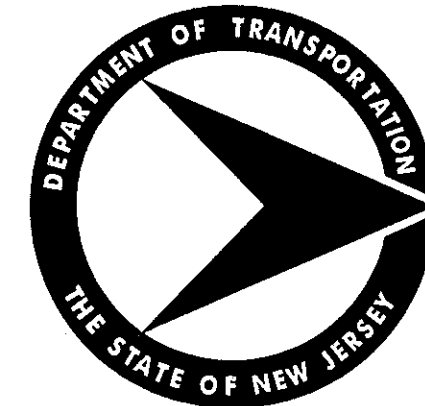


*State of New Jersey*  
*Department of Transportation*



**STANDARD ROADWAY CONSTRUCTION –  
TRAFFIC CONTROL – BRIDGE CONSTRUCTION  
DETAILS**

**2001**

*(Metric Units)*

**New Jersey Department of Transportation**  
1035 Parkway Avenue, PO Box 600, Trenton, New Jersey 08625-0600



## **Baseline Document Change Announcement**

**Standard Roadway Construction - Traffic Control - Bridge Construction Details Booklet, 2001 Metric Units**

**BDC01D-4**

**March 25, 2002**

**Subject: Release of the Standard Roadway Construction - Traffic Control - Bridge Construction Details Booklet, 2001, in Metric Units.**

The details in this 2001 Construction Details booklet in metric units are identical in content relative to technical information and numbering/sequencing to the *English 2001 Standard Roadway Construction - Traffic Control - Bridge Construction Details Booklet* issued under BDC00D-1, dated August 24, 2001. However, there is a difference between the 2001 metric and 2001 English booklets. The enhancement of the font and general presentation in the English version is not done in this metric version. Most of the details in the 2001 metric details are based on those in the 1996 metric details issued under BDC96D-001 dated October 25, 1996 and subsequent revisions.

The concept of having both booklets with identical technical information, sequencing and numbering minimizes the adaptation required by users that must familiarize themselves with both documents. This is also consistent with the Department's current practice to have parallel documents for all standards in both English and metric units.

The following BDC Announcements are hereby superseded:

- |                |       |          |
|----------------|-------|----------|
| 1. BDC97DS-001 | dated | 03/18/99 |
| 2. BDC98D-001  | dated | 02/16/99 |
| 3. BDC98DS-001 | dated | 02/11/99 |
| 4. BDC98D-005  | dated | 10/09/98 |
| 5. BDC98D-004  | dated | 08/20/98 |
| 6. BDC97D-003  | dated | 06/04/98 |
| 7. BDC97D-004  | dated | 05/28/98 |

### **Instructions to Designers**

The *Standard Roadway Construction - Traffic Control - Bridge Construction Details Booklet, 2001*, in Metric Units shall be used for all metric unit projects that are designed using the Department's 2001 metric units Standard Specifications for Road and Bridge Construction.

The note indicated on the Key Sheet of all Department plans for metric unit projects that states which *Standard Roadway Construction - Traffic Control - Bridge Construction Details Booklet* is applicable, shall include the year 2001.

### **Distribution and Announcement Access Information**

This announcement is being distributed electronically to our in-house staff and various public agencies based on our distribution list maintained by the Engineering Documents Unit (EDU).

Internet access to this BDC Announcement can be downloaded and viewed from the following New Jersey Department of Transportation Web Page:

<http://www.state.nj.us/transportation/cpm/BaselineDocuments/bdcdownload.htm>.

Hard copies are available on a limited basis by contacting EDU at the following address:

Engineering Documents Unit  
E&O Building, 1<sup>st</sup> Floor  
1035 Parkway Avenue, PO Box 600  
Trenton, New Jersey 08625-0600  
Phone: (609) 530-5587  
Fax: (609) 530-6626

Due to the printing process the initial distribution and availability may be delayed. Therefore, visit the Website for electronic files.

### **Recommended By:**

Brian Strizki  
Manager,  
Quality Management Services

### **Approved By:**

W. Dennis Keck  
Assistant Commissioner,  
Capital Program Management

Attachment: Metric version of the Standard Roadway Construction - Traffic Control - Bridge Construction Details Booklet, dated 2001 available upon request.

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## TABLE OF CONTENTS – SHEET 1

SHEET #	DESCRIPTION	SHEET #	DESCRIPTION	SHEET #	DESCRIPTION
1	COVER SHEET	43	CD-612-1 BEAM GUIDE RAIL	87	CD-619-14 NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS
2	TABLE OF CONTENTS – SHEET 1	44	CD-612-2 BEAM GUIDE RAIL, DUAL-FACED	88	CD-619-15 NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS
3	TABLE OF CONTENTS – SHEET 2	45	CD-612-3 RUB RAIL	89	CD-620-1 DELINEATORS
		46	CD-612-4 BEAM GUIDE RAIL ANCHORAGES	90	CD-809-1 TOPSOIL STABILIZATION
	ROADWAY CONSTRUCTION DETAILS	47	CD-612-5 SLOTTED GUIDE RAIL TERMINALS AND EXTRUDER TERMINALS	91	CD-813-1 PLANTING
4	INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS (Index Sheet 1)	48	CD-612-6 CONTROLLED RELEASE TERMINALS	92	CD-814-1 NONVEGETATIVE SURFACE DETAILS
5	INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS (Index Sheet 2)	49	CD-612-7 MEDIAN GUIDE RAIL TREATMENT		
6	INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS (Index Sheet 3)	50	CD-612-8 BEAM GUIDE RAIL END TREATMENT		
7	CD-107-1 NOISE CONTROL	51	CD-612-9 BEAM GUIDE RAIL ATTACHMENTS		TRAFFIC CONTROL DETAILS
8	CD-202-1 CONCRETE JOINT REMOVAL, MILLING AND RUMBLE STRIPS	52	CD-612-10 BEAM GUIDE RAIL ATTACHMENTS	93	INDEX SHEET FOR STANDARD TRAFFIC CONTROL DETAILS
9	CD-203-1 POROUS FILL AND EMBANKMENT	53	CD-612-11 BEAM GUIDE RAIL ATTACHMENTS	94	TCD-1 LEGEND & GENERAL NOTES
10	CD-212-1 TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES	54	CD-612-12 THRIE BEAM AND W BEAM TERMINAL CONNECTOR	95	TCD-2 SIGHT DIST., TAPER LENGTH, ESCAPE RAMP, CONST. BARRIER DETAIL ..
11	CD-212-2 TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES	55	CD-612-13 BEAM GUIDE RAIL ATTACHMENTS	96	TCD-3 2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING
12	CD-212-3 TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES	56	CD-612-14 BEAM GUIDE RAIL ATTACHMENTS	97	TCD-4 2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING
13	CD-306-1 CONTRACTION JOINTS IN CONCRETE BASE COURSE	57	CD-612-15 BEAM GUIDE RAIL ATTACHMENTS	98	TCD-5 2 LANES, UNDIVIDED, INTERSECTION
14	CD-405-1 CONCRETE SURFACE COURSE	58	CD-612-16 BEAM GUIDE RAIL ATTACHMENTS	99	TCD-6 2 LANES, UNDIVIDED, INTERSECTION
15	CD-405-2 CONCRETE SURFACE COURSE JOINT DETAILS	59	CD-614-1 CHAIN-LINK FENCE	100	TCD-7 2 LANES, UNDIVIDED, INTERSECTION
16	CD-405-3 CONCRETE SURFACE COURSE JOINT DETAILS	60	CD-614-2 CHAIN-LINK AND SNOW FENCE	101	TCD-8 4 LANES, UNDIVIDED, RIGHT LANE & SHOULDER CLOSING
17	CD-405-4 TIE BOLTS AND TIE BARS	61	CD-616-1 SLOPE AND CHANNEL PROTECTION	102	TCD-9 4 LANES, UNDIVIDED, LEFT LANE & SHOULDER CLOSING
18	CD-405-5 TRANSVERSE EXPANSION JOINT TYPE A	62	CD-617-1 TRAFFIC CONTROL DEVICES	103	TCD-10 4 LANES, UNDIVIDED, 2 LANES & SHLD. ONE DIRECTION CLOSING
19	CD-405-6 BRIDGE APPROACH SLABS AND TRANSITION SLABS ADJOINING ..	63	CD-617-2 TRAFFIC CONTROL DEVICES AND DETAILS	104	TCD-11 4 LANES, UNDIVIDED, INTERSECTION
20	CD-405-7 BRIDGE APPROACH SLABS AND TRANSITION SLABS ADJOINING ..	64	CD-617-3 PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 1	105	TCD-12 4 LANES, UNDIVIDED, INTERSECTION
21	CD-601-1 UNDERDRAINS	65	CD-617-4 PRECAST CONCRETE CURB, CONSTRUCTION BARRIER TYPE 4, (ALT. A)	106	TCD-13 4 LANES, UNDIVIDED, INTERSECTION
22	CD-602-1 PIPE END SECTIONS	66	CD-617-5 PRECAST CONCRETE CURB, CONSTRUCTION BARRIER TYPE 4, (ALT. B)	107	TCD-14 4 & 6 LANES, DIVIDED, RIGHT LANE & SHOULDER CLOSING
23	CD-602-2 CROSS DRAIN TRENCH CONSTRUCTION	67	CD-617-6 CONSTRUCTION SIGNS	108	TCD-15 4 & 6 LANES, DIVIDED, LEFT LANE CLOSING
24	CD-603-1 INLET GENERAL DETAILS	68	CD-617-7 CONSTRUCTION SIGNS	109	TCD-16 6 LANES, DIVIDED, (LEFT & RIGHT) TWO LANE CLOSING
25	CD-603-2 INLETS, TYPE A, B & C	69	CD-617-8 CONSTRUCTION IDENTIFICATION SIGN	110	TCD-17 6 LANES, DIVIDED, CENTER LANE CLOSURE .....
26	CD-603-3 INLETS, TYPE B1, B2, & B, B1 & B2 MODIFIED	70	CD-617-9 CONSTRUCTION IDENTIFICATION SIGNS	111	TCD-18 DIVIDED, EXIT RAMP CONSTRUCTION (LEFT & RIGHT)
27	CD-603-4 INLETS, TYPE E, E1, E2, & E5	71	CD-618-1 PLOWABLE PAVEMENT REFLECTOR LOCATION DETAILS	112	TCD-19 DIVIDED, EXIT RAMP CONSTRUCTION (LEFT & RIGHT) W/DECEL LANE
28	CD-603-5 INLETS, TYPE D1 & D2	72	CD-618-2 PLOWABLE PAVEMENT REFLECTOR LOCATION DETAILS	113	TCD-20 DIVIDED, ENTRANCE RAMP CONSTRUCTION (LEFT & RIGHT)
29	CD-603-6 CAST IRON EXTENSION FRAMES FOR EXISTING INLETS	73	CD-618-3 PLOWABLE PAVEMENT REFLECTOR LOCATION DETAILS	114	TCD-21 DIVIDED, ENTRANCE RAMP CONSTRUCTION (LEFT & RIGHT) W/ACCEL
30	CD-603-7 CAST IRON EXTENSION RINGS FOR EXISTING MANHOLES	74	CD-619-1 SIGNS	115	TCD-22 MULTI-LANE ROAD MOVING OPERATION
31	CD-603-8 MANHOLES	75	CD-619-2 SIGNS		
32	CD-603-9 PRECAST MANHOLES	76	CD-619-3 SIGNS		
33	CD-604-1 CONCRETE SLOPE GUTTERS	77	CD-619-4 STEEL U-POST SIGN SUPPORTS		
34	CD-605-1 CONCRETE AND GRANITE CURB	78	CD-619-5 STEEL U-POST SIGN SUPPORTS		
35	CD-605-2 BARRIER CURB AND VERTICAL CURB DETAILS	79	CD-619-6 STEEL U-POST SIGN SUPPORTS		
36	CD-605-3 BARRIER CURB	80	CD-619-7 BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS		
37	CD-607-1 PUBLIC SIDEWALK AND CURB RAMPS	81	CD-619-8 BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS		
38	CD-607-2 DRIVEWAYS	82	CD-619-9 BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS		
39	CD-608-1 CONCRETE AND HMA ISLANDS	83	CD-619-10 BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS		
40	CD-610-1 CONCRETE HEADWALLS AND APRONS	84	CD-619-11 BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS		
41	CD-610-2 CONCRETE CULVERTS	85	CD-619-12 BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS		
42	CD-611-1 MONUMENTS AND MONUMENT BOXES	86	CD-619-13 NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS		

### ABBREVIATIONS

CD = ROADWAY CONSTRUCTION DETAILS  
TCD = TRAFFIC CONTROL DETAILS  
BCD = BRIDGE CONSTRUCTION DETAILS

## TABLE OF CONTENTS – SHEET 2

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Page 10

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59

**RECORDS - ORIGINAL SHEET**

INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS

INDEX SHEET 1

DESCRIPTION	CD	DESCRIPTION	CD	DESCRIPTION	CD
BEAM GUIDE RAIL		BEAM GUIDE RAIL (CONTINUED)		CURBS (CONTINUED)	
BEAM GUIDE RAIL	CD-612-1.1	BEAM GUIDE RAIL ATTACHMENTS (CONTINUED)		CURB TRANSITION	CD-605-2.3
GUIDE RAIL POST INSTALLATION IN ROCK	CD-612-1.2	GUIDE RAIL ATTACHMENT TO FOOTING	CD-612-11.1	METHOD OF DEPRESSING CURB AT DRIVEWAYS	CD-605-2.4
BEAM GUIDE RAIL, DUAL-FACED	CD-612-2.1	THREE BEAM	CD-612-12.1	600 BY ____MM CONCRETE / WHITE CONCRETE BARRIER CURB, DOWELLED	CD-605-3.1
RUB RAIL	CD-612-3	W BEAM TERMINAL CONNECTOR	CD-612-12.2	GENERAL NOTES	CD-605-3.2
C150X12	CD-612-3.1	GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION NEW JERSEY BARRIER SHAPE PARAPET (NO ROADWAY CURBING ON APPROACH)	CD-612-13.1	OPENINGS TO BE CONSTRUCTED IN BARRIER CURB	CD-605-3.3
RUB RAIL SECTION	CD-612-3.2	GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION NEW JERSEY BARRIER SHAPE PARAPET (WITH ROADWAY CURBING ON APPROACH)	CD-612-14.1	600 BY 1040MM CONCRETE / WHITE CONCRETE BARRIER CURB	CD-605-3.4
BENT PLATE	CD-612-3.3	GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION (SIDEWALK WITH PARAPET)	CD-612-15.1	BARRIER CURB AT LIGHTING POLE BASE INSTALLATION	CD-605-3.5
CARRIAGE BOLT DETAIL	CD-612-3.4	GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION (SIDEWALK WITH STEEL RAILING)	CD-612-16.1		
RUB RAIL ANGLE ATTACHMENT	CD-612-3.5			DELINEATORS	CD-620-1.1
BEAM GUIDE RAIL IN LINE ANCHORAGE	CD-612-4.1				
BEAM GUIDE RAIL END ANCHORAGE	CD-612-4.2	BRIDGE APPROACH SLABS		DRIVEWAYS	
ANCHOR PLATE	CD-612-4.3			TYPE A	CD-607-2.1
SLOTTED GUIDE RAIL TERMINALS	CD-612-5.1	BRIDGE APPROACH SLABS AND TRANSITION SLABS ADJOINING HMA CONCRETE PAVEMENT	CD-405-6.1	TYPE B	CD-607-2.2
EXTRUDER TERMINALS	CD-612-5.2			GENERAL NOTES	CD-607-2.3
GRADING TREATMENT AT EXTRUDER TERMINALS	CD-612-5.3	BRIDGE APPROACH SLABS AND TRANSITION SLABS ADJOINING CONCRETE PAVEMENT	CD-405-7.1	TYPE C	CD-607-2.4
CONTROLLED RELEASE TERMINALS	CD-612-6.1			TYPE D	CD-607-2.5
CONTROLLED RELEASE TERMINALS ANCHORAGE	CD-612-6.2	CONCRETE SURFACE COURSE		TYPE E	CD-607-2.6
GENERAL NOTES	CD-612-6.3	CONCRETE SURFACE COURSE, REINFORCEMENT, ____MM THICK	CD-405-1.1	TYPE F	CD-607-2.7
BEAM GUIDE RAIL TREATMENT				TYPICAL DRIVEWAY TREATMENT	CD-607-2.8
MEDIAN GUIDE RAIL WHEN CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS 100MM OR GREATER	CD-612-7.1	CULVERTS		EMBANKMENT	
MEDIAN GUIDE RAIL WHEN CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS MORE THAN 50MM BUT LESS THAN 100MM	CD-612-7.2	CONCRETE CULVERTS	CD-610-2.1	BENCHING DETAIL	CD-203-1.1
TELESCOPING GUIDE RAIL END TERMINALS	CD-612-7.3	CONSTRUCTION JOINT OF CULVERT	CD-610-2.2	LIMITS AND METHODS OF PLACING EMBANKMENT AND POROUS BACKFILL AND LIMITS OF ROADWAY EXCAVATION ADJACENT TO BRIDGE ABUTMENTS	CD-203-1.2
MEDIAN GUIDE RAIL TREATMENT AT ADJACENT BRIDGES	CD-612-7.4				
WHERE CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS LESS THAN 2'	CD-612-8.1	CURBS		FENCES	
WHERE CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS MORE THAN 50MM BUT LESS THAN 100MM	CD-612-8.2	GENERAL NOTES APPLYING TO ALL TYPES OF DOWELLED CURBS	CD-605-1.1	CHAIN-LINK FENCE, ____M HIGH	CD-614-1.1
WHERE CLEARANCE FROM BACK OF RAIL TO OBSTRUCTION IS 4' OR GREATER	CD-612-8.3	225 BY ____MM CONCRETE / WHITE CONCRETE VERTICAL CURB, DOWELLED	CD-605-1.2	DRIVE ANCHOR SHOE ASSEMBLY	CD-614-1.2
GUIDE RAIL FOR CUTS (END BURIED IN SLOPE)	CD-612-8.4	300MM BY 75MM CONCRETE / WHITE CONCRETE SLOPING CURB, DOWELLED	CD-605-1.3	CHAIN-LINK FENCE ASSEMBLIES	CD-614-1.3
ADDITIONAL LENGTH BEAM GUIDE RAIL POSTS	CD-612-8.5	CONCRETE / WHITE CONCRETE VERTICAL CURB MONOLITHIC WITH CONCRETE BASE COURSE	CD-605-1.4	NOTES - CHAIN-LINK FENCE	CD-614-1.4
SLOPE TREATMENT AT SLOTTED GUIDE RAIL TERMINALS	CD-612-8.6	300MM BY 350MM CONCRETE / WHITE CONCRETE SLOPING CURB	CD-605-1.5	GATES, CHAIN-LINK FENCE, ____M WIDE	CD-614-1.5
WHERE RAIL ELEMENT WITH SPACER IS ATTACHED TO OBSTRUCTION	CD-612-8.7	CONCRETE / WHITE CONCRETE VERTICAL CURB	CD-605-1.6	SNOW FENCE	CD-614-2.1
GENERAL NOTES	CD-612-8.8	CONCRETE / WHITE CONCRETE VERTICAL CURB MONOLITHIC WITH CONCRETE PAVEMENT	CD-605-1.7	CHAIN-LINK FARM-TYPE FENCE	CD-614-2.2
BEAM GUIDE RAIL ATTACHMENTS				SNOW FENCE, PLASTIC	CD-614-2.3
GUIDE RAIL ATTACHMENT TO BARRIER	CD-612-9.1	NEW OR RESET GRANITE CURB	CD-605-1.8	HEADWALLS	
MODIFICATION OF GUIDE RAIL ATTACHMENT TO PARAPET	CD-612-9.2	LIP CURB	CD-605-1.9	CONCRETE HEADWALLS	CD-610-1.1
BRIDGE ATTACHMENT TYPES	CD-612-9.3	375MM BY VARIABLE HT. CONCRETE / WHITE CONCRETE BARRIER CURB, DOWELLED	CD-605-2.1	CONCRETE HEADWALLS AND APRONS	CD-610-1.2
GENERAL NOTES	CD-612-9.4	375MM BY 1040MM CONCRETE / WHITE CONCRETE BARRIER CURB			
GUIDE RAIL ATTACHMENT TO BALUSTRADE	CD-612-10.1	CURB TREATMENT AT BERM SECTION AND ALL CURB ENDS	CD-605-2.2		
GUIDE RAIL ATTACHMENT TO SIDEWALK	CD-612-10.2				

## INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS

**INDEX SHEET 2**

DESCRIPTION	CD	DESCRIPTION	CD	DESCRIPTION	CD
INLETS AND MANHOLES		ISLANDS		MONUMENTS	
CONNECTION OF PIPE AND INLET FOR PRECAST INLET	CD-603-1.1	CONCRETE/WHITE CONCRETE ISLAND ON EXISTING PAVEMENT	CD-608-1.1	MONUMENTS	CD-611-1.1
RISER JOINT DETAIL FOR PRECAST INLETS	CD-603-1.2	LONGITUDINAL & TRANSVERSE JOINT TREATMENT FOR CONCRETE ISLAND	CD-608-1.2	MONUMENT BOXES FOR NEW MONUMENTS	CD-611-1.2
LADDER RUNG DETAIL	CD-603-1.3	HMA ISLAND, 250MM THICK	CD-608-1.3		
DETAIL OF INVERT FOR INLET WITHOUT CONTINUOUS PIPE	CD-603-1.4	CONCRETE / WHITE CONCRETE ISLAND, 100MM THICK	CD-608-1.4	NOISE CONTROL	
COPOLYMER POLYPROPYLENE PLASTIC LADDER RUNG	CD-603-1.5			TEMPORARY NOISE BARRIER	CD-107-1.
GENERAL NOTES	CD-603-1.6	JOINTS			
NEW MANHOLE CASTINGS, SQUARE FRAME, CIRCULAR COVER	CD-603-1.7	CONCRETE JOINT REMOVAL, MILLING AND RUMBLE STRIPS	CD-202-1	PIPES	
BICYCLE SAFE GRATE (CAST IRON)	CD-603-1.8	JOINT REMOVAL	CD-202-1.1	PIPE END SECTIONS	CD-602-1
FRAME-BACK-CURB PIECE FOR INLET TYPE B AND TYPE C	CD-603-2.1	MILLING TRANSITIONS	CD-202-1.2	END SECTIONS FOR METAL PIPE	CD-602-1.1
INLETS, TYPE C WITH C.I. CURB PIECE-BACK-FRAME AND GRATE	CD-603-2.2	END TREATMENT FOR MILLING OPERATIONS	CD-202-1.3	END SECTIONS FOR CONCRETE PIPE	CD-602-1.2
METHOD OF SETTING CASTING FOR B TYPE INLETS WHERE CURB PIECE HEIGHT IS 50MM GREATER THAN CURB FACE	CD-603-2.3	CONTRACTION JOINT ASSEMBLY	CD-306-1.1	CONCRETE COLLAR	CD-602-1.3
		TRANSVERSE CONTRACTION JOINT	CD-306-1.2	STORMWATER OUTFALL PROTECTION	CD-602-1.4
FRAME FOR INLETS, TYPE A	CD-603-2.4	CONCRETE SURFACE COURSE JOINT DETAILS	CD-405-2	CROSS DRAIN TRENCH CONSTRUCTION	CD-602-2
ALTERNATE BACK PLATE	CD-603-2.5	METAL CHANNEL CAP FOR JOINT FILLER	CD-405-2.1	CONCRETE SURFACE COURSE REPLACEMENT AT CROSS DRAIN TRENCH	CD-602-2.1
INLETS, TYPE B WITH C.I. CURB PIECE-BACK-FRAME AND GRATE	CD-603-2.6	CONCRETE HEADER	CD-405-2.2	HMA REPLACEMENT WHERE CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH	CD-602-2.2
INLETS, TYPE B MODIFIED	CD-603-3.1	LONGITUDINAL JOINT	CD-405-2.3		
INLETS, TYPE B1 MODIFIED AND TYPE B2 MODIFIED	CD-603-3.2	PROCEDURE TO BE FOLLOWED IN THE EDGING AND FINISHING OF ALL TRANSVERSE JOINTS	CD-405-2.4	HMA REPLACEMENT WHERE EXISTING OVERLAY AND CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING	CD-602-2.3
METHOD OF DEPRESSING INLET AT SHOULDERS	CD-603-3.3				
FRAME TO BE USED FOR INLETS, TYPE B MODIFIED	CD-603-3.4	METHOD OF CONSTRUCTION LONGITUDINAL JOINT WHERE NO KEYWAY EXISTS	CD-405-2.5	HMA REPLACEMENT WHERE EXISTING CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING	CD-602-2.4
INLETS, TYPE B1 AND TYPE B2	CD-603-3.5	CONCRETE SURFACE COURSE JOINT DETAILS	CD-405-3		
INLETS, TYPE E1 AND TYPE E2	CD-603-4.1	DETAILS OF JOINT BETWEEN EXISTING CONCRETE TO REMAIN AND PROPOSED CONCRETE	CD-405-3.1	TRANSVERSE JOINT TIE IN CONCRETE SURFACE COURSE FOR CONDUIT OR CROSS DRAIN TRENCHES	CD-602-2.5
INLETS, TYPE E	CD-603-4.2			MINIMUM DEPTH OF ADDITIONAL EXCAVATION OR PIPE BEDDING	CD-602-2.6
FRAMES FOR INLETS, TYPE E	CD-603-4.3	LONGITUDINAL JOINT TIE FOR NARROW WIDTH WIDENING	CD-405-3.2		
INLETS, TYPE E5	CD-603-4.4	DETAIL OF CONTRACTION JOINT FOR NON-REINFORCED CONCRETE SURFACE COURSE	CD-405-3.3	PLOWABLE PAVEMENT REFLECTORS	
INLET CASTINGS, TYPE E5	CD-603-4.5			TEMPORARY PAVEMENT MARKERS	CD-617-2.6
INLETS TYPE D1	CD-603-5.1	TIE BOLTS AND TIE BARS	CD-405-4	TYPICAL DECELERATION LANE TREATMENT	CD-618-1.1
INLETS TYPE D2	CD-603-5.2	TIE BOLT ASSEMBLY	CD-405-4.1	LEGEND	CD-618-1.2
CAST IRON CURB PIECE FOR INLETS, TYPE D1 AND D2	CD-603-5.3	LOCATION OF TIE BOLTS OR TIE BARS IN CONCRETE SURFACE COURSE	CD-405-4.2	TYPICAL ACCELERATION LANE TREATMENT	CD-618-1.3
CAST IRON EXTENSION FRAMES FOR EXISTING INLETS	CD-603-6.1	TRANSVERSE EXPANSION JOINT TYPE A	CD-405-5	TYPICAL PAVED MEDIAN TREATMENT	CD-618-1.4
CAST IRON EXTENSION RINGS FOR EXISTING MANHOLES	CD-603-7.1	TYPICAL CROSS SECTION, PLAN, ELEVATION	CD-405-5.1	TYPICAL DIVISIONAL ISLAND TREATMENT	CD-618-2.1
STANDARD MANHOLE FRAME AND COVER	CD-603-8.1	DOWEL SPECIFICATIONS	CD-405-5.2	NARROW BRIDGE OR CULVERT TREATMENT	CD-618-2.2
MANHOLES, MANHOLES 1.5M DIAMETER, MANHOLES 1.8M DIAMETER	CD-603-8.2	DETAILS OF JOINT FILLER	CD-405-5.3	LEGEND	CD-618-2.3
GENERAL NOTES	CD-603-8.3	ALTERNATE JOINT DEVICES	CD-405-5.4	TYPICAL TWO LANE SECTION	CD-618-2.4
MANHOLES PRECAST CONCRETE	CD-603-9.1	DETAILS OF SHEET METAL SLEEVES	CD-405-5.5	TYPICAL LEFT TURN LANE SECTION	CD-618-2.5
MANHOLES 1.5M DIAMETER, MANHOLES 1.8M DIAMETER PRECAST CONCRETE				TYPICAL MULTI-LANE DIVIDED SECTION	CD-618-3.1
1.2M PRECAST REINFORCED CONCRETE MANHOLE FLAT TOP	CD-603-9.2	LANDSCAPING		TYPICAL MULTI-LANE UNDIVIDED SECTION	CD-618-3.2
PRECAST MANHOLE RISER JOINT	CD-603-9.3	TOPSOIL STABILIZATION	CD-809-1.1	METHOD FOR DETERMINING REFLECTOR SPACING ON HORIZONTAL CURVES	CD-618-3.3
		PLANTING	CD-813-1.1	LEGEND	CD-618-3.4
		NONVEGETATIVE SURFACE DETAILS	CD-814-1.1		
				RUMBLE STRIPS	CD-202-1.4

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INDEX FOR STANDARD ROADWAY CONSTRUCTION DETAILS

INDEX SHEET 3

DESCRIPTION	CD	DESCRIPTION	CD	DESCRIPTION	CD
<b>SIDEWALK</b>		<b>SOIL EROSION AND SEDIMENT CONTROL (CONTINUED)</b>			
CONCRETE SIDEWALK, 100MM THICK	CD-607-1.1	TEMPORARY STONE CHECK DAM	CD-212-2.2		
HMA SIDEWALK, 140MM THICK	CD-607-1.2	TEMPORARY STONE OUTLET SEDIMENT TRAPS, __ BY __ M	CD-212-2.3		
CURB RAMPS	CD-607-1.3	INLET FILTERS	CD-212-2.4		
		INLET PROTECTION HAYBALE BARRIER	CD-212-2.5		
<b>SIGNS</b>		ROADWAY GRADING	CD-212-3.1		
CONSTRUCTION SIGNS	CD-617-6.1	TEMPORARY RUNOFF DIVERSION	CD-212-3.2		
	CD-617-7.1	STREAM DIVERSION	CD-212-3.3		
INTERSTATE CONSTRUCTION IDENTIFICATION SIGN	CD-617-8.1	FLOATING TURBIDITY BARRIER	CD-212-3.4		
CONSTRUCTION IDENTIFICATION SIGNS	CD-617-9.1				
SIGNS	CD-619-1.1	<b>TRAFFIC CONTROL</b>			
	CD-619-2.1	DRUMS	CD-617-1.1		
	CD-619-3.1	TRAFFIC CONES	CD-617-1.2		
		BREAKAWAY BARRICADES	CD-617-1.3		
<b>SIGN SUPPORTS</b>		ILLUMINATED FLASHING ARROWS, __ BY __ MM	CD-617-2.1		
STEEL U-POST SIGN SUPPORTS	CD-619-4.1	DELINEATOR GUIDE POSTS	CD-617-2.2		
	CD-619-5.1	VERTICAL PANELS	CD-617-2.3		
	CD-619-6.1	STOPSLOW PADDLE	CD-617-2.4		
BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS	CD-619-7.1	TEMPORARY SIDEWALK	CD-617-2.5		
	CD-619-8.1	PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 1	CD-617-3.1		
	CD-619-9.1	ANCHORAGE FOR TYPE 4 BARRIER USED AS TYPE 1	CD-617-3.2		
	CD-619-10.1	PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 4 (ALTERNATE A)	CD-617-4.1		
	CD-619-11.1	PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 4 (ALTERNATE B)	CD-617-5.1		
	CD-619-12.1				
NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS	CD-619-13.1	<b>UNDERDRAINS</b>			
	CD-619-14.1	UNDERDRAIN TYPE F WITH POROUS PIPE	CD-601-1.1		
	CD-619-15.1	UNDERDRAIN TYPE F WITH PERFORATED PIPE			
<b>SLOPE AND CHANNEL PROTECTION</b>		SUBBASE OUTLET DRAIN WITH 150MM CORRUGATED UNDERDRAIN PIPE	CD-601-1.2		
RIPRAP STONE CHANNEL / SLOPE TREATMENT	CD-616-1.1	COMBINED STORM DRAIN AND OUTLET TRENCH IN ROCK CUTS	CD-601-1.3		
SLOPE TREATMENT AT LOW POINTS OF UMBRELLA SECTIONS	CD-616-1.2				
<b>SLOPE GUTTERS</b>					
CONCRETE SLOPE GUTTERS, 150MM THICK	CD-604-1.1				
<b>SOIL EROSION AND SEDIMENT CONTROL</b>					
SILT FENCE	CD-212-1.1				
ATTACHING TWO SILT FENCES	CD-212-1.2				
HEAVY DUTY SILT FENCE	CD-212-1.3				
TEMPORARY SLOPE DRAIN	CD-212-1.4				
HAYBALE CHECK DAM WITH TEMPORARY STONE OUTLET	CD-212-1.5				
INLET SEDIMENT TRAPS	CD-212-2.1				

ENCLOSURE - ORIGINAL SHEET

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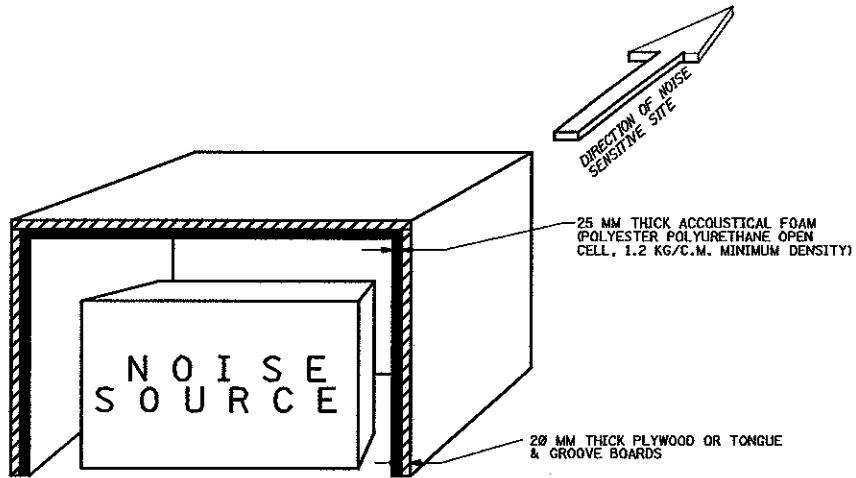
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TEMPORARY NOISE BARRIER

CD-107-1.1

**NOISE CONTROL**  
N.T.S.

CD-107-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



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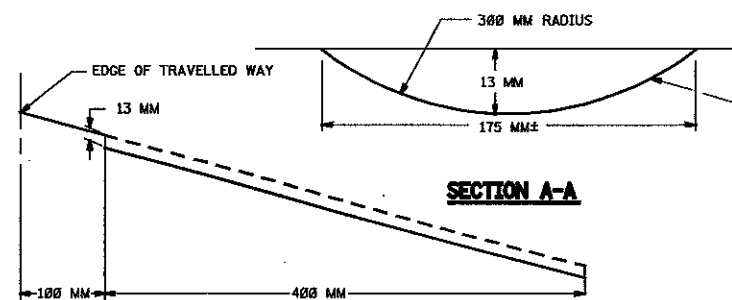
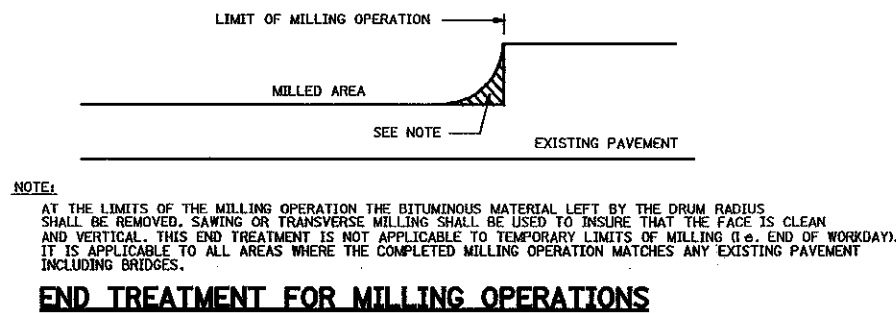
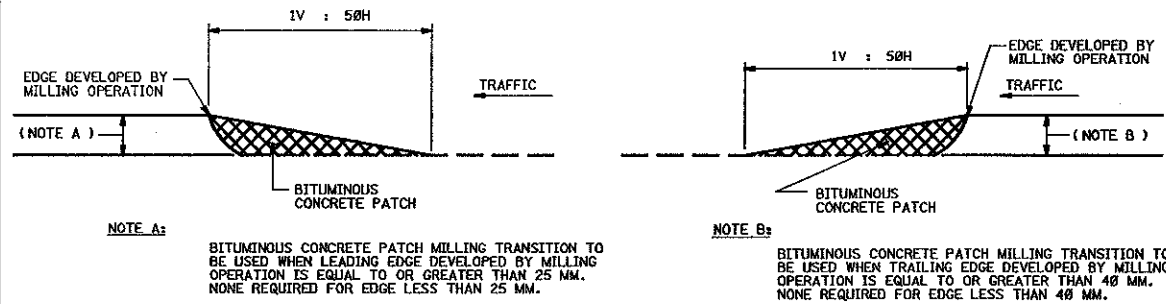
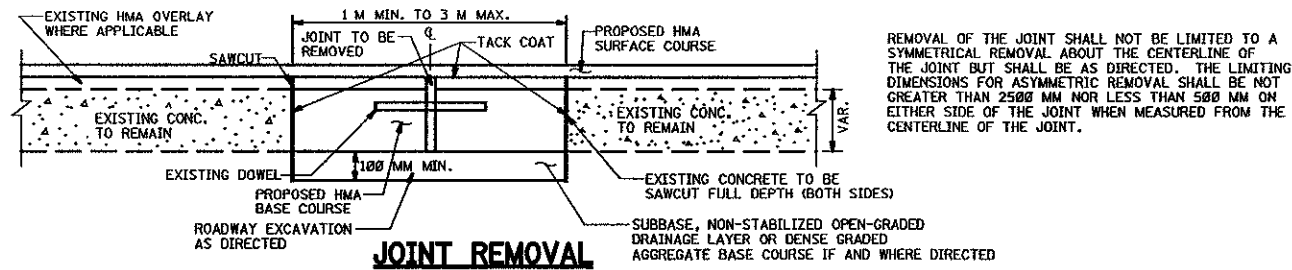
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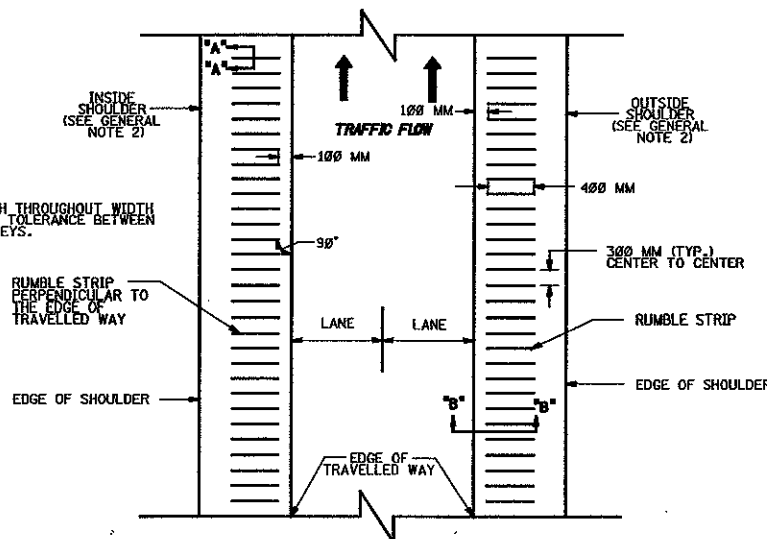
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**SECTION B-B**



**GENERAL NOTES:**

1. THE MINIMUM LENGTH OF RUMBLE STRIPS MEASURED LONGITUDINALLY ALONG THE SHOULDER SHALL BE 30 METERS.
2. RUMBLE STRIPS SHALL BE CONSTRUCTED WITHIN 1.5 METERS OR WIDER INSIDE SHOULDER AND 2.4 METERS OR WIDER OUTSIDE SHOULDER.
3. RUMBLE STRIPS SHALL NOT BE CONSTRUCTED ACROSS BRIDGE DECKS.
4. RUMBLE STRIPS SHALL NOT BE CONSTRUCTED WITHIN 30 METERS BEFORE AND 30 METERS AFTER THE P.C. OF INTERSECTING ROADWAYS AND DRIVEWAYS.

**CONCRETE JOINT REMOVAL, MILLING AND RUMBLE STRIPS**

HMA = HOT MIX ASPHALT  
N.T.S.

CD-202-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

CD-202-1.4

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



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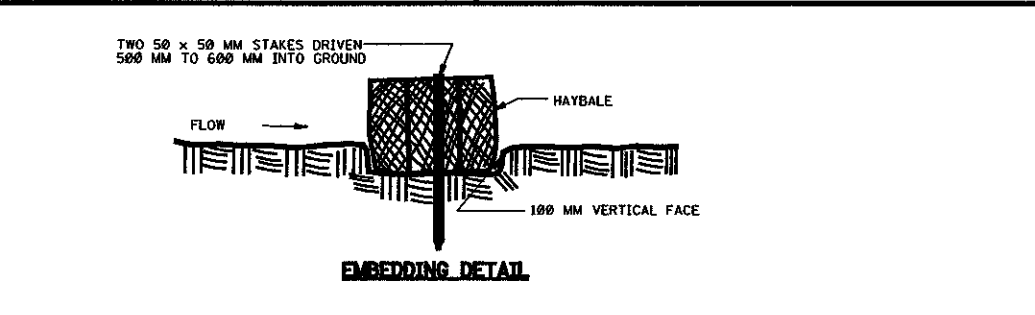
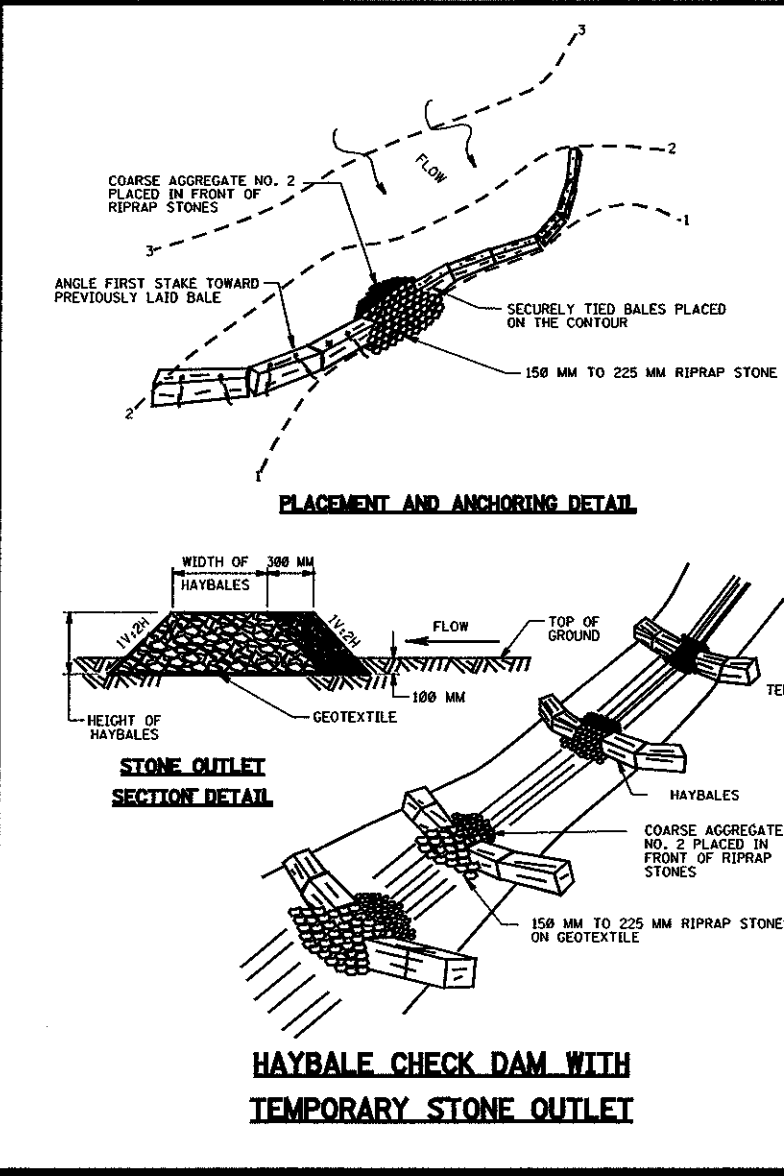
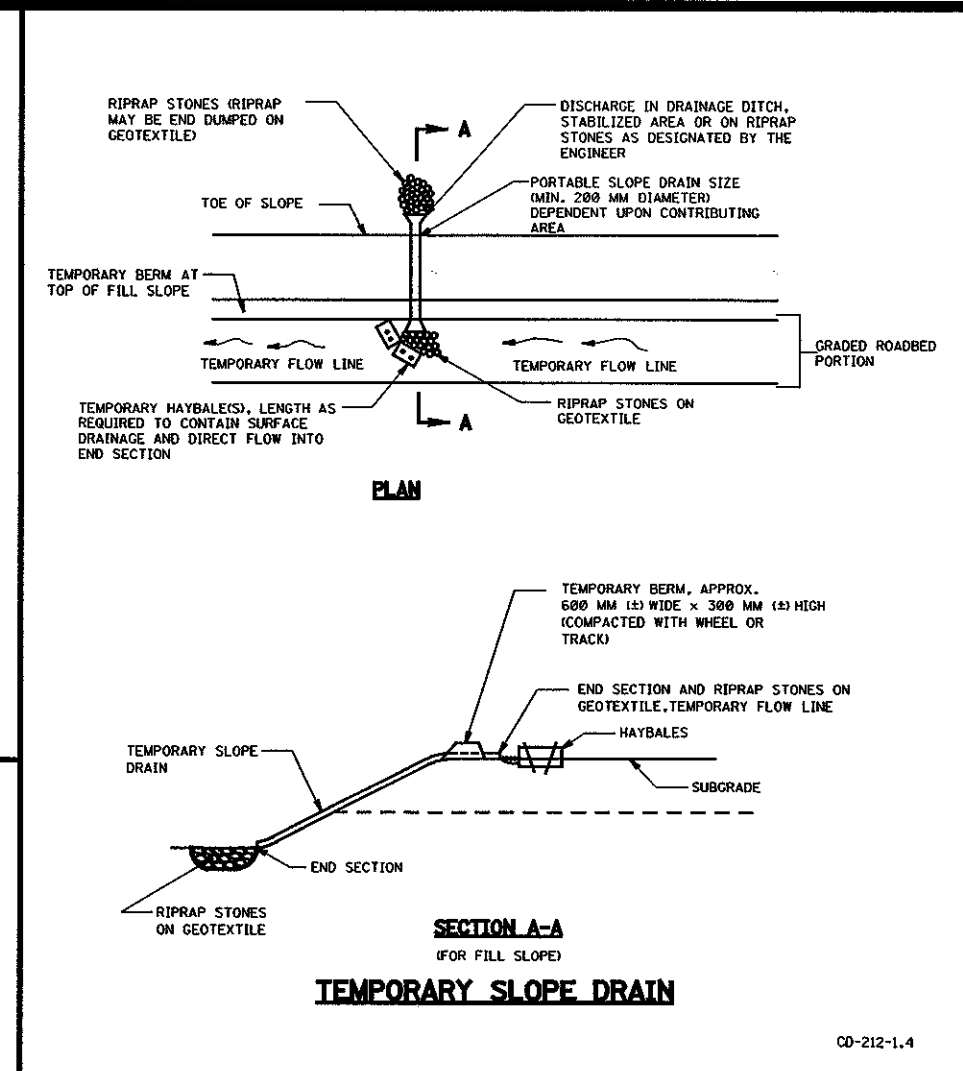
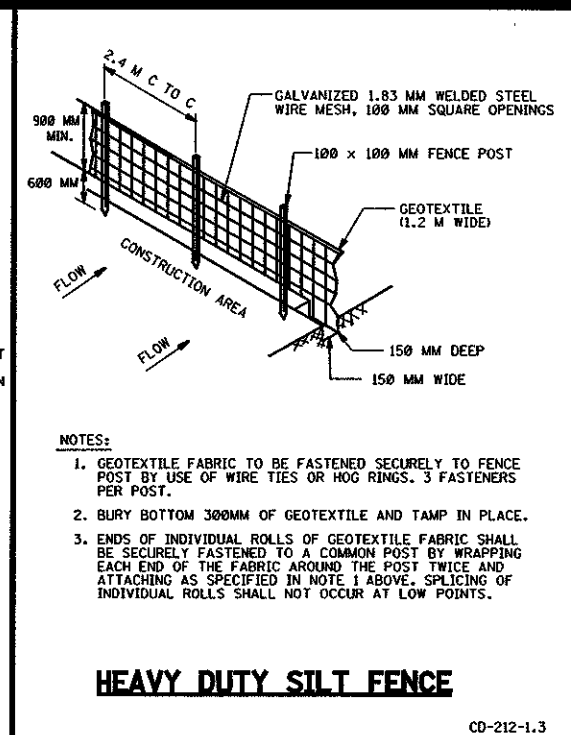
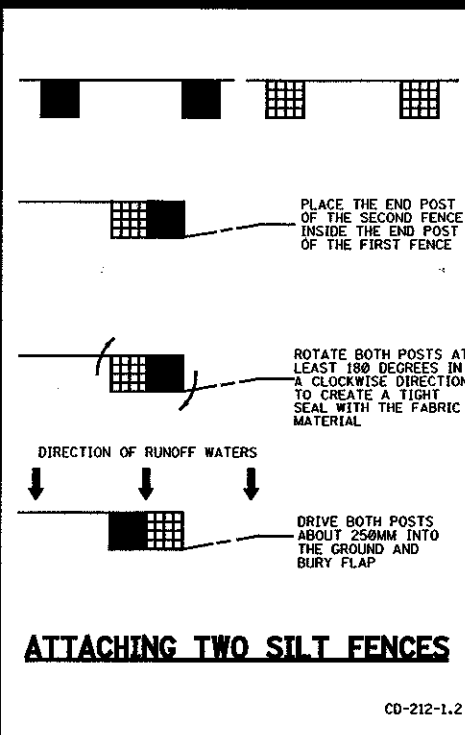
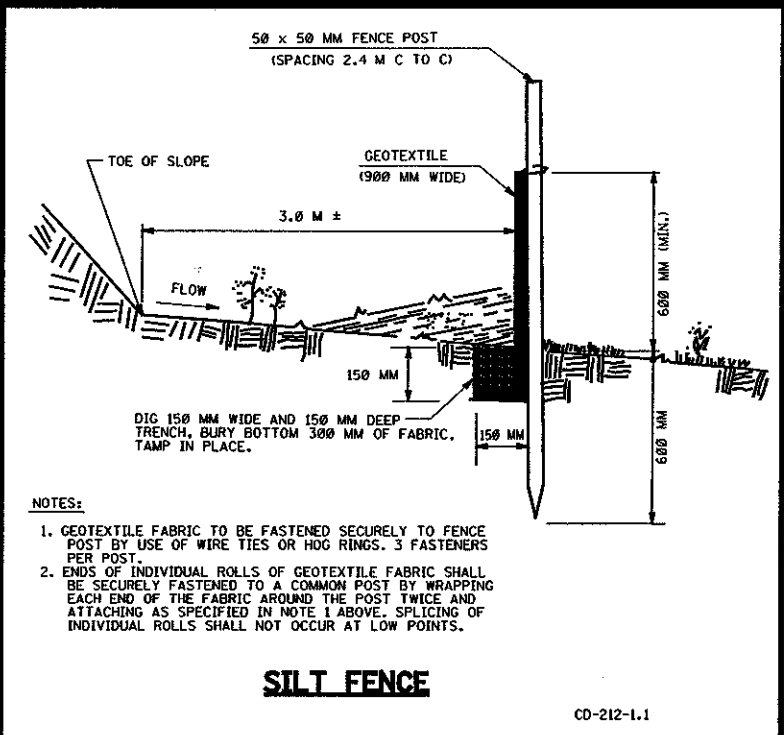
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## TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES

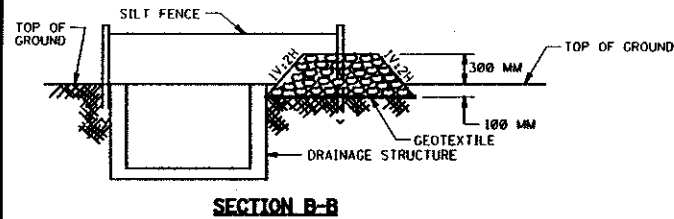
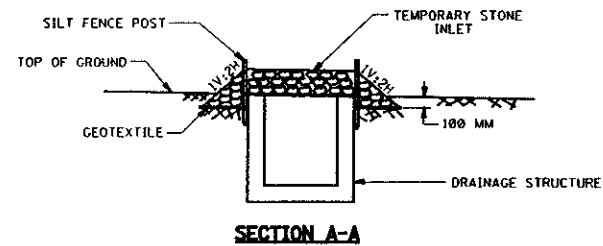
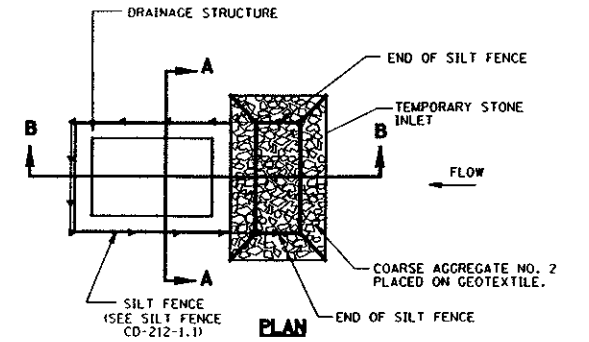
N.T.S.

CD-212-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

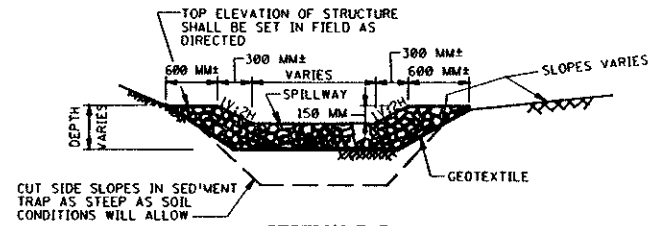
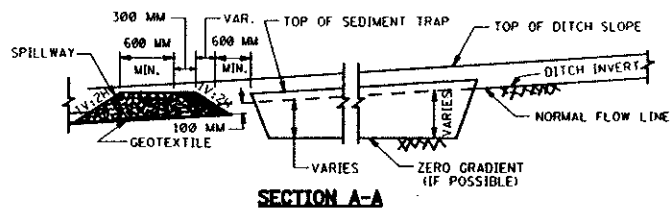
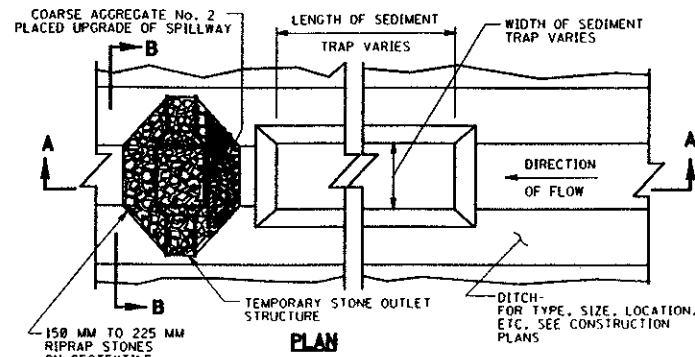
### CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



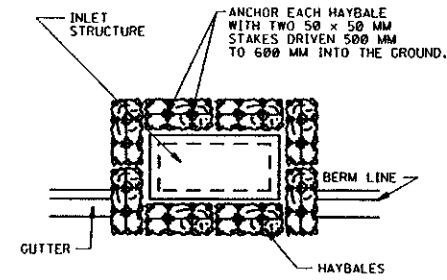
**INLET SEDIMENT TRAPS**

CD-212-2.1



**TEMPORARY STONE OUTLET SEDIMENT TRAPS BY M**

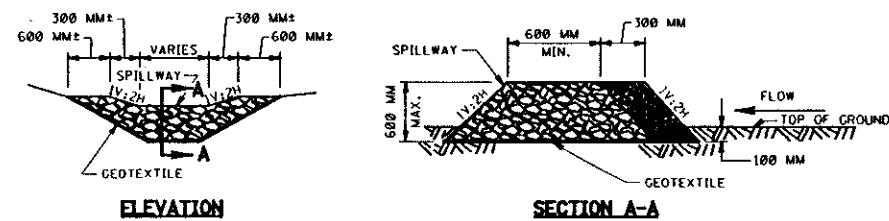
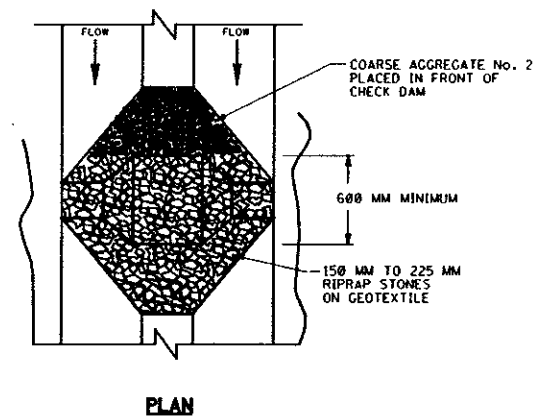
CD-212-2.3



NOTE: WHERE STAKING IS NOT PRACTICAL, HAYBALES SHALL BE TIED TOGETHER TO PREVENT MOVEMENT.

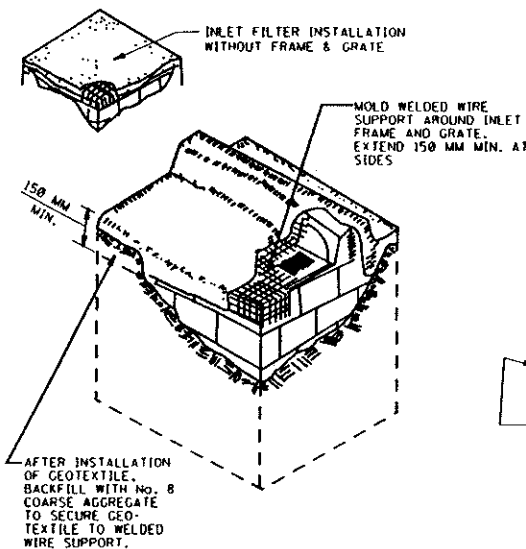
**INLET PROTECTION HAYBALE BARRIER**

CD-212-2.5



**TEMPORARY STONE CHECK DAM**

CD-212-2.2



**INLET FILTERS**

CD-212-2.4

**TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES**

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

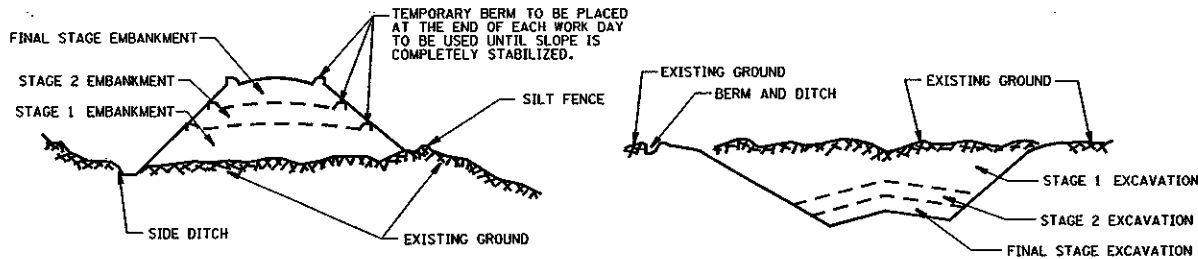
**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

## EMBANKMENT

BEFORE BEGINNING ANY EARTHWORK, EXCAVATE AND STABILIZE SIDE DITCHES AND INSTALL PERIMETER CONTROLS, (SILT FENCE, ETC.). SLOPES GREATER THAN 7.5 M IN HEIGHT SHALL BE EXCAVATED AND STABILIZED IN STAGES OF EQUAL INCREMENTS NOT TO EXCEED 4.5 M.

AT THE END OF EACH WORK DAY TEMPORARY BERMS (EARTH) AND SLOPE DRAINS SHALL BE CONSTRUCTED ALONG THE TOP EDGE(S) OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF.



### PHASING PLAN-FILL SECTION

#### CONSTRUCTION SEQUENCE:

- 1) EXCAVATE AND STABILIZE SIDE DITCHES AND/OR INSTALL PROPOSED CONTROLS AT THE TOES OF SLOPE.
- 2) PLACE STAGE 1 EMBANKMENT. PLACE TEMPORARY SEEDING AND MULCH, OR TOPSOIL AND PERMANENTLY SEED AND MULCH SLOPE OF THIS STAGE.
- 3) PLACE STAGE 2 EMBANKMENT. PLACE TEMPORARY SEEDING AND MULCH OR TOPSOIL AND PERMANENTLY SEED AND MULCH SLOPE OF THIS STAGE.
- 4) PLACE FINAL STAGE EMBANKMENT. PLACE TOPSOIL, PERMANENT SEED AND MULCH ON THE SLOPE THIS STAGE AND ON THE ENTIRE SLOPE IF NOT PREVIOUSLY DONE.

### PHASING PLAN-CUT SECTION

#### CONSTRUCTION SEQUENCE:

- 1) EXCAVATE AND STABILIZE BERM, SIDE AND OUTLET DITCHES.
- 2) PERFORM STAGE 1 EXCAVATION. TOPSOIL, PERMANENTLY SEED, AND MULCH SLOPE OF THIS STAGE.
- 3) PERFORM STAGE 2 EXCAVATION. TOPSOIL, PERMANENTLY SEED, AND MULCH SLOPE OF THIS STAGE.
- 4) PERFORM FINAL STAGE EXCAVATION. TOPSOIL, PERMANENTLY SEED AND MULCH SLOPE OF THIS STAGE. REPAIR ANY DAMAGE DONE TO PREVIOUS STAGES.

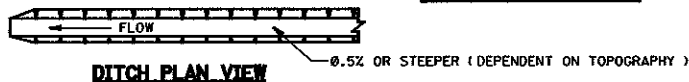
## ROADWAY GRADING DETAILS

CD-212-3.1

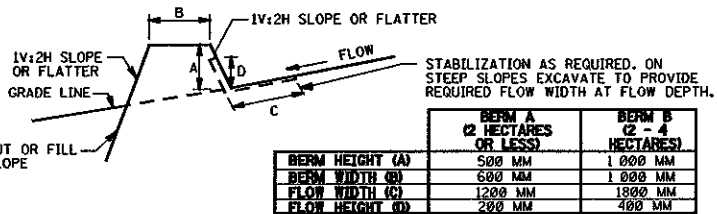
	DITCH A (2 HECTARES OR LESS)	DITCH B (2-4 HECTARES)
DITCH DEPTH (C)	300 MM	300 MM
DITCH WIDTH (D)	1 200 MM	2 000 MM

1V:2H OR FLATTER  
C MIN.  
D MIN.  
LEVEL  
EXISTING GROUND

### DITCH CROSS SECTION



### DITCH PLAN VIEW



### BERM CROSS SECTION

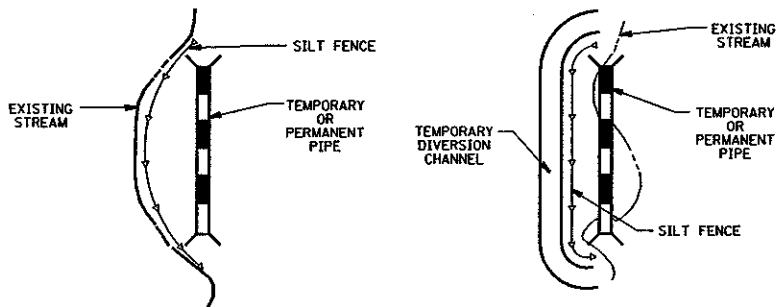
NOTE:  
FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED OUTLET.

### STABILIZATION FOR DITCH OR BERM

TYPE OF TREATMENT	GRADE	A - (2 HECTARES OR LESS)	B - (2-4 HECTARES)
1	0.5-5.0%	SEED USED WITH TOPSOIL STABILIZATION MATTING	SEED USED WITH TOPSOIL STABILIZATION MATTING
2	5.1-8.0%	SEED USED WITH TOPSOIL STABILIZATION MATTING	LINED 150 MM - 225 MM RIPRAP
3	8.1-20%	LINED 150 MM - 225 MM RIPRAP	ENGINEERED DESIGN

## TEMPORARY RUNOFF DIVERSION DETAILS

CD-212-3.2



### METHOD A PREFERRED

#### CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE ALONG EXISTING STREAM IN AREA OF PROPOSED PIPE CONSTRUCTION.
2. CONSTRUCT PIPE SYSTEM.
3. DIVERT STREAM FLOW INTO PIPE.
4. CONTINUE WITH CONSTRUCTION STAGING.

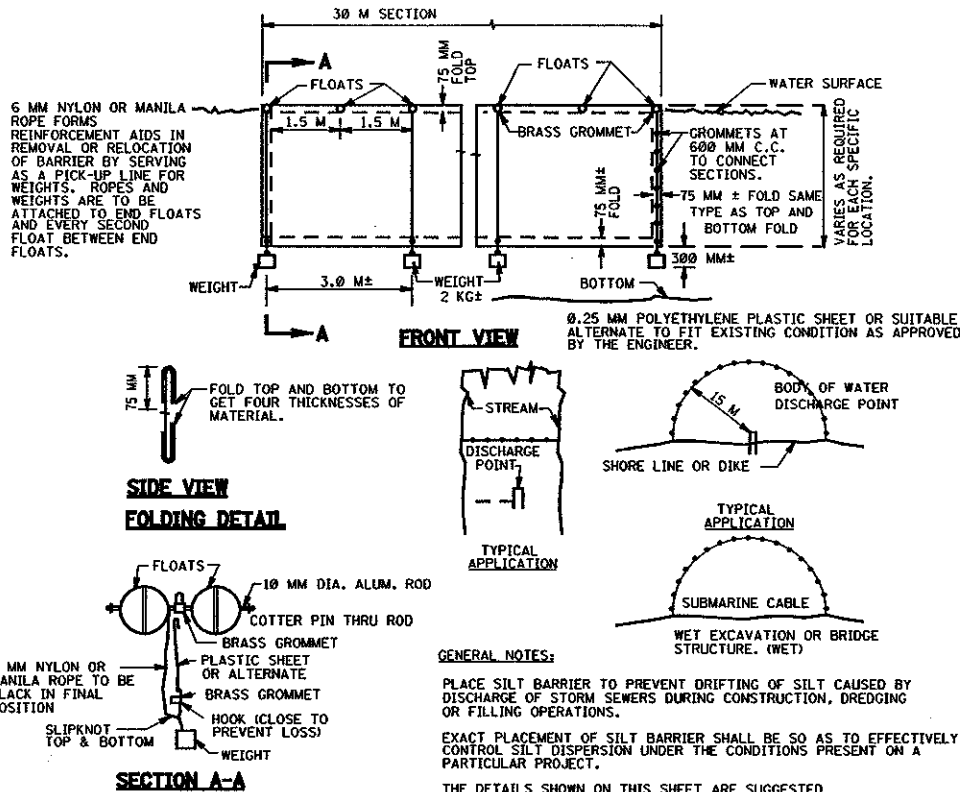
### METHOD B

#### CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE ALONG EXISTING STREAM IN AREA OF TEMPORARY DIVERSION CHANNEL.
2. CONSTRUCT TEMPORARY DIVERSION CHANNEL AND LINE WITH GEOTEXTILE AND TEMPORARY RIPRAP.
3. DIVERT STREAM FLOW INTO TEMPORARY CHANNEL.
4. CONTINUE SEQUENCE FROM STEP 2, METHOD A.

## STREAM DIVERSION DETAILS

CD-212-3.3



#### GENERAL NOTES:

PLACE SILT BARRIER TO PREVENT DRIFTING OF SILT CAUSED BY DISCHARGE OF STORM SEWERS DURING CONSTRUCTION, DREDGING OR FILLING OPERATIONS.

EXACT PLACEMENT OF SILT BARRIER SHALL BE SO AS TO EFFECTIVELY CONTROL SILT DISPERSION UNDER THE CONDITIONS PRESENT ON A PARTICULAR PROJECT.

THE DETAILS SHOWN ON THIS SHEET ARE SUGGESTED METHODS ONLY. ALTERNATE SOLUTION AND USAGE OF MATERIALS MAY BE USED AS APPROVED.

#### NOTE:

SUITABLE ALTERNATE MAY BE FASTENED TO STAKES DRIVEN INTO THE BOTTOM IN LIEU OF FLOATS AND WEIGHTS

## FLOATING TURBIDITY BARRIER

CD-212-3.4

## TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES

N.T.S.

CD-212-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

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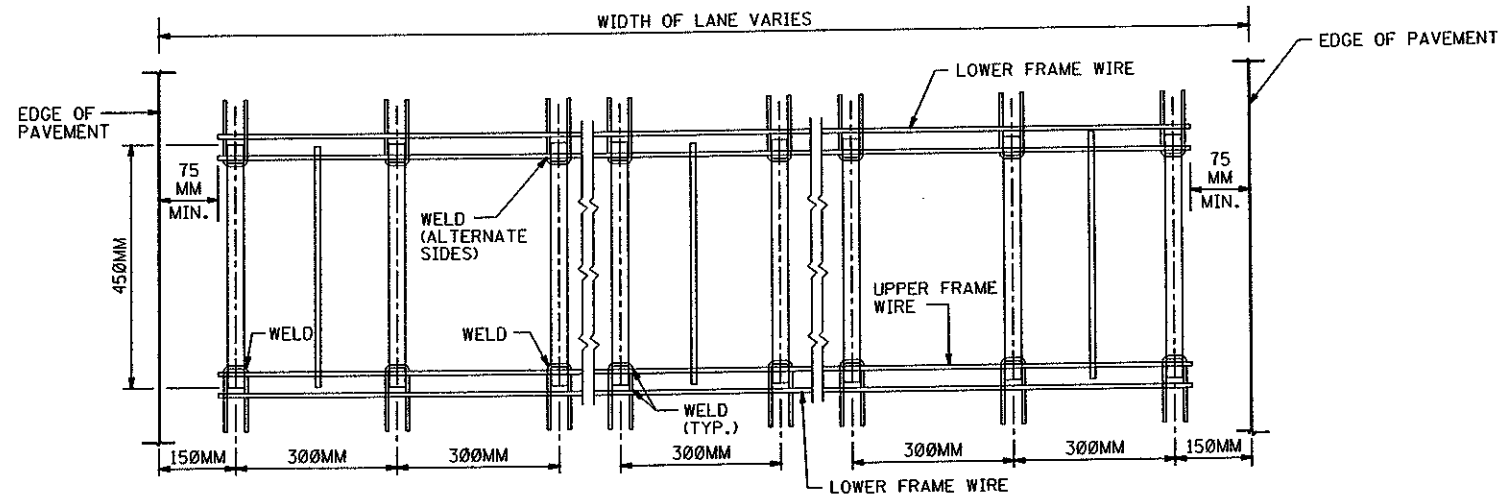
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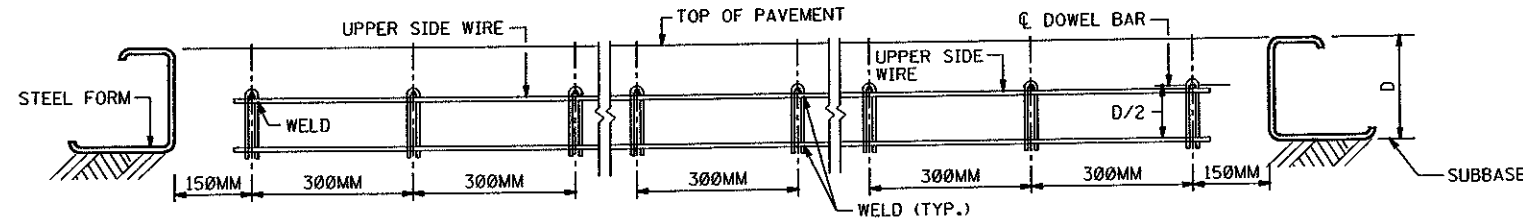
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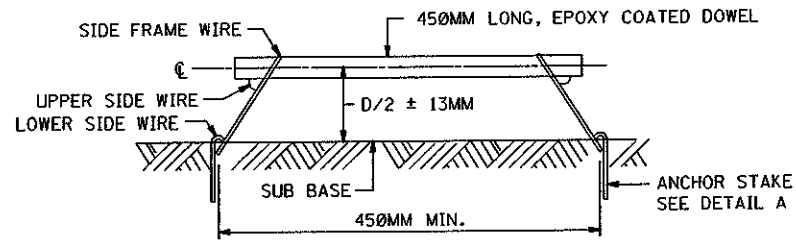
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PLAN VIEW



ELEVATION VIEW



END VIEW

FOR SLIP FORM PAVING, SUPPORT THE UPPER SIDE WIRE BY PLACING THE ANCHOR HOOK OVER THE TOP WIRE



SEE NOTE 4

FRAME DETAIL



8MM DIA. MIN. LENGTH AS REQUIRED SEE NOTE 2

DETAIL A  
ANCHOR STAKE

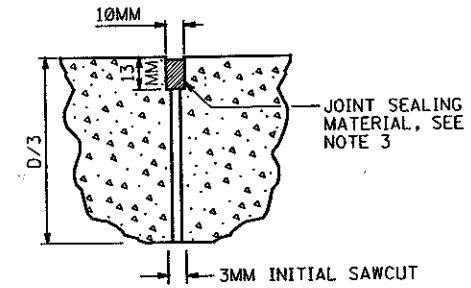
NOTES:

1. PROVIDE A MINIMUM OF EIGHT ANCHOR STAKES (FOUR PER SIDE). ANCHOR STAKES SHALL ENGAGE LOWER SIDE FRAME WIRES. USE ADDITIONAL STAKES AS NECESSARY, TO SECURE ASSEMBLIES, AS DIRECTED BY THE ENGINEER.
2. PROVIDE 300MM MINIMUM ANCHOR STAKES TO SECURE ASSEMBLIES WHEN SUBBASE IS USED AND 450MM MINIMUM ANCHOR STAKES WHEN AN OPEN GRADED DRAINAGE LAYER IS USED.
3. PROVIDE DOWEL BARS PARALLEL TO THE CENTERLINE AND TO THE PAVEMENT SURFACE. TOLERANCE OF THIS PLACEMENT SHALL BE WITHIN 6MM PER DOWEL BAR.
4. PROVIDE FRAME SUPPORT ASSEMBLY WIRES CONFORMING TO THE CURRENT ASTM DESIGNATION A-82 SPECIFICATIONS FOR COLD-DRAWN STEEL WIRE FOR CONCRETE REINFORCEMENT AND OF A MINIMUM ALLOWABLE SIZE AS FOLLOWS:

PAVEMENT DEPTHS	UPPER AND LOWER FRAME WIRES	SIDE FRAME WIRES
225MM OR LESS	7.9MM MIN.	7.9MM MIN.
> 225MM	11.1MM MIN.	11.1MM MIN.

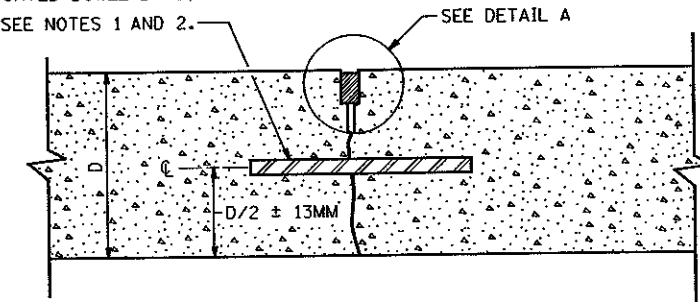
TYPICAL LOAD TRANSFER ASSEMBLY		
LANE WIDTH	OVERALL UNIT LENGTH	NO. OF DOWELS
2.7M	2.6M	9
3.0M	2.9M	10
3.3M	3.2M	11
3.6M	3.5M	12

CONTRACTION JOINT ASSEMBLY



DETAIL A

COATED DOWEL BARS, SEE NOTES 1 AND 2.



NOTES:

1. USE MINIMUM 32MM x 450MM LONG DOWEL BARS FOR PAVEMENT DEPTHS 225MM OR LESS. MINIMUM 38MM x 450MM LONG DOWEL BARS FOR PAVEMENT DEPTHS GREATER THAN 225MM. APPROVED ALTERNATE DOWEL BARS HAVING EQUIVALENT PROPERTIES TO CONVENTIONAL ROUND DOWEL BARS MAY BE USED.
2. PLACE DOWEL BARS PARALLEL TO THE CENTERLINE AND SURFACE OF THE SLAB. THE VERTICAL OR HORIZONTAL SKEW FROM ONE END OF THE DOWEL BAR TO THE OTHER END SHALL NOT EXCEED 6MM.
3. THE TOP OF THE JOINT SEALING MATERIAL SHALL NOT BE LESS THAN 2MM NOR MORE THAN 5MM BELOW THE SURFACE OF THE PAVEMENT.
4. THE INITIAL SAWCUT IS NOT REQUIRED FOR TRANSVERSE BUTT JOINTS.

TRANSVERSE CONTRACTION JOINT

CD-306-1.2

CONTRACTION JOINTS IN  
CONCRETE BASE COURSE

N.T.S.

CD-306-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

13  
129

CD-306-1.1

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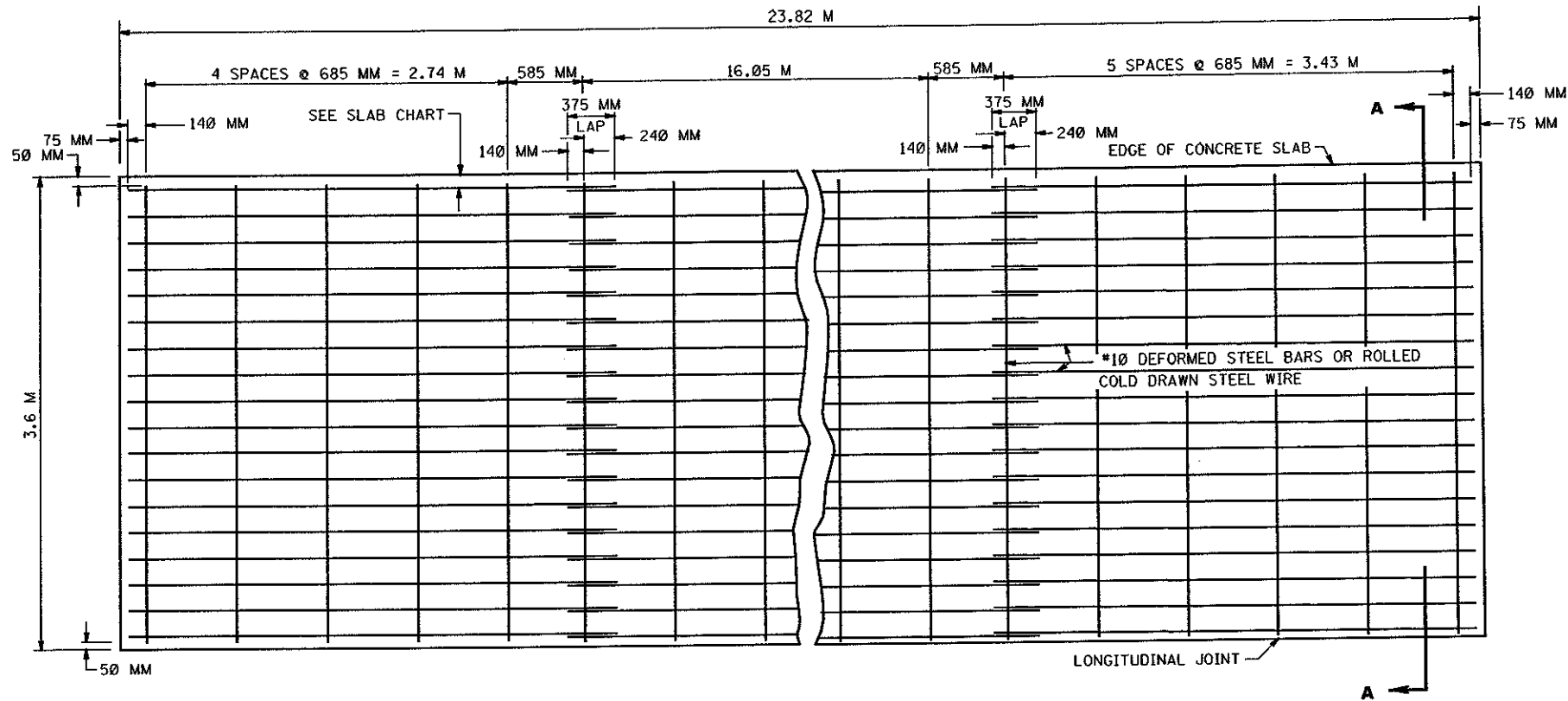
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REINFORCEMENT FOR 3.6 M WIDTH SLAB

NOTES:

1. BAR MATS DIFFERING WITH RESPECT TO THEIR LENGTH, SPACING OF TRANSVERSE BARS AND TYPE OF FABRICATION FROM THE MAT SHOWN IN THESE DRAWINGS MAY BE USED, PROVIDED THAT (a) THE MATS HAVE THE SAME SIZE AND SPACING OF LONGITUDINAL BARS, AND PROVIDE AT LEAST THE SAME NUMBER OF TRANSVERSE BARS PER SLAB, AS CALLED FOR IN THESE DRAWINGS, AND (b) APPROVAL FOR USE HAS BEEN OBTAINED FROM THE ENGINEER.  
\* SEE SLAB CHART
2. ALL BAR MATS SHALL BE FABRICATED ALIKE WITH FIVE (5) TRANSVERSE BARS EXCEPT THE LAST MAT IN EACH SLAB WHICH HAS AN ADDITIONAL TRANSVERSE BAR PLACED 215 MM FROM THE TRANSVERSE JOINT.

SLAB CHART FOR THICKNESS LESS THAN 250 MM														
* WIDTH OF SLAB	0.9 M	1.2 M	1.5 M	1.8 M	2.1 M	2.4 M	2.7 M	3.0 M	3.3 M	3.6 M	3.9 M	4.2 M	4.5 M	4.8 M
NUMBER OF LONGITUDINAL BARS	5	6	8	9	11	13	14	16	17	19	21	22	24	25
SLAB CHART FOR 250 MM THICKNESS														
* WIDTH OF SLAB	0.9 M	1.2 M	1.5 M	1.8 M	2.1 M	2.4 M	2.7 M	3.0 M	3.3 M	3.6 M	3.9 M	4.2 M	4.5 M	4.8 M
NUMBER OF LONGITUDINAL BARS	6	8	10	12	14	16	18	20	22	24	26	28	30	32

NOTE:

THE EDGE CLEARANCE OF OUTSIDE LOGITUDINAL BARS SHALL BE 75 MM IN ALL CASES.  
BARS TO BE EVENLY SPACED ACROSS WIDTH OF SLAB WITH A MAXIMUM SPACING OF 190 MM FOR SLABS WITH A THICKNESS OF LESS THAN 250 MM AND 150 MM FOR SLABS WITH A THICKNESS OF 250 MM.

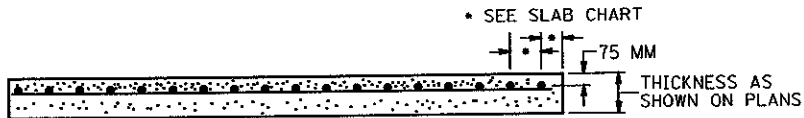
REINFORCEMENT REQUIREMENTS WHEN USING WELDED STEEL WIRE FABRIC

SLABS LESS THAN 250 MM THICK:

LONGITUDINAL WIRE SHALL BE SIZE NO. W8.6 SPACED 150 MM ON CENTER.  
TRANSVERSE WIRE SHALL BE SIZE NO. W4.7 SPACED 300 MM ON CENTER.  
EDGE CLEARANCE OF OUTSIDE LONGITUDINAL WIRE SHALL BE 75 MM.  
EDGE CLEARANCE OF THE LAST TRANSVERSE WIRE SHALL NOT BE GREATER THAN 275 MM.  
END CLEARANCE OF THE LONGITUDINAL WIRE SHALL NOT BE LESS THAN 25 MM NOR MORE THAN 75 MM.  
LONGITUDINAL WIRES SHALL BE LAPPED A MINIMUM OF 300 MM.

SLABS 250MM THICK:

LONGITUDINAL WIRE SHALL BE SIZE NO. W10.5 SPACED 150 MM ON CENTER.  
TRANSVERSE WIRE SHALL BE SIZE NO. W5.5 SPACED 300 MM ON CENTER.  
EDGE CLEARANCE OF OUTSIDE LONGITUDINAL WIRE SHALL BE 75 MM.  
EDGE CLEARANCE OF THE LAST TRANSVERSE WIRE SHALL NOT BE GREATER THAN 275 MM.  
END CLEARANCE OF THE LONGITUDINAL WIRE SHALL NOT BE LESS THAN 25 MM NOR MORE THAN 75 MM.  
LONGITUDINAL WIRES SHALL BE LAPPED A MINIMUM OF 300 MM.



SECTION A-A

GENERAL NOTE:

THE LONGITUDINAL LENGTH OF THE SLAB (23.82 M) REFERS TO THE MAXIMUM SLAB DIMENSION WHICH WILL OCCUR AT THE OUTER EDGE OF THE OUTSIDE SLAB ON A CURVE. THE LONGITUDINAL DIMENSION ON THE INNER EDGE OF THIS SLAB AND ADJACENT SLABS WILL VARY IN ORDER TO PROVIDE TRANSVERSE JOINT ALIGNMENT.

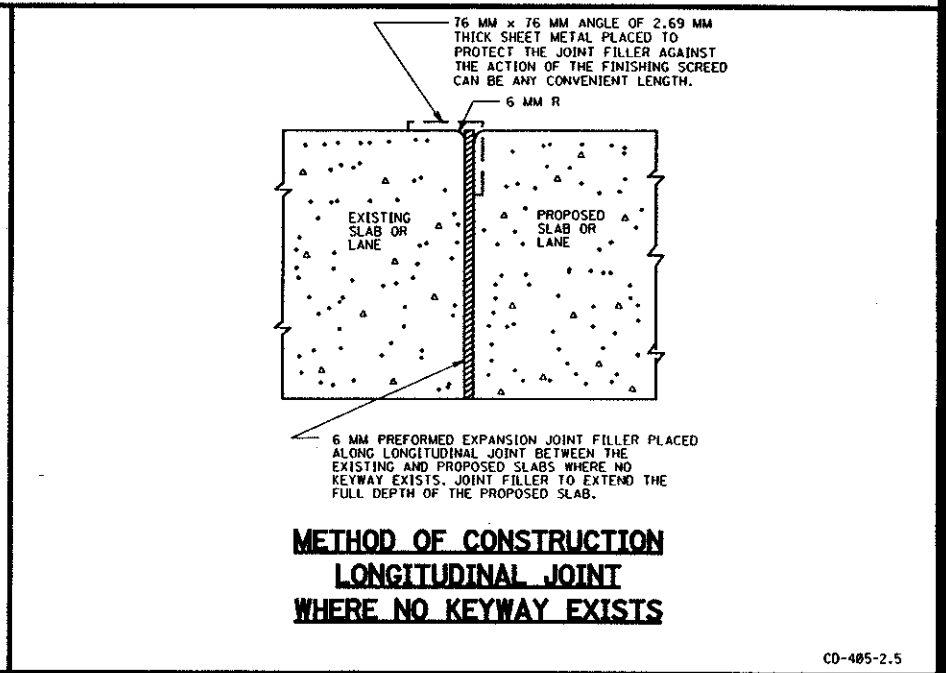
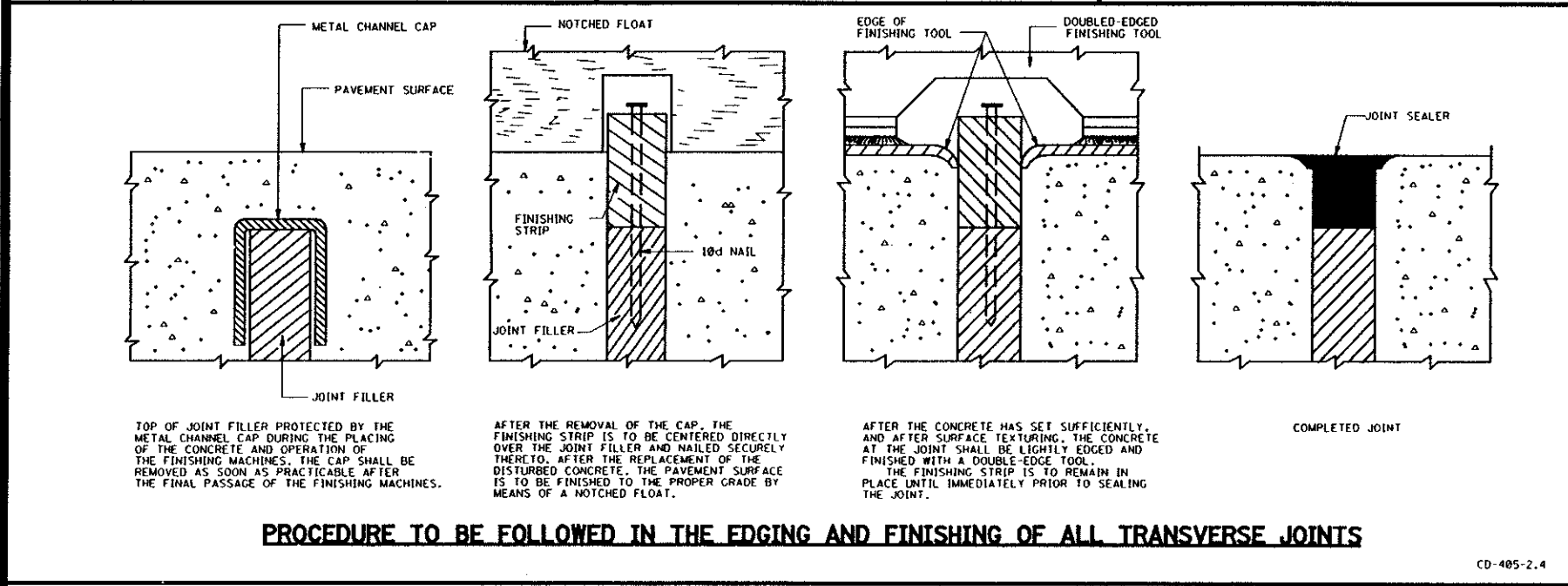
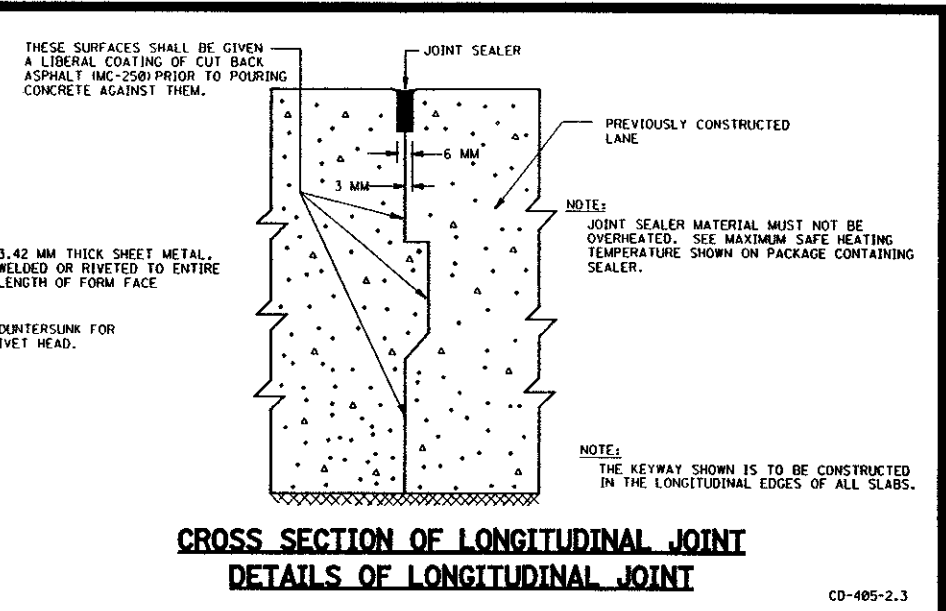
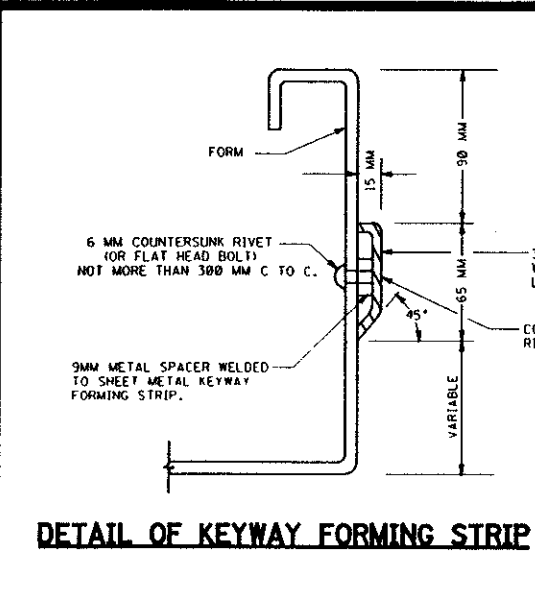
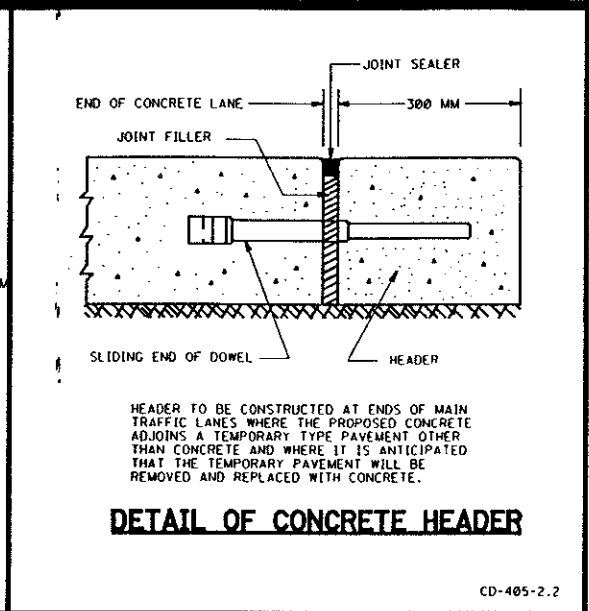
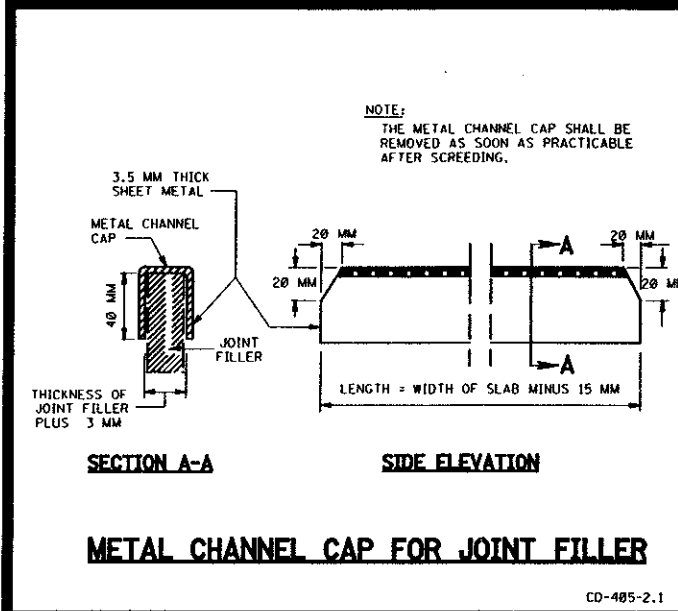
CONCRETE SURFACE COURSE  
N.T.S.

CD-405-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-405-1.1



CONCRETE SURFACE COURSE  
JOINT DETAILS

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
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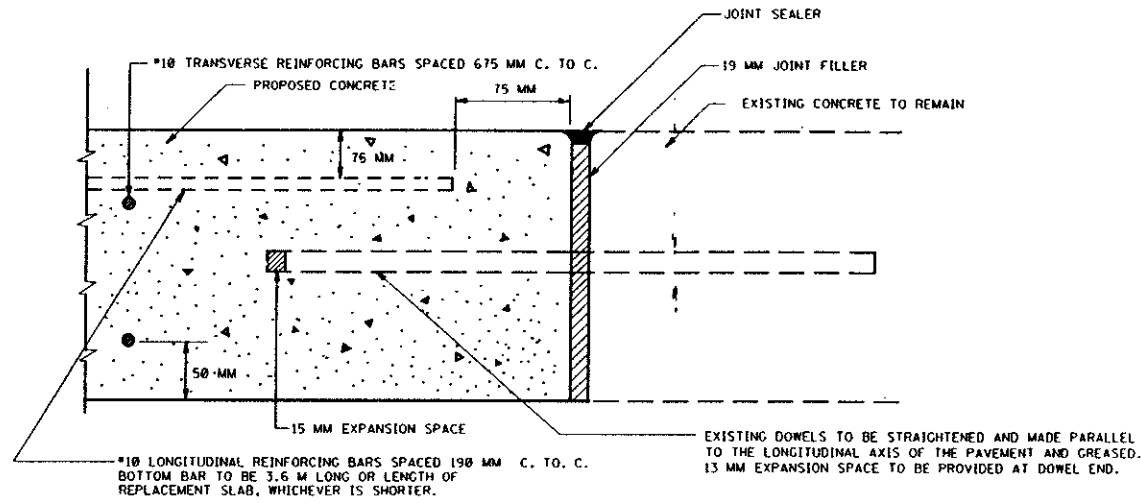
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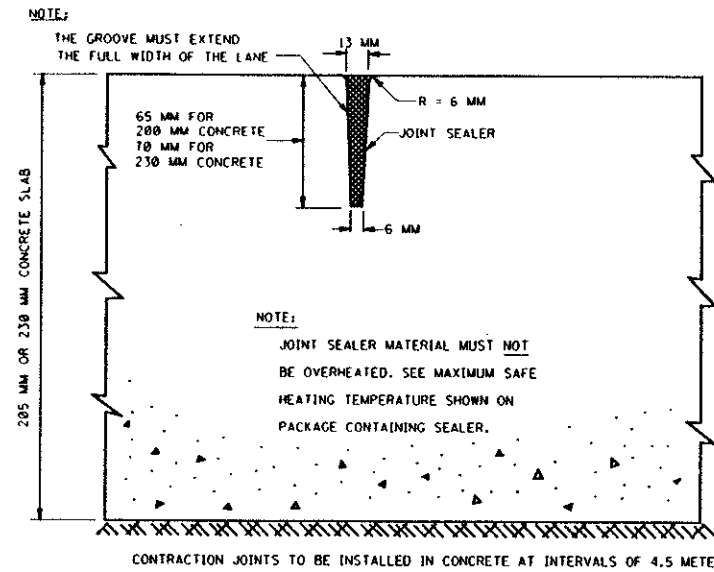
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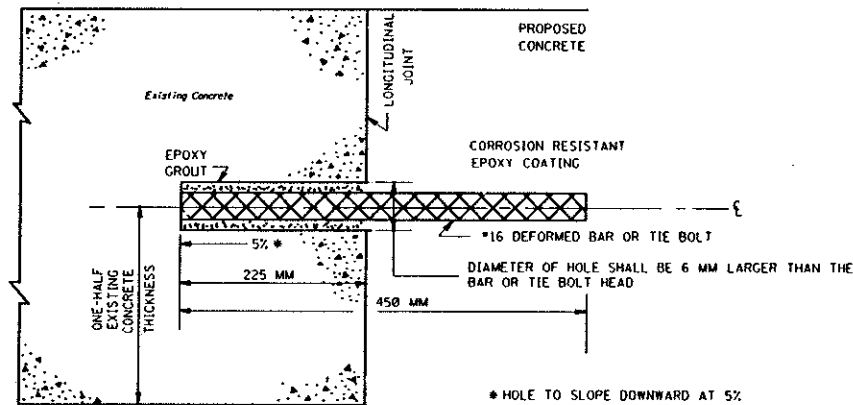
**DETAILS OF JOINT BETWEEN EXISTING CONCRETE  
TO REMAIN AND PROPOSED CONCRETE**

CD-405-3.1



**DETAIL OF CONTRACTION JOINT FOR NON-REINFORCED CONCRETE  
SURFACE COURSE**

CD-405-3.3



**LONGITUDINAL JOINT TIE FOR NARROW WIDTH WIDENING**

CD-405-3.2

**CONCRETE SURFACE COURSE  
JOINT DETAILS**

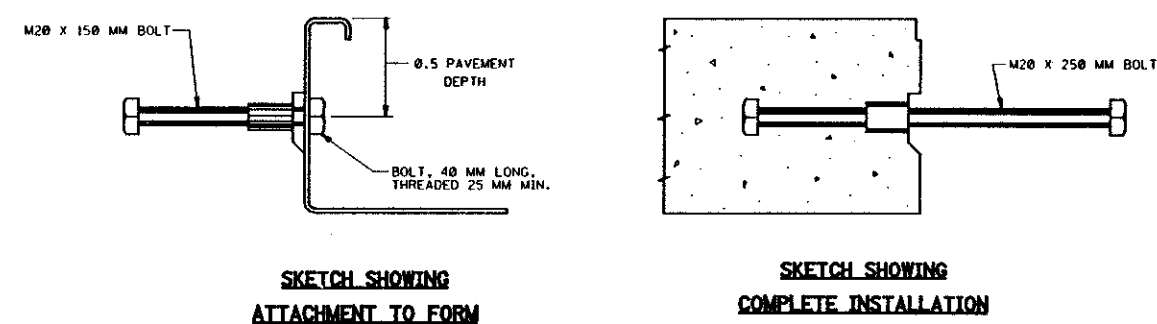
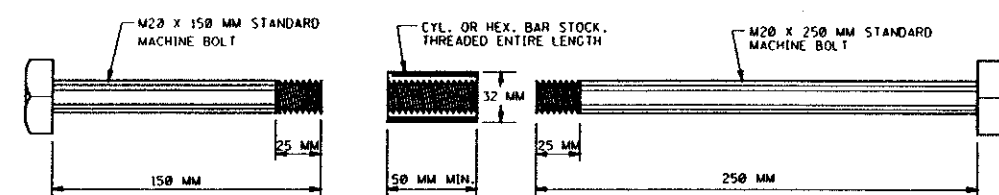
N.T.S.

CD-405-3

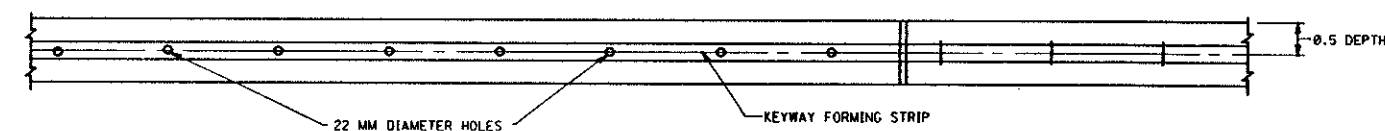
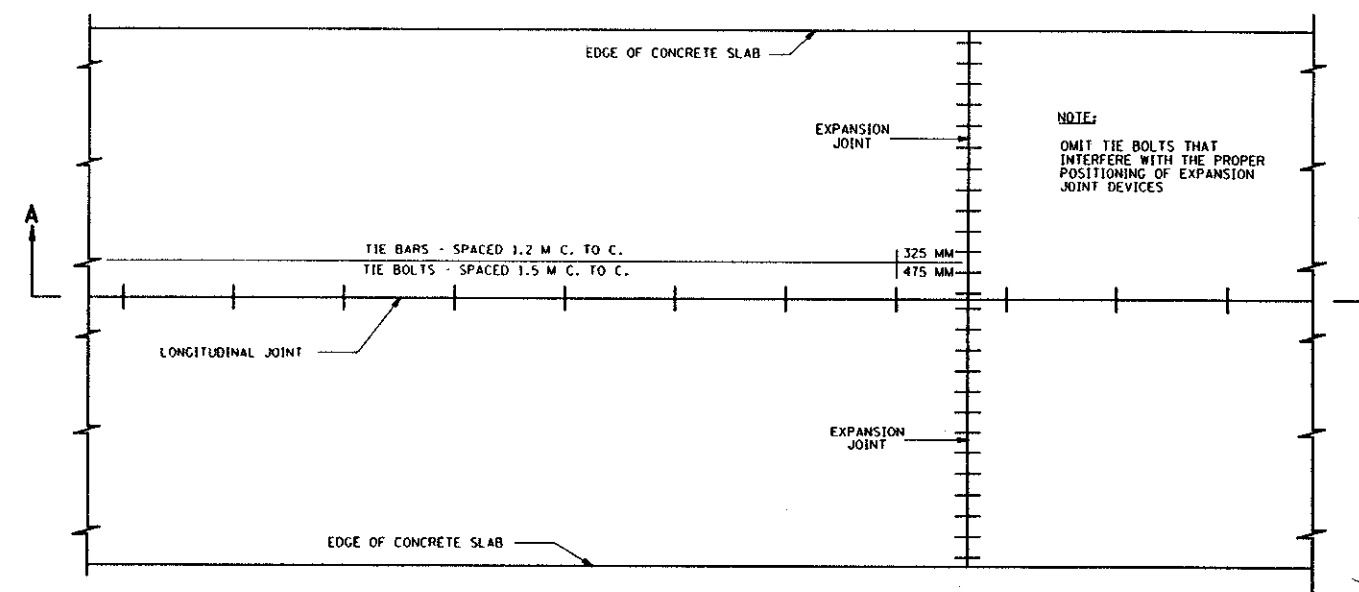
NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.



### DETAILS - TIE BOLTS



NOTES:

IN THE CASE OF FOUR ADJACENT LANES, TIES ARE TO BE OMITTED ALONG THE LONGITUDINAL JOINT BETWEEN THE INNER LANES. UNDER ANY OTHER CONDITIONS, NO MORE THAN THREE ADJACENT LANES ARE TO BE CONNECTED BY TIES.

TIES SHALL BE OMITTED IN TRANSITION PAVEMENT AND  
BRIDGE APPROACH SLABS.

WHEN TWO ADJACENT LANES OF CONCRETE ARE CONSTRUCTED IN A SINGLE OPERATION, TIE BARS, CONSISTING OF 16M STRAIGHT BARS OF REINFORCING STEEL, 915 MM LONG, SHALL BE INSTALLED BETWEEN THE LANES AND POSITIONED SUCH THAT THEY WILL BE CENTERED ON A LONGITUDINAL JOINT AND AT RIGHT ANGLES THERETO, AND MIDWAY BETWEEN THE TOP AND BOTTOM OF THE CONCRETE COURSE.

## TIE BOLTS AND TIE BARS

**N.T.S.**

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

CO-405-4.2

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
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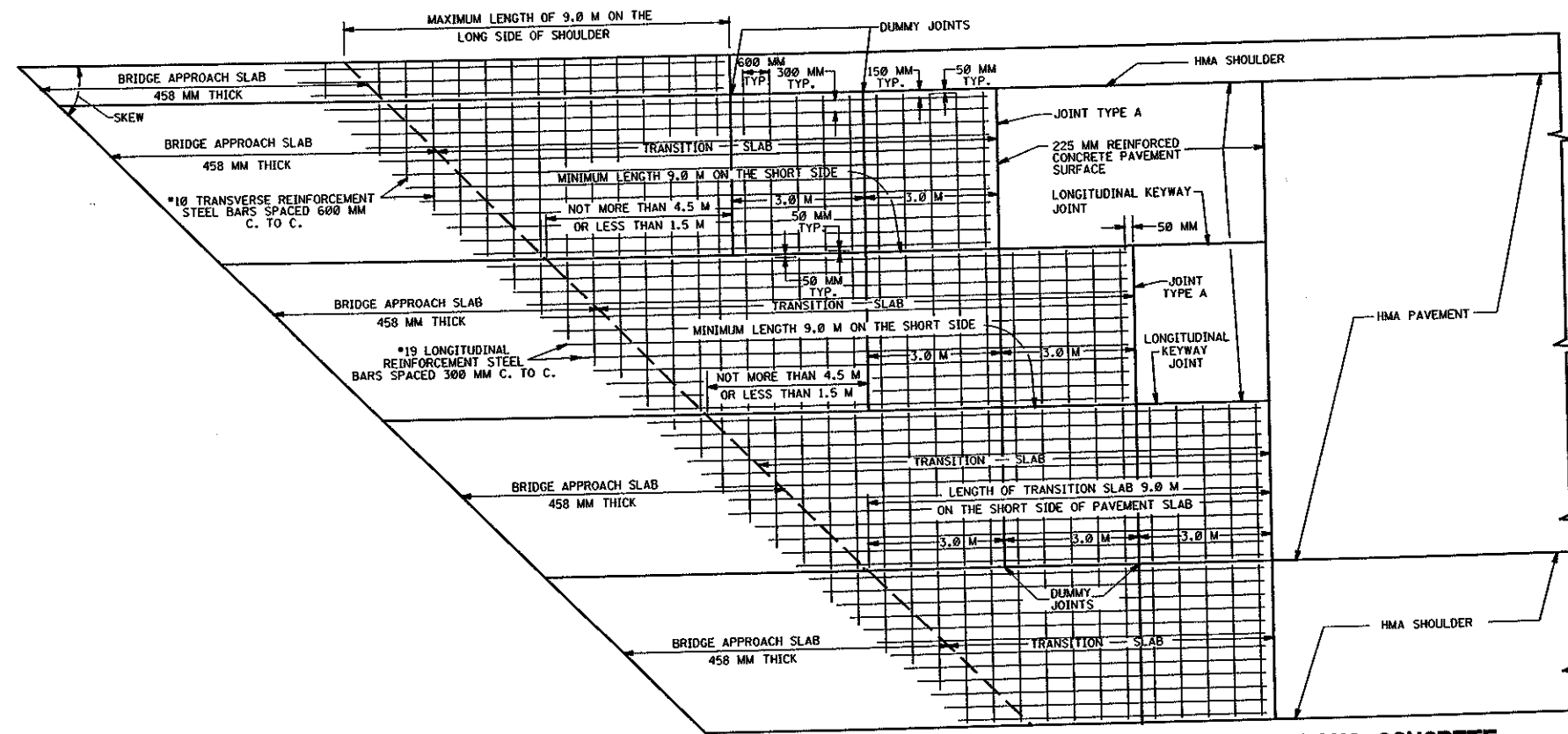
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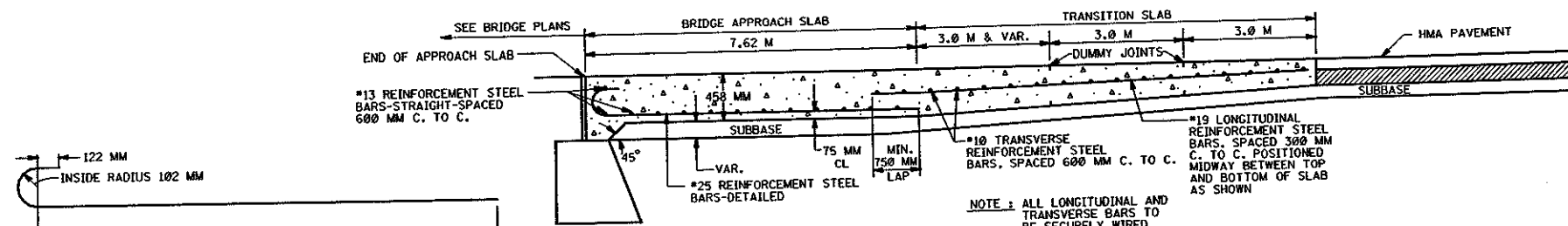
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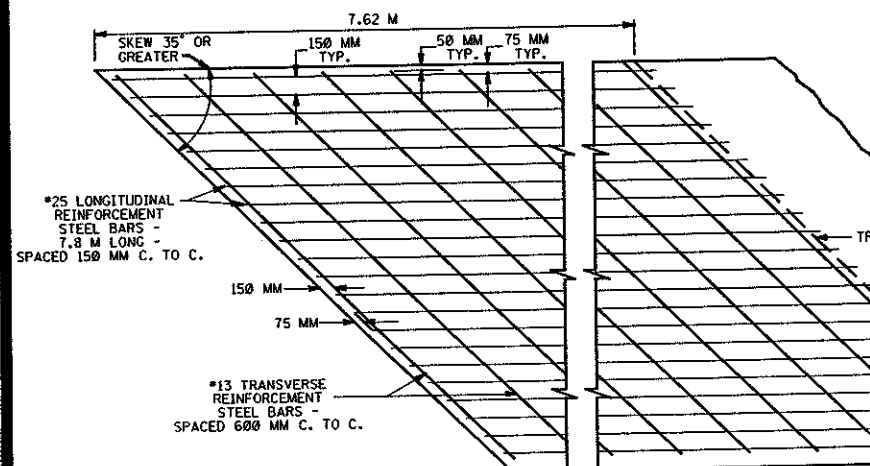


**PLAN OF TRANSITION SLABS BETWEEN BITUMINOUS CONCRETE PAVEMENT AND BRIDGE APPROACH SLABS**

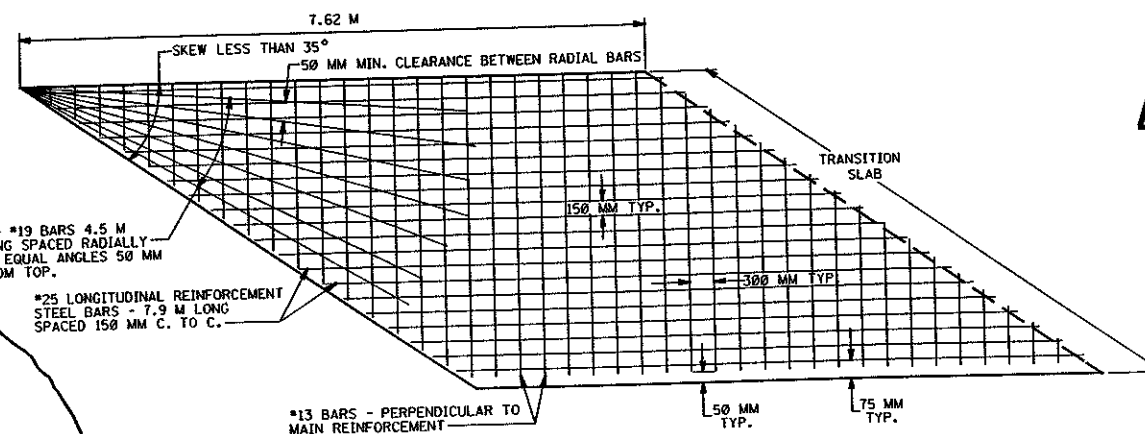


**SECTION OF TRANSITION SLABS BETWEEN BITUMINOUS CONCRETE PAVEMENT AND BRIDGE APPROACH SLABS**

**DETAIL OF #25 BARS**

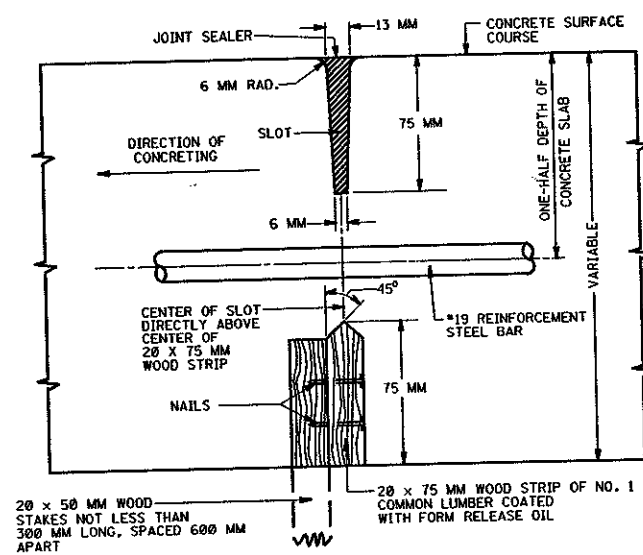


**DETAIL FOR BRIDGE APPROACH SLABS WHEN SKEW ANGLE IS 35° OR GREATER**

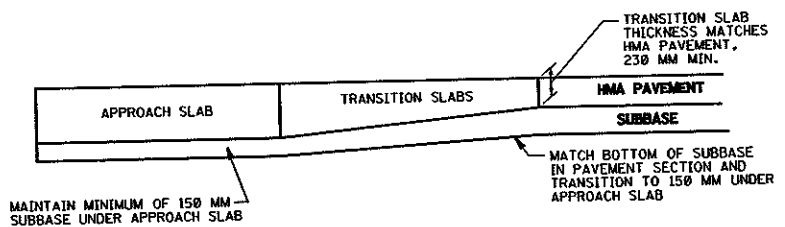


**DETAIL FOR BRIDGE APPROACH SLABS WHEN SKEW ANGLE IS LESS THAN 35°**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



**DETAIL OF DUMMY JOINT**



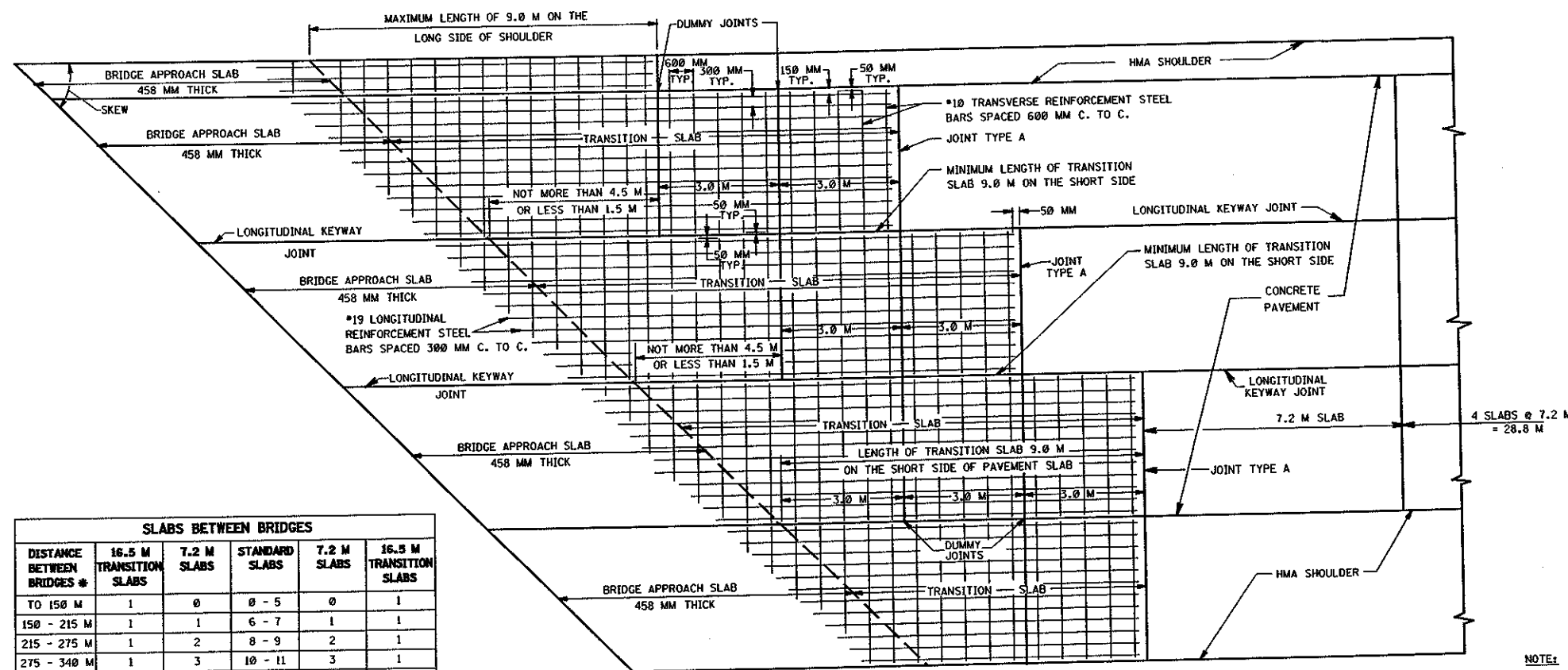
**TYPICAL SECTION FOR SUBBASE UNDER APPROACH AND TRANSITION SLABS**

**BRIDGE APPROACH SLABS AND TRANSITION SLABS ADJOINING HMA PAVEMENT**

HMA = HOT MIX ASPHALT  
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

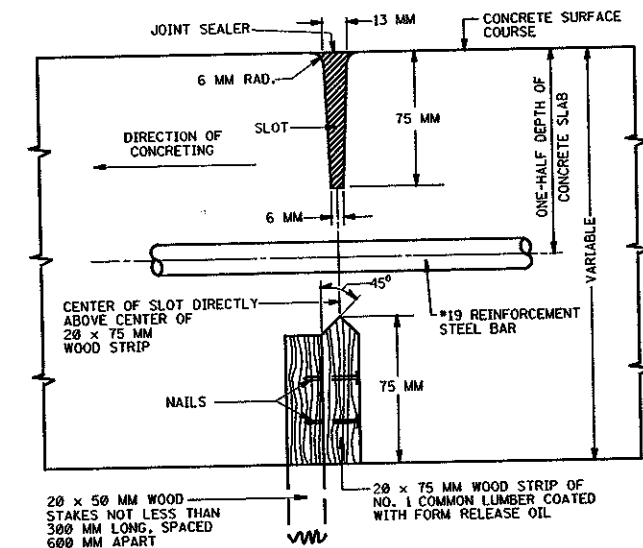
**CONSTRUCTION DETAILS**



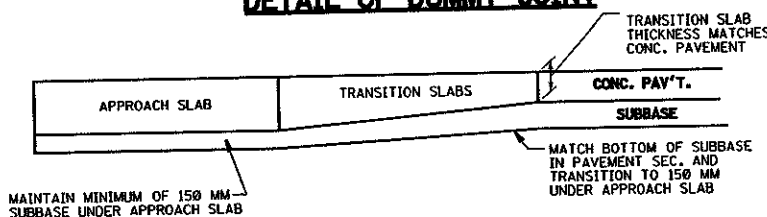
SLABS BETWEEN BRIDGES					
DISTANCE BETWEEN BRIDGES *	16.5 M TRANSITION SLABS	7.2 M SLABS	STANDARD SLABS	7.2 M SLABS	16.5 M TRANSITION SLABS
TO 150 M	1	0	0 - 5	0	1
150 - 215 M	1	1	6 - 7	1	1
215 - 275 M	1	2	8 - 9	2	1
275 - 340 M	1	3	10 - 11	3	1
340 - 400 M	1	4	12 - 13	4	1
OVER 400 M	1	5	AS REQ'D.	5	1

\* LENGTH OF PAVEMENT BETWEEN BRIDGES

**PLAN OF TRANSITION SLABS  
BETWEEN STANDARD CONCRETE PAVEMENT AND BRIDGE APPROACH SLABS**

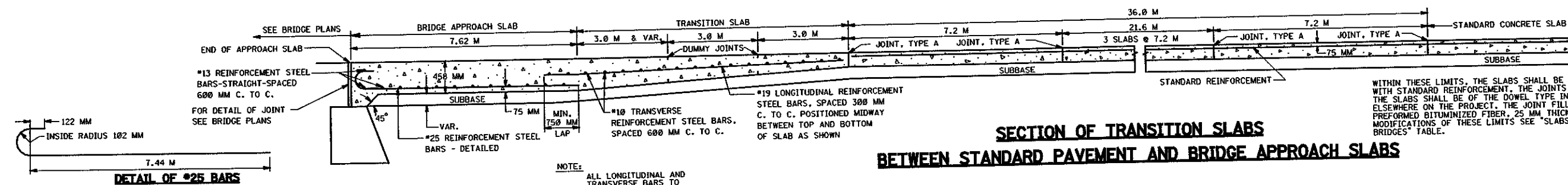


**DETAIL OF DUMMY JOINT**



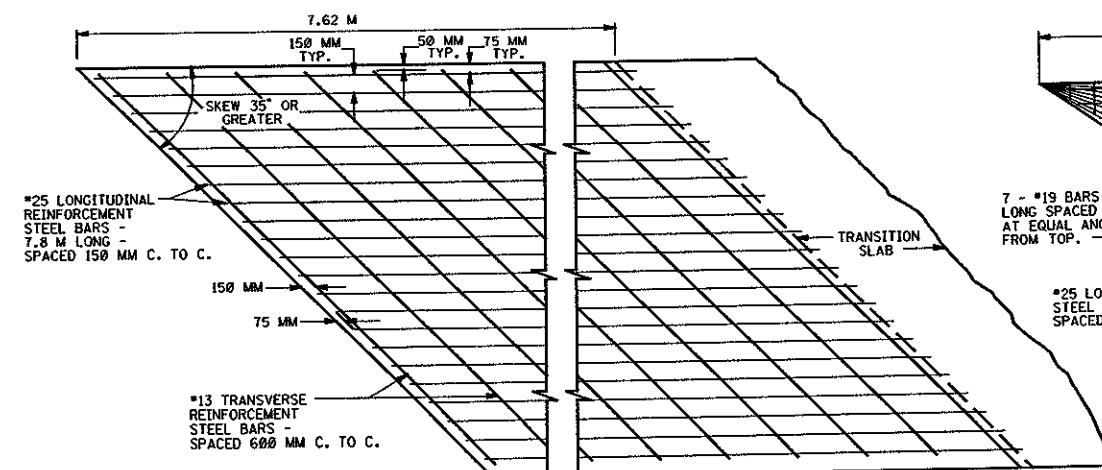
NOTE: IF WATER IS POCKETED, INSTALL OUTLET TRENCH AT LOW POINT.

**TYPICAL SECTION FOR SUBBASE UNDER APPROACH  
AND TRANSITION SLABS**

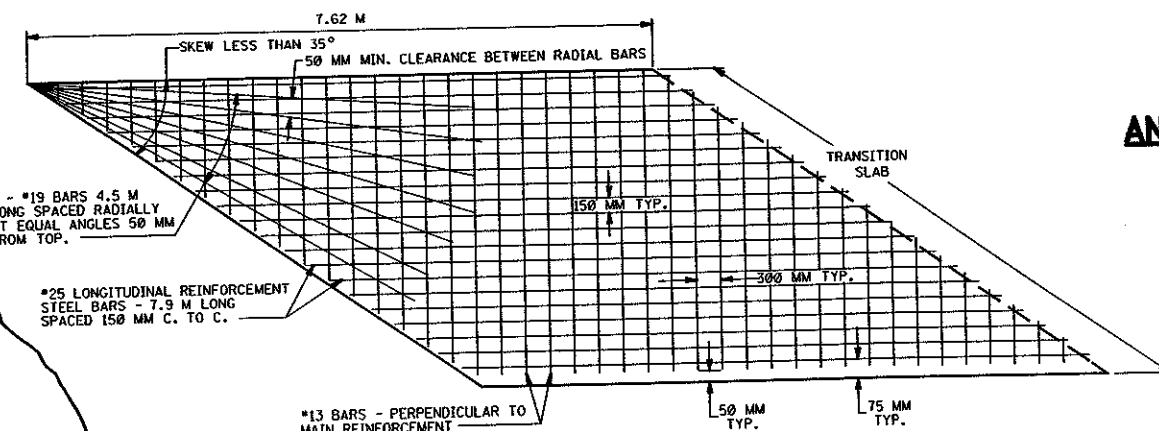


**SECTION OF TRANSITION SLABS  
BETWEEN STANDARD PAVEMENT AND BRIDGE APPROACH SLABS**

WITHIN THESE LIMITS, THE SLABS SHALL BE 7.2 M LONG. WITH STANDARD REINFORCEMENT, THE JOINTS BETWEEN THE SLABS SHALL BE OF THE DOWEL TYPE INSTALLED ELSEWHERE ON THE PROJECT. THE JOINT FILLER SHALL BE PREFORMED BITUMINIZED FIBER, 25 MM THICK. FOR MODIFICATIONS OF THESE LIMITS SEE "SLABS BETWEEN BRIDGES" TABLE.



**DETAIL FOR BRIDGE APPROACH SLABS  
WHEN SKEW ANGLE IS 35° OR GREATER**



**DETAIL FOR BRIDGE APPROACH SLABS  
WHEN SKEW ANGLE IS LESS THAN 35°**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

**HMA = HOT MIX ASPHALT  
BRIDGE APPROACH SLABS  
AND TRANSITION SLABS ADJOINING  
CONCRETE PAVEMENT**

N.T.S.

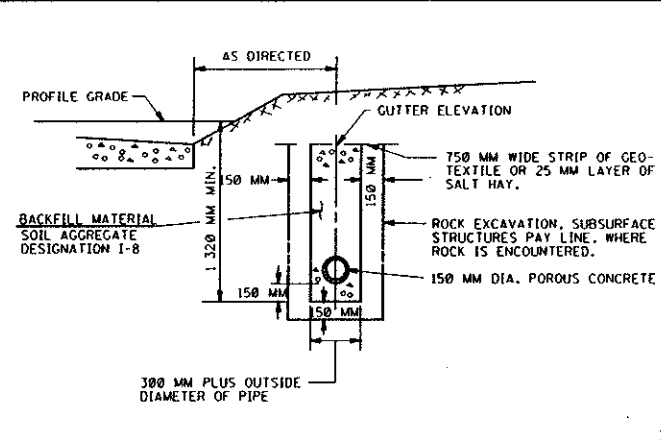
CD-405-7

NEW JERSEY DEPARTMENT OF TRANSPORTATION

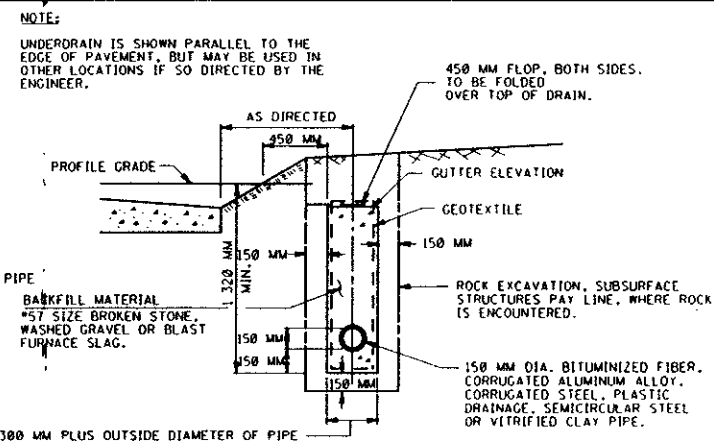
**CONSTRUCTION DETAILS**

20

129



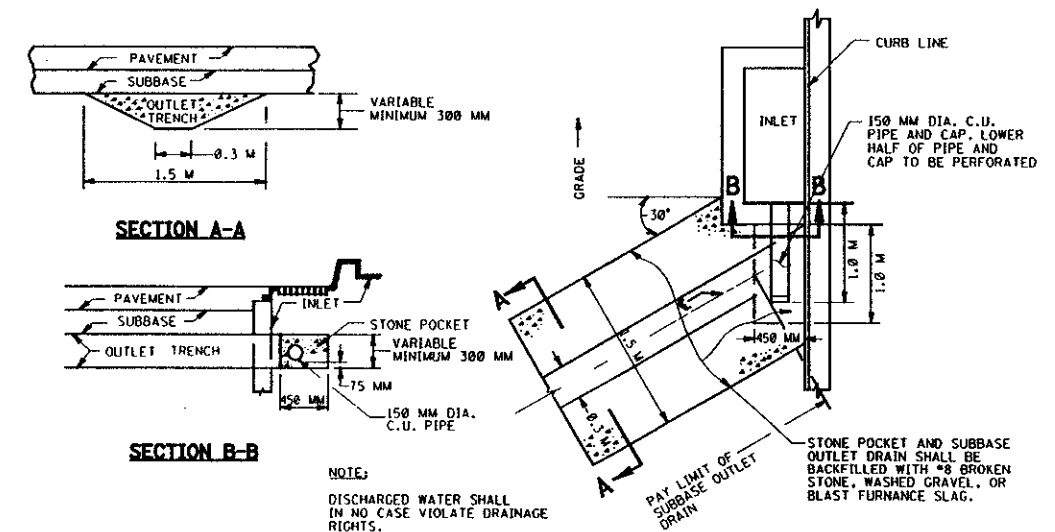
**UNDERDRAIN TYPE F WITH POROUS PIPE**



**UNDERDRAIN TYPE F WITH PERFORATED PIPE**

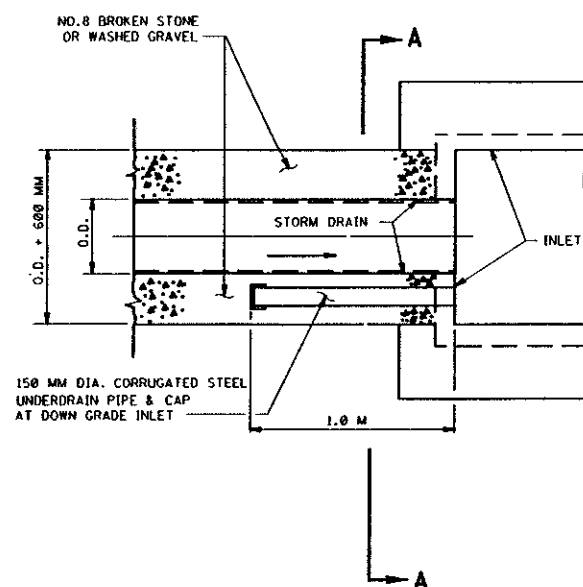
NOTE: EITHER UNDERDRAIN TYPE F WITH PERFORATED PIPE OR UNDERDRAIN TYPE F WITH POROUS PIPE MAY BE USED AT THE OPTION OF THE CONTRACTOR.

CD-601-1.1

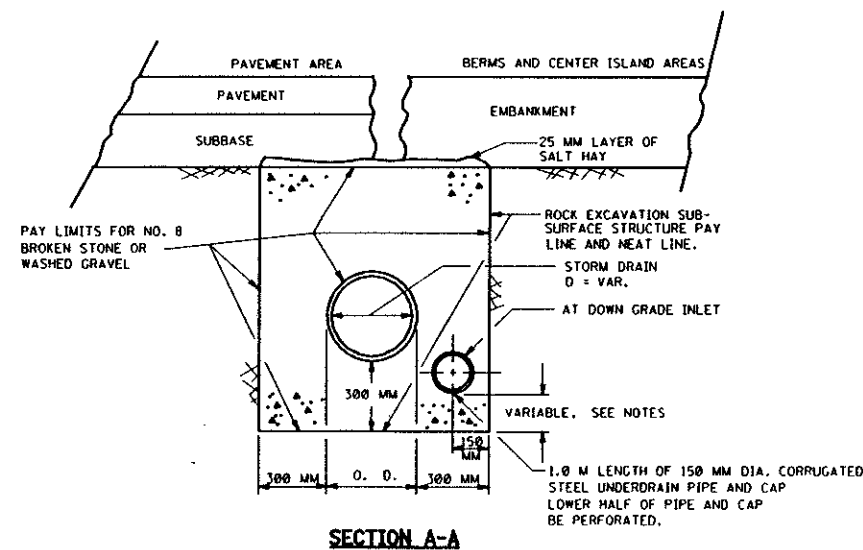


**SUBBASE OUTLET DRAIN WITH 150 MM CORRUGATED UNDERDRAIN PIPE**

CD-601-1.2



**COMBINED STORM DRAIN AND OUTLET TRENCH IN ROCK CUTS**



NOTE: INVERT OF 150 MM DIA. STEEL PIPE TO BE 150 MM ABOVE BOTTOM OF INLET OR 150 MM ABOVE BOTTOM OF TRENCH WHICHEVER IS HIGHER.

CD-601-1.3

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

**UNDERDRAINS**  
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

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PIPE DIAMETER (MM)	STEEL GA.	ALUM. GA.	DIMENSIONS (MM)	
			L	C
300	16	16	525	900
375	16	16	630	1100
450	16	16	775	1300
525	16	16	900	1500
600	16	16	1025	1700
750	14	14	1275	2100
900	14	12	1500	2500
1050	12	12	1725	2900
1200	12	12	1950	3150
1350	12	12	2100	3450
1500	12	12	2175	3750
1650	12	12	2175	3900
1800	12	12	2175	4050
1950	12	12	2175	4200
2100	12	12	2175	4350

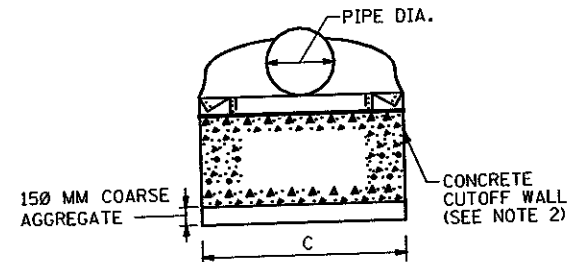
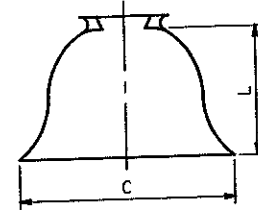
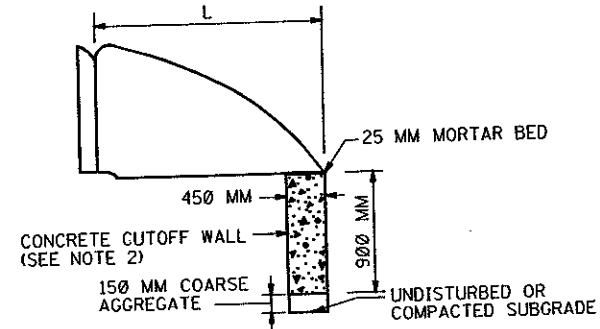
ROUND PIPE

ARCH PIPE DIMENSION (MM)	SPAN	RISE	STEEL GA.	ALUM. GA.	DIMENSIONS (MM)	
					L	C
430	330	16	16	16	475	1100
530	380	16	16	16	575	1250
610	460	16	16	16	700	1450
710	510	16	16	16	800	1650
885	610	14	14	14	975	2000
1060	740	14	14	14	1150	2475
1240	840	12	12	12	1350	2775
1440	970	12	12	12	1575	3150
1620	1100	12	12	12	1750	3450
1800	1200	12	12	12	1925	3750
1950	1320	12	12	12	1925	4050
2100	1450	12	12	12	1925	4350

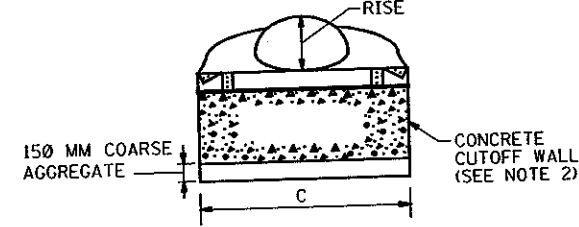
ARCH PIPE

NOTES:

- MINOR VARIATIONS TO THE ABOVE DIMENSIONS ARE ACCEPTABLE WITH THE EXCEPTION OF THE INSIDE DIAMETER DIMENSION.
- A 25 MM THICK MORTAR BED AND A 150 MM DEEP LAYER OF COARSE AGGREGATE ARE REQUIRED WHEN A PRECAST CONCRETE CUTOFF WALL IS USED.
- NO SEPARATE PAYMENT WILL BE MADE FOR THE CONCRETE CUTOFF WALL. THE COST OF THE CONCRETE CUTOFF WALL SHALL BE INCLUDED IN THE COST OF THE END SECTION.
- REFER TO NOTE 4, CD-602-1.2 FOR SIZE OF CONCRETE CUTOFF WALL.



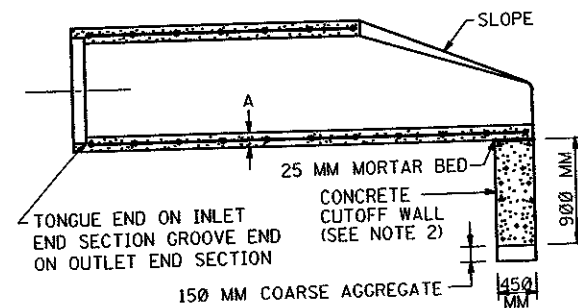
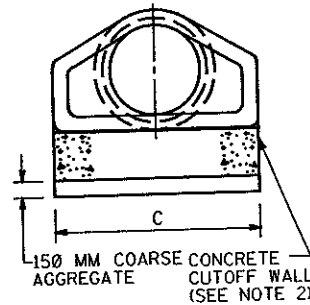
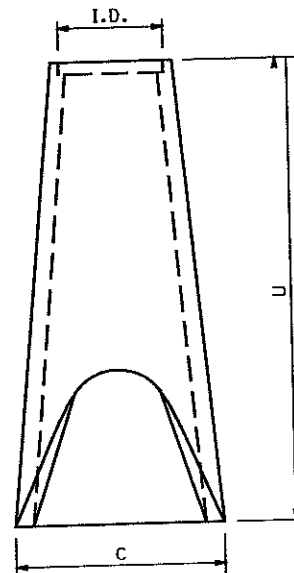
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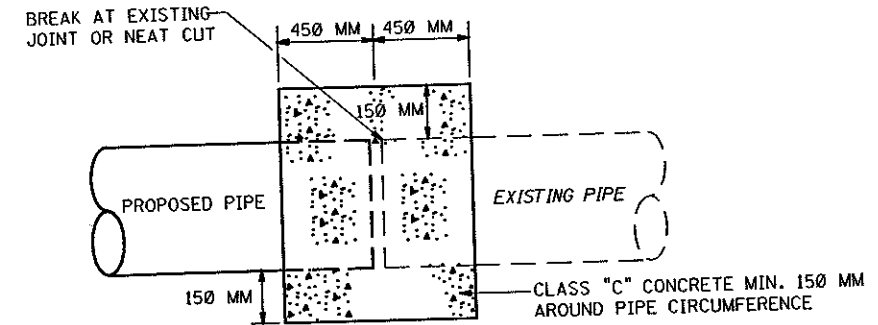
ELEVATION

END SECTIONS FOR METAL PIPE

CD-602-1.1



END SECTIONS FOR CONCRETE PIPE

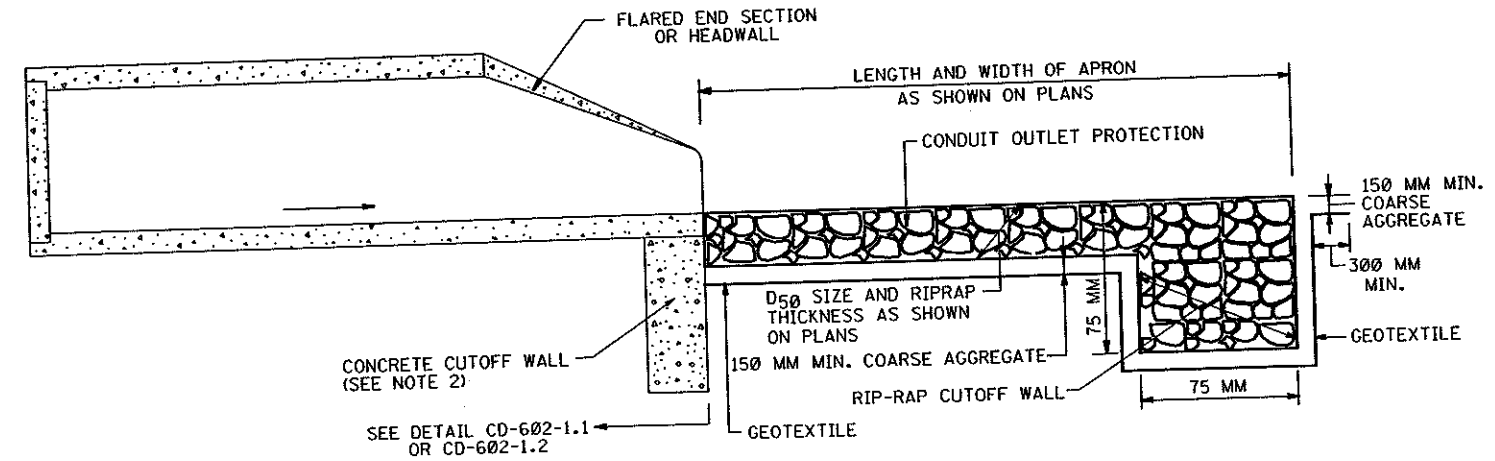


NOTE:

COAT ALL SURFACES TO BE ENCASED IN CONCRETE COLLAR WITH APPROVED EPOXY BONDING COMPOUND. NO SEPARATE PAYMENT WILL BE MADE FOR THE CONCRETE COLLAR. THE COST OF THE CONCRETE COLLAR SHALL BE INCLUDED IN THE COST OF THE VARIOUS PIPE ITEMS ON THE PROJECT.

CONCRETE COLLAR  
(FOR JOINING PROPOSED PIPE TO EXISTING PIPE)

CD-602-1.3



STORMWATER OUTFALL PROTECTION

CD-602-1.4

DIMENSIONS (MM)												
I.D.	300	375	450	525	600	675	750	900	1050	1200	1350	1500
A	50	56	63	69	75	82	88	100	113	125	138	150
U	1800	1800	1800	1800	1800	1800	1800	2400	2400	2400	2400	2400
C	700	860	1025	1185	1350	1510	1675	2000	2175	2350	2525	2700

NOTES:

- MINOR VARIATIONS TO THE ABOVE DIMENSIONS ARE ACCEPTABLE WITH THE EXCEPTION OF THE INSIDE DIAMETER DIMENSION.
- A 25 MM THICK MORTAR BED AND A 150 MM DEEP LAYER OF COARSE AGGREGATE ARE REQUIRED WHEN A PRECAST CONCRETE CUTOFF WALL IS USED.
- NO SEPARATE PAYMENT WILL BE MADE FOR THE CONCRETE CUTOFF WALL. THE COST OF THE CONCRETE CUTOFF WALL SHALL BE INCLUDED IN THE COST OF THE END SECTION.
- THE WIDTH OF THE CONCRETE CUTOFF WALL SHALL BE EQUAL TO THE MAXIMUM WIDTH OF THE END SECTION AS INDICATED ON THE DETAIL BY DIMENSION "C". HOWEVER, IF THE ACTUAL MAXIMUM WIDTH EXCEEDS THE CHART VALUE OF "C", THE WIDTH OF THE CONCRETE CUTOFF WALL SHALL EQUAL THE ACTUAL MAXIMUM WIDTH OF THE END SECTION.

CD-602-1.2

PIPE END SECTIONS

N.T.S.

CD-602-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

22  
129



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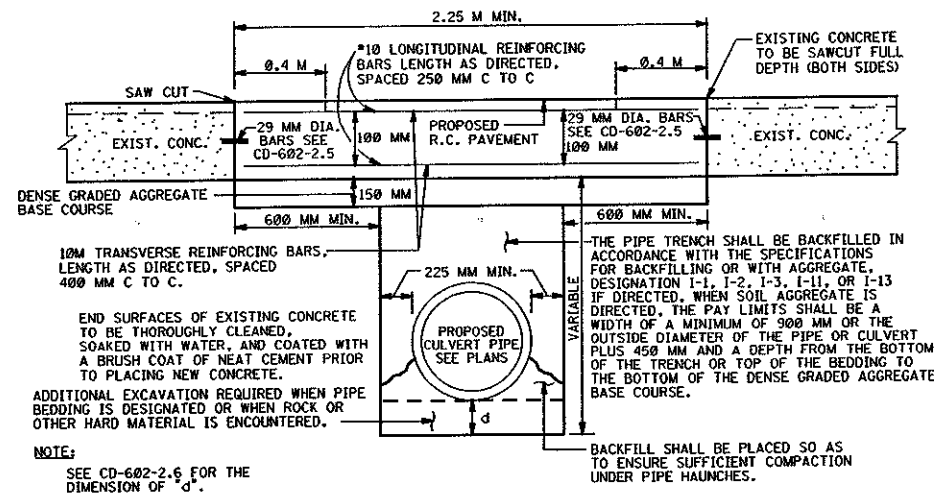
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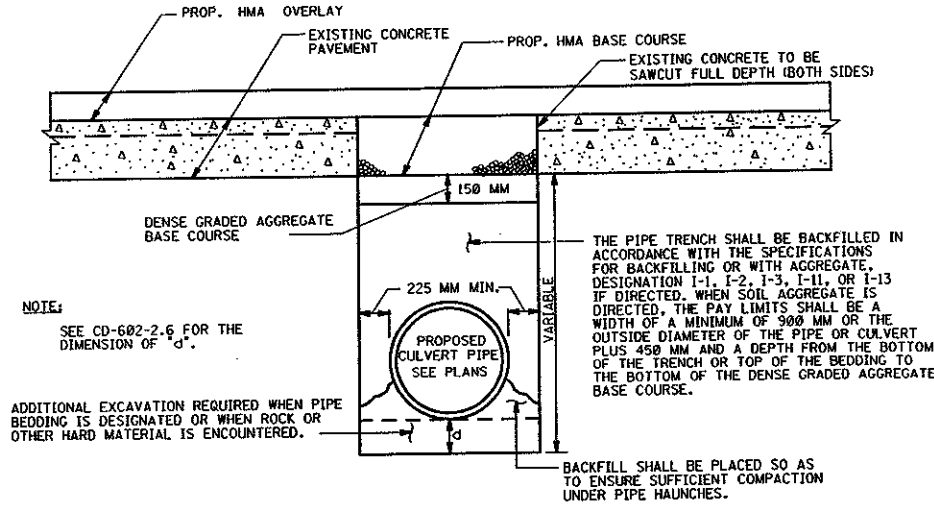
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### CONCRETE SURFACE COURSE REPLACEMENT AT CROSS DRAIN TRENCH

CD-602-2.1



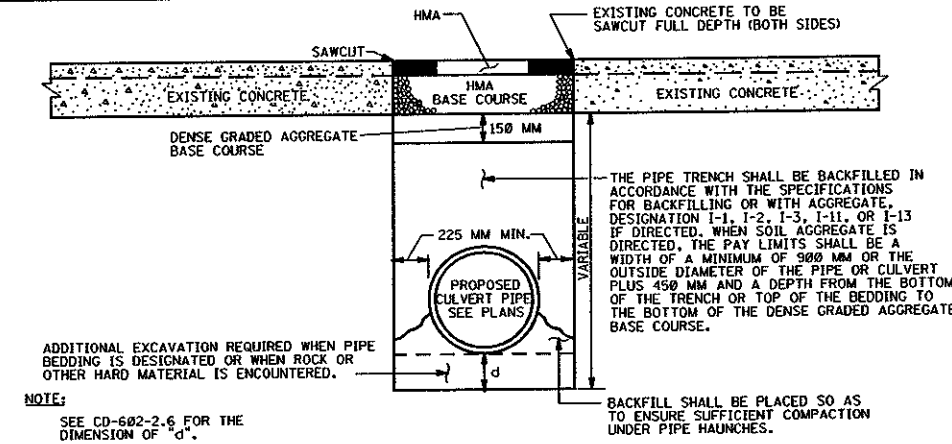
### HMA REPLACEMENT WHERE EXISTING CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING

CD-602-2.4

UNDERLYING SOIL	d	
	CONC. PIPE	METAL PIPE
ROCK OR HARD MATERIAL	150 MM	300 MM
OTHER MATERIAL	150 MM	150 MM

### MINIMUM DEPTH OF ADDITIONAL EXCAVATION OR PIPE BEDDING

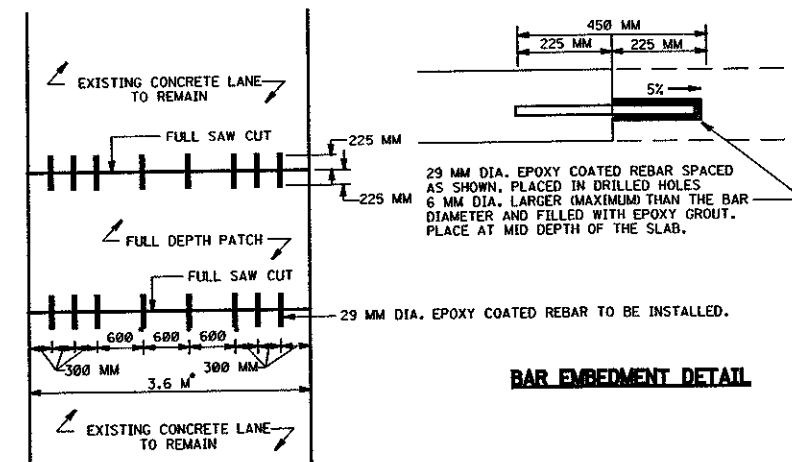
CD-602-2.6



### HMA REPLACEMENT WHERE CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH

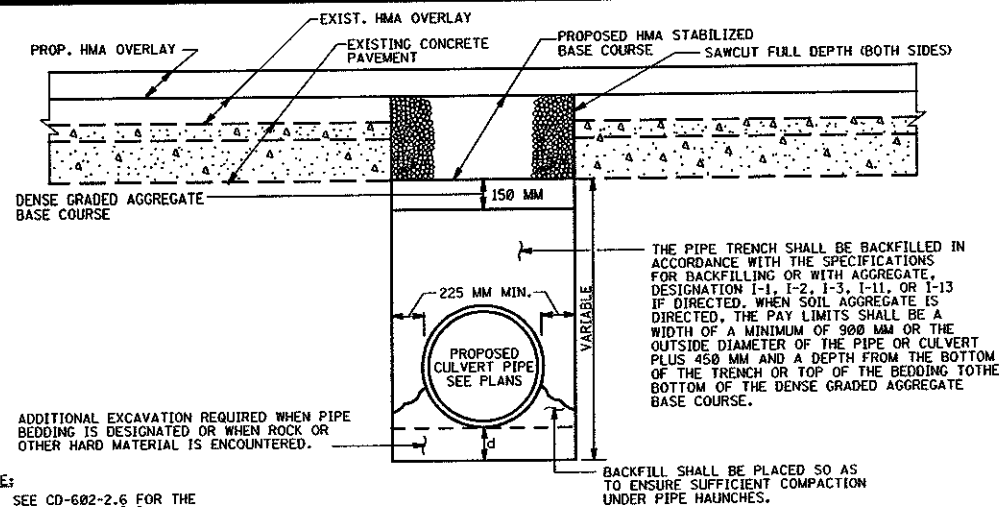
CD-602-2.2

\*FOR LANE WIDTHS OTHER THAN 3.6 M  
THE 600 MM CENTER SPACING SHALL BE  
SET AT 600 MM MAXIMUM AND VARIABLE.



### TRANSVERSE JOINT TIE IN CONCRETE SURFACE COURSE FOR CONDUIT OR CROSS DRAIN TRENCHES

CD-602-2.5



### HMA REPLACEMENT WHERE EXISTING OVERLAY AND CONCRETE COURSE IS REMOVED AT CROSS DRAIN TRENCH WITH PROPOSED RESURFACING

CD-602-2.3

HMA = HOT MIX ASPHALT

### CROSS DRAIN TRENCH CONSTRUCTION

N.T.S.

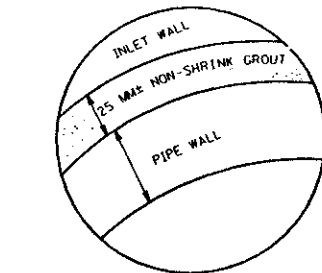
CD-602-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

### CONSTRUCTION DETAILS

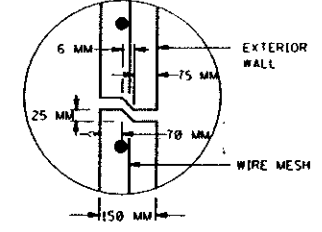
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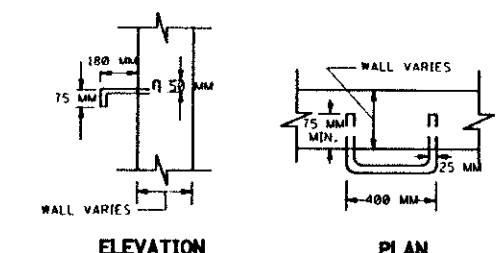
**CONNECTION OF PIPE AND INLET FOR PRECAST INLET**

CD-603-1.1



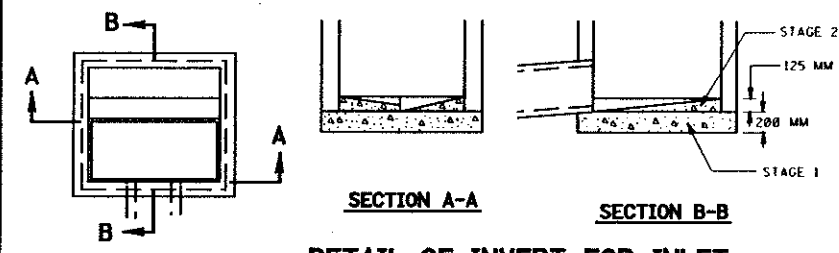
**RISER JOINT DETAIL FOR PRECAST INLETS**

NOTE: JOINT TO BE SECURELY MORTARED BY CONTRACTOR  
CD-603-1.2



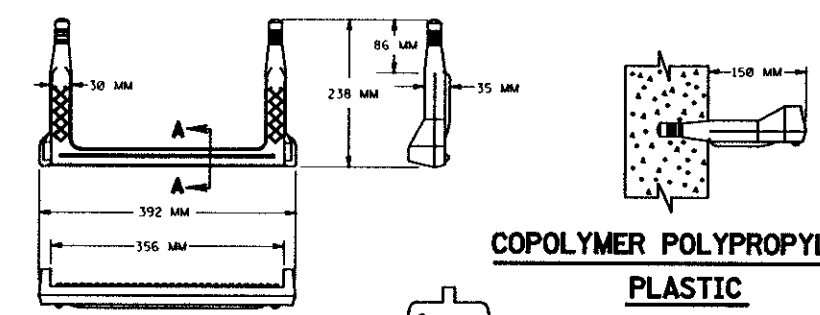
**LADDER RUNG DETAIL**

CD-603-1.3



**DETAIL OF INVERT FOR INLET WITHOUT CONTINUOUS PIPE**

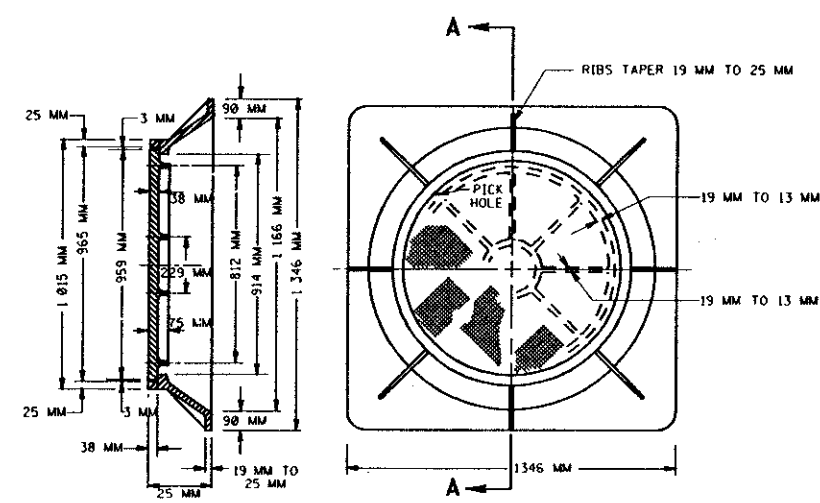
CD-603-1.4



**COPOLYMER POLYPROPYLENE PLASTIC LADDER RUNG**

COPOLYMER POLYPROPYLENE PLASTIC  
13 MM GRADE 400 STEEL REINFORCEMENT  
SECTION A-A

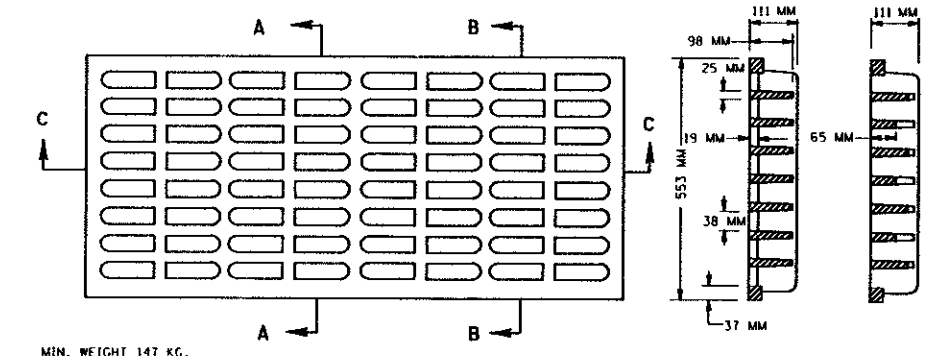
CD-603-1.5



NOTE: MINIMUM WEIGHTS  
WEIGHT OF FRAME 285 KG  
WEIGHT OF COVER 180 KG

**NEW MANHOLE CASTINGS, SQUARE FRAME, CIRCULAR COVER**

CD-603-1.7



**SECTION C-C**

**BICYCLE SAFE GRATES (CAST IRON)**

CD-603-1.8

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

**GENERAL NOTES:**

- INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. WALLS SHALL BE 200 MM THICK IF BRICK AND 150 MM THICK IF CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. INLET FOUNDATIONS AND INVERTS SHALL BE CLASS C CONCRETE.
  - CORRELLING OF INLET WALLS WILL BE PERMITTED AT THE RATE OF 13 MM PER 200 MM OF HEIGHT; MAXIMUM CORREL 150 MM PER WALL.
  - EXCEPT FOR INLETS TYPE A AND C, FOUNDATIONS AND INVERTS SHALL BE CONSTRUCTED IN TWO STAGES, AND THE BOTTOM OF THE FOOTINGS SHALL BE 200 MM BELOW THE OUTER WALL OF THE LOWEST PIPE IN THE INLET.
  - WHEN THE DEPTH OF AN INLET THAT IS NOT PRECAST EXCEEDS 3.0 METERS AS MEASURED FROM TOP OF GRATE TO INVERT, WALLS BELOW A DEPTH OF 2.4 METERS SHALL BE 300 MM THICK AND THE DEPTH OF FOUNDATION INCREASED TO 300 MM. WHEN ROCK IS ENCOUNTERED THE DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED.
  - INLET FOUNDATIONS WHICH ARE PRECAST SHALL BE PLACED ON A 150 MM THICK BED OF COMPACTED COARSE AGGREGATE SIZE NO. 57. THE COARSE AGGREGATE SHALL EXTEND 150 MM BEYOND THE HORIZONTAL LIMITS OF THE INLET FOUNDATION.
  - CASTINGS FOR PRECAST INLETS SHALL BE ADJUSTED TO GRADE WITH COURSES OF BRICK, AS REQUIRED, 300 MM MAXIMUM.
  - WHEN THE DEPTH OF A PRECAST INLET EXCEEDS 3.0 METERS AS MEASURED FROM TOP OF GRATE TO INVERT, THE FOUNDATION SHALL BE INCREASED TO 300 MM. WHEN ROCK IS ENCOUNTERED THE DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED.
  - MINIMUM WALL REINFORCEMENT FOR PRECAST INLETS TYPES A, B, C, E, D-1, D-2 AND B MODIFIED:
- | DEPTH BELOW TOP OF GRATE | HORIZONTAL REINF. | VERTICAL REINF.   | WALL THK. |
|--------------------------|-------------------|-------------------|-----------|
| 0 M TO 3.0 M             | *13 @ 250 MM C.C. | *13 @ 450 MM C.C. | 150 MM    |
| >3.0 M TO 4.5 M          | *13 @ 200 MM C.C. | *13 @ 450 MM C.C. | 150 MM    |
| >4.5 M TO 6 M            | *13 @ 150 MM C.C. | *13 @ 450 MM C.C. | 150 MM    |
- REINFORCING SHOWN FOR PRECAST INLETS IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING FOR HANDLING IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALTERNATE REINFORCEMENT
- | DEPTH BELOW TOP OF GRATE | REINFORCEMENT   |
|--------------------------|---|
| 0 M TO 3 M               | WWF 75 x 150 W6 WIRES SPACED AT 75 MM TO RUN HORIZONTAL IN ALL CASES. |
| >3 M TO 4.5 M            | WWF 75 x 150 W6 ADD 10M BAR @ 450 MM HORIZONTAL.                      |
| >4.5 M TO 6 M            | WWF 75 x 150 W6 ADD 10M BAR @ 225 MM HORIZONTAL.                      |

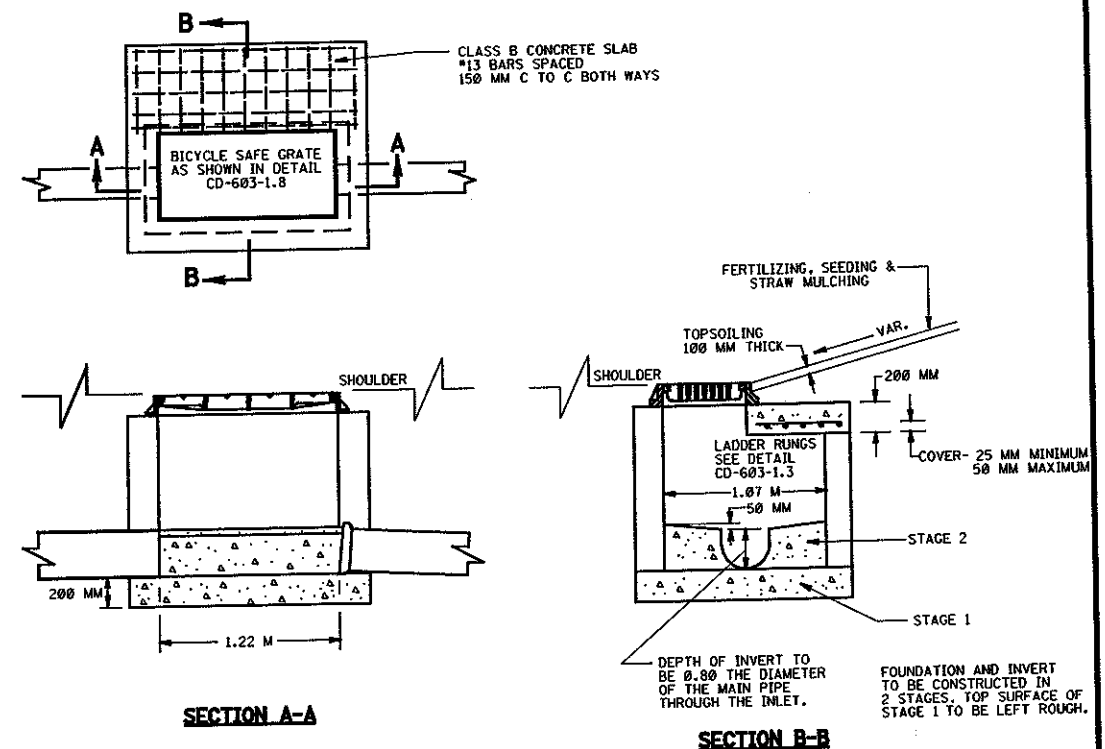
CD-603-1.6

**INLET GENERAL DETAILS**  
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

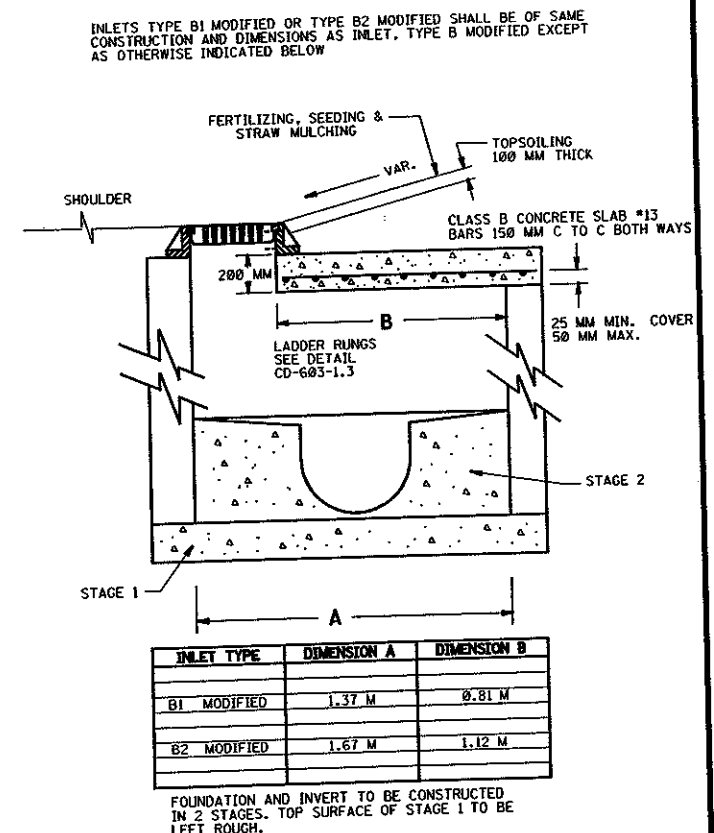
**CONSTRUCTION DETAILS**





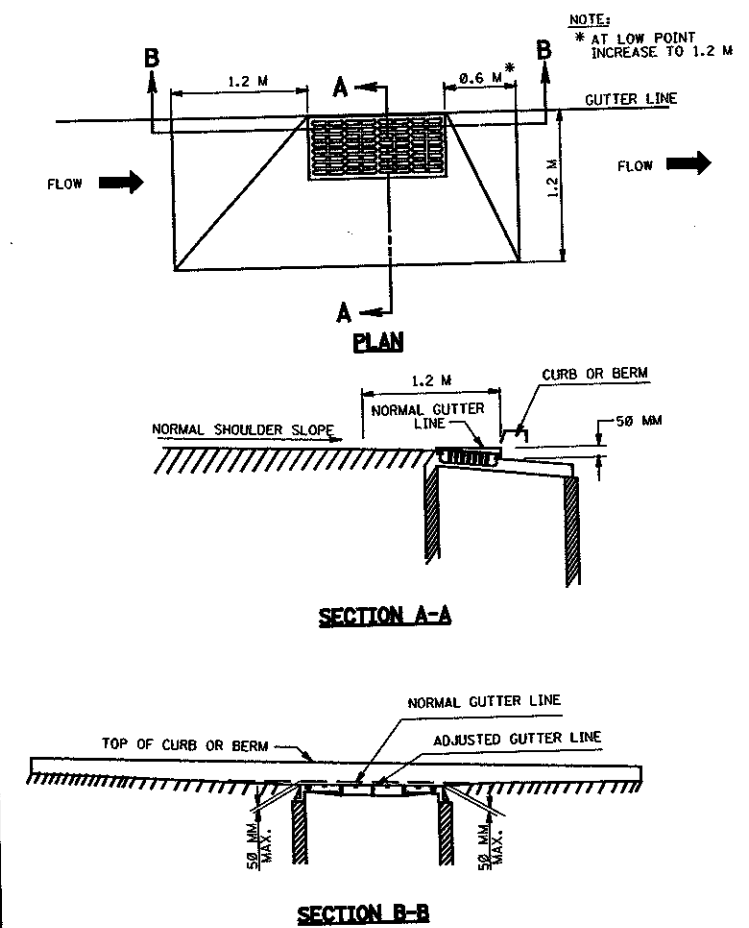
**INLETS, TYPE B MODIFIED**

CD-603-3.1



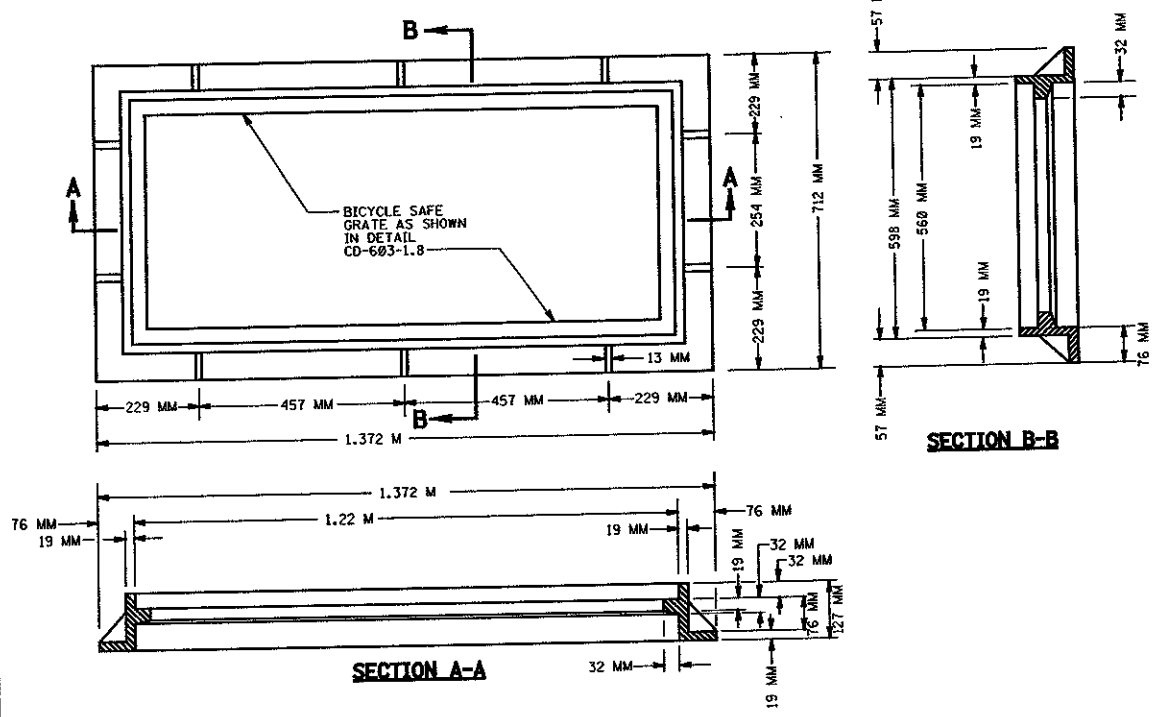
**INLETS, TYPE B1 MODIFIED AND TYPE B2 MODIFIED**

CD-603-3.2



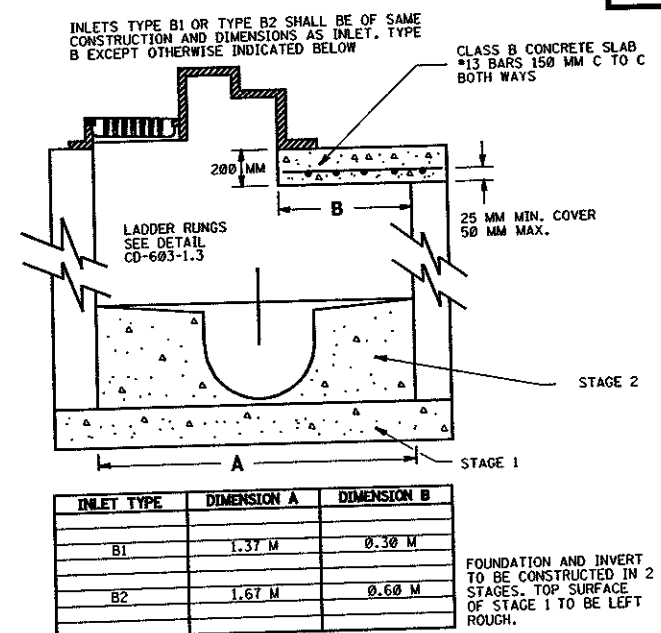
**METHOD OF DEPRESSING INLETS AT SHOULDERS**

CD-603-3.3



**FRAME TO BE USED FOR INLETS, TYPE B MODIFIED**

CD-603-3.4



**INLETS, TYPE B1 AND TYPE B2**

CD-603-3.5

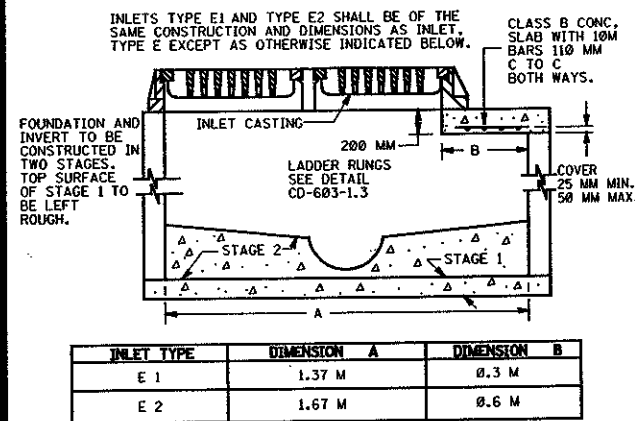
**INLETS, TYPE B1, B2, & B, B1, & B2 MODIFIED**  
N.T.S.

CD-603-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

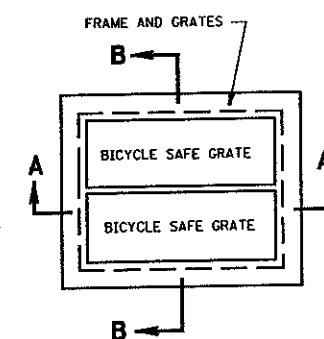
**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

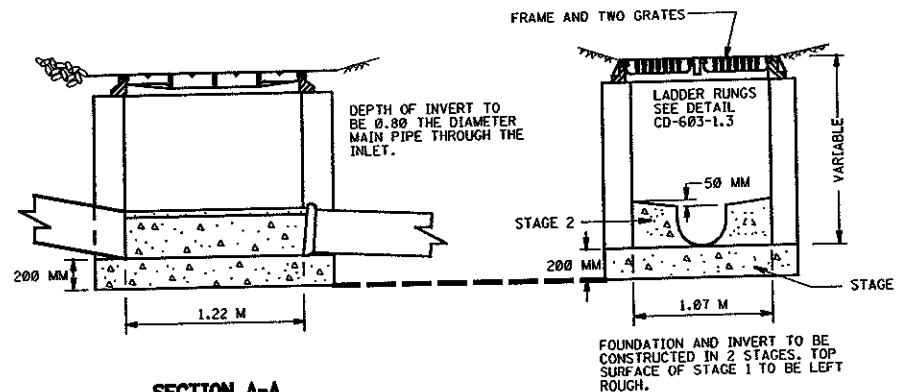


INLETS, TYPE E1 AND TYPE E2

CD-603-4.1



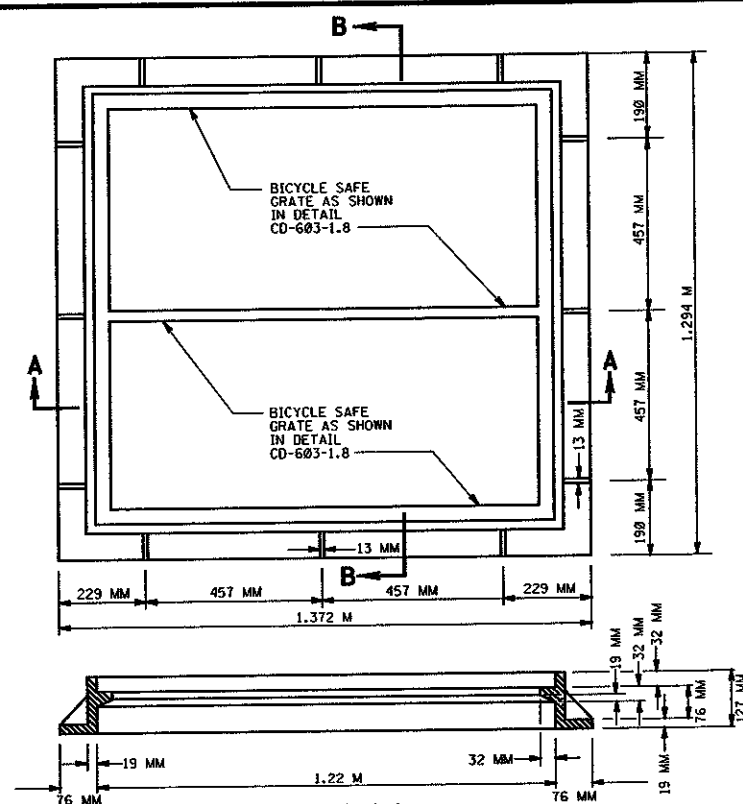
INLETS, TYPE E



SECTION A-A

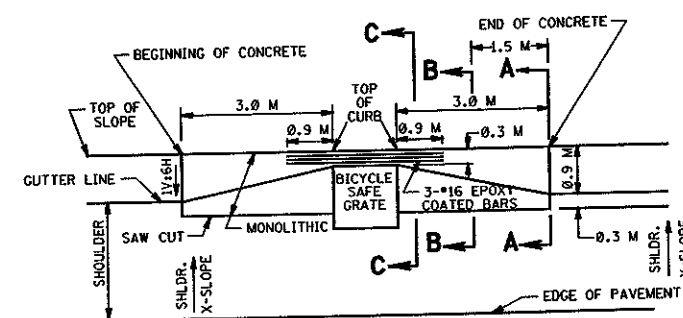
SECTION B-B

CD-603-4.2

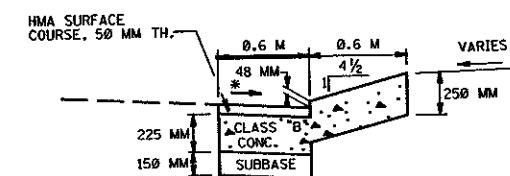


FRAME TO BE USED FOR INLETS, TYPE E

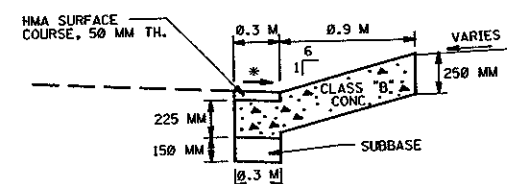
CD-603-4.3



SECTION A-A

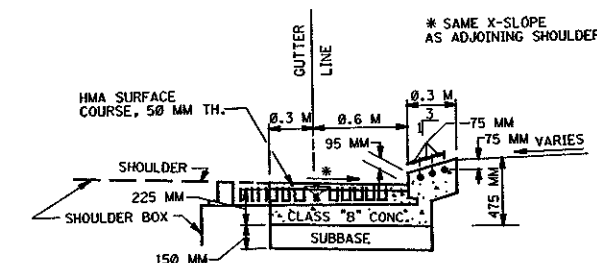


SECTION B-B

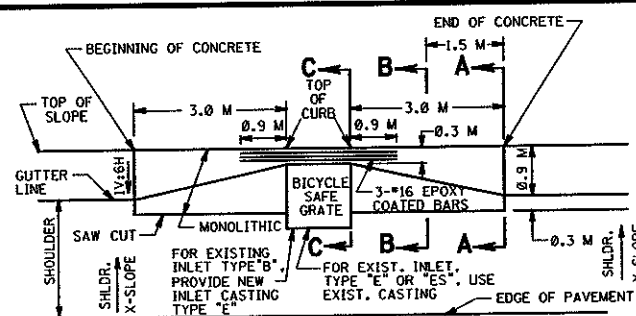


INLETS, TYPE ES

CD-603-4.4

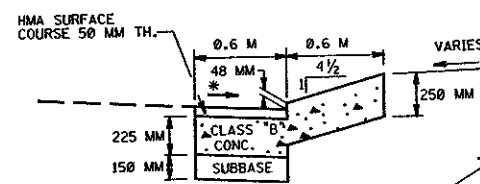


SECTION C-C

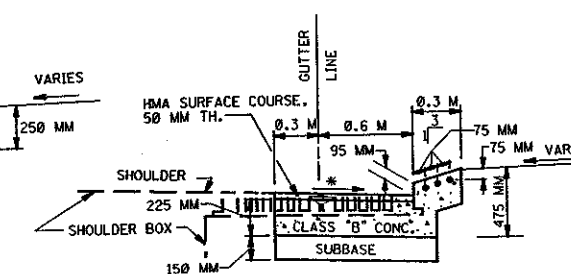


SECTION A-A

INLET CASTINGS, TYPE ES



SECTION B-B



SECTION C-C

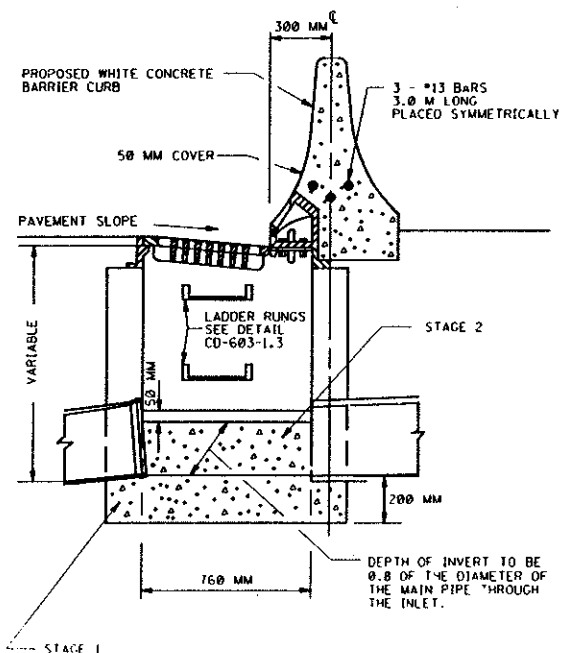
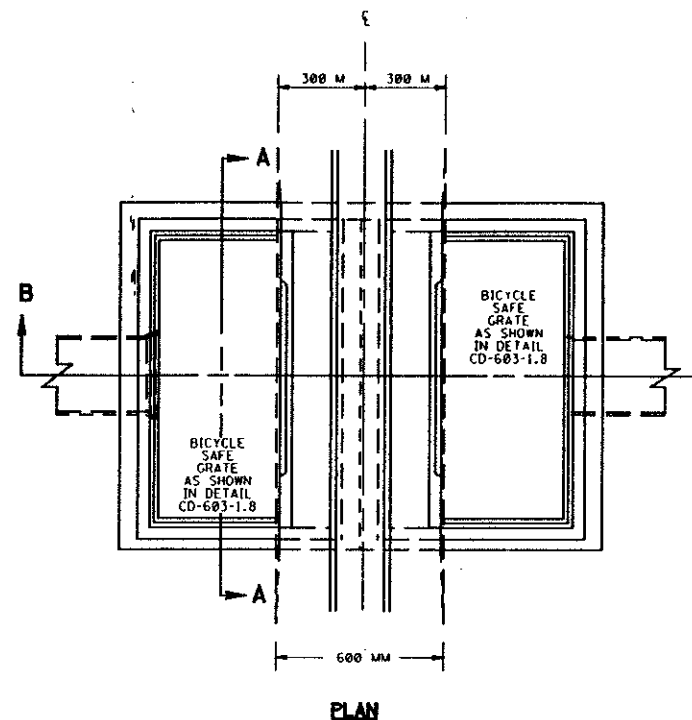
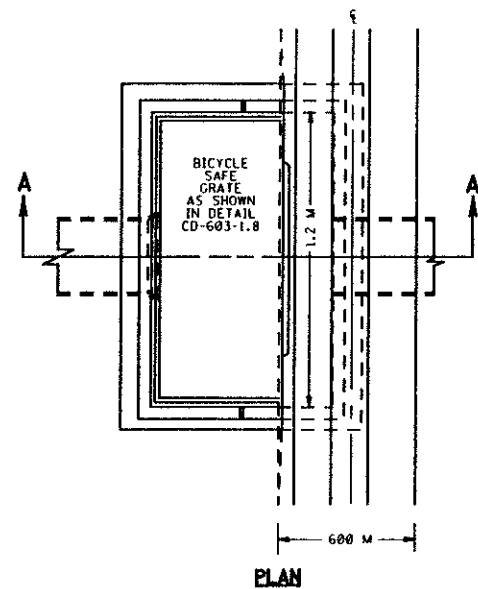
CD-603-4.5

HMA = HOT MIX ASPHALT  
INLETS, TYPE E, E1, E2, & ES  
N.T.S.

CD-603-4

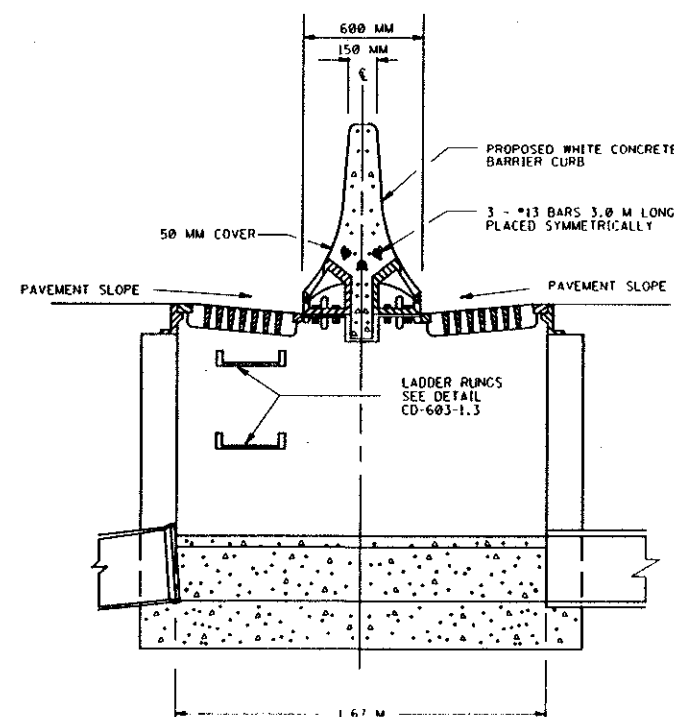
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

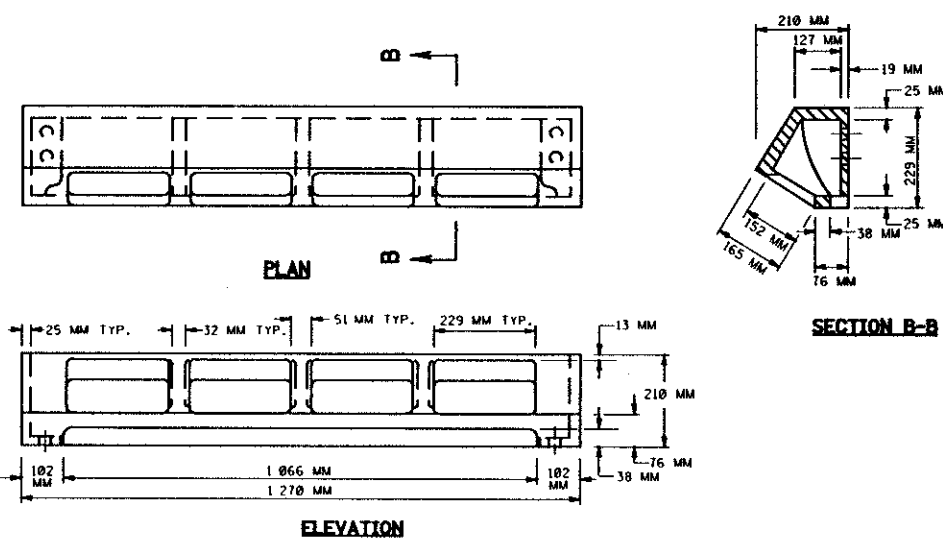


SECTION A-A  
INLETS TYPE D-1

NOTE:  
FOUNDATION AND INVERT TO  
BE CONSTRUCTED IN 2 STAGES  
THE TOP SURFACE OF STAGE 1  
TO BE LEFT ROUGH.

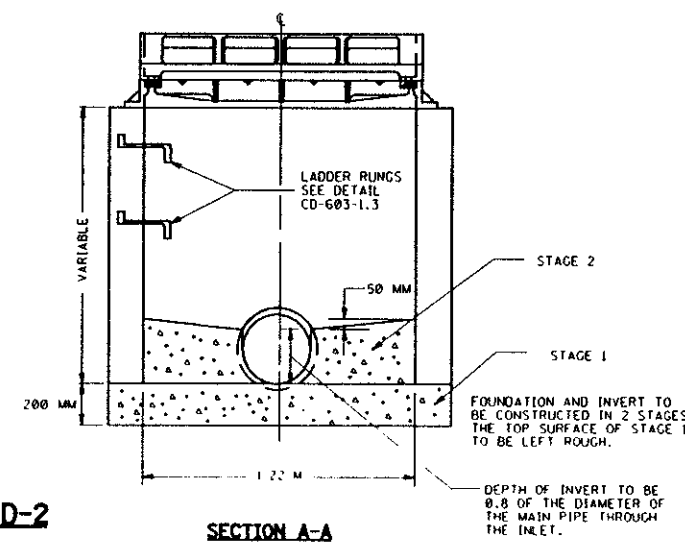


INLETS TYPE D-2



**CAST IRON CURB PIECE FOR INLETS, TYPE D1 AND D2**

CD-603-5.3



CD 603.5.2

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.

**INLETS. TYPE D1 & D2**

**N.T.S.**

CD-643-5

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS



pen table = 1:1 Roadway Blot @ 1/2 scale IN

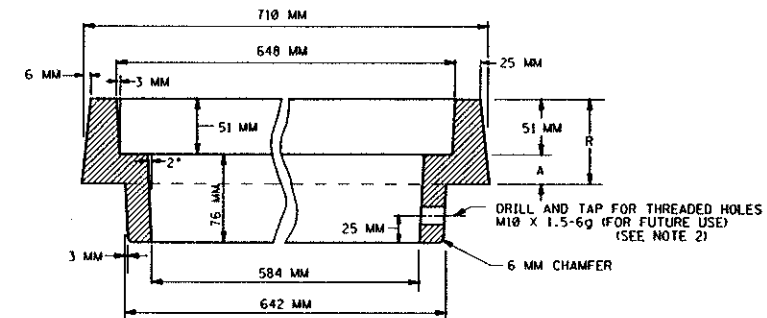
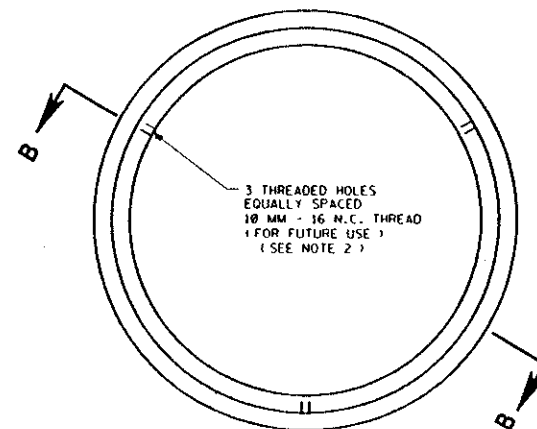
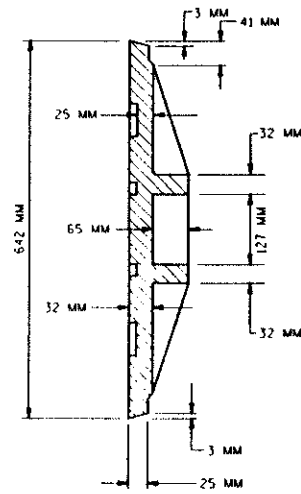
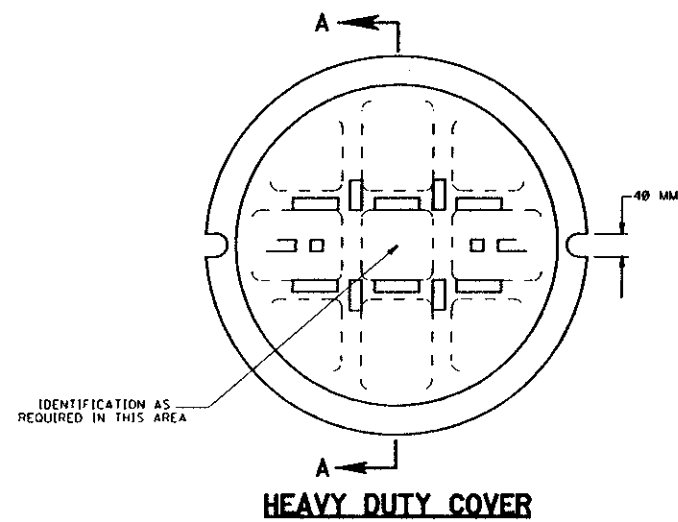
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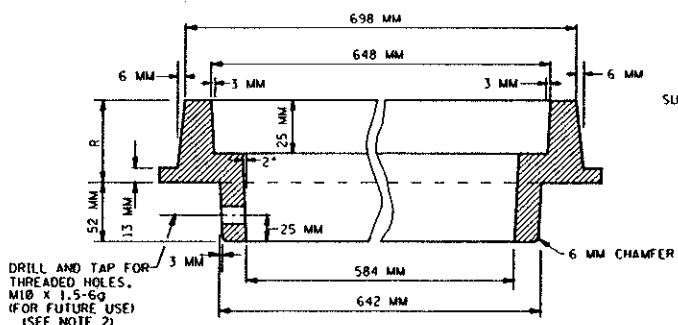
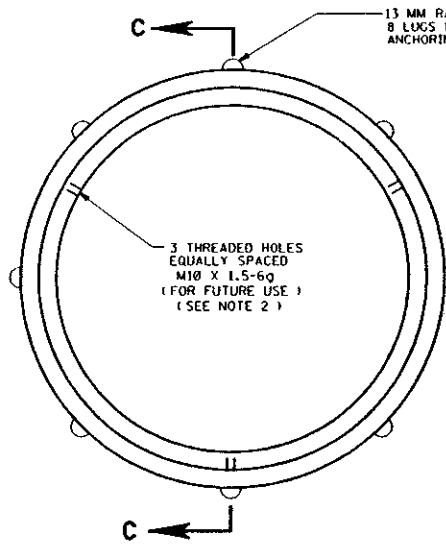
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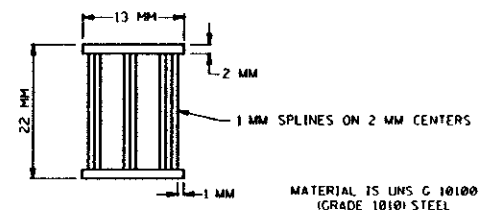


RISE, A	A
64 MM	13 MM
76 MM	25 MM
89 MM	38 MM



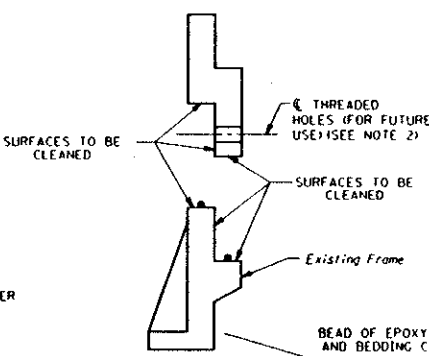
RISE = R
38 MM
44 MM
51 MM

**EXTENSION RING FOR HEAVY DUTY COVER**  
(SEE NOTE 3)

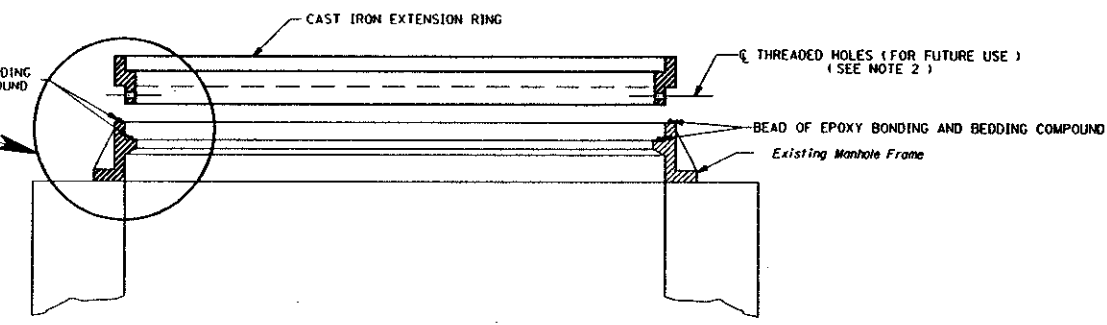


**THREADED INSERT FOR EXTENSION RINGS AND FRAMES**  
**ALTERNATE**

**EXTENSION RING FOR STANDARD COVER**



**INSERT (TYPICAL)**



**METHOD OF ATTACHING EXTENSION RINGS**

**CAST IRON EXTENSION RINGS FOR EXISTING MANHOLES**

N.T.S.

- NOTE 1:
1. THE CONTRACTOR SHALL MEASURE THE EXISTING MANHOLE FRAMES AND COVERS TO DETERMINE PROPER DIMENSIONS OF PROPOSED EXTENSION RINGS BEFORE PLACING ORDER.
  2. A THREADED INSERT MAY BE USED AS AN ALTERNATE TO DRILLING AND TAPPING.
  3. A RISE OF 38 MM TO 51 MM INCLUSIVE A HEAVY DUTY COVER SHALL BE USED.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

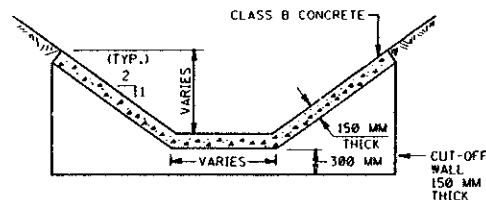
CD-603-7.1

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.









**CONCRETE SLOPE GUTTERS. 150 MM THICK**

**NOTES:**

CONCRETE CUT-OFF WALLS SHALL BE CONSTRUCTED AT THE BEGINNING & END OF EACH RUN OF GUTTER, EXCEPT WHERE THE GUTTER CONNECTS WITH A HEADWALL OR EXISTING GUTTER. THE COST OF CUT-OFF WALLS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE SLOPE GUTTER, 150 MM THICK.

EXPANSION JOINTS SHALL BE 13 MM THICK AND SHALL BE SPACED AT INTERVALS OF 6 METERS. THE JOINTS SHALL BE FILLED WITH PREFORMED EXPANSION JOINT FILLER.

CD-604-1.1

**CONCRETE SLOPE GUTTERS**

N.T.S.

CD-604-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

# **GENERAL NOTES APPLYING TO ALL TYPES OF DOWELLED CURBS**

TRANSVERSE JOINTS SHALL BE INSTALLED IN THE CURBS AT AND DIRECTLY OVER TRANSVERSE JOINTS IN THE PAVEMENT. DEFINITE CRACKS THRU THE PAVEMENT SHALL ALSO BE TREATED AS JOINTS. ADDITIONAL JOINTS SHALL ALSO BE CONSTRUCTED IN THE CURB SO SPACED AS TO MAKE EQUAL SECTIONS NOT OVER 4.5 METERS IN LENGTH.

THE TRANSVERSE JOINTS SHALL BE CONSTRUCTED AS SPECIFIED FOR THE CURB, EXCEPT THAT THE THICKNESS OF THE JOINT FILLER IN THE CURB SHALL BE AS FOLLOWS:

- 13MM FOR INTERMEDIATE JOINTS AND JOINTS OVER DEFINITE CRACKS.
- 13MM OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS 15 METERS OR LESS.
- 25MM OVER PAVEMENT JOINTS WHERE SLAB LENGTH IS MORE THAN 15 METERS. VARIABLE IN MULTIPLES OF 13MM BUT NOT LESS THAN THE EXISTING WIDTH OF THE TRANSVERSE JOINTS IN BRIDGES AND THE JOINTS BETWEEN THE APPROACH SLABS AND BRIDGES.

FOR THICKNESS OF 25MM OR MORE, LAYERS OF 13MM MATERIAL MAY BE GLUED OR OTHERWISE FASTENED TOGETHER BY A MEANS SATISFACTORY TO THE ENGINEER. WHERE THE REQUIRED JOINT OPENING EXCEEDS 25MM, THE CONTRACTOR MAY CONSTRUCT OPEN JOINTS, IF DESIRED.

WHERE THE CURB IS TO BE CONSTRUCTED ON EXISTING CONCRETE PAVEMENT SURFACE OR CONCRETE BASE COURSE, THE SURFACE OF THE CONCRETE PAVEMENT OR CONCRETE BASE SHALL BE CLEANED IN ACCORDANCE WITH STANDARD SPECIFICATIONS PRIOR TO CONSTRUCTION OF THE CURB THEREON.

WHERE DOWELLED CURB IS TO BE CONSTRUCTED ACROSS A LONGITUDINAL JOINT IN EXISTING PAVEMENT, THE DOWELS IN THE SHORTER PORTION OF THE CURB PANEL SHALL BE OMITTED AND THE CURB IN THIS PORTION OF THE PANEL SHALL BE CONSTRUCTED WITH 45° SMOOTH ROLL ROOFING BETWEEN IT AND THE EXISTING PAVEMENT.

CD-605-1.1

## **NOTES:**

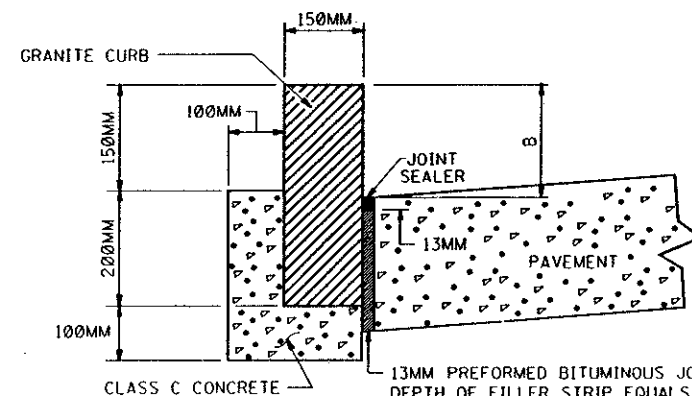
13MM PREFORMED EXPANSION JOINT FILLER, BITUMINOUS TYPE, TO BE INSTALLED BETWEEN THE CURB AND CONCRETE PAVEMENT OR CONCRETE BASE COURSE.

TRANSVERSE JOINTS 13MM WIDE SHALL BE INSTALLED IN THE CURB 6 METERS APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED 5MM IN FROM FRONT FACE AND TOP OF CURB.

EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CURB.

## **300MM x 325MM CONCRETE / WHITE CONCRETE SLOPING CURB**

CD-605-1.5



## **NOTE:**

FOUNDATION TO BE INSTALLED THE ENTIRE LENGTH OF THE GRANITE CURB.

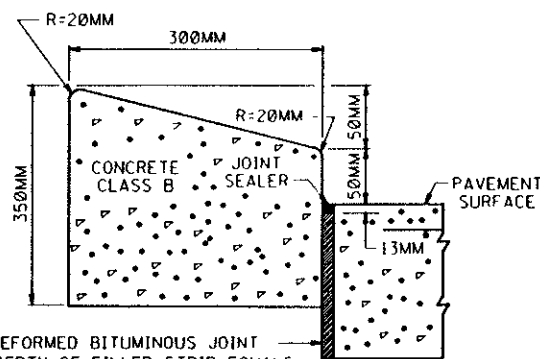
## **NEW OR RESET GRANITE CURB**

CD-605-1.8

CURB SIZE	DIM. A	DIM. B
225MM BY 100MM	50MM	100MM
225MM BY 150MM	100MM	150MM

## **225MM x 100MM CONCRETE / WHITE CONCRETE VERTICAL CURB, DOWELLED**

CD-605-1.2



13MM PREFORMED BITUMINOUS JOINT FILLER DEPTH OF FILLER STRIP EQUALS PAVEMENT THICKNESS LESS 13MM. TO BE INSTALLED BETWEEN CURB AND CONCRETE PAVEMENT OR CONCRETE BASE COURSE.

CD NO.	ATTACH. TYPE	WIDTH
612-13	B	283MM
612-15	A	178MM
612-15	B	283MM
612-16	A	178MM
612-16	B	283MM

AT END OF CURB, TRANSITION TO Ø OVER 1000MM (TOTAL LENGTH OF CURB 4267MM)

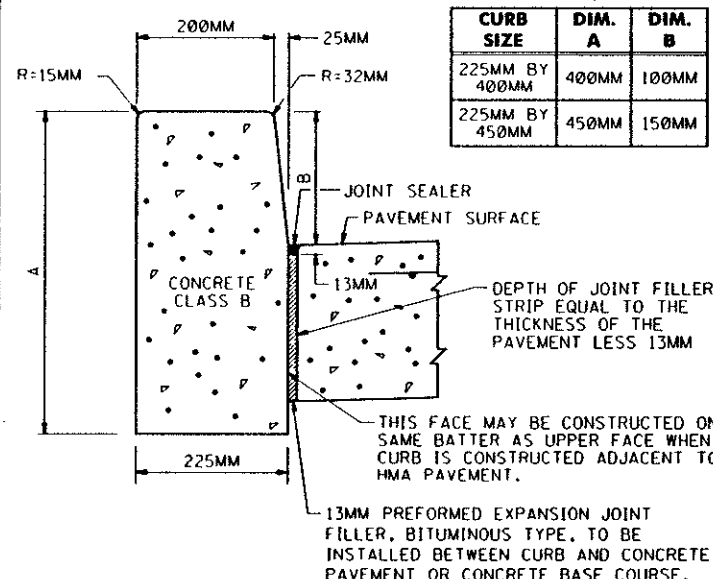
## **NOTE:**

PAYMENT FOR LIP CURB WILL BE MADE UNDER 225MM x 100MM CONCRETE / WHITE CONCRETE VERTICAL CURB.

\*19 STEEL REINFORCING BARS, 150MM LONG. DOWELS TO BE SET IN GROUT IN DRILLED HOLES, SPACED 1.2M C. TO C. LONGITUDINALLY.

## **300MM x 75MM CONCRETE / WHITE CONCRETE SLOPING CURB, DOWELLED**

CD-605-1.3

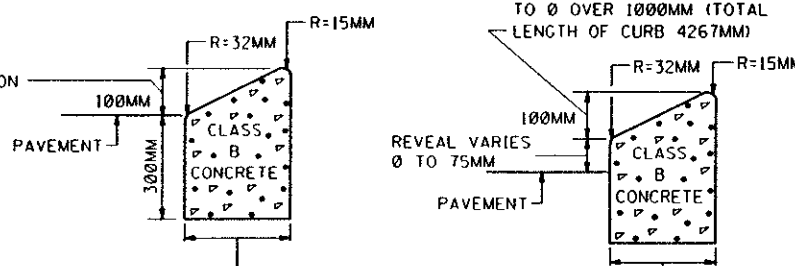


## **NOTES:**

TRANSVERSE JOINTS 13MM WIDE SHALL BE INSTALLED IN THE CURB 6 METERS APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED 5MM IN FROM FRONT FACE AND TOP OF CURB. EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CURB.

## **CONCRETE / WHITE CONCRETE VERTICAL CURB**

CD-605-1.6



WIDTH VARIES (SEE ATTACHMENT TABLE)

## **LIP CURB**

AT END OF CURB, TRANSITION TO Ø OVER 1000MM (TOTAL LENGTH OF CURB 4267MM)

WIDTH IS 268MM FOR CD 612-13, TYPE (A) ATTACHMENT ONLY

CD-605-1.9

## **CONCRETE AND GRANITE CURB**

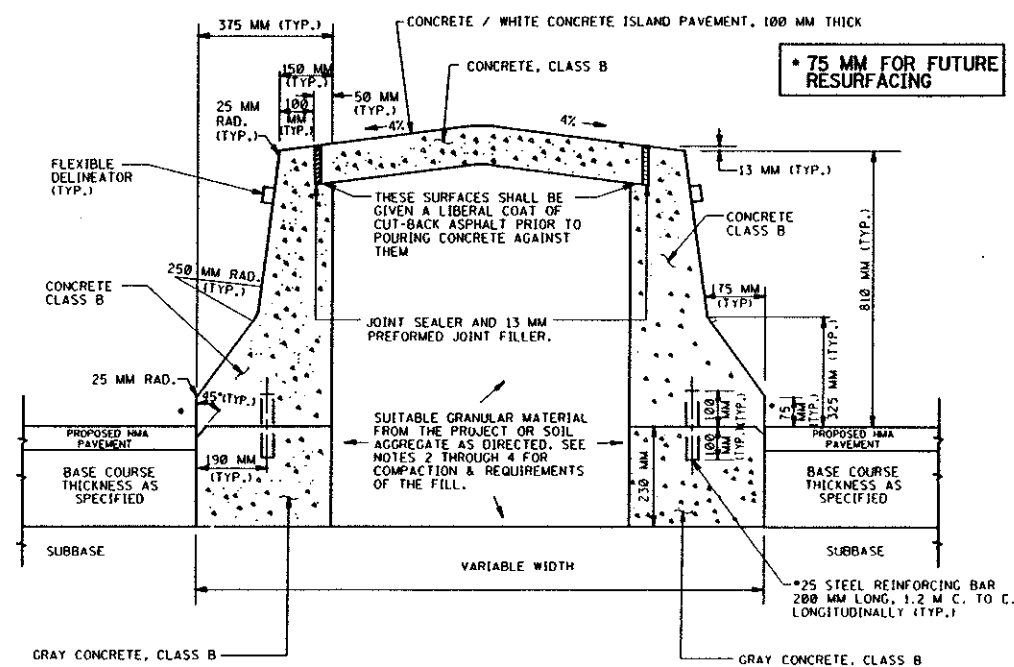
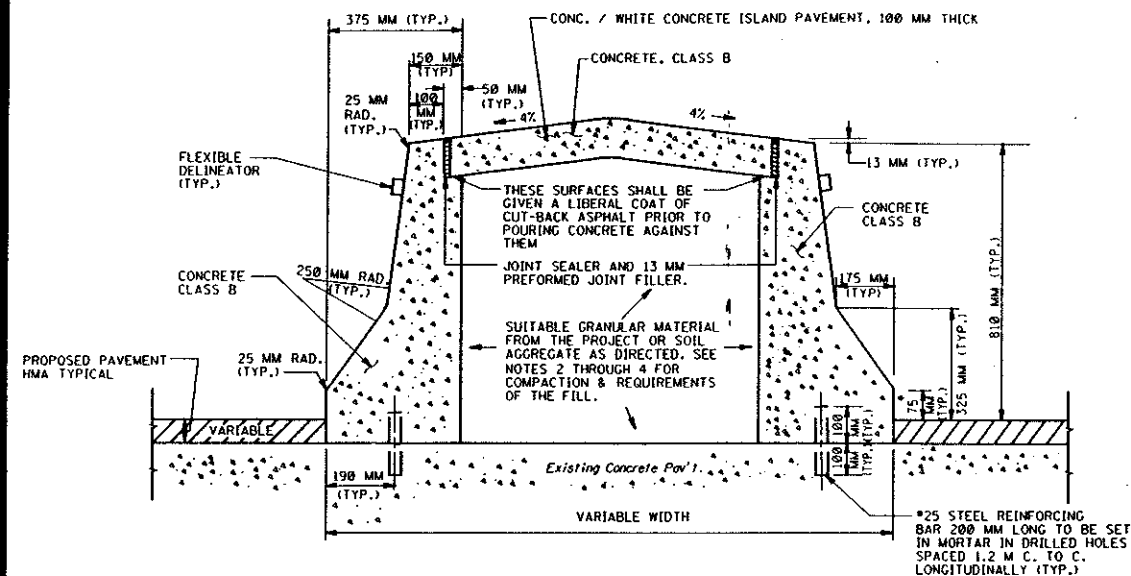
N.T.S.

HMA = HOT MIX ASPHALT

CD-605-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

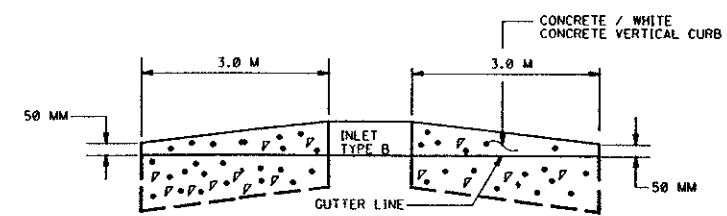
## **CONSTRUCTION DETAILS**



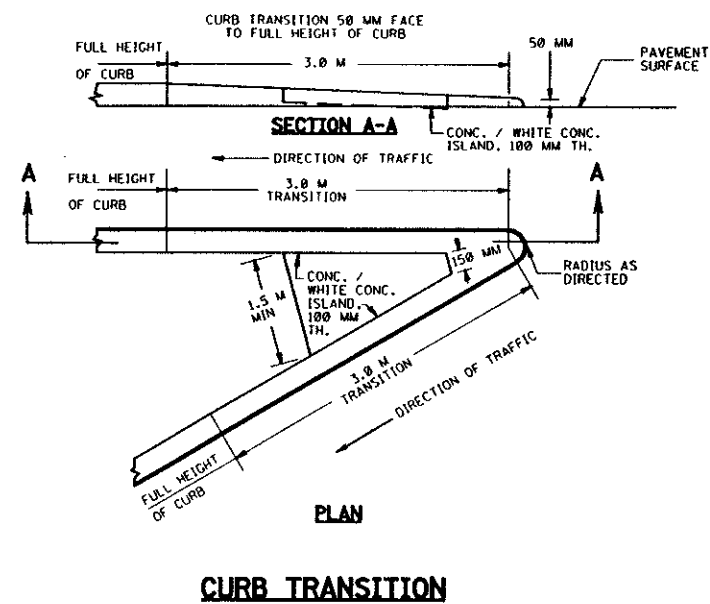
- NOTES:

1. SEE GENERAL NOTES APPLYING TO ALL BARRIER CURB CO-605-3.2.
2. COMPACTION SHALL BE IN ACCORDANCE WITH THE DENSITY CONTROL METHOD OF THE NJDOT STANDARD SPECIFICATIONS AND ITS SUPPLEMENTS.
3. THE FILL BETWEEN THE CURBS SHALL BE SHAPED AND COMPACTED TO A FIRM EVEN SURFACE. UNSTABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIAL WHICH SHALL BE COMPACTED.
4. SOIL LIFTS SHALL BE LIMITED TO 300 MILLIMETERS AND EACH LIFT SHALL BE COMPACTED.
5. THE ITEM FLEXIBLE DELINEATORS, BARRIER CURB MOUNTED SHALL BE INSTALLED ON ALL BARRIER CURB IN ACCORDANCE WITH SECTION 620 OF THE N.J.D.O.T. SPECIFICATIONS.

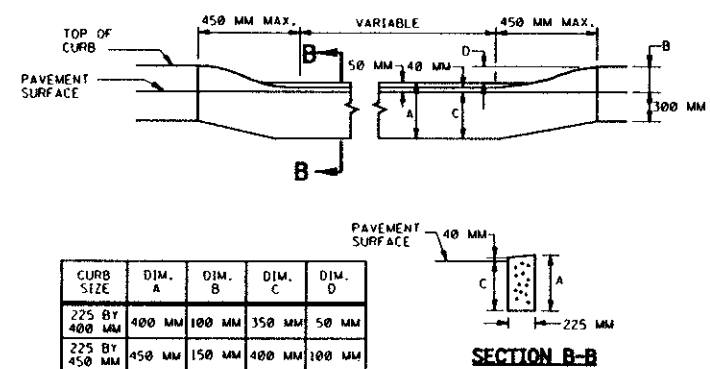
CD-605-2.1



CD-605-2.2



CD-605-2.3



CD-605-2,4

## BARRIER CURB AND VERTICAL CURB DETAILS

HMA = HOT MIX ASPHALT

CD-885-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

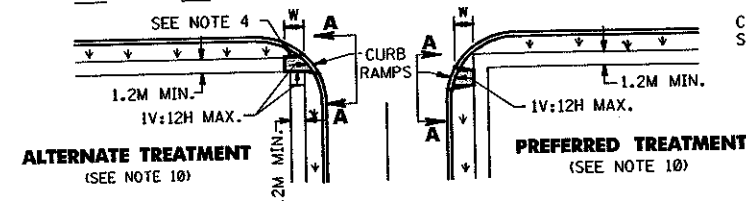
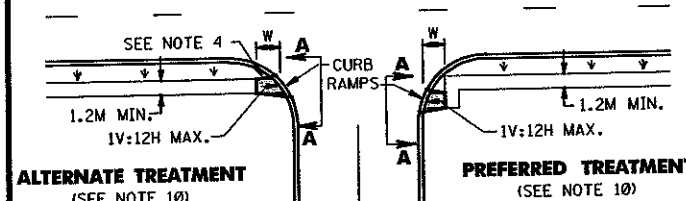
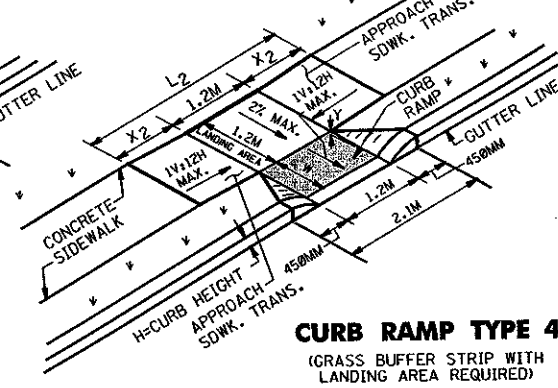
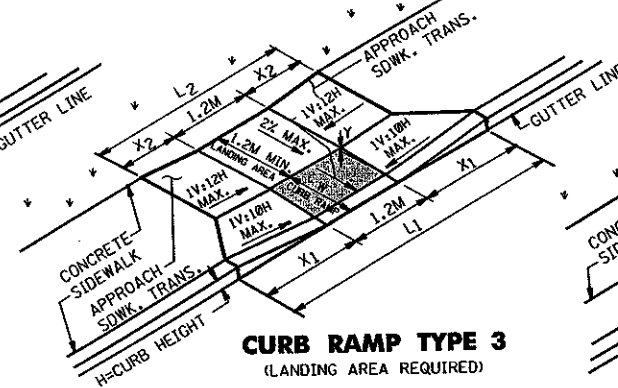
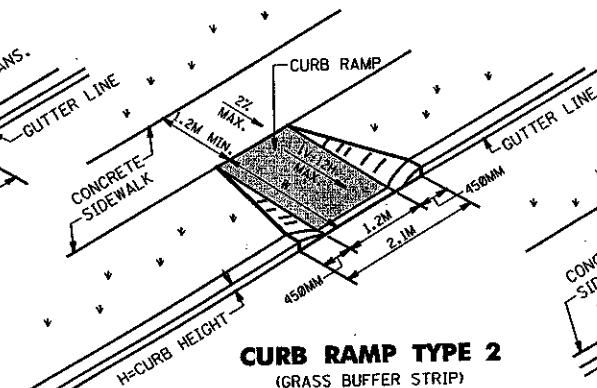
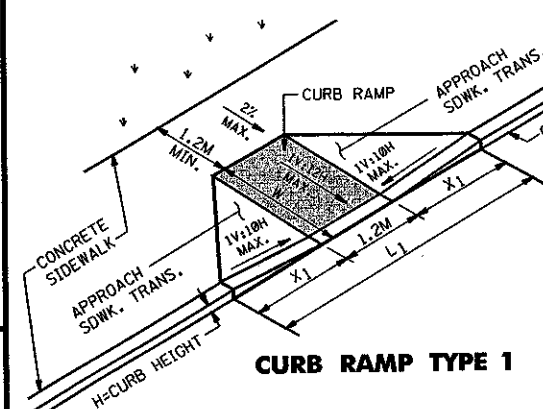
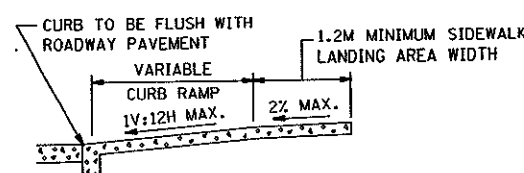
## CONSTRUCTION DETAILS

**NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.**

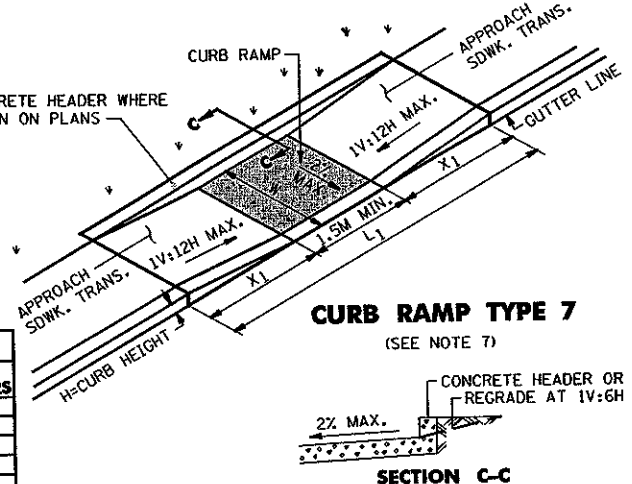




**NOTE:**  
CURB RAMP OPENING TO BE FLUSH  
WITH ROADWAY PAVEMENT (CURB  
RAMP TYPES 5 & 6).

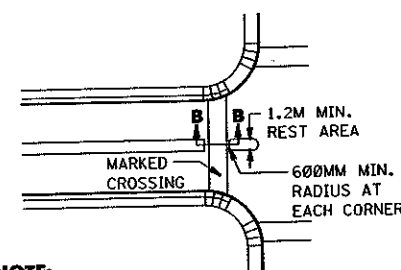


W METERS	H MM	X <sub>1</sub> METERS	L <sub>1</sub> METER
1.20 MIN.	75	0.90	3.30
1.80 MAX.	100	1.20	3.90
	125	1.50	4.50
	150	1.80	5.10
	175	2.10	5.70
	200	2.40	6.30
	225	2.70	6.90



H MM	X <sub>1</sub> METERS	L <sub>1</sub> METERS	W METERS
75	0.75	2.70	0.90
100	1.00	3.20	1.20
125	1.25	3.75	1.50
150	1.50	4.20	1.80
175	1.75	4.70	2.10
200	2.00	5.25	2.40
225	2.25	5.70	2.70

CURB RAMP TYPE 2.5 OR 6	
H MM	W METERS
75	0.90
100	1.20
125	1.50
150	1.80
175	2.10
200	2.40
225	2.70



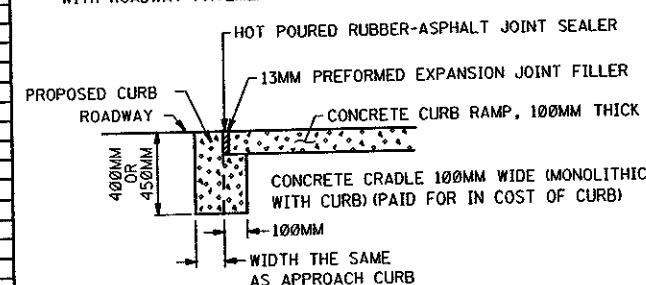
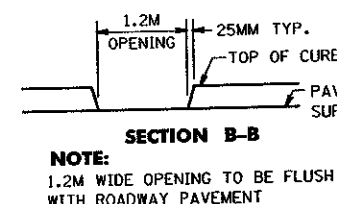
**NOTE:**  
WHERE PRACTICAL, END LEFT TURN ISLAND  
OR DIVISIONAL ISLAND BEFORE CROSSWALK  
TO ELIMINATE CUT-THROUGH

CURB RAMP TYPE 3						
W METERS	H MM	X <sub>1</sub> METERS	L <sub>1</sub> METERS	Y MM	X <sub>2</sub> METERS	L <sub>2</sub> METERS
0.75	75	0.75	2.70	62.5	0.15	1.50
	100	1.00	3.20	62.5	0.45	2.10
	125	1.25	3.75	62.5	0.75	2.70
	150	1.50	4.20	62.5	1.05	3.30
	175	1.75	4.70	62.5	1.35	3.90
	200	2.00	5.25	62.5	1.65	4.50
	225	2.25	5.70	62.5	1.95	5.10
0.90	75	*	*	75	*	*
	100	1.00	3.20	75	0.30	1.80
	125	1.25	3.75	75	0.60	2.40
	150	1.50	4.20	75	0.90	3.00
	175	1.75	4.70	75	1.20	3.60
	200	2.00	5.25	75	1.50	4.20
	225	2.25	5.70	75	1.80	4.80
1.05	75	*	*	90	*	*
	100	1.00	3.20	90	0.15	1.50
	125	1.25	3.75	90	0.45	2.10
	150	1.50	4.20	90	0.75	2.70
	175	1.75	4.70	90	1.05	3.30
	200	2.00	5.25	90	1.35	3.90
	225	2.25	5.70	90	1.65	4.50
1.20	75	*	*	*	*	*
	100	*	*	*	*	*
	125	1.25	3.75	100	0.30	1.80
	150	1.50	4.20	100	0.60	2.40
	175	1.75	4.70	100	0.90	3.00
	200	2.00	5.25	100	1.20	3.60
	225	2.25	5.70	100	1.50	4.20

CURB RAMP TYPE 4				
W METERS	H MM	Y MM	X <sub>2</sub> METERS	L <sub>2</sub> METERS
0.75	75	62.5	0.15	1.50
	100	62.5	0.45	2.10
	125	62.5	0.75	2.70
	150	62.5	1.05	3.30
	175	62.5	1.35	3.90
	200	62.5	1.65	4.50
0.90	225	62.5	1.95	5.10
	75	..	..	..
	100	75	0.30	1.80
	125	75	0.60	2.40
	150	75	0.90	3.00
	175	75	1.20	3.60
1.05	200	75	1.50	4.20
	225	75	1.80	4.80
	75	..	..	..
	100	90	0.15	1.50
	125	90	0.45	2.10
	150	90	0.75	2.70
1.20	175	90	1.05	3.30
	200	90	1.35	3.90
	225	90	1.65	4.50
	75	..	..	..
	100	..	..	..
	125	100	0.30	1.80
1.35	150	100	0.60	2.40
	175	100	0.90	3.00
	200	100	1.20	3.60
	225	100	1.50	4.20
	250	100	1.80	4.80
	275	100	2.10	5.40

\* **NOTE:**  
TYPE 3 RAMP IS NOT APPLICABLE, USE TYPE 1.

**\*\* NOTE:**  
TYPE 4 RAMP IS NOT APPLICABLE. USE TYPE 2.



## CURB RAMPS

- GENERAL NOTES:**

- GENERAL NOTES:**
1. LANDING AREA. APPROACH SIDEWALK TRANSITIONS, AND CURB RAMP SHALL BE KEPT CLEAR OF OBSTRUCTIONS.
  2. DIMENSIONS SHOWN IN TABLES ARE FOR RELATIVELY FLAT SIDEWALK AREAS. CARE SHOULD BE TAKEN WHEN DETERMINING CURB RAMP SIZE BASED ON CURB HEIGHT (H) WHERE ELEVATION OF CURB AND SIDEWALK VARY DRASTICALLY IN AREA OF PROPOSED CURB RAMP.
  3. CURB (DROPPED CURB) GUTTERLINE TO BE FLUSH WITH ROADWAY PAVEMENT A MINIMUM OF 1.2 METERS AT ALL CURB RAMPS, EXCEPT THAT CURB RAMP TYPE 6 SHALL BE A MINIMUM OF 1.5 METERS.
  4. FOR CURB RAMP TYPES 5 AND 6, IF A GRASS BUFFER DOES NOT EXIST, SLOPE CURB TO EQUAL SLOPE OF ADJACENT CURB RAMP.
  5. SIDEWALK AND CURB RAMP WITHIN AREA ENCLOSED BY HEAVY LINES TO BE PAID FOR AS CONCRETE SIDEWALK OF THE APPROPRIATE ADJACENT THICKNESS.
  6. CURB AND HEADER WITHIN AREA ENCLOSED BY HEAVY LINES TO BE PAID FOR AS VERTICAL CURB OR SLOPING CURB OF THE APPROPRIATE ADJACENT SIZE AND KIND.
  7. WHERE THE DISTANCE FROM THE GUTTER LINE TO THE OUTSIDE EDGE OF SIDEWALK IS 1.8 METERS OR LESS, CURB RAMP TYPE 7 SHOULD BE USED, INSTEAD OF CURB RAMP TYPE 1 THROUGH 4.
  8. THE PUBLIC SIDEWALK CURB RAMP DELINEATION (SHADED AREA) SHALL BE SAFETY RED IN COLOR.
  9. CROSSWALKS AND STOP LINES MAY BE MARKED OR UNMARKED, SEE PLANS.
  10. PREFERRED AND ALTERNATE TREATMENTS SHOULD NOT BE INTERMIXED WITHIN THE SAME INTERSECTION.
  11. DIMENSIONS SHOWN IN TABLES ARE FOR 75MM TO 225MM CURB HEIGHTS. WHERE THE CURB HEIGHTS ARE OTHER THAN WHAT IS PROVIDED IN THE TABLES, THE DIMENSIONS OF THE RAMPS WILL HAVE TO BE CALCULATED BASED ON CROSS SLOPES SHOWN.

## PUBLIC SIDEWALK AND CURB RAMPS

**N.T.S.**

HMA = HOT MIX ASPHALT

CD-607-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

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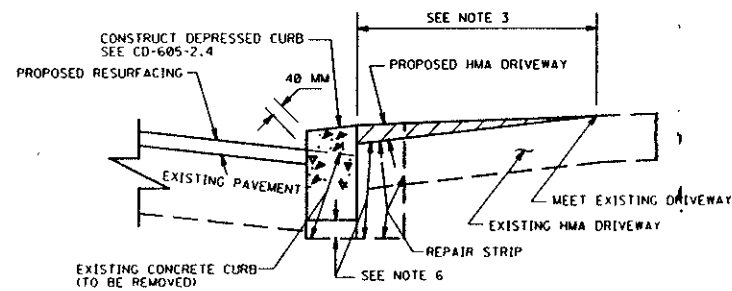
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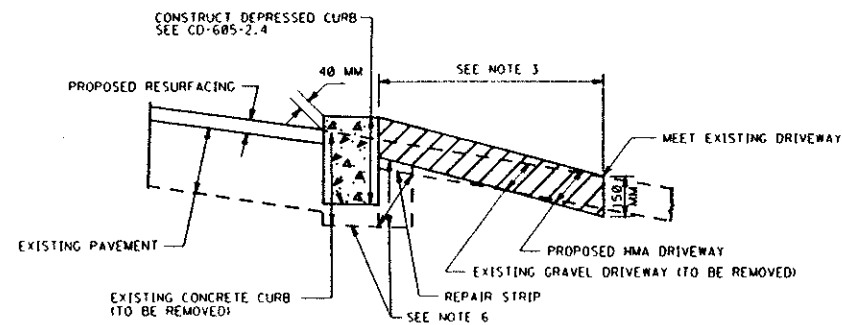
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TYPE A

RESURFACING OF EXISTING HMA DRIVEWAY  
(WITH DEPRESSED CURB)

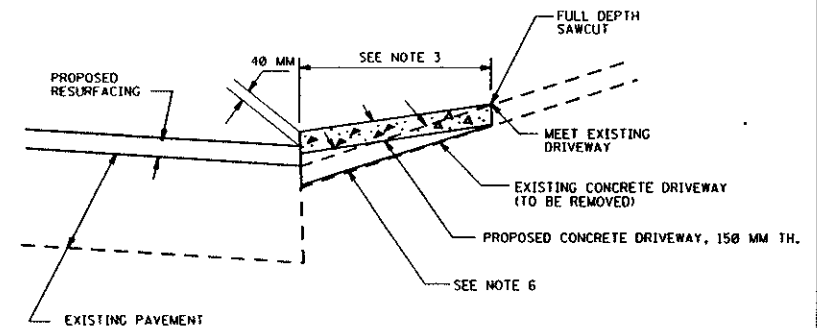
CD-607-2.1



TYPE C

CONSTRUCTION OF HMA DRIVEWAY  
OR CONVERSION OF EXISTING GRAVEL DRIVEWAY  
(WITH DEPRESSED CURB)

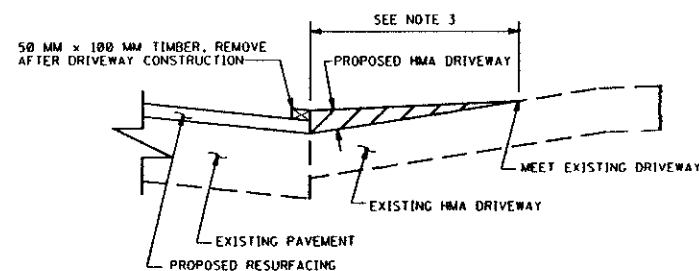
CD-607-2.4



TYPE F

RECONSTRUCTION OF CONCRETE DRIVEWAY  
(WITHOUT DEPRESSED CURB)

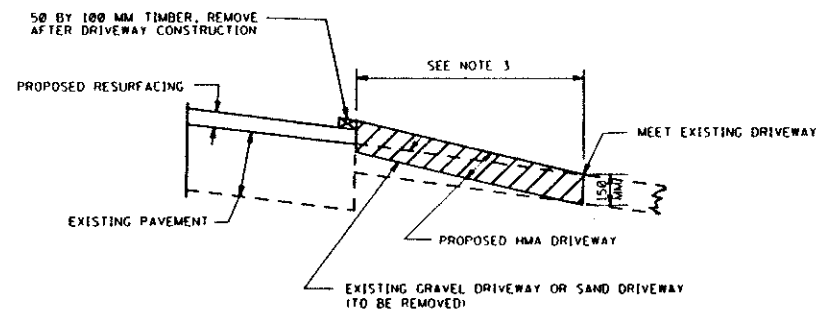
CD-607-2.7



TYPE B

RESURFACING OF EXISTING HMA DRIVEWAY  
(WITHOUT DEPRESSED CURB)

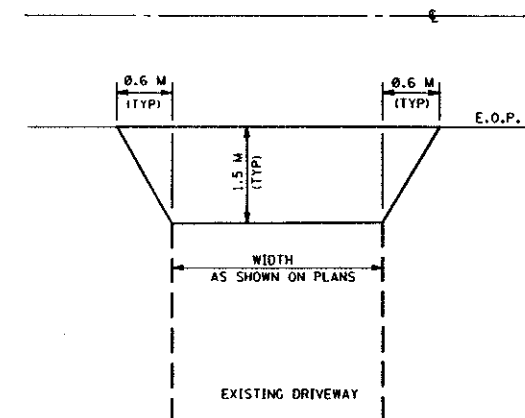
CD-607-2.2



TYPE D

CONSTRUCTION OF HMA DRIVEWAY  
OR CONVERSION OF EXISTING GRAVEL DRIVEWAY  
(WITHOUT DEPRESSED CURB)

CD-607-2.5



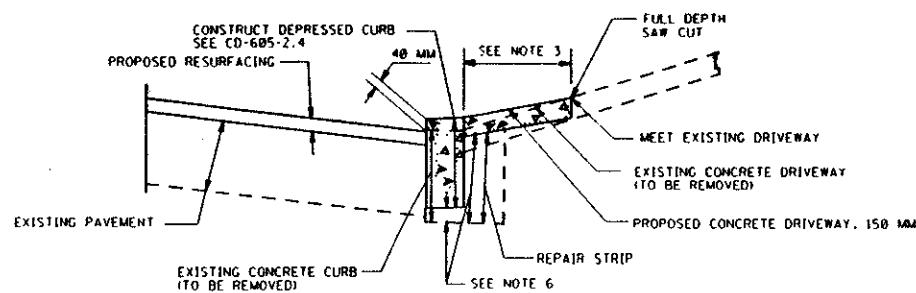
TYPICAL DRIVEWAY TREATMENT  
PLAN VIEW

CD-607-2.8

NOTES:

1. ALL MATERIAL, REPAIR STRIPS AND EXCAVATION FOR DRIVEWAY CONSTRUCTION TO BE INCLUDED IN THE BID PRICE FOR HMA DRIVEWAY, CONCRETE DRIVEWAY OR CONCRETE CURB.
2. HMA DRIVEWAY SURFACE COURSE, TOP LAYER AND BOTTOM LAYER SHALL BE MIX 1-5.
3. LENGTH OF DRIVEWAY WORK SHALL BE 1.5 M UNLESS OTHERWISE SHOWN ON PLANS OR AS DIRECTED.
4. MAINTAIN EXISTING DIRECTION OF FLOW ON DRIVEWAY.
5. DENSE GRADED AGGREGATE BASE COURSE SHALL BE USED TO PROVIDE TEMPORARY ACCESS DURING DRIVEWAY CONSTRUCTION.
6. GRANULAR MATERIAL FROM THE PROJECT OR SOIL AGGREGATE AS DIRECTED.
7. NO BASE COURSE IS REQUIRED FOR DRIVEWAY.

CD-607-2.3



TYPE E

RECONSTRUCTION OF CONCRETE DRIVEWAY  
(WITH DEPRESSED CURB)

CD-607-2.6

DRIVEWAYS  
N.T.S.

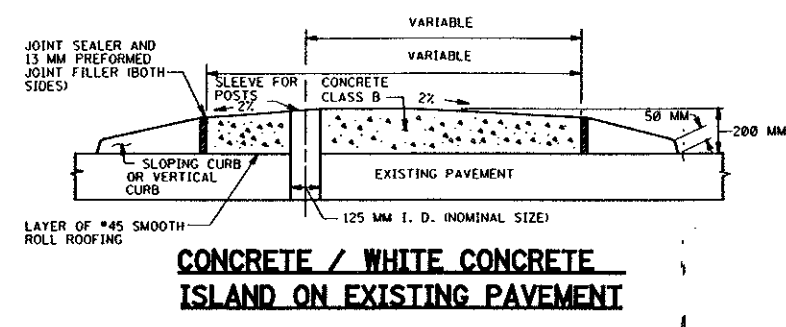
HMA = HOT MIX ASPHALT

NEW JERSEY DEPARTMENT OF TRANSPORTATION

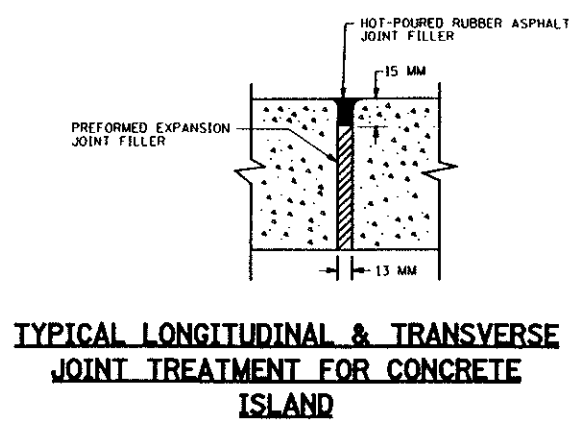
CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN  
ON THIS SHEET ARE IN  
MILLIMETERS UNLESS  
OTHERWISE NOTED.

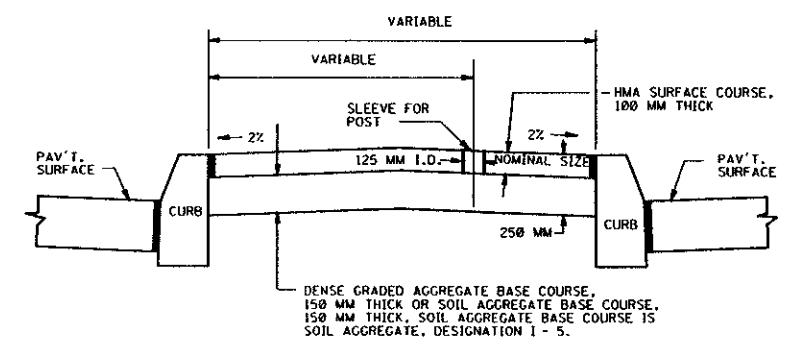
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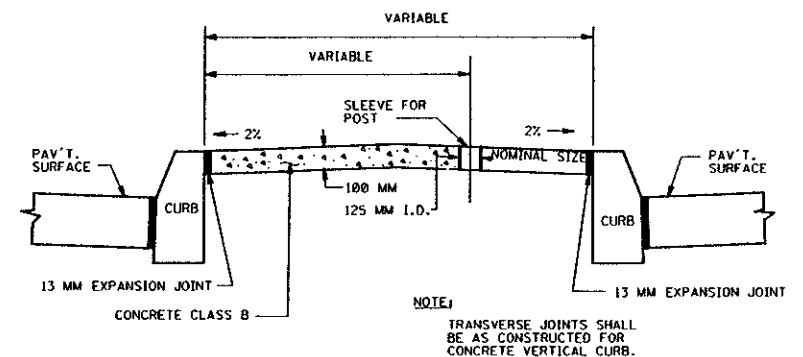
CD-608-1.1



CD-608-1.2



CD-608-1.3



CD-608-1.4

**CONCRETE AND BITUMINOUS CONCRETE ISLANDS**  
N.T.S.

HMA = HOT MIX ASPHALT

CD-608-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTES: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.





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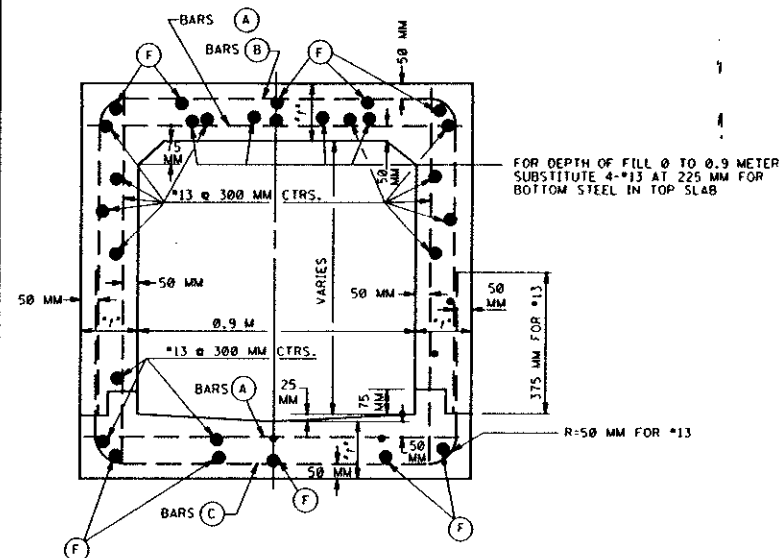
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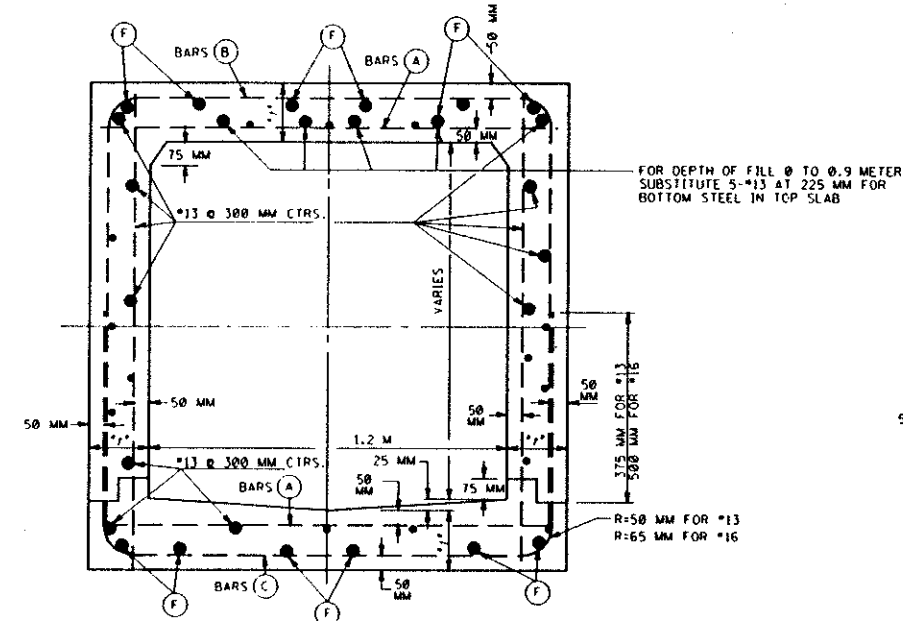
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### STANDARD 0.9 M CONCRETE CULVERT



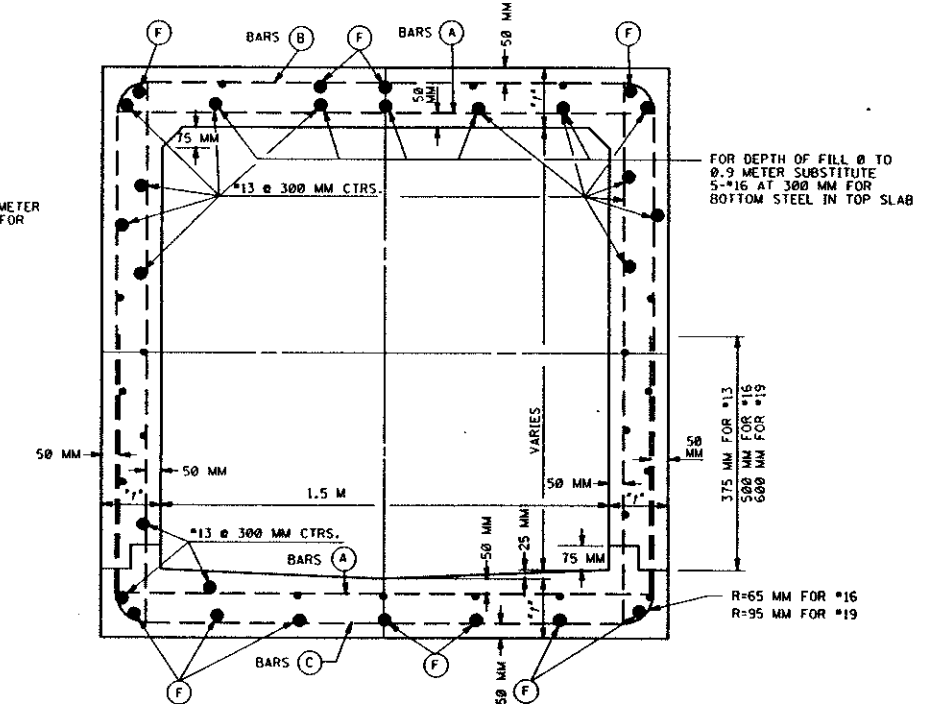
DEPTH OF FILL		BARS	SPAN 0.9 M		THICKNESS
			BARS	SPACING	
0	0.9 M	A	#13	125 MM	200 MM
		B&C	#13	300 MM	
0.9 M	3.0 M	A	#13	300 MM	200 MM
		B&C	#13	300 MM	
3.0 M	4.5 M	A	#13	225 MM	200 MM
		B&C	#13	225 MM	
4.5 M	6.0 M	A	#13	175 MM	200 MM
		B&C	#13	225 MM	
6.0 M	7.5 M	A	#13	150 MM	200 MM
		B&C	#13	175 MM	

### STANDARD 1.2 M CONCRETE CULVERT



DEPTH OF FILL		BARS	SPAN 1.2 M		THICKNESS
			BARS	SPACING	
0	0.9 M	A	#13	100 MM	200 MM
		B&C	#13	250 MM	
0.9 M	3.0 M	A	#13	225 MM	200 MM
		B&C	#13	300 MM	
3.0 M	4.5 M	A	#13	150 MM	200 MM
		B&C	#13	225 MM	
4.5 M	6.0 M	A	#16	175 MM	200 MM
		B&C	#16	250 MM	
6.0 M	7.5 M	A	#16	150 MM	230 MM
		B&C	#16	250 MM	

### STANDARD 1.5 M CONCRETE CULVERT



DEPTH OF FILL		BARS	SPAN 1.5 M		THICKNESS
			BARS	SPACING	
0	0.9 M	A	#16	125 MM	200 MM
		B&C	#16	300 MM	
0.9 M	3.0 M	A	#13	150 MM	200 MM
		B&C	#13	225 MM	
3.0 M	4.5 M	A	#16	175 MM	230 MM
		B&C	#16	300 MM	
4.5 M	6.0 M	A	#16	175 MM	255 MM
		B&C	#16	250 MM	
6.0 M	7.5 M	A	#16	125 MM	255 MM
		B&C	#16	200 MM	
7.5 M	12.0 M	A	#19	150 MM	280 MM
		B&C	#19	225 MM	

#### NOTES:

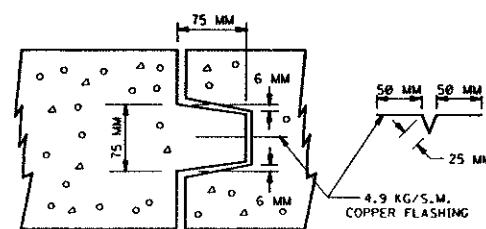
- TOP AND BOTTOM LAYER OF LONGITUDINAL BARS (F) TO BE SAME SIZE AS BARS A, B & C AND SPACED 300 MM CTRS.
- FOR BACKFILLING AND EMBANKMENT DETAILS SEE HJDOT SPECIFICATIONS.
- REINFORCING BARS SHALL CONFORM TO ASTM A 615/A 615M.

### VOLUME OF CONCRETE AND WEIGHT OF REINFORCEMENT PER LINEAR METER OF CULVERT

SIZE OF CULVERT OPENING	0.9 M x 0.9 M					1.2 M x 0.9 M					1.2 M x 1.2 M					1.5 M x 0.9 M					1.5 M x 1.2 M					1.5 M x 1.5 M					
MAX DEPTH OF FILL METERS	0.9	3	4.5	6	7.5	0.9	3	4.5	6	7.5	0.9	3	4.5	6	7.5	0.9	3	4.5	6	7.5	0.9	3	4.5	6	7.5	0.9	3	4.5	6	7.5	12
VOLUME OF CONCRETE C.M. PER METER	0.88	0.88	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.15	1.12	1.12	1.12	1.12	1.29	1.12	1.12	1.29	1.46	1.46	1.24	1.24	1.43	1.60	1.60	1.36	1.36	1.55	1.75	1.75	1.96
REINFORCEMENT KG PER METER	79	64	71	79	88	98	74	89	112	118	104	80	94	125	132	131	110	125	132	156	140	121	134	143	170	147	126	141	152	182	223

#### NOTE 1

FIRST DIMENSION OF CULVERT SIZE INDICATES THE SPAN. CULVERT TO BE CONSTRUCTED OF CLASS "A" CONCRETE.



SECTION THRU KEY OF CONSTRUCTION JOINT

### CONSTRUCTION JOINT OF CULVERT

TO BE CONSTRUCTED IN TOP, WALLS AND BASE OF CULVERT NOT MORE THAN 10.5 M APART

CD-610-2.2

### CONCRETE CULVERTS N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

### CONSTRUCTION DETAILS

CD-610-2.1

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

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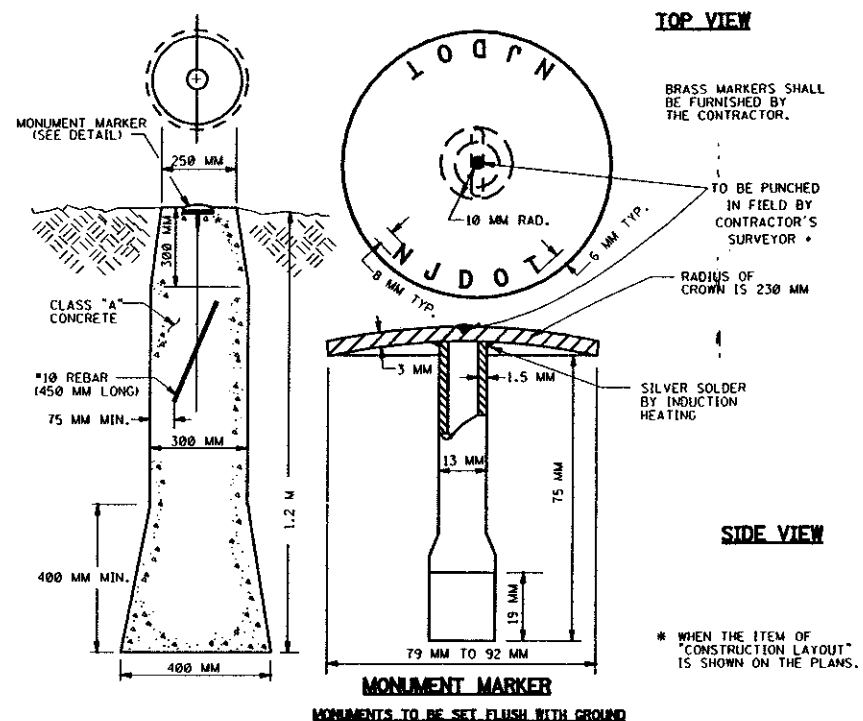
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BOX-611-1 - ORIGINAL SHEET

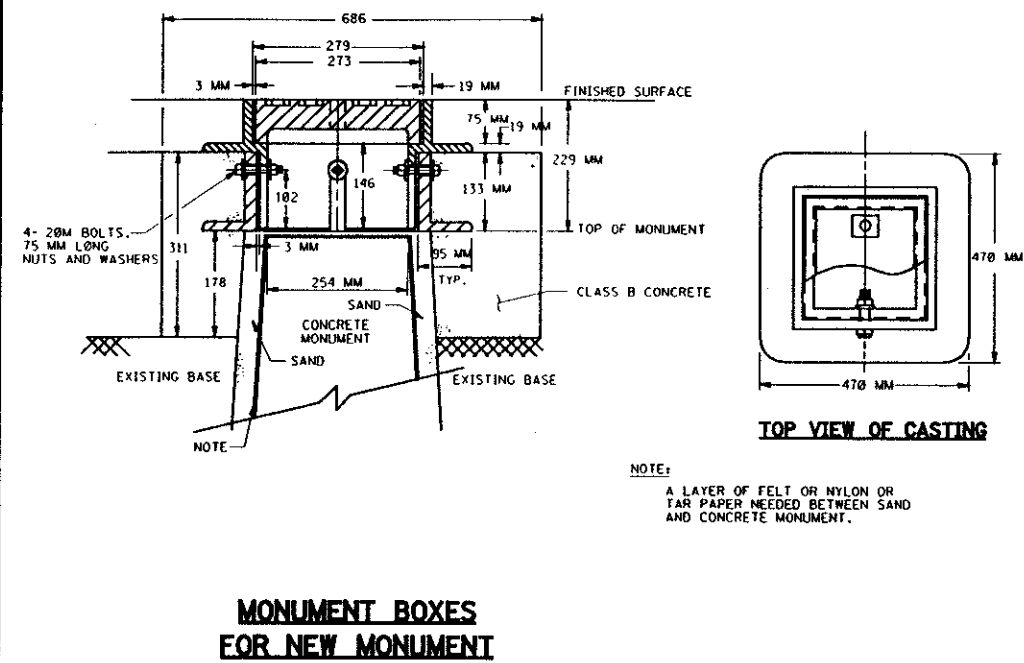


**GENERAL NOTES:**

THE MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH NJDOT SPECIFICATIONS. THESE MONUMENTS ARE TO BE POURED IN PLACE AND THE MARKER PLUMBED INTO POSITION AND SET IN THE CONCRETE IN SUCH A MANNER THAT NO AIR WILL BE TRAPPED ON THE UNDERSIDE OF THE MARKER.

#10 REBAR, 450 MM LONG, TO BE PLACED AT THE TIME OF CONCRETE POUR. MONUMENT MARKER IS TO BE MADE OF BRASS, CONFORMING TO ASTM B-19.

CD-611-1.1



CD-611-1.2

**MONUMENTS AND MONUMENT BOXES**

N.T.S.

CD-611-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



44  
129

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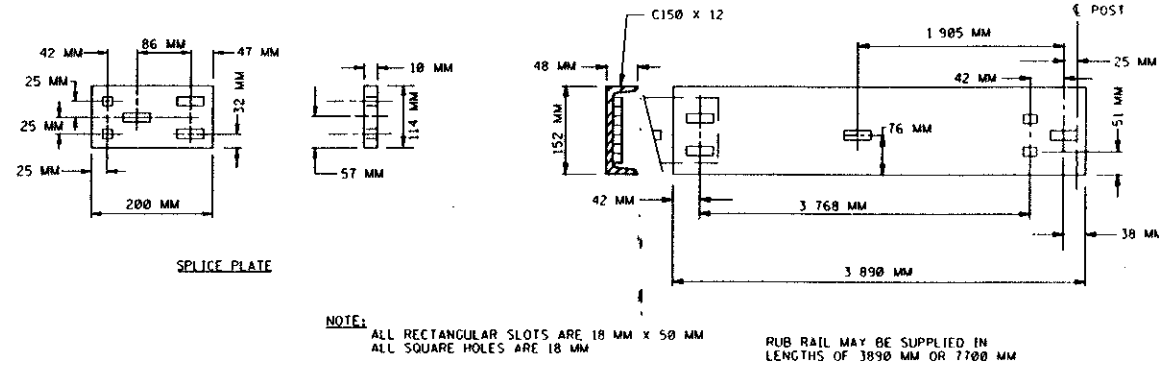
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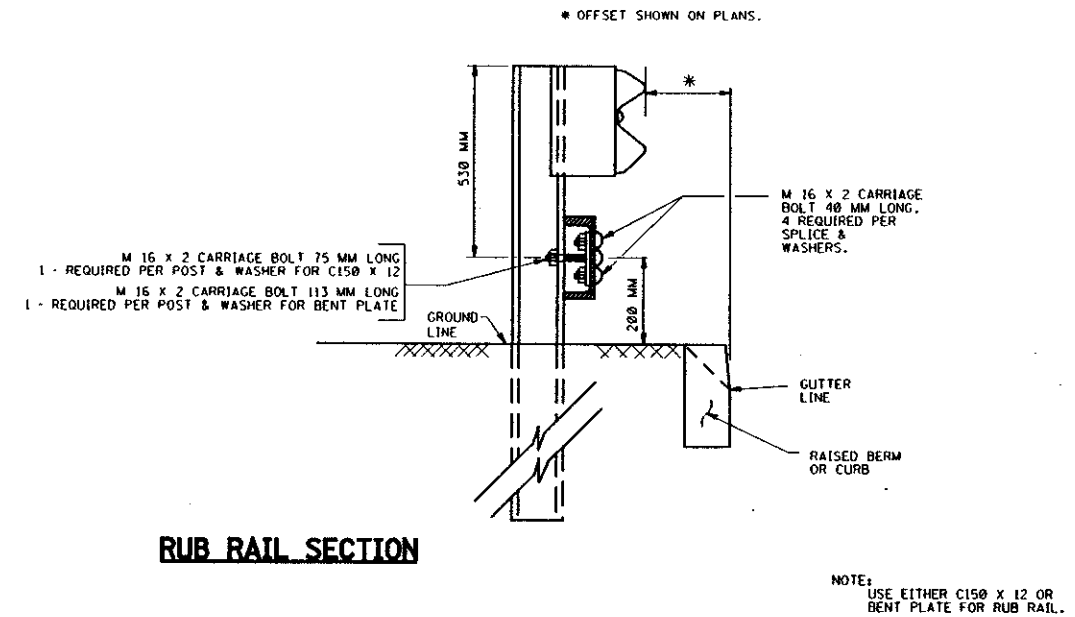
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C150 X 12

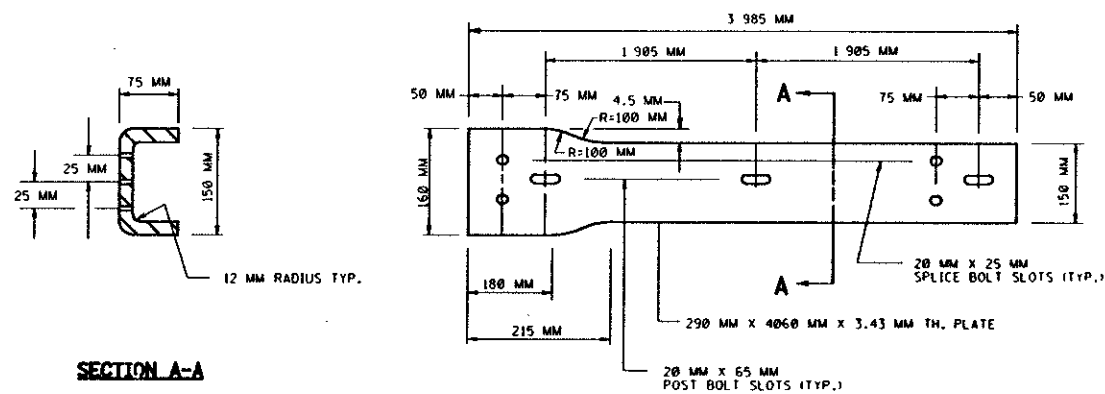
NOTE: USE EITHER C150 X 12 OR BENT PLATE FOR RUB RAIL.

CD-612-3.1



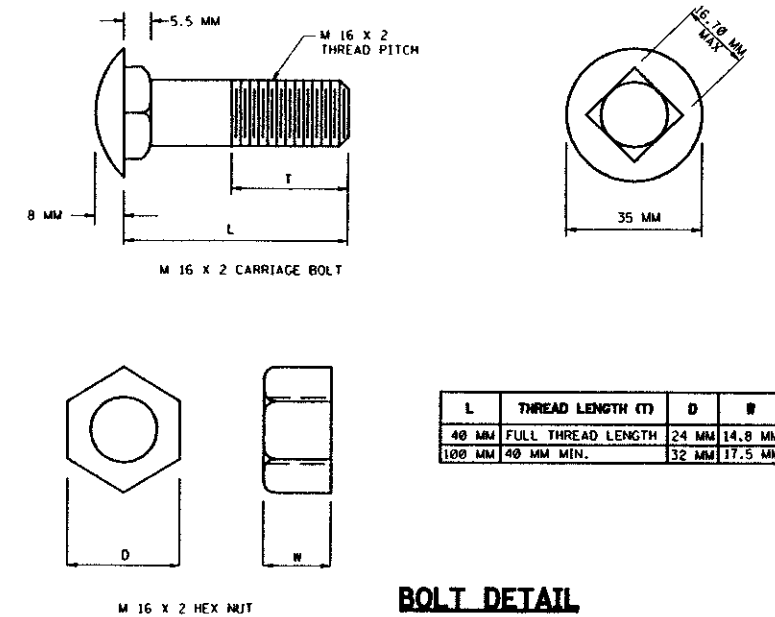
RUB RAIL SECTION

CD-612-3.2



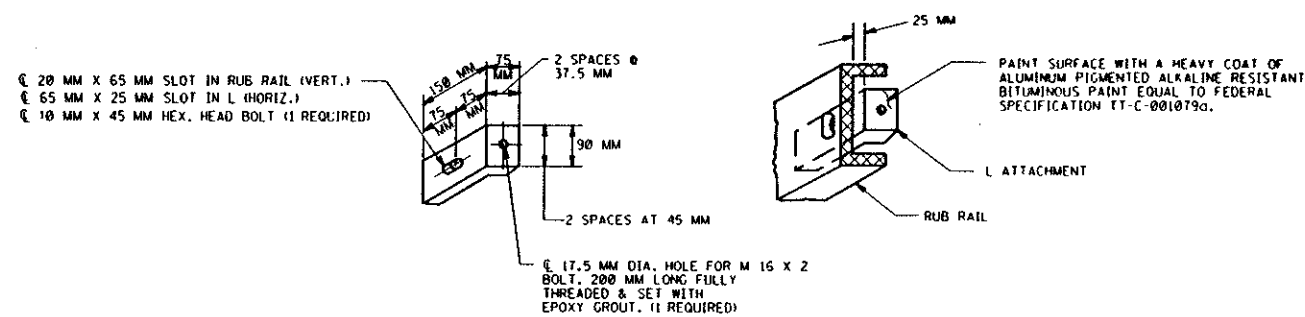
BENT PLATE

CD-612-3.3



BOLT DETAIL

CD-612-3.4



RUB RAIL ANGLE ATTACHMENT

SEE CD-612-9.4 FOR GENERAL NOTES

CD-612-3.5

RUB RAIL  
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

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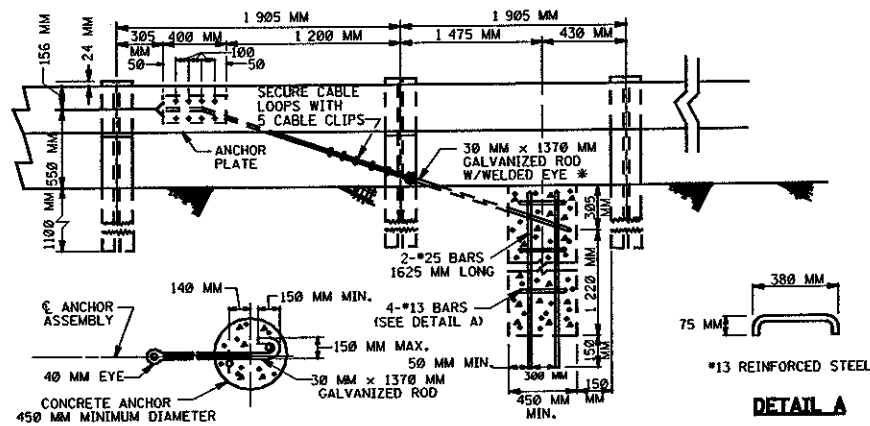
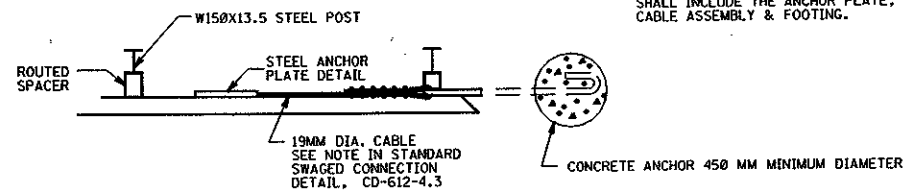
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CD-612-4.1 - ORIGINAL SHEET

NOTE:  
CABLE TO BE PARALLEL TO GUIDE RAIL FOR STRAIGHT RUNS OF RAIL. CABLE MAY HAVE ANGLE POINT AT ANCHOR PLATE IF RAIL IS CURVED.



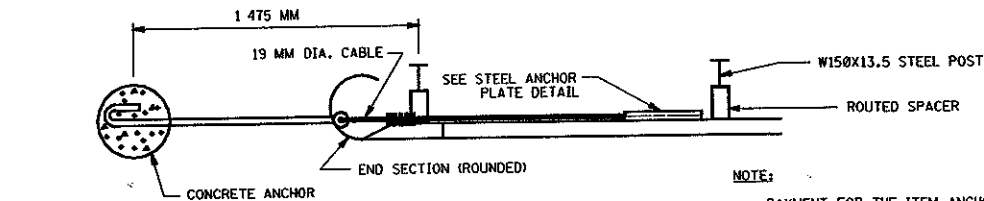
SINGLE GUIDE RAIL ANCHOR

BEAM GUIDE RAIL IN LINE ANCHORAGES

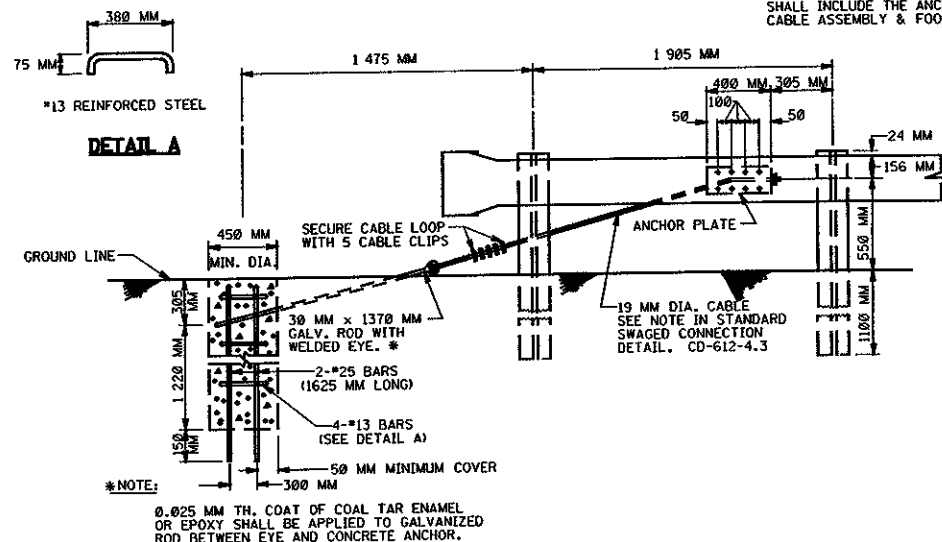
CD-612-4.1

\* NOTE:  
0.025 MM TH. COAT OF COAL TAR ENAMEL OR EPOXY SHALL BE APPLIED TO GALVANIZED ROD BETWEEN EYE AND CONCRETE ANCHOR.

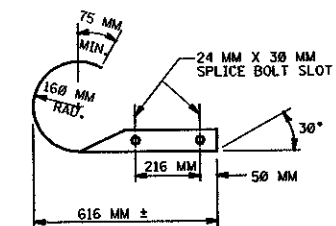
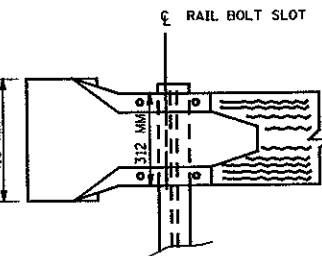
NOTE:  
CABLE TO BE PARALLEL TO GUIDE RAIL FOR STRAIGHT RUNS OF RAIL. CABLE MAY HAVE ANGLE POINT AT ANCHOR PLATE IF RAIL IS CURVED.



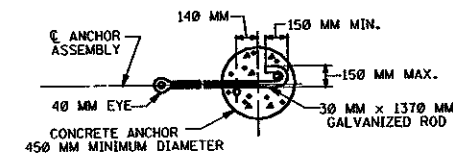
NOTE:  
PAYMENT FOR THE ITEM ANCHORAGE SHALL INCLUDE THE ANCHOR PLATE, CABLE ASSEMBLY & FOOTING.



BEAM GUIDE RAIL ANCHORAGES



END SECTION (ROUNDED)



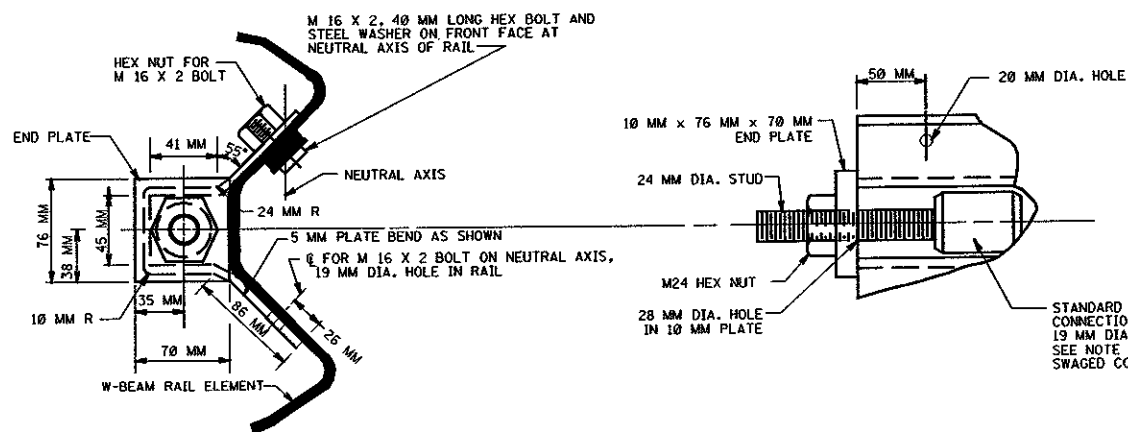
SINGLE GUIDE RAIL ANCHOR

CD-612-4.2



U BOLTS OF CLIP ON SHORT END OF CABLE

CABLE CLIP INSTALLATION



SECTION A-A (CD-612-4.1, CD-612-4.2)

ANCHOR PLATE DETAILS

STANDARD SWAGED CONNECTION

NOTE:  
OTHER ANCHOR CABLE ASSEMBLIES MAY BE USED. MINIMUM BREAKING STRENGTH OF ASSEMBLY SHALL BE 178 KILONEWTONS

CD-612-4.3

BEAM GUIDE RAIL ANCHORAGES

N.T.S.

CD-612-4

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



\* NOTE:  
WHERE GUIDE RAIL IS INSTALLED FLUSH WITH THE GUTTER LINE, THE EXTRUDER TERMINAL SHALL BE CONSTRUCTED WITH A 1:50 STRAIGHT FLARE FOR ITS ENTIRE LENGTH SO THAT THE EXTRUDER HEAD DOES NOT PROTRUDE INTO THE ROADWAY.

CD-612-5.3



NOTE: WOOD POSTS 1 THRU 9 SHALL BE CONSTRUCTED USING FOUNDATION TUBES

CD 612 5.2

**N.T.S.**

CD-612-5

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS



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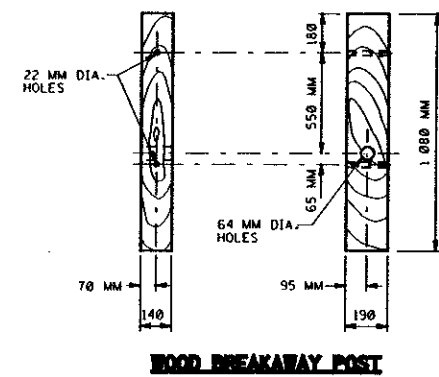
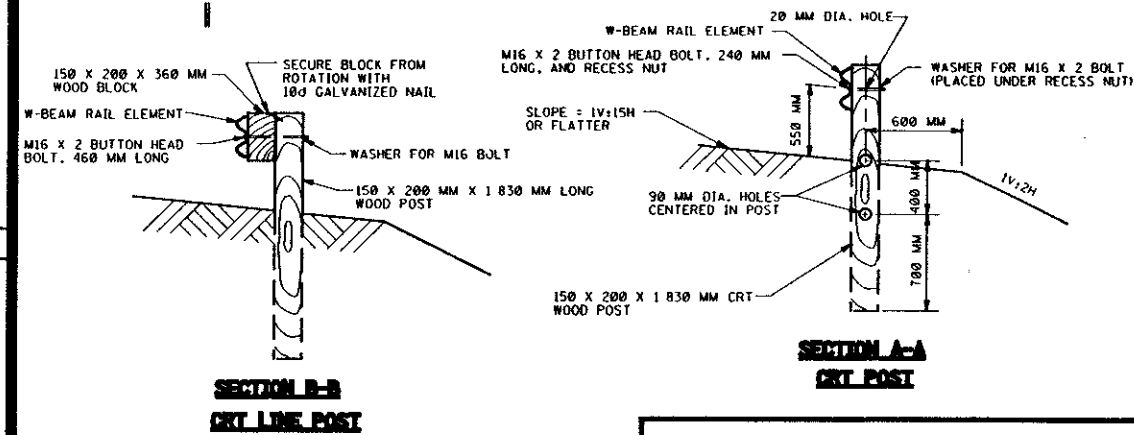
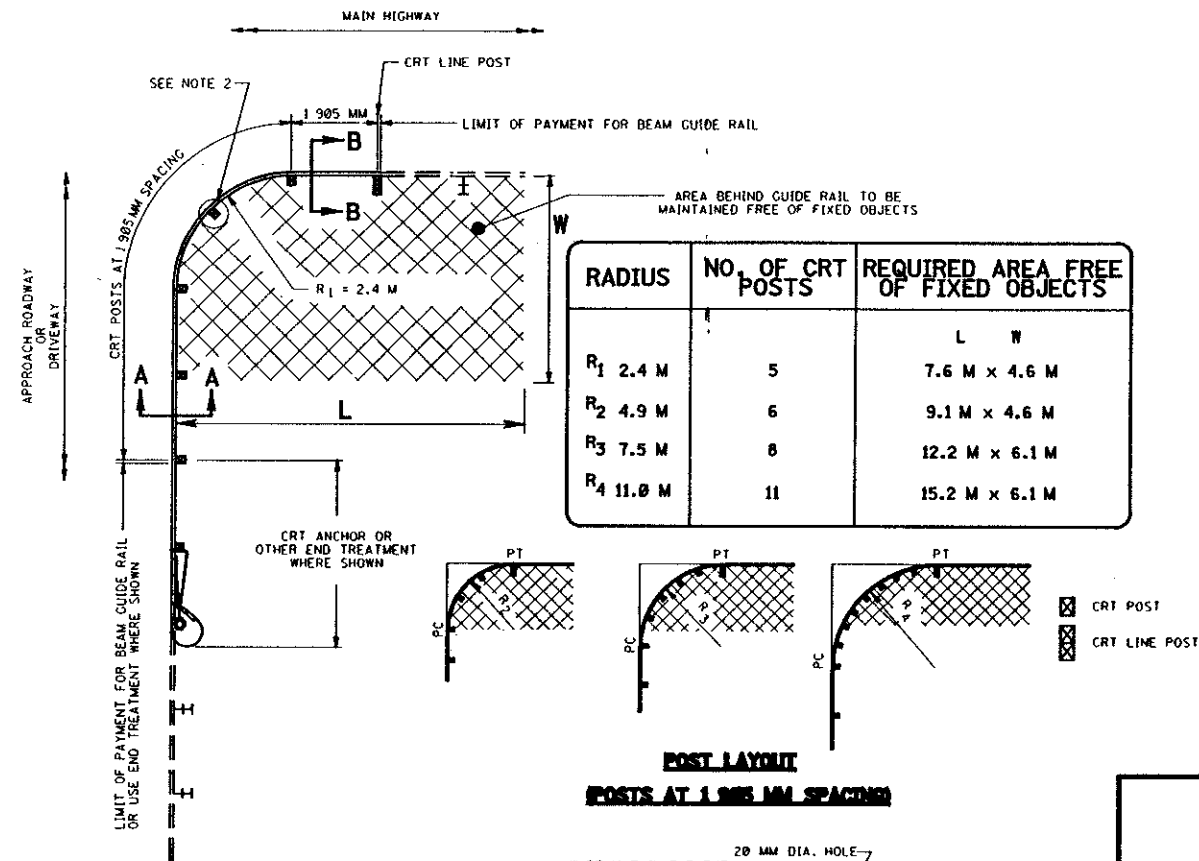
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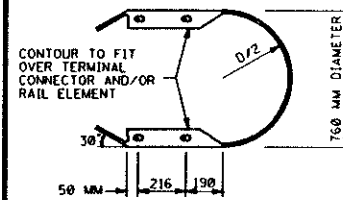
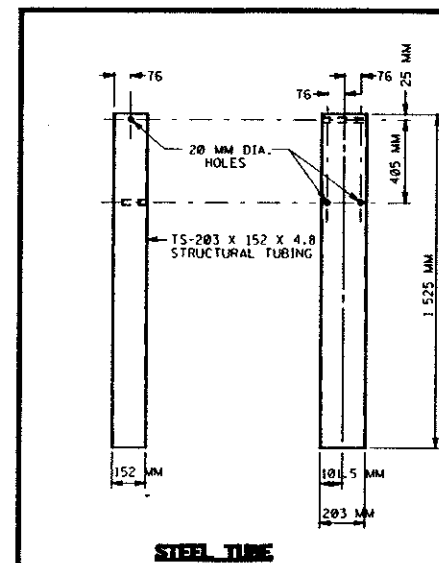
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FIGURE 4 - ORIGINAL SHEET



### CONTROLLED RELEASE TERMINALS

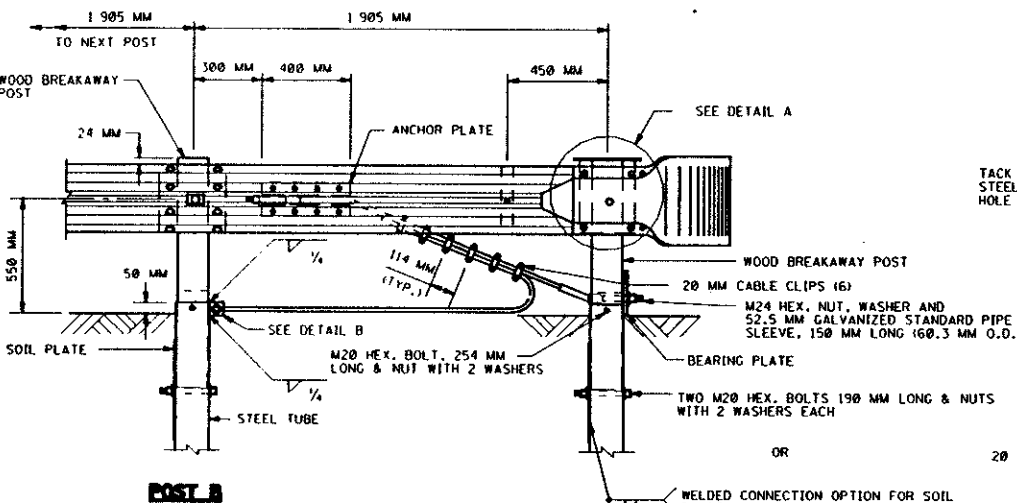
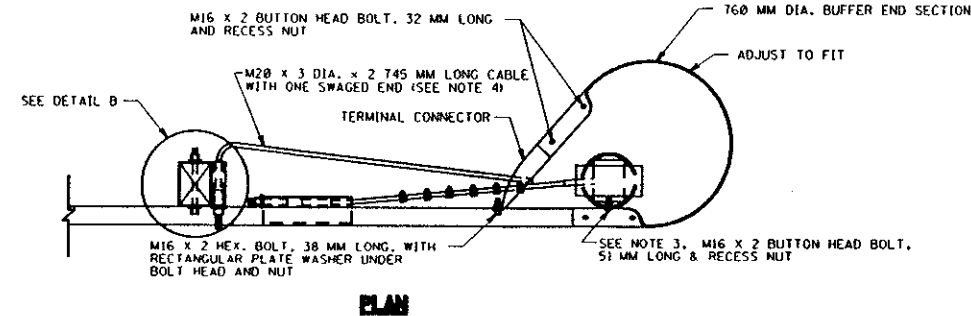
CD - 612-6.1



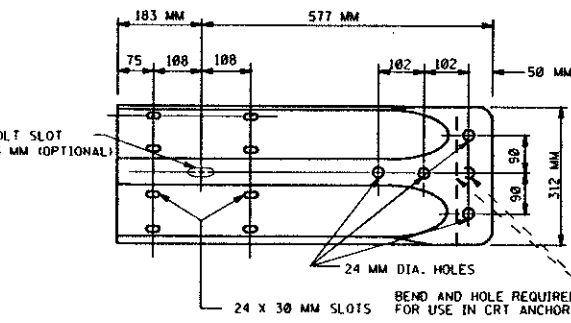
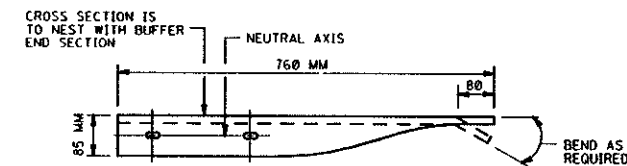
### 760 MM DIA. BUFFER END SECTION

### CONTROLLED RELEASE TERMINAL ANCHORAGE

NOTES: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

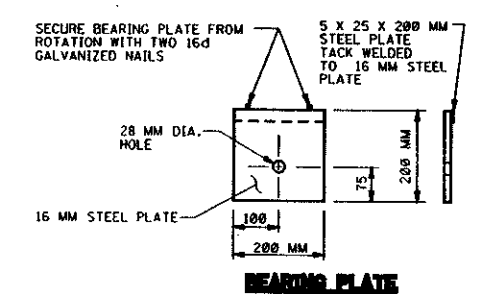
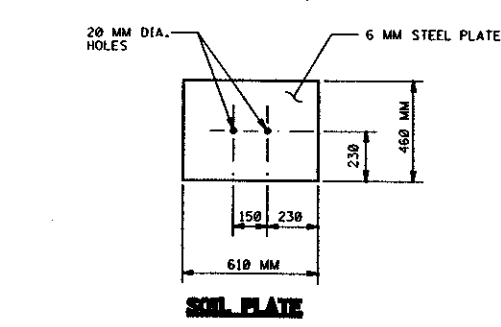
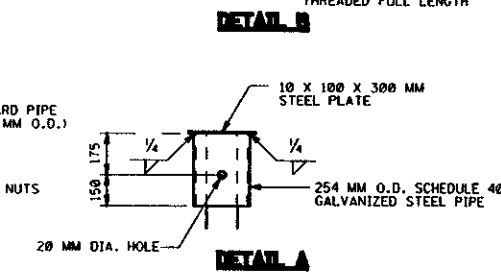
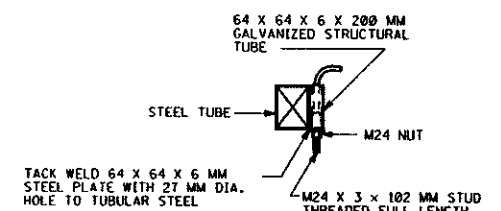


### CRT ANCHOR



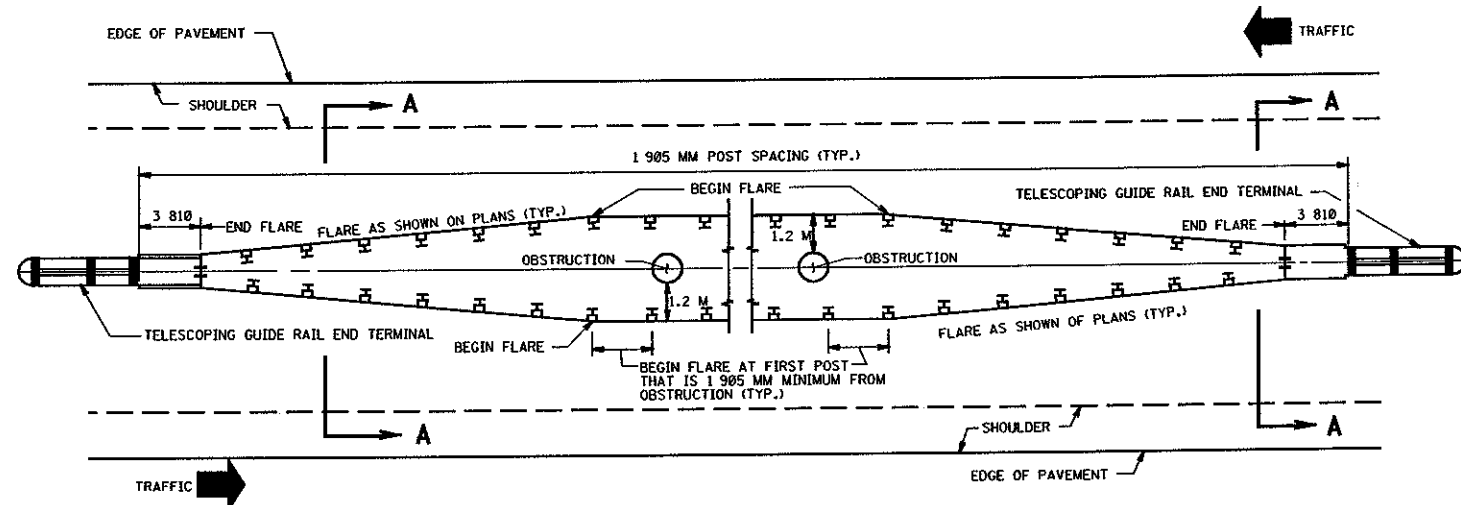
### TERMINAL CONNECTOR

- GENERAL NOTES:
1. NO WASHERS ARE USED ON THE M16 X 2 BUTTON HEAD BOLTS CONNECTING THE RAIL TO THE CONTROLLED RELEASE TERMINAL (CRT) POSTS.
  2. FOR 2.4 M RADIUS, THE RAIL ELEMENT SHALL NOT BE BOLTED TO THE CRT POST AT THE CENTER OF THE NOSE AS SHOWN.
  3. ATTACH W-BEAM TO STEEL PIPE WITH BUTTON HEAD BOLT WITH NO WASHER. NO CONNECTION TO POST IS REQUIRED.
  4. WIRE ROPE CABLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A430 AND SHALL BE 19 MM DIAMETER PREFORMED, 6 X 19, WIRE STRAND CORE OR INDEPENDENT WIRE ROPE CORE, GALVANIZED, RIGHT REGULAR LAY, MANUFACTURED OF IMPROVED FLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 190 KILONEWTONS.
  5. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500.
- CD - 612-6.3



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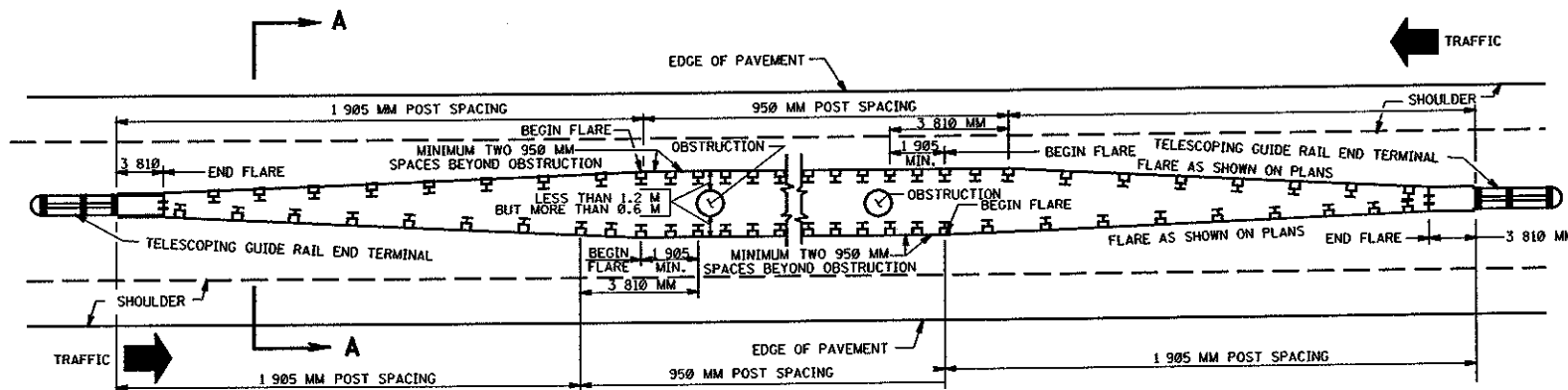
**MEDIAN GUIDE RAIL WHEN CLEARANCE FROM  
BACK OF RAIL TO OBSTRUCTION IS 1.2 M OR GREATER**



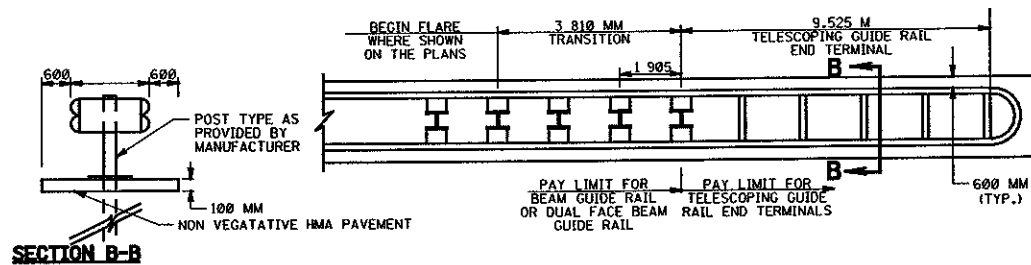
NOTE: 1V:10H MAX. SLOPES TO BEGIN  
30 METERS IN ADVANCE OF GUIDE  
RAIL TERMINALS.

CD-612-7.1

**MEDIAN GUIDE RAIL WHEN CLEARANCE FROM BACK OF RAIL  
TO OBSTRUCTION IS MORE THAN 0.6 M BUT LESS THAN 1.2 M**



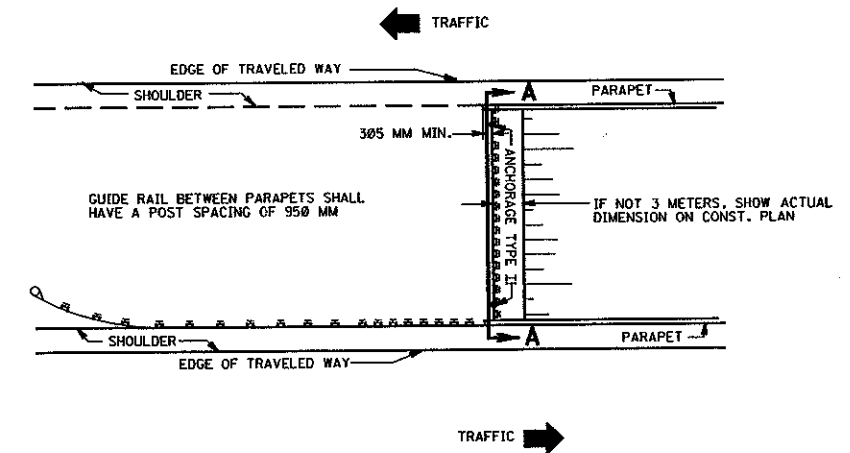
CD-612-7.2



**TELESCOPING GUIDE RAIL END TERMINALS**

NOTE: 3.810 MM OR 1.905 MM TRANSITION AS  
RECOMMENDED BY THE MANUFACTURER-  
GUIDE RAIL SHALL NOT BEGIN TO FLARE  
WITHIN 3.810 MM OF TELESCOPING GUIDE  
RAIL END TREATMENT.

CD-612-7.3



SECTION A-A

**MEDIAN GUIDE RAIL TREATMENT AT ADJACENT BRIDGES**

CD-612-7.4

**MEDIAN GUIDE RAIL TREATMENT**

HMA = HOT MIX ASPHALT  
N.T.S.

CD-612-7

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.



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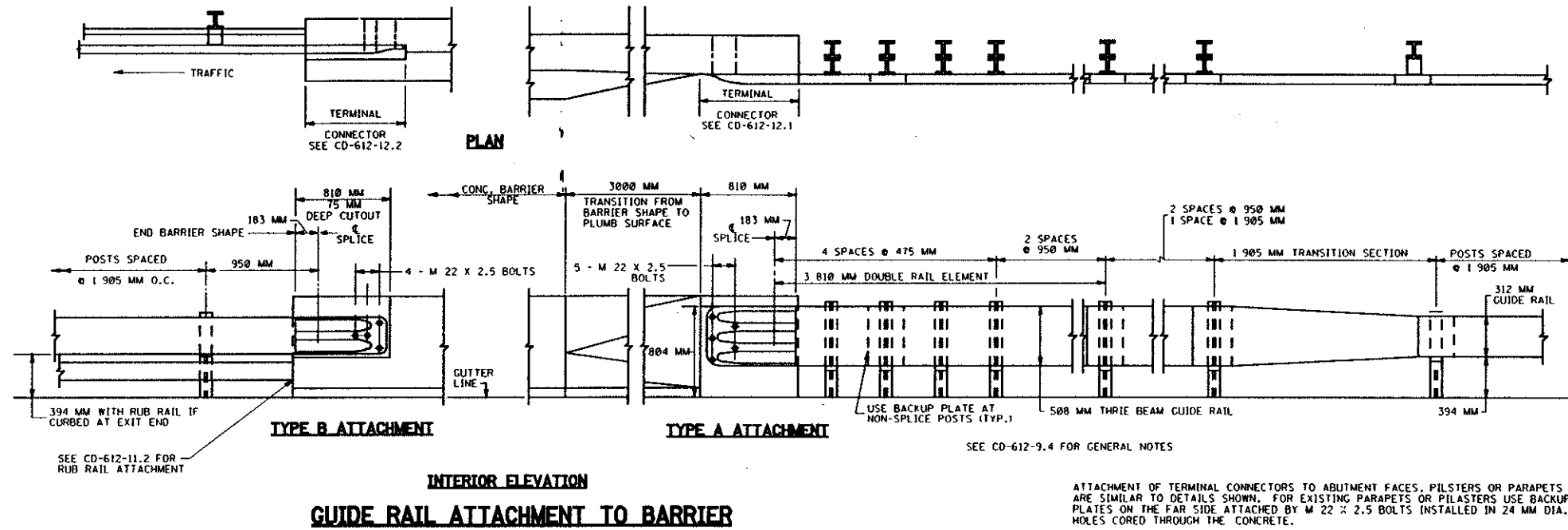
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## GENERAL NOTES - BEAM GUIDE RAIL ATTACHMENTS

STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36M AND SHALL BE GALVANIZED PER ASTM A123.

STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A307, UNLESS DESIGNATED AS HIGH STRENGTH. HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325. HARDWARE SHALL BE GALVANIZED PER ASTM A153.

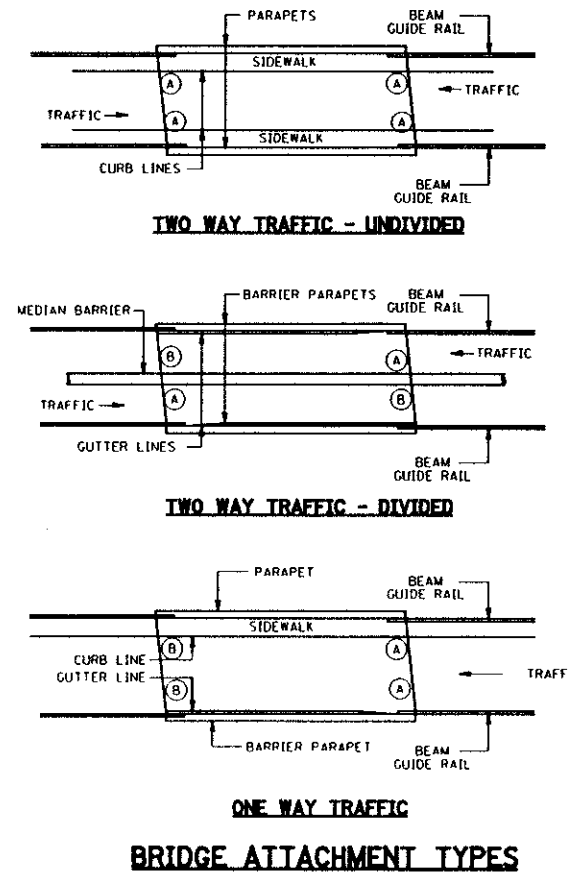
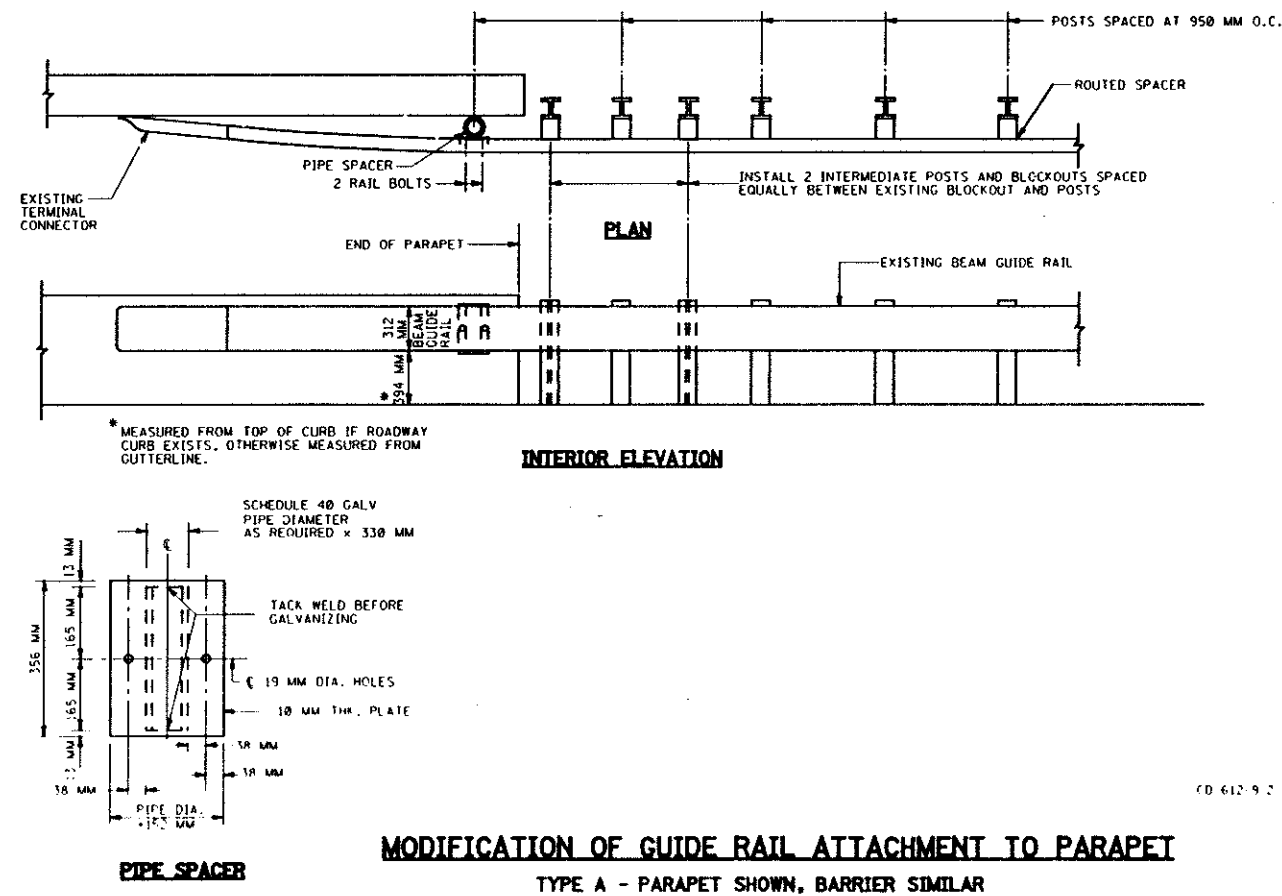
CONCRETE SHALL BE CLASS B CONCRETE.

REINFORCEMENT SHALL CONFORM TO ASTM A 615, GRADE 60.

HIGH STRENGTH BOLTS FOR BASE PLATE ANCHORAGE SHALL BE FULLY THREADED AND INSTALLED IN CORED HOLES NO GREATER THAN THE BOLT DIAMETER PLUS 6 MM. CARE SHALL BE EXERCISED TO AVOID DAMAGE TO EXISTING REINFORCEMENT AND CONDUITS. MINIMUM EMBEDMENT LENGTH SHALL BE 152 MM. BOLTS SHALL BE EPOXY GROUTED IN PLACE PER MANUFACTURER'S RECOMMENDATIONS TO ATTAIN A MINIMUM PULLOUT STRENGTH OF 107 KILONEWTONS AT THE CONSTRUCTION SITE AS CERTIFIED BY THE CONTRACTOR.

HIGH STRENGTH BOLTS FOR BASE PLATE ANCHORAGE MAY BE CAST IN PLACE IN FRESH CONCRETE WITH A MINIMUM EMBEDMENT LENGTH OF 508 MM.

CD-612-9.4



## BEAM GUIDE RAIL ATTACHMENTS N.T.S.

CD-612-9

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS



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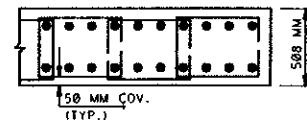
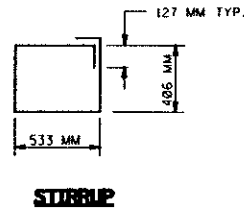
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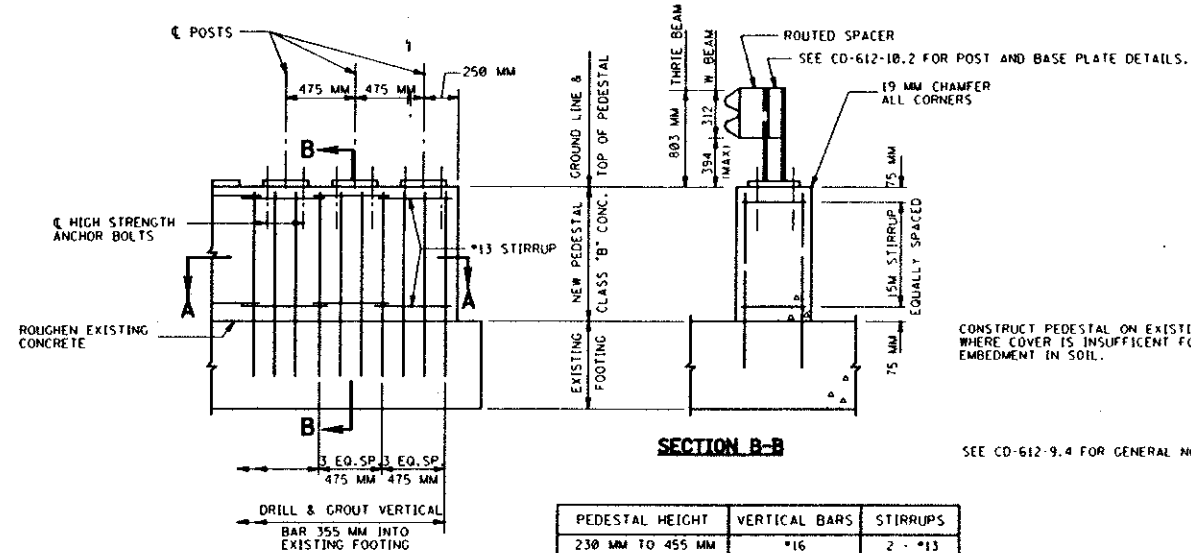
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SECTION A-A



PEDESTAL HEIGHT	VERTICAL BARS	STIRRUPS
230 MM TO 455 MM	#16	2 - #13
480 MM TO 760 MM	#16	3 - #13
785 MM TO 1065 MM	#16	4 - #13
1090 MM TO 1220 MM	#16	5 - #13

GUIDE RAIL ATTACHMENT TO FOOTING

CD-612-11.1

## BEAM GUIDE RAIL ATTACHMENTS

N.T.S.

CD-612-11

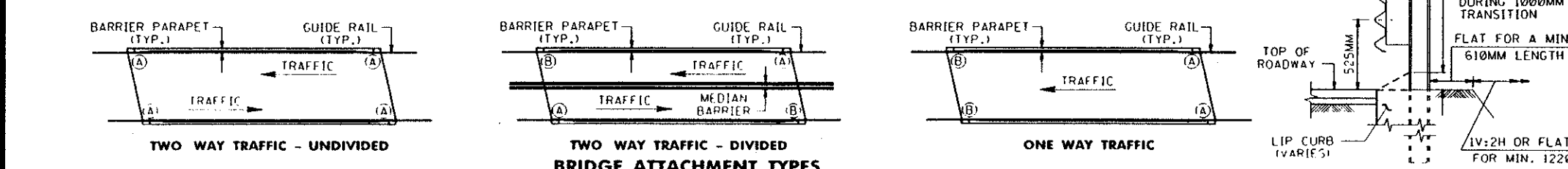
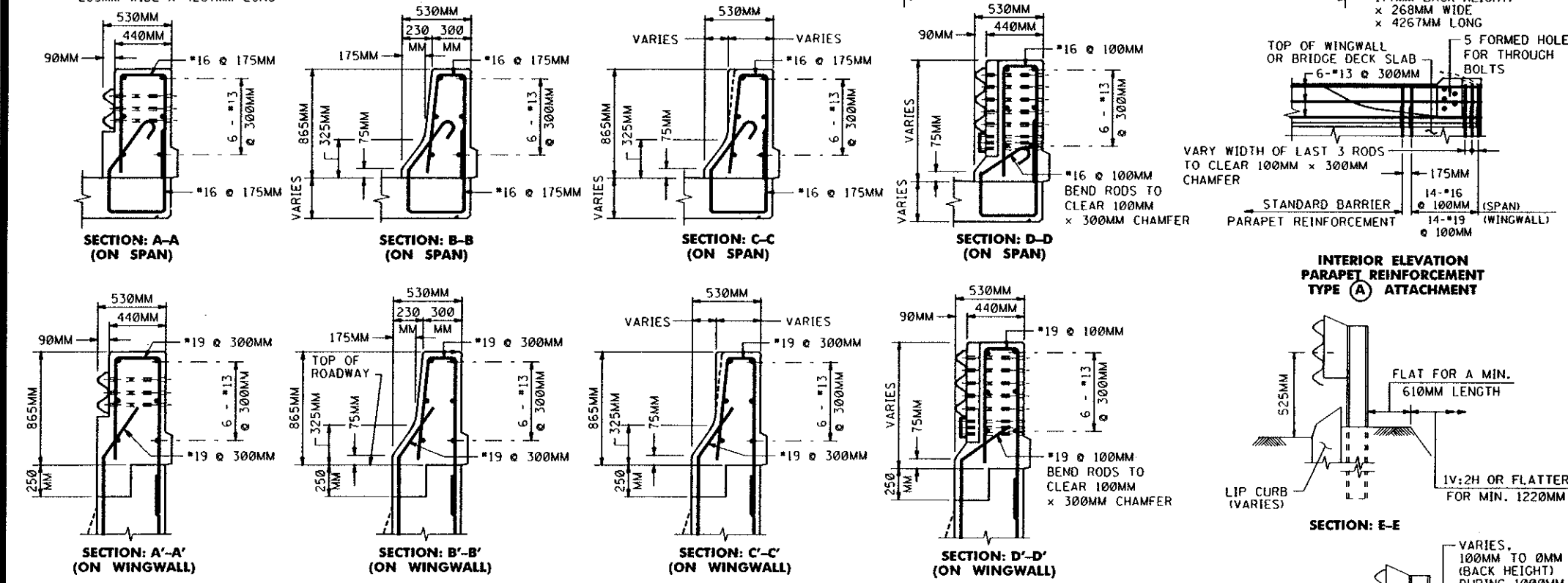
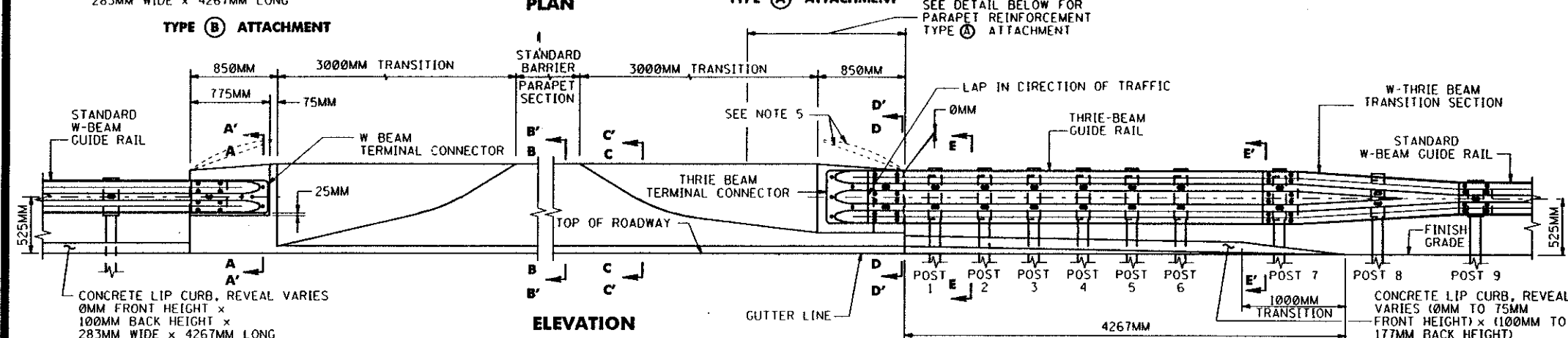
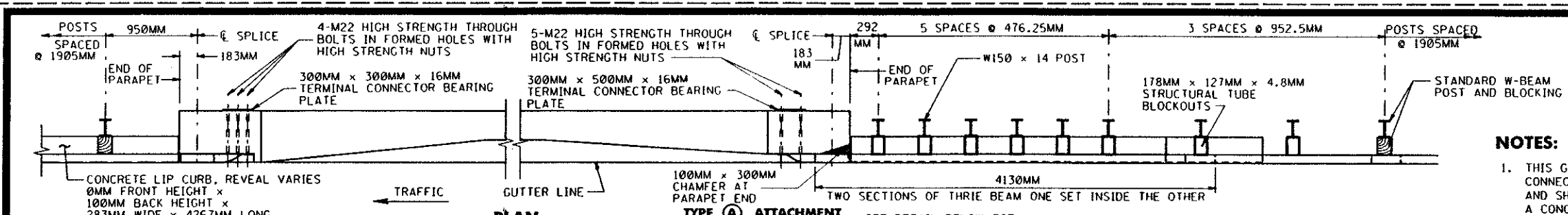
NEW JERSEY DEPARTMENT OF TRANSPORTATION

### CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

53  
129





**NOTES:**

1. THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE AND SHOULD NOT BE CONNECTED DIRECTLY TO A CONCRETE SAFETY SHAPE. CONCRETE SAFETY BARRIER SHOULD BE TRANSITIONED TO A VERTICAL SHAPE AT THE GUIDE RAIL CONNECTION.
2. FOR RECOMMENDED ATTACHMENT, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
3. ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 1V:10H OR FLATTER.
4. EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 610MM AT WHICH POINT A SLOPE OF NO STEEPER THAN 1V:2H SHOULD EXTEND A MINIMUM OF 1220MM FURTHER.
5. BARRIER PARAPET END MAY HAVE TO BE RECONFIGURED TO ACCEPT DIFFERENT TYPES OF RAILING OR FENCING THAT MAY BE MOUNTED ON TOP OF THE PARAPET.
6. AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, #3 AND #5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
7. POSTS 1 THRU 7 SHALL BE 2175MM LONG WITH 1470MM POST EMBEDMENT. POST 8 SHALL BE 2035MM LONG WITH 1378MM POST EMBEDMENT. POST 9 SHALL BE 2035MM LONG WITH 1330MM POST EMBEDMENT.
8. LOCATE CONDUIT AT END OF BARRIER PARAPETS SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
9. LOCATE DRAINAGE INLETS AND ELECTRICAL JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
10. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270M AND SHALL BE GALVANIZED PER AASHTO M111M.
11. HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164M. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
12. THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 2.75MM.
13. FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-605-1.9, CD-612-1, CD-612-3, AND CD-612-12.

**BEAM GUIDE RAIL ATTACHMENTS**

N.T.S.

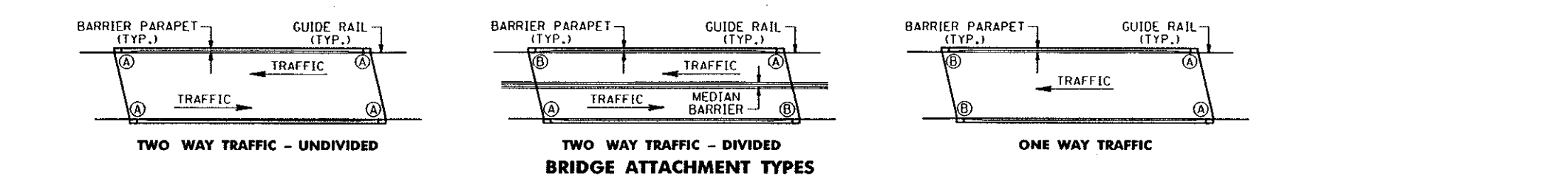
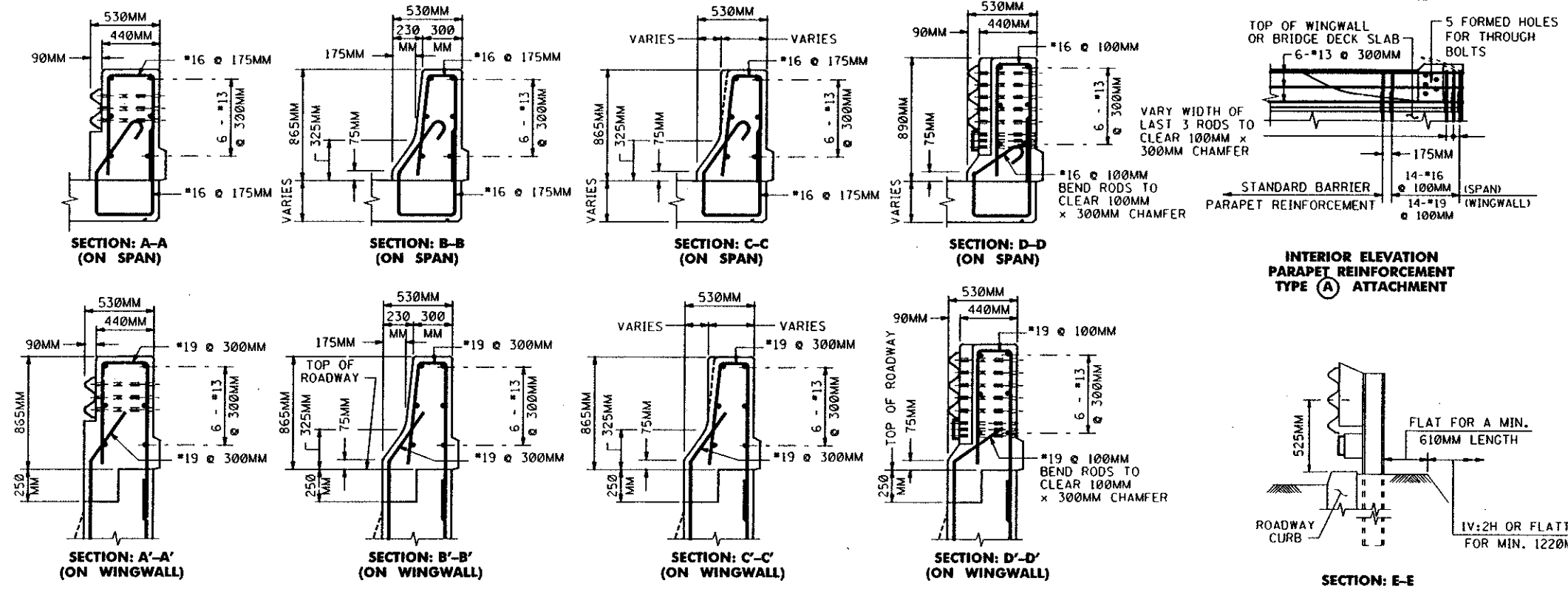
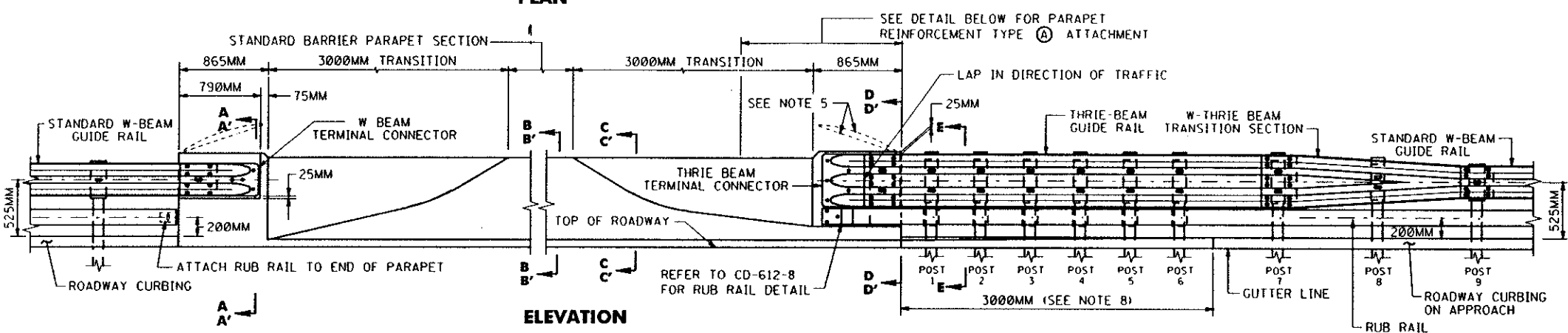
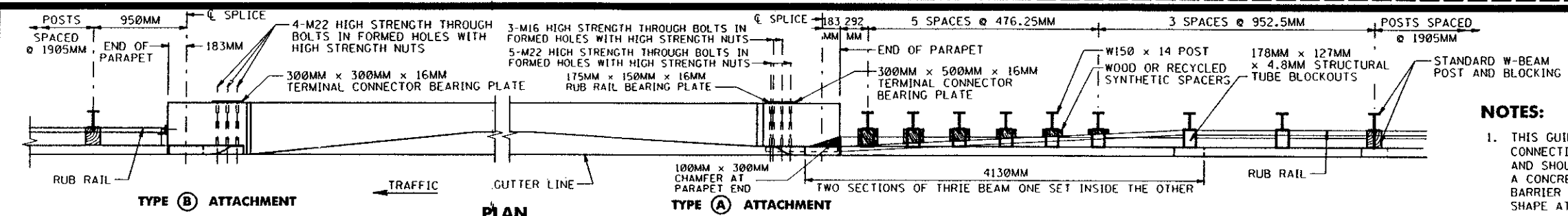
CD-612-13

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

CD-612-13.1





**NOTES:**

1. THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE AND SHOULD NOT BE CONNECTED DIRECTLY TO A CONCRETE SAFETY SHAPE. CONCRETE SAFETY BARRIER SHOULD BE TRANSITIONED TO A VERTICAL SHAPE AT THE GUIDE RAIL CONNECTION.
2. FOR RECOMMENDED ATTACHMENT, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
3. ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 1V:10H OR FLATTER.
4. EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 610MM AT WHICH POINT A SLOPE OF NO STEEPER THAN 1V:2H SHOULD EXTEND A MINIMUM OF 1220MM FURTHER.
5. BARRIER PARAPET END MAY HAVE TO BE RECONFIGURED TO ACCEPT DIFFERENT TYPES OF RAILING OR FENCING THAT MAY BE MOUNTED ON TOP OF THE PARAPET.
6. AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, #3 AND #5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
7. POSTS 1 THRU 7 SHALL BE 2175MM LONG WITH 1470MM POST EMBEDMENT. POST 8 SHALL BE 2035MM LONG WITH 1378MM POST EMBEDMENT. POST 9 SHALL BE 2035MM LONG WITH 1330MM POST EMBEDMENT.
8. TRANSITION LAST 3000MM OF ROADWAY CURBING TO MATCH BARRIER PARAPET SHAPE.
9. LOCATE CONDUIT AT END OF BARRIER PARAPETS SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
10. LOCATE DRAINAGE INLETS AND ELECTRICAL JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
11. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270M AND SHALL BE GALVANIZED PER ASTM A123.
12. HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164M. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
13. THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 2.75MM.
14. FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-605-1.9, CD-612-1, CD-612-3, AND CD-612-12.

**BEAM GUIDE RAIL ATTACHMENTS**

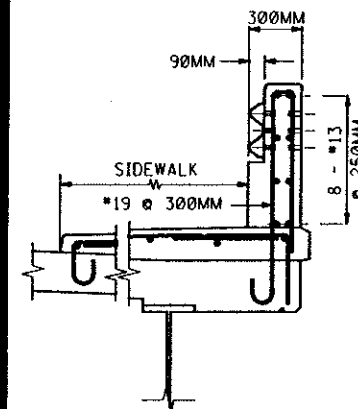
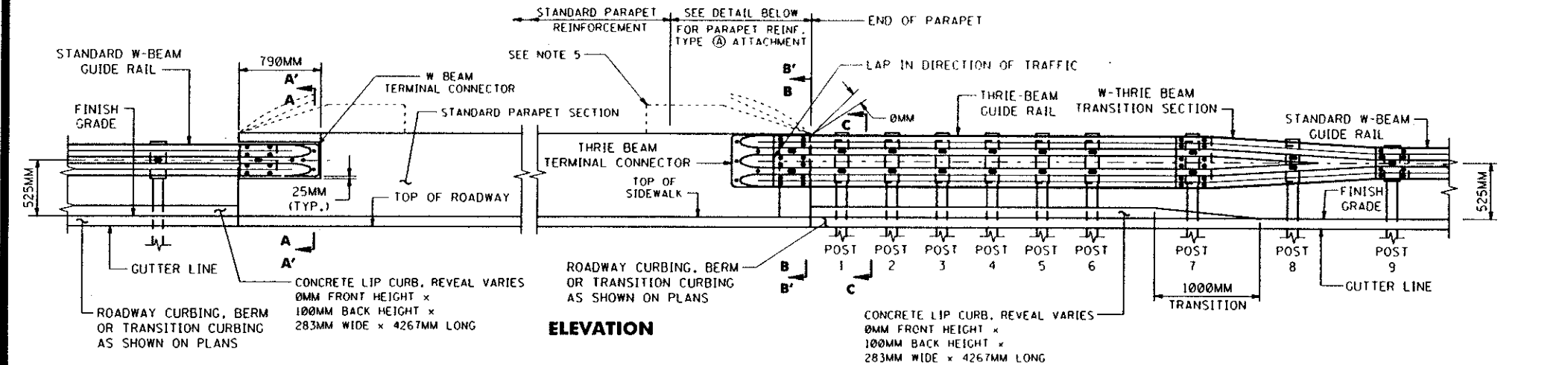
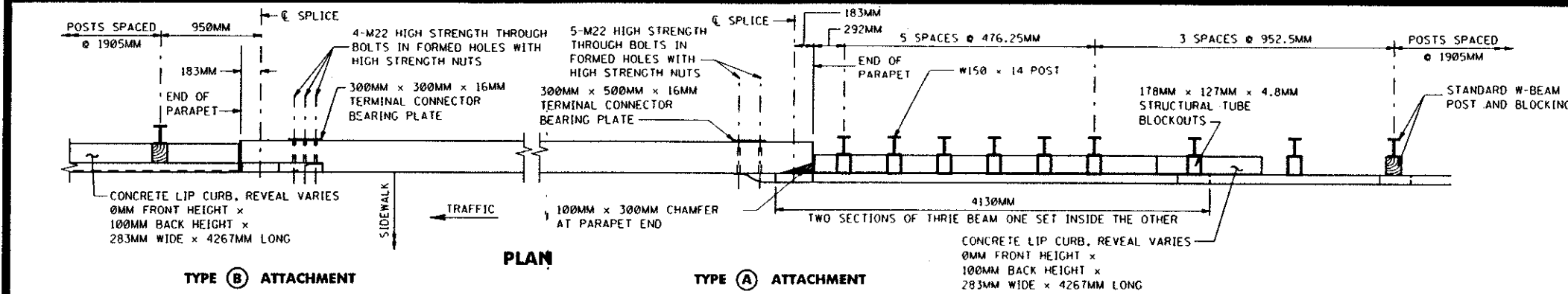
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CD-612-14

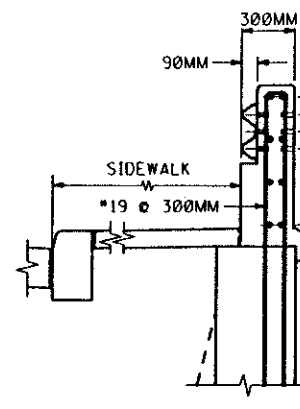
NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

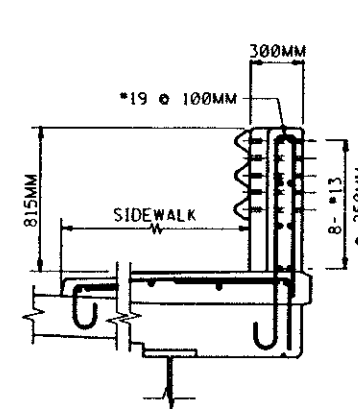
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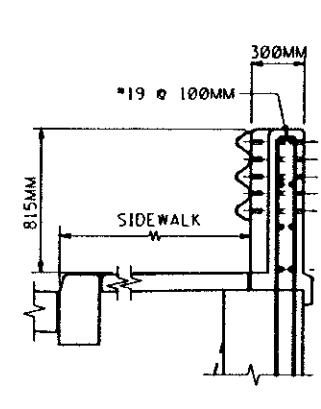
SECTION: A-A (ON SPAN)



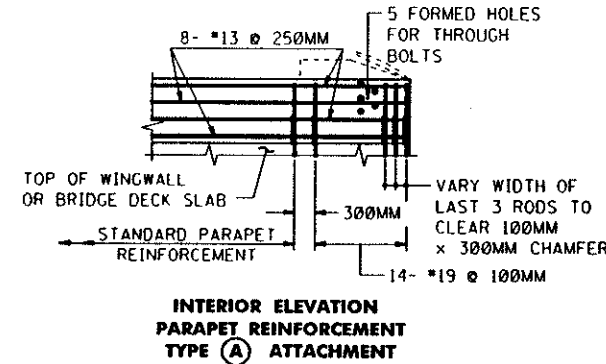
SECTION: A'-A' (ON WINGWALL)



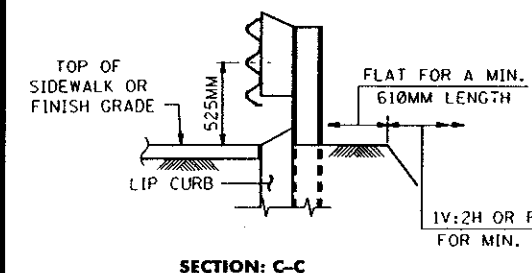
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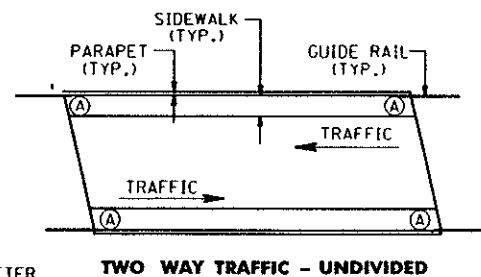
SECTION: B'-B' (ON WINGWALL)



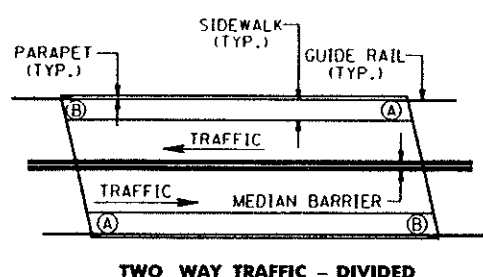
GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION (SIDEWALK WITH PARAPET)



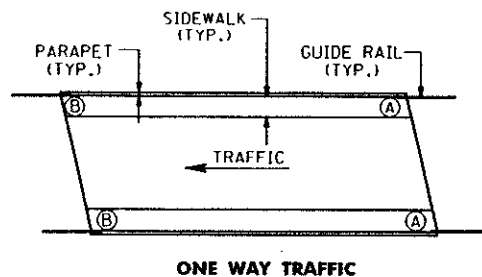
SECTION: C-C



TWO WAY TRAFFIC - UNDIVIDED



TWO WAY TRAFFIC - DIVIDED BRIDGE ATTACHMENT TYPES



ONE WAY TRAFFIC

**NOTES:**

1. THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE.
2. FOR RECOMMENDED ATTACHMENT TYPE, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
3. ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 1V:10H OR FLATTER.
4. EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 610MM AT WHICH POINT A SLOPE OF NO STEEPER THAN 1V:2H SHOULD EXTEND A MINIMUM OF 1220MM FURTHER.
5. WHEN RAILING IS INSTALLED ON TOP OF PARAPET, PARAPET END SHALL BE MODIFIED TO ACCOMMODATE HORIZONTAL RAIL ATTACHMENT TO PARAPET. REFER TO STANDARD RAILING PLATE FOR ATTACHMENT DETAILS.
6. AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, 3 & 5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
7. POSTS 1 THRU 7 SHALL BE 2175MM LONG WITH 1470MM POST EMBEDMENT. POST 8 SHALL BE 2035MM LONG WITH 1378MM POST EMBEDMENT. POST 9 SHALL BE 2035MM LONG WITH 1330MM POST EMBEDMENT.
8. LOCATE CONDUIT AT END OF PYLON SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
9. LOCATE DRAINAGE INLETS AND ELECTRIC JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
10. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270M AND SHALL BE GALVANIZED AS PER AASHTO M111M.
11. HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164M. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
12. THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 2.75MM.
13. FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-605-1.9, CD-612-1, CD-612-3, AND CD-612-12.

**BEAM GUIDE RAIL ATTACHMENTS**

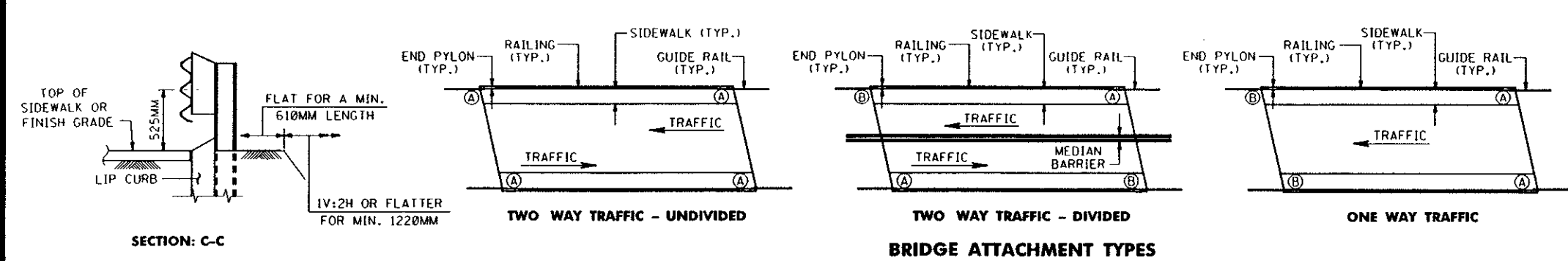
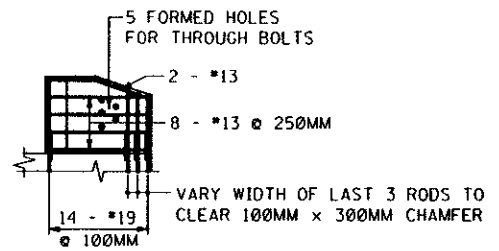
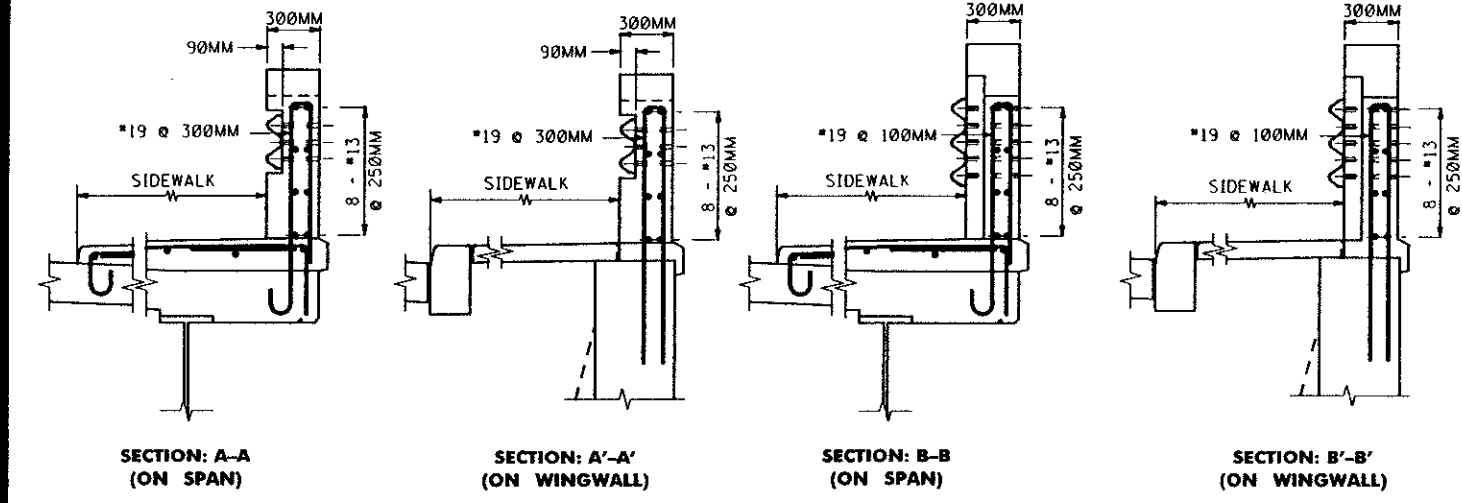
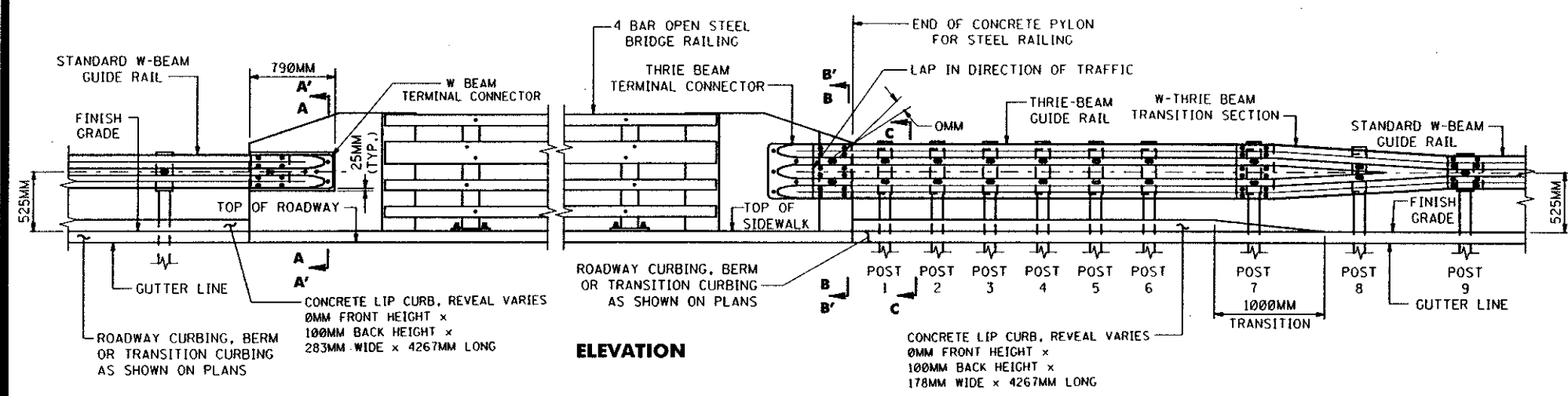
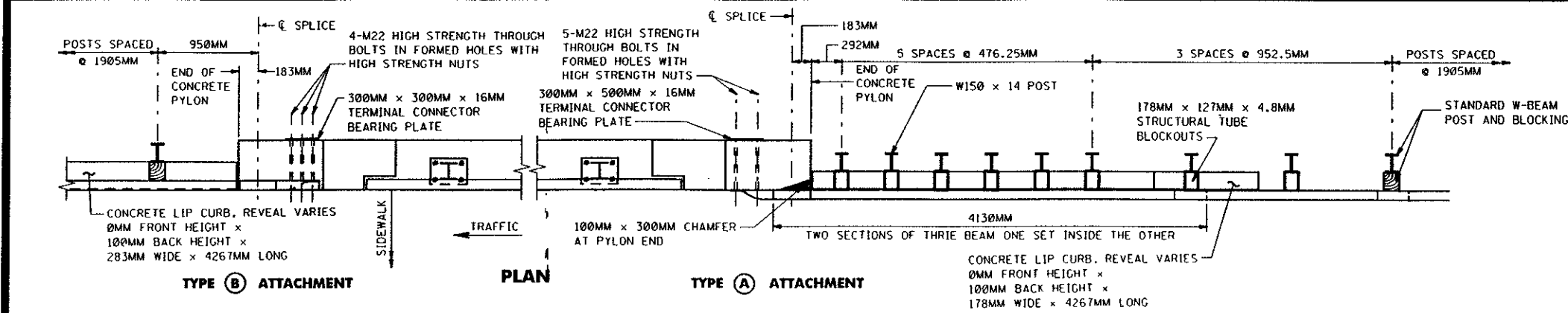
N.T.S.

CD-612-15

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

CD-612-15.1



- NOTES:**
1. THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE.
  2. FOR RECOMMENDED ATTACHMENT TYPE, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
  3. ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS SHALL BE 1V:10H OR FLATTER.
  4. EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 SHALL EXTEND FLAT BEHIND THE POSTS AT LEAST 610MM AT WHICH POINT A SLOPE OF NO STEEPER THAN 1V:2H SHOULD EXTEND A MINIMUM OF 1220MM FURTHER.
  5. CONCRETE PYLONS TO BE CONSTRUCTED AT ALL ENDS OF STEEL RAILING. ATTACH GUIDE RAIL TO THE PYLONS.
  6. AT TYPE A ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL POST MOUNTING HOLES FOR POST #1, 3 & 5. CAUTION, HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
  7. POSTS 1 THRU 7 SHALL BE 2175MM LONG WITH 1470MM POST EMBEDMENT. POST 8 SHALL BE 2035MM LONG WITH 1378MM POST EMBEDMENT. POST 9 SHALL BE 2035MM LONG WITH 1330MM POST EMBEDMENT.
  8. LOCATE CONDUIT AT END OF PYLON SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
  9. LOCATE DRAINAGE INLETS AND ELECTRIC JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
  10. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO AASHTO M270M AND SHALL BE GALVANIZED AS PER AASHTO M111M.
  11. HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164M. ZINC COATED BOLTS, NUTS AND WASHERS SHALL BE TREATED ACCORDING TO AASHTO M232M.
  12. THE THICKNESS OF THRIE-BEAM, W-BEAM AND W-THRIE BEAM TRANSITION SHALL BE 2.75MM.
  13. FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-605-1.9, CD-612-1, CD-612-3, AND CD-612-12.

**GUIDE RAIL ATTACHMENT - NEW CONSTRUCTION  
(SIDEWALK WITH STEEL RAILING)**

**BEAM GUIDE RAIL ATTACHMENTS**

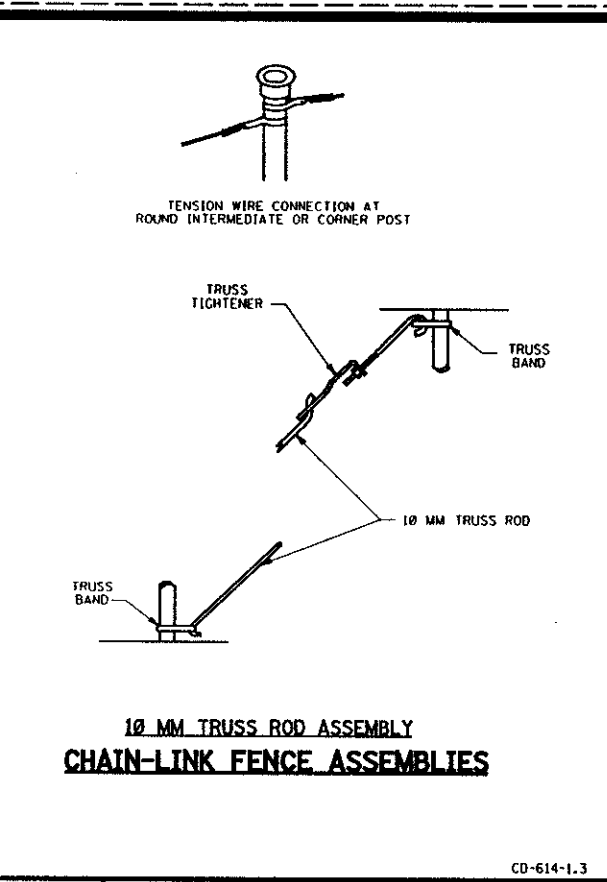
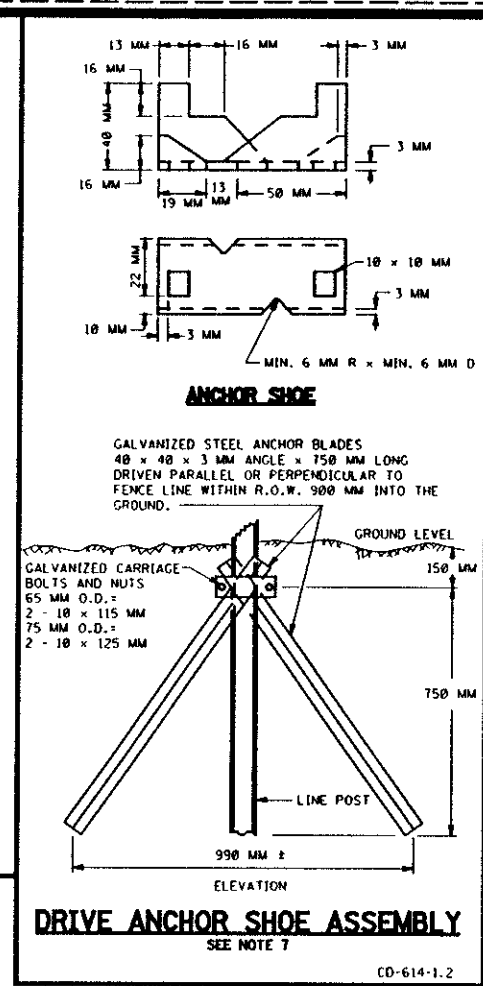
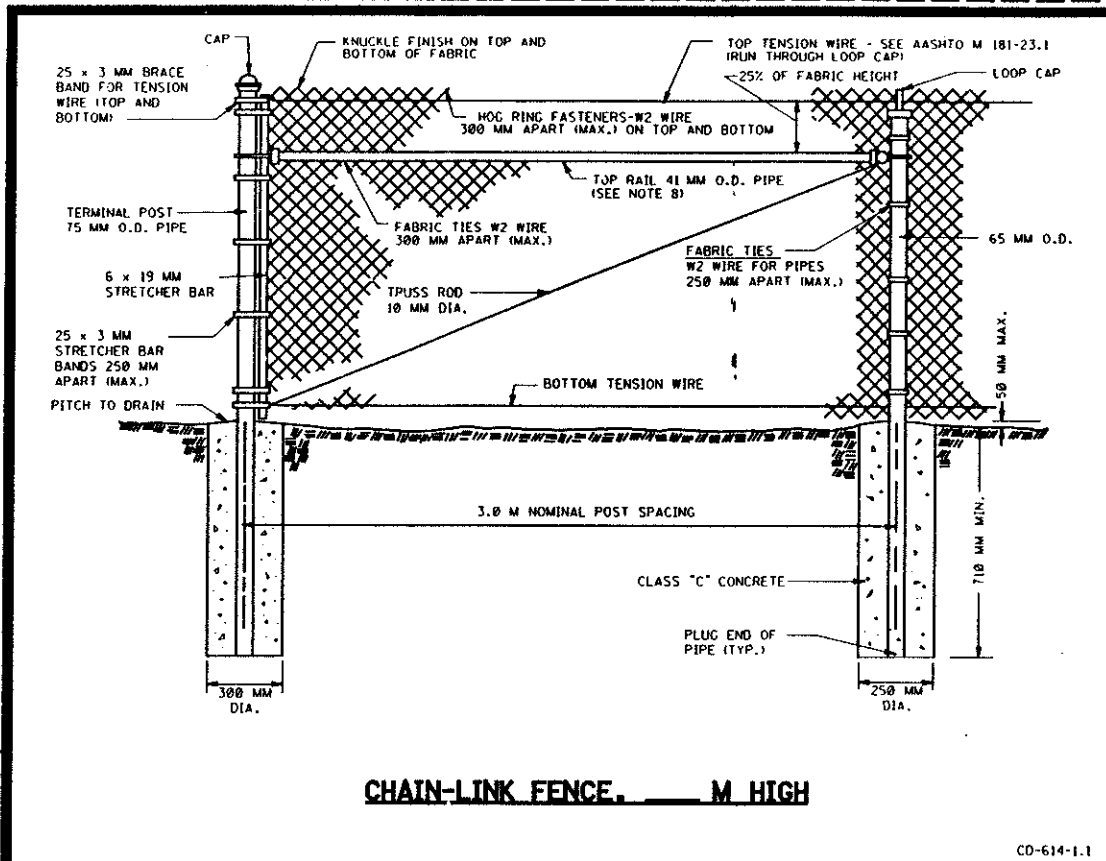
N.T.S.

CD-612-16

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

58  
129



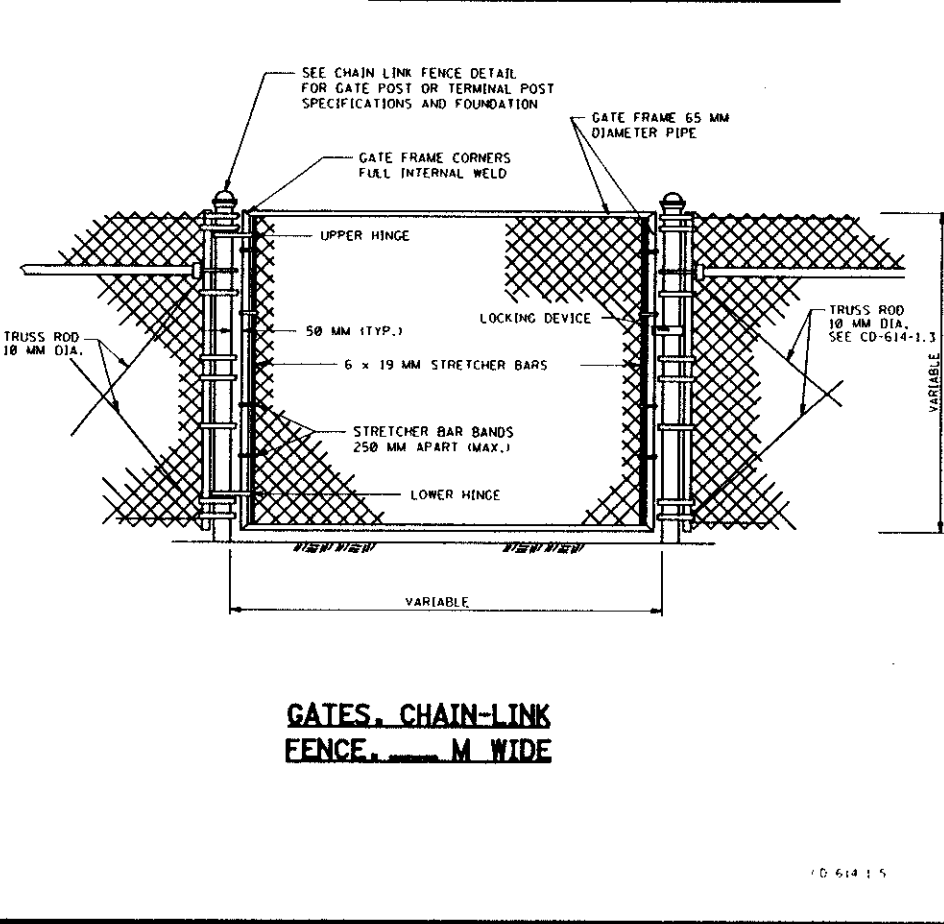
**NOTES:**

- CHAIN-LINK FENCE FABRIC, POSTS, RAILS, TIES, BANDS, BARS, RODS, AND OTHER FITTINGS AND HARDWARE SHALL CONFORM TO AASHTO M 181 FOR TYPES, GRADES AND CLASSES, AND AS NOTED BELOW.
- POSTS
 

	TERMINAL, CORNER AND GATE POSTS 75 MM O.D. PIPE	LINE POSTS 65 MM O.D. PIPE	TOP OR BRACE RAIL 41 MM O.D. PIPE
AASHTO TYPE	I OR II	I OR II	I OR II
AASHTO GRADE	1 OR 2	1 OR 2	1 OR 2
MINIMUM LENGTH OF POST FOR			
1.2 M FABRIC	2.0 M	2.0 M	NA
1.5 M FABRIC	2.3 M	2.3 M	NA
1.8 M FABRIC	2.6 M	2.6 M	NA
ACTUAL OUTSIDE DIAMETER (MM)	73.0	60.3	42.2
WALL THICKNESS (MM)	GRADE 1 = 5.2 GRADE 2 = 4.1	GRADE 1 = 3.9 GRADE 2 = 3.0	GRADE 1 = 3.6 GRADE 2 = 2.8
- FABRIC:
 

TYPE II AND TYPE IV SHALL BE W2 CORE WIRE, 50 MM MESH  
 TYPE IV FABRIC SHALL BE CLASS A OR B.  
 TYPE IV FABRIC SHALL BE GREY IN COLOR, AND SHALL MATCH FEDERAL STANDARD 595A, COLOR CHIP NO. 26493 (SEMI-GLOSS), UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS.
- THE CENTERLINE OF ALL POSTS SHALL NOT BE LESS THAN 200 MM INSIDE R.O.W.
- THE DEPTH OF CONCRETE FOOTINGS IN SOLID ROCK MAY BE REDUCED TO 300 MILLIMETERS BELOW THE TOP OF ROCK AND THE DIAMETER OF THE HOLE IN ROCK MAY BE REDUCED TO 90 MM.
- BRACE BANDS AND STRETCHER BAR BANDS SHALL BE FURNISHED WITH 8 MM DIA. CARRIAGE BOLTS AND ELASTIC STOP NUTS.
- DRIVE ANCHOR SHOE ASSEMBLY ONLY TO BE USED IN WET AREAS AND WITH PRIOR APPROVAL OF ENGINEER.
- WHEN THE PLANS INDICATE A TERMINAL OR CORNER POST DESIGNATED TYPE "NR", THE TOP RAIL SHALL BE ELIMINATED FROM THIS SECTION OF FENCE.

CD-614-1.4



**CHAIN-LINK FENCE**  
N.T.S.

CD-614-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

59  
129

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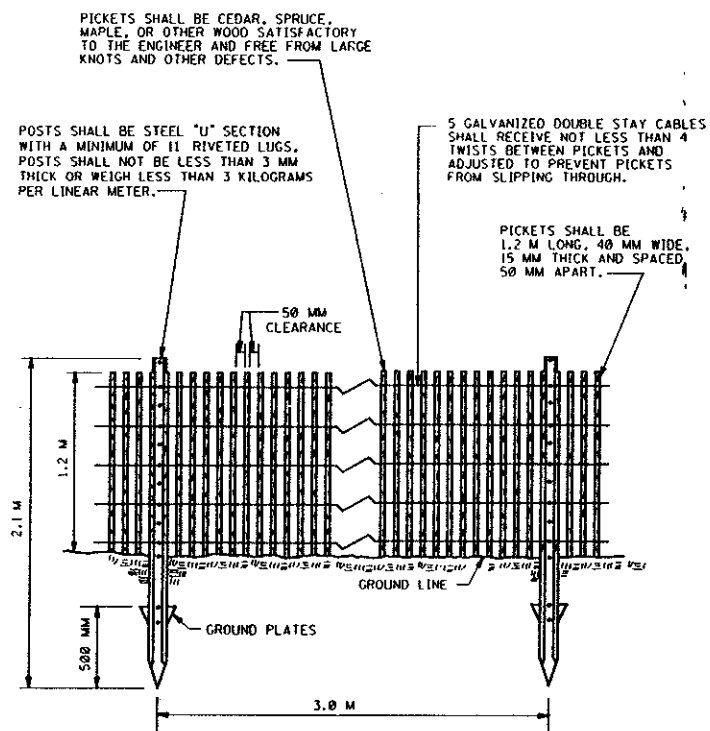
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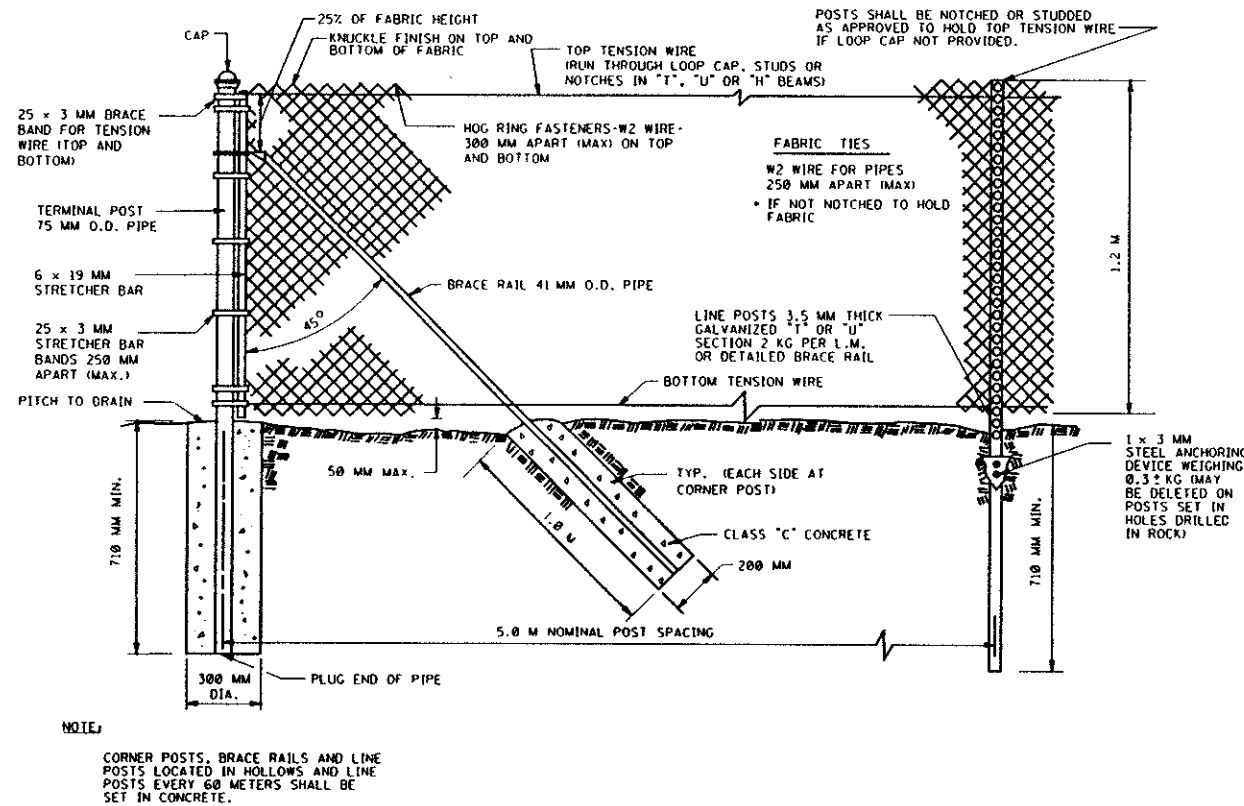
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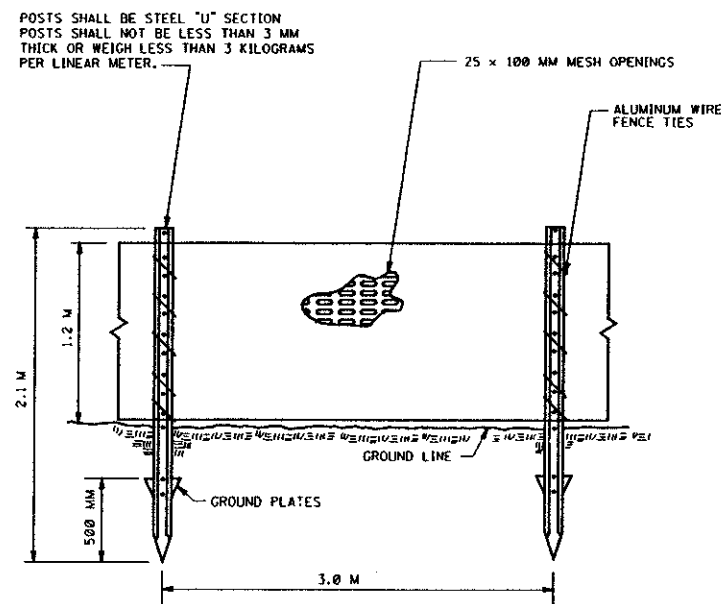
**SNOW FENCE**

CD-614-2.1



**CHAIN LINK FARM-TYPE FENCE**

CD-614-2.2



**SNOW FENCE, PLASTIC**

CD-614-2.3

**CHAIN-LINK AND SNOW FENCE**  
N.T.S.

CD-614-2  
NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



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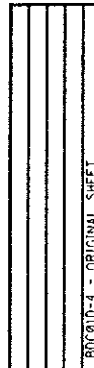
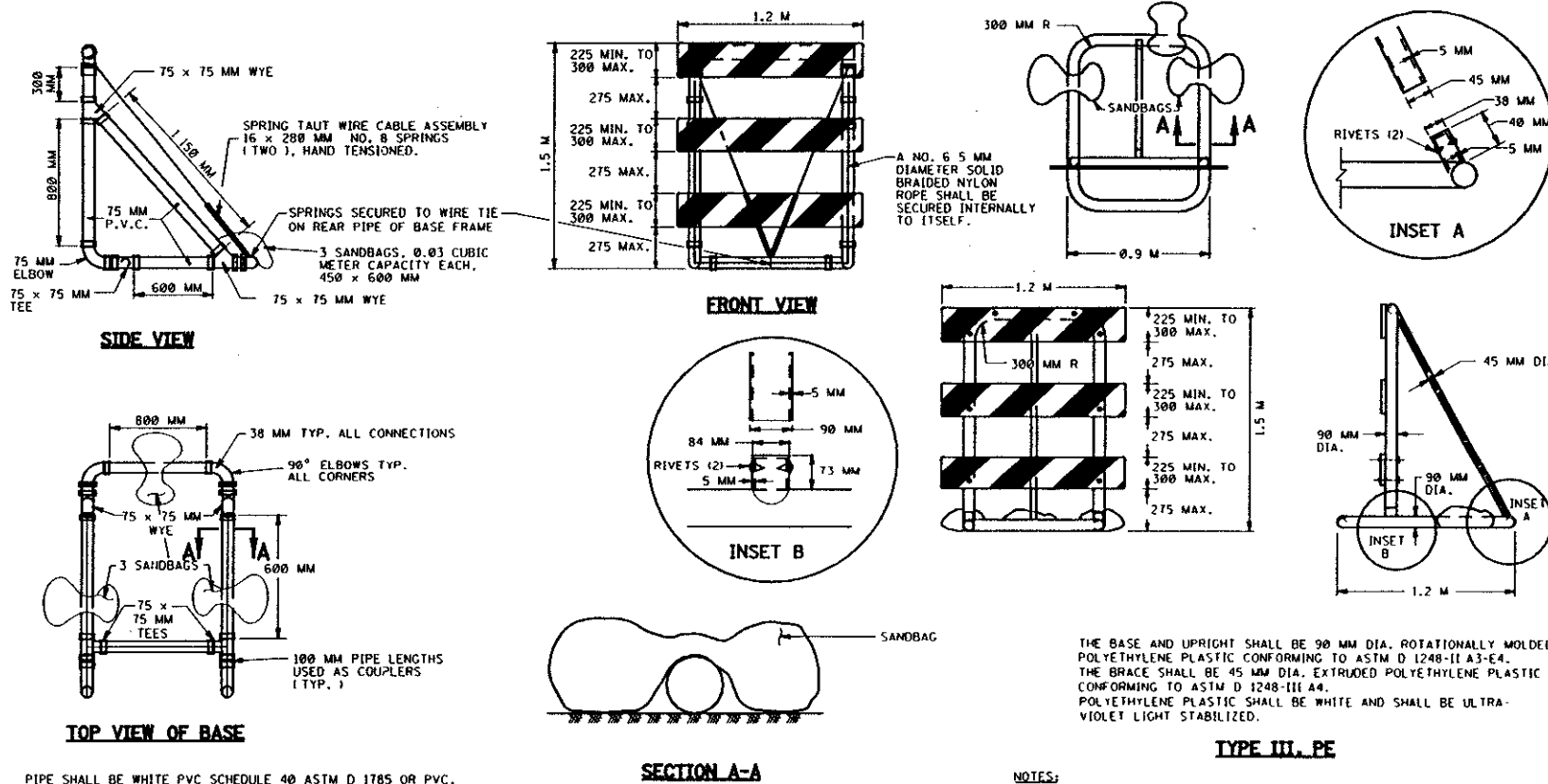


FIGURE 1 - ORIGINAL SHEET

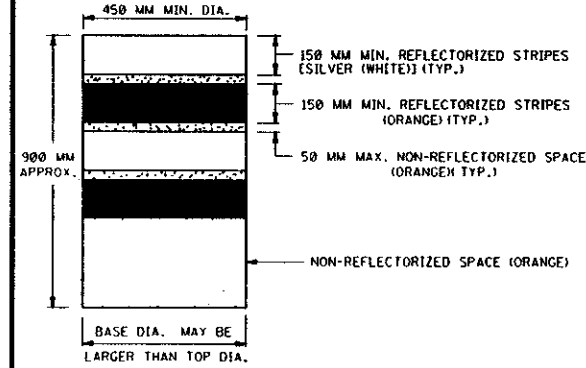


PIPE SHALL BE WHITE PVC SCHEDULE 40 ASTM D 1785 OR PVC, SDR-25 ASTM D 2241. FITTINGS SHALL BE WHITE PVC OR ABS OF MATCHING WALL THICKNESS AND INSIDE DIAMETER AND MEETING THE MATERIALS, REQUIREMENTS AND TESTING SECTIONS OF ASTM D 2466 FOR PVC AND ASTM D 2468 FOR ABS. ALL JOINTS SHALL BE SLIP FIT AND NOT THREADED OR CEMENTED. PVC FITTINGS MEETING ASTM D 2665 WILL ALSO BE ACCEPTABLE. PVC OR ABS MATERIAL SHALL BE ULTRAVIOLET LIGHT STABILIZED.

TYPE III, PVC

### BREAKAWAY BARRICADES

DRUMS SHALL BE MADE OF ORANGE PLASTIC WITH A MINIMUM OF FOUR ALTERNATE ORANGE AND SILVER (WHITE) REFLECTORIZED STRIPES. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE STRIPES, THEY SHALL BE NO MORE THAN 50 MM WIDE. STRIPES SHALL BE RETROREFLECTIVE SHEETING, TYPE III-B. THE TOP OF THE DRUM SHALL NOT BE OPEN. DRUMS SHALL BE CONSTRUCTED TO INHIBIT ROLLING IF KNOCKED OVER. THE REFLECTORIZED AREA OF DRUMS SHALL BE ROUND EXCEPT THAT OTHER SHAPES, WHICH PROVIDE THE SAME VISIBILITY AS A 450 MM DIAMETER ROUND DRUM REGARDLESS OF ORIENTATION, MAY BE USED IF APPROVED BY THE BUREAU OF MATERIALS.

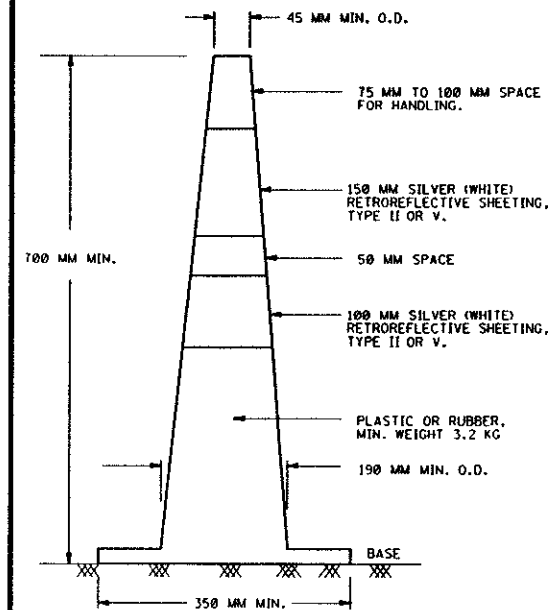


WHEN BALLAST IS REQUIRED BY THE ENGINEER, SAND SHALL BE USED. THE MAXIMUM WEIGHT OF THE BALLAST SHALL BE 23 KG AND BE LOCATED APPROXIMATELY AT GROUND LEVEL.

### DRUMS

CD-617-1.1

TRAFFIC CONES SHALL BE PREDOMINATELY ORANGE IN COLOR.



BASES MAY BE OF BREAKAWAY BALLASTED TYPE.

MINOR MANUFACTURER'S VARIATIONS MAY BE ACCEPTABLE UPON APPROVAL OF THE ENGINEER.

### TRAFFIC CONES

CD-617-1.2

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

## TRAFFIC CONTROL DEVICES

N.T.S.

CD-617-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS





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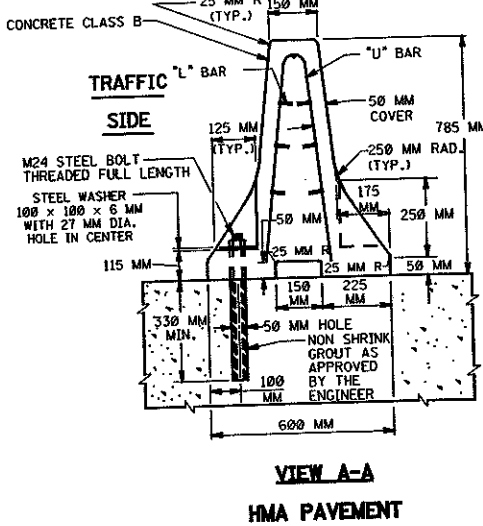
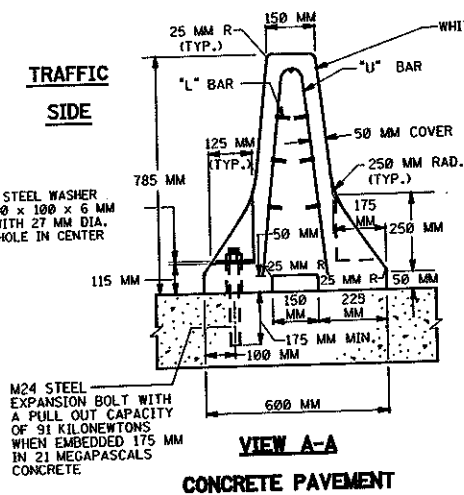
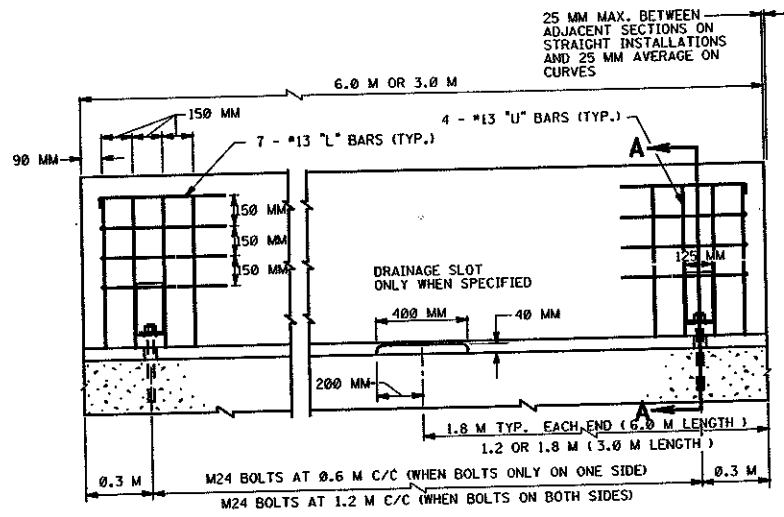
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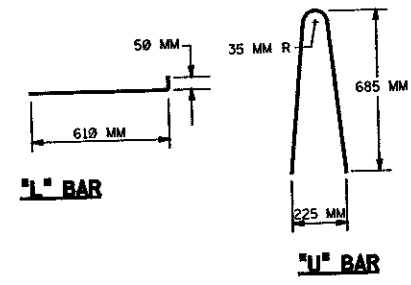
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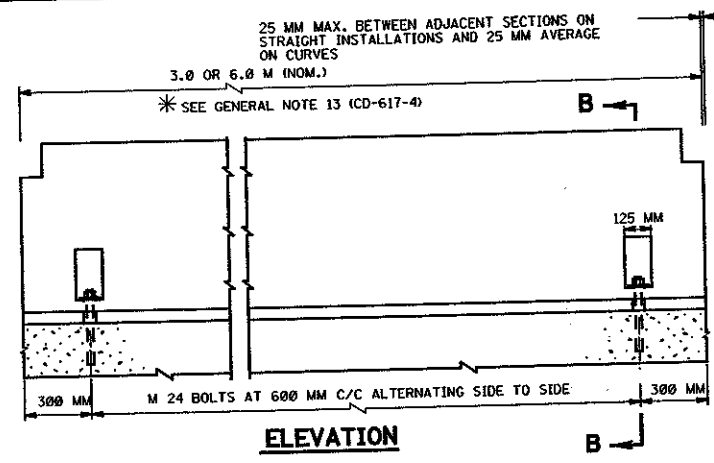
NOTES:

1. THE APPROACH END OF THE PRECAST CONCRETE CURB, CONSTRUCTION BARRIER SHOULD BE FLARED AWAY FROM TRAFFIC AT A RATE OF 1:20. WHERE POSTED SPEEDS ARE LESS THAN 80 KM/HR A FLARE RATE OF 1:15 MAY BE USED. ON CURVED ROADWAYS, KINKS IN THE BARRIER ALIGNMENT SHOULD BE AVOIDED.
2. REINFORCING SHOWN IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING NECESSARY FOR HANDLING SHALL BE THE OPTION AND RESPONSIBILITY OF THE CONTRACTOR.
3. IF TRAFFIC WILL BE ON BOTH SIDES OF THE BARRIER, THE CONTRACTOR SHALL PROVIDE BOLT RECESSES SO THE BOLTS CAN BE INSTALLED AT 1.2 M C. TO C. ON EACH SIDE. AT THE OPTION OF THE CONTRACTOR BOLT RECESSES AND BOLTS MAY BE PROVIDED AT 1.2 M C. TO C. ON EACH SIDE WHEN TRAFFIC IS ONLY ON ONE SIDE OF THE BARRIER.
4. WHEN THE BARRIER HAS BEEN REMOVED, THE BOLTS SHALL BE REMOVED OR CUT OFF TO A LEVEL OF 15 MM MINIMUM BELOW THE PAVEMENT SURFACE AND THE HOLES SHALL BE FILLED TO THE SATISFACTION OF THE ENGINEER.
5. BOLTS, OTHER THAN EXPANSION BOLTS, SHALL BE THREADED RODS MADE FROM ASTM GRADE 250 STEEL. NUTS SHALL CONFORM TO ASTM A 307.
6. VARIATIONS TO THE DETAILS SHALL BE SUBJECT TO APPROVAL.
7. FOR INSTALLATION ON BRIDGE DECKS, REFER TO BRIDGE PLANS FOR NECESSARY MODIFICATIONS, AS REQUIRED.
8. REINFORCEMENT STEEL SHALL CONFORM TO SUBSECTION 915.01 A, DEFORMED BARS.



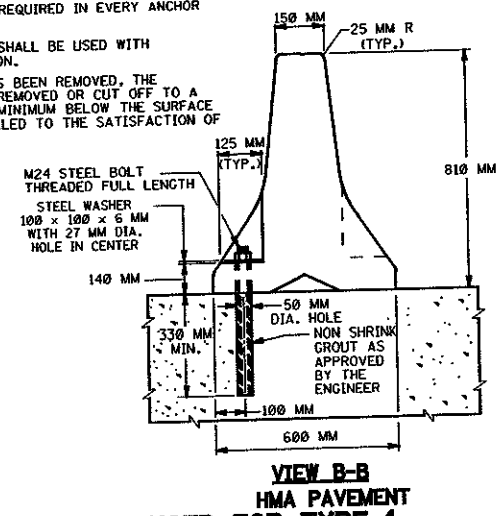
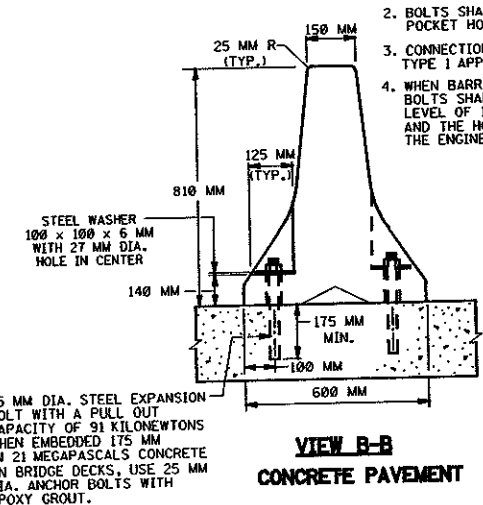
PRECAST CONCRETE CURB, CONSTRUCTION BARRIER  
TYPE 1

CD-617-3.1



NOTES:

1. BOLTS AND NUTS SHALL CONFORM TO ASTM A 307.
2. BOLTS SHALL BE REQUIRED IN EVERY ANCHOR POCKET HOLE.
3. CONNECTION KEY SHALL BE USED WITH TYPE 1 APPLICATION.
4. WHEN BARRIER HAS BEEN REMOVED, THE BOLTS SHALL BE REMOVED OR CUT OFF TO A LEVEL OF 15 MM MINIMUM BELOW THE SURFACE AND THE HOLE FILLED TO THE SATISFACTION OF THE ENGINEER.



ANCHORAGE DETAILS FOR TYPE 4 BARRIER USED FOR TYPE 1

CD-617-3.2

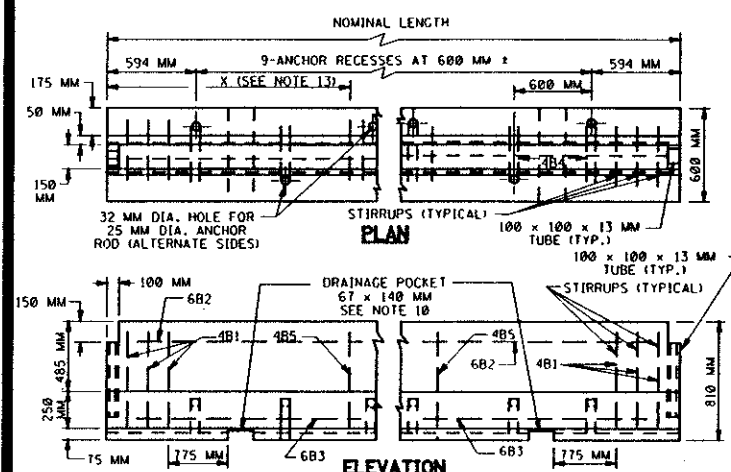
PRECAST CONCRETE CURB,  
CONSTRUCTION BARRIER,  
TYPE 1  
HMA = HOT MIX ASPHALT  
N.T.S.

CD-617-3

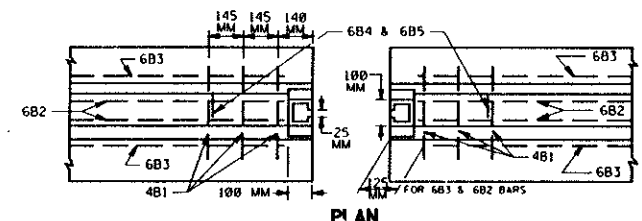
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

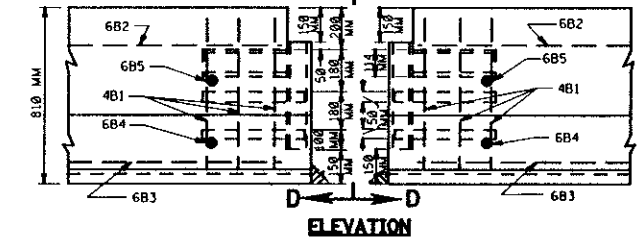
NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



CONCRETE BARRIER



BARRIER AT JOINT



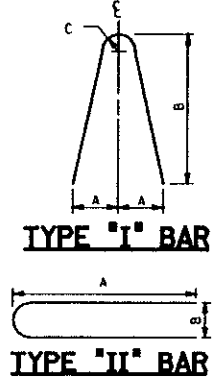
**BARS LIST (EACH BARRIER SECTION)**

MARK	SIZE	NUMBER IN EACH SECTION	LENGTH	TYPE	A	B	C	LOCATION
4B1	#13	6	1 500 MM	I	125 MM	660 MM	50 MM	STIRRUPS
4B4	#13	SEE NOTE 13	940 MM	II	390 MM	100 MM		STIRRUPS
4B5	#13	SEE NOTE 13	1 500 MM	I	125 MM	660 MM	50 MM	STIRRUPS
6B2	#19	2	SEE NOTE 13	STR.				LONGITUDINAL (TOP) NORMAL SECTION
6B3	#19	2	SEE NOTE 13	STR.				LONGITUDINAL (BOTTOM) NORMAL SECTION
6B4	#19	2	355 MM	STR.				TRANSVERSE (BOTTOM) NORMAL SECTION
6B5	#19	2	150 MM	STR.				TRANSVERSE (TOP) NORMAL SECTION

**TABLE OF VARIABLE BARS**

NOMINAL LENGTH OF BARRIER UNIT	MARK	"X"	NO. EACH SECTION
6.0 M	4B4	N.A.	9
6.0 M	4B5	2 110 MM	2
5.4 M	4B4	N.A.	8
5.4 M	4B5	1 955 MM	2
4.8 M	4B4	N.A.	7
4.8 M	4B5	1 805 MM	2
4.2 M	4B4	N.A.	6
4.2 M	4B5	2 135 MM	1
3.6 M	4B4	N.A.	5
3.6 M	4B5	1 830 MM	1
3.0 M	4B4	N.A.	4
3.0 M	4B5	1 525 MM	1
2.4 M	4B4	N.A.	3
2.4 M	4B5	-	0

"X" DISTANCE FROM END OF BARRIER TO 4B5 BAR

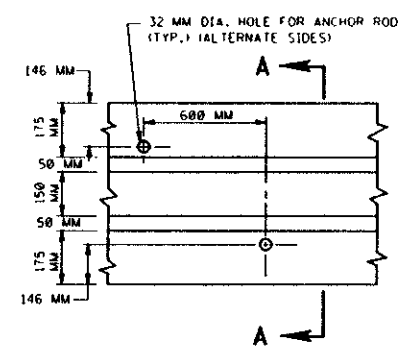


**NOTE A**  
THE LENGTH OF THE ANCHOR PINS SHALL BE SUCH THAT THE FOLLOWING MINIMUM EMBEDMENT LENGTHS ARE OBTAINED:  
(a) INTO PORTLAND CEMENT CONCRETE PAVEMENT 125 MM.  
(b) INTO FLEXIBLE PAVEMENT 450 MM.  
(c) INTO UNPAVED AREA 750 MM  
WHEN ANCHOR PINS ARE IN PLACE, THEY SHALL NOT PROJECT ABOVE THE PLANE OF THE CONCRETE SURFACE OF THE BARRIER.

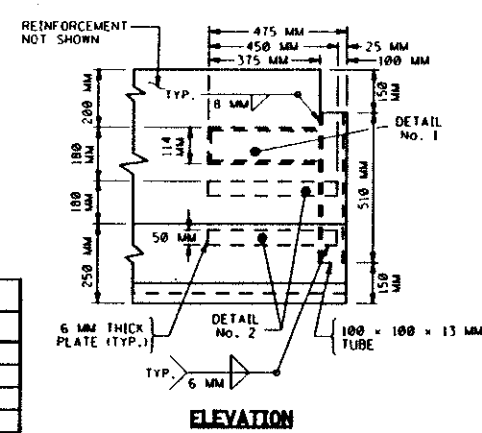
HOLES IN BRIDGE DECK SHALL BE 32 MM DIA. MAXIMUM AND MADE WITH A CORE DRILL OR ANY OTHER APPROVED ROTARY DRILLING DEVICE THAT DOES NOT IMPART AN IMPACT FORCE.

**NOTE B**  
IN UNITS THAT ARE TO BE ANCHORED, PINS SHALL BE REQUIRED IN EVERY ANCHOR RECESS.

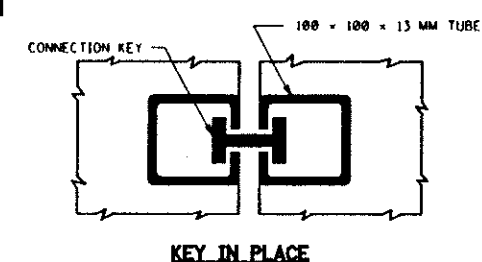
**NOTE C**  
FOR INSTALLATION ON BRIDGE DECKS REFER TO BRIDGE PLANS FOR NECESSARY MODIFICATIONS AS REQUIRED AND GENERAL NOTE 16.



PLAN-ANCHOR RECESS



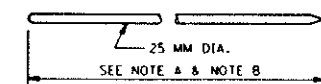
ELEVATION



KEY IN PLACE

PRECAST CONCRETE CURB, CONSTRUCTION BARRIER JOINT CONNECTION DETAILS

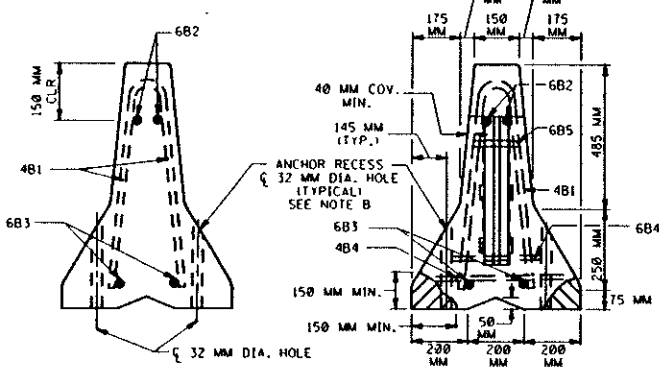
FOR ANCHORING IN CONCRETE SLABS, THE TIP MAY BE OMITTED.



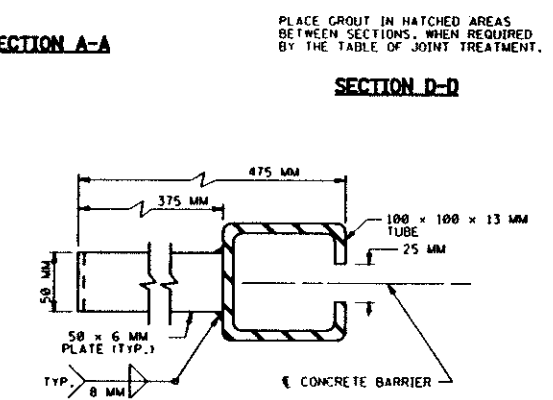
ANCHOR PIN

**TABLE OF JOINT AND ANCHORAGE TREATMENTS**

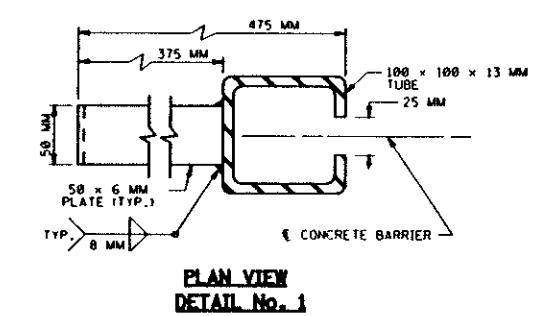
JOINT CLASS	TREATMENT
A	CONNECTION KEY ONLY
B	CONNECTION KEY & GROUT IN EVERY JOINT
C	CONNECTION KEY & GROUT IN EVERY JOINT & PIN EVERY OTHER UNIT. IN UNITS THAT ARE TO BE ANCHORED, PINS SHALL BE REQUIRED IN EVERY ANCHOR RECESS



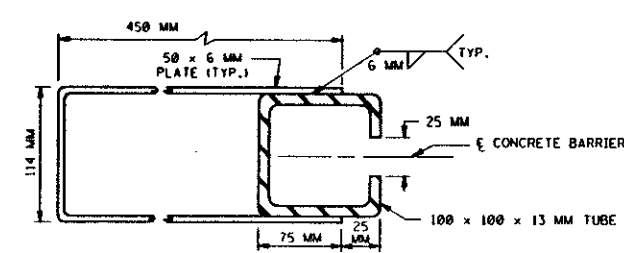
SECTION A-A



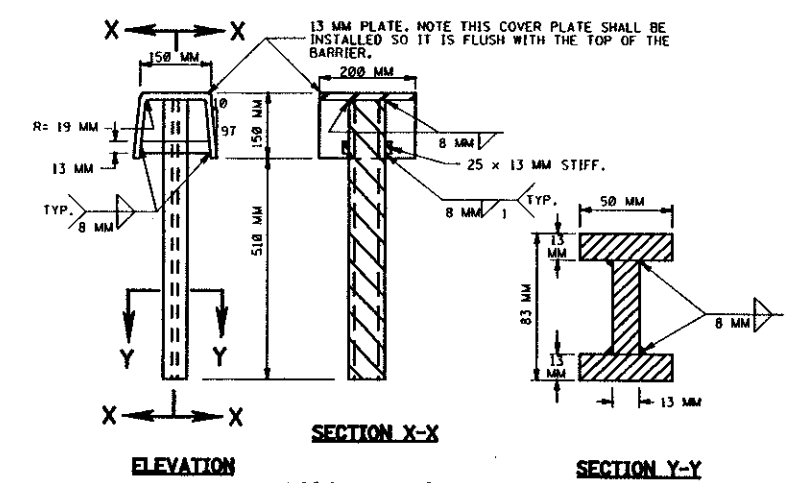
SECTION D-D



PLAN VIEW DETAIL No. 1



PLAN VIEW DETAIL No. 2



SECTION X-X

CONNECTION KEY

SECTION Y-Y

PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 4 (ALTERNATE A)

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-617-4.1

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.





G20 - 1  
1 500 x 600 MM  
(0.9 S.M.)



M4 - 8a  
600 x 450 MM  
(0.3 S.M.)  
M4 - 11 (S)  
1 200 x 900 MM  
(1.1 S.M.)



R11 - 4  
1 500 x 750 MM  
(1.1 S.M.)



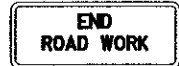
W20 - 7b  
1 200 x 1 200 MM  
(1.4 S.M.)



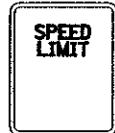
(L OR R)  
(CENTER)  
W20 - 5  
1 200 x 1 200 MM  
(1.4 S.M.)



W8 - 1 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



G20 - 2A  
1 200 x 600 MM  
(0.7 S.M.)



R2 - 1  
600 x 750 MM  
(0.5 S.M.)  
R2 - 1 (S)  
1 200 x 1 500 MM  
(1.8 S.M.)



(L OR R)  
W1 - 4a  
1 200 x 1 200 MM  
(1.4 S.M.)



W13 - 1  
450 x 450 MM  
(0.2 S.M.)  
W13 - 1 (S)  
600 x 600 MM  
(0.4 S.M.)



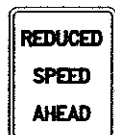
W20 - 7a  
1 200 x 1 200 MM  
(1.4 S.M.)



W8 - 9a  
1 200 x 1 200 MM  
(1.4 S.M.)



M4 - 9L (LEFT)  
M4 - 9R (RIGHT)  
750 x 600 MM  
(0.5 S.M.)  
M4 - 9 (L OR R) (S)  
1 200 x 900 MM  
(1.1 S.M.)



R2 - 5a  
600 x 750 MM  
(0.5 S.M.)  
R2 - 5a (S)  
1 200 x 1 500 MM  
(1.8 S.M.)



(L OR R)  
W1 - 6  
1 200 x 600 MM  
(0.7 S.M.)  
W1 - 6 (S)  
1 500 x 750 MM  
(1.1 S.M.)



W20 - 1A  
1 200 x 1 200 MM  
(1.4 S.M.)



W21 - 5 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



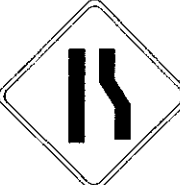
W8 - 1A  
1 200 x 1 200 MM  
(1.4 S.M.)



M4 - 9LX (LEFT)  
M4 - 9RX (RIGHT)  
750 x 600 MM  
(0.5 S.M.)  
M4 - 9 (L OR R)XS  
1 200 x 900 MM  
(1.1 S.M.)



R4 - 1  
600 x 750 MM  
(0.5 S.M.)



(L OR R)  
W4 - 2 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



W20 - 2  
1 200 x 1 200 MM  
(1.4 S.M.)



M4 - 9N  
750 x 300 MM MIN.  
(0.2 S.M.)  
(SIZE WILL VARY WITH  
LENGTH OF STREET NAME)  
STREET NAME SIGN TO  
BE USED IN CONJUNCTION  
WITH M4 - 9 SIGNS  
BLACK ON ORANGE



W8 - 14A  
1 200 x 1 200 MM  
(1.4 S.M.)



M4 - 9X  
750 x 600 MM  
(0.5 S.M.)  
M4 - 9X (S)  
1 200 x 900 MM  
(1.1 S.M.)



R11 - 2  
1 200 x 750 MM  
(0.9 S.M.)



W5 - 1 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



W20 - 3  
1 200 x 1 200 MM  
(1.4 S.M.)



600 x 600 MM  
(0.4 S.M.)  
750 x 750 MM (S)  
(0.6 S.M.)



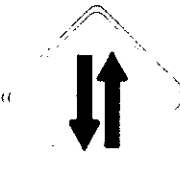
W99 - 2  
1 200 x 1 200 MM  
(1.4 S.M.)  
NOTE: THE BORDER, THE WORDS  
"GIVE US A", "SLOW DOWN",  
AND THE BRAKE PEDAL ARE  
BLACK; LEAVING THE WORD  
"BRAKE" ORANGE.



M4 - 10L (LEFT)  
M4 - 10R (RIGHT)  
1 200 x 450 MM  
(0.3 S.M.)



R11 - 3  
1 500 x 750 MM  
(1.1 S.M.)



W4 - 1  
1 200 x 1 200 MM  
(1.4 S.M.)



W20 - 4  
1 200 x 1 200 MM  
(1.4 S.M.)



600 x 600 MM  
(0.4 S.M.)  
750 x 750 MM (S)  
(0.6 S.M.)

#### GENERAL NOTES:

- DIMENSIONS, COLORS AND DETAILS OF VARIOUS SIZE SIGNS, AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGN PUBLICATION" AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
- (S) REPRESENTS A SPECIAL SIZE SIGN.
- LETTERS AND NUMERALS SHALL CONFORM TO THE CURRENT MANUAL, "STANDARD ALPHABETS FOR HIGHWAY SIGNS" U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
- THE CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE ENGINEER FOR THE DISTANCE TO BE USED ON THE ADVANCE WARNING SIGNS, AND FOR THE SPEED LIMIT TO BE USED ON THE R2-1 SIGN.

#### DISTANCE LEGEND

SIGN NUMBER FOLLOWED BY	DISTANCE
LETTER	
A	1500'
B	1000'
C	500'
D	1 MILE
E	1 MILES AHEAD
F	AHEAD

#### BACKING MATERIAL

- ALUMINUM SHALL BE FLAT SHEET OF ALLOY 5052-H38 OR 6061-T6 ALLOY, 2.5 MM THICK.

#### TEMPORARY SIGN SUPPORTS

- SIGN SUPPORTS SHALL BE OF WELL SEASONED LUMBER, S4S, FREE OF SPLITS, KNOTS AND WARPS OR, OF STEEL COMPONENTS.
- WOOD POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL NOT EXCEED THE FOLLOWING DIMENSIONS FOR:

SINGLE POST = 100 x 150 MM ;  
TWO POSTS = 75 x 150 MM OR  
100 x 125 MM ;  
THREE POSTS = 75 x 125 MM OR  
100 x 100 MM

100 x 150 MM WOOD POSTS SHALL BE MODIFIED BY DRILLING 40 MM DIAMETER HOLES 100 MM AND 450 MM ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.

- NO BRACING IS PERMITTED. VERTICAL CLEARANCES FOR SIGNS MOUNTED ON WOOD SUPPORTS SHALL BE 2.1 M MINIMUM. EMBEDMENT DEPTH FOR THE WOOD POST SHALL NOT EXCEED 1.0 M.

- STEEL POSTS SHALL BE IN ACCORDANCE WITH THE STANDARD DETAIL FOR U-POST SIGN SUPPORT.

- TEMPORARY SIGN SUPPORTS NOT MEETING THIS CRITERIA SHALL BE SHIELDED BY A LONGITUDINAL BARRIER OR CRASH CUSHIONS.

#### SIGN FACES

- SIGN FACES SHALL BE RETROREFLECTIVE SHEETING, TYPE II OR IIIA, EXCEPT FOR THE W20 SERIES AND W4-2 SIGN FACES WHICH SHALL BE TYPE IV-B SHEETING.

#### FASTENING

- ALL SIGNS SHALL BE SECURELY FASTENED TO THEIR SUPPORTS WITH BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH THE SPECIFICATIONS.

## CONSTRUCTION SIGNS

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

CD-517-6.1



E5 - 1  
1 500 x 1 200 MM  
(1.8 S.M.)



W50 - 1C  
1 500 x 1 200 MM  
(1.8 S.M.)



W20 - 4F(M)  
1 200 x 1 200 MM  
(1.4 S.M.)



W20 - 10(C)  
1 200 x 1 200 MM  
(1.4 S.M.)



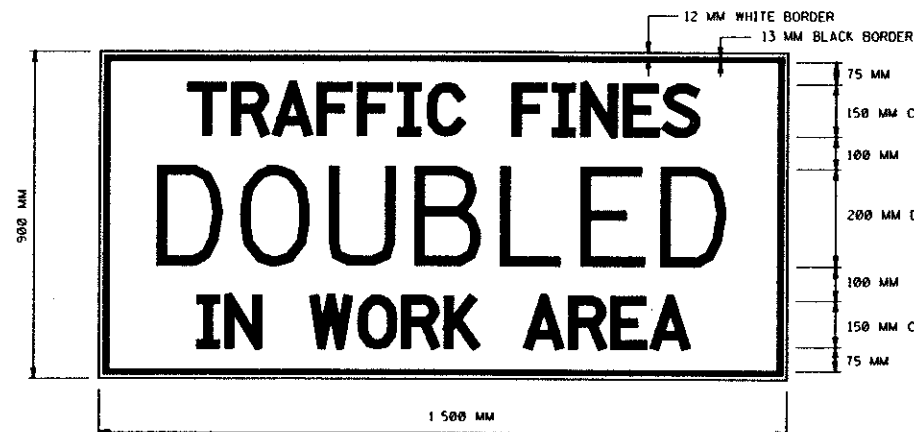
W20 - 3 a  
1 200 x 1 200 MM  
(1.4 S.M.)



W10J100 - 1L OR R  
1 200 x 1 200 MM  
(1.4 S.M.)

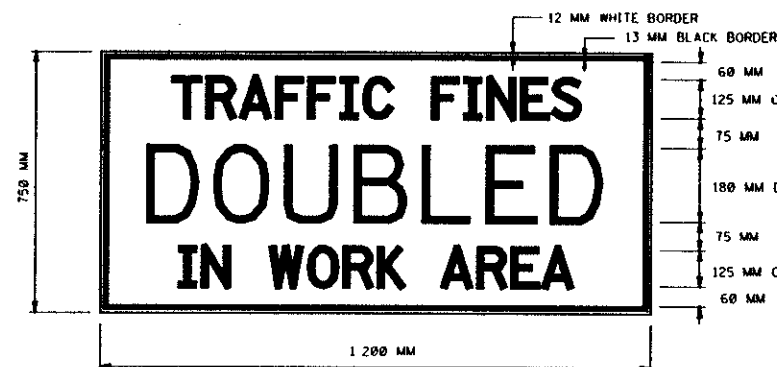


W5 - 4  
1 200 x 1 200 MM  
(1.4 S.M.)



NOTE:

MESSAGE TO BE BLACK LETTERS  
ON WHITE REFLECTIVE BACKGROUND.  
R1NJ5-17  
1 500 x 900 MM  
1.35 S.M.



NOTE:

MESSAGE TO BE BLACK LETTERS  
ON WHITE REFLECTIVE BACKGROUND.  
R1NJ5-17(S)  
1 200 x 750 MM  
0.98 S.M.

GENERAL NOTES:

- DIMENSIONS, COLORS AND DETAILS OF VARIOUS SIZE SIGNS, AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGN PUBLICATION" AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
- (S) REPRESENTS A SPECIAL SIZE SIGN.
- LETTERS AND NUMERALS SHALL CONFORM TO THE CURRENT MANUAL, "STANDARD ALPHABETS FOR HIGHWAY SIGNS" U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
- THE CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE ENGINEER FOR THE DISTANCE TO BE USED ON THE ADVANCE WARNING SIGNS, AND FOR THE SPEED LIMIT TO BE USED ON THE R2-1 SIGN.

DISTANCE LEGEND	
SIGN NUMBER FOLLOWED BY	DISTANCE
LETTER	
A	1500'
B	1000'
C	500'
D	1 MILE
E	1/2 MILE AHEAD
F	AHEAD

BACKING MATERIAL

- ALUMINUM SHALL BE FLAT SHEET OF ALLOY 5052-H38 OR 6061-T6 ALLOY, 2.5 MM THICK.

TEMPORARY SIGN SUPPORTS

- SIGN SUPPORTS SHALL BE OF WELL SEASONED LUMBER, S4S, FREE OF SPLITS, KNOTS AND WARPS OR, OF STEEL COMPONENTS.
- WOOD POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL NOT EXCEED THE FOLLOWING DIMENSIONS FOR:

SINGLE POST = 100 x 150 MM ;  
TWO POSTS = 75 x 150 MM OR  
100 x 125 MM ;  
THREE POSTS = 75 x 125 MM OR  
100 x 100 MM

100 x 150 MM WOOD POSTS SHALL BE MODIFIED BY DRILLING 40 MM DIAMETER HOLES 100 MM AND 450 MM ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.

- NO BRACING IS PERMITTED. VERTICAL CLEARANCES FOR SIGNS MOUNTED ON WOOD SUPPORTS SHALL BE 2.1 M MINIMUM. EMBEDMENT DEPTH FOR THE WOOD POST SHALL NOT EXCEED 1.0 M.

- STEEL POSTS SHALL BE IN ACCORDANCE WITH THE STANDARD DETAIL FOR U-POST SIGN SUPPORT.

- TEMPORARY SIGN SUPPORTS NOT MEETING THIS CRITERIA SHALL BE SHIELDED BY A LONGITUDINAL BARRIER OR CRASH CUSHIONS.

SIGN FACES

- SIGN FACES SHALL BE RETROREFLECTIVE SHEETING, TYPE II OR IIIA EXCEPT FOR THE W20 SERIES AND W4-2 SIGN FACES WHICH SHALL BE TYPE IX-B SHEETING.

FASTENING

- ALL SIGNS SHALL BE SECURELY FASTENED TO THEIR SUPPORTS WITH BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH THE SPECIFICATIONS.

CONSTRUCTION SIGNS

N.T.S.

CD-617-7

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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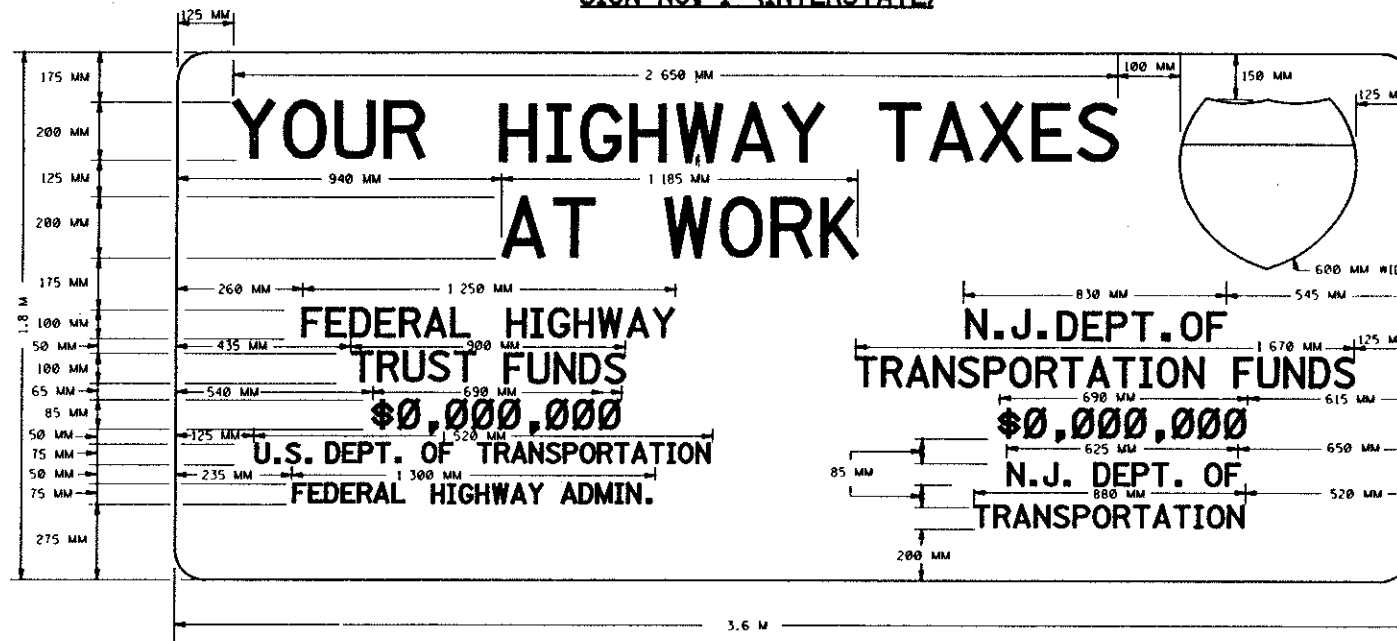
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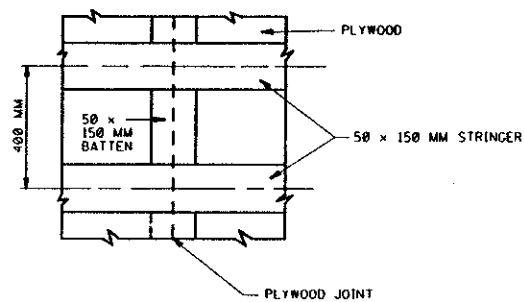
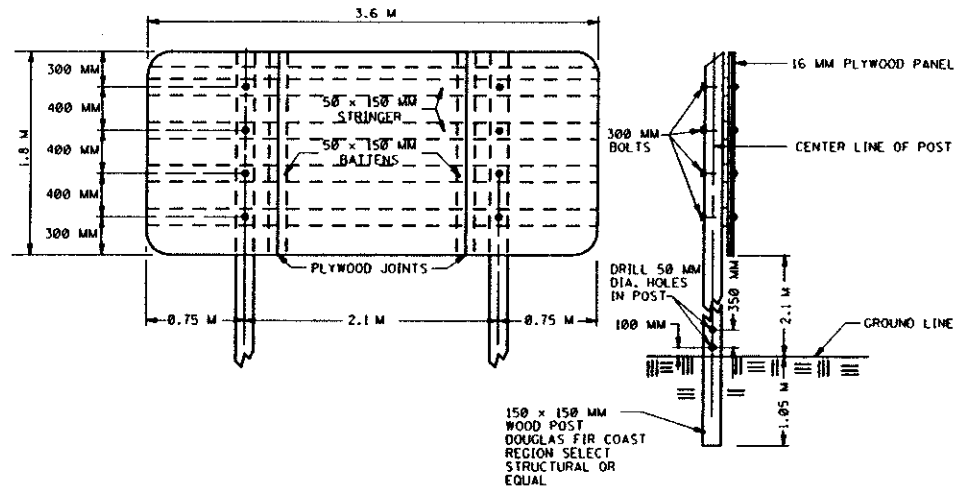
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### SIGN NO. 1 (INTERSTATE)



### DETAILS OF SIGN NO. 1



DETAIL OF BATTEN  
AT PLYWOOD JOINTS  
SIGN NO. 1

### NOTES:

PLYWOOD PANELS SHALL CONFORM TO REQUIREMENTS FOR HIGH DENSITY OVERLAY AS SET FORTH IN COMMERCIAL STANDARD CS 45-60 FOR DOUGLAS FIR PLYWOOD AND ALL AMENDMENTS THERETO.

COSTS LISTED ON SIGNS TO BE FURNISHED BY ENGINEER AFTER AWARD OF CONTRACT.

SIGNS TO BE LOCATED AS SHOWN ON PLANS OR AS DIRECTED BY ENGINEER.

SHIELD TO CONFORM TO DETAILS SHOWN IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

COLOR:  
GREEN BACKGROUND WITH WHITE MESSAGE AND BORDER NOT REFLECTORIZED.

LEGEND:  
SERIES "C" LETTERS - "YOUR HIGHWAY TAXES AT WORK" SERIES "D" LETTERS (BALANCE OF LETTERING).

CORNER RADIUS:  
75 MM

INTERSTATE SHIELD:  
RED, WHITE, AND BLUE

### NOTE:

ON PROJECTS WITH NO FEDERAL FUNDING THE REFERENCE

FEDERAL HIGHWAY TRUST FUNDS

\$0,000,000

U.S. DEPT. OF TRANSPORTATION

FEDERAL HIGHWAY ADMIN.

SHALL NOT BE INCLUDED ON THE SIGN.

**INTERSTATE**  
**CONSTRUCTION IDENTIFICATION SIGN**  
N.T.S.

CD-617-8

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

CD-617-8.1

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.

69  
129

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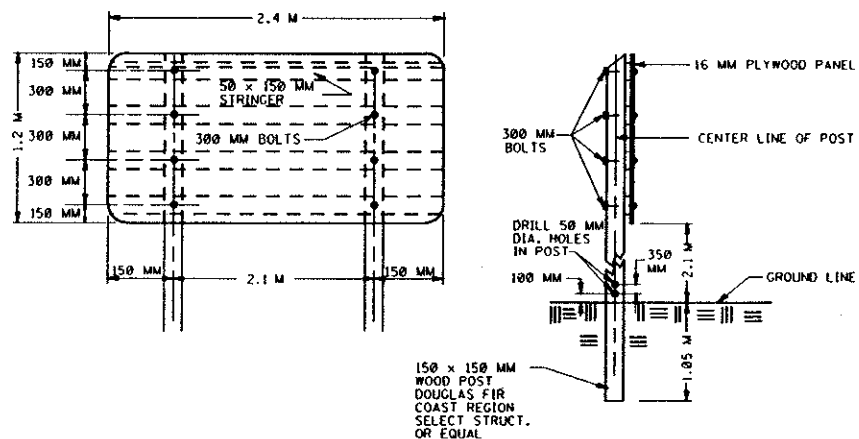
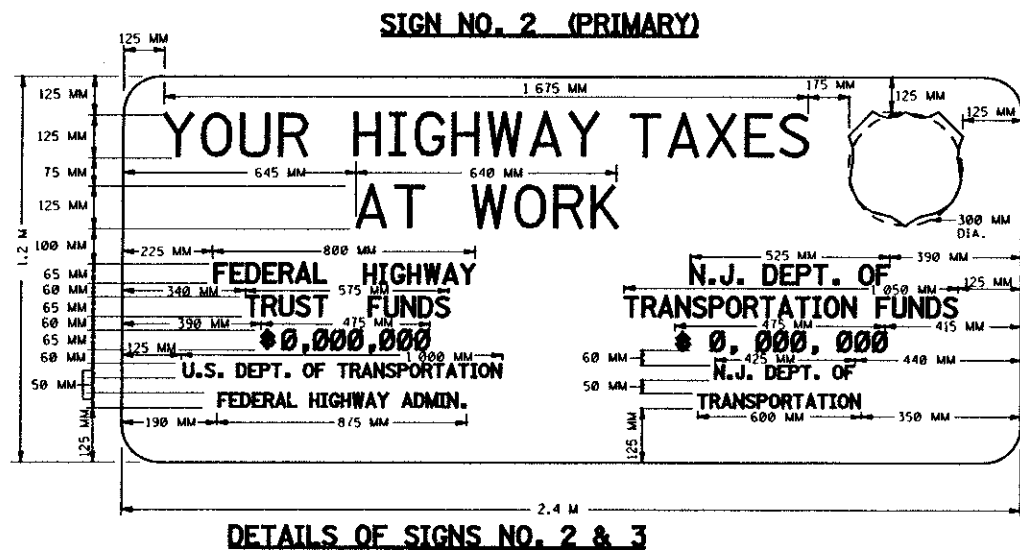
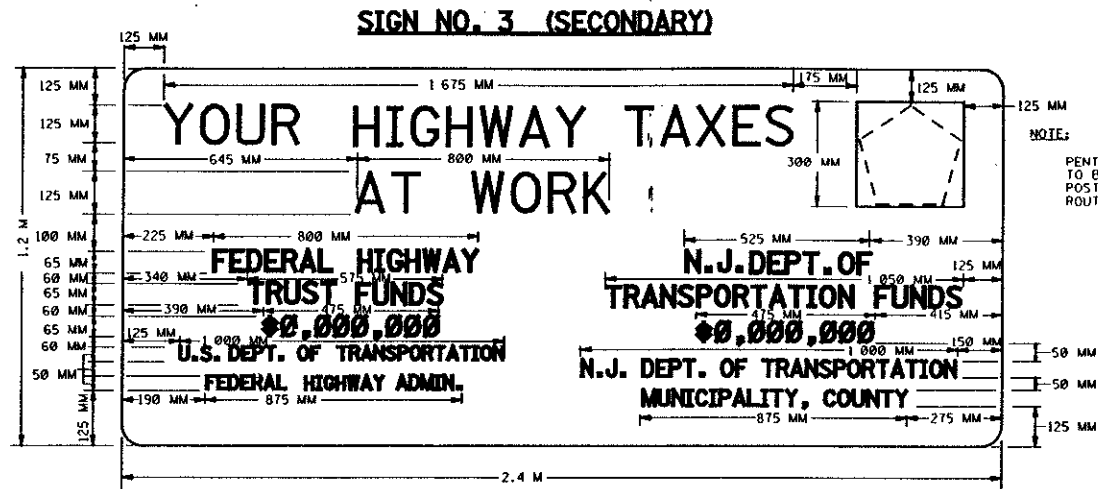
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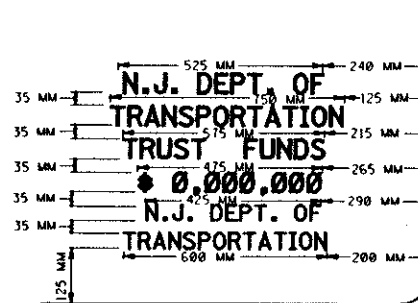
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800010-1 - ORIGINAL SHEET



NOTE: USE MODIFIED DETAIL BELOW WHEN NJDOT TRUST FUNDS ARE APPLICABLE FOR SIGNS #2 AND #3 (LOWER RIGHT HAND CORNER OF SIGNS).



**NOTES:**

PLYWOOD PANELS SHALL CONFORM TO REQUIREMENTS FOR HIGH DENSITY OVERLAY AS SET FORTH IN COMMERCIAL STANDARD CS 45-60 FOR DOUGLAS FIR PLYWOOD AND ALL AMENDMENTS THERETO.

COSTS LISTED ON SIGNS TO BE FURNISHED BY ENGINEER AFTER AWARD OF CONTRACT.

SIGNS TO BE LOCATED AS SHOWN ON PLANS OR AS DIRECTED BY ENGINEER.

SHIELD TO CONFORM TO DETAILS SHOWN IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

COLOR: GREEN BACKGROUND WITH WHITE MESSAGE AND BORDER NOT REFLECTORIZED.

LEGEND: SERIES "C" LETTERS - "YOUR HIGHWAY TAXES AT WORK" SERIES "D" LETTERS (BALANCE OF LETTERING).

CORNER RADIUS: 75 MM

INTERSTATE SHIELD: RED, WHITE, AND BLUE

U.S. AND STATE SHIELDS: BLACK ON WHITE

COUNTY SHIELDS: GOLD ON BLUE

**NOTE:**

ON PROJECTS WITH NO FEDERAL FUNDING THE REFERENCE  
FEDERAL HIGHWAY TRUST FUNDS  
\$0,000,000  
U.S. DEPT. OF TRANSPORTATION  
FEDERAL HIGHWAY ADMIN.  
SHALL NOT BE INCLUDED ON THE SIGN.

**CONSTRUCTION IDENTIFICATION SIGNS**

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

CD-617-9.1

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

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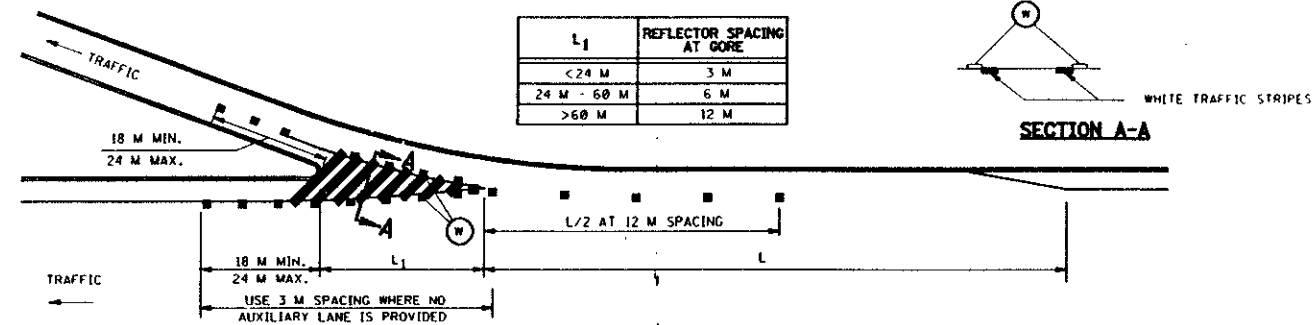
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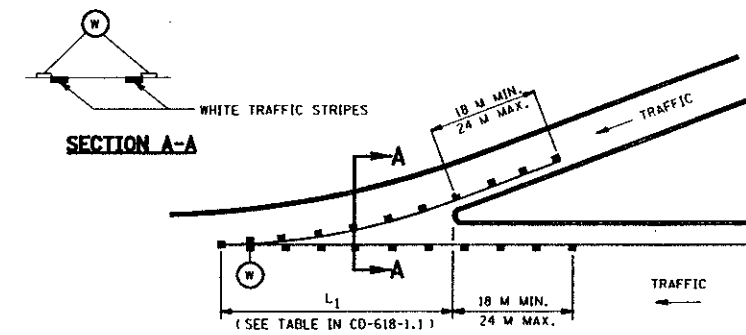
TYPICAL DECELERATION LANE TREATMENT

CD-618-1.1

LEGEND

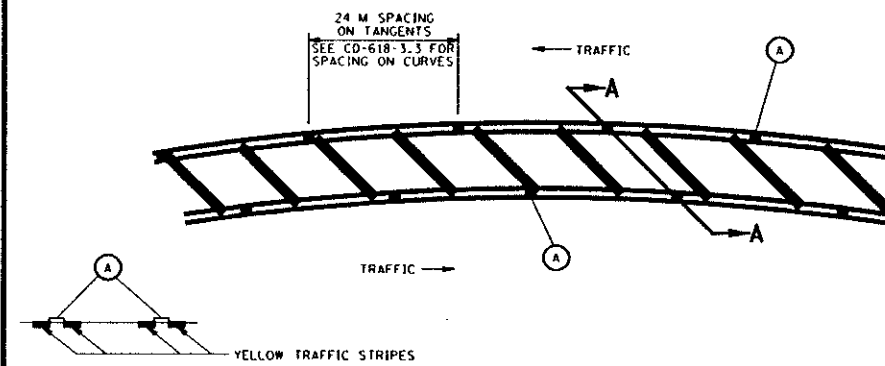
- (W) TWO-WAY PLOWABLE MONO-DIRECTIONAL WHITE PAVEMENT REFLECTOR
- (A) TWO-WAY PLOWABLE MONO-DIRECTIONAL AMBER PAVEMENT REFLECTOR

CD-618-1.2



TYPICAL ACCELERATION LANE TREATMENT

CD-618-1.3



TYPICAL PAVED MEDIAN TREATMENT

CD-618-1.4

PLOWABLE PAVEMENT  
REFLECTOR LOCATION DETAILS  
N.T.S.

CD-618-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.



See table = 1:2000 scale, 1:1000 scale, 1:500 scale

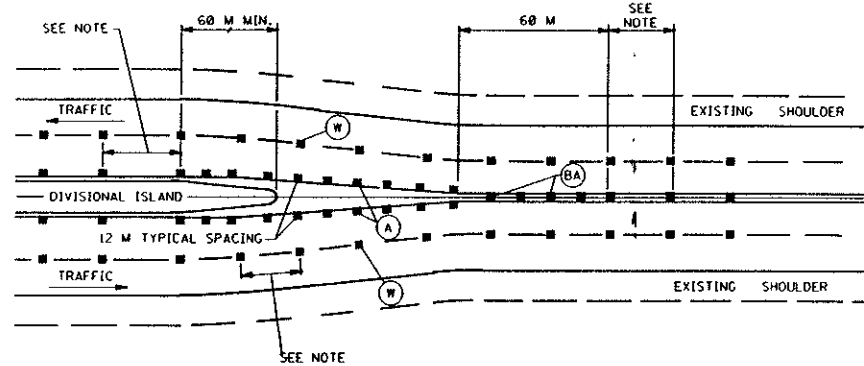
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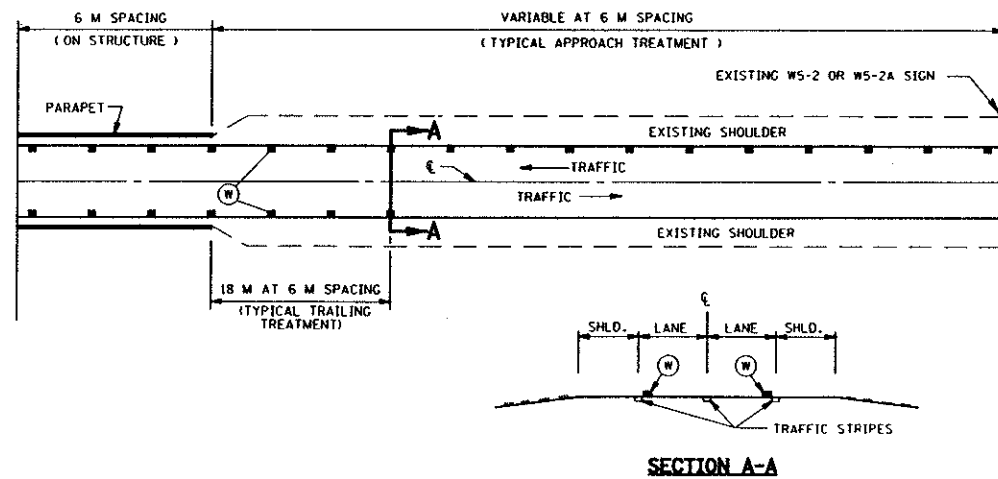
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NOTE:  
24 M SPACING ON TANGENT FOR  
SPACING ON CURVES SEE CD-616-3.3

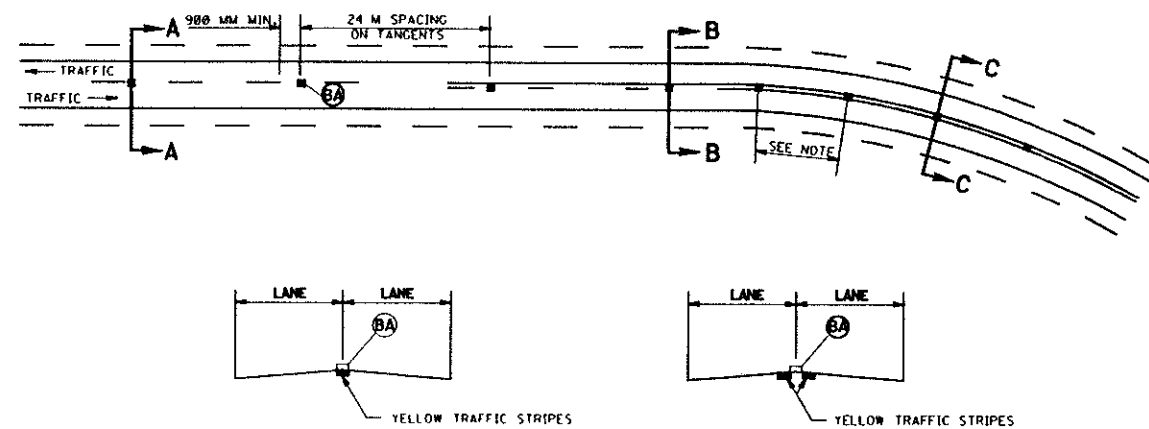
### TYPICAL DIVISIONAL ISLAND TREATMENT

CD-618-2.1



### NARROW BRIDGE OR CULVERT TREATMENT

CD-618-2.2



### SECTION A-A

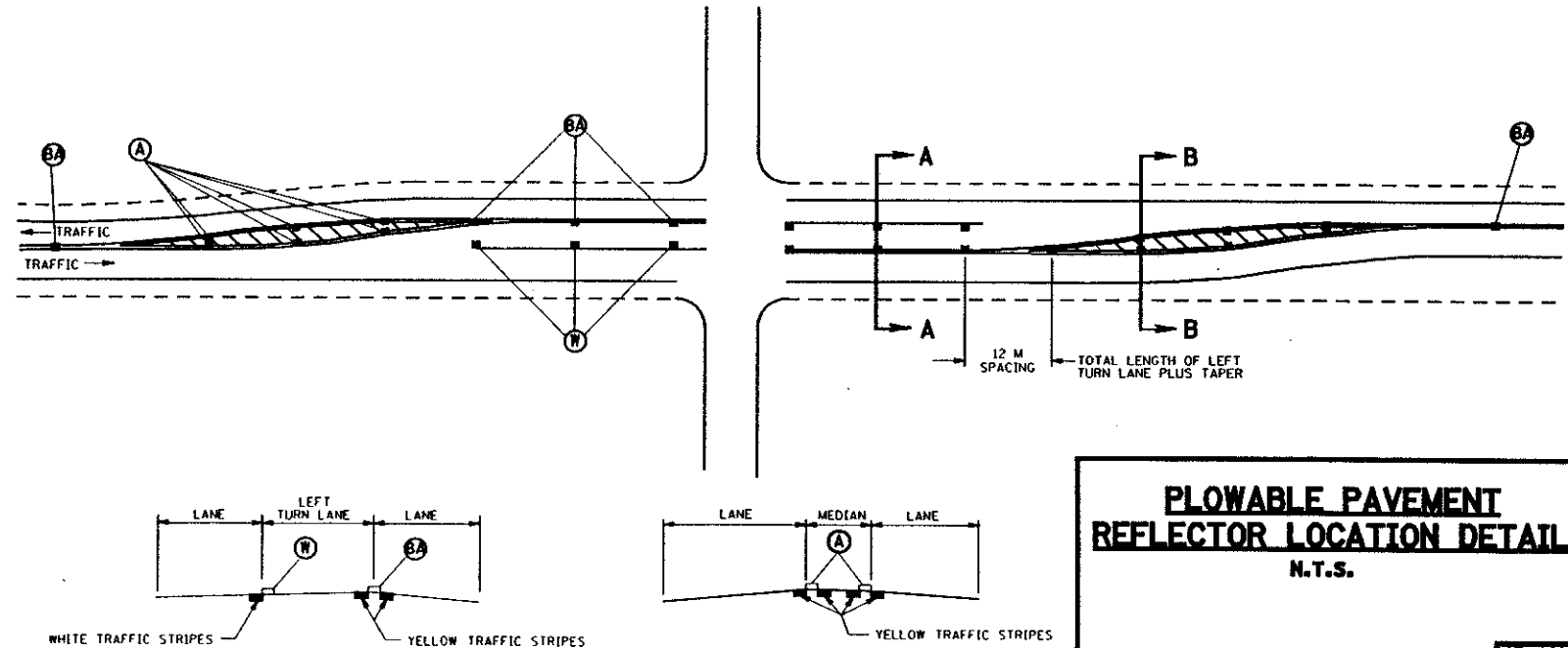
### SECTION B-B

### SECTION C-C

### TYPICAL TWO LANE SECTION

NOTE:  
FOR SPACING ON CURVES SEE CD-618-3.3

CD-618-2.4



### SECTION A-A

### SECTION B-B

### TYPICAL LEFT TURN LANE SECTION

### PLOWABLE PAVEMENT REFLECTOR LOCATION DETAILS N.T.S.

CD-618-2

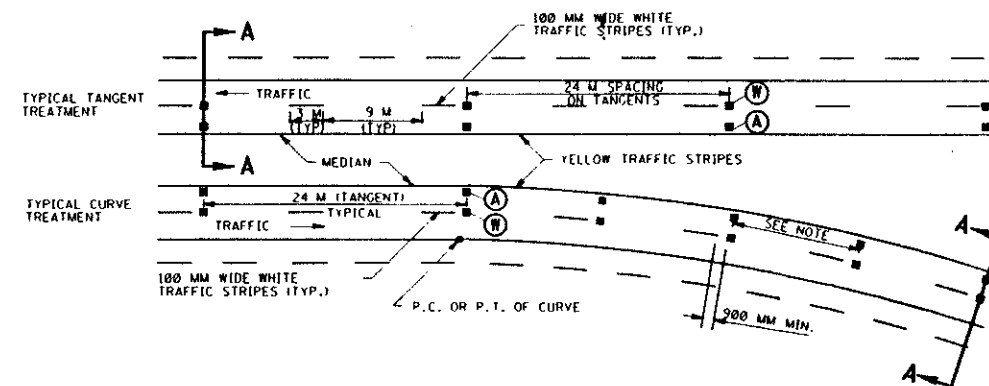
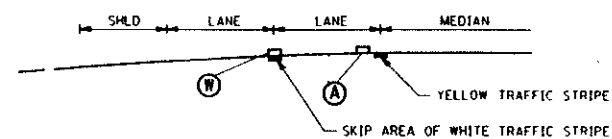
NEW JERSEY DEPARTMENT OF TRANSPORTATION

### CONSTRUCTION DETAILS

CD-618-2.5

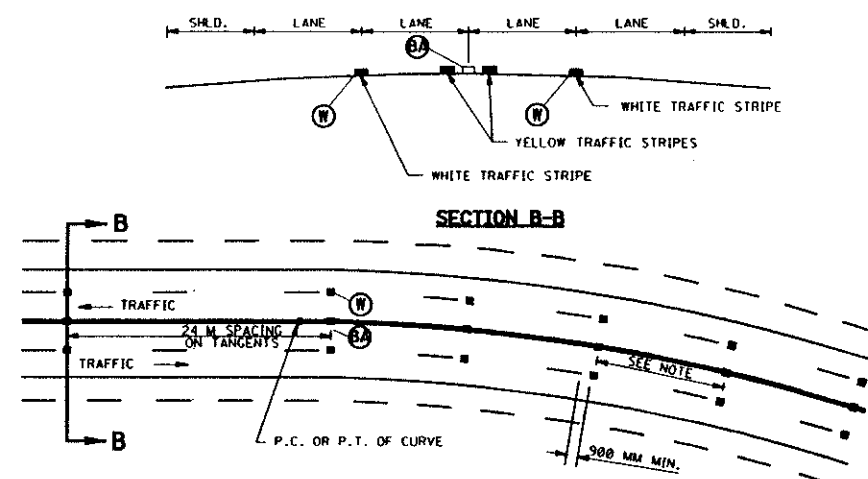
NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.

72  
129



**NOTE:**  
FOR SPACING ON CURVES SEE CD-618-3.3

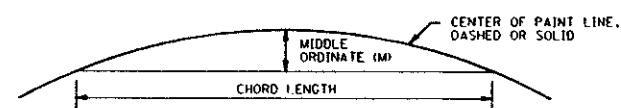
CD-618-3.1



**TYPICAL MULTI-LANE UNDIVIDED SECTION**

**NOTE:**  
FOR SPACING ON CURVES SEE CD-618-3.3

CO-618-3.2



CHORD LENGTH	MIDDLE ORDINATE	RADIUS	REFLECTOR SPACING
60 M	$M \geq 785 \text{ MM}$	$R \leq 582 \text{ M}$	12 M
60 M	$M < 785 \text{ MM}$	$R > 582 \text{ M}$	24 M

1. USE 60 M TAPE.
2. ESTABLISH 60 M CHORD.
3. MEASURE MIDDLE ORDINATE PERPENDICULAR TO CHORD 30 M FROM EITHER END.
4. DETERMINE SPACING FROM TABLE 1.
5. WHEN DIFFICULTY TO DETERMINE MIDDLE ORDINATE, 24 M OR 12 M SPACING WILL BE AS DIRECTED BY THE ENGINEER.

TABLE 1

<	LESS THAN
>	GREATER THAN
≤	EQUAL TO OR LESS THAN
≥	EQUAL TO OR GREATER THAN

## METHOD FOR DETERMINING REFLECTOR SPACING ON HORIZONTAL CURVES

CO-618-3.3

### LEGEND

- (W) TWO-WAY PLOWABLE MONO-DIRECTIONAL WHITE PAVEMENT REFLECTOR
- (A) TWO-WAY PLOWABLE MONO-DIRECTIONAL AMBER PAVEMENT REFLECTOR
- (BA) TWO-WAY PLOWABLE BI-DIRECTIONAL AMBER PAVEMENT REFLECTOR

CD-618-3.4

# **PLOWABLE PAVEMENT** **REFLECTOR LOCATION DETAILS** **N.T.S.**

CD-616-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.



M1 - 1  
1, 2 DIGITS - 600 x 600 MM  
(0.4 S.M.)  
3 DIGITS - 750 x 600 MM  
(0.5 S.M.)

M1 - 1 (S)  
1, 2 DIGITS - 900 x 900 MM  
(0.8 S.M.)  
3 DIGITS - 1 125 x 900 MM  
(1.0 S.M.)



M1 - 4  
1, 2 DIGITS - 600 x 600 MM  
(0.4 S.M.)  
3 DIGITS - 750 x 600 MM  
(0.5 S.M.)

M1 - 4 (S)  
1, 2 DIGITS - 900 x 900 MM  
(0.8 S.M.)  
3 DIGITS - 1 125 x 900 MM  
(1.0 S.M.)



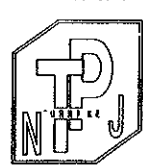
M1 - 5  
1, 2 DIGITS - 600 x 600 MM  
(0.4 S.M.)  
3 DIGITS - 750 x 600 MM  
(0.5 S.M.)

M1 - 5 (S)  
1, 2 DIGITS - 900 x 900 MM  
(0.8 S.M.)  
3 DIGITS - 1 125 x 900 MM  
(1.0 S.M.)



M1 - 6  
1, 2, 3 DIGITS - 600 x 600 MM  
(0.4 S.M.)

M1 - 6 (S)  
1, 2, 3 DIGITS - 900 x 900 MM  
(0.8 S.M.)



NJTP - 1  
600 x 600 MM  
(0.4 S.M.)

NJTP - 1 (S)  
900 x 900 MM  
(0.8 S.M.)



GSP - 1  
600 MM DIA.  
(0.3 S.M.)

GSP - 1 (S)  
900 MM DIA.  
(0.6 S.M.)



M2 - 1  
525 x 375 MM  
(0.2 S.M.)

M2 - 1 (S)  
800 x 575 MM  
(0.5 S.M.)



M3 - 1  
600 x 300 MM  
(0.2 S.M.)

M3 - 1 (S)  
900 x 450 MM  
(0.4 S.M.)



M3 - 3  
600 x 300 MM  
(0.2 S.M.)

M3 - 3 (S)  
900 x 450 MM  
(0.4 S.M.)



(L or R)

M5 - 1  
525 x 375 MM  
(0.2 S.M.)

M5 - 1 (S)  
800 x 575 MM  
(0.5 S.M.)



(L or R)

M6 - 1  
525 x 375 MM  
(0.2 S.M.)

M6 - 1 (S)  
800 x 575 MM  
(0.5 S.M.)



M6 - 3  
525 x 375 MM  
(0.2 S.M.)

M6 - 3 (S)  
800 x 575 MM  
(0.5 S.M.)



M4 - 5  
600 x 300 MM  
(0.2 S.M.)

M4 - 5 (S)  
750 x 375 MM  
(0.3 S.M.)



M3 - 2  
600 x 300 MM  
(0.2 S.M.)

M3 - 2 (S)  
900 x 450 MM  
(0.4 S.M.)



M3 - 4  
600 x 300 MM  
(0.2 S.M.)

M3 - 4 (S)  
900 x 450 MM  
(0.4 S.M.)



(L or R)

M5 - 2  
525 x 375 MM  
(0.2 S.M.)

M5 - 2 (S)  
800 x 575 MM  
(0.5 S.M.)



(L or R)

M6 - 2  
525 x 375 MM  
(0.2 S.M.)

M6 - 2 (S)  
800 x 575 MM  
(0.5 S.M.)

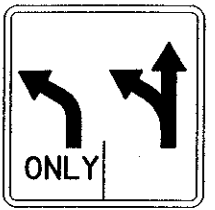


M6 - 4  
525 x 375 MM  
(0.2 S.M.)

M6 - 4 (S)  
800 x 575 MM  
(0.5 S.M.)



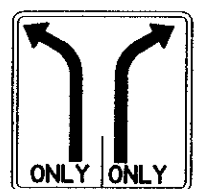
R3 - 5  
750 x 900 MM  
(0.7 S.M.)  
OVERHEAD



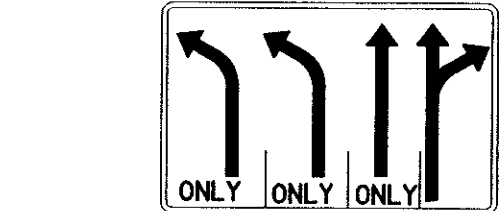
R3 - 5  
750 x 900 MM  
(0.7 S.M.)  
GROUND MOUNT



R3 - 9 b  
600 x 900 MM  
(0.5 S.M.)



RINJ13 - 8B  
750 x 750 MM  
(0.6 S.M.)

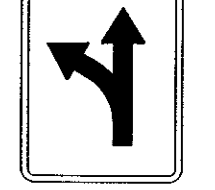


RINJ13 - 8D  
1 500 x 750 MM  
(1.1 S.M.)

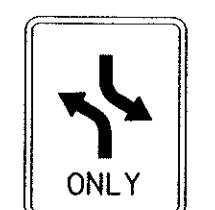


R4 - 7  
600 x 750 MM  
(0.5 S.M.)

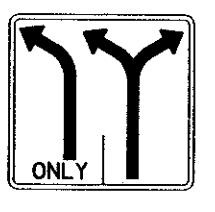
R4 - 7 (S)  
900 x 1 200 MM  
(1.1 S.M.)



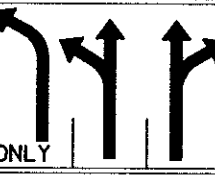
R3 - 6  
750 x 900 MM  
(0.7 S.M.)  
OVERHEAD



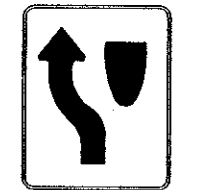
R3 - 6  
750 x 900 MM  
(0.7 S.M.)  
GROUND MOUNT



RINJ13 - 8A  
900 x 750 MM  
(0.7 S.M.)



RINJ13 - 8C  
1 200 x 750 MM  
(0.9 S.M.)



R4 - 8  
600 x 750 MM  
(0.5 S.M.)

R4 - 8 (S)  
900 x 1 200 MM  
(1.1 S.M.)

#### GENERAL NOTES:

DIMENSIONS, COLORS, AND DETAILS OF VARIOUS SIZE SIGNS, SHIELDS AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGNS PUBLICATION" AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

(S) DENOTES A SPECIAL SIZE SIGN.

ALL SIGNS SHALL BE OF THE ENCAPSULATED LENS TYPE.

#### SIGNS N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

#### CONSTRUCTION DETAILS

CD-619-1.1

R1 - 1  
750 x 750 MM  
(0.6 S.M.)

R1 - 2  
900 x 900 x 900 MM  
(0.4 S.M.)

(L OR R)  
W1 - 1  
750 x 750 MM  
(0.6 S.M.)

W1 - 1 (S)  
900 x 900 MM  
(0.8 S.M.)

W1 - 7  
1 200 x 600 MM  
(0.7 S.M.)

W1 - 7 (S)  
1 500 x 750 MM  
(1.3 S.M.)

W3 - 10  
900 x 900 MM  
(0.8 S.M.)

W3 - 10 (S)  
1200 x 1200 MM  
(1.4 S.M.)

R3 - 1  
600 x 600 MM  
(10.4 S.M.)

R3 -1 (S)  
750 x 750 MM  
(0.6 S.M.)

R3 - 2  
600 x 600 MM  
(0.4 S.M.)

R3 - 2 (S)  
750 x 750 MM  
(0.6 S.M.)

(L OR R)  
 W1 - 2  
 750 x 750 MM  
 (0.6 S.M.)  
 W1 - 2 (S)  
 900 x 900 MM  
 (0.8 S.M.)

IL OR R)  
W1 - 8  
450 x 600 MM  
(0.3 S.M.)  
W1 - 8 (S)  
600 x 750 MM  
(0.5 S.M.)

W3 - 2a  
900 x 900 MM  
(0.8 S.M.)

W3 - 2a (S)  
1 200 x 1 200 MM  
(1.4 S.M.)

R3 - 3  
600 x 600 MM  
(0.4 S.M.)

R3 -3 (S)  
750 x 750 MM  
(0.6 S.M.)

R3 - 4  
600 x 600 MM  
(0.4 S.M.)

R3 - 4 (S)  
750 x 750 MM  
(0.6 S.M.)

(L OR R)  
W1 - 3  
750 x 750 MM  
(0.6 S.M.)  
W1 - 3 (S)  
900 x 900 MM  
(0.8 S.M.)

W2 - 1  
750 x 750 MM  
(0.6 S.M.)

W2 - 1 (S)  
900 x 900 MM  
(0.8 S.M.)

W3 - 3  
900 x 900 MM  
(0.8 S.M.)

W3 - 3 (S)  
1200 x 1200 MM  
(1.4 S.M.)

(L or R)  
R3 - 7  
750 x 750 MM  
(0.6 S.M.)

R5 - 1  
750 x 750 MM  
(0.6 S.M.)

R5 - 1 (S)  
900 x 900 MM  
(0.8 S.M.)

(L OR R)  
W1 - 4  
750 x 750 MM  
(0.6 S.M.)  
W1 - 4 (S)  
900 x 900 MM  
(0.8 S.M.)

(L OR R)  
W2 - 2  
750 x 750 MM  
(0.6 S.M.)  
W2 - 2 (S)  
900 x 900 MM  
(0.8 S.M.)

W4 - 1  
750 x 750 MM  
(0.6 S.M.)

W4 - 1 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)

W4 - 1 (EXPWT)  
900 x 900 MM  
(0.8 S.M.)

R5 - 1g  
900 x 600 MM  
(0.5 S.M.)

(L or R)  
R6 - 1  
900 x 300 MM  
(0.3 S.M.)

(L OR R)  
W1 - 5  
750 x 750 MM  
(0.6 S.M.)  
W1 - 5 (S)  
900 x 900 MM  
(0.8 S.M.)

IL OR R)  
W2 - 3  
750 x 750 MM  
10.6 S.M.I  
W2 - 3 (S)  
900 x 900 MM  
(10.8 S.M.I)

(L OR R)  
W4 - 2  
900 x 900 MM  
(0.8 S.M.)

W4 - 2 (S)  
1200 x 1200 MM  
(1.4 S.M.)

R10 = 117  
 600 x 750 MM  
 10 5 5, M, 1

$R^2 = .1$   
 $600 \times 750 \text{ MM}$   
 $(0.5 \text{ S.M.})$

$R^2 = .11 \text{ EXPWT } 1$   
 $900 \times 1200 \text{ MM}$   
 $(1.1 \text{ S.M.})$

$R^2 = .115$   
 $1200 \times 1500 \text{ MM}$   
 $(1.8 \text{ S.M.})$

IL OR R1

#1 6  
1 200 = 600 MM  
(0 1 5 M)

#1 5 151  
1 500 = 750 MM  
(1 1 5 M)

$\frac{100}{100} = \frac{5}{5}$   
 $\frac{100}{100} = \frac{100}{100}$   
 $\frac{100}{100} = \frac{100}{100}$

$\frac{1}{2}$   
 (1 00 0)  
 #4 3  
 200 = 200 MM  
 (1 0 0 M)  
 #4 3 151  
 1 200 = 1 200 MM  
 (1 0 0 M)

GENERAL NOTES:

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**SIGNS**  
**N.T.S.**

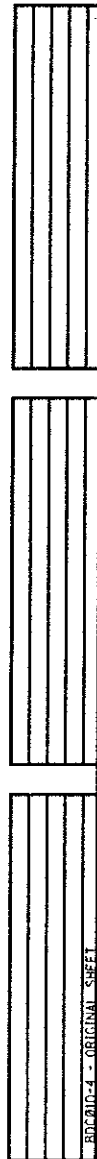
**CD-619-2**

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

CD-619-2.1

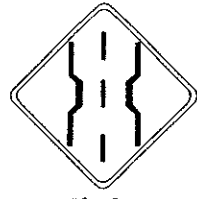
NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.



W5 - 1  
900 x 900 MM  
(0.8 S.M.)  
W5 - 1 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



W5 - 2  
750 x 750 MM  
(0.6 S.M.)  
W5 - 2 (S)  
900 x 900 MM  
(0.8 S.M.)



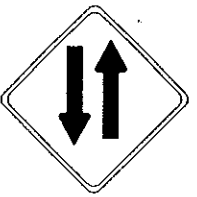
W5 - 2a  
750 x 750 MM  
(0.6 S.M.)  
W5 - 2a (S)  
900 x 900 MM  
(0.8 S.M.)



W6 - 1  
900 x 900 MM  
(0.8 S.M.)  
W6 - 1 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



W6 - 2  
900 x 900 MM  
(0.8 S.M.)  
W6 - 2 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



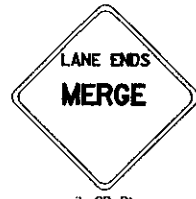
W6 - 3  
750 x 750 MM  
(0.6 S.M.)  
W6 - 3 (S)  
900 x 900 MM  
(0.8 S.M.)



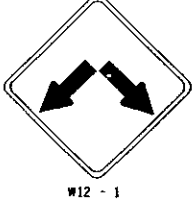
W8 - 5  
750 x 750 MM  
(0.6 S.M.)  
W8 - 5 (S)  
900 x 900 MM  
(0.8 S.M.)



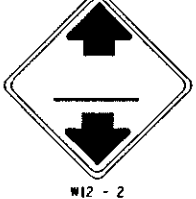
(L OR R)  
W9 - 1  
900 x 900 MM  
(0.8 S.M.)  
W9 - 1 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



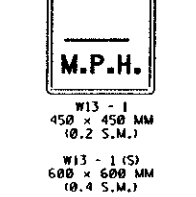
(L OR R)  
W9 - 2  
900 x 900 MM  
(0.8 S.M.)  
W9 - 2 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



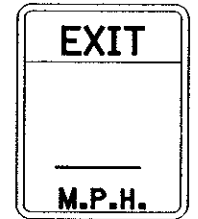
W12 - 1  
600 x 600 MM  
(0.4 S.M.)  
W12 - 1 (S)  
750 x 750 MM  
(0.6 S.M.)



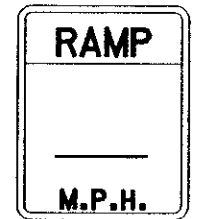
W12 - 2  
900 x 900 MM  
(0.8 S.M.)  
W12 - 2 (S)  
1 200 x 1 200 MM  
(1.4 S.M.)



W13 - 1  
450 x 450 MM  
(0.2 S.M.)  
W13 - 1 (S)  
600 x 600 MM  
(0.4 S.M.)



W13 - 2  
1 200 x 1 500 MM  
(1.8 S.M.)  
W13 - 2 (EXPWY)  
900 x 1 200 MM  
(1.1 S.M.)  
W13 - 2 (S)  
600 x 750 MM  
(0.5 S.M.)



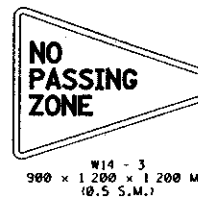
W13 - 3  
1 200 x 1 500 MM  
(1.8 S.M.)  
W13 - 3 (EXPWY)  
900 x 1 200 MM  
(1.1 S.M.)  
W13 - 3 (S)  
600 x 750 MM  
(0.5 S.M.)



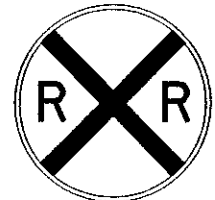
W14 - 1  
750 x 750 MM  
(0.6 S.M.)  
W14 - 1 (S)  
900 x 900 MM  
(0.8 S.M.)



W14 - 2  
750 x 750 MM  
(0.6 S.M.)  
W14 - 2 (S)  
900 x 900 MM  
(0.8 S.M.)



W14 - 3  
900 x 1 200 x 1 200 MM  
(0.5 S.M.)  
W14 - 3 (S)  
1 200 x 1 600 x 1 600 MM  
(0.9 S.M.)



W10 - 1  
900 MM DIA.  
(0.6 S.M.)

GENERAL NOTES:

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SIGNS  
N.T.S.

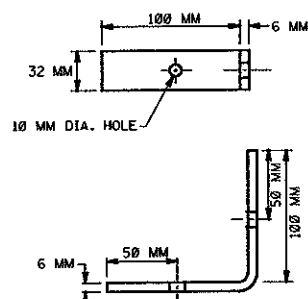
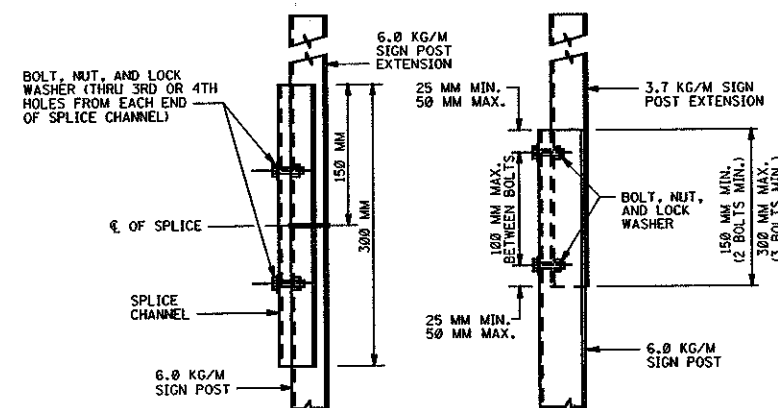
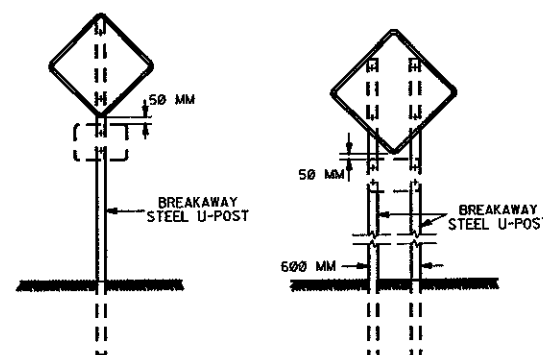
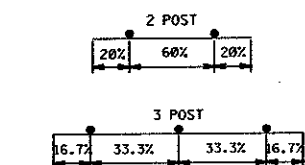
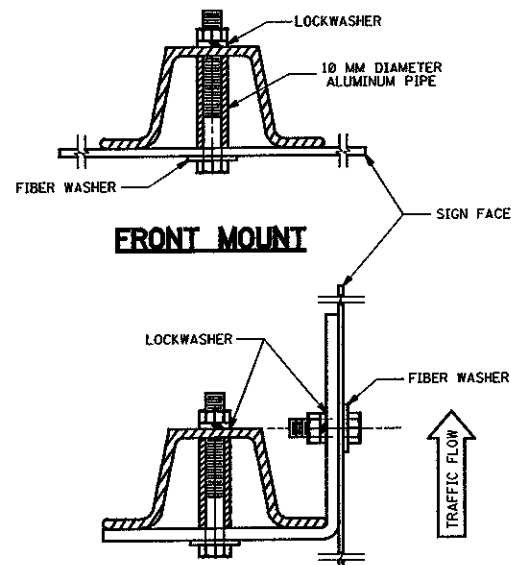
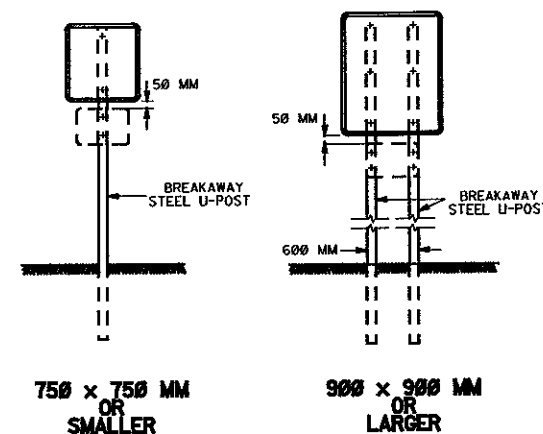
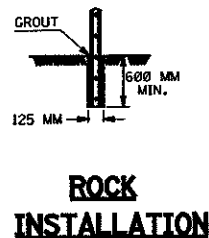
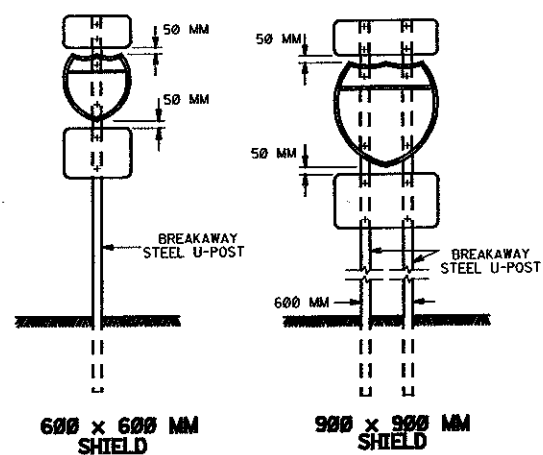
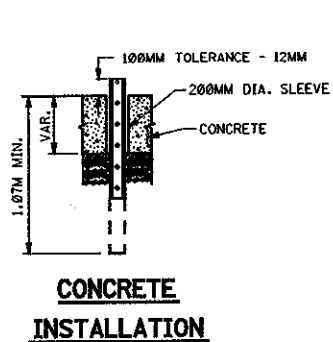
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-619-3.1

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

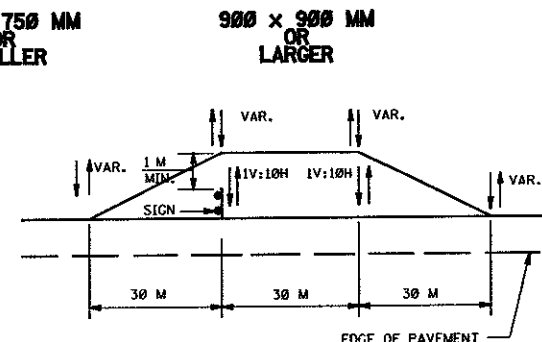
BACKSIDE - ORIGINAL SHEET



PANEL SIZE (W x H)	# OF POSTS	POST SIZE (KG/M)
450 x 450	1	3.7
450 x 600	1	3.7
600 x 600	1	3.7
600 x 750	1	3.7
600 x 900	1	3.7
750 x 600	1	3.7
750 x 750	1	3.7
900 x 300	2	3.7
900 x 900	2	3.7
750 x 900	1	6.0

PANEL SIZE (W x H)	# OF POSTS	POST SIZE (KG/M)
900 x 900	2	3.7
900 x 1200	2	3.7
1250 x 900	2	3.7
1200 x 600	2	3.7
1200 x 900	2	3.7
1200 x 1200	2	6.0
2000 x 1600 x 1500	2	3.7
1500 x 900	2	6.0
1200 x 1500	2	6.0
1500 x 750	2	3.7

**POST SELECTION TABLE**  
**BREAKAWAY SIGN SUPPORT**



**GENERAL NOTES:**

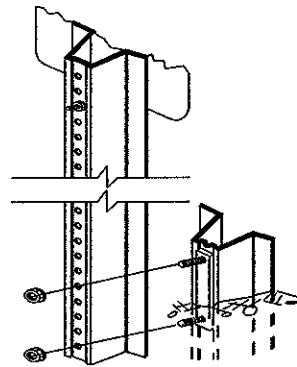
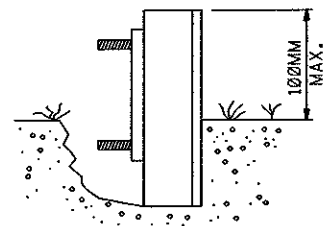
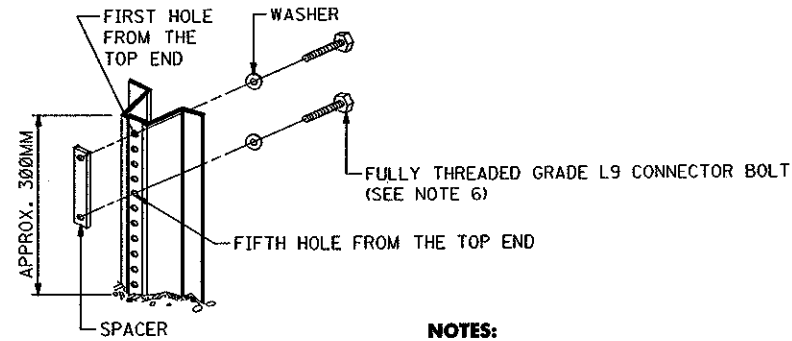
- ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND AS INDICATED BELOW.
- ALL SMALL SIGN SUPPORTS SHALL BE OF THE BREAKAWAY TYPE WITH EXCEPTION OF THOSE INSTALLED BEHIND GUIDERAIL OR OTHER ROADSIDE BARRIER.
- ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH CURRENT A.S.T.M. A 123.
- ALL STEEL U-POST SIGN SUPPORTS MUST BE INSTALLED FACING THE PREDOMINANT TRAFFIC FLOW. A MOUNTING BRACKET SHOULD BE USED ON SIDE MOUNTED SIGNS SUCH AS "ONE WAY" SIGNS INSTALLED IN MEDIANS.
- SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBER AS SHOWN ON THIS DETAIL.
- BOLTS SHALL NOT PROTRUDE MORE THAN 20 MILLIMETERS BEYOND THE NUT WHEN TIGHT, BUT SHALL ENGAGE ALL THREADS IN THE NUT.
- WHEN SIGNS ARE INSTALLED ON SLOPES 1V:10H OR FLATTER THE MINIMUM VERTICAL CLEARANCE REQUIREMENTS FOR SIGNS ARE:  
  
FOR SINGLE POST INSTALLATIONS THE MINIMUM DISTANCE BETWEEN THE EDGE OF THE PAVEMENT AND THE BOTTOM OF ANY PANEL MUST BE 2.1M AND THE MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO THE TOP OF ANY SIGN PANEL MUST BE 2.7M.  
  
FOR MULTI-POST INSTALLATIONS THE MINIMUM DISTANCE BETWEEN THE EDGE OF PAVEMENT AND THE BOTTOM OF A MAJOR SIGN PANEL MUST BE 2.1M.  
  
SECONDARY SIGN PANELS  
LAND SERVICE HIGHWAYS:  
THE MINIMUM DISTANCE BETWEEN THE EDGE OF PAVEMENT AND THE BOTTOM OF A SECONDARY SIGN PANEL IS 1.8M.  
FOR INTERSTATE AND FREEWAYS:  
THE BOTTOM OF THE MAJOR SIGN SHALL BE A MINIMUM OF 2.4M AND THE SECONDARY SIGN PANEL A MINIMUM OF 1.5M ABOVE THE EDGE OF PAVEMENT.  
  
WHERE GRADING OF 1V:10H OR FLATTER CANNOT BE OBTAINED OR WHERE CURB OR BERM IS GREATER THAN 100MM THE MINIMUM VERTICAL CLEARANCE WILL BE MEASURED FROM THE GROUND LINE TO THE BOTTOM OF THE SIGN.
- PERMANENT SIGN SUPPORTS SHOULD NOT BE INSTALLED ON SLOPES GREATER THAN 1V:10H, EXCEPT WHERE GRADING OF 1V:10H CANNOT BE OBTAINED OR THE SIGN SUPPORTS WILL BE BEHIND A TRAFFIC BARRIER. THE SLOPE SHALL EXTEND A MINIMUM OF 1M BEYOND THE OUTSIDE EDGE OF SIGN (SEE GRADING DETAIL FOR SLOPE TREATMENT).
- EXTRUDED ALUMINUM SIGN PANELS ARE NOT PERMITTED FOR USE WITH STEEL U-POST SIGN SUPPORTS.
- STEEL U-POST SIGN SUPPORTS SHALL NOT BE PLACED IN FRONT OF GUIDE RAIL AND THE POSTS MUST NOT STRADDLE GUIDE RAIL.
- TO EXTEND THE HEIGHT OF A SIGN POST, A MAXIMUM OF ONE SPLICE MAY BE MADE AND MUST BE A MINIMUM OF 2.7M FROM THE GROUNDLINE TO CENTER LINE OF SPLICE.

**STEEL U-POST SIGN SUPPORTS**  
**N.T.S.**

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

CD-619-4



**NOTES:**

1. DRIVE ANCHOR POST ASSEMBLY TO WITHIN APPROXIMATELY 300MM ABOVE GROUND LEVEL. PLACE BOLT AND WASHER IN FIRST AND FIFTH HOLES FROM THE TOP END, AND SECURELY TIGHTEN BOLTS ONTO THREADED SPACER.
2. DRIVE ANCHOR POST ASSEMBLY TO WITHIN A MAXIMUM OF 100MM ABOVE GROUND LEVEL.
3. DIG OUT AROUND BACK OF ANCHOR POST ASSEMBLY TO ALLOW ROOM FOR TOP POST TO BE ATTACHED.
4. NEST TOP POST ASSEMBLY ONTO PROTRUDING ANCHOR POST ASSEMBLY BOLTS, THROUGH THE FIRST AND FIFTH HOLES FROM THE BOTTOM OF THE TOP POST.
5. PLACE AND TIGHTEN A SELF-LOCKING FLANGE NUT ON EACH BOLT. WHEN INSTALLATION IS COMPLETE, TOP OF GROUND POST SHALL NOT EXCEED 100MM ABOVE GROUND LEVEL.
6. SIZE OF CONNECTOR BOLT FOR TYPE 1, 8 x 38  
SIZE OF CONNECTOR BOLT FOR TYPE 2, 8 x 50

**NOTE:**

THE CONNECTOR BOLTS AND SPACERS SHALL BE FULLY THREADED. EACH CONNECTOR BOLT AND NUT SHALL BE CLEARLY STAMPED WITH MANUFACTURER'S IDENTIFYING MARK.

**ANCHOR POST ASSEMBLY  
SIGN SUPPORTS**

CD-619-5.2

**NOTES:**

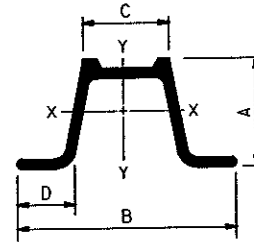
1. ANCHOR POST AND TOP POST SHALL BE OF EQUAL WEIGHT/METER.
2. SOIL ANCHOR PLATE SHALL BE ATTACHED TO ALL ANCHOR POSTS.
3. THE MATERIAL FOR THE SOIL ANCHOR PLATES SHALL BE CARBON SHEET STEEL.

WEIGHT * KG /M	DIMENSIONS (MM)				AREA MM <sup>2</sup>	X-X AXIS **		Y-Y AXIS	
	"A"	"B"	"C"	"D"		I(MM <sup>4</sup> )	S(MM <sup>3</sup> )	I(MM <sup>4</sup> )	S(MM <sup>3</sup> )
3.7	38.506	77.775	32.461	16.993	489.7	94900	5129	224348	5768
6.0	49.987	88.900	33.934	21.184	765.8	254317	11586	483244	10881

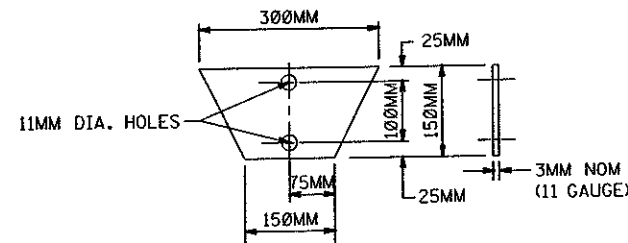
\* ± 5%

\*\* GOVERNING SECTION

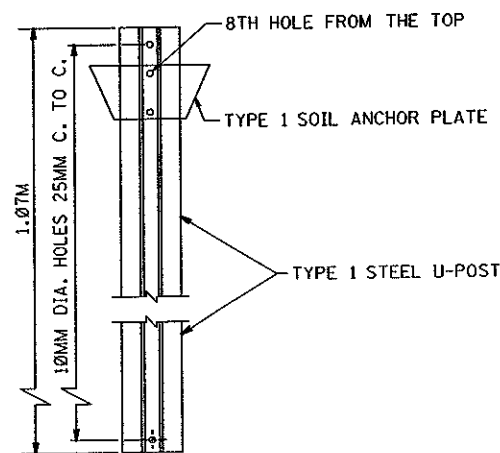
**TYPE 1 STEEL U-POST PROPERTIES**



**TYPE 1 STEEL  
U-POST**



**TYPE 1  
SOIL ANCHOR PLATE**



**TYPE 1  
ANCHOR POST  
ASSEMBLY**

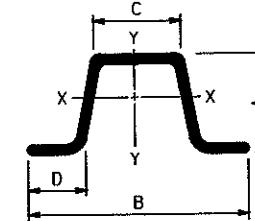
STEEL POSTS, POST CLIPS, SPACING, ETC.  
AND TWO PIECE STEEL U-POSTS.

WEIGHT * KG/M	DIMENSIONS (MM)				AREA MM <sup>2</sup>	X-X AXIS **		Y-Y AXIS	
	"A"	"B"	"C"	"D"		I(MM <sup>4</sup> )	S(MM <sup>3</sup> )	I(MM <sup>4</sup> )	S(MM <sup>3</sup> )
3.7	39.675	79.375	31.750	15.875	482.6	96982	4736	229343	5785
6.0	44.450	88.900	42.443	18.237	767.7	208115	9177	495315	11307

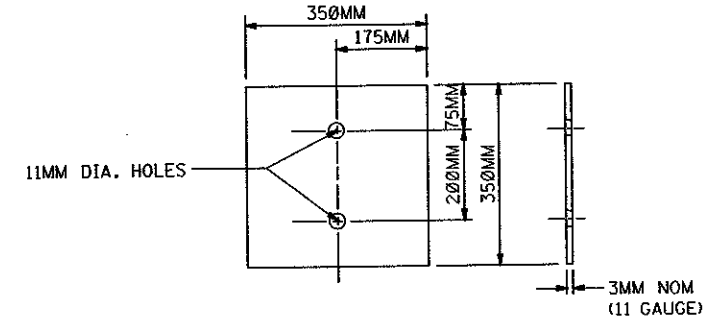
\* ± 5%

\*\* GOVERNING SECTION

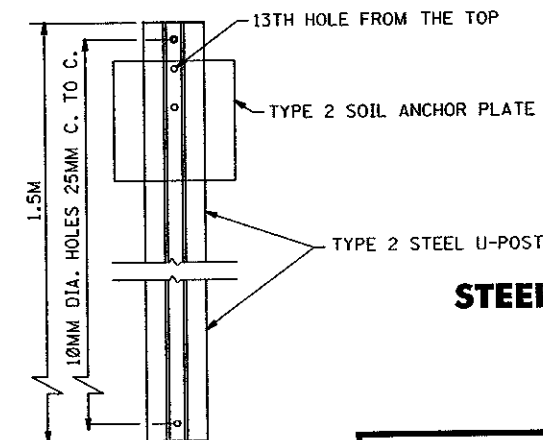
**TYPE 2 STEEL U-POST PROPERTIES**



**TYPE 2 STEEL  
U-POST**



**TYPE 2  
SOIL ANCHOR PLATE**



**TYPE 2  
ANCHOR POST  
ASSEMBLY**

**STEEL U-POST SIGN  
SUPPORTS**

N.T.S.

CD-619-5

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**





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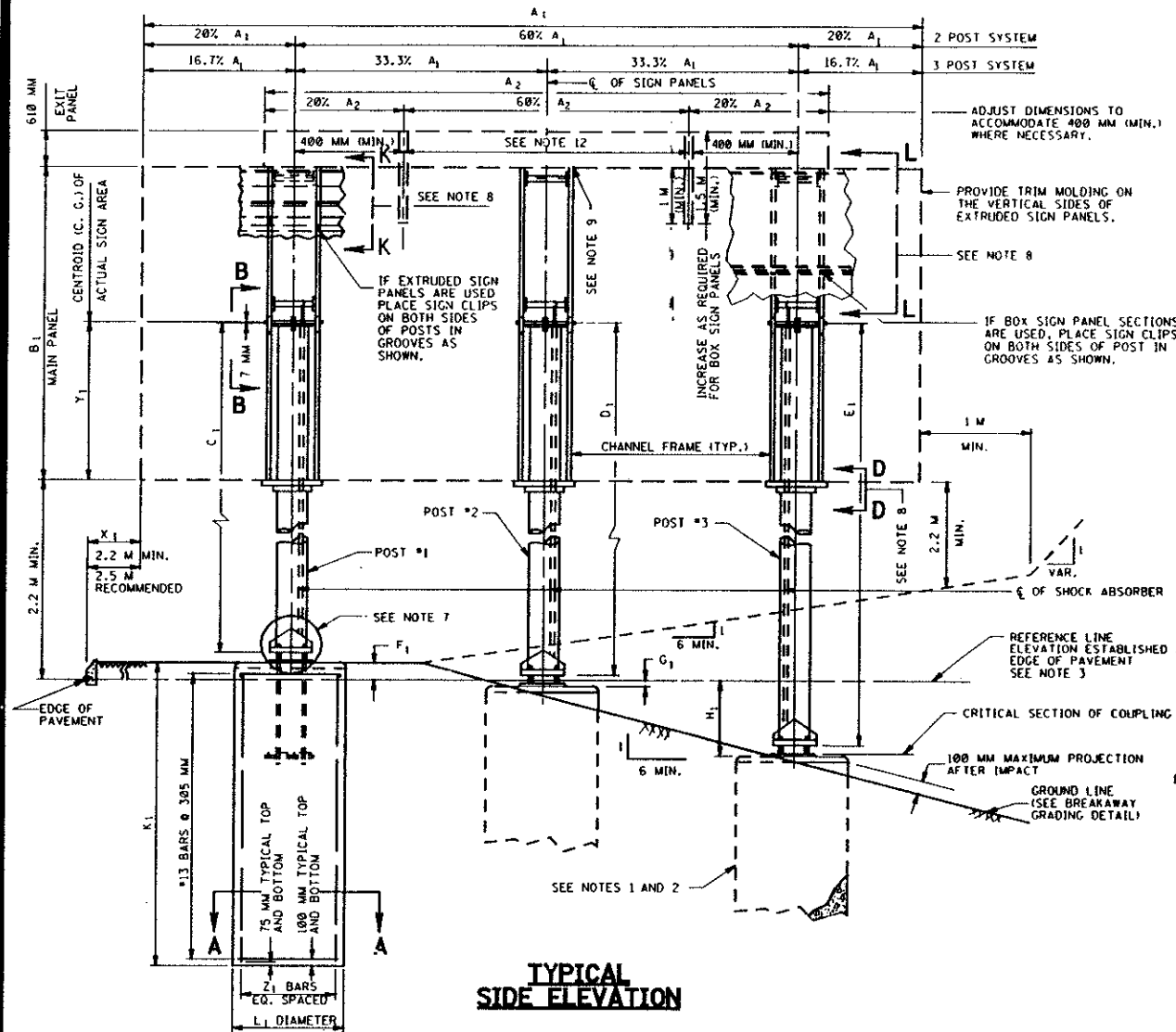
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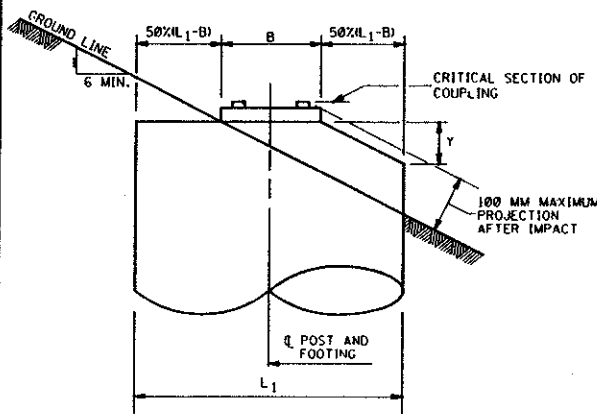
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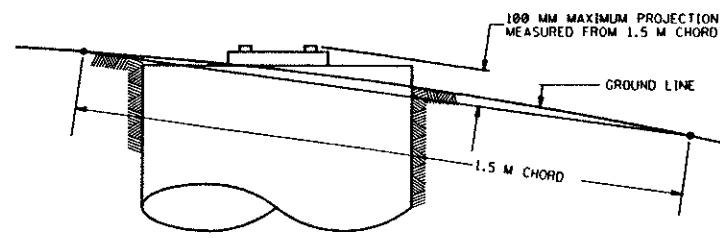
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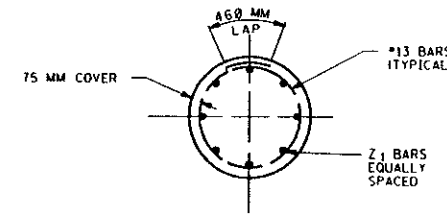
**TYPICAL  
SIDE ELEVATION**



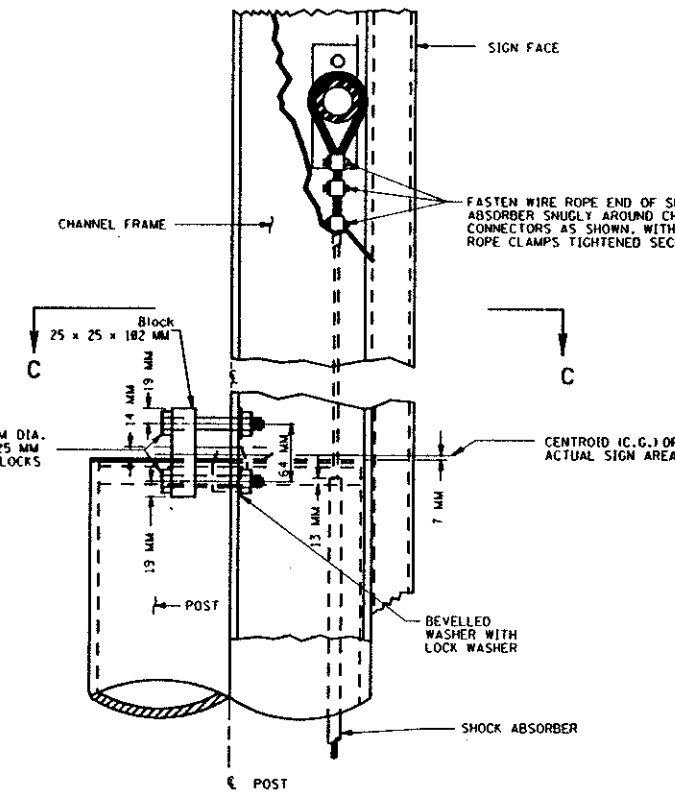
**FOOTING BEVEL DETAIL**  
(BEND REINFORCEMENT TO FIT)



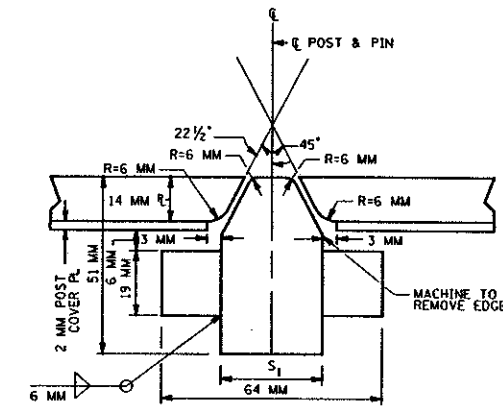
**FOOTING/STUB PROJECTION  
DETAIL**



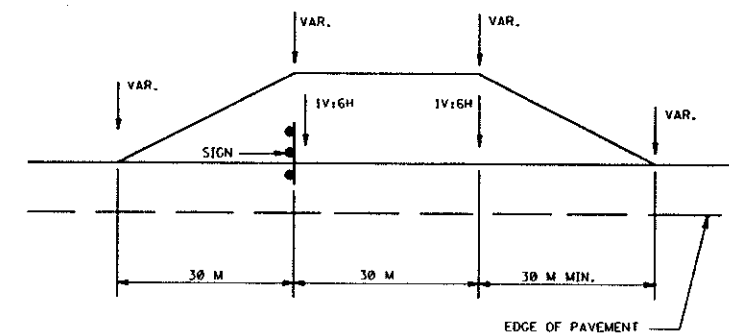
**SECTION A-A**



**SECTION B-B**



**PIN DETAIL**



**BREAKAWAY GRADING DETAIL**

**GENERAL NOTES:**

1. USE CLASS B CONCRETE IN ALL FOOTINGS, AS SPECIFIED IN SECTION 914 OF THE STANDARD SPECIFICATIONS - (IF C = 21 MPa).
2. ALL FOOTINGS SHALL BE PLACED AGAINST UNDISTURBED EARTH, EXCEPT FOR FOOTING TOPS WHICH SHALL BE FORMED TO A DEPTH OF 75 MM BELOW GROUND LINE.
3. TOPS OF FOOTINGS ABOVE REFERENCE LINE ARE INDICATED BY PLUS (+) VALUE, AND BELOW BY MINUS (-) VALUE.
4. ALL MATERIAL SHALL BE ALUMINUM ALLOY 6061-T6 UNLESS OTHERWISE NOTED.
5. NUTS, BOLTS AND FLAT WASHERS SHALL BE MADE FROM ALUMINUM ALLOY ALCAD 2024-T4. SPRING LOCK WASHERS SHALL BE MADE FROM ALUMINUM ALLOY 7075-T6.
6. WELDING OF ALUMINUM SHALL BE AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS.
7. FOR DETAIL OF POST BASE AND INSTALLATION REFER TO "BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS-CD-619-9".
8. FOR DETAILS OF SECTIONS "C-C", "D-D", "K-K" AND "L-L" REFER TO "BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS-CD-619-8".
9. SIGNS WITHOUT EXIT PANELS OR SIGNS WITH PARTIAL WIDTH EXIT PANELS SHALL BE PROVIDED WITH CHANNEL FRAMES EXTENDING TO THE TOP OF THE MAIN PANEL AS SHOWN. CHANNEL FRAMES SHALL BE EXTENDED TO THE TOP OF THE EXIT PANEL WHEN FULL WIDTH EXIT PANELS ARE EMPLOYED.
10. UNUSUAL FOUNDATION CONDITIONS MAY REQUIRE RE-DESIGNING OF FOOTINGS AND SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
11. FOR Z1, L1 & K1, REFER TO CD-619-12 "SIGN SUPPORT DATA TABLE".
12. PROVIDE 100 E 2.662 FOR PARTIAL WIDTH EXIT PANELS ONLY. USE CONNECTION DETAILS AS EMPLOYED FOR CHANNEL FRAME.
13. FOR S1, SEE CD-619-8.
14. ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

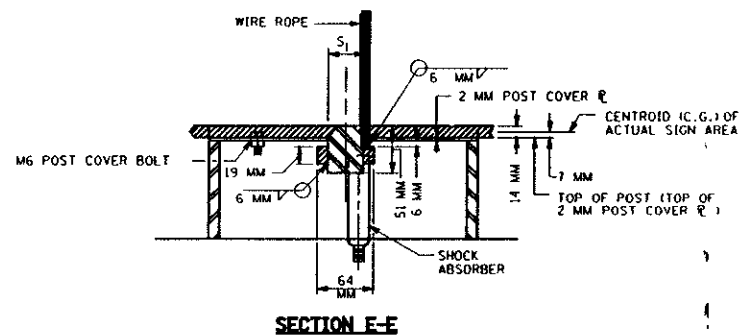
**BREAKAWAY SIGN SUPPORTS  
FOR GROUND MOUNTED SIGNS**

N.T.S.

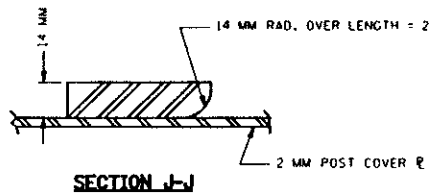
CD-619-7

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**CONSTRUCTION DETAILS**

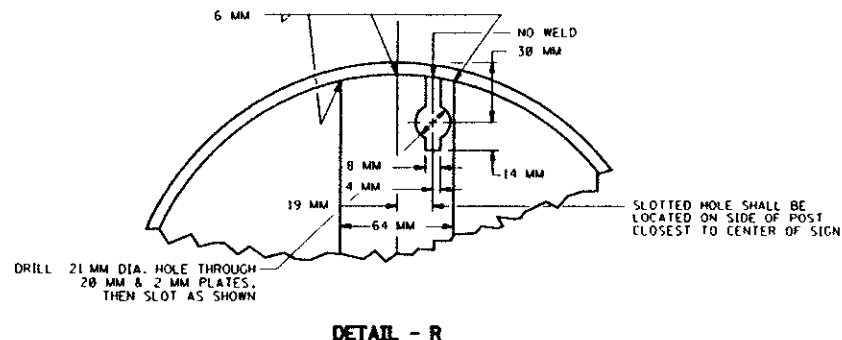


SECTION E-E

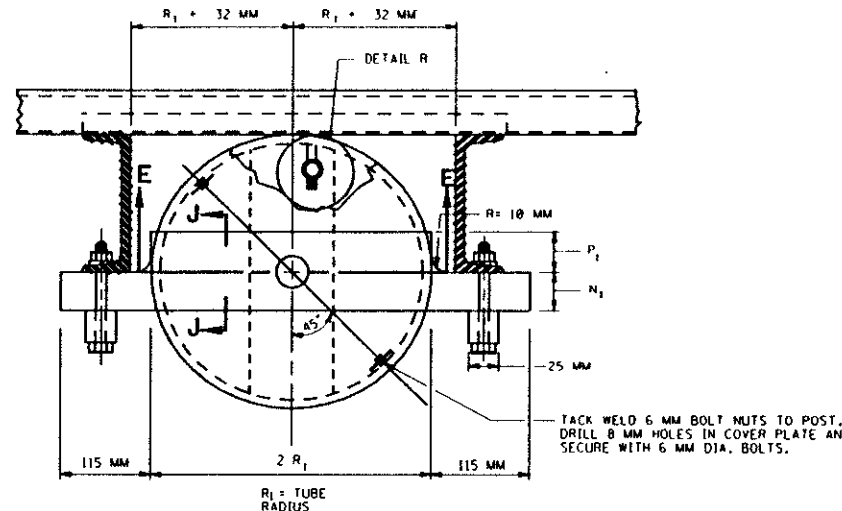


SECTION J-J

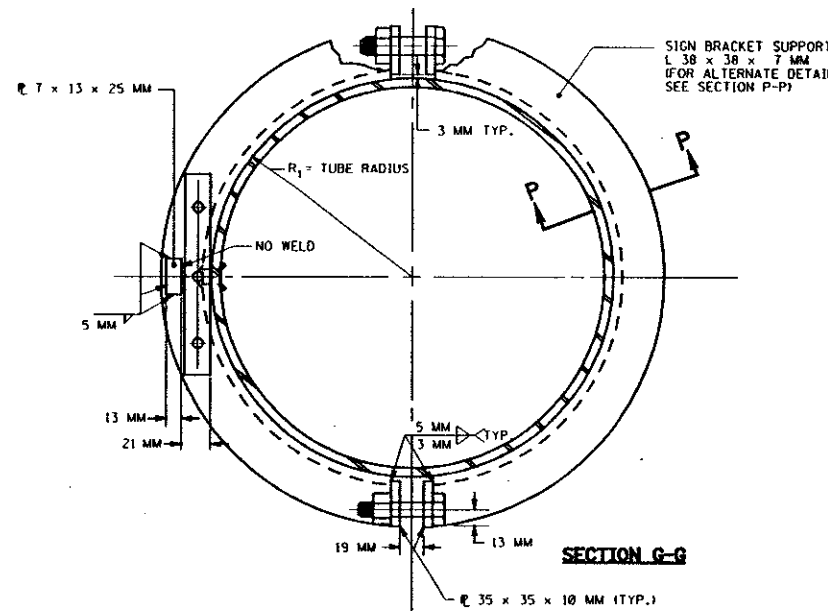
BASE TYPE	ALL DIMENSIONS IN MM		
	N1	P1	S1
2	29	29	25
3	38	38	32
4	48	44	35
5	51	57	38



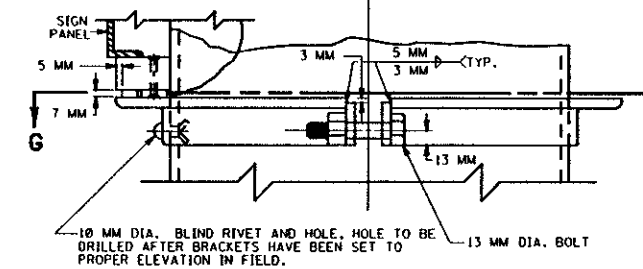
DETAIL - B



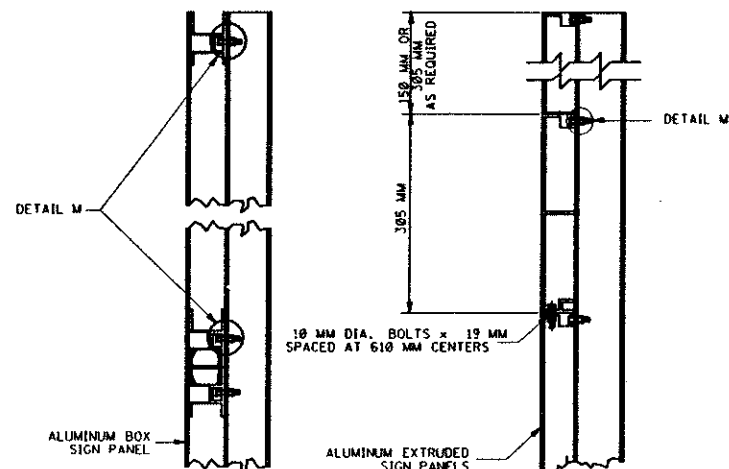
SECTION C-C



SECTION G-G



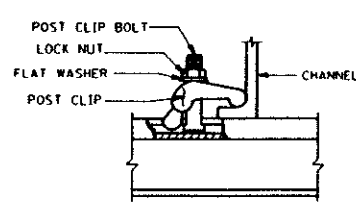
SECTION D-D



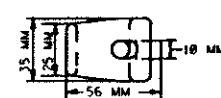
SECTION L-L

SECTION K-K

(EXIT PANEL NOT SHOWN IN SECTIONS L-L & K-K)



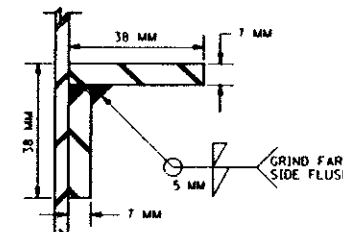
DETAIL - M  
SIGN ATTACHMENT



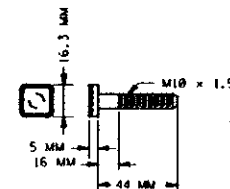
PLAN



ELEVATION  
POST CLIP



SECTION P-P  
(ALTERNATE DETAIL)



POST CLIP BOLT

GENERAL NOTES:  
1. ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

# BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS N.T.S

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

CD-619-8.1





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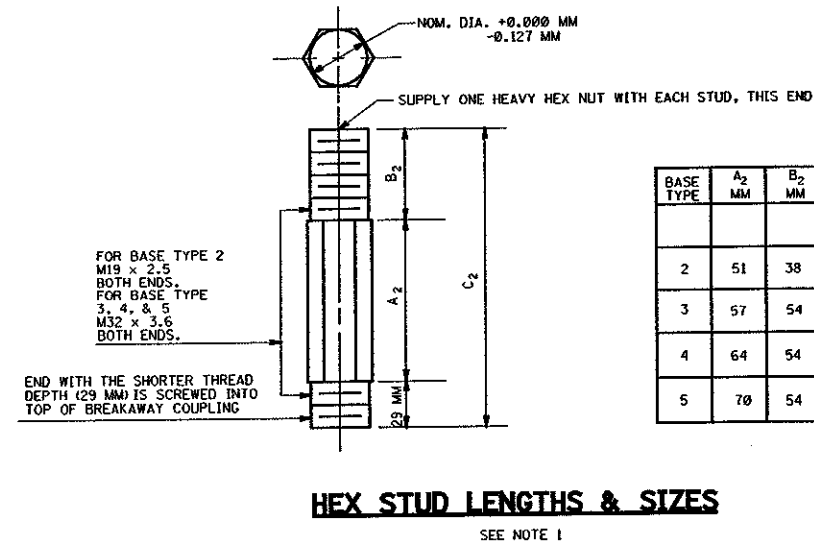
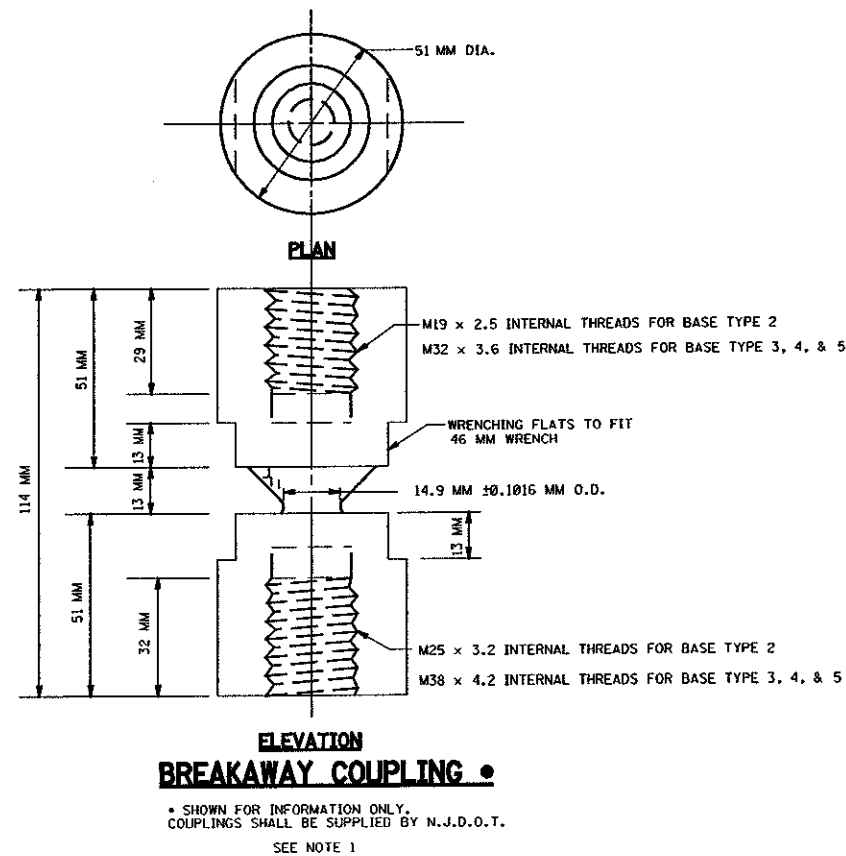
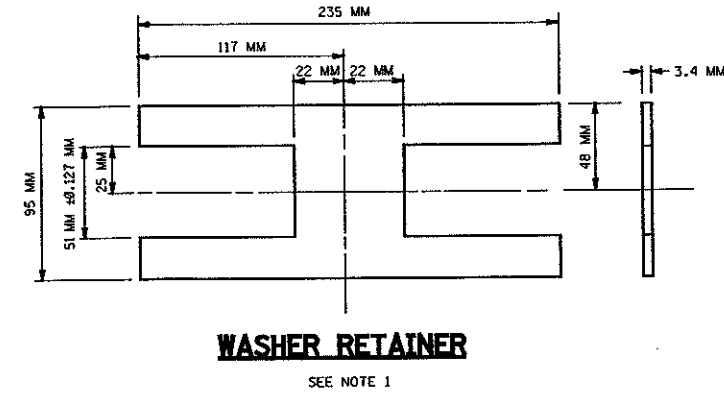
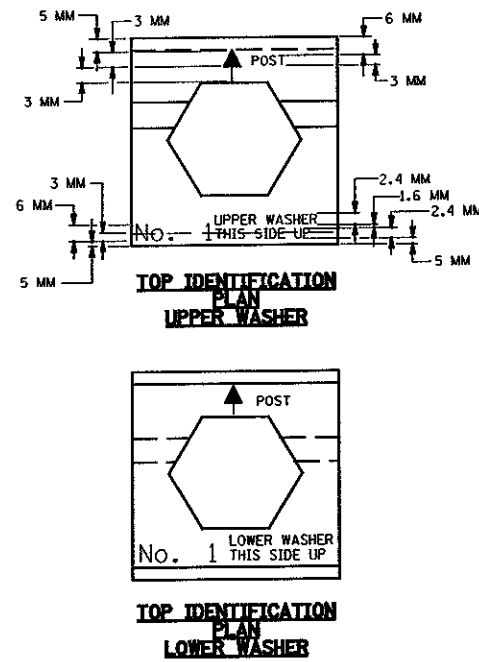
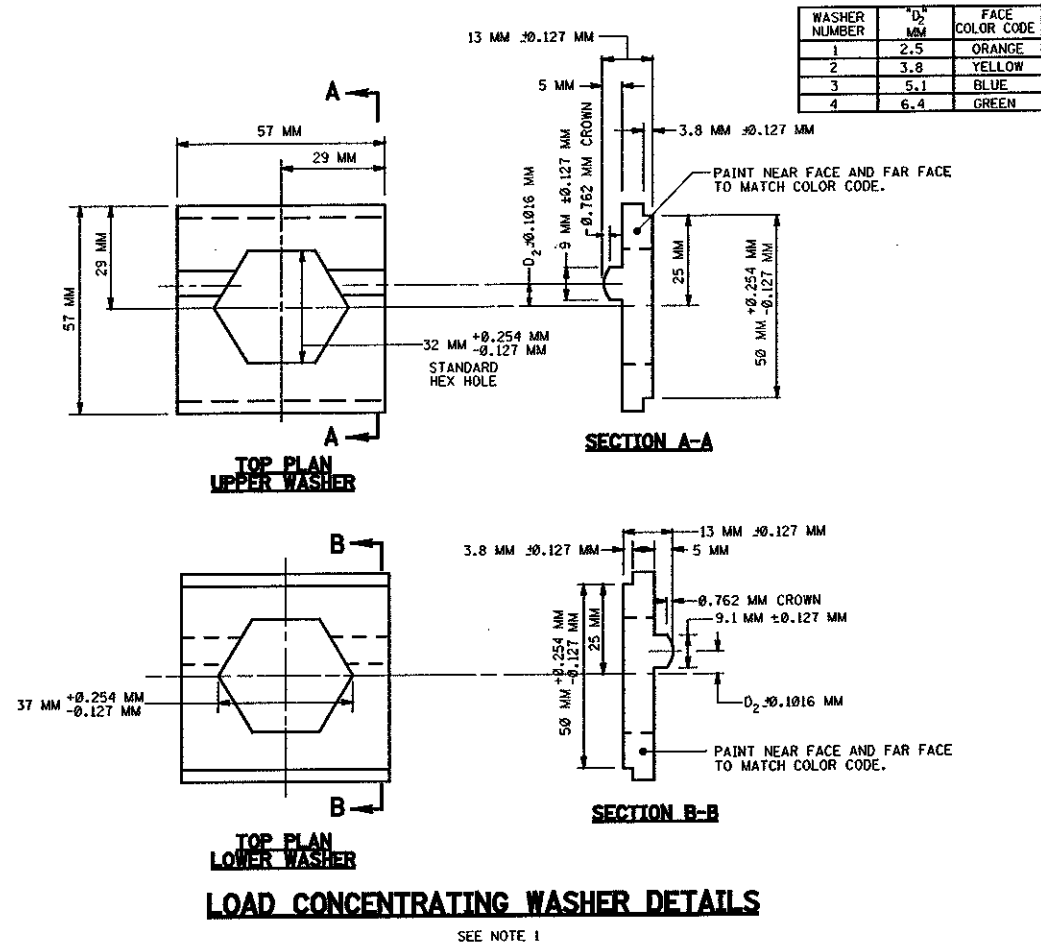
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FIGURE 4 - ORIGINAL SHEET



- GENERAL NOTES:
- COMPONENTS WHICH HAVE BEEN SAFETY DESIGNED WITH ENGLISH UNITS HAVE BEEN SOFT CONVERTED TO SI UNITS.
  - ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

## BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

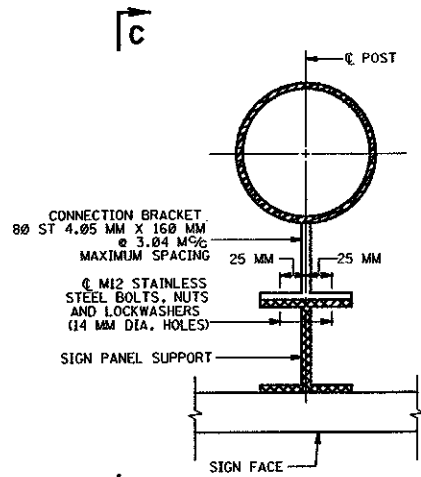
N.T.S.

CD-619-11

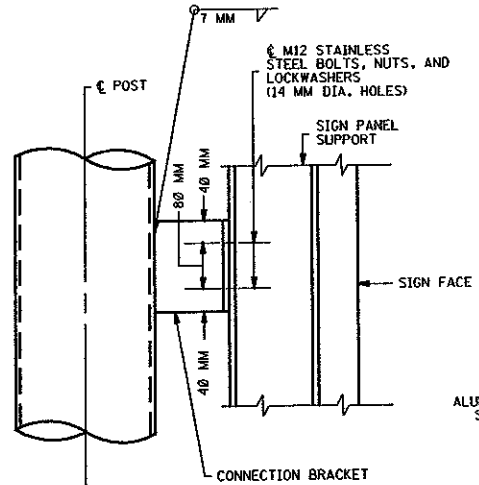
NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

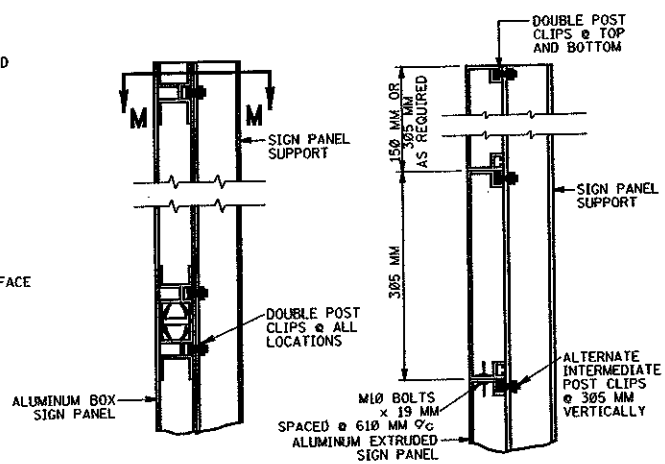




SECTION B-B



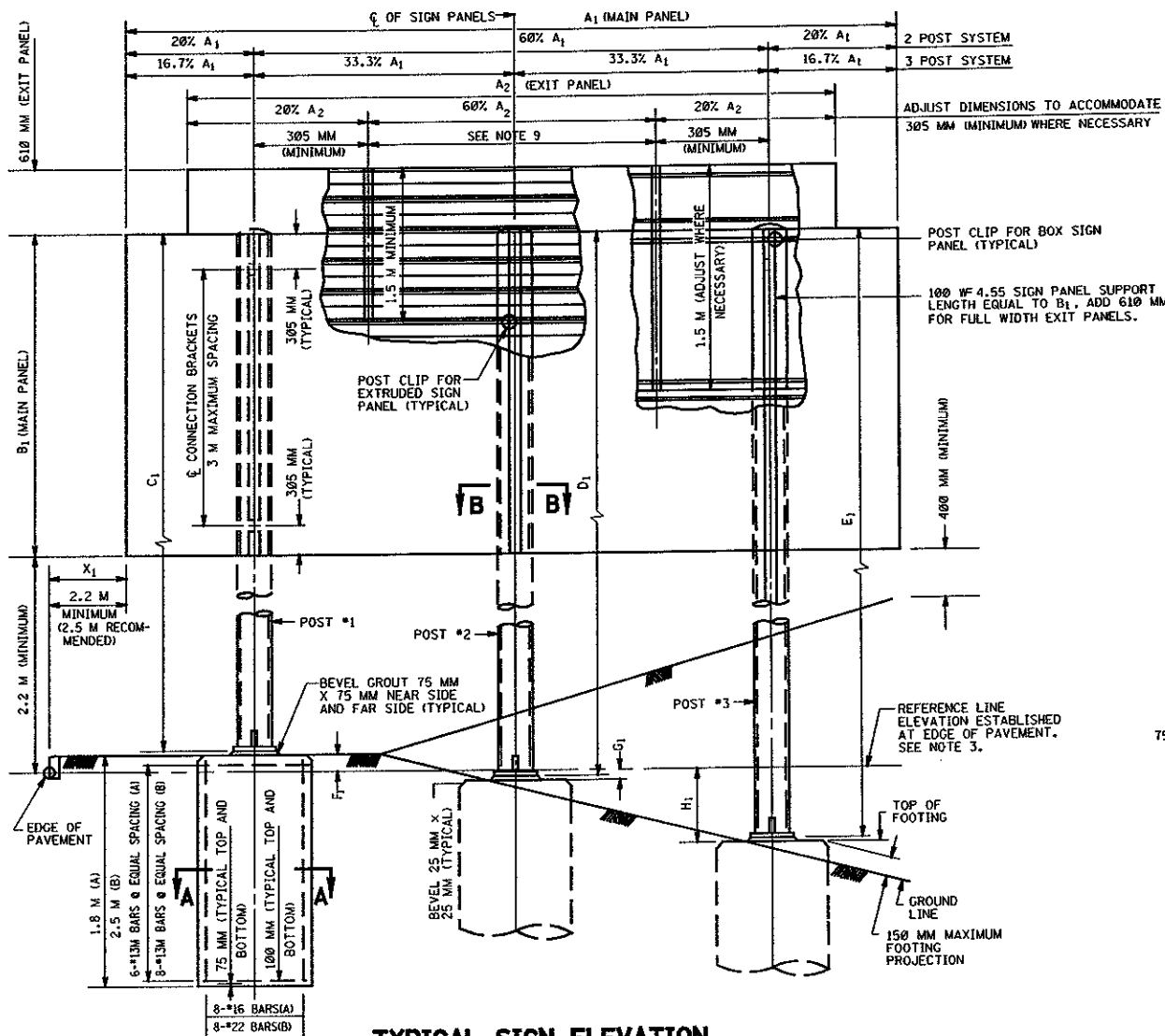
VIEW C-C



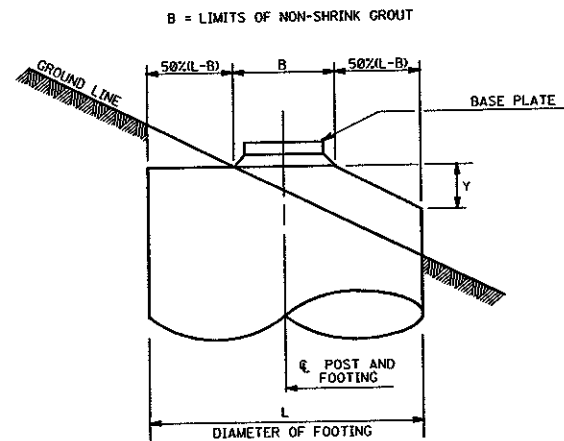
SIGN PANEL CONNECTION DETAILS

GENERAL NOTES:

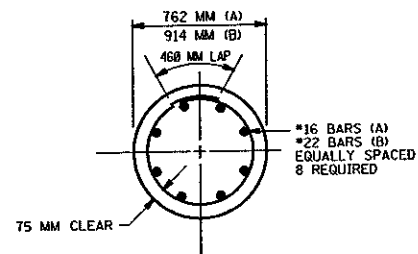
1. USE CLASS "B" CONCRETE IN ALL FOOTINGS. ULTIMATE COMPRESSIVE STRENGTH  $f'_c = 21$  MPa
2. ALL FOOTINGS SHALL BE PLACED AGAINST UNDISTURBED OR ADEQUATELY COMPACTED EARTH, EXCEPT FOR FOOTING TOPS WHICH SHALL BE FORMED TO A DEPTH OF 75 MM BELOW GROUND LINE.
3. TOPS OF FOOTINGS ABOVE REFERENCE LINE ARE INDICATED BY PLUS (+) VALUE; AND BELOW REFERENCE LINE BY MINUS (-) VALUE.
4. MATERIAL FOR STRUCTURAL SHAPES AND PLATES SHALL BE ALUMINUM ALLOY 6061-T6.
5. ANCHOR BOLT ASSEMBLY SHALL BE STRUCTURAL STEEL CONFORMING TO ASTM SPECIFICATION A36M OR EQUIVALENT WITH MINIMUM YIELD STRENGTH OF 250 000 KPA. NUTS, WASHERS AND BOLTS SHALL BE HOTDIP GALVANIZED. THE TOP 150 MM OF ALL ANCHOR BOLTS SHALL BE THREADED.
6. WELDING OF ALUMINUM SHALL BE AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS.
7. UNUSUAL FOUNDATION CONDITIONS MAY REQUIRE REDESIGN OF FOOTING AND SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
8. DIMENSIONS FOR BASE TYPE A ARE DESIGNATED (A). DIMENSIONS FOR BASE TYPE B ARE DESIGNATED (B).
9. PROVIDE 100 W F 4.55 EXIT PANEL BRACE FOR PARTIAL WIDTH EXIT PANELS ONLY.
10. ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



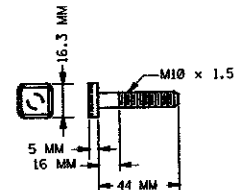
TYPICAL SIGN ELEVATION



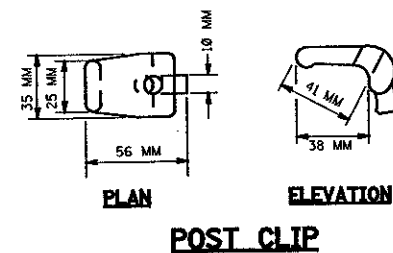
FOOTING BEVEL DETAIL  
(BEND REINFORCEMENT TO FIT)



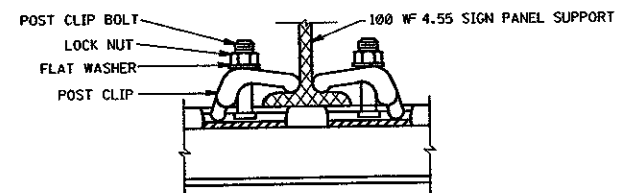
SECTION A-A



POST CLIP BOLT



POST CLIP



SECTION M-M

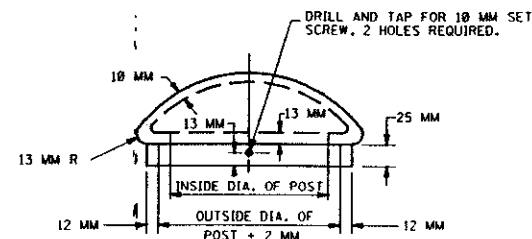
(BOX SIGN PANEL SHOWN.  
EXTRUDED SIGN PANEL SIMILAR.)

NON-BREAKAWAY SIGN SUPPORTS  
FOR GROUND MOUNTED SIGNS  
N.T.S.

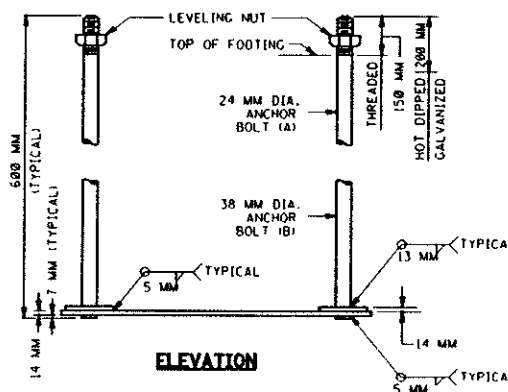
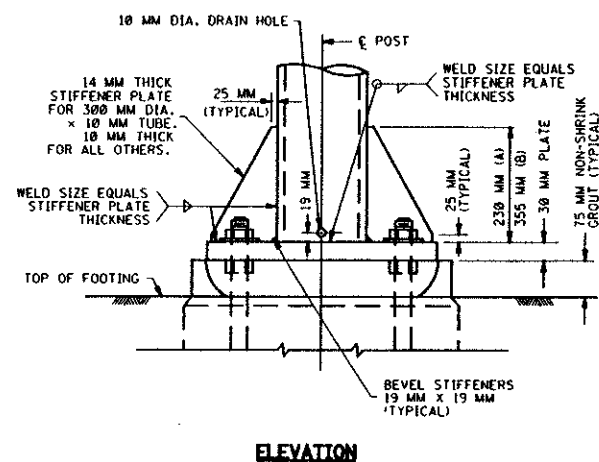
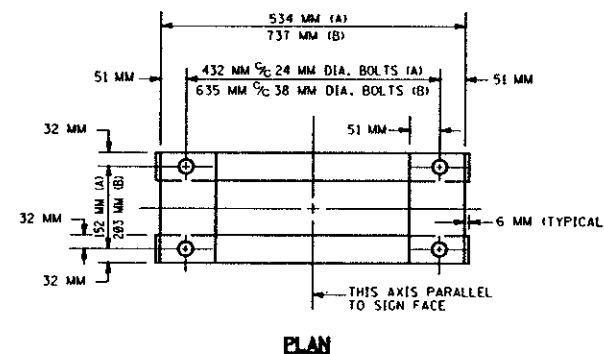
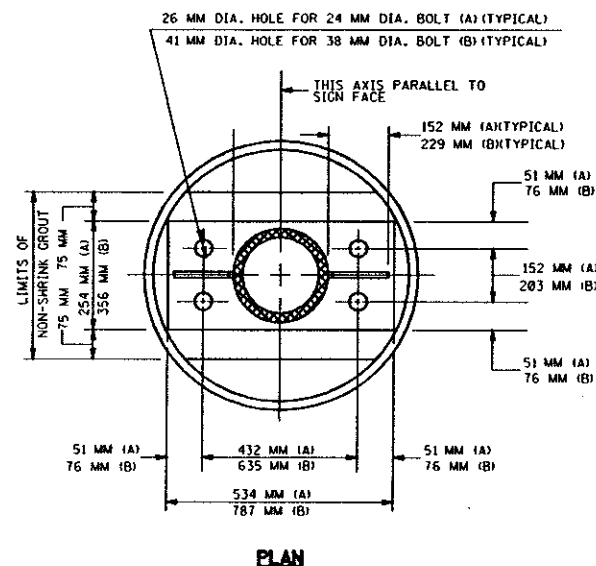
CD-619-13

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS



POST CAP DETAIL



### ANCHOR BOLT DETAIL

**ELEVATION**

**POST BASE DETAIL**

GENERAL NOTES:

1. USE CLASS "B" CONCRETE IN ALL FOOTINGS. ULTIMATE COMPRESSIVE STRENGTH  $f'c = 21 \text{ MPa}$ .
2. ALL FOOTINGS SHALL BE PLACED AGAINST UNDISTURBED OR ADEQUATELY COMPACTED EARTH, EXCEPT FOR FOOTING TOPS WHICH SHALL BE FORMED TO A DEPTH OF 75 MM BELOW GROUND LINE.
3. TOPS OF FOOTINGS ABOVE REFERENCE LINE ARE INDICATED BY PLUS (+) VALUE; AND BELOW REFERENCE LINE BY MINUS (-) VALUE.
4. MATERIAL FOR STRUCTURAL SHAPES AND PLATES SHALL BE ALUMINUM ALLOY 6061-T6.
5. ANCHOR BOLT ASSEMBLY SHALL BE STRUCTURAL STEEL CONFORMING TO AISC SPECIFICATION A36M OR EQUIVALENT WITH MINIMUM YIELD STRENGTH OF 250 000 KPA NUTS, WASHERS AND OF BOLTS SHALL BE HOT DIP GALVANIZED, THE TOP 150 MM OF ALL ANCHOR BOLTS SHALL BE THREADED.
6. WELDING OF ALUMINUM SHALL BE AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS
7. UNUSUAL FOUNDATION CONDITIONS MAY REQUIRE REDSIGN OF FOOTINGS AND SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
8. DIMENSIONS FOR BASE TYPE A ARE DESIGNATED (A). DIMENSIONS FOR BASE TYPE B ARE DESIGNATED (B).
9. ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

## NON-BREAKAWAY SIGN SUPPORTS FOR GROUND MOUNTED SIGNS

**N.T.S.**

CD-619-14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

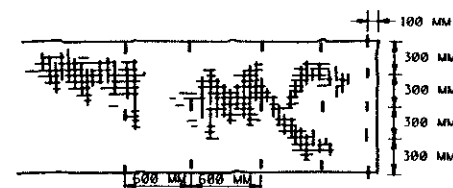
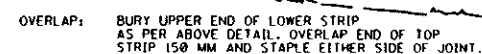
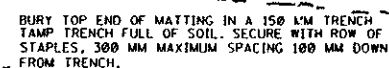
## CONSTRUCTION DETAILS





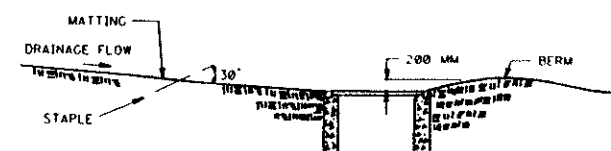
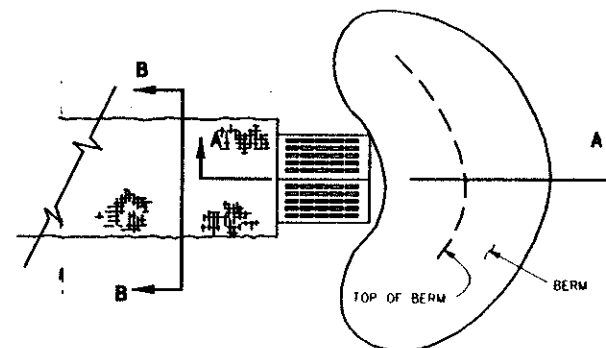

$$\frac{89}{129}$$

DOUBLE WIDTH MATTING IN SWALE. USE 75 - 150 MM OVERLAP WHERE TWO OR MORE STRIPS ARE REQUIRED, AND STAPLE ON 600 MM CENTER.



SECURE MATTING WITH STAPLES SPACED 600 MM APART ALONG THE SIDES AND DOWN THE CENTER. AT THE ENDS OF THE MATTING AND AT 15 METER INTERVALS STAPLES SHALL BE PLACED 300 MM APART ACROSS THE WIDTH.

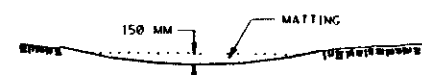
## INLET AND MOUND



**SECTION A-A**



**TYPICAL STAPLE**



**SECTION B-B**

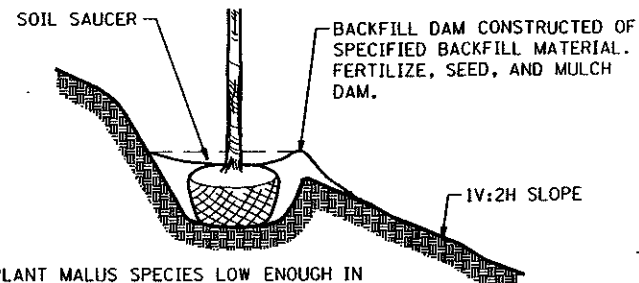
CD-809-1.1

**N.T.S.**

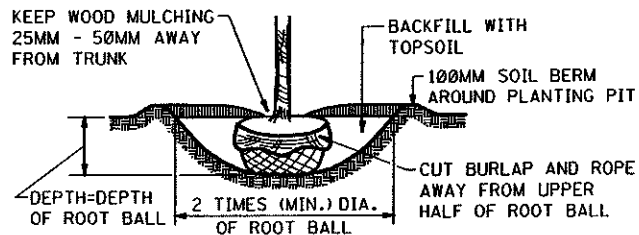
NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

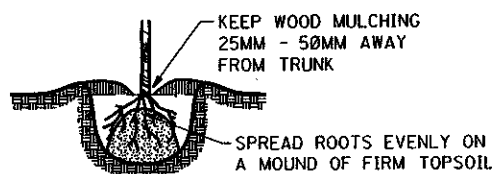
NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.



### TREE PLANTING - 1V:2H SLOPE

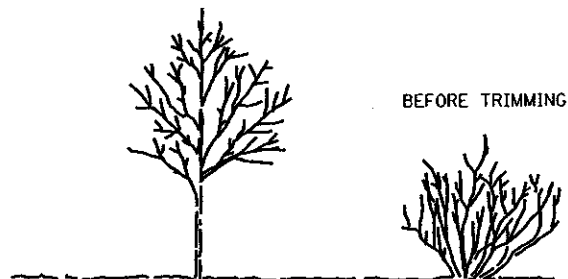


### B & B MATERIAL

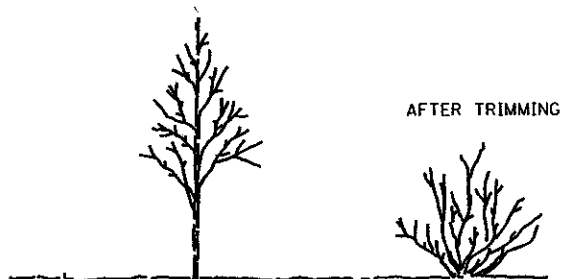


### BARE ROOT MATERIAL

### TREE & SHRUB PLANTING DETAIL



BEFORE TRIMMING



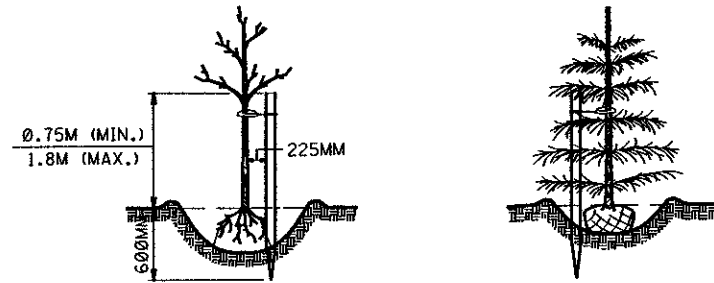
AFTER TRIMMING

DAMAGED BRANCHES SHALL BE TRIMMED OFF BELOW THE POINT OF INJURY. THE CENTRAL TRUNK OR "LEADER" SHOULD BE LEFT INTACT AND THE SIDE BRANCHES SHOULD BE SHORTENED BY APPROXIMATELY ONE-THIRD TO ONE-HALF OF PREVIOUS SEASON'S GROWTH. BROKEN ROOTS SHALL BE CUT OFF ABOVE THE BREAK AND BRUISED ENDS CUT OFF CLEANLY.

WHEN PLANTING A YOUNG SHRUB, THIN TOP GROWTH BY ONE-THIRD TO BALANCE THE TOP WITH THE ROOTS. PRUNE JUST ABOVE A BUD AND RETAIN THE NATURAL SHAPE OF THE SHRUB.

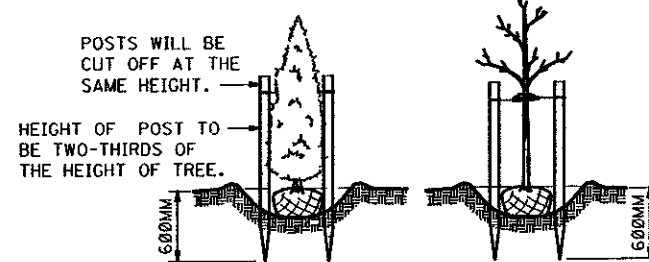
### PRUNING TREES WHEN PLANTING

POSTS - 50MM x 50MM x 2.4M LUMBER, STAINED DARK BROWN, OR 2.4M WHITE CEDAR POST 50MM TO 75MM DIAMETER AT THE THINNER (LOWER) END OF THE POST.



### TREES REQUIRING ONE STAKE

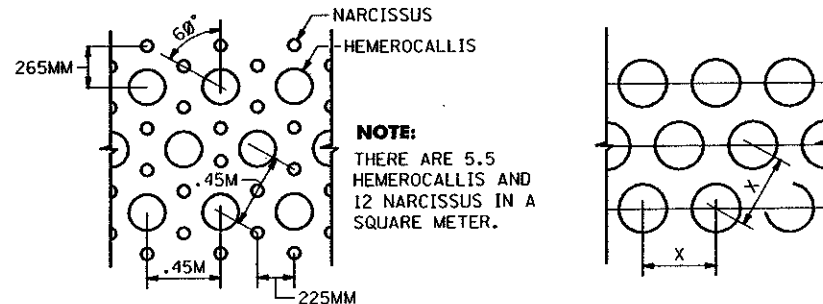
DECIDUOUS TREES (EXCEPT SALIX) 25MM TO 40MM CALIPER, INCLUSIVE. CONE TYPE (PYRAMIDAL) TREES 0.9M TO 1.5M HIGH, AND COLUMNAR EVERGREEN TREES 1.2M TO 2.1M HIGH, INCLUSIVE.



### TREES REQUIRING TWO STAKES

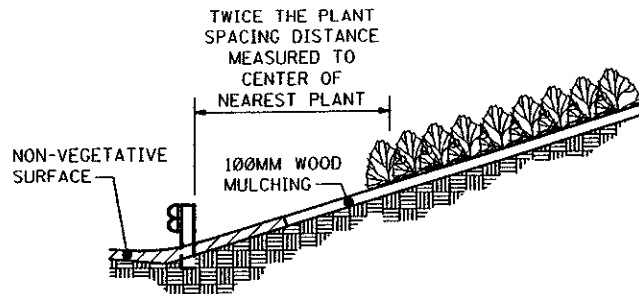
DECIDUOUS TREES OVER 40MM TO 65MM CALIPER, INCLUSIVE. ALL SALIX REGARDLESS OF HEIGHT, CALIPER, BARE ROOT OR BALLED AND BURLAPPED. CONE TYPE (PYRAMIDAL) TREES 1.5M TO 2.1M HIGH AND COLUMNAR EVERGREEN TREES 2.1M TO 2.7M HIGH, INCLUSIVE.

### STAKING DETAILS



### HEMEROCALLIS AND NARCISSUS BED PLANTING DETAIL

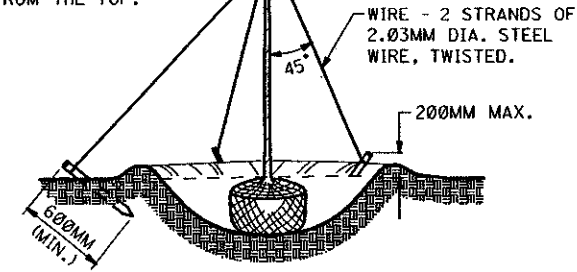
### SHRUB BED PLANTING DETAIL



### SHRUB PLANTING BEHIND GUIDE RAIL

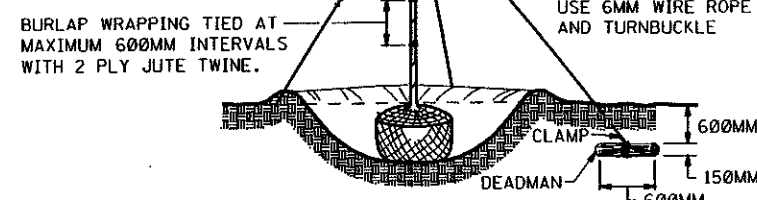
DECIDUOUS TREES OVER 65MM TO 100MM CALIPER, CONE TYPE (PYRAMIDAL) TREES OVER 2.1M HIGH.

STAKES - 50MM x 100MM LUMBER OR WHITE CEDAR, 65MM DIAMETER AT THINNER (LOWER) END, NOTCHED 100MM FROM THE TOP.



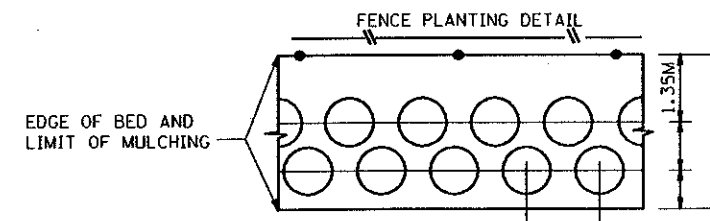
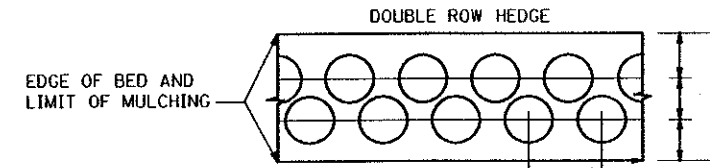
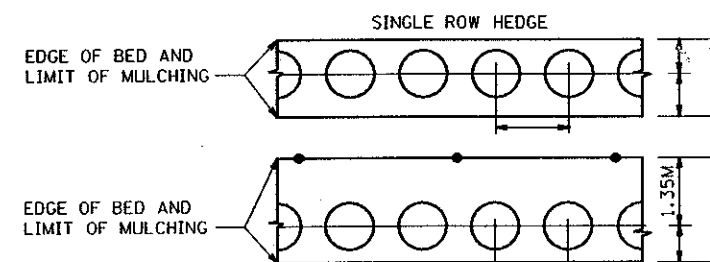
### TREES REQUIRING THREE GUYS & STAKES

DECIDUOUS TREES OVER 100MM TO 200MM CALIPER, CONE TYPE (PYRAMIDAL) TREES OVER 100MM TO 200MM CALIPER, COLUMNAR EVERGREEN TREES OVER 2.7M HIGH.

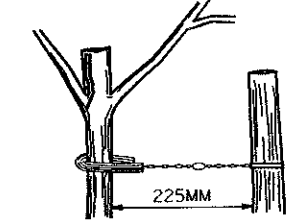


### TREES REQUIRING THREE GUYS & DEADMEN

### GUYING DETAILS

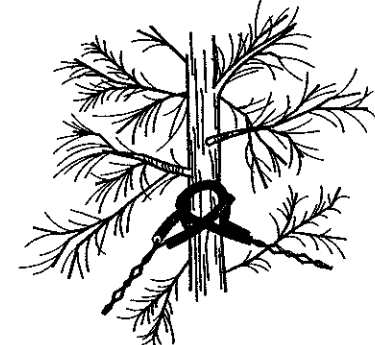


### HEDGE PLANTING DETAILS



ANCHOR TREE TO POST(S) USING 2.03MM DIA. STEEL WIRE AND 13MM CORDED RUBBER OR PLASTIC HOSE.

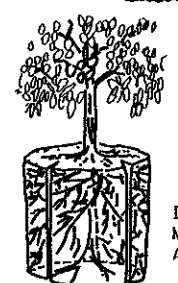
### DETAIL OF POST AND GUY WIRE



GUY WIRES SHOULD BE PLACED AT LEAST HALF WAY UP THE TRUNK.

### DETAIL OF GUY WIRES AROUND TRUNK

WHEN GUYING, LEAVE ROOM FOR GROWTH OF TREE



### CONTAINERIZED PLANTS

### FASTENING DETAIL

**NOTE TO DESIGNER:**  
THIS SHEET REQUIRES DESIGN SPECIFIC INFORMATION TO BE ADDED AND INCLUDED IN THE CONTRACT PLANS.  
REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

### PLANTING

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CD-813-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

### CONSTRUCTION DETAILS

91

129

CD-813-1.1

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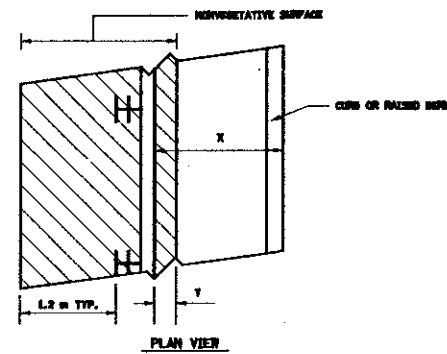
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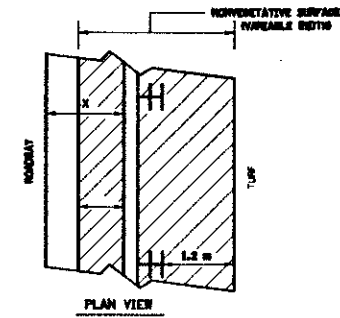
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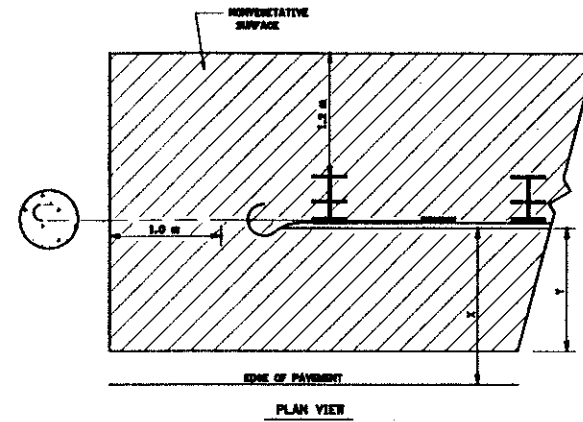
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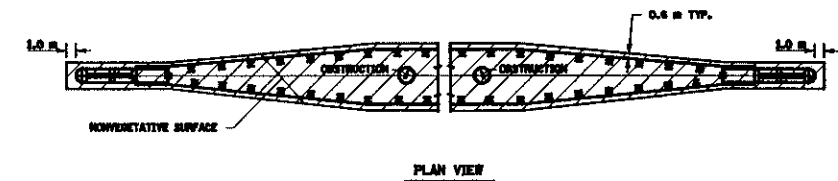
X	Y
GUIDE RAIL OFFSET FROM EDGE OF PAVEMENT	WIDTH OF NONVEGETATIVE SURFACE IN FRONT OF GUIDE RAIL
2.1 m OR GREATER	0.6 m
1.2 m	1.2 m
0.0 m	0.0 m



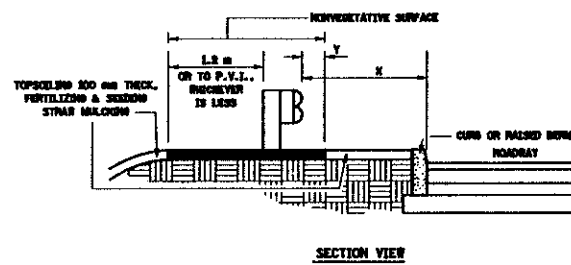
X	Y
GUIDE RAIL OFFSET FROM EDGE OF PAVEMENT	WIDTH OF NONVEGETATIVE SURFACE IN FRONT OF GUIDE RAIL
2.1 m OR GREATER	0.6 m
1.2 m	1.2 m
0.0 m	0.0 m



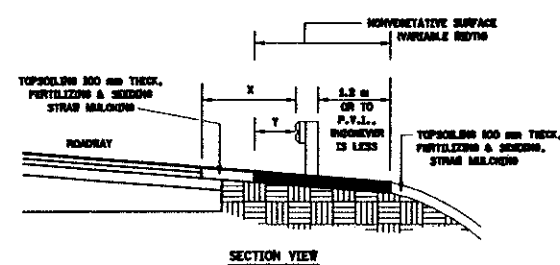
X	Y
GUIDE RAIL OFFSET FROM EDGE OF PAVEMENT	WIDTH OF NONVEGETATIVE SURFACE IN FRONT OF GUIDE RAIL
2.1 m OR GREATER	0.6 m
1.2 m	1.2 m
0.0 m	0.0 m



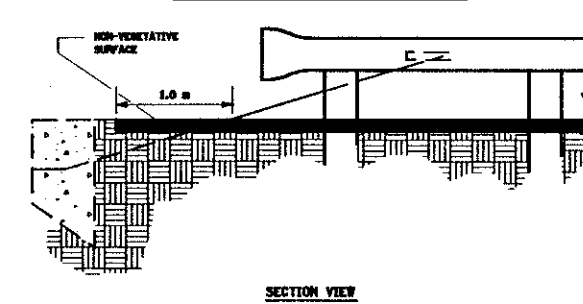
NONVEGETATIVE SURFACE AT MEDIAN GUIDE RAIL



NONVEGETATIVE SURFACES AROUND GUIDE RAIL BEHIND CURB OR RAISED BERM



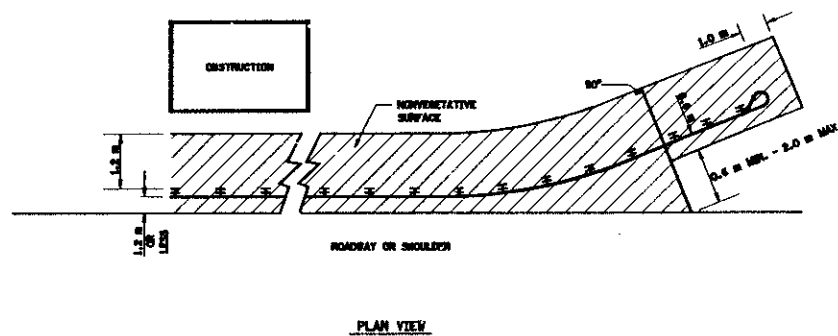
NONVEGETATIVE SURFACE AT EDGE OF PAVEMENT ON UMBRELLA SECTION WHERE GUIDE RAIL IS USED



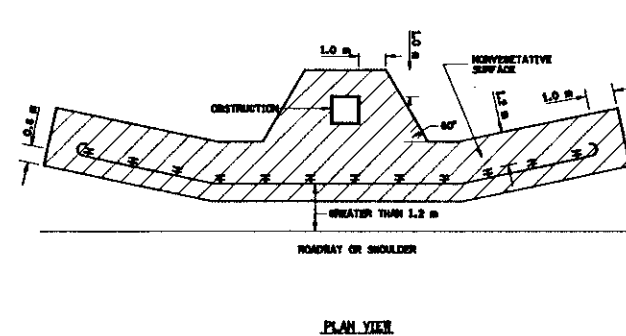
NONVEGETATIVE SURFACES AROUND GUIDE RAIL ANCHORAGE TYPE I

#### GENERAL NOTES:

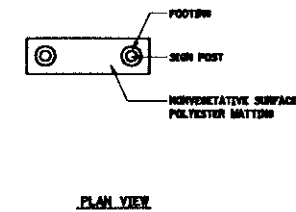
1. IF THE END OF THE GUIDE RAIL IS BURIED IN THE SLOPE, THE LIMIT OF NONVEGETATIVE SURFACE RELATIVE TO THE BURIED GUIDE RAIL WILL BE DETERMINED BY THE INCIDENT SLOPES.
2. SEE TYPICAL SECTIONS FOR CROSS SLOPES IN ROADSIDE (BORROW OR SIDEWALK AREA).



NONVEGETATIVE SURFACE AROUND FLARED GUIDE RAIL WHERE GUIDE RAIL OFFSET FROM EDGE OF PAVEMENT IS 1.2 m OR LESS



NONVEGETATIVE SURFACE AROUND FLARED GUIDE RAIL WHERE GUIDE RAIL OFFSET FROM EDGE OF PAVEMENT IS GREATER THAN 1.2 m



THE NONVEGETATIVE SURFACE SHALL FORM A RECTANGULAR PAD WHOSE OUTSIDE LIMITS EXTEND A MINIMUM OF 1.0 M BEYOND THE POST FOOTING.

NONVEGETATIVE SURFACE AROUND OVERHEAD SIGN FOUNDATIONS AND UNDER LARGE GROUND MOUNTED SIGNS

#### NONVEGETATIVE SURFACE DETAILS

N.T.S.

CD-614-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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INDEX FOR STANDARD TRAFFIC CONTROL DETAILS

DESCRIPTION	TCD	DESCRIPTION	TCD	
LEGEND AND GENERAL NOTES	TCD-1			
SIGHT DISTANCE	TCD-2			
TAPER LENGTH				
ESCAPE RAMP DETAIL				
PLACEMENT OF PRECAST CONCRETE CONSTRUCTION BARRIER				
CONSTRUCTION BARRIER, TYPE 4 JOINT CLASS & ALLOWABLE MOVEMENT				
2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING	TCD-3			
2 LANES, UNDIVIDED, SHOULDER CLOSING	TCD-4			
2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING				
2 LANES, UNDIVIDED, INTERSECTION		TCD-5		
		TCD-6		
		TCD-7		
4 LANES, UNDIVIDED, RIGHT LANE & SHOULDER CLOSING	TCD-8			
4 LANES, UNDIVIDED, SHOULDER CLOSING				
4 LANES, UNDIVIDED, LEFT LANE CLOSING	TCD-9			
4 LANES, UNDIVIDED, 2 LANES & SHOULDER ONE DIRECTION CLOSING	TCD-10			
4 LANES, UNDIVIDED, INTERSECTION	TCD-11			
	TCD-12			
	TCD-13			
4 & 6 LANES, DIVIDED, RIGHT LANE & SHOULDER CLOSING	TCD-14			
4 & 6 LANES, DIVIDED, SHOULDER CLOSING				
4 & 6 LANES, DIVIDED, LEFT LANE CLOSING	TCD-15			
6 LANES, DIVIDED, LEFT TWO LANES CLOSING	TCD-16			
6 LANES, DIVIDED, RIGHT TWO LANES CLOSING				
6 LANES, DIVIDED, CENTER LANE CLOSURE	TCD-17			
INITIATED BY LEFT LANE CLOSURE MAINTAIN 2 THROUGH LANES				
6 LANES, DIVIDED, CENTER LANE CLOSURE				
INITIATED BY RIGHT LANE CLOSURE MAINTAIN 2 THROUGH LANES				
DIVIDED, EXIT RAMP CONSTRUCTION, LEFT	TCD-18			
DIVIDED, EXIT RAMP CONSTRUCTION, RIGHT				
DIVIDED, EXIT RAMP CONSTRUCTION, LEFT WITH DECELERATION LANE	TCD-19			
DIVIDED, EXIT RAMP CONSTRUCTION, RIGHT WITH DECELERATION LANE				
DIVIDED, ENTRANCE RAMP CONSTRUCTION, LEFT	TCD-20			
DIVIDED, ENTRANCE RAMP CONSTRUCTION, RIGHT				
DIVIDED, ENTRANCE RAMP CONSTRUCTION, LEFT WITH ACCELERATION LANE	TCD-21			
DIVIDED, ENTRANCE RAMP CONSTRUCTION, RIGHT WITH ACCELERATION LANE				
MULTI-LANE ROAD MOVING OPERATION	TCD-22			

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## LEGEND

BREAKAWAY BARRICADES

BREAKAWAY BARRICADES WITH SIGN

CONSTRUCTION SIGNS

DRUMS

CONE

PRECAST CONCRETE CURB CONSTRUCTION BARRIER (TYPE SPECIFIED)

DIRECTION OF TRAFFIC FLOW

FLAGGER

ILLUMINATED FLASHING ARROW MOUNTED ON TOWING VEHICLE  
SHOWING CAUTION MODE

ILLUMINATED FLASHING ARROW MOUNTED ON TOWING VEHICLE  
SHOWING ARROW PATTERN (Left, Right, Both)

TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND  
ARROW BOARD SHOWING CAUTION MODE

TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND  
ARROW BOARD SHOWING ARROW PATTERN (Left, Right, Both)

TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM

TEMPORARY CRASH CUSHION, (all other approved)

BUFFER ZONE

WORK AREA

PAINT STRIPING TRUCK OR OTHER OPERATING VEHICLE

## GENERAL NOTES:

- ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED, AT DIRECTION OF THE ENGINEER, TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY.
- THE APPROXIMATE LOCATIONS OF THE ILLUMINATED FLASHING ARROW BOARDS ARE SHOWN ON THE TRAFFIC CONTROL PLANS. THESE LOCATIONS MAY BE MODIFIED TO ADJUST FOR VISIBILITY DUE TO HORIZONTAL OR VERTICAL CURVATURE OF THE ROADWAY OR TO POSITION AT A SAFER LOCATION. ILLUMINATED FLASHING ARROW BOARDS ARE TO BE USED FOR TEMPORARY LANE CLOSINGS AND AT LOCATIONS SHOWN ON THE TRAFFIC CONTROL PLANS.
- PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.
- RAMPS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20-IF SIGN (ROAD WORK AHEAD) AS A MINIMUM.
- ALL EXISTING ROAD SIGNS, PAVEMENT MARKINGS AND/OR PLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED OR RELOCATED AS DIRECTED BY THE ENGINEER.
- CONFLICTING OR NON-OPERATING SIGNAL INDICATIONS ON EITHER THE EXISTING, TEMPORARY, OR PROPOSED TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.
- MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - PART VI "STANDARDS AND GUIDES FOR TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY, AND INCIDENT MANAGEMENT OPERATIONS", UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, AND SHALL BE APPROVED BY THE ENGINEER.
- CONSTRUCTION SIGN W99-2 (GIVE US A BRAKE) SHALL BE LOCATED 60 METERS IN ADVANCE OF PROJECT LIMITS.
- A W1-6 (ARROW) SIGN MOUNTED ON A BREAKAWAY BARRICADE AND CENTERED ON THE CLOSED WIDTH SHALL BE LOCATED 30 METERS BEYOND EACH INTERSECTION OR MAIN ACCESS POINT WITHIN THE AREA OF A LANE OR SHOULDER CLOSURE.
- CONSTRUCTION SIGNS R11-4 (ROAD CLOSED TO THRU TRAFFIC) SHALL BE PLACED AT THE INTERSECTING STREETS WHICH ARE CLOSED TO TRAFFIC BECAUSE OF CONSTRUCTION.
- CONSTRUCTION SIGNS W8-9A (SYMBOL FOR UNEVEN PAVEMENT) AND W8-14A (GROOVED PAVEMENT) SHALL BE USED WHEN SUCH PAVEMENT CONDITIONS EXIST. THE PLACEMENT OF THESE SIGNS SHALL BE AS DIRECTED BY THE ENGINEER.
- MOVING WORK AREAS IN A PERMANENT LANE CLOSURE REQUIRE A TRAILER MOUNTED ILLUMINATED FLASHING TRUCK MOUNTED CRASH CUSHION THAT SHALL MOVE WITH THE WORK AREAS TO KEEP A 20 METER MINIMUM AND 50 METER MAXIMUM BUFFER IN ADVANCE OF EACH WORK AREA.
- THE CONTRACTOR SHALL SUBMIT A PLAN FOR THE SAFE ACCESS OF CONSTRUCTION VEHICLES THROUGHOUT THE WORK SITE WHERE SPACE CONSTRAINTS PREVENT THE USE OF LANE CLOSURES. THE PLAN SHALL BE SUBMITTED TO THE ENGINEER IN ACCORDANCE WITH SECTION 617 OF THE STANDARD SPECIFICATIONS.
- TRAFFIC SAFETY SERVICES SHALL BE USED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL, SECTION 617.
- ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON A MINIMUM 1V : 6H SLOPE PRIOR TO THE END OF EACH WORK DAY. OTHER EXCAVATED AREAS WITHIN THE CLEAR ZONE ARE TO BE EITHER BACKFILLED OR A PRECAST CONCRETE CURB CONSTRUCTION BARRIER SET TEMPORARILY IN PLACE TO SHIELD VEHICULAR AND PEDESTRIAN TRAFFIC.
- WHERE REQUIRED, THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN CROSSING LOCATIONS AND TYPE AS DIRECTED BY THE ENGINEER.
- HMA CONCRETE PLACED DURING THE VARIOUS CONSTRUCTION STAGES SHALL BE TRANSITIONED ON A MINIMUM 1V : 20H SLOPE TO MEET THE ADJACENT EXISTING GRADE AT THE LONGITUDINAL AND TRANSVERSE LIMITS OF THE STAGE CONSTRUCTION AREAS UNLESS OTHERWISE NOTED ON THE STAGE CONSTRUCTION PLANS.
- THE PLACEMENT AND OR RELOCATION OF PRECAST CONCRETE CURB, CONSTRUCTION BARRIER SHALL BE DONE DURING APPROVED OFF-PEAK HOURS WHEN TRAFFIC MAY BE REDUCED TO ONE LANE IN EACH DIRECTION.
- CONSTRUCTION ZONE SPEED LIMIT WILL BE DETERMINED BY THE REGIONAL TRAFFIC ENGINEER AT THE TIME OF OR DURING CONSTRUCTION, AS REQUESTED BY THE RESIDENT ENGINEER.
- THE SPEED LIMIT, R2-1 (BLACK ON WHITE) SIGN SHALL BE LOCATED THROUGH WORK AREAS AS DIRECTED BY THE REGIONAL TRAFFIC ENGINEER.
- THE REDUCED SPEED AHEAD SIGN, R2-5A(5) (BLACK ON WHITE) SHALL BE LOCATED IN ADVANCE OF SPEED LIMIT R2-1 SIGNS WHICH REDUCE THE NORMAL POSTED SPEED LIMIT THROUGH THE CONSTRUCTION ZONE.
- TRAFFIC FINES DOUBLED IN WORK AREA R(NJ)5-17(5), 1200 BY 750 MM SIGN SHALL BE LOCATED 150 METER AFTER THE FIRST ADVANCE WARNING SIGN, (W20 SERIES) AT EACH WORK AREA LOCATED WITHIN URBAN AREAS. THIS SIGN SHALL ALSO BE USED ON PROJECTS REQUIRING MOVING OPERATIONS IN WHICH CASE THE SIGN SHALL BE MOUNTED ON A SLOW MOVING CONSTRUCTION VEHICLE.
- THE FINAL HMA SURFACE PAVEMENT SHALL NOT BE CONSTRUCTED UNTIL THE FINAL STAGE OF THE PROJECT. MANHOLES AND INLETS SHALL BE SET TO FINISHED GRADE AND TEMPORARY PAVEMENT RAMPS ARE TO BE CONSTRUCTED AROUND THEM WITH A MINIMUM 1V : 20H SLOPE IN ALL DIRECTIONS USING HMA PAVEMENT. THIS TEMPORARY MATERIAL WILL BE REMOVED IMMEDIATELY PRIOR TO PLACING THE SURFACE COURSE.
- TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.
- CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE ENGINEER.

### NOTE TO DESIGNER:

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REMOVE THIS NOTE AFTER DESIGN SPECIFIC INFORMATION IS ADDED.

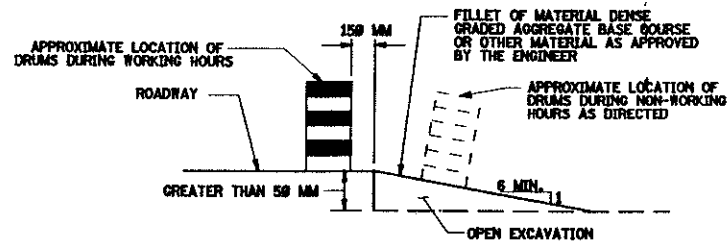
HMA = HOT MIX ASPHALT

TCD-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

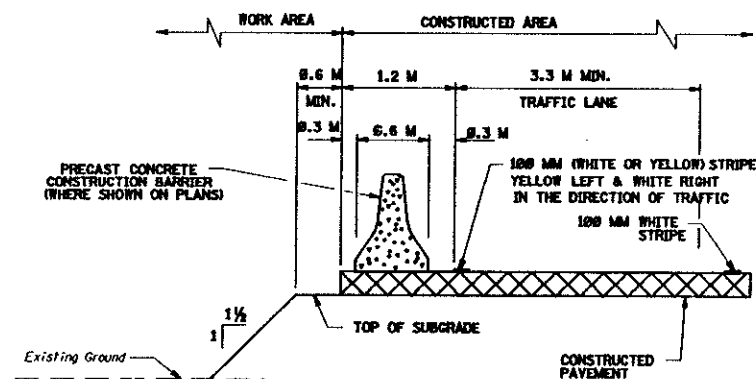
## TRAFFIC CONTROL DETAILS

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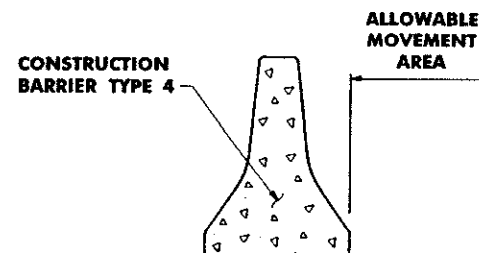


### ESCAPE RAMP DETAIL

NOTE: ESCAPE RAMP MUST BE CONSTRUCTED AND MAINTAINED DURING NON-WORKING HOURS WHERE A VERTICAL DROP OF GREATER THAN 50 MM EXISTS ADJACENT TO A TRAVELED LANE.



### TYPICAL SECTION PLACEMENT OF PRECAST CONCRETE CONSTRUCTION BARRIER



- NOTES:
1. CHANGES TO THE PROPOSED JOINT CLASS AT ANY LOCATION MUST BE APPROVED BY THE ENGINEER.
  2. NO WORK OR STORAGE OF MATERIALS WILL BE PERMITTED IN THE ALLOWABLE MOVEMENT AREA.

### CONSTRUCTION BARRIER, TYPE 4 JOINT CLASS AND ALLOWABLE MOVEMENT

REGULATORY APPROACH SPEED OF TRAFFIC  MILES/HOUR	RECOMMENDED SIGHT DISTANCE TO BEGINNING OF CHANNELIZING TAPERS		
	DESIRABLE		MINIMUM
	RURAL METERS	URBAN METERS	RURAL AND URBAN METERS
25	115	160	45
30	135	190	50
40	180	250	100
45	200	280	120
50	225	310	145
55	260	350	165
60	300	395	190
65	315	410	220

- NOTES:
1. AVOIDANCE MANEUVER IS FOR A SPEED, PATH, AND/OR DIRECTION CHANGE PRIOR TO THE BEGINNING OF CHANNELIZING TAPERS.
  2. RECOMMENDED DISTANCES BETWEEN TWO SEPARATE LANE CLOSURES SHALL BE DOUBLE THE VALUES SHOWN ABOVE.
  3. RURAL AND URBAN ROAD DESIGNATIONS SHALL BE AS DEFINED IN THE NJDOT STATE HIGHWAY STRAIGHT LINE DIAGRAMS.
  4. DESIRABLE VALUES SHALL BE PROVIDED WHEREVER POSSIBLE. IF IT IS NOT FEASIBLE OR PRACTICAL TO PROVIDE DESIRABLE VALUES BECAUSE OF HORIZONTAL OR VERTICAL CURVATURE OR IF RELOCATION OF THE TAPER IS NOT POSSIBLE, THEN MINIMUM VALUES CAN BE APPLIED. WHEN MINIMUM VALUES ARE USED, SPECIAL ATTENTION SHOULD BE GIVEN TO THE USE OF SUITABLE TRAFFIC CONTROL DEVICES FOR PROVIDING ADVANCED WARNING OF THE CONDITIONS THAT ARE LIKELY TO BE ENCOUNTERED.
  5. TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.

RECOMMENDED TAPER LENGTH AND SPACING FOR CHANNELIZING TAPERS				RECOMMENDED SPACING ALONG TANGENTS
REGULATORY APPROACH SPEED OF TRAFFIC IN MILES/HOUR	MINIMUM TAPER RATIO IN LENGTH PER FEET OF WIDTH	MINIMUM TAPER LENGTH FOR LANE WIDTHS 5 M 5.5 M 5.6 M	MAXIMUM DEVICE OR SPACING ALONG TAPERS IN METERS	MAXIMUM DEVICE OR SPACING ALONG TANGENTS IN METERS
25	10:1	30	35	16
30	15:1	45	50	20
40	20:1	60	65	24
45	25:1	75	80	28
50	30:1	90	95	32
55	35:1	105	110	36
60	40:1	120	125	40
65	45:1	135	140	44

- NOTE:
- THE MAXIMUM DEVICE SPACING ALONG CURVES SHALL BE AS DEFINED FOR TAPERS (B) IN THE ABOVE TABLE.

JOINT CLASS	ALLOWABLE MOVEMENT
A	OVER 400MM TO 500MM
B	275MM TO 400MM
C	LESS THAN 275MM

STAGE	LOCATION	JOINT CLASS
	RTE. STA. TO STA.	

TCD-2  
NEW JERSEY DEPARTMENT OF TRANSPORTATION

### TRAFFIC CONTROL DETAILS



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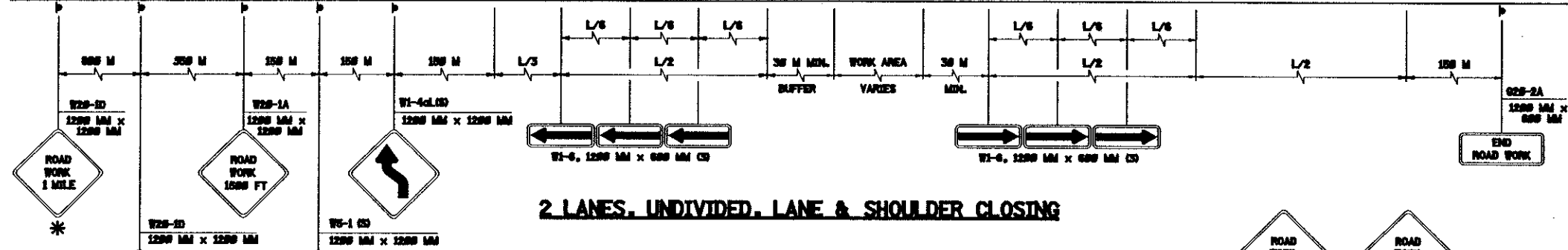
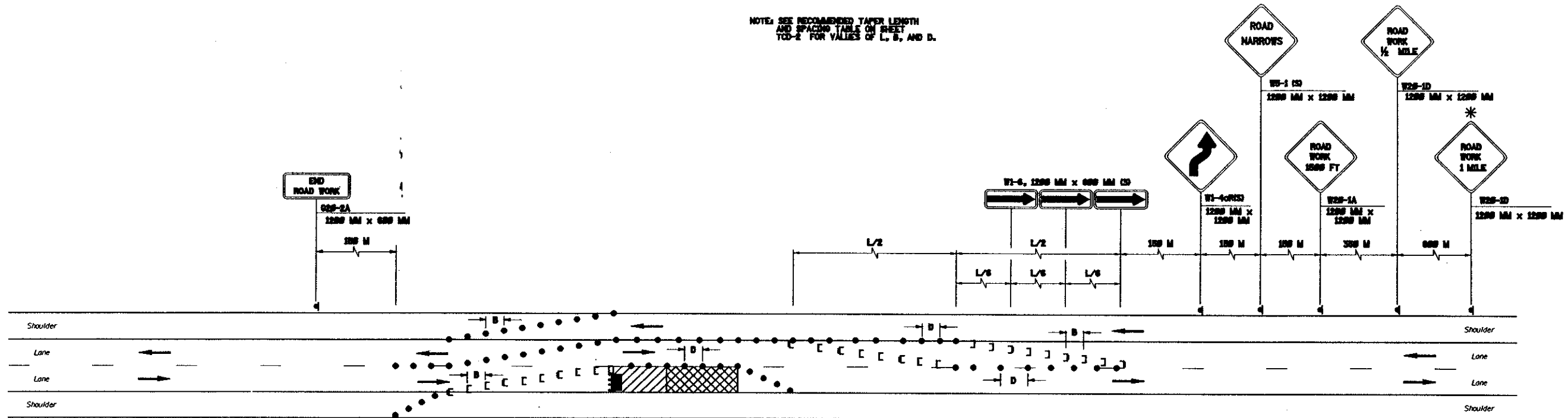
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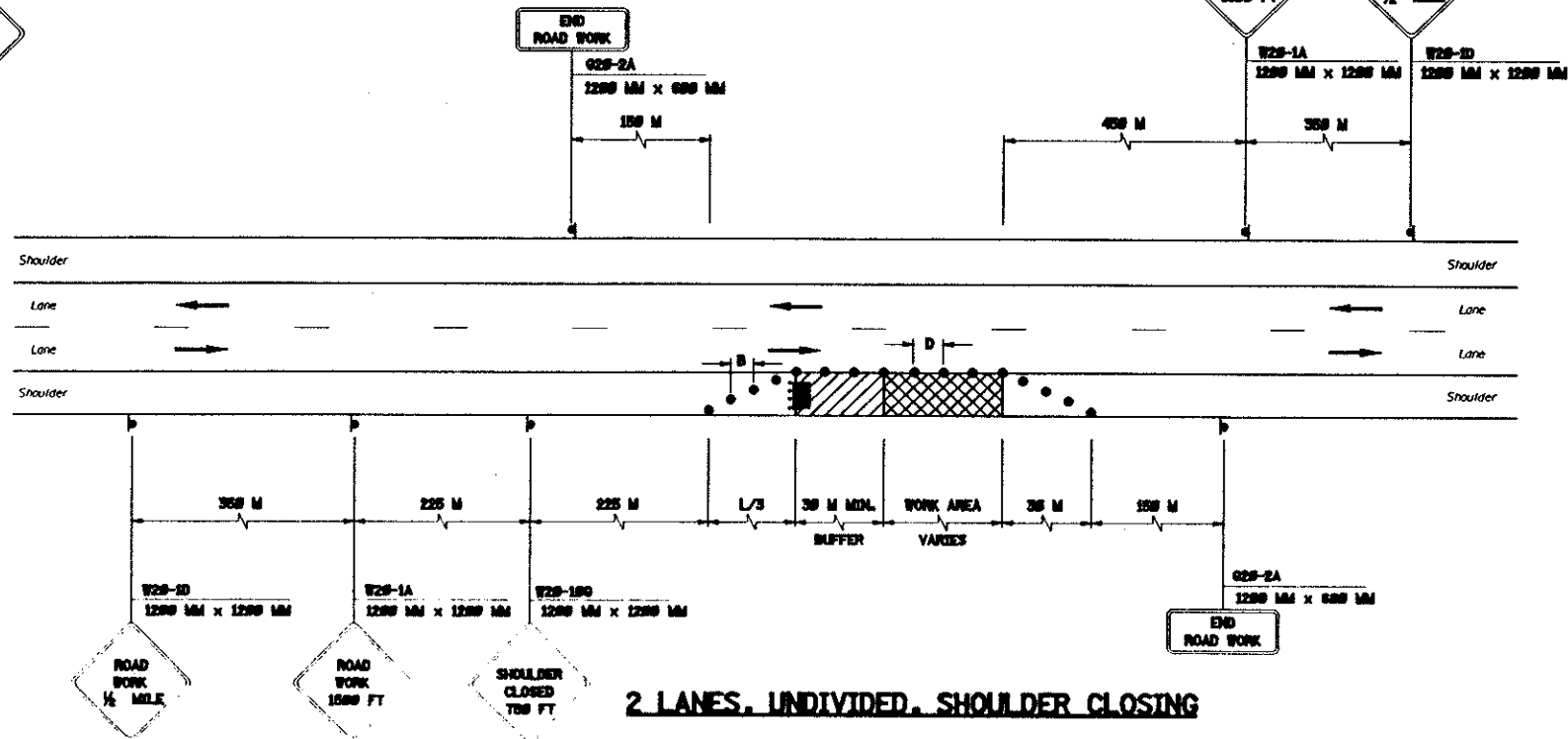
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NOTE: SEE RECOMMENDED TAPER LENGTH  
AND SPACING TABLE ON SHEET  
TCD-2 FOR VALUES OF L, S, AND D.



2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING



2 LANES, UNDIVIDED, SHOULDER CLOSING

\* - THIS SIGN SHOULD BE INSTALLED FOR ROADS  
WITH A SPEED LIMIT OF 25 MPH (40 K.M.P.H.)  
OR GREATER UNLESS OTHERWISE DIRECTED BY  
THE RESIDENT ENGINEER.

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.

N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

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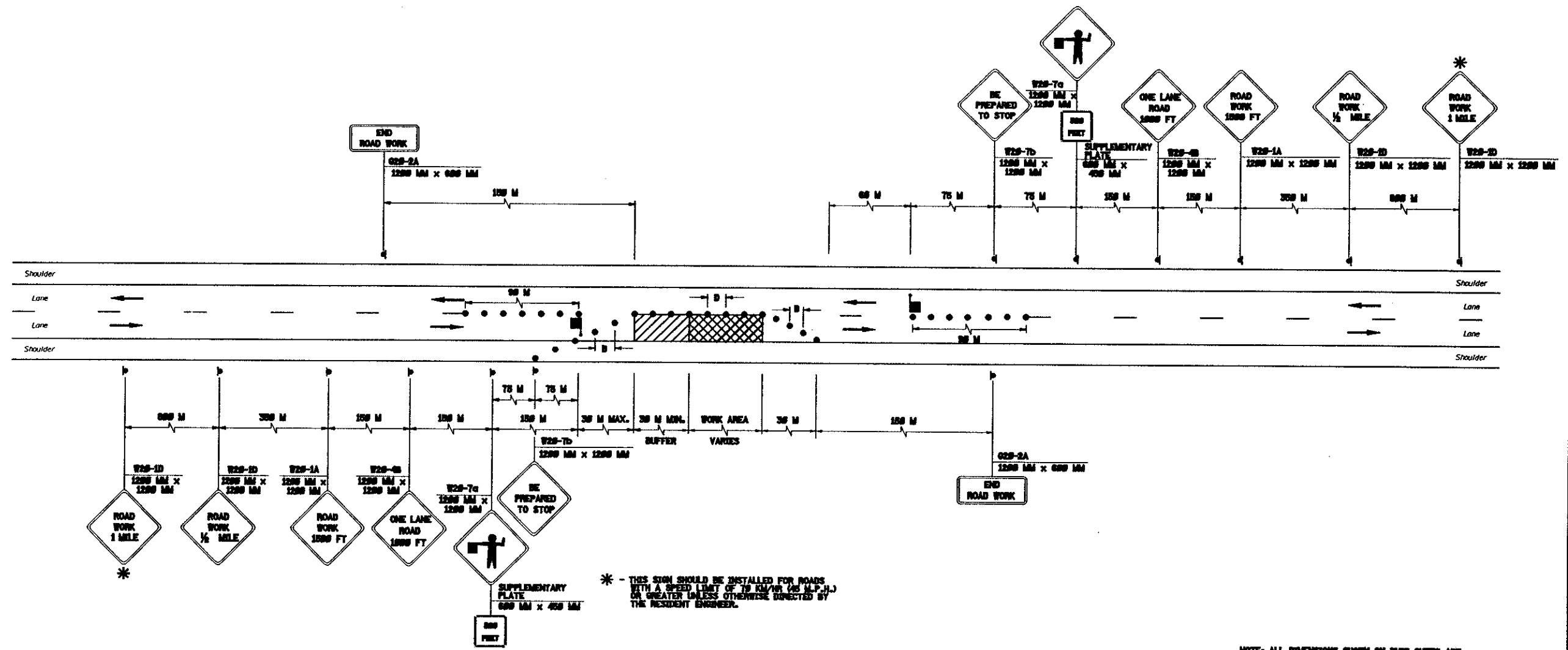
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NOTE: SEE RECOMMENDED TAPER LENGTH AND SPACING TABLE ON SHEET TCD-2 FOR VALUES OF L, W, AND D.



NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

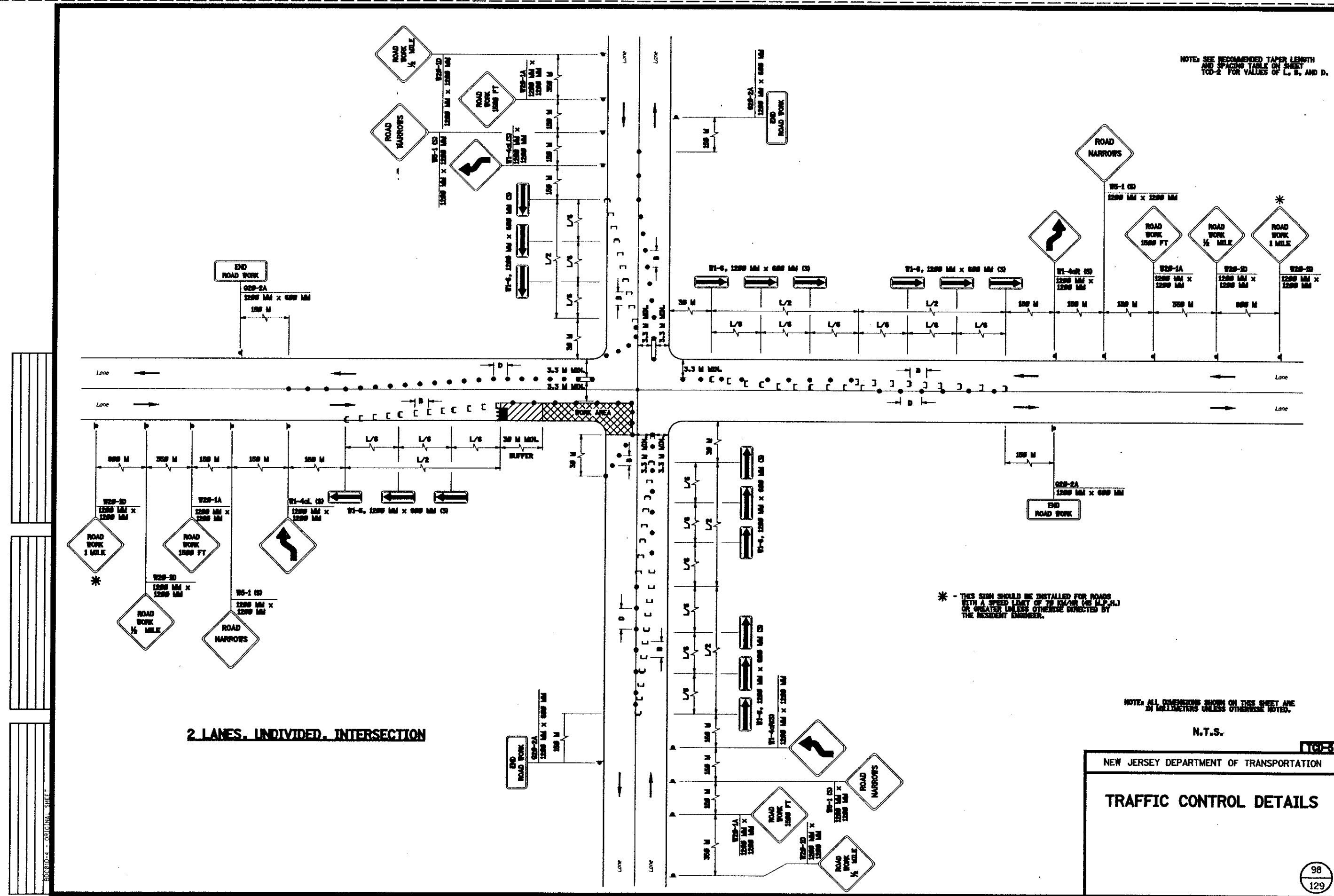
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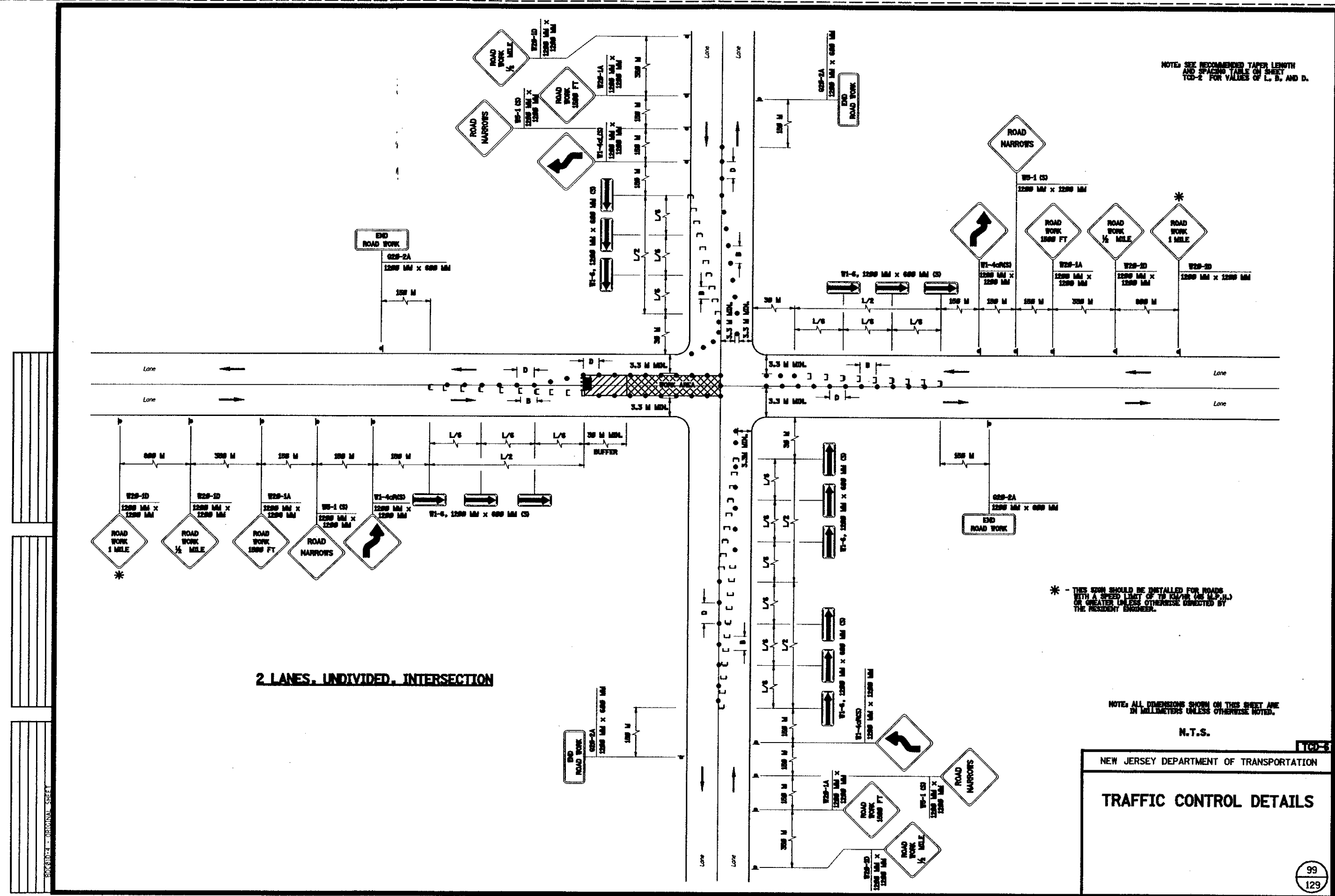
2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING

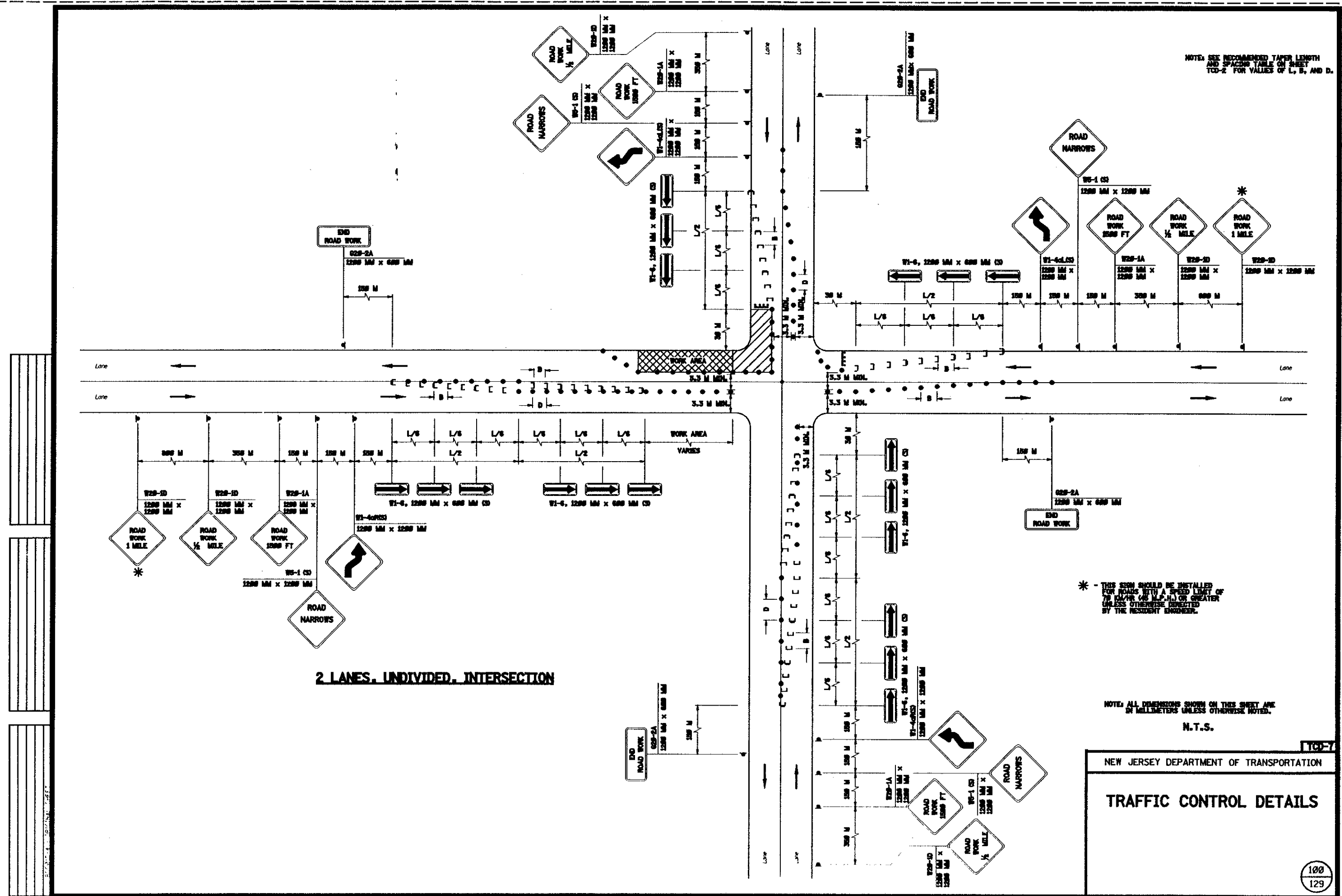
NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

97  
129









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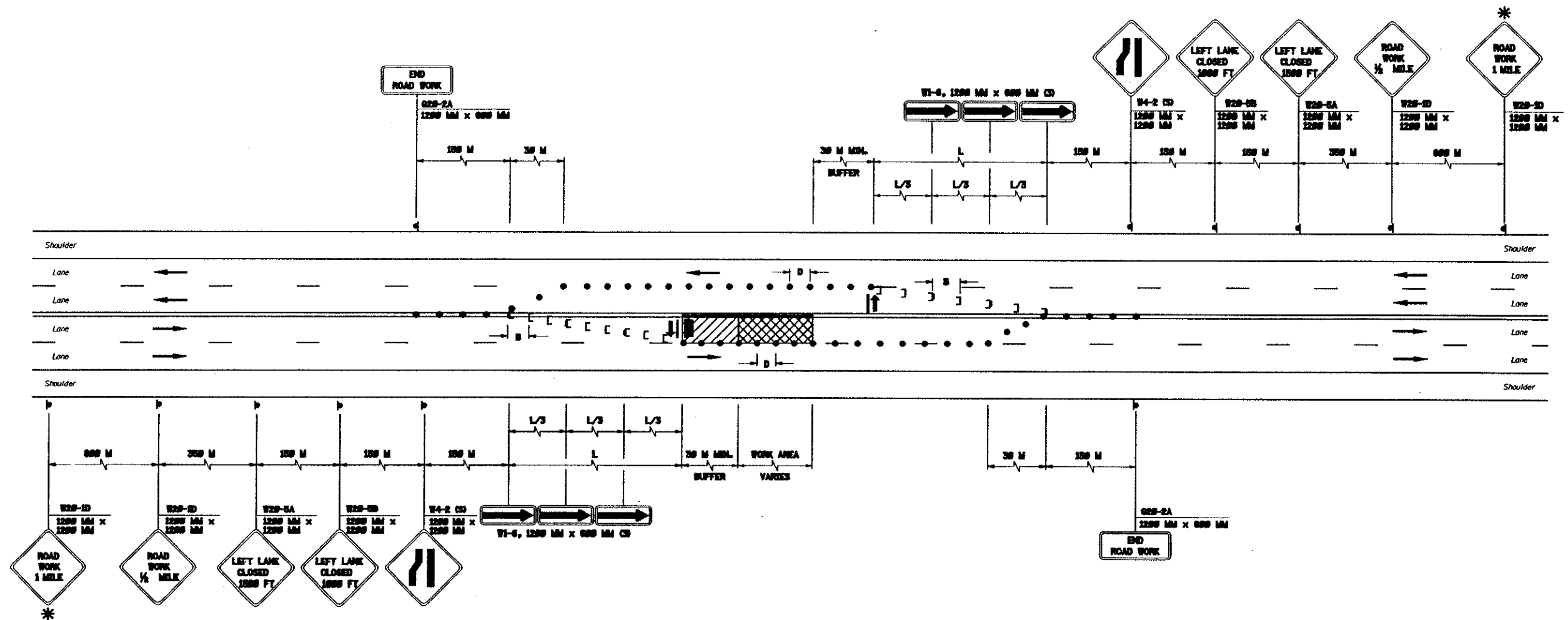
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ID =

ENCLOSURE - ORIGINAL SHEET

NOTE: SEE RECOMMENDED TAPER LENGTH  
AND SPACING TABLE ON SHEET  
TCO-2 FOR VALUES OF L, S, AND D.



#### 4 LANES, UNDIVIDED, LEFT LANE CLOSING

\* - THIS SIGN SHOULD BE INSTALLED FOR ROADS  
WITH A SPEED LIMIT OF 70 KM/HR (40 M.P.H.)  
OR GREATER UNLESS OTHERWISE DIRECTED BY  
THE INCIDENT ENGINEER.

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN METERS UNLESS OTHERWISE NOTED.  
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

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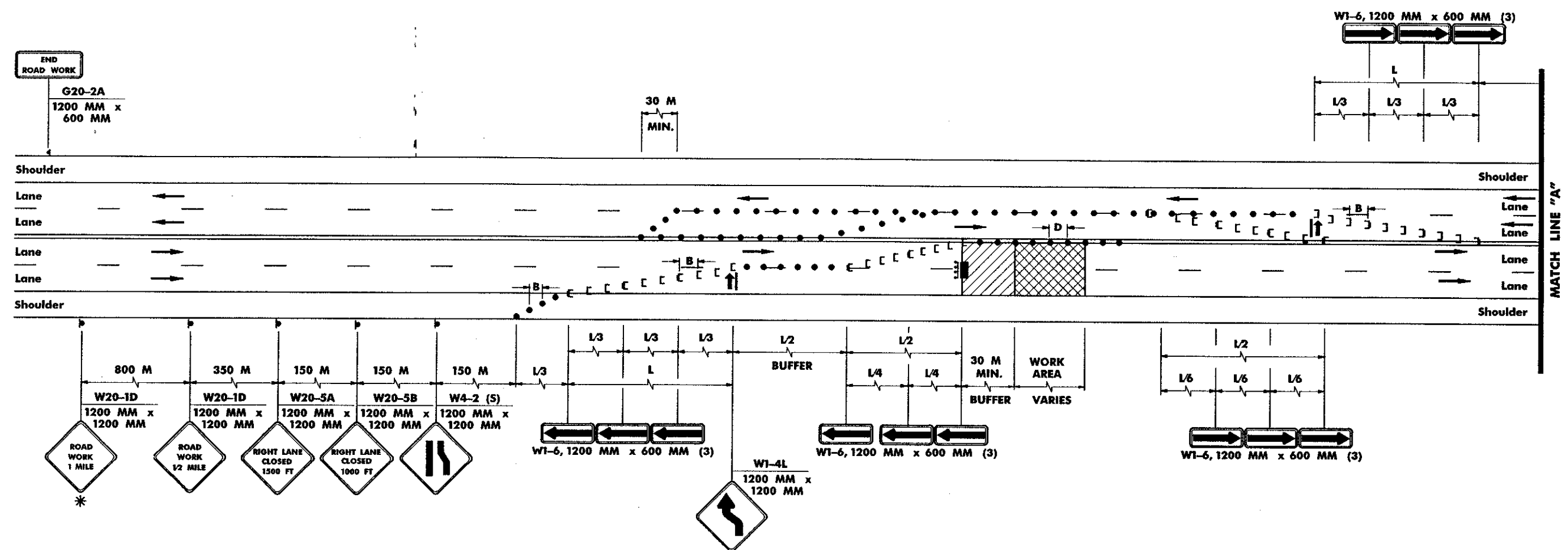
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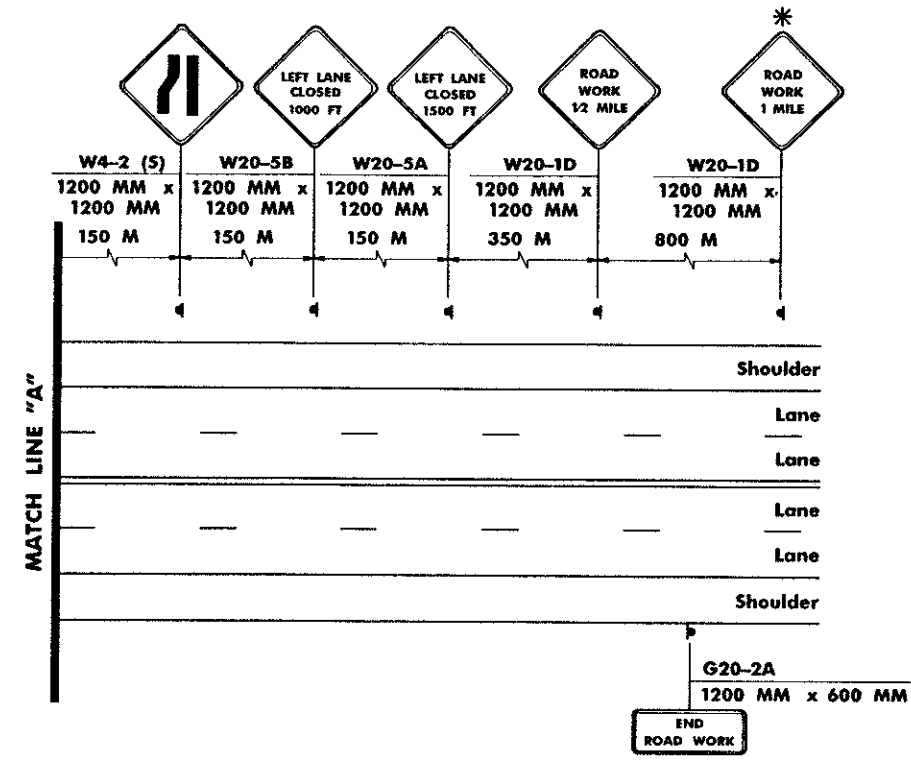
ID =



EDC010-1 - ORIGINAL SHEET



**4 LANES, UNDIVIDED, 2 LANES & SHOULDER ONE DIRECTION CLOSING**



\* — THIS SIGN SHALL BE INSTALLED FOR ROADS WITH A SPEED LIMIT OF 70 KMHR (45 M.P.H.) OR GREATER UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.

NOTE:  
SEE RECOMMENDED TAPER LENGTH AND SPACING TABLE ON SHEET TCD-2 FOR VALUES OF L, B AND D.

N.T.S.

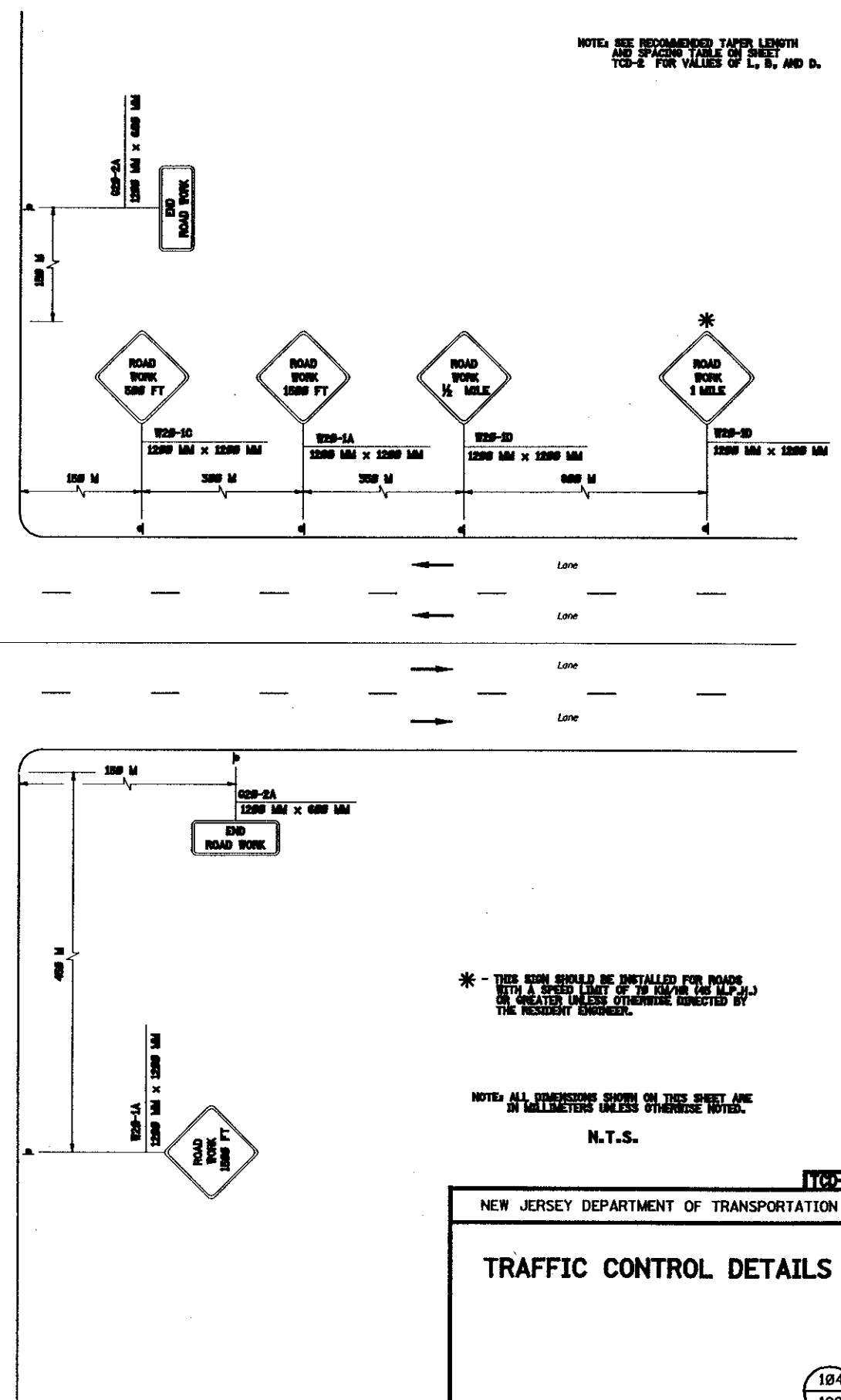
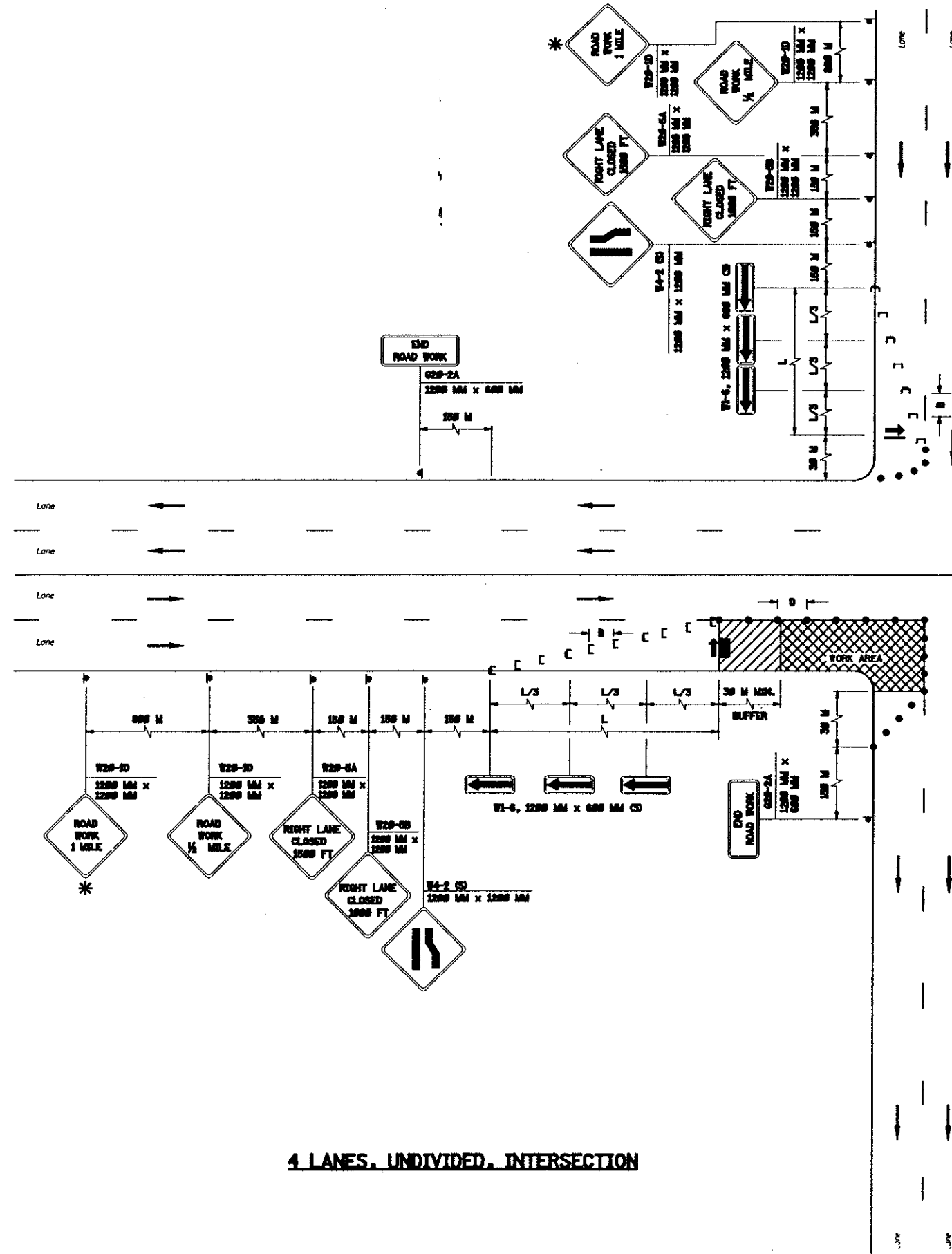
TCD-10

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

103  
129





NOTE: SEE RECOMMENDED TAPER LENGTH  
AND SPACING TABLE ON SHEET  
TCD-2 FOR VALUES OF L, B, AND D.

\* - THIS SIGN SHOULD BE INSTALLED FOR ROADS WITH A SPEED LIMIT OF 70 KM/HR (45 M.P.H.) OR GREATER UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.

**N.T.S.**

**TEST**

NEW JERSEY DEPARTMENT OF TRANSPORTATION

### TRAFFIC CONTROL DETAILS

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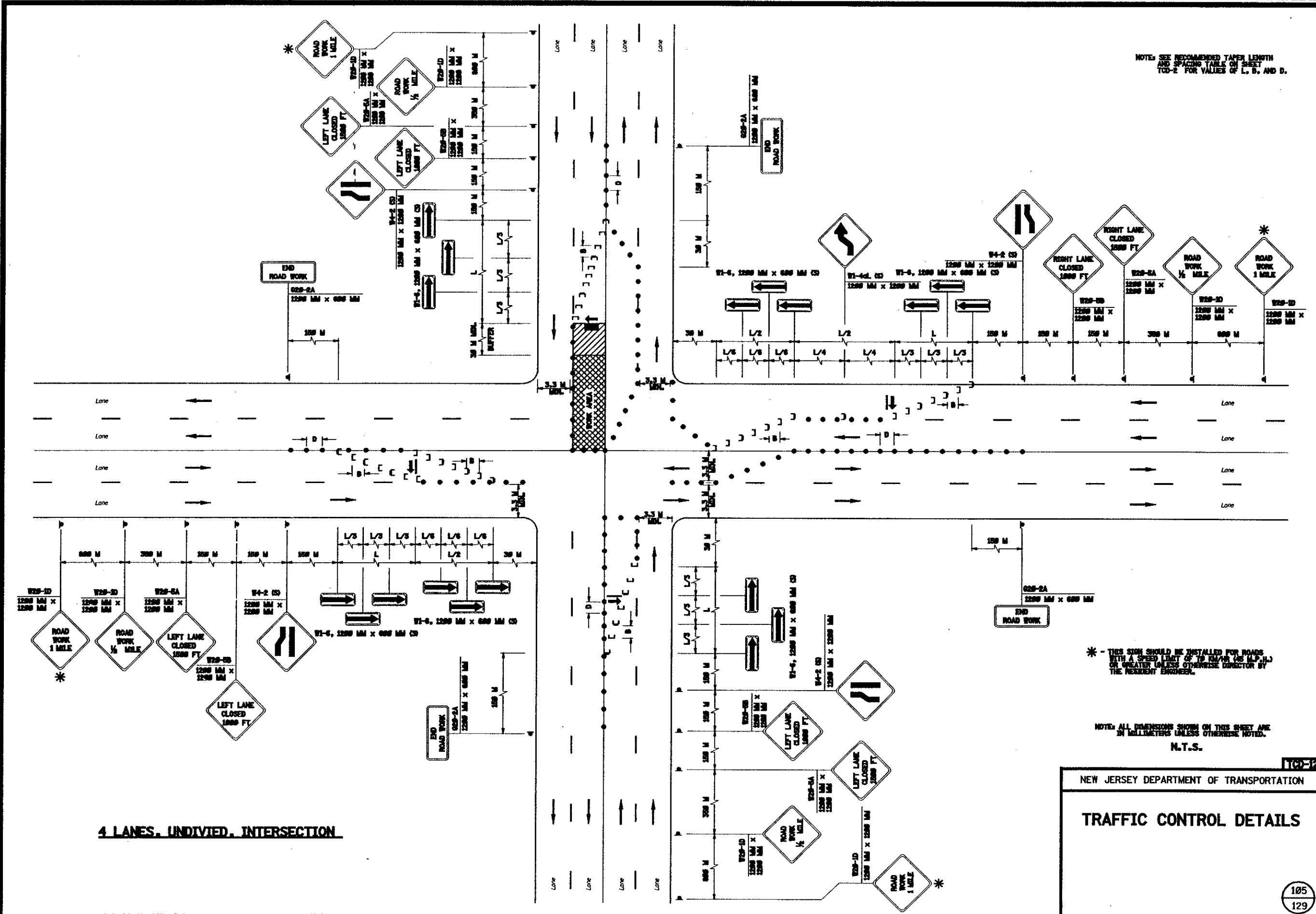
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ID =

ENCLOSURE - ORIGINAL SHEET



4 LANES, UNDIVIDED, INTERSECTION

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

105  
129



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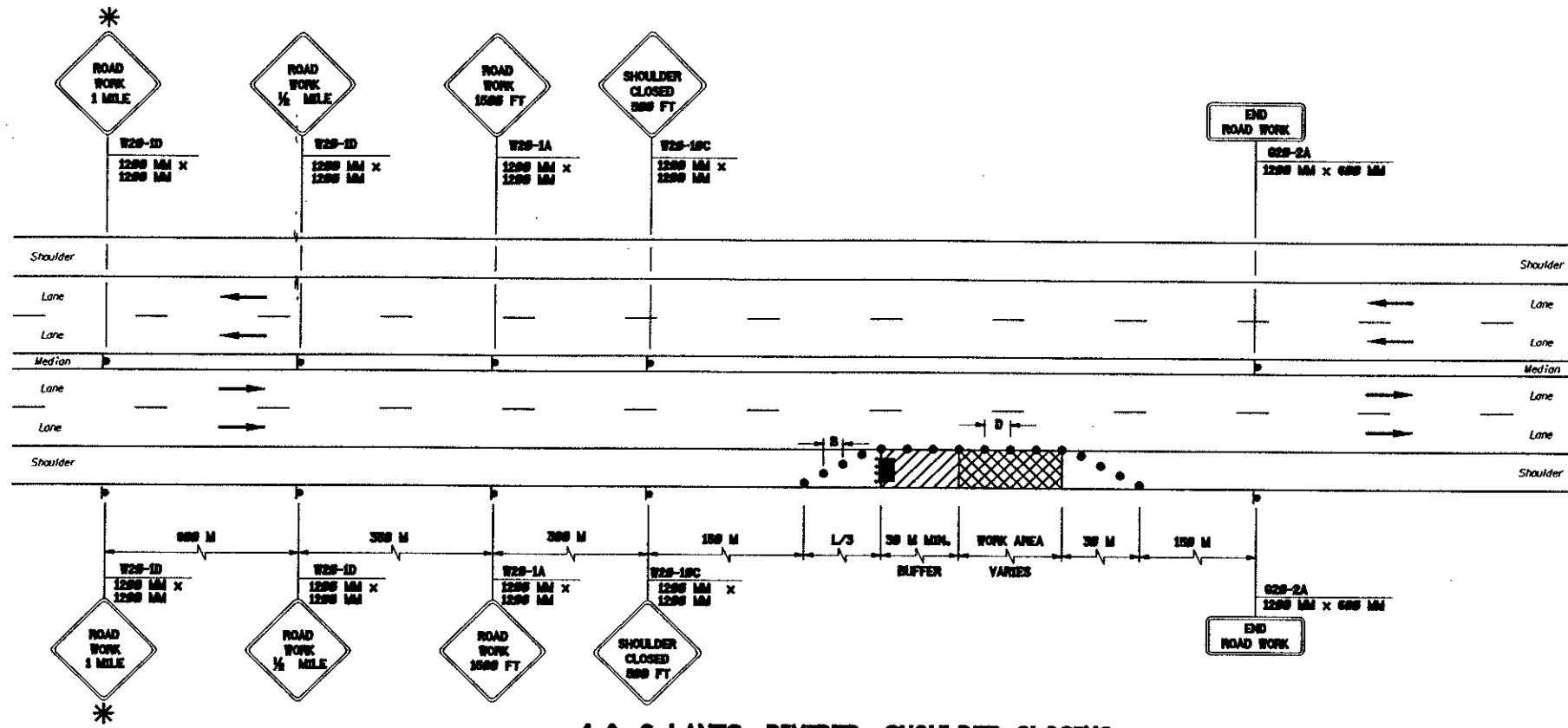
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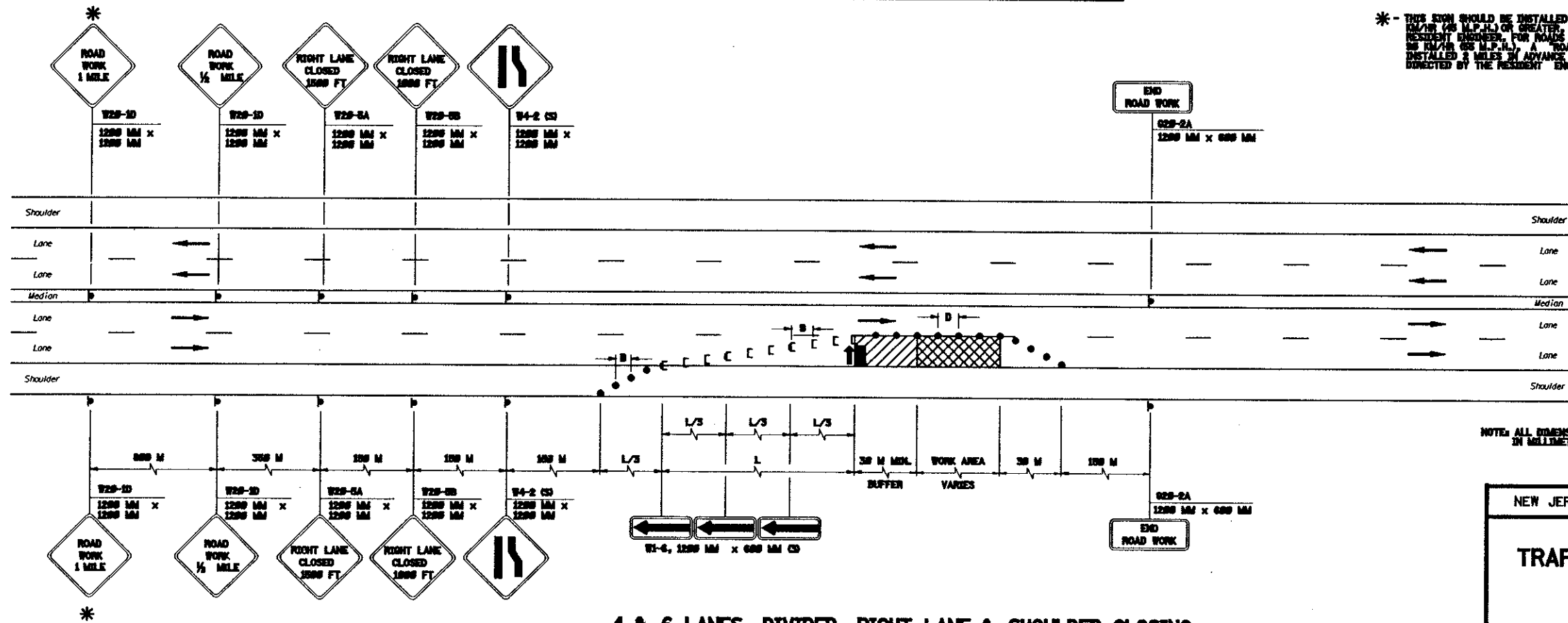
ORIGINAL SHEET



#### 4 & 6 LANES, DIVIDED, SHOULDER CLOSING

#### NOTE:

1. IF MEDIAN IS NARROWER THAN WIDTH OF SIGN PLUS 600 MM, OMIT MEDIAN SIGNING.
2. SEE RECOMMENDED TAPER LENGTH AND SPACING TABLE ON SHEET TCD-2 FOR VALUES OF L, B, AND D.



#### 4 & 6 LANES, DIVIDED, RIGHT LANE & SHOULDER CLOSING

\* - THIS SIGN SHOULD BE INSTALLED FOR ROADS WITH A SPEED LIMIT OF 70 MPH (112 K.M.P.H.) OR GREATER, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER. FOR ROADS WITH A SPEED LIMIT GREATER THAN 50 K.M.P.H. (30 M.P.H.), A "ROAD WORK 1/2 MILE" SIGN SHOULD ALSO BE INSTALLED 2 MILES IN ADVANCE OF LANE CLOSING, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

N.T.S.

TCD-14

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

plan table = 1:1, Broadway Bridge, 10/1/01, 10/1/01, 10/1/01

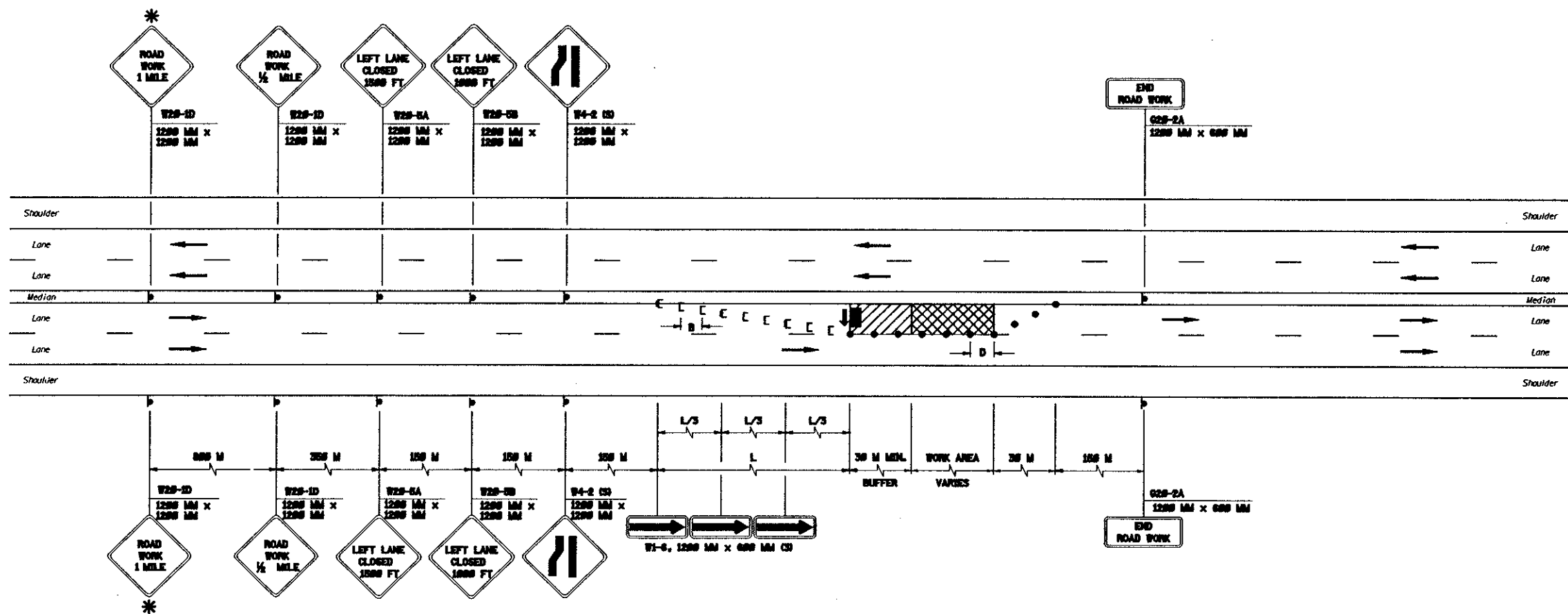
scale =

queue =

date =

file =

ID =



- NOTE:
1. IF MEDIAN IS NARROWER THAN WIDTH OF SIGN PLUS 600 MM, ONLY MEDIAN SIGNING.
  2. IF WORK INTERFERES WITH OPPOSING TRAFFIC, CLOSE OPPOSITE LEFT LANE USING SAME CONFIGURATION.
  3. SEE RECOMMENDED TAPER LENGTH AND SPACING TABLE ON SHEET TOS-2 FOR VALUES OF L, B, AND D.

\* - THIS SIGN SHOULD BE INSTALLED FOR ROADS WITH A SPEED LIMIT OF 70 KM/HR (45 M.P.H.) OR GREATER, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER. FOR ROADS WITH A SPEED LIMIT GREATER THAN 80 KM/HR (50 M.P.H.), A ROAD WORK 2 MILE SIGN SHOULD ALSO BE INSTALLED 2 MILES IN ADVANCE OF LANE CLOSING, UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.

#### 4 & 6 LANES, DIVIDED, LEFT LANE CLOSING

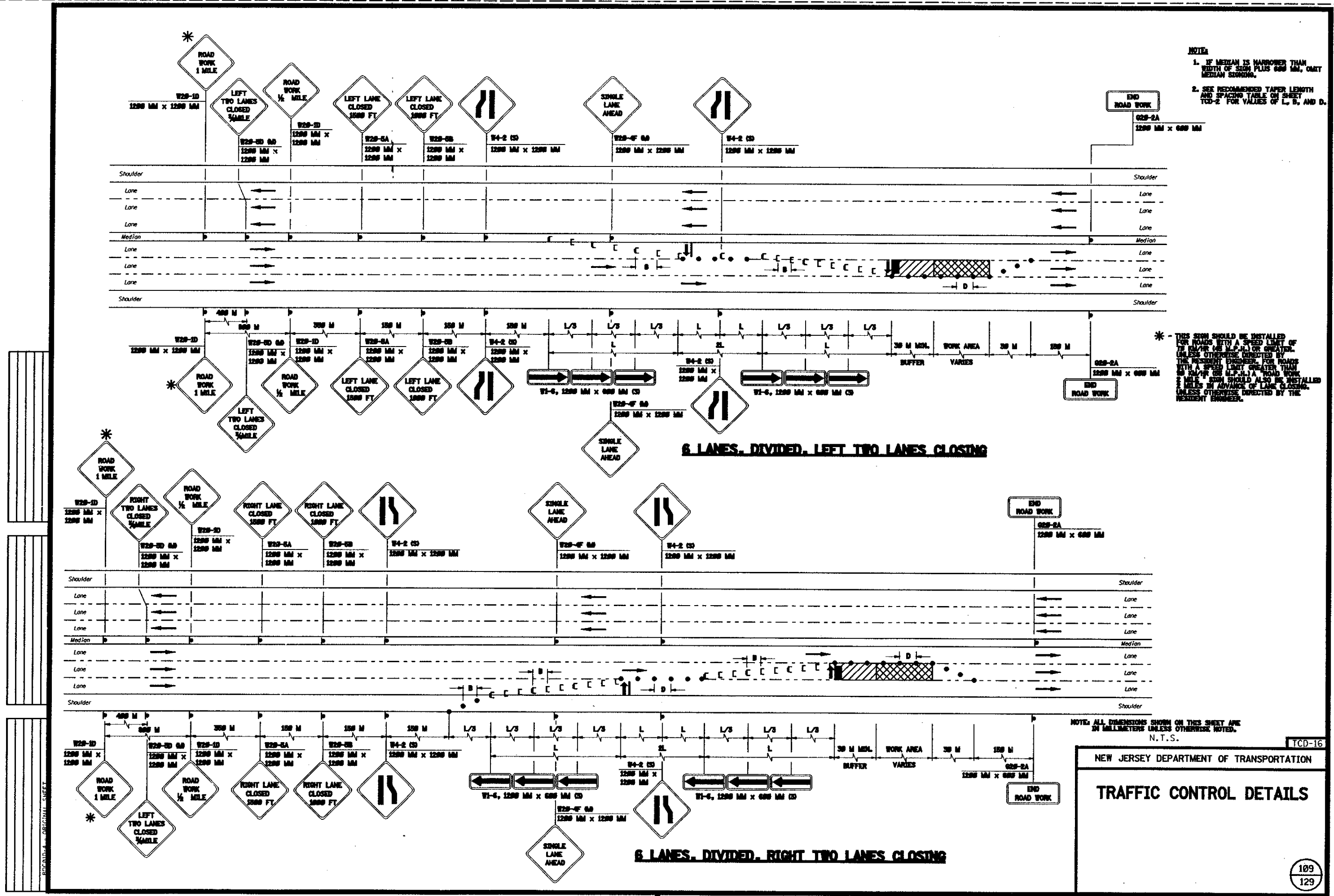
NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.  
N.T.S.

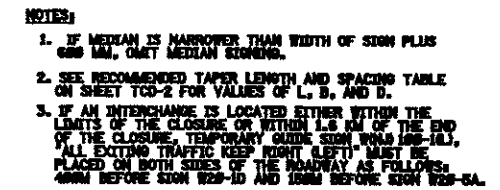
NEW JERSEY DEPARTMENT OF TRANSPORTATION

#### TRAFFIC CONTROL DETAILS

107-1

108  
129









plan table = f:\brockway\plot\plot-scale.tbl

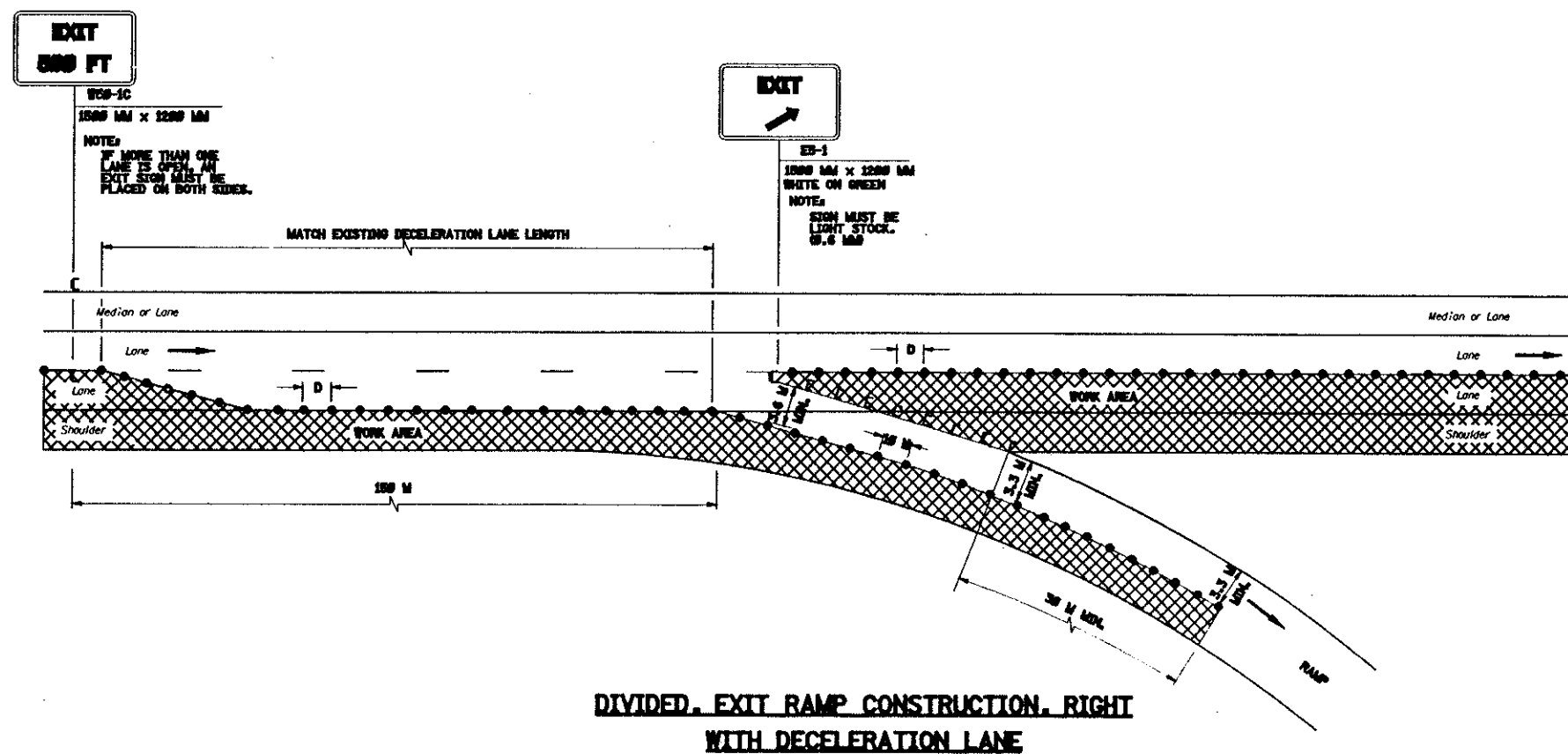
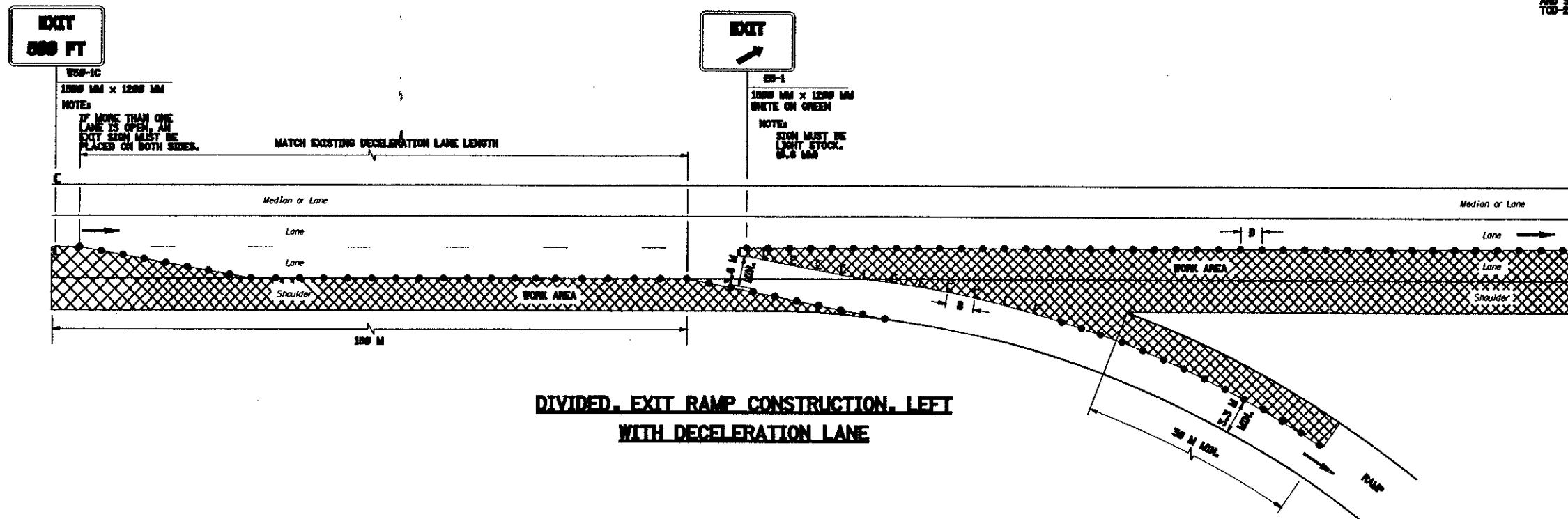
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queue =

date =

file =

D =



NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.  
N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

112  
129

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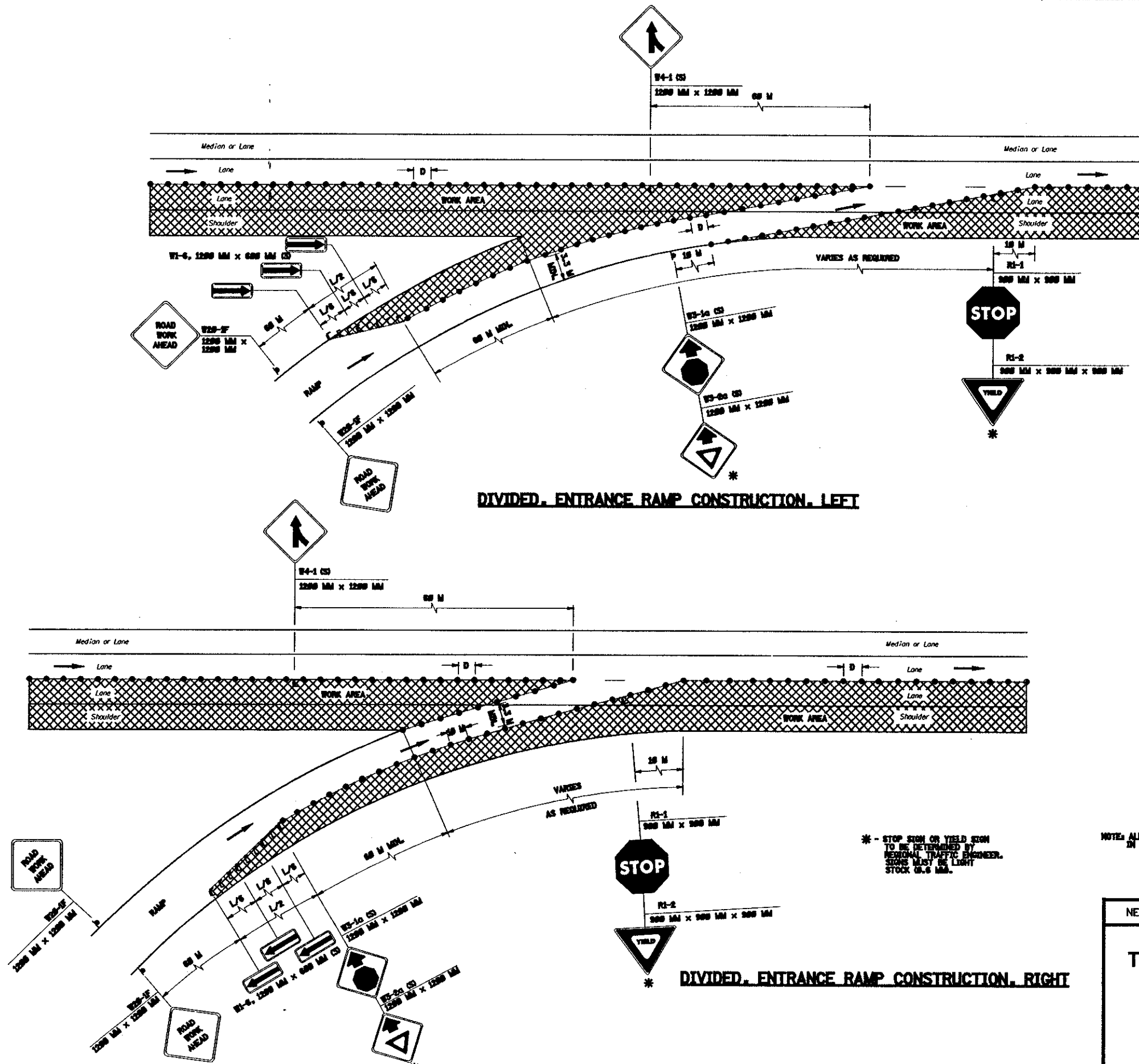
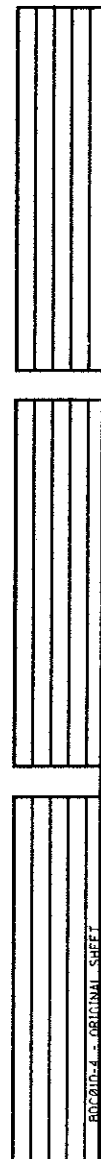
scale =

queue =

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file =

ID =



- NOTE:
1. PROVIDE AN ACCELERATION LANE WHERE POSSIBLE. SEE TCD-21
  2. SEE RECOMMENDED TAPER LENGTH AND SPACING TABLE ON SHEET TCD-2 FOR VALUES OF L, D, AND D.

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. N.T.S.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

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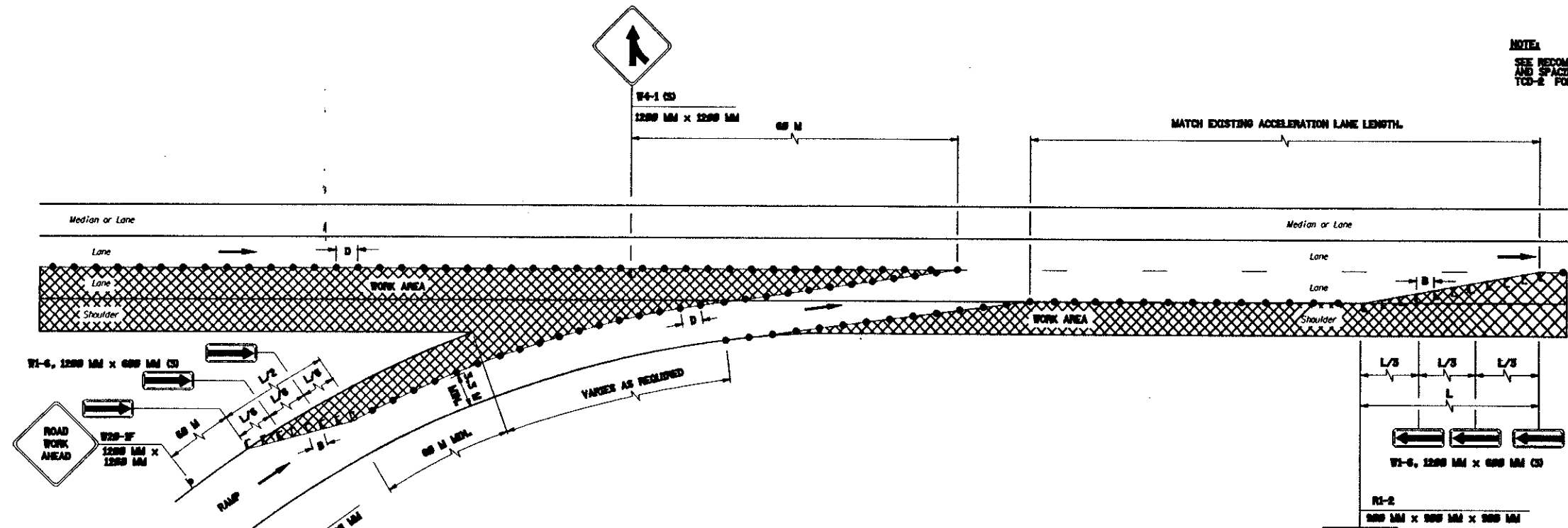
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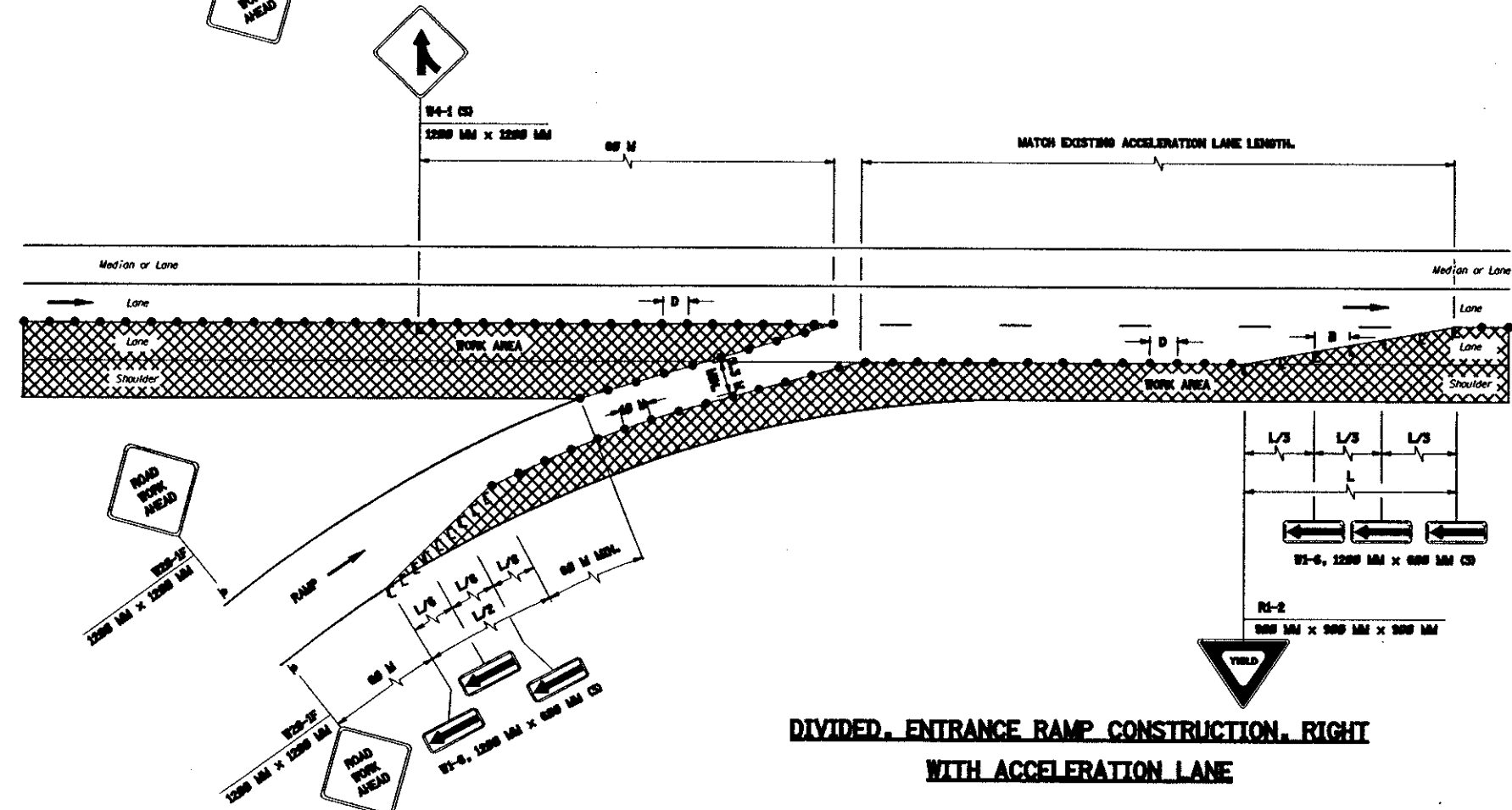
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ID =

100-210-4 - 05 (RMT) - SHEET



**DIVIDED ENTRANCE RAMP CONSTRUCTION, LEFT  
WITH ACCELERATION LANE**



**DIVIDED ENTRANCE RAMP CONSTRUCTION, RIGHT  
WITH ACCELERATION LANE**

NOTE:  
SEE RECOMMENDED TAPER LENGTH  
AND SPACING TABLE ON SHEET  
TCD-2 FOR VALUES OF L, B, AND D.

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.  
N.T.S.

100-210-4

NEW JERSEY DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL DETAILS**

114  
129

pen table = f:\roadway\plot\plot\_half-scale.tbl

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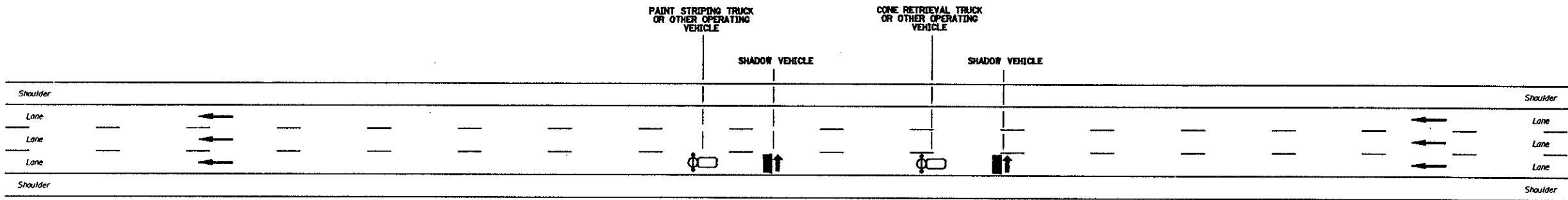
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LENGTH OF TAPER CHART FOR MOVING OPERATIONS												
W	40 KM/HR. 25 MPH		50 KM/HR. 30 MPH		60 KM/HR. 35 & 40 MPH		70 KM/HR. 45 MPH		80 KM/HR. 50 MPH		90 KM/HR. 55 MPH	
	L	**	L	**	L	**	L	**	L	**	L	**
0.3	3	2	6	2	10	2	15	3	20	3	25	3
0.6	6	2	10	2	15	3	25	4	30	4	35	4
0.9	9	2	14	3	25	3	40	5	45	5	50	5
1.2	12	3	18	3	30	4	55	6	60	6	65	7
1.5	15	3	22	3	40	5	70	7	75	7	85	8
1.8	20	3	25	4	50	5	80	8	90	9	100	9
3	30	4	45	5	80	8	135	13	150	14	165	15
3.3	35	4	50	5	90	9	150	14	165	15	185	16
3.6	40	5	55	6	95	9	165	15	180	16	200	18

LEGEND  
"W" IS THE WIDTH OF LANE CLOSURE IN METERS  
"L" IS THE LENGTH OF TAPER IN METERS  
\*\* IS NUMBER OF CONES IN TAPER AT 12 M MAXIMUM SPACING



NOTE:  
SHADOW VEHICLE SHALL MAINTAIN A  
DISTANCE OF 20 METERS MINIMUM TO  
50 METERS MAXIMUM BEHIND THE  
OPERATING VEHICLE.

NOTE: ALL DIMENSIONS SHOWN ON THIS SHEET ARE  
IN MILLIMETERS UNLESS OTHERWISE NOTED.  
N.T.S.

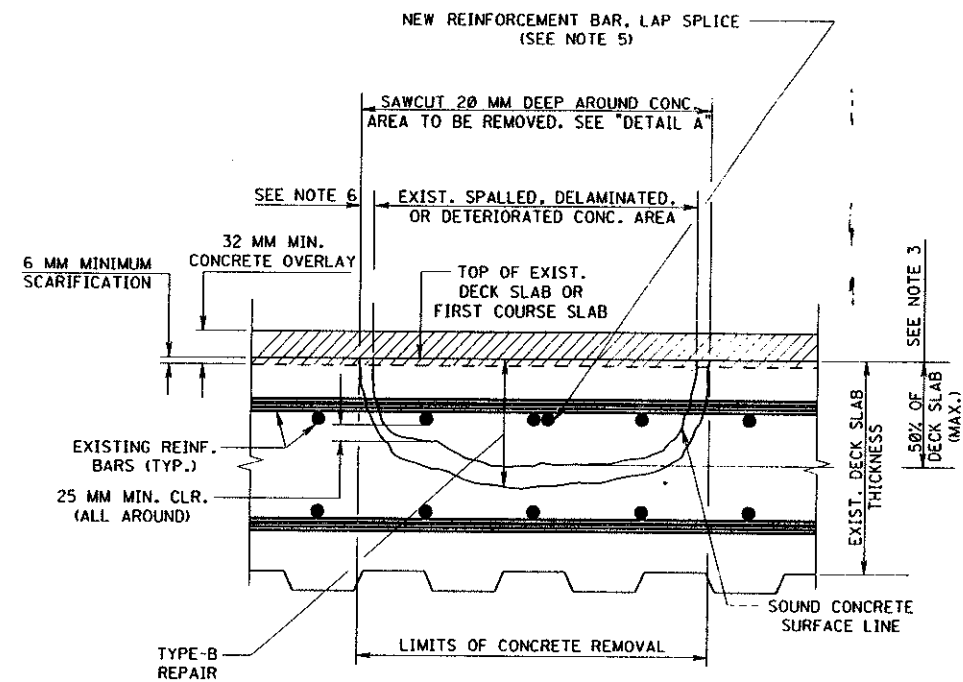
MULTI-LANE ROAD  
MOVING OPERATION

NEW JERSEY DEPARTMENT OF TRANSPORTATION

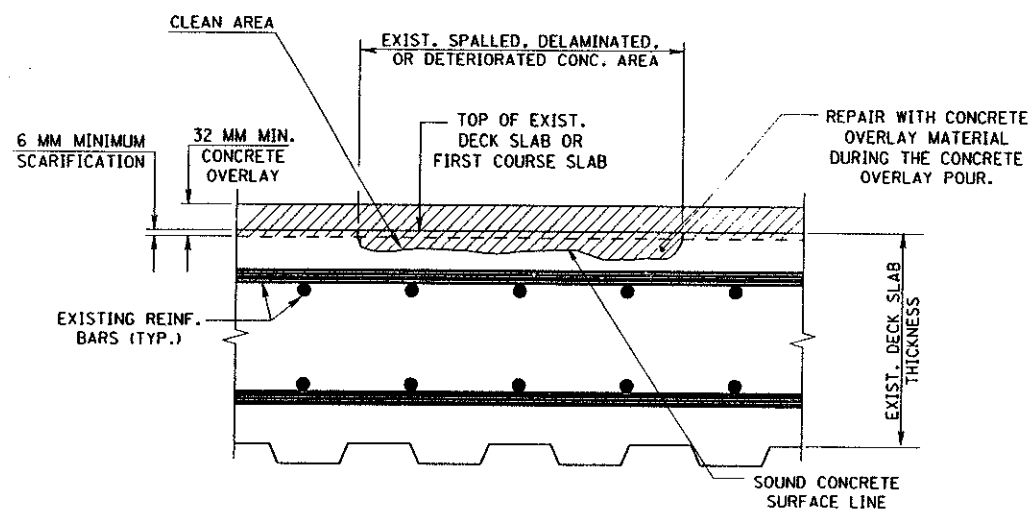
TRAFFIC CONTROL DETAILS

# INDEX FOR STANDARD BRIDGE CONSTRUCTION DETAILS

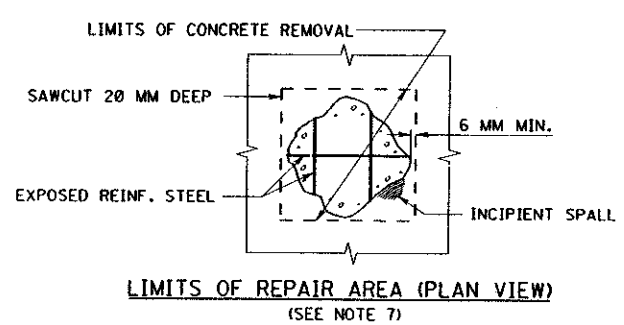
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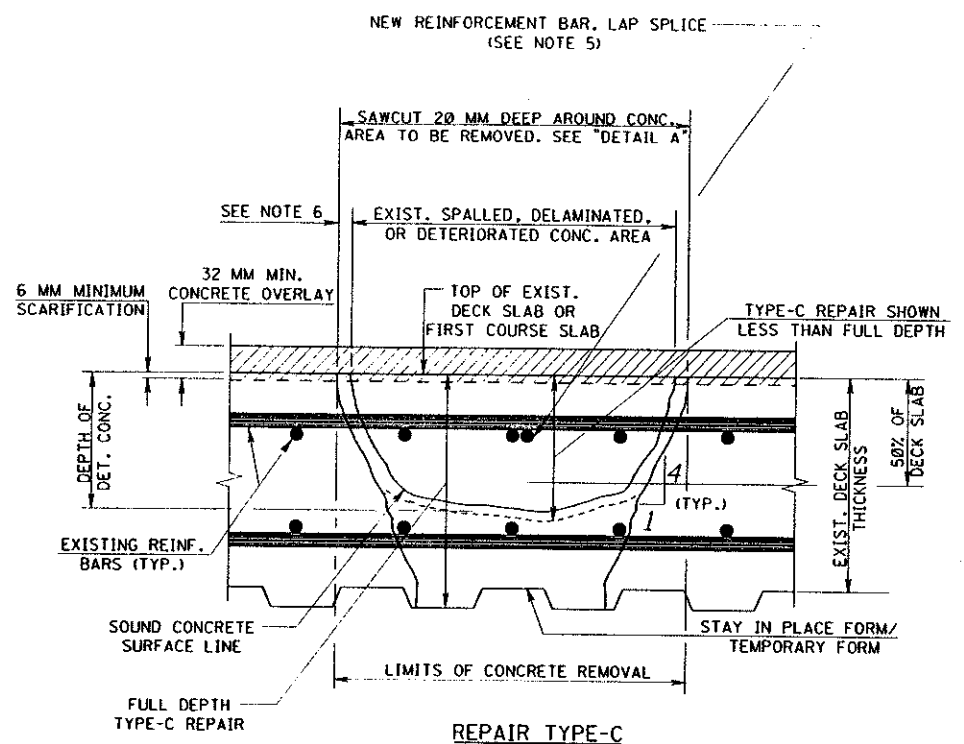
**REPAIR TYPE-B**  
(SEE NOTE 2)



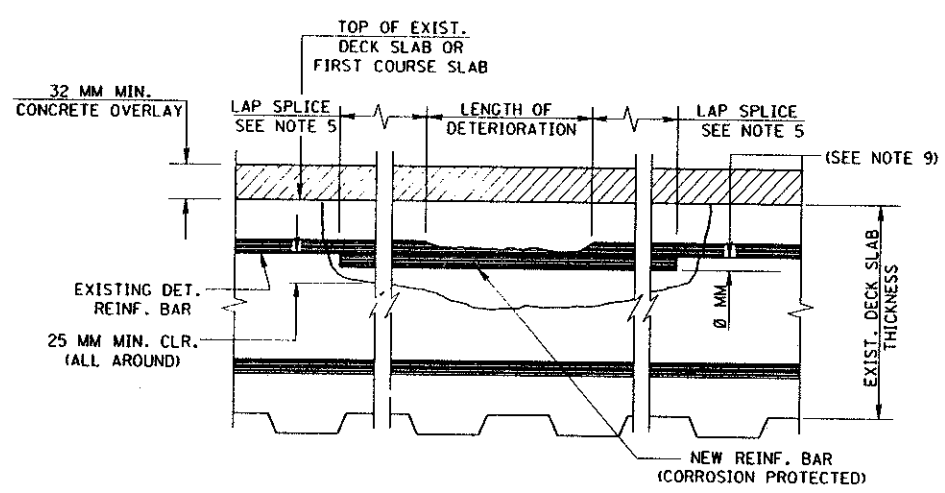
**TYPICAL REPAIR DETAIL FOR MINOR SPALLED AREAS**  
(SEE NOTE 1)



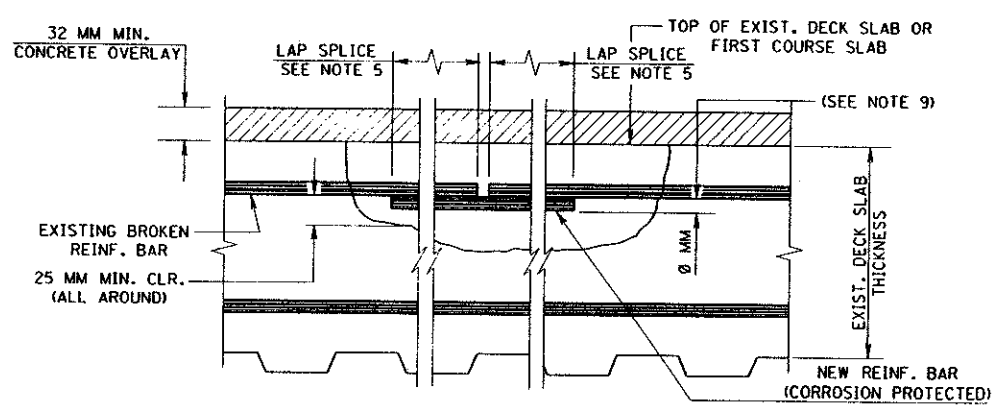
**DETAIL A**



**REPAIR TYPE-C**  
(SEE NOTE 3)



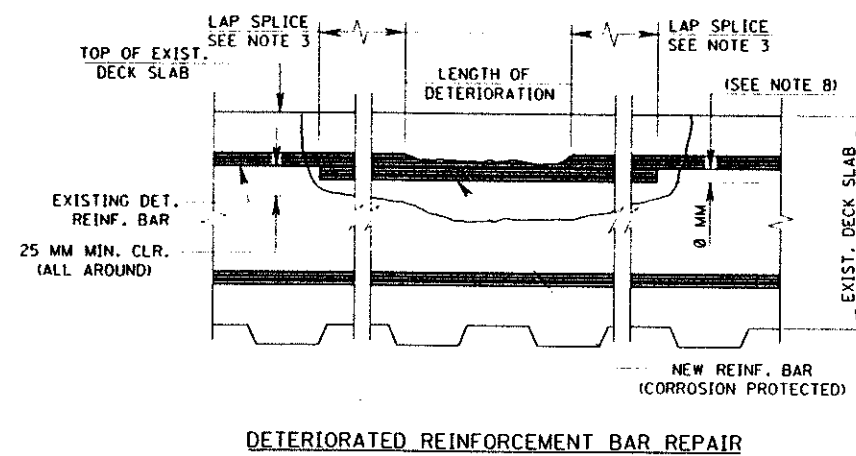
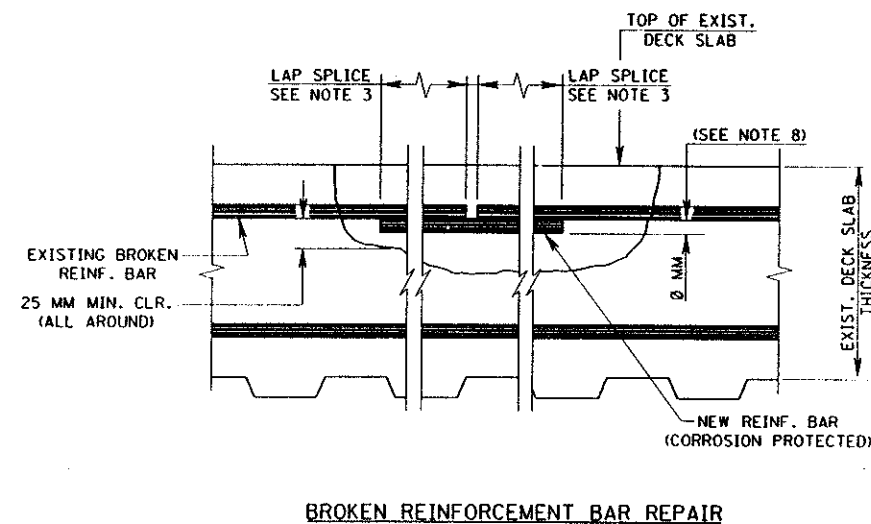
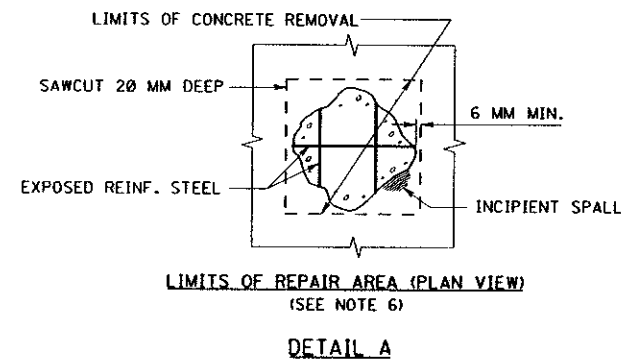
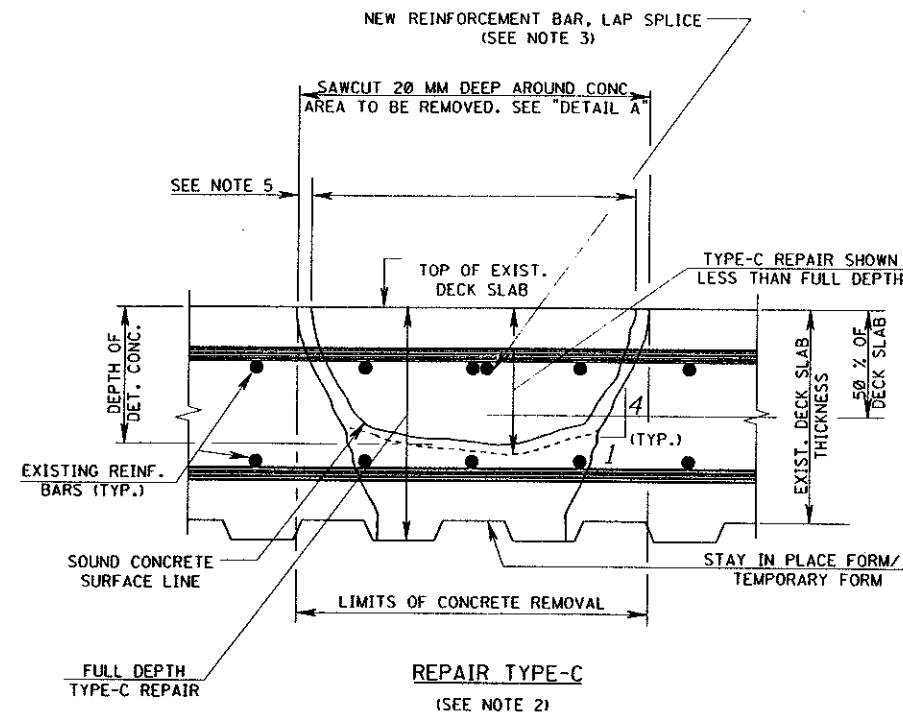
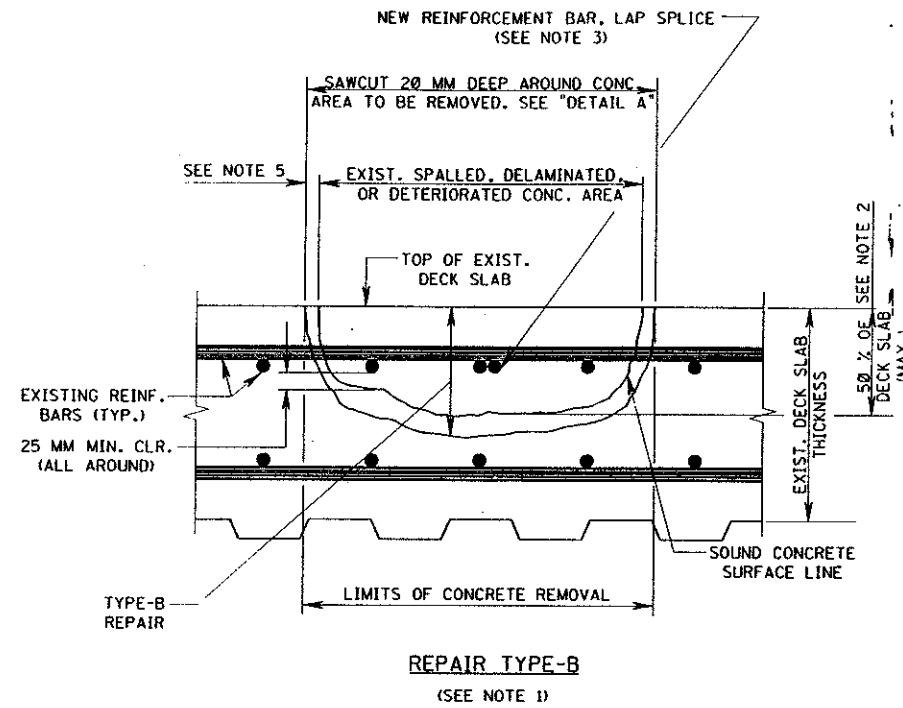
**DETERIORATED REINFORCEMENT BAR REPAIR**



**BROKEN REINFORCEMENT BAR REPAIR**

**GENERAL NOTES:**

1. SPALLED, DELAMINATED, AND DETERIORATED CONCRETE AREAS SHALL BE CLEANED AND REPAIRED WITH THE CONCRETE OVERLAY TYPE THAT IS TO BE USED FOR THE OVERLAY PLACEMENT, OR CLASS A CONCRETE MAY BE USED. REFER TO NJDOT SPECIFICATIONS SECTION 518.
2. REPAIR TYPE-B: ALL DETERIORATED AND DELAMINATED CONCRETE SHALL BE REMOVED TO A MINIMUM DEPTH OF 25 MM BELOW THE BOTTOM OF THE TOP LAYER OF EXISTING REINFORCEMENT STEEL TO A MAXIMUM OF 50 % OF THE THICKNESS OF THE EXISTING CONCRETE DECK.
3. REPAIR TYPE-C: ALL DETERIORATED AND DELAMINATED CONCRETE SHALL BE REMOVED, AND IF THE SOUND CONCRETE SURFACE IS LOCATED AT A DEPTH GREATER THAN 50 % OF THE DECK THICKNESS WHEN MEASURED FROM THE TOP OF THE DECK, PERFORM TYPE-C REPAIR UPON APPROVAL OF THE ENGINEER, AS SHOWN IN THE DETAIL "REPAIR TYPE-C". IF THE BOTTOM MAT OF THE DECK REINFORCEMENT STEEL IS EXPOSED, THE DECK SLAB SHALL BE REPLACED TO FULL DEPTH IN THIS AREA OF EXPOSURE.
4. THE TOP SURFACE OF THE CONCRETE FOR TYPE-B AND TYPE-C REPAIRS SHALL BE EVEN WITH THE ADJACENT TOP OF EXISTING DECK SLAB AND SHALL MAINTAIN THE EXISTING GRADES AND CROSS SLOPES.
5. A NEW CORROSION PROTECTED REINFORCEMENT BAR SHALL BE PLACED TO SUPPLEMENT AN EXISTING REINFORCEMENT BAR WHEN AN EXISTING BAR HAS A SECTION LOSS OF 25 % OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER, OR THE EXISTING REINFORCEMENT BAR IS BROKEN. THE NEW BAR SHALL EXTEND 30 BAR DIAMETERS IN EACH DIRECTION FROM WHERE THE SECTION LOSS OR BREAK ENDS. MODIFY THE LIMITS OF THE REPAIR AREA TO MEET THE REINFORCEMENT SPLICE LAP REQUIREMENTS.
6. FOR REPAIR TYPE-B AND TYPE-C SOUND CONCRETE SHALL BE REMOVED TO A DEPTH OF 6 MM MINIMUM TO 25 MM MAXIMUM IN ALL DIRECTIONS, EXCEPT THAT THE MAXIMUM LIMIT MAY BE MODIFIED UPON APPROVAL OF THE ENGINEER.
7. UPON APPROVAL OF THE ENGINEER, MODIFY THE LIMITS OF CONCRETE REMOVAL AS SHOWN IN THE "LIMITS OF REPAIR AREA (PLAN VIEW)" WHEN SUPPLEMENTARY REINFORCEMENT BARS ARE REQUIRED.
8. DECK REINFORCEMENT BAR DETAILS SHOWN ARE GENERAL. ACTUAL REINFORCEMENT BAR SPACINGS AND LOCATIONS WILL VARY FROM BRIDGE TO BRIDGE.
9. THE NEW REINFORCEMENT BAR SHALL BE PLACED AT THE SAME LEVEL ALONGSIDE THE EXISTING DETERIORATED OR BROKEN REINFORCEMENT BAR.
10. BEFORE PLACEMENT OF THE OVERLAY, ALL PREVIOUSLY PATCHED AREAS SHALL BE COMPLETELY REMOVED.

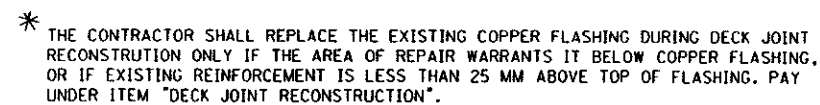


# GENERAL NOTES

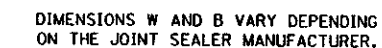
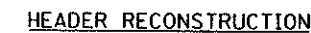
- REPAIR TYPE-B:  
ALL DETERIORATED AND DELAMINATED CONCRETE SHALL BE REMOVED TO A MINIMUM DEPTH OF 25 MM BELOW THE BOTTOM OF THE TOP LAYER OF EXISTING REINFORCEMENT STEEL OR UP TO A MAXIMUM OF 50 % OF THE THICKNESS OF THE EXISTING CONCRETE DECK.
- REPAIR TYPE-C:  
ALL DETERIORATED AND DELAMINATED CONCRETE SHALL BE REMOVED. IF THE SOUND CONCRETE SURFACE IS LOCATED AT A DEPTH GREATER THAN 50 % OF THE DECK THICKNESS WHEN MEASURED FROM THE TOP OF THE DECK, PERFORM TYPE-C REPAIR UPON APPROVAL OF THE ENGINEER, AS SHOWN IN THE DETAIL "REPAIR TYPE-C". IF THE BOTTOM MAT OF THE DECK REINFORCEMENT STEEL IS EXPOSED, THE DECK SLAB SHALL BE REPLACED TO FULL DEPTH IN THIS AREA OF EXPOSURE.
- A NEW CORROSION PROTECTED REINFORCEMENT BAR SHALL BE PLACED TO SUPPLEMENT AN EXISTING REINFORCEMENT BAR WHEN AN EXISTING BAR HAS A SECTION LOSS OF 25 % OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER, OR THE EXISTING REINFORCEMENT BAR IS BROKEN. THE NEW BAR SHALL EXTEND 30 BAR DIAMETERS IN EACH DIRECTION FROM WHERE THE SECTION LOSS OR BREAK ENDS. MODIFY THE LIMITS OF THE REPAIR AREA TO MEET THE REINFORCEMENT SPLICE LAP REQUIREMENTS.
- THE TOP SURFACE OF THE CONCRETE FOR TYPE-B AND TYPE-C REPAIRS SHALL BE EVEN WITH THE ADJACENT TOP OF EXISTING DECK SLAB AND SHALL MAINTAIN THE EXISTING GRADES AND CROSS SLOPES.
- FOR REPAIR TYPE-B AND TYPE-C SOUND CONCRETE SHALL BE REMOVED TO A DEPTH OF 6 MM MINIMUM TO 25 MM MAXIMUM IN ALL DIRECTIONS, EXCEPT THAT THE MAXIMUM LIMIT MAY BE MODIFIED UPON APPROVAL OF THE ENGINEER.
- UPON APPROVAL OF THE ENGINEER, MODIFY THE LIMITS OF CONCRETE REMOVAL AS SHOWN IN THE "LIMITS OF REPAIR AREA (PLAN VIEW)" WHEN SUPPLEMENTARY REINFORCEMENT BARS ARE REQUIRED.
- DECK REINFORCEMENT BAR DETAILS SHOWN ARE GENERAL. ACTUAL REINFORCEMENT BAR SPACINGS AND LOCATIONS WILL VARY FROM BRIDGE TO BRIDGE.
- THE NEW REINFORCEMENT BAR SHALL BE PLACED AT THE SAME LEVEL ALONGSIDE THE EXISTING DETERIORATED OR BROKEN REINFORCEMENT BAR.
- REFER TO THE NJDOT SPECIFICATIONS SECTION 518 FOR GUIDANCE AS TO THE SELECTION OF A QUICK-SETTING PATCH MATERIAL PRODUCT.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION DETAILS  
BRIDGE DECK REHABILITATION  
WITHOUT CONCRETE OVERLAY



FIXED DECK JOINT AT PIER



DETAIL A

GENERAL NOTES:

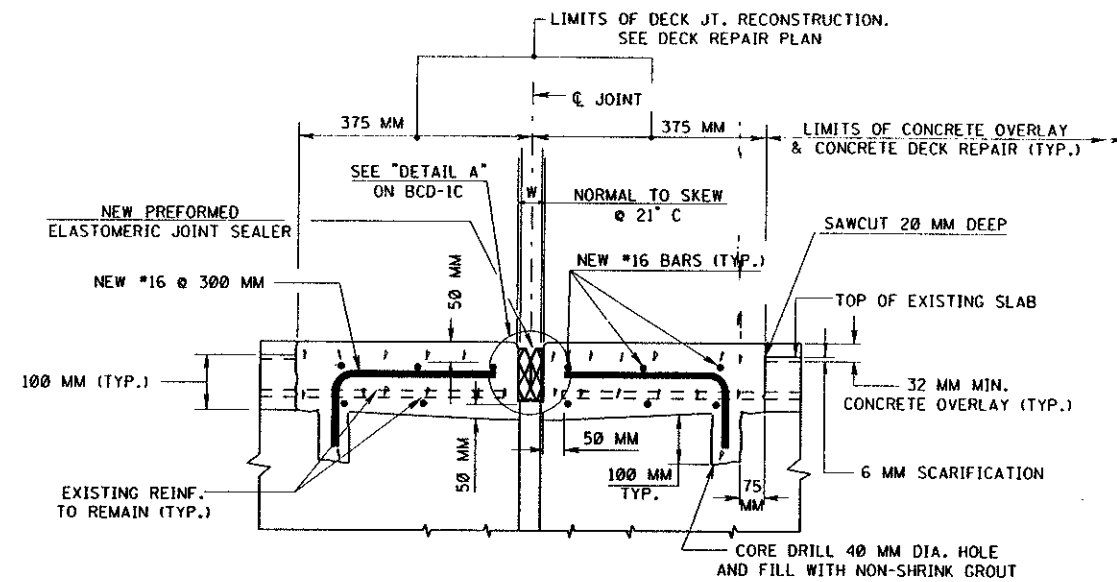
1. ALL NEW REINFORCEMENT BARS SHALL BE CORROSION PROTECTED. FOR ADDITIONAL NOTES, SEE BCD-10.
2. MECHANICAL COUPLERS MAY BE NECESSARY IF CONSTRUCTION IS STAGED.
3. PROVIDE AS REQUIRED ARMORED JOINT.

BCD-1C

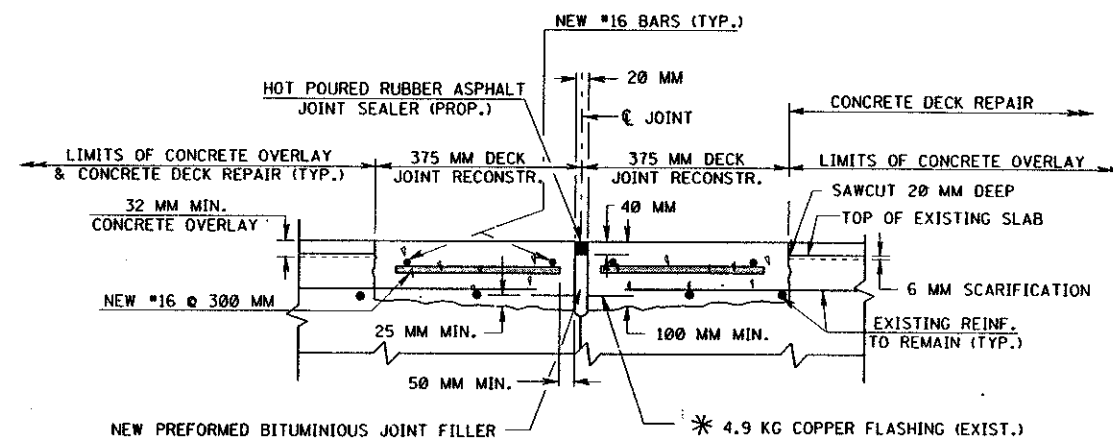
NEW JERSEY DEPARTMENT OF TRANSPORTATION

# BRIDGE CONSTRUCTION DETAILS BRIDGE DECK REHABILITATION DECK JOINT REPAIR (SHEET 1 OF 2)





EXPANSION DECK JOINT AT PIER WITH CONCRETE OVERLAY

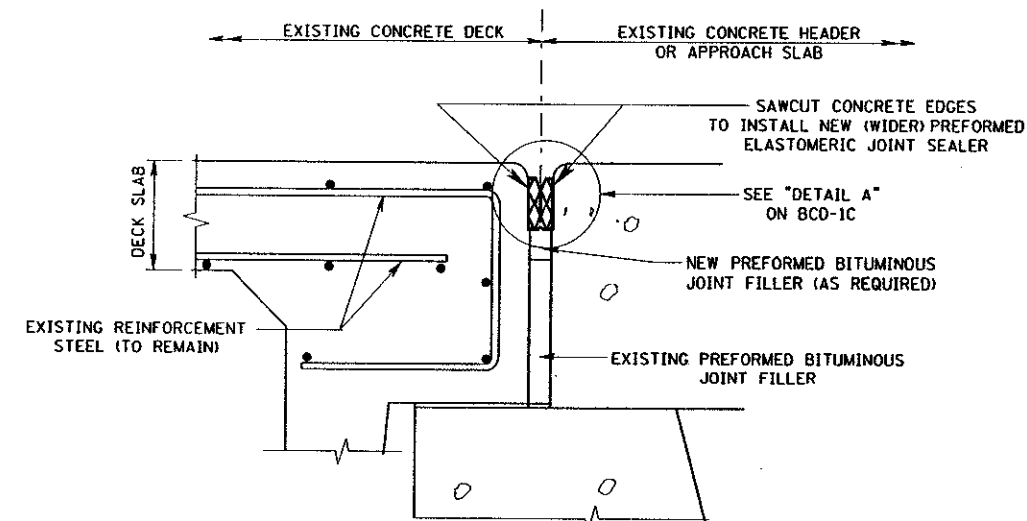


\* THE CONTRACTOR SHALL REPLACE THE EXISTING COPPER FLASHING DURING DECK JOINT RECONSTRUCTION ONLY IF THE CONCRETE BELOW COPPER FLASHING IS DETERIORATED OR IF EXISTING REINFORCEMENT IS LESS THAN 25 MM ABOVE TOP OF FLASHING. PAY UNDER ITEM "DECK JOINT RECONSTRUCTION".

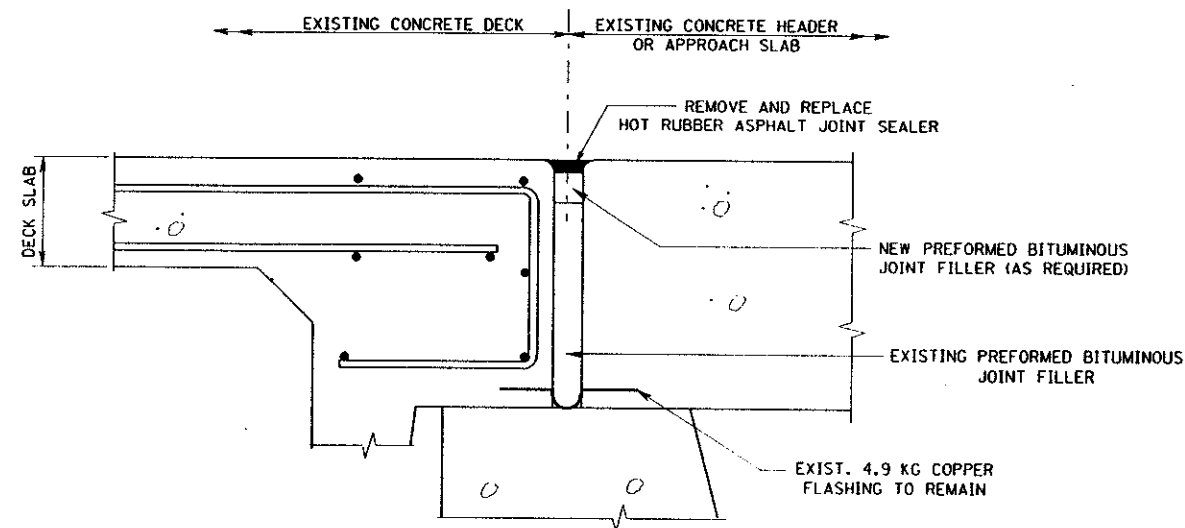
FIXED JOINT AT PIER WITH CONCRETE OVERLAY.

# GENERAL NOTES:

1. ALL NEW REINFORCEMENT BARS SHALL BE CORROSION PROTECTED.
2. "DECK JOINT RECONSTRUCTION" AND "HEADER RECONSTRUCTION" SHALL INCLUDE:
  - A. 20 MM SAWCUT AS SHOWN IN JOINT DETAILS.
  - B. REMOVE CONCRETE AND DISPOSE OF MATERIALS TO LIMITS SHOWN AND REPLACE WITH CONCRETE.
  - C. REMOVE PREFORMED BITUMINOUS JOINT FILLER (IF ANY) TO DEPTH SHOWN OR AS DIRECTED BY THE ENGINEER.
  - D. BLOCKING FOR PROPOSED PREFORMED ELASTOMERIC JOINT SEALER.
  - E. REPLACEMENT OF CORROSION PROTECTED REINFORCING BARS.
  - F. PROPOSED PREFORMED BITUMINOUS JOINT FILLER WHERE REQUIRED.
  - G. DRILL AND FILL HOLES WITH NON-SHRINK GROUT.
  - H. SAWCUTTING THE CURB AND SIDEWALK TO INSTALL THE SEALER.
3. EPOXY BONDING COMPOUND SHALL BE USED BETWEEN NEW AND EXISTING CONCRETE. REFER TO NJDOT SPECIFICATION SECTION 518.
4. PROVIDE AS REQUIRED ARMORED JOINT.



SAWCUT JOINT RECONSTRUCTION AT ABUTMENT



DECK JOINT RE-SEAL AT ABUTMENT

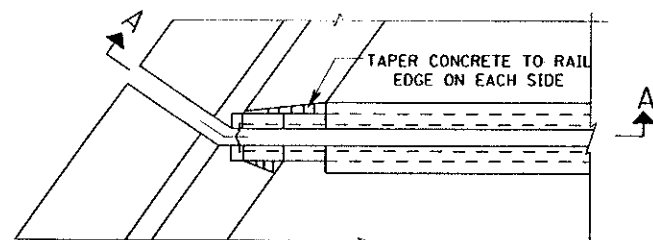
BCD-1D

NEW JERSEY DEPARTMENT OF TRANSPORTATION

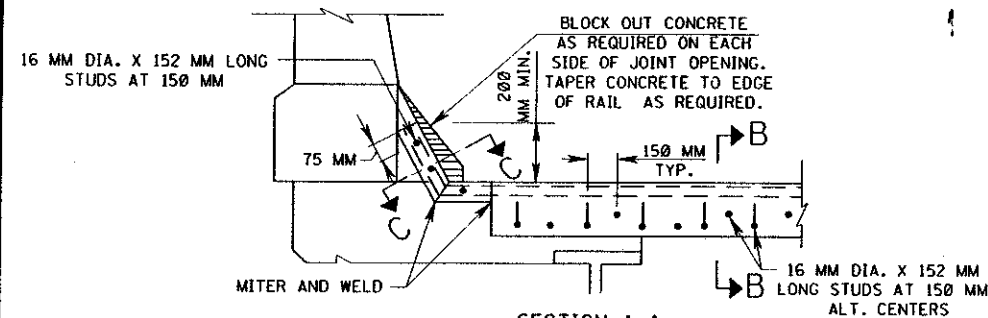
BRIDGE CONSTRUCTION DETAILS

BRIDGE DECK REHABILITATION  
DECK JOINT REPAIR  
(SHEET 2 OF 2)

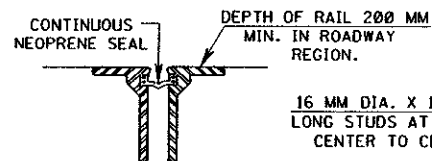
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129



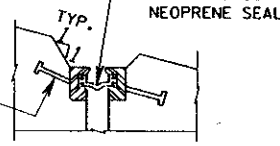
PARAPET PLAN FOR SKEWS > 30°



SECTION A-A



SECTION B-B

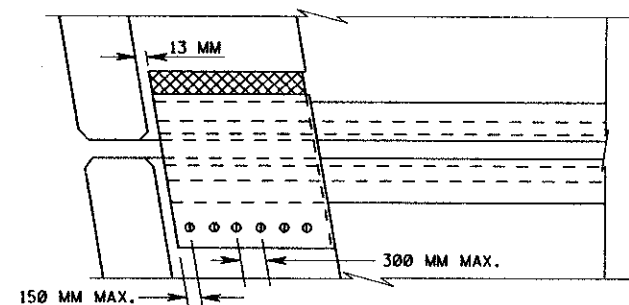


SECTION C-C

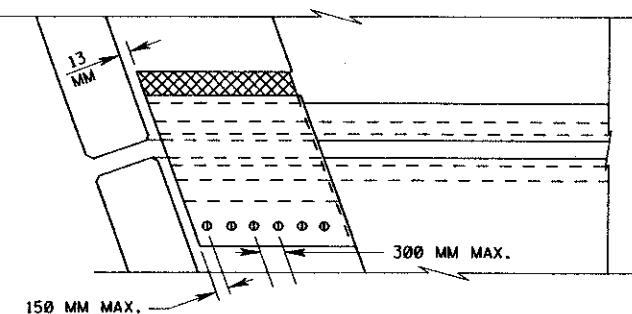
NOTES:

1. THE DETAIL ABOVE IS INTENDED AS A GENERAL GUIDE TO A TYPICAL GLANDULAR TYPE STRIP SEAL SYSTEM. VARIATIONS TO THE GLAND SHAPE, RAIL SHAPE, STUD ARRANGEMENT, AND SUPPORT DETAILS SHALL BE SUBMITTED ACCORDING TO THE NJDOT WORKING DRAWING SPECIFICATIONS.
2. DETAILS FOR MEDIAN BARRIER ARE SIMILAR.
3. THE JOINT OPENING IN THE PARAPET SHALL BE PARALLEL TO THE SKEW FOR SKEWS LESS THAN 30 DEGREES.

BCD-2.1

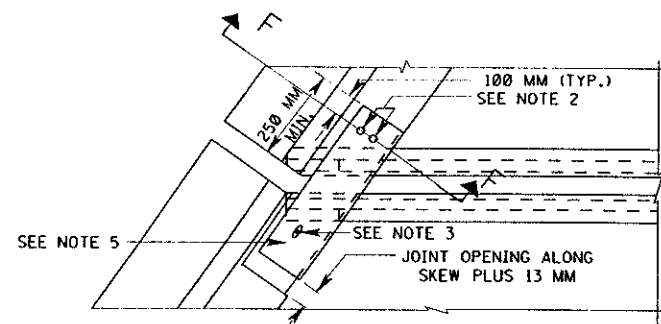


SIDEWALK PLAN  
Skew < 15°

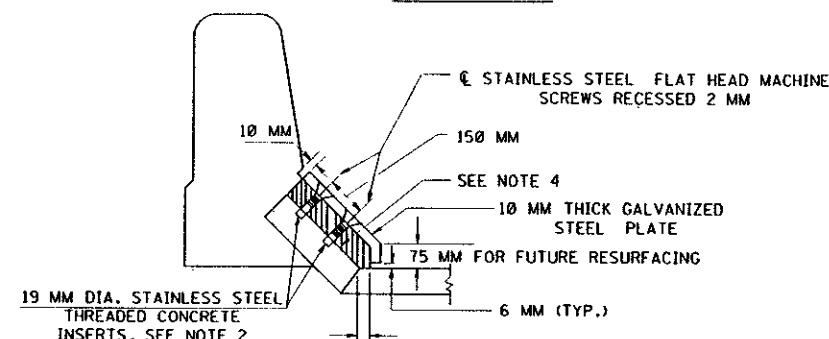


SIDEWALK PLAN  
Skew > 15°

BCD-2.4



PARAPET PLAN

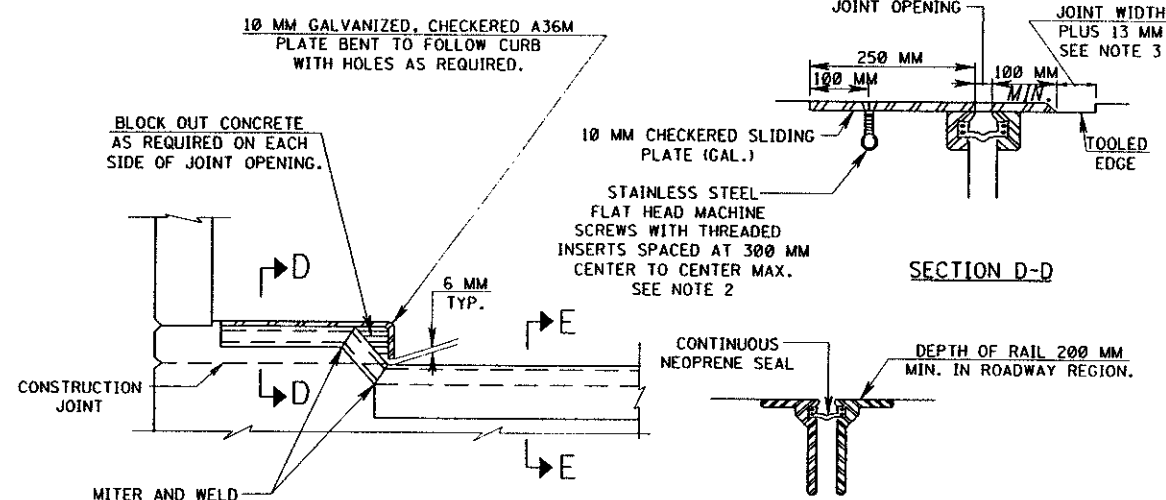


SECTION F-F

NOTES:

1. THE DETAIL ABOVE IS INTENDED AS A GENERAL GUIDE TO A TYPICAL GLANDULAR TYPE STRIP SEAL SYSTEM. VARIATIONS TO THE GLAND SHAPE, RAIL SHAPE, STUD ARRANGEMENT, AND SUPPORT DETAILS SHALL BE SUBMITTED ACCORDING TO THE NJDOT WORKING DRAWING SPECIFICATIONS.
2. 2 - 19 MM DIA. X 40 MM STAINLESS STEEL FLAT HEAD MACHINE SCREWS WITH 2 - 19 MM DIA. CAST-IN-PLACE STAINLESS STEEL THREADED CONCRETE INSERTS. RECESS 2 MM BELOW PLATE SURFACE.
3. 25 MM X 125 MM SLOTTED HOLE FOR SKEWS TO 45°; 25 MM X 150 MM SLOTTED HOLE FOR SKEWS OVER 45°. HOLE SLOTTED PARALLEL TO DIRECTION OF MOVEMENT WITH 1 - 19 MM X 40 MM STAINLESS STEEL FLAT HEAD MACHINE SCREW RECESSED 2 MM BELOW PLATE SURFACE IN 19 MM CAST-IN-PLACE STAINLESS STEEL THREADED CONCRETE INSERT. DO NOT OVER TIGHTEN MACHINE SCREWS.
4. BLOCK OUT CONCRETE AS REQUIRED ABOVE JOINT OPENING.
5. 10 MM THICK BY 350 MM WIDE X (600 MM LONG FOR SKEWS TO 45° AND 900 MM LONG FOR SKEWS LARGER THAN 45°) GRADE 250 GALVANIZED STEEL PLATE BENT WITH HOLES AS SHOWN.

BCD-2.2

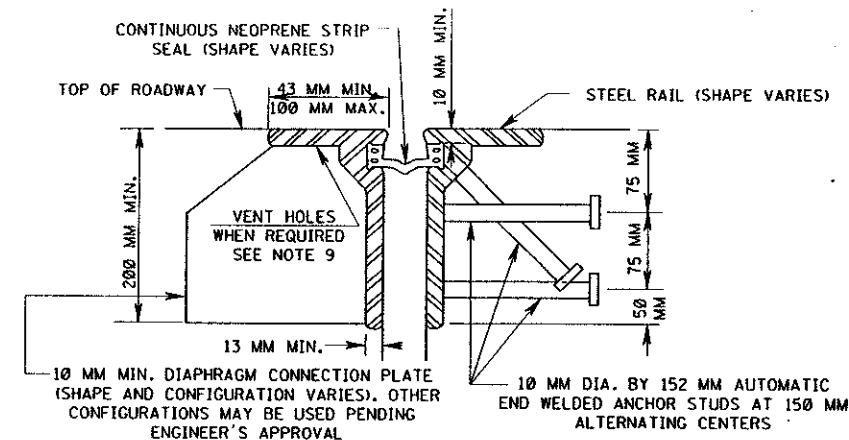


SIDEWALK ELEVATION

SECTION D-D

SECTION E-E

BCD-2.5



TYPICAL SECTION

NOTES:

1. THE DETAIL ABOVE IS INTENDED AS A GENERAL GUIDE TO A TYPICAL GLANDULAR TYPE STRIP SEAL SYSTEM. VARIATIONS TO THE GLAND SHAPE, RAIL SHAPE, STUD ARRANGEMENT, AND SUPPORT DETAILS SHALL BE SUBMITTED ACCORDING TO THE NJDOT WORKING DRAWING SPECIFICATIONS.
2. STEEL RAILS SHALL CONFORM TO AASHTO M270M, GRADE 250.
3. AUTOMATIC END WELDED STUDS SHALL CONFORM TO AASHTO M169 (ASTM A108), GRADES 1015, 1018 OR 1020.
4. PLATES, SHAPES AND OTHER STRUCTURAL STEEL MATERIAL USED IN THE DECK JOINTSYSTEM WITH THE STEEL RAILS SHALL CONFORM TO AASHTO M183M.
5. ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION PER AASHTO M111M.
6. FIELD SPLICES FOR STEEL RAILS SHALL BE PLACED AT GRADE BREAKS AND LONGITUDINAL BREAKS IN THE DECK.
7. NEOPRENE STRIP SEAL SHALL BE INSTALLED IN A CONTINUOUS LENGTH OVER THE ENTIRE WIDTH OF THE SUPERSTRUCTURE WITH NO FIELD SPLICES PERMITTED. AN APPROVED LUBRICANT/ADHESIVE FOR THE INSTALLATION AND PERMANENT BONDING TO THE STEEL RAIL SHALL BE PLACED PRIOR TO THE STRIP SEAL INSTALLATION.
8. WHERE A LONGITUDINAL AND TRANSVERSE JOINT INTERSECT, THE JOINT SUBJECTED TO THE GREATER MOVEMENT SHALL BE MADE CONTINUOUS AND THE OTHER SEAL SHALL BUTT UP AGAINST IT. ALL JOINT INTERSECTIONS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
9. 14 MM DIA. VENT HOLES SPACED BETWEEN STUDS AT 300 MM CENTER TO CENTER MAX. ARE REQUIRED WHEN TOP OF STEEL RAIL IS WIDER THAN 75 MM.

BCD-2.3

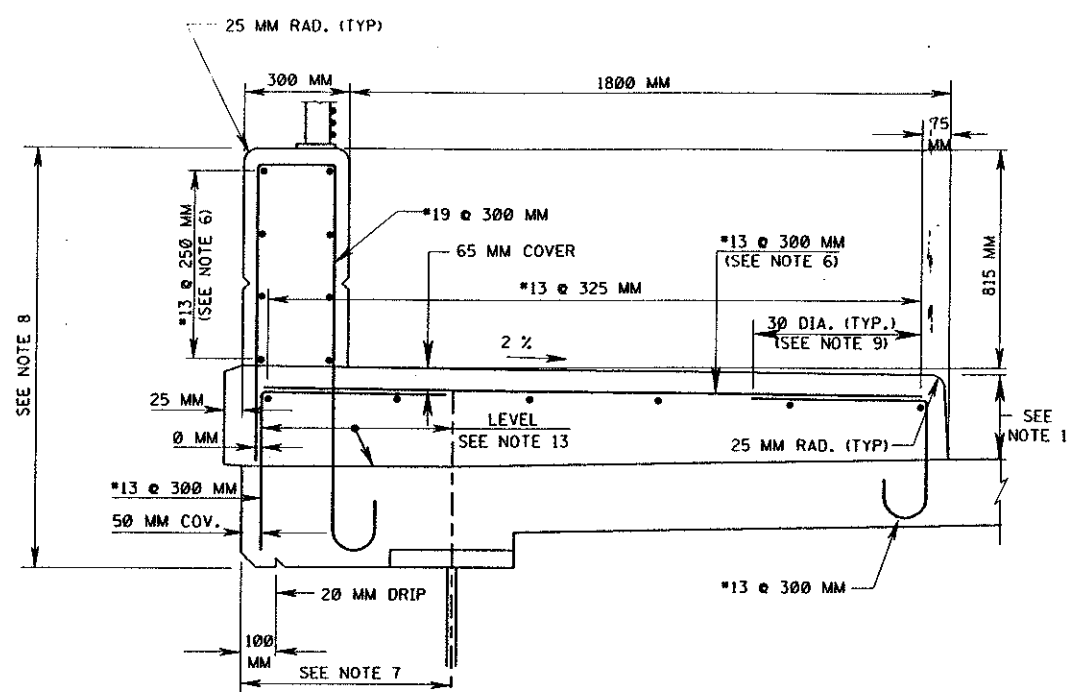
NOTES:

1. THE DETAIL SHOWN HERE IS INTENDED AS A GENERAL GUIDE TO A TYPICAL GLANDULAR TYPE STRIP SEAL SYSTEM. VARIATIONS TO THE GLAND SHAPE, RAIL SHAPE, STUD ARRANGEMENT, AND SUPPORT DETAILS SHALL BE SUBMITTED ACCORDING TO THE NJDOT WORKING DRAWING SPECIFICATIONS.
2. 19 MM DIA. X 40 MM STAINLESS STEEL FLAT HEAD MACHINE SCREWS WITH 19 MM DIA. CAST-IN-PLACE STAINLESS STEEL THREADED CONCRETE INSERTS. RECESS 2 MM BELOW PLATE SURFACE.
3. UPON COMPLETION, FILL JOINT OPENING WITH A LOW MODULUS SILICON RUBBER JOINT SEALER CONFORMING TO ASTM D5893 WITH A MIN. ULTIMATE ELOGATION OF 1200 PERCENT. THE JOINT FILLER SHALL MATCH THE COLOR OF THE CONCRETE.

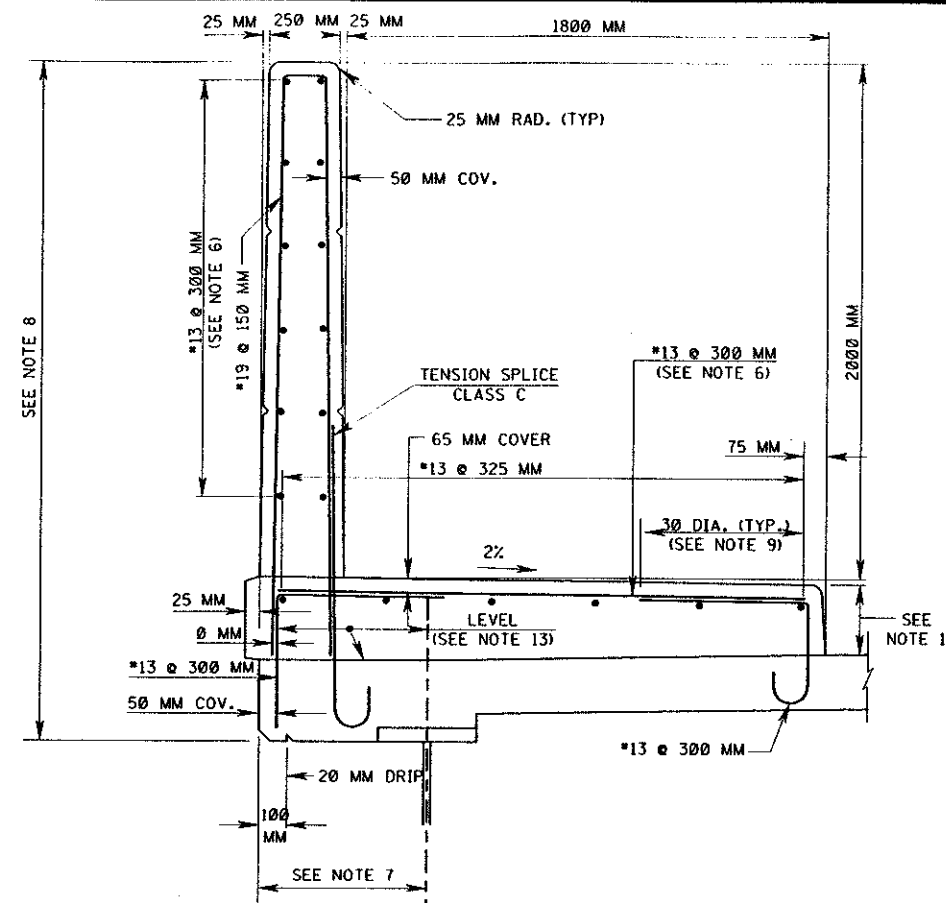
BCD-2

NEW JERSEY DEPARTMENT OF TRANSPORTATION

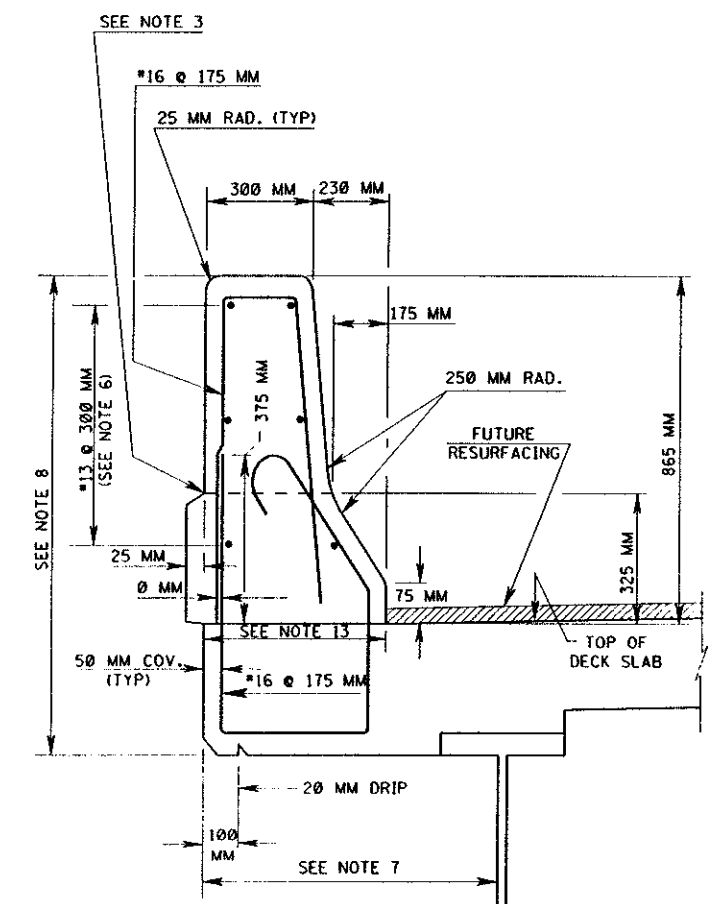
BRIDGE CONSTRUCTION DETAILS  
STRIP SEAL DECK JOINTS



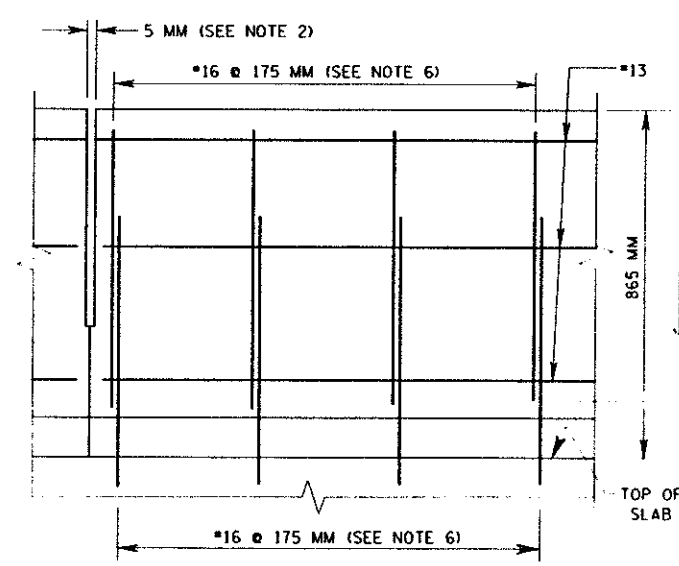
815 MM HIGH PARAPET WITH SIDEWALK



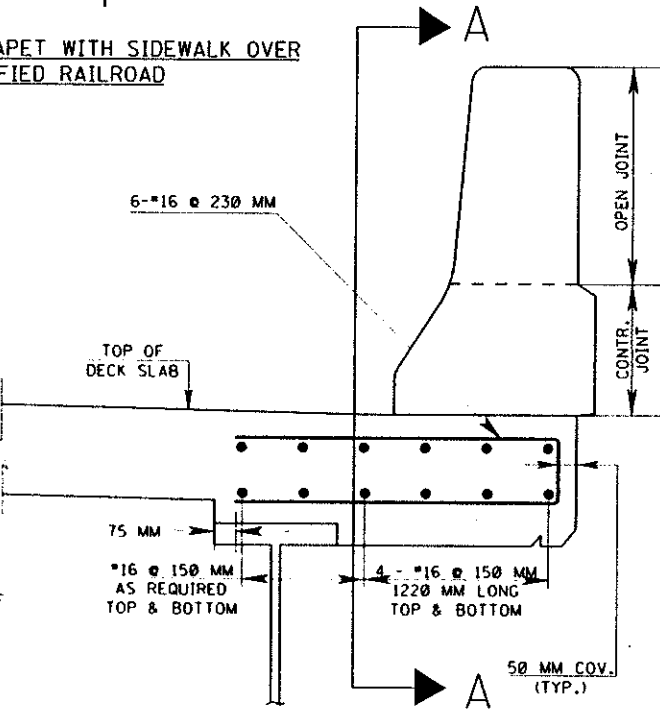
2000 MM HIGH PARAPET WITH SIDEWALK OVER ELECTRIFIED RAILROAD



865 MM HIGH PARAPET WITH BARRIER CURB

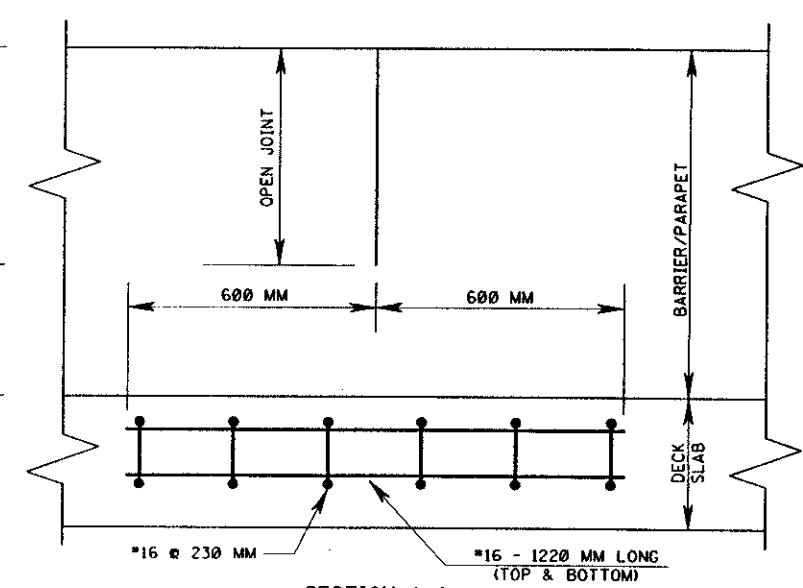


ELEVATION



DETAIL 1

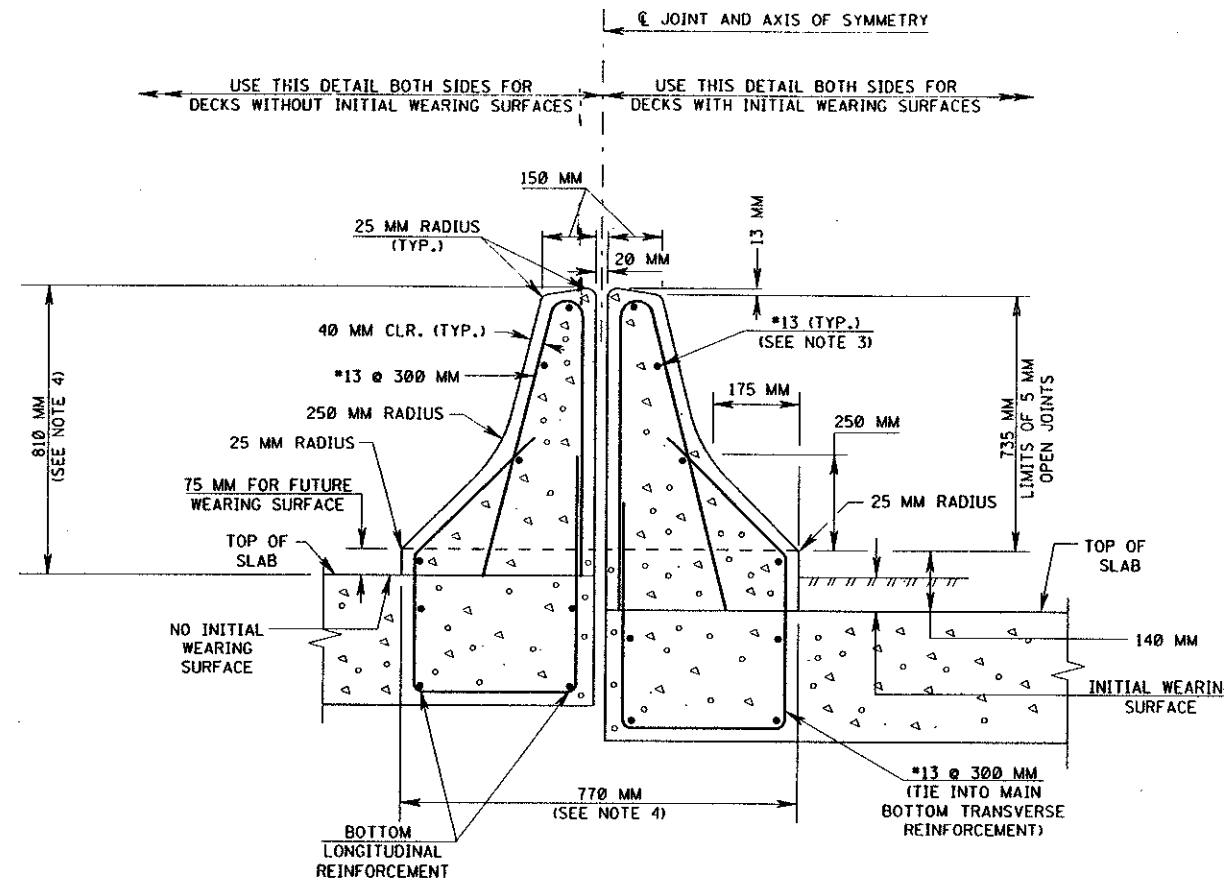
DECK REINFORCEMENT AT BARRIER/PARAPET JOINTS



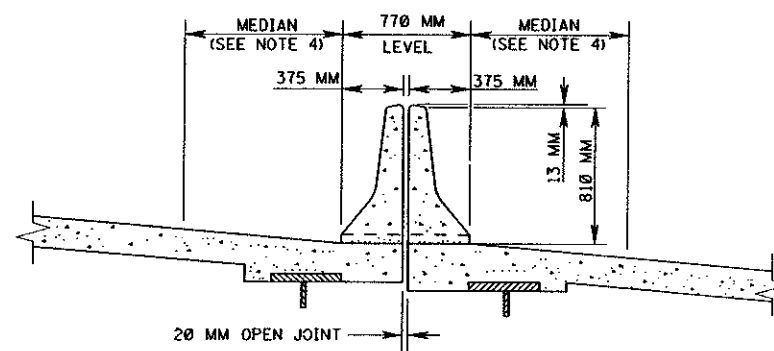
SECTION A-A

- NOTES:
1. CURB HEIGHT TO MATCH ROADWAY APPROACH CURB.
  2. 5 MM OPEN DEFLECTION JOINT SHALL BE PROVIDED IN PARAPETS AT INTERVALS NOT EXCEEDING 6 M AND CONTRACTION JOINTS SHALL BE PROVIDED AT THE MIDPOINT BETWEEN THE OPEN JOINTS.
  3. THE 5 MM OPEN JOINT SHALL STOP AT THE LINE INDICATED AND A CONTRACTION JOINT SHALL BE PROVIDED BELOW THAT LINE.
  4. CONTRACTION JOINTS SHALL BE PROVIDED IN SIDEWALKS AT LOCATIONS OF 5 MM OPEN PARAPET DEFLECTION JOINTS.
  5. FULL DEPTH JOINTS SHALL BE PROVIDED AT LOCATION OF TRANSVERSE DECK JOINTS. THE FULL DEPTH JOINT OPENING WIDTH SHALL EQUAL THE TRANSVERSE DECK JOINT OPENING WIDTH.
  6. ALL REINFORCEMENT BARS IN PARAPET AND SIDEWALK SHALL BE CORROSION PROTECTED.
  7. PREFERRED MAXIMUM OVERHANG 750 MM. PERMANENT METAL STAY-IN-PLACE FORMS NOT PERMITTED IN THIS AREA.
  8. FASCIA RUSTICATION AND CONFIGURATION AS PER NJDOT SPECIFICATIONS.
  9. AS AN OPTION, THE CONTRACTOR MAY ELIMINATE SPLICES AT EACH END OF THE TOP TRANSVERSE REINFORCEMENT IN SIDEWALKS BY PROVIDING A SINGLE BAR OF THE SAME CONFIGURATION WITH HOOKS AT EACH END, EMBEDDED IN THE DECK SLAB.
  10. IF CONDUITS ARE USED WITHIN THE PARAPET, PROVIDE A SLEEVE OF SUFFICIENT LENGTH TO ACCOMMODATE MAXIMUM EXPANSION AND CONTRACTION OF THE EXPANSION JOINT.
  11. IN CONSIDERING THE HEIGHT OF THE PARAPET AND RAILING COMBINATION, THE MINIMUM HEIGHT SHALL BE 1370 MM FOR BICYCLE TRAFFIC AND 1070 MM FOR PEDESTRIAN TRAFFIC.
  12. FOR ADDITIONAL REINFORCEMENT THAT IS REQUIRED IN THE VICINITY OF PARAPET JOINTS TO PREVENT CONCRETE CRACKING IN THE OVERHANG PORTIONS OF THE DECK SLAB, SEE "DETAIL 1."
  13. THE BRIDGE DECK PORTION UNDER THE PARAPET SHALL BE POURED LEVEL.

BCD-3  
NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BRIDGE CONSTRUCTION DETAILS  
815 MM, 865 MM, AND 2000 MM  
PARAPETS

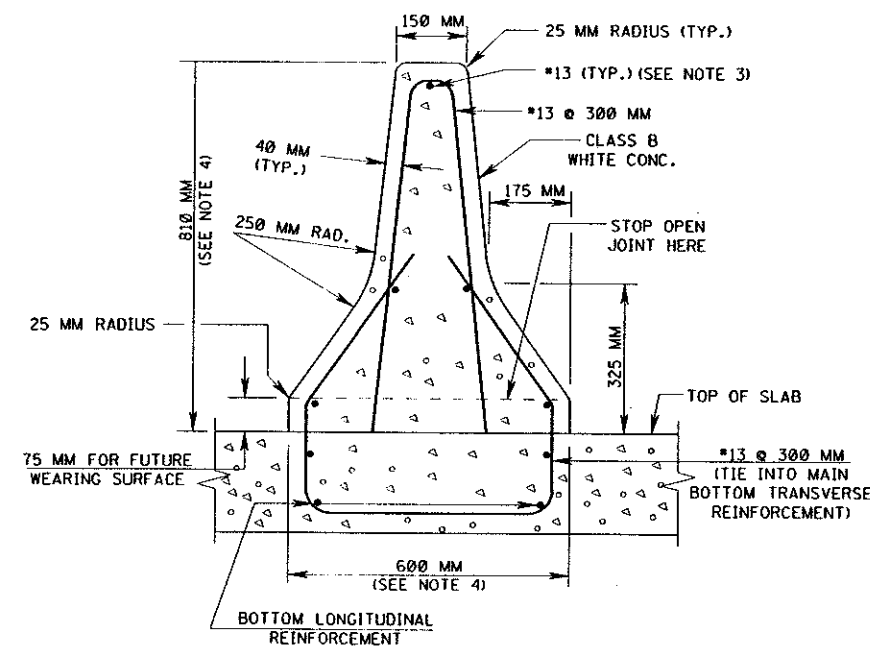


TYPICAL SECTION



CROSS SECTION

810 MM HIGH SPLIT MEDIAN BARRIER ON BRIDGE

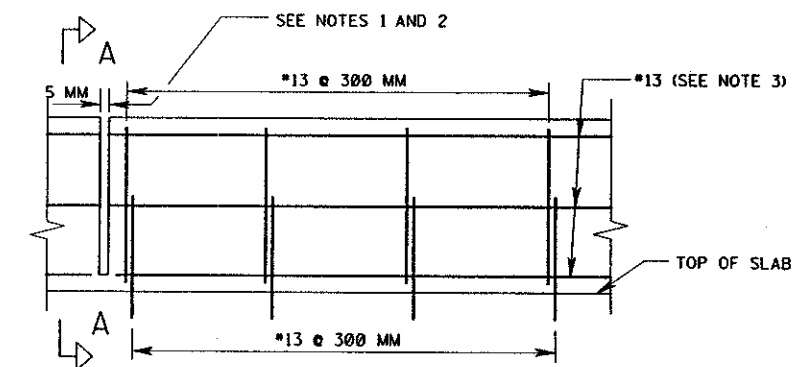


SECTION A-A

810 MM HIGH MEDIAN BARRIER ON BRIDGE

# NOTES:

- 5 MM OPEN DEFLECTION JOINT SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 4.5 M. THERE SHALL BE NO CONTRACTION JOINTS BETWEEN THE OPEN JOINTS AND NO CONTRACTION JOINTS LOCATED BELOW THE OPEN DEFLECTION JOINTS.
- FULL DEPTH JOINTS SHALL BE PROVIDED AT LOCATION OF TRANSVERSE DECK JOINTS. THE FULL DEPTH JOINT OPENING WIDTH SHALL EQUAL THE TRANSVERSE DECK JOINT OPENING WIDTH.
- ALL REINFORCEMENT BARS IN MEDIAN BARRIER SHALL BE CORROSION PROTECTED.
- WIDTH AND HEIGHT TO BE DETERMINED BY ROADWAY APPROACH BARRIER. REINFORCEMENT MUST BE ADJUSTED ACCORDINGLY.
- IF CONDUITS ARE USED WITHIN THE MEDIAN BARRIER, PROVIDE A SLEEVE OF SUFFICIENT LENGTH TO ACCOMMODATE MAXIMUM EXPANSION OF THE EXPANSION JOINT. (REFER TO STANDARD ELECTRICAL DETAILS FOR CONDUIT EXPANSION FITTINGS.)



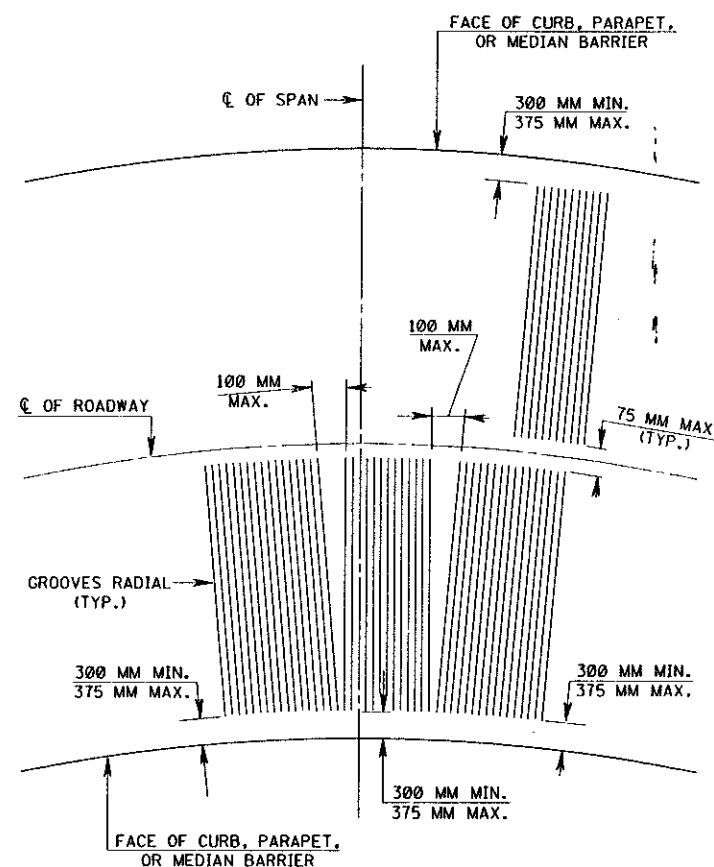
ELEVATION

BCD-4

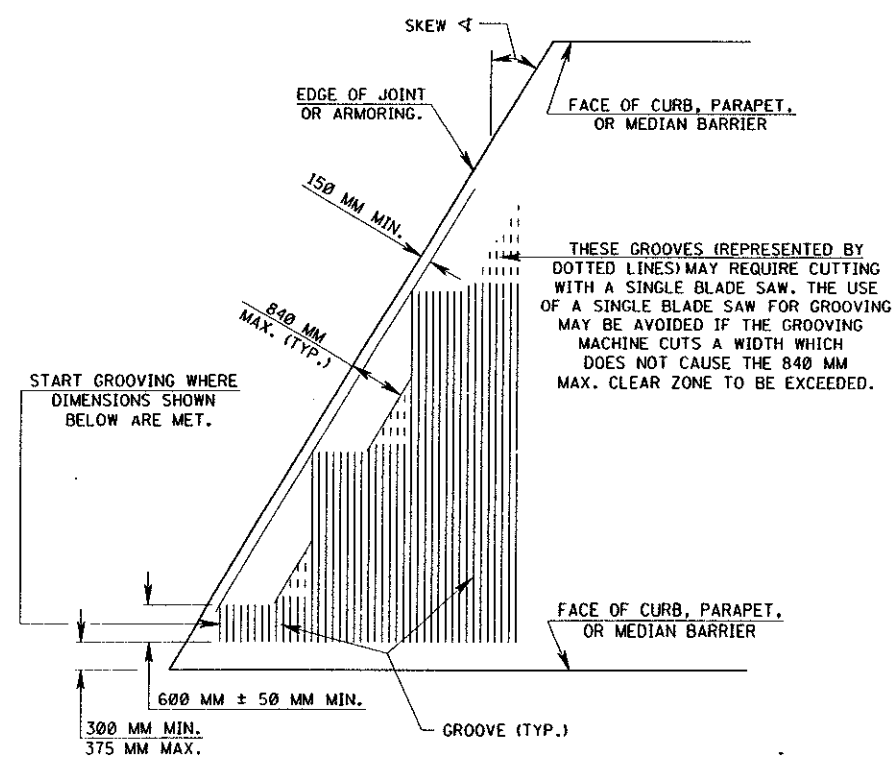
NEW JERSEY DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION DETAILS

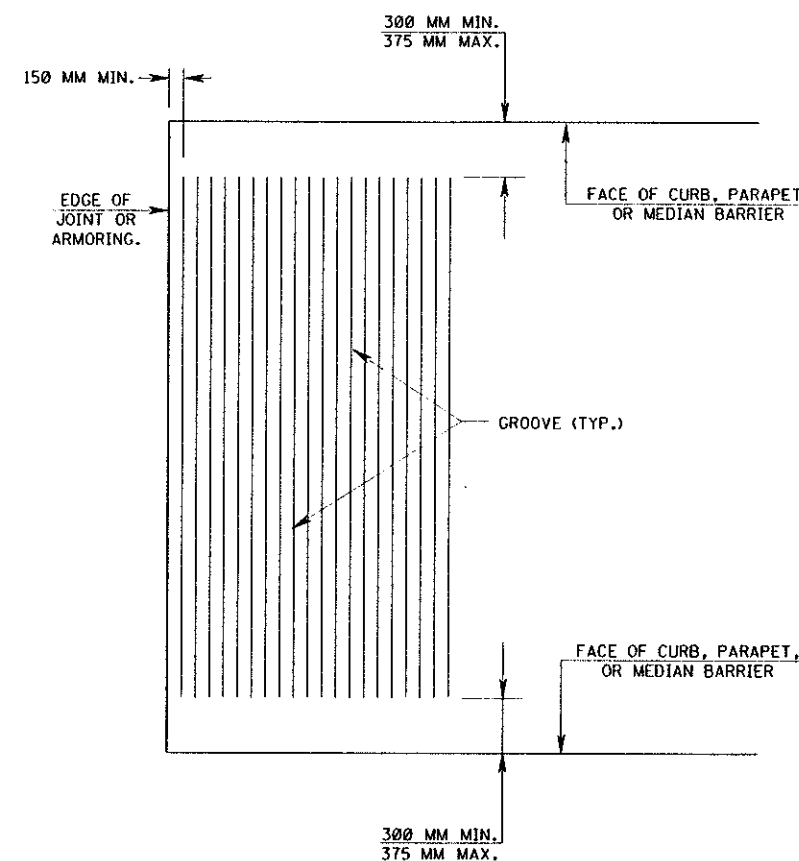
BRIDGE MEDIAN BARRIER



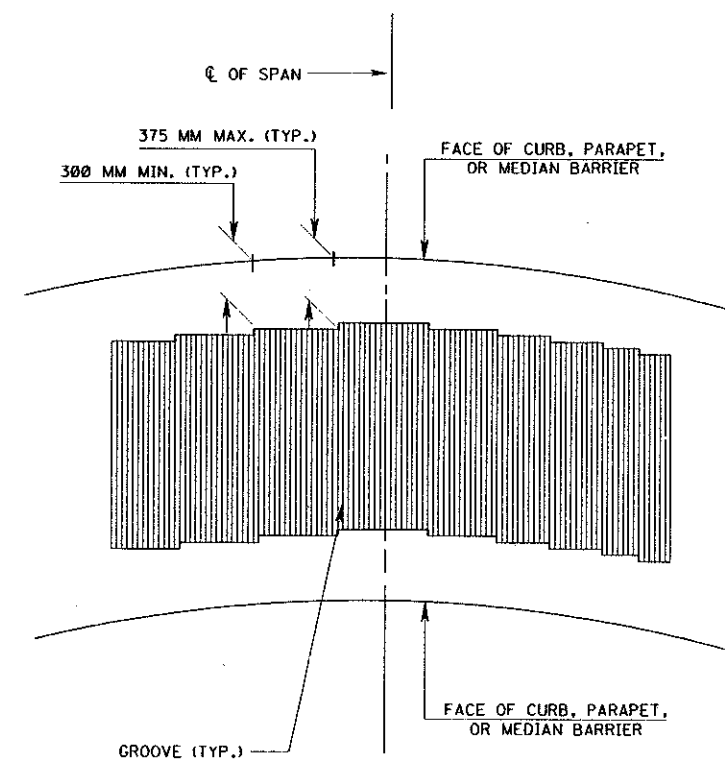
SAWCUT GROOVING FOR BRIDGE DECKS  
ON CURVED ALIGNMENT



SAWCUT GROOVING FOR SKEWED BRIDGE DECKS



SAWCUT GROOVING FOR BRIDGE DECKS



SAWCUT GROOVING FOR BRIDGE DECKS ON  
TIGHT CURVED ALIGNMENT

NOTES:

SAWCUT GROOVES SHALL BE RECTANGULAR  
IN CROSS SECTION WITH THE FOLLOWING  
DIMENSIONS:

WIDTH .... 2.5 MM TO 4 MM  
DEPTH .... 6 MM TO 10 MM

GROOVES SHALL BE SPACED AT 40 MM ± 2 MM  
CENTER TO CENTER.

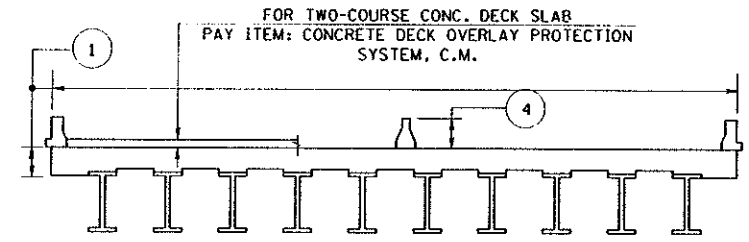
BCD-5

NEW JERSEY DEPARTMENT OF TRANSPORTATION

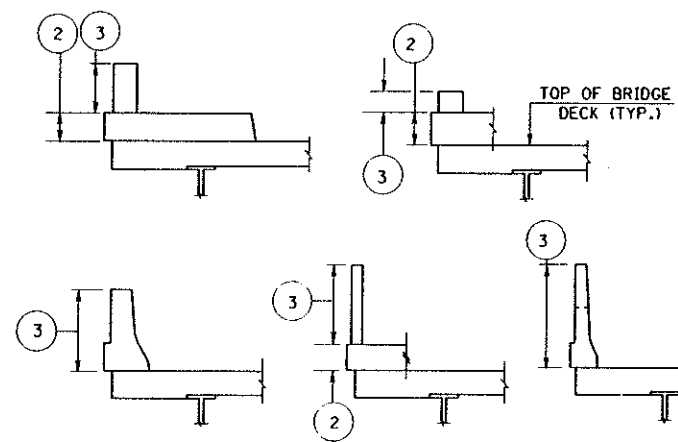
BRIDGE CONSTRUCTION DETAILS

SAWCUT GROOVING FOR  
BRIDGE DECKS

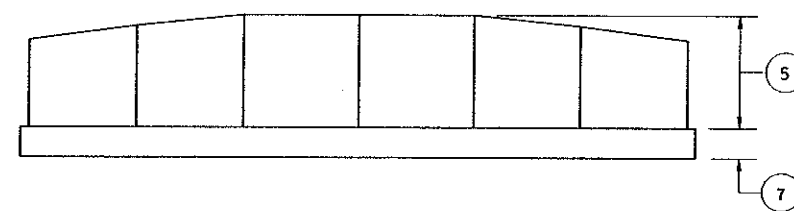
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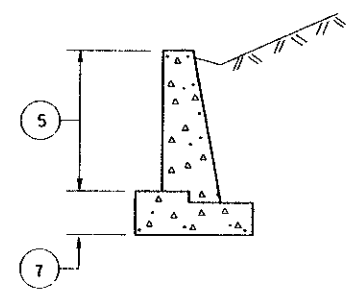
TYPICAL SECTION - BRIDGE DECK



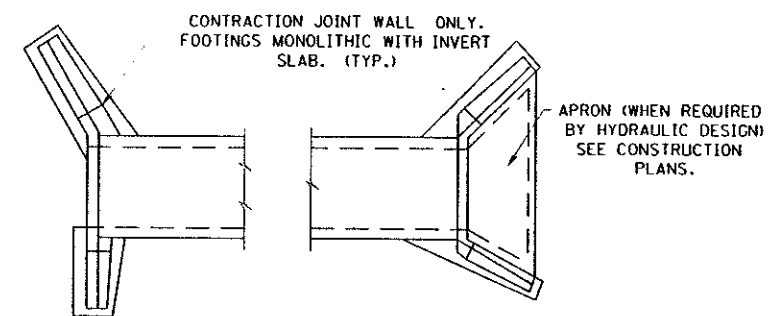
TYPICAL SECTION - BRIDGE PARAPETS



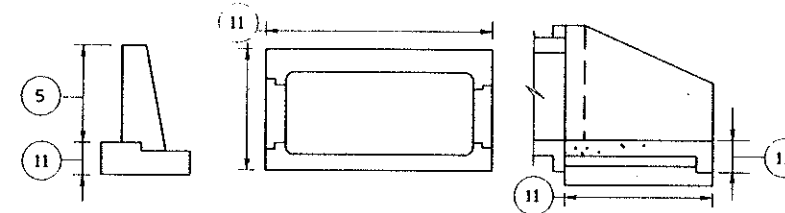
TYPICAL ELEVATION - RETAINING WALL



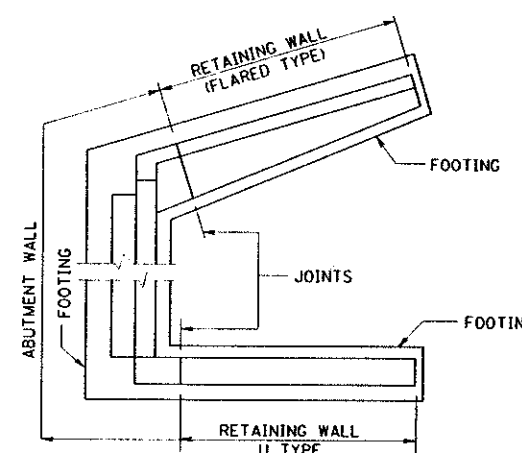
TYPICAL SECTION - RETAINING WALL



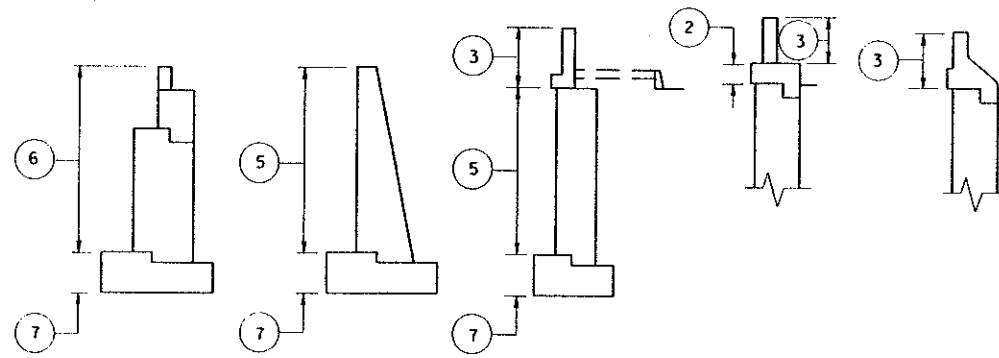
TYPICAL PLAN - CULVERT AND HEADWALLS



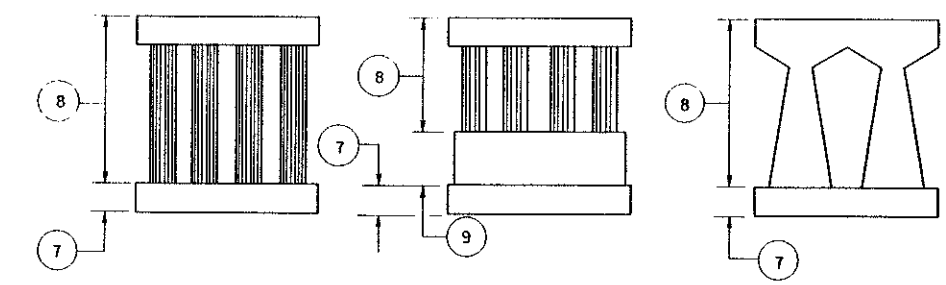
TYPICAL SECTION - CULVERT AND HEADWALLS



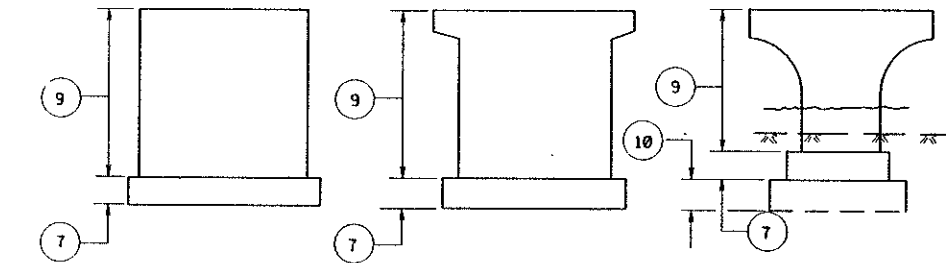
TYPICAL PLAN - ABUTMENTS



TYPICAL SECTION - VARIOUS WALLS AND PARAPETS



TYPICAL RIGID FRAME TYPE PIER - ELEVATIONS



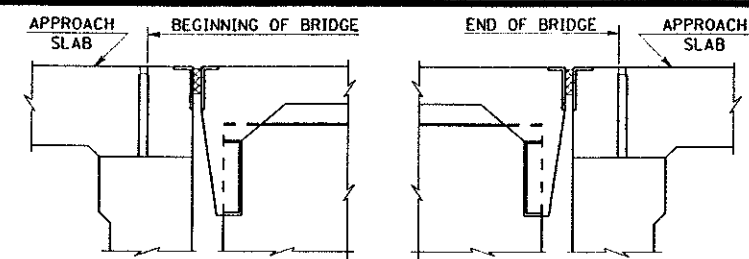
TYPICAL SOLID SHAFT TYPE PIER - ELEVATIONS

ITEM	CONCRETE CLASS	PAY ITEM	UNIT
①	A	CONCRETE IN SUPERSTRUCTURE, DECK SLAB	C.M.
②	A	CONCRETE IN SUPERSTRUCTURE, SIDEWALKS	C.M.
③	A	CONCRETE IN SUPERSTRUCTURE, PARAPETS	L.M.
④	B	--- X --- MM WHITE CONCRETE BARRIER CURB, BRIDGE	L.M.
⑤	B	CONCRETE IN STRUCTURES, RETAINING WALLS	C.M.
⑥	B	CONCRETE IN SUBSTRUCTURES, ABUTMENT WALLS	C.M.
⑦	B	CONCRETE IN STRUCTURES, FOOTINGS	C.M.
⑧	A	CONCRETE IN SUBSTRUCTURES, PIER COLUMNS AND CAPS	C.M.
⑨	B	CONCRETE IN SUBSTRUCTURES, PIER SHAFTS	C.M.
⑩	B	CONCRETE SEAL IN COFFERDAMS	C.M.
⑪	A	CONCRETE IN STRUCTURES, CULVERTS	C.M.

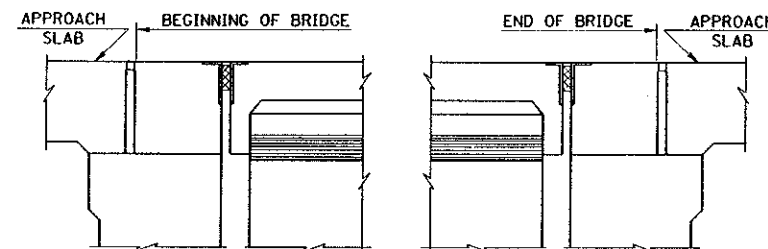
BCD-6

NEW JERSEY DEPARTMENT OF TRANSPORTATION

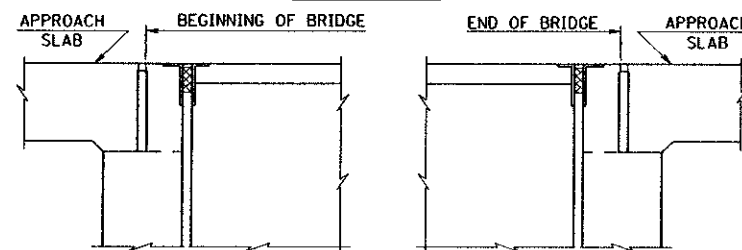
BRIDGE CONSTRUCTION DETAILS  
CONCRETE CLASSES AND  
PAY ITEMS



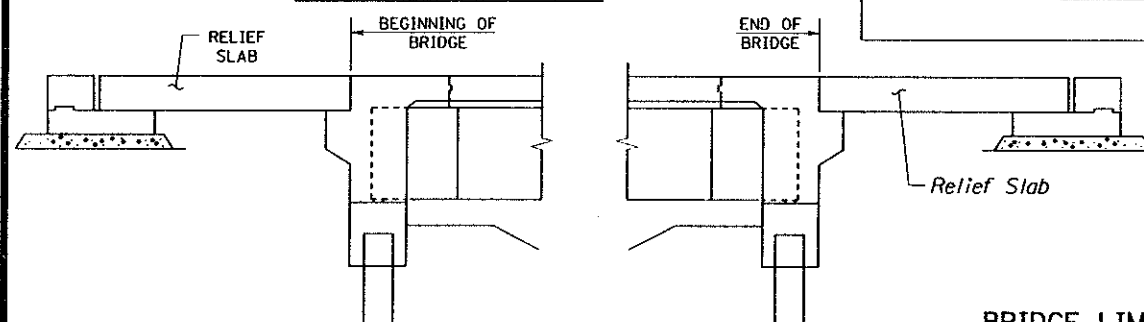
STEEL STRINGERS



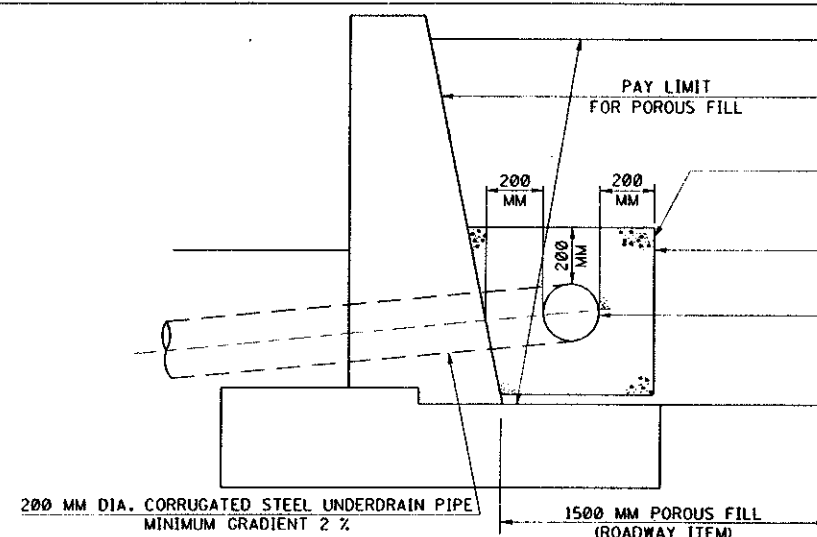
P.C.I. BEAMS



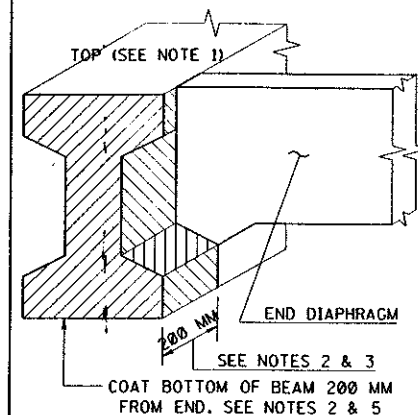
P.C. SLAB AND BOX BEAMS



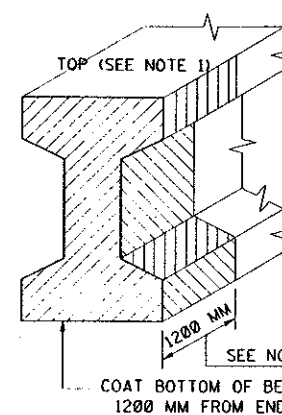
INTEGRAL ABUTMENT BRIDGE



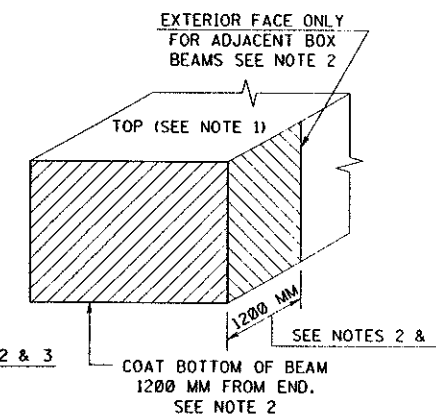
DRAINAGE BACK OF WALL



INTERIOR FACE OF BEAMS



EXTERIOR FACE OF FASCIA BEAMS



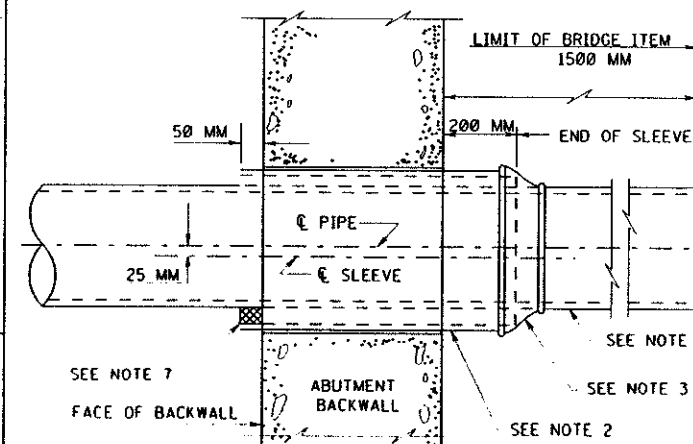
EXTERIOR FACE OF FASCIA BOX BEAMS

NOTES:

1. NO SEALER SHALL BE APPLIED TO THE TOP SURFACE OF ANY BEAM.
2. SEALER SHALL BE APPLIED TO THE ENDS, BOTTOMS AND EXTERIOR SIDES OF FASCIA BEAMS FOR ALL ADJACENT BOX BEAMS. SIDES OF INTERIOR BOX BEAMS SHALL NOT BE COATED. SEALER SHALL BE APPLIED TO THE ENDS, SIDES AND BOTTOMS OF ALL I-BEAMS.
3. THE SEAL COAT SHALL ONLY BE APPLIED TO BEAM ENDS UNDER DECK JOINTS.
4. VOIDED SLAB BEAMS SIMILAR TO BOX BEAM DETAILS FOR EPOXY WATERPROOFING SEAL COAT LIMITS.
5. EPOXY WATERPROOFING SEAL COAT SHALL BE OMITTED FROM THE BEARING CONTACT AREAS FOR VARIOUS TYPES OF BEARINGS. CHECK BEARING MANUFACTURER'S RECOMMENDATIONS.

PRESTRESSED CONCRETE I-BEAMS, VOIDED SLAB AND BOX BEAMS  
EPOXY WATERPROOFING SEAL COAT LIMITS

BCD-7.2

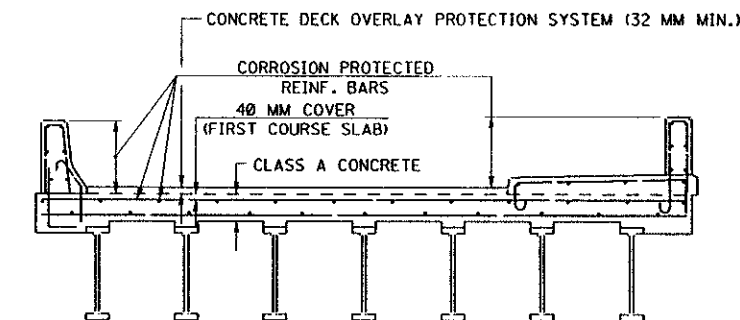


SLEEVE DETAIL FOR STEEL GAS MAINS

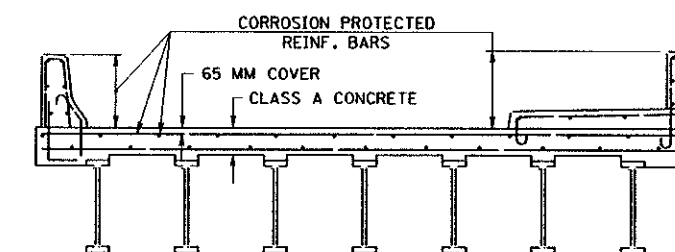
NOTES:

1. GAS MAIN FURNISHED AND INSTALLED BY UTILITY COMPANY.
2. GALVANIZED SLEEVE FURNISHED AND INSTALLED BY CONTRACTOR.
3. CASING SEAL FURNISHED AND INSTALLED BY UTILITY COMPANY.
4. ENDS OF SLEEVE SHALL BE CUT SQUARE AND FREE FROM BURRS.
5. GRADE (SLOPE) OF SLEEVE SHALL BE SAME AS GRADE OF GAS MAIN.
6.  $\epsilon$  OF GAS MAIN SHALL BE INSTALLED 25 MM HIGHER THAN  $\epsilon$  OF SLEEVE.
7. BLOCK INSTALLED TO INITIALLY POSITION THE PIPE AND SHALL BE REMOVED AFTER GAS MAIN APPROACH ROAD HAS BEEN CONNECTED AND BACKFILLED AND COMPACTED FOR BOTTOM HALF OF THE PIPE.
8. PIPE AND SLEEVE SHALL BE TEMPORARILY PLUGGED.
9. THE OPENING BETWEEN THE PIPE AND THE SLEEVE SHALL BE PACKED WITH HEMP, JUTE OR SIMILAR MATERIAL TO PREVENT LEAKAGE THROUGH THE BACKWALL.

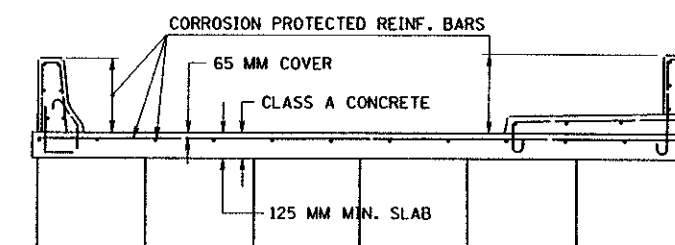
BCD-7.4



TWO-COURSE CONCRETE DECK SLAB



ONE-COURSE CONCRETE DECK SLAB



CONCRETE OVERLAY SLAB ON PRESTRESSED CONCRETE VOIDED SLAB OR BOX BEAMS

NOTE:

ALL REINFORCEMENT BARS IN PARAPETS AND SIDEWALKS SHALL BE EPOXY COATED.

BRIDGE DECK CONSTRUCTION PROTECTIVE SYSTEMS (NEW BRIDGE DECKS)

BCD-7.3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

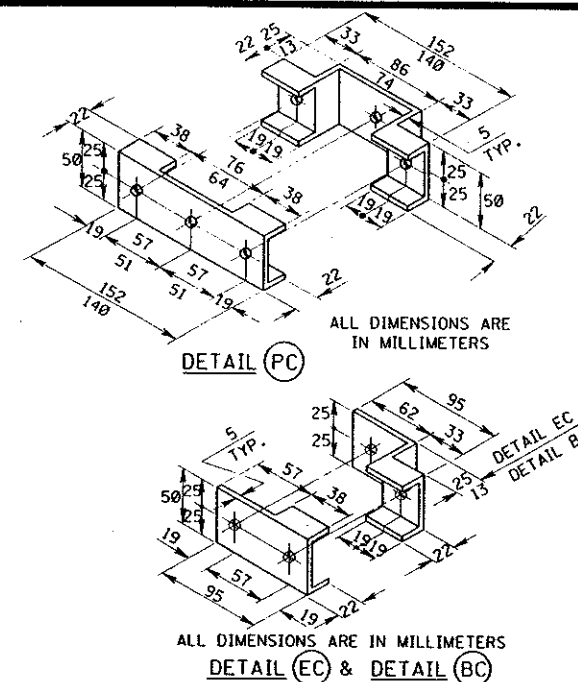
BRIDGE CONSTRUCTION DETAILS  
MISCELLANEOUS  
BRIDGE ITEMS

126  
129

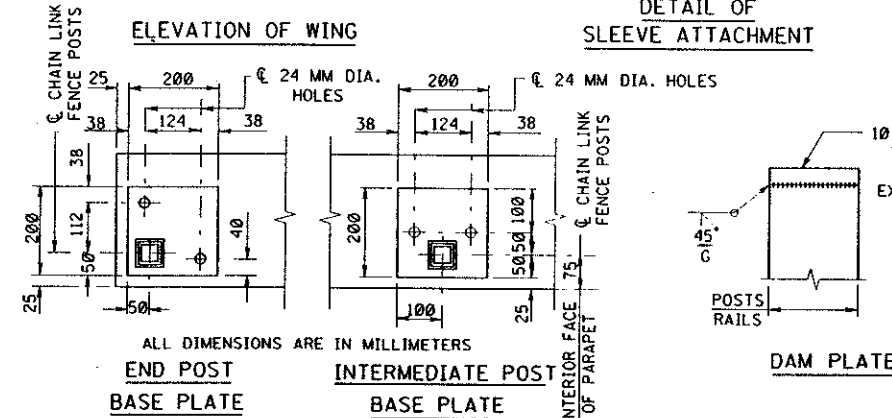
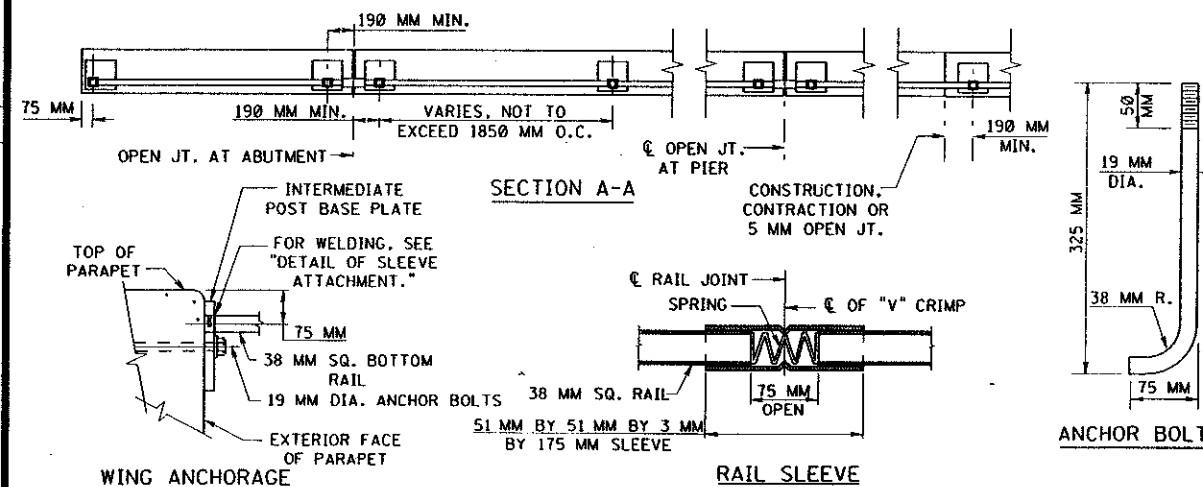
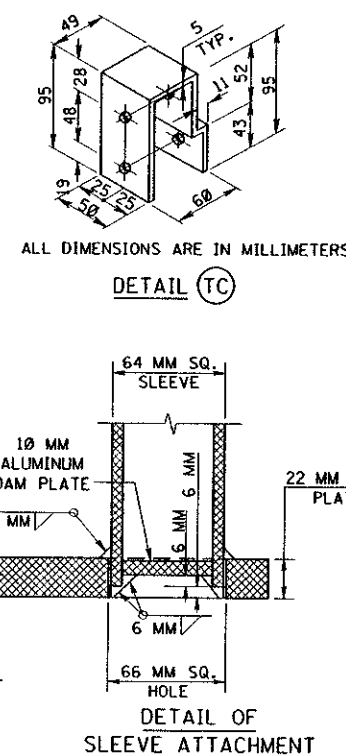
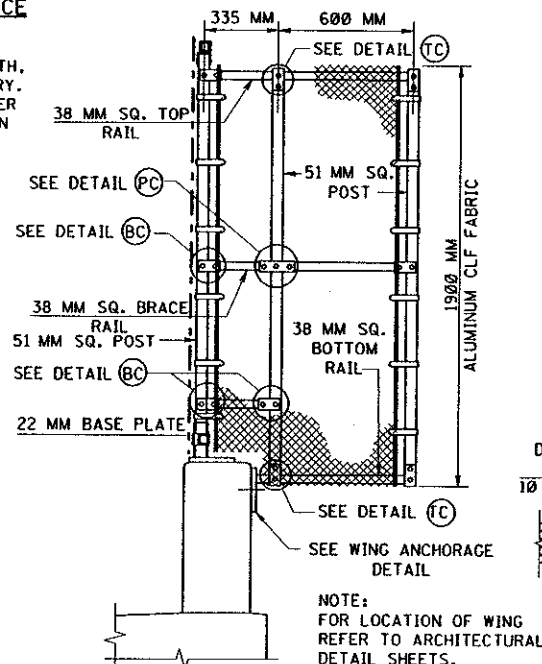
BCD-7.5





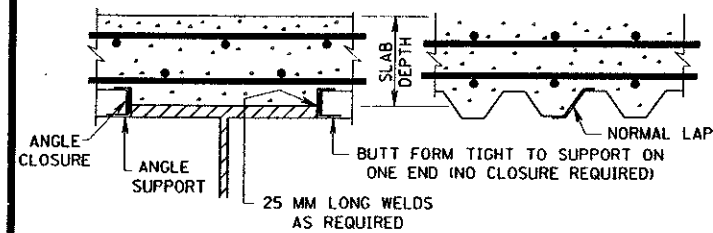


SHOP DRAWINGS SHALL BE SUBMITTED ACCORDING TO THE NJDOT SPECIFICATIONS.



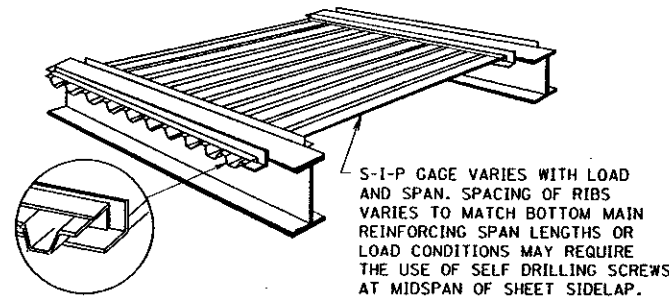
128  
129

S-I-P FORMS BETWEEN STRINGERS  
VARIABLE SLAB ELEVATION  
NORMAL L SUPPORTS



SECTION THROUGH  
STRINGER

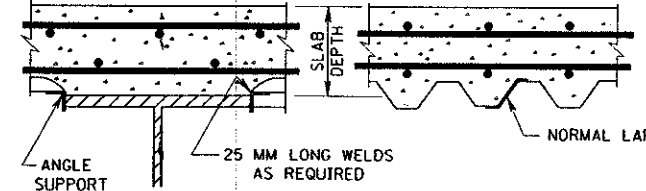
SLAB SECTION



SECURE S-I-P FORMS TO SUPPORT WITH SELF DRILLING SCREWS AT SIDE LAPS AND CENTER OF FORM UNITS, APPROXIMATELY 375 MM ON CENTERS

BCD-9.1

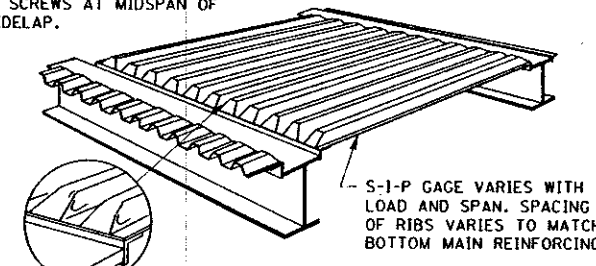
S-I-P FORMS BETWEEN STRINGERS  
VARIABLE SLAB ELEVATION  
INVERTED L SUPPORTS



SECTION THROUGH  
STRINGER

SLAB SECTION

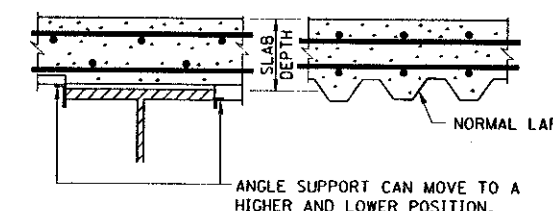
SPAN LENGTHS OR LOAD CONDITIONS MAY REQUIRE THE USE OF SELF DRILLING SCREWS AT MIDSPAN OF SHEET SIDELAP.



SECURE S-I-P FORMS TO SUPPORT WITH SELF DRILLING SCREWS AT SIDE LAPS AND CENTER OF FORM UNITS, APPROXIMATELY 375 MM ON CENTERS

BCD-9.2

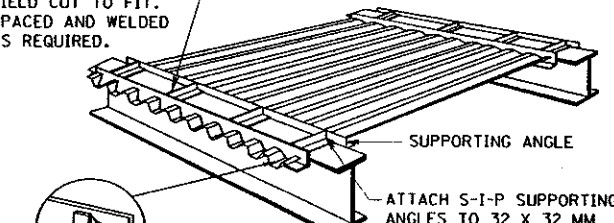
S-I-P FORMS  
WITH ADJUSTABLE SUPPORTS  
NOT WELDED TO STRINGERS  
(TO BE USED IN THE TENSION ZONE OF CONTINUOUS SPAN BRIDGES)



SECTION THROUGH  
STRINGER

SLAB SECTION

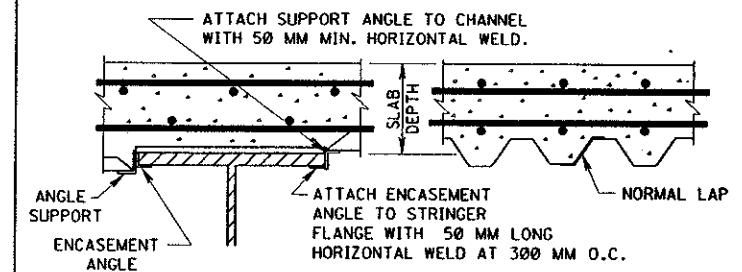
32 X 32 MM ANGLE FIELD CUT TO FIT. SPACED AND WELDED AS REQUIRED.



HOLD DOWN CLIP IS SECURED TO ANGLE SUPPORT WITH 13 MM MIN. WELD.

BCD-9.3

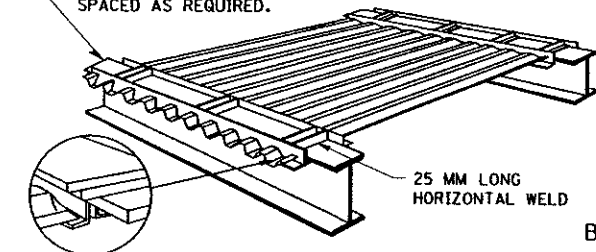
S-I-P FORMS  
WITH ADJUSTABLE L SUPPORTS  
STRINGER FLANGE ENCASEMENT PROVIDED



SECTION THROUGH  
STRINGER

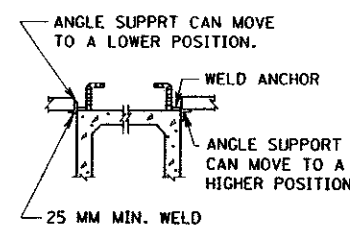
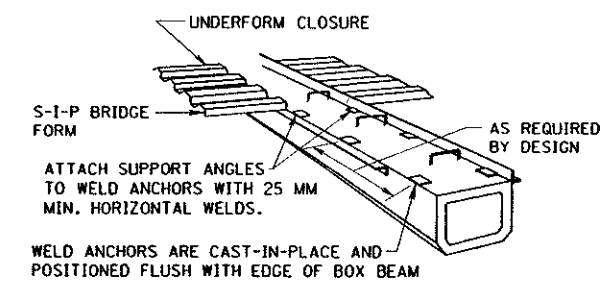
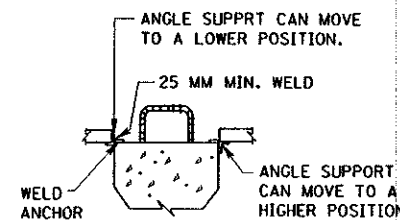
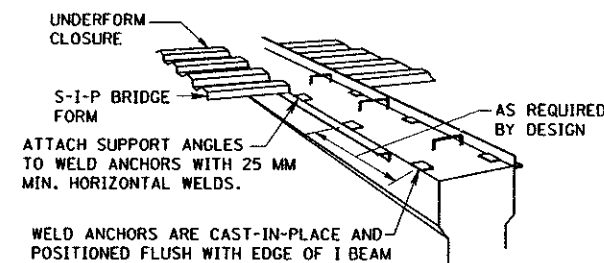
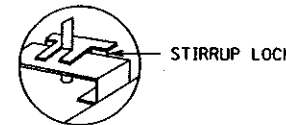
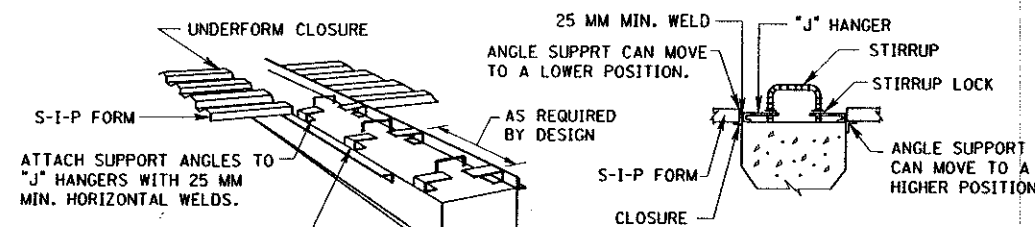
SLAB SECTION

32 X 64 X 32 MM CHANNEL SHOP CUT TO LENGTH SPACED AS REQUIRED.



BCD-9.4

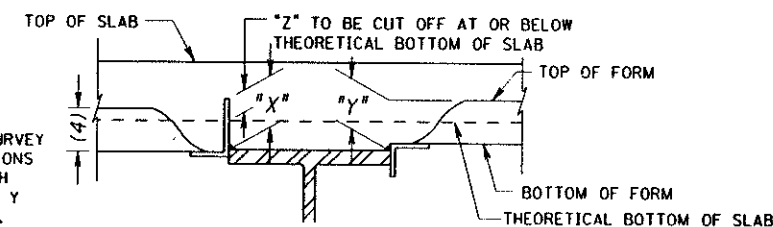
S-I-P FORMS BETWEEN PRECAST CONCRETE STRINGERS



BCD-9.5

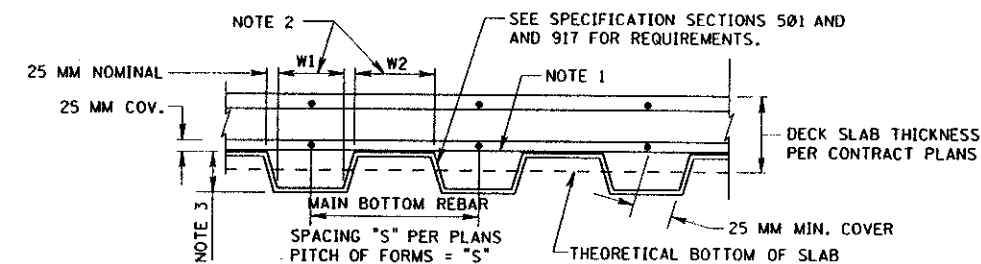
NOTE:

THE CONTRACTOR SHALL SURVEY THE TOP OF BEAM ELEVATIONS AS REQUIRED TO ESTABLISH HAUNCH DIMENSIONS X AND Y AND CUT-OFF DIMENSION Z.

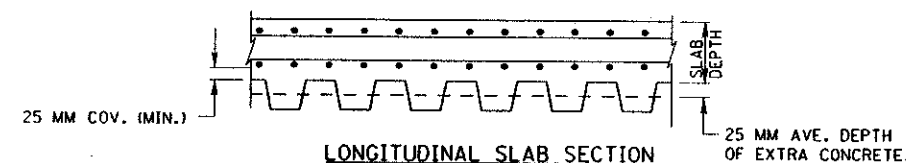


COMPRESSION FLANGE

THE ABOVE SKETCH AND NOTE SHALL APPEAR ON THE SHOP PLANS FOR STAY-IN-PLACE DECK FORMS SUBMITTED BY THE FABRICATOR. ANY SHOP DRAWING SUBMITTED WITHOUT THE SKETCH AND NOTE SHALL BE RETURNED FOR REVISION AND RESUBMISSION.



GENERALLY, THE SPACING (PITCH) OF RIBS (FLUTES) SHALL MATCH SPACING OF BOTTOM MAIN REINFORCEMENT STEEL AND BOTTOM MAIN REBARS SHALL BE PLACED AT THE CENTER OF EACH RIB TO PROVIDE MAXIMUM CONCRETE COVER. OCCASIONALLY, THE DECK FORMS MUST BE DROPPED WHEN RIBS AND BOTTOM MAIN REBARS CAN NOT BE ALIGNED. REFER TO THE ALTERNATE BELOW FOR MORE DETAILS ON THIS CONDITION.



LONGITUDINAL SLAB SECTION

NOTES:

1. 13 MM CORROSION PROTECTED STEEL BARS MAY BE USED AS REBAR SUPPORTS.
2. W1 SHALL BE EQUAL TO OR LESS THAN W2.
3. RIBS ARE ASSUMED TO BE 50 MM DEEP. SPECIAL DESIGN CONSIDERATIONS ARE REQUIRED FOR DEEPER FORMS.

BCD-9.6

GENERAL NOTE:

THE DETAILS SHOWN ARE GENERAL. SHOP DRAWINGS ACCORDING TO THE NJDOT SPECIFICATIONS SHALL BE SUBMITTED FOR ACTUAL DETAILS.

BCD-9

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BRIDGE CONSTRUCTION DETAILS  
STAY-IN-PLACE FORMS

129  
129