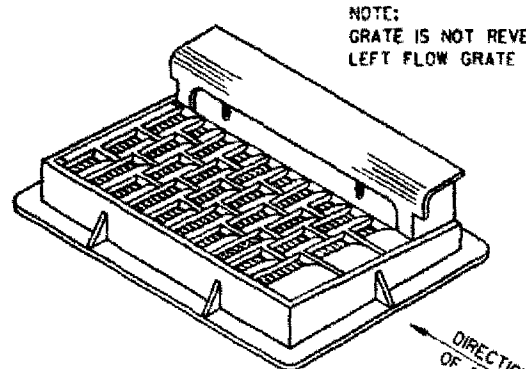
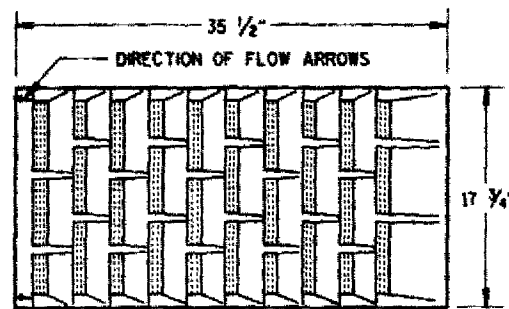
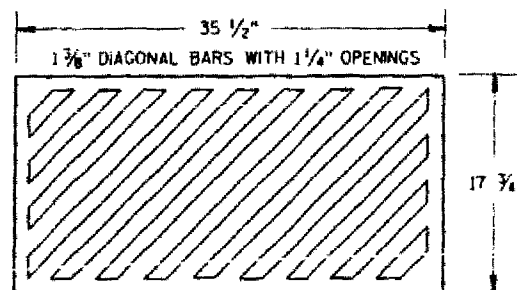
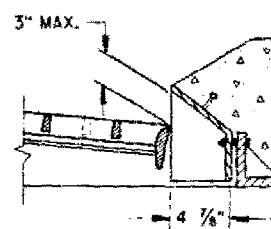


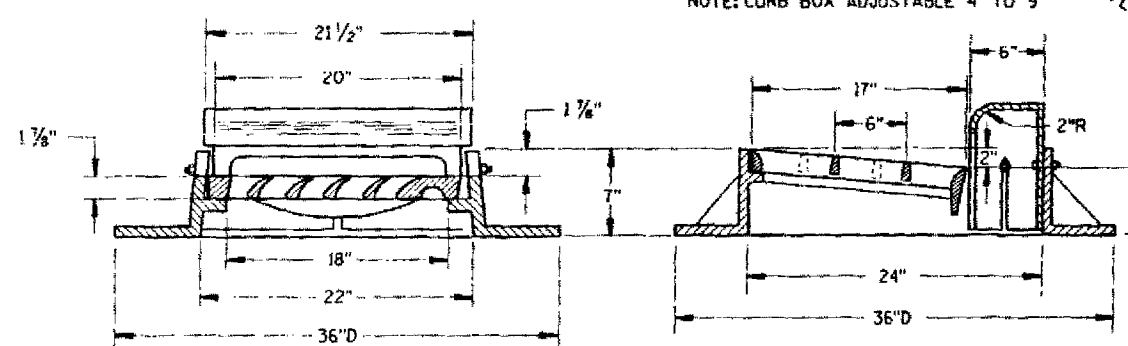
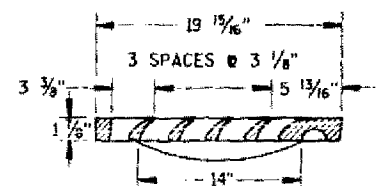
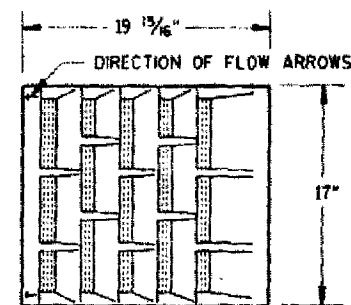
TYPE "H"
(APPROXIMATE WEIGHT 510 LBS.)



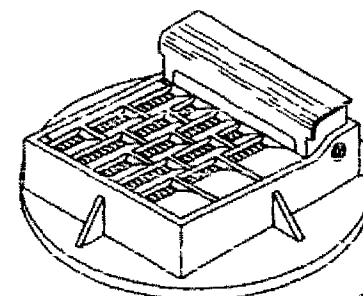
SPECIAL GRATE NO. 1
(APPROXIMATE WEIGHT 175 LBS.)
(NOTE AS TYPE H1 ON DRAINAGE TABLE)



**MOUNTABLE CURB BOX
FOR TYPES "A" & "H" COVERS**

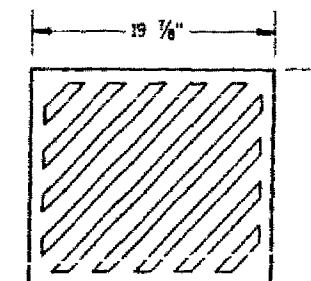


TYPE "A"
(APPROXIMATE WEIGHT 410 LBS.)

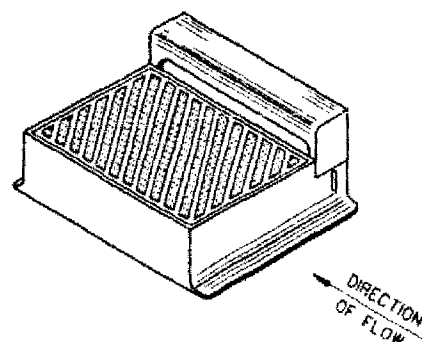


NOTE:
GRATE IS NOT REVERSIBLE.
LEFT FLOW GRATE IS SHOWN

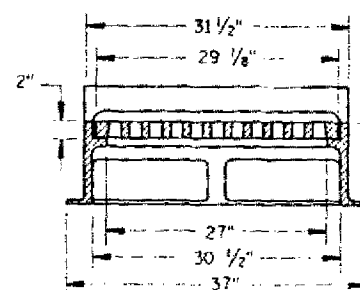
1" DIAGONAL BARS
WITH 1 1/2" OPENINGS



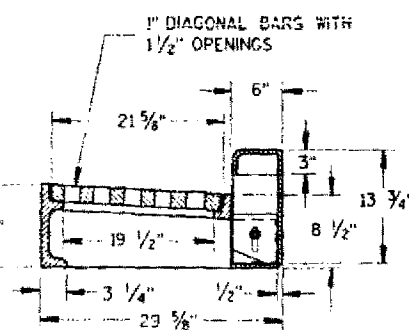
SPECIAL GRATE NO. 1
(APPROXIMATE WEIGHT 85 LBS.)
(NOTE AS TYPE A1 ON DRAINAGE TABLE)



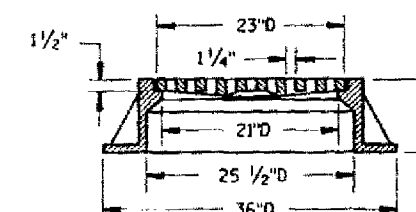
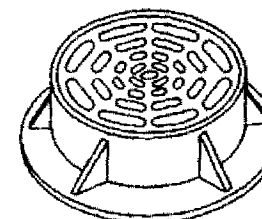
DIAGONAL SLOTS, SHALL BE ORIENTED
TO THE DIRECTION OF FLOW AS ILLUSTRATED.
GRATES ARE MANUFACTURED TO BE REVERSIBLE.



TYPE "WM"
(APPROXIMATE WEIGHT 650 LBS.)



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"



TYPE "C"
(APPROXIMATE WEIGHT 365 LBS.)

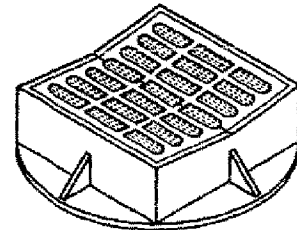
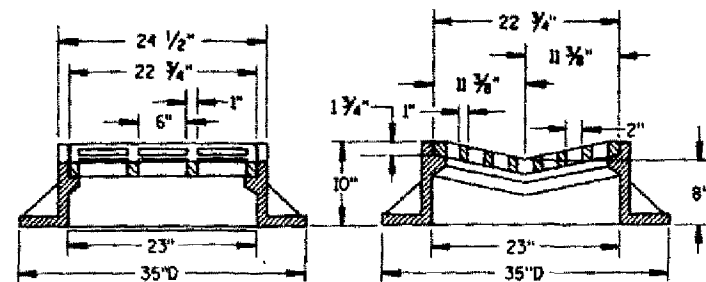
INLET COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
1/29/88
DATE

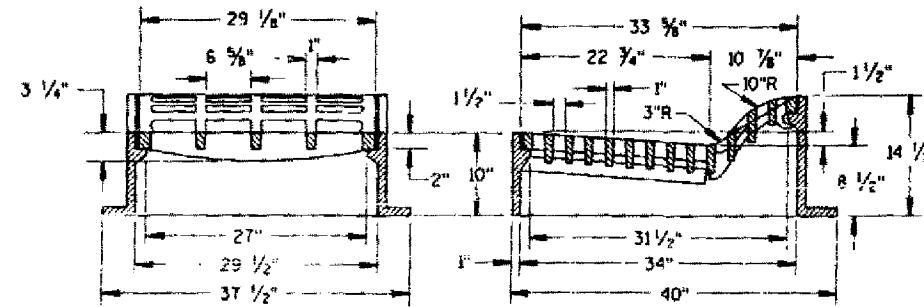
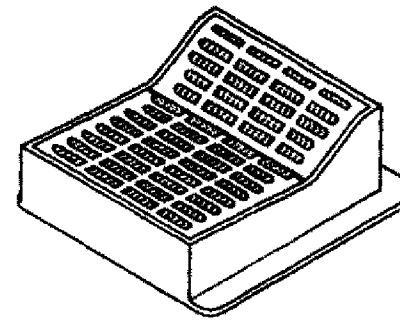
STATE DESIGN ENGINEER FOR HWYS

FHWA



TYPE "B"

(APPROXIMATE WEIGHT 400 LBS.)



TYPE "F"

(APPROXIMATE WEIGHT 835 LBS.)

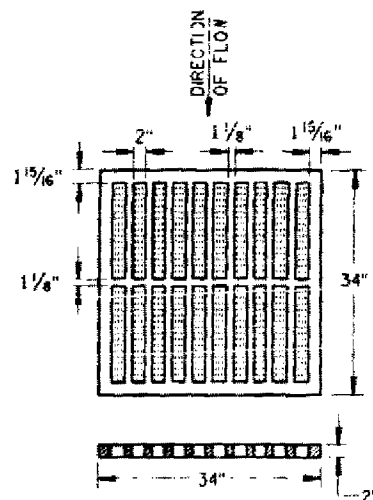
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

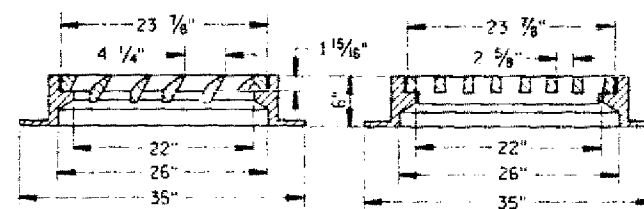
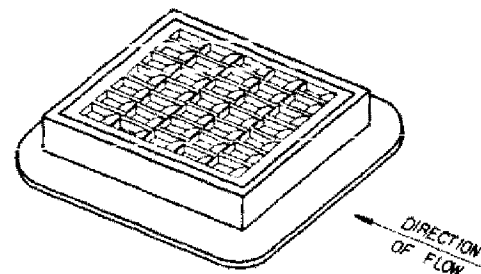
ALL COVERS PLACED IN VEHICULAR TRAFFIC AREAS SHALL BE "NON-ROCKING" TYPE.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



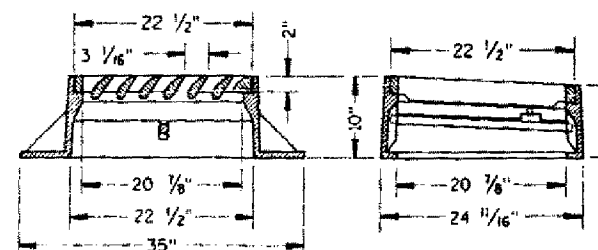
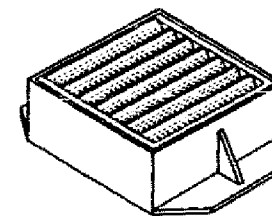
TYPE "MS"

(APPROXIMATE GRATE WEIGHT 285 LBS.)



TYPE "S"

(APPROXIMATE WEIGHT 495 LBS.)



TYPE "V"

(APPROXIMATE WEIGHT 400 LBS.)

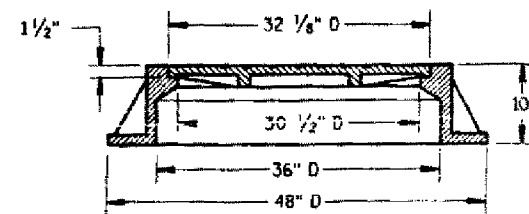
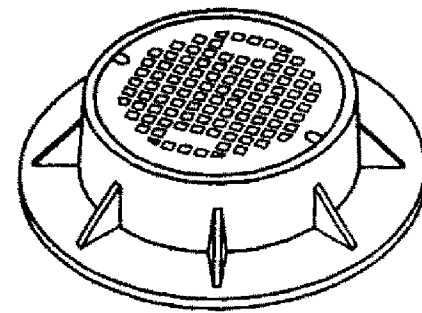
INLET COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

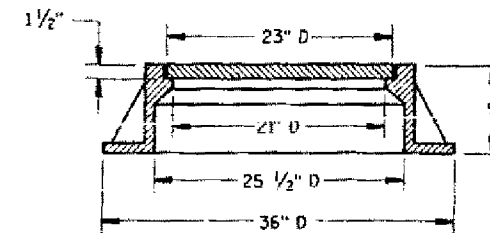
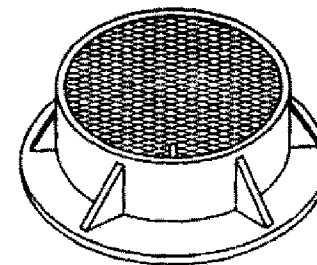
APPROVED
1/29/88
DATE

STATE DESIGN ENGINEER FOR HWYS

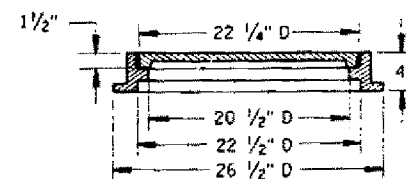
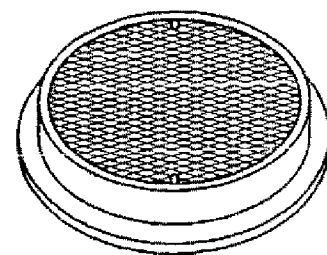
FHWA



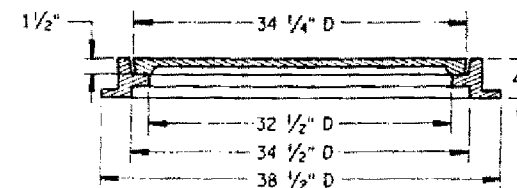
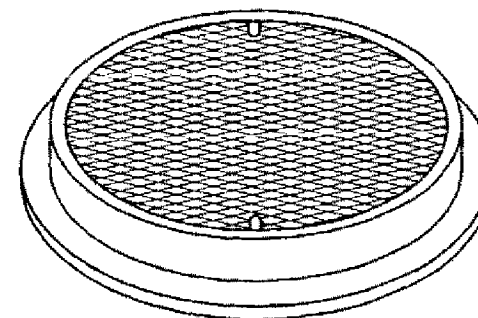
TYPE "K"
(APPROXIMATE WEIGHT 775 LBS.)



TYPE "J"
(APPROXIMATE WEIGHT 395 LBS.)



TYPE "L"
(APPROXIMATE WEIGHT 155 LBS.)



TYPE "M"
(APPROXIMATE WEIGHT 385 LBS.)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL COVERS PLACED IN VEHICULAR TRAFFIC AREAS SHALL BE "NON-ROCKING" TYPE.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.

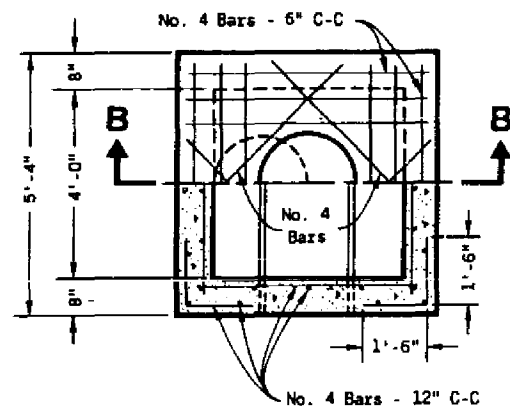
MANHOLE COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

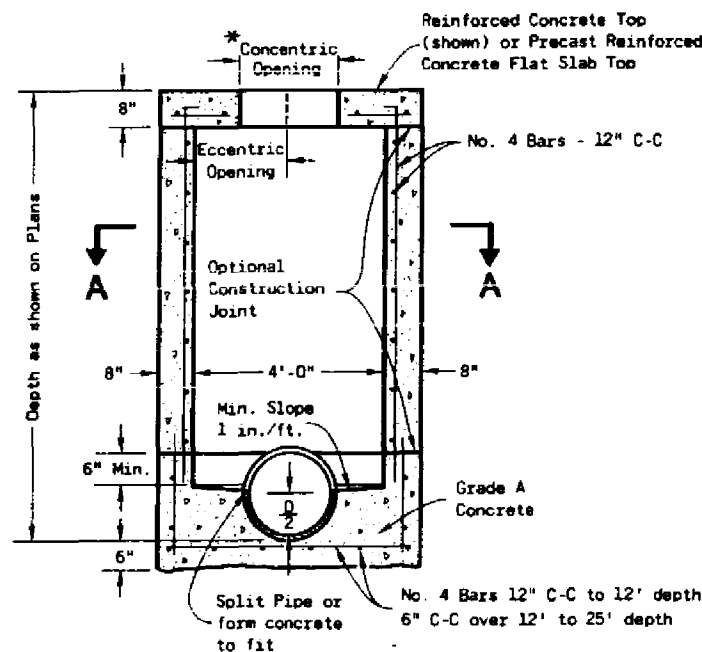
APPROVED
1/29/88
DATE

[Signature]
STATE DESIGN ENGINEER FOR HWYS

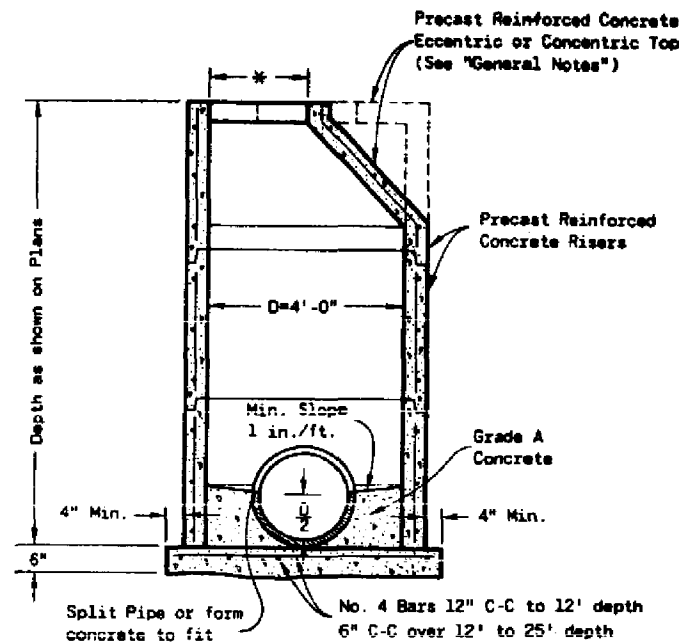
FWHA



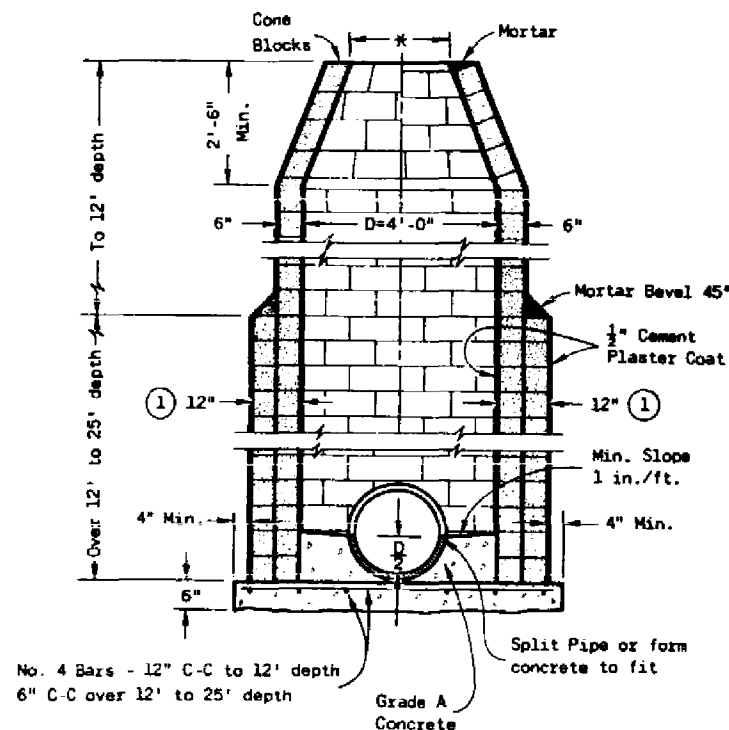
HALF SECTION A-A



SECTION B-B
REINFORCED CONCRETE



PRECAST REINFORCED CONCRETE



CONCRETE BLOCK

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Detailed drawings for proposed alternate designs for underground drainage structures shall be submitted to the Engineer for approval providing that such alternate designs make provision for equivalent capacity and strength.

All drainage structures are designated on the plans as "Manholes 1-C", "Catch Basins 1-B", "Inlets 3-M", etc. The first digit designates the masonry portion of the structure, and the following letter designates the type of cover to be used to comprise the complete unit.

Precast Reinforced Bases shall be placed on a bed of material at least 6 inches in depth, which meets the requirements for Granular Backfill. This bedding shall be compacted and provide uniform support for the entire area of the base.

Precast Reinforced Concrete Cone Tops (Eccentric or Concentric) may be used on concrete block structures. The Cone Tops shall be installed on a bed of mortar.

Eccentric Cone Tops may be used on all structures, and Concentric Cone Tops shall be used only on structures 5 feet or less in depth, unless otherwise directed by the Engineer.

Steps meeting the following requirements shall be installed in all structures over 5 feet in depth: 16 inch C-C maximum spacing; project a minimum clear distance of 4 inches from the wall at the point of embedment; minimum length of 10 inches; minimum wall embedment of 3 inches; and be capable of supporting a concentrated load of 300 lbs. Ferrous metal steps not painted or treated to resist corrosion shall have a minimum cross sectional dimension of 1 inch.

Solid Aluminum steps shall have a minimum cross sectional dimension of 0.75 inch. Aluminum surfaces to be embedded in concrete shall be given one coat of suitable quality paint, such as zinc chromate primer conforming to Federal Specification, IT-P-645 or equivalent. Steps of approved Polypropylene plastic coated reinforcement bar will be acceptable.

All bar steel reinforcement shall be embedded 2 inches clear unless otherwise shown or noted.

Precast Reinforced Concrete Risers may be placed with tongue up or down.

All Precast Inlet Units shall conform to the pertinent requirements of AASHTO Designation M 199.

* Use 2'-0" diameter opening with Type "C", "L" and "J" covers, or 3'-0" diameter with Type "K" and "M" covers.

① 2 courses 6" block.

MANHOLES TYPE 1

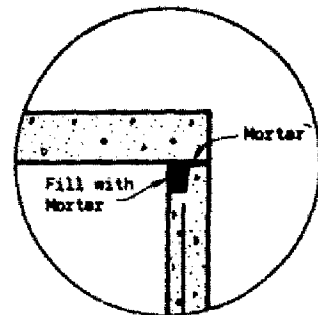
State of Wisconsin
Department of Transportation

APPROVED
4-13-82
DATE

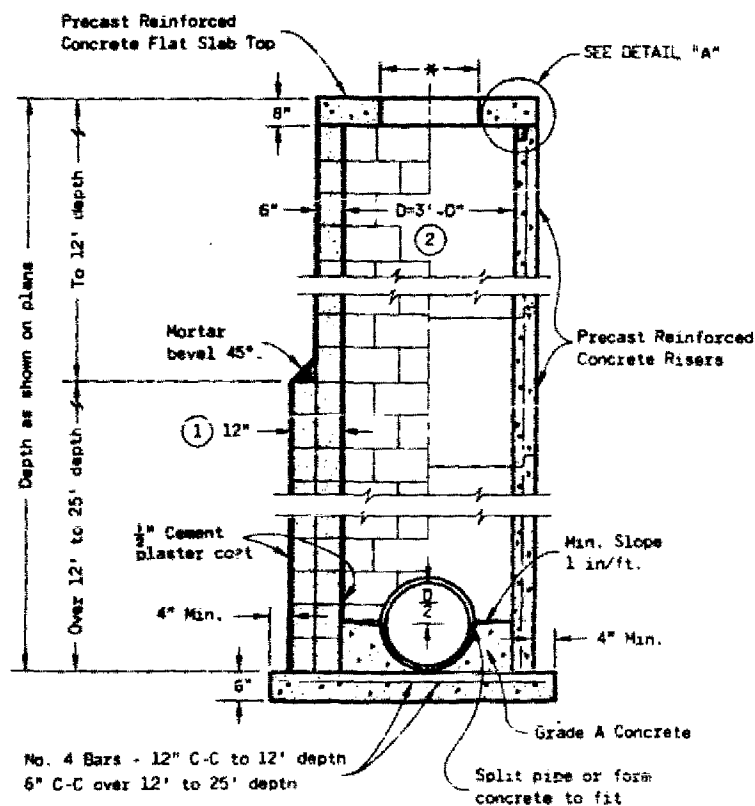
D. J. Strand
CHIEF DESIGN ENGINEER

FILED

S.D.D. 8 B 6-3

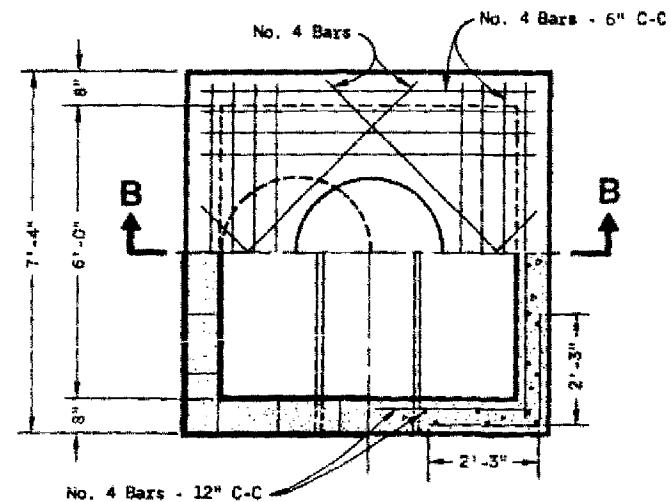


DETAIL 'A'

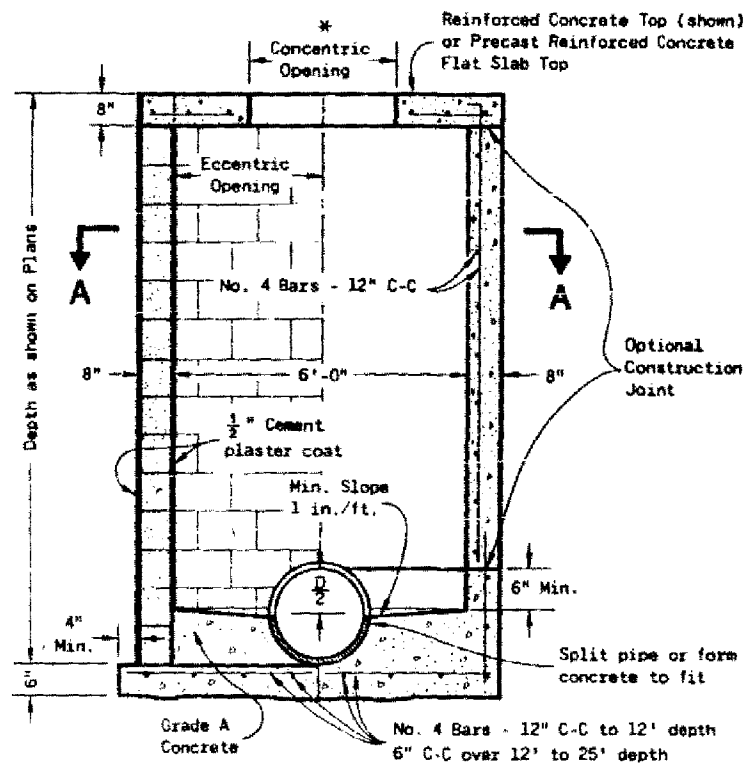


CONCRETE BLOCK PRECAST REINFORCED CONCRETE

MANHOLES TYPE 2

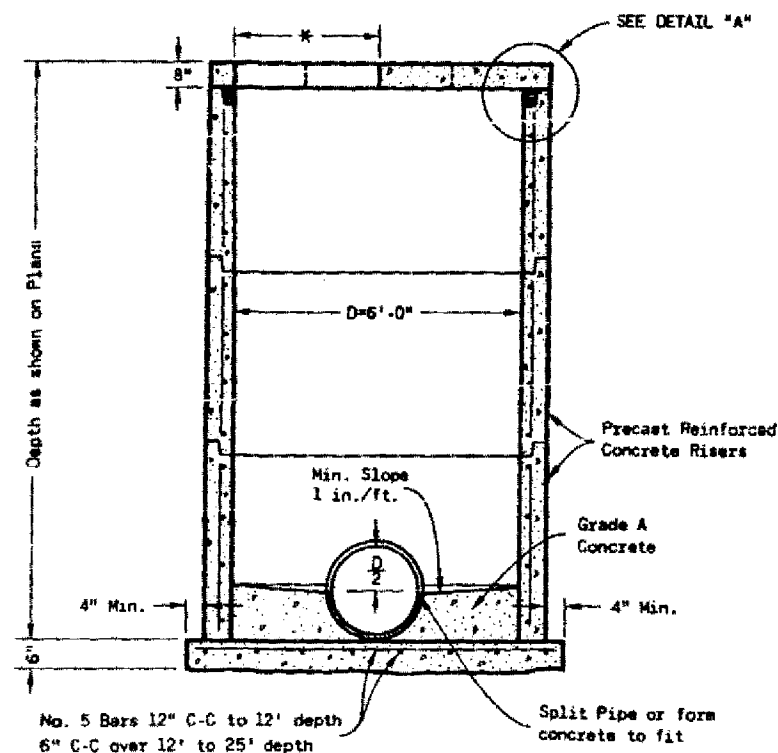


HALF SECTION A-A



SECTION B-B
CONCRETE BLOCK REINFORCED CONCRETE

MANHOLES TYPE 3



PRECAST REINFORCED CONCRETE

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Detailed drawings for proposed alternate designs for underground drainage structures shall be submitted to the Engineer for approval providing that such alternate designs make provision for equivalent capacity and strength.

All drainage structures are designated on the plans as "Manholes 1-C", "Catch Basins 1-B", "Inlets 3-H", etc. The first digit designates the masonry portion of the structure, and the following letter designates the type of cover to be used to comprise the complete unit.

Precast Reinforced Bases shall be placed on a bed of material at least 6" in depth, which meets the requirements for Granular Backfill. This bedding shall be compacted and provide uniform support for the entire area of the base.

Steps meeting the following requirements shall be installed in all structures over 5 feet in depth: 16 inch C-C maximum spacing; project a minimum clear distance of 4 inches from the wall at the point of embedment; minimum length of 10 inches; minimum wall embedment of 3 inches; and capable of supporting a concentrated load of 300 lbs. Ferrous metal steps not painted or treated to resist corrosion shall have a minimum cross sectional dimension of 1 inch.

Solid Aluminum steps shall have a minimum cross sectional dimension of 0.75 inch. Aluminum surfaces to be embedded in concrete shall be given one coat of suitable quality paint, such as zinc chromate primer conforming to federal specification TT-P-645 or equivalent. Steps of approved Polypropylene plastic coated reinforcement bar are acceptable.

All bar steel reinforcement shall be embedded 2 inches clear unless otherwise shown or noted.

Precast Reinforced Concrete Risers shall be placed with tongue down.

All precast inlet units shall conform to the pertinent requirements of AASHTO Designation M 199.

* Use 2'-0" diameter opening with type "C", "L", and "J" covers, or 3'-0" diameter with type "K" and "M" covers.

① 2 courses 6" block.

② When connecting pipes are 24" or larger the Precast Manholes may be increased to 42" diameter.

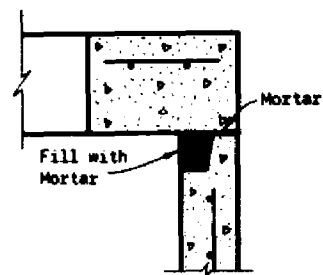
MANHOLES TYPE 2 & 3

State of Wisconsin
Department of Transportation

APPROVED
4-13-82
DATE

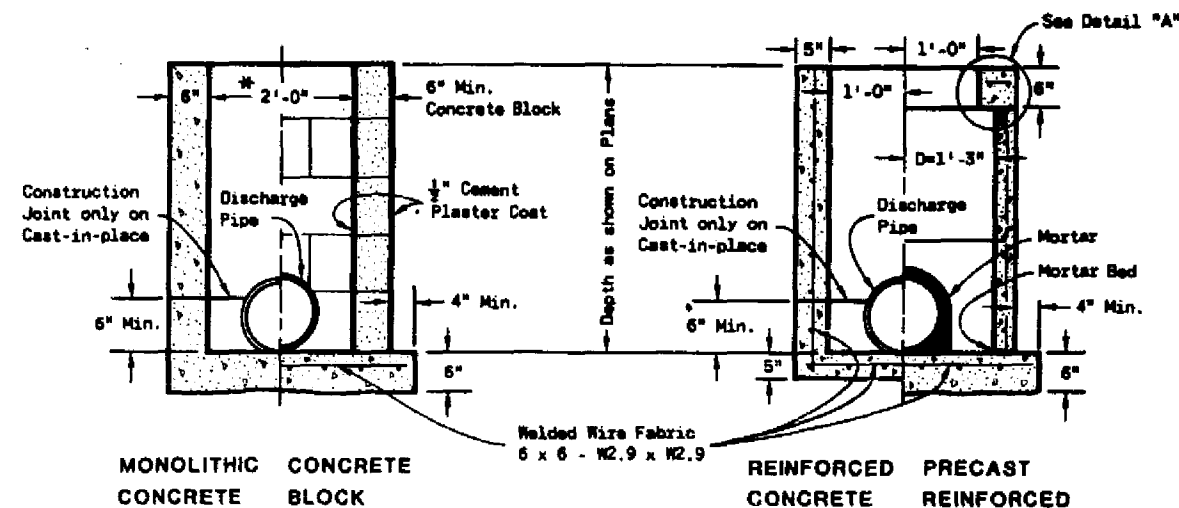
CHIEF DESIGN ENGINEER

S.D.D. 8 B 7-3

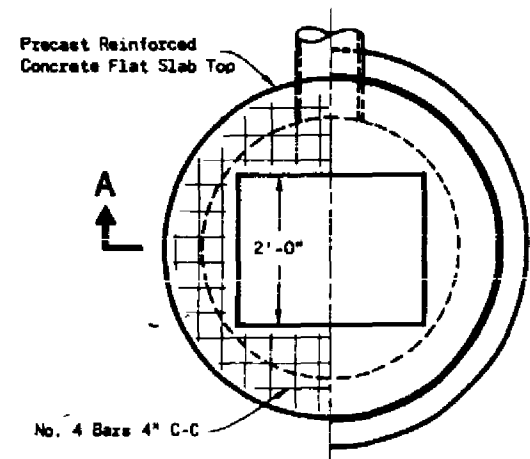


DETAIL "A"

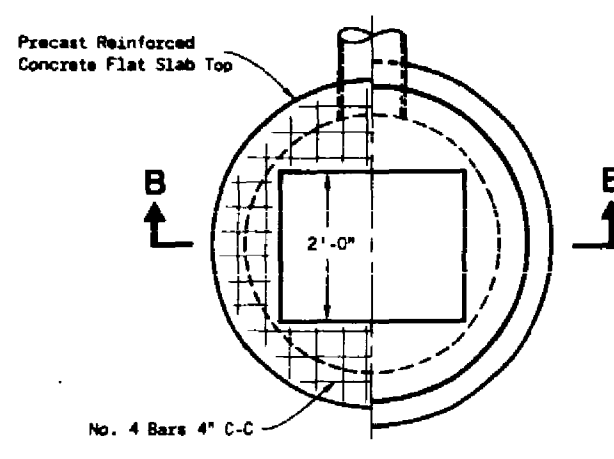
*Selection of square or circular design will be based on the pipe sizes and the Inlet Cover being utilized.



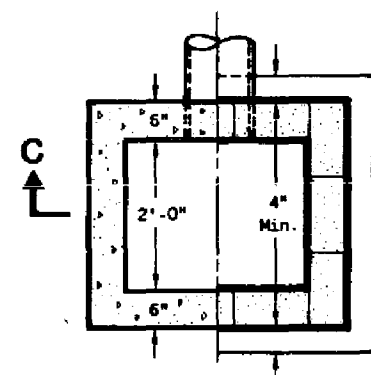
INLETS TYPE 1



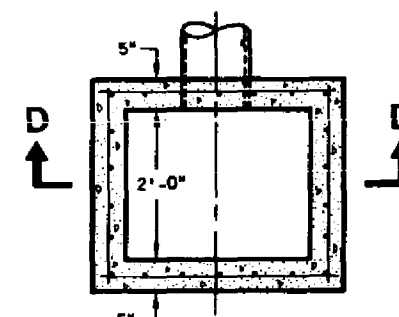
PLAN VIEW



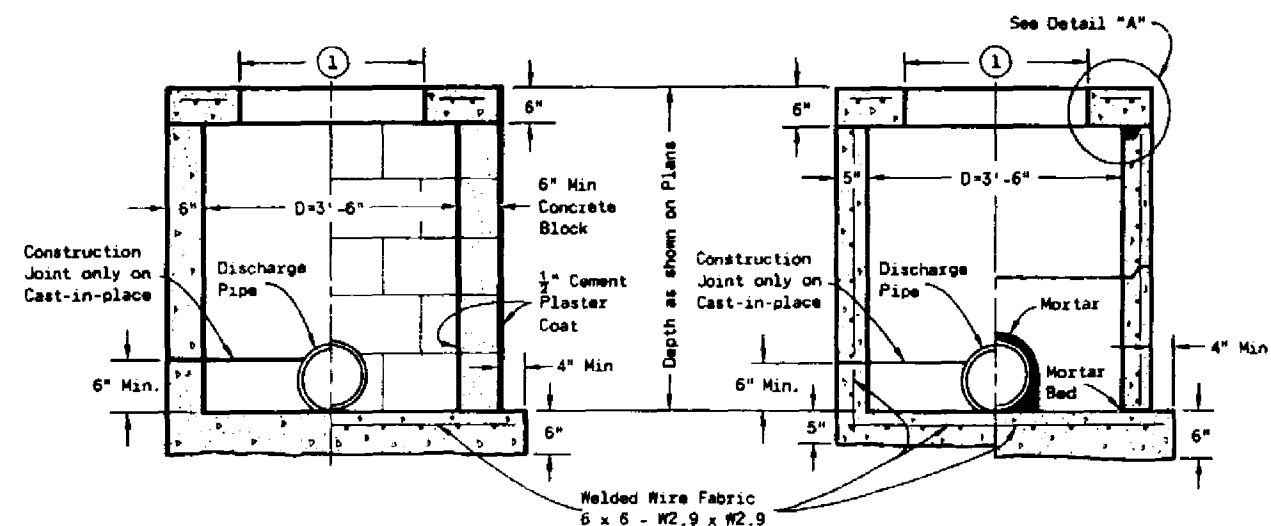
PLAN VIEW



PLAN VIEW



PLAN VIEW

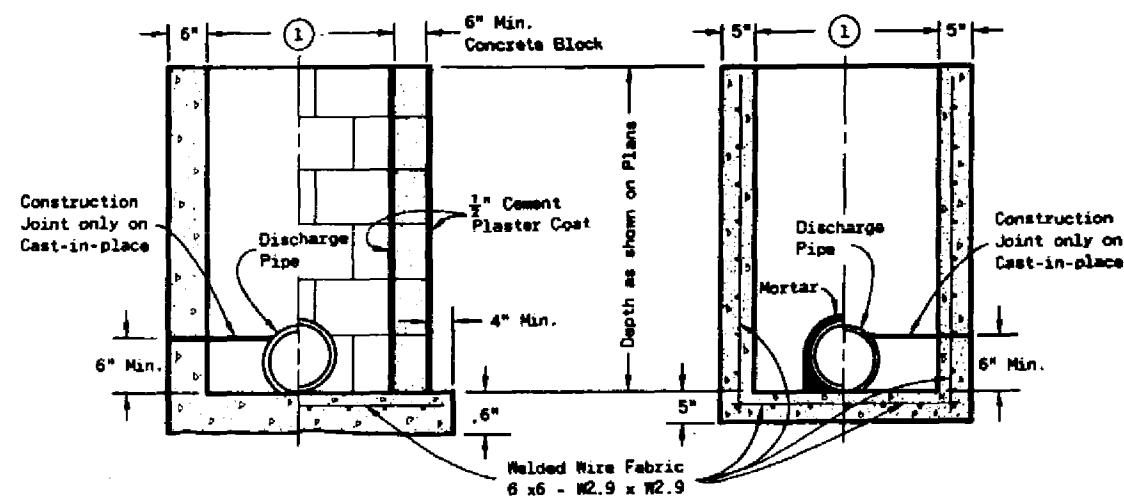


MONOLITHIC CONCRETE BLOCK

SECTION A-A

REINFORCED CONCRETE PRECAST REINFORCED CONCRETE

SECTION B-B



MONOLITHIC CONCRETE BLOCK

SECTION C-C

PRECAST REINFORCED CONCRETE

SECTION D-D

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Detailed drawings for proposed alternate designs for underground drainage structures shall be submitted to the Engineer for approval providing that such alternate designs make provision for equivalent capacity and strength.

All Precast Inlet units shall conform to the pertinent requirements of AASHTO Designation M 199.

All drainage structures are designated on the plans as "Manholes 1-C", "Catch Basins 1-B", "Inlets 3-H", etc. The first digit designates the masonry portion of the structure, and the following letter designates the type of cover to be used to comprise the complete unit.

Precast Reinforced Bases shall be placed on a bed of material at least 6 inches in depth, which meets the requirements for Granular Backfill. This bedding shall be compacted and provide uniform support for the entire area of the base.

Precast Reinforced Concrete Flat Slab Tops may be used on the structures. The Tops shall be installed on a bed of mortar.

All Bar Steel reinforcement shall be embedded 2 inches clear unless otherwise shown or noted.

Precast Reinforced Concrete Risers shall be placed with tongue down.

① Use 2'-6" opening for Type 2 Inlets and 3'-0" opening for Type 3 Inlets.

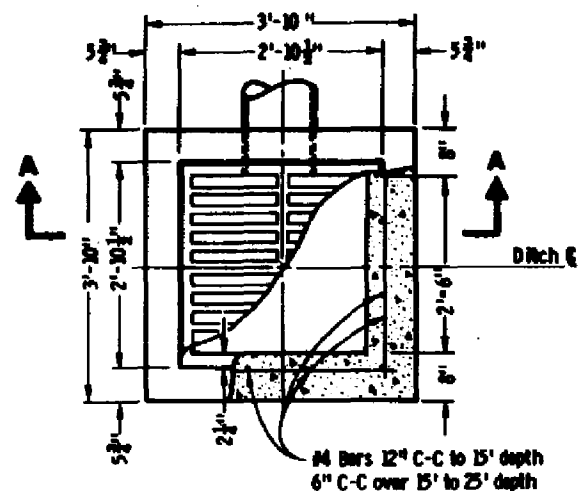
INLETS TYPE 1, 2 & 3

State of Wisconsin
Department of Transportation

APPROVED
4-13-82
DATE

D. J. Schmitt
CHIEF DESIGN ENGINEER

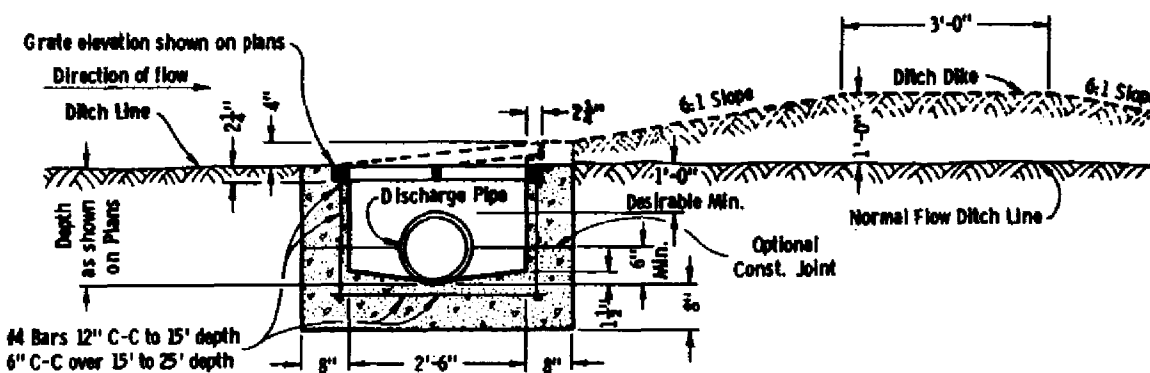
FWH



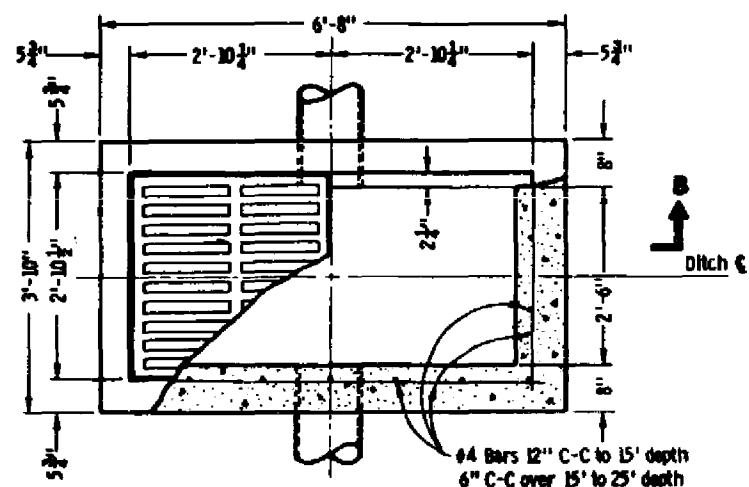
PLAN VIEW

INLET TYPE 8

REINFORCED CONCRETE



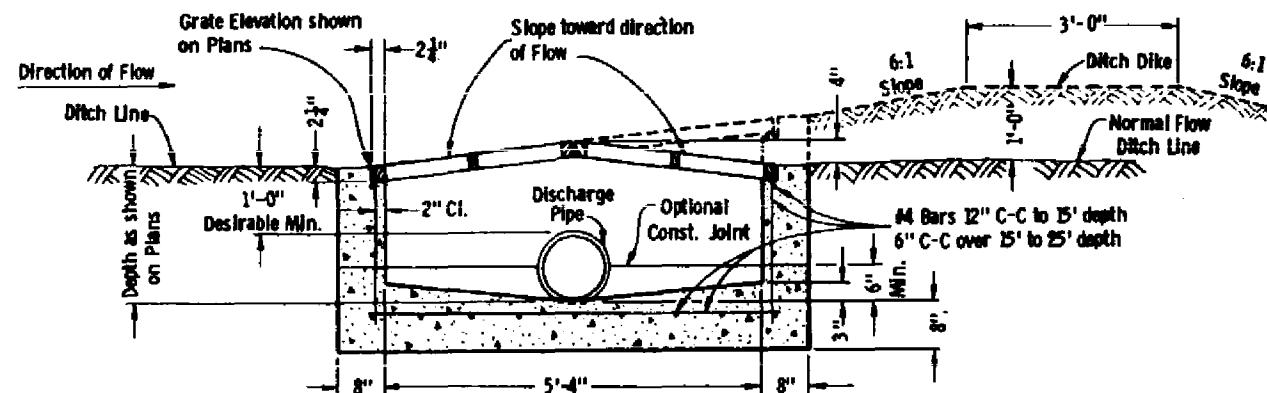
SECTION A-A



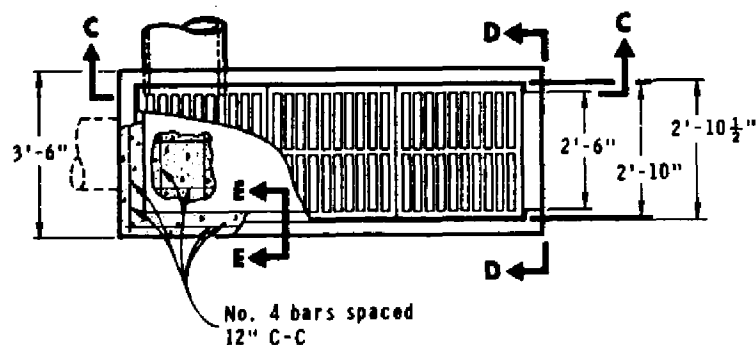
PLAN VIEW

INLET TYPE 9

REINFORCED CONCRETE

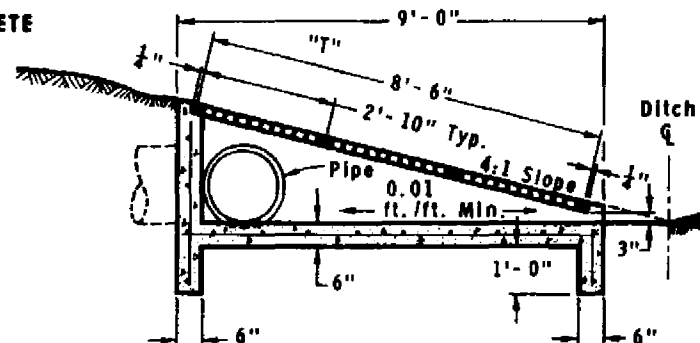


SECTION B-B

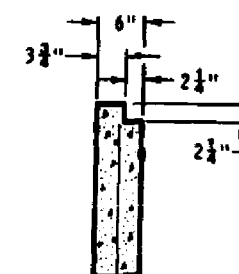


PLAN VIEW

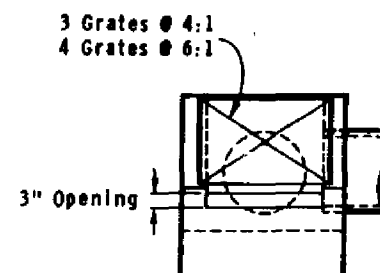
INLET TYPE 10
REINFORCED CONCRETE



SECTION C-C



SECTION E-E



VIEW D-D

GENERAL NOTES

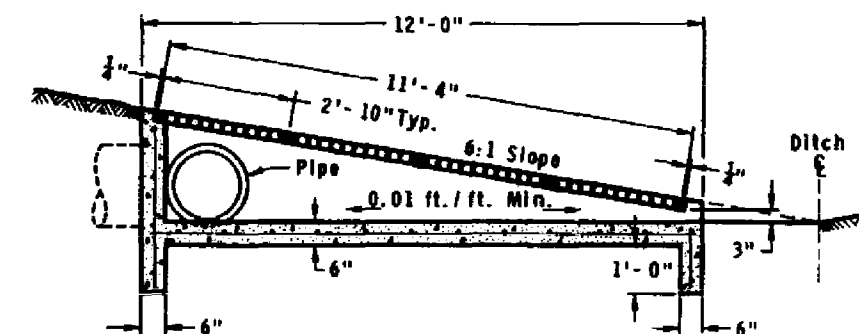
Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Detailed drawings for proposed alternate designs for Inlets which may include precast reinforced concrete inlets, shall be submitted to the Engineer for approval providing that such alternate designs make provision for equivalent capacity and strength.

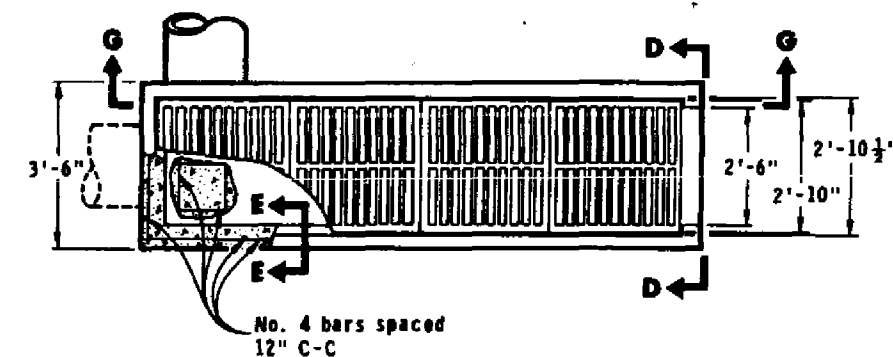
Precast reinforced concrete inlet units, if used, shall conform to the requirements of the Catch Basins, Manholes and Inlets Section of the Standard Specifications.

All inlets are designated on the Plans as 'Inlets, 8-MS', etc. This designation is interpreted to mean that the number, or first digit designates the masonry portion of the structure and the following letter designates the type of cover or iron casting to be used therewith to comprise the complete unit.

All bar steel reinforcement shall be embedded 2 inches clear unless otherwise shown or noted.



SECTION G-G



PLAN VIEW
INLET TYPE 11
REINFORCED CONCRETE

INLETS TYPE 8, 9, 10 and 11

State of Wisconsin
Department of Transportation
Division of Highways

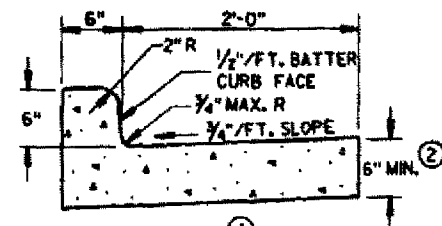
RECOMMENDED FOR APPROVAL

4-30-74
DATE

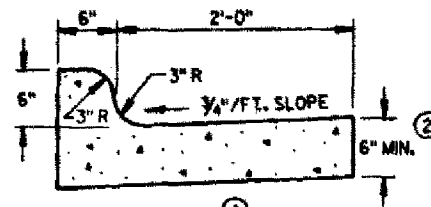
5-02-74
DATE

CRIP OF FACILITIES DEVELOPMENT

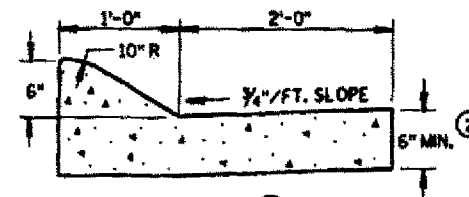
STATE HIGHWAY ENGINEER



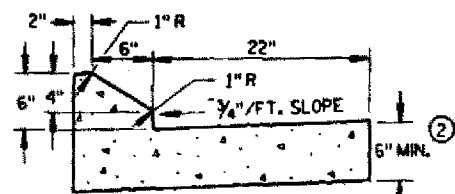
TYPES A & D



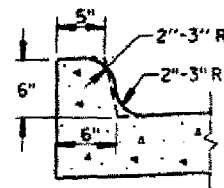
TYPES K & L



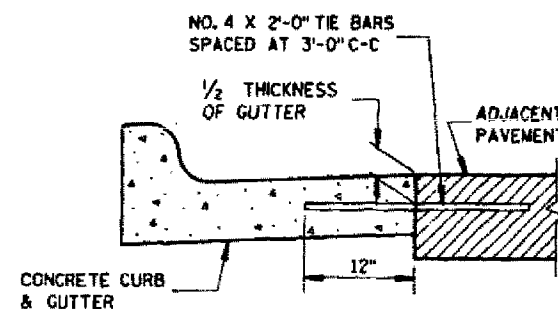
TYPES A & D
CONCRETE CURB & GUTTER 36"



TYPES G & J

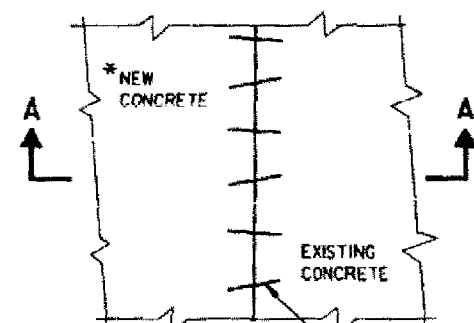


OPTIONAL CURB SHAPE
FOR TYPES K & L



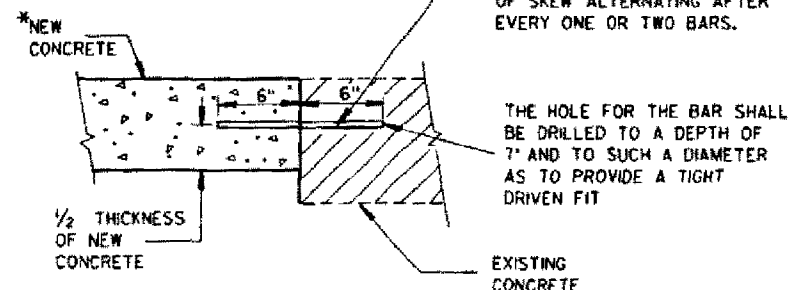
TYPICAL TIE BAR LOCATION

CONCRETE CURB & GUTTER 30"

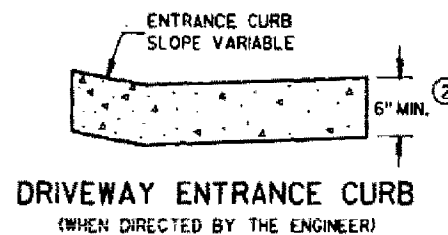


PLAN VIEW

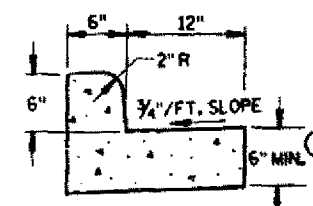
*NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.



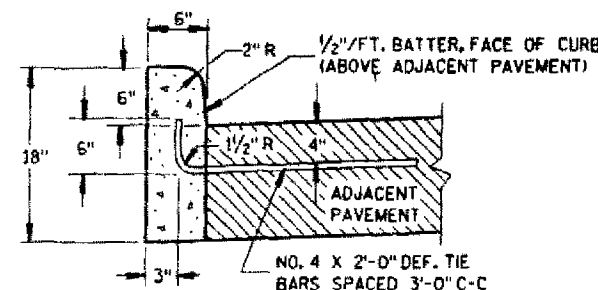
SECTION A-A
PAVEMENT TIES



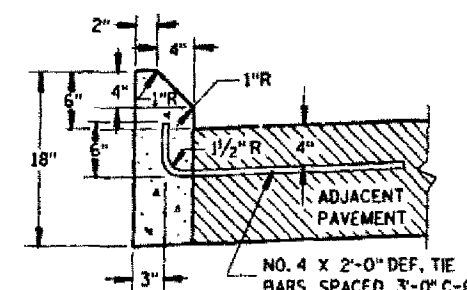
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



TYPES A & D
CONCRETE CURB & GUTTER 18"



TYPES A & D



TYPES G & J

CONCRETE CURB

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SEALANT IS NOT REQUIRED IN THE JOINTS OF CONCRETE CURB OR CONCRETE CURB & GUTTER EXCEPT AS REQUIRED FOR INTEGRAL GUTTER.

PAVEMENT TIES ARE REQUIRED, WHEN INCLUDED IN THE CONTRACT, WHERE CONCRETE CURB, CONCRETE CURB AND GUTTER OR CONCRETE PAVEMENT IS PLACED ADJACENT TO EXISTING CONCRETE.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

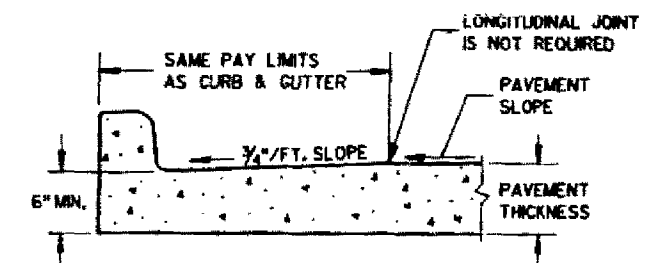
INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE, TIE BARS AND A LONGITUDINAL CONSTRUCTION JOINT ARE NOT REQUIRED WITH THIS ALTERNATE.

PAVEMENT JOINTS SHALL BE EXTENDED THROUGH INTEGRAL CURB & GUTTER. JOINTS IN INTEGRAL CUTTER SHALL HAVE THE SAME DIMENSIONS AS THE JOINTS IN THE ADJACENT PAVEMENT. JOINTS IN INTEGRAL CURB SHALL BE 1/2" WIDE.

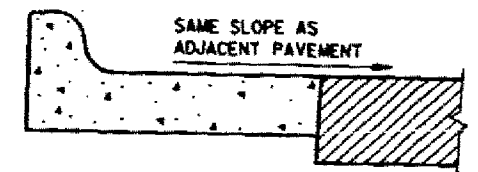
JOINTS IN INTEGRAL CURB & GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME SEALANT SPECIFIED FOR THE PAVEMENT JOINT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB & GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE TWO FEET BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G AND K.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATIONS WILL BE SHOWN ELSEWHERE IN THE PLAN.



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



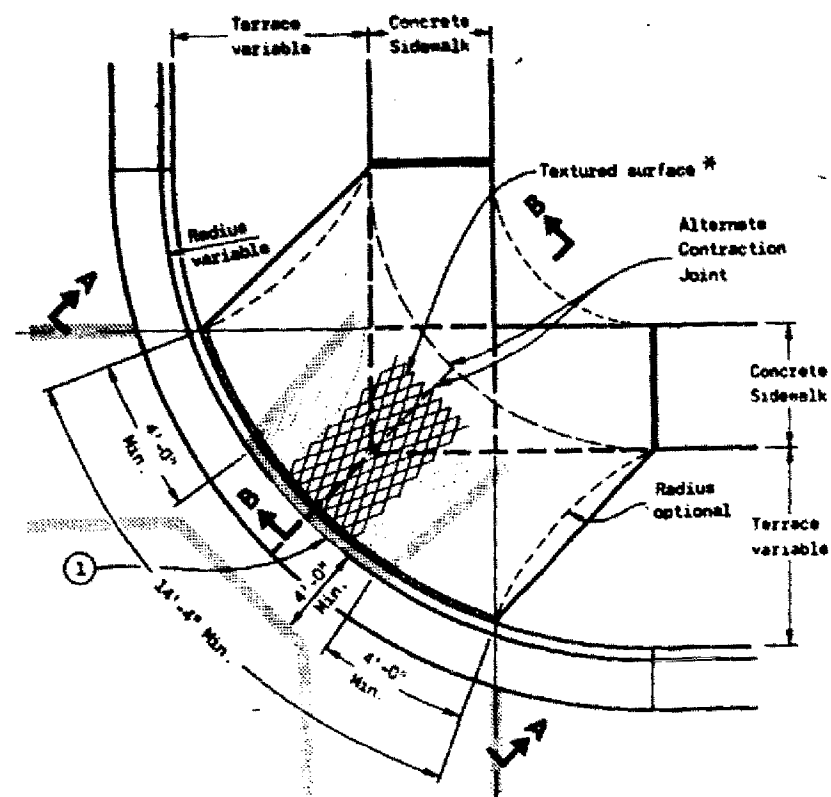
REVERSE SLOPE GUTTER ③
(TYPICAL FOR ALL CURB & GUTTER TYPES)

CONCRETE CURB, CONCRETE
CURB & GUTTER AND
PAVEMENT TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-23-86
DATE
FWA

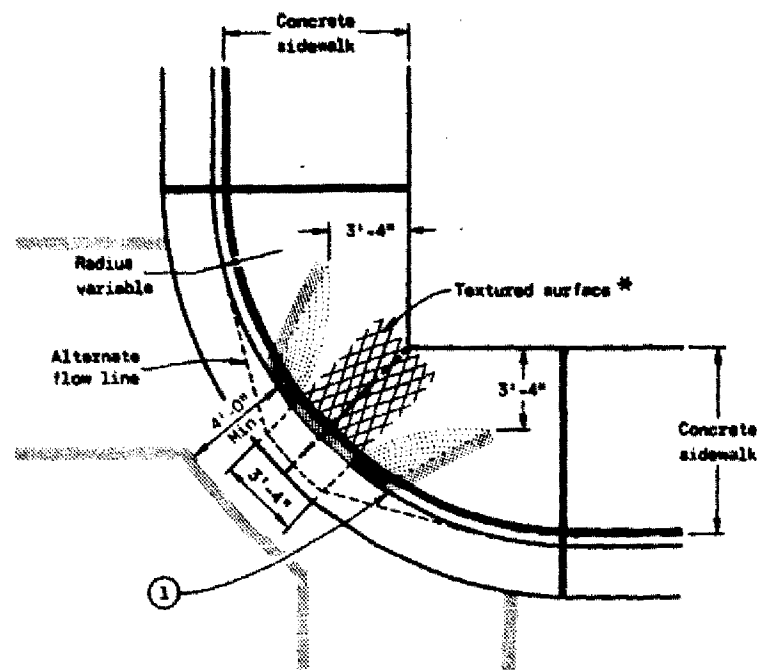
STATE DESIGN ENGINEER FOR HWYS



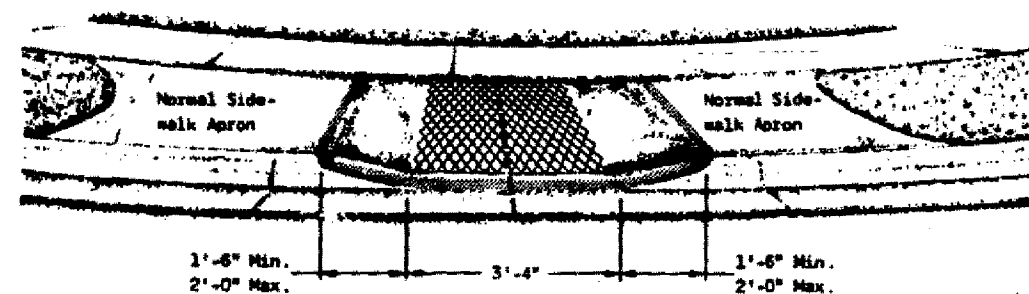
PLAN VIEW
TYPE 1 RAMP
(CENTER OF CORNER RADIUS)

1" EXPANSION JOINTS - SIDEWALK
CONTRACTION JOINTS

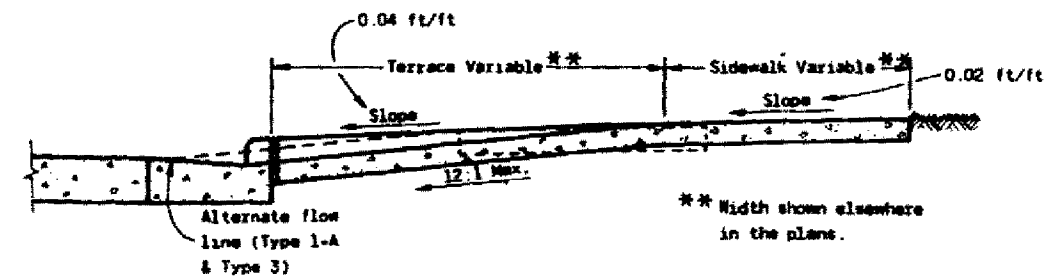
Location of joints may be varied from those shown to better fit site conditions and/or local government preference.



PLAN VIEW
TYPE 1-A RAMP
(NO TERRACE)



VIEW A-A



SECTION B-B

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Ramps shall be built at 12:1 or flatter. When necessary, the sidewalk elevation may be lowered to meet the high point on the ramp.

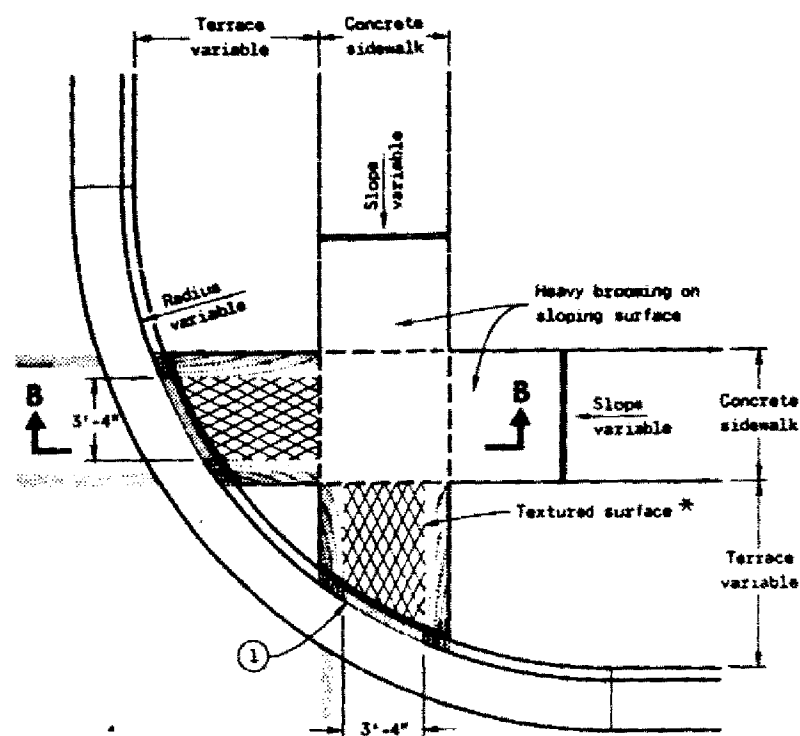
Type 1 or Type 1-A Ramps shall have a normal sidewalk apron and curb on both sides of ramp.

Curb ramps shall be measured and paid for as Concrete Sidewalk and Concrete Curb and Gutter.

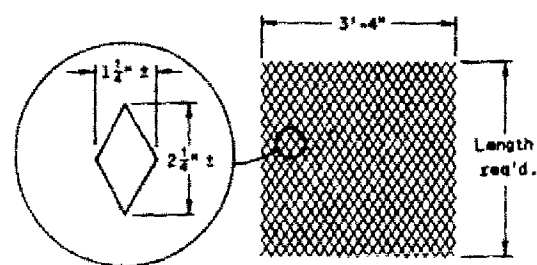
Surface texturing shall consist of linear impressions approximately $\frac{1}{8}$ inch to $\frac{1}{4}$ inch in depth and width, oriented to provide a uniform pattern of diamond shapes measuring approximately $1\frac{1}{2}$ inches in width by $2\frac{1}{2}$ inches in length, with the length being parallel to the direction of pedestrian movement. This surface texture may be achieved by impressing and removing a piece of expanded metal regular industrial mesh into the surface of the ramp while the concrete is in a plastic state.

① The ramp shall be bordered on both sides and on the curb line with a 4 inch wide yellow stripe or with brick of a contrasting color. Normally the paint stripe alternate will be used. The municipality or the department will apply this striping unless otherwise specified in the contract.

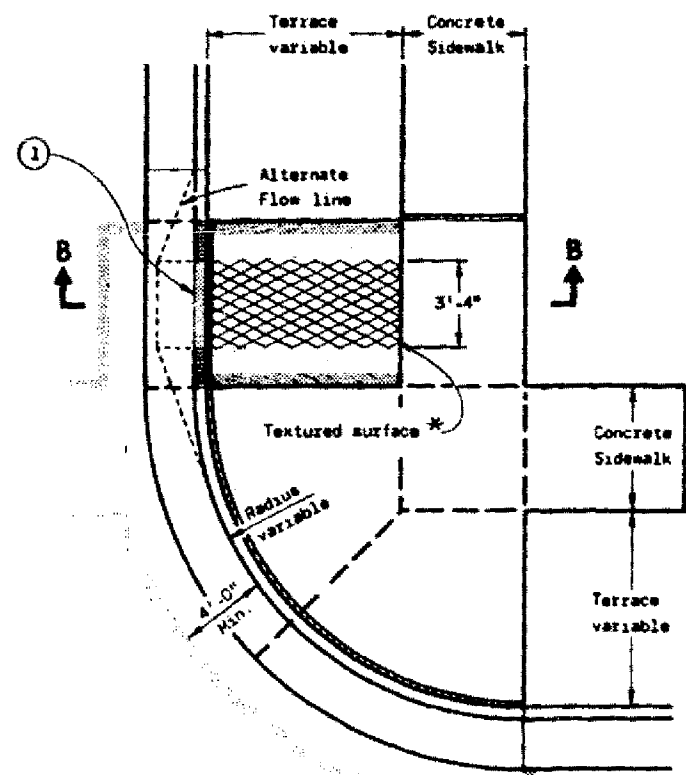
If a municipality requires the brick alternate, special details and provisions are shown elsewhere in the plans.



PLAN VIEW
TYPE 2 RAMP
(ON LINE WITH SIDEWALK)



DETAIL OF DIAMOND PATTERN *



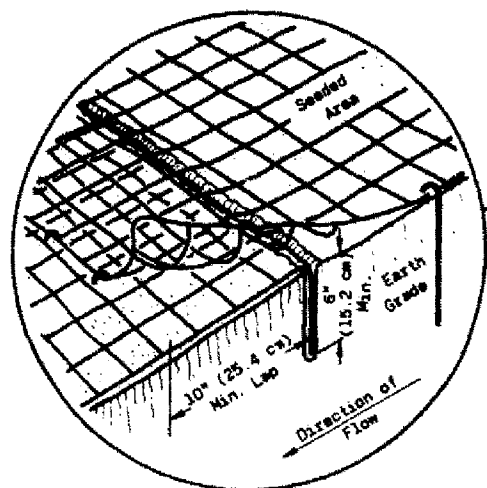
PLAN VIEW
TYPE 3 RAMP
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS

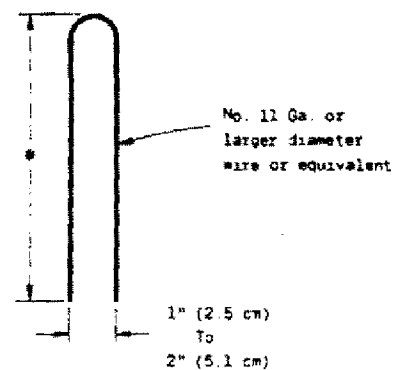
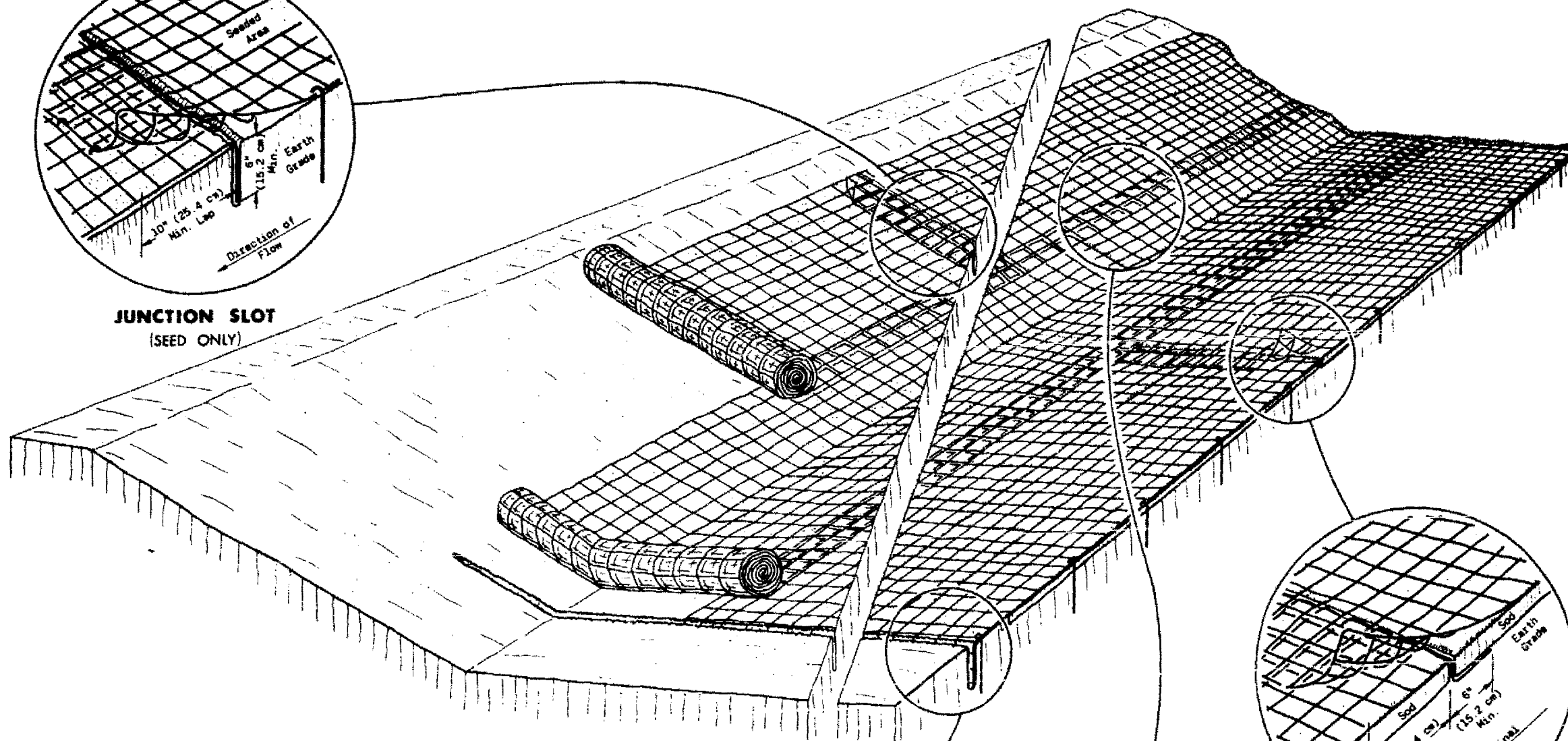
State of Wisconsin
Department of Transportation

APPROVED
10-23-84
DATE

DATE
CHIEF DESIGN ENGINEER

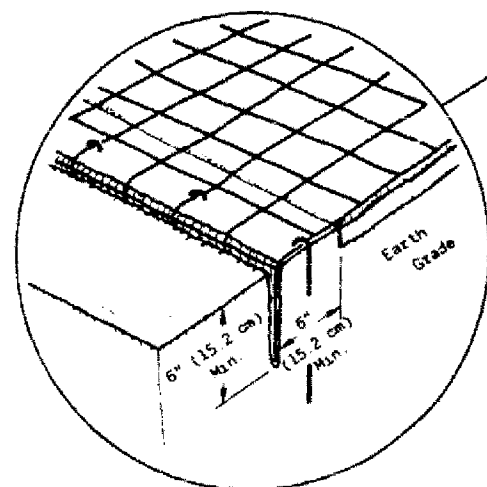


JUNCTION SLOT
(SEED ONLY)

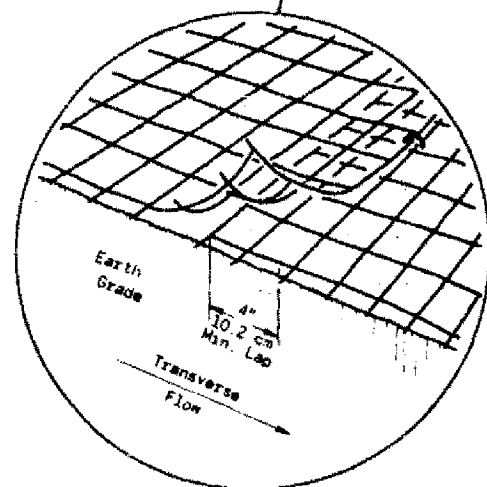


**DETAIL OF
TYPICAL STAPLE**

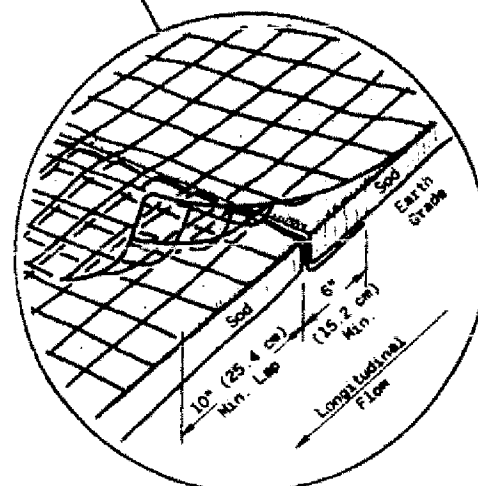
- * 6" (15.2 cm) Min. for firm soils
- 12" (30.5 cm) Min. for loose soils
- 8" (20.3 cm) Min. where both sod and mats are being used.



ANCHOR SLOT
AT BEGINNING AND END OF EROSION MAT
(SEED AND SOD)



LAP JOINT
(SEED AND SOD)



JUNCTION SLOT
(SOD ONLY)

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Variations in the dimensions or materials shown hereon shall be permitted if they provide equivalent protection and material strength and if prior approval of the Engineer is obtained.

Lap Joints shall not be placed in the bottom of V-shaped ditches.

Junction Slots on adjacent strips of Matting shall be staggered a minimum of 4 feet (1.219 m) apart.

Edges of the Erosion Mat shall be impressed in the soil.

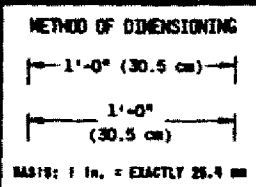
Erosion Mat shall be measured and paid for in accordance with the Standard Specifications.

EROSION MAT OVER SOD

- a. Only Jute Fabric will be permitted over sod.
- b. Wood Stakes for Sod may be omitted by the Engineer if the existing slope and soil conditions so warrant.
- c. The width of Erosion Mat shall always equal the Sod width.
- d. Sod strips may be placed either longitudinally or transversely to the flow line of the Ditch.

EROSION MAT OVER SEEDING

Junction or Anchor Slots shall be at minimum intervals of 100 feet (30.48 m) on grades up to and including 3 percent, and 50 feet (15.24 m) on grades exceeding 3 percent.



EROSION MAT

State of Wisconsin
Department of Transportation
Division of Highways

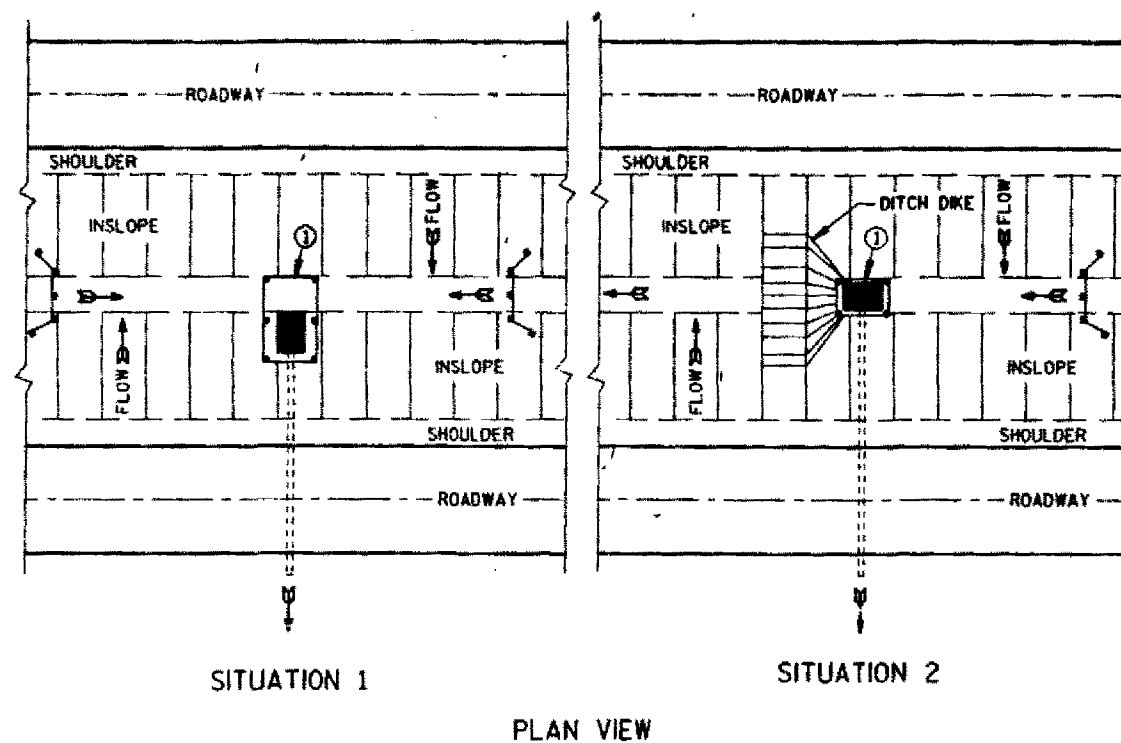
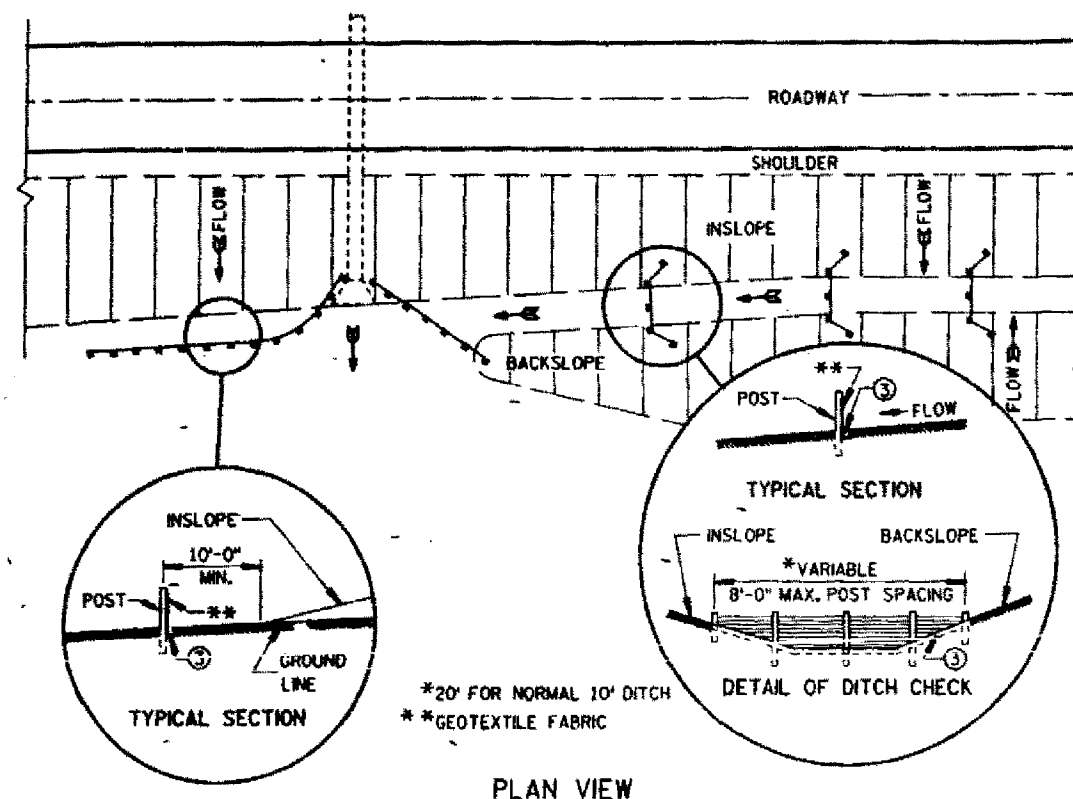
RECOMMENDED FOR APPROVAL

12-3-73
DATE

APPROVED

1-15-74
DATE

J. C. Schmitt
CHIEF OF FACILITIES DEVELOPMENT
W. J. Suddow
STATE HIGHWAY ENGINEER



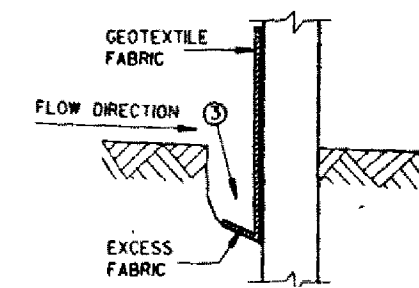
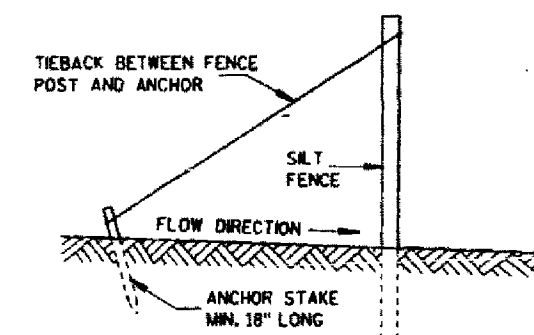
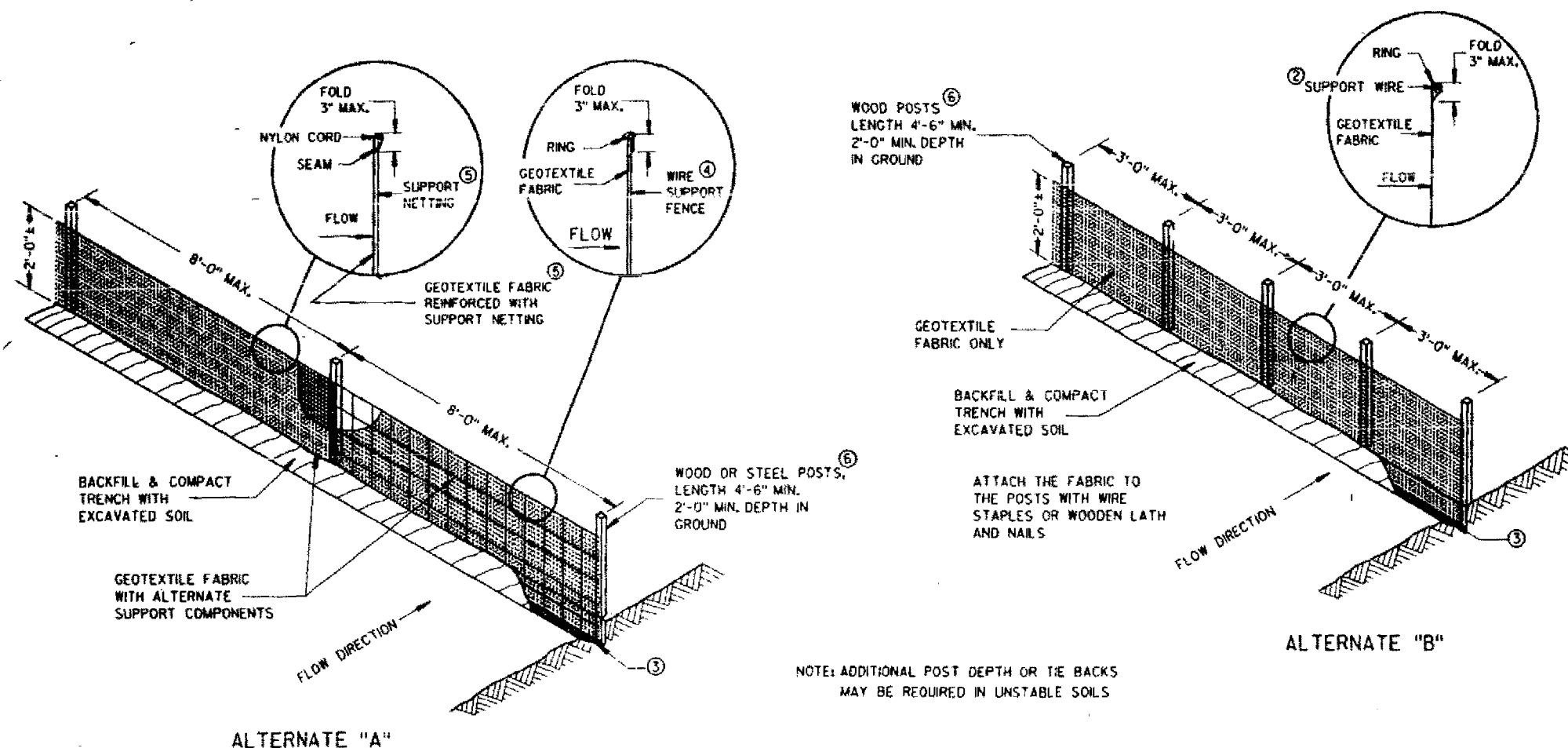
- ## GENERAL NOTES

DETAIL OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

WHEN POSSIBLE THE SLY FENCE SHOULD BE CONSTRUCTED IN AN ARC OR HORSESHOE SHAPE, WITH THE ENDS POINTING UPSLOPE TO MAXIMIZE BOTH STRENGTH AND EFFECTIVENESS.

- ① CROSS BRACE WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS AS DIRECTED BY THE ENGINEER.
- ② MINIMUM 14 GAGE WIRE REQUIRED, FOLD FABRIC 3" OVER THE WIRE AND STAPLE OR PLACE WIRE RINGS ON 12" C-C.
- ③ EXCAVATE A TRENCH A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ④ WIRE SUPPORT FENCE SHALL BE 14 GAGE MINIMUM WOVEN WIRE WITH A MAXIMUM MESH SPACING OF 6". SECURE TOP OF GEOTEXTILE FABRIC TO TOP OF FENCE WITH STAPLES OR WIRE RINGS AT 12" C-C.
- ⑤ GEOTEXTILE FABRIC SHALL BE REINFORCED WITH AN INDUSTRIAL POLYPROPYLENE NETTING WITH A MAXIMUM MESH SPACING OF $\frac{3}{4}$ " OR EQUAL, A HEAVY DUTY NYLON TOP SUPPORT CORD OR EQUIVALENT IS REQUIRED.
- ⑥ STEEL POSTS SHALL BE STUDDED "TEE" OR "U" TYPE WITH A MINIMUM WEIGHT OF 1.28 LBS./LINEAL FOOT (WITHOUT ANCHORS). FIN ANCHORS SUFFICIENT TO RESIST POST MOVEMENT ARE REQUIRED. WOOD POSTS SHALL BE A MINIMUM SIZE OF 4" DIA. OR $1\frac{1}{2}$ " X $3\frac{1}{2}$ " EXCEPT WOOD POSTS FOR GEOTEXTILE FABRIC REINFORCED WITH NETTING SHALL BE A MINIMUM SIZE OF $1\frac{1}{4}$ " X $1\frac{1}{2}$ " OAK OR HICKORY.

ALTERNATES A & B ARE EQUAL AND EITHER MAY BE USED.



SILT FENCE

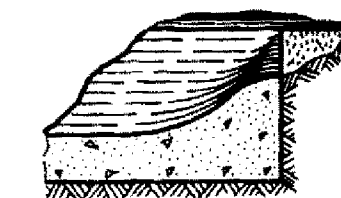
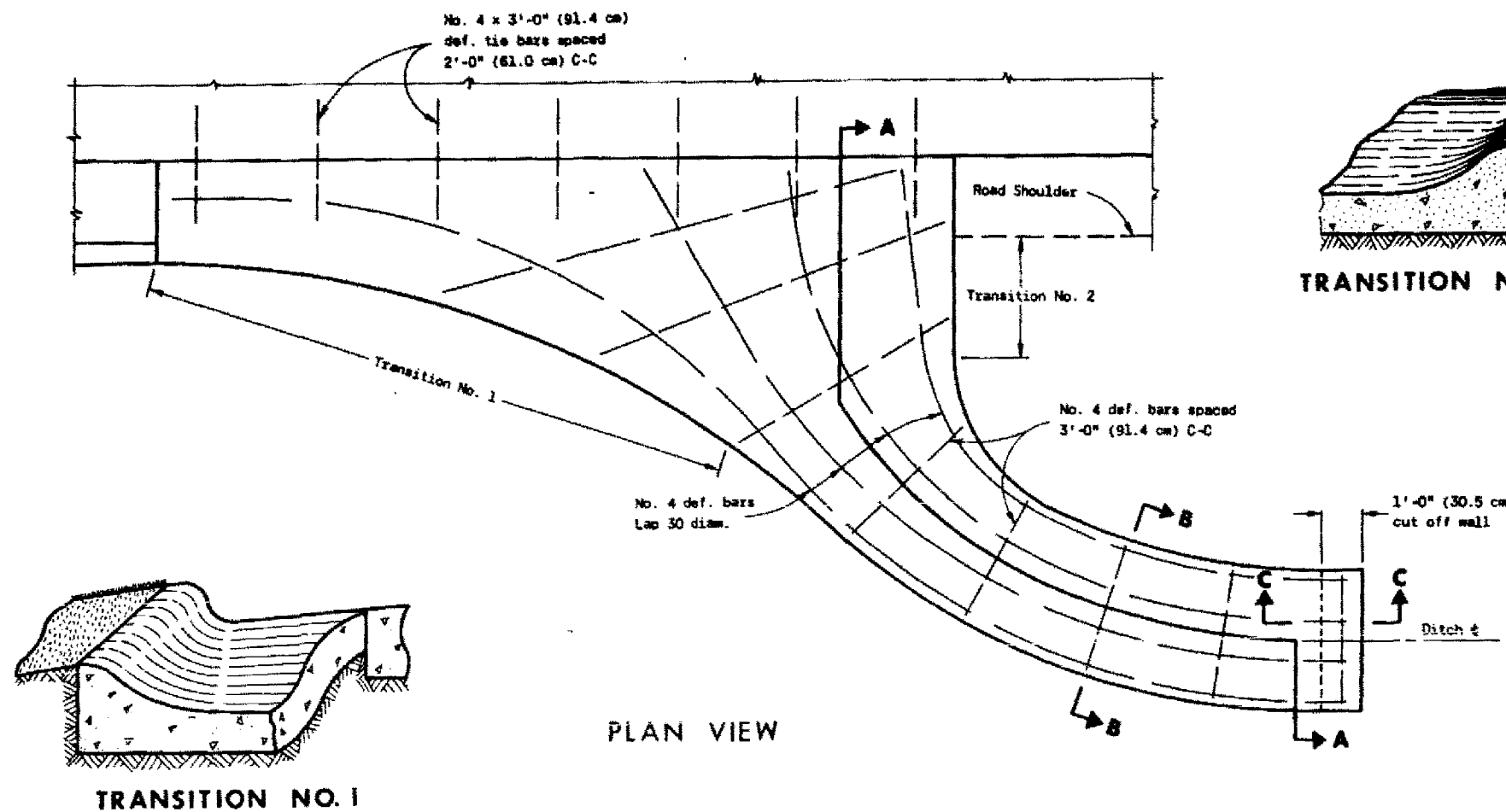
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

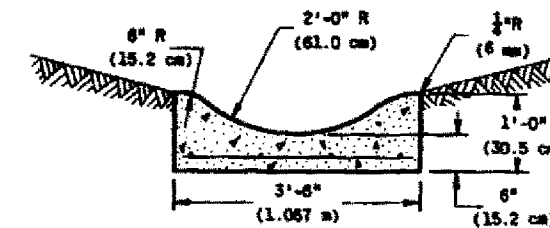
19-2-2000

82 Strand

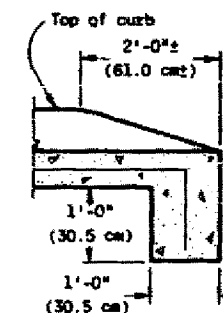
1 **END**



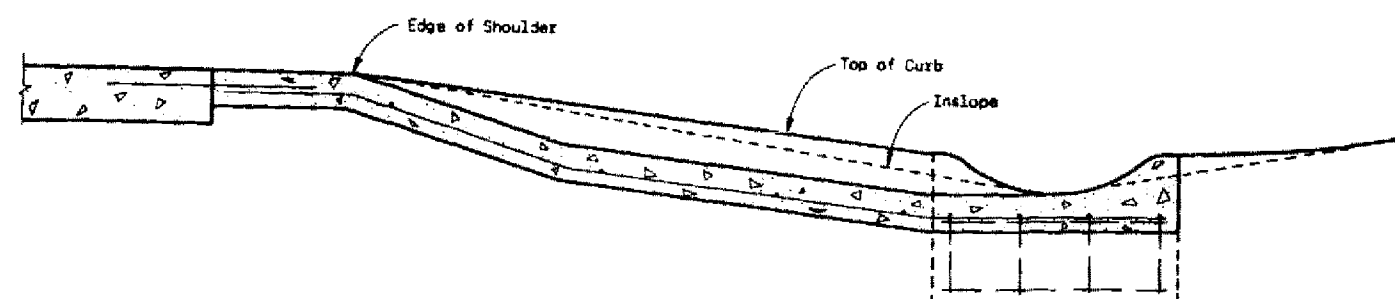
TRANSITION NO. 2



SECTION B-B



SECTION C-C



SECTION A-A

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Typical design only; exact design and flume length may be modified by the Engineer to meet field conditions.

METHOD OF DIMENSIONING	
1'-0" (30.5 cm)	
1'-0" (30.5 cm)	
BASIS: 1 in. = EXACTLY 25.4 mm	

CONCRETE SURFACE DRAIN

State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL 1-1-74 DATE	<i>L. C. D. H. H. H.</i> CHIEF OF FACILITIES DEVELOPMENT
APPROVED 1-15-74 DATE	<i>H. J. S. H. H.</i> STATE HIGHWAY ENGINEER

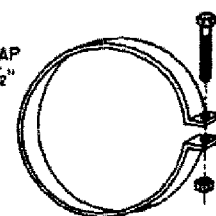
METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (inches)		DIMENSIONS (inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ (1)	L ₂ (1)	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 3/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 3/4	42	2 1/2 to 1	1 Pc.
24	.079	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.109	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 3/4	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS											
PIPE DIA. (IN.)	DIMENSIONS (inches)							APPROX. SLOPE			
	T	A	B	C	D	E	G				
12	2	4	24	48 1/4	72 3/4	24	2	3 to 1			
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1			
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1			
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1			
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1			
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1			
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1			
36	4	15	63	34 3/4	97 1/4	72	4	3 to 1			
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1			
48	5	24	72	25	98	84	5	3 to 1			
54	5 1/2	27	65	33 1/4-35	98 1/4-100	90	5 1/2	2 3/4 to 1			
60	6	30-35	60	39	99	96	5	2 to 1			
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1			
72	7	24-36	78	21	99	108	6	2 to 1			
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1			
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1			
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1			

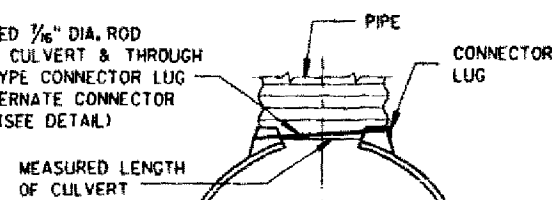
* MINIMUM
** MAXIMUM

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP

THREADED 3/8" DIA. ROD AROUND CULVERT & THROUGH TANK TYPE CONNECTOR LUG OR ALTERNATE CONNECTOR STRAP (SEE DETAIL)



TYPE 1
FOR 12" THRU 24" CORR. PIPE

THREADED 3/8" DIA. ROD OVER TOP OF APRON, SIDE LUGS TO BE RIVETED TO APRON



TYPE 2
FOR 30" THRU 96" CORR. PIPE

MEASURED LENGTH OF CULVERT

CONNECTOR SECTION TO BE PAID FOR AS PART OF END SECTION

COUPLING BAND REQUIRED

RIVETED OR BOLTED

TYPE 3
FOR 42" THRU 96" CORR. PIPE

DIMPLED OR CORRUGATED COUPLING BAND

RIVETED OR BOLTED AT DIMPLES (6" C-C FOR CORRUGATED BAND)

MEASURED LENGTH OF CULVERT

TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

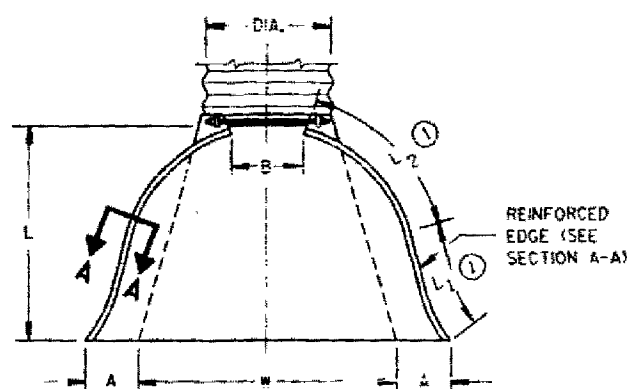
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

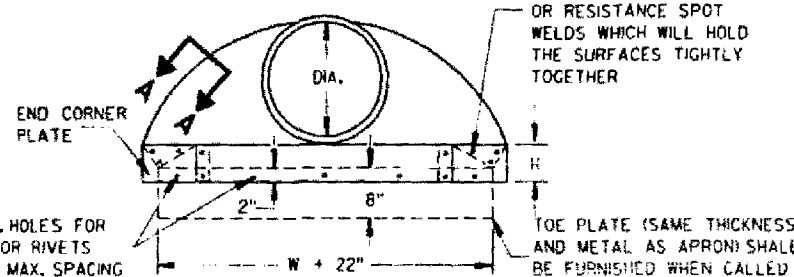
CONNECTION DETAILS



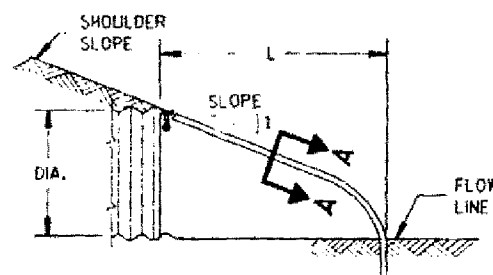
PLAN VIEW

REINFORCED EDGE (SEE SECTION A-A)

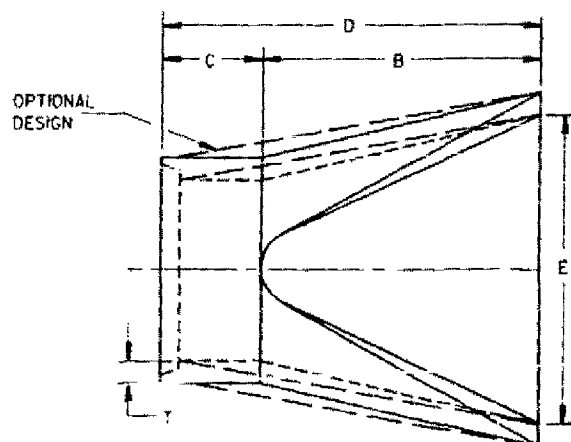
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



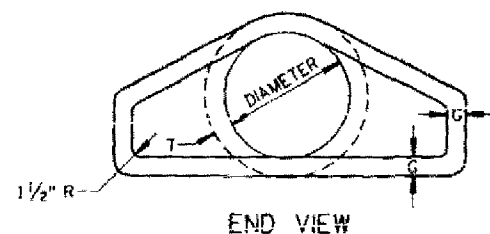
END VIEW



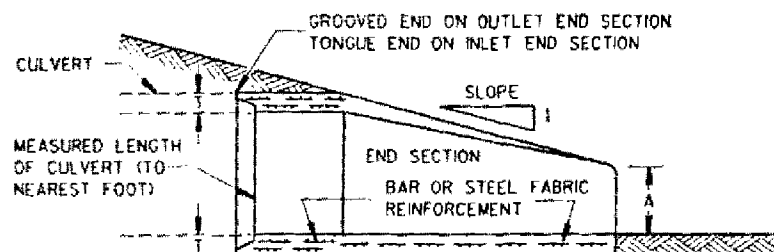
SIDE ELEVATION
METAL ENDWALLS



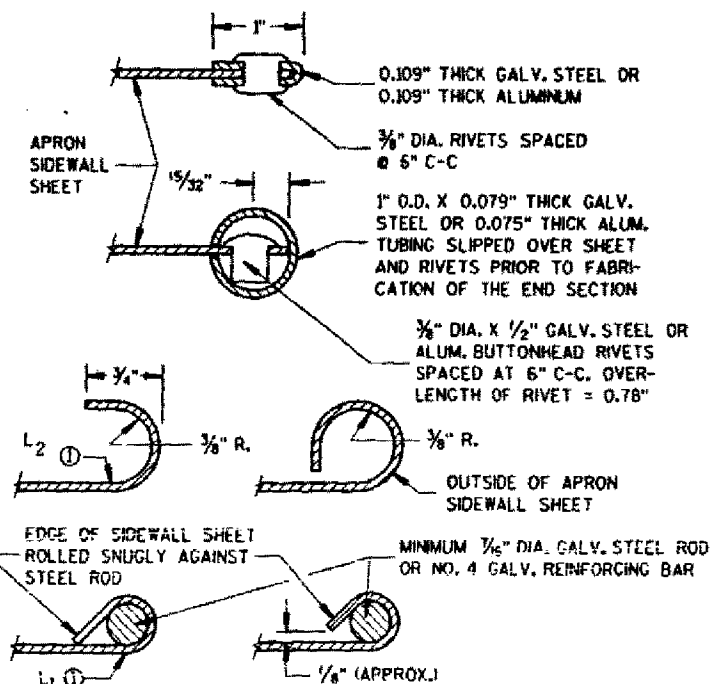
PLAN



END VIEW



LONGITUDINAL SECTION
CONCRETE ENDWALLS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

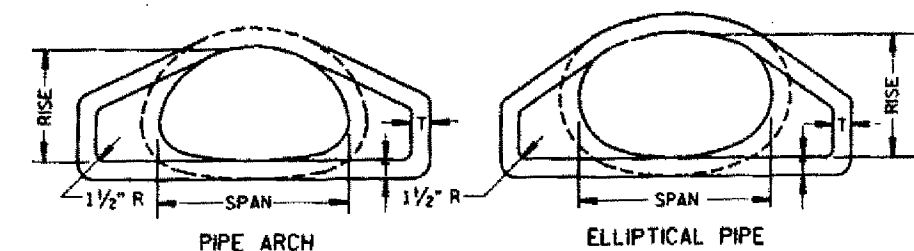
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

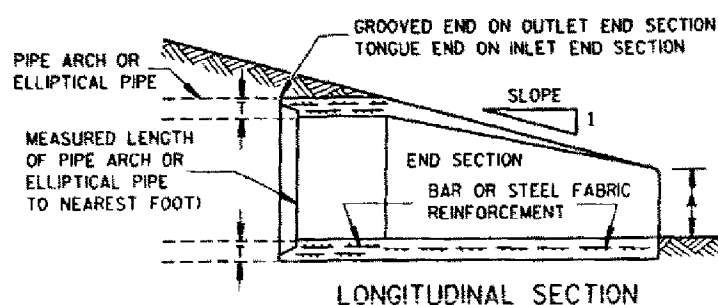
APPROVED
12/17/97
DATE

STATE DESIGN ENGINEER FOR HWYS

FWHA

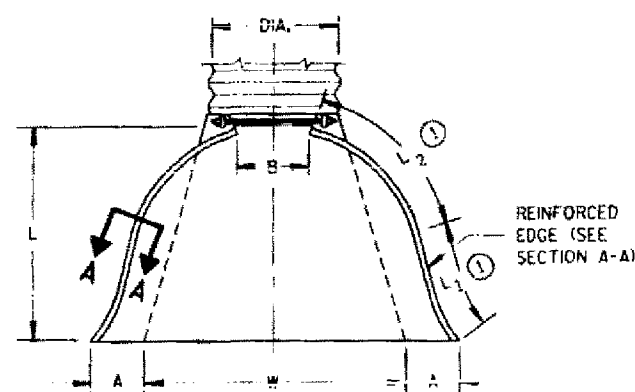


END VIEW

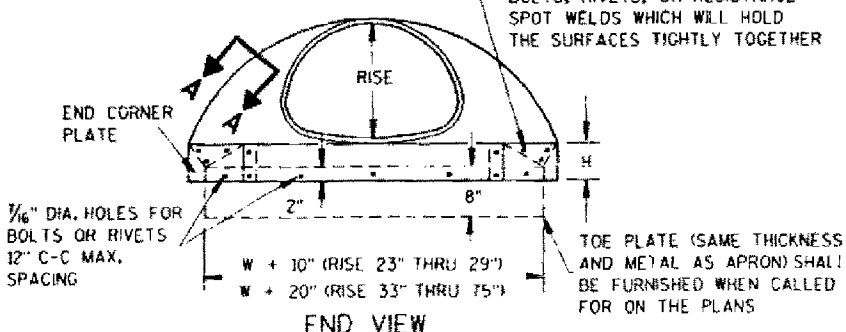


LONGITUDINAL SECTION

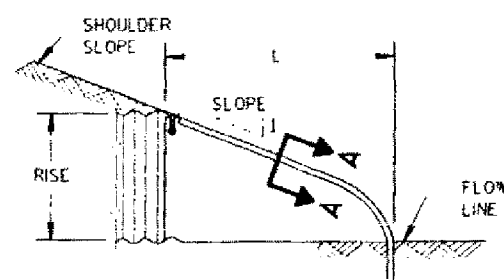
CONCRETE ENDWALLS



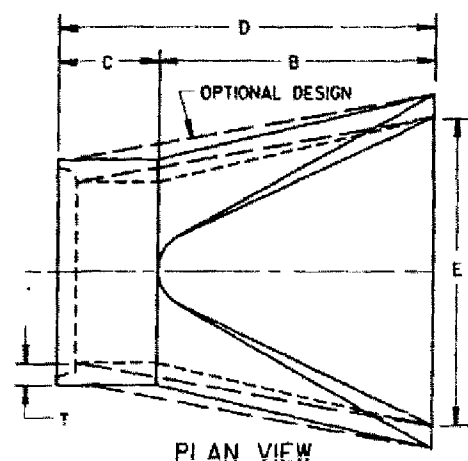
PLAN VIEW



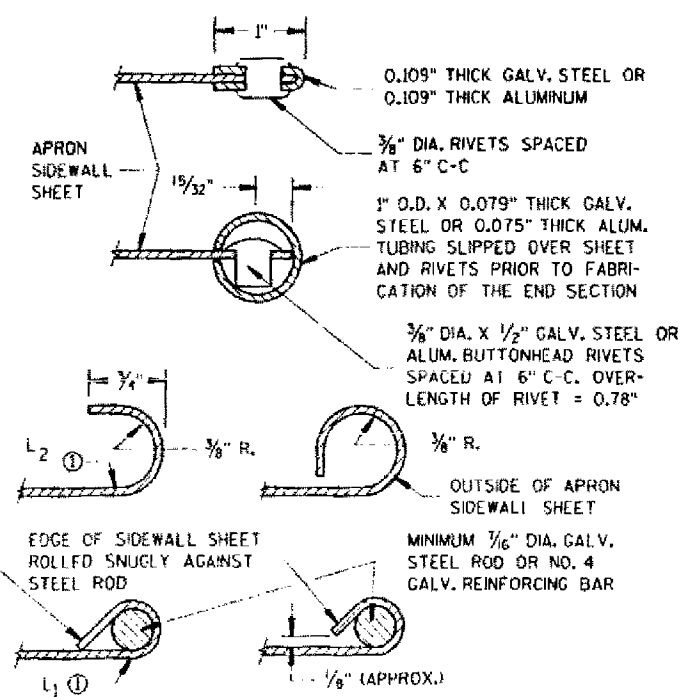
END VIEW



SIDE ELEVATION
METAL ENDWALLS



PLAN VIEW



SECTION A-A

2- 2 1/3" X 1/2" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)								APPROX. SLOPE
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (±1")	L2 (±1")	W (±2")	BODY	
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 1/2	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 1/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 1/2	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 1/2	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 1/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 1/4	102	2 1/2 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/2 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)								APPROX. SLOPE
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (±1")	L2 (±1")	W (±2")	BODY	
48	53	41	.109	.105	18	26	12	63	24	72 1/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109	.105	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	149	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

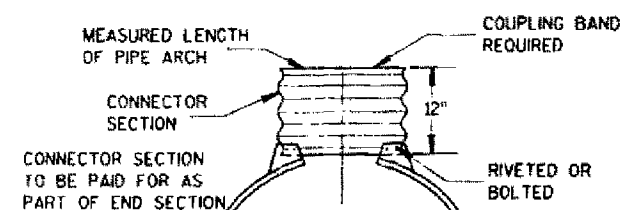
* EXCEPT CENTER PANEL SEE GENERAL NOTES



MEASURED LENGTH OF PIPE ARCH

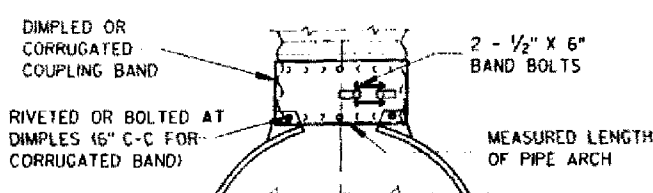
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/4	60	56	96	72	3 to 1
42	51	31	4 1/2	13 1/4	60	56	96	78	3 to 1
48	58	36	5	21	60	56	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	56	96	90	3 to 1
60	73	45	6	31	60	56	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/4	60	24	84	72	2 1/2 to 1
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

** NOMINAL SIZE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 71" X 47" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 71" X 47" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE ARCH SIZES UP TO 73" X 45" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

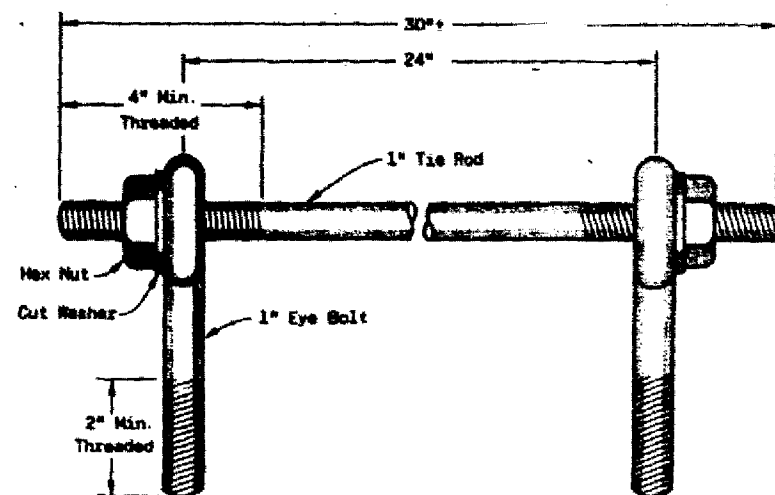
APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

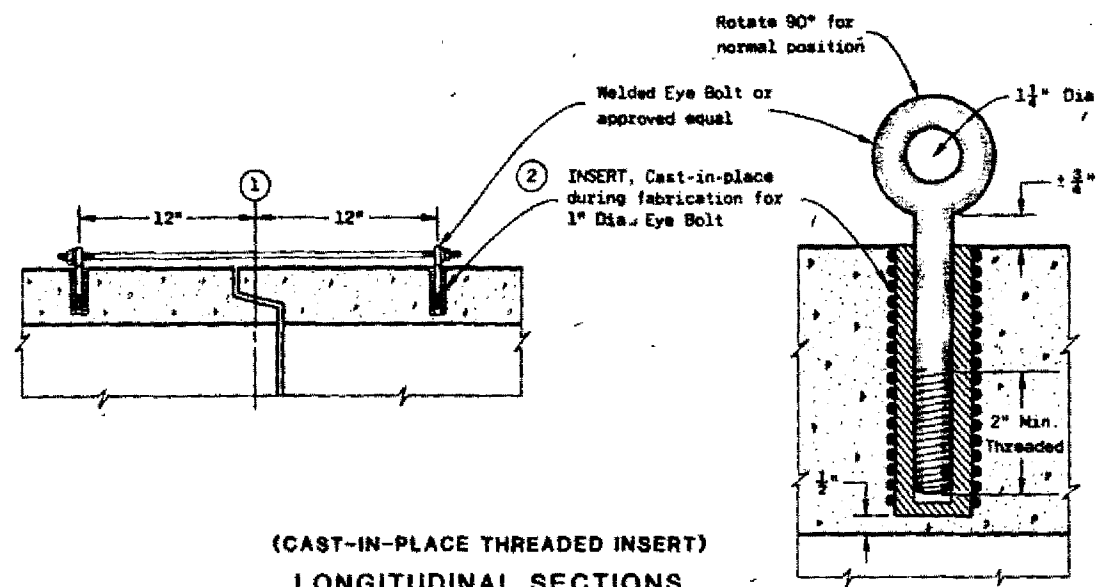
APPROVED
12/17/87
DATE

STATE DESIGN ENGINEER FOR HWYS

FHW



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

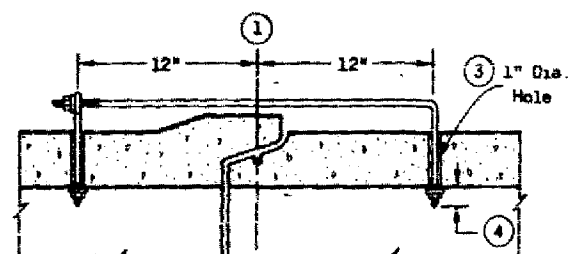
GENERAL NOTES

Concrete Culvert Pipe shall be tied together in the manner illustrated by this detail at locations designated on the plan. The contractor may use either Alternate 1, 2 or 3 for drainage structures. Only Alternate 1 and 3 may be used for Cattle Passes. Unless otherwise stated in the contract the materials, fabrication and work necessary to tie Culvert Pipe as indicated on the plans and by this detail will be considered incidental to Culvert Pipe, Reinforced Concrete Culvert Pipe, or Reinforced Concrete Pipe Cattle Pass.

Detailed drawings for proposed alternate designs for Joint Ties shall be submitted to the Engineer for approval.

1. 1/2" of Tongue and Groove or Bell and Spigot Joints.
2. The inside of the Threaded Inserts shall be clean to allow the insertion of Threaded Eye Bolts.
3. Holes shall be Cast-in-Place or drilled 12" from 1/2" of Tongue and Groove.
4. Bolt projection inside of pipe shall not exceed 2".
5. Rod Diameter + 1 inch.

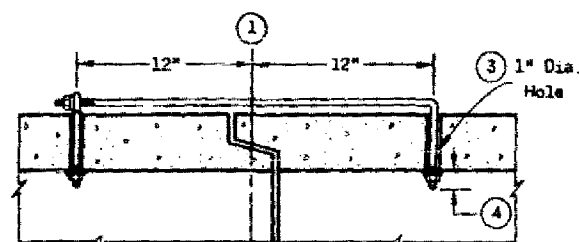
(JOINT TIES FOR 72" DIA. AND OVER CONCRETE PIPE) EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



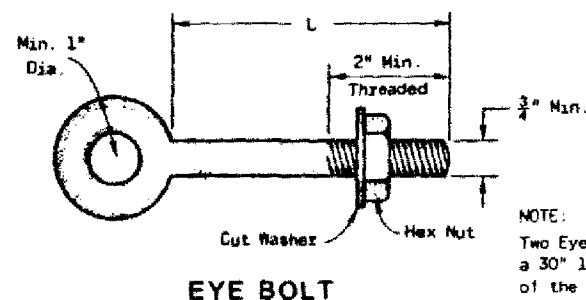
(MODIFIED BELL PIPE)

EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" to 24"	4 1/2"	6 1/2"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



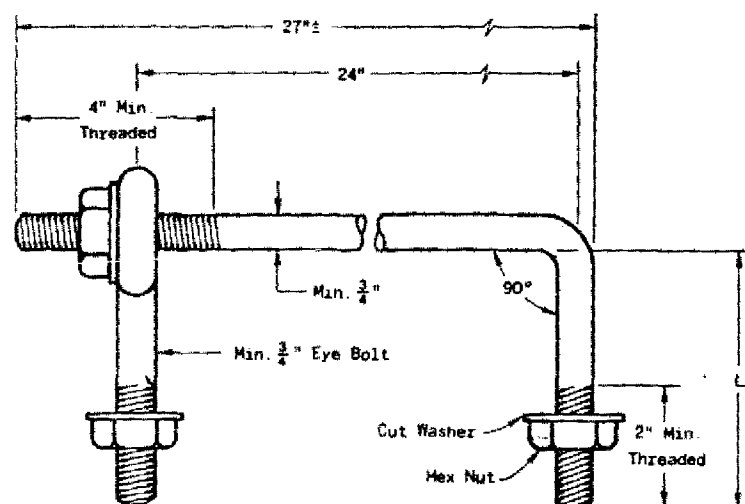
(TONGUE & GROOVE PIPE)
LONGITUDINAL SECTION



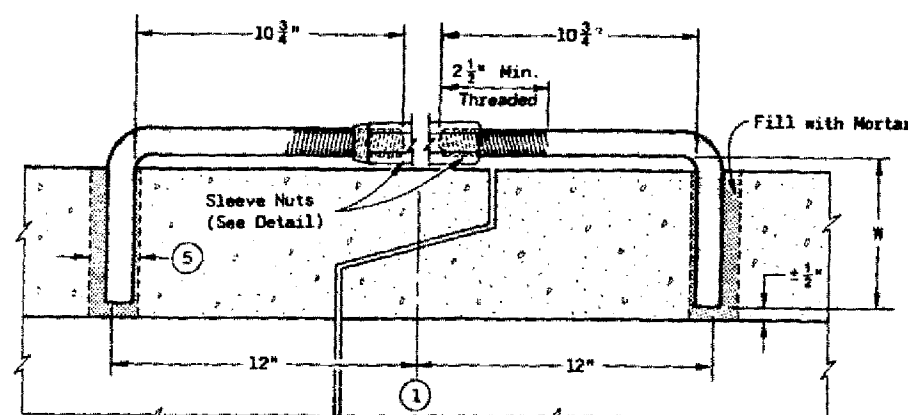
EYE BOLT

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



EYE BOLT AND TIE ROD



LONGITUDINAL SECTION

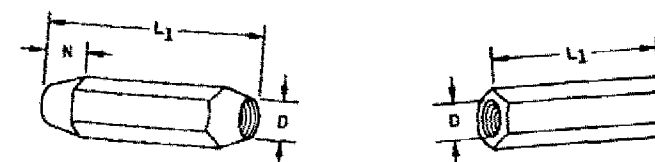
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N	W
12-60	3/8"	5/8"	5	1 1/2	1 3/4
66-84	1/2"	3/4"	5	1 1/2	5
90-108	1"	1"	7	1 7/8	7 1/2

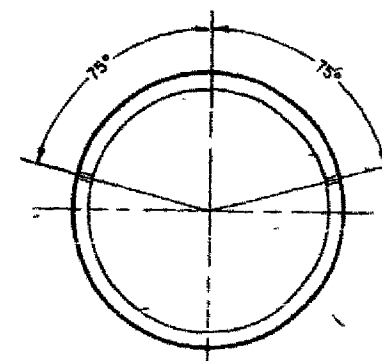
DIMENSIONS SHOWN ARE IN INCHES



TAPERED

PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



Placement of (2) Cast-in-Place inserts or holes during fabrication for pipe sections requiring Tie Rods

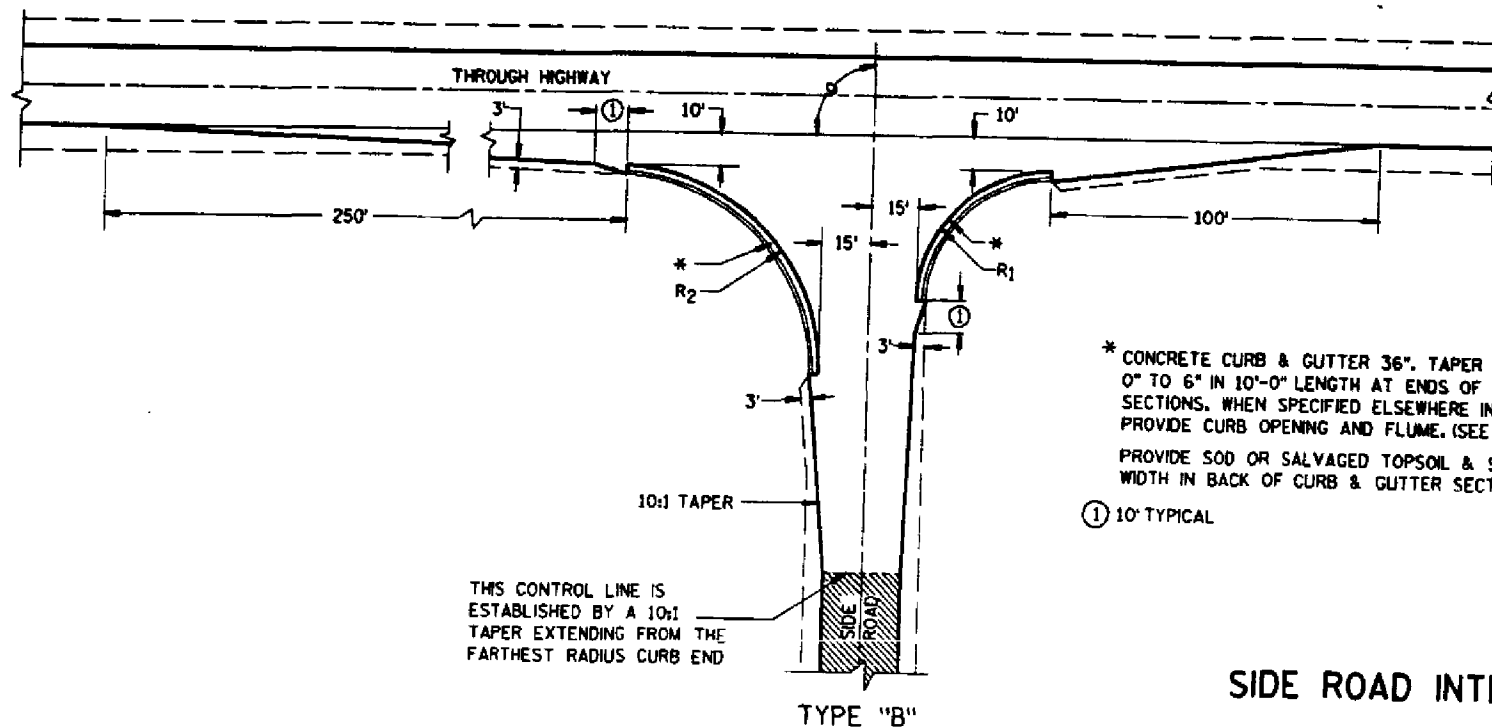
TRANSVERSE SECTION

JOINT TIES FOR CONCRETE PIPE

State of Wisconsin
Department of Transportation

APPROVED
12-27-82
DATE

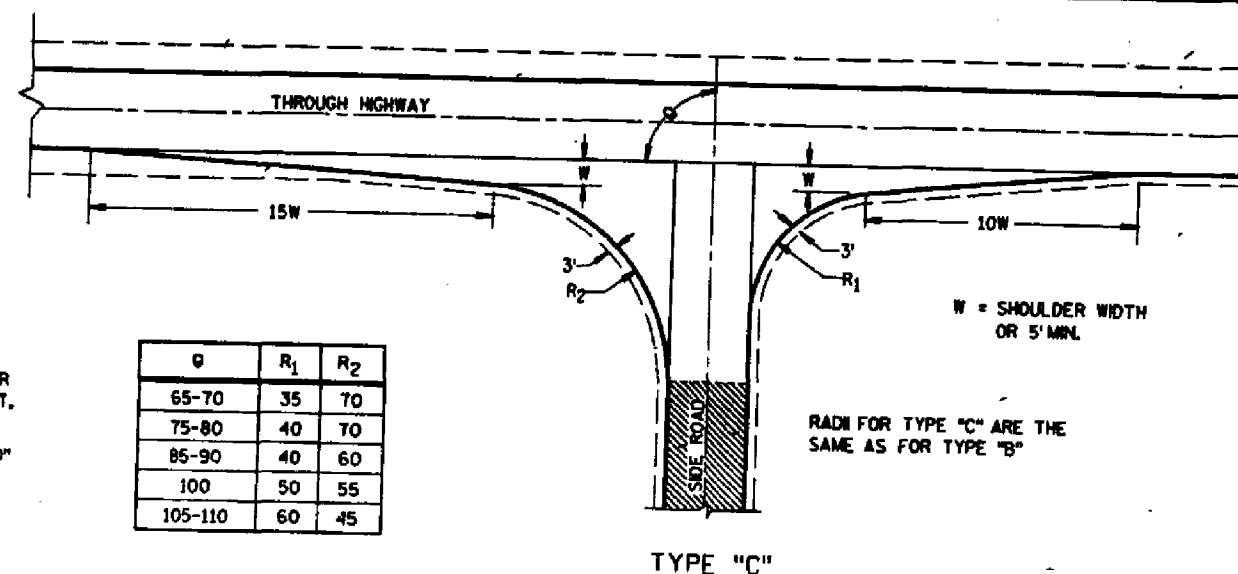
DD Strand
CHIEF DESIGN ENGINEER



* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME. (SEE DETAIL).

PROVIDE SOD OR SALVAGED TOPSOIL & SEED TO A 3'-0" WIDTH IN BACK OF CURB & GUTTER SECTIONS.

① 10' TYPICAL



SIDE ROAD INTERSECTIONS DETAILS

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

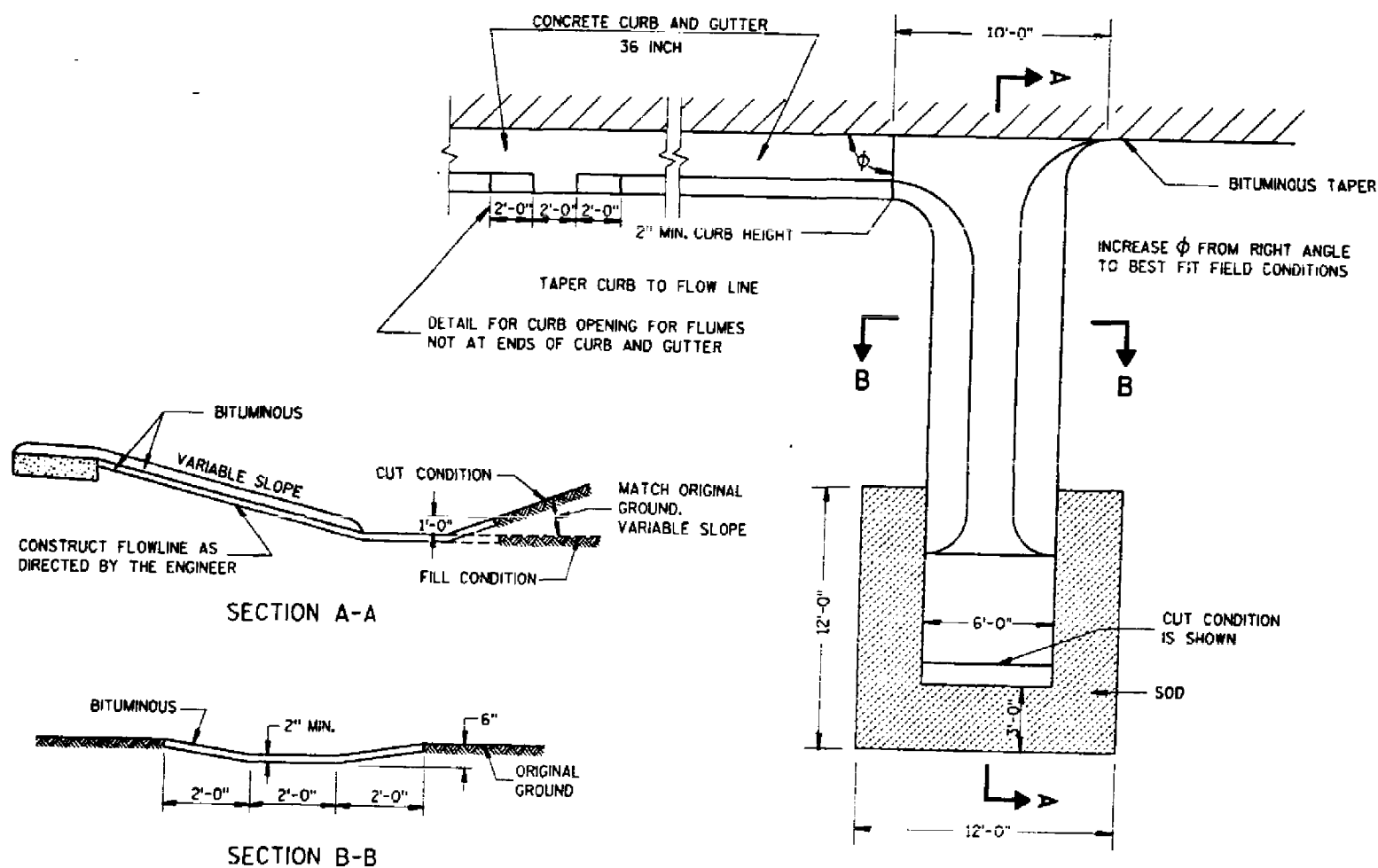
SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND. IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING SURFACE



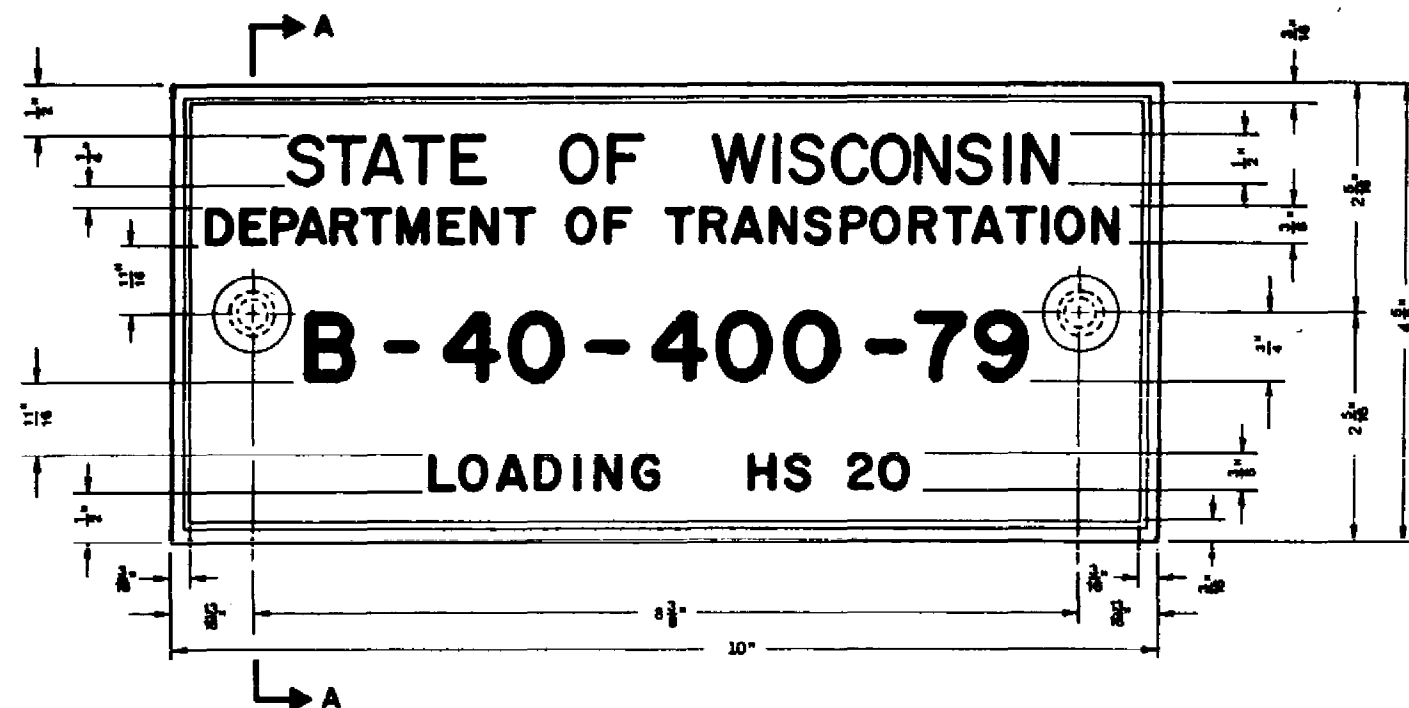
DETAIL OF BITUMINOUS FLUME AT TERMINAL END OF CURB AND GUTTER

AT-GRADE SIDE ROAD
INTERSECTION, TYPES "B" AND "C"

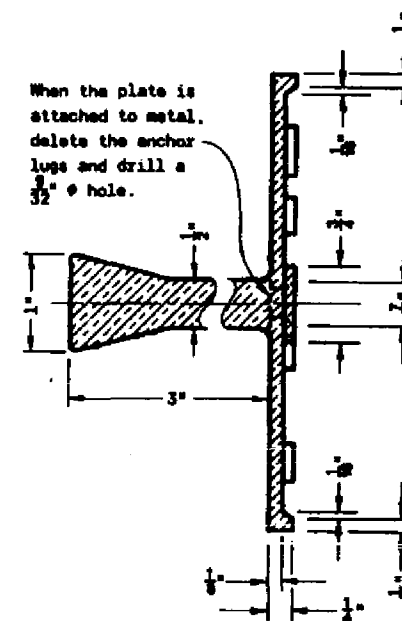
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 8-29-86
STATE DESIGN ENGINEER FOR HWYS

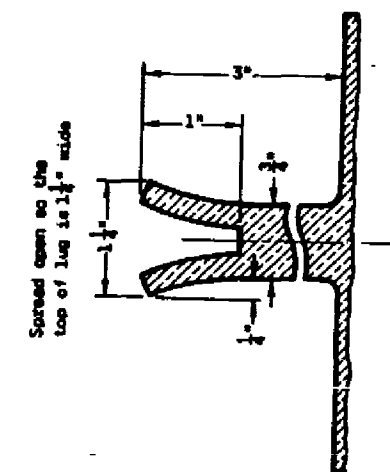
FWHA



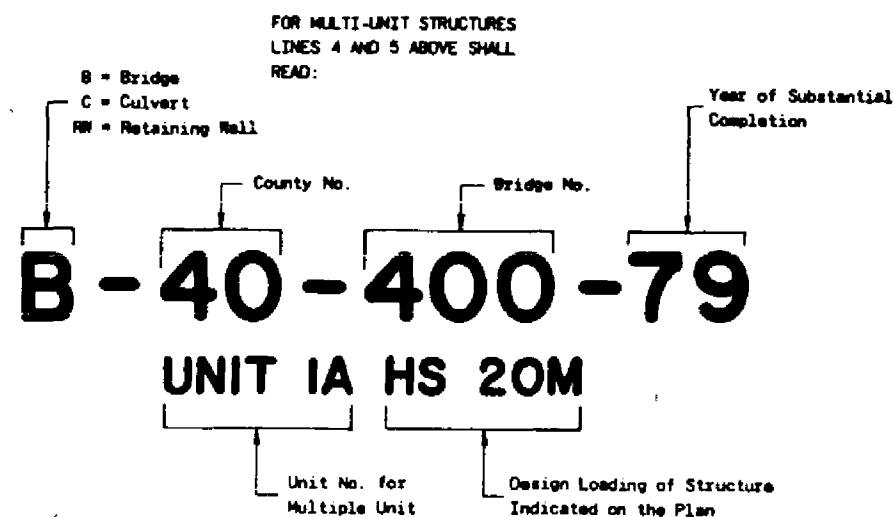
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



SECTION A-A



ALTERNATE LUG



NUMBERING AND LOADING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

Name Plates to be installed on Bridges, Culverts, and Retaining Walls shall conform to the requirements of Section 506.2.4 of the Standard Specifications.

The Bridge Number and Design Loading shown on this drawing are examples only. See Construction Plans for individual numbering and design loading.

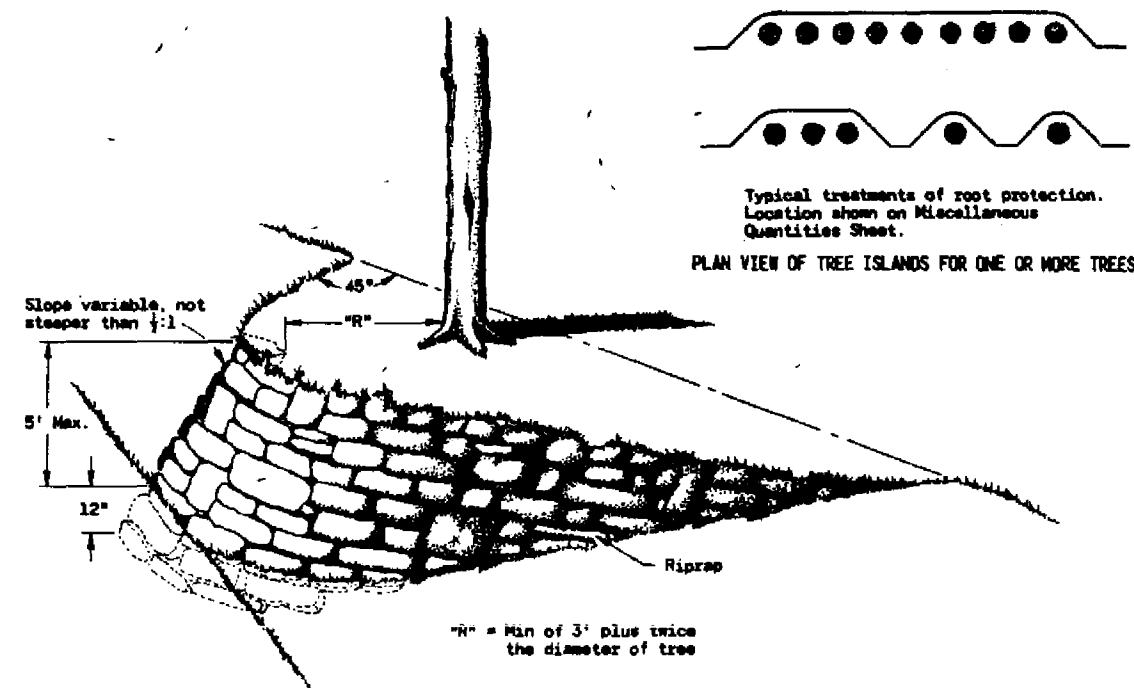
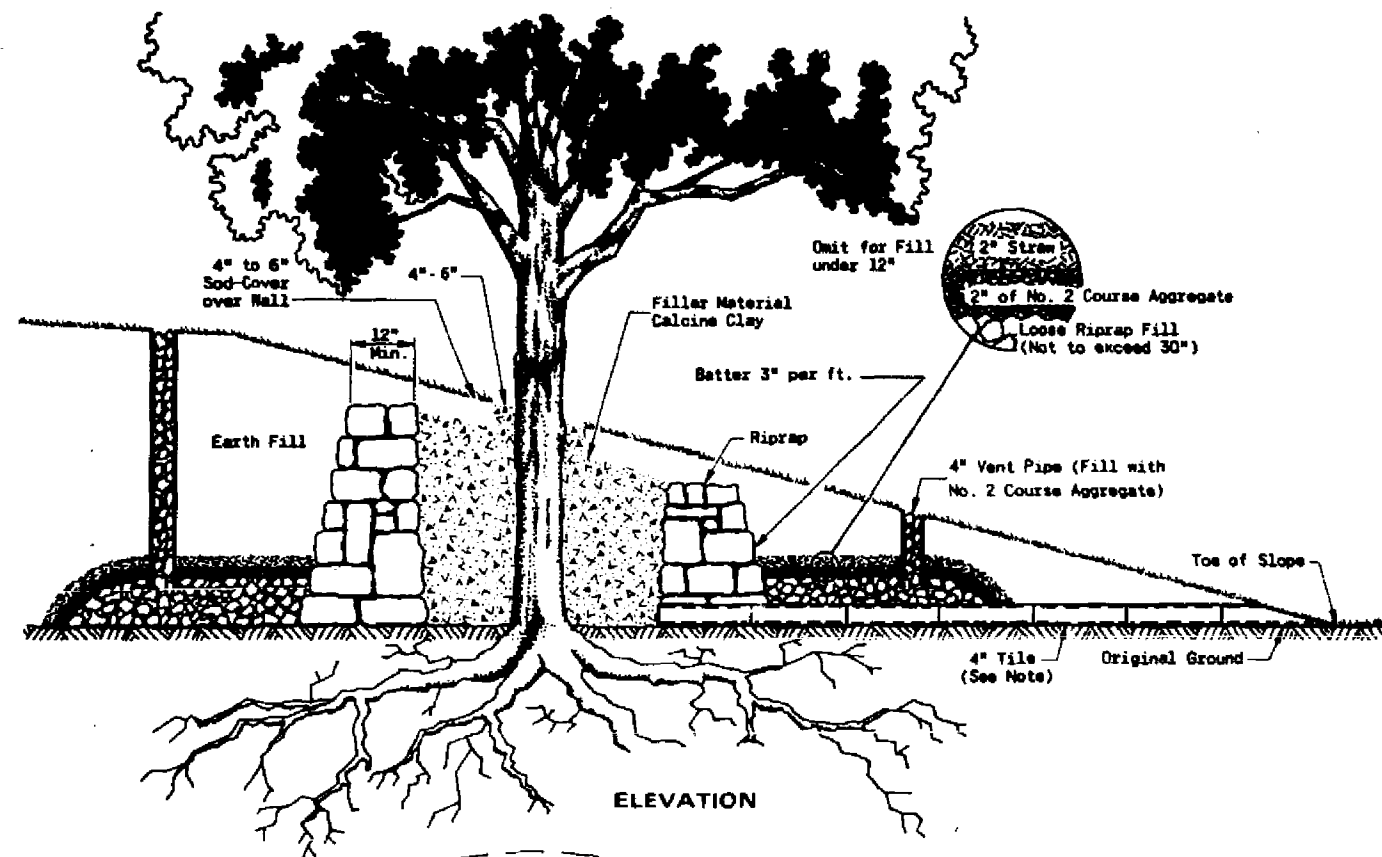
NAME PLATE
(STRUCTURES)

State of Wisconsin
Department of Transportation
Division of Transportation Facilities

APPROVED
9-27-79
DATE

[Signature]
CHIEF DESIGN ENGINEER

FIGURE

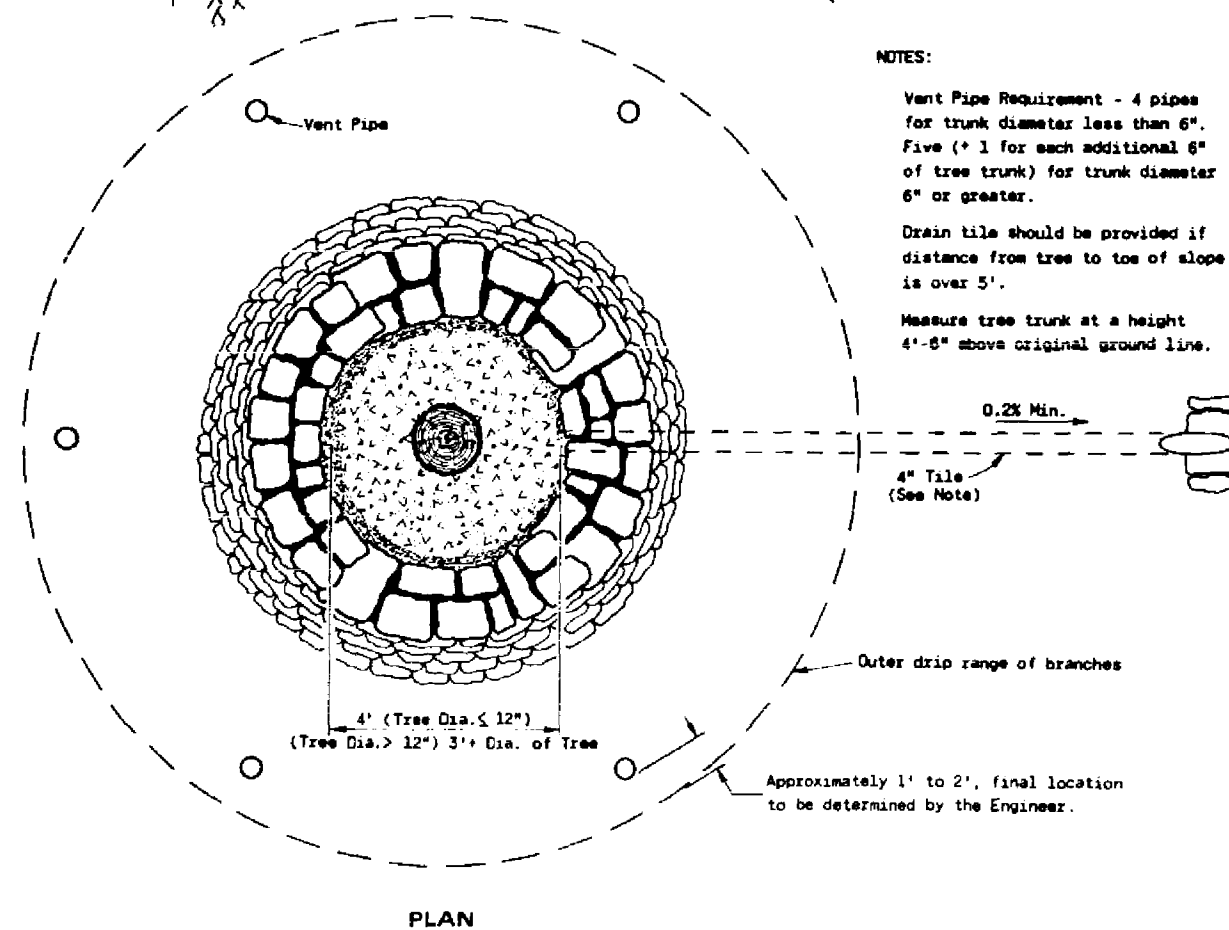


GENERAL NOTES

Walls to be built to approximate shape and dimensions shown. Stone to conform to specifications for Riprap.

Detailed drawings of proposed alternate designs shall be submitted to the Engineer for approval.

DETAILS OF TREE ISLAND AND ROOT PROTECTION



NOTES:

Vent Pipe Requirement - 4 pipes for trunk diameter less than 6". Five (+ 1 for each additional 6" of tree trunk) for trunk diameter 6" or greater.

Drain tile should be provided if distance from tree to toe of slope is over 5'.

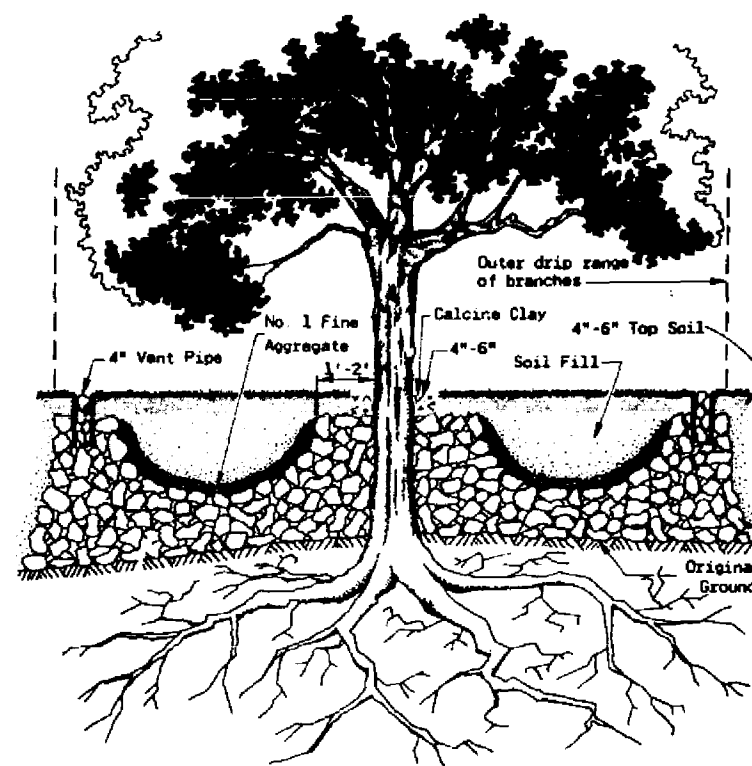
Measure tree trunk at a height 4'-6" above original ground line.

0.2% Min.

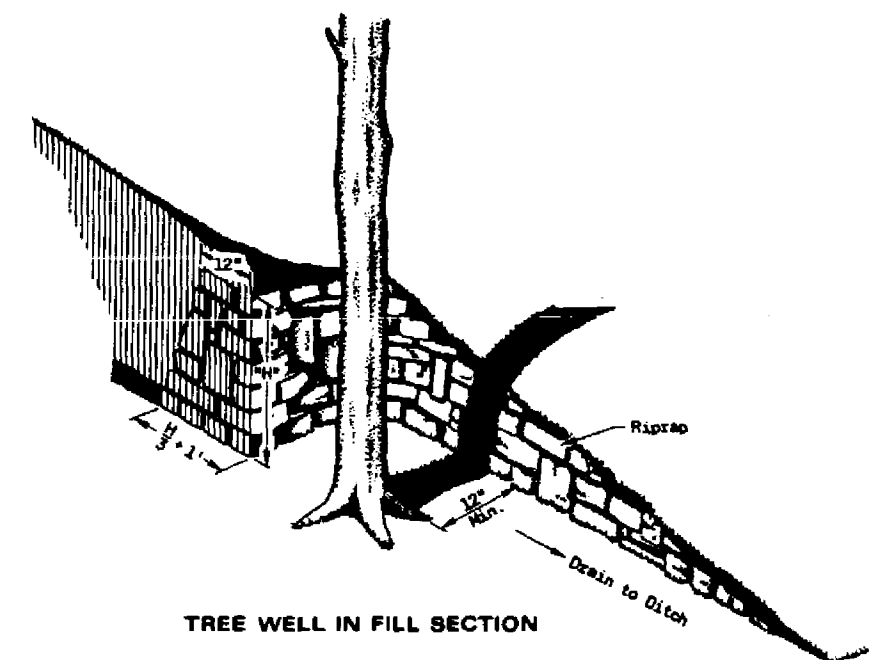
4" Tile (See Note)

Outer drip range of branches

PLAN
FULL TREE WELL WITH RIPRAP WALL



TREE WELL WITHOUT WALL



TREE WELL IN FILL SECTION

DETAILS FOR TREE WELLS

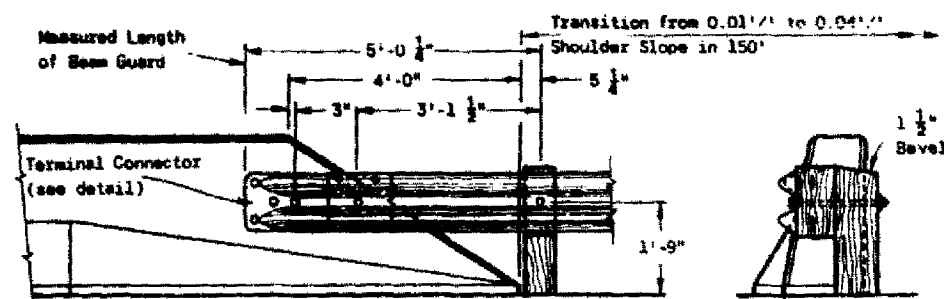
TREE PRESERVATION DETAILS

State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL
8-25-76
DATE
APPROVED
8-25-76
DATE

D. J. Stank
CHIEF OF FACILITIES DEVELOPMENT

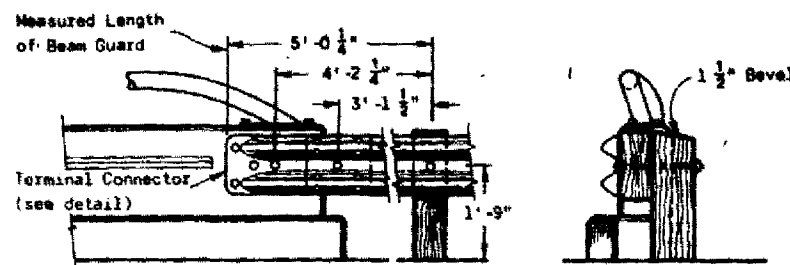
W. J. Sush
STATE HIGHWAY ENGINEER



FRONT VIEW

END VIEW

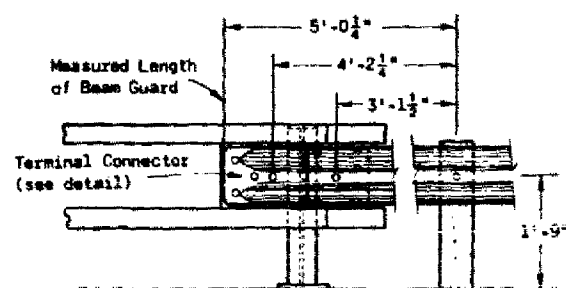
SLOPED FACE PARAPET



FRONT VIEW

END VIEW

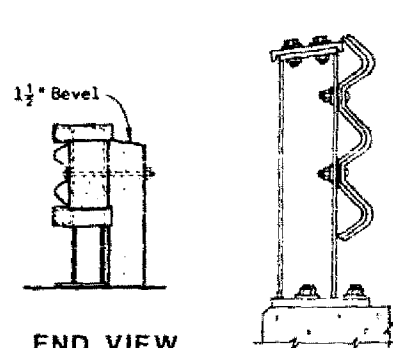
VERTICAL FACE PARAPET



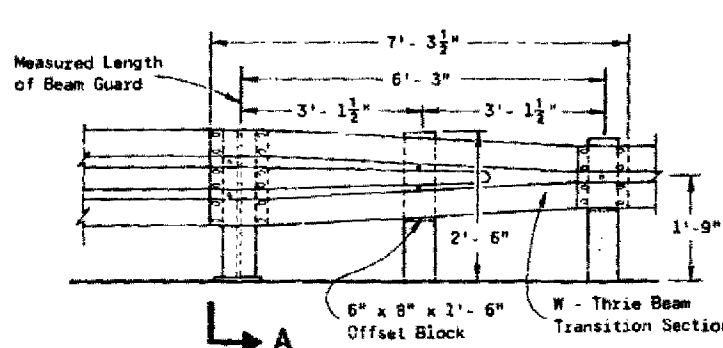
FRONT VIEW

END VIEW

RAILING TYPE "F"



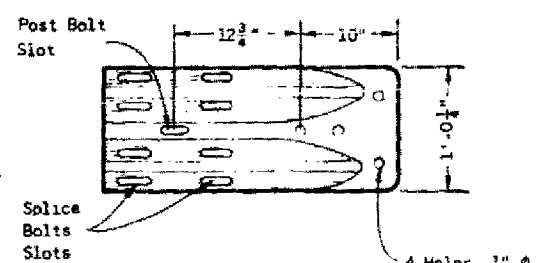
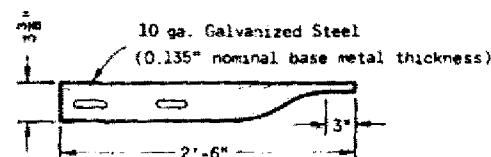
SECTION A-A



FRONT VIEW

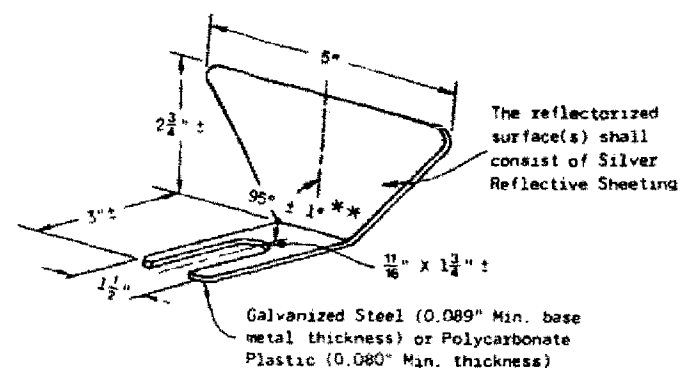
RAILING TYPE "W"

STRUCTURE MOUNTING DETAILS



NOTE:
1" I.D., 2" O.D. (0.134" nominal thickness) galvanized metal washer required under the head of splice bolts used in the Terminal Connector only.

TERMINAL CONNECTOR

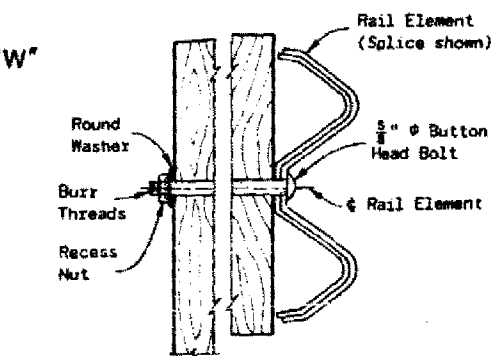


	Beam Guard Length	Reflector Spacing	No. Surfaces Reflectorized	Min. No. Reflectors
One Way Traffic	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
Two Way Traffic	< 200'	25' C-C	1 *	6
	> 200'	50' C-C	1 *	
Two Way Traffic	< 200'	50' C-C	2 **	3
	> 200'	100' C-C	2 **	

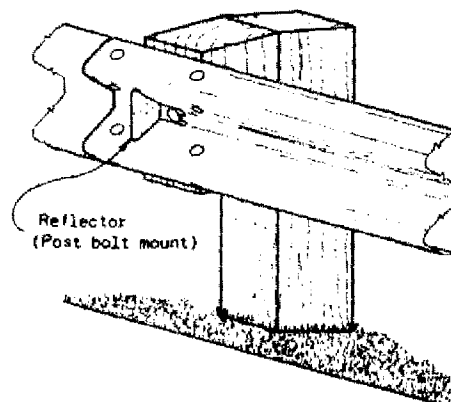
* Every other reflector reversed for 2-way visibility. Contractor may furnish two-sided reflectors in lieu of one-sided reflectors.

** Angle of bend to be 90° ± 1° for two-sided reflectors.

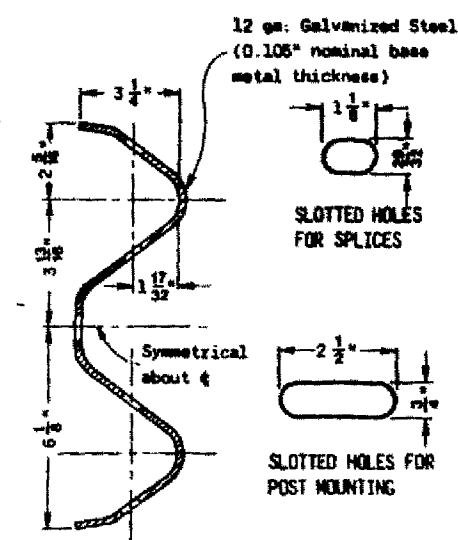
REFLECTOR DETAIL



BUTTON HEAD BOLT DETAIL

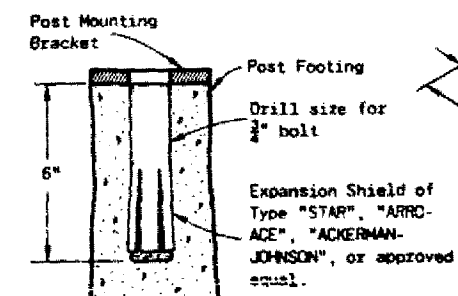


TYPICAL INSTALLATION

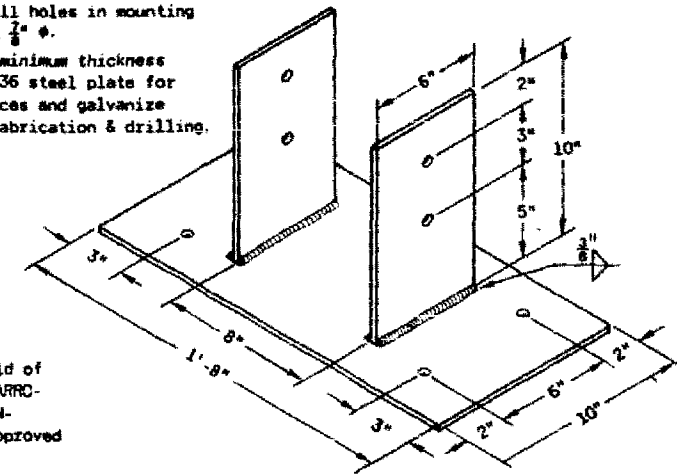


SECTION THRU RAIL ELEMENT

NOTE:
Drill all holes in mounting bracket 3/8" Ø.
Use 3/8" minimum thickness ASTM A 36 steel plate for all pieces and galvanize after fabrication & drilling.

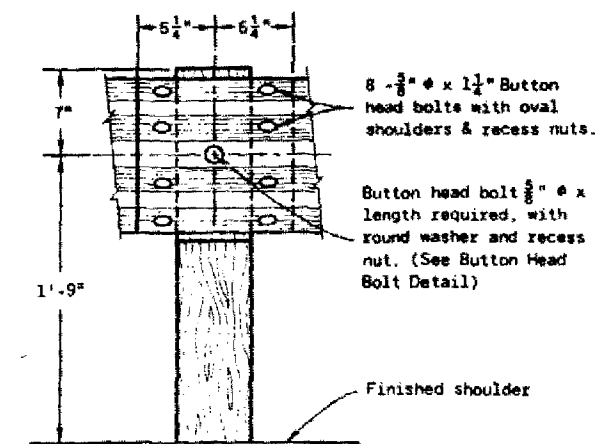


EXPANSION SHIELD DETAIL



POST MOUNTING BRACKET

POST FOOTING DETAIL AT PIERS



RAIL ELEMENT SPLICING AND POST MOUNTING DETAIL

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications, the applicable Special Provisions.

The type of anchorage and the exact location of the beginning and end of each beam guard installation shall be as shown on the plans or as directed by the Engineer.

Shoulder widening to accommodate the anchored end of the beam guard shall be accomplished at a rate of widening not to exceed 5 to 1.

Standard Anchorages - Upon approval of the Engineer, the 6 foot offset may be reduced to nothing where existing conditions will not permit the desirable offset. However, when no offset greater than or equal to 3 feet can be provided, the minimum length of guardrail in advance of an obstacle (obstacle to anchor) shall be 150 feet.

The "Post Footing Details at Piers" shall be used when beam guard posts are over structure footings and less than 3 feet-6 inches of earth is provided over the top of the footing.

- The minimum clearance from the front face of beam guard to obstacle shall be 4 feet unless otherwise shown on contract plans. When clearance is less than 4 feet, post spacing shall be reduced to 3 feet-1 1/2 inches C-C.
- This section shall include at least one 12'-6" Rail Element and a Terminal Connector or W-Thrie Beam Transition Section as required for structure mounting.

NOTE:
THIS STANDARD DETAIL DRAWING CONSISTS OF TWO SHEETS AND BOTH SHEETS ARE REQUIRED WHEN THIS DRAWING IS CALLED FOR IN CONTRACT PLANS.

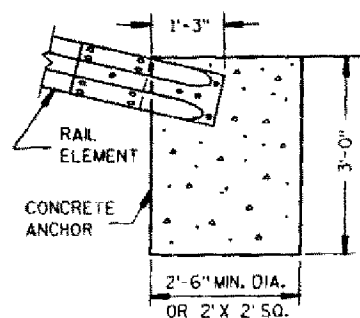
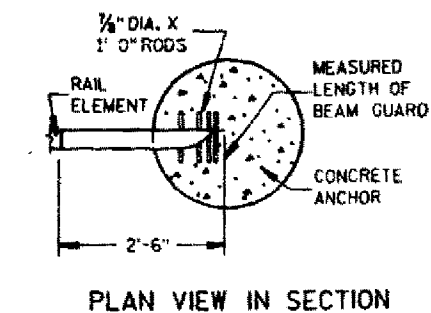
CAUTION: WHEN SPECIAL ANCHORAGES ARE SPECIFIED, SHEET 8c IS ALSO REQUIRED

CLASS "A"
STEEL PLATE BEAM GUARD

State of Wisconsin
Department of Transportation

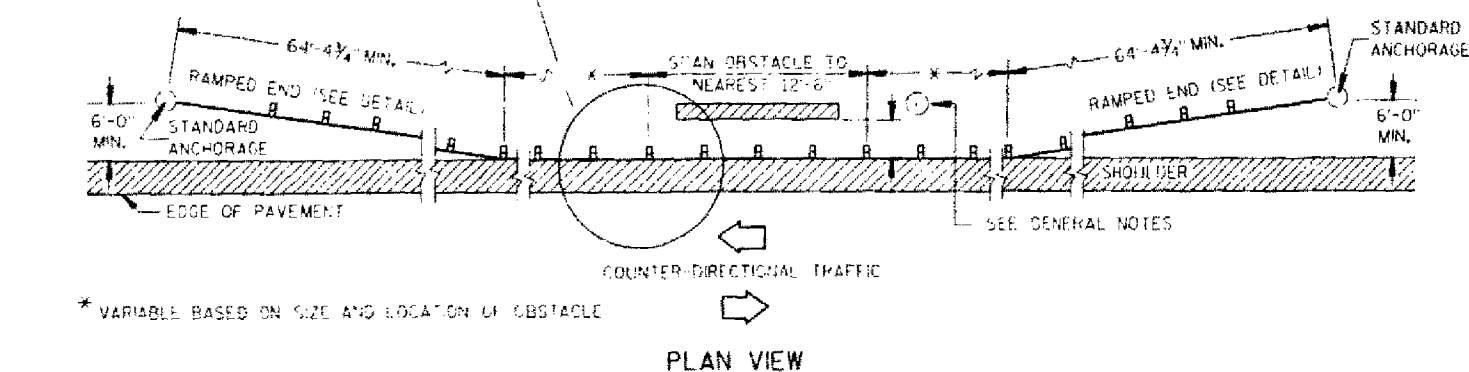
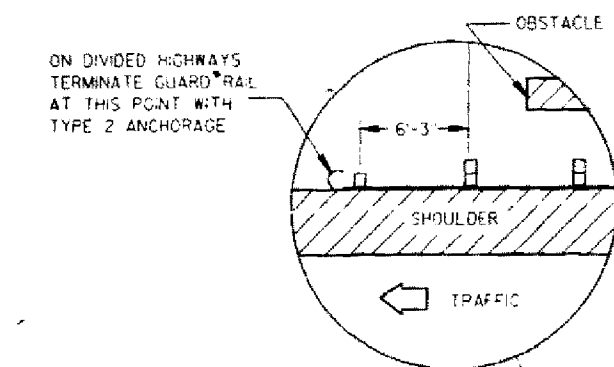
APPROVED
1-31-85
DATE

CHIEF DESIGN ENGINEER

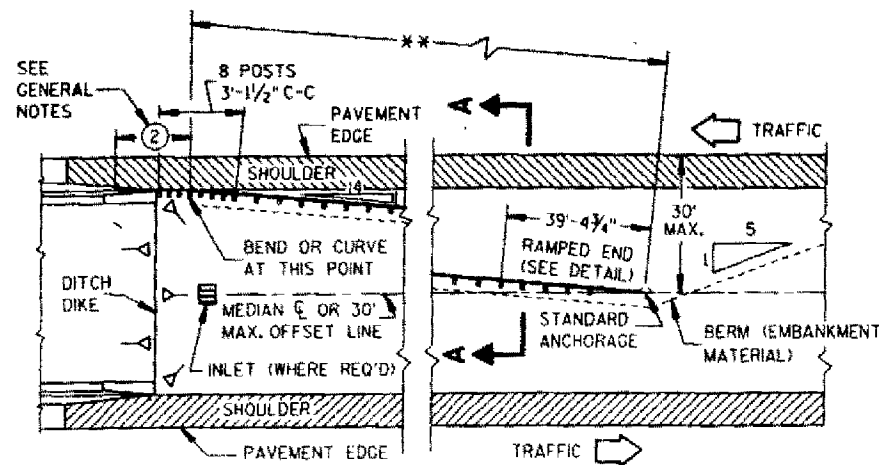


STANDARD SPECIFICATION ITEM "ANCHORAGE FOR STEEL PLATE BEAM GUARD"

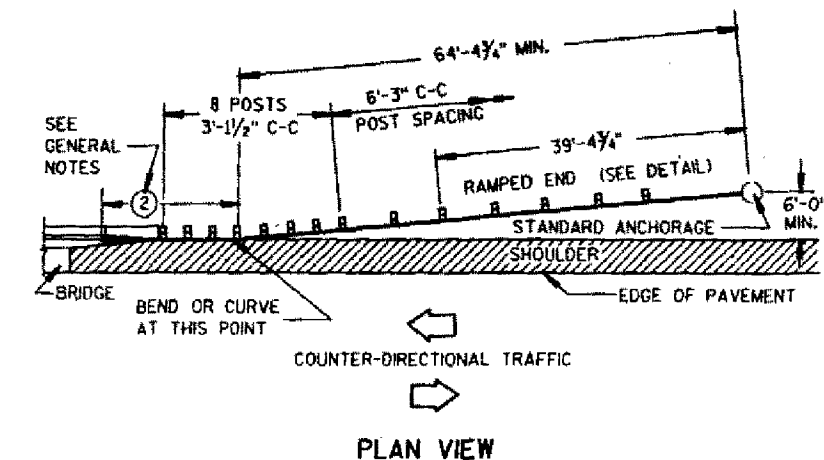
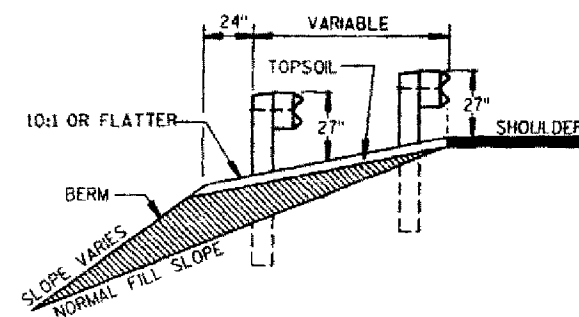
(STANDARD SPECIFICATION ITEM "ANCHORAGE FOR STEEL PLATE BEAM GUARD")



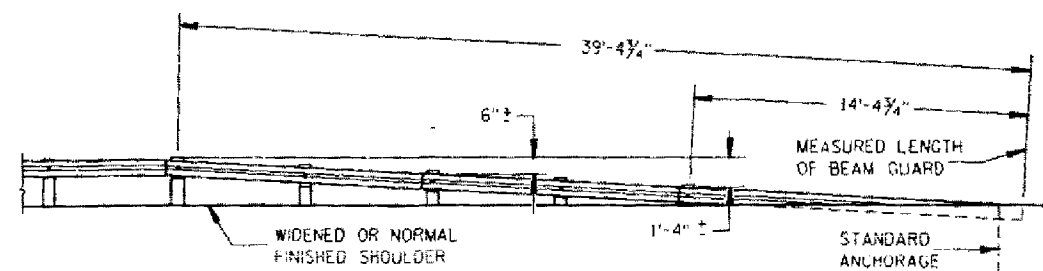
TYPICAL INSTALLATION AT OBSTACLES



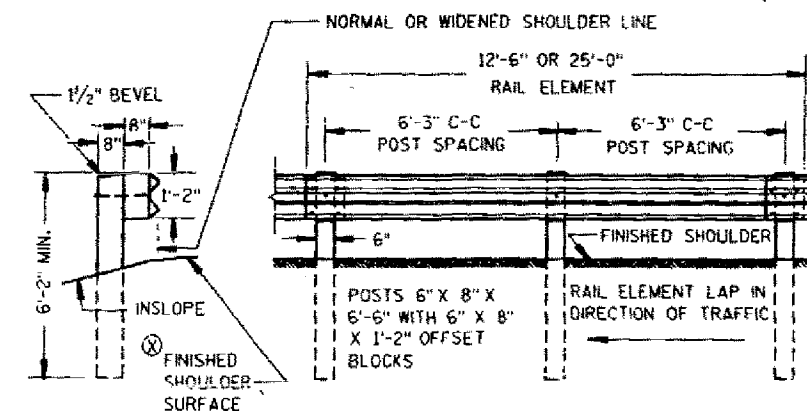
TYPICAL MEDIAN INSTALLATION AT STRUCTURES



TYPICAL INSTALLATION AT FULL WIDTH STRUCTURES



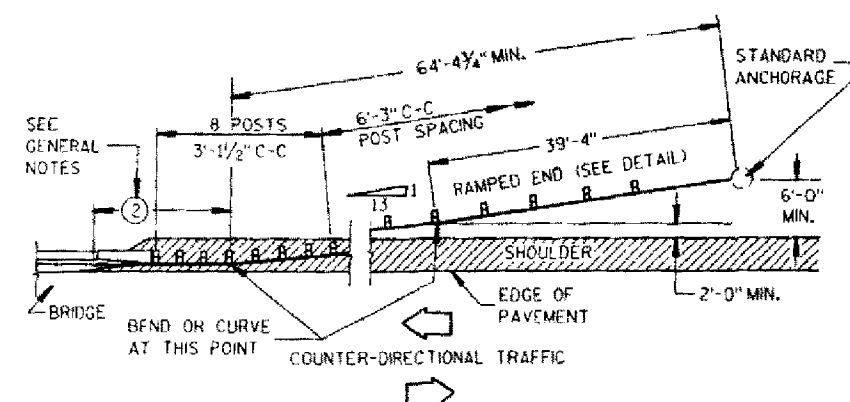
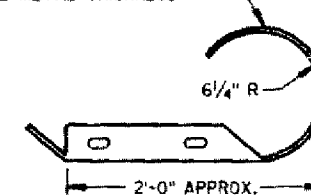
TYPICAL RAMPED END



TYPICAL STEEL PLATE BEAM GUARD INSTALLATION

SHOULDER OR EMBANKMENT SLOPE IN FRONT OF BEAM GUARD SHALL BE 10:1 OR FLATTER

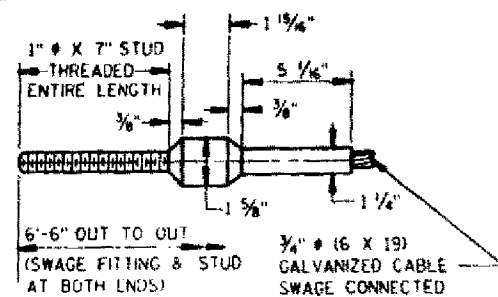
12 GA. STEEL (0.105" NOMINAL BASE METAL THICKNESS)



TYPICAL INSTALLATION AT NARROW STRUCTURES

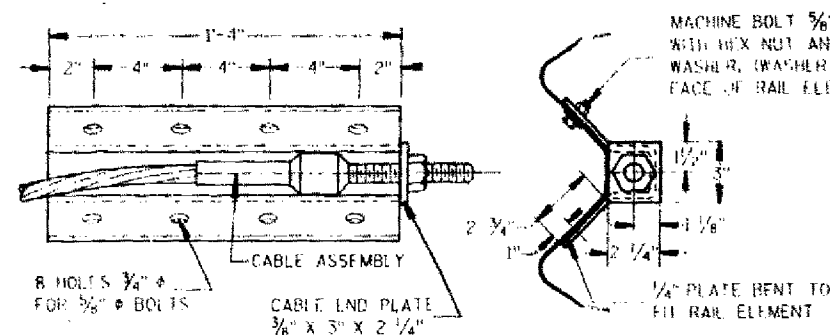
CLASS "A" STEEL PLATE BEAM GUARD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CABLE ASSEMBLY

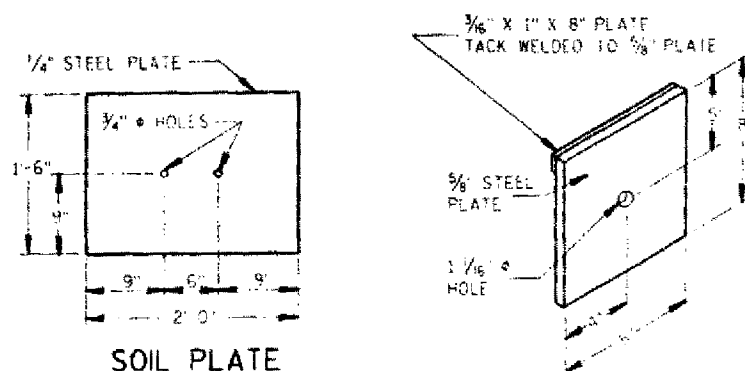
CABLE, SWAGE FITTING, STUD AND NUT SHALL DEVELOP A MINIMUM BREAKING STRENGTH OF 40,000 LB (TIGHTEN UNTIL TAUT)



FRONT VIEW

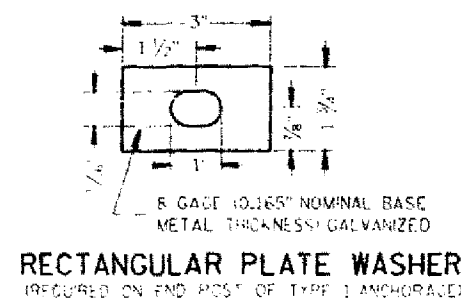
END VIEW

ANCHOR PLATE DETAIL

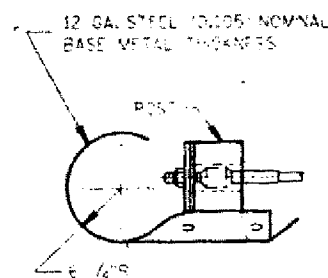


SOIL PLATE

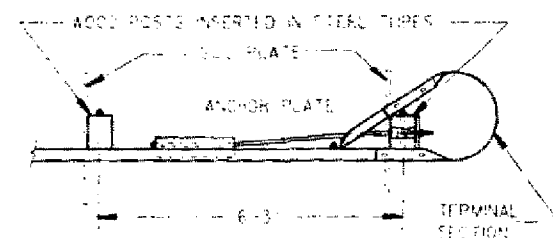
STEEL BEARING PLATE



RECTANGULAR PLATE WASHER
(REQUIRED ON END POST OF TYPE 1 ANCHORAGE)

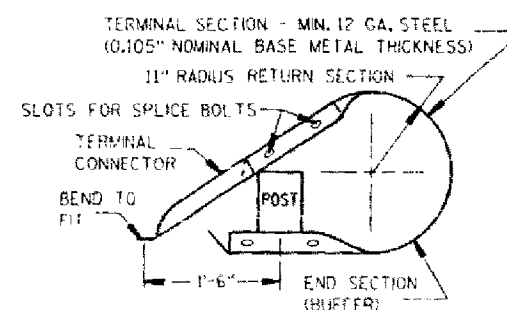


PLAN VIEW
END SECTION (ROUNDED)



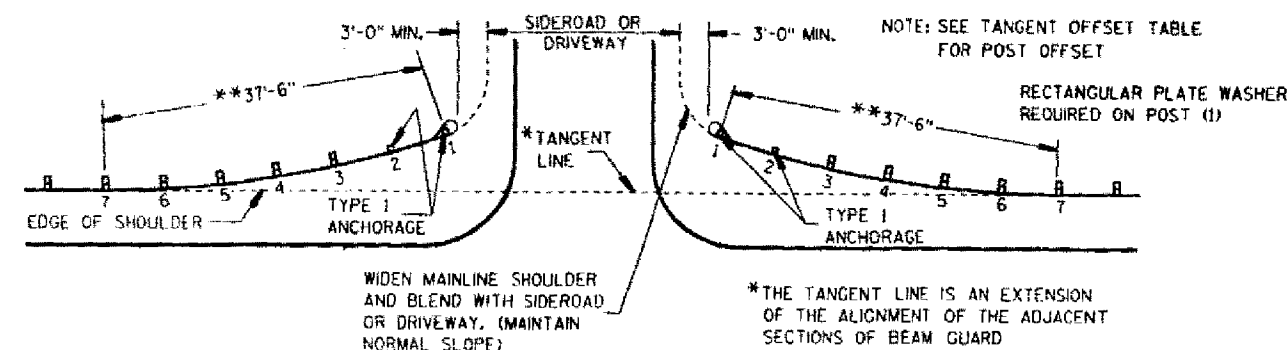
PLAN VIEW

NOTE:
TYPE 1 AND TYPE 2 ANCHORAGES SHALL CONSIST OF STEEL TUBE(S), SOIL PLATE(S), WOOD BREAK-AWAY POST(S), BEARING PLATE, ANCHOR PLATE, CABLE ASSEMBLY AND ALL ASSOCIATED HARDWARE. ALL STEEL PARTS SHALL BE GALVANIZED.



PLAN VIEW
TERMINAL SECTION DETAIL
(TYPE 1 ANCHOR ONLY)

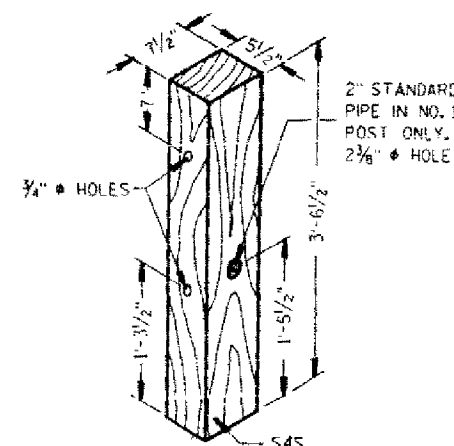
NOTE:
THIS TERMINAL SECTION DETAIL ILLUSTRATES TWO PIECE CONSTRUCTION, A ONE PIECE TERMINAL SECTION CONFORMING TO THIS DETAIL IS ACCEPTABLE



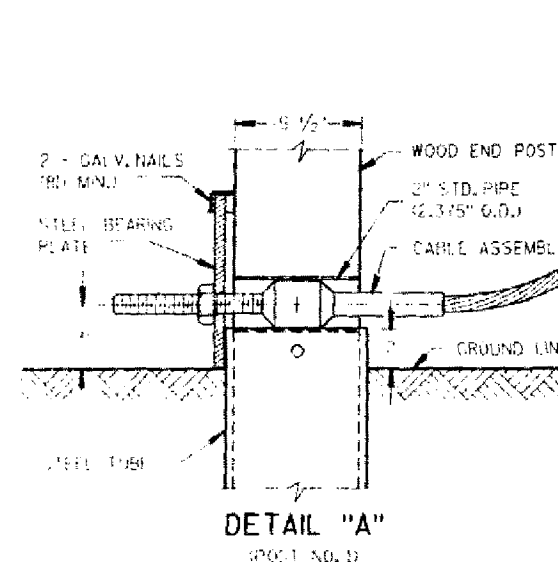
TYPICAL INSTALLATION AT MINOR SIDEROADS OR DRIVEWAYS

POST NO.	OFFSET (FEET)
1	4.00
2	2.78
3	1.78
4	1.00
5	0.44
6	0.11
7	0.00

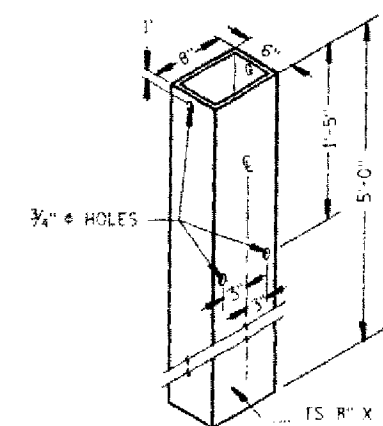
**37'-6\"/>



WOOD BREAKAWAY POST

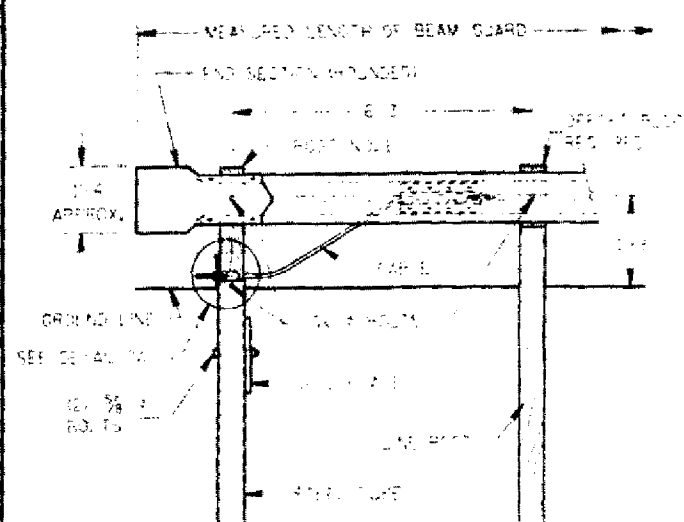


DETAIL "A"
(POST NO. 1)

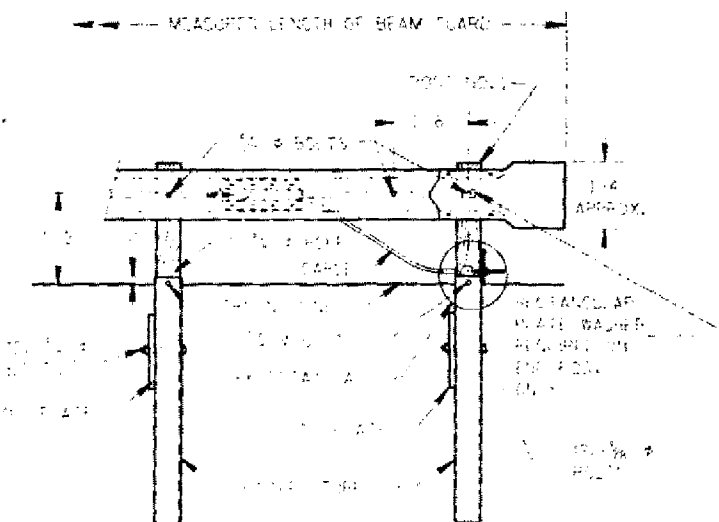


STEEL TUBE

THE STEEL TUBE SHALL CONFORM TO REQUIREMENTS OF ASTM A501



FRONT VIEW
TYPE 2 ANCHORAGE



FRONT VIEW
TYPE 1 ANCHORAGE

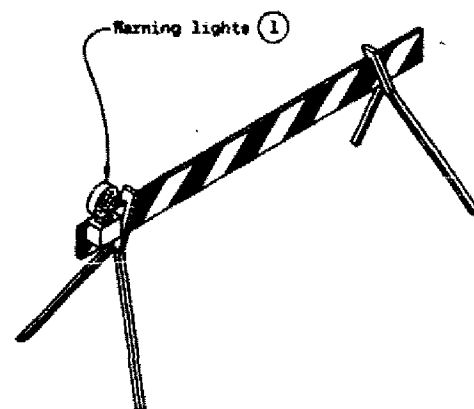
NOTE:
THIS SHEET SUPPLEMENTS SDD 14 B 2-8a AND SDD 14B 2-8b WHEN SPECIAL ANCHORAGES ARE SPECIFIED. ALL THREE SHEETS ARE REQUIRED WHEN THIS DRAWING IS CALLED FOR IN CONTRACT PLANS.

CLASS "A"
STEEL PLATE BEAM GUARD
SPECIAL ANCHORAGES

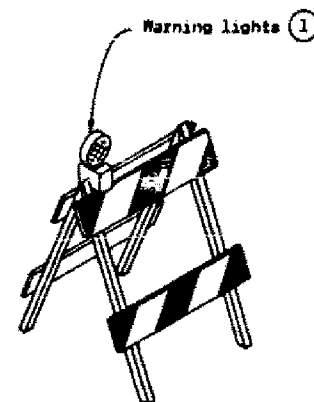
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

TABLE OF BARRICADE CHARACTERISTICS			
BARRICADE TYPE	I	II	III
Height	3' Minimum	5' Minimum	
*Rail Width	8" Minimum to 12" Maximum		
Rail Length	2' Minimum	4' Minimum	
**Stripe Width	6" at 45° Angle		
Stripe Colors	Reflectorized Orange & White		

* Nominal dimensions when barricade is constructed of lumber.
 ** Shall be 4" for rail lengths less than 3'.



TYPICAL TYPE I BARRICADE



TYPICAL TYPE II BARRICADE



R11-2

48" x 30"

Black Lettering on Reflective
White Background

Letter Series "D"

Letter height 8"



W20-3

48" x 48"

Black Lettering on Reflective
Orange Background

Letter Series "D"

Letter height 7"

STANDARD SIGNS - TYPE II

GENERAL NOTES

The contractor shall furnish, erect and maintain barricades and signs. Details regarding location, spacing, dimensions, fabrication, material, sign lettering, lighting devices and color of barricades and signs shall conform to this drawing, the Manual On Uniform Traffic Control Devices, the Standard Specifications, Special Provisions and/or plans.

Type III Barricades and Signs shall be erected at the termini of projects and at other road or street locations where it is necessary to control or eliminate public access to the construction area.

Type I and II Barricades shall be used on projects when traffic is to be maintained through the construction area.

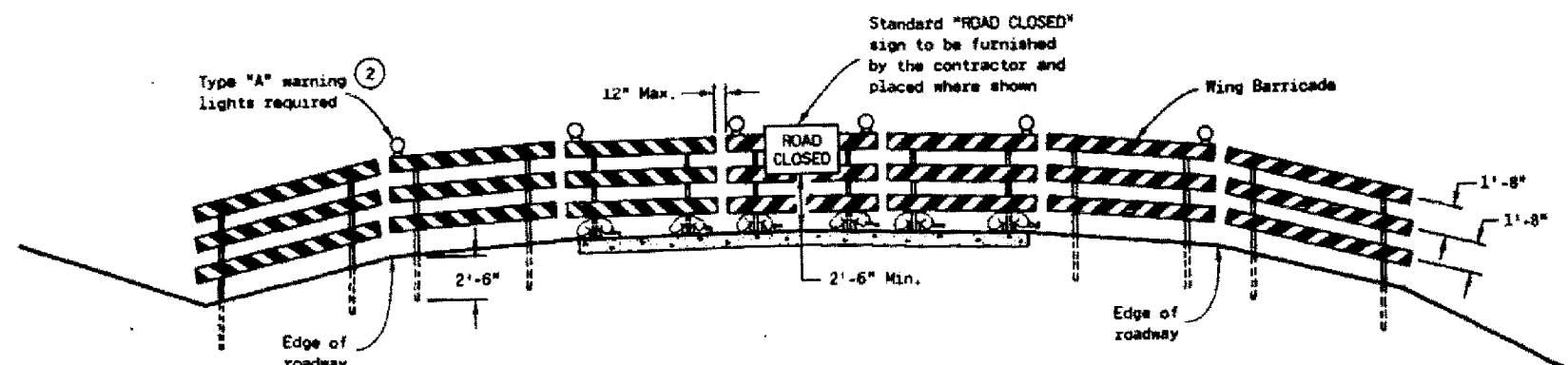
The actual field location of barricade installations and advance signs shall be as directed by the Engineer.

Each barricade shall have the name and telephone number of a person responsible for 24 hour emergency service printed in letters at least $\frac{1}{4}$ inch in height on the barricade rails. Prior to May 1, 1983, such information may be shown on either front or back faces of the barricade rails. After May 1, 1983, all printed information or identification markings shall be shown only on the back side of barricade rails.

Type I Barricades may include other unstriped horizontal panels necessary to provide stability.

On high speed expressways or in other situations where barricades may be susceptible to overturning in the wind, sandbags should be used for ballasting. Sandbags may be placed on lower parts of the frame or stays to provide the required ballast but shall not be placed on top of any striped rail.

- 1 Unless otherwise provided elsewhere in the contract, warning lights are required on all barricades which will be located near traffic operations during periods of inclement weather or hours of darkness. Barricades used to shield isolated hazards shall be equipped with Type "A" (low intensity - flashing) lights unless Type "B" (high intensity) - flashing lights are specified elsewhere in the contract documents. Barricades used for channelization or delineation of the travel path shall be equipped with Type "C" (steady burn) lights except for the initial barricade(s) in sequence, which shall be equipped with Type "A" or "B" lights as previously noted.
- 2 Two warning lights shall be provided on the center barricade and at least one warning light shall be provided on each of the other barricades within the roadway limits. Spacing of the warning lights shall be uniform to the edge of roadway as shown.



TYPICAL INSTALLATION SHOWING TYPE III BARRICADE

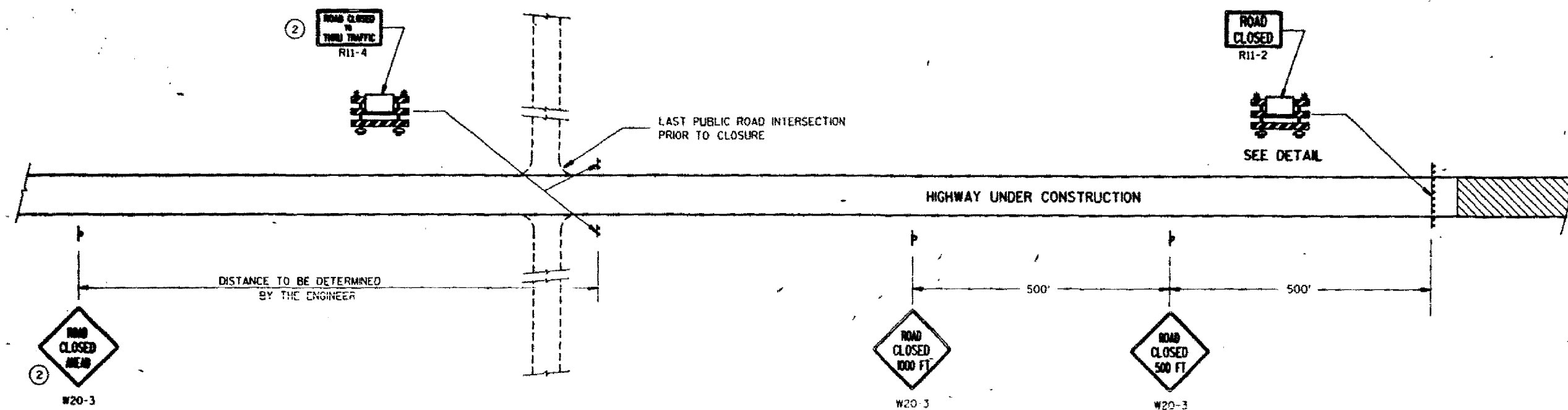
CONSTRUCTION BARRICADES

CONSTRUCTION BARRICADES & STANDARD SIGNS

State of Wisconsin
Department of Transportation

APPROVED
9-14-81
DATE

[Signature]
CHIEF DESIGN ENGINEER



GENERAL NOTES

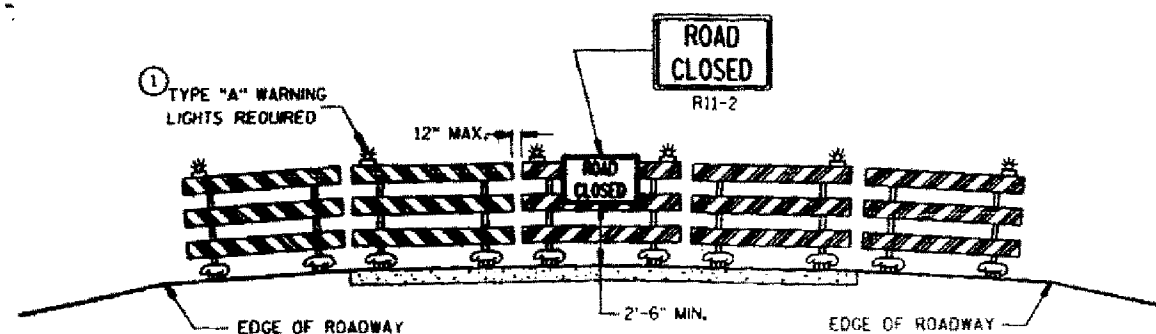
DETAILS OF TRAFFIC CONTROL DEVICES AND THEIR LOCATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE MANUAL ON TRAFFIC CONTROL DEVICES, THE PLANS, SPECIFICATIONS AND CONTRACT.

SIGN AND BARRICADE LOCATIONS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER. ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS WORK SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND AT LEAST ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN.
- ② THESE SIGNS ARE NOT REQUIRED IF THE INTERSECTION IS THE BEGINNING OF THE MARKED DETOUR.

LEGEND

- ⌋ POST MOUNTED WARNING SIGN
- ⌋ TYPE III BARRICADE (TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT(S) REQUIRED FOR NIGHTTIME USE)
- ⌋ TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT
- ▨ WORK AREA



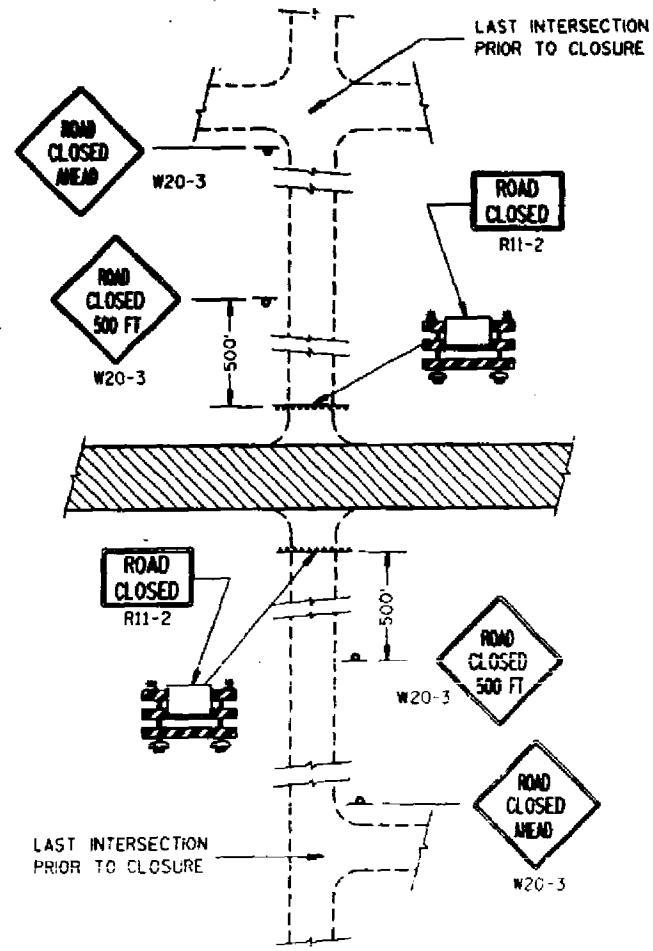
APPROACH VIEW
ROAD CLOSURE BARRICADE

TRAFFIC CONTROL TO CLOSE
HIGHWAY UNDER CONSTRUCTION

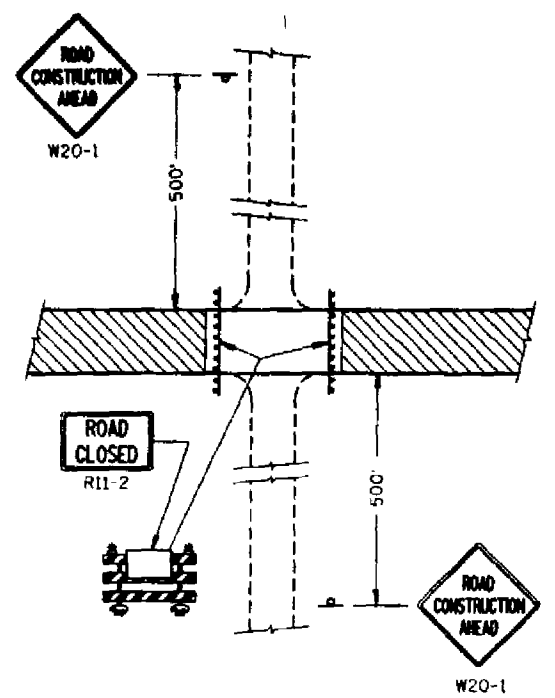
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6-5-85
DATE
FHWA

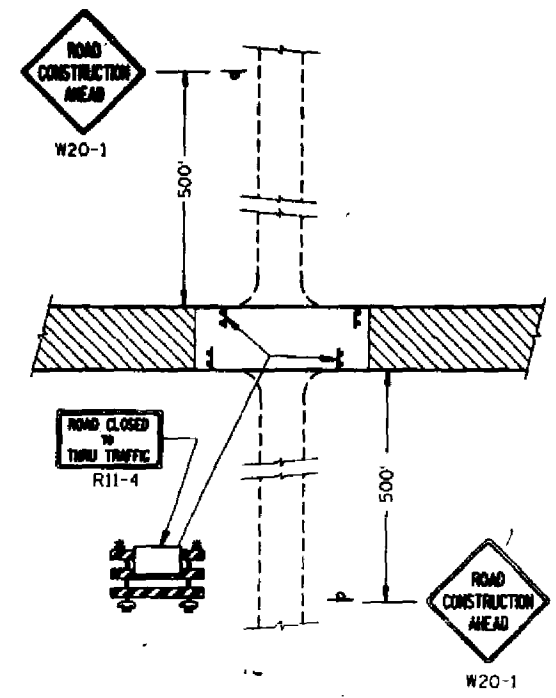
CHIEF TRAFFIC ENGINEER



DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT).



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR,
LOCAL BUSINESS AND RESIDENT ACCESS).

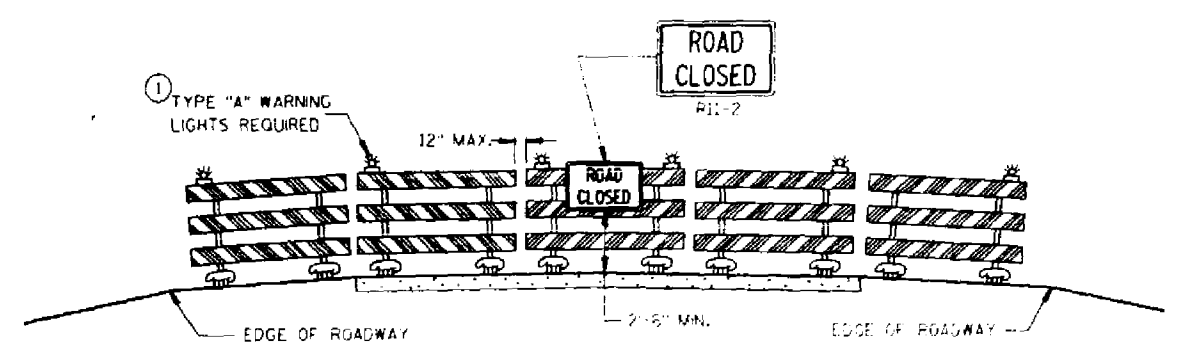
- LEGEND**
- ⌋ POST MOUNTED WARNING SIGN
 - ⌋ TYPE II BARRICADES (TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT(S) REQUIRED FOR NIGHTTIME USE)
 - ⌋ TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT
 - ▨ WORK AREA

GENERAL NOTES

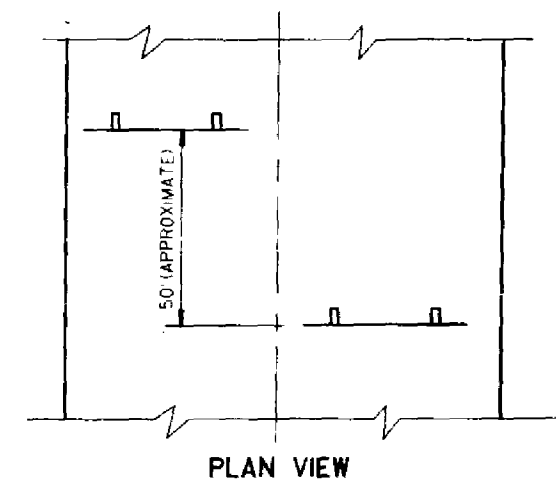
DETAILS OF TRAFFIC CONTROL DEVICES AND THEIR LOCATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE MANUAL ON TRAFFIC CONTROL DEVICES, THE PLANS, SPECIFICATIONS AND CONTRACT.

SIGN AND BARRICADE LOCATIONS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER. ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS WORK SHALL BE COVERED AS DIRECTED BY THE ENGINEER. ALL "STOP" OR OTHER REGULATORY SIGNS ON THE SIDE ROADS, SHALL NOT BE DISTURBED, EXCEPT WHEN NECESSARY TO COMPLETE THE WORK. THE SIGNS MUST THEN BE IMMEDIATELY REESTABLISHED.

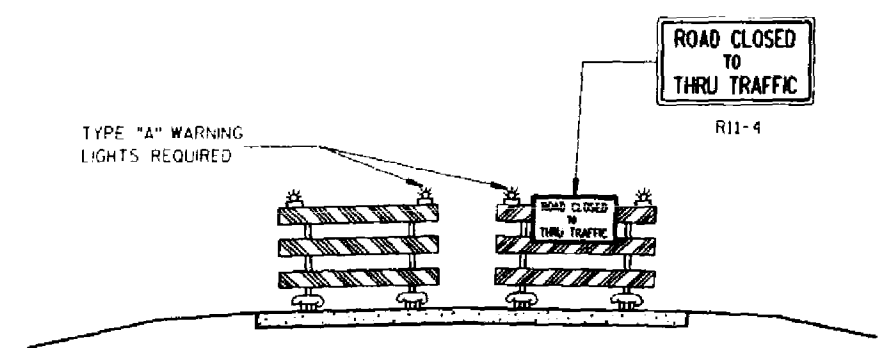
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND AT LEAST ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN.
- ② LANE CLOSURE BARRICADES AS APPLIED IN DETAIL 3 SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES WITH STRIPES PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE. TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.



APPROACH VIEW
ROAD CLOSURE BARRICADE



PLAN VIEW



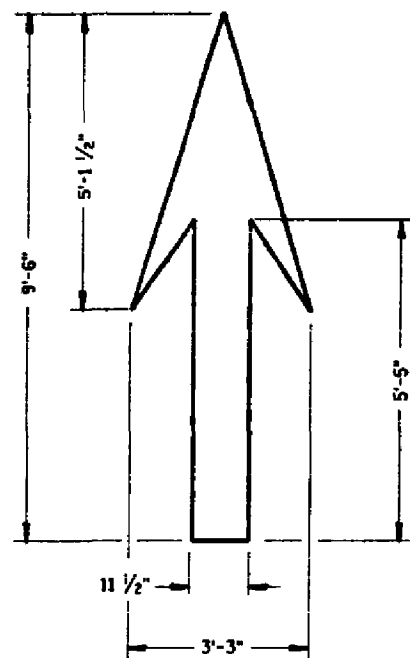
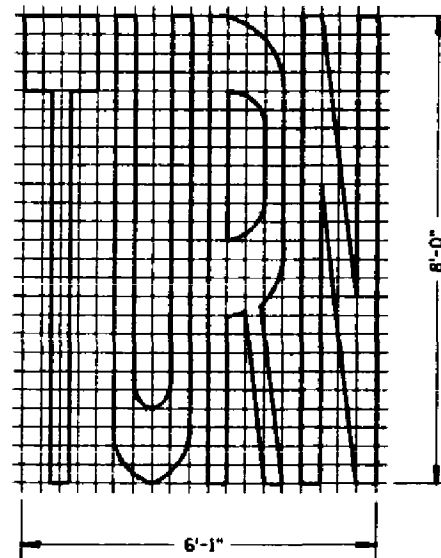
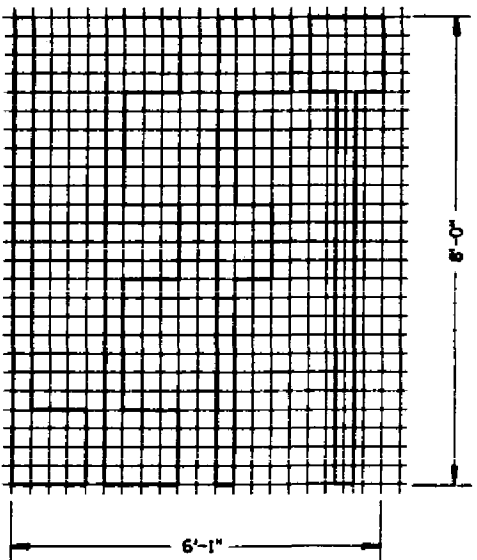
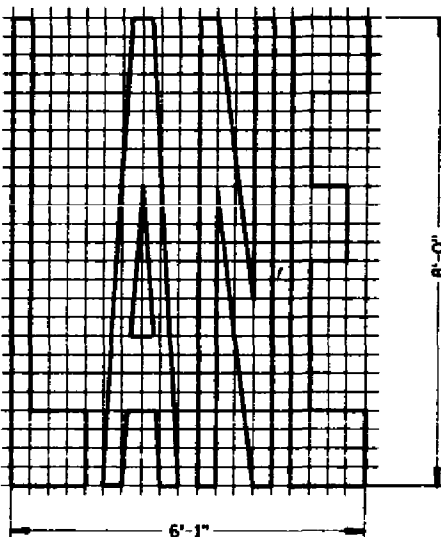
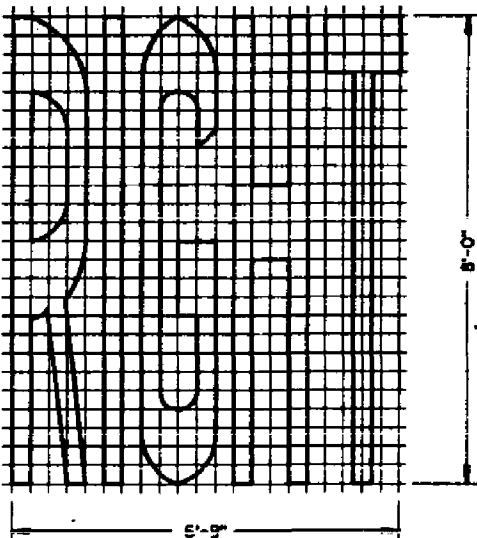
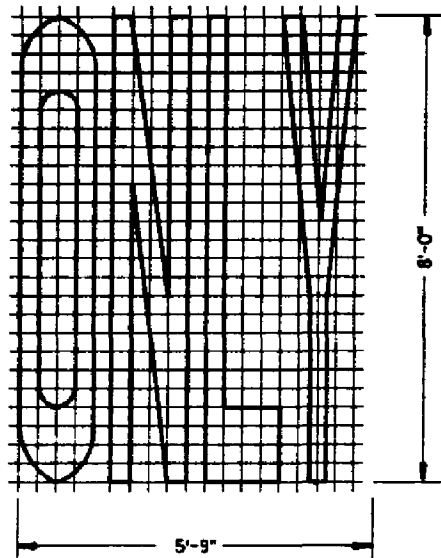
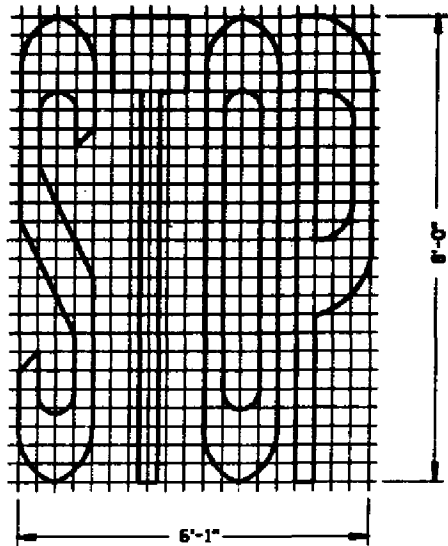
APPROACH VIEW
② LANE CLOSURE BARRICADES

TRAFFIC CONTROL FOR TEMPORARY ROAD CLOSURES IN RURAL AREAS (HIGHWAY UNDER CONSTRUCTION CLOSED TO TRAFFIC)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6-5-85 DATE	<i>[Signature]</i> CHIEF TRAFFIC ENGINEER
FHWA	

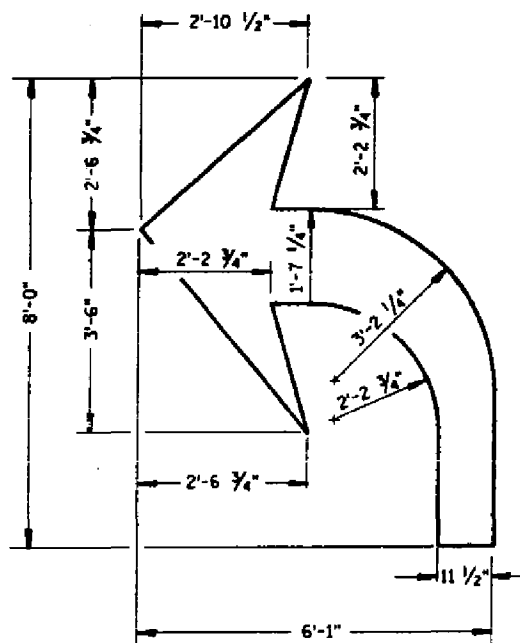
GENERAL NOTES

DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

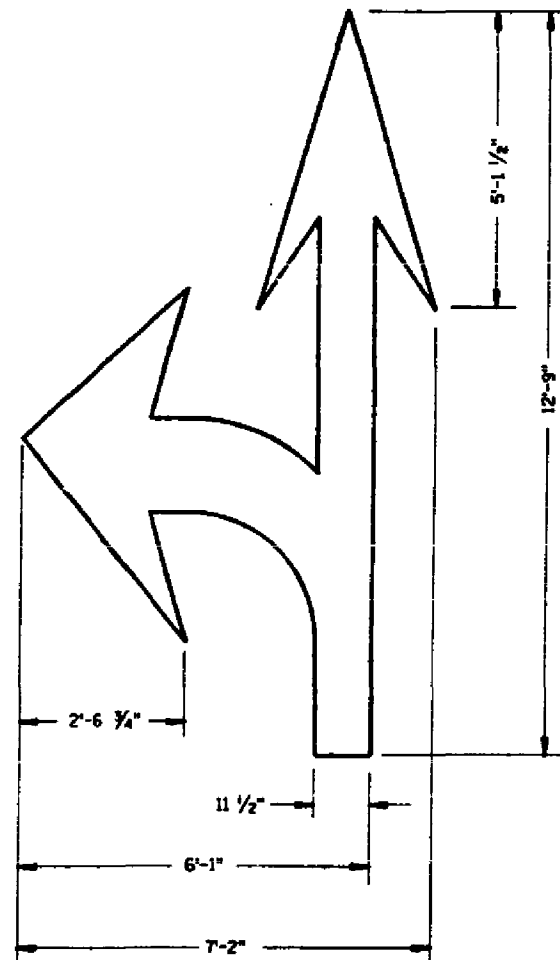
ALL LETTERS AND ARROWS SHALL BE WHITE AND REFLECTORIZED.



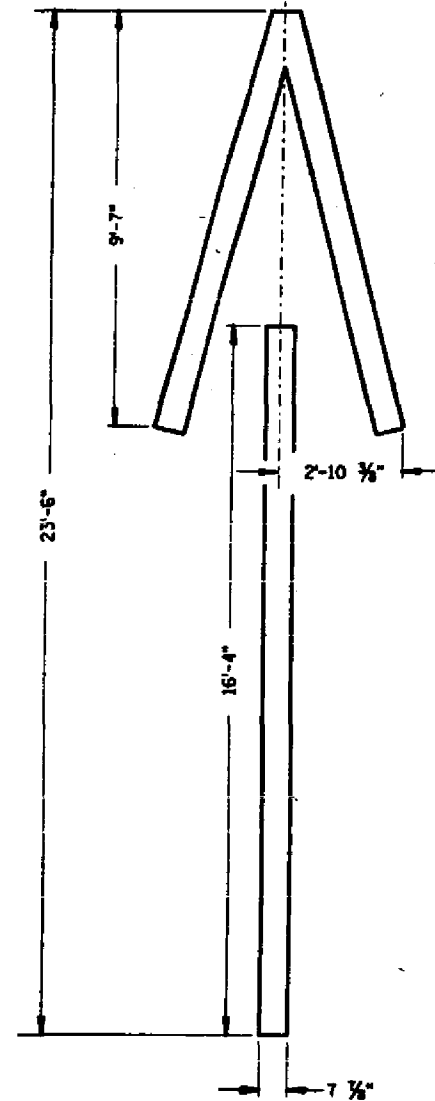
TYPE 1



TYPE 2



TYPE 3



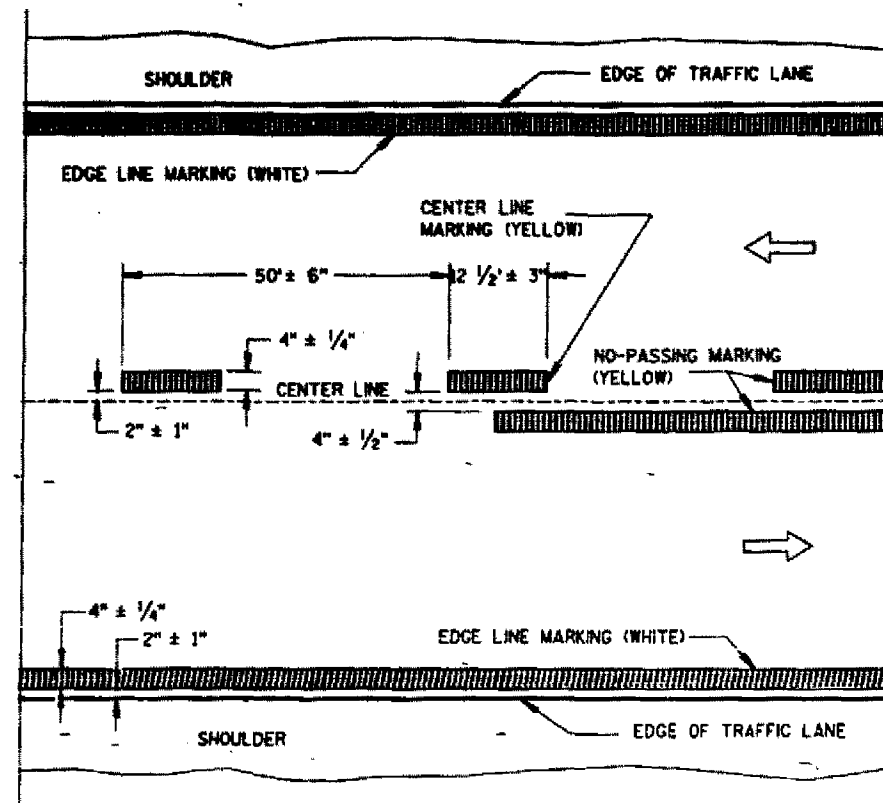
TYPE 4

PAVEMENT MARKING SYMBOLS

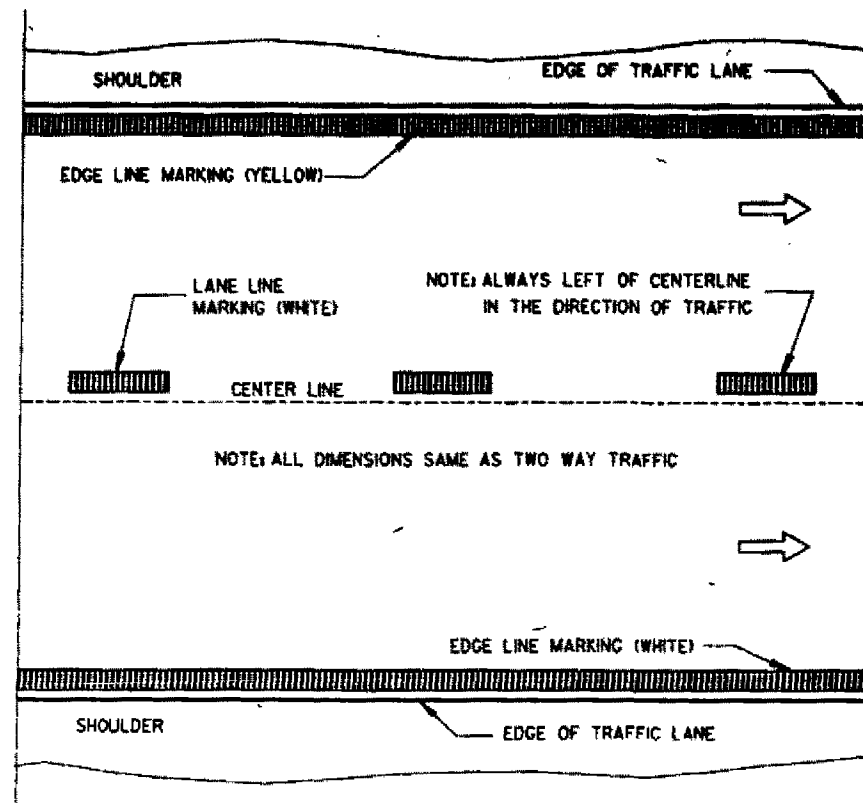
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-23-86
DATE
FHWA

STATE TRAFFIC ENGINEER FOR HWYS

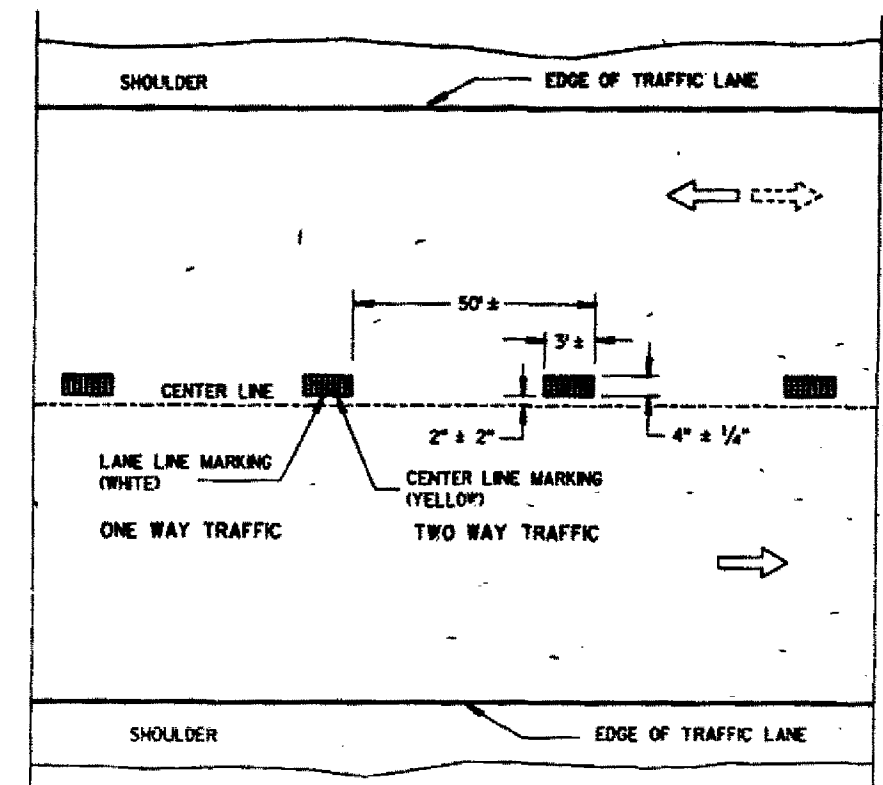


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TEMPORARY PAVEMENT MARKING

GENERAL NOTES

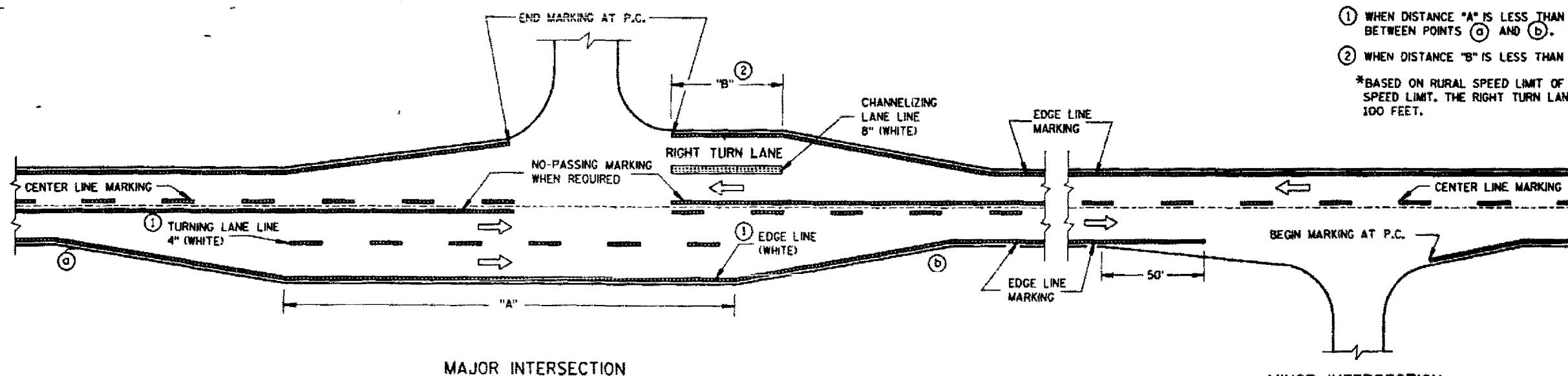
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

① WHEN DISTANCE "A" IS LESS THAN 250 * FEET, OMIT TURNING LANE MARKING AND EDGE LINE BETWEEN POINTS (a) AND (b).

② WHEN DISTANCE "B" IS LESS THAN 150 * FEET, OMIT CHANNELIZING LANE LINE.

*BASED ON RURAL SPEED LIMIT OF 55 MPH. REDUCE VALUES IN PROPORTION TO POSTED SPEED LIMIT. THE RIGHT TURN LANE SHOULD HAVE A DESIRABLE MINIMUM LENGTH OF 100 FEET.



MAJOR INTERSECTION

MINOR INTERSECTION

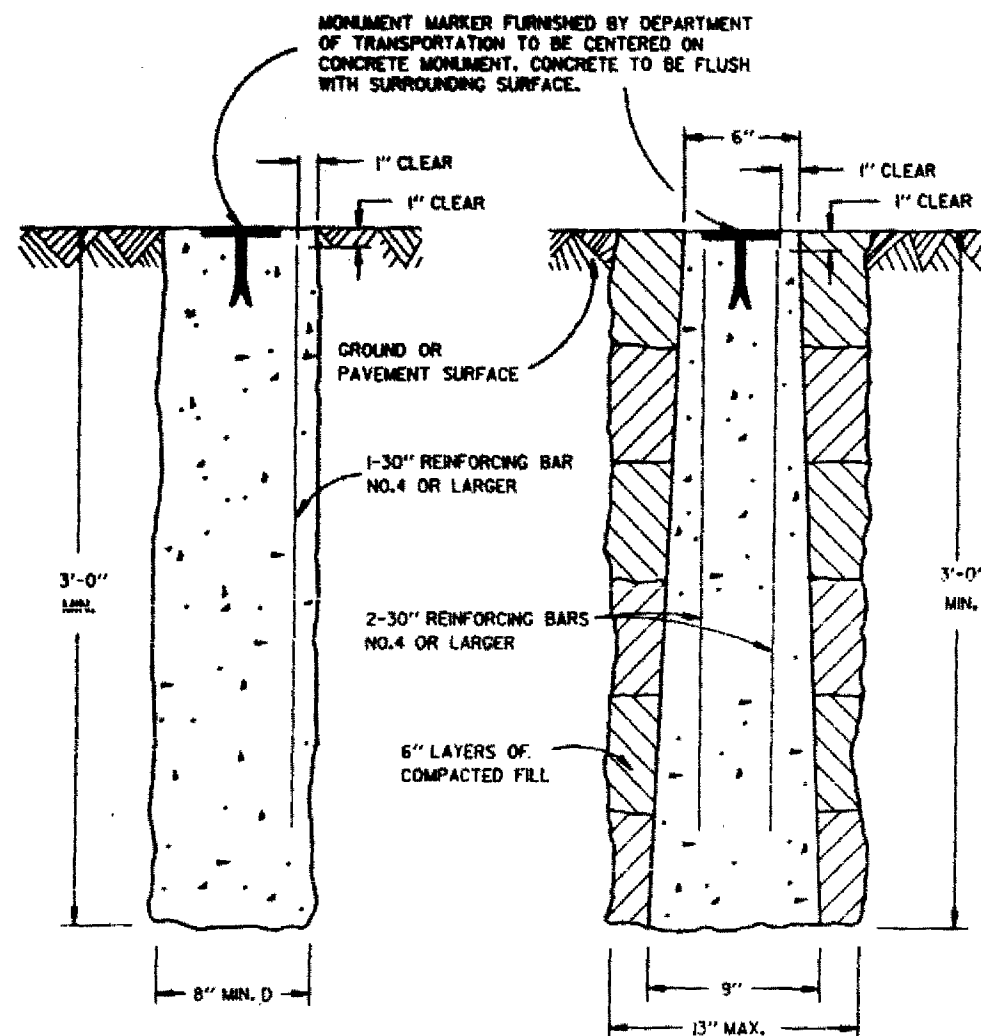
TYPICAL PAVEMENT MARKING FOR RURAL INTERSECTIONS

PAVEMENT MARKING

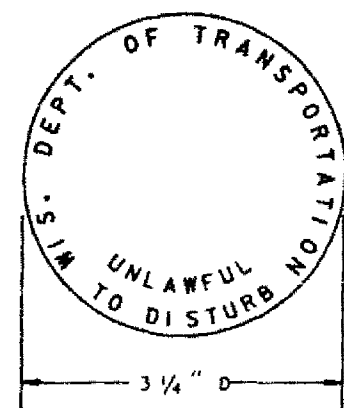
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-23-86
DATE

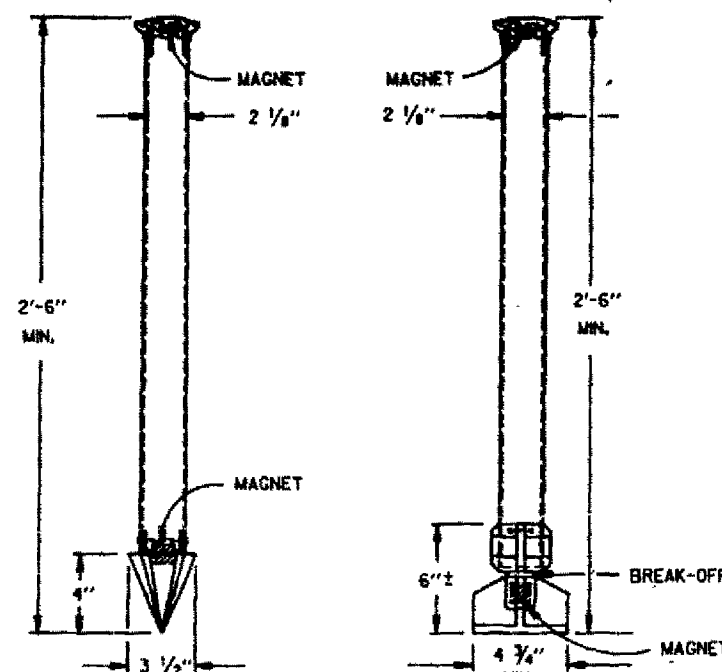
STATE TRAFFIC ENGINEER FOR HWYS
FWHA



CAST-IN-PLACE
CONCRETE MONUMENTS
TYPE A



MONUMENT MARKER LOGO
FOR TYPES "A", "C" & "D"



TYPE C
DRIVE-IN MONUMENT
TYPE D
BREAK-OFF MONUMENT

ALUMINUM MONUMENTS
(INCLUDES MARKER)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE INSTALLED METAL MONUMENT MUST BE EASILY DETECTED WITH A DIP NEEDLE. INERT PERMANENT MAGNETS SHALL BE ATTACHED NEAR THE TOP AND BOTTOM OF THOSE MONUMENTS CONSTRUCTED OF A METAL ALLOY WHICH IS NOT ATTRACTIVE TO A DIP NEEDLE.

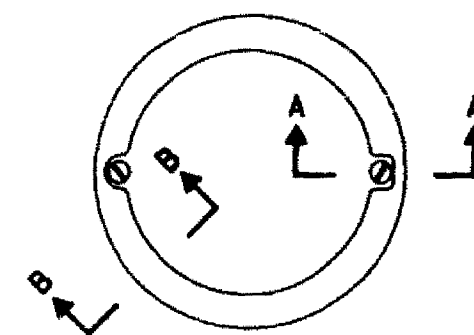
TYPE A AND TYPE D MONUMENTS ARE EQUAL ALTERNATES UNLESS OTHERWISE SPECIFIED.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

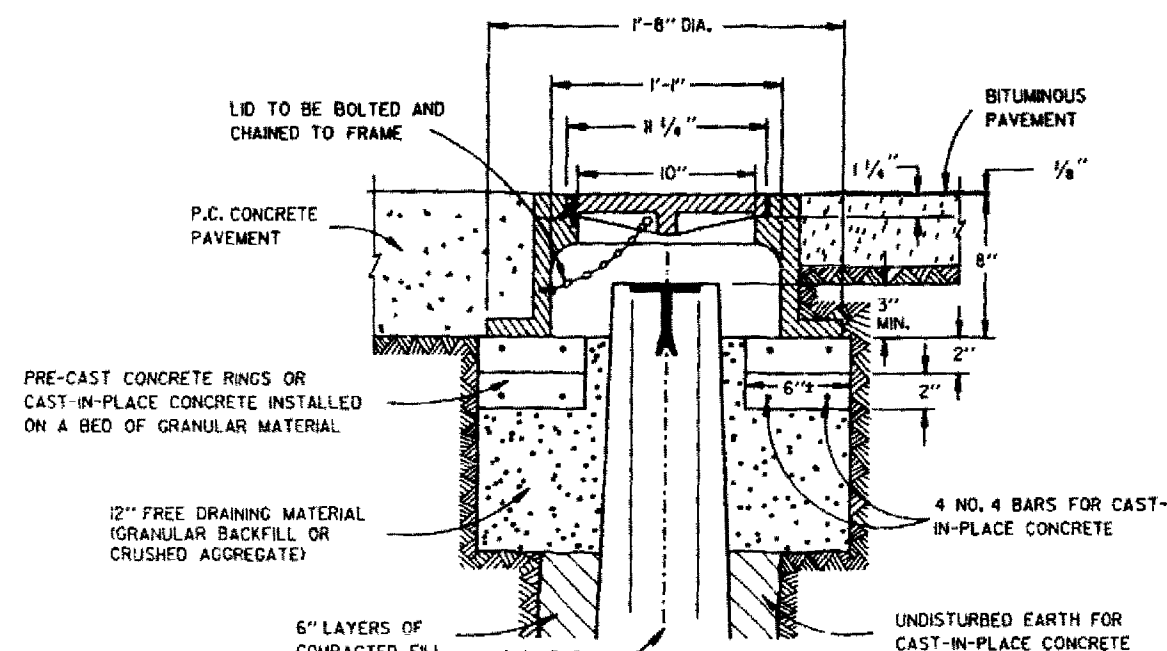
MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

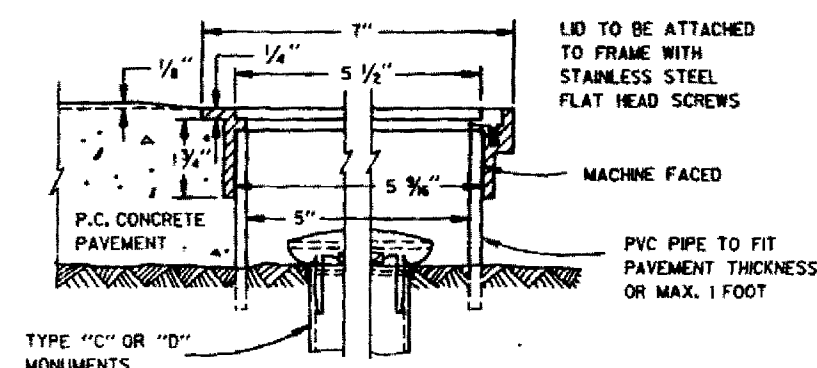
THE MONUMENT COVERS DETAIL ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.



TOP VIEW



CAST IRON MONUMENT COVER
(APPROXIMATE WEIGHT - 95 LBS.)



SECTION B-B SECTION A-A
ALUMINUM MONUMENT COVER

(APPROXIMATE WEIGHT 2 LBS)
(FOR CONCRETE PAVEMENT ONLY)

LANDMARK REFERENCE
MONUMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6-18-89
DATE
CHIEF DESIGN ENGINEER

FHWA