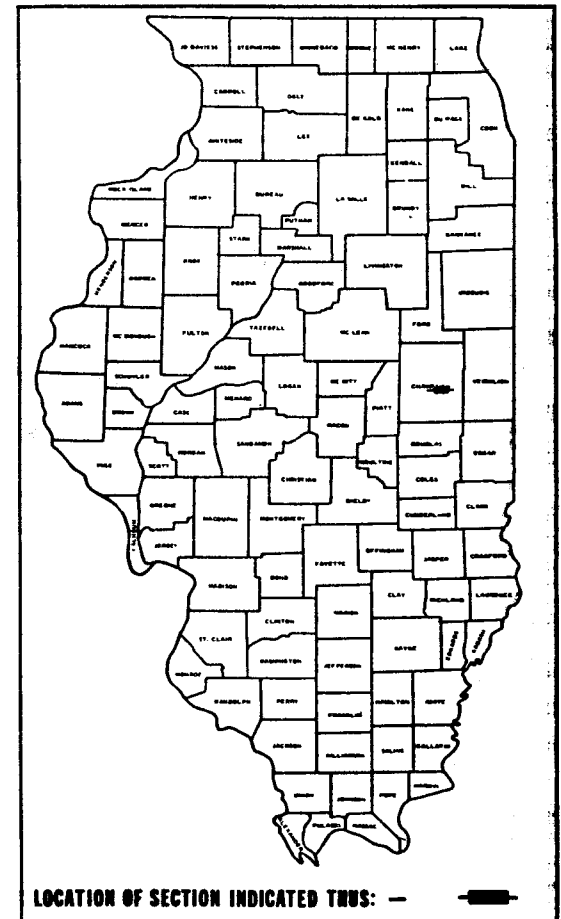


STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
**PLANS FOR PROPOSED  
 FEDERAL AID HIGHWAY**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 1512	2-X-BR	CHAMPAIGN	25	1
F.A.S. PROJ.	ILLINOIS	PROJECT		

D-95-042-85



LOCATION OF SECTION INDICATED THUS: — —

FOR INDEX OF SHEETS, SEE SHEET NO. 3  
 FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 4

PLAN  
 PROFILE HORIZ.  
 PROFILE VERT.  
 CROSS SECTIONS

**F.A.S. ROUTE 1512 (U.S. 150)  
 SECTION 2 X-BR  
~~BUS 1512~~  
 CHAMPAIGN COUNTY**

SUPERSTRUCTURE REPLACEMENT  
 C-95-085-89

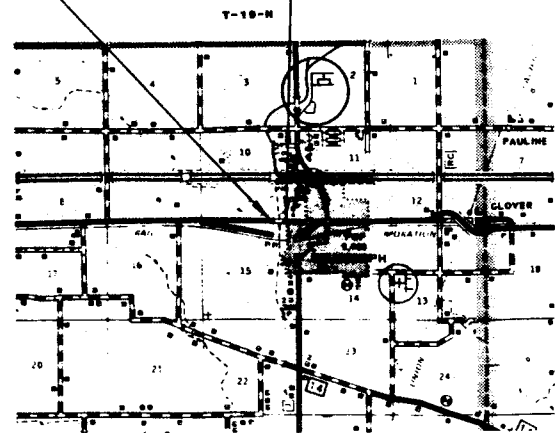
*AS-BUILT  
 PLANS*

CONTRACTOR:  
 A J NIELSEN CONSTRUCTION  
 421 S. 21<sup>ST</sup> ST.  
 P.O. Box 113  
 MATTOON, IL 61839-0113  
 (217) 235-5477

P.O. ALLEN BARR  
 510 S. MAIN ST.  
 CHAMPAIGN, IL 61701

Section Begins Station 396+04

Section Ends Station 402+00



Total Length of Project & Section: 596.0 feet 0.113 miles  
 Net Length of Project & Section: 596.0 feet 0.113 miles

**DESIGN DESIGNATION**  
 1990 (232) Major Collector (Comp 20)

Contract No. 90053

TOLL FREE J.U.L.I.E. NUMBER  
 1-800-892-0123  
 ST. JOSEPH TOWNSHIP

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED: Sept 11 1989  
 EXAMINED: 10-25-89 11:54  
 PASSED: 10-25-89  
 APPROVED: 10-25-89

*J. J. Benson* DISTRICT ENGINEER  
*Ray D. Gould* ENGINEER OF PLANS AND CONTRACTS  
*D. Williams* ENGINEER OF DESIGN  
*Robert A. [Signature]* SECTION ENGINEER IN CHARGE

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

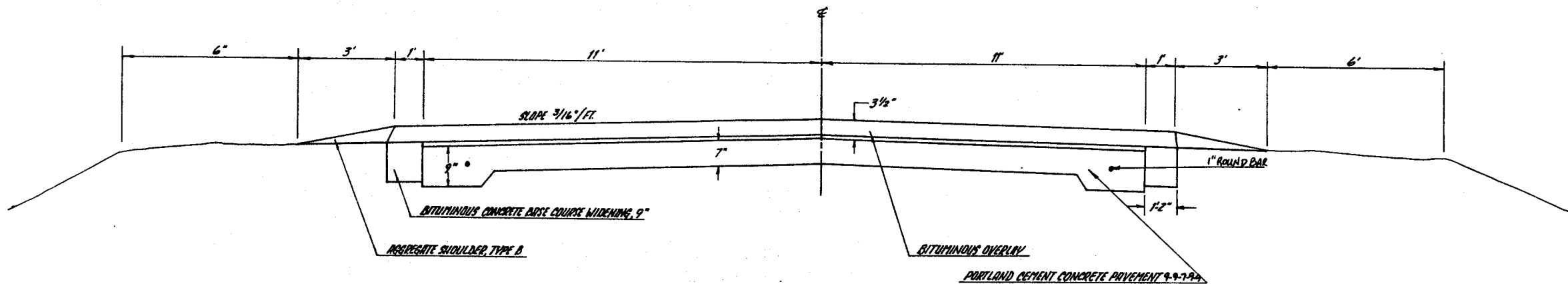
PROJECT ENGINEER: F.M. SEEBER

SQUAD LEADER: T.C. ZAHN

**EXISTING TYPICAL CROSS SECTION**

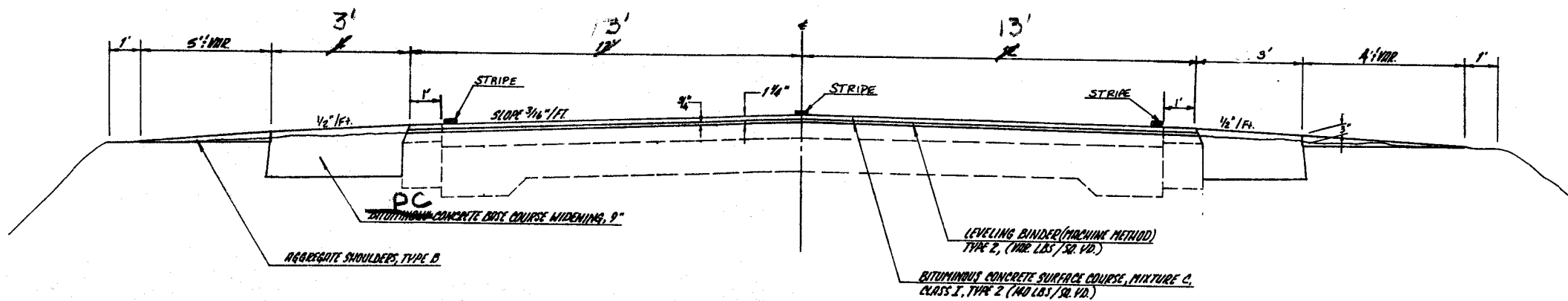
STATION 396+04 TO STATION 402+00

ROUTE NO.	DISTRICT	COUNTY	TOTAL SHEETS	SHEET NO.
512	2-X-BR	CHATHAM	25	2



**PROPOSED TYPICAL CROSS SECTION**

STATION 396+04 TO STATION 402+00



DESIGNED BY	NAME	DATE
CHECKED BY		
DRAFTED BY		

### GENERAL NOTES

ALL ELEVATIONS SHOWN IN THE PLANS ARE BASED ON U. S. G. S. MEAN SEA LEVEL DATUM.

WHERE SECTION OR SUB SECTION MARKERS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED AGENT OR LAND SURVEYOR HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATIONS.

TREES THAT INTERFERE WITH THE CONSTRUCTION OPERATIONS SHALL BE REMOVED AS DIRECTED BY THE ENGINEER. ANY TREE DUE TO ITS LOCATION AND DEEMED SUITABLE FOR SAVING BY THE ENGINEER SHALL BE PROTECTED DURING CLEARING AND SUBSEQUENT CONSTRUCTION OPERATIONS.

ESTIMATED QUANTITIES:  
~~25~~ IN. DIA. TREE REMOVAL (6 TO 15 INCH DIA.)  
 120

THE QUANTITIES INCLUDED IN THE PLANS FOR BITUMINOUS CONCRETE RESURFACING ARE INTENDED TO GIVE THE COVERAGE SHOWN ON THE TYPICAL CROSS SECTIONS. IT IS NOT INTENDED TO INCREASE THE THICKNESS OF THE BITUMINOUS MIXTURE IN ORDER TO USE ALL OF THE QUANTITIES INCLUDED IN THE CONTRACT. THE TOTAL AREA TO BE RESURFACED IS 881 SQUARE YARDS, OF WHICH 0 SQUARE YARDS ARE VARIABLE WIDTH.

ESTIMATED QUANTITIES:  
 90 GALLONS BITUMINOUS MATERIALS (PRIME COAT)  
 2 TONS AGGREGATE (PRIME COAT)  
 50 TONS LEVELING BINDER (MACHINE METHOD), TYPE 2  
 61 TONS BITUMINOUS CONCRETE SURFACE COURSE, MIXTURE C, CLASS 1, TYPE 2

A PROTECTIVE COAT SHALL BE APPLIED TO THE BRIDGE DECK, PARAPET WALLS, CONCRETE APPROACH PAVEMENT, APPROACH SHOULDER PAVEMENT AND OTHER CONCRETE APPURTENANCES ADJACENT TO THE PAVEMENT AND SHALL BE IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF ARTICLE 408.23 OF THE STANDARD SPECIFICATIONS.

ESTIMATED QUANTITIES:  
 348.0 SQ. YDS. PROTECTIVE COAT  
 1236.0

WHERE PROPOSED CONSTRUCTION ABUTTS EXISTING APPURTENANCES, A SAW CUT SHALL BE MADE TO ACHIEVE A NEAT BUTT JOINT. SAW CUTS WILL NOT BE PAID FOR SEPARATELY UNLESS NOTED IN PLANS. COST OF SAW CUTS SHALL BE INCLUDED IN TYPE WORK ENCOUNTERED.

THE EXISTING PAVEMENT SHALL BE REMOVED AND REPLACED IN ACCORDANCE WITH STANDARD 2427 FOR EXPANSION PATCHES.

ESTIMATED QUANTITIES:  
 146 SQ. YDS. CLASS D PATCHES, TYPE III, 15"  
 17

SHOULDERS, FORE-SLOPES, AND OTHER PORTIONS OF THE RIGHT-OF-WAY HAVING INSUFFICIENT VEGETATION SHALL BE SEEDED. THE FERTILIZER AND MULCH AND TILLING SHALL BE INCIDENTAL TO SEEDING, CLASS 2A (SPECIAL). SEEDING MIXTURES FOR THE SPECIFIED CLASS SHALL BE DESIGNATED BY THE ENGINEER BASED ON THE SEASON OF THE YEAR WHEN SEEDING OPERATIONS ARE PERFORMED.

ESTIMATED QUANTITIES:  
 0.4 ACRE SEEDING, CLASS 2A (SPECIAL)

APPLICATION RATES OF THE FERTILIZERS:  
 NITROGEN FERTILIZER NUTRIENTS @ 60 LBS. PER ACRE.  
 PHOSPHORUS FERTILIZER NUTRIENTS @ 200 LBS. PER ACRE  
 POTASSIUM FERTILIZER NUTRIENTS @ 60 LBS. PER ACRE

GUARD RAIL DESIGN IN THESE PLANS WERE BASED ON THE FOLLOWING INFORMATION:  
 CLEAR ZONE WIDTH = 18' (FROM EDGE OF PAVEMENT)  
 OPERATING SPEED = 55 M.P.H. (POSTED SPEED LIMIT)  
 ADT = 3,700 (2000)

GUARD RAIL POSTS MAY NEED TO BE PLACED THROUGH THE BITUMINOUS CONCRETE BASE COURSE WIDENING DURING INSTALLATION OF THE GUARD RAIL. THE COST FOR PLACING THE GUARD RAIL POSTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR REMOVE AND RE-ERECT STEEL PLATE BEAM GUARD RAIL.

TEMPORARY PAVEMENT MARKING SHALL BE APPLIED TO PAVEMENT AFTER STAGES I AND II HAVE BEEN INSTALLED. USE SOLID LINE TO DELINEATE THE DETOUR SHOULDERS, AND CONSTRUCT STOP BARS.

ESTIMATED QUANTITIES:  
 454 LIN. FT. TEMPORARY PAVEMENT MARKING  
 (0 LIN. FT. YELLOW AND 454 LIN. FT. WHITE)

PAINT PAVEMENT MARKING SHALL BE APPLIED TO THE FINAL CONCRETE AND BITUMINOUS PAVEMENT SURFACES. THE PAVEMENT AND BRIDGE DECK SHALL BE STRIPED AT 22'.

ESTIMATED QUANTITIES:  
 YELLOW 153 LIN. FT. PAINT PAVEMENT MARKING - LINE 4"  
 WHITE 1,220 LIN. FT. PAINT PAVEMENT MARKING - LINE 4"  
 TOTAL 1,373 LIN. FT. PAINT PAVEMENT MARKING - LINE 4"

SUMMARY OF EARTH WORK  

LOCATION	EXCAVATION WIDENING	STRUCTURE EXCAVATION
EAST ABUTMENT	27	
WEST ABUTMENT	28	
BITUMINOUS SHLDS. 6072		
TOTAL	6072 CU. YD.	55 CU. YD.

SUMMARY OF CLASS X CONCRETE  

LOCATION	CL. X CONC.	CL. X CONC. SUPERSTRUCTURE
<del>TRANSVERSE DRAIN PAV</del> 600		
EAST ABUTMENT	17.9	
WEST ABUTMENT	17.9	
SUPERSTRUCTURE		289.8
TOTAL	42.6 CU. YD.	289.8 CU. YD.

UTILITY LINES WERE PLOTTED FROM INFORMATION FURNISHED BY THE VARIOUS UTILITY COMPANIES INVOLVED AND THEIR ACCURACY SHOULD BE CONSIDERED APPROXIMATE ONLY. THESE UTILITY COMPANIES MAY BE ADJUSTING THEIR FACILITIES DURING CONSTRUCTION. THE CONTRACTOR SHALL COOPERATE WITH THESE ORGANIZATIONS WHILE THESE ADJUSTMENTS ARE BEING PERFORMED. J.U.L.I.E. - JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS SYSTEM (800) 892-0123. THE FOLLOWING UTILITY OWNERS MARKED WITH AN "\*" BELONG TO J.U.L.I.E.:

Illinois Bell Telephone Company  
 320 North Walnut Street  
 Danville, Illinois 61832  
 Mr. John Gilkison  
 217/443-7830

Illinois Power Company  
 1155 East Voorhees Street  
 P. O. Box 327  
 Danville, Illinois 61832  
 Mr. Chuck Rosenthal  
 217/442-6000

### INDEX OF SHEETS

SHEET NO.	ITEM
1.	COVER SHEET
2.	EXISTING AND PROPOSED TYPICAL CROSS SECTION
3.	INDEX OF SHEETS
3.	SIGNATURE BLOCK
3.	GENERAL NOTES
4.	SUMMARY OF QUANTITIES
5.	PLANS FOR STAGE I
6.	PLANS FOR STAGE II
7.	PLANS FOR COMPLETED CONSTRUCTION
8.-9.	BRIDGE APPROACH PAVEMENT (SPECIAL)
10.	DETAIL FOR ABUTMENT DRAINS
10.	DETAIL FOR SUPPORT SLAB DRAINS
11.-25.	BRIDGE PLAN AND DETAIL SHEETS

### STANDARDS

2113-2	- NAME PLATE FOR BRIDGES
2230-15	STEEL PLATE BEAM GUARDRAIL
2298-7	TRAFFIC CONTROL DEVICES
2299-10	DESIGN OF TRAFFIC CONTROL DEVICES
2300-3	FLAGGER TRAFFIC CONTROL DEVICES
2302-5	TRAFFIC CONTROL DEVICES
2303-6	TRAFFIC CONTROL DEVICES
2306-6	TRAFFIC CONTROL DEVICES
2308-5	TRAFFIC CONTROL DEVICES
2311-8	TRAFFIC CONTROL DEVICES
2324-6	BRIDGE APPROACH SHOULDER PAVEMENT
2336-4	TRAFFIC BARRIER TERMINAL, TYPE 1 AND 1A
2341-1	TRAFFIC BARRIER TERMINAL, TYPE 6
2383-1	TEMPORARY CONCRETE BARRIER
2409-1	TRAFFIC CONTROL DEVICES
2427	CLASS C AND D PATCHES

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DISTRICT FIVE

REVIEWED BY: Charles D. [Signature]  
 DISTRICT ENGINEER OF DESIGN

DATE: September 11, 1989

EXAMINED BY: Arnold [Signature]  
 DISTRICT ENGINEER OF CONST.

D.L. Camp  
 DISTRICT ENGINEER OF MAINT.

J.W. [Signature]  
 DISTRICT ENGINEER OF PLANNING

C. Thomas [Signature]  
 DISTRICT ENGINEER OF TRAFFIC

C  
 B  
 A  
 0  
 A  
 B  
 C

DATE 4/15/91 PAGE 1  
 CONTRACTOR NAME A J WALKER CONST CO  
 1319 CHARLESTON AVE. WATT ROUTE PAS-1912  
 DUN IL 619380902 PROJECT 2X-3R  
 COUNTY CHAMPAIGN  
 CONTRACT NO 90053  
 JOB NO C950558

CONTRACTOR'S APPROVAL OF FINAL QUANTITIES:

ITEM NO.	ITEM DESCRIPTION	AWARDED QUANTITY	ADDED	DEDUCTED	FINAL QUANTITY
FRC00100	REEL STJP BARS	.00	1.00	.00	1.00
I5020200	PAINT PVT MK LINE 5	14373.00	234.00	.00	14607.00
X0300420	REIN GLAS NEUPR MAT	74.00	.00	.00	74.00
X959100	GIVE WEM A BRAKE SIGN	1.00	1.00	.00	1.00
X9593700	PCC BASE CSE REM	1.00	1.00	.00	1.00
Z0007120	ABUTMENT DRAINS	2.00	.00	.00	2.00
Z0024400	FILTER FRB BOX RIPRAP	425.00	.00	159.00	266.00
Z0027750	GEOTECH POSITE WALL DR	61.00	4.00	.00	65.00
Z0028400	GEOTECH FAJ F/GR STAB	300.00	.00	103.00	197.00
Z0039200	PERM SURVEY MARKER TY	1.00	1.00	.00	1.00
Z0100100	TREE REMOV 8-15	75.00	45.00	.00	120.00
Z0200900	EARTH EXC 110	72.00	.00	12.00	60.00
Z0900400	POROUS GRAN EMB SPEL	85.00	.00	1.00	85.00
Z1601200	AGGREGATE SHLDS B-T	28.00	.00	.00	28.00
30500400	PCC BASE CSE H W	.00	259.00	32.00	237.00
30600400	BIT CONC BC MID 9	269.00	.00	269.00	.00

DATE 4/15/91 PAGE 2  
 ROUTE PAS-1912 SECTION 2X-3R

ITEM NO.	ITEM DESCRIPTION	AWARDED QUANTITY	ADDED	DEDUCTED	FINAL QUANTITY
40600100	BIT MATLS PR CT	90.00	5.00	.00	95.00
40600300	AGG PR CT	2.00	.00	2.00	.00
40600540	LEV BIND MM F2	50.00	5.00	.00	55.00
44600850	BIT CON SC "C" CLI F2	61.00	.00	.00	61.00
40801300	PROTECTIVE CURT	144.00	4.00	4.00	140.00
40801400	BR APPROACH PAVT SPL	116.00	8.00	.00	124.00
40801500	PCC BR APPR SHLD PAVT	28.00	.00	5.00	23.00
50101900	REM EXIST SUP-STR	1.00	.00	.00	1.00
50102400	CONC REM	33.00	1.00	.00	34.00
50102900	EXPAN BOLTS 3/4	136.00	.00	.00	136.00
50200100	STRUCTURE EXCAVATION	55.00	.00	.00	55.00
50300100	FLOOR DRAINS	28.00	.00	.00	28.00
50300250	CLASS X CONC SUP-STR	289.80	.00	.00	289.80
50300300	PROTECTIVE CURT	204.00	892.00	.00	1096.00
50300517	ELAST BRNG ASY F2 SPL	12.00	.00	.00	12.00
50400300	CLASS X CONC	42.80	6.80	13.60	35.80
50700100	F & E STRUCT STEEL	1.00	.00	.00	1.00
50700500	STUD SHEAR CONNECTORS	2,932.00	.00	48.00	2,936.00
51200100	REINFORCEMENT BARS	6,230.00	1,753.00	.00	7,983.00
51200200	REINF BARS, EPOXY CTD	66,360.00	.00	.00	66,360.00



C  
 B  
 A  
 0  
 A  
 B  
 C

DATE: 4/15/91 ROUTE: FAS-1512 SECTION: 2X-3R PAGE: 3

ITEM NO.	ITEM DESCRIPTION	AWARDED QUANTITY	ADDED	DEDUCTED	FINAL QUANTITY
51305200	TEMP SHY PILING	513.00	54.00	83.00	484.00
51400100	NAME PLATES	1.00	.00	.00	1.00
60100109	STONE TRIPRAP CL A5	225.00	.00	68.00	357.00
60708000	P UNDR RER CUR S P	116.00	27.00	.00	143.00
61700036	BIT SURE REM SUITE JT	107.00	.00	.00	107.00
61700100	PAVEMENT REM	105.00	.00	.00	105.00
61705000	STAR SHOULDER REMOV	28.00	.00	.00	28.00
61800100	SLOPE WALL	115.00	.00	15.00	100.00
62071831	CL D PATCH TB IS	116.00	1.00	.00	117.00
62800000	SPBGR TY A	200.00	.00	.00	200.00
62800005	SPBGR TY B	100.00	.00	.00	100.00
62800085	TRAF BAR TERM T6	4.00	.00	.00	4.00
63300300	SPBGR REMOVAL	1.00	107.00	.00	107.00
63301000	REM & RE-ERECT SPBGR	203.00	.00	203.00	.00
63301990	REM RE-E T B TERM T1	.00	4.00	.00	4.00
64201000	SEEDING CL 2 SPL	.40	.00	.00	.40
64600400	ENGR FIELD OFFICE A	7.00	.00	.50	6.50
64700090	TEMP PAVI MARKING	454.00	.00	275.00	180.00
64800405	TRAF CONT & PROT 2409	1.00	.00	.00	1.00
64800500	TRAF CONT & PROT 2311	1.00	.00	.00	1.00

DATE: 4/15/91 ROUTE: FAS-1512 SECTION: 2X-3R PAGE: 4

ITEM NO.	ITEM DESCRIPTION	AWARDED QUANTITY	ADDED	DEDUCTED	FINAL QUANTITY
65000100	MOBILIZATION	1.00	.00	.00	1.00
65600100	TEMP CONC BARRIER	558.00	22.00	.00	580.00
65600200	REL TEMP CONC BARRIER	572.00	22.00	.00	594.00
65600300	TEMP CON BAR TERM SEC	2.00	.00	.00	2.00

NET COST OF SECTION = \$ 576,992.88

APPROVED

DATE \_\_\_\_\_ BY \_\_\_\_\_

SUMMARY OF QUANTITIES

FINAL QUANTITIES

SUMMARY OF QUANTITIES

SAFETY CLASSIFICATION CODE:  
 LOCATION OF WORK:  
 2A STRUCTURE CENTERLINE STATION 399+68.72  
 30 FAS RTE 1512 STATION 396+04 TO STATION 402+00

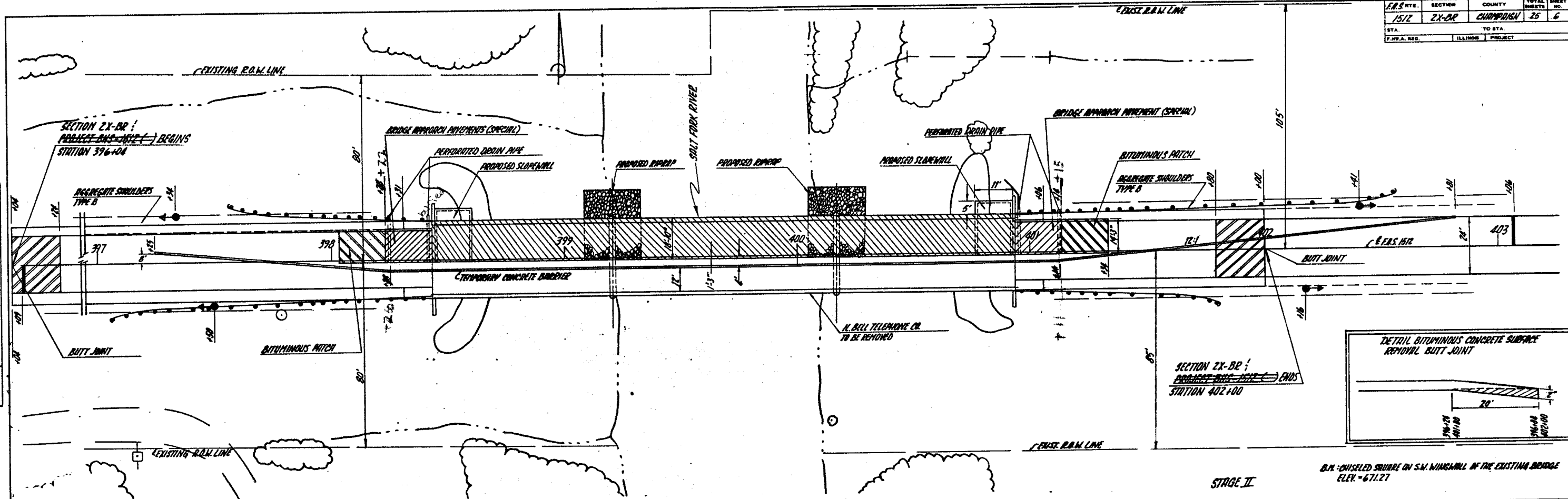
SAFETY CLASSIFICATION CODE:  
 LOCATION OF WORK:  
 2A STRUCTURE CENTERLINE STATION 399+68.72  
 30 FAS RTE 1512 STATION 396+04 TO STATION 402+00

CODE NO	ITEM	CONSTRUCTION TYPE CODE:	UNIT	TOTAL QUANTITY	
				X071 QUANTITY	SFTY QUANTITY
20100100	TREE REMOVAL (6 TO 15 INCH DIAMETER)		IN DIA	75.0 120	75.0 120
20200500	EARTH EXCAVATION (WIDENING)		CU YD	12.0 60	12.0 60
20900400	POROUS GRANULAR EMBANKMENT, SPECIAL		CU YD	85.0 80.0	85.0 85
21501200	AGGREGATE SHOULDERS, TYPE B		TON	28.0	28.0
<del>30600400</del>	<del>BITUMINOUS CONCRETE BASE COURSE WIDENING, 9" THICK</del>		<del>SO YD</del>	<del>209.0</del>	<del>209.0</del>
40600100	BITUMINOUS MATERIALS (PRIME COAT)		GALLON	95.0 90.0	95.0 90.0
40600300	AGGREGATE (PRIME COAT)		TON	0 2.0	0 2.0
40600540	LEVELING BINDER (MACHINE METHOD), TYPE 2		TON	55 50.0	55 50.0
40600840	BITUMINOUS CONCRETE SURFACE COURSE, MIXTURE C, CLASS I, TYPE 2		TON	61.0	61.0
40801300	PROTECTIVE COAT		SQ YD	140.0 140.0	140.0 140.0
40801400	BRIDGE APPROACH PAVEMENT (SPECIAL)		SQ YD	124.0 125.0	125.0 124.0
40801500	P.C. CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT		SQ YD	23.0 28.0	28.0 23.0
50101500	REMOVAL OF EXISTING SUPERSTRUCTURES		EACH	1.0	1.0
50102400	CONCRETE REMOVAL		CU YD	34 32.0	31.0 30.0
50102900	EXPANSION BOLTS 3/4 INCH		EACH	136.0	136.0
50200100	STRUCTURE EXCAVATION		CU YD	55.0	55.0
50300100	FLOOR DRAINS		EACH	28.0	28.0
50300250	CLASS X CONCRETE SUPERSTRUCTURE		CU YD	289.8	289.8
50300300	PROTECTIVE COAT		SQ YD	1076 204.0	204.0 1096
50300517	ELASTOMERIC BEARING ASSEMBLY, TYPE II (SPECIAL)		EACH	12.0	12.0
50400300	CLASS X CONCRETE		CU YD	35.8 42.0	35.8 37.0
50700100	FURNISHING AND ERECTING STRUCTURAL STEEL		L SUM	1.0	1.0
50700500	STUD SHEAR CONNECTORS		EACH	2134 2002.0	2002.0 2134
51200100	REINFORCEMENT BARS		POUND	7185 6230.0	6230.0 7983.0
51200200	REINFORCEMENT BARS, EPOXY COATED		POUND	66,360.0	66,360.0
51305200	TEMPORARY SHEET PILING		SQ FT	484 515.0	515.0 484
51400100	NAME PLATES		EACH	1.0	1.0
60100109	STONE RIPRAP, CLASS A5		SQ YD	357 425.0	425.0 357
60708600	PIPE UNDERDRAINS, PERFORATED CORRUGATED STEEL PIPE 4"		LIN FT	143 116.0	143 116.0
61700036	BITUMINOUS SURFACE REMOVAL - BUTT JOINT		SQ YD	107.0	107.0
61700100	PAVEMENT REMOVAL		SQ YD	105.0	105.0
61705000	STABILIZED SHOULDER REMOVAL		SQ YD	28.0	28.0
61800100	SLOPE WALL 4 INCH		SQ YD	100 145.0	115.0 100
62001831	CLASS D PATCHES, TYPE III, 15 INCH		SQ YD	117 116.0	117 116.0
62800000	STEEL PLATE BEAM GUARD RAIL, TYPE A		LIN FT	200.0	200.0
62800005	STEEL PLATE BEAM GUARD RAIL, TYPE B		LIN FT	100.0	100.0
62800085	TRAFFIC BARRIER TERMINAL, TYPE 6		EACH	4.0	4.0
<del>63301000</del>	<del>REMOVE AND RE-ERECT STEEL PLATE BEAM GUARD RAIL</del>		<del>LIN FT</del>	<del>203.0</del>	<del>203.0</del>
64201000	SEEDING, CLASS 2 (SPECIAL)		ACRE	0.4	0.4
64600400	ENGINEER'S FIELD OFFICE, TYPE A		CAL MO	7.0 6.5	7.0 6.5
64700090	TEMPORARY PAVEMENT MARKING		LIN FT	454.0 180	454.0 180
64800405	TRAFFIC CONTROL AND PROTECTION, STANDARD 2409		EACH	1.0	1.0
64800500	TRAFFIC CONTROL AND PROTECTION, STANDARD 2311		L SUM	1.0	1.0
65000100	MOBILIZATION		L SUM	1.0	1.0

CODE NO	ITEM	CONSTRUCTION TYPE CODE:	UNIT	TOTAL QUANTITY	
				X071 QUANTITY	SFTY QUANTITY
65600100	TEMPORARY CONCRETE BARRIER		LIN FT	580 558.0	580 558
65600200	RELOCATE TEMPORARY CONCRETE BARRIER		LIN FT	594 572.0	594 572.0
65600300	TEMPORARY CONCRETE BARRIER, TERMINAL SECTION		EACH	2.0	2.0
Z0000120	ABUTMENT DRAINS		EACH	2.0	2.0
Z0024405	FILTER FABRIC FOR USE WITH RIPRAP		SO YD	266.0 425.0	425.0 266.0
Z0027750	GEOCOMPOSITE WALL DRAIN		SO YD	65 65.0	65 65
Z0028400	GEOTECHNICAL FABRIC FOR GROUND STABILIZATION		SO YD	197 300.0	197 300.0
T5020200	PAINT PAVEMENT MARKING - LINE 4"		LIN FT	1,373.0 1657	1657 1,373.0
X0300429	REINFORCED ELASTOMERIC NEOPRENE MAT		LIN FT	74.0	74.0
	SPECIALTY ITEMS		SY	237	237
30500400	PCC BASE CURSE WIDENING, 9"		EA	1	1
X9559100	GIVE WAY A BRAKE SIGN		EA	4	4
63301990	REM & RE-ERECT TERM SECTION TO 1		EA	4	4
63300300	SPBGR REMOVAL		LF	107	107
Z0039200	PERM. SURVEY MARKER TY 1		EA	1	1
X9563700	PCC BASE CURSE REMOVAL		SY	19	19
FRC00000	REPL. STOP BARS FOR 2409		EA	1	1

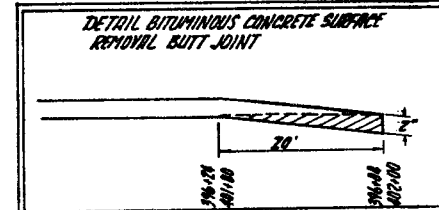


F.R.S. RY. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1512	ZX-BR	CHAMPAIGN	25	6
STA.	TO STA.			
F.W.A. NO.	ILLINOIS	PROJECT		



PLAN  
 SUBMITTED  
 PLOTTED  
 GRADES CHECKED  
 NOTE BOOK  
 NO.

PROFILE  
 SUBMITTED  
 PLOTTED  
 GRADES CHECKED  
 NOTE BOOK  
 NO.



BX - CHISELED SHOULDER ON S.W. WINGWALL OF THE EXISTING BRIDGE  
 ELEV. = 671.27

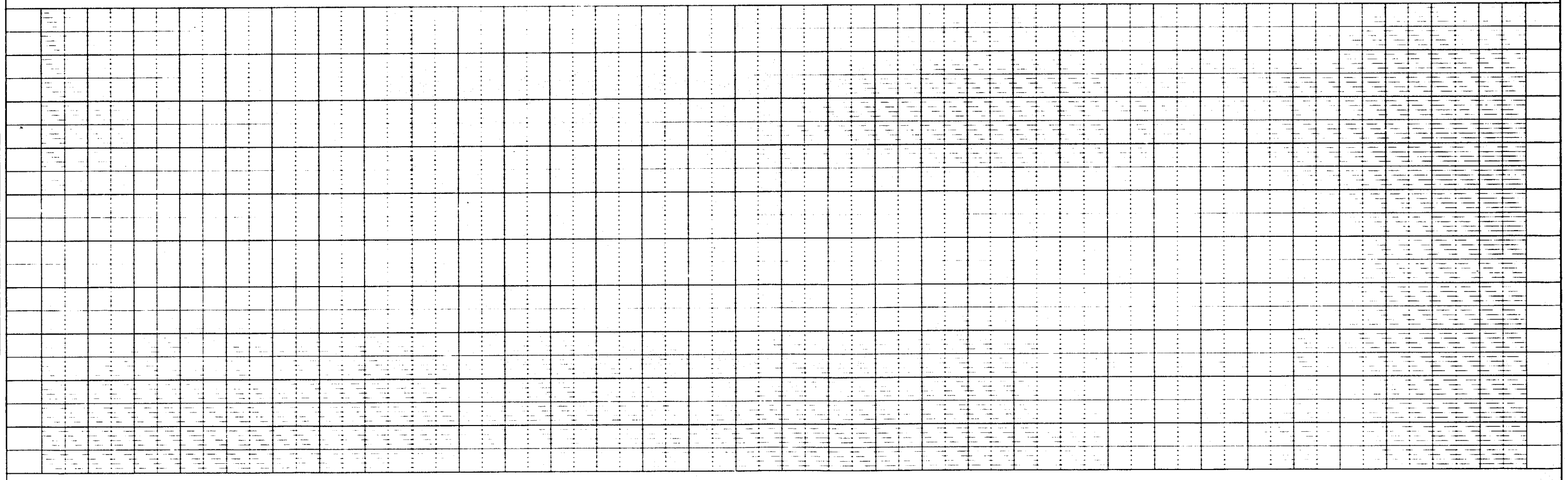
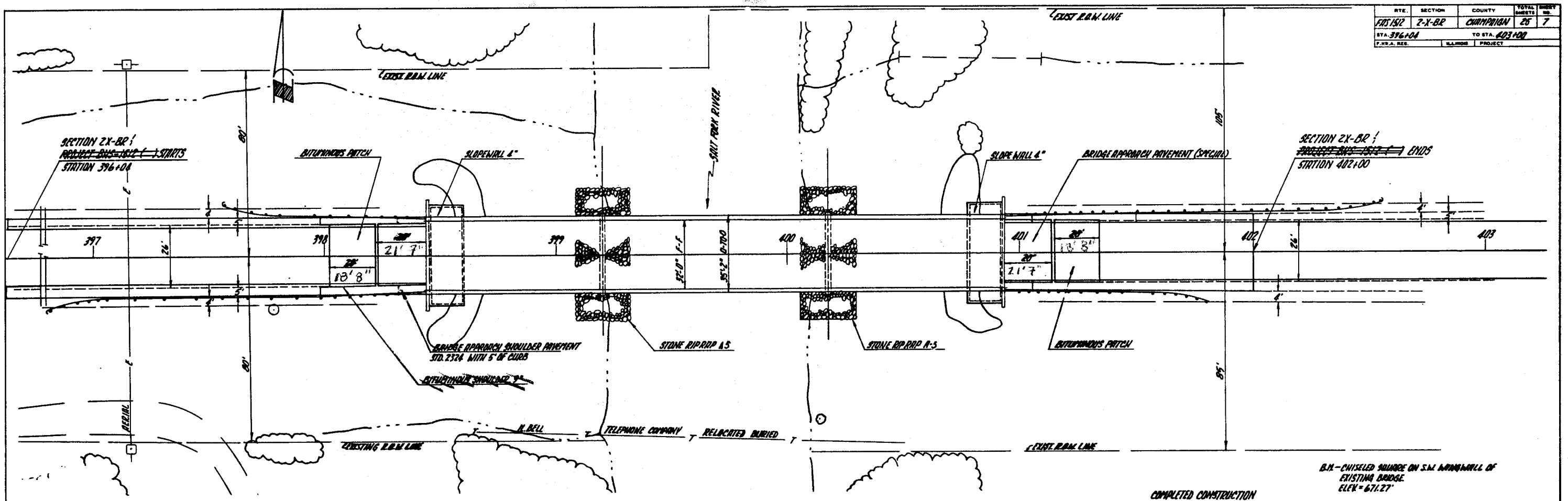
DESCRIPTION	STATION	TO	STATION	QTY	UNIT	TOTAL
<b>AGGREGATE SHOULDERS TYPE B</b>	397+00	398+00	11	11	11	11
<b>STRIPED SHOULDER REMOVAL</b>	398+00	401+00	3	3	3	3
<b>WIRE REMOVAL (6 TO 15 INCH)</b>	398+00	401+00	120	120	120	120
<b>CONCRETE REMOVAL</b>	398+00	401+00	0.76	0.76	0.76	0.76
<b>REMOVE AND RE-ERECT STEEL PLATE BEAM WINGWALL</b>	398+00	401+00	108	108	108	108
<b>STEEL PLATE BEAM BOUND RAIL TYPE B</b>	398+00	401+00	125	125	125	125
<b>STEEL PLATE BEAM BOUND RAIL TYPE A</b>	398+00	401+00	125	125	125	125
<b>BRIDGE APPROACH SHOULDER PAVEMENT (2326)</b>	398+00	401+00	12	12	12	12
<b>WATER BARRIER TERMINAL TYPE B</b>	398+00	401+00	2	2	2	2
<b>CLASS B PATCHES TYPE III 15 INCH</b>	398+00	401+00	50	50	50	50
<b>PC CONCRETE BASE COURSE REMOVAL</b>	398+00	401+00	12	12	12	12
<b>BRIDGE APPROACH PAVEMENT (SPECIAL)</b>	398+00	401+00	12	12	12	12
<b>BITUMINOUS SURFACE REMOVAL BUTT JOINT</b>	398+00	401+00	12	12	12	12
<b>PAVEMENT REMOVAL</b>	398+00	401+00	12	12	12	12
<b>REMOVAL OF EXISTING STRUCTURE</b>	398+00	401+00	12	12	12	12
<b>RELOCATE TEMPORARY CONCRETE BARRIERS</b>	398+00	401+00	12	12	12	12
<b>PERMANENT SURVEY MARKER TYPE I</b>	401+99.9	401+99.9	1	1	1	1
<b>REM &amp; RE-ERECT TERM SEGMENT I</b>	397+92.85	398+17.85	1	1	1	1
	401+19.15	401+44.15	1	1	1	1
	401+99.9	401+99.9	1	1	1	1



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FD-152	2-X-BR	CAMPBELL	28	7
STA. 396+00		TO STA. 403+00		
F.V.A. REG.		ILLINOIS PROJECT		

DATE	
BY	
PLAN	
NO.	
NO.	

DATE	
BY	
PROFILE	
NO.	
NO.	

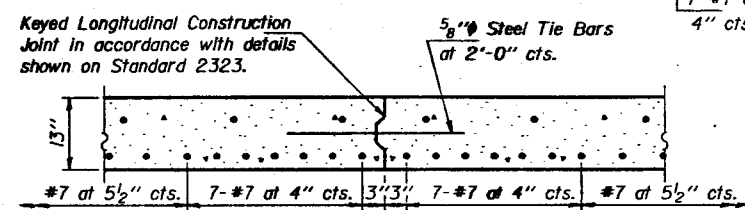
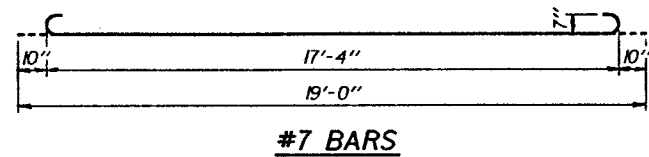
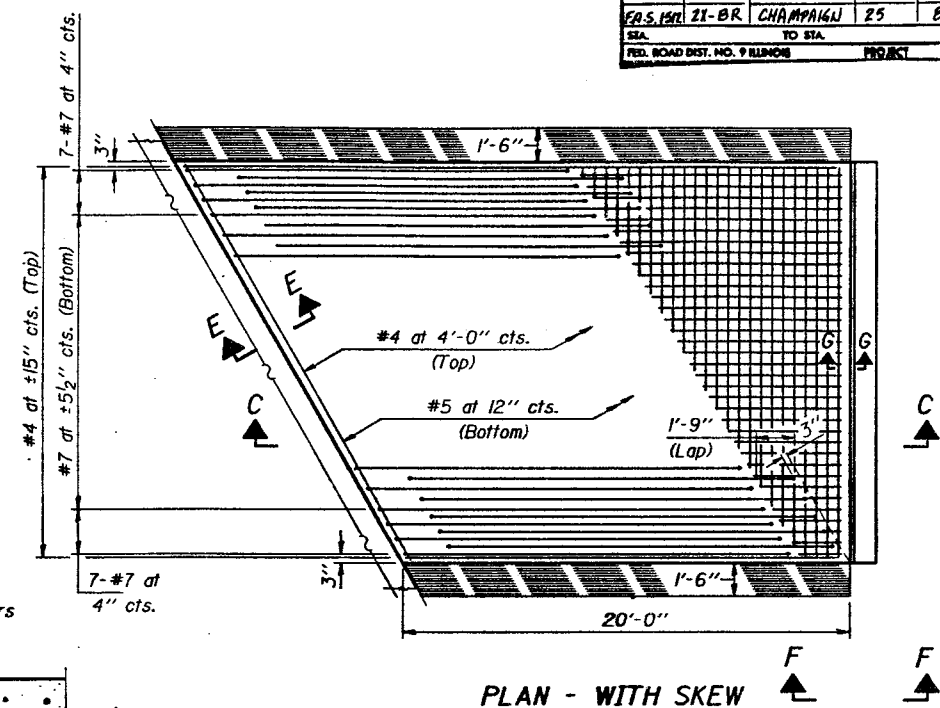
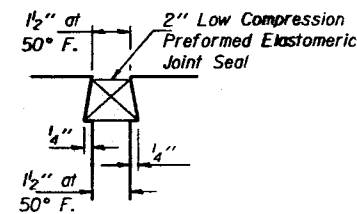
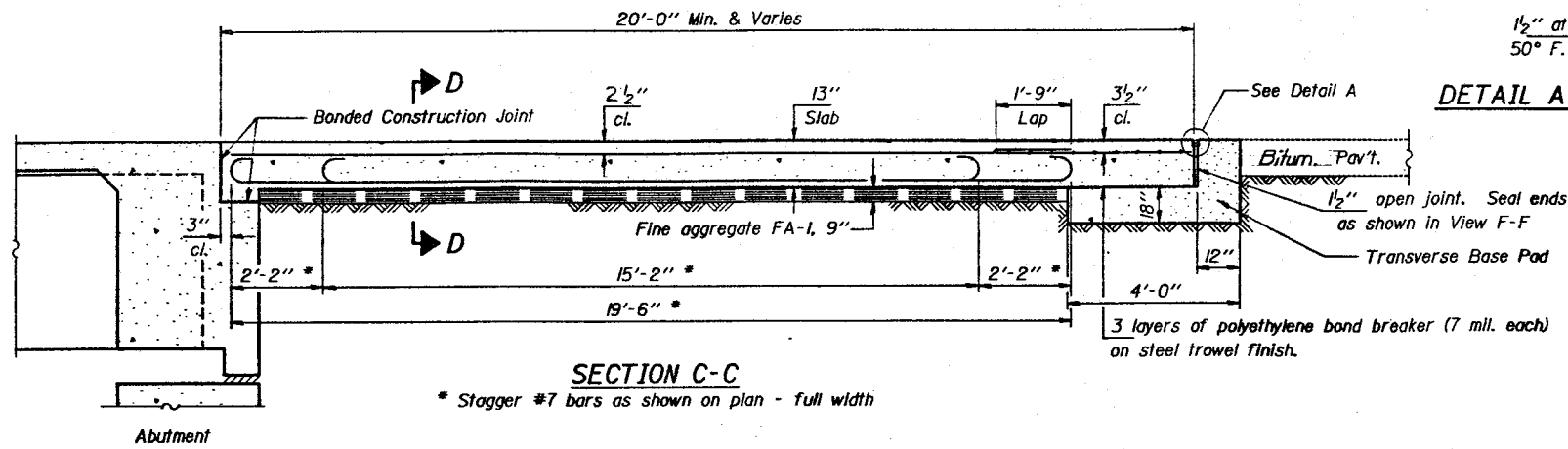


COMPLETED CONSTRUCTION

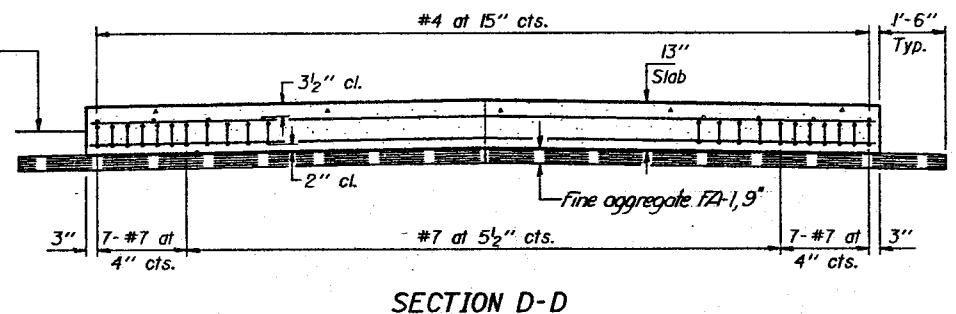
6.11 - CHISELED SQUARE ON S.W. CORNER OF EXISTING BRIDGE  
ELEV = 671.27'

Note: For reinforcement in transverse base pad see Sheet 2 of 2.

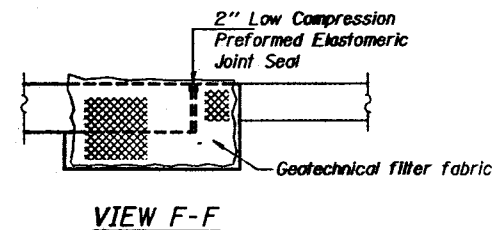
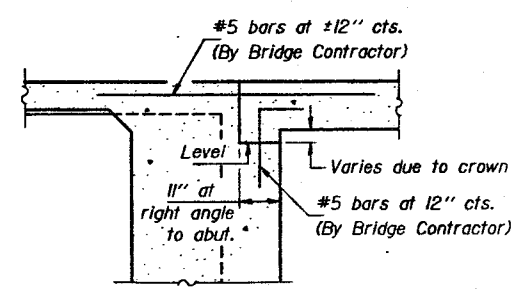
Sheet No.	Section	County	Dist.	Sheet No.
25	ZI-BR	CHAMPAIGN	25	B
S.A.		TO STA.		
FED. ROAD DIST. NO. 9 ILLINOIS		PROJECT		



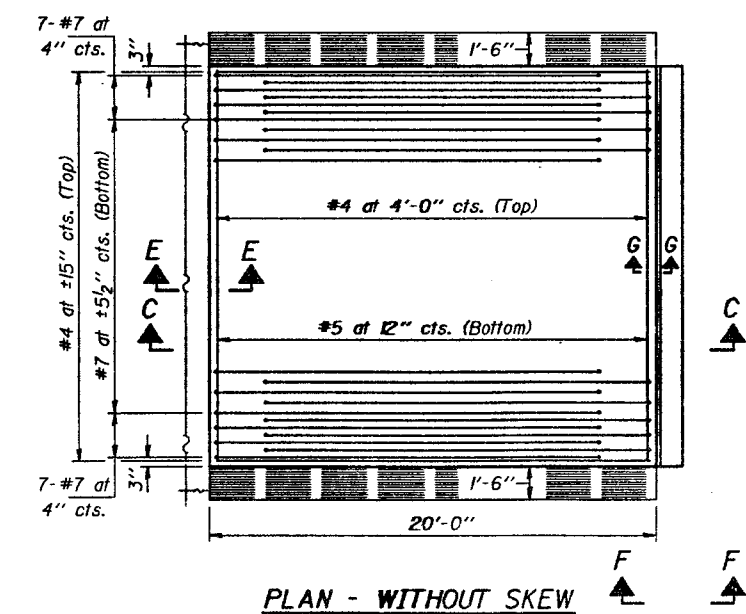
When the road plans show curb and gutter, gutter, or bridge approach shoulder pavement adjacent to approach slabs, place 1/2" steel tie bars at 2'-6" centers in accordance with the detail for Bulkhead Longitudinal Construction Joint shown on Standard 2323. Cost of the tie bars will be included in the contract unit price for the adjacent item. Transitions for curb and gutter or gutter shall be as shown on the plans.



As approved by the Engineer, the Contractor may elect to reduce the widths of pour by use of the Optional Longitudinal Construction Joint shown. Joints shall be located at the edge of a traffic lane.



Note: Attach geotechnical filter fabric to the ends of the base pads. Provide vertical overlap of the fabric.



Notes:  
For skews of less than 10° omit wire fabric. For skews of 10° or more use Welded Wire Fabric, 6 x 6 - W5.5 x W5.5, placed 3/2" below top of slab.  
Expanded Metal weighing not less than 78 Pounds per 100 Sq. Ft. or a welded bar mat weighing not less than 78 Pounds per 100 Sq. Ft. having members of equal size in both directions and spaced not over 8" apart may be used instead of the Welded Wire Fabric, 6" x 6" - W5.5 x W5.5, provided the expanded metal or bar mat is furnished at no additional cost to the State.  
Reinforcement bars shall conform to the requirements of AASHTO M31, M42 or M53, Grade 60.

DESIGN STRESSES  
f<sub>y</sub> = 60,000 p.s.i.  
f'c = 3,500 p.s.i.  
n = 8.5

GENERAL NOTES  
The cost of tie bars, Low Compression Preformed Elastomeric Joint Seal, 21 mil. polyethylene bond breaker, geotechnical filter fabric, sub base, transverse base pad (including reinforcement and excavation), welded wire fabric and bituminous prime when required shall be considered as included in the unit cost of the Bridge Approach Pavement (Special).  
Width of Bridge Approach Slab shall be determined before the reinforcement bars are fabricated.

Illinois Department of Transportation  
PASSED Sept. 4, 1979  
Engineer of Bridge and Traffic Structures  
APPROVED Sept. 4, 1979  
Engineer of Design

BRIDGE APPROACH PAVEMENT (SPECIAL)  
Sheet 1 of 2  
STANDARD

Notes: The notation for the number of bars given as "4 x 2" indicates 4 lines of bars with 2 lengths per line. Minimum lap = 1'-3".

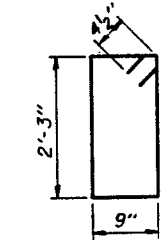
Skew Angle & Degrees	Bottom Reinforcement		Top Reinforcement		Reinforcement (Total Weight) (Pounds)	Slab Area (Sq. Yds.)	6 x 6 - W5.5 x W5.5 W.W.F.		TRANSVERSE BASE PAD
	Transverse #5	Longitudinal #7	Transverse #4	Longitudinal #4			Dimensions L(ft.) x W(ft.)	Slab Area* (Sq. Yds.)	
<b>18'-0" PAVEMENT</b>									
0	20	17'-6"	6	17'-6"	2,300	40.0			
5	20	17'-7"	6	17'-7"	2,302	41.6			
10	20	17'-9"	5	17'-9"	2,306	43.2	7'-0" x 9'-6"	7.4	
15	20	18'-1"	5	18'-1"	2,303	44.8	8'-6" x 9'-6"	9.0	
20	19	18'-8"	5	18'-8"	2,297	46.6	10'-6" x 9'-6"	11.1	
25	18	19'-4"	5	19'-4"	2,292	48.4	12'-3" x 9'-6"	12.9	
30	18	20'-3"	5	20'-3"	2,313	50.4	14'-3" x 9'-6"	15.0	
35	17	21'-4"	5	21'-4"	2,315	52.6	16'-6" x 9'-6"	17.4	
40	16	22'-10"	4	22'-10"	2,307	55.1	19'-0" x 9'-6"	20.1	
45	14	24'-9"	4	24'-9"	2,293	58.0	21'-9" x 9'-6"	23.0	
50	13	27'-3"	4	27'-3"	2,308	61.5	25'-6" x 9'-6"	26.9	
55	12x2	15'-9"	3x2	15'-9"	2,322	65.7	29'-9" x 9'-6"	31.4	
60	10x2	18'-0"	3x2	18'-0"	2,313	71.2	35'-3" x 9'-6"	37.2	
<b>26'-0" PAVEMENT</b>									
0	20	25'-6"	6	25'-6"	3,238	57.8			
5	20	25'-7"	6	25'-7"	3,240	61.1			
10	20	25'-11"	6	25'-11"	3,249	64.4	8'-6" x 13'-6"	12.8	
15	20	26'-5"	5	26'-5"	3,243	67.8	11'-0" x 13'-6"	16.5	
20	19	27'-2"	5	27'-2"	3,233	71.4	13'-6" x 13'-6"	20.3	
25	18	28'-2"	5	28'-2"	3,227	75.3	16'-3" x 13'-6"	24.4	
30	18x2	15'-3"	5x2	15'-3"	3,278	79.5	19'-0" x 13'-6"	28.5	
35	17x2	16'-1"	5x2	16'-1"	3,282	84.1	22'-3" x 13'-6"	33.4	Class X Concrete
40	16x2	17'-2"	4x2	17'-2"	3,269	89.3	25'-9" x 13'-6"	38.6	Reinforcement Bars
45	14x2	18'-6"	4x2	18'-6"	3,243	95.3	30'-0" x 13'-6"	45.0	
50	13x2	20'-4"	4x2	20'-4"	3,264	102.5	35'-0" x 13'-6"	52.5	
55	12x2	22'-9"	3x2	22'-9"	3,265	111.4	41'-3" x 13'-6"	61.9	
60	10x2	26'-0"	3x2	26'-0"	3,251	122.8	49'-0" x 13'-6"	73.5	

Skew Angle & Degrees	Bottom Reinforcement		Top Reinforcement		Reinforcement (Total Weight) (Pounds)	Slab Area (Sq. Yds.)	6 x 6 - W5.5 x W5.5 W.W.F.	
	Transverse #5	Longitudinal #7	Transverse #4	Longitudinal #4			Dimensions L(ft.) x W(ft.)	Slab Area* (Sq. Yds.)
<b>36'-0" PAVEMENT</b>								
0	20x2	18'-3"	6x2	18'-3"	4,471	80.0		
5	20x2	18'-4"	6x2	18'-4"	4,475	86.3		
10	20x2	18'-6"	6x2	18'-6"	4,483	92.7	10'-0" x 18'-6"	20.6
15	20x2	18'-10"	5x2	18'-10"	4,475	99.3	13'-6" x 18'-6"	27.7
20	19x2	19'-5"	5x2	19'-5"	4,462	106.2	17'-0" x 18'-6"	34.9
25	18x2	20'-2"	5x2	20'-2"	4,455	113.6	20'-6" x 18'-6"	42.1
30	18x2	21'-0"	5x2	21'-0"	4,492	121.6	24'-9" x 18'-6"	50.8
35	17x2	22'-3"	5x2	22'-3"	4,501	130.4	29'-0" x 18'-6"	59.6
40	16x2	23'-9"	4x2	23'-9"	4,483	140.4	33'-9" x 18'-6"	69.4
45	14x2	25'-8"	4x2	25'-8"	4,450	152.0	39'-6" x 18'-6"	81.2
50	13x2	28'-2"	4x2	28'-2"	4,477	165.8	46'-6" x 18'-6"	95.6
55	12x3	21'-4"	3x3	21'-4"	4,492	182.8	55'-0" x 18'-6"	113.0
60	10x3	24'-4"	3x3	24'-4"	4,471	204.7	65'-9" x 18'-6"	135.1

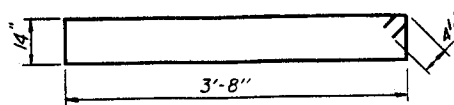
\* Area does not include 8" longitudinal laps.

\*\* ADDITIONAL REINFORCEMENT BARS ARE REQUIRED FOR STAGE LONGITUDINAL CONSTRUCTION JOINT  
 4 - #7 BARS @ 18" TOTAL (EACH SLAB) = 155 LB.

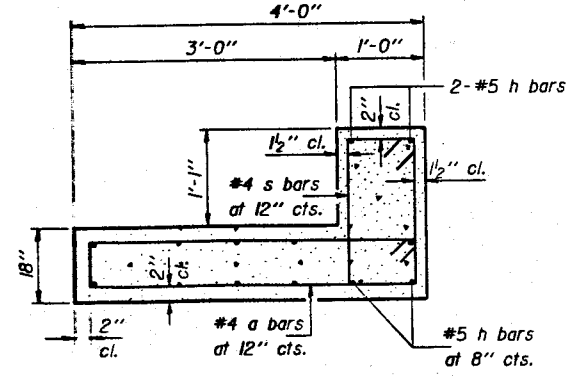
\* Area does not include 8" longitudinal laps.  
 W.W.F. = Welded Wire Fabric



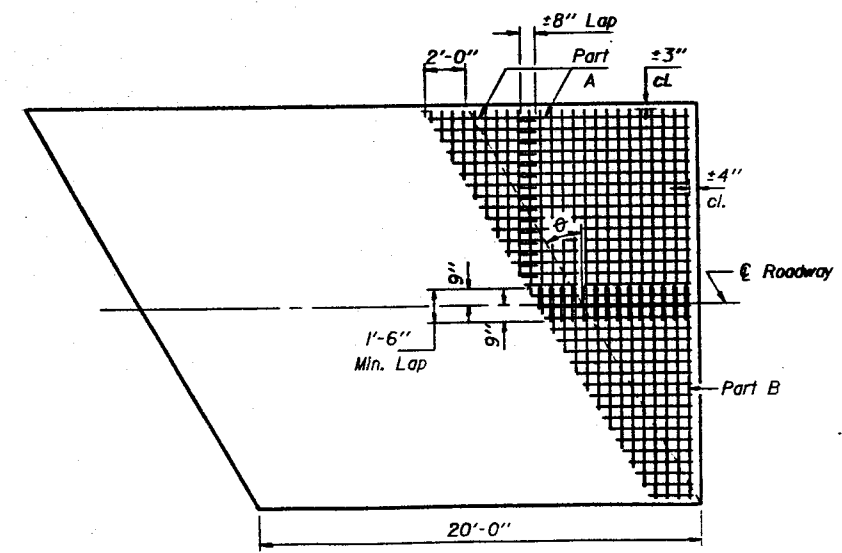
BAR s



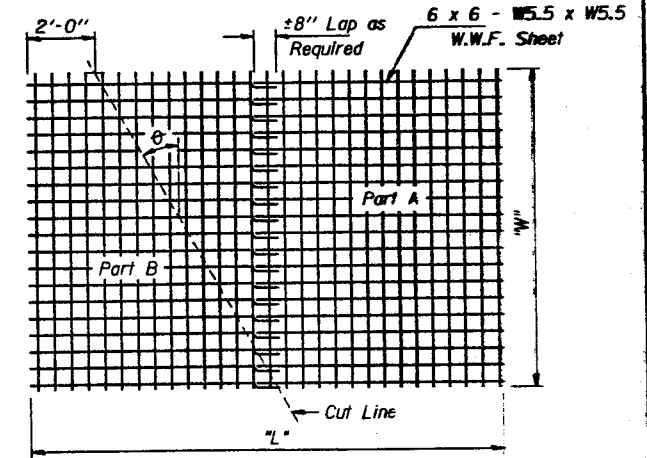
BAR a



TRANSVERSE BASE PAD (Showing reinforcement)



PLACEMENT OF 6 x 6 - W5.5 x W5.5 W.W.F. required only on skews



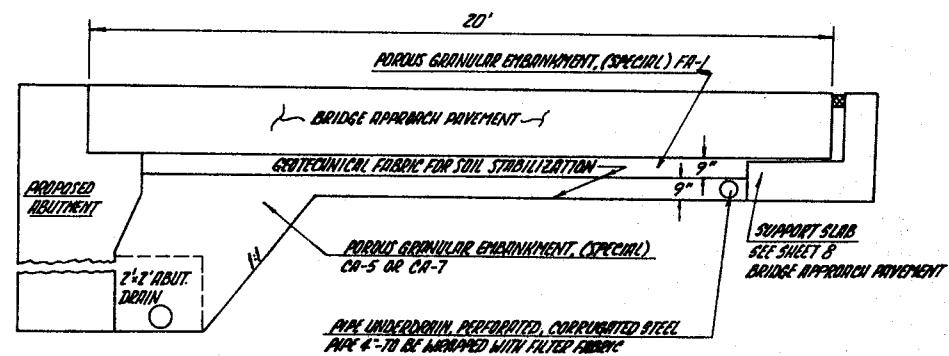
CUTTING DIAGRAM

Illinois Department of Transportation  
 PASSED Sept. 4, 1979  
 Engineer of Bridges and Traffic Structures  
 APPROVED Sept. 4, 1979  
 Engineer of Design

BRIDGE APPROACH PAVEMENT (SPECIAL)  
 Sheet 2 of 2  
 STANDARD

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
E.R. 1572	2X-8P	CHAMPAIGN	25	10

### DETAIL AT SUPPORT SLAB



### SECTION THRU ABUTMENTS AND SUPPORT SLAB

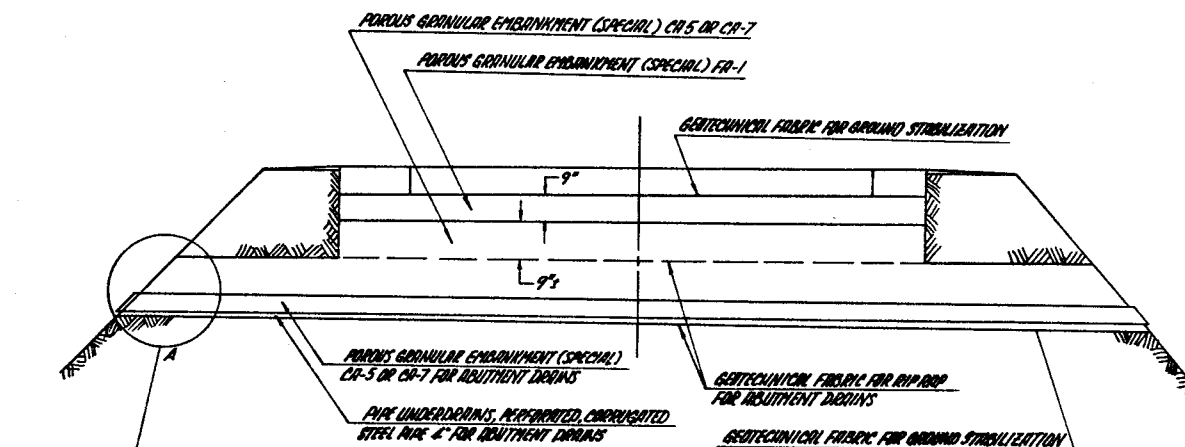
#### ESTIMATED MATERIAL QUANTITIES FOR EACH ABUTMENT

PIPE UNDERDRAIN, PERFORATED, CORRUGATED STEEL PIPE 4" = 58 LIN. FT.  
 GEOTECHNICAL FABRIC = 10 SLD. (NET IN PAY ITEM)

#### GENERAL NOTES

- PIPE UNDERDRAIN SHALL BE WRAPPED WITH FILTER FABRIC, AS SPECIFIED FOR USE WITH RAPID, AND OVERLAPPED 6" ON THE PERFORATED PIPE DRAIN.
- THE PIPE UNDERDRAIN SHALL EXTEND THROUGH THE FORM SLAB SO AS TO OUTLET THE WATER THROUGH THE EMBANKMENT.
- THE CONTRACT UNIT PRICE PER LINEAL FOOT FOR PIPE UNDERDRAIN, PERFORATED, CORRUGATED STEEL PIPE 4" SHALL BE PAYMENT IN FULL FOR ALL MATERIALS, EQUIPMENT, AND LABOR TO CONSTRUCT THE PIPE UNDERDRAIN AT EACH SUPPORT SLAB.

### ABUTMENT DRAIN DETAIL



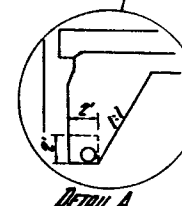
### SECTION THRU SHOULDERS

#### ESTIMATED MATERIAL QUANTITIES FOR EACH ABUTMENT DRAIN

AGGREGATE, CA-5 OR CA-7 = 8.6 CU YDS.  
 GEOTECHNICAL FABRIC = 25.8 SLD.  
 PIPE UNDERDRAIN, PERFORATED, CORRUGATED STEEL PIPE 4" = 58 LIN. FT.

#### GENERAL NOTES

- THE ABUTMENT DRAINS SHALL BE CONSTRUCTED OF CA-5 OR CA-7 AGGREGATE WHICH SHALL BE WRAPPED WITH FABRIC ON ALL SURFACES INCLUDING THE ENDS.
- THE FABRIC SHALL BE THE SAME AS SPECIFIED FOR STONE RIP RAP, ALL LAPS SHALL BE FOLDED DOUBLE AND SECURED, BE LAPPED A MINIMUM OF 18 INCHES AND WEIGHTED, TO AVOID INFLTRATION OF FOREIGN MATERIALS.
- THE DRAINS SHALL EXTEND THE ENTIRE LENGTH OF THE ABUTMENTS, SHOULDER AND FORM SLAB, AS SHOWN TO ALLOW WATER TO OUTLET THROUGH THE EMBANKMENT.
- THE CONTRACT UNIT PRICE EACH FOR ABUTMENT DRAINS WILL BE PAYMENT IN FULL FOR ALL MATERIALS, EQUIPMENT, AND LABOR TO CONSTRUCT THE DRAINS AT EACH ABUTMENT.



	NAME	DATE
DESIGNED BY	JLG	8-89
CHECKED BY	TL	8-89
DRAFTED BY		



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

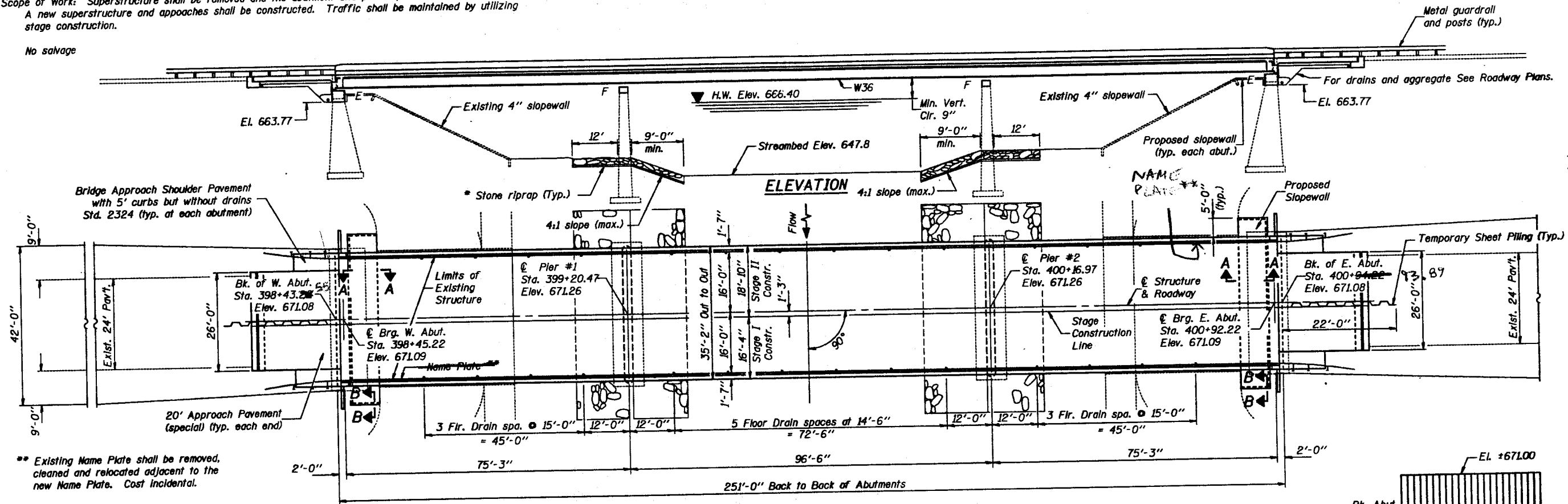
ROUTE NO.	SECTION	COUNTY	DATE	SHEET NO.
1512	2X-BR	Champaign	25	11
PROJECT NO.		SHEET NO. 1		
SHEET NO. 1		15 SHEETS		

Bench Mark: Chiseled square on the southwest wingwall of the existing bridge. Elev. 671.27

Existing Structure: S.N. 010-0039 was built in 1939 on S.B.I. Route 10, Section 2-X-B, Sta. 165+23. The existing structure is a three span continuous noncomposite wide flange beam superstructure supported on solid piers and spill through abutments. The span lengths are 75'-1"; 96'-6"; 75'-1" and the width out to out is ±32'-4".

Scope of Work: Superstructure shall be removed and the abutment and pier caps rehabilitated in staged construction. A new superstructure and approaches shall be constructed. Traffic shall be maintained by utilizing stage construction.

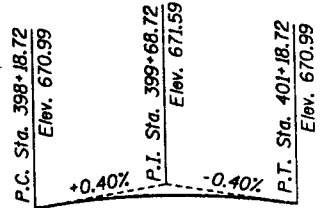
No salvage



\*\* Existing Name Plate shall be removed, cleaned and relocated adjacent to the new Name Plate. Cost incidental.

STATION 399+68.72  
REBUILT BY  
STATE OF ILLINOIS  
F.A.S. RT. 1512 SEC. 2-X-BR  
CHAMPAIGN COUNTY  
LOADING HS20  
STR. NO. 010-0039

**NAME PLATE**  
See Std. 2113



**PROFILE GRADE**

DESIGNED *W.D.C.*  
CHECKED *W.D.C.*  
DRAWN *W.D.C.*  
CHECKED *H.H.*

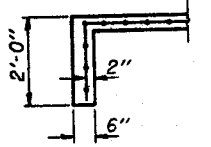
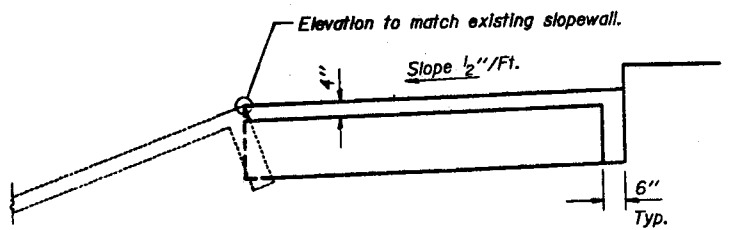
October 13 1989  
EXAMINED *Greg J. Laster*  
PASSED *James J. Hancock*  
APPROVED *James J. Hancock*  
DIRECTOR OF HIGHWAYS

**WATERWAY INFORMATION**

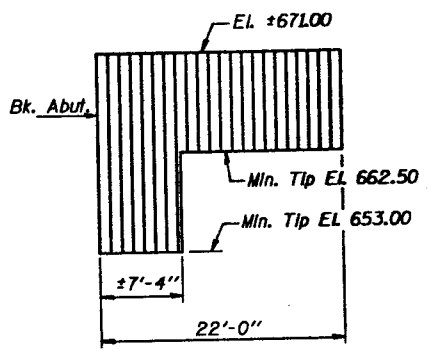
Drainage Area = 233 sq. mi. Low Grade Elev. 666.88 @ Sta. 413+00.00

Flood	Freq. Yr.	Q	Opening Sq. Ft.		Nat. Head - Ft.		Headwater El.		
			Exist.	Prop.	H.W.E. Exist.	Prop.	Exist.	Prop.	
Design	50	9840	2750	2750	666.4	0.5	0.5	666.9	666.9
Base	100	11045	2840	2840	666.7	0.3	0.3	667.0	667.0
Overtopping	50	9840	2750	2750	666.4	0.5	0.5	666.9	666.9
Max. Calc.	500	13850							

**PLAN**



- 1. When placing the geotechnical filter fabric for the riprap operation at the piers - turn up the edges of the fabric around the perimeter of the riprap.
- 2. Use A2 riprap for the 8" bedding material on top of the geotechnical filter fabric at the piers.
- 3. Stone riprap with a classification of A5 shall be placed to a minimum depth of 22 inches (on top of the 8 inch bedding) at the piers.
- 4. Stone riprap shall extend 10 ft. beyond the nose of the piers, upstream and downstream.



Note: The information shown is estimated. It is the Contractor's responsibility to provide a design and computations of the sheet piling and associated members, if required, subject to the approval of the Engineer.

**LOADING HS20-44**

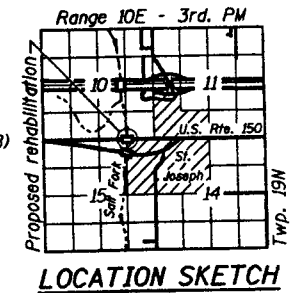
Allow 25#/sq. ft. for future wearing surface.

**DESIGN SPECIFICATIONS**

AASHTO (1983) and applicable Interims (1984 thru 1988)

**DESIGN STRESSES**

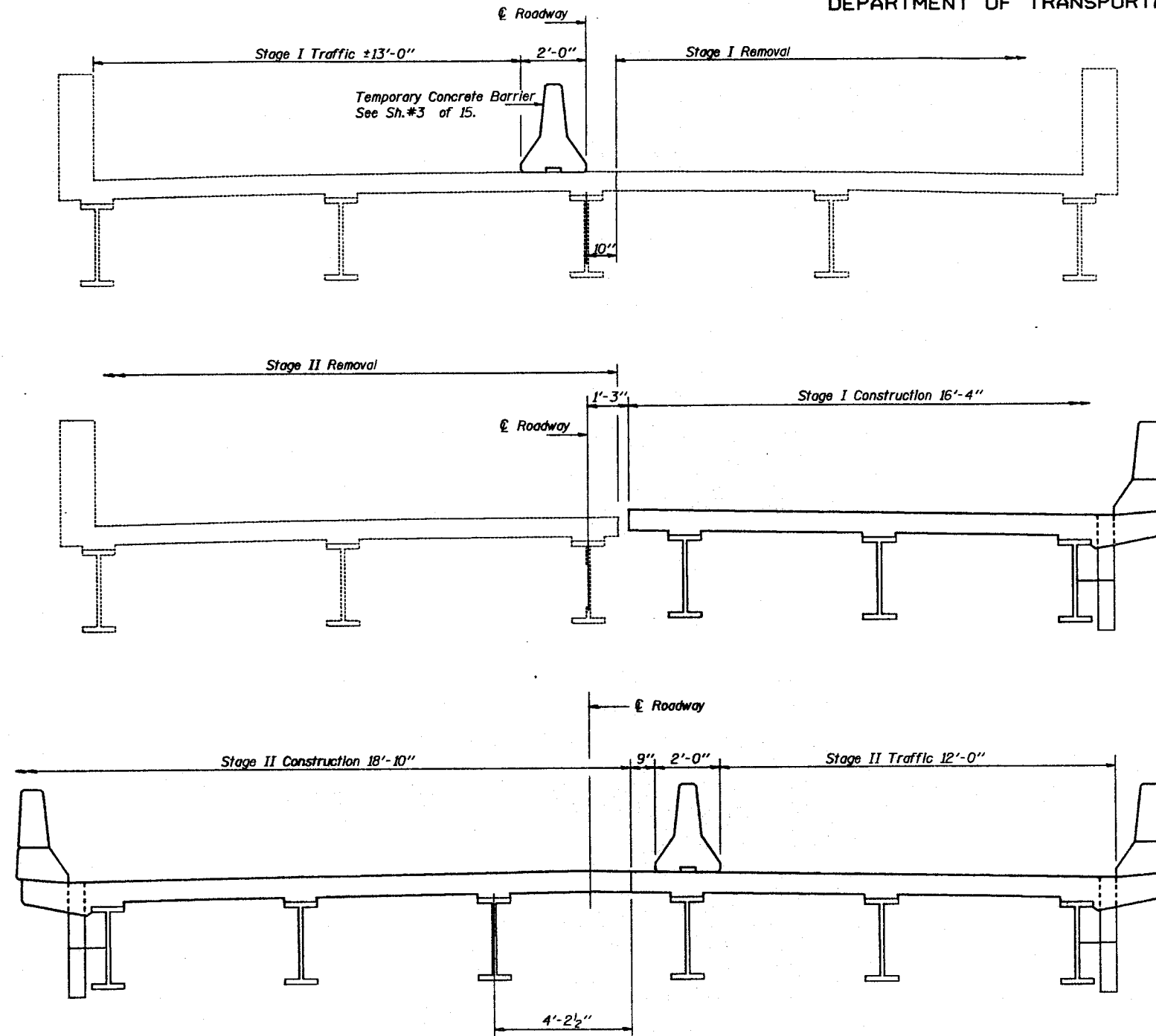
FIELD UNITS  
f<sub>c</sub> = 3,500 psi  
f<sub>y</sub> = 60,000 psi (reinforcement)  
f<sub>y</sub> = 50,000 psi (struct. M223 Gr. 50)



**GENERAL PLAN**  
U.S. ROUTE 150 OVER SALT FORK  
F.A.S. ROUTE 1512 - SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72  
STRUCTURE NO. 010-0039

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	DISTRICT	SECTION	SHEET	TOTAL SHEETS
			25	12
SHEET NO. 2		15 SHEETS		



**STAGE REMOVAL AND CONSTRUCTION**  
(Looking East)

**GENERAL NOTES**

Fasteners shall be high strength bolts. Bolts  $\frac{7}{8}$ "  $\phi$ , open holes  $\frac{5}{16}$ "  $\phi$ , unless otherwise noted.  
 Calculated weight of Structural Steel M223 Grade 50 = 208600 Lbs., M183 = 22020 Lbs.  
 The Zinc-silicate and vinyl paint system shall be used for shop and field painting of Structural Steel. The color of the final finish coat shall be Munsell Standard 7.5G 4/8 Interstate Green.  
 Field welding of construction accessories will not be permitted to the bottom flange of beams nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.  
 Anchor bolts shall be set before bolting diaphragms over supports.  
 All structural steel bearing plates shall conform to the requirements of AASHTO M 223 Grade 50.  
 The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These Components are the Wide flange beams and all splice plate material of the wide flange beams.  
 Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.  
 Slope wall shall be reinforced with welded wire fabric, 6" x 6" - W4.0 x W4.0, weighing 58 lbs. per 100 sq. ft.  
 Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.  
 Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field 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.  
 Expansion bolts shall consist of approved expansion anchors, providing minimum certified proof load = 4,080 lbs., and  $\frac{3}{4}$ "  $\phi$  hooked bolts.  
 Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of  $\frac{1}{8}$  inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two  $\frac{1}{8}$ " adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

**FINAL QUANTITIES**  
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Superstructures	Each	1		1
Concrete Removal	Cu. Yd.		30	30
Expansion Bolts $\frac{3}{4}$ "	Each		136	136
Structure Excavation	Cu. Yd.		55	55
Floor Drains	Each	28		28
Class X Concrete Superstructure	Cu. Yd.	289.8		289.8
Protective Coat	Sq. Yd.	204		204
Elastomeric Bearing Assembly Type II	Each	12		12
Class X Concrete	Cu. Yd.		35.8	35.8
Structural Steel	L.S.	1		1
Stud Shear Connectors	Each	2002		2002
Reinforcement Bars (Epoxy Coated)	Lb.	63310	3050	66360
Temporary Sheat Filling	Sq. Ft.		515	515
Name Plates	Each	1		1
Stone Riprap Class A5	Sq. Yd.		425	425
Filter Fabric for use with Riprap	Sq. Yd.		425	425
Sloped Wall 4"	Sq. Yd.		114	114
Geo-Composite Wall Drain	Sq. Yd.		61	61
Reinforced Elastomeric Neoprene Mat	Lin. Ft.		74	74

\* Includes A2 bedding.

**GENERAL DATA**  
F.A.S. RT. 1512 SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72

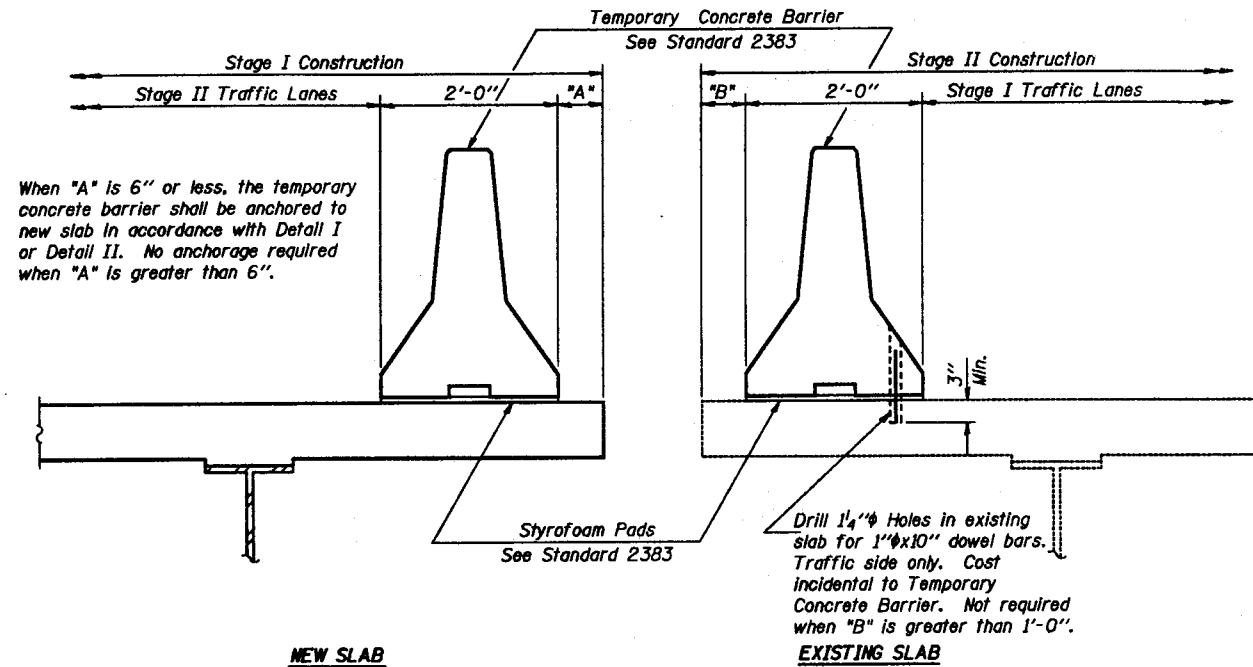
DESIGNED *Kathy J. Hill*  
CHECKED *Angela F. Hensley*  
DRAWN *J.T. Downing*  
CHECKED *M.H. G. 71*

EXAMINED *Prof. D. Kasper*  
PASSED *James T. Kasper*  
APPROVED \_\_\_\_\_

Oct 13 1989

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

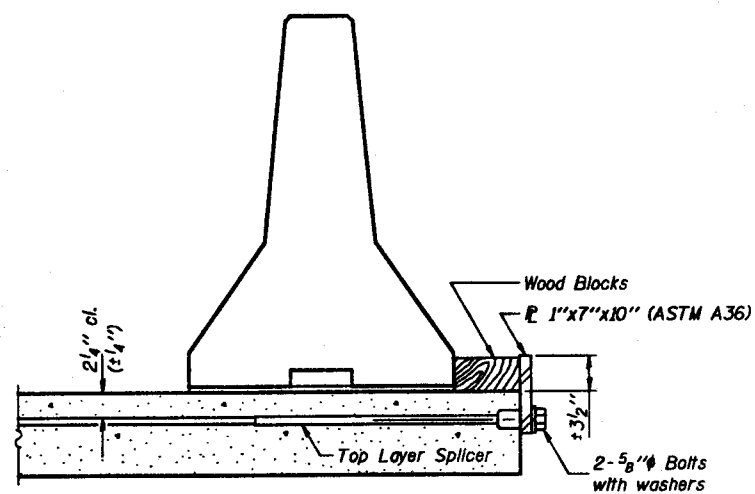
DATE	ISSUED	QUANTITY	DATE	BY	SHEET NO. 3
			25	13	15 SHEETS
P.O. BOX 607, M.T.		ILLINOIS PROJECT			



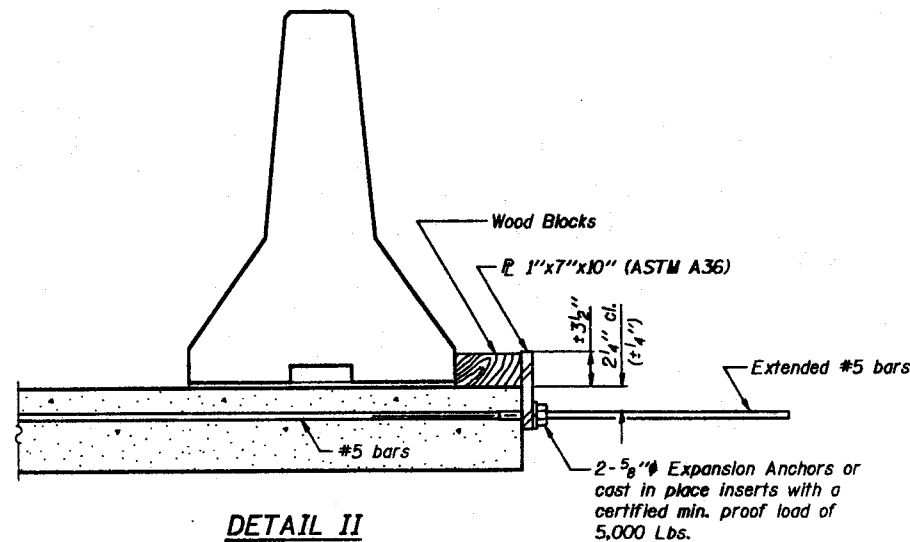
SECTIONS THRU SLAB

NOTES

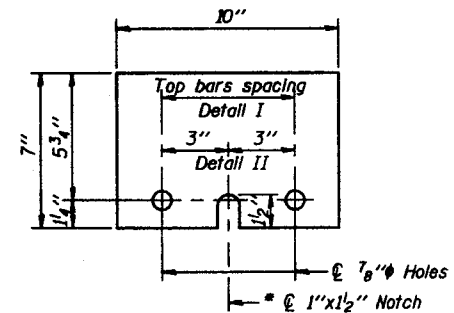
- Detail I - With Bar Splicer or Couplers:  
Connect one (1) 1"x7"x10" steel P to the top layer of couplers with 2-5/8" bolts screwed to coupler at approximate E of each 10'-0" barrier panel.
- Detail II - With Extended Reinforcement Bars:  
Connect one (1) 1"x7"x10" steel P to the concrete slab with 2-5/8" Expansion Anchors or cast in place Inserts spaced between the top layer of reinforcement at approximate E of each 10'-0" barrier panel.
- Cost of anchorage is incidental to Temporary Concrete Barrier. For quantity, See Roadway Plans.



The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.



The 1"x7"x10" 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.



1"x7"x10"

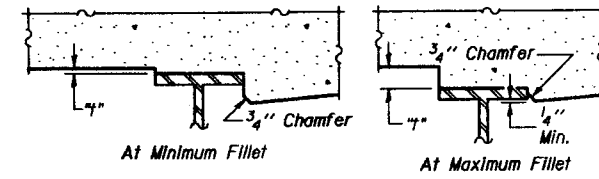
\* Required only with Detail II

DESIGNED <i>Hally J. Hally</i>	EXAMINED <i>Oct 13, 1989</i>
CHECKED <i>Charles L. Ramsey</i>	PASSED <i>James J. Robinson</i>
DRAWN <i>J.T. Downing</i>	APPROVED <i>[Signature]</i>
CHECKED <i>H.J.H. as m.</i>	DIRECTOR OF HIGHWAYS

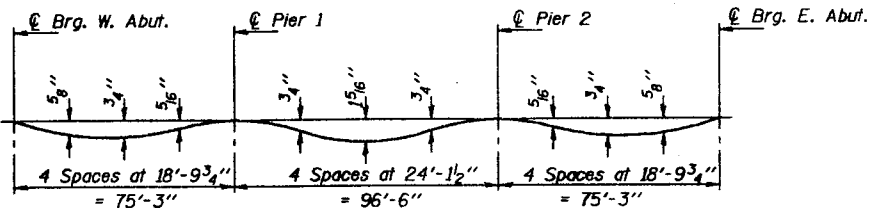
R-27 6-15-83

TEMPORARY CONCRETE BARRIER  
FOR STAGE CONSTRUCTION  
F.A.S. RT. 1512 SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



DATE	SECTION	EMPHASIS	DATE	NO.	SHEET NO. 4
			25	14	15 SHEETS



**DEAD LOAD DEFLECTION DIAGRAM**  
(Includes weight of concrete only)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.

To determine "f": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "f" above top flange of beams.

**FILLET HEIGHTS**

**BEAM 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	-14.792	670.834	670.834
€ Brg. W. Abut.	39845.220	-14.792	670.841	670.841
A	39855.220	-14.792	670.873	670.901
B	39865.220	-14.792	670.902	670.955
C	39875.220	-14.792	670.928	670.986
D	39885.220	-14.792	670.951	671.009
E	39895.220	-14.792	670.972	671.011
F	39905.220	-14.792	670.991	671.012
G	39915.220	-14.792	671.006	671.014
€ Pier 1	39920.470	-14.792	671.013	671.013
H	39930.470	-14.792	671.025	671.051
I	39940.470	-14.792	671.034	671.086
J	39950.470	-14.792	671.040	671.114
K	39960.470	-14.792	671.044	671.136
L	39970.470	-14.792	671.044	671.149
M	39980.470	-14.792	671.043	671.128
N	39990.470	-14.792	671.038	671.105
O	40000.470	-14.792	671.031	671.074
P	40010.470	-14.792	671.021	671.038
€ Pier 2	40016.970	-14.792	671.013	671.013
Q	40026.970	-14.792	670.999	671.013
R	40036.970	-14.792	670.982	671.011
S	40046.970	-14.792	670.963	671.011
T	40056.970	-14.792	670.941	671.001
U	40066.970	-14.792	670.916	670.972
V	40076.970	-14.792	670.888	670.931
W	40086.970	-14.792	670.858	670.873
€ Brg. E. Abut.	40092.220	-14.792	670.841	670.841
Bk. E. Abut.	40094.220	-14.792	670.834	670.834

**BEAM 2**

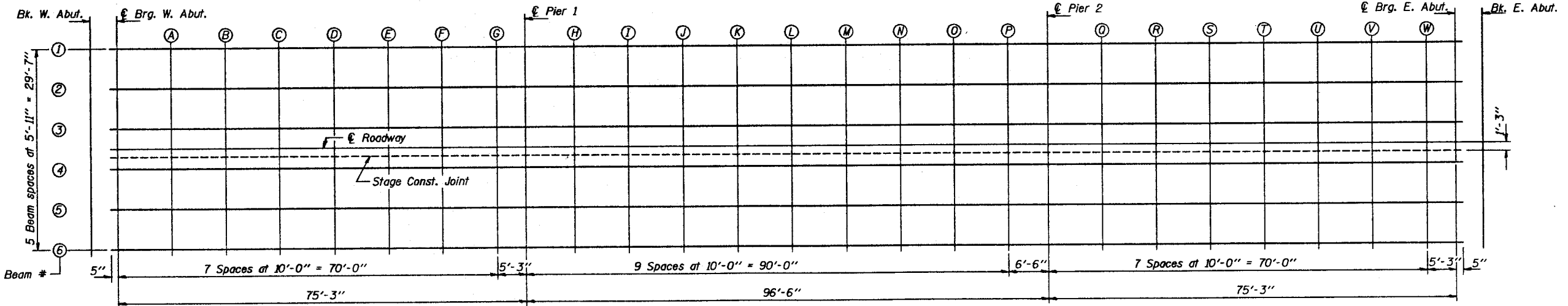
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	-8.875	670.941	670.941
€ Brg. W. Abut.	39845.220	-8.875	670.948	670.948
A	39855.220	-8.875	670.980	671.008
B	39865.220	-8.875	671.008	671.062
C	39875.220	-8.875	671.035	671.093
D	39885.220	-8.875	671.058	671.116
E	39895.220	-8.875	671.079	671.118
F	39905.220	-8.875	671.098	671.119
G	39915.220	-8.875	671.113	671.121
€ Pier 1	39920.470	-8.875	671.120	671.120
H	39930.470	-8.875	671.132	671.158
I	39940.470	-8.875	671.141	671.193
J	39950.470	-8.875	671.147	671.220
K	39960.470	-8.875	671.150	671.243
L	39970.470	-8.875	671.151	671.255
M	39980.470	-8.875	671.149	671.235
N	39990.470	-8.875	671.145	671.212
O	40000.470	-8.875	671.138	671.181
P	40010.470	-8.875	671.128	671.145
€ Pier 2	40016.970	-8.875	671.120	671.120
Q	40026.970	-8.875	671.106	671.120
R	40036.970	-8.875	671.089	671.118
S	40046.970	-8.875	671.070	671.117
T	40056.970	-8.875	671.047	671.108
U	40066.970	-8.875	671.023	671.078
V	40076.970	-8.875	670.995	671.038
W	40086.970	-8.875	670.965	670.980
€ Brg. E. Abut.	40092.220	-8.875	670.948	670.948
Bk. E. Abut.	40094.220	-8.875	670.941	670.941

**BEAM 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	-2.958	671.034	671.034
€ Brg. W. Abut.	39845.220	-2.958	671.040	671.040
A	39855.220	-2.958	671.072	671.100
B	39865.220	-2.958	671.101	671.154
C	39875.220	-2.958	671.127	671.185
D	39885.220	-2.958	671.151	671.208
E	39895.220	-2.958	671.172	671.211
F	39905.220	-2.958	671.190	671.212
G	39915.220	-2.958	671.206	671.213
€ Pier 1	39920.470	-2.958	671.213	671.213
H	39930.470	-2.958	671.224	671.250
I	39940.470	-2.958	671.233	671.285
J	39950.470	-2.958	671.239	671.313
K	39960.470	-2.958	671.243	671.335
L	39970.470	-2.958	671.244	671.348
M	39980.470	-2.958	671.242	671.328
N	39990.470	-2.958	671.237	671.305
O	40000.470	-2.958	671.230	671.273
P	40010.470	-2.958	671.221	671.237
€ Pier 2	40016.970	-2.958	671.213	671.213
Q	40026.970	-2.958	671.199	671.213
R	40036.970	-2.958	671.182	671.211
S	40046.970	-2.958	671.162	671.210
T	40056.970	-2.958	671.140	671.201
U	40066.970	-2.958	671.115	671.171
V	40076.970	-2.958	671.088	671.130
W	40086.970	-2.958	671.057	671.072
€ Brg. E. Abut.	40092.220	-2.958	671.040	671.040
Bk. E. Abut.	40094.220	-2.958	671.034	671.034

**€ ROADWAY**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	0.000	671.080	671.080
€ Brg. W. Abut.	39845.220	0.000	671.087	671.087
A	39855.220	0.000	671.118	671.146
B	39865.220	0.000	671.147	671.200
C	39875.220	0.000	671.173	671.232
D	39885.220	0.000	671.197	671.255
E	39895.220	0.000	671.218	671.257
F	39905.220	0.000	671.236	671.258
G	39915.220	0.000	671.252	671.259
€ Pier 1	39920.470	0.000	671.259	671.259
H	39930.470	0.000	671.270	671.296
I	39940.470	0.000	671.279	671.331
J	39950.470	0.000	671.286	671.359
K	39960.470	0.000	671.289	671.381
L	39970.470	0.000	671.290	671.394
M	39980.470	0.000	671.288	671.374
N	39990.470	0.000	671.284	671.351
O	40000.470	0.000	671.277	671.319
P	40010.470	0.000	671.267	671.284
€ Pier 2	40016.970	0.000	671.259	671.259
Q	40026.970	0.000	671.245	671.259
R	40036.970	0.000	671.228	671.257
S	40046.970	0.000	671.208	671.256
T	40056.970	0.000	671.186	671.247
U	40066.970	0.000	671.161	671.217
V	40076.970	0.000	671.134	671.176
W	40086.970	0.000	671.104	671.118
€ Brg. E. Abut.	40092.220	0.000	671.087	671.087
Bk. E. Abut.	40094.220	0.000	671.080	671.080



**BEAM LAYOUT**

DESIGNED *Walter J. Kelly*  
 CHECKED *James T. Downing*  
 DRAWN *J.T. Downing*  
 CHECKED *W.J.H. a-z-n*

OCT 13 1987

EXAMINED *Gregory J. Kaspar*  
 ENGINEER OF PUBLIC WORKS

PASSED *James T. Downing*  
 ENGINEER OF PUBLIC WORKS

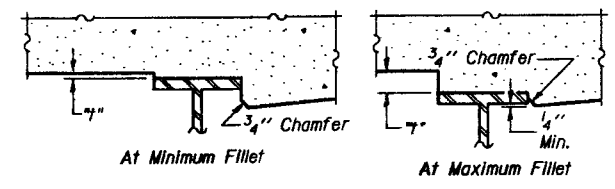
APPROVED \_\_\_\_\_  
 DIRECTOR OF HIGHWAYS

E-S 1-6-82

TOP OF SLAB ELEVATIONS  
 F.A.S. RT. 1512 SECTION 2-X-BR  
 CHAMPAIGN COUNTY  
 STATION 399+68.72



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
			25	15
SHEET NO. 5 15 SHEETS				

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

STAGE CONST. JT.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	1.250	671.060	671.060
€ Brg. W. Abut.	39845.220	1.250	671.067	671.067
A	39855.220	1.250	671.099	671.127
B	39865.220	1.250	671.128	671.181
C	39875.220	1.250	671.154	671.212
D	39885.220	1.250	671.178	671.235
E	39895.220	1.250	671.198	671.237
F	39905.220	1.250	671.217	671.238
G	39915.220	1.250	671.232	671.240
€ Pier 1	39920.470	1.250	671.239	671.239
H	39930.470	1.250	671.251	671.277
I	39940.470	1.250	671.260	671.312
J	39950.470	1.250	671.266	671.340
K	39960.470	1.250	671.270	671.362
L	39970.470	1.250	671.270	671.375
M	39980.470	1.250	671.269	671.354
N	39990.470	1.250	671.264	671.331
O	40000.470	1.250	671.257	671.300
P	40010.470	1.250	671.247	671.264
€ Pier 2	40016.970	1.250	671.239	671.239
Q	40026.970	1.250	671.225	671.239
R	40036.970	1.250	671.208	671.237
S	40046.970	1.250	671.189	671.237
T	40056.970	1.250	671.167	671.228
U	40066.970	1.250	671.142	671.198
V	40076.970	1.250	671.114	671.157
W	40086.970	1.250	671.084	671.099
€ Brg. E. Abut.	40092.220	1.250	671.067	671.067
Bk. E. Abut.	40094.220	1.250	671.060	671.060

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	2.958	671.034	671.034
€ Brg. W. Abut.	39845.220	2.958	671.040	671.040
A	39855.220	2.958	671.072	671.100
B	39865.220	2.958	671.101	671.154
C	39875.220	2.958	671.127	671.185
D	39885.220	2.958	671.151	671.208
E	39895.220	2.958	671.172	671.211
F	39905.220	2.958	671.190	671.212
G	39915.220	2.958	671.206	671.213
€ Pier 1	39920.470	2.958	671.213	671.213
H	39930.470	2.958	671.224	671.250
I	39940.470	2.958	671.233	671.285
J	39950.470	2.958	671.239	671.313
K	39960.470	2.958	671.243	671.335
L	39970.470	2.958	671.244	671.348
M	39980.470	2.958	671.242	671.328
N	39990.470	2.958	671.237	671.305
O	40000.470	2.958	671.230	671.273
P	40010.470	2.958	671.221	671.237
€ Pier 2	40016.970	2.958	671.213	671.213
Q	40026.970	2.958	671.199	671.213
R	40036.970	2.958	671.182	671.211
S	40046.970	2.958	671.162	671.210
T	40056.970	2.958	671.140	671.201
U	40066.970	2.958	671.115	671.171
V	40076.970	2.958	671.088	671.130
W	40086.970	2.958	671.057	671.072
€ Brg. E. Abut.	40092.220	2.958	671.040	671.040
Bk. E. Abut.	40094.220	2.958	671.034	671.034

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	8.875	670.941	670.941
€ Brg. W. Abut.	39845.220	8.875	670.948	670.948
A	39855.220	8.875	670.980	671.008
B	39865.220	8.875	671.008	671.062
C	39875.220	8.875	671.035	671.093
D	39885.220	8.875	671.058	671.116
E	39895.220	8.875	671.079	671.118
F	39905.220	8.875	671.098	671.119
G	39915.220	8.875	671.113	671.121
€ Pier 1	39920.470	8.875	671.120	671.120
H	39930.470	8.875	671.132	671.158
I	39940.470	8.875	671.141	671.193
J	39950.470	8.875	671.147	671.220
K	39960.470	8.875	671.150	671.243
L	39970.470	8.875	671.151	671.255
M	39980.470	8.875	671.149	671.235
N	39990.470	8.875	671.145	671.212
O	40000.470	8.875	671.138	671.181
P	40010.470	8.875	671.128	671.145
€ Pier 2	40016.970	8.875	671.120	671.120
Q	40026.970	8.875	671.106	671.120
R	40036.970	8.875	671.089	671.118
S	40046.970	8.875	671.070	671.117
T	40056.970	8.875	671.047	671.108
U	40066.970	8.875	671.023	671.078
V	40076.970	8.875	670.995	671.038
W	40086.970	8.875	670.965	670.980
€ Brg. E. Abut.	40092.220	8.875	670.948	670.948
Bk. E. Abut.	40094.220	8.875	670.941	670.941

BEAM 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	39843.220	14.792	670.834	670.834
€ Brg. W. Abut.	39845.220	14.792	670.841	670.841
A	39855.220	14.792	670.873	670.901
B	39865.220	14.792	670.902	670.955
C	39875.220	14.792	670.928	670.986
D	39885.220	14.792	670.951	671.009
E	39895.220	14.792	670.972	671.011
F	39905.220	14.792	670.991	671.012
G	39915.220	14.792	671.006	671.014
€ Pier 1	39920.470	14.792	671.013	671.013
H	39930.470	14.792	671.025	671.051
I	39940.470	14.792	671.034	671.086
J	39950.470	14.792	671.040	671.114
K	39960.470	14.792	671.044	671.136
L	39970.470	14.792	671.044	671.149
M	39980.470	14.792	671.043	671.128
N	39990.470	14.792	671.038	671.105
O	40000.470	14.792	671.031	671.074
P	40010.470	14.792	671.021	671.038
€ Pier 2	40016.970	14.792	671.013	671.013
Q	40026.970	14.792	670.999	671.013
R	40036.970	14.792	670.982	671.011
S	40046.970	14.792	670.963	671.011
T	40056.970	14.792	670.941	671.001
U	40066.970	14.792	670.916	670.972
V	40076.970	14.792	670.888	670.931
W	40086.970	14.792	670.858	670.873
€ Brg. E. Abut.	40092.220	14.792	670.841	670.841
Bk. E. Abut.	40094.220	14.792	670.834	670.834

DESIGNED *Kath J. Kelly*  
 CHECKED *Robert M. Kelly*  
 DRAWN *J.T. Downing*  
 CHECKED *J.H. G.M.*

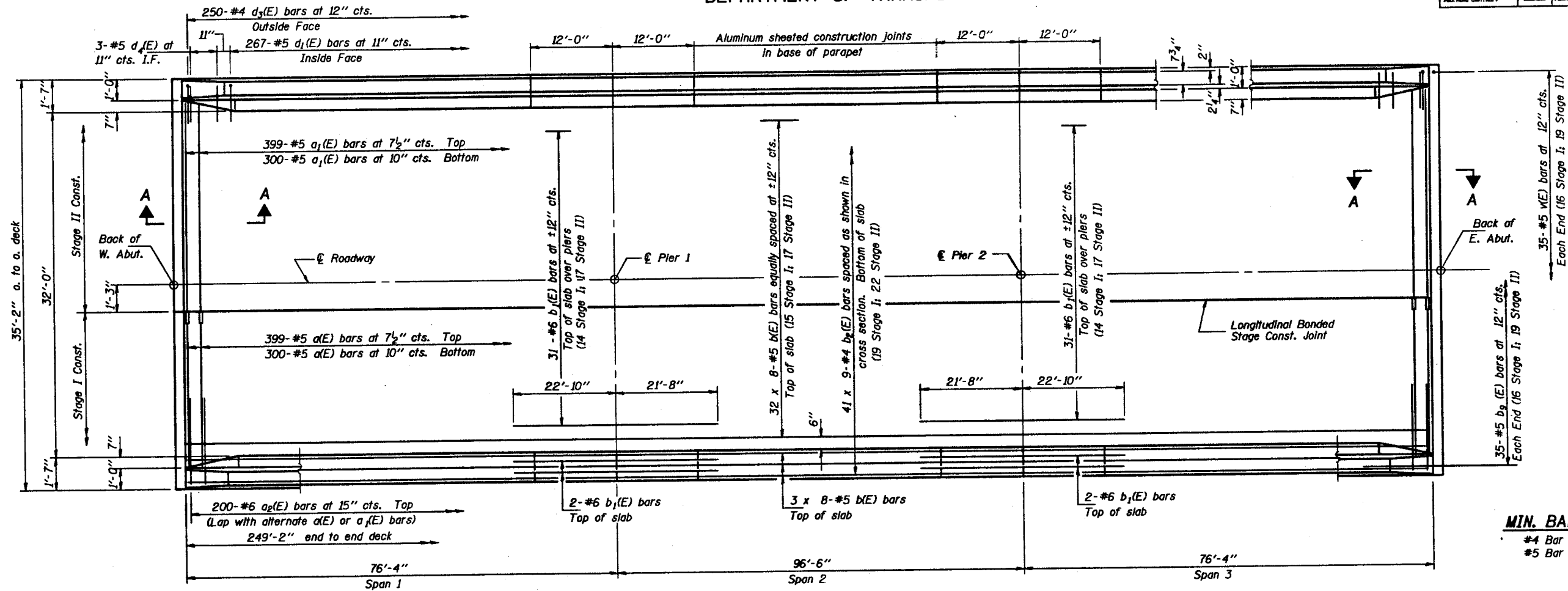
EXAMINED *Dr. J. O. Casper*  
 PASSED *James J. Robinson*  
 APPROVED \_\_\_\_\_

Oct 13 19 89

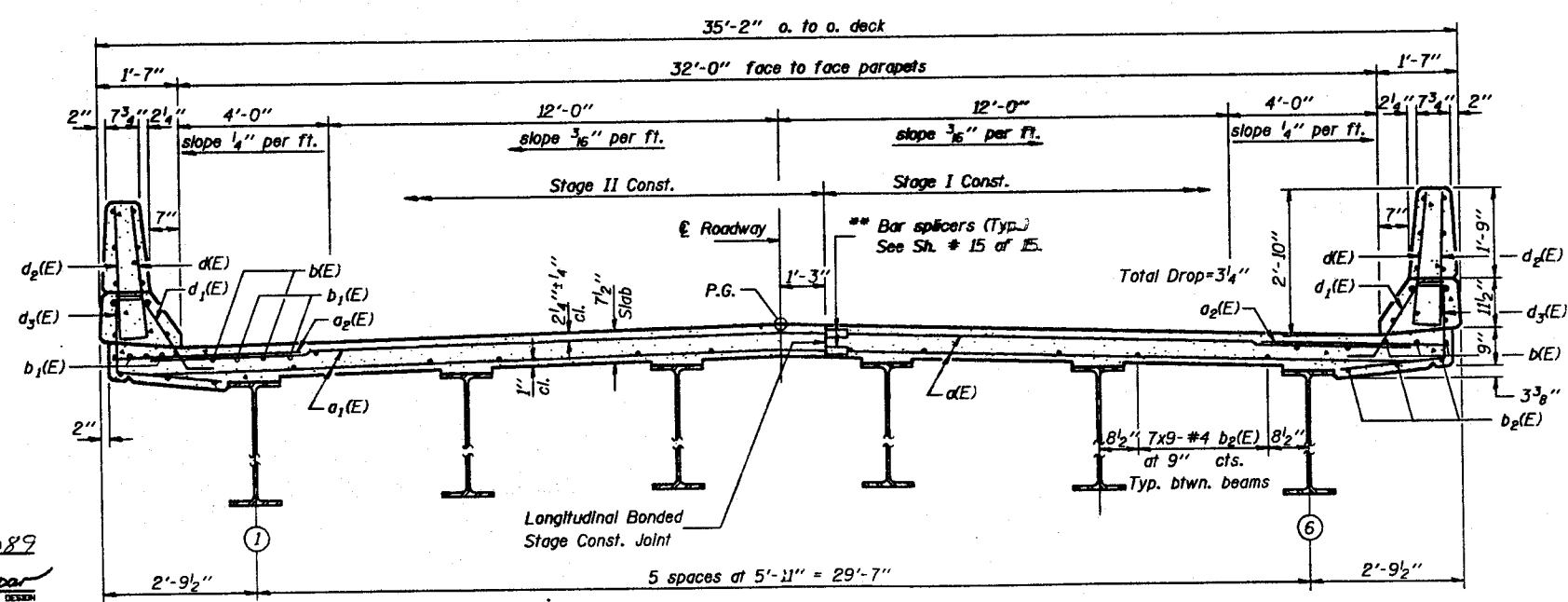
TOP OF SLAB ELEVATIONS  
 F.A.S. RT. 1512 SECTION 2-X-BR  
 CHAMPAIGN COUNTY  
 STATION 399+68.72

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

NO. OF SHEETS	SECTION	QUANTITY	DATE	BY
15 SHEETS			25	16
SHEET NO. 6				



**MIN. BAR LAPS**  
#4 Bar = 1'-4"  
#5 Bar = 1'-8"



Notes: See Sheet #8 of 15 for superstructure details and Bill of Material.  
Reinforcement bars designated (E) shall be epoxy coated.  
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.  
See Sheet #8 of 15 for parapet reinforcement.  
See Sheet #7 of 15 for Sec. A-A and End Diaphragms.

DESIGNED *Kathleen J. Kelly*  
CHECKED *Angela L. Normandy*  
DRAWN *J.T. Downing*  
CHECKED *M.H. A.M.*  
S-1-0 12-31-87

Oct 13 1989  
EXAMINED *Origi O. Kaspar*  
PASSED *James J. Korman*  
APPROVED \_\_\_\_\_  
DIRECTOR OF HIGHWAYS

**CROSS SECTION**  
(Looking East)

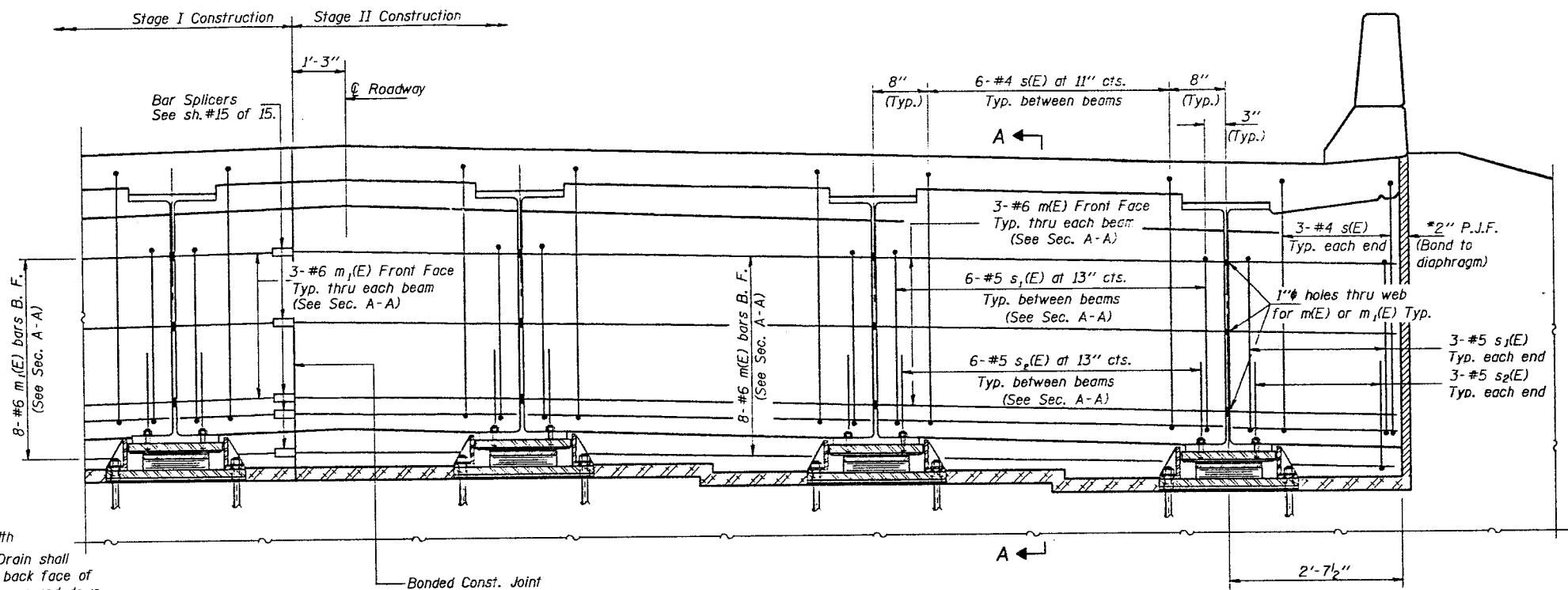
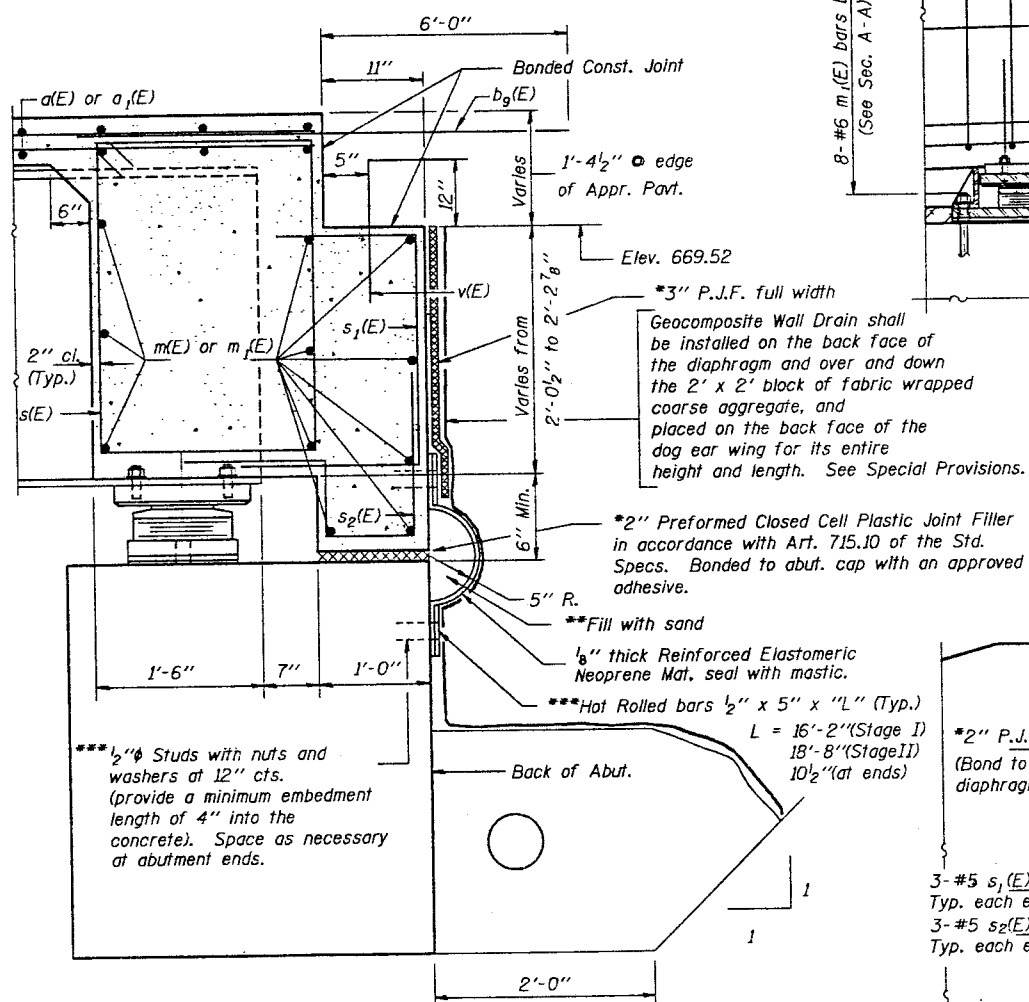
\*\* Lapped bars at this location shall be tied with double the number of ties normally used.

**SUPERSTRUCTURE**  
**F.A.S. RT. 1512 SECTION 2-X-BR**  
**CHAMPAIGN COUNTY**  
**STATION 399+68.72**

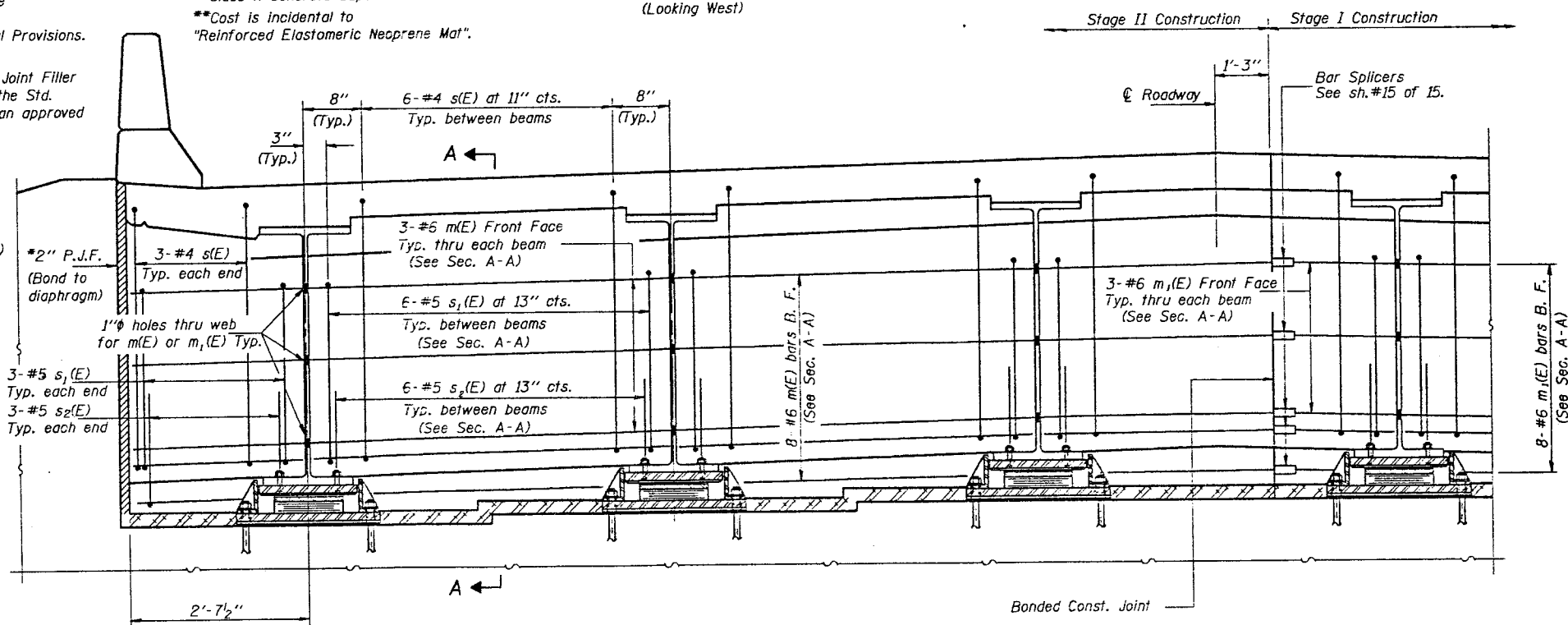
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
			25	17
F.A.S. RT. 1512		CHAMPAIGN COUNTY		
STATION 399+68.72		END DIAPHRAGMS		

Notes: Reinforcement bars and Class X Concrete in diaphragms are billed with superstructure on sh. # 8 of 15.



\*Cost is incidental to "Class X Concrete Superstructure".  
\*\*Cost is incidental to "Reinforced Elastomeric Neoprene Mat".



Note: Mat and plates shall extend end to end of diaphragm, wrap around the corner of the abutment cap, and end 1/2" from the face of the dog ear wing.

DESIGNED	Oct 13 1989
CHECKED	James J. Kasper
DRAWN	J.T. Downing
CHECKED	

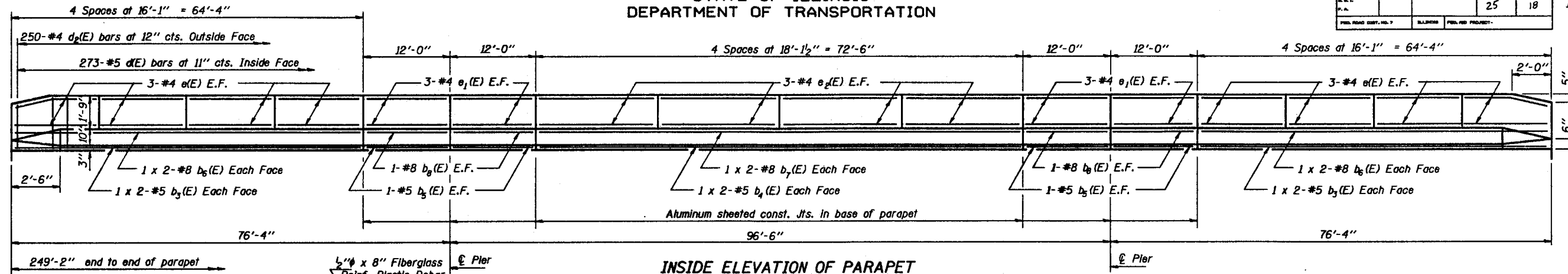
\*\*\* Bars shall be galvanized in accordance with AASHTO M111 using prime western zinc. Studs and accessories shall be mechanically plated with zinc in accordance with ASTM M298 Class 50 and may be used with manufactured concrete anchoring devices.

ELEVATION AT EAST ABUTMENT  
(Looking East)

END DIAPHRAGMS  
F.A.S. RT. 1512 SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	DATE	SHEET NO.
			25	18
P.L. No.		DATE		15 SHEETS
P.L. No.		DATE		



INSIDE ELEVATION OF PARAPET

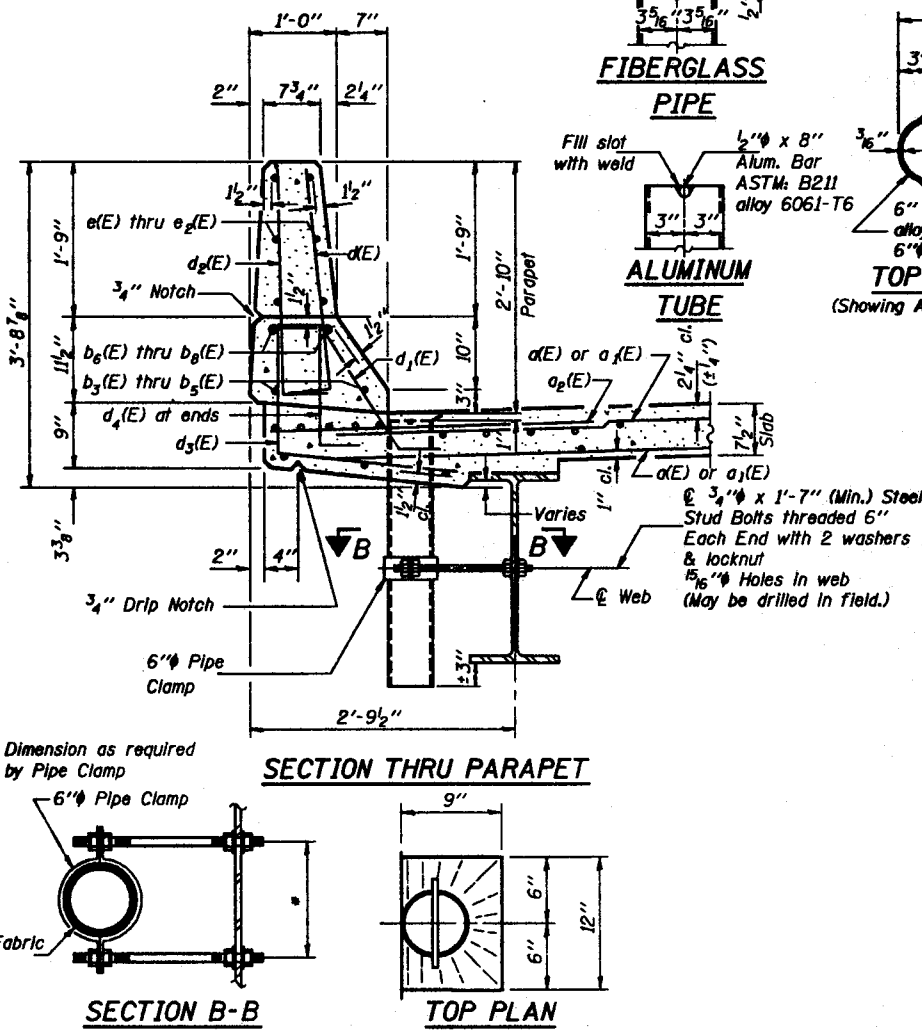
MIN. BAR LAPS  
#5 Bar = 2'-2"  
#8 Bar = 4'-6"

SUPERSTRUCTURE  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$d(E)$	699	#5	15'-3"	—
$a_1(E)$	699	#5	17'-8"	—
$a_2(E)$	400	#6	4'-0"	—
$b(E)$	304	#5	32'-8"	—
$b_1(E)$	70	#6	44'-6"	—
$b_2(E)$	369	#4	29'-0"	—
$b_3(E)$	16	#5	33'-2"	—
$b_4(E)$	8	#5	37'-3"	—
$b_5(E)$	16	#5	11'-9"	—
$b_6(E)$	16	#8	34'-5"	—
$b_7(E)$	8	#8	38'-6"	—
$b_8(E)$	16	#8	11'-9"	—
$b_9(E)$	70	#5	10'-0"	—
$d_1(E)$	546	#5	3'-0"	—
$d_2(E)$	534	#5	2'-7"	—
$d_3(E)$	500	#4	3'-0"	—
$d_4(E)$	500	#4	3'-9"	—
$d_5(E)$	12	#5	2'-5"	—
$e(E)$	96	#4	15'-10"	—
$e_1(E)$	48	#4	11'-9"	—
$e_2(E)$	48	#4	17'-11"	—
$m(E)$	22	#6	18'-6"	—
$m_1(E)$	22	#6	16'-0"	—
$s(E)$	72	#4	9'-9"	—
$s_1(E)$	72	#5	6'-8"	—
$s_2(E)$	72	#5	4'-6"	—
$v(E)$	70	#5	4'-0"	—
Reinforcement Bars (Epoxy Coated)		Lbs.	63310	
Class X Concrete Superstructure		Cu. Yds.	289.8	

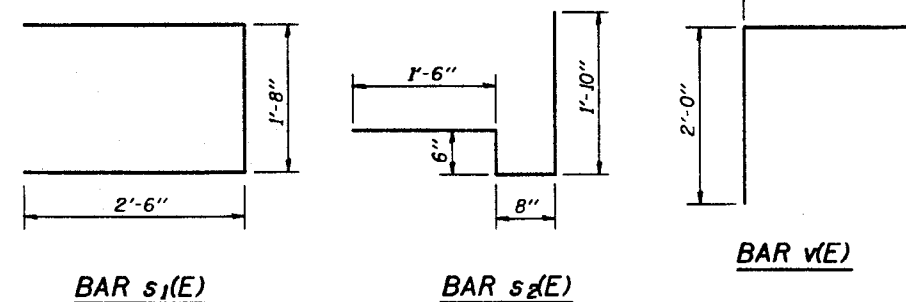
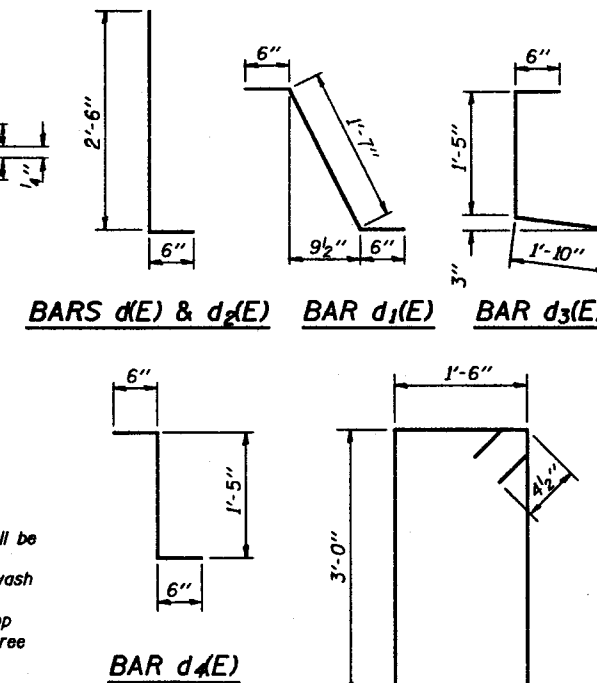
Reinforcement bars designated (E) shall be epoxy coated.  
Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.

SUPERSTRUCTURE DETAILS  
F.A.S. RT. 1512 SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72



PARAPET JOINT DETAILS

Notes:  
The exterior surfaces of the Floor Drain shall be painted with the vinyl enamel coat painting specified for Structural Steel. The exterior surface of the Aluminum tube shall be cleaned and given a washcoat pretreatment in accordance with Steel Structural Painting Council's Spec. SSPC-SPI & SSPC-Paint 27 prior to painting. Fiberglass to have prewash as per MIL-P-15328 prior to painting.  
Fiberglass pipe shall conform to ASTM: D2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum. The surface of the Fiberglass pipe shall be free of bond inhibiting agents.



DESIGNED *Walter J. Kelly*

CHECKED *James J. Downey*

DRAWN *J.T. Downing*

CHECKED *W.J.H.*

EXAMINED *James J. Downey*

PASSED *James J. Downey*

APPROVED *James J. Downey*

OCT 13 1989

S-1-D 12-31-87

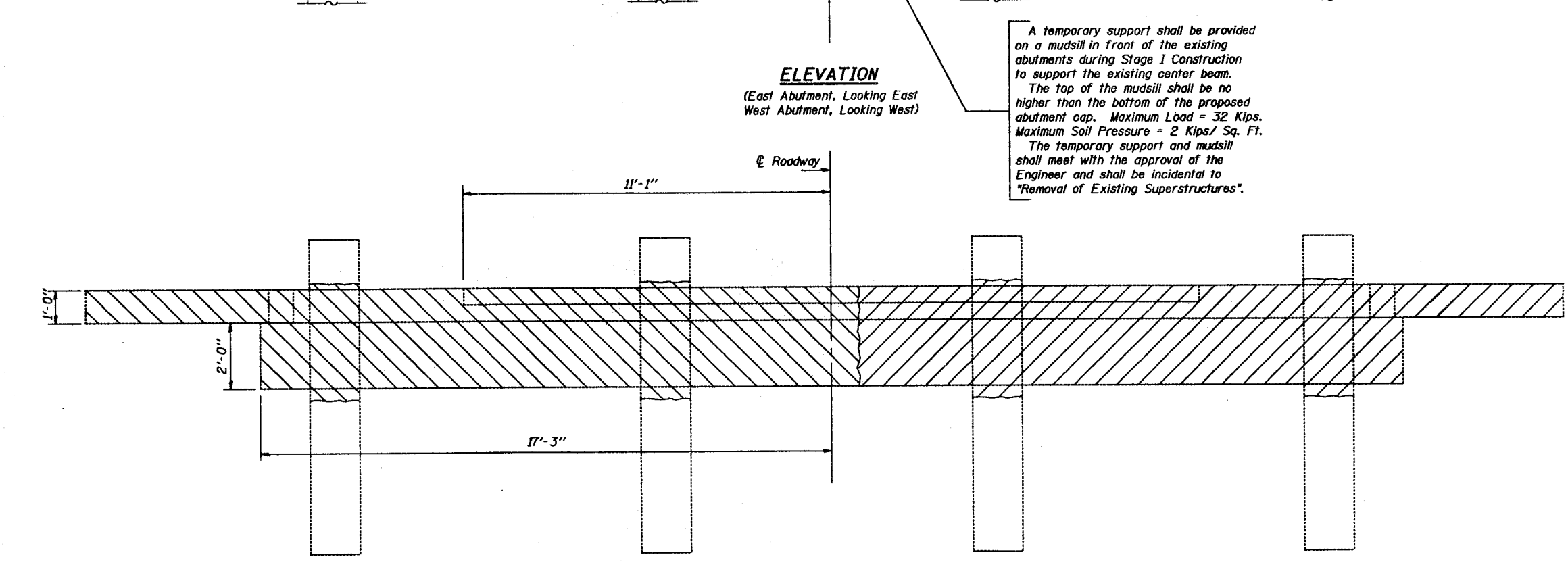
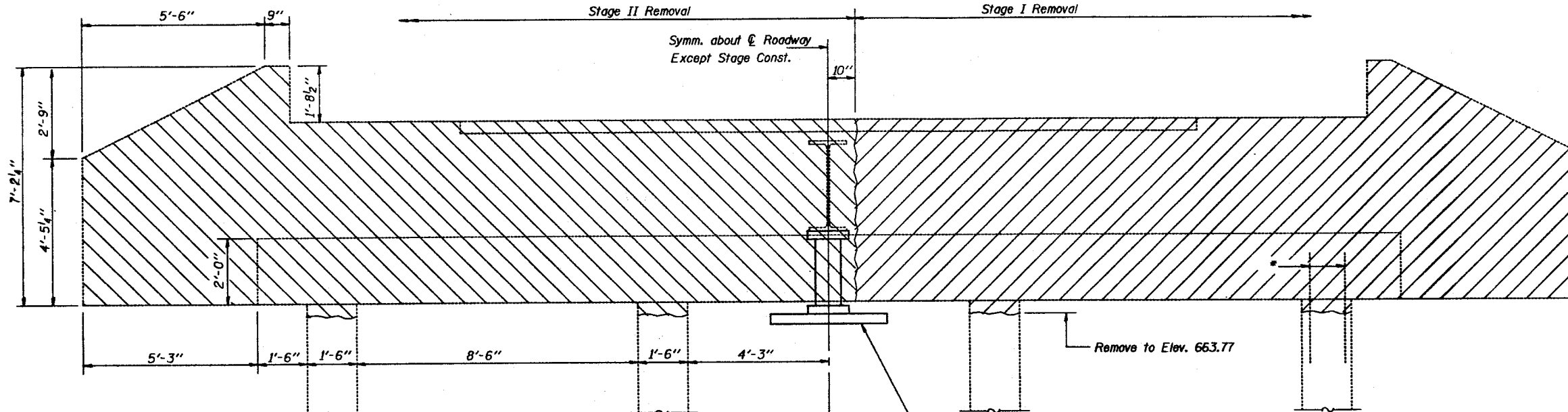






STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	DISTRICT	COUNTY	SECTION	SHEET NO. 11
			25	21
15 SHEETS				
PUBL. ROAD DIST. NO. 7				

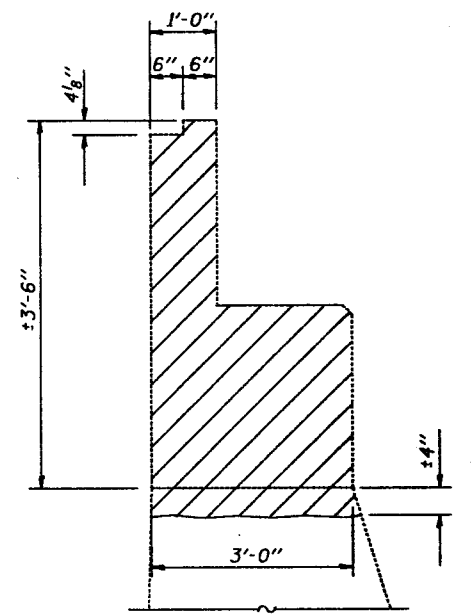


**ELEVATION**  
(East Abutment, Looking East  
West Abutment, Looking West)

**PLAN**

A temporary support shall be provided on a mudsill in front of the existing abutments during Stage I Construction to support the existing center beam. The top of the mudsill shall be no higher than the bottom of the proposed abutment cap. Maximum Load = 32 Kips. Maximum Soil Pressure = 2 Kips/Sq. Ft. The temporary support and mudsill shall meet with the approval of the Engineer and shall be incidental to "Removal of Existing Superstructures".

\* Existing reinforcement extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Cost incidental to Concrete Removal.



**SEC. THRU ABUT.**

**TWO ABUTMENTS  
BILL OF MATERIAL**

Item	Unit	Quantity	FINAL
Concrete Removal	Cu. Yd.	38	31

Note: Hatched areas indicate Concrete Removal.

DESIGNED *Keller J. Hilly*  
CHECKED *Charles J. Kennedy*  
DRAWN J.T. Downing  
CHECKED *H. J. H.*

OCT. 13 1989  
EXAMINED *Gregory O. Kaspar*  
PASSED *James J. Kasper*  
APPROVED \_\_\_\_\_  
DIRECTOR OF HIGHWAYS

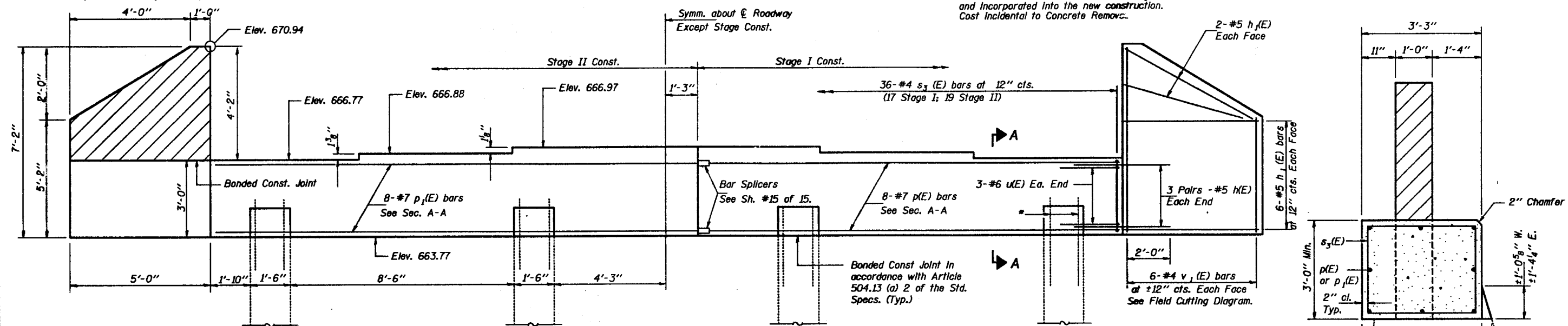
**CONCRETE REMOVAL-ABUTMENTS**  
**F.A.S. RT. 1512 SECTION 2-X-BR**  
**CHAMPAIGN COUNTY**  
**STATION 399+68.72**

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DATE	REVISION	BY	NO.	DATE	SHEET NO.
			25	22	15 SHEETS

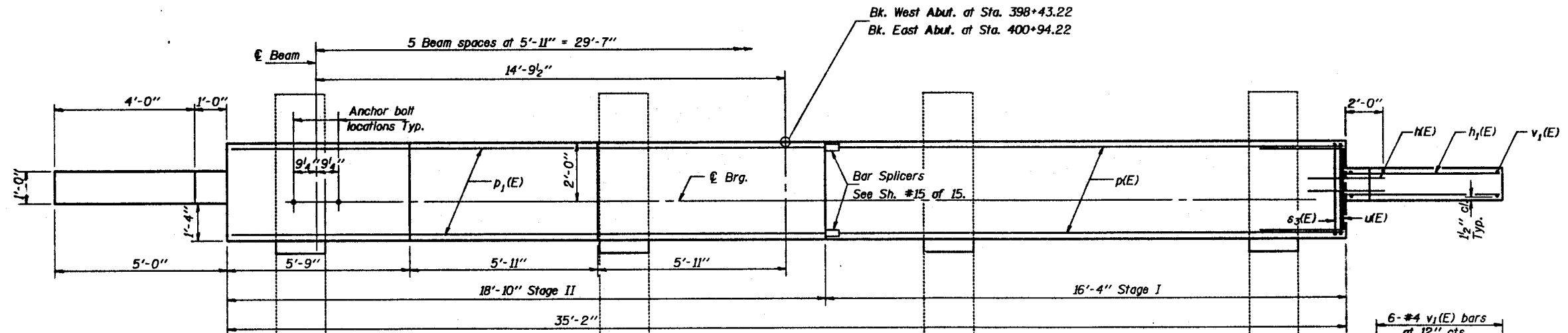
Notes: All edges shall have standard  $\frac{3}{4}$ " chamfers except as noted.  
Space reinforcement in cap to miss anchor bolts.  
Hatched areas to be poured after superstructure is in place. Concrete quantity included with Class X Concrete.  
Four steps monolithically with cap.

Existing reinforcement extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Cost incidental to concrete removal.



**ELEVATION**  
(East Abutment, Looking East  
West Abutment, Looking West)

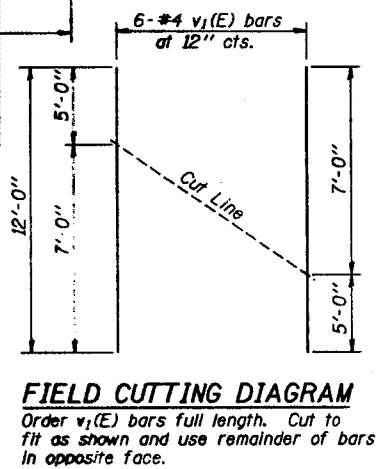
**SECTION A-A**



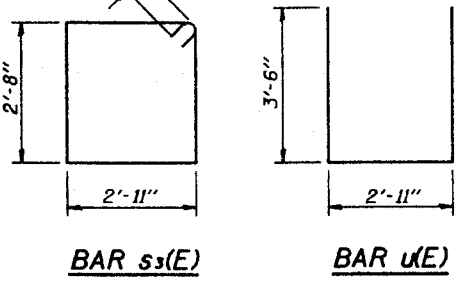
**PLAN**

**TWO ABUTMENTS  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h <sub>1</sub> (E)	24	#5	4'-0"	—
h <sub>1</sub> (E)	64	#5	4'-9"	—
p(E)	16	#7	16'-2"	—
p <sub>1</sub> (E)	16	#7	18'-8"	—
s <sub>3</sub> (E)	72	#4	11'-11"	□
u(E)	12	#6	9'-11"	└
v <sub>1</sub> (E)	24	#4	12'-0"	—
Class X Concrete		Cu.Yds.	31.1	
Reinforcement Bars (Epoxy Coated)		Lbs.	2500	
Structure Excavation		Cu.Yds.	55	



**FIELD CUTTING DIAGRAM**  
Order v<sub>1</sub>(E) bars full length. Cut to fit as shown and use remainder of bars in opposite face.



**ABUTMENTS**  
F.A.S. RT. 1512 SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72

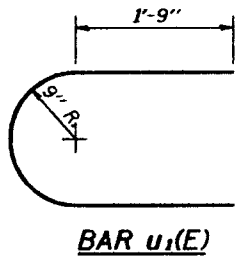
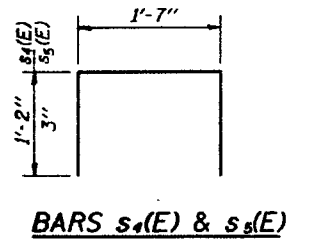
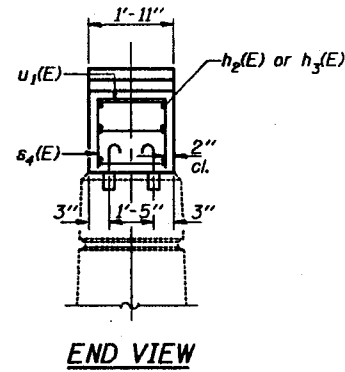
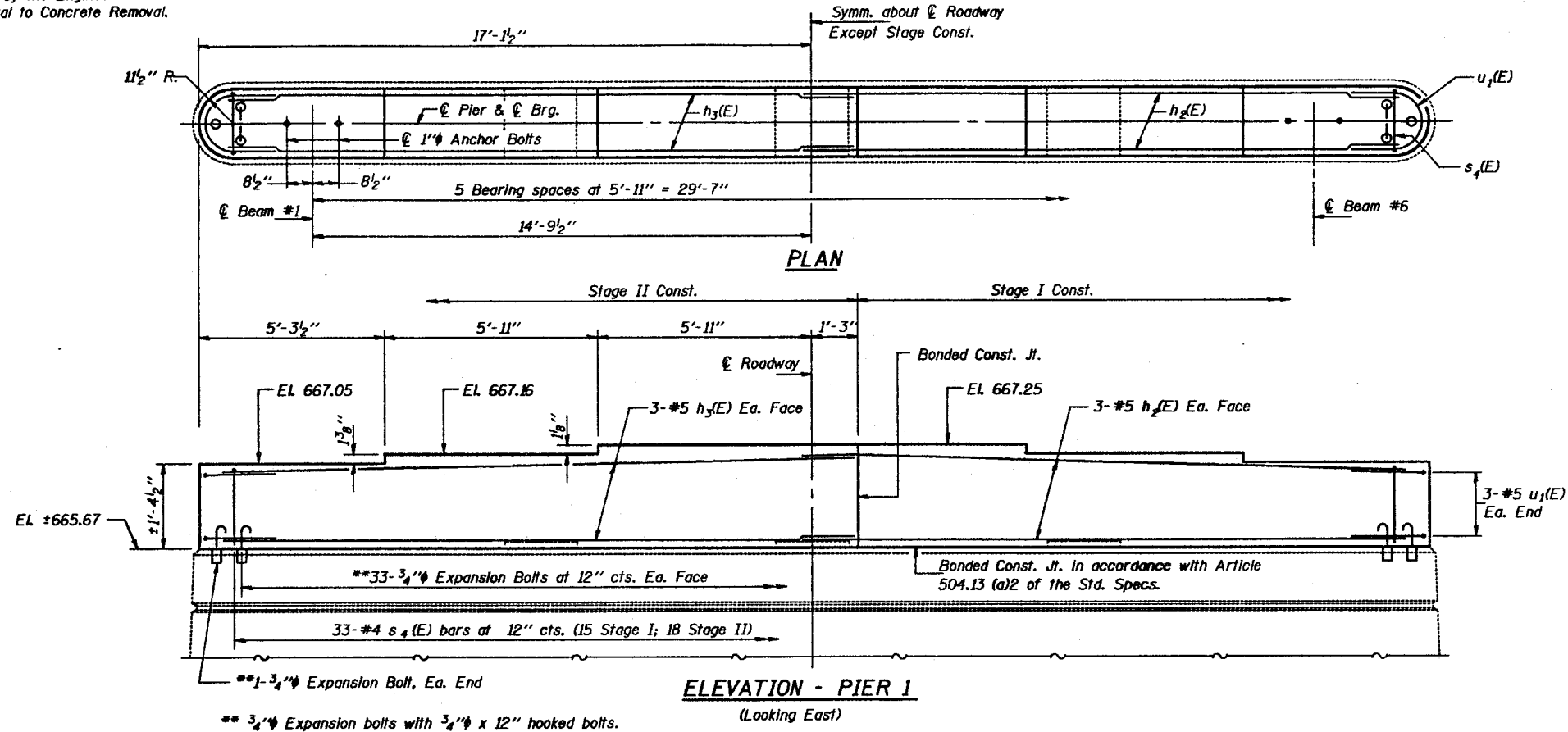
DESIGNED *Walter J. Hilly*  
CHECKED *Angela Kinney*  
DRAWN *J.T. Downing*  
CHECKED *H.J.H. G.D.N.*

Oct. 13 1989  
EXAMINED *Gregory D. Kasper*  
PASSED *James T. Kasper*  
APPROVED \_\_\_\_\_  
DIRECTOR OF HIGHWAYS

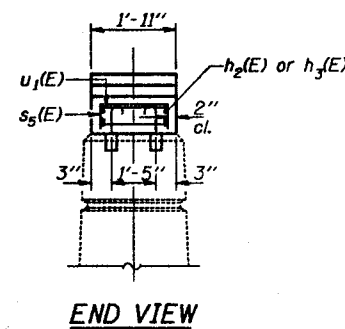
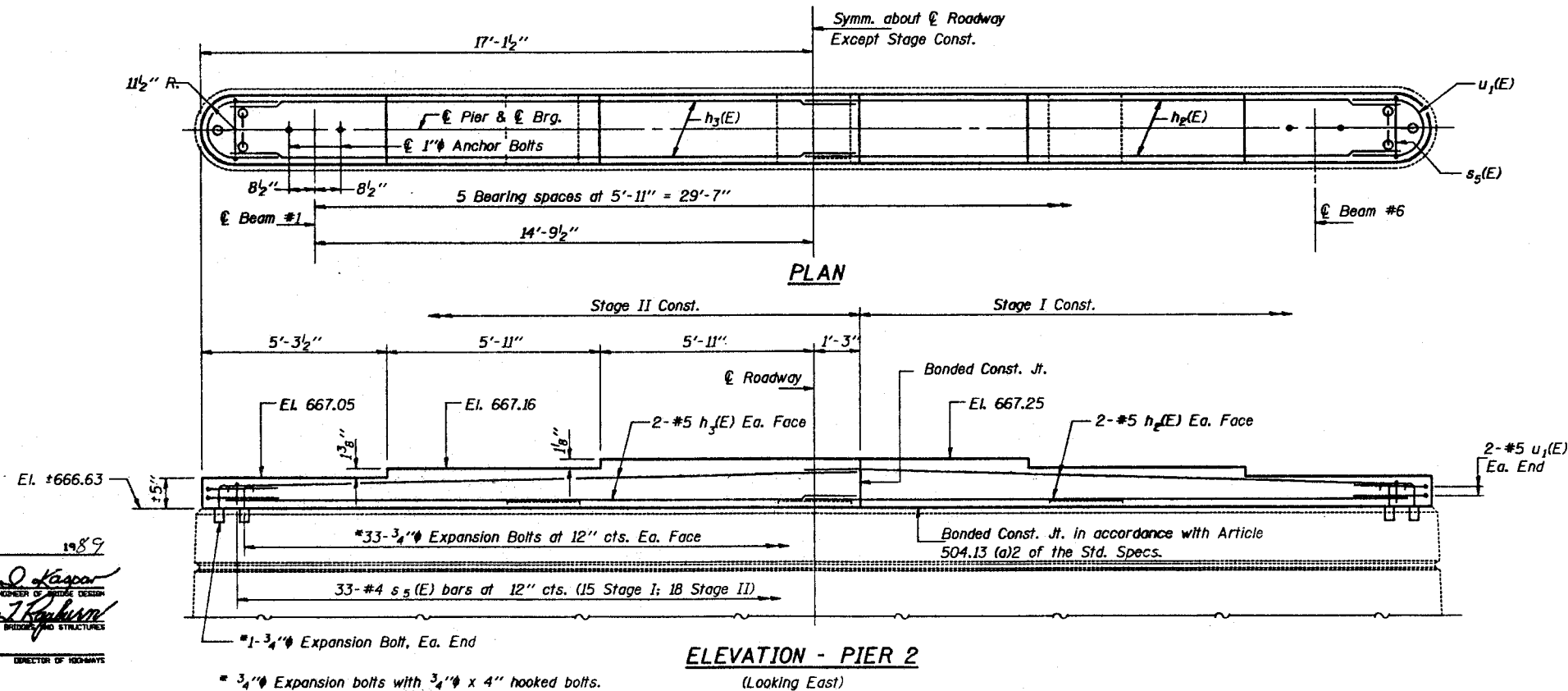
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	DATE	NO.	SHEET NO. 13
		25	23	15 SHEETS

Notes: All edges shall have std. 3/4" chamfers.  
Space reinforcement in cap to miss anchor bolts.  
The top of the pier caps shall be cleaned and any loose or flaking concrete shall be removed as directed by the Engineer before new concrete is placed. Cost incidental to Concrete Removal.  
Pour steps monolithically with cap.



**MIN. BAR LAP**  
#5 Bar = 1'-8"



**TWO PIERS  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
$h_2(E)$	10	#5	16'-7"	—
$h_3(E)$	10	#5	17'-5"	—
$s_4(E)$	33	#4	3'-11"	□
$s_5(E)$	33	#4	2'-1"	□
$u_1(E)$	10	#5	5'-11"	⊃
Class X Concrete				Cu. Yd. 4.7
Reinforcement Bars (Epoxy Coated)				Lb. 550
Expansion Bolts 3/4"				Each 136

Reinforcement bars designated (E) shall be epoxy coated.

**PIERS**  
F.A.S. RT. 1512 SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72

DESIGNED *Kath J. Kelly*  
CHECKED *Angela J. Hendry*  
DRAWN *J.T. Downing*  
CHECKED *J.H. A.Z.M.*

OCT. 13 1989

EXAMINED *Greg J. Kaspar*  
PASSED *James J. Robinson*  
APPROVED \_\_\_\_\_  
DIRECTOR OF HIGHWAYS

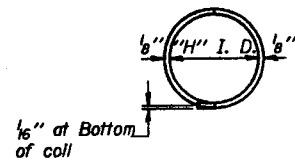
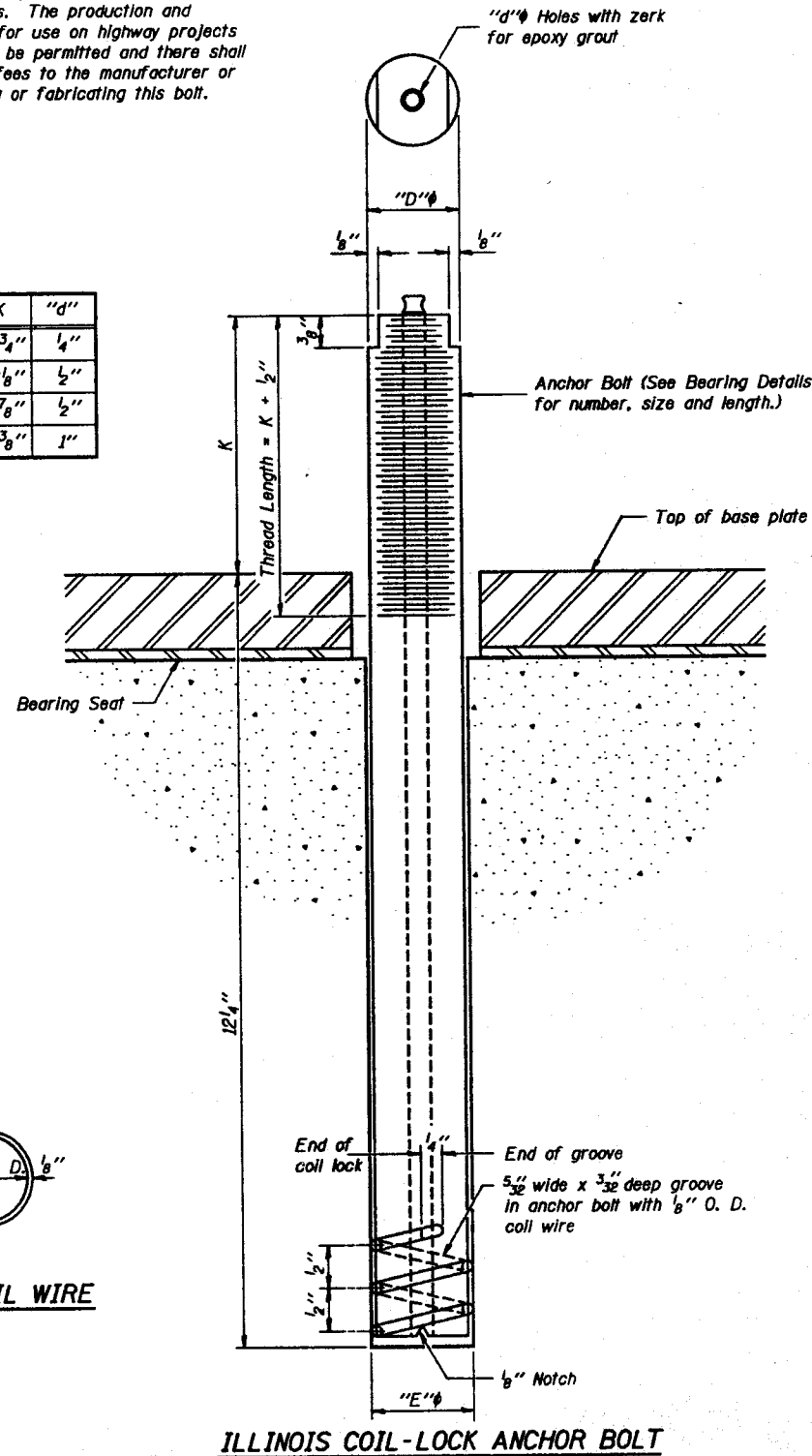


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DATE	ISSUED	BY	25	24	SHEET NO. 14
					15 SHEETS

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

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 13/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



**MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT**

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A519, Grade 1026 and supplied with hexagonal nuts and cut washers.

The coil wire shall be made of any suitable soft steel wire.

The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.

The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

**INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT**

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.

2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

**ALTERNATE ANCHOR BOLTS**

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

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

1. A threaded rod stud with nut and washer conforming to ASTM A307.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

**GENERAL NOTES**

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

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

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

DESIGNED <i>Kath J. Hill</i>	EXAMINED <i>Prof. J. O. Kaspar</i>
CHECKED <i>Charles L. Munday</i>	PASSED <i>James J. Kuyburn</i>
DRAWN <i>J.T. Downing</i>	APPROVED _____
CHECKED <i>J.H. Aym</i>	DIRECTOR OF HIGHWAYS

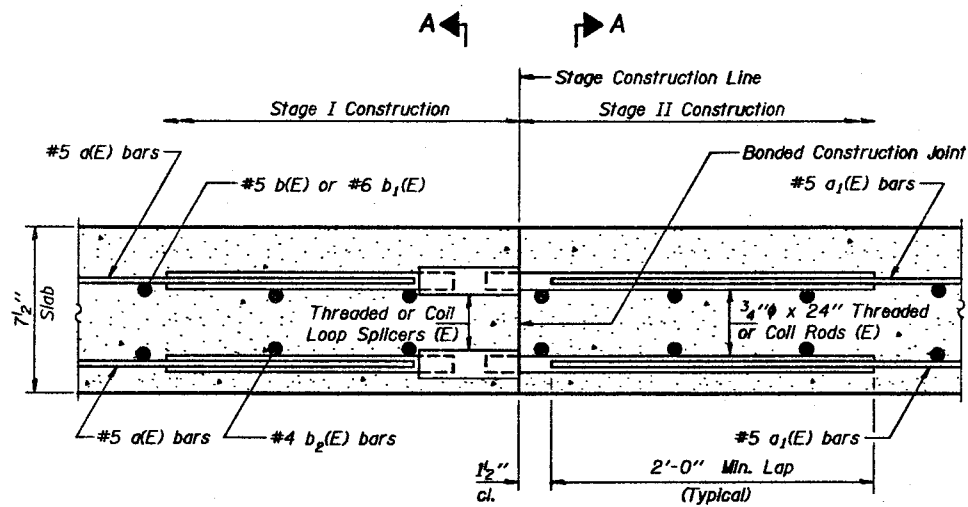
Oct. 13 1989

ABB-1 12-1-83

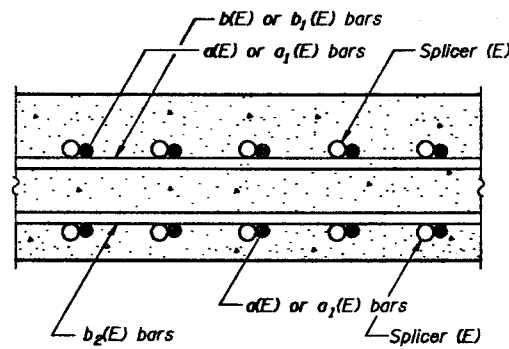
**ANCHOR BOLT DETAILS  
FOR BEARINGS  
F.A.S. RT. 1512 SECTION 2-X-BR  
CHAMPAIGN COUNTY  
STATION 399+68.72**

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	DISTRICT	DATE	SHEET NO.
F.A.S. 1512	2X-BR	Champaign	25	25
PROJECT NO. 1512	SECTION 2X-BR	DISTRICT CHAMPAIGN	DATE 25	SHEET NO. 25



SECTION THRU SLAB



SECTION A-A

SPLICER DETAILS

(No. Req'd. 699)

Cost incidental to Reinforcement Bars (Epoxy Coated).

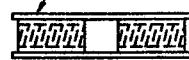
The diameter of this part of Splicer is the same as the diameter of the bar spliced.

ROLLED THREAD DOWEL BAR



ONE PIECE

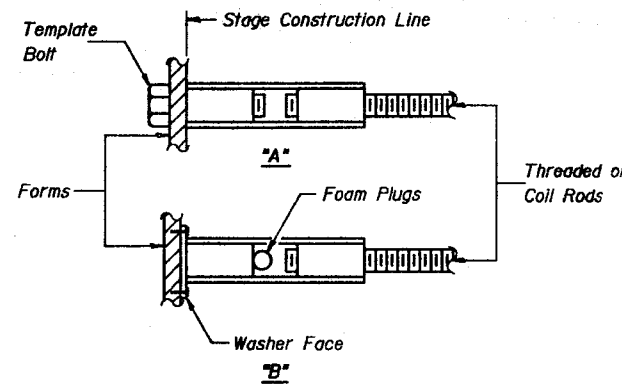
Wire Connector



WELDED SECTIONS

SPLICER ALTERNATIVES

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



INSTALLATION AND SETTING METHODS

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

NOTES

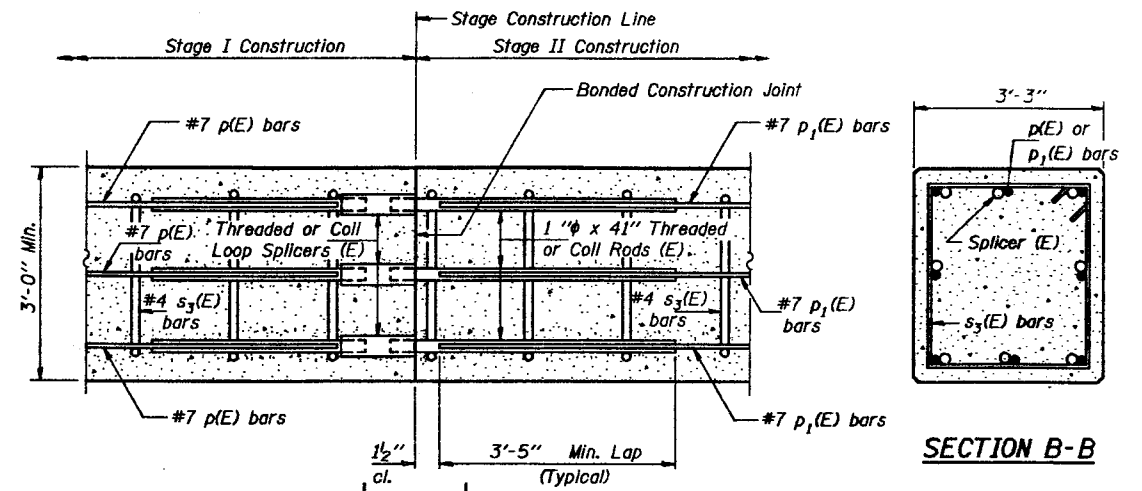
Steel Splicer (Coupler) assembly shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
Steel Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length and have effective tensile stress area equal to or greater than that of the lapped reinforcement bars.  
All reinforcement bars shall be lapped and tied to the splicer rods.  
Splicer (coupler) assembly shall be epoxy coated in accordance with 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 splicer (coupler) assembly satisfies the following requirements:

- Minimum Capacity =  $1.25 \times f_y \times A_t$   
(Tension in kips)
- Minimum \*Pull-out Strength =  $1.25 \times f_{s,allow} \times A_t$   
(Tension in kips)

Where  $f_y$  = Yield strength of lapped reinforcement bars in ksi.  
 $f_{s,allow}$  = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)  
 $A_t$  = Tensile stress area of lapped reinforcement bars.  
\* = 28 day concrete

Typical Splicer (Coupler) Assembly Sizes:

In Slabs	#5 bar lap with 3/8" Splicer (Coupler) x 2'-0" Splicer Rods	Minimum Capacity = 23.0 kips-tension Minimum Pull-out Strength = 9.2 kips-tension
In Sub-Structure	#7 bar lap with 1" Splicer (Coupler) x 3'-5" Splicer Rods	Minimum Capacity = 45.1 kips-tension Minimum Pull-out Strength = 18.0 kips-tension
and Diaphragms	#6 bar lap with 7/8" Splicer (Coupler) x 2'-7" Splicer Rods	Minimum Capacity = 33.1 kips-tension Minimum Pull-out Strength = 13.3 kips-tension

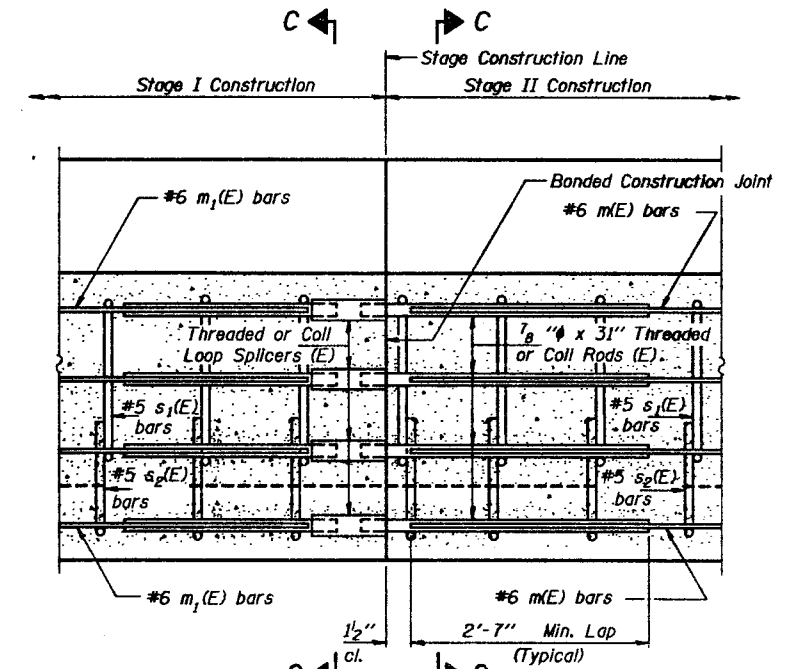


SECTION THRU ABUTMENTS

SPLICER DETAILS

(No. Req'd. 16)

Cost incidental to Reinforcement Bars (Epoxy Coated).

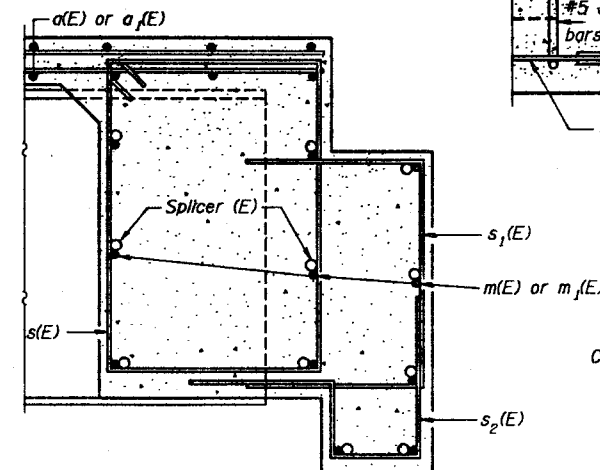


SECTION THRU DIAPHRAGMS

SPLICER DETAILS

(No. Req'd. 22)

Cost incidental to Reinforcement Bars (Epoxy Coated).



SECTION C-C

BAR SPLICER (COUPLER) DETAILS

AT STAGE CONSTRUCTION

F.A.S. RT. 1512 SECTION 2-X-BR

CHAMPAIGN COUNTY  
STATION 399+68.72

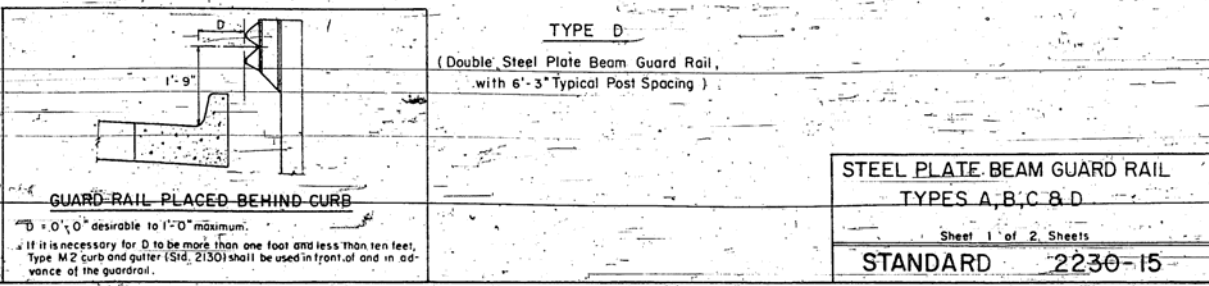
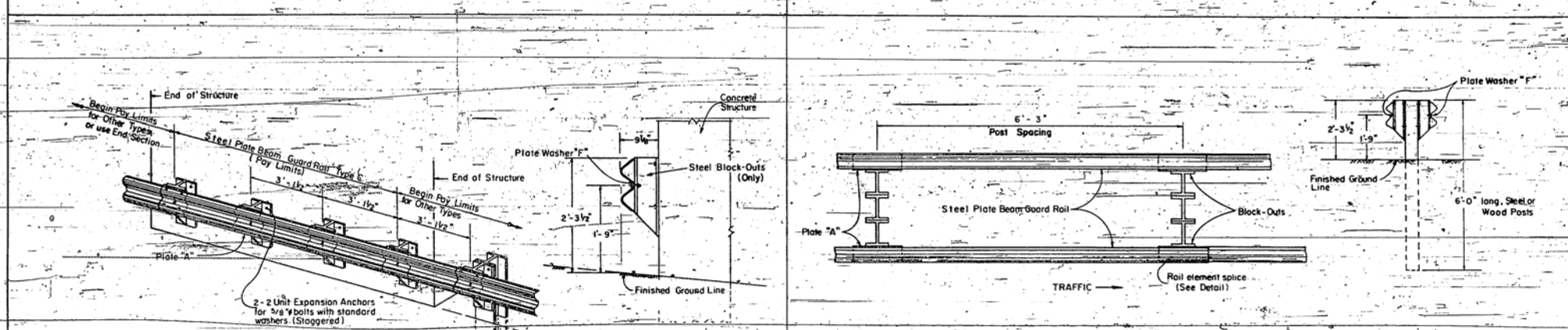
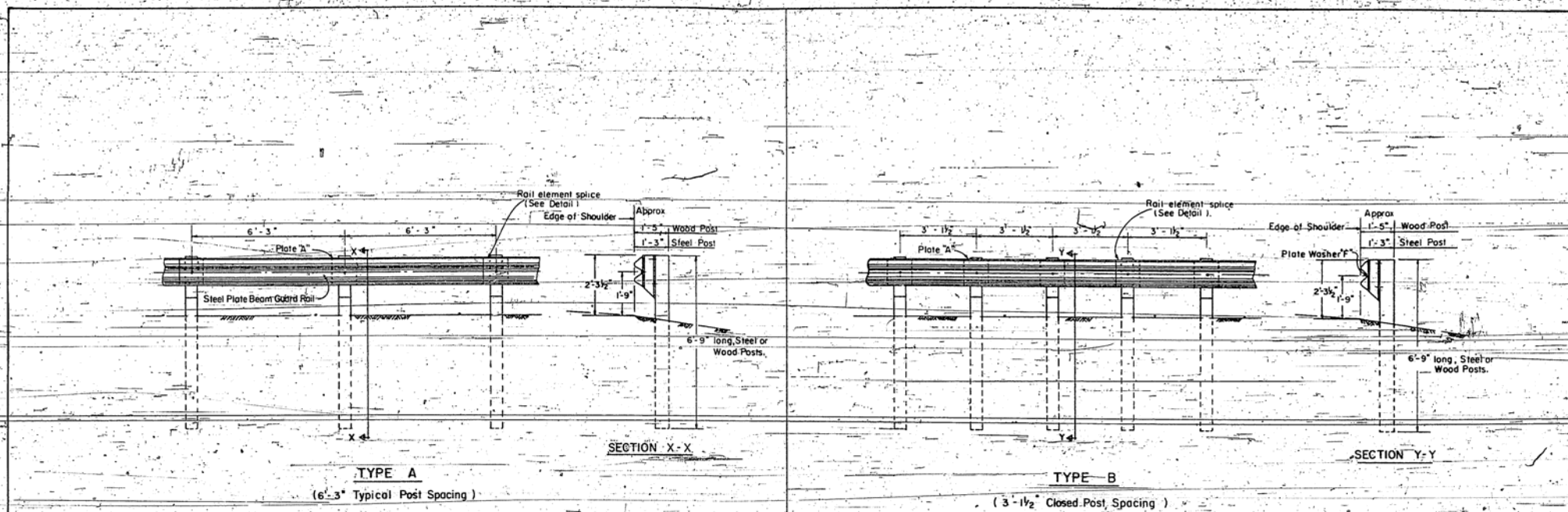
DESIGNED	Walter H. Kelly
CHECKED	Christopher H. Kelly
DRAWN	J.T. Downing
CHECKED	H.H. Kelly

EXAMINED	Oct. 13 1989
PASSED	James J. Kasper
APPROVED	James J. Kasper

BSD-1 6-1-89







Mississippi Department of Transportation

PASSED: May 28, 1988  
 APPROVED: May 28, 1988

**GUARD RAIL PLACED BEHIND CURB**

"D" = 0'-0" desirable to 1'-0" maximum.  
 If it is necessary for D to be more than one foot and less than ten feet, Type M2 curb and gutter (S14, 2130) shall be used in front of and in advance of the guardrail.

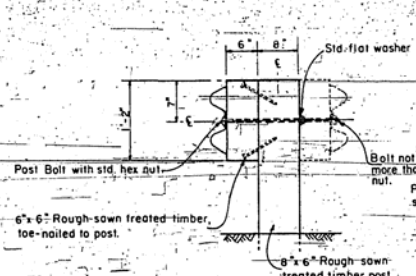
**STEEL PLATE BEAM GUARD RAIL**  
 TYPES A, B, C & D

Sheet 1 of 2 Sheets

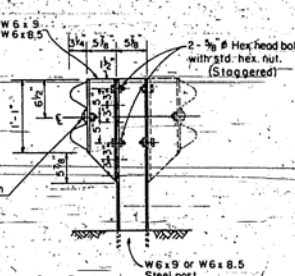
**STANDARD 2230-15**

Full Size DWG 5

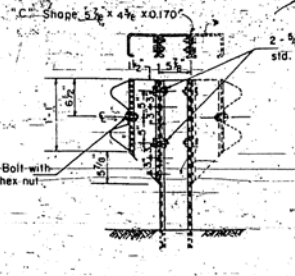




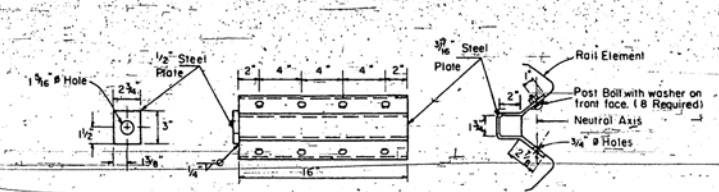
TYPICAL DETAIL OF WOOD POST CONSTRUCTION



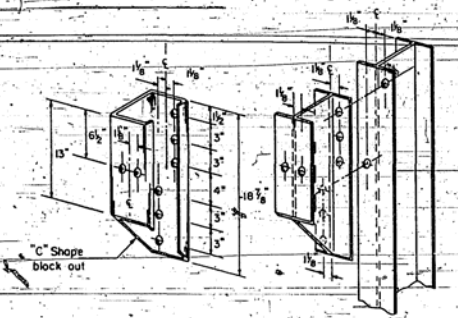
TYPICAL DETAIL OF STEEL POST CONSTRUCTION



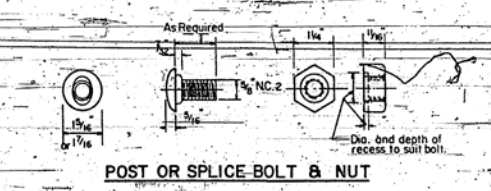
TYPICAL DETAIL OF STEEL POST CONSTRUCTION (ALTERNATE "C" SHAPE)



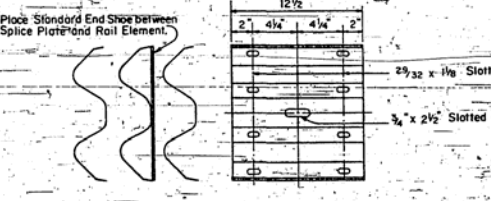
ANCHOR PLATE "T" DETAILS  
Anchor Plate "T" shall be used to attach cable assembly to guard rail when required on Traffic Barrier Terminals.



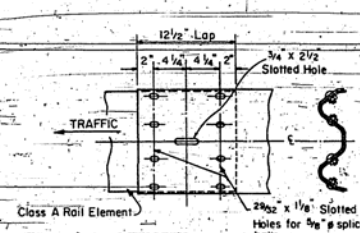
BLOCK-OUT DETAILS



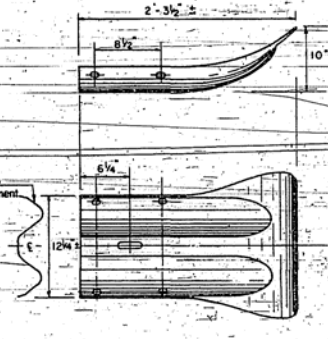
POST OR SPLICE BOLT & NUT



SPLICE PLATE



RAIL ELEMENT SPLICE



END SECTION

NOTE:  
End Section shall be used only when specified on the contract plans.  
Cost included in the bid unit price for Guard Rail.

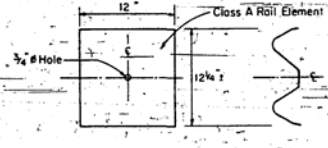


PLATE "A"

NOTE:  
"Plate A" shall be placed between rail element and block-out at all non-splice mounting points.

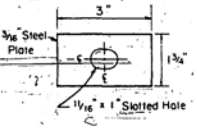
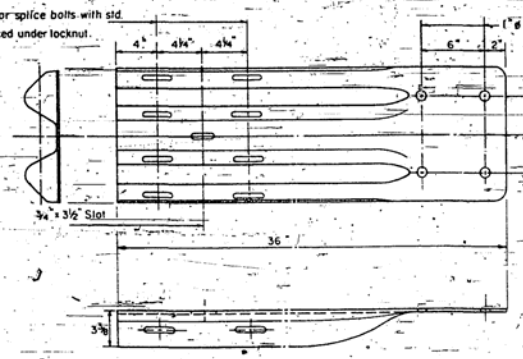


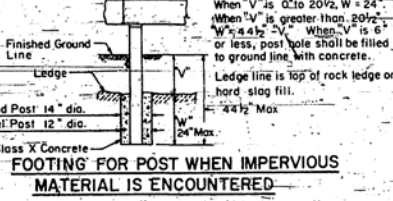
PLATE WASHER "F"

Plate Washer "F" shall be used on Type A Guardrail only where specified. Plate Washer "F" shall be used at all other locations where rail element is bolted to a block-out unless otherwise noted.



STANDARD END SHOE

When end shoe is attached to a bridge parapet which has an expansion joint, the bolts shall be provided with a locknut or double nut and shall be tightened only to a point that will allow guardrail movement.  
The Standard End Shoe shall be attached to the concrete with Pre-drilled or Self-drilling anchor bolts. The anchor cone shall be set flush with the surface of the concrete.  
Externally threaded studs protruding from the surface of the concrete will not be permitted.



FOOTING FOR POST WHEN IMPERVIOUS MATERIAL IS ENCOUNTERED

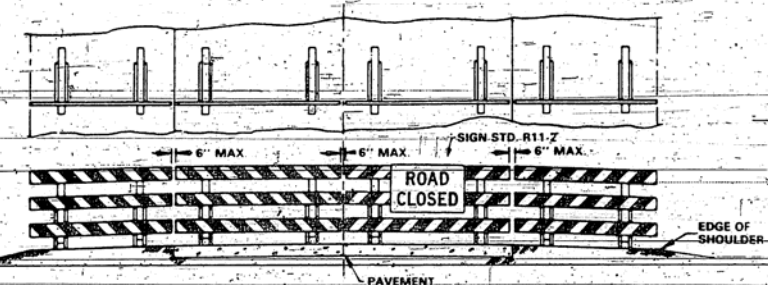
GENERAL NOTES  
All rail element shall be Class A unless otherwise noted.  
All holes in posts and block-outs shall be 3/4" or less, post hole shall be filled to ground line with concrete.  
All concrete, and accessories used in the placing of the guard rail shall be included in the bid unit price for guard rail.  
Rail element may be furnished in nominal lengths of either 12'-6" or 25'-0".  
All rail elements and accessories shall conform to AASHTO M-180 unless otherwise noted.  
For steel block-outs attached to wood posts, use 2-#8 bolts (staggered) in pre-drilled post holes.  
The Contractor shall load test 10% of all expansion anchor bolts in guard rail installations in the presence of the Engineer. The equipment and method used shall meet the approval of the Engineer. The minimum test load shall be 8,000 pounds for #8 bolts and 3,000 pounds for #6 bolts in direct pull. For each anchor that fails the test requirements, two (2) more anchor bolts, picked by the Engineer shall be tested. Each anchor bolt that fails to meet the test requirement shall be reset or removed and the hole drilled deeper. All reset anchor bolts shall meet minimum test requirements.

Illinois Department of Transportation  
PASSED: Mar. 28, 1988  
APPROVED: Mar. 28, 1988  
99-11-2 (3/85)

STEEL PLATE BEAM  
GUARD RAIL  
(Sheet 2 of 2 Sheets)  
STANDARD 2230-15  
Full Size D.W.W. Sr.

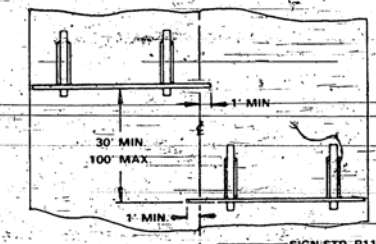


TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. The barricades shall be to the edge of the shoulders except when otherwise directed by the Engineer or shown on the detailed construction plans.

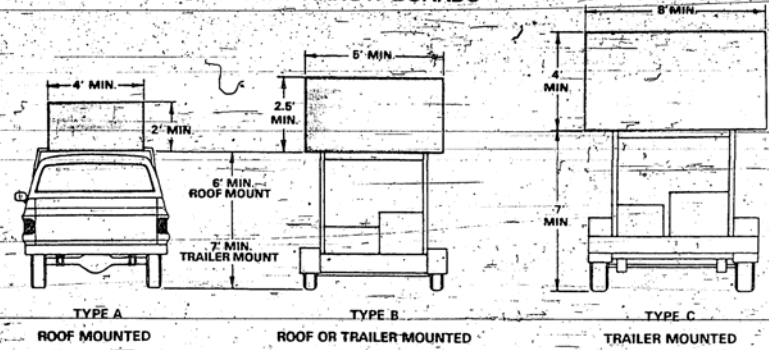


ROAD CLOSED TO ALL THRU TRAFFIC

Reflectorized striping shall appear on both sides of barricades. The barricades shall be to the edge of the pavement, except when otherwise directed by the Engineer or shown on the detailed construction plans.

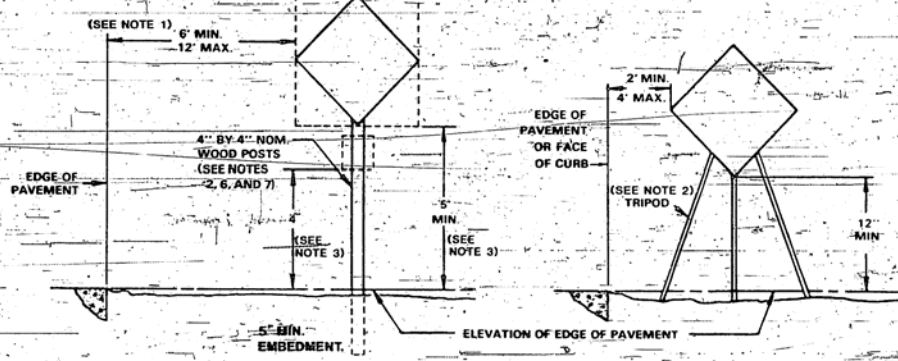
Massachusetts Department of Transportation  
 Approved: October 21, 1983  
 [Signature]  
 Engineer of Traffic

ARROW BOARDS



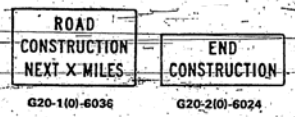
Arrow boards shall conform to Article 718.22 of the Standard Specifications. On roads with speeds of 45 miles per hour and above, Type C units are to be used for all operations 24 hours or more in duration and Type B units may be used for operations less than 24 hours in duration. Type A, B or C units may be used for all operations on roads with speeds less than 45 miles per hour. Arrow boards shall not be used to direct passing moves into lanes used by opposing traffic.

TYPICAL SIGN INSTALLATIONS



- 2 ft. minimum to face of curb.
- Alternate designs and or materials may be permitted when authorized by the Engineer. All materials shall be substantial and durable.
- Add 2 ft. if parking exists within 200 ft. in advance of the sign location or if pedestrian movement is likely to occur at any time during the project.
- Signs on temporary supports shall be within 20' of a vertical position.
- Weights of concrete, stone, or brick will not be allowed and all weights used to stabilize signs other than sandbags must be rigidly attached to the sign support as close to the ground as possible.
- Two posts shall be used for signs greater than 16 sq. ft. in area or where the height between the sign and the ground exceeds 7 ft. Bracing no heavier than 2" x 4" wood may be used for added support. Any brace placed parallel to the road shall be sloped down toward approaching traffic.
- If approved by the Engineer, skids may be used to support signs where posts are impractical. If used, they shall not exceed the structural design of Type III barricades and shall be no greater than 4 ft. in length.

WORK LIMIT SIGNING



X = Distance to END CONSTRUCTION sign

ROAD CONSTRUCTION NEXT X MILES and END CONSTRUCTION signs shall be erected at or near the limits of all projects over two miles in length. The signs shall be placed at least 500 feet from any other construction warning sign. The END CONSTRUCTION sign shall be omitted or covered whenever another project is within 2 miles beyond the end of the job.

TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE

SHEET 1 OF 2  
**STANDARD 2298-7**

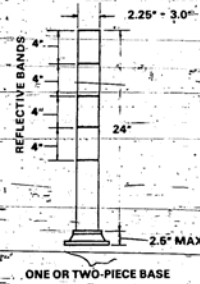


**FLEXIBLE DELINEATORS**

Flexible delineators shall be tubular in shape and designed to bend under repeated impacts and return to an upright position without damage to the impacting vehicle or the tubes. They shall be attached to the pavement with epoxy meeting the recommendations of the delineator manufacturer. The use of studs will not be permitted without the approval of the Engineer.

The tubes shall be orange in color and have two reflectorized orange and two reflectorized white bands meeting the requirements for signs Article 718.17 of the Standard Specifications.

The tubes shall be readily removable from the bases to permit field replacement. All missing or severely damaged tubes shall be replaced prior to suspending work each working day and once each non-working day on a schedule approved by the Engineer.



**WING BARRICADES**

The stripes shall be 6 inches wide, alternating reflectorized orange and reflectorized white, sloping downward at 45° toward the side on which traffic will pass. The reflective sheeting shall meet the requirements of Articles 718.17 and 718.18 of the Standard Specifications.

Sand bags may be placed on the legs for ballast. No other types of weights will be allowed.

Flashing lights shall be used during hours of darkness and shall be mounted above the top rail of the side nearest traffic.

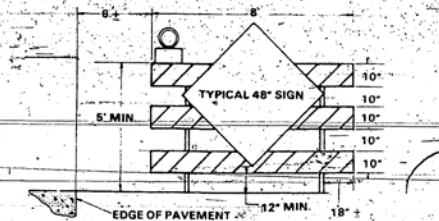
Barricade rails shall be wood (no thicker than 1 1/2 inch), sheet aluminum, plastic or fiberglass.

The optional back-bracing shown on the wood or metal barricade may be used provided it attaches to the upright no higher than 12 inches above the bottom and provided that if wood is used, the bracing shall be no heavier than 2 inches by 4 inches in size.

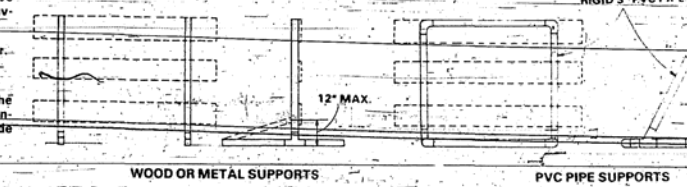
Other light weight designs may be used with the approval of the Engineer.

All heights shown shall be measured above the pavement surface.

The name of the agency, contractor, or supplier shall not be shown on the face parts of any barricades, whether such parts are striped or not. Identification markings may be placed only on the back side of the barricade rails.



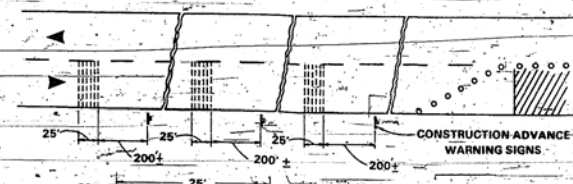
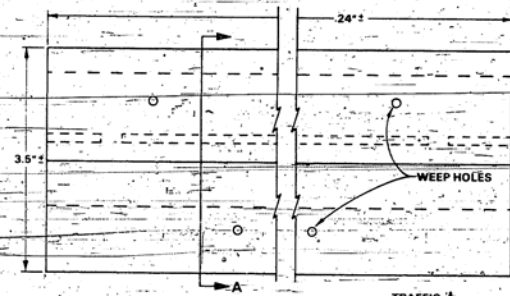
FRAMES SHALL BE NO HEAVIER THAN:  
4" x 4" WOOD OR  
2" x 2" x 1/8" STEEL TUBING OR  
2" x 2" x 3/16" STEEL ANGLES



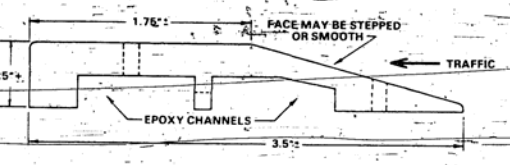
WOOD OR METAL SUPPORTS      PVC PIPE SUPPORTS

TYPICAL DESIGNS

**TEMPORARY RUMBLE STRIPS**



TYPICAL INSTALLATION



A-A  
DETAIL OF RUMBLE STRIPS

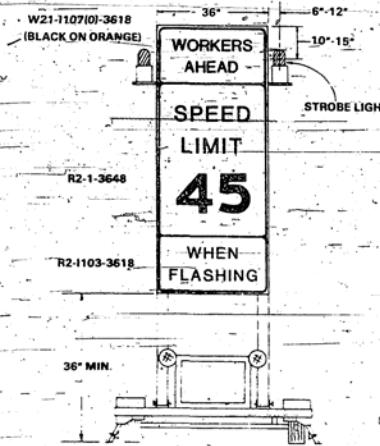
The rumble strip shall be black in color and formed of high strength formed polycarbonate. It shall be of one-piece construction with two channels on the underside for flexibility and proper epoxy bondage. The channels shall be interconnected at four or more locations to permit epoxy to flow from one channel to the other. There shall be at least six weep holes through one or both channels to the upper surface of the strip and at least four through the leading edge of the strip to prevent air voids between the strip and the epoxy.

The rumble strip shall support a load of 6,000 pounds. This shall be determined by placing a strip over the open end of a one-inch high vertically-positioned hollow metal cylinder having an internal diameter of 3 inches and a wall thickness of 0.25 inches. The load shall be applied slowly through a one-inch diameter by one-inch high metal rod centered on the top flat portion of the strip. (No weep holes shall be in the compression area.) Breakage or significant permanent deformation of the strip shall constitute failure.

The strips shall be placed end to end and extend completely across the traffic lane. They shall be attached to the pavement with an epoxy meeting the recommendations of the rumble strip manufacturer.

Other similar designs may be used with the approval of the Engineer.

**CONSTRUCTION SPEED LIMIT SIGN**



The sign assembly may be trailer, post, or skid-mounted. If trailer-mounted, the trailer shall conform to Article 718.23 of the Standard Specifications.

All signs shall be reflectorized meeting the requirements of Article 718.17 of the Standard Specifications. The signs may be combined on a single panel.

The strobe lights shall be 12 VDC, battery powered units with amber Fresnel lenses. The input current shall be less than 1.75 volts with a light intensity of 8 candles (watt-seconds) at a flash rate of 70 to 80 flashes per minute. The lights shall have an operating range of -40° F to +140° F. Each light shall be fully visible through an arc of approximately 120° when viewed facing the sign. The lights shall be shielded so that they will not be directly visible from the rear.

The assembly shall only be used where specified or when approved by the Engineer. The strobe lights shall be activated only when workers are present in a closed lane adjacent to one open to traffic. At all other times, the lights shall be turned off and the sign may be removed. The speed limit to be shown shall be 10 miles per hour below the normal posted speed limit. The sign shall not be used where the normal posted speed limit is below 45 miles per hour.

TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES  
HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE

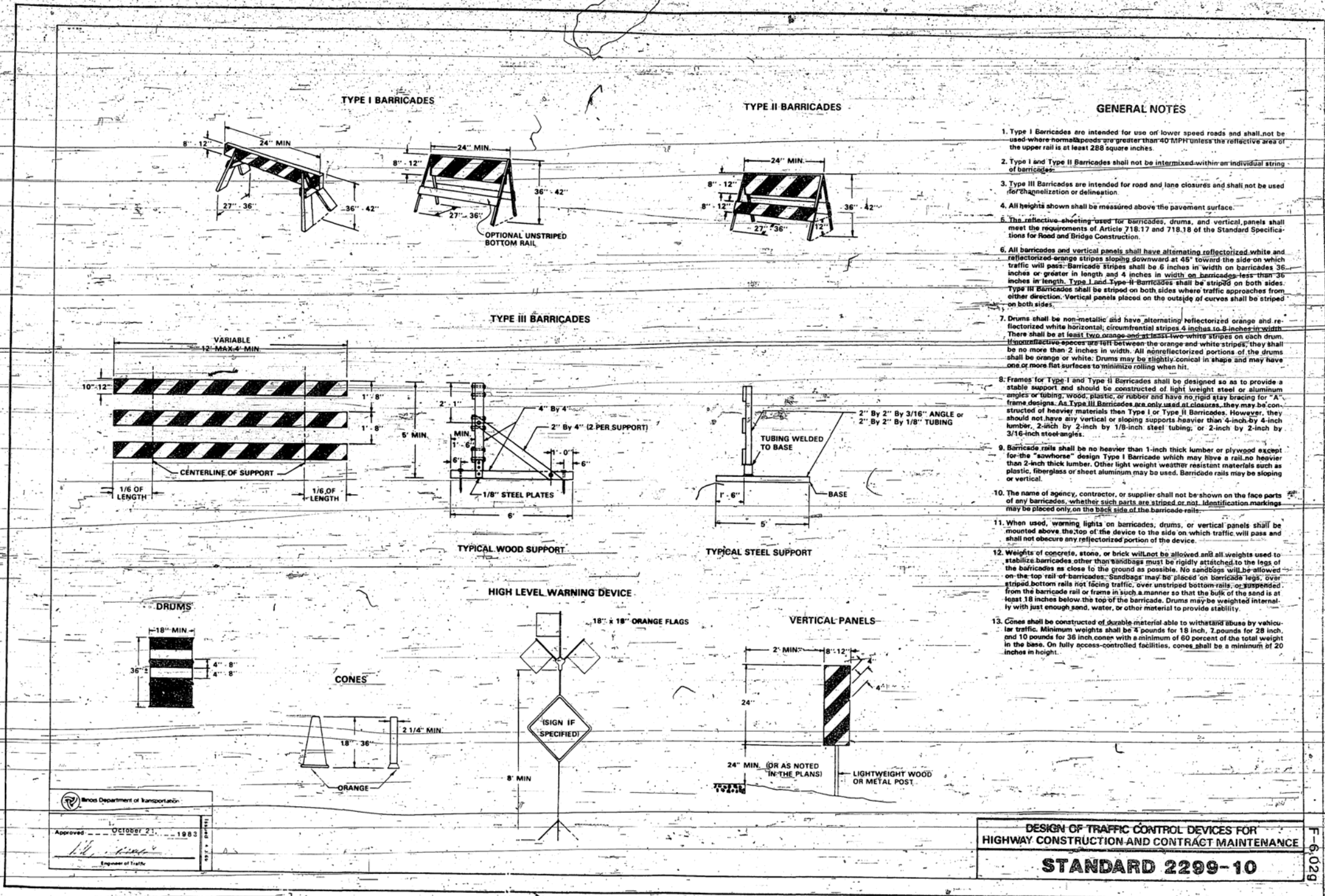
SHEET 2 OF 2

**STANDARD 2298-7**

1106-T







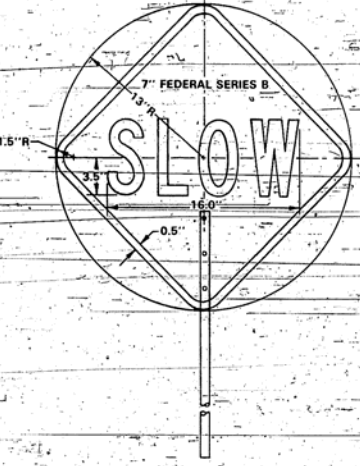
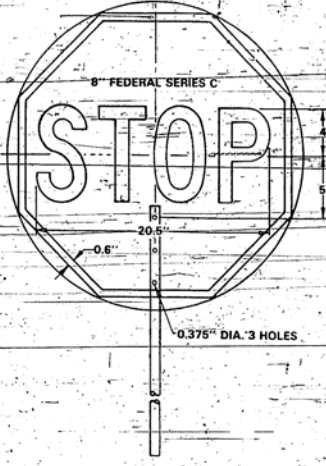
Mass Department of Transportation  
 Approved: OCTOBER 21, 1982  
 Engineer of Traffic

DESIGN OF TRAFFIC CONTROL DEVICES FOR  
 HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE  
**STANDARD 2299-10**

L-6-029








STAFF

FRONT SIDE

REVERSE SIDE

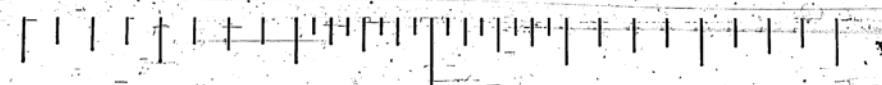
**GENERAL NOTES**

1. The "STOP" face shall consist of white letters and border on a red reflectorized background.
2. The "SLOW" face shall consist of black letters and border on an orange reflectorized background.
3. Areas outside sign borders shall be light blue or black.
4. The sign blank may be octagonal in shape in lieu of circular.
5. The portion of the staff within the sign face shall match the sign colors.
6. All colors and letters shall meet applicable federal standards.
7. The staff shall consist of two sections joined by a coupling located 60 in. from the bottom of the staff. Alternate designs may be used when approved by the Engineer. All materials shall be substantial and durable.
8. This sign shall be furnished by the contractor and shall be used by the flagger in lieu of flags or other signaling devices. The cost of furnishing and maintaining the sign shall be considered incidental to the contract and no additional compensation will be allowed.

 Illinois Department of Transportation  
 Approved October 21, 1983  
*J. J. Bennett*  
 Engineer of Traffic

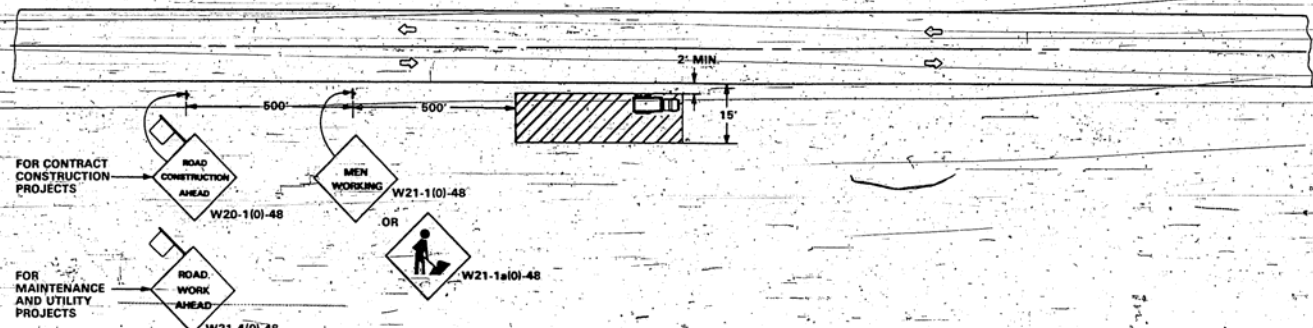
FLAGGER TRAFFIC CONTROL SIGN  
 STANDARD 2300-3

F-6 03C



C                      B                      A                      0                      A                      B                      C  
 TAMERAN





**GENERAL NOTES**

1. If the work operation does not exceed 60 minutes, traffic control may be in conformance with STANDARD 2307.
2. Worker signs are to be removed when no work is being performed. Any unattended obstacle or excavation in the work area which in the opinion of the Engineer constitutes a hazard shall be protected by barricades at 50 ft. centers, with flashing lights at night. If the hazard exceeds 100 ft. in length, steady burning lights shall be substituted for flashing lights. When the distance is greater than 250 ft., barricade spacing may be increased to 100 ft.
3. If the work operation requires that four or more work vehicles enter through traffic lanes in a one hour period, a flagger shall be provided and a Flagger sign shall be substituted for the Worker sign.
4. Longitudinal dimensions may be adjusted to fit field conditions.

**SYMBOLS**

- Work Area
- 18 in. X 18 in. (minimum) Orange Flag
- Sign on Portable or Permanent Support

**TYPICAL APPLICATIONS**

- Utility Operations
- Culvert Extensions
- Side Slope Changes
- Guard Rail Installation and Maintenance
- Delineator Installation
- Landscaping Operations
- Shoulder Repair
- Sign Installation and Maintenance

Michigan Department of Transportation  
 Approved October 21 1988  
  
 Engineer of Traffic

**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES  
HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE**

**TWO-LANE, TWO-WAY TRAFFIC,  
RURAL DAY OR NIGHT OPERATIONS**

Where at any time, any vehicle, equipment, workers or their activities will encroach in the area closer than 15 ft. but not closer than 2 ft. to the edge of pavement.

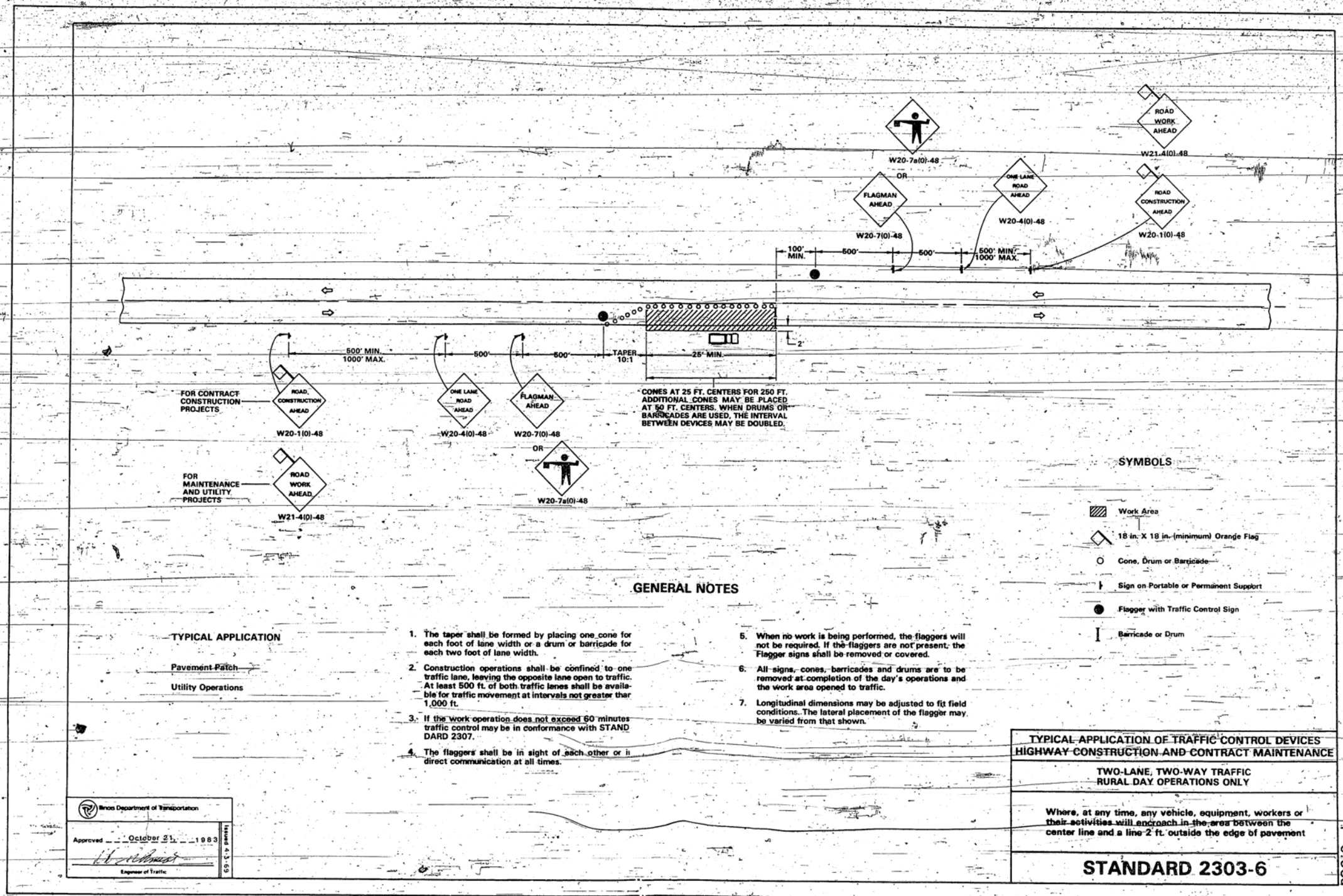
**STANDARD 2302-5**

F-6 07D

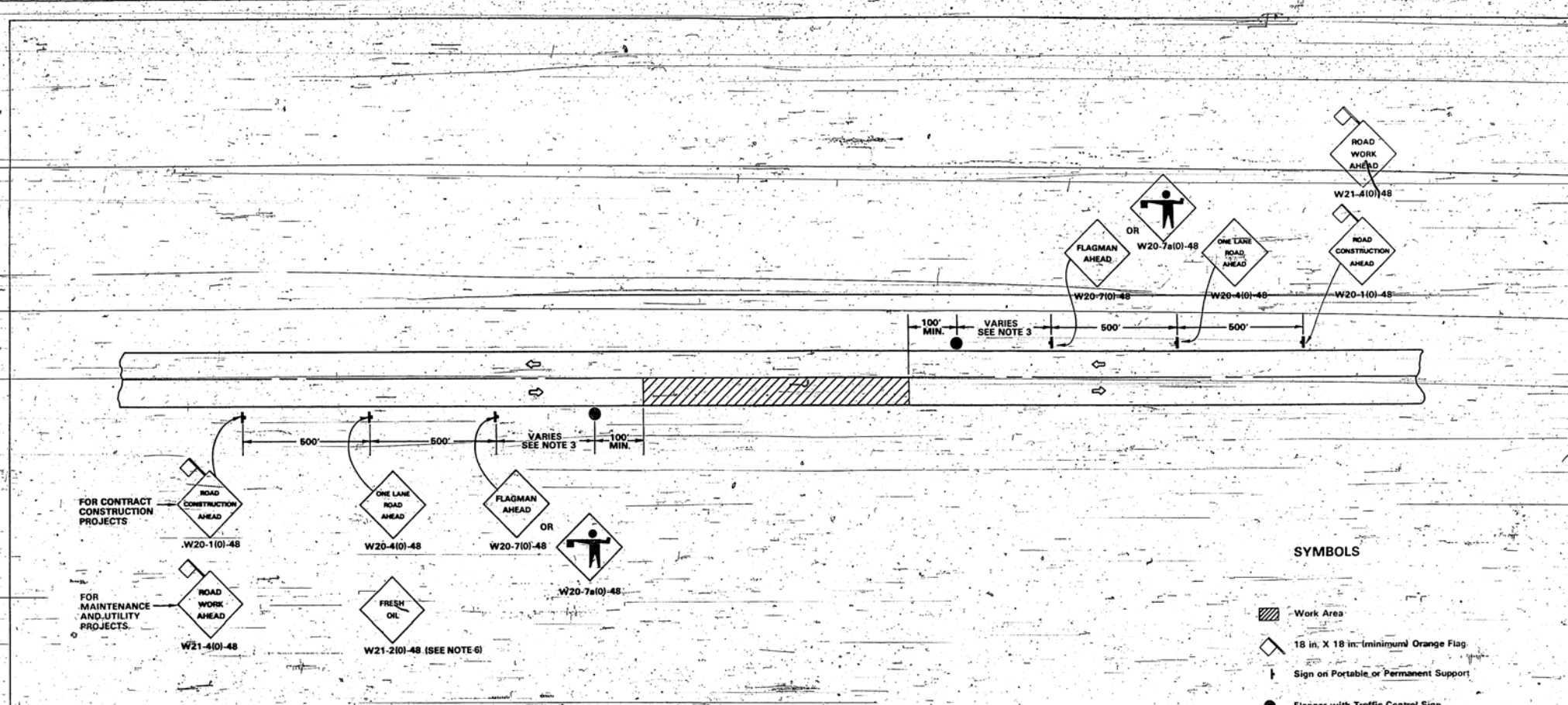


TAMERAN









FOR CONTRACT CONSTRUCTION PROJECTS  
 ROAD CONSTRUCTION AHEAD  
 W20-110(-)48

FOR MAINTENANCE AND UTILITY PROJECTS  
 ROAD WORK AHEAD  
 W21-410(-)48

ONE LANE ROAD AHEAD  
 W20-410(-)48

FLAGMAN AHEAD  
 W20-710(-)48

OR

W20-7a10(-)48

FRESH OIL  
 W21-210(-)48 (SEE NOTE 6)

**SYMBOLS**

Work Area

18 in. X 18 in. (minimum) Orange Flag

Sign on Portable or Permanent Support

Flagger with Traffic Control Sign

**GENERAL NOTES**

**TYPICAL APPLICATIONS**

Bituminous Resurfacing

Utility Operations

- Construction operations shall be confined to one traffic lane, leaving the opposite lane open to traffic. At least 500 ft. of both traffic lanes shall be available for traffic movement at intervals not greater than 1,000 ft. A special traffic control detail must be approved for any project expected to exceed 1,000 ft. in length.
- The flaggers shall be in sight of each other or in direct communication at all time.
- Minimum distance is 200 ft. Maximum distance to be determined by the Engineer but should not exceed 2 the length required for one normal working day's operation or four miles, whichever is less.
- If the work operation does not exceed 60 min./es. traffic control may be in conformance with STANDARD 2307.
- All signs are to be removed at completion of the day's operations.
- The Fresh Oil sign shall be used when prime is applied to pavement and shall remain until no tracking. Install a minimum of 500 ft. preceding start of prime.
- ONE LANE ROAD AHEAD and Flagger signs shall be removed or covered when no work is being performed.
- Longitudinal dimensions may be adjusted slightly to fit field conditions. The lateral placement of the flaggers may be varied from that shown.
- All vehicles, equipment, workers (except flaggers) and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the Engineer.

**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES  
 HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE**

**RURAL MOVING OPERATIONS  
 DAY OPERATIONS ONLY**

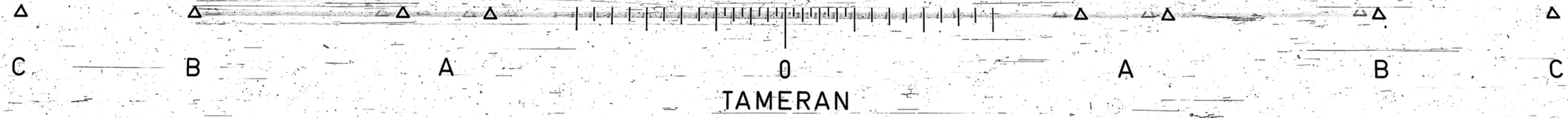
Where at any time, any vehicles, equipment, workers or their activities require an intermittent or continuous moving operation on the pavement where the average speed of movement is less than four miles per hour.

**STANDARD 2306-6**

Illinois Department of Transportation

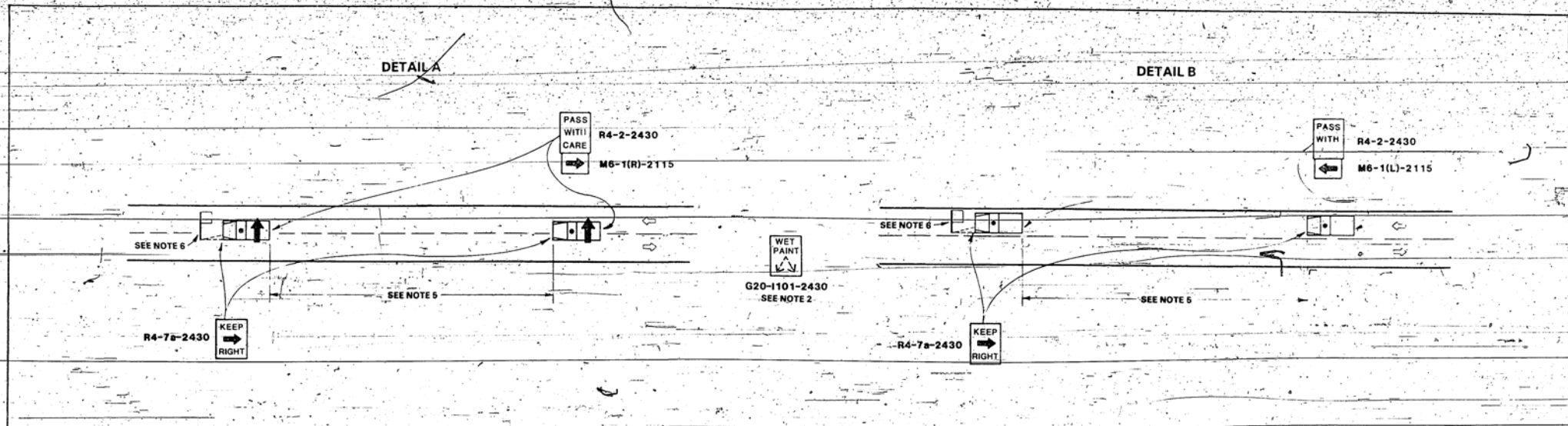
Approved October 21, 1983

*[Signature]*  
 Engineer of Traffic



F-6 110





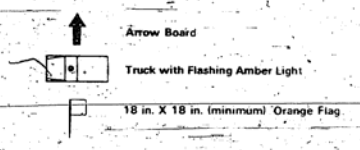
**GENERAL NOTES**

1. For shoulder operations not encroaching on the pavement, use DETAIL A, Sheet 2.
2. During pavement marking operations, WET PAINT signs with appropriate arrow(s) shall be mounted on the back of the striper and following vehicle where necessary to reduce tracking.
3. In areas where the shoulder is inadequate for motorists to pass the convoy, the arrow boards shall be changed from the flashing arrow mode to a flashing hazard mode. In no case shall the arrow boards be visible to traffic approaching the front of the convoy in the open lane. Arrow boards shall never flash to indicate passing on the left on a two-lane, two-way roadway.
4. All vehicles shall have headlights and emergency flashers operating and shall display an amber colored oscillating, rotating or flashing light(s). At least one amber light is to be visible from any direction.
5. Trailing vehicles shall be at least 200 feet behind the lead vehicles with the distance varying depending upon the terrain and susceptibility of any pavement marking to wheel tracking.
6. If a guide wheel is used in pavement marking operations, it shall be equipped with a flag as shown.

**TYPICAL APPLICATIONS**

- Landscaping work
- Utility work
- Pavement marking
- Weed spraying
- Roadometer measurements
- Debris clean-up
- Crack pouring

**SYMBOLS**



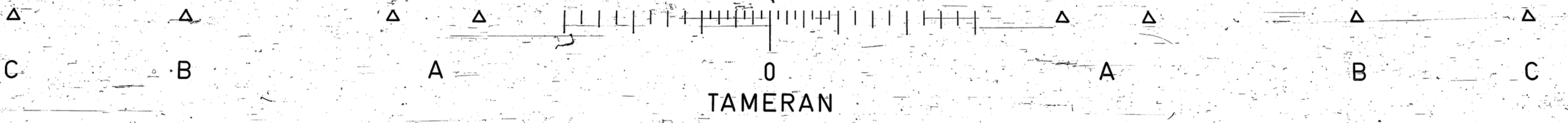
**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES  
HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE**

**RURAL, DAY OR NIGHT MOVING OPERATIONS.**

Where, at any time, any vehicle, equipment, workers or their activities will require a continuous or intermittent moving operation where the average speed of movement is greater than 1 MPH.

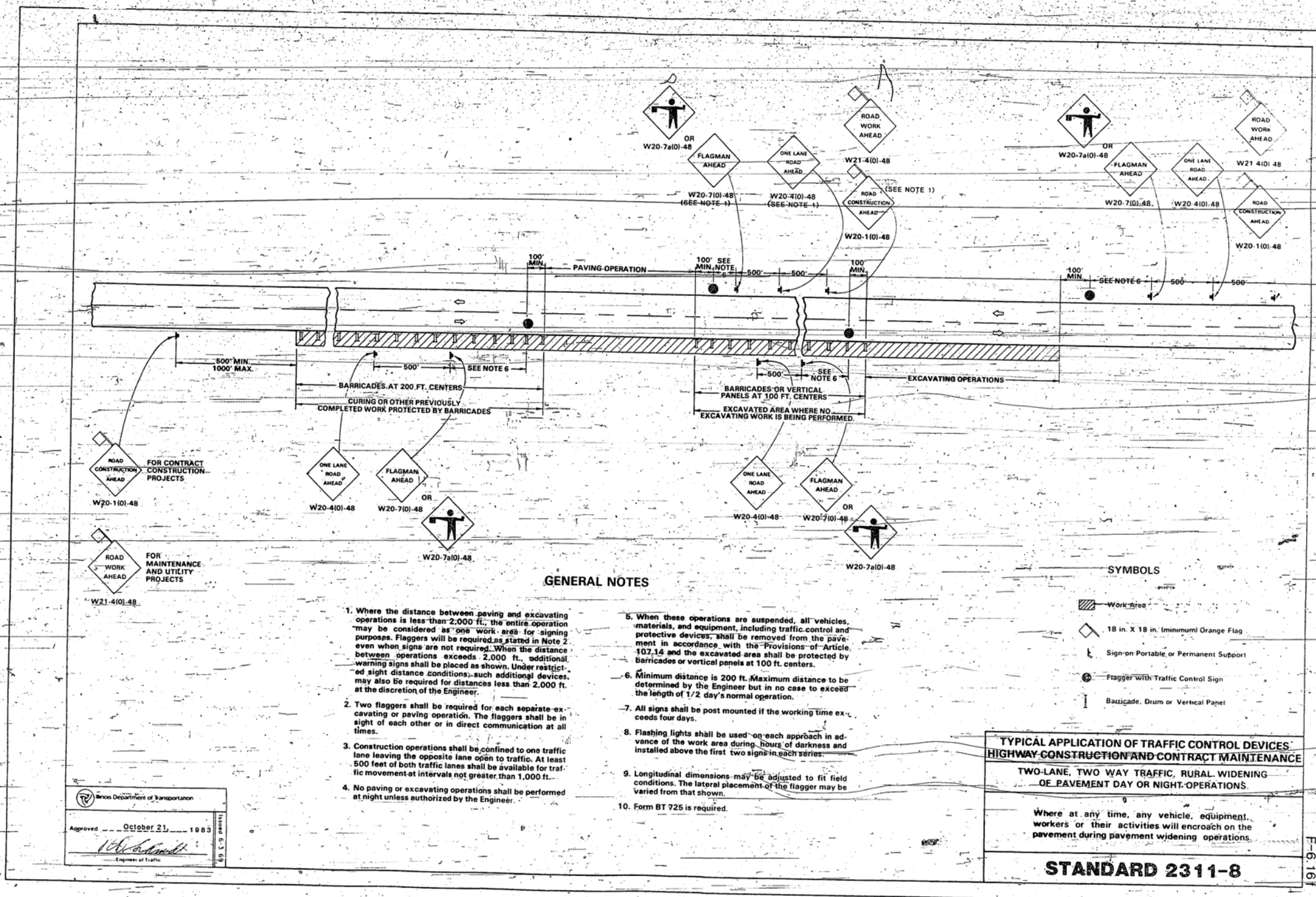
SHEET 1 OF 2  
**STANDARD 2308-5**


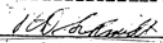
Illinois Department of Transportation  
Approved: 7 JUNE 1988  
*R. W. Jones*  
Chief of Traffic










 Department of Transportation  
 Approved October 21, 1983  
  
 Engineer of Traffic

- GENERAL NOTES**
- Where the distance between paving and excavating operations is less than 2,000 ft., the entire operation may be considered as one work area for signing purposes. Flaggers will be required as stated in Note 2, even when signs are not required. When the distance between operations exceeds 2,000 ft., additional warning signs shall be placed as shown. Under restricted sight distance conditions, such additional devices, may also be required for distances less than 2,000 ft. at the discretion of the Engineer.
  - Two flaggers shall be required for each separate excavating or paving operation. The flaggers shall be in sight of each other or in direct communication at all times.
  - Construction operations shall be confined to one traffic lane leaving the opposite lane open to traffic. At least 500 feet of both traffic lanes shall be available for traffic movement at intervals not greater than 1,000 ft.
  - No paving or excavating operations shall be performed at night unless authorized by the Engineer.

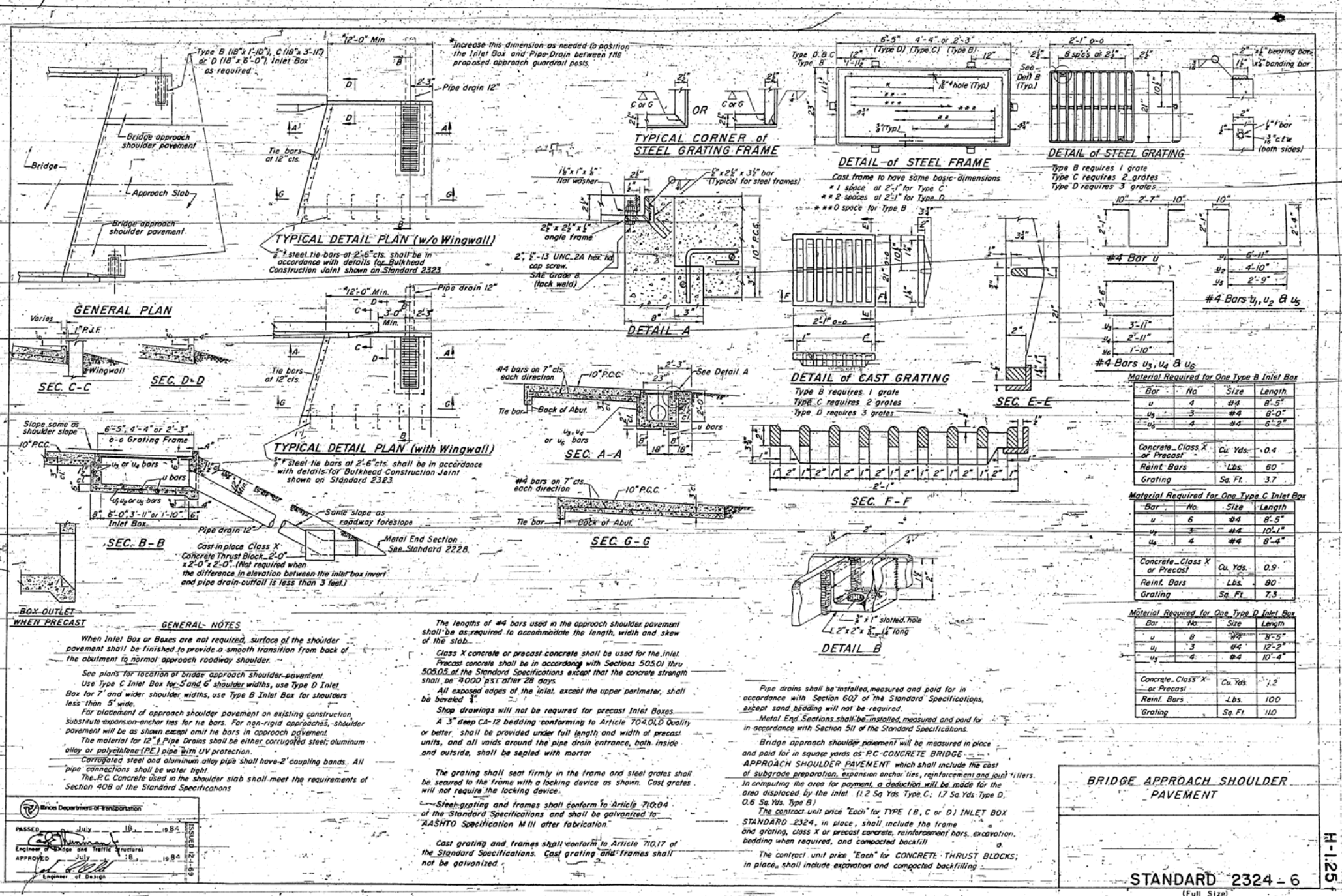
- When these operations are suspended, all vehicles, materials, and equipment, including traffic control and protective devices, shall be removed from the pavement in accordance with the Provisions of Article 107.14 and the excavated area shall be protected by barricades or vertical panels at 100 ft. centers.
- Minimum distance is 200 ft. Maximum distance to be determined by the Engineer but in no case to exceed the length of 1/2 day's normal operation.
- All signs shall be post mounted if the working time exceeds four days.
- Flashing lights shall be used on each approach in advance of the work area during hours of darkness and installed above the first two signs in each series.
- Longitudinal dimensions may be adjusted to fit field conditions. The lateral placement of the flagger may be varied from that shown.
- Form BT 725 is required.

**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES**  
**HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE**  
**TWO-LANE, TWO WAY TRAFFIC, RURAL WIDENING**  
**OF PAVEMENT DAY OR NIGHT OPERATIONS**  
 Where at any time, any vehicle, equipment, workers or their activities will encroach on the pavement during pavement widening operations.

**STANDARD 2311-8**

FIG. 161





**WHEN PRECAST**

**GENERAL NOTES**

When Inlet Box or Boxes are not required, surface of the shoulder pavement shall be finished to provide a smooth transition from back of the abutment to normal approach roadway shoulder.

See plans for location of under approach shoulder pavement.

Use Type C Inlet Box for 5' and 6' shoulder widths, use Type D Inlet Box for 7' and wider shoulder widths, use Type B Inlet Box for shoulders less than 5' wide.

For placement of approach shoulder pavement on existing construction, substitute expansion anchor ties for tie bars. For non-rigid approaches, shoulder pavement will be as shown except omit tie bars in approach pavement.

The material for 12" Pipe Drains shall be either corrugated steel, aluminum alloy or polyethylene (PE) pipe with UV protection.

Corrugated steel and aluminum alloy pipe shall have 2" coupling bands. All pipe connections shall be water tight.

The B.C. Concrete used in the shoulder slab shall meet the requirements of Section 40B of the Standard Specifications.

The lengths of #4 bars used in the approach shoulder pavement shall be as required to accommodate the length, width and skew of the slab.

Class X concrete or precast concrete shall be used for the Inlet. Precast concrete shall be in accordance with Sections 505.01 thru 505.03 of the Standard Specifications except that the concrete strength shall be 4000 psi after 28 days.

All exposed edges of the inlet, except the upper perimeter, shall be beveled 1/4".

Shop drawings will not be required for precast Inlet Boxes.

A 3" deep CA-12 bedding conforming to Article 704.01.0 Quality or better, shall be provided under full length and width of precast units, and all voids around the pipe drain entrance, both inside and outside, shall be grouted with mortar.

The grating shall seat firmly in the frame and steel grates shall be secured to the frame with a locking device as shown. Cast grates will not require the locking device.

Steel grating and frames shall conform to Article 710.04 of the Standard Specifications and shall be galvanized to AASHTO Specification M III after fabrication.

Cast grating and frames shall conform to Article 710.17 of the Standard Specifications. Cast grating and frames shall not be galvanized.

Pipe drains shall be installed, measured and paid for in accordance with Section 607 of the Standard Specifications, except sand bedding will not be required.

Metal End Sections shall be installed, measured and paid for in accordance with Section 511 of the Standard Specifications.

Bridge approach shoulder pavement will be measured in place and paid for in square yards as PC-CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT which shall include the cost of subgrade preparation, expansion anchor ties, reinforcement and joint fillers.

In computing the area for payment, a deduction will be made for the area displaced by the inlet (1.2 Sq Yds Type C; 1.7 Sq Yds Type D; 0.6 Sq Yds Type B).

The contract unit price "Each" for TYPE (B, C or D) INLET BOX STANDARD 2324, in place, shall include the frame and grating, class X or precast concrete, reinforcement bars, excavation, bedding when required, and compacted backfill.

The contract unit price "Each" for CONCRETE THRUST BLOCKS, in place, shall include excavation and compacted backfilling.

**Material Required for One Type B Inlet Box**

Bar	No.	Size	Length
u	4	#4	8'-5"
u <sub>2</sub>	3	#4	8'-0"
u <sub>3</sub>	4	#4	6'-2"

Concrete, Class X or Precast Cu. Yds. 0.4  
Reinf. Bars Lbs. 60  
Grating Sq. Ft. 3.7

**Material Required for One Type C Inlet Box**

Bar	No.	Size	Length
u	6	#4	8'-5"
u <sub>2</sub>	3	#4	10'-1"
u <sub>3</sub>	4	#4	8'-4"

Concrete, Class X or Precast Cu. Yds. 0.9  
Reinf. Bars Lbs. 80  
Grating Sq. Ft. 7.3

**Material Required for One Type D Inlet Box**

Bar	No.	Size	Length
u	8	#4	8'-5"
u <sub>2</sub>	3	#4	12'-2"
u <sub>3</sub>	4	#4	10'-4"

Concrete, Class X or Precast Cu. Yds. 1.2  
Reinf. Bars Lbs. 100  
Grating Sq. Ft. 11.0

**BRIDGE APPROACH SHOULDER PAVEMENT**

**STANDARD 2324 - 6**  
(Full Size)

Michigan Department of Transportation

APPROVED July 18, 1984

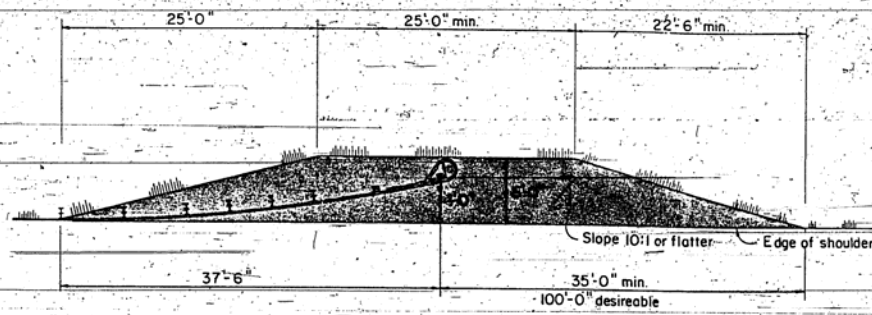
Engineer of Bridge and Traffic Structures

APPROVED July 18, 1984

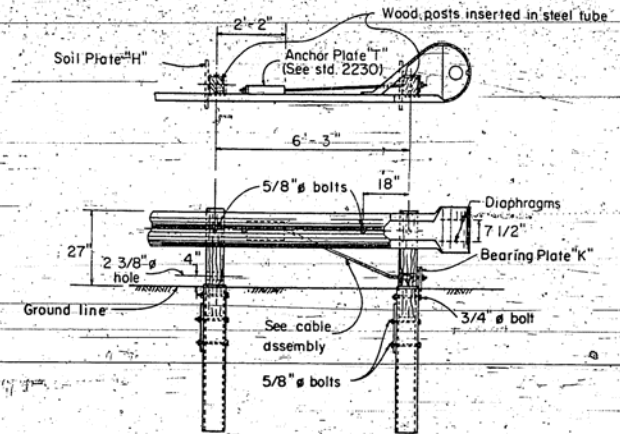
Engineer of Design



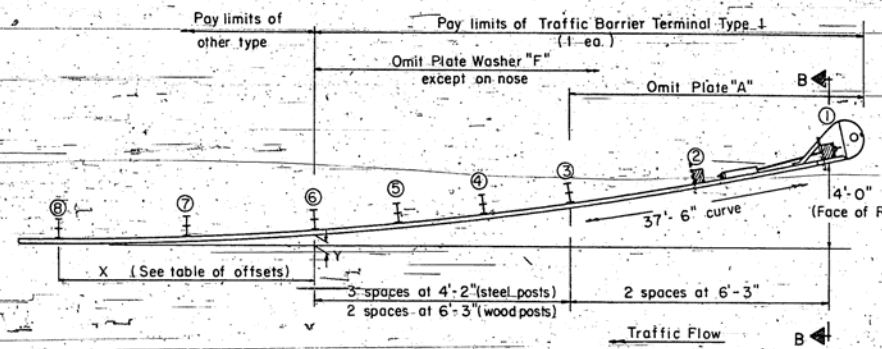
Post	OFFSETS TO FACE OF RAIL (Feet)			
	TYPE 1	TYPE 1A	TYPE 1	TYPE 1A
1	37.22	4.00	3.00	2.00
2	31.09	2.79	2.09	1.40
3	24.92	1.79	1.34	0.90
4	20.79	1.25	0.94	0.62
5	16.64	0.80	0.60	0.40
6	12.49	0.45	0.34	0.23
7	6.25	0.11	0.08	0.06
8	0.00	0.00	0.00	0.00



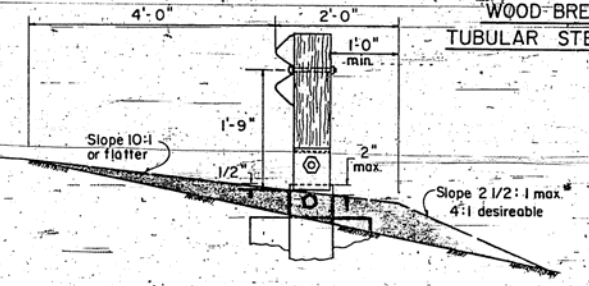
SHOULDER WIDENING TRANSITION



WOOD BREAKAWAY POSTS  
TUBULAR STEEL FOUNDATIONS



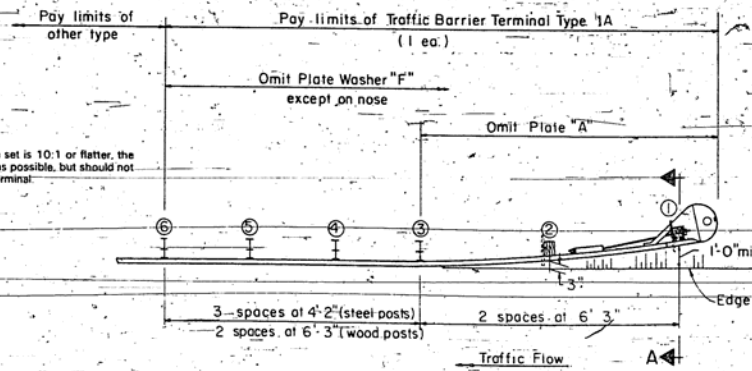
PLAN TYPE 1



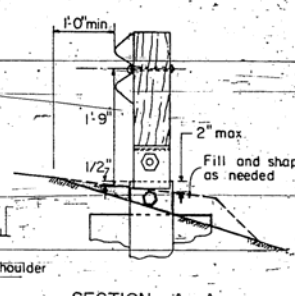
SECTION B-B

**NOTE**

If the surface upon which the barrier is to be set is 10:1 or flatter, the Type 1A Terminal should be flared as much as possible, but should not exceed the offsets provided for the Type 1 Terminal.



PLAN TYPE 1A



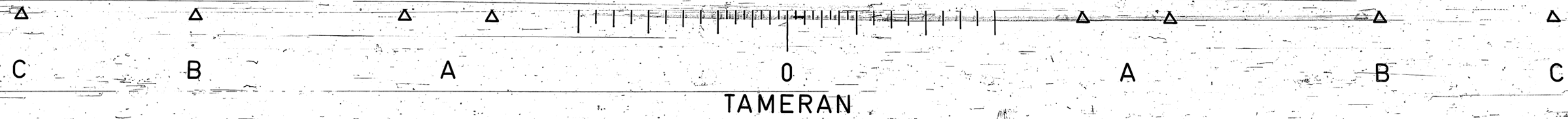
SECTION A-A

**GENERAL NOTES**

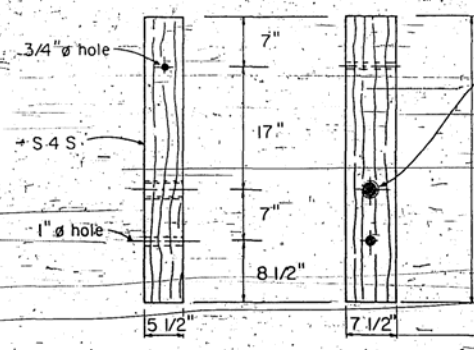
- See Standard 2230 for details of guard rail not shown.
- All steel parts shall be galvanized after fabrication.
- Posts at locations 1 & 2 shall be wood breakaway posts. Posts other than 1 & 2 may be either standard wood posts or steel posts, at the option of the Contractor. If standard wood posts are used, one post shall be located midway between and in lieu of posts 4 & 5. For Terminal Type 1, the offset 'Y' for this post shall be 1.00 foot.
- The wood breakaway posts shall be treated and conform to the requirements of Art. 711.06 of the Standard Specifications.
- A two-piece assembly may be substituted for the one-piece nose shown above.
- Hollow structural tubing shall conform to the requirements of ASTM A-500 grade B or A-501.
- The Bearing Plate "K" shall be held in position by (2) two eightpenny nails driven into the post and bent over the top of the plate.

Missouri Department of Transportation  
 PASSED: MBE 30 1987  
 APPROVED: MBE 30 1987  
 Engineer of Design

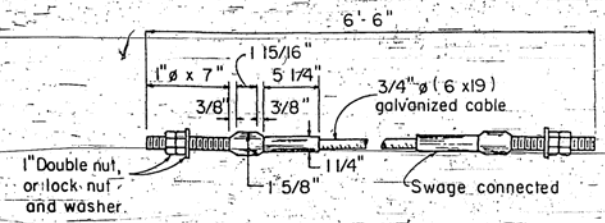
TRAFFIC BARRIER  
 TERMINAL TYPE 1 & 1A  
 (Sheet of 2)  
 STANDARD 2336-4  
 (Full Size) DWG SR



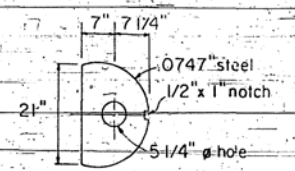




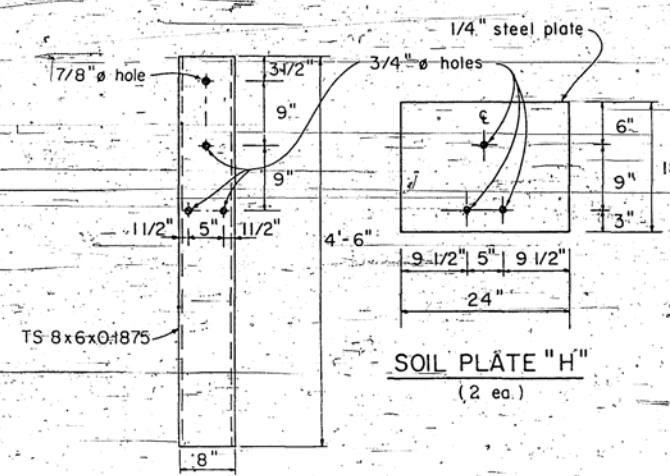
**WOOD BREAKAWAY POST**  
(2 ea.)



**CABLE ASSEMBLY (1 ea.)**  
140,000 lbs. min. breaking strength  
Tighten cable to full tension

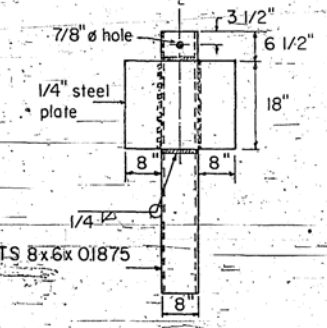


**DIAPHRAGM**  
(2 ea.)

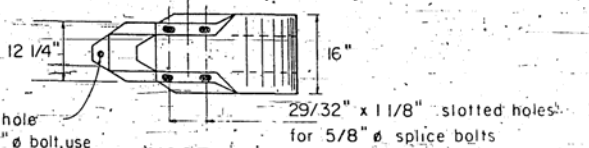
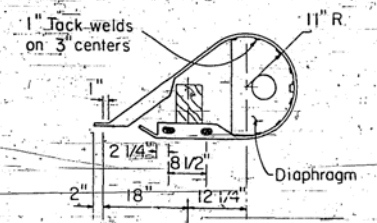


**STEEL TUBE**  
(2 ea.)

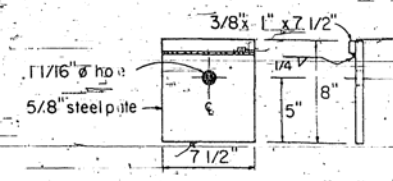
**SOIL PLATE "H"**  
(2 ea.)



**ALTERNATE SOIL PLATE CONNECTION**



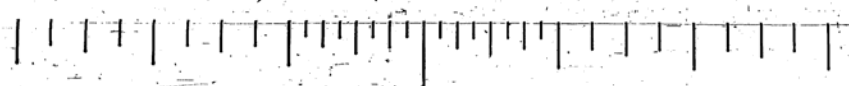
**NOSE**  
(1 ea.)



**BEARING PLATE "K"**  
(1 ea.)

Illinois Department of Transportation  
 PASSED: [Signature] Mar. 30, 1987  
 APPROVED: [Signature] Mar. 30, 1987  
 Engineer in Charge

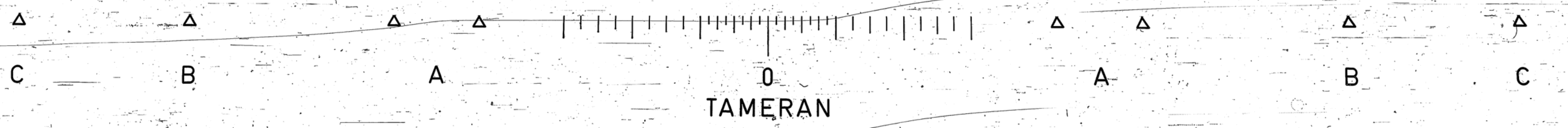
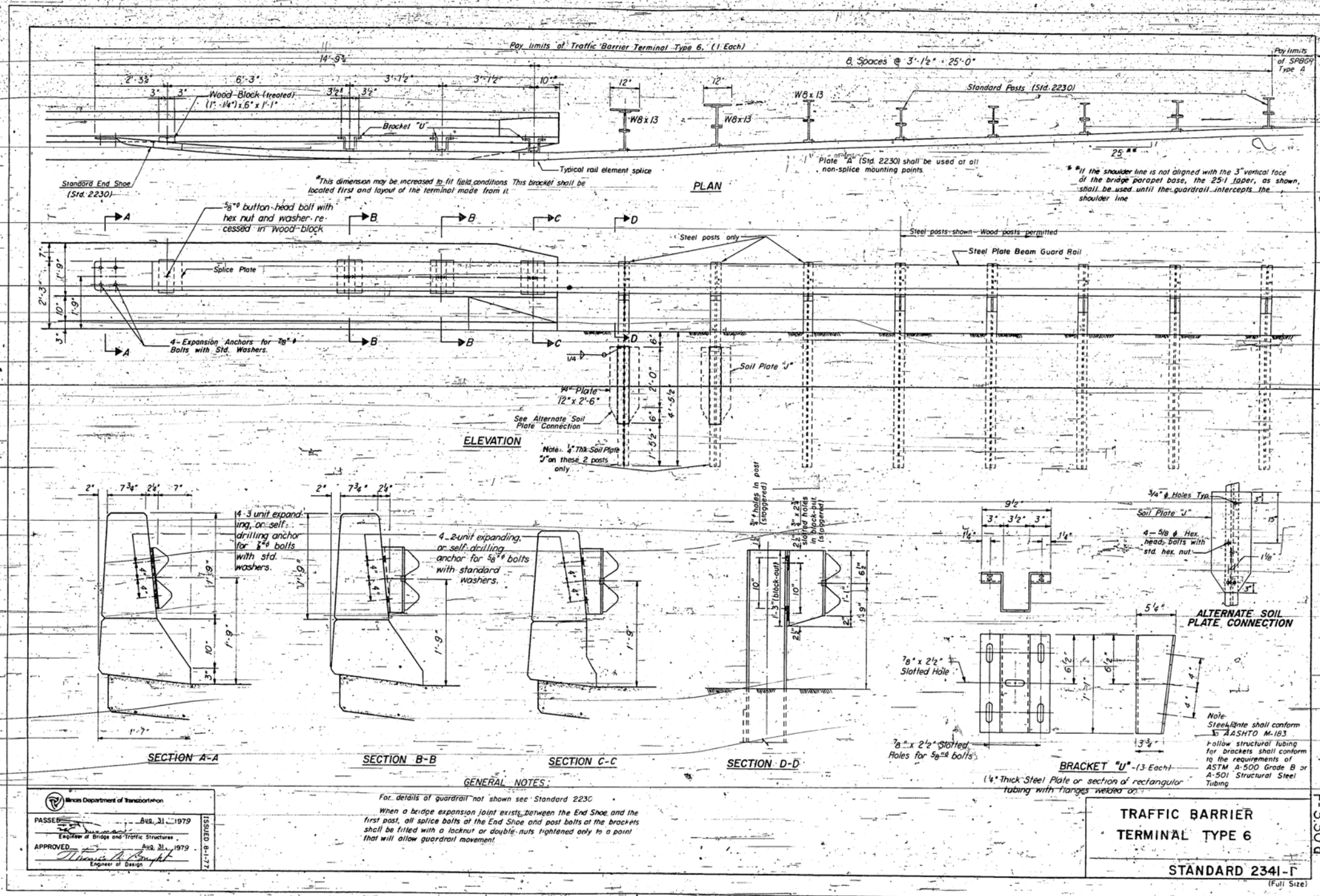
**TRAFFIC BARRIER**  
**TERMINAL TYPE 1 & 1A**  
 (Sheet 2 of 2)  
**STANDARD 2336.4**



△ C      △ B      △ A      0      △ A      △ B      △ C

TAMERAN





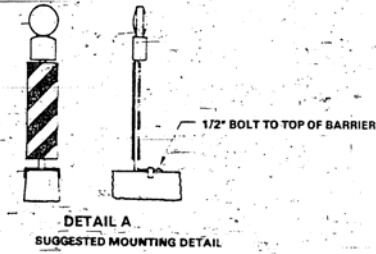
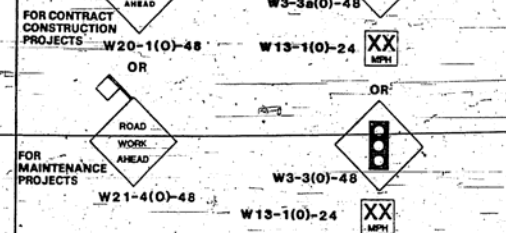
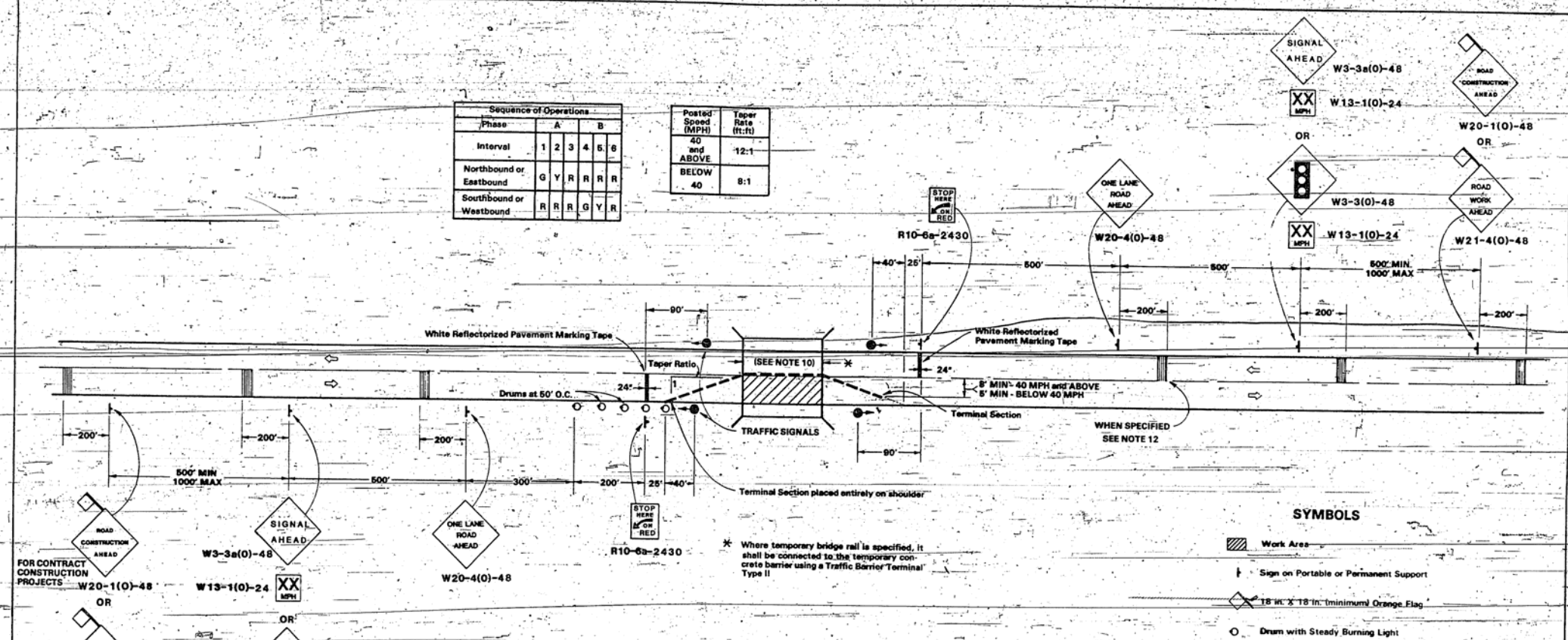






Sequence of Operations						
Phase	A	B	C	D	E	F
Interval	1	2	3	4	5	6
Northbound or Eastbound	G	Y	R	R	R	R
Southbound or Westbound	R	R	R	G	Y	R

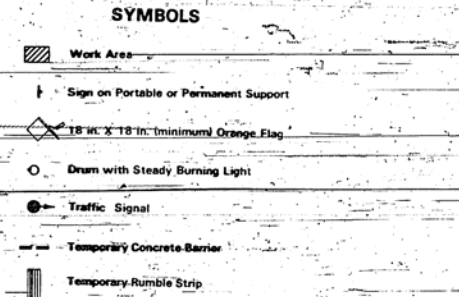
Posted Speed (MPH)	Taper Rate (ft:ft)
40 and ABOVE	12:1
BELOW 40	8:1



Michigan Department of Transportation  
 Approved: *[Signature]*  
 Engineer of Traffic

**GENERAL NOTES**

- The Engineer must be notified at least 72 hours prior to placing the temporary signals in operation so that arrangements can be made to inspect the installation and set the timing of the signals. The Contractor must furnish timing-cycle gears of 60, 65, 70, 80, 90, 100 and 110 seconds for the controller.
- At any time that the signals are not operating, the signal head shall be hooded and the "SIGNAL AHEAD" sign covered or removed.
- The left signal head shall normally be mounted at a height of 10 feet above the road surface measured to the bottom of the signal head. The right head shall normally be mounted at a height of 14 feet above the road surface. Back plates will be required on all signals.
- All lenses shall be 12 inch nominal diameter. The right signal head shall be aimed so the centers of the light beams of the indications are directed toward a point in the center of the approach lane 500 feet in advance of the signal. The left indication shall be aimed at a point in the center of the approach lane 100 feet in advance of the stop line.
- Bidirectional steady burning lights and double vertical panels shall be mounted on the tapered concrete barrier at 20 foot centers and on the bridge rail or portion of barrier on the bridge at 50 foot centers (3 minimum). Detail 'A' illustrates a suggested mounting. Other methods of mounting may be used upon approval of the Engineer. Double vertical panels at 50 foot centers shall also be mounted on the existing bridge rail and guardrail adjacent to the open traffic lane.
- All signs shall be post-mounted if the closure time exceeds four days.
- Flashing lights shall be used on each approach in advance of the work area during hours of darkness and installed above the first two signs in each series.
- Longitudinal dimensions may be adjusted to fit field conditions.
- Advisory speed plates, showing a speed of 10 MPH less than the normal posted speed or 45 MPH whichever is less, shall be installed where the normal posted speed is greater than 40 MPH.
- Temporary bridge rail shall be used across the bridge when specified in the plans.
- If flaggers are used instead of traffic signals, the traffic control devices shall conform to STANDARD 2303 or 2304.
- When specified, temporary rumble strips shall be installed where shown.
- On both approaches, existing center line pavement markings located between the stop bars and the temporary concrete barrier or bridge rail shall be removed as soon as the barrier or rail is in place and replaced with temporary or permanent pavement marking as soon as the barrier or rail is removed.
- Form BT 725 is required.

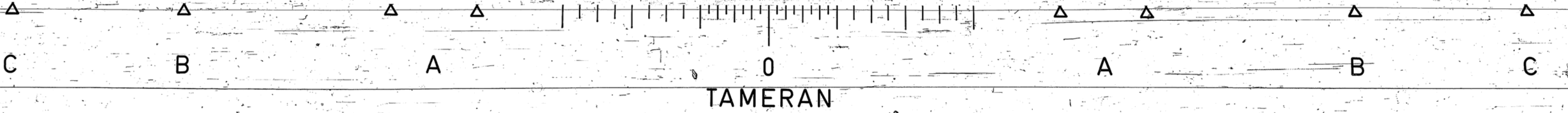


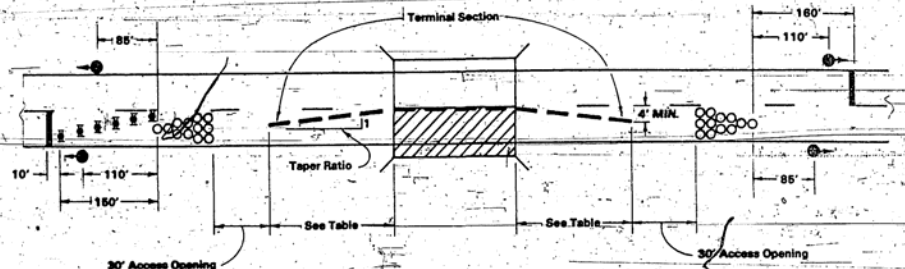
**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES  
 HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE  
 TWO-LANE, TWO WAY TRAFFIC, RURAL ONE LANE CLOSURE ON  
 BRIDGE DECK, DAY OR NIGHT OPERATIONS**

Where, at any time, any vehicle, equipment, workers or their activities will encroach on one lane of a bridge deck, requiring traffic signals and a positive barrier.

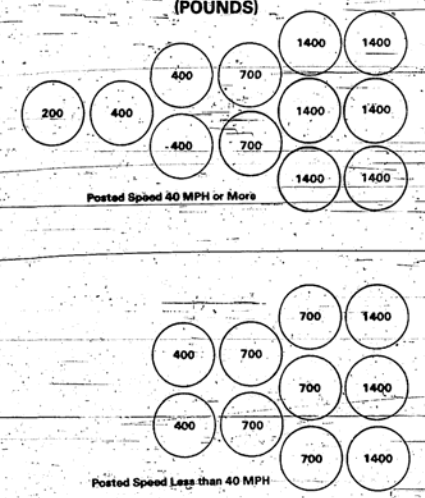
SHEET 1 OF 2  
**STANDARD 2409-1**

F-628a





**SAND MODULE IMPACT ATTENUATOR CONFIGURATION**

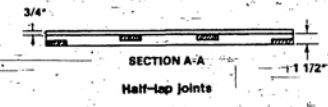
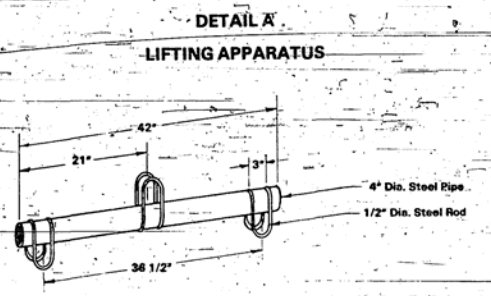
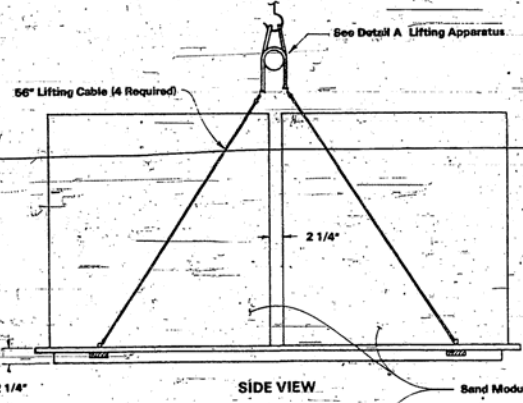
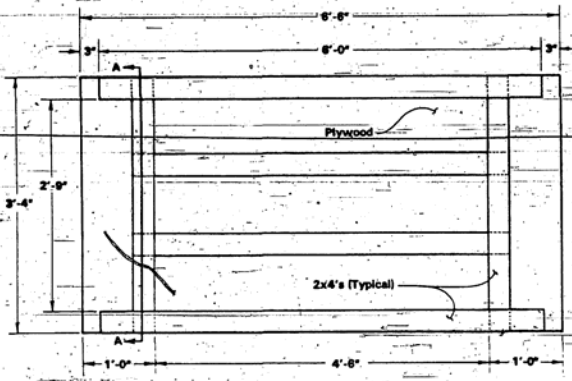


- SYMBOLS**
- Work Area
  - Barricade or Drum with Steady Burning Light
  - Temporary Concrete Barrier
  - Traffic Signal

Posted Speed (MPH)	Taper Ratio
40 and ABOVE	12:1
BELOW 40	8:1

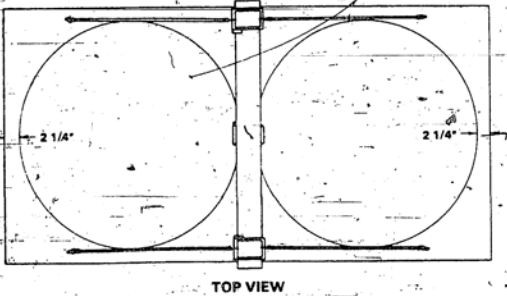
**GENERAL NOTES**

1. The Contractor may use the details shown on this sheet for either or both approaches in lieu of the details shown on Sheet 1 of this Standard where greater access to the work area is needed.
2. The impact attenuators may be placed directly on the pavement or on pallets or skids.
3. All notes on Sheet 1 of this Standard apply.
4. The impact attenuators shall be striped in conformance with the requirements for drums in STANDARD 2299.



**SUGGESTED PALLET DESIGN FOR CONSTRUCTION SITES**

The design of the pallet and lifting apparatus is suggested only. The contractor shall assume full responsibility for assuring the device is structurally adequate. Other designs may be used with the approval of the Engineer. Maximum pallet height 2 1/4 inches.



**TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES**  
**HIGHWAY CONSTRUCTION AND CONTRACT MAINTENANCE**  
 TWO-LANE, TWO-WAY TRAFFIC, RURAL ONE-LANE CLOSURE ON BRIDGE DECK, DAY OR NIGHT OPERATIONS

Where, at any time, any vehicle, equipment, workers or their activities encroach on one lane of a bridge deck, requiring traffic signals and a positive barrier.

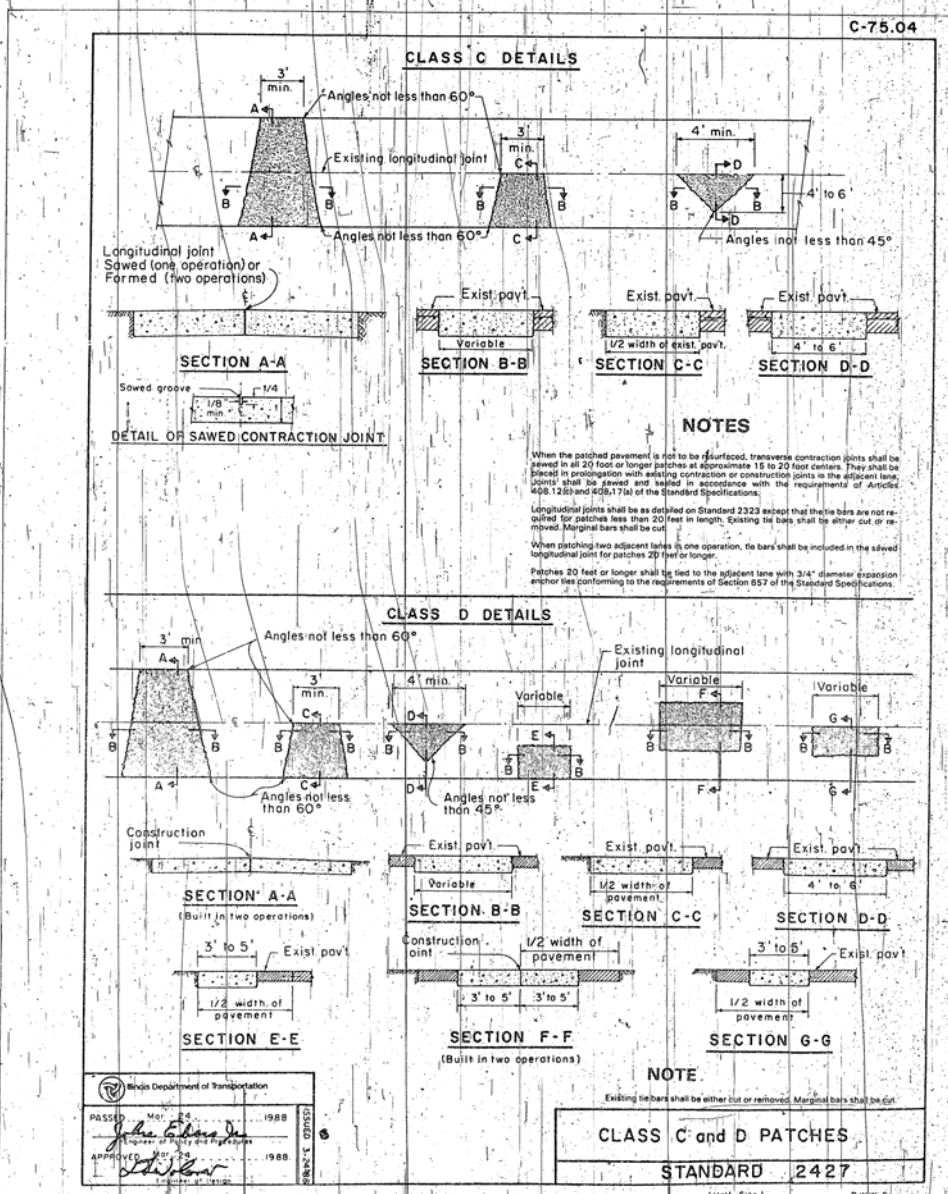
SHEET 2 OF 2  
**STANDARD 2409 - 1**

Missouri Department of Transportation  
 Approved: *June 13, 1987*  
*R. M. James*  
 Engineer of Traffic

F-629a



C  
 B  
 A  
 0  
 A  
 B  
 C



Michigan Department of Transportation

PASSED: May 25, 1988

APPROVED: May 25, 1988