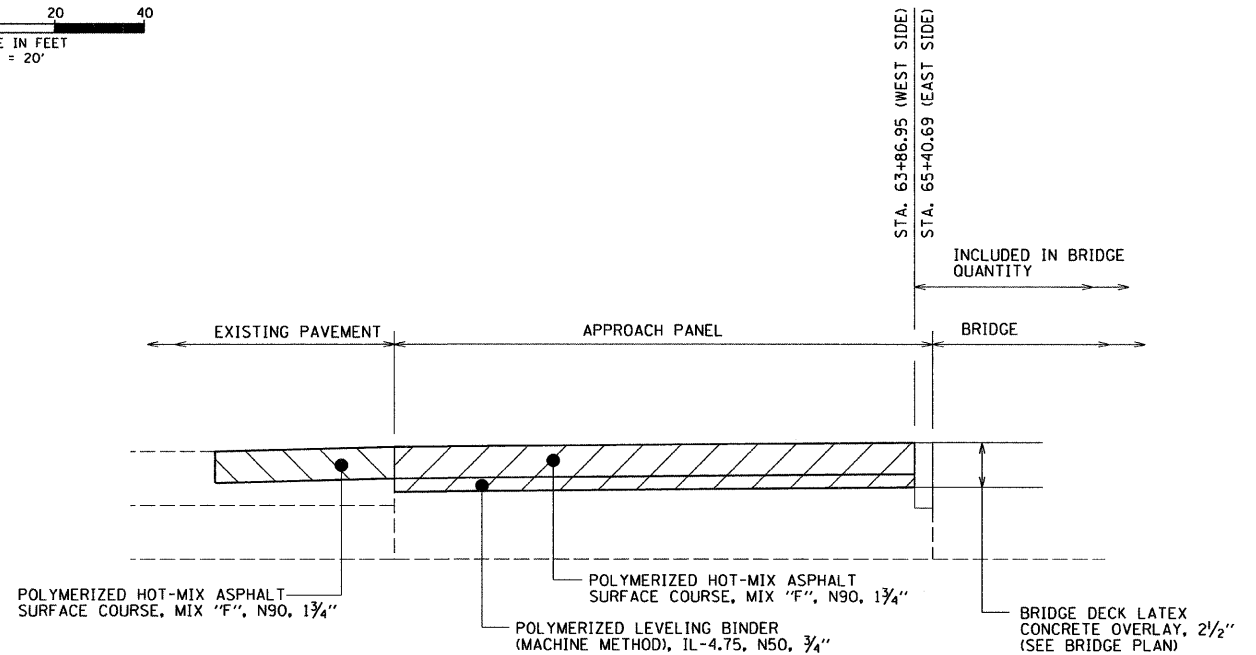
END  
WORK ZONE  
SPEED LIMIT

G20-1103(0)-3660  
77+50

FILE NAME =	USER NAME = .USER.	DESIGNED - WS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUGGESTED MAINTENANCE OF TRAFFIC STAGE II	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
#FILEL*	PLOT SCALE = 50.5353' / IN.	DRAWN - AJR	REVISED -			352	56 B-1-2	LAKE	26	7	
	PLOT DATE = 1/13/2009	CHECKED - RJS	REVISED -			CONTRACT NO. 60D91					
		DATE - 01/04/09	REVISED -			FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					



EXISTING SECTION A-A  
(N.T.S.)



PROPOSED SECTION A-A  
(N.T.S.)

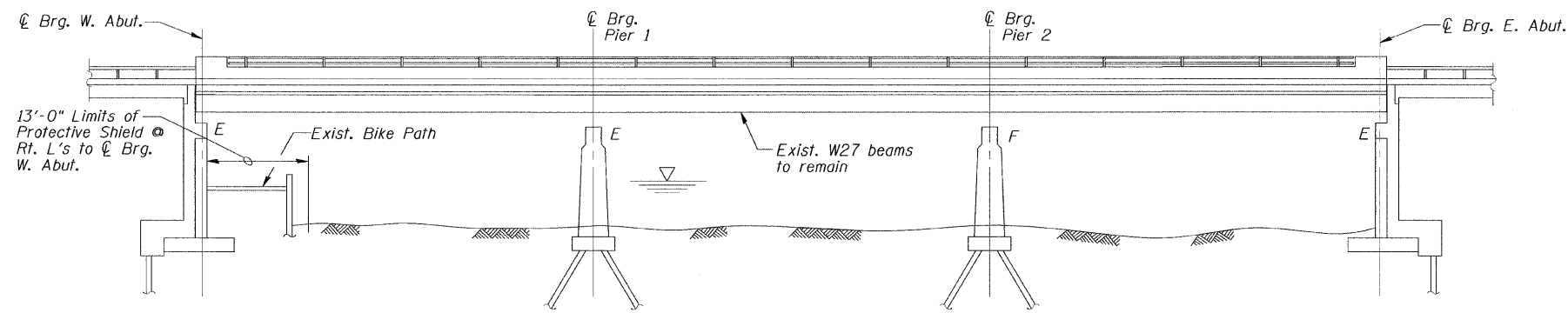
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#FILEL#	PLOT SCALE = 20,2141' / IN.	DRAWN - AJR	REVISED -			352	56 B-1-2	LAKE	26	8	
	PLOT DATE = 1/13/2009	CHECKED - RJS	REVISED -			CONTRACT NO. 60D91					
		DATE - 01/14/09	REVISED -			FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					
					SCALE: 20'	SHEET NO. OF SHEETS		STA.	TO STA.		
					H:\Jobs\2006\20063028-44\CAD\Site\dgn\00\Planview-44_V8.dgn 1/13/2009 2:35:36 PM						



F.A.P. RITE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
352	56 B-1-2	LAKE	26	10
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
			Contract No. 60D91	

**SCOPE OF WORK:**

1. Removal of existing hot-mix asphalt overlay, hydro-scarification, deck slab repair and placement of latex concrete overlay.
2. Removal and replacement of end diaphragms and reinforcement of existing beam webs at West Abutment.
3. Removal and replacement of bearings at East and West Abutments.
4. Removal and replacement of expansion joints at East and West Abutments.
5. Structural repair of concrete at substructure.

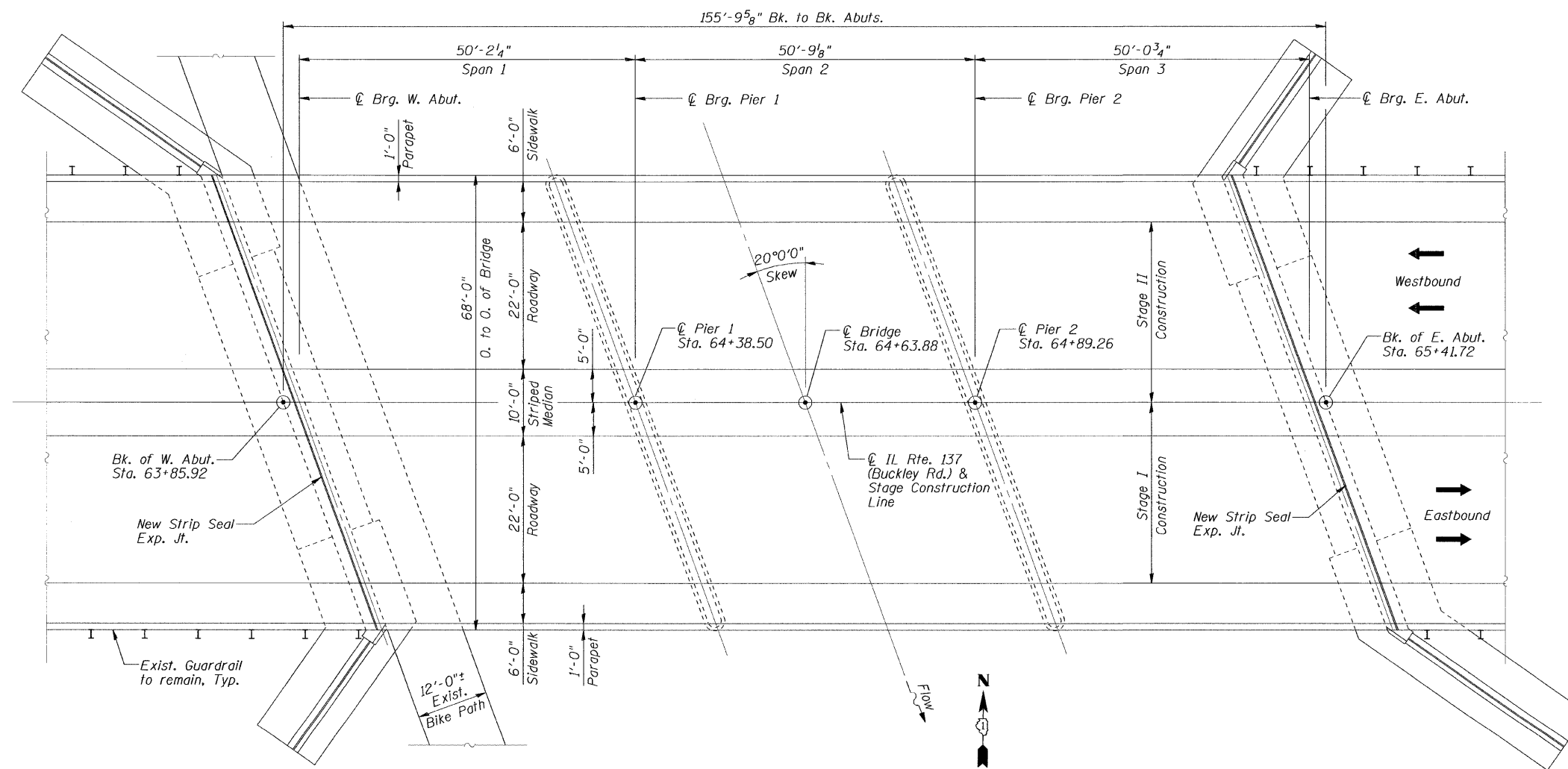


**ELEVATION**

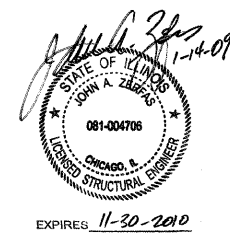
**DESIGN SPECIFICATIONS**  
AASHTO 17th Edition, 2002

**DESIGN STRESSES**

**FIELD UNITS**  
 $f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 36,000$  psi (Structural Steel M270 Grade 36)



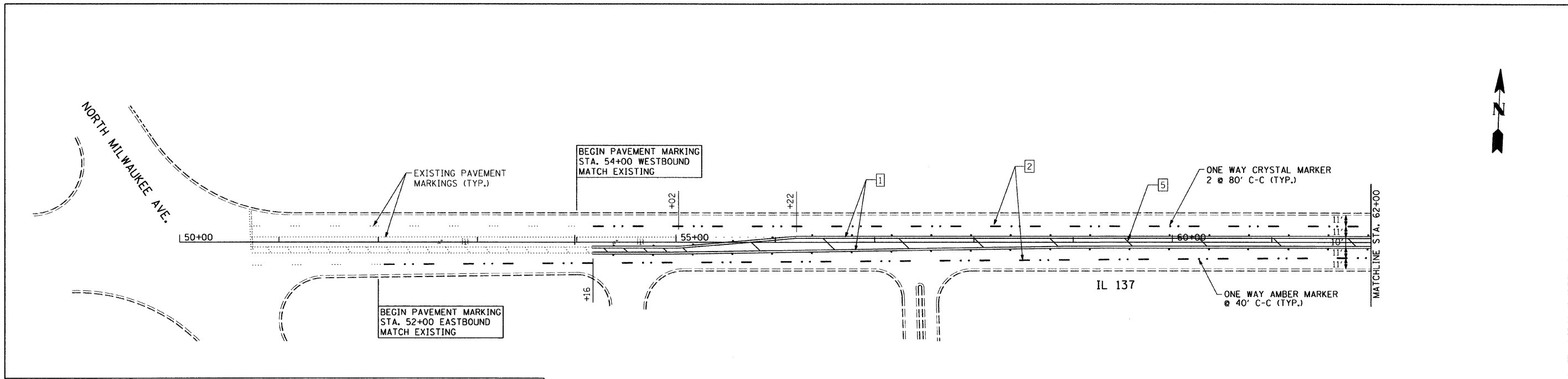
Note:  
For General Notes and Total Bill of Material, See Sheet 10.



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DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.

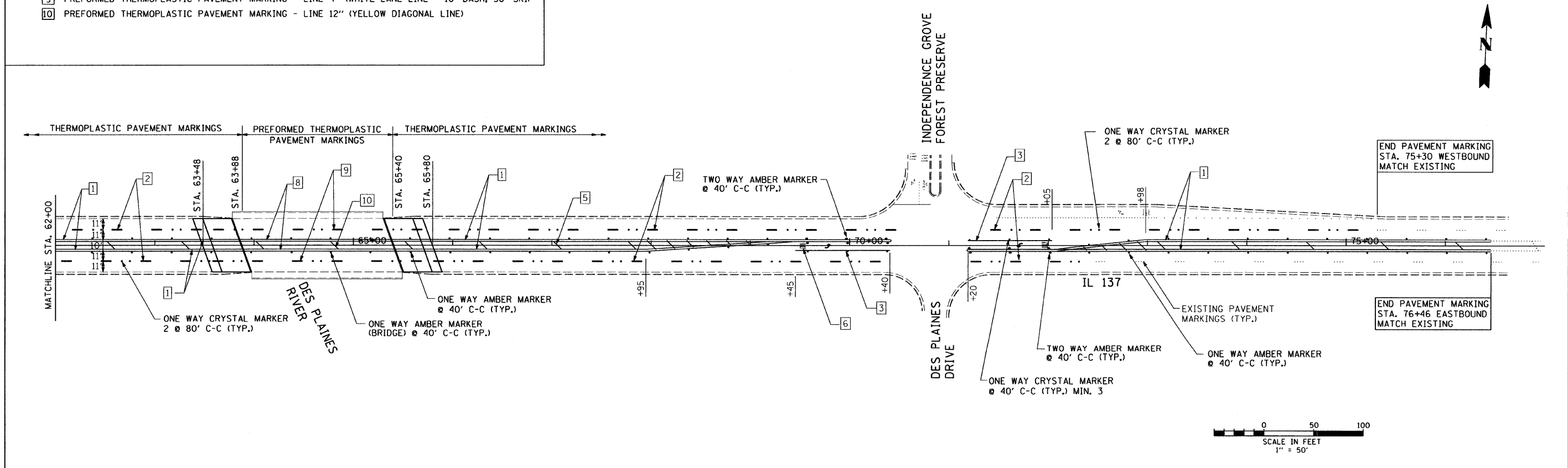
**GENERAL PLAN & ELEVATION**  
**IL RTE. 137 (BUCKLEY ROAD)**  
**OVER DES PLAINES RIVER**  
 FAP 352 (IL 137), SECTION 56 B-1-2  
 LAKE COUNTY  
 STATION 64+63.88  
 S.N. 049-0063  
 DATE: 01-14-09  
 GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC  
 CHICAGO ILLINOIS



**LEGEND:**

- 1 THERMOPLASTIC PAVEMENT MARKING - LINE 4" (DOUBLE YELLOW SOLID LINE)
- 2 THERMOPLASTIC PAVEMENT MARKING - LINE 4" (WHITE LANE LINE - 10' DASH, 30' SKIP)
- 3 THERMOPLASTIC PAVEMENT MARKING - LINE 6" (WHITE SOLID LINE)
- 5 THERMOPLASTIC PAVEMENT MARKING - LINE 12" (YELLOW DIAGONAL LINE)
- 6 THERMOPLASTIC PAVEMENT MARKING - LETTERS & SYMBOLS (TYP.)
- 8 PREFORMED THERMOPLASTIC PAVEMENT MARKING - LINE 4" (DOUBLE YELLOW SOLID LINE)
- 9 PREFORMED THERMOPLASTIC PAVEMENT MARKING - LINE 4" (WHITE LANE LINE - 10' DASH, 30' SKIP)
- 10 PREFORMED THERMOPLASTIC PAVEMENT MARKING - LINE 12" (YELLOW DIAGONAL LINE)

REFER TO DISTRICT 1 DETAILS  
 "TYPICAL APPLICATIONS RAISED REFLECTIVE  
 PAVEMENT MARKERS (SNOW-PLOW RESISTANT)"  
 AND "TYPICAL PAVEMENT MARKINGS" FOR  
 ADDITIONAL INFORMATION



FILE NAME = #FILEL*	USER NAME = _USER.	DESIGNED - WS	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>PAVEMENT MARKING PLAN</b>	F.A. RTE. 352	SECTION 56 B-1-2	COUNTY LAKE	TOTAL SHEETS 26	SHEET NO. 9	
						SCALE: 50' SHEET NO. OF SHEETS STA. TO STA.		CONTRACT NO. 60D91			
						SCALE IN FEET 1" = 50'		ILLINOIS FED. AID PROJECT			
						H:\jobs\2006\20063028-44\CAD\Site\dgn\00\PROPPAVEMARK_44_V8.dgn 1/13/2009 2:35:59 PM					

F.A.P. SHEET	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
352	56 B-1-2	LAKE	26	11
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
Contract No. 60091				

### GENERAL NOTES

Fasteners shall be AASHTO M164 Type I, mechanically galvanized bolts. Bolts  $\frac{3}{4}$ "  $\phi$ , holes  $\frac{13}{16}$ "  $\phi$ , unless otherwise noted.

All structural steel shall be AASHTO M 270 Grade 36.

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

Reinforcement bars shall conform to the requirements of ASTM A 706 GR 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

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

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by an individual acceptable to the Engineer. Any cracks that cannot be removed by grinding  $\frac{1}{4}$  in. deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details relative to existing plans and 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 the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Existing structural steel shall only be cleaned and painted as required by the special provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures." Cleaning and field painting of remaining existing structural steel shall be done under a separate painting contract.

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

The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom of the fascia beams shall be Reddish Brown, Munsell No. 2.5YR 3/4. See Special Provision for "Cleaning and Painting New Metal Structures."

Joint openings shall be adjusted according to Article 520.04 of the Standard Specifications when the deck is poured at an ambient temperature other than 50° F.

Quantities for deck slab repair are approximate. Quantity of Deck Slab Repair (Full Depth, Type I) is assumed to be equal to 10% of the quantity of Deck Slab Repair (Full Depth, Type II). Locations will be determined by the Resident Engineer following removal of the existing Hot-Mix Asphalt Surface Course. Actual repair locations shall be shown on the as-built plans. Contractor will be paid for the quantity furnished.

### TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
HOT-MIX ASPHALT SURFACE REMOVAL (DECK)	SQ. YD.	889
CONCRETE REMOVAL	CU. YD.	210
PROTECTIVE SHIELD	SQ. YD.	105
CONCRETE SUPERSTRUCTURE	CU. YD.	210
BRIDGE DECK GROOVING	SQ. YD.	877
PROTECTIVE COAT	SQ. YD.	1,240
FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	6,780
JACK AND REMOVE EXISTING BEARINGS	EACH	16
REINFORCEMENT BARS, EPOXY COATED	POUND	3,340
BAR SPLICERS	EACH	24
PREFORMED JOINT STRIP SEAL	FOOT	146
ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	16
ANCHOR BOLTS, 1"	EACH	32
BRIDGE DECK LATEX CONCRETE OVERLAY, 2 $\frac{1}{2}$ "	SQ. YD.	889
STRUCTURAL REPAIR OF CONCRETE (DEPTH-<5")	SQ. FT.	63
BRIDGE DECK HYDRO-SCARIFICATION, $\frac{1}{2}$ "	SQ. YD.	889
DECK SLAB REPAIR (FULL DEPTH, TYPE I)	SQ. YD.	5
DECK SLAB REPAIR (FULL DEPTH, TYPE II)	SQ. YD.	42

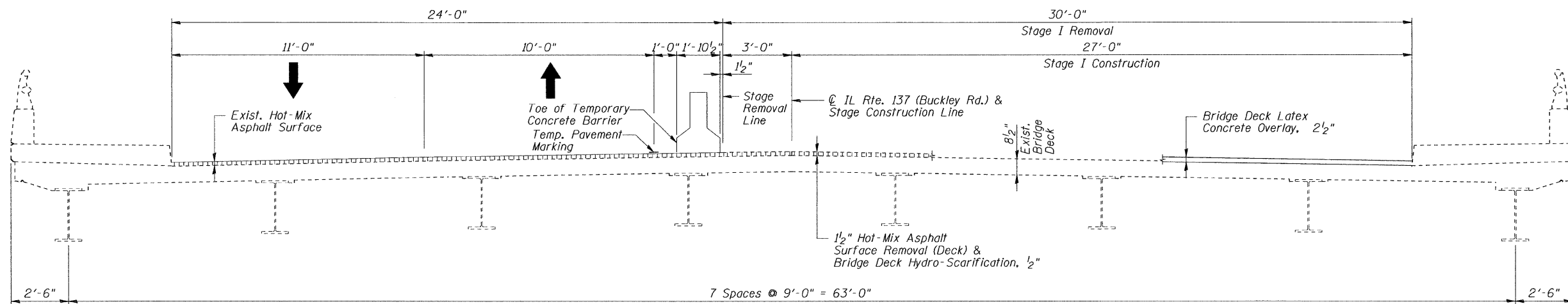
DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.

GENERAL NOTES & TOTAL  
BILL OF MATERIAL  
IL RTE. 137 (BUCKLEY ROAD)  
OVER DES PLAINES RIVER  
FAP 352 (IL 137), SECTION 56 B-1-2  
LAKE COUNTY  
STATION 64+63.88  
S.N. 049-0063

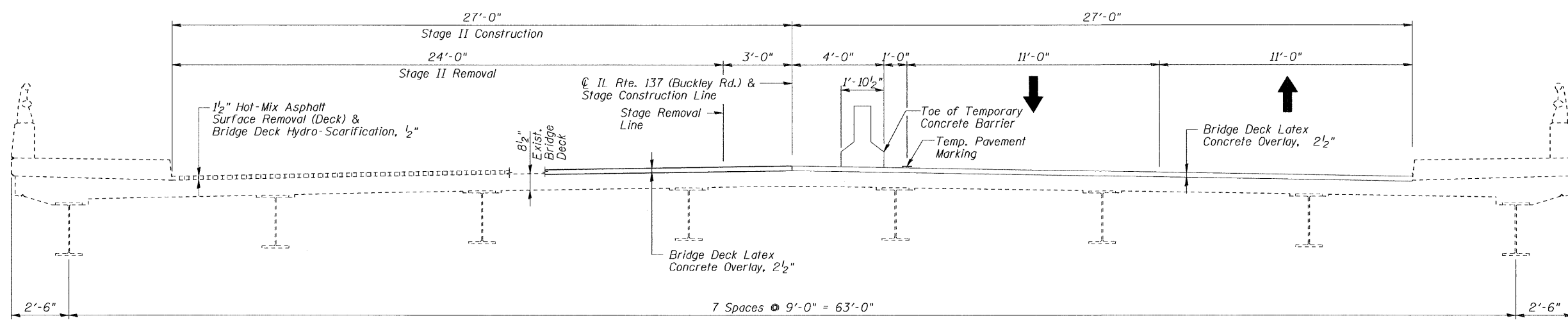
DATE: 01-14-09

GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC  
CHICAGO ILLINOIS

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1/12/2009



**STAGE I REMOVAL & CONSTRUCTION**  
(Looking East)



**STAGE II REMOVAL & CONSTRUCTION**  
(Looking East)

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 1/12/2009

DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.

**CONSTRUCTION STAGING**

IL RTE. 137 (BUCKLEY ROAD)  
 OVER DES PLAINES RIVER  
 FAP 352 (IL 137), SECTION 56 B-1-2  
 LAKE COUNTY  
 STATION 64+63.88  
 S.N. 049-0063

DATE: 01-14-09

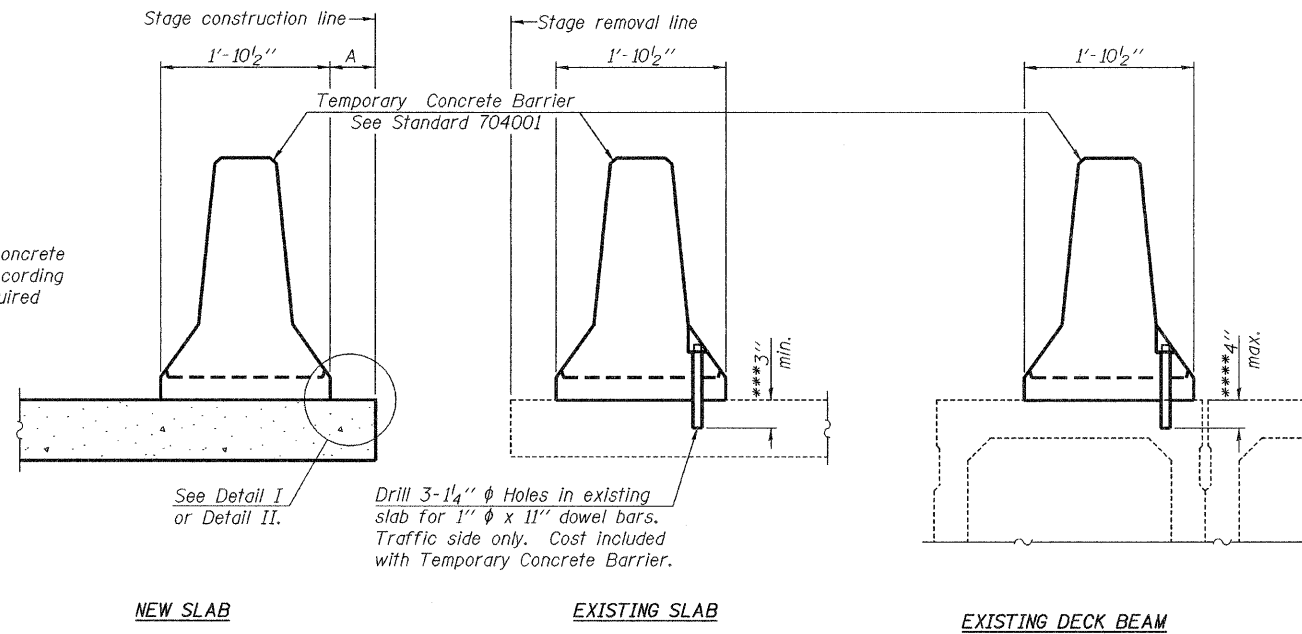
GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC  
 CHICAGO ILLINOIS

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 13
FAP 352	56 B-1-2	LAKE	26	13	26 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Contract No. 60D91

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".

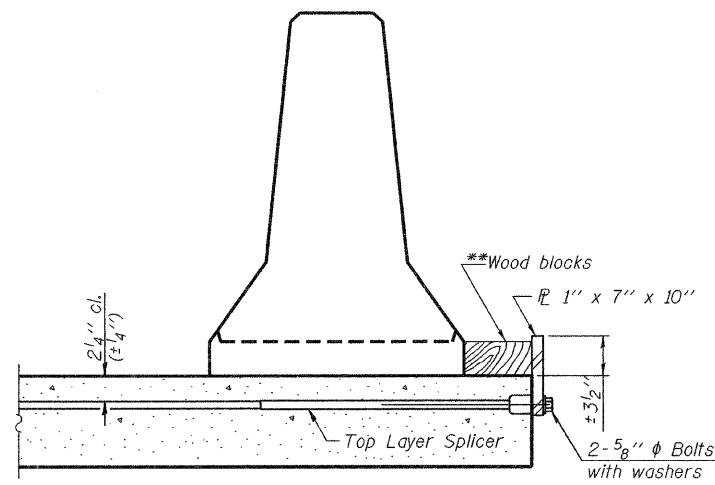


**NOTES**

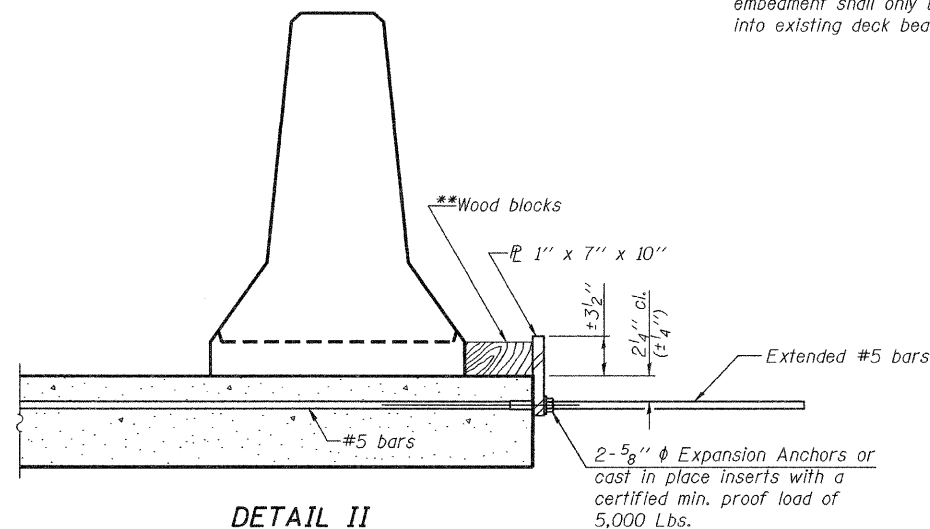
- Detail I - With Bar Splicer or Couplers:**  
Connect one (1) 1"x7"x10" steel  $\bar{L}$  to the top layer of couplers with 2-5/8"  $\phi$  bolts screwed to coupler at approximate  $\bar{C}$  of each barrier panel.
- Detail II - With Extended Reinforcement Bars:**  
Connect one (1) 1"x7"x10" steel  $\bar{L}$  to the concrete slab or concrete wearing surface with 2-5/8"  $\phi$  Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate  $\bar{C}$  of each barrier panel.
- Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x 10" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

**SECTIONS THRU SLAB OR DECK BEAM**

- \*\*\* Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.
- \*\*\*\* If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.

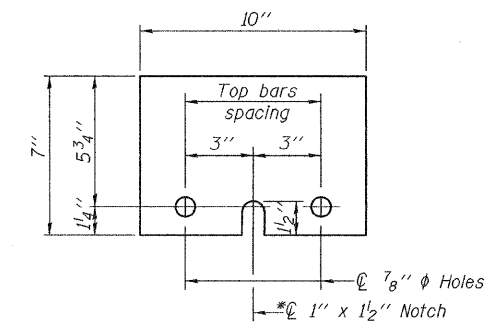


**DETAIL I**



**DETAIL II**

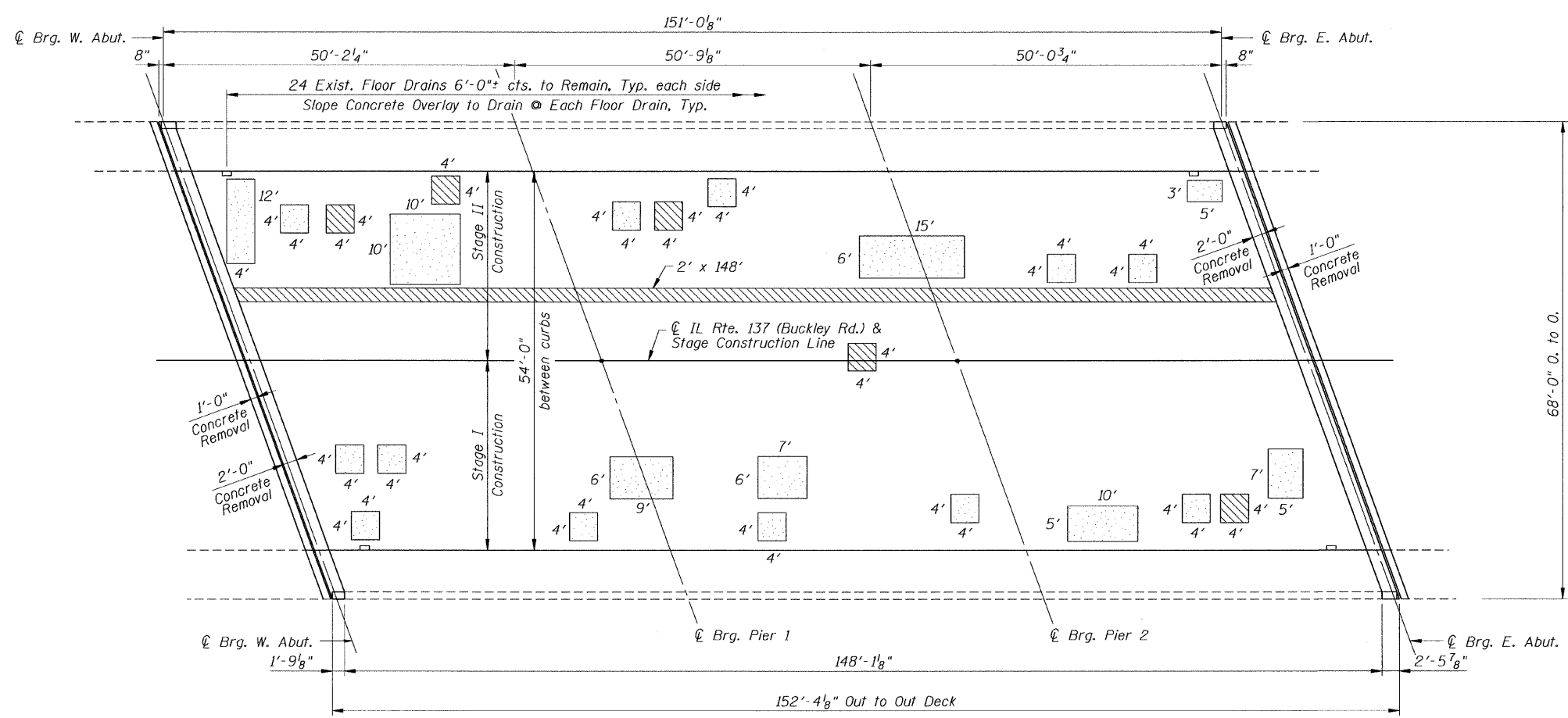
\*\*Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.



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

\* Required only with Detail II

**TEMPORARY CONCRETE BARRIER  
FOR STAGE CONSTRUCTION  
IL RTE. 137 (BUCKLEY ROAD)  
OVER DES PLAINES RIVER  
FAP 352 SECTION 56 B-1-2  
LAKE COUNTY  
SN 049-0063**



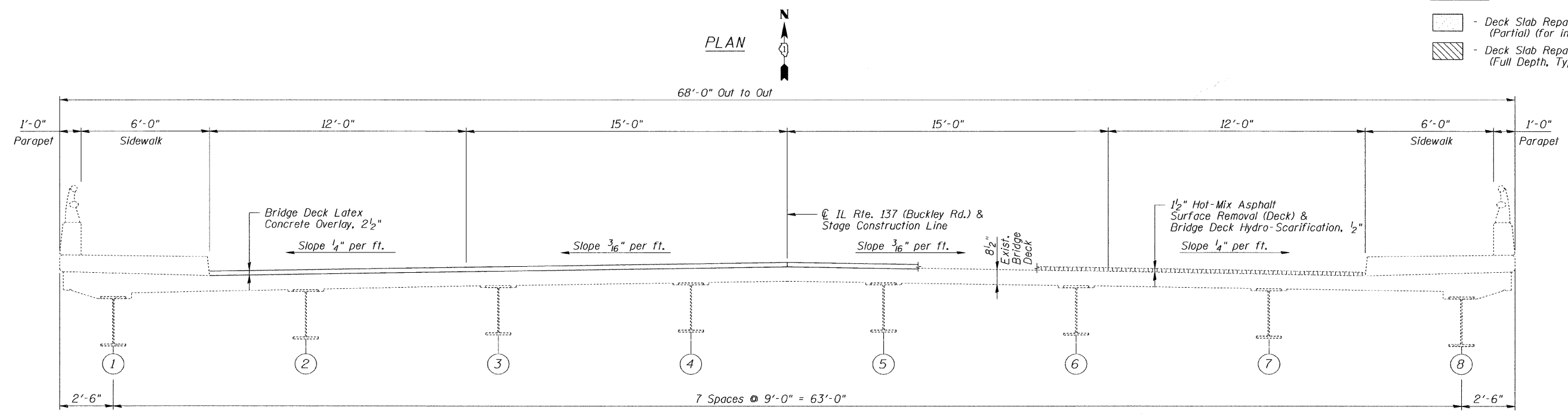
**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Hot-Mix Asphalt Surface Removal (Deck)	Sq. Yd.	889
Bridge Deck Grooving	Sq. Yd.	856
Protective Coat	Sq. Yd.	1,188
Bridge Deck Latex Concrete Overlay, 2 1/2"	Sq. Yd.	889
Bridge Deck Hydro-Scarification, 1/2"	Sq. Yd.	889
Deck Slab Repair (Full Depth, Type II)	Sq. Yd.	42

**Notes:**  
 For Concrete Removal, See Sheet 14.  
 Apply Protective Coat to the existing sidewalks, existing curbs, and top and inside vertical faces of existing parapets in addition to the areas specified in Article 503.19 of the Standard Specifications.

**LEGEND**

- Deck Slab Repair (Partial) (for information only)
- Deck Slab Repair (Full Depth, Type II)



**DECK CROSS SECTION**  
(Looking East)

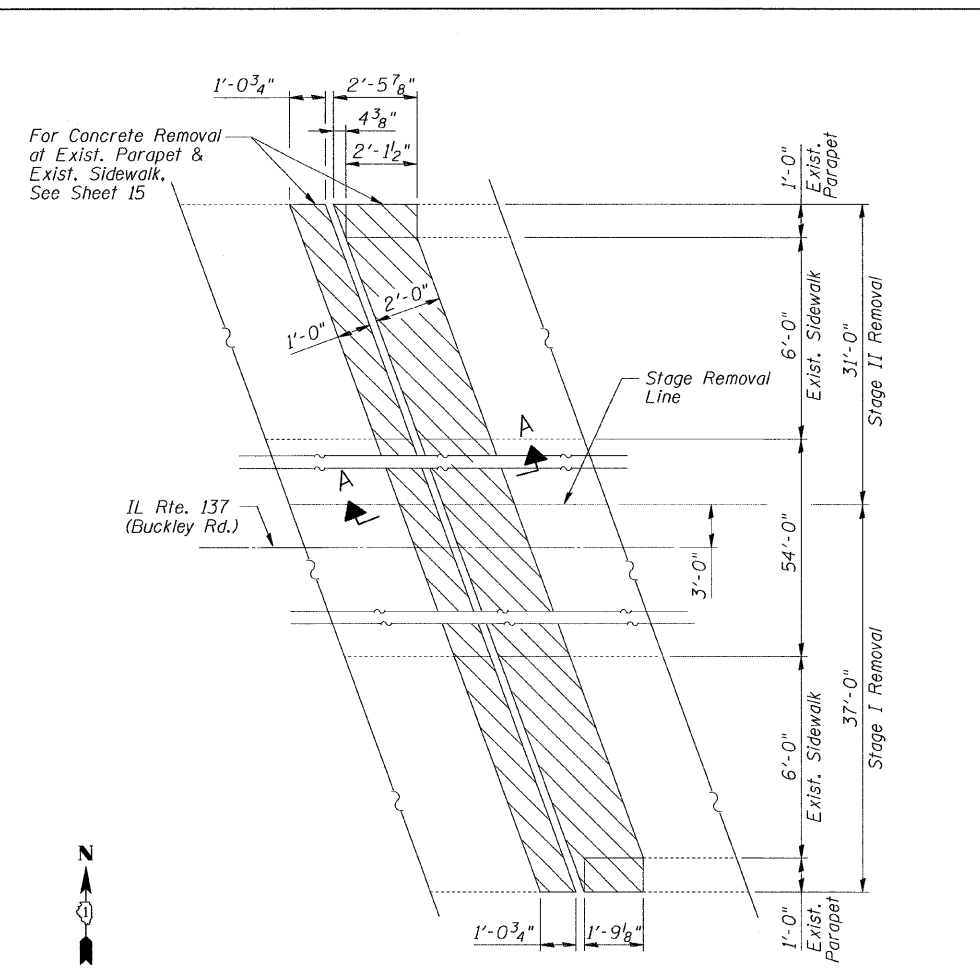
**DECK PLAN & CROSS SECTION**  
 IL RTE. 137 (BUCKLEY ROAD)  
 OVER DES PLAINES RIVER  
 FAP 352 (IL 137), SECTION 56 B-1-2  
 LAKE COUNTY  
 STATION 64+63.88  
 S.N. 049-0063  
 DATE: 01-14-09  
 GRAEF, ANHALT, SCHLOEMER & ASSOCIATES, INC  
 CHICAGO ILLINOIS

DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.

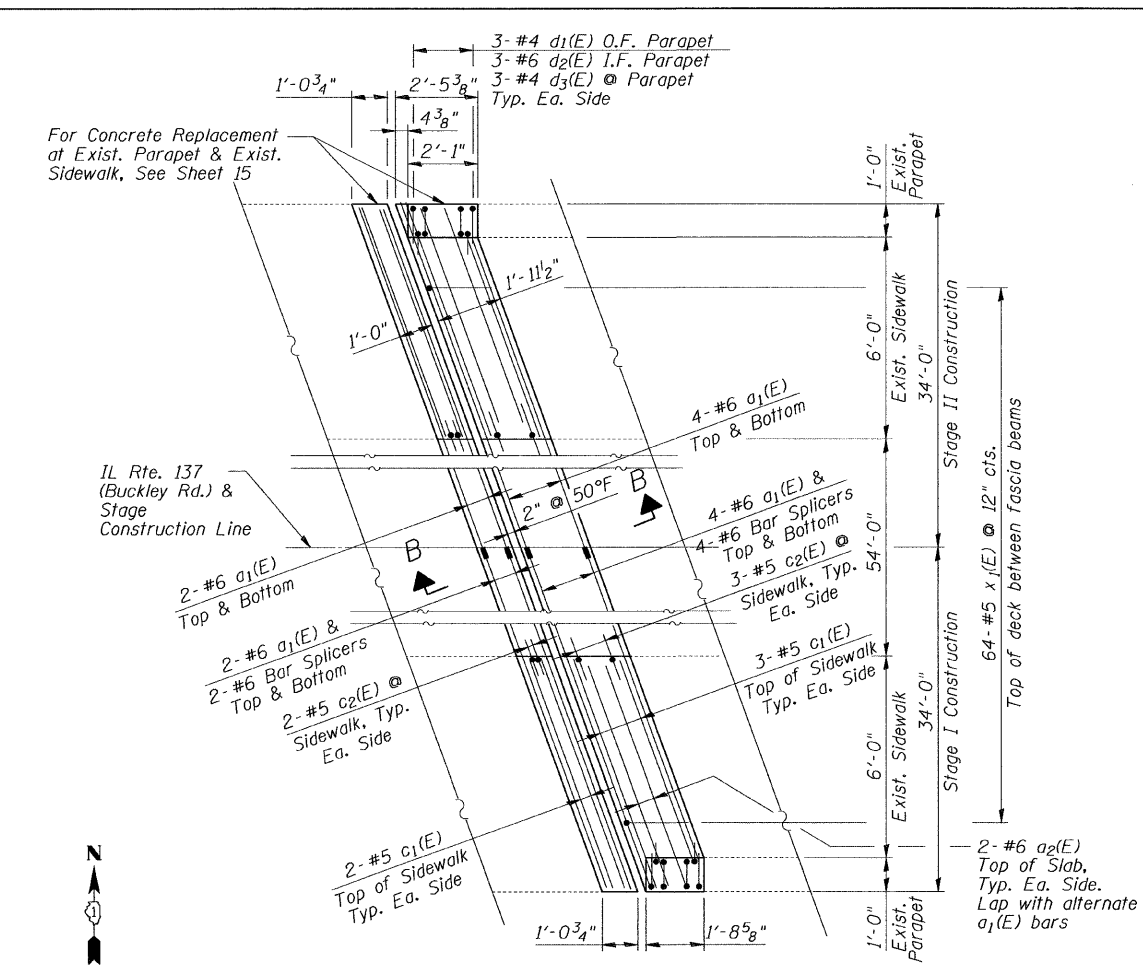
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 1/12/2009

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a <sub>1</sub> (E)	48	#6	35'-8"	—
a <sub>2</sub> (E)	8	#6	6'-0"	—
c <sub>1</sub> (E)	20	#5	7'-1"	—
c <sub>2</sub> (E)	20	#5	2'-7"	⌒
d <sub>1</sub> (E)	12	#4	4'-4"	⌒
d <sub>2</sub> (E)	12	#6	3'-10"	⌒
d <sub>3</sub> (E)	12	#4	6'-5"	⌒
x <sub>1</sub> (E)	128	#5	2'-6"	⌒
Concrete Removal			Cu. Yd.	21.0
Concrete Superstructure			Cu. Yd.	21.0
Bridge Deck Grooving			Sq. Yd.	21
Protective Coat			Sq. Yd.	52
Reinforcement Bars, Epoxy Coated			Pound	3,340
Bar Splicers			Each	24



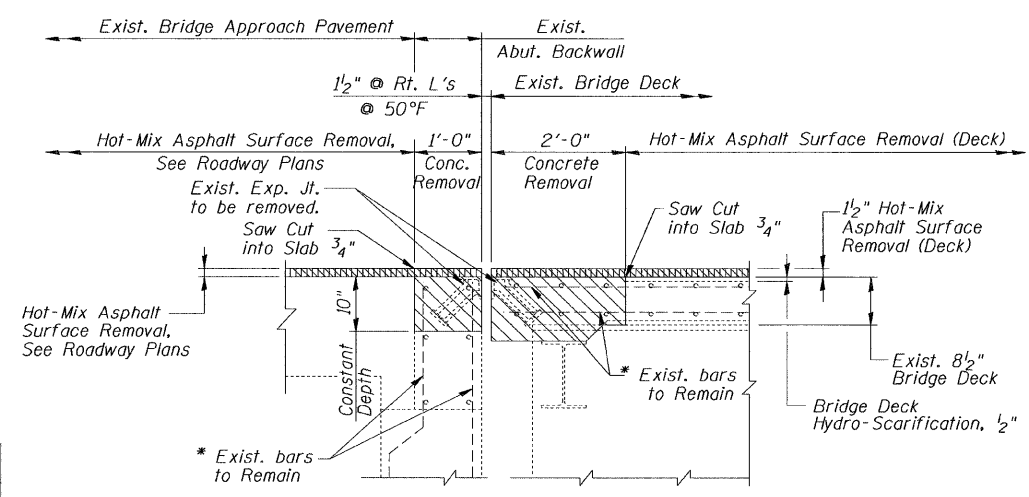
CONCRETE REMOVAL @ EXIST. WEST ABUTMENT EXP. JOINT PLAN  
EXIST. EAST ABUTMENT SIM. OPP. HAND PLAN



CONCRETE REPLACEMENT @ EXIST. WEST ABUTMENT EXP. JOINT PLAN  
EXIST. EAST ABUTMENT SIM. OPP. HAND PLAN

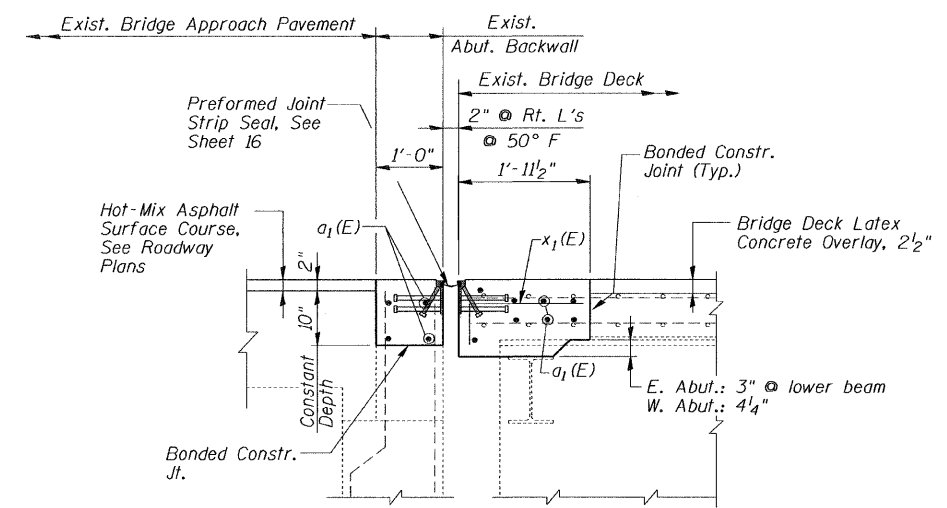
**LEGEND**  
 - Concrete Removal

**NOTE:**  
 1. \* Exist. reinforcement bars extending into the removal areas shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with approved bar splicer or anchorage system. Cost included with Concrete Removal.

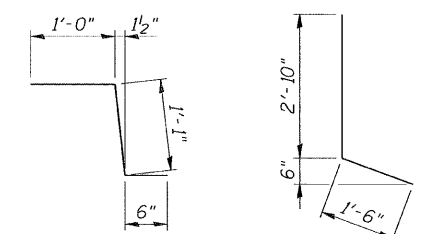


SECTION A-A

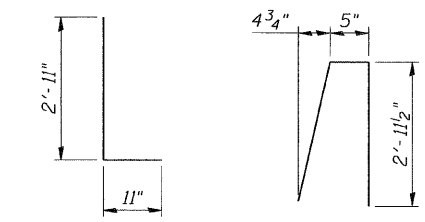
**Note:**  
 Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Base Sheet E-J-SSJ as shown on Sheet 16.



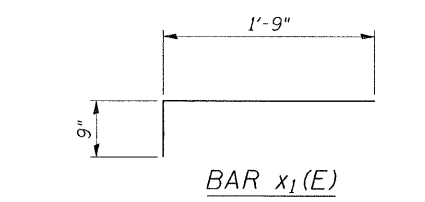
SECTION B-B



BAR c<sub>2</sub>(E)      BAR d<sub>1</sub>(E)



BAR d<sub>2</sub>(E)      BAR d<sub>3</sub>(E)

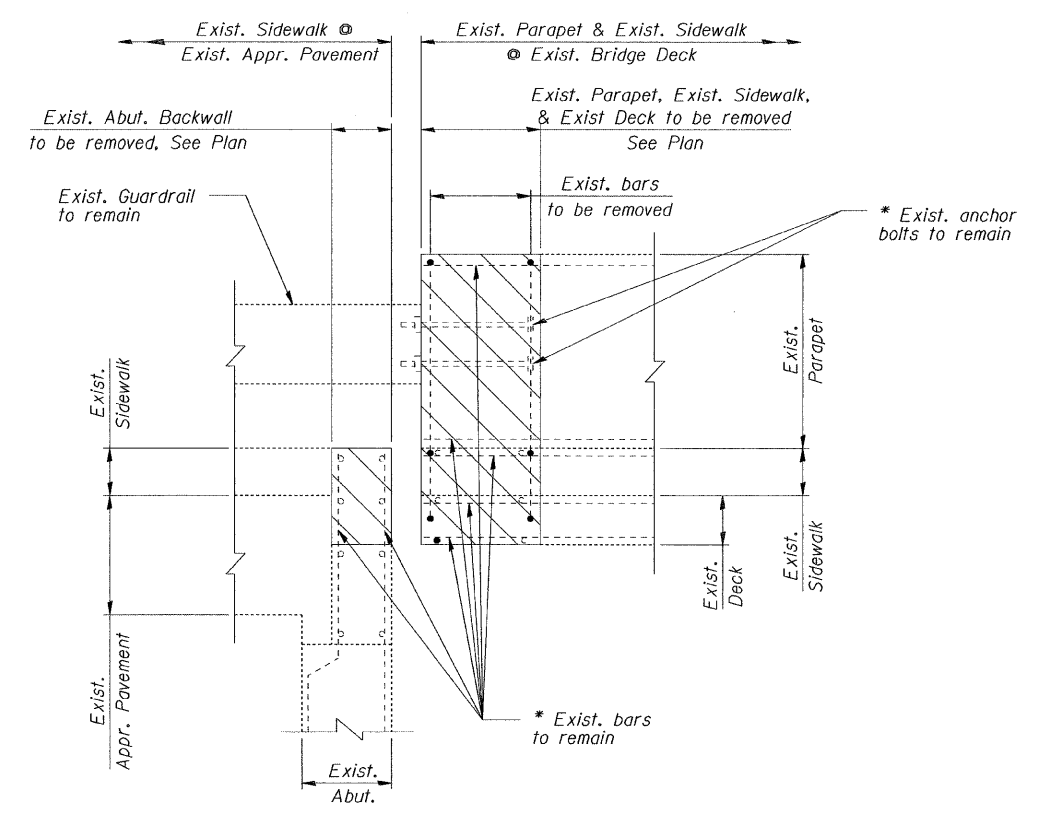


BAR x<sub>1</sub>(E)

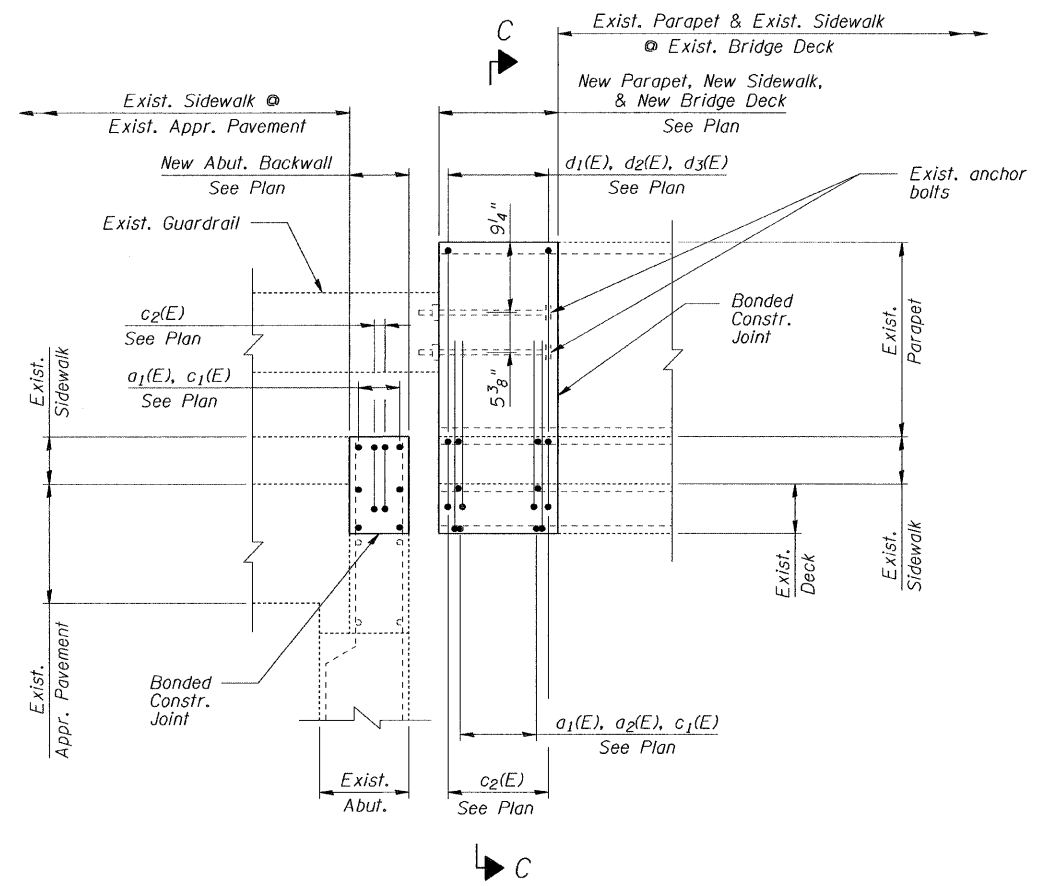
**JOINT DETAILS**  
 IL RTE. 137 (BUCKLEY ROAD)  
 OVER DES PLAINES RIVER  
 FAP 352 (IL 137), SECTION 56 B-1-2  
 LAKE COUNTY  
 STATION 64+63.88  
 S.N. 049-0063  
 DATE: 01-14-09  
 GRAEF, ANHALT, SCHLOEMER & ASSOCIATES, INC  
 CHICAGO ILLINOIS

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 1/12/2009

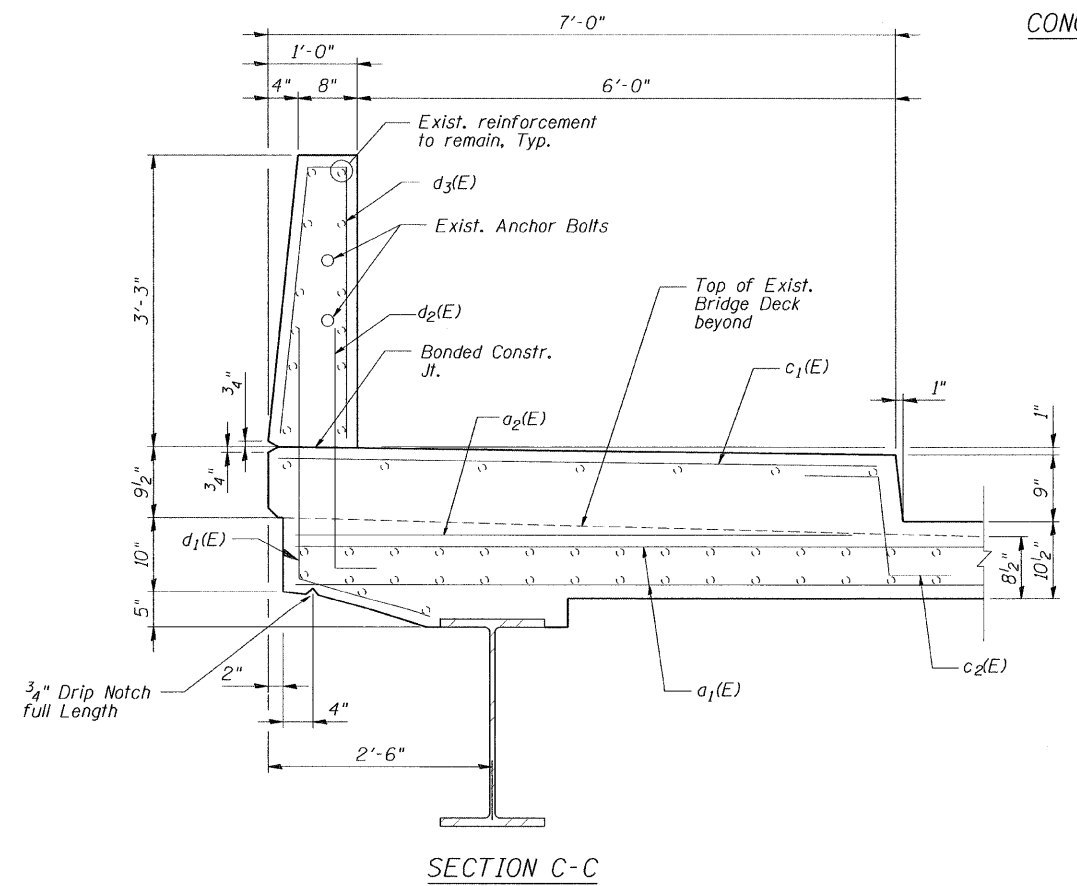
DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.



CONCRETE REMOVAL @ EXISTING PARAPET & EXISTING SIDEWALK ELEVATION



CONCRETE REPLACEMENT @ EXISTING PARAPET & EXISTING SIDEWALK ELEVATION



SECTION C-C

NOTES:

- \* Exist. reinforcement bars & anchor bolts extending into the removal areas shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars or anchor bolts that are damaged during concrete removal shall be replaced with approved bar splicer or anchorage system. Cost included with Concrete Removal.
- Hatched areas indicate concrete sections to be removed and replaced. Perimeters of concrete removal areas shall be saw cut 3/4\"/>

DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.

PARAPET & SIDEWALK SECTIONS & DETAILS  
 IL RTE. 137 (BUCKLEY ROAD)  
 OVER DES PLAINES RIVER  
 FAP 352 (IL 137), SECTION 56 B-1-2  
 LAKE COUNTY  
 STATION 64+63.88  
 S.N. 049-0063  
 DATE: 01-14-09  
 GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC  
 CHICAGO ILLINOIS

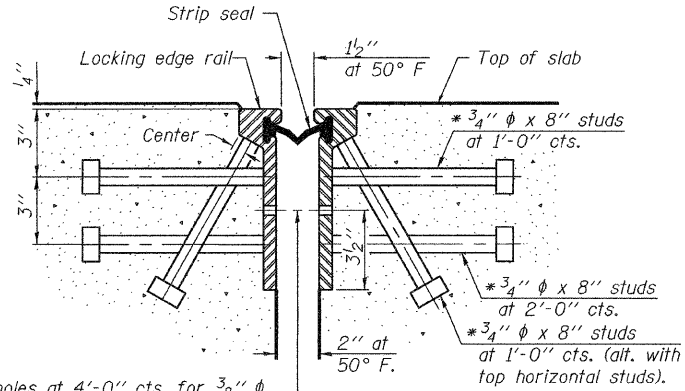
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 1/12/2009



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

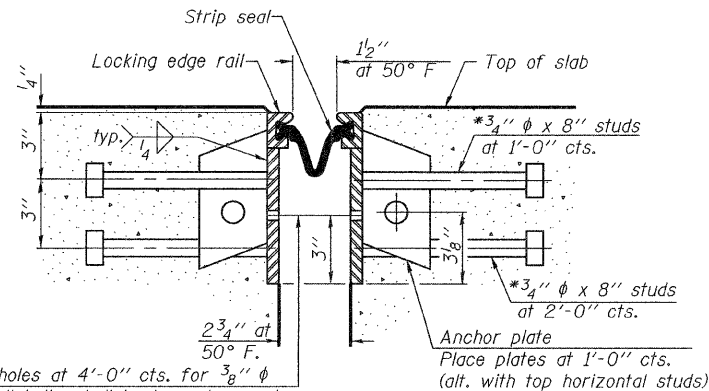
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 17
FAP 352	56 B-1-2	LAKE	26	17	26 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

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



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

SECTION THRU  
ROLLED RAIL JOINT



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

SECTION THRU  
WELDED RAIL JOINT

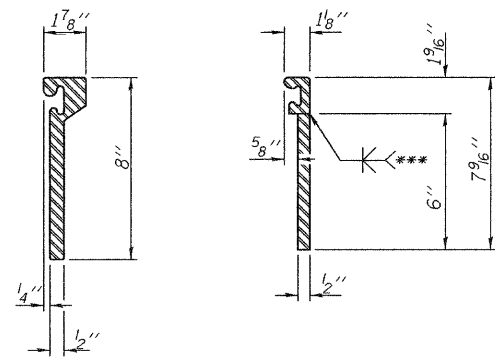
Notes:

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

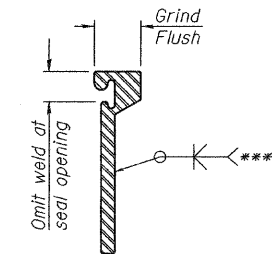
The height and thickness of the Locking Edge Rails shown are minimum dimensions. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities and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

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

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

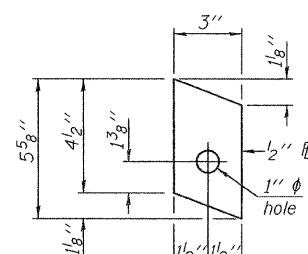


ROLLED  
EXTRUDED RAIL      WELDED RAIL

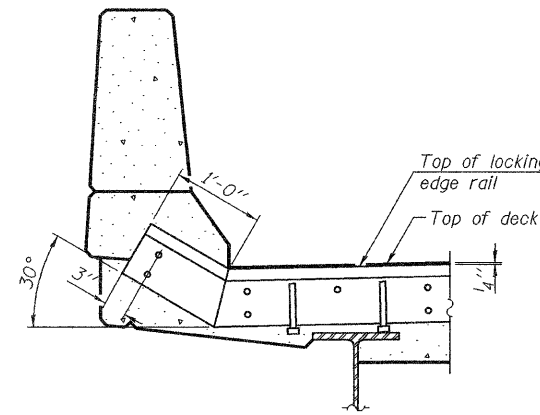


LOCKING EDGE  
RAIL SPLICE

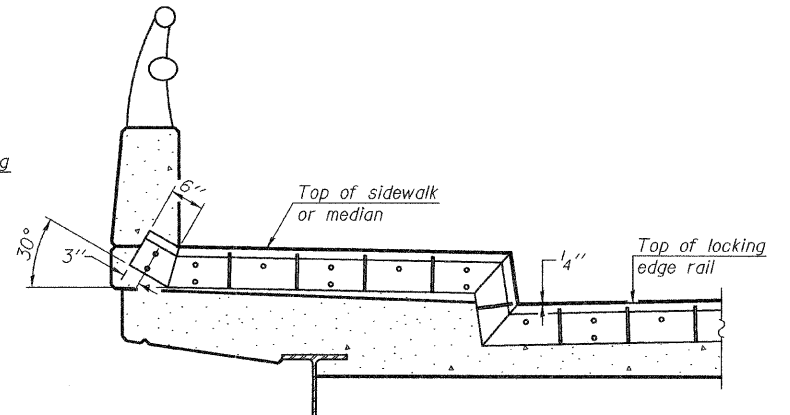
The inside of the locking edge rail groove shall be free of weld residue.



ANCHOR PLATE  
(for welded rail)



AT PARAPET

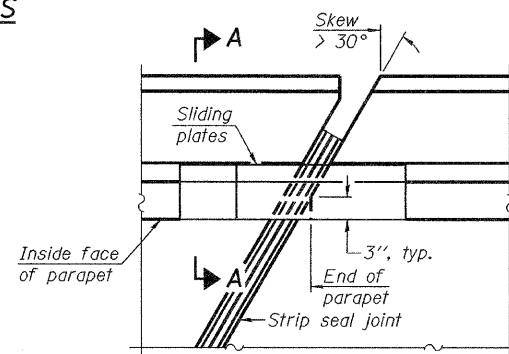


AT SIDEWALK OR MEDIAN

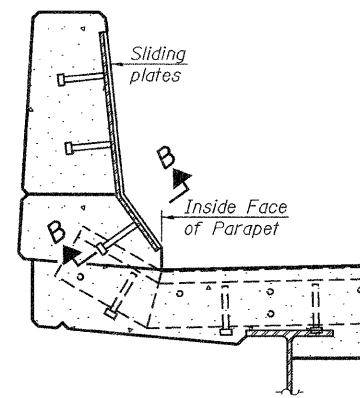
Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.

TYPICAL END TREATMENTS

LOCKING EDGE RAILS

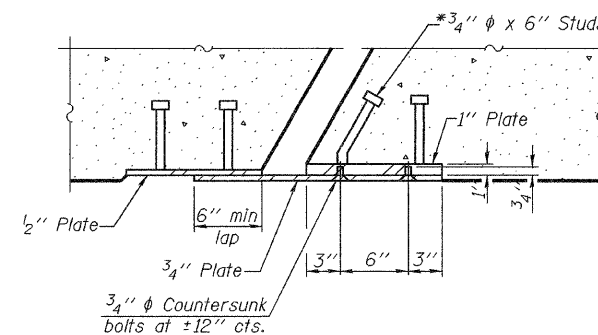


PLAN



SECTION A-A

POINT BLOCK DETAILS  
(for skews > 30°)

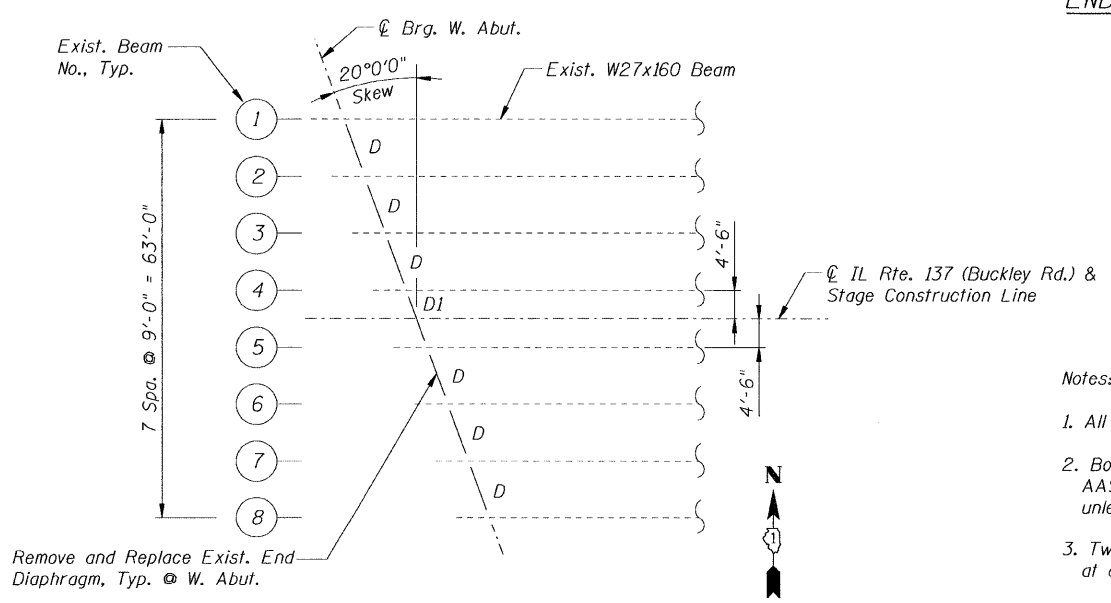
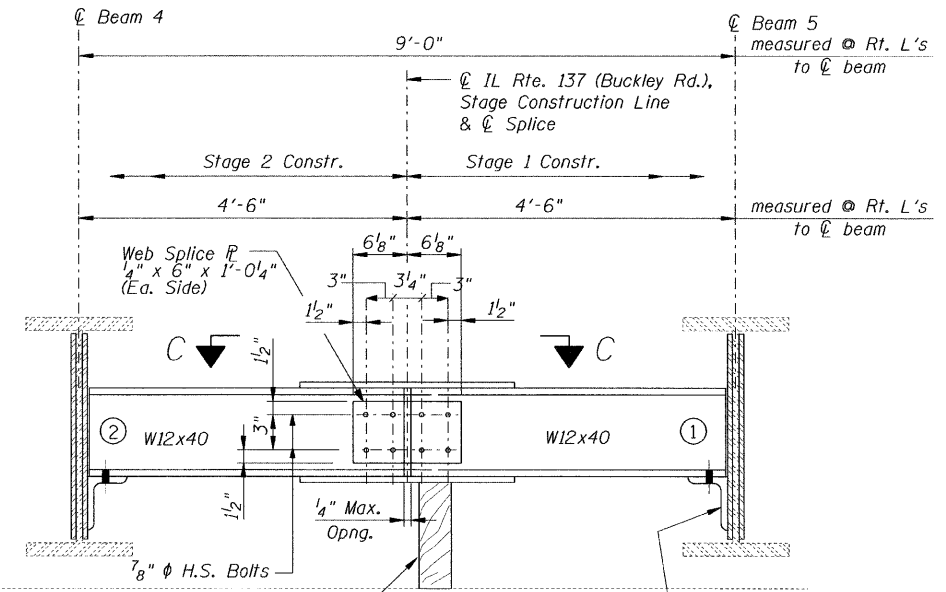
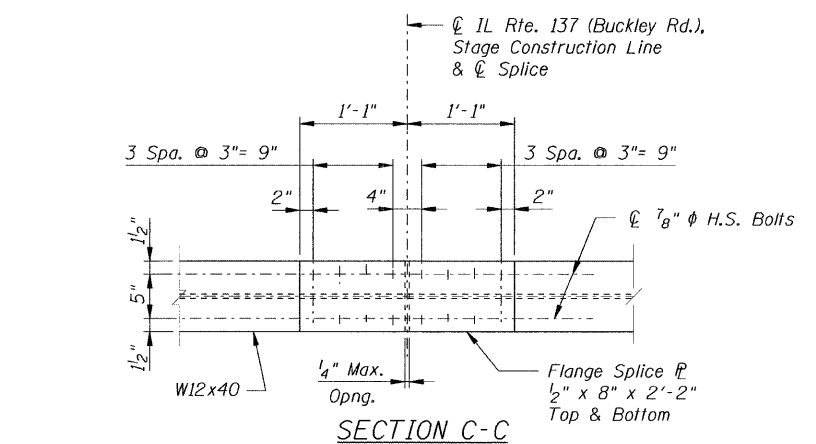
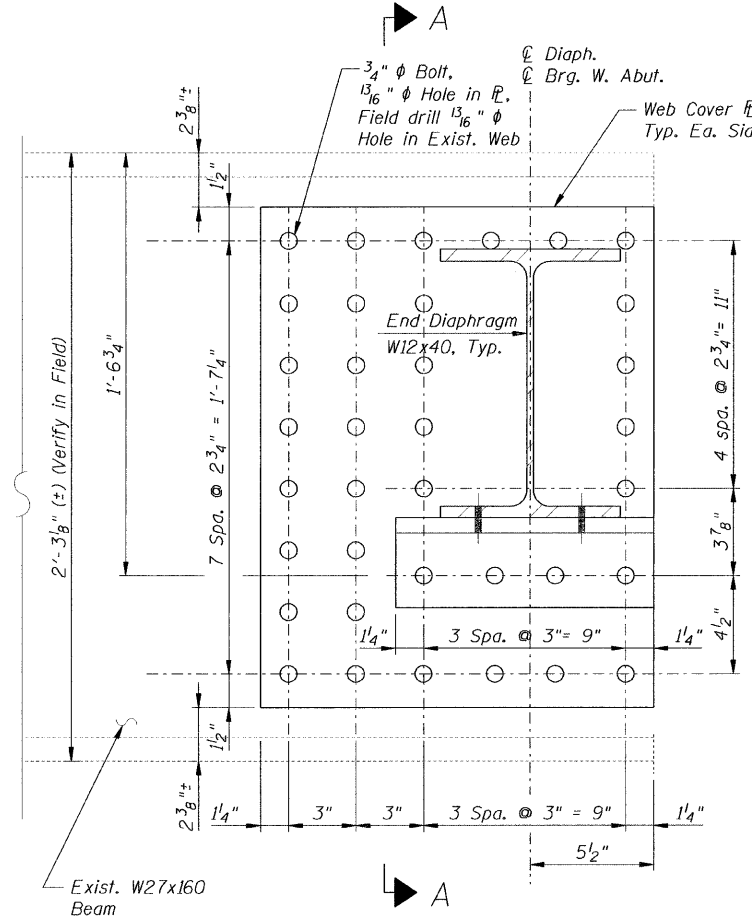
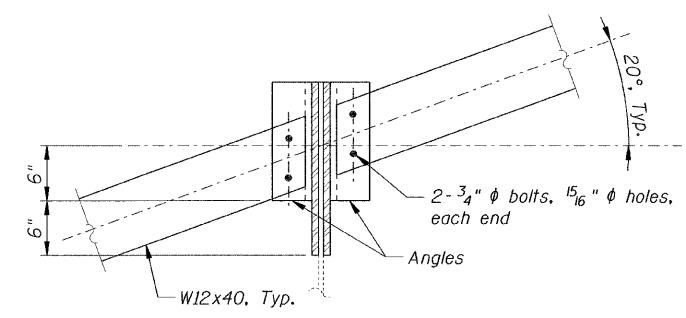
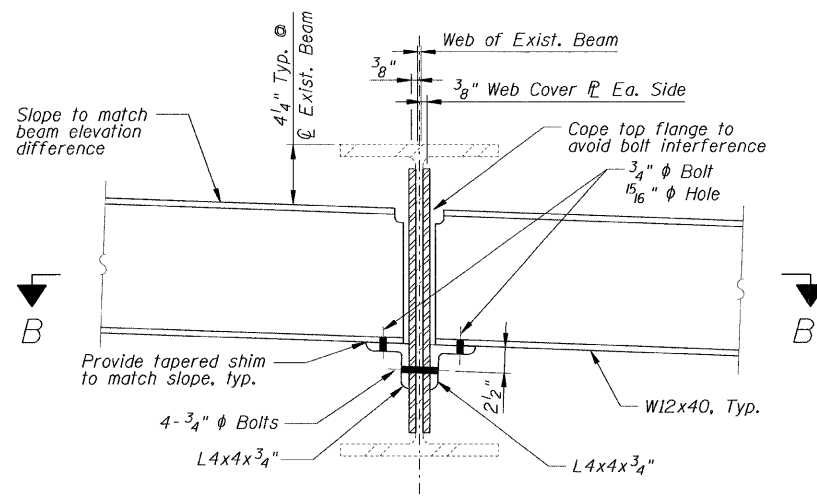


SECTION B-B

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	146

PREFORMED JOINT STRIP SEAL  
IL RTE. 137 (BUCKLEY ROAD)  
OVER DES PLAINES RIVER  
FAP 352 SECTION 56 B-1-2  
LAKE COUNTY  
SN 049-0063



DESIGNED	J.Z.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	J.Z.

6 End Diaphragm D Req'd  
1 End Diaphragm D1 Req'd

Notes:

- All Structural Steel shall be AASHTO M 270 Grade 36.
- Bolts shall be high strength bolts mechanically galvanized AASHTO M 164, Type 1. Bolts 3/4"  $\phi$ , open holes 13/16" dia. unless otherwise noted.
- Two hardened washers required for each set of oversized holes at angles & diaphragm W12x40.
- Field drilling holes in exist. web and removal of the existing diaphragms is included with "Furnishing and Erecting Structural Steel".

BILL OF MATERIAL

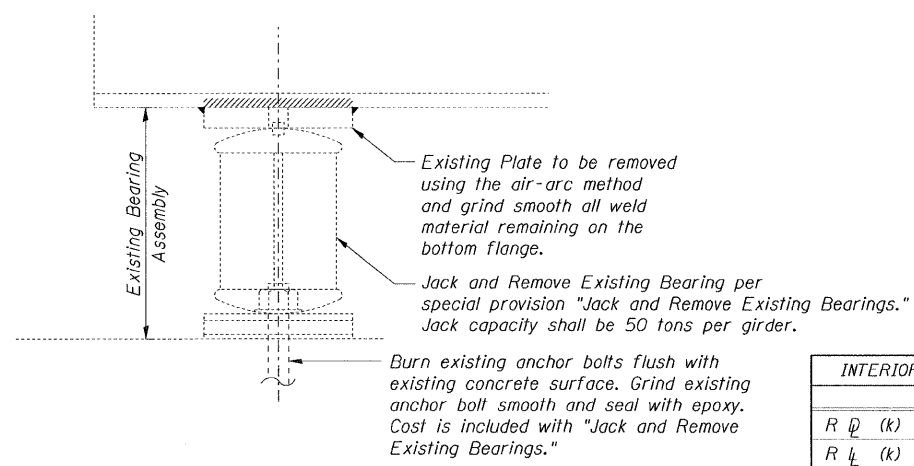
Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	3,760

END DIAPHRAGM D1 CONSTRUCTION SEQUENCE

- Order End Diaphragm D1 in two sections.
- Attach Section ① of diaphragm to Beam 5 and top flange splice  $\mathcal{R}$  during Stage 1 construction.
- Place timber block posts between Section ① of diaphragm and abutment bearing seat.
- Attach Section ② of diaphragm to both Beam 4 and top flange splice  $\mathcal{R}$  during Stage 2 construction.
- Attach web splice plates to Sections ① and ② of diaphragms.
- Remove timber block posts.
- Attach bottom flange splice  $\mathcal{R}$  to Sections ① and ② of diaphragms.

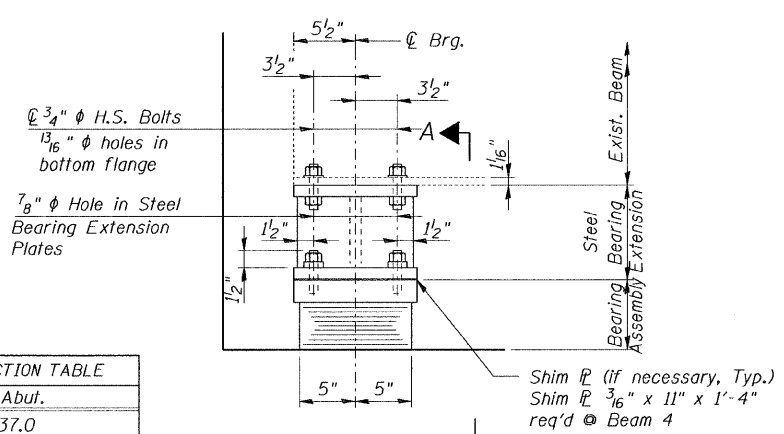
END OF BEAM REPAIR DETAILS AND NEW DIAPHRAGMS AT W. ABUT.  
IL RTE. 137 (BUCKLEY ROAD) OVER DES PLAINES RIVER  
FAP 352 (IL 137), SECTION 56 B-1-2 LAKE COUNTY STATION 64+63.88 S.N. 049-0063  
DATE: 01-14-09  
GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC ILLINOIS

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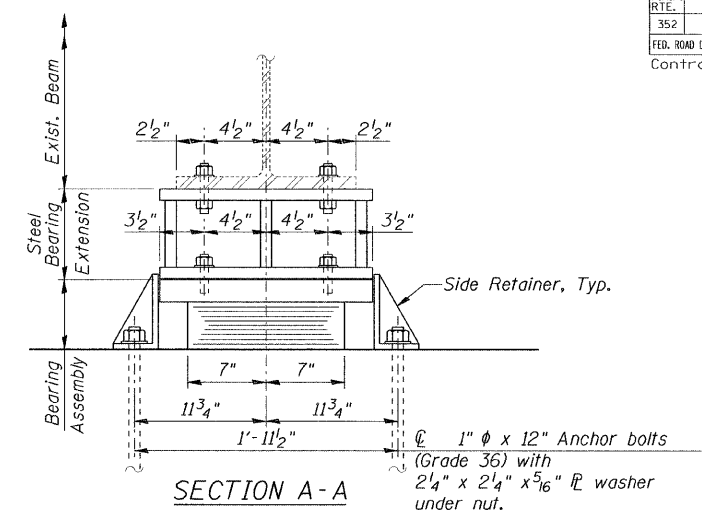


**EXISTING BEARING REMOVAL DETAIL**  
W. ABUT. & E. ABUT.

INTERIOR GIRDER REACTION TABLE	
	Abut.
R <sub>D</sub> (k)	37.0
R <sub>L</sub> (k)	44.6
Imp. (k)	12.9
R <sub>Total</sub> (k)	94.5

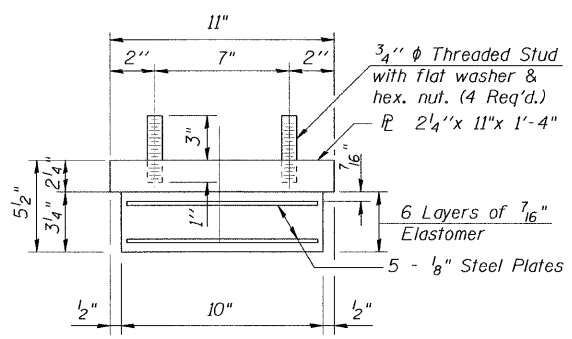


**ELEVATION AT ABUT.**

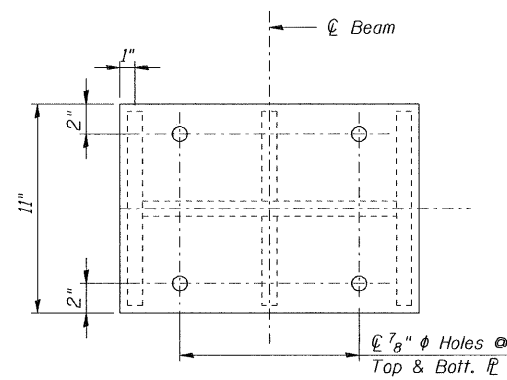


**SECTION A-A**

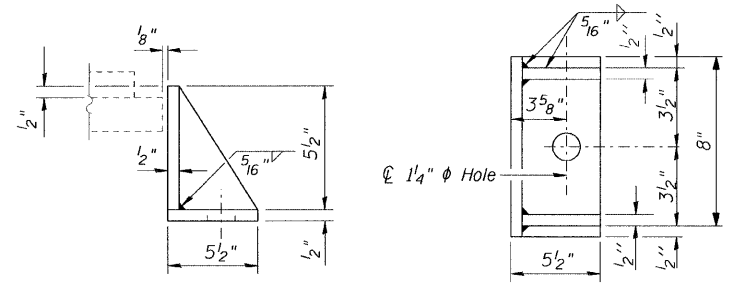
**TYPE I ELASTOMERIC EXP. BRG.**  
W. ABUT. & E. ABUT.



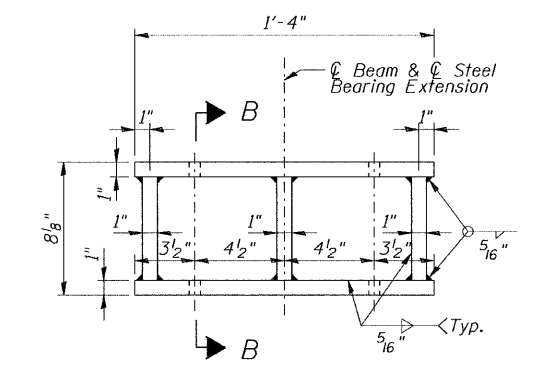
**BEARING ASSEMBLY**



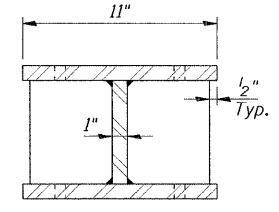
**PLAN STEEL BEARING EXTENSION**



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



**ELEVATION STEEL BEARING EXTENSION**



**SECTION B-B**

**STEEL BEARING EXTENSION**

**Notes:**  
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.  
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.  
Steel bearing extensions, shim plates, and connection bolts are included with Furnishing and Erecting Structural Steel.  
Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.  
The structural steel plates of the Bearing Assembly and the Steel Bearing Extension shall conform to the requirements of AASHTO M 270 Grade 36.  
Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on the bearing details.  
All bearing plates, steel bearing extensions, side retainers, anchor bolts, nuts, and washers shall be galvanized according to AASHTO M111 or M232 (as applicable).  
Prior to ordering any material, the Contractor shall verify in the field all bearing height dimensions.  
Diaphragm removal and replacement may be required to facilitate drilling holes. Cost included with Furnishing and Erecting Structural Steel.

**BILL OF MATERIAL**

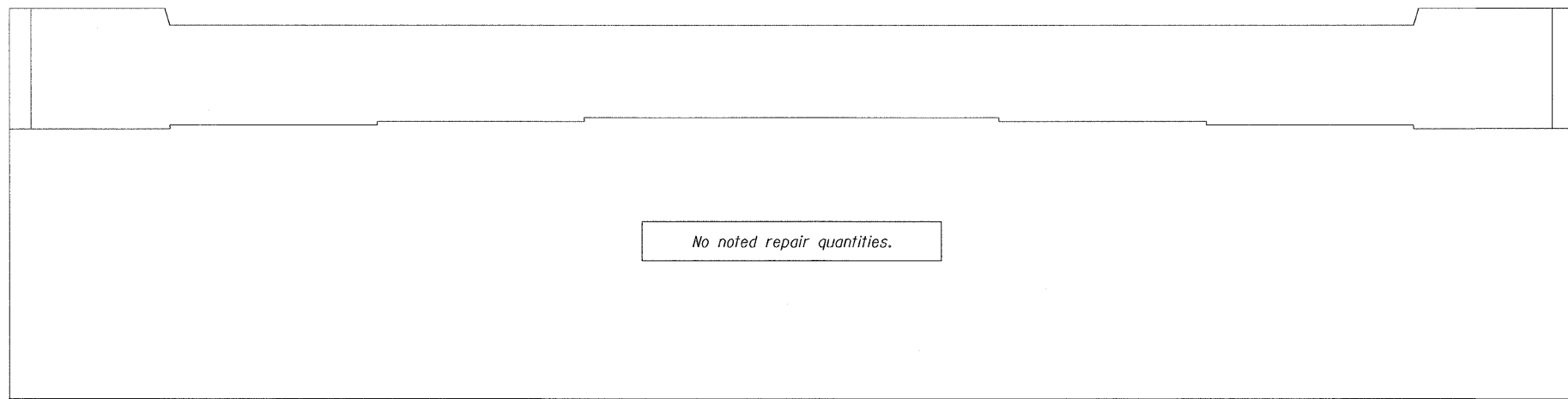
Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	3,020
Jack and Remove Existing Bearings	Each	16
Elastomeric Bearing Assembly, Type I	Each	16
Anchor Bolts, 1"	Each	32

**TYPE I ELASTOMERIC BEARING**  
W. ABUT. & E. ABUT.  
IL RTE. 137 (BUCKLEY ROAD)  
OVER DES PLAINES RIVER  
FAP 352 (IL 137), SECTION 56 B-1-2  
LAKE COUNTY  
STATION 64+63.88  
S.N. 049-0063

DATE: 01-14-09  
GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC  
CHICAGO ILLINOIS

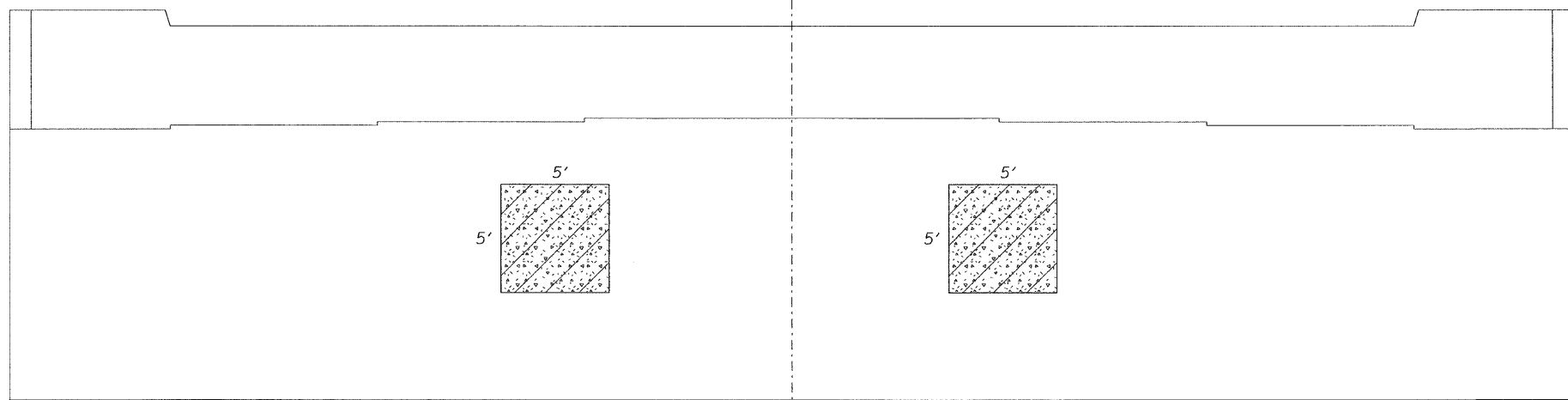
DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.

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WEST ABUTMENT ELEVATION

CL IL Rte. 137 (Buckley Rd.)



EAST ABUTMENT ELEVATION

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less than 5")	Sq. Ft.	63

LEGEND

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

*Notes:*  
Quantity for Structural Repair of Concrete has been increased to include additional repair areas not apparent at the time of the inspection. The actual repair areas will be determined by the Resident Engineer. The Contractor will be paid for the quantity furnished.

No repair quantities noted at piers or wingwalls.

**SUBSTRUCTURE REPAIR**  
IL RTE. 137 (BUCKLEY ROAD)  
OVER DES PLAINES RIVER  
FAP 352 (IL 137), SECTION 56 B-1-2  
LAKE COUNTY  
STATION 64+63.88  
S.N. 049-0063

DATE: 01-14-09  
GRAEF, ANHALT, SCHLOEMER & ASSOCIATES INC  
CHICAGO ILLINOIS

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1/12/2009

DESIGNED	S.D.H.
CHECKED	J.A.Z.
DRAWN	M.S.M.
CHECKED	S.D.H.

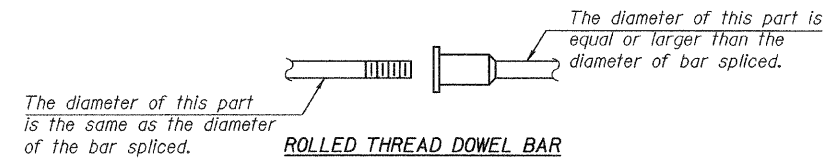
Contract No. 60D91

**NOTES**

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

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

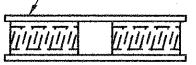
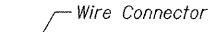
BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	7.9
#5	2'-2"	23.0	12.3
#6	2'-7"	33.1	17.4
#7	3'-5"	45.1	23.8
#8	4'-6"	58.9	31.3
#9	5'-9"	75.0	39.6
#10	7'-3"	95.0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



**ROLLED THREAD DOWEL BAR**



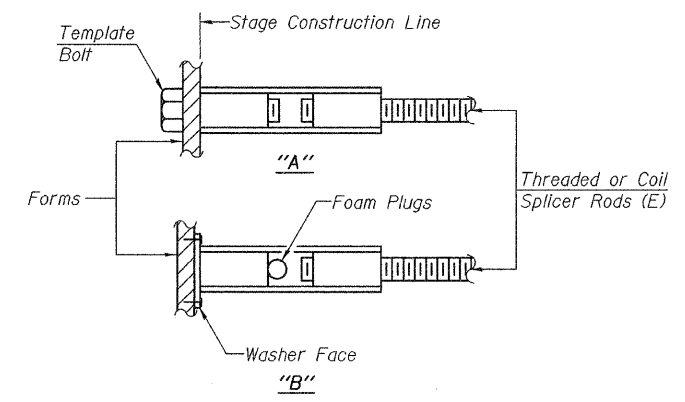
**\*\* ONE PIECE**



**WELDED SECTIONS**

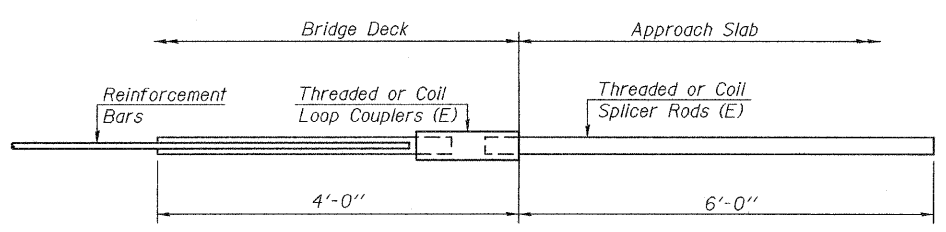
**BAR SPLICER ASSEMBLY ALTERNATIVES**

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



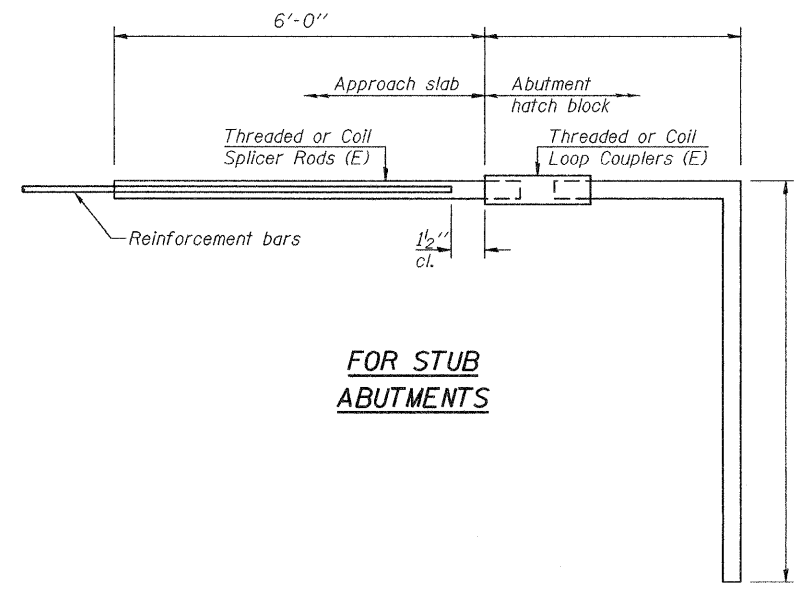
**INSTALLATION AND SETTING METHODS**

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



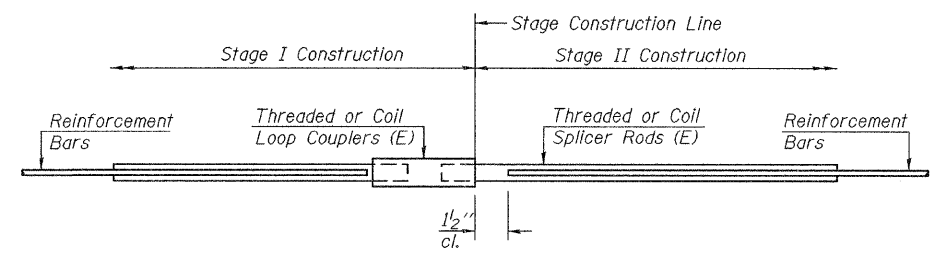
**FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

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



**FOR STUB ABUTMENTS**

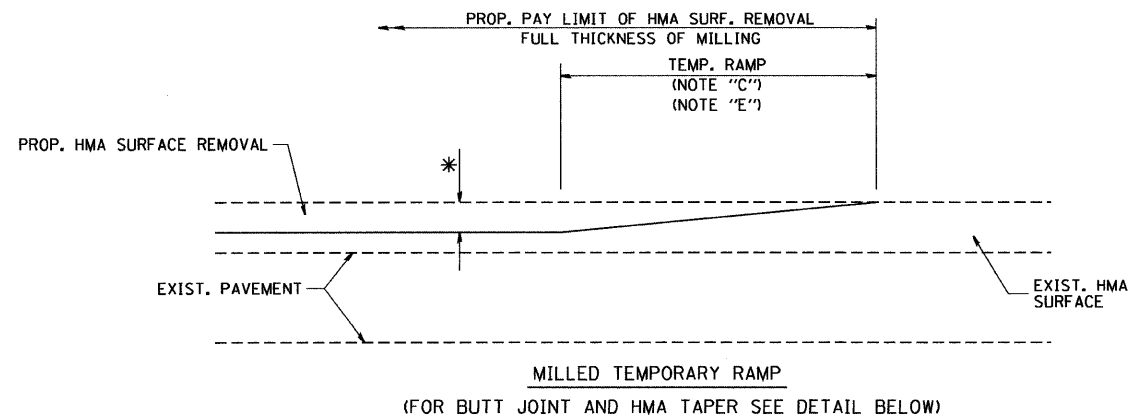
Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 12.3 kips - tension
No. Required =



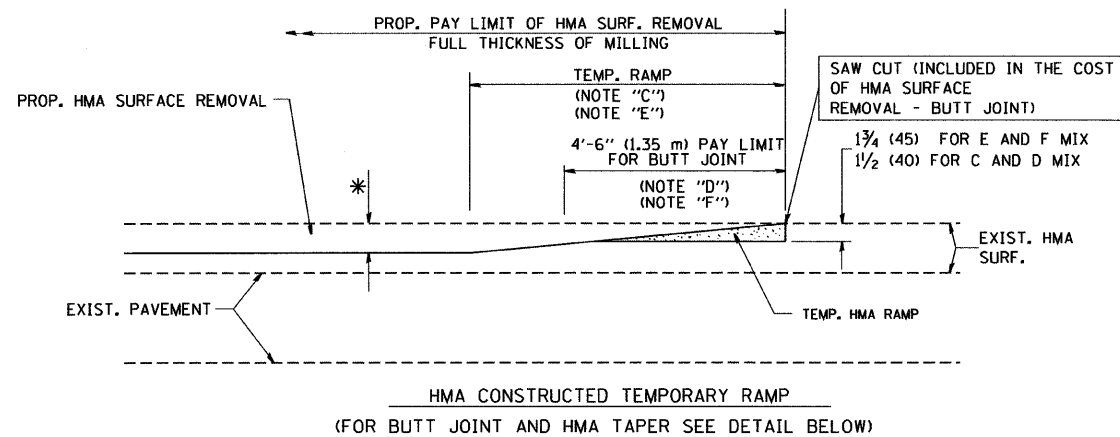
**STANDARD**

Bar Size	No. Assemblies Required	Location
#6	24	Deck at exp. joint

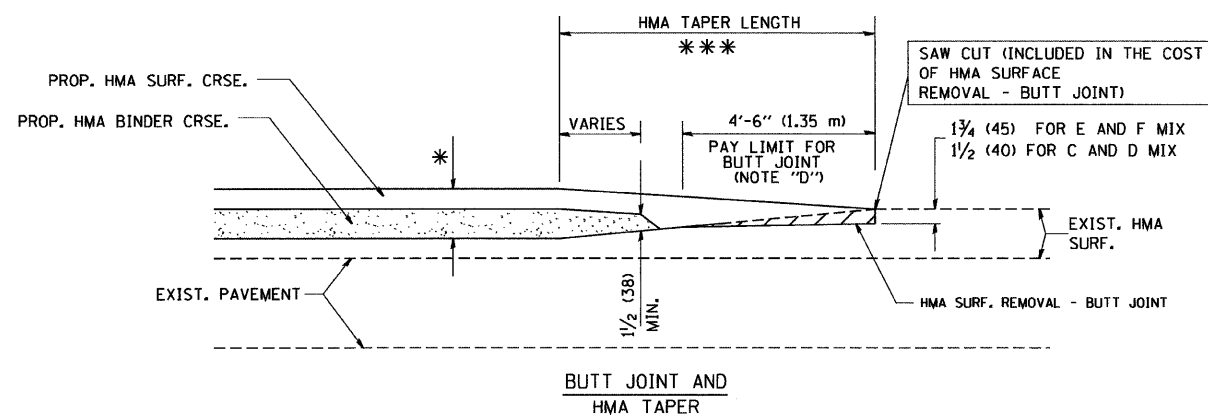
**BAR SPLICER ASSEMBLY DETAILS**  
 IL RTE. 137 (BUCKLEY ROAD)  
 OVER DES PLAINES RIVER  
 FAP 352 SECTION 56 B-1-2  
 LAKE COUNTY  
 SN 049-0063



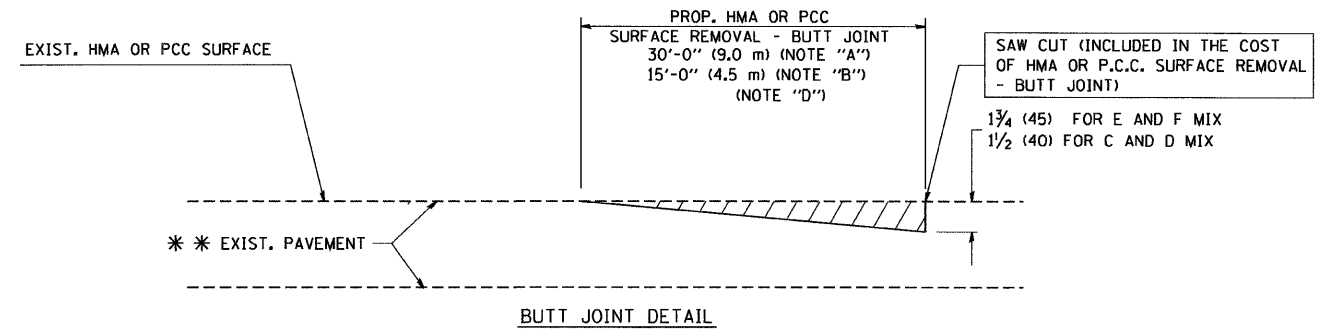
OPTION 1



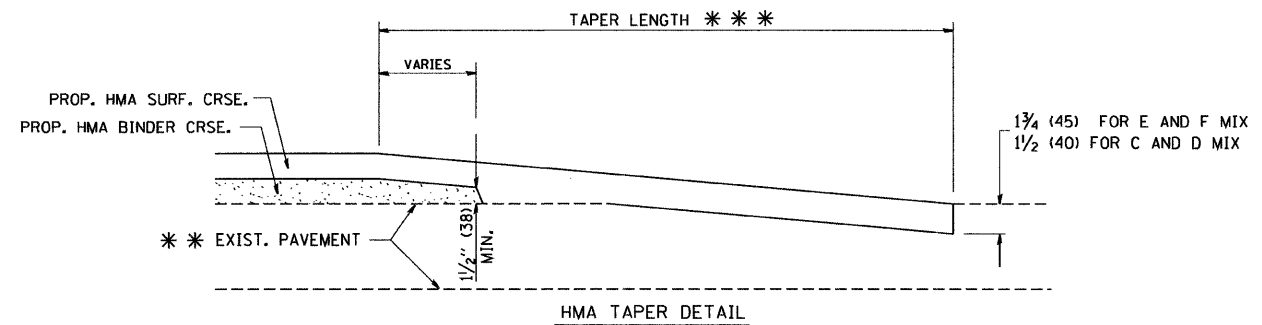
OPTION 2  
TYPICAL TEMPORARY RAMP



TYPICAL BUTT JOINT AND HMA TAPER  
FOR MILLING AND RESURFACING



BUTT JOINT DETAIL



TYPICAL BUTT JOINT AND HMA TAPER  
FOR RESURFACING ONLY

\*\*\* PC CONCRETE, HMA OR HMA RESURFACED PAVEMENT.

NOTES

- A: MAINLINE ROADWAYS AND MAJOR SIDE ROADS.
- B: MINOR SIDE ROADS.
- C: THE TEMP. RAMP SHALL BE CONSTRUCTED IMMEDIATELY UPON REMOVAL OF THE EXISTING HMA SURFACE.
- D: THE BUTT JOINT SHALL BE CONSTRUCTED IMMEDIATELY PRIOR TO PLACING THE PROPOSED HMA COURSES.
- E: TAPER THE TEMP. RAMP AT A RATE OF 3'-0" (900 mm) PER 1 INCH (25 mm) OF MILLING THICKNESS.
- F: INSTALLATION AND REMOVAL OF THE 4'-6" (1.35 m) TEMP. RAMP IS INCLUDED IN COST OF HMA SURFACE REMOVAL - BUTT JOINT
- G: SEE ARTICLE 406.08 AND 406.14 OF THE STANDARD SPECIFICATIONS FOR "HMA AND/OR PCC SURFACE REMOVAL, BUTT JOINT".
- \* SEE TYPICAL SECTIONS FOR MILLING THICKNESS.
- \*\*\* 20'-0" (6.1 m) PER 1 (25) RESURFACING (NOTE "A")  
10'-0" (3.0 m) PER 1 (25) RESURFACING (NOTE "B")

BASIS OF PAYMENT:

THE BUTT JOINT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD (SQUARE METER) FOR "HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT" OR FOR "PORTLAND CEMENT CONCRETE SURFACE REMOVAL - BUTT JOINT".

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

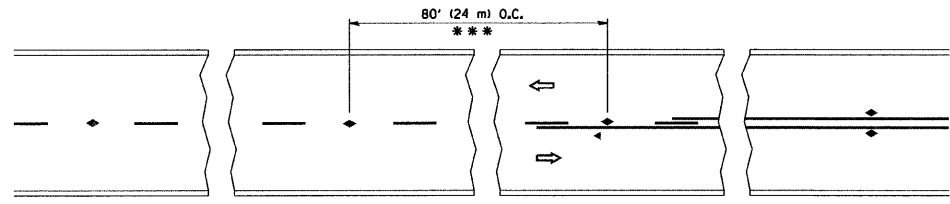
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USER NAME = gpg11enobt	DESIGNED - M. DE YONG	REVISED - R. SHAH 10-25-94
PLOT SCALE = 50.0000' / IN.	DRAWN -	REVISED - A. ABBAS 03-21-97
PLOT DATE = 1/4/2008	CHECKED -	REVISED - M. GOMEZ 04-06-01
	DATE - 06-13-90	REVISED - R. BORO 01-01-07

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

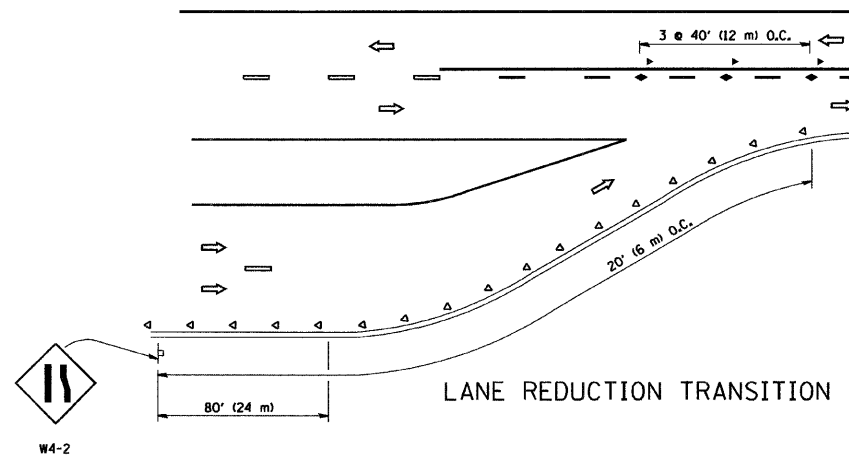
BUTT JOINT AND HMA TAPER DETAILS			
SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
352	56 B-I-2	LAKE	26	22
BD400-05 BD32			CONTRACT NO.	
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

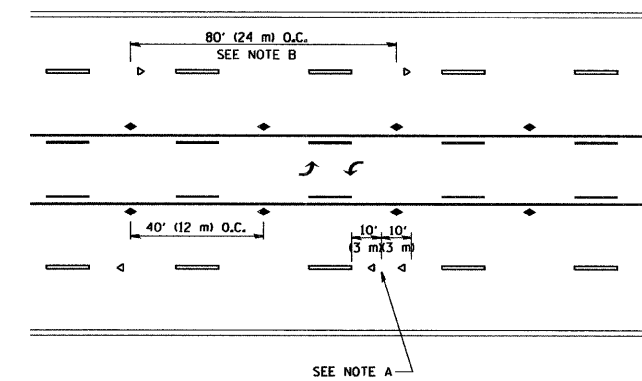


\*\*\* REDUCE TO 40' (12 m) O.C. ON CURVES WITH POSTED OR ADVISORY SPEED 45 M.P.H. (70 km/h) OR LESS.

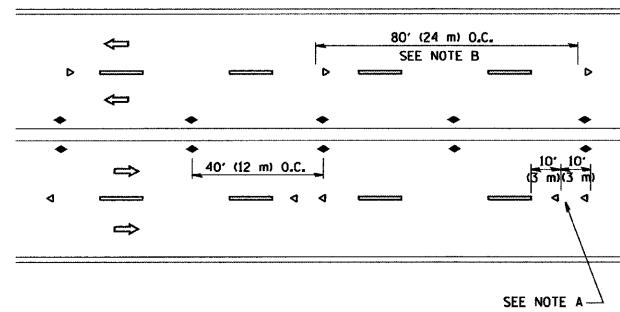
TWO-LANE/TWO-WAY



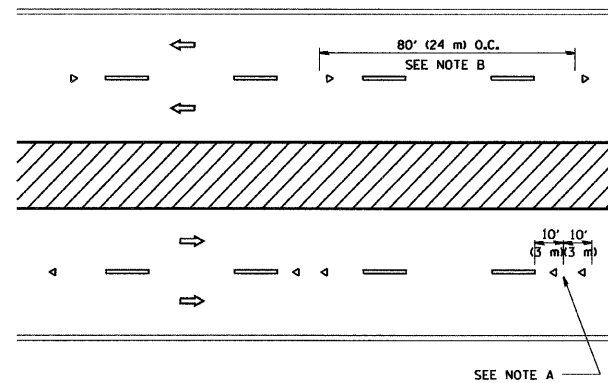
LANE REDUCTION TRANSITION



TWO-WAY LEFT TURN



MULTI-LANE/UNDIVIDED



MULTI-LANE/DIVIDED

GENERAL NOTES

1. MARKERS USED WITH DASHED LINES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS.
2. MARKERS USED ADJACENT TO SOLID LINES SHALL BE OFFSET 2 TO 3 (50 TO 75) TOWARD TRAFFIC AS SHOWN.
3. MARKERS THROUGH TANGENTS LESS THAN 500' (150 m) IN LENGTH BETWEEN CURVES SHALL BE INSTALLED AT THE LESSER OF THE TWO CURVE SPACINGS.

SYMBOLS

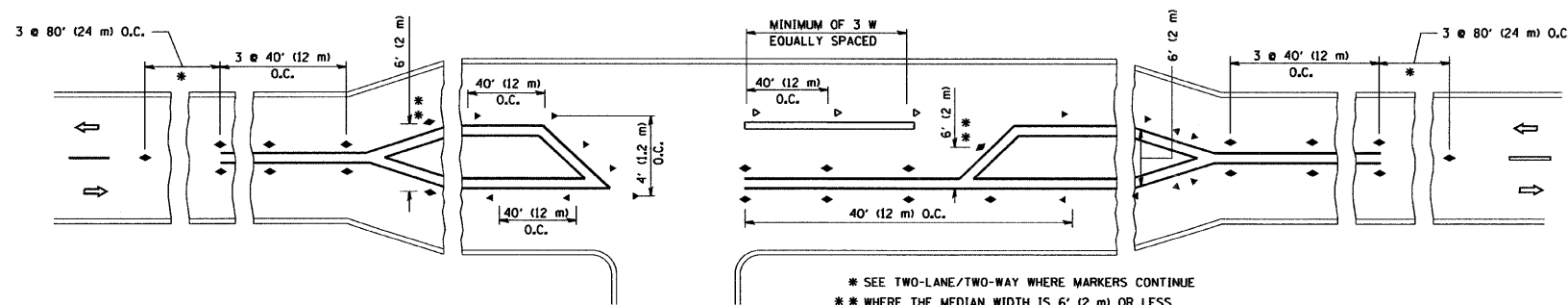
- YELLOW STRIPE
- WHITE STRIPE
- ◀ ONE-WAY AMBER MARKER
- ◁ ONE-WAY CRYSTAL MARKER (W/O)
- ◆ TWO-WAY AMBER MARKER

LANE MARKER NOTES

- B. REDUCE TO 40' (12 m) O.C. ON CURVES WHERE ADVISORY SPEEDS ARE 10 M.P.H. (20 km/h) LOWER THAN POSTED SPEEDS.
- A. USE DOUBLE LANE LINE MARKERS SPACED AS SHOWN.

DESIGN NOTES

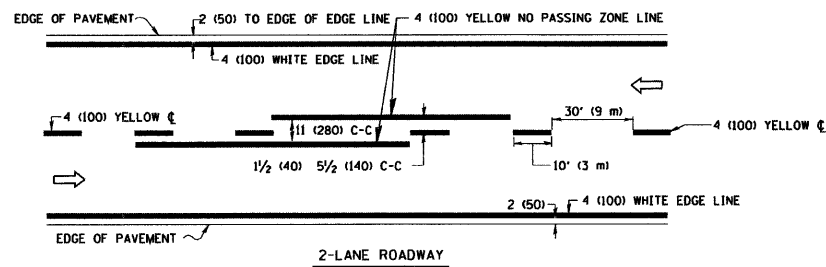
1. DOUBLE LANE LINE MARKERS SHALL BE USED UNLESS SPECIFIED OTHERWISE.
2. EXCEPT AS SHOWN ON THE LANE REDUCTION TRANSITION AND FREEWAY EXIT RAMP DETAIL, MARKERS ARE NOT TO BE SPECIFIED ON RIGHT EDGE LINES.
3. THE EXACT MARKER LIMITS, SPACING, AND COLOR SHOULD BE INCLUDED IN THE PLANS.
4. MARKERS SHOULD NOT BE USED ALONGSIDE CURBS EXCEPT FOR EXTREMELY SHORT SECTIONS OF CURBS WHERE NOT MORE THAN TWO MARKERS WOULD BE INVOLVED.



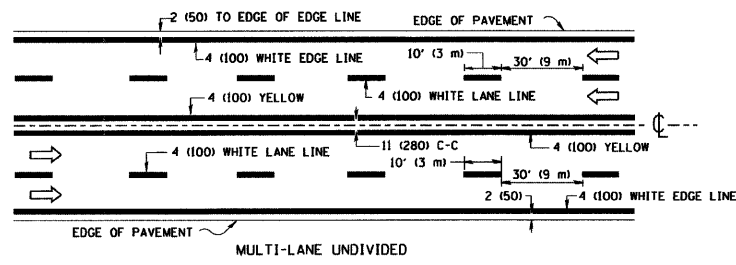
LEFT TURN

All dimensions are in inches (millimeters) unless otherwise shown.

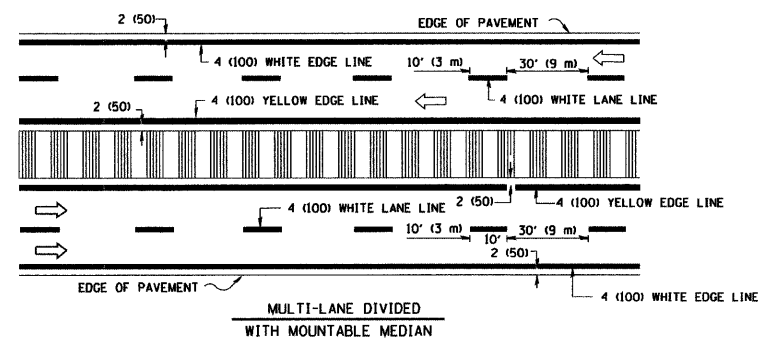
FILE NAME = W:\distrtd\22x34\td11.dgn	USER NAME = gogliernobt	DESIGNED -	REVISED - T. RAMMACHER 09-19-94	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS (SNOW-PLOW RESISTANT)	F.A. RTE. = 352	SECTION = 56 B-I-2	COUNTY = LAKE	TOTAL SHEETS = 26	SHEET NO. = 23
	PLOT SCALE = 50,000' / IN.	CHECKED -	REVISED - T. RAMMACHER 03-12-99			SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA. TO STA.	TC-11	
PLOT DATE = 1/4/2008	DATE -	REVISED - T. RAMMACHER 01-06-00	REVISED -	FED. ROAD DIST. NO. 1   ILLINOIS FED. AID PROJECT						



2-LANE ROADWAY



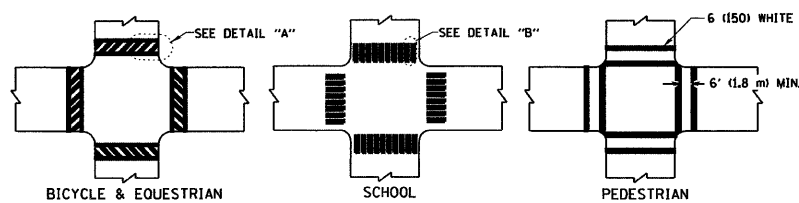
MULTI-LANE UNDIVIDED



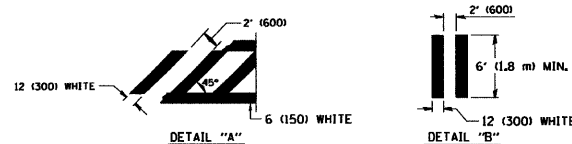
MULTI-LANE DIVIDED WITH MOUNTABLE MEDIAN

NOTE: MEDIANS WITH BARRIER CURB DO NOT REQUIRE AN EDGE LINE

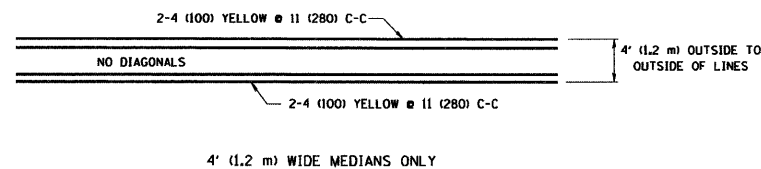
TYPICAL LANE AND EDGE LINE MARKING



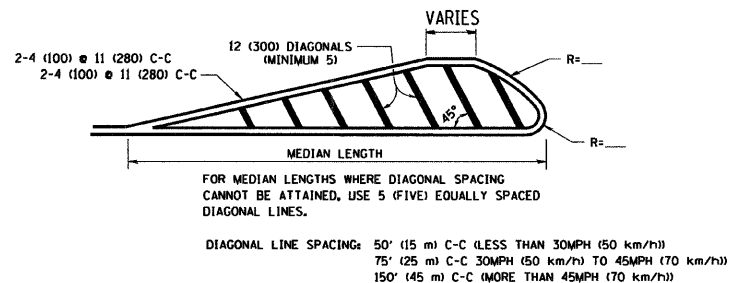
BICYCLE & EQUESTRIAN SCHOOL PEDESTRIAN



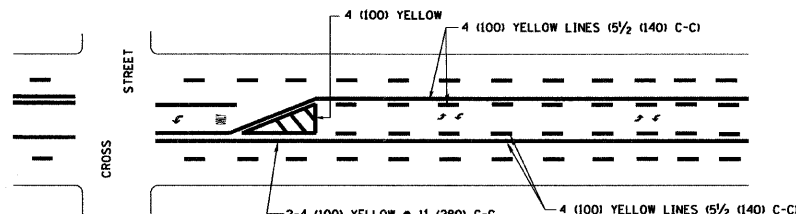
TYPICAL CROSSWALK MARKING



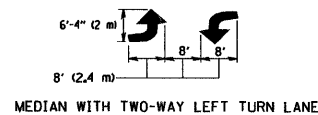
4' (1.2 m) WIDE MEDIANS ONLY



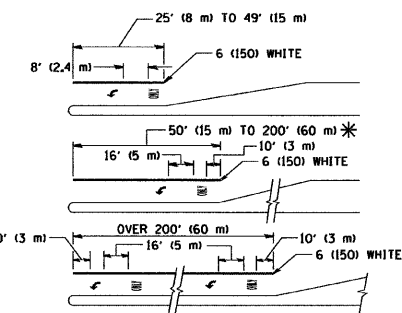
MEDIANS OVER 4' (1.2 m) WIDE



A MINIMUM OF TWO PAIRS OF TURN ARROWS SHALL BE USED, WHITE IN COLOR. ADDITIONAL PAIRS SHALL BE PLACED AT 200' (60 m) TO 300' (90 m) INTERVALS.



TYPICAL PAINTED MEDIAN MARKING

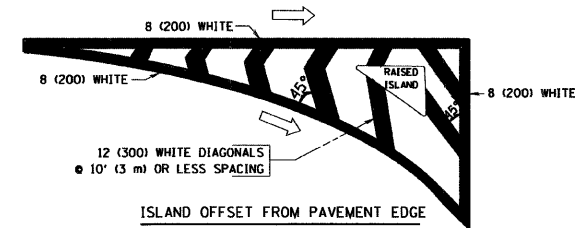


FULL SIZE LETTERS 8' (2.4 m) AND ARROWS SHALL BE USED. AREA = 15.6 SQ. FT. (1.5 m<sup>2</sup>) AREA = 20.8 SQ. FT. (1.9 m<sup>2</sup>)

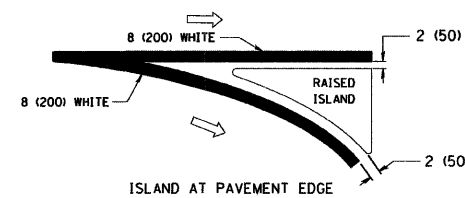
\* TURN LANES IN EXCESS OF 400' (120 m) IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW - "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW - "ONLY".

TYPICAL LEFT (OR RIGHT) TURN LANE

TYPICAL TURN LANE MARKING



ISLAND OFFSET FROM PAVEMENT EDGE



ISLAND AT PAVEMENT EDGE

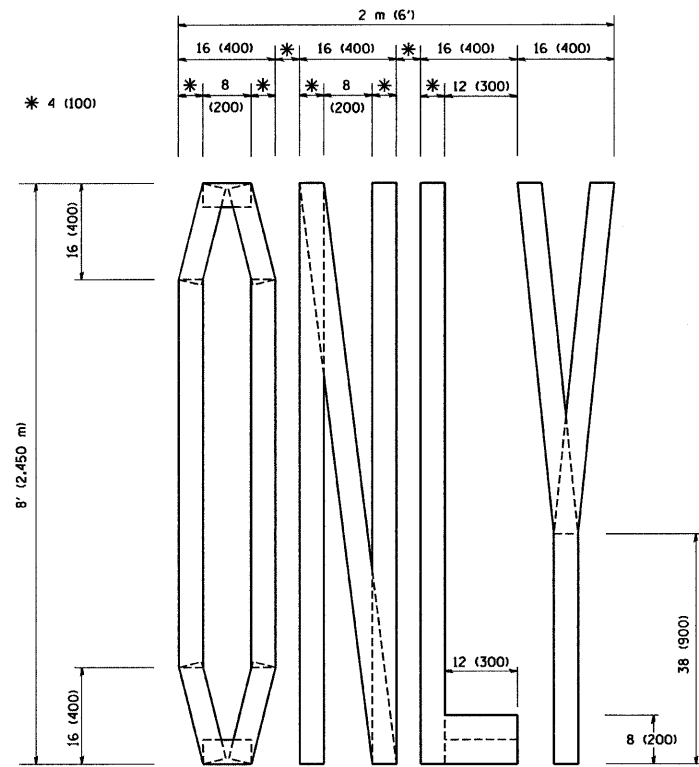
TYPICAL ISLAND MARKING

TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING / REMARKS
CENTERLINE ON 2 LANE PAVEMENT	4 (100)	SKIP-DASH	YELLOW	10' (3 m) LINE WITH 30' (9 m) SPACE
CENTERLINE ON MULTI-LANE UNDIVIDED PAVEMENT	2 @ 4 (100)	SOLID	YELLOW	11 (280) C-C
NO PASSING ZONE LINES: FOR ONE DIRECTION FOR BOTH DIRECTIONS	4 (100) 2 @ 4 (100)	SOLID SOLID	YELLOW YELLOW	5/2 (140) C-C FROM SKIP-DASH CENTERLINE 11 (280) C-C OMIT SKIP-DASH CENTERLINE BETWEEN
LANE LINES	4 (100) 5 (125) ON FREEWAYS	SKIP-DASH SKIP-DASH	WHITE WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	2' (600) LINE WITH 6' (1.8 m) SPACE
EDGE LINES	4 (100)	SOLID	YELLOW-LEFT WHITE-RIGHT	OUTLINE MOUNTABLE MEDIANS IN YELLOW; EDGE LINES ARE NOT USED NEXT TO BARRIER CURB
TURN LANE MARKINGS	6 (150) LINE; FULL SIZE LETTERS & SYMBOLS (8' (2.4m))	SOLID	WHITE	SEE TYPICAL TURN LANE MARKING DETAIL
TWO WAY LEFT TURN MARKING	2 @ 4 (100) EACH DIRECTION 8' (2.4m) LEFT ARROW	SKIP-DASH AND SOLID IN PAIRS	YELLOW WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE FOR SKIP-DASH 5/2 (140) C-C BETWEEN SOLID LINE AND SKIP-DASH LINE SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK LINES (PEDESTRIAN) A. DIAGONALS (BIKE & EQUESTRIAN) B. LONGITUDINAL BARS (SCHOOL)	2 @ 6 (150) 12 (300) @ 45° 12 (300) @ 90°	SOLID SOLID SOLID	WHITE WHITE WHITE	NOT LESS THAN 6' (1.8 m) APART 2' (600) APART SEE TYPICAL CROSSWALK MARKING DETAILS.
STOP LINES	24 (600)	SOLID	WHITE	PLACE 4' (1.2 m) IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT. OTHERWISE, PLACE AT DESIRED STOPPING POINT. PARALLEL TO CROSSROAD CENTERLINE, WHERE POSSIBLE
PAINTED MEDIANS	2 @ 4 (100) WITH 12 (300) DIAGONALS @ 45° NO DIAGONALS USED FOR 4' (1.2 m) WIDE MEDIANS	SOLID	YELLOW; TWO WAY TRAFFIC WHITE; ONE WAY TRAFFIC	11 (280) C-C FOR THE DOUBLE LINE SEE TYPICAL PAINTED MEDIAN MARKING.
GORE MARKING AND CHANNELIZING LINES	8 (200) WITH 12 (300) DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS: 15' (4.5 m) C-C (LESS THAN 30MPH (50 km/h)) 20' (6 m) C-C (30MPH (50 km/h) TO 45MPH (70 km/h)) 30' (9 m) C-C (OVER 45MPH (70 km/h))
RAILROAD CROSSING	24 (600) TRANSVERSE LINES; "RR" IS 6' (1.8 m) LETTERS; 16 (400) LINE FOR "X"	SOLID	WHITE	SEE STATE STANDARD 780001 AREA OF: "R"=3.6 SQ. FT. (0.33 m <sup>2</sup> ) EACH "X"=54.0 SQ. FT. (5.0 m <sup>2</sup> )
SHOULDER DIAGONALS	12 (300) @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	50' (15 m) C-C (LESS THAN 30MPH (50 km/h)) 75' (25 m) C-C (30 MPH (50 km/h) TO 45MPH (70 km/h)) 150' (45 m) C-C (OVER 45MPH (70 km/h))

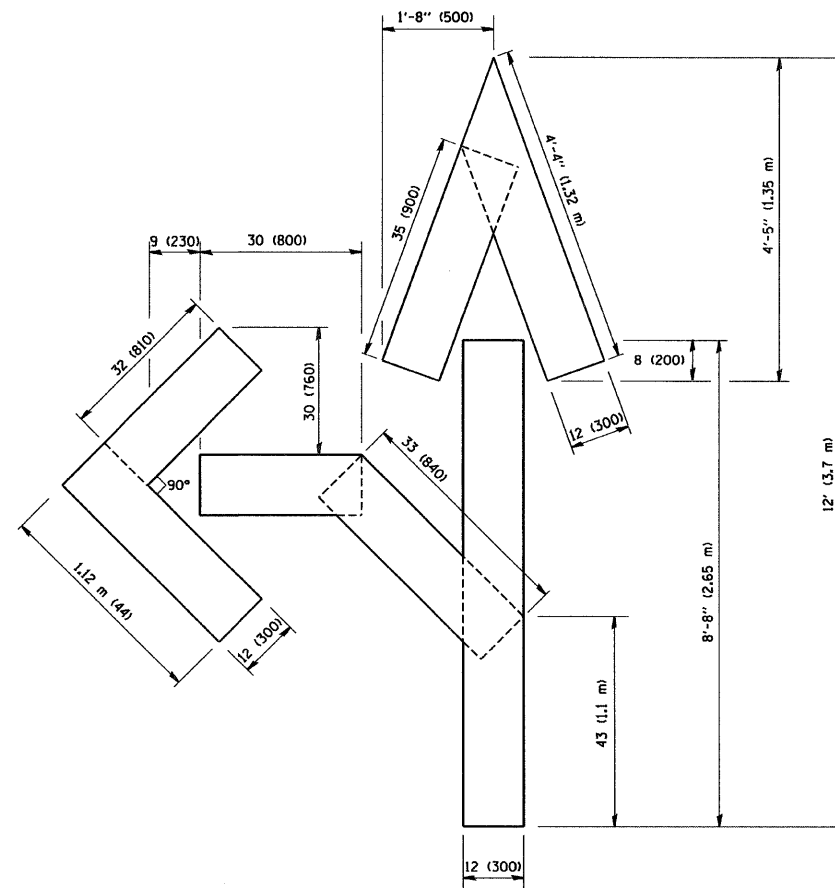
FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STATE STANDARD 780001.

All dimensions are in inches (millimeters) unless otherwise shown.

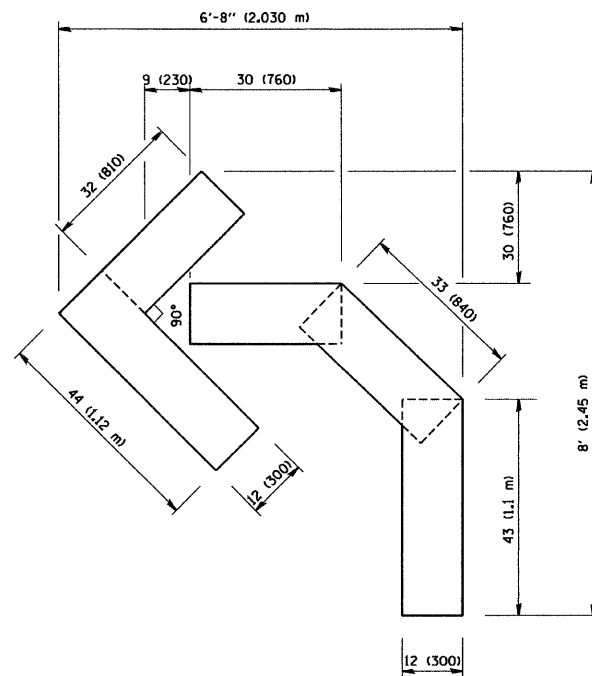




QUANTITY  
 4 (100) LINE = 64.1 ft. (19.7 m)  
 21.1 sq. ft. (1.97 sq. m)



QUANTITY  
 4 (100) LINE = 82.5 ft. (25.3 m)  
 27.5 sq. ft. (2.53 sq. m)



QUANTITY  
 4 (100) LINE = 45.5 ft. (13.9 m)  
 15.2 sq. ft. (1.39 sq. m)

All dimensions are in inches (millimeters) unless otherwise shown.

FILE NAME =  
 W:\diststd\22x34\tc16.dgn

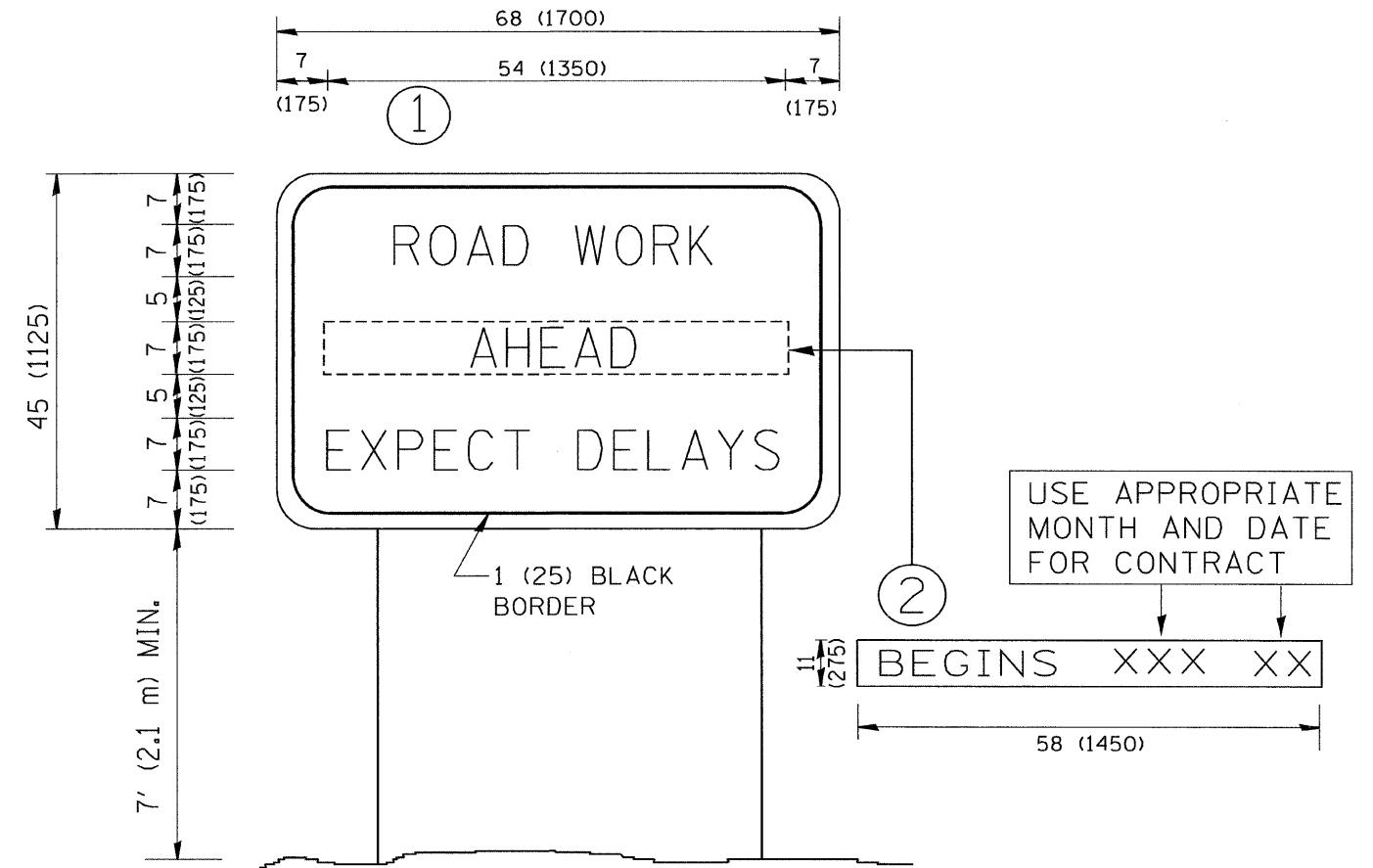
USER NAME = geglennobt	DESIGNED -	REVISED - T. RAMMACHER 06-05-96
PLOT SCALE = 50.0000' / IN.	DRAWN -	REVISED - T. RAMMACHER 11-04-97
PLOT DATE = 1/4/2008	CHECKED -	REVISED - T. RAMMACHER 03-02-98
	DATE - 09-18-94	REVISED - E. GOMEZ 08-28-00

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING LETTERS AND SYMBOLS  
 FOR TRAFFIC STAGING

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

F.A. RTE. 352	SECTION 56 B-I-2	COUNTY LAKE	TOTAL SHEETS 26	SHEET NO. 25
TC-16		CONTRACT NO.		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



**NOTES:**

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN ① WITH INSTALLED PANEL ② ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL ② SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

FILE NAME = W:\disto\22x34\to22.dgn	USER NAME = goglieno	DESIGNED -	REVISED - R. MIRS 09-15-97	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>ARTERIAL ROAD INFORMATION SIGN</b>			F.A. RTE. 352	SECTION 56 B-I-2	COUNTY LAKE	TOTAL SHEETS 26	SHEET NO. 26
	PLLOT SCALE = 50.000' / IN.	DRAWN -	REVISED - R. MIRS 12-11-97		SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	TC-22		CONTRACT NO.	
	PLLOT DATE = 1/4/2008	CHECKED -	REVISED - T. RAMMACHER 02-02-99		FED. ROAD DIST. NO. 1   ILLINOIS FED. AID PROJECT							
		DATE -	REVISED - C. JUCIUS 01-31-07									