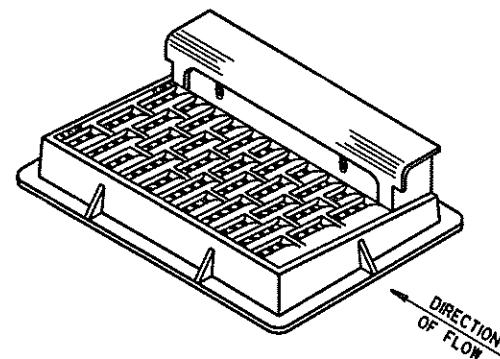
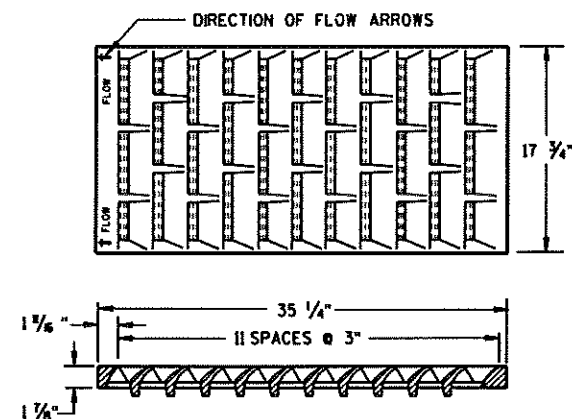


Standard Detail Drawing List

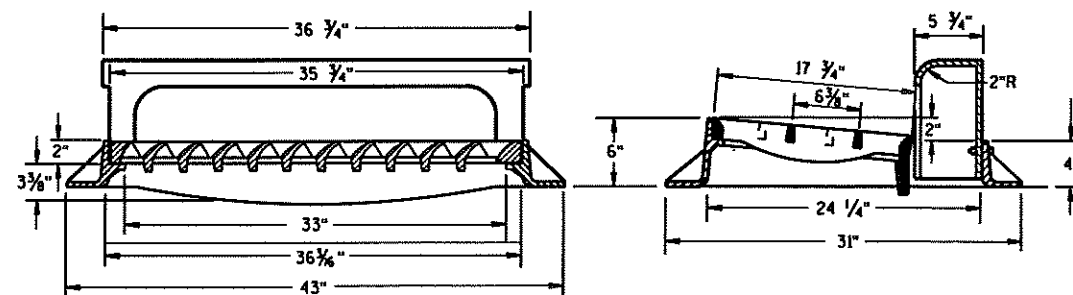
08A5-16A	INLET COVERS TYPE A, H, A-S, & H-S
08A5-16B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A5-16C	INLET COVERS TYPE F, HM, HM-S, S, V, HM-GJ, & HM-GJ-S
08A5-17D	INLET COVER, TYPE Z MANHOLE COVERS, TYPE K, J, J-S, J-H, J-H-S, L & M
08B6-4	MANHOLES TYPE 1
08B7-4	MANHOLES TYPE 2 & 3
08C1-5	INLETS TYPE 1, 2, 3 & 4
08C5-2	INLETS TYPE 8, 9, 10, AND 11
08D1-14	CONCRETE CURB, CONCRETE CURB AND GUTTER & PAVEMENT TIES
08D5-11A	CURB RAMPS TYPES 1 AND 1-A
08D5-11B	CURB RAMPS TYPES 2 AND 3
08D5-11C	CURB RAMPS TYPE 4A
08D5-11D	CURB RAMPS TYPE 4B
08D5-11E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08E8-3	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E9-6	SILT FENCE
08E10-2	INLET PROTECTION TYPE A, B, C AND D
08F1-11	APRON ENDWALLS FOR CULVERT PIPE
08F2-1	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F4-5	JOINT TIES FOR CONCRETE PIPE
08F7-3	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SIDE DRAINS SLOPED SECTION
09A1-12A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A1-12B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
13B1-9	PAVEMENT DETAILS FOR RAILROAD APPROACH
13B2-5	CONCRETE PAVEMENT APPROACH SLAB
13C1-12	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND PAVEMENT TIES
14B15-5A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-5B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B18-5A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-6A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-6B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END AND VERTICAL FACED PARAPETS
14B24-4A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-4B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-4C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15A1-10	MARKER POST FOR RIGHT-OF-WAY
15A3-1	MARKER POSTS, FLEXIBLE, FOR CULVERT END
15B3-11A	CHAIN LINK FENCE
15B3-11B	CHAIN LINK FENCE
15C2-4A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C2-4B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C2-4C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C3-1	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C6-5	SIGNING & MARKING FOR TWO LANE BRIDGES
15C8-10A	PAVEMENT MARKING (MAINLINE)
15C8-10B	PAVEMENT MARKING (INTERSECTIONS)
15C8-10E	PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)
15C9-7A	SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS
15D30-1	TRAFFIC CONTROL, SIDEWALK CLOSURE
15D32-2	TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION
16A1-6	LANDMARK REFERENCE MONUMENTS AND COVERS

6

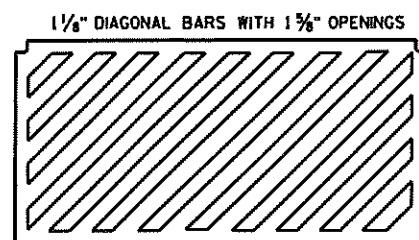
NOTE:
GRATE IS REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"



TYPE "H"
(APPROXIMATE WEIGHT 422 LBS.)
FRAME..... 175 LBS.
GRATE..... 138 LBS.
CURB BOX..... 109 LBS.



**SPECIAL GRATE FOR
TYPE "H" COVER**

(MEASURES 35 1/4" X 17 3/4" X 2")
(APPROXIMATE WEIGHT 172 LBS.)
GRATE..... 172 LBS.
(NOTED AS TYPE H-S ON DRAINAGE TABLE)

S.D.D. 8 A 5-160

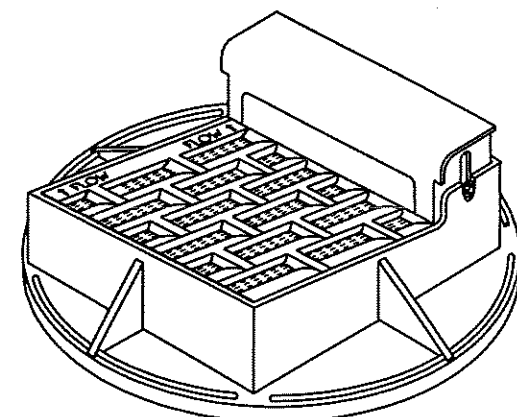
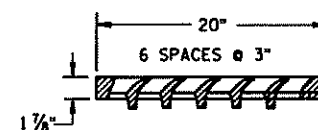
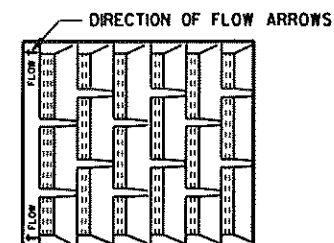
GENERAL NOTES

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.

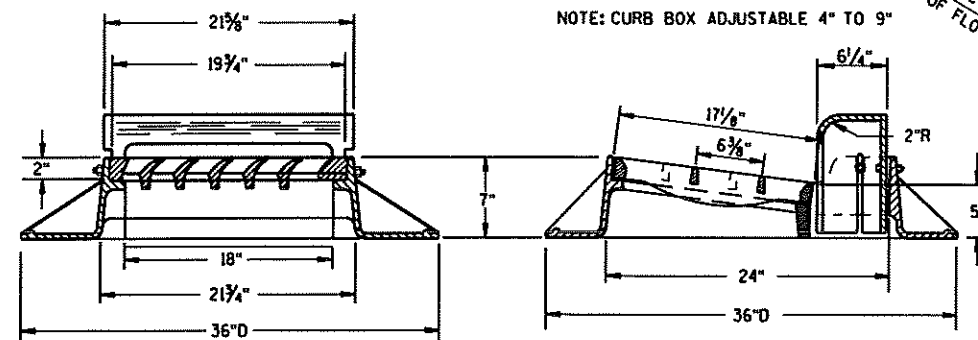
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

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



NOTE: CURB BOX ADJUSTABLE 4" TO 9"

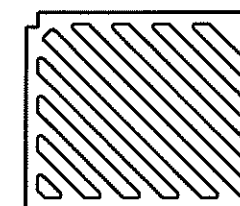


TYPE "A"

(APPROXIMATE WEIGHT 325 LBS.)
FRAME..... 157 LBS.
GRATE..... 84 LBS.
CURB BOX..... 84 LBS.

NOTE:
GRATE IS REVERSIBLE.

1" DIAGONAL BARS
WITH 1 1/2" OPENINGS



**SPECIAL GRATE FOR
TYPE "A" COVER**

(MEASURES 19 3/4" X 17" X 1 1/8")
GRATE..... 84 LBS.
(NOTED AS TYPE A-S ON DRAINAGE TABLE)

**INLET COVERS
TYPE A, H, A-S, & H-S**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

APPROVED

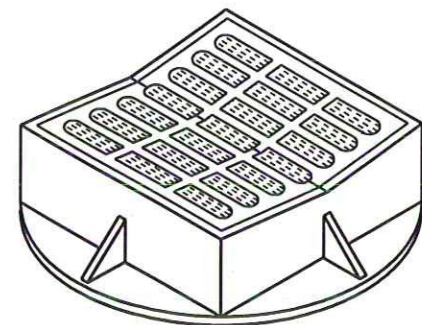
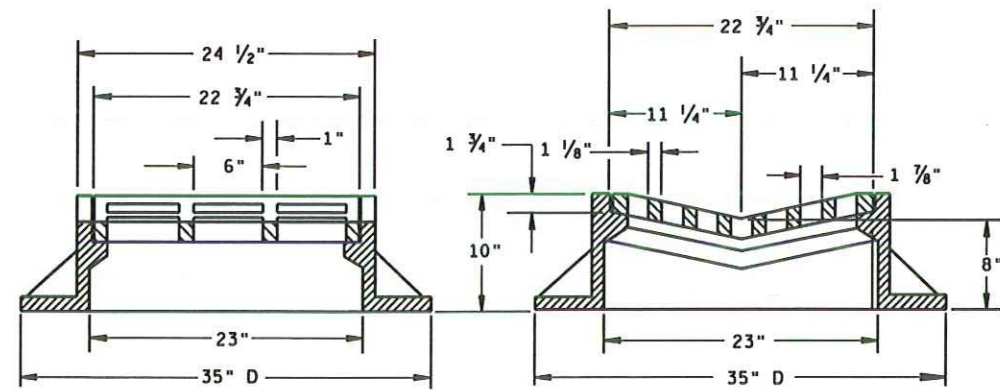
10/4/99
DATE

FHWA

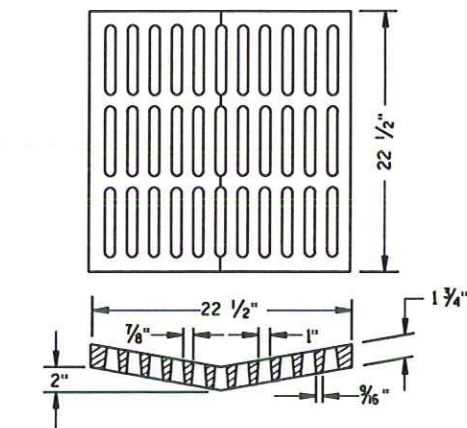
Paul J. Dammann
CHIEF ROADWAY DEVELOPMENT ENGINEER

6

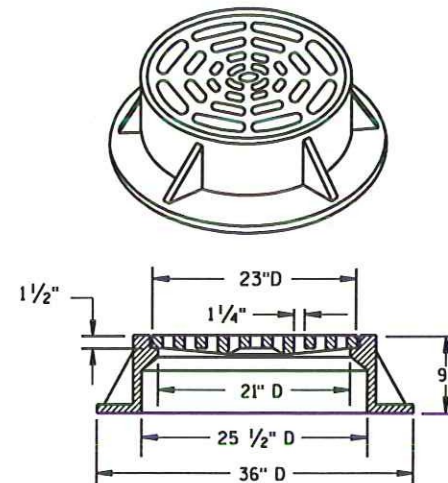
S.D.D. 8 A 5-160



TYPE "B"
(APPROXIMATE WEIGHT 395 LBS.)
FRAME..... 285 LBS.
GRATE..... 110 LBS.



**ALTERNATIVE GRATE FOR
TYPE "B" COVER**
(APPROXIMATE GRATE WEIGHT 125 LBS.)
GRATE.....125 LBS.
USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"
(APPROXIMATE WEIGHT 340 LBS.)
FRAME..... 235 LBS.
GRATE..... 105 LBS.

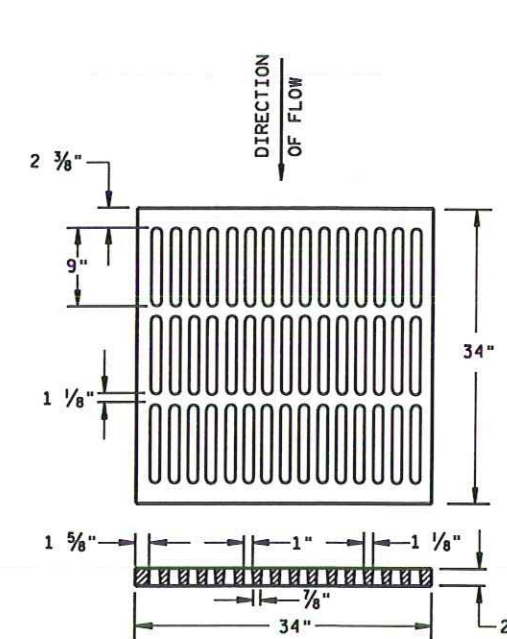
GENERAL NOTES

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 CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

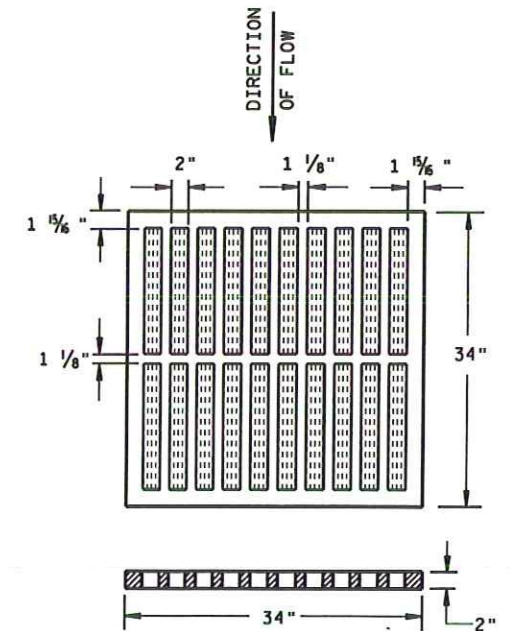
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

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

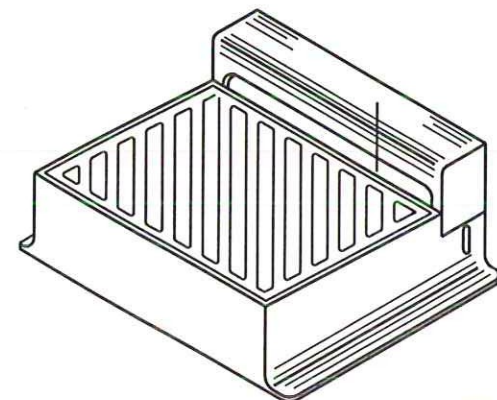


ALTERNATIVE TYPE "MS"
(APPROXIMATE GRATE WEIGHT 365 LBS.)
GRATE.....365 LBS.

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

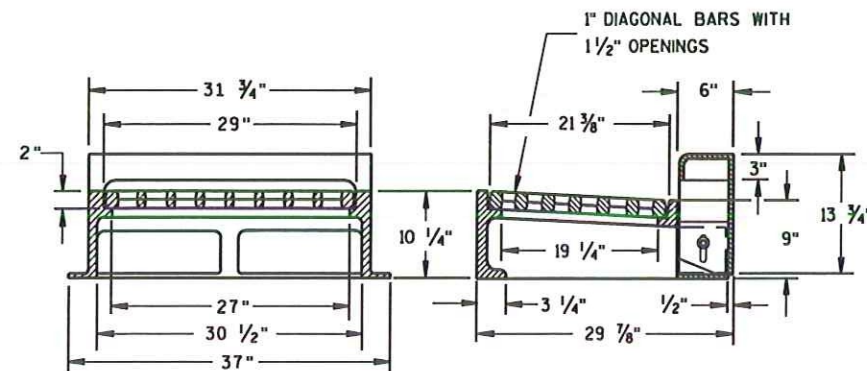


TYPE "MS"
(APPROXIMATE GRATE WEIGHT 270 LBS.)
GRATE.....270 LBS.
USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE



DIRECTION
OF FLOW

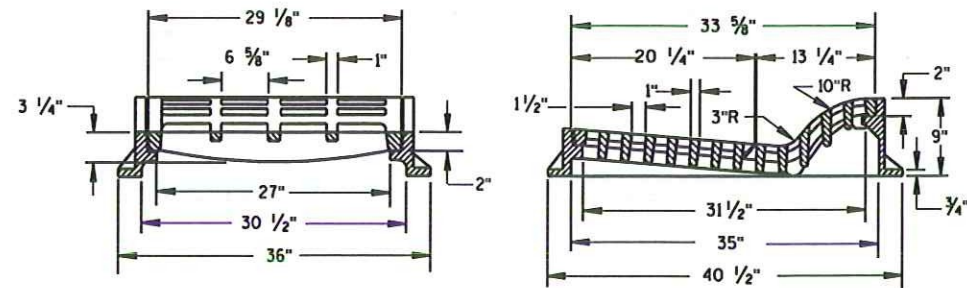
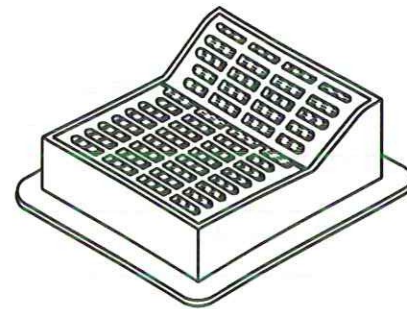
DIAGONAL SLOTS, SHALL BE ORIENTED
TO THE DIRECTION OF FLOW AS ILLUSTRATED.
GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"
(APPROXIMATE WEIGHT 610 LBS.)
FRAME..... 360 LBS.
GRATE..... 160 LBS.
CURB BOX..... 150 LBS.

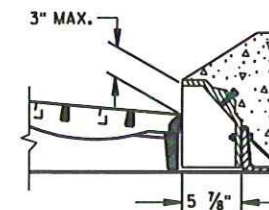
INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/4/99 DATE	 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



TYPE "F"

(APPROXIMATE WEIGHT 645 LBS.)
 FRAME.....300 LBS.
 GRATE.....165 LBS.
 GRATE.....180 LBS.

USE WITH CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

(APPROXIMATE WEIGHT 79 LBS.)
 CURB BOX.....79 LBS.

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
 NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

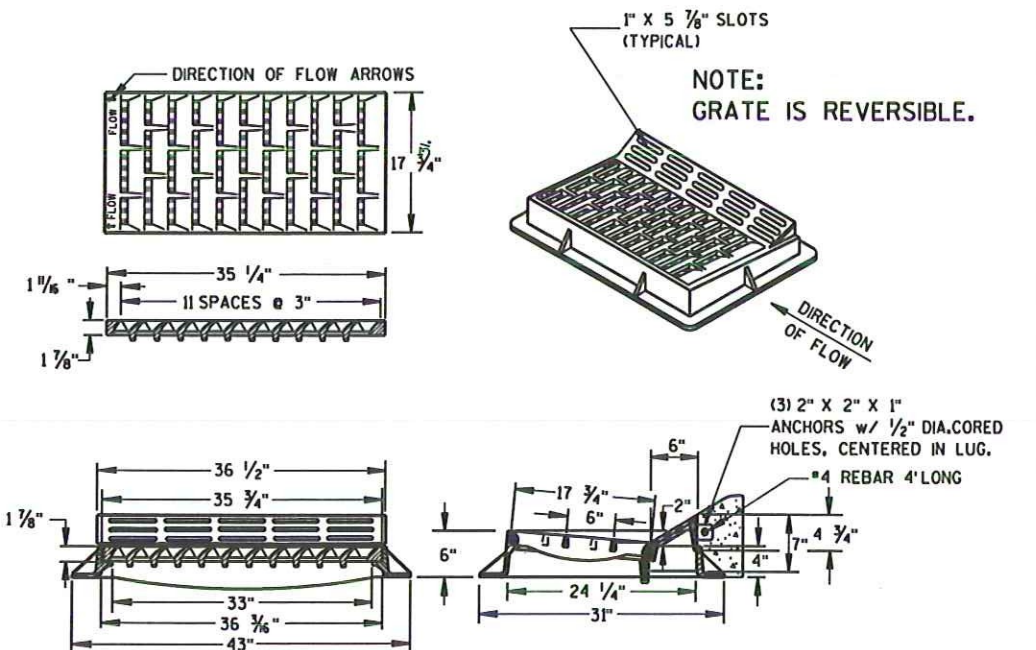
NOTE:
 SPECIAL GRATE FOR THE
 TYPE "H" COVER MAY ALSO BE
 USED FOR THE TYPE "HM-GJ" COVER
 NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

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.

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

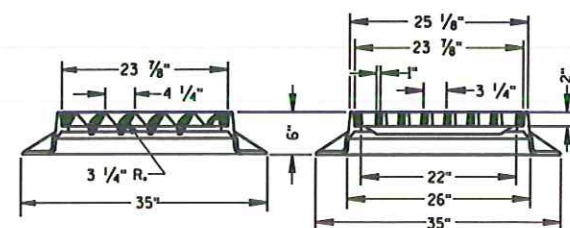
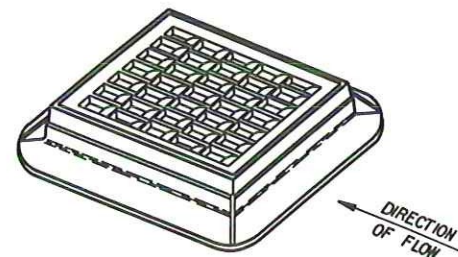


TYPE "HM"

(APPROXIMATE WEIGHT 375 LBS.)
 FRAME.....175 LBS.
 GRATE.....138 LBS.
 CURB BOX.....62 LBS.

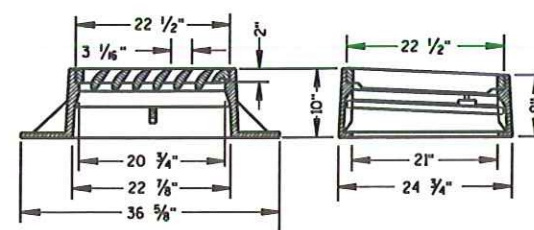
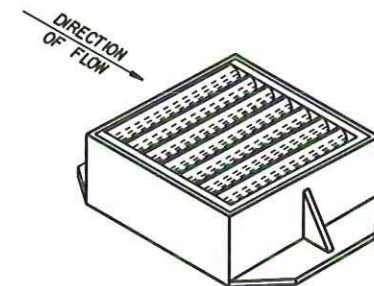
USE WITH CONCRETE CURB & GUTTER, 36 INCH.

NOTE:
 SPECIAL GRATE FOR THE
 TYPE "H" COVER MAY ALSO BE
 USED FOR THE TYPE "HM" COVER
 NOTED AS TYPE HM-S ON DRAINAGE TABLE



TYPE "S"

(APPROXIMATE WEIGHT 334 LBS.)
 FRAME.....165 LBS.
 GRATE.....169 LBS.



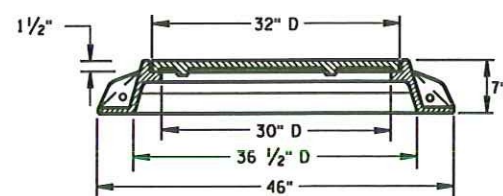
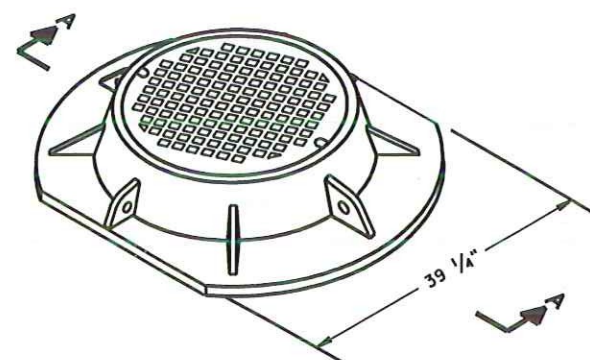
TYPE "V"

(APPROXIMATE WEIGHT 405 LBS.)
 FRAME.....270 LBS.
 GRATE.....130 LBS.
 SAFETY BAR.....5 LBS.

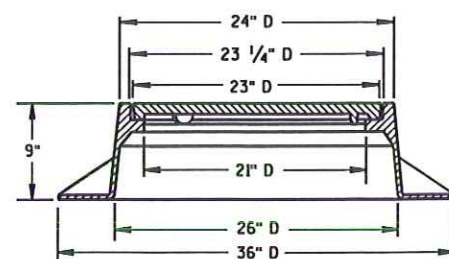
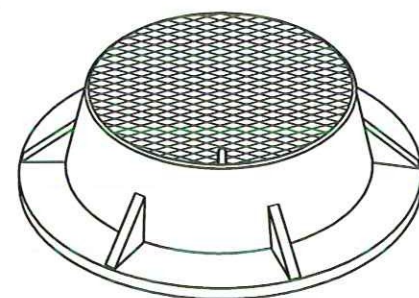
INLET COVERS
 TYPE F, HM, HM-S, S, V,
 HM-GJ, & HM-GJ-S

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 DEPARTMENT OF TRANSPORTATION

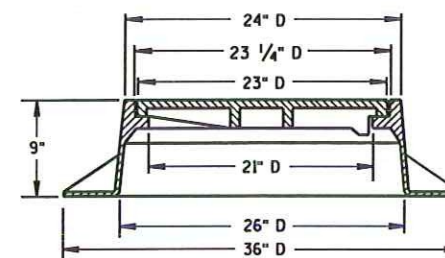
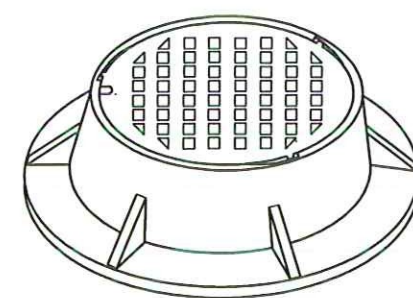
APPROVED
 10/4/99
 DATE
 [Signature]
 CHIEF ROADWAY DEVELOPMENT ENGINEER
 FHWA



SECTION A-A
TYPE "K"
(APPROXIMATE WEIGHT 415 LBS.)
FRAME..... 210 LBS.
LID..... 205 LBS.



TYPE "J"
(APPROXIMATE WEIGHT 250 LBS.)
FRAME..... 135 LBS.
LID..... 115 LBS.



TYPE "J" SPECIAL
TYPE "B" NON-ROCKING SELF-SEAL LID
(APPROXIMATE WEIGHT 245 LBS.)
FRAME..... 145 LBS.
LID..... 100 LBS.
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

GENERAL NOTES

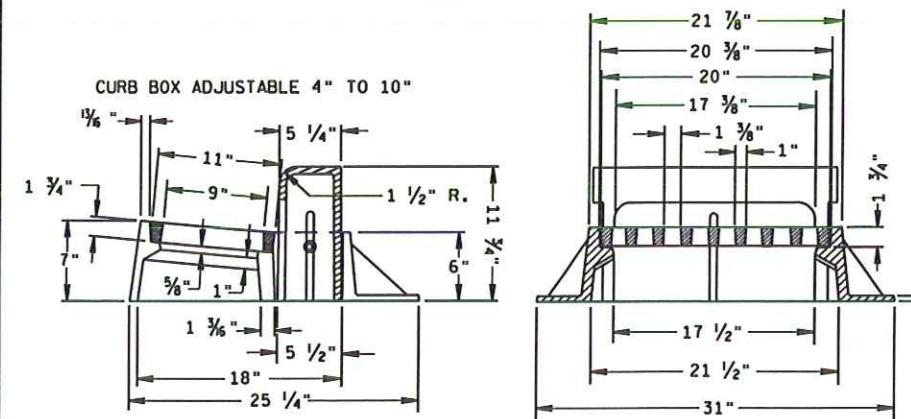
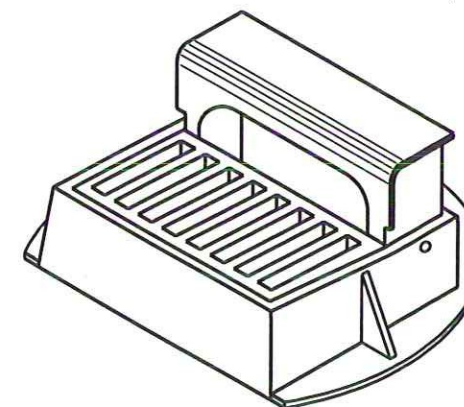
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

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

① MANUFACTURER MAY PROVIDE ADDITIONAL SEALS OR GASKETS.



INLET COVER TYPE "Z"

(APPROXIMATE WEIGHT 340 LBS.)

FRAME..... 198 LBS.

GRATE..... 50 LBS.

CURB BOX..... 92 LBS.

INLET COVER, TYPE Z
MANHOLE COVERS, TYPE
K, J, J-S, J-H, J-H-S, L & M

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DEPARTMENT OF TRANSPORTATION

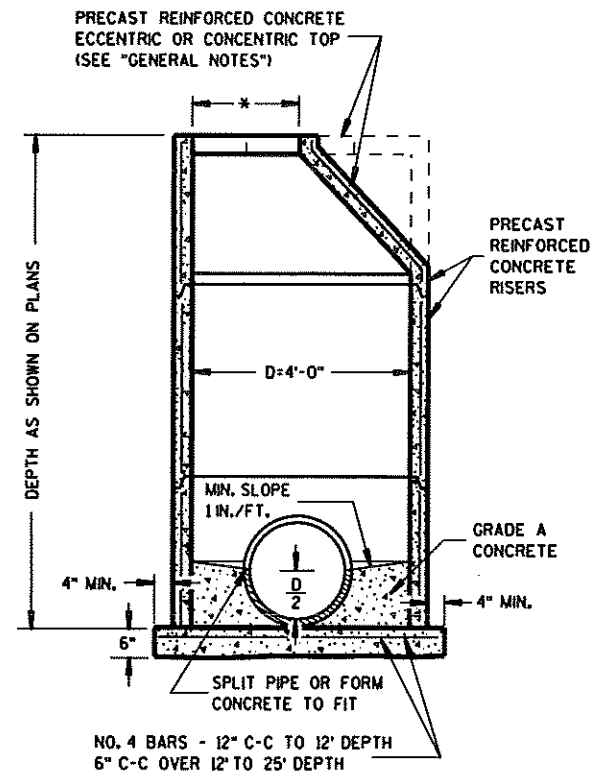
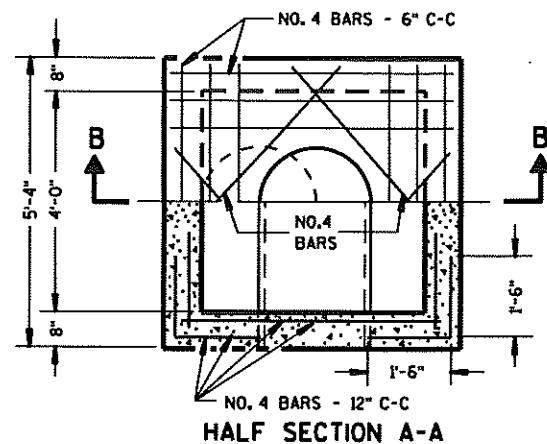
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4-29-05

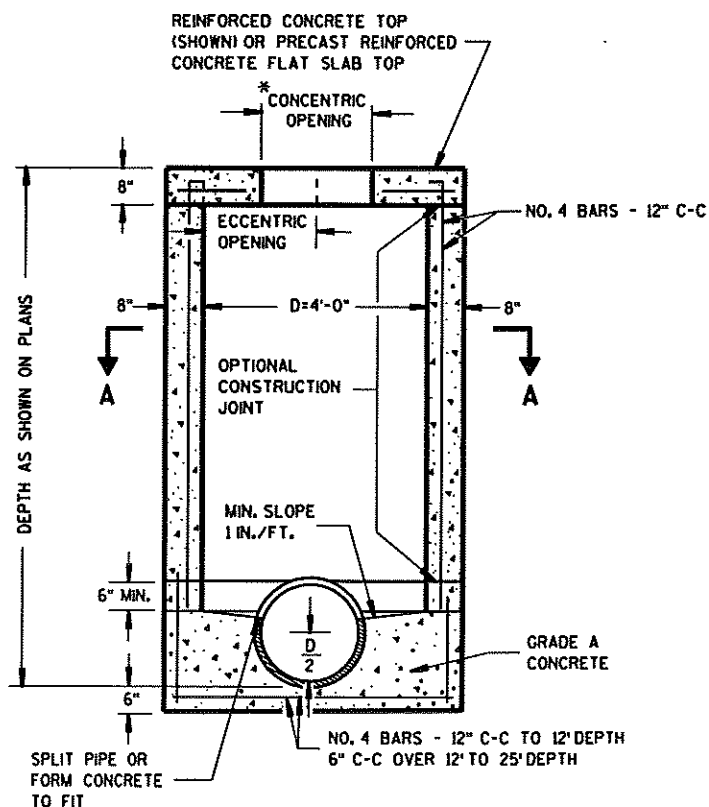
DATE

FHWA

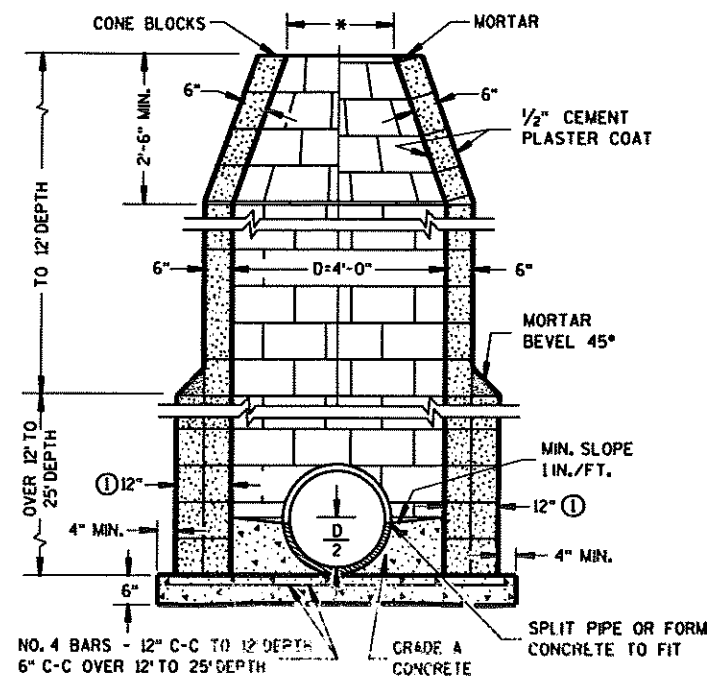
CHIEF ROADWAY DEVELOPMENT ENGINEER



PRECAST REINFORCED CONCRETE



SECTION B-B 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 I-C", "CATCH BASINS I-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 OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED 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 CONFORMING TO AASHTO M 199 SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH.

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.

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 AND MANHOLES 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 "X" AND "M" COVERS.

① 2 COURSES 6" BLOCK.

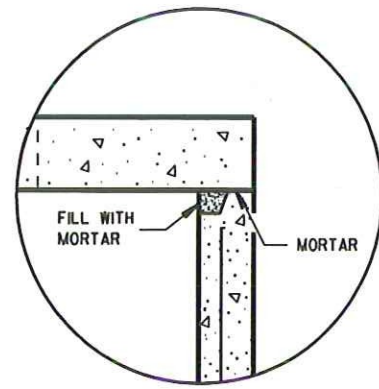
MANHOLES TYPE I

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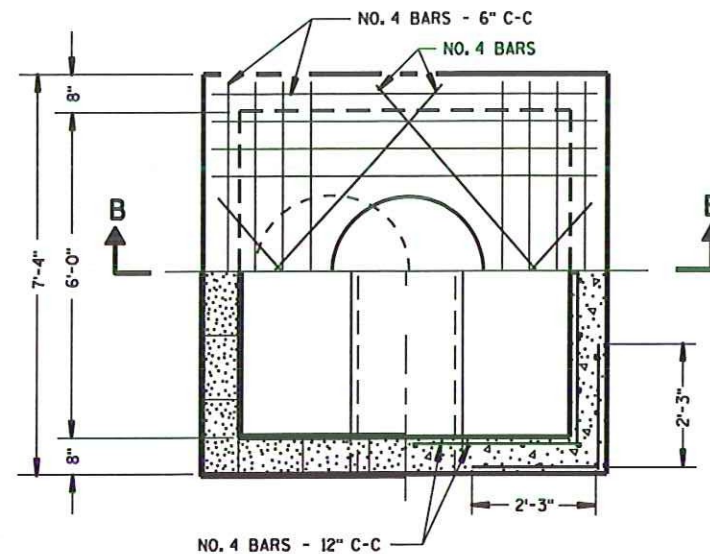
APPROVED
9/9/05 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

MANHOLES TYPE 1

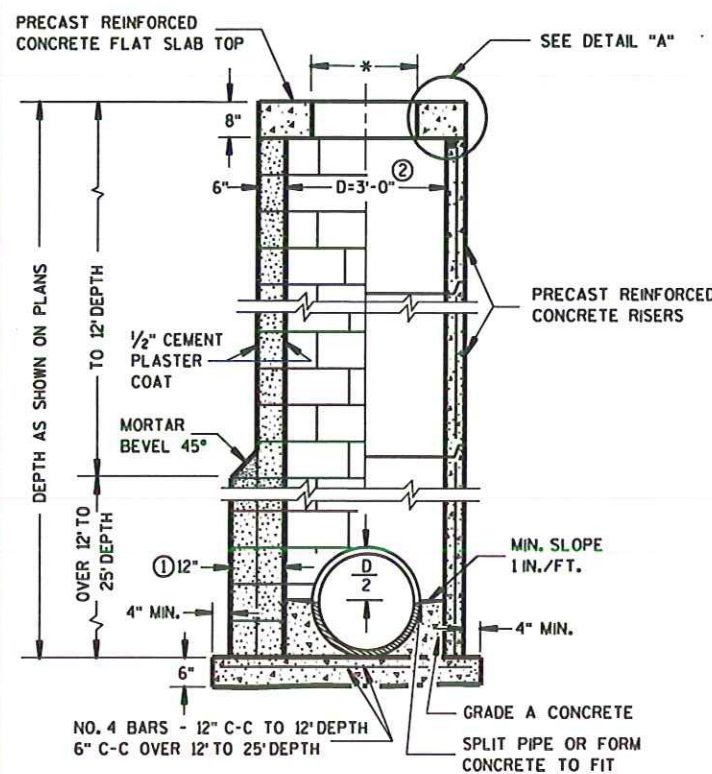
S.D.D. 8 B 6-4



DETAIL "A"



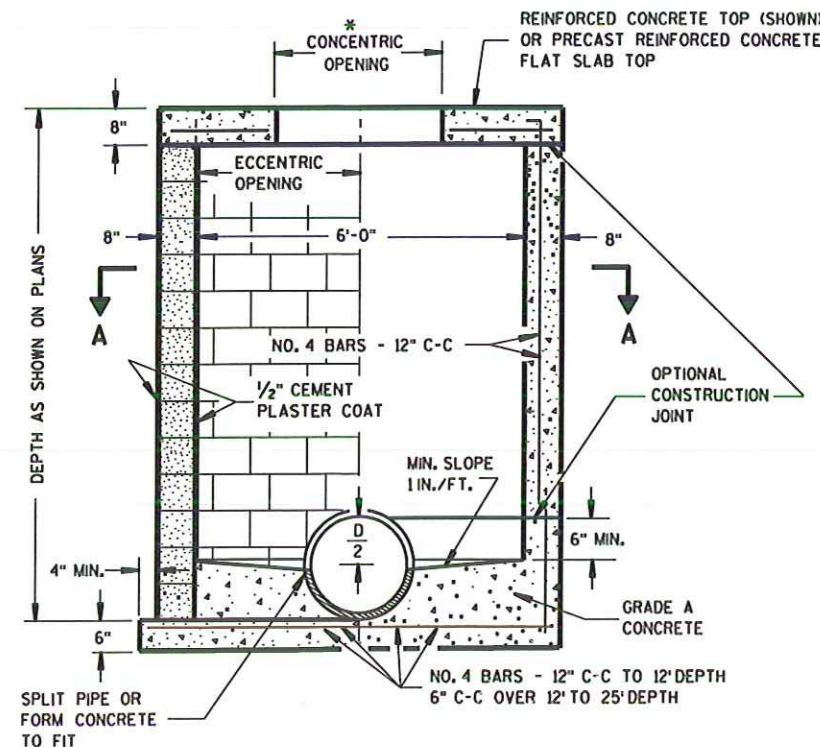
HALF SECTION A-A



CONCRETE
BLOCK

② PRECAST
REINFORCED
CONCRETE

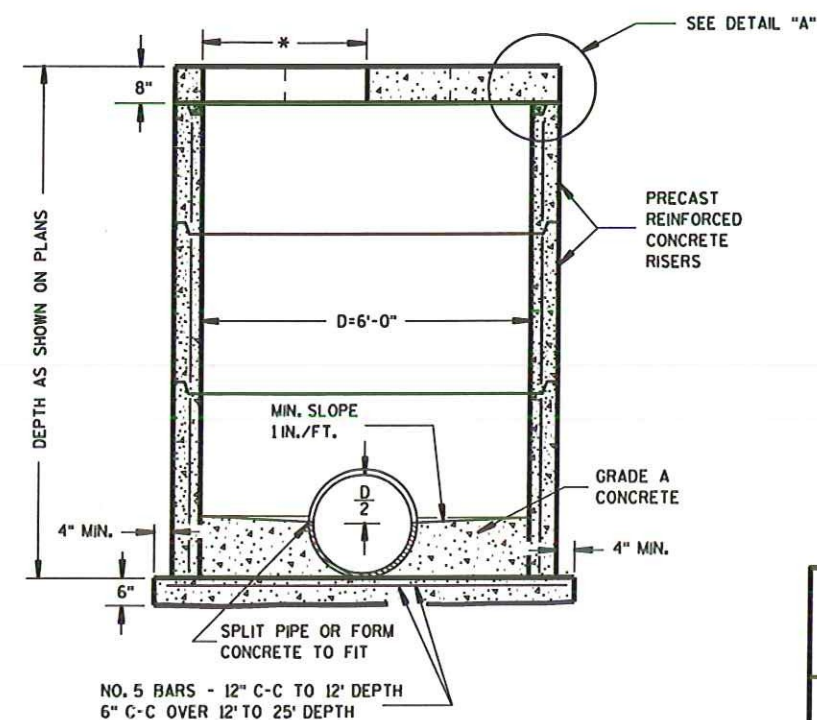
MANHOLES TYPE 2



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 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

STEPS CONFORMING TO AASHTO M 199 SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH.

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.

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 AND MANHOLES 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.

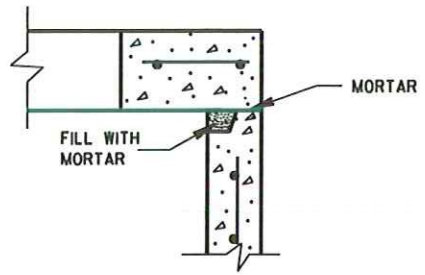
MANHOLES TYPE 2 & 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

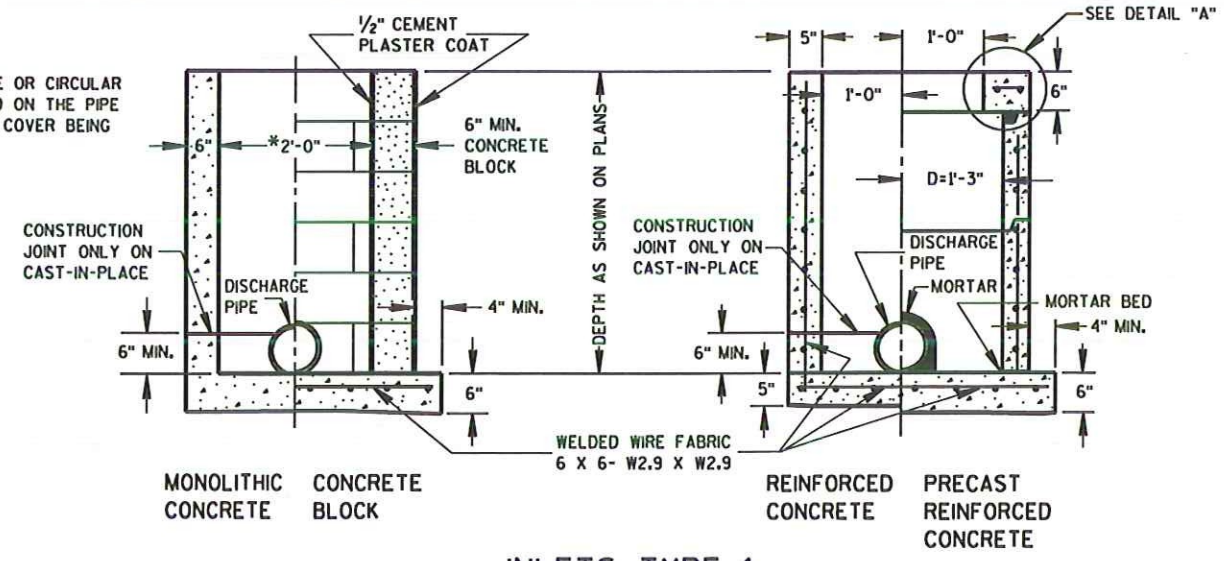
APPROVED
9/9/05
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

*SELECTION OF SQUARE OR CIRCULAR DESIGN WILL BE BASED ON THE PIPE SIZES AND THE INLET COVER BEING UTILIZED



DETAIL "A"



INLETS TYPE 1

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.

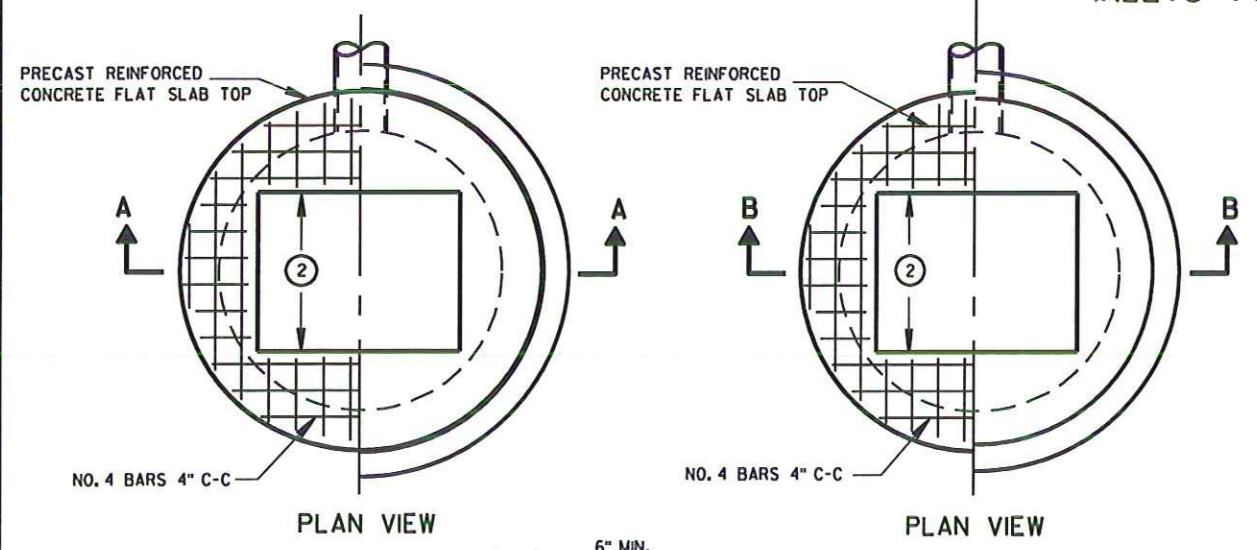
PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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.

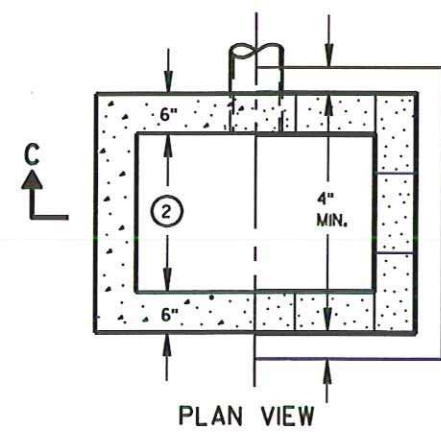
PRECAST REINFORCED CONCRETE RISERS SHALL BE PLACED WITH TONGUE DOWN.

- ① USE 2'-6" OPENING FOR TYPE 2 INLETS, 3'-0" OPENING FOR TYPE 3 INLETS, AND 2'-11" FOR TYPE 4 INLETS.
- ② USE 2'-0" OPENING FOR TYPE 1, 2 & 3 INLETS, 2'-6 1/2" OPENING FOR TYPE 4 INLETS.

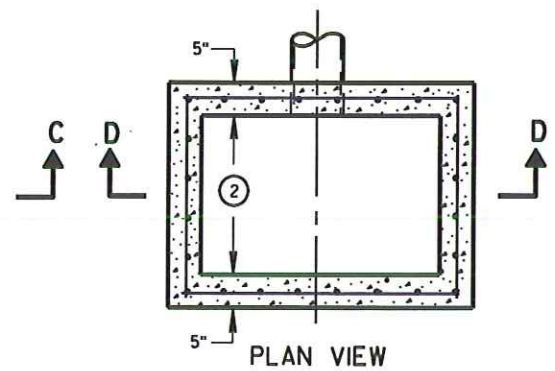


PLAN VIEW

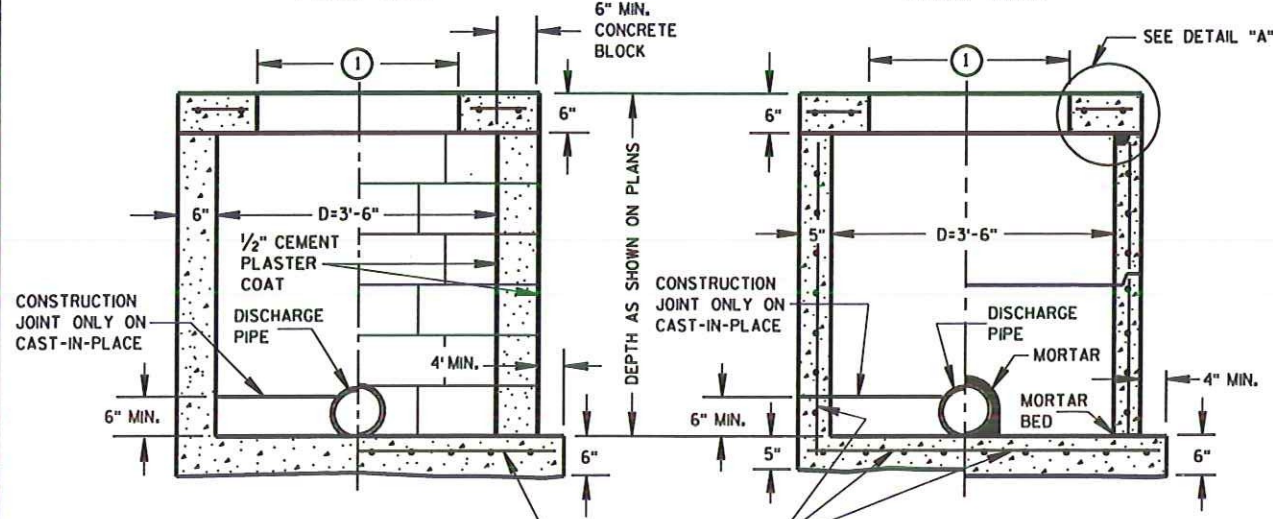
PLAN VIEW



PLAN VIEW

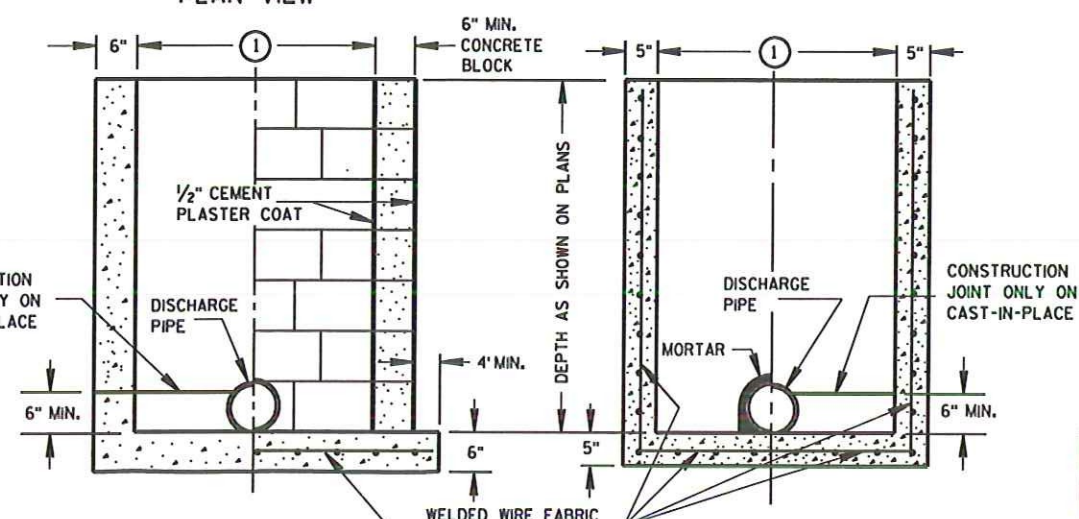


PLAN VIEW



SECTION A-A

SECTION B-B



SECTION C-C

SECTION D-D

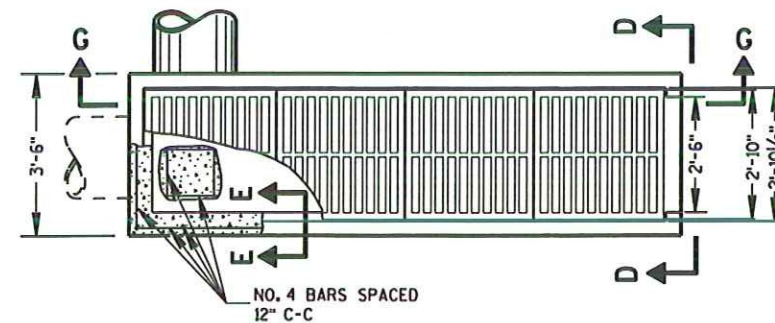
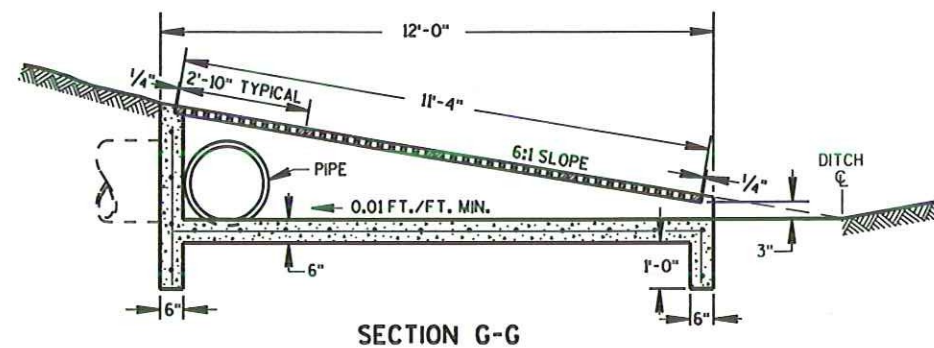
INLETS TYPE 2, 3 & 4

INLETS TYPE 1, 2, 3 & 4

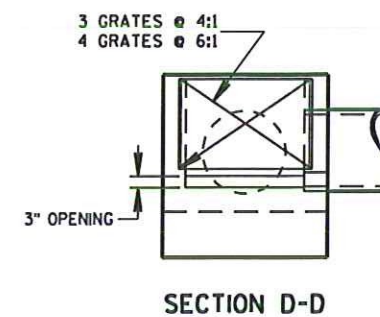
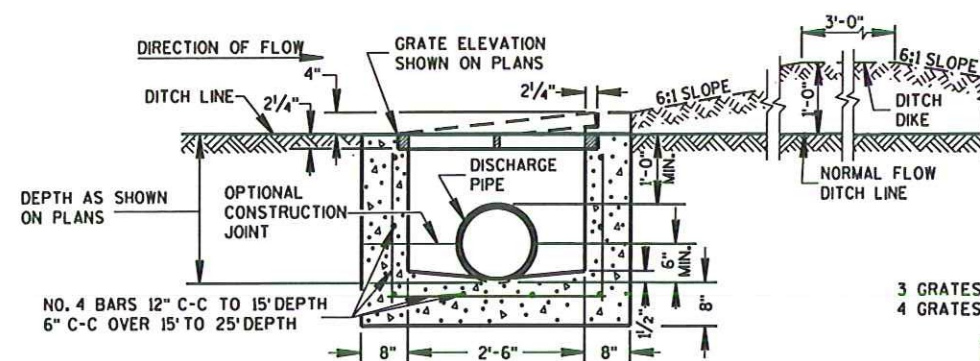
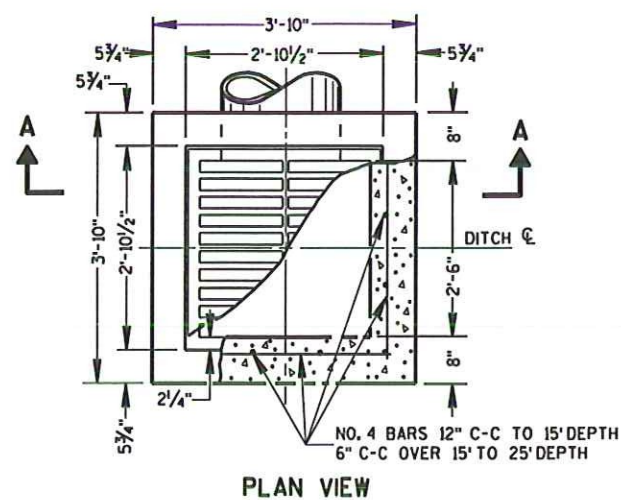
STATE OF WISCONSIN
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APPROVED
8/26/94
DATE
FHWA

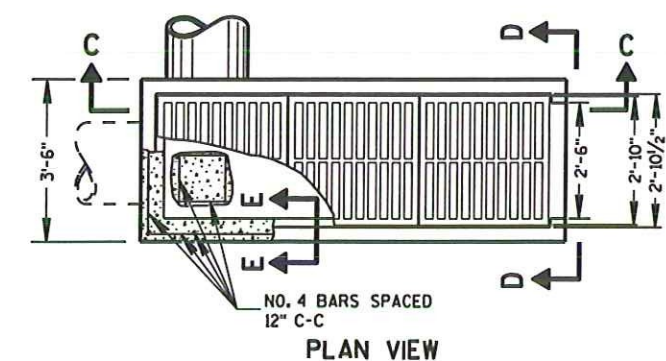
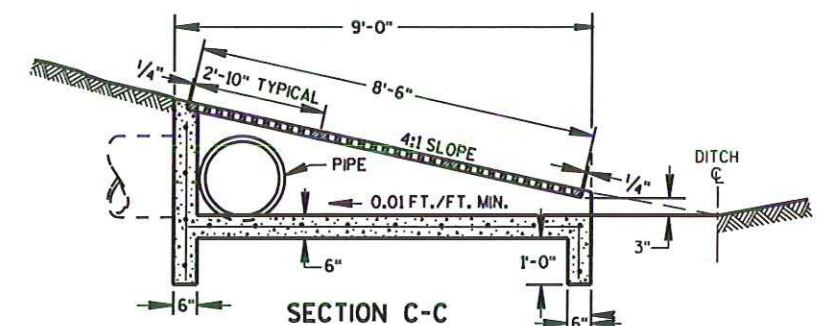
Ray J. Korman
CHIEF ROADWAY DEVELOPMENT ENGINEER



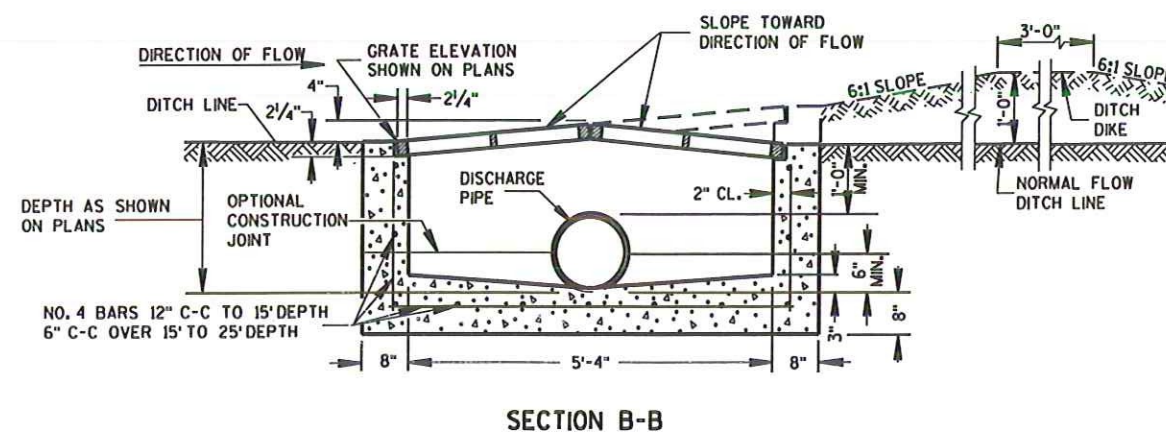
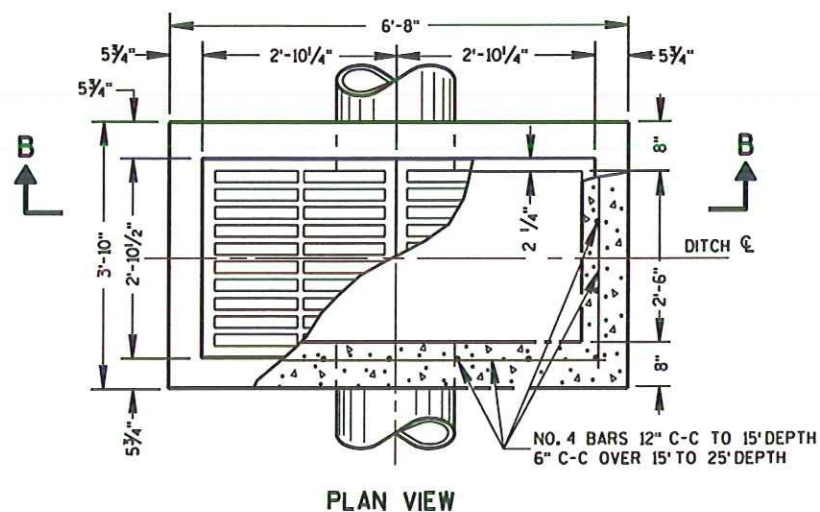
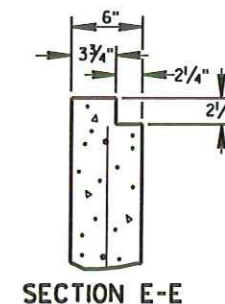
REINFORCED CONCRETE INLET TYPE 11



REINFORCED CONCRETE INLET TYPE 8



REINFORCED CONCRETE INLET TYPE 10



REINFORCED CONCRETE INLET TYPE 9

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. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A CORRECTED LIST OF SIZES IS FURNISHED BY THE ENGINEER.

ALL INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, 8-MS", ETC. THIS DESIGNATION IS INTERPRETTED 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.

6

6

S.D.D. 8 C 5-2

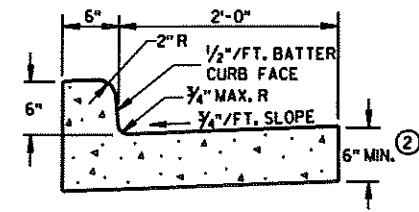
S.D.D. 8 C 5-2

INLETS TYPE 8, 9, 10 AND 11

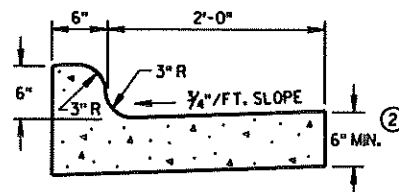
STATE OF WISCONSIN
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APPROVED
8/10/94
DATE
FHWA

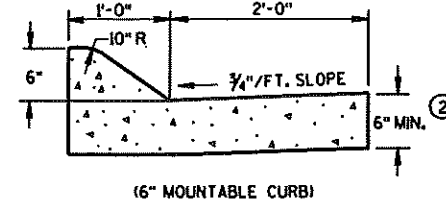
Toussaint L. Thumme
CHIEF ROADWAY DEVELOPMENT ENGINEER



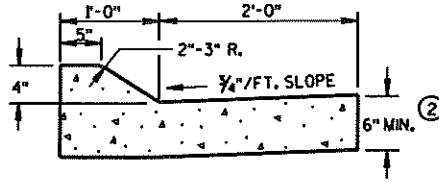
TYPES A & D ①



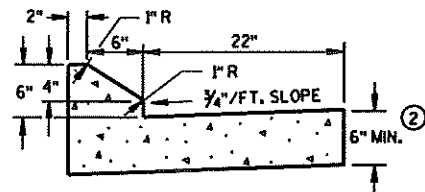
TYPES K & L ①



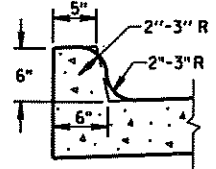
(6" MOUNTABLE CURB)



(4" MOUNTABLE CURB)

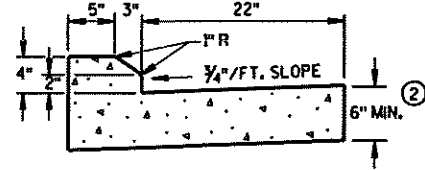


TYPES G & J ①



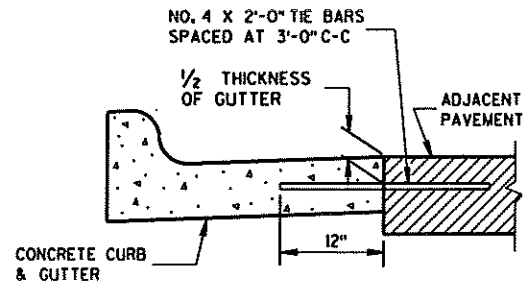
OPTIONAL CURB SHAPE

FOR TYPES K & L ①

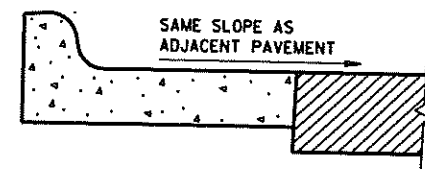


4" MOUNTABLE CURB TYPES G & J ①

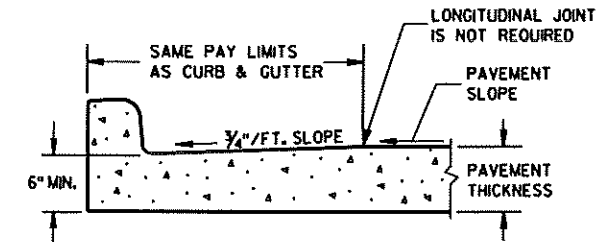
CONCRETE CURB & GUTTER 30"



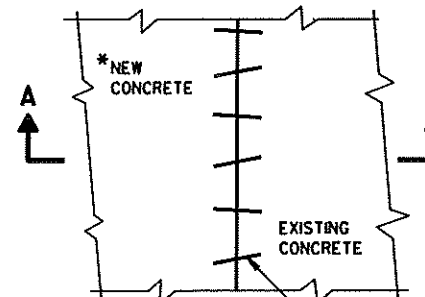
TYPICAL TIE BAR LOCATION ①



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



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



PLAN VIEW

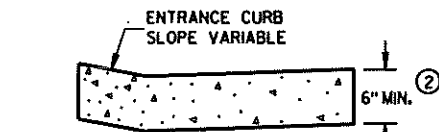
*NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.

NO. 6 X 12" DEF. BARS
SPACED 3'-0" C-C,
INSTALLED ON 6:1 SKEW
HORIZONTALLY. DIRECTION
OF SKEW ALTERNATING AFTER
EVERY ONE OR TWO BARS.

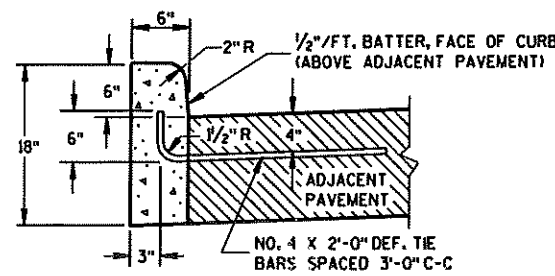
THE HOLE FOR THE BAR SHALL
BE DRILLED TO A DEPTH OF
7" AND TO SUCH A DIAMETER
AS TO PROVIDE A TIGHT
DRIVEN FIT

EXISTING
CONCRETE

SECTION A-A
PAVEMENT TIES

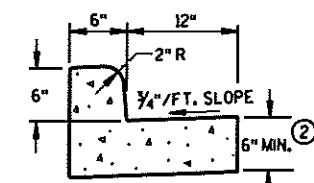


DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

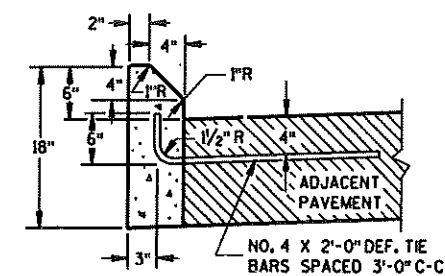


TYPES A & D ①

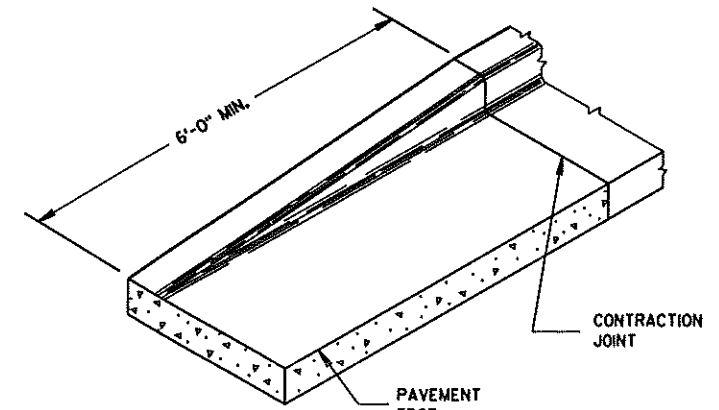
CONCRETE CURB



TYPES A & D
CONCRETE CURB & GUTTER 18"



TYPES G & J ①



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE
CURB & GUTTER AND
PAVEMENT TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6-7-06 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

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

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

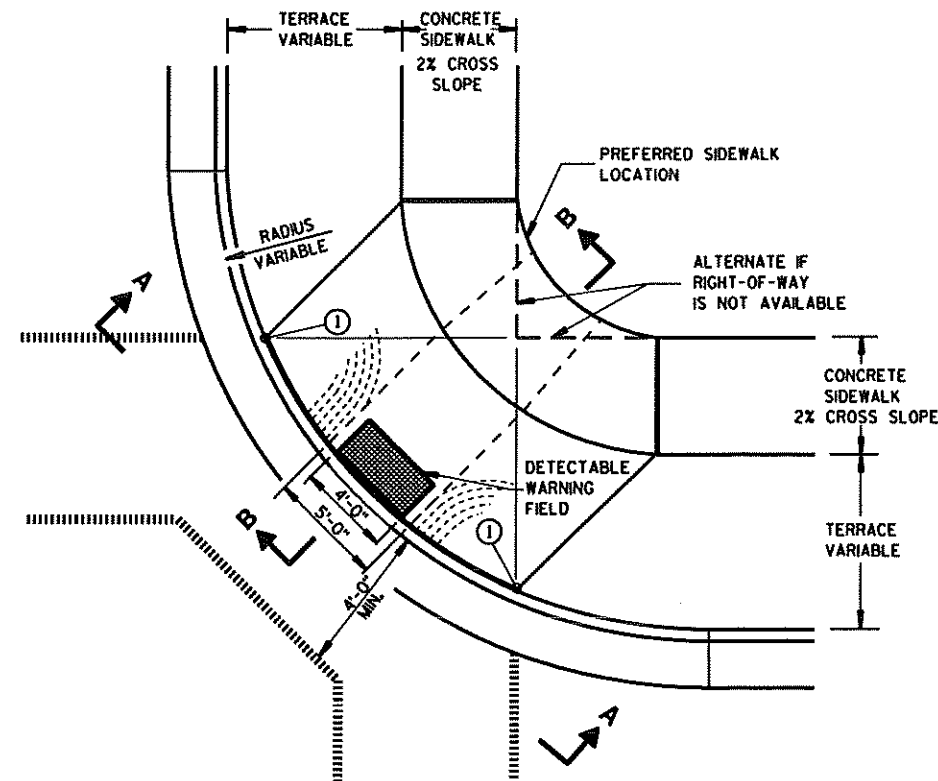
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

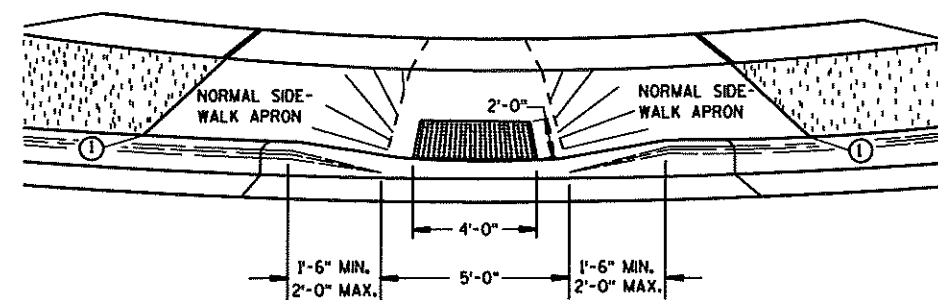
① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G AND K.

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.

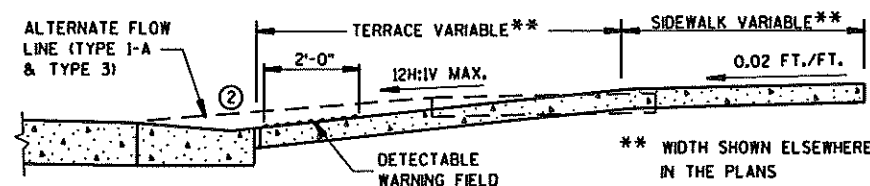
③ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



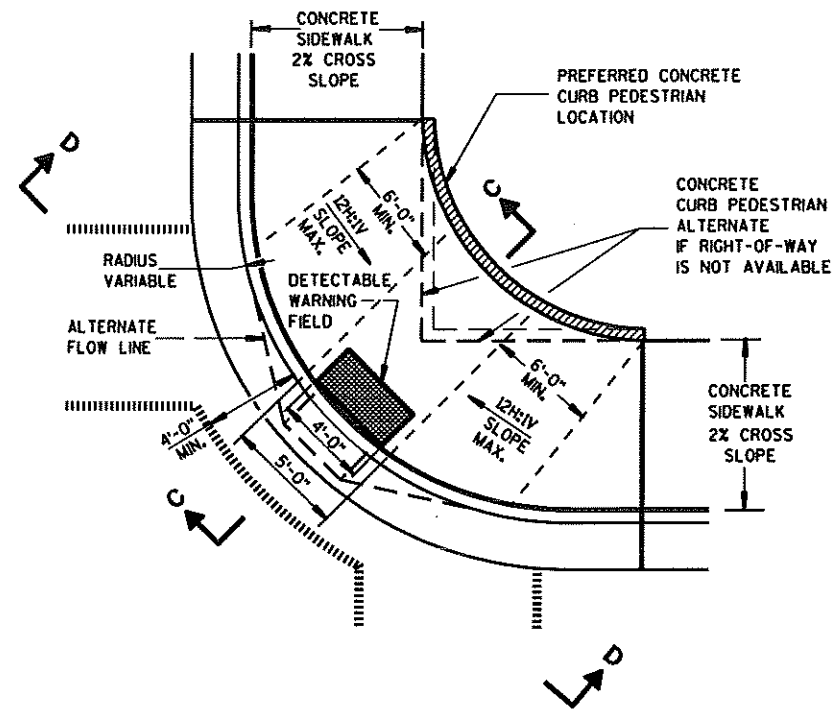
PLAN VIEW
TYPE 1 RAMP
(CENTER OF CORNER RADIUS)



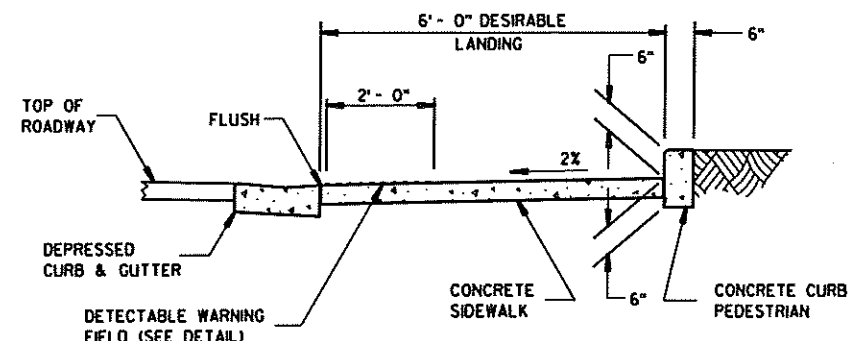
VIEW A-A



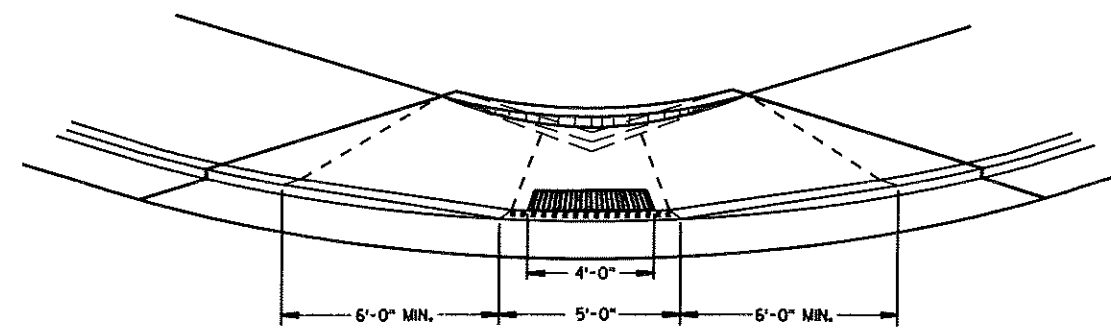
SECTION B-B



PLAN VIEW
TYPE 1-A RAMP
(NO TERRACE)



SECTION C-C



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.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAYMENT MARKING CROSSWALK (WHITE)
- - - ALTERNATIVE LAYOUT

CURB RAMPS
TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

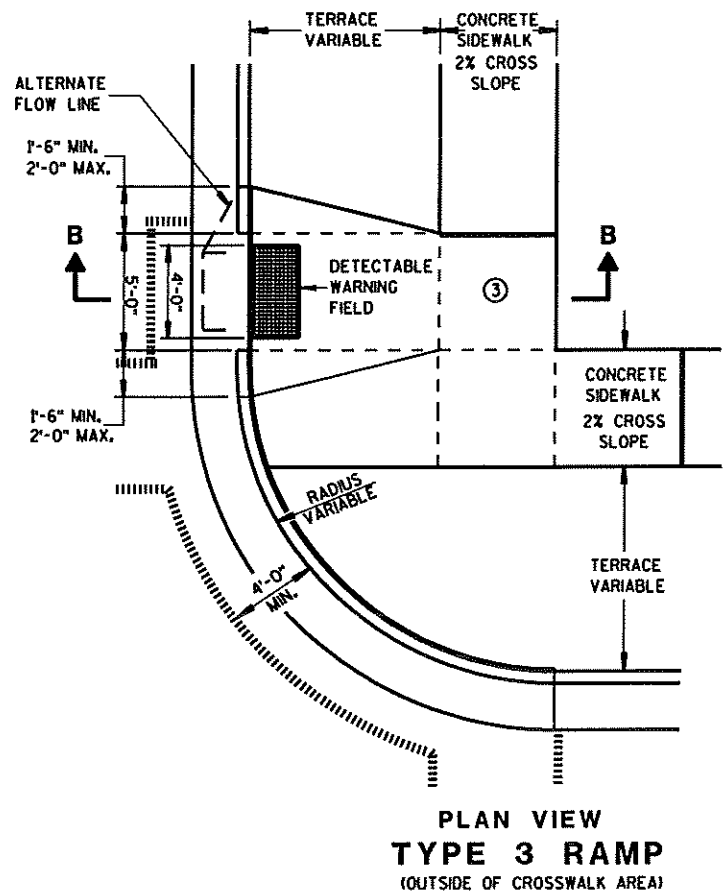
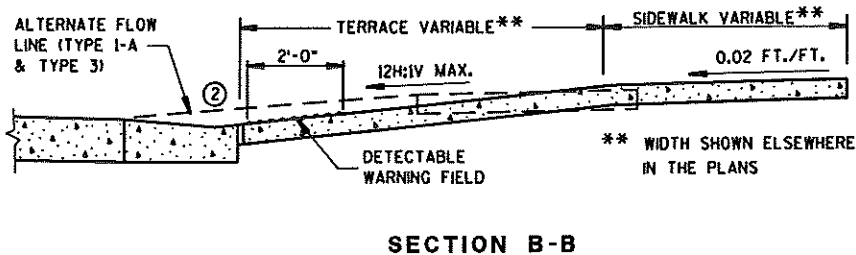
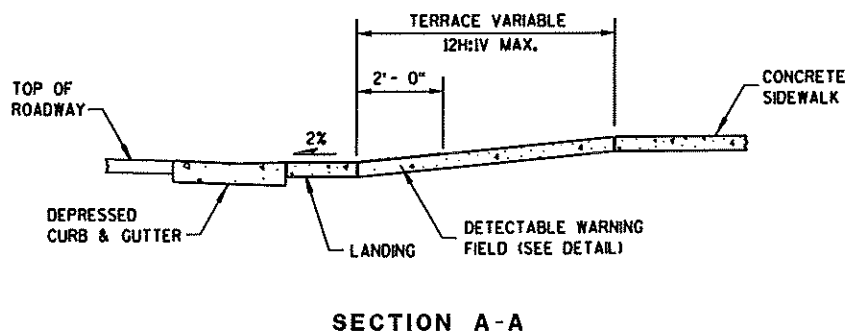
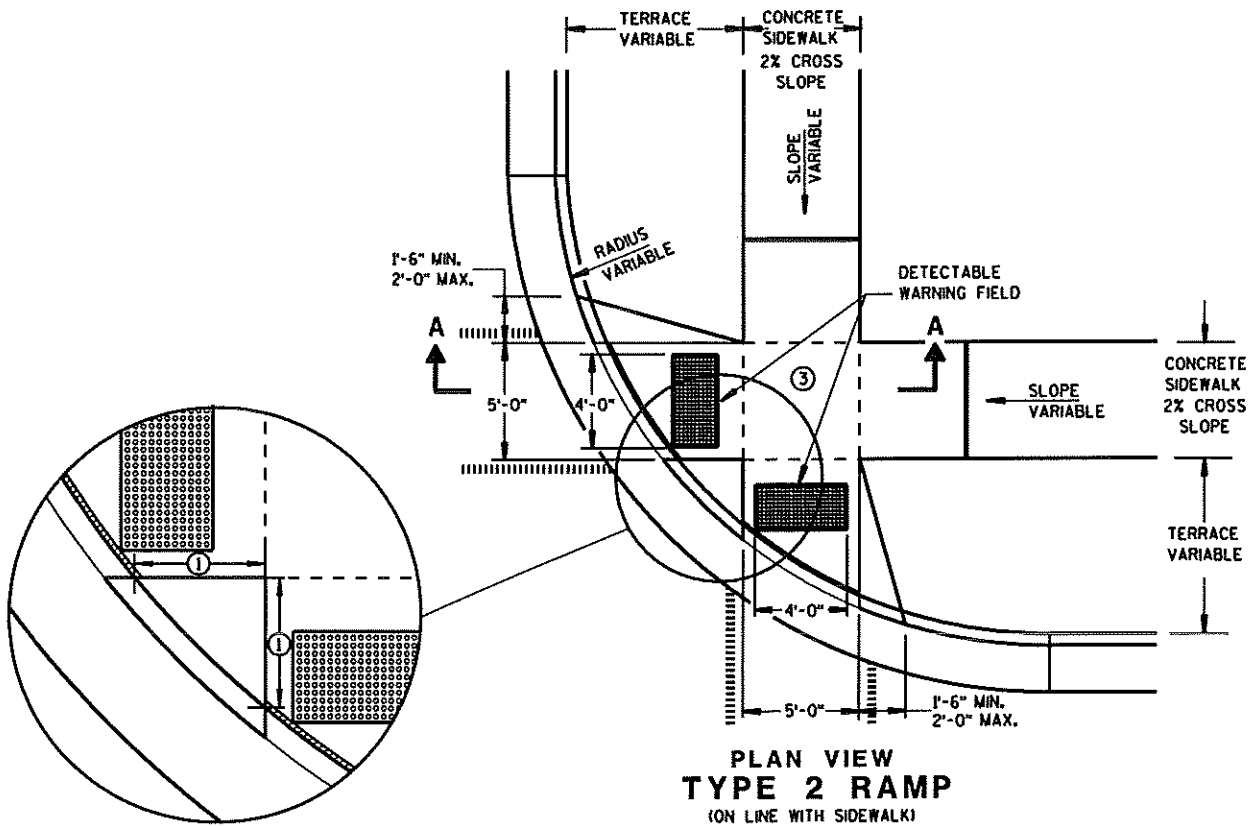
GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

- ① WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.
- ③ PROVIDE LANDING AT TOP OF RAMP WITH NO MORE THAN 2% SLOPE IN ANY DIRECTION.

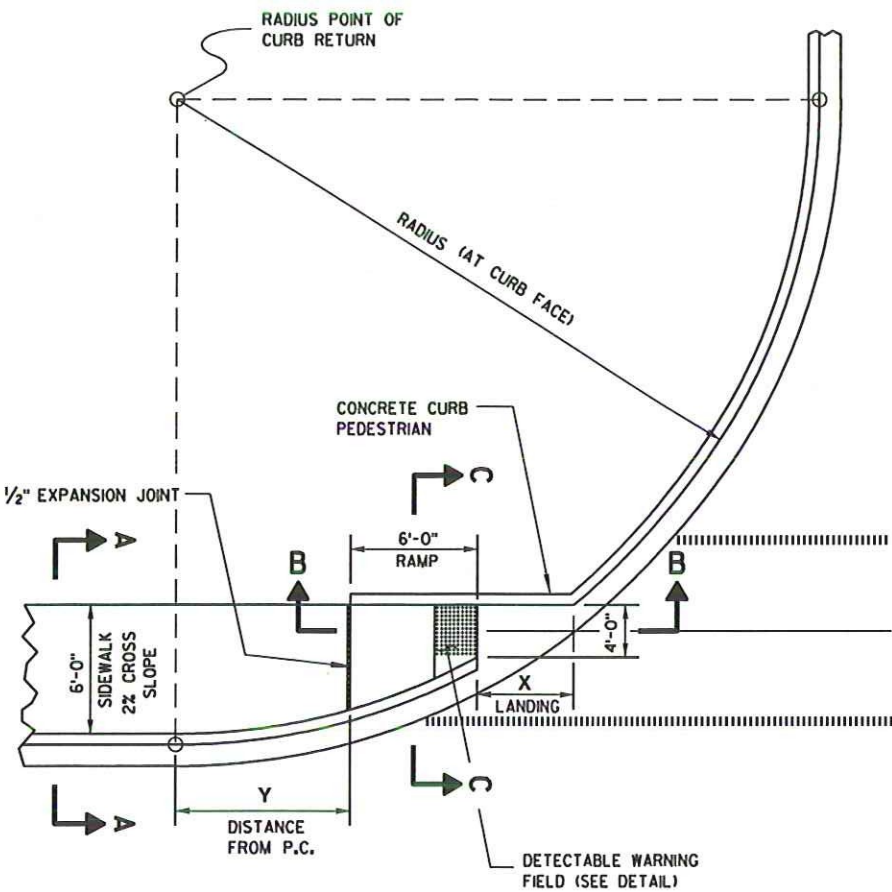
LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- - - ALTERNATIVE LAYOUT

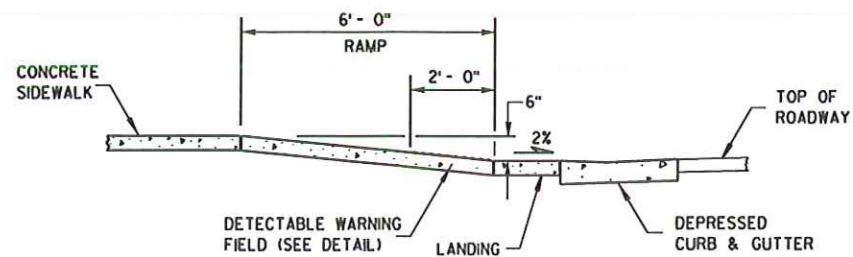


CURB RAMPS
TYPES 2 AND 3

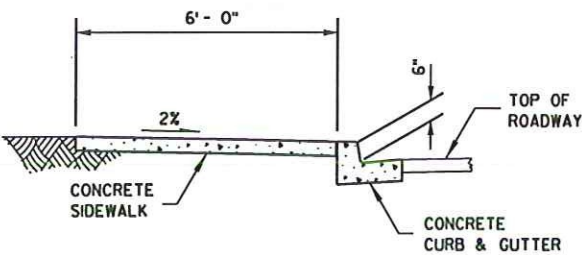
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



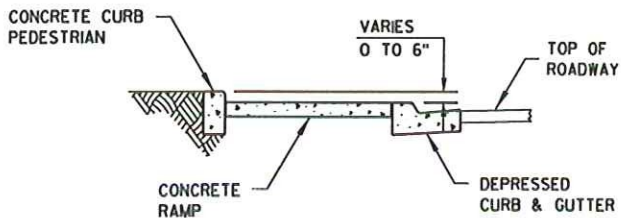
CURB RAMP TYPE 4A
PLAN VIEW



SECTION B-B



SECTION A-A



SECTION C-C

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1 3/4"	2'-7 1/4"
30 FEET	7'-11 3/4"	4'-8 1/4"
40 FEET	9'-5 1/4"	6'-5"
50 FEET	10'-8 3/4"	7'-11 1/4"
60 FEET	11'-10 1/4"	9'-3 1/2"

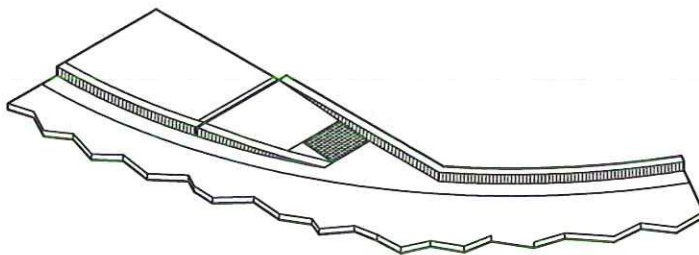
INTERMEDIATE RADII CAN BE INTERPOLATED

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.



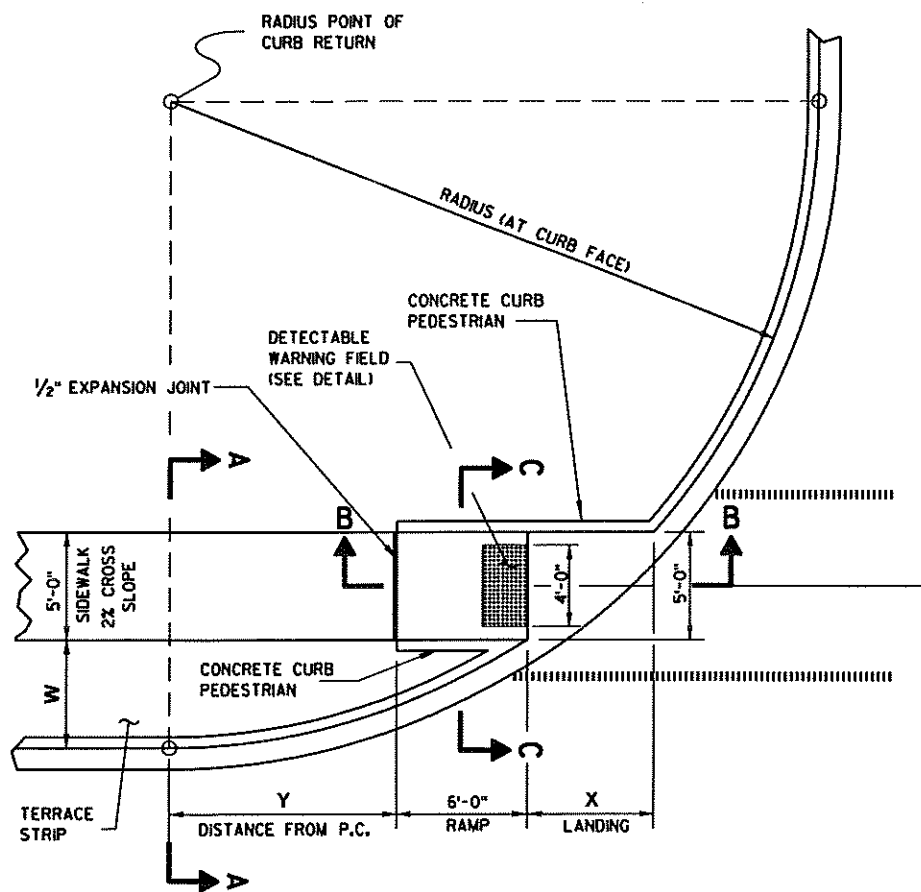
ISOMETRIC VIEW

LEGEND

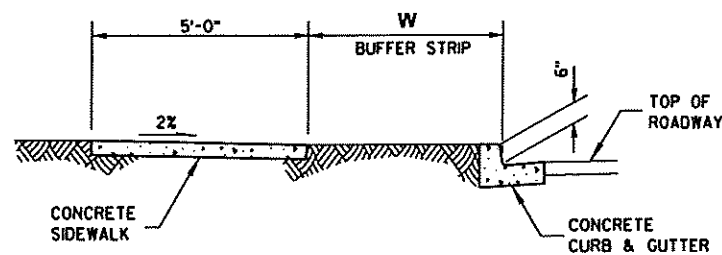
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPE 4A

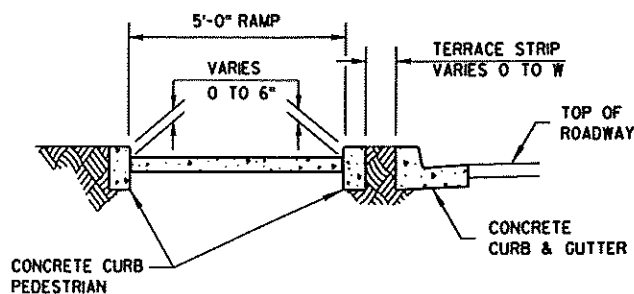
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



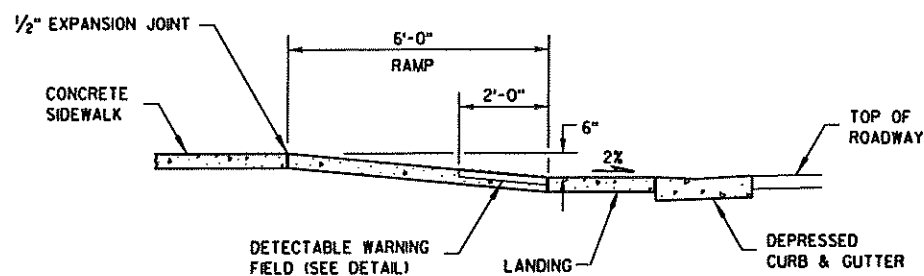
CURB RAMP TYPE 4B
PLAN VIEW



SECTION A-A



SECTION C-C



SECTION B-B

GENERAL NOTES

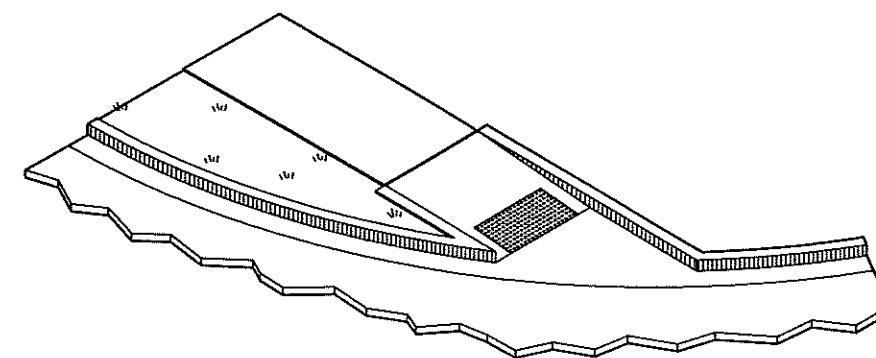
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5 1/2"	4'-6 1/2"	4'-8 1/2"	6'-0"	4'-1"	7'-2 3/4"	3'-7"	8'-3 1/2"	3'-1 1/2"	9'-2 1/2"
30 FEET	7'-3 3/4"	7'-1"	6'-5 1/2"	8'-11 1/2"	5'-9 1/4"	10'-7"	5'-2 1/2"	12'-0"	4'-8 3/4"	13'-3 1/4"
40 FEET	8'-9 1/2"	9'-2 1/2"	7'-10"	11'-5 1/4"	7'-1"	13'-4 1/2"	6'-5 3/4"	15'-7/4"	5'-11 1/2"	16'-7 1/4"
50 FEET	10'-3/4"	11'-3/4"	9'-1/4"	13'-7 1/4"	8'-2 1/2"	15'-9 1/2"	7'-6 1/2"	17'-9"	6'-11 3/4"	19'-6 1/4"
60 FEET	11'-2 1/2"	12'-8 3/4"	10'-3/4"	15'-6 1/2"	9'-2 1/4"	17'-11 3/4"	8'-5 3/4"	20'-1 3/4"	7'-10 1/2"	22'-1 1/2"
70 FEET	12'-2 3/4"	14'-3 1/4"	11'-1/4"	17'-4"	10'-1"	19'-11 3/4"	9'-3 3/4"	22'-4 1/4"	8'-8 1/4"	24'-6 1/4"
80 FEET	13'-2"	15'-8 1/2"	11'-10 1/2"	18'-11 3/4"	10'-10 3/4"	21'-10"	10'-1"	24'-4 3/4"	9'-5"	26'-8 3/4"
90 FEET	14'-1 1/2"	17'-1 1/2"	12'-8 1/4"	20'-6 1/2"	11'-7 3/4"	23'-7"	10'-9 3/4"	26'-3 3/4"	10'-1 1/4"	28'-9 1/2"
100 FEET	14'-10 1/2"	18'-3 3/4"	13'-5 1/2"	22'-0"	12'-4 1/4"	25'-2 3/4"	11'-5 3/4"	28'-1 1/2"	10'-9"	30'-9"

INTERMEDIATE RADII CAN BE INTERPOLATED



ISOMETRIC VIEW

LEGEND

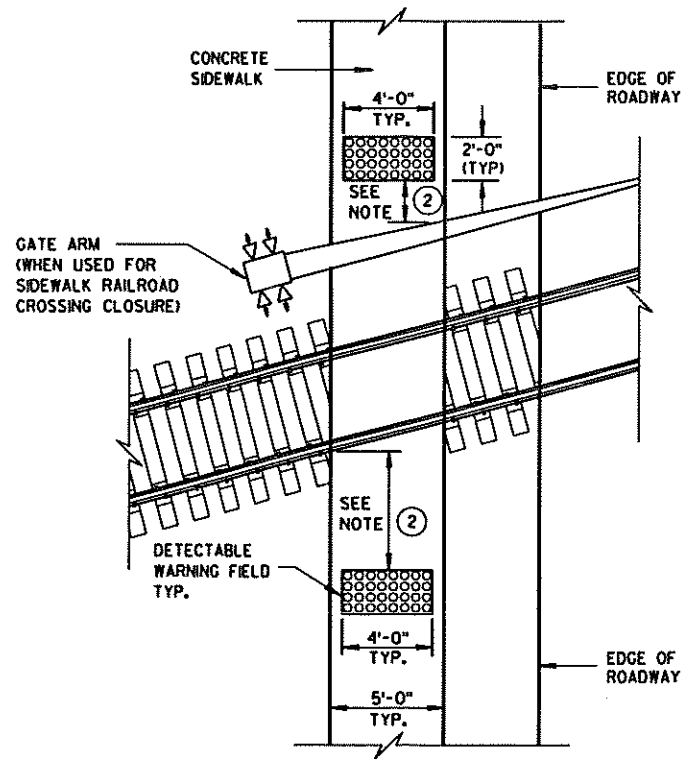
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPE 4B

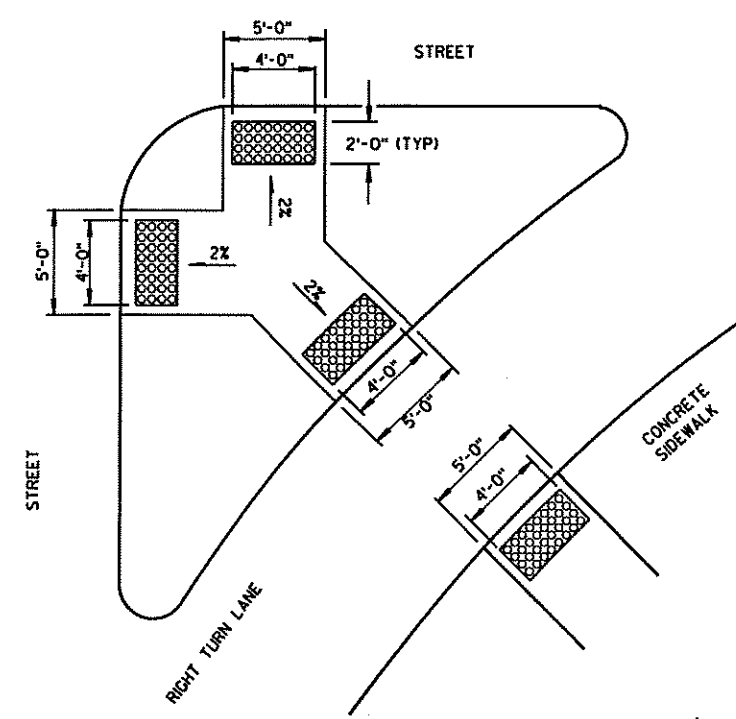
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

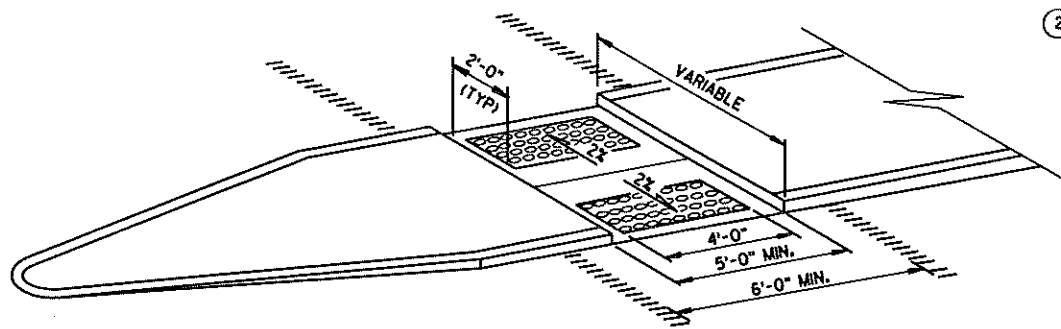
S.D.D. 8 D 5-11e



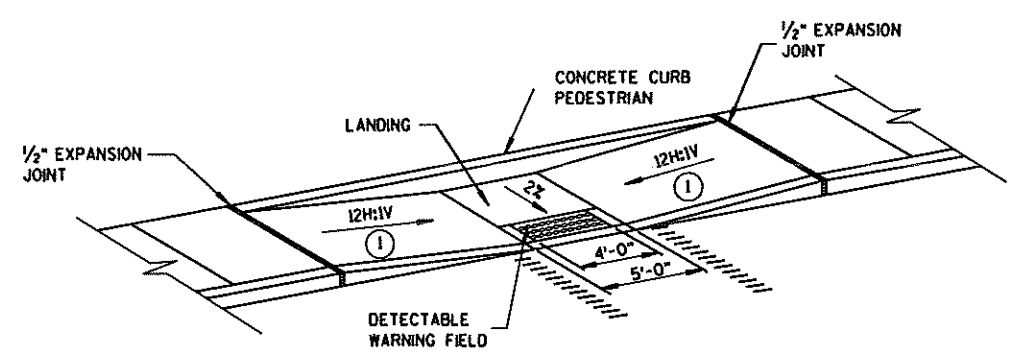
TYPE 8
DETECTABLE WARNINGS
AT RAILROAD CROSSING



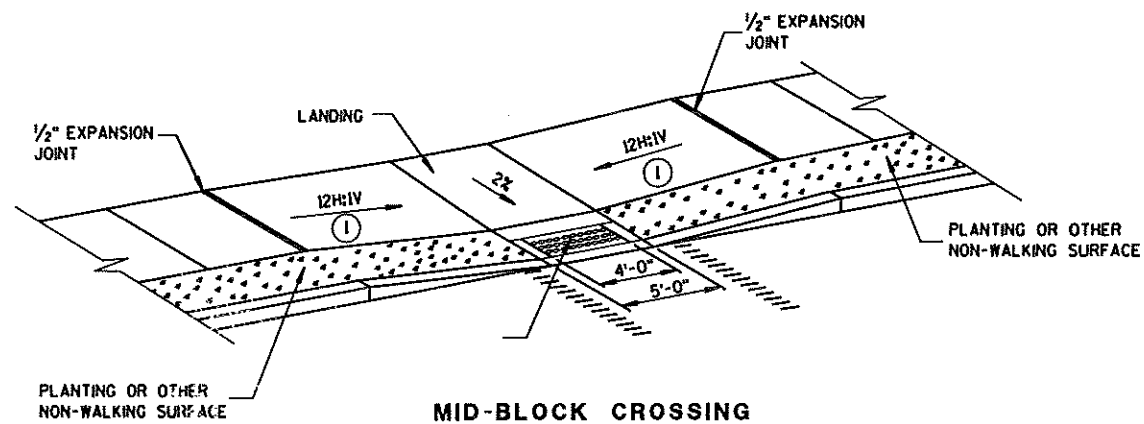
TYPE 6
DETECTABLE WARNING AT ISLANDS



**MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5**



**MID-BLOCK CROSSING
TYPE 7A**



**MID-BLOCK CROSSING
TYPE 7B**

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS
MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

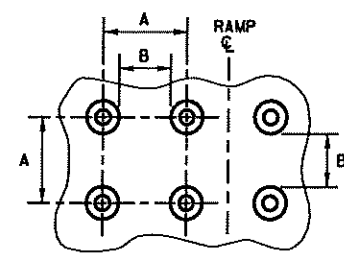
GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

- ① SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- ② THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 15 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

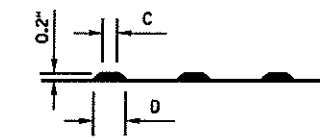
LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

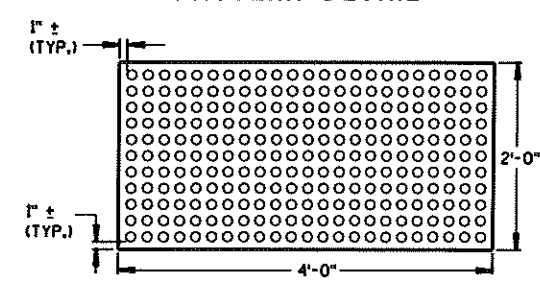


	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.



**TRUNCATED DOMES
DETECTABLE WARNING
PATTERN DETAIL**



**PLAN VIEW
DETECTABLE WARNING
FIELD (TYPICAL)**

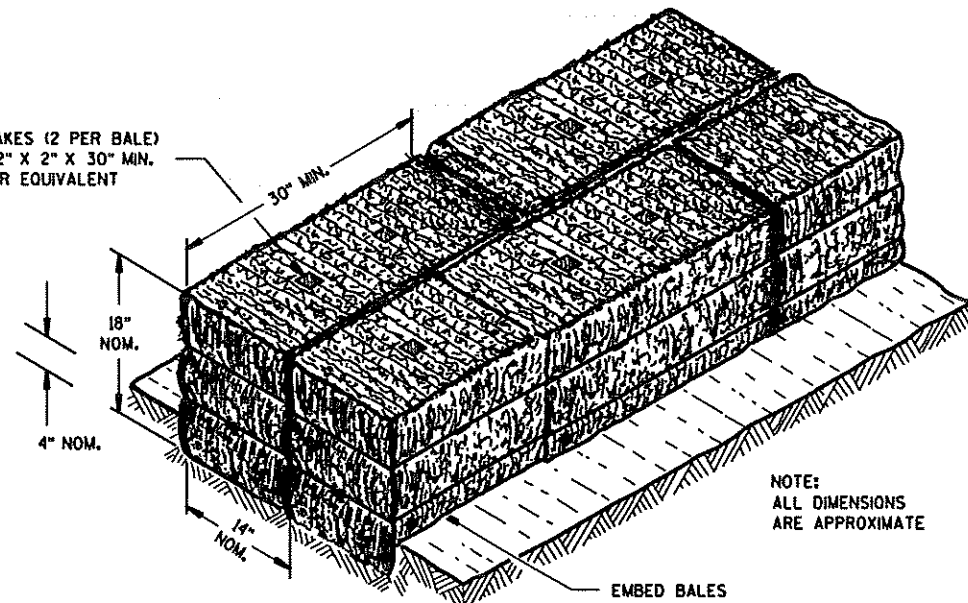
CURB RAMPS TYPES 5, 6, 7A, 7B & 8	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/S/ Jerry H. Zogg
DATE	9/9/05
FHWA	ROADWAY STANDARDS DEVELOPMENT ENGINEER

6

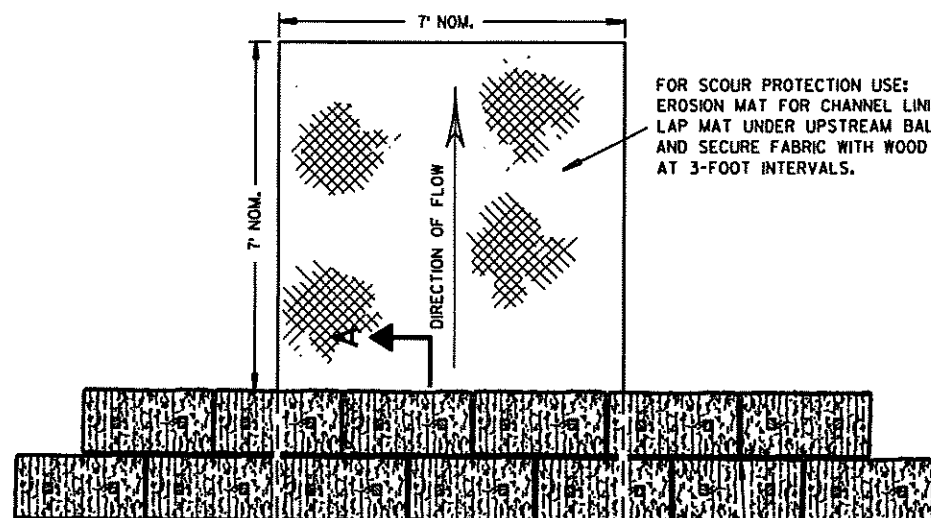
S.D.D. 8 D 5-11e

6

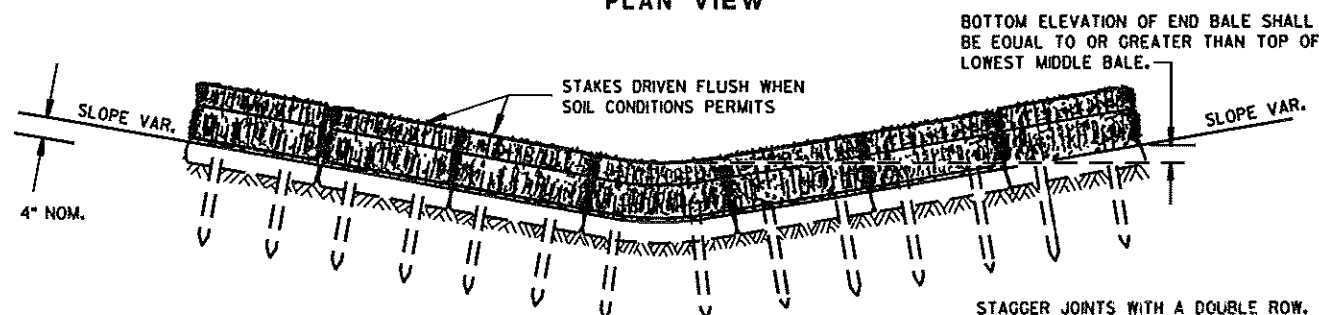
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



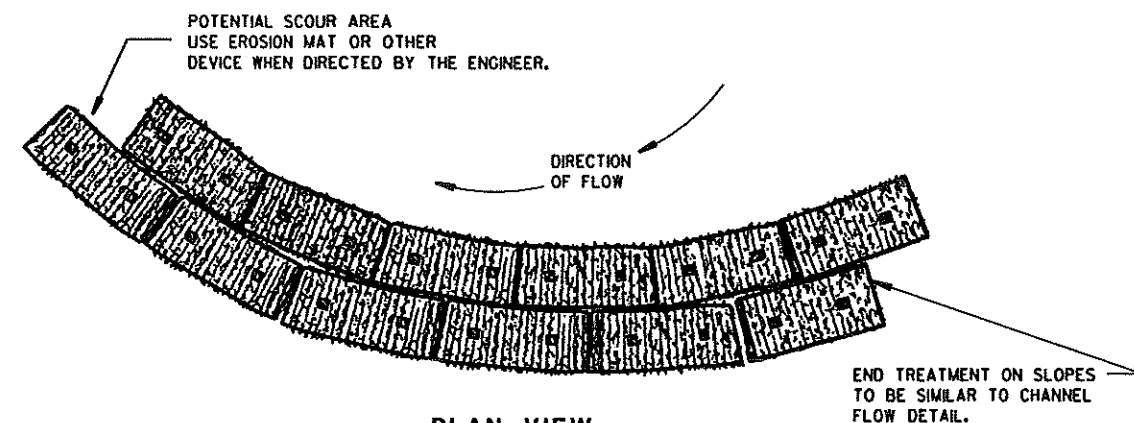
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

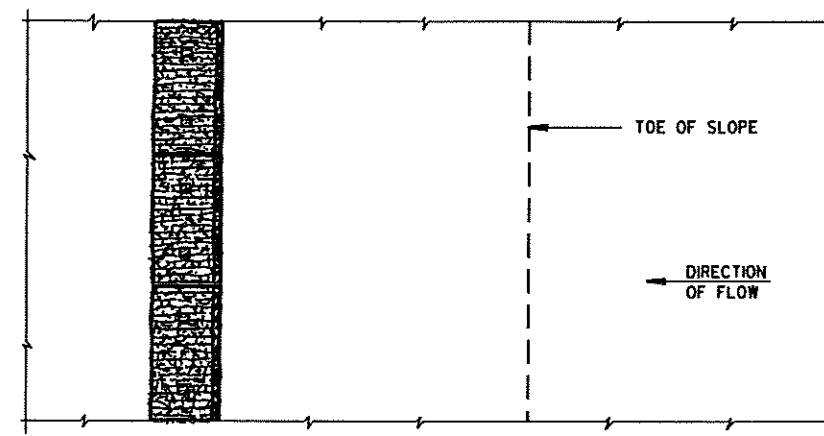
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

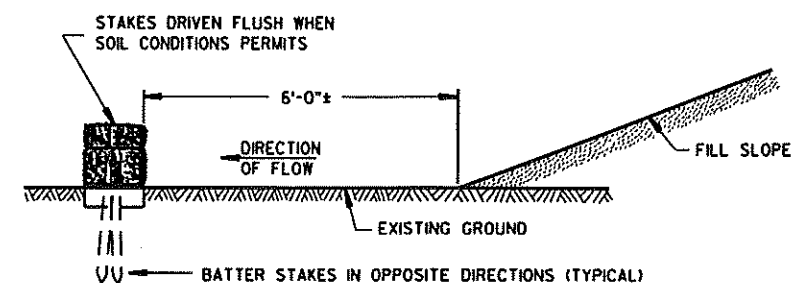


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

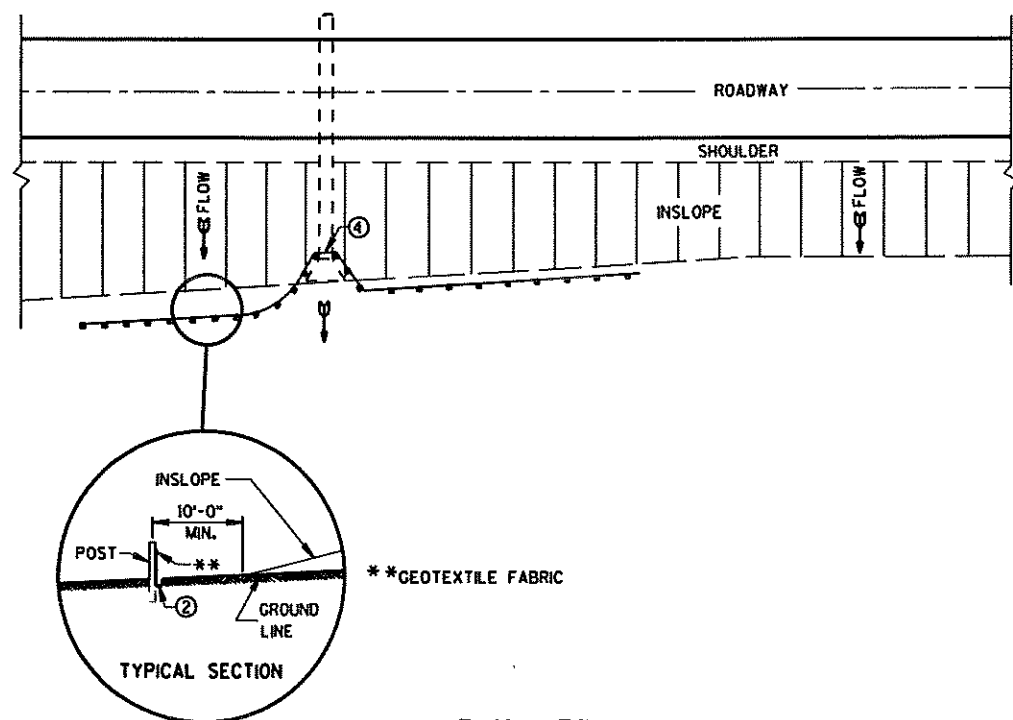
TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

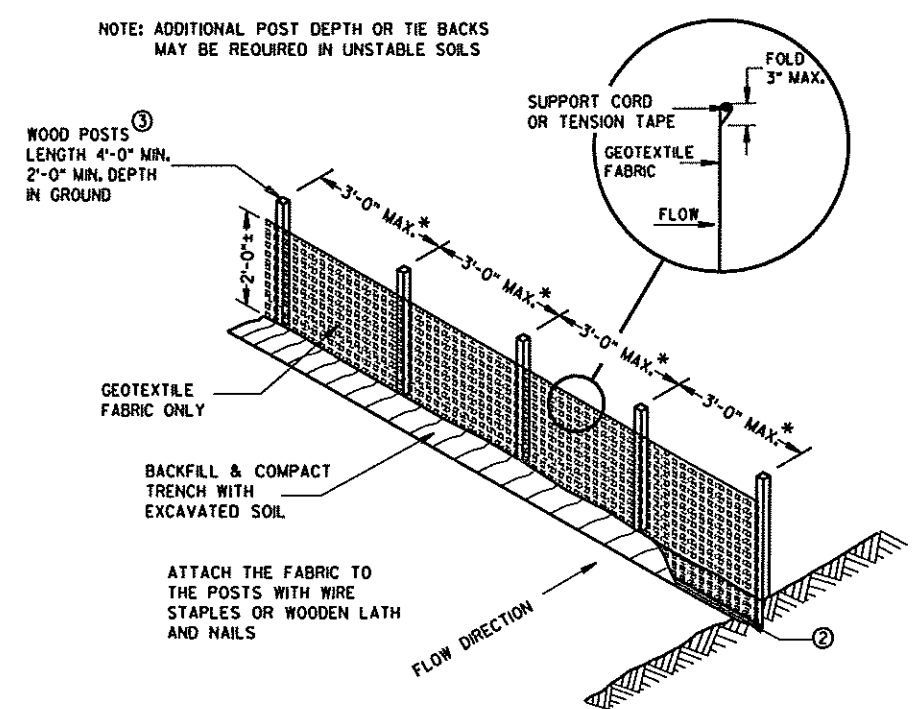
APPROVED
6/04/02
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

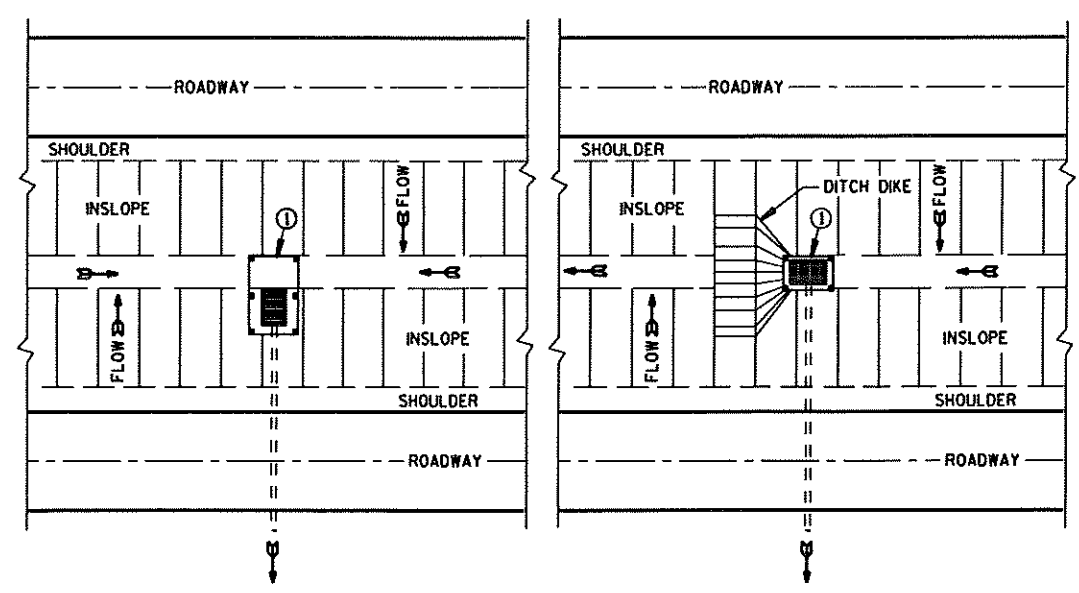
S.D.D. 8 E 8-3



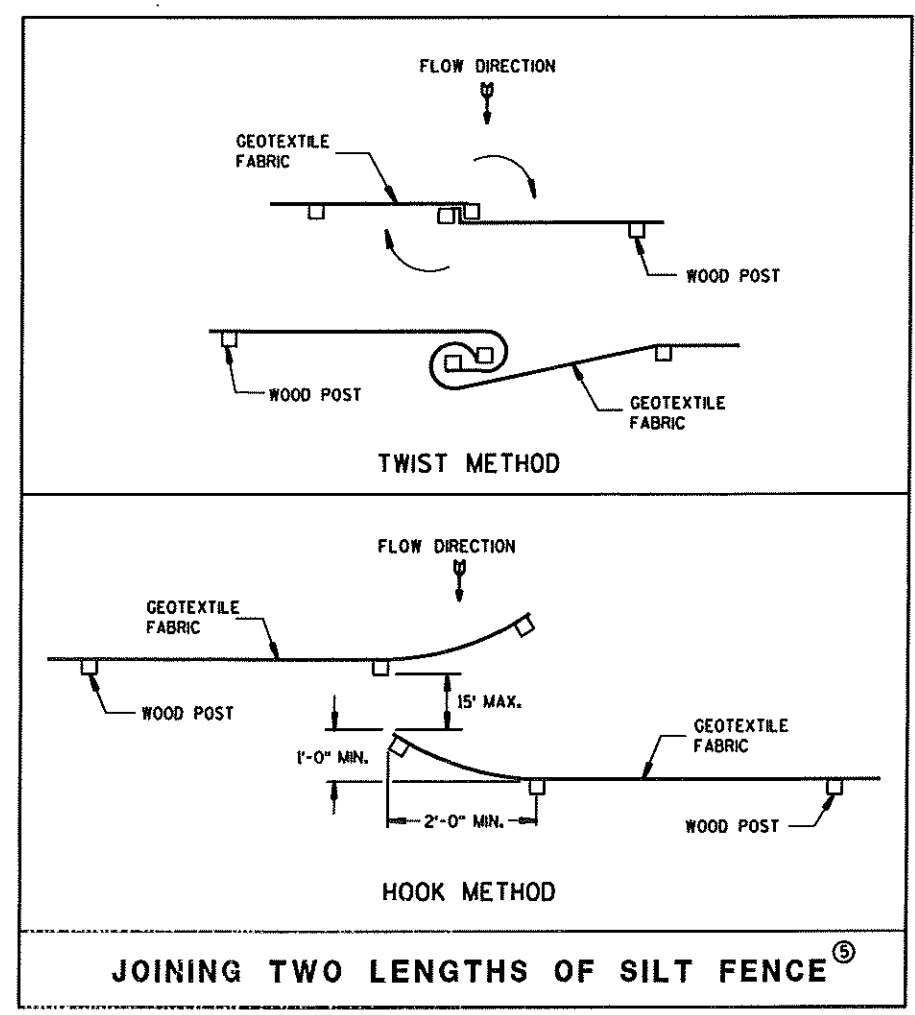
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



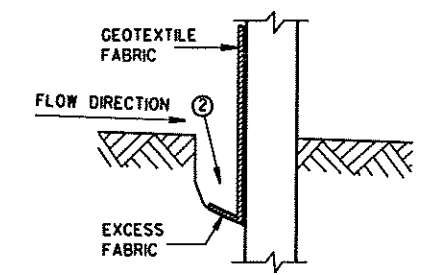
SITUATION 1
SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS



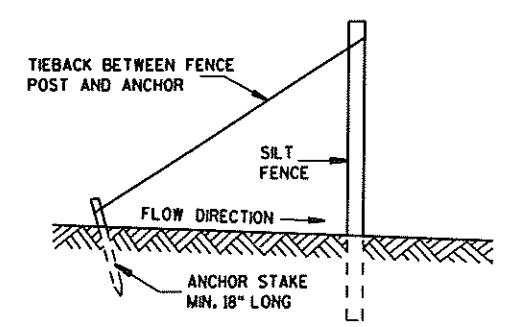
JOINING TWO LENGTHS OF SILT FENCE⁵

GENERAL NOTES

- 1 HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- 2 FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE 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.
- 3 WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- 4 SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- 5 CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

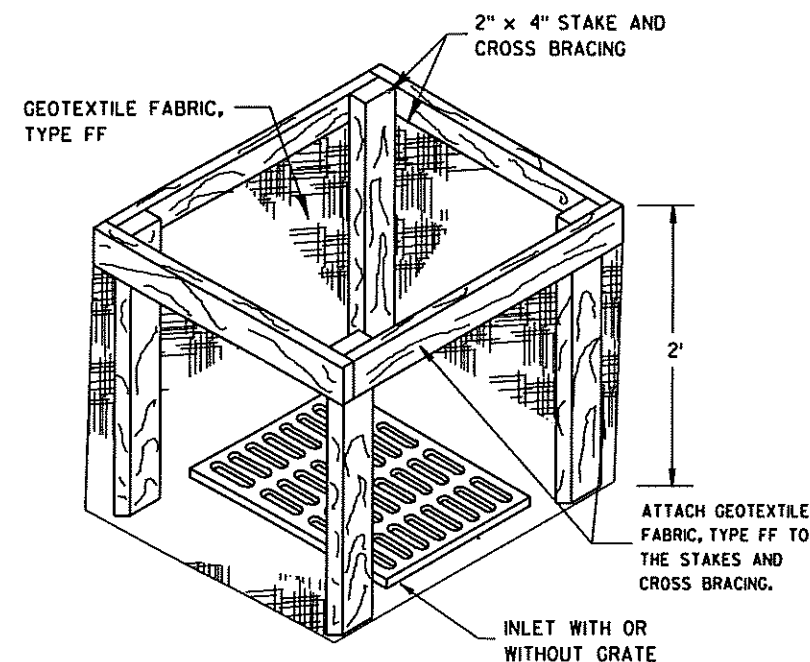
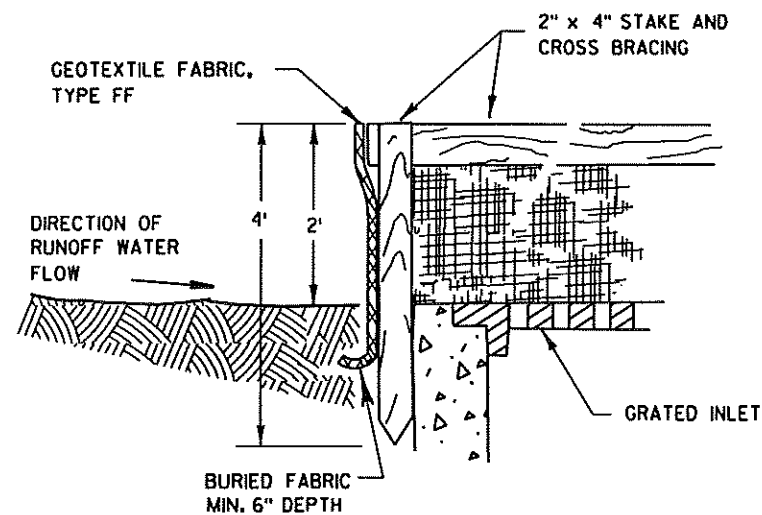


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE FHWA	 CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

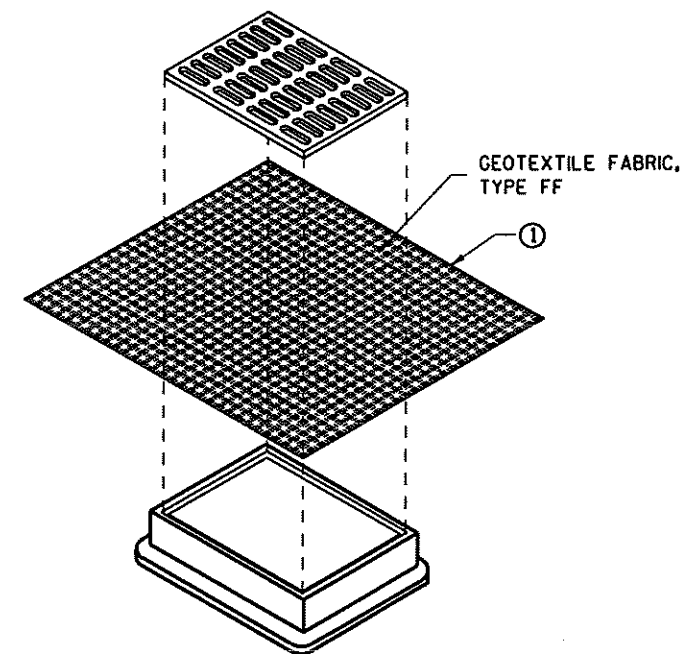
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

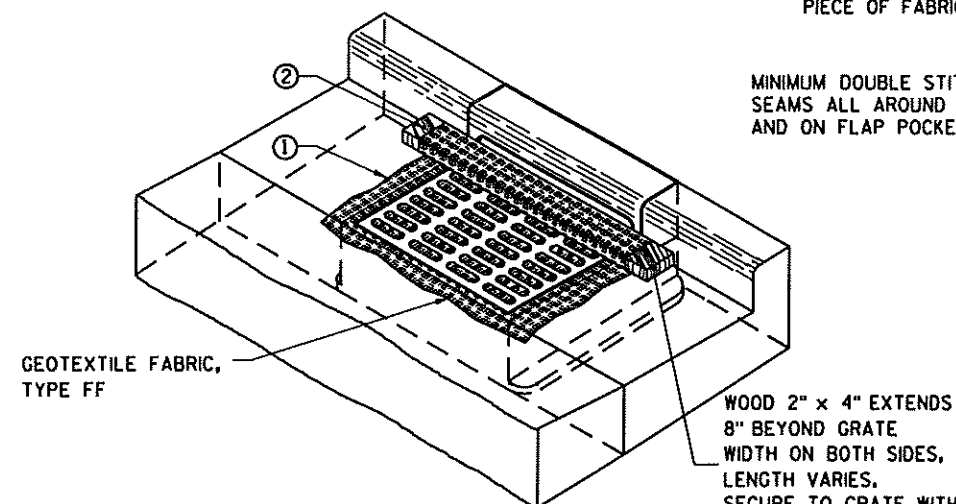
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

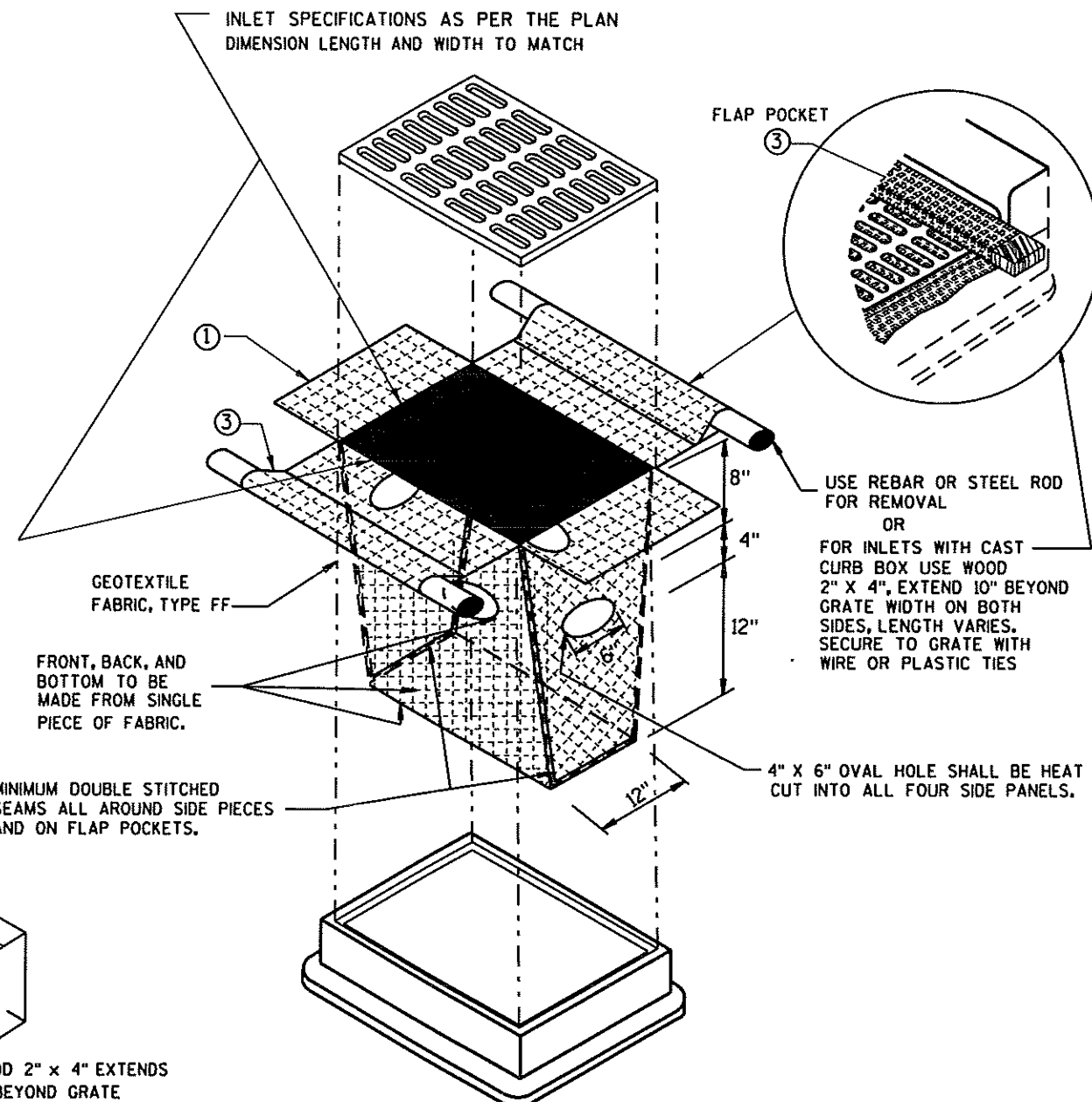
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

**INLET PROTECTION
TYPE A, B, C, AND D**

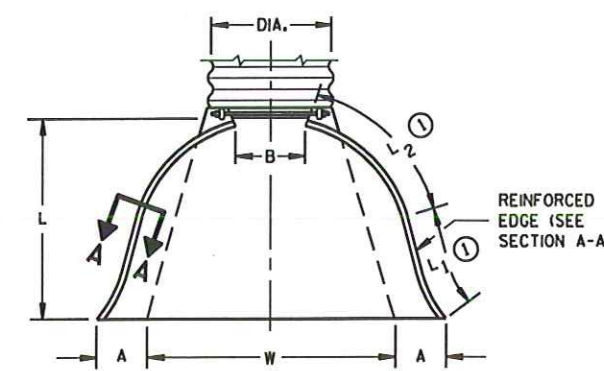
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
FWHA

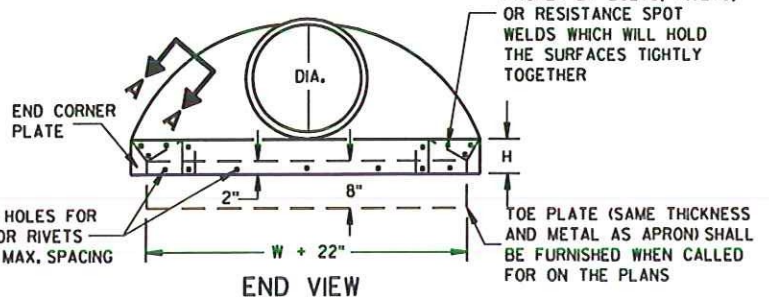
[Signature]
CHIEF ROADWAY DEVELOPMENT ENGINEER

METAL APRON ENDWALLS										
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (±2")	L2 (±2")	W (±2")	
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1
21	.064	.060	9	12	6	36	18	29 3/4	42	2 1/2 to 1
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1
42	.109	.105	16	22	8	69	24	75 3/4	84	2 1/2 to 1
48	.109	.105	18	27	12	78	24	81	90	2 1/2 to 1
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/2 to 1
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1

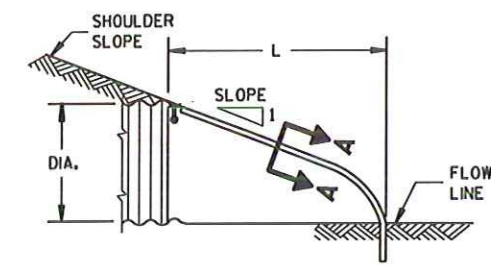
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



PLAN VIEW



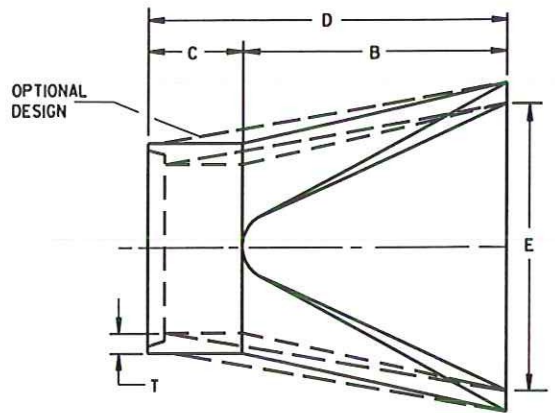
END VIEW



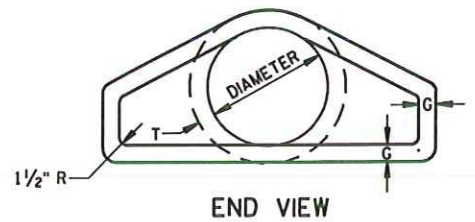
SIDE ELEVATION
METAL ENDWALLS

REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)						APPROX. SLOPE	
	T	A	B	C	D	E		G
12	2	4	24	48 1/8	72 1/8	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	26	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 1/2 to 1
60	6	30 - 35	60	39	99	96	5	2 to 1
66	6 1/2	33 - 38	72 - 78	21 - 27	99	102	5 1/2	2 to 1
72	7	36 - 42	78	21	99	108	6	2 to 1
78	7 1/2	39 - 45	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

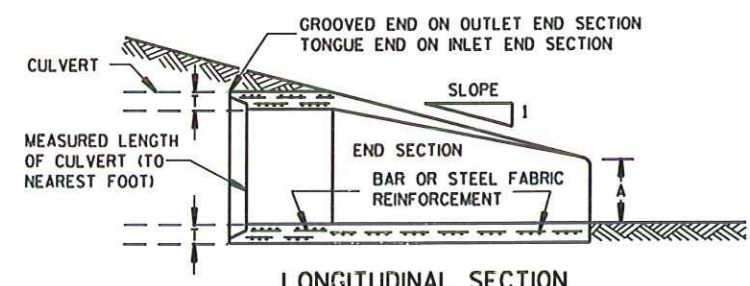
* MINIMUM
** MAXIMUM



PLAN

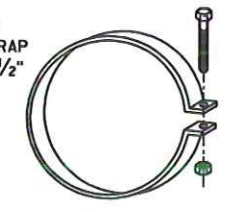


END VIEW

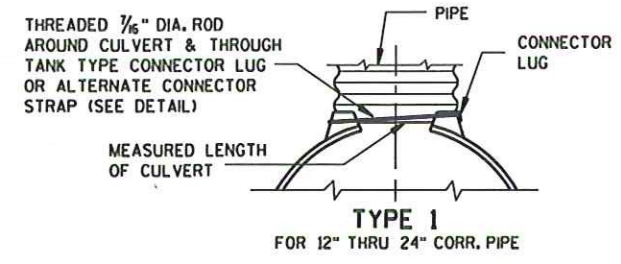


LONGITUDINAL SECTION
CONCRETE ENDWALLS

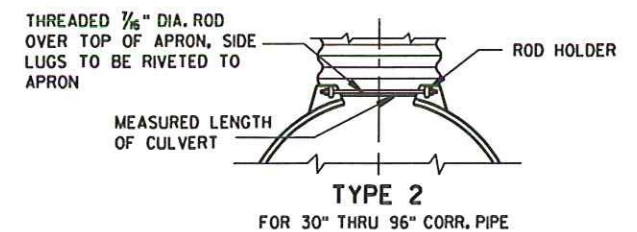
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



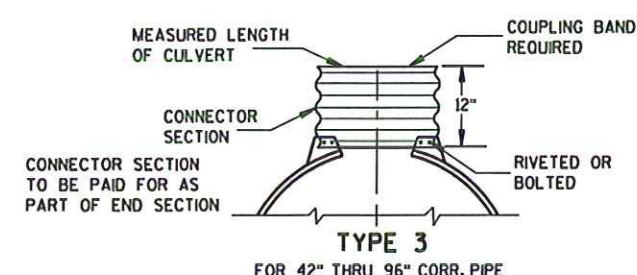
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



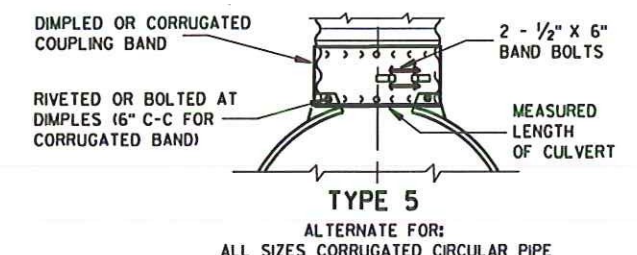
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

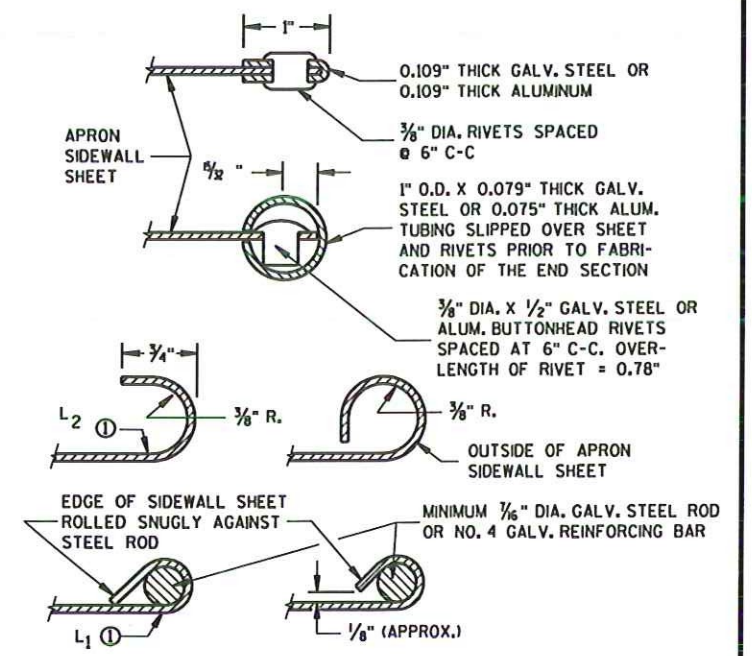
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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



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 VISE 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.

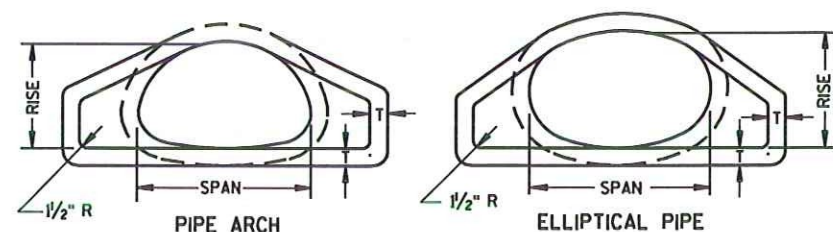
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

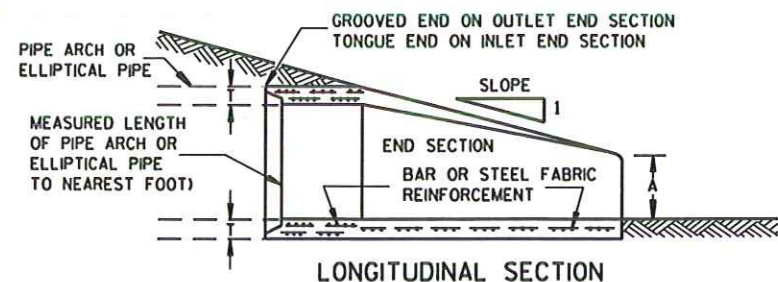
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
FOHWA
CHIEF ROADWAY DEVELOPMENT ENGINEER

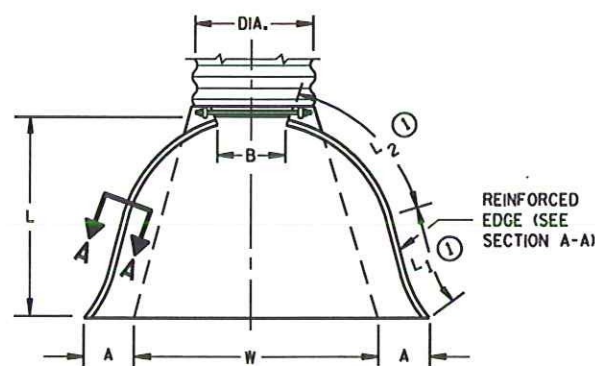


END VIEW

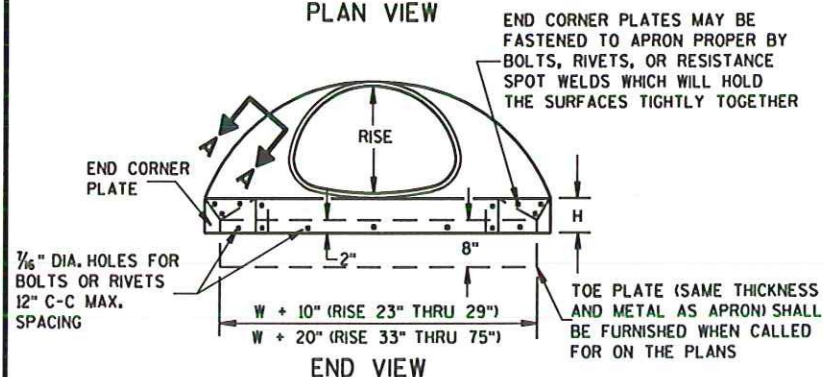


LONGITUDINAL SECTION

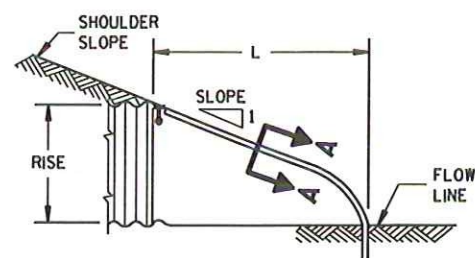
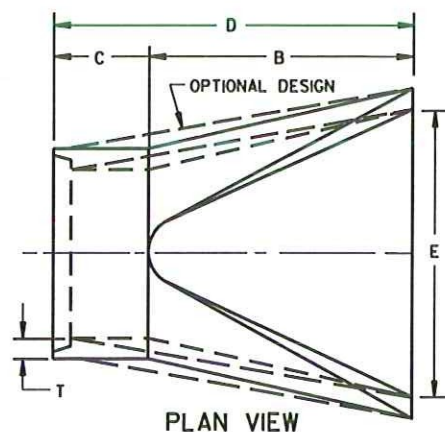
CONCRETE ENDWALLS



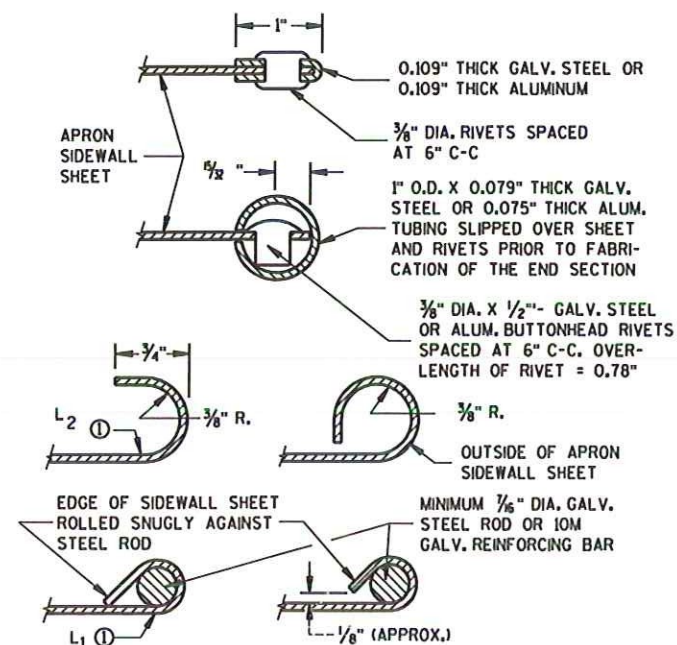
PLAN VIEW



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW

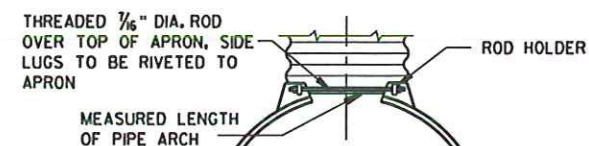


SECTION A-A

2- 2 1/3" X 1/2" CORRUGATIONS													
EQUIV. DIA. (inches)	(inches)		MIN. THICK. (inches)		DIMENSIONS (inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1/2")	L1 ①	L2 ①	W (±2")		
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 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	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 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	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 3/4	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.

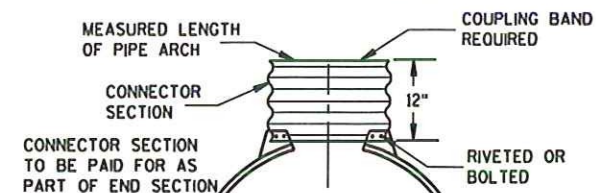
3" X 1" CORRUGATIONS													
EQUIV. DIA. (inches)	(inches)		MIN. THICK. (inches)		DIMENSIONS (inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	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	—	—	148	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

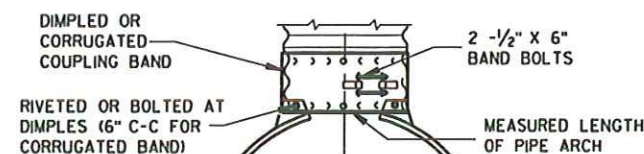
TYPE 2

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 ARCHESNOTE: 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 1/8	60	56	96	72	3 to 1
42	51	31	4 1/2	15 1/8	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	56	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 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 3/4	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 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" 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 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

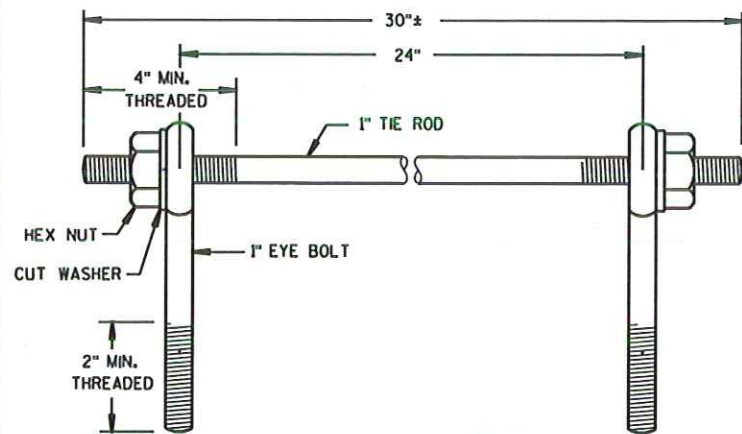
APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPESTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

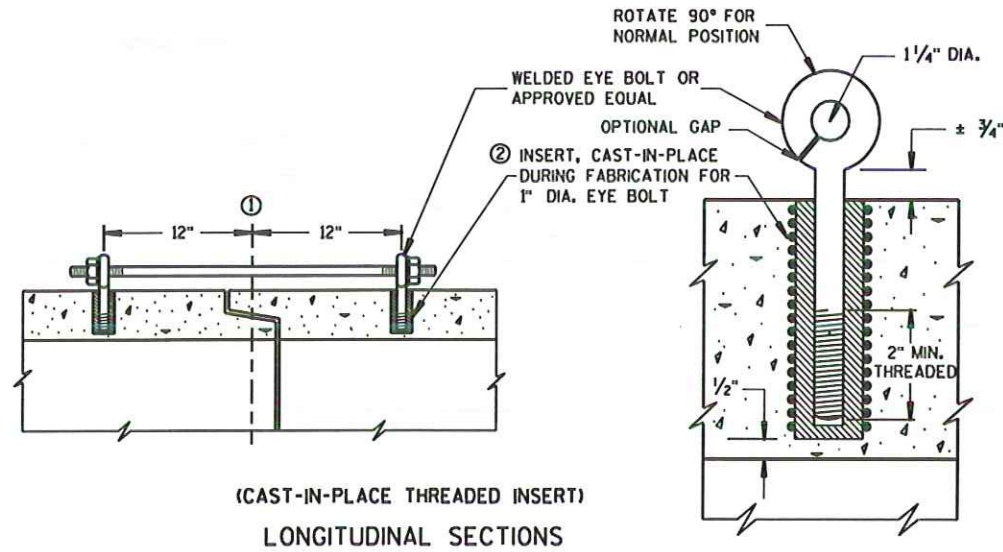
11/30/94
DATE

FHWA

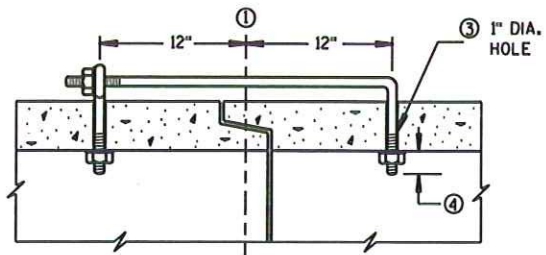
CHIEF ROADWAY DEVELOPMENT ENGINEER



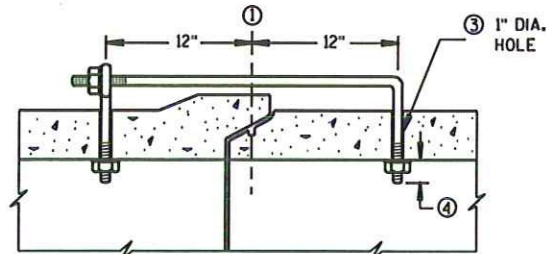
EYE BOLTS AND TIE ROD



EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

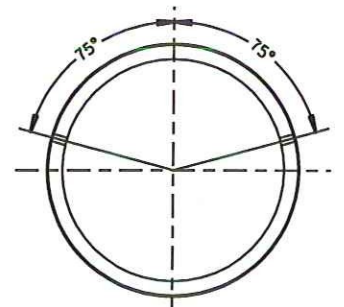
EYE BOLT DIMENSION TABLE

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

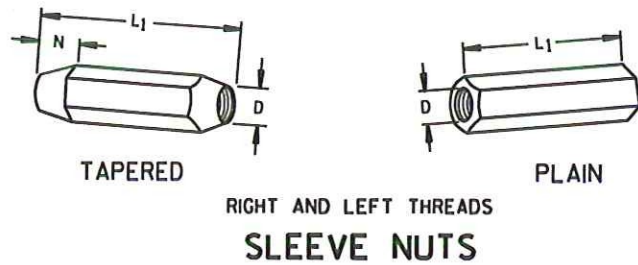
ADJUSTABLE TIE ROD TABLE

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

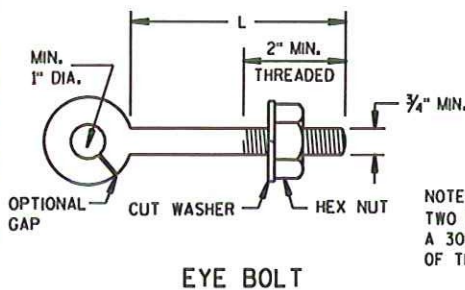
DIMENSIONS SHOWN ARE IN INCHES



TRANSVERSE SECTION

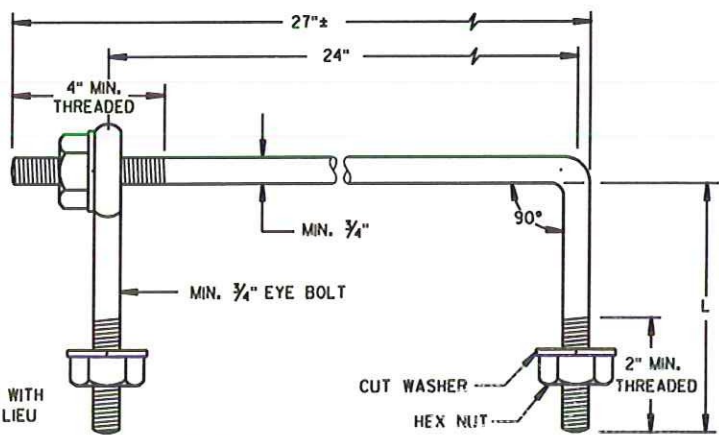


RIGHT AND LEFT THREADS
SLEEVE NUTS



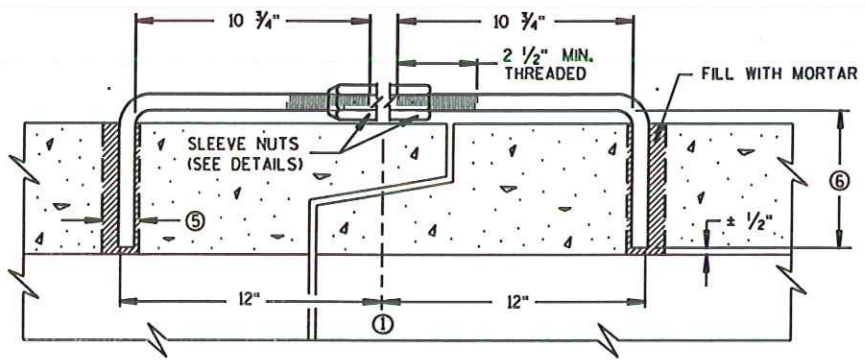
EYE BOLT

NOTE:
TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)

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 C. 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 C. OF TONGUE AND GROOVE.
 - ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2".
 - ⑤ ROD DIAMETER + 1 INCH.
 - ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.

DESIGN NOTE:
THE NUMBER OF PIPE TIES REQUIRED SHOULD BE INCLUDED ON THE MISCELLANEOUS QUANTITIES SHEET WITH THE CULVERT PIPE LISTING.

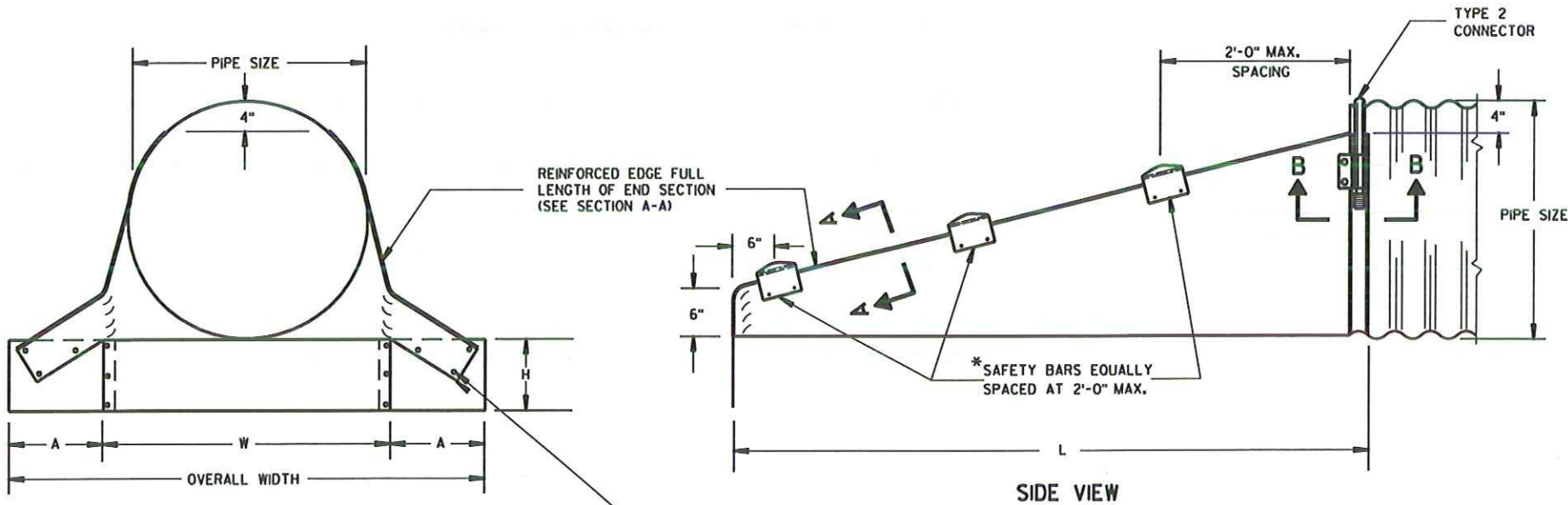
NOTE:
DESIGN NOTE WILL NOT APPEAR ON THE CONTRACT PLAN.

JOINT TIES FOR
CONCRETE PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/18/92
DATE
FHWA

John M. ...
STATE DESIGN ENGINEER FOR HWYS



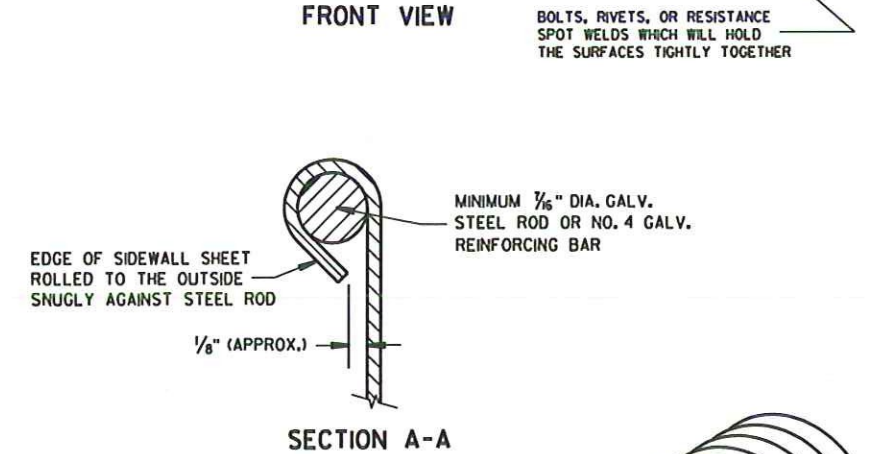
GENERAL NOTES

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.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

STEEL APRON ENDWALLS FOR CULVERT PIPE							
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS	
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	6:1	30
18	.064	8	6	24	40	6:1	48
21	.064	8	6	27	43	6:1	66
24	.064	8	6	30	46	6:1	84
30	.109	12	9	36	60	6:1	120
36	.109	12	9	42	66	6:1	156
42	.109	16	12	48	80	5.63 TO 1	180
48	.109	16	12	54	86	4.74 TO 1	180
54	.109	16	12	60	92	—	—

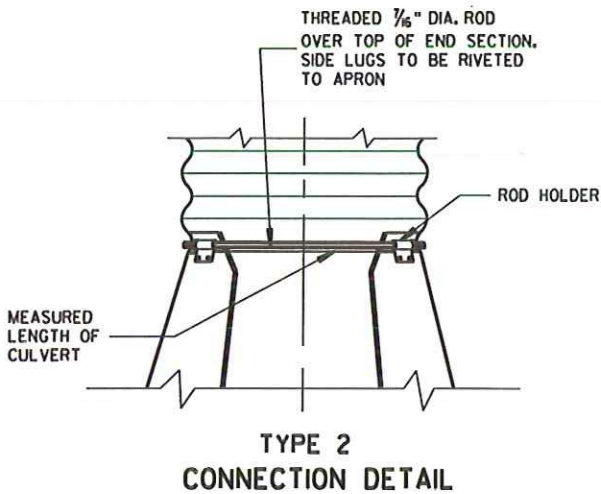
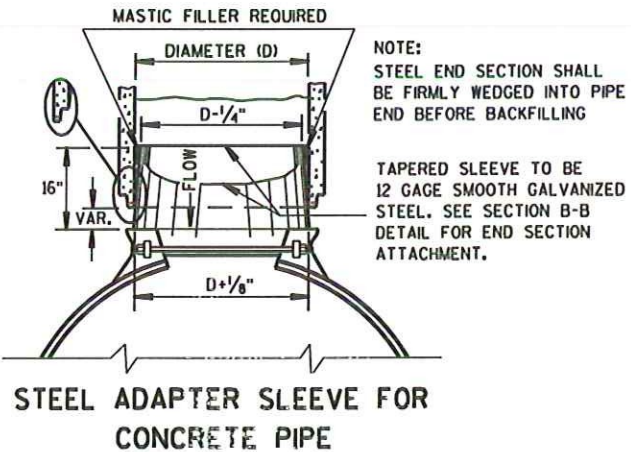
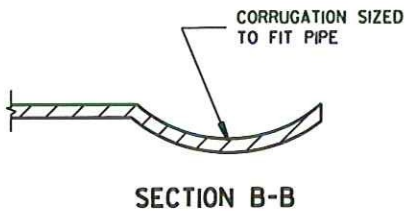
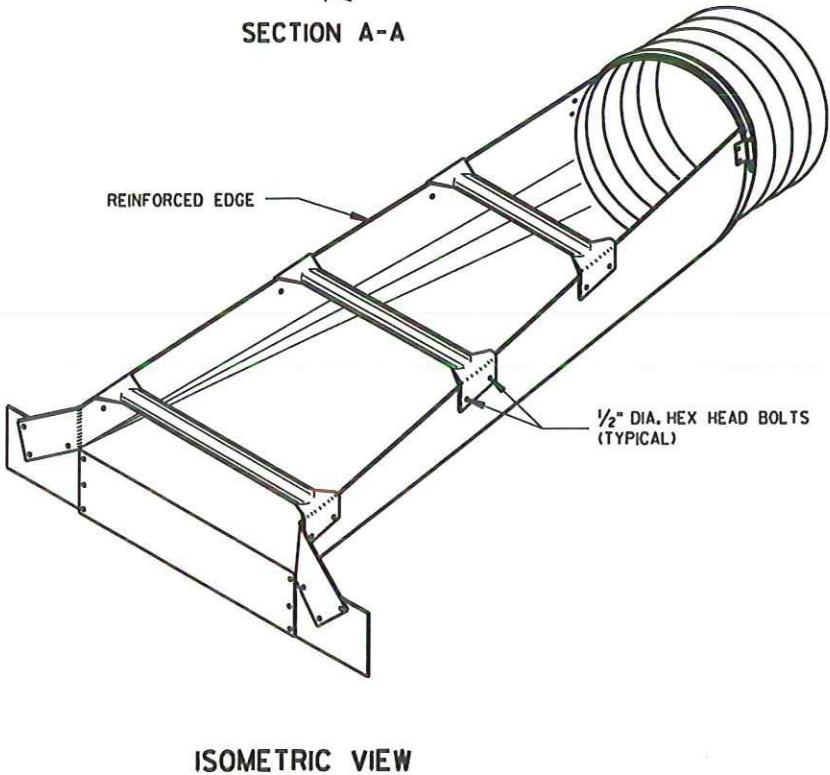


*NOTE: THREE SAFETY BARS ARE SHOWN. ACTUAL NUMBER OF BARS REQUIRED AT A 2'-0" C-C MAX. SPACING WILL VARY DEPENDING ON THE LENGTH OF THE END SECTION.

3" GALVANIZED PIPE. FLATTEN ENDS, THEN BEND OUTSIDE 4" TO MATCH END SECTION SIDES.



STEEL APRON ENDWALLS FOR PIPE ARCH									
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS	
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES
15	17	13	.064	8	6	23	39	6:1	18
18	21	15	.064	8	6	27	43	6:1	30
21	24	18	.064	8	6	30	46	6:1	48
24	28	20	.064	8	6	34	50	6:1	60
30	35	24	.079	12	9	41	65	6:1	84
36	42	29	.109	12	9	48	72	6:1	114
42	49	33	.109	16	12	55	87	6:1	138
48	57	38	.109	16	12	63	95	6:1	168
54	64	43	.109	16	12	70	102	5.45 TO 1	180

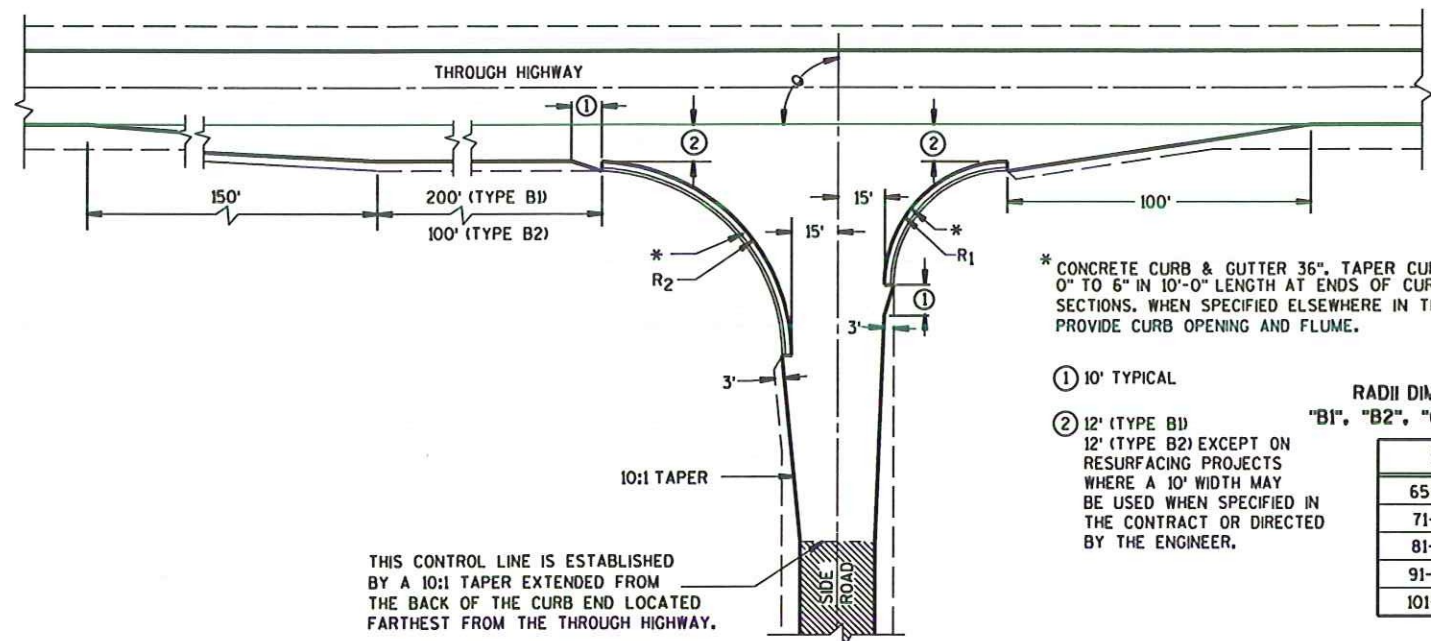


STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SIDE DRAINS SLOPED SECTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

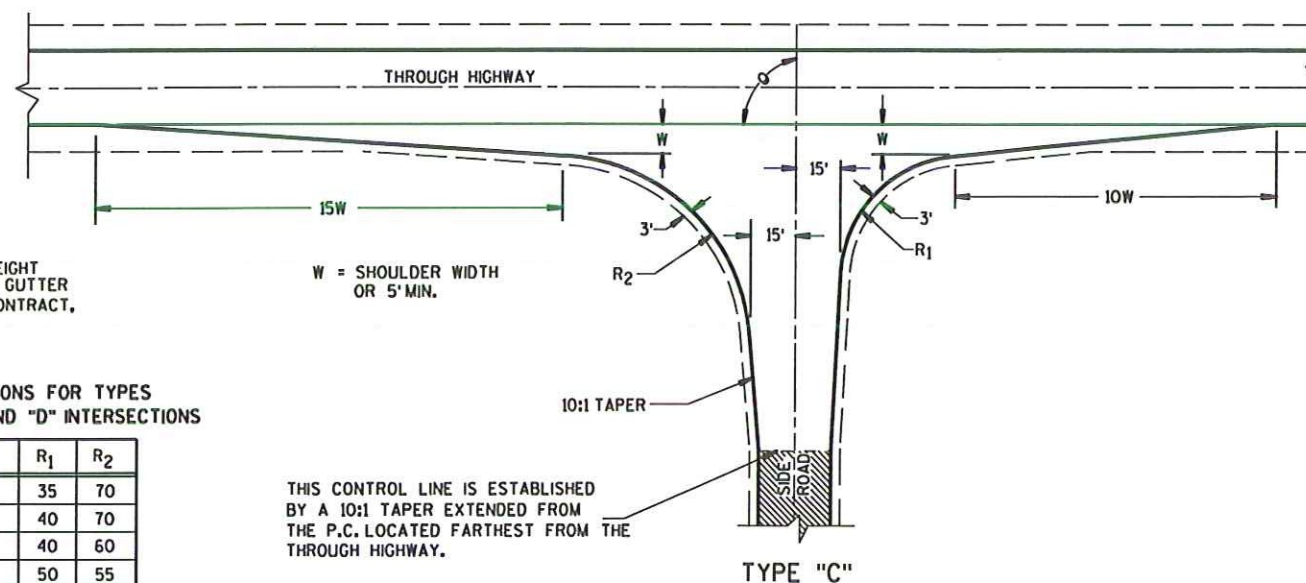
APPROVED
4/17/95
DATE
FHWA

Ray J. Rasmussen
CHIEF ROADWAY DEVELOPMENT ENGINEER



RADI DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

Q	R ₁	R ₂
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



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.

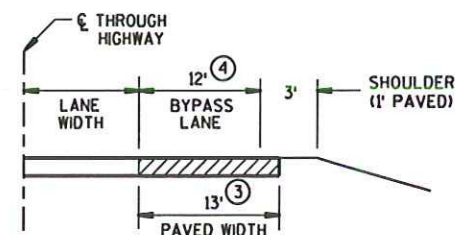
SIDE ROAD SURFACING NOTE

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

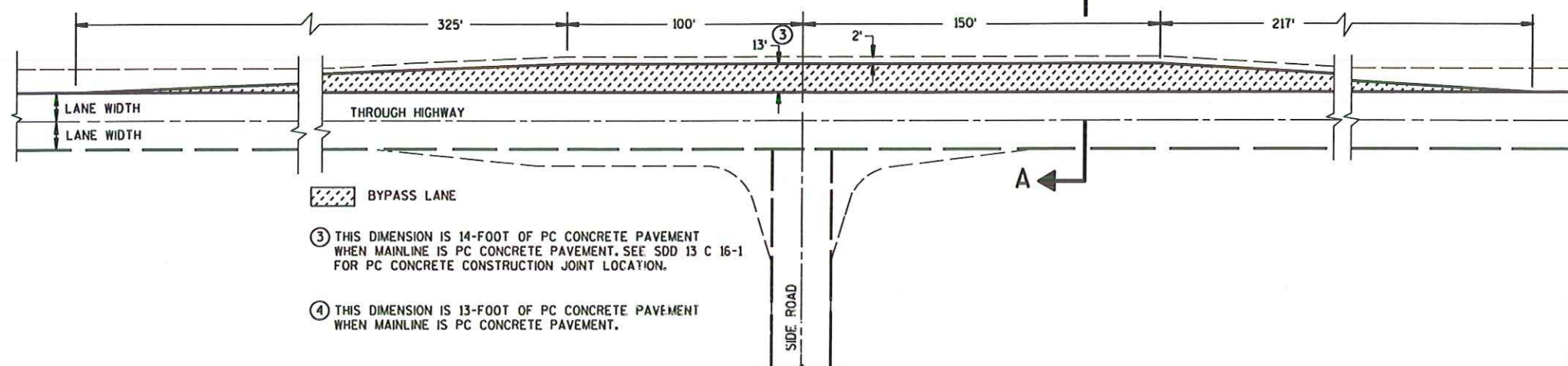
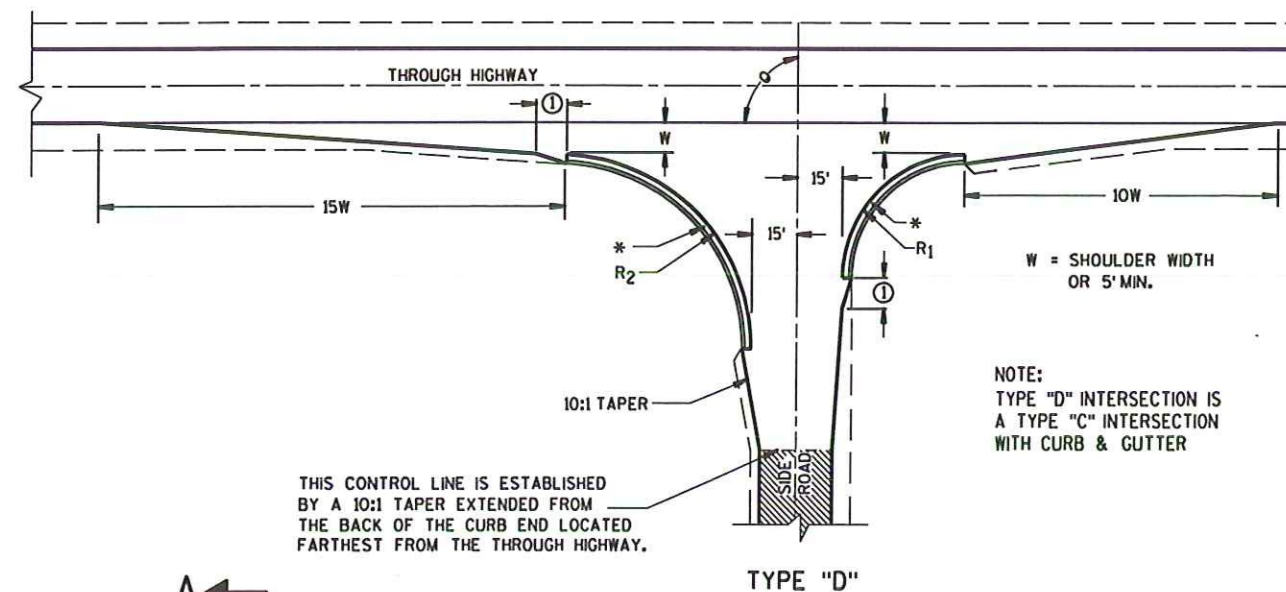
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

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

EXISTING SURFACE



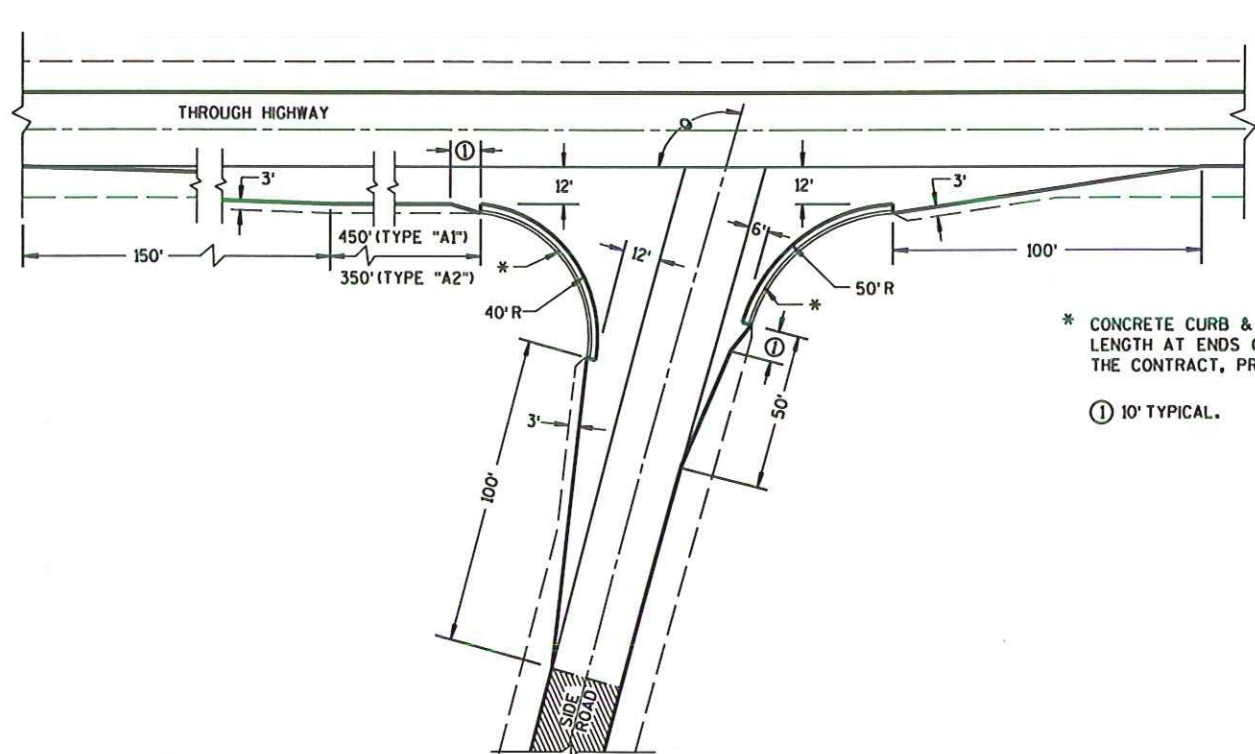
SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



TEE INTERSECTION BYPASS LANE DETAIL

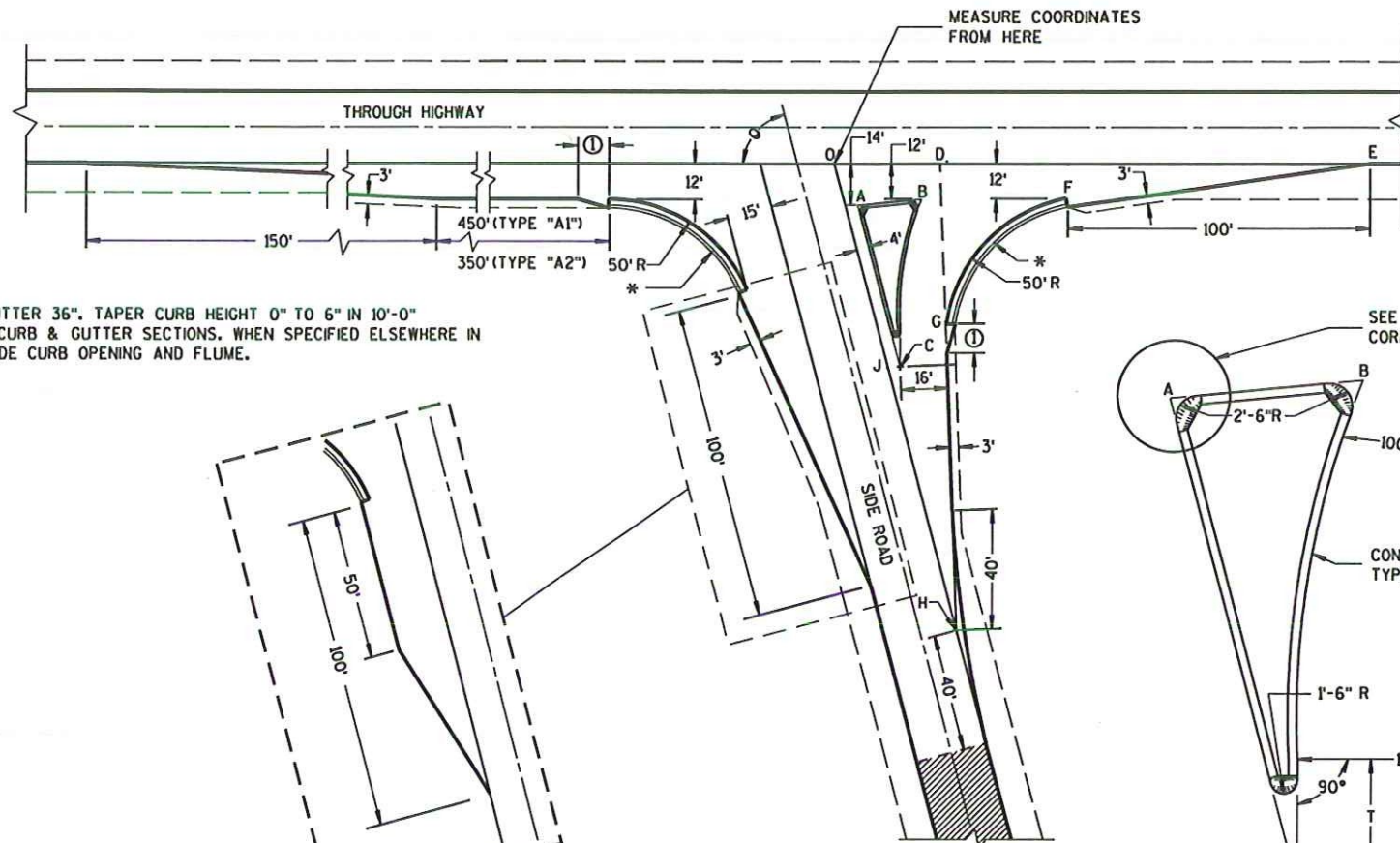
AT-GRADE SIDE ROAD
INTERSECTION, TYPES "B1", "B2", "C"
AND "D" AND TEE INTERSECTION
BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



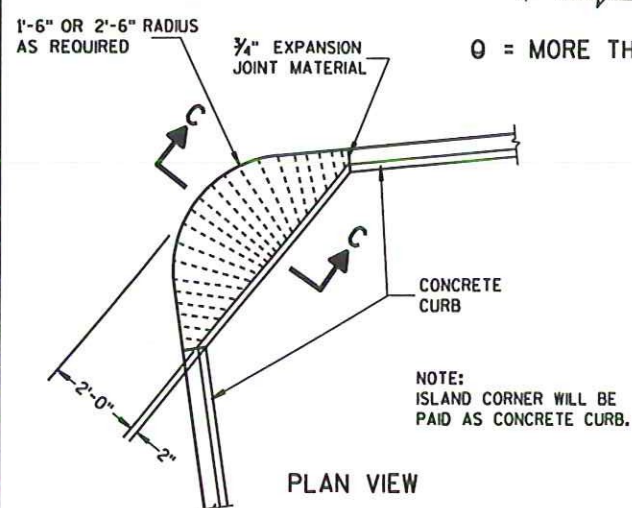
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10' TYPICAL.



① 10' TYPICAL.

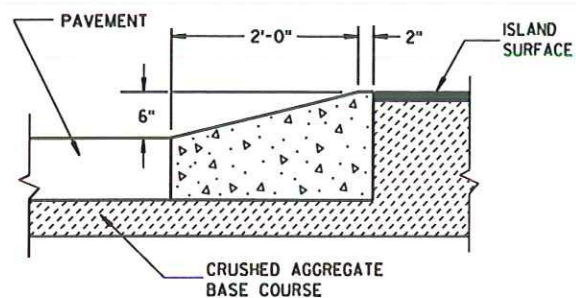
SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 θ = ACUTE ANGLES 70° OR LESS



θ = MORE THAN 80°

EXISTING SURFACE

PLAN VIEW



SECTION C-C

ISLAND CORNER DETAIL
 (TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

TABLE OF DIMENSIONS FOR
 VARIABLE SIDE ROAD INTERSECTION ANGLES
 (INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O")								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7	44.9	46.4	41.9	205.0	104.6	64.0	85.0	32.3	67.4	4.9	85.9	169.9
65	10.9	39.0	37.8	39.4	196.1	95.7	54.1	70.5	28.2	63.6	8.5	80.9	166.9
70	9.4	33.9	29.8	37.4	188.3	87.8	45.6	56.1	24.6	59.7	11.5	76.1	164.1
75	7.9	29.3	22.3	35.7	181.2	80.7	38.2	41.8	21.5	55.8	13.8	71.4	161.4
80	6.5	25.4	15.6	34.4	174.8	74.4	31.8	27.6	18.9	52.0	15.6	66.9	158.9

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

AT-GRADE SIDE ROAD
 INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

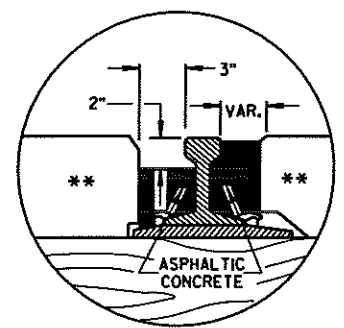
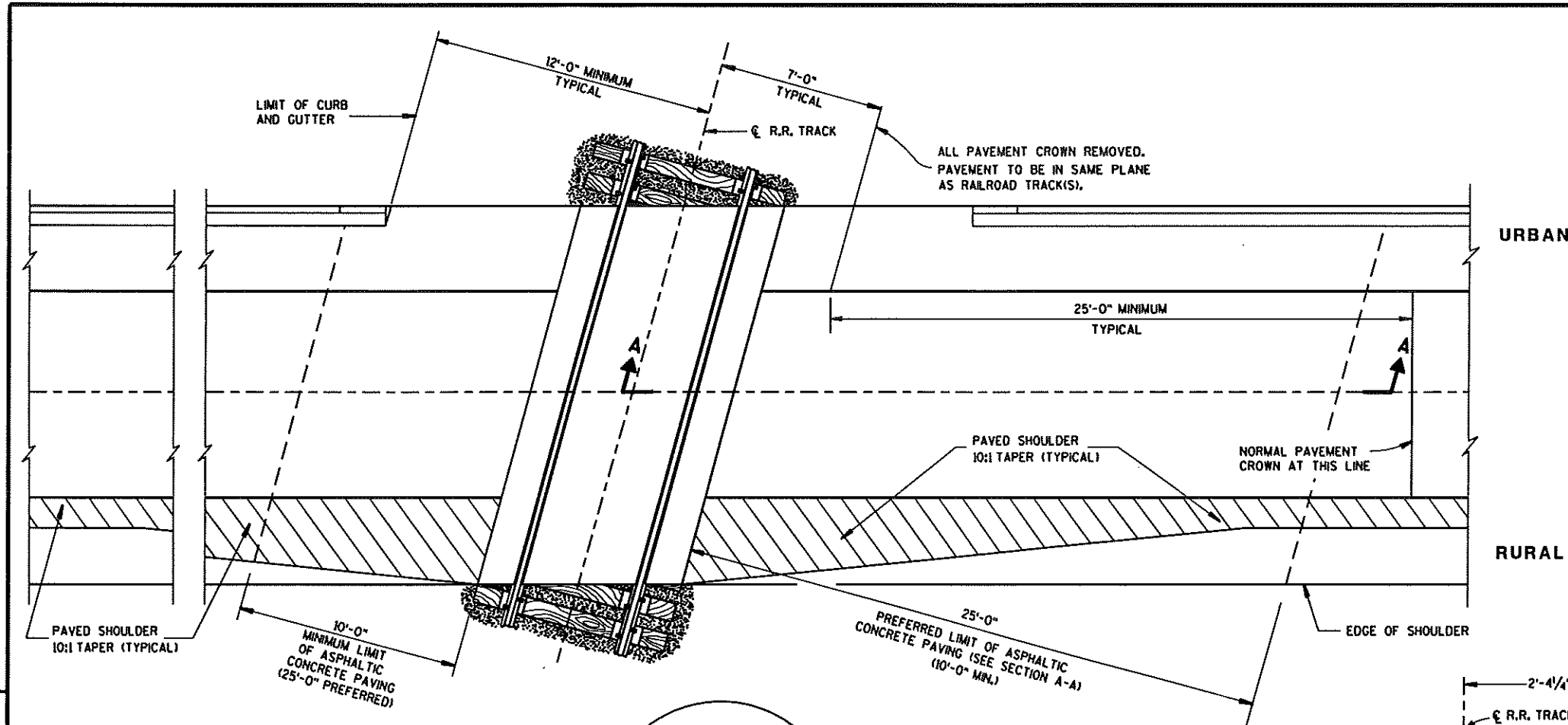
APPROVED

12/17/02
 DATE
 FHWA

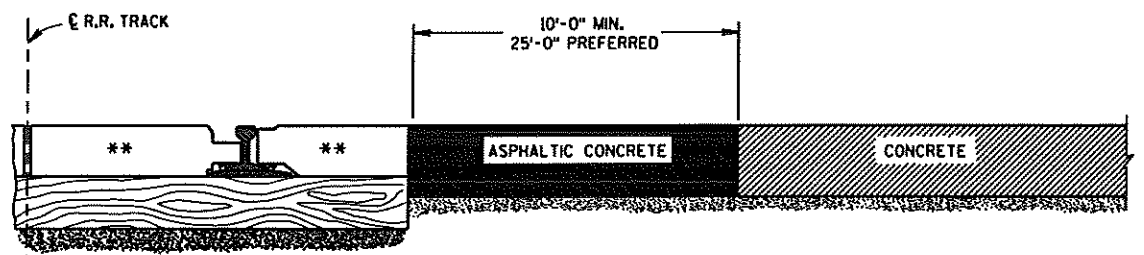
CHIEF ROADWAY DEVELOPMENT ENGINEER

6

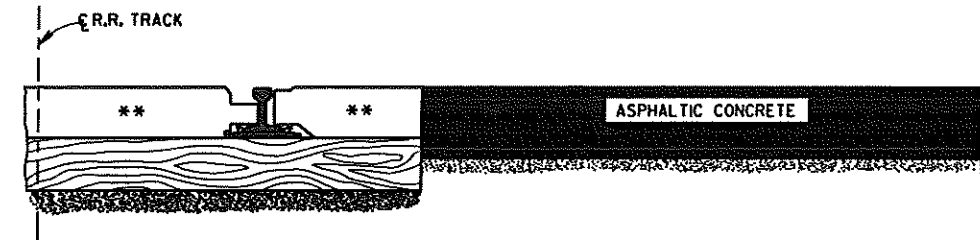
S.D.D. 13 B 1-9



DETAIL B
ASPHALTIC CONCRETE
FLANGEWAY AND FIELD FILLERS



SECTION A-A
CONCRETE PAVEMENT APPROACH



SECTION A-A
ASPHALTIC CONCRETE
PAVEMENT APPROACH

EXAMPLES OF PAVEMENT APPROACHES

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.

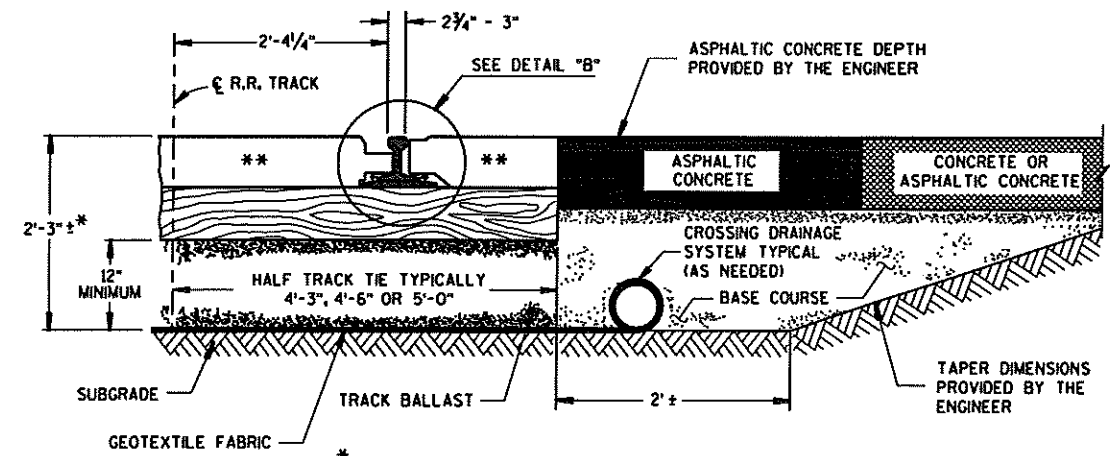
TIMBER, CONCRETE OR RUBBER CROSSING SURFACE MATERIAL, RAILS, TIES, BALLAST, GEOTEXTILE FABRIC AND CROSSING DRAINAGE SYSTEM BY OTHERS UNLESS OTHERWISE PROVIDED.

ASPHALTIC CONCRETE APPROACHES AND ASPHALTIC CONCRETE CROSSING SURFACES** TO BE PLACED BY CONTRACTOR UNLESS OTHERWISE PROVIDED.

ASPHALTIC CONCRETE FLANGEWAY AND FIELD FILLERS TO BE PLACED AND THOROUGHLY HAND COMPACTED BY THE CONTRACTOR WHEN NOT PROVIDED BY OTHERS. SEE DETAIL B. ASPHALTIC FILLERS NOT REQUIRED WHEN RUBBER FILLERS ARE PROVIDED.

ASPHALTIC CONCRETE PAVEMENT SHALL BE ROLLED PARALLEL TO THE TRACK.

** CROSSING SURFACE MAY BE TIMBER, RUBBER, CONCRETE, ASPHALTIC CONCRETE OR A COMBINATION OF SUCH MATERIALS.

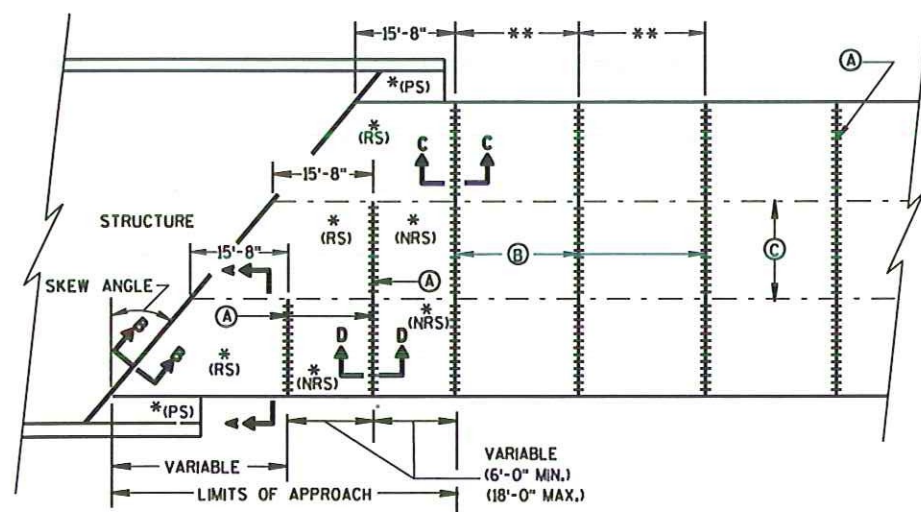


TYPICAL HALF SECTION

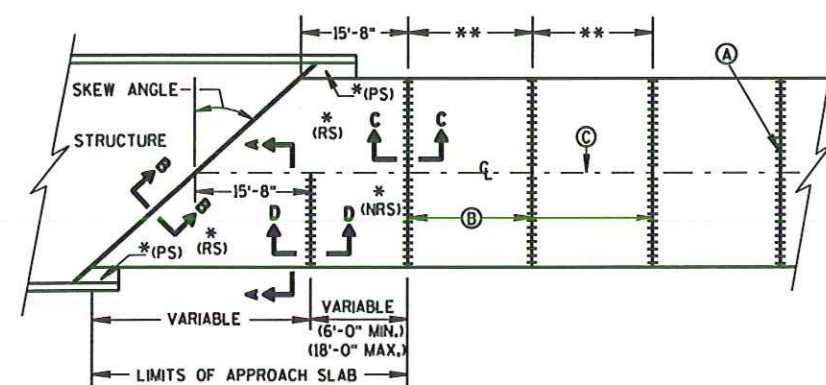
PAVEMENT DETAILS FOR RAILROAD APPROACH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5-12-06 DATE	/S/ Ronald E. Adams CHIEF, RAILROADS & HARBORS SECTION FHWA

6

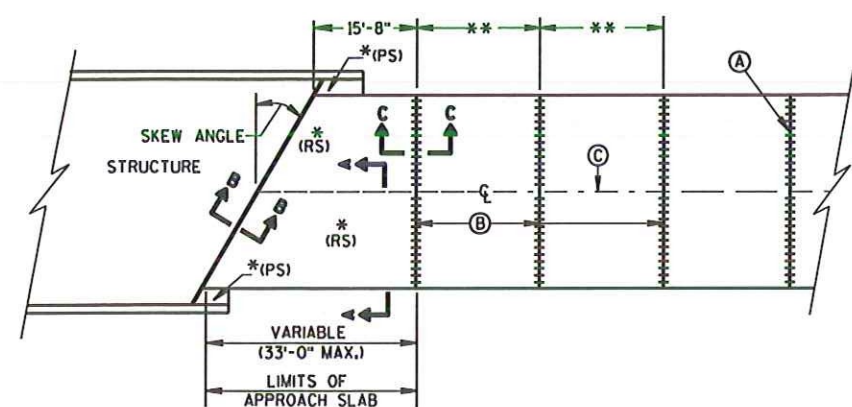
S.D.D. 13 B 1-9



SKewed APPROACH
(PAVEMENT MORE THAN 2 LANES)

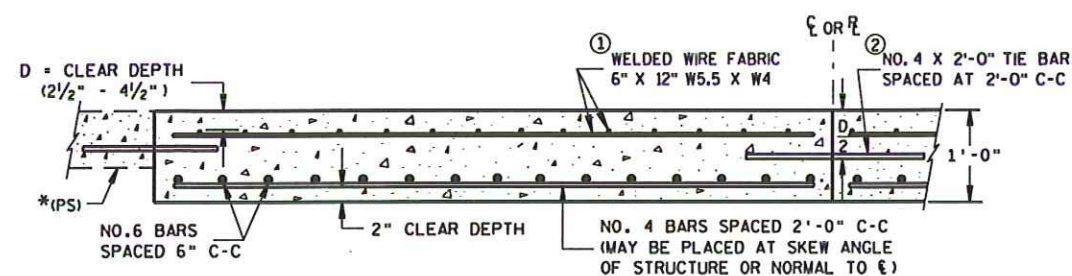


SKews >30°
(PAVEMENT WIDTH ≤ 30')

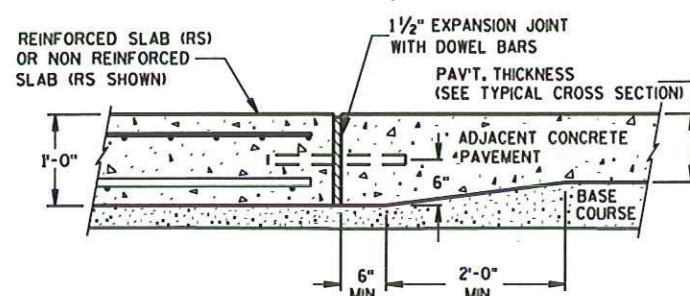


SKews ≤ 30°
(PAVEMENT WIDTH ≤ 30')
APPROACH SLAB AND ADJACENT PAVEMENT

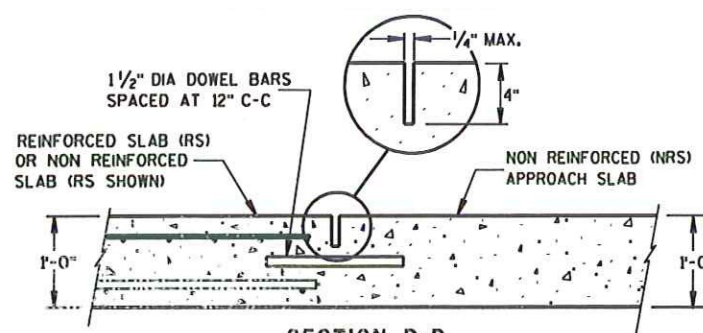
- * (RS) = REINFORCED CONCRETE SLAB
 * (PS) = PAVED CONCRETE SHOULDER, CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
 (SEE DETAILS ELSEWHERE IN THE PLAN)
 * (NRS) = NON-REINFORCED CONCRETE SLAB
 ** STANDARD TRANSVERSE JOINT SPACING
 (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
 (A) STANDARD CONTRACTION JOINT NORMAL TO R_L OR R_C
 (B) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO R_L OR R_C
 (C) STANDARD LONGITUDINAL JOINT AND TIE BARS.



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

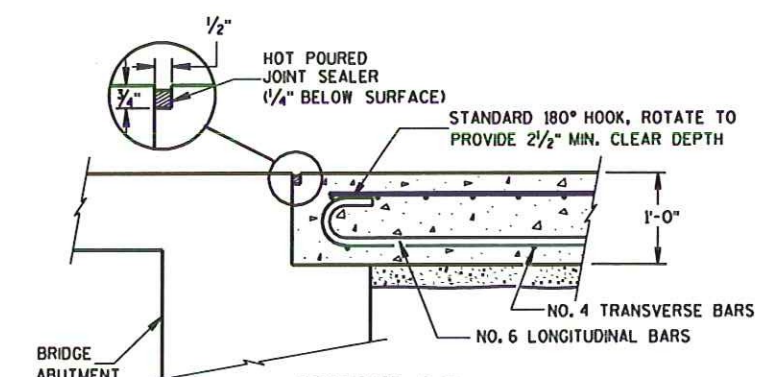
GENERAL NOTES

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

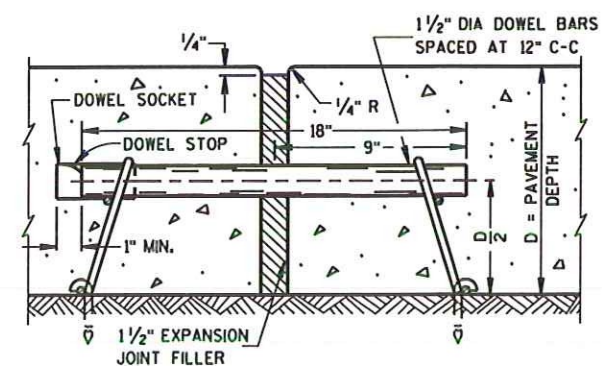
DOWEL BARS ARE NOT REQUIRED WHEN THE APPROACH SLAB ABUTS AN ASPHALT PAVEMENT OVER BASE COURSE.

SPLICING OF NO. 6 BARS IN THE APPROACH SLAB IS PERMITTED FOR SKEWED STRUCTURES ONLY. SPLICES SHALL BE STAGGERED, WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP SHALL BE 20 INCHES.

- NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS MAY BE USED FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- TIE BARS BETWEEN REINFORCED SLABS MAY BE OMITTED WHERE SLAB REINFORCEMENT EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT

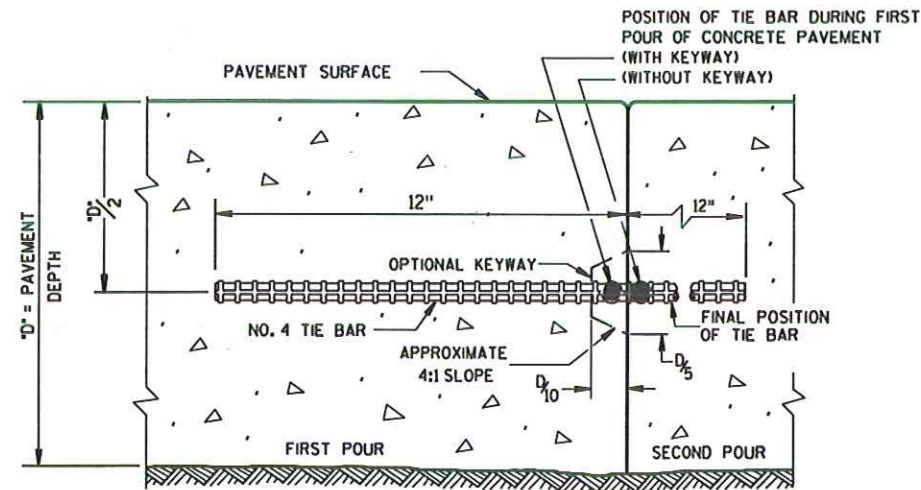


EXPANSION JOINT

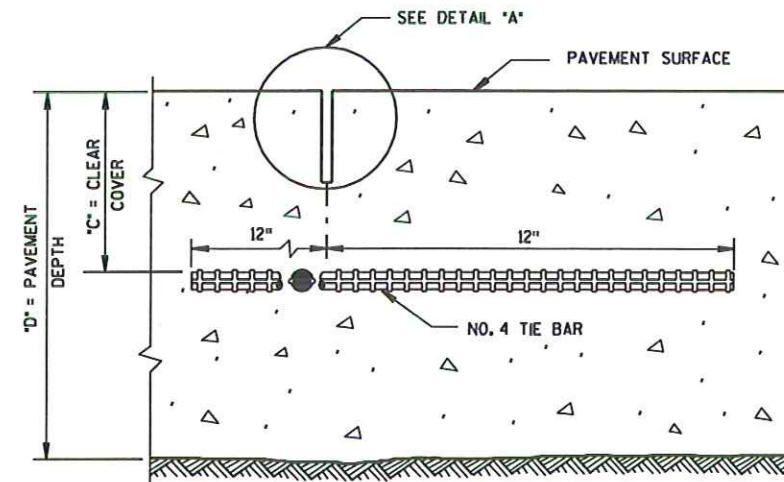
CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

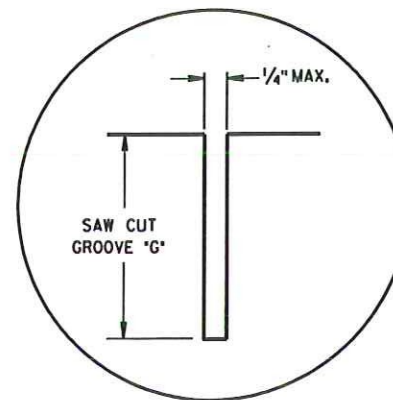
APPROVED
3/21/07 /S/ Steven W. Krebs
DATE CHIEF MATERIALS MANAGEMENT ENGINEER
FHWA



CONSTRUCTION JOINT



SAWED JOINT



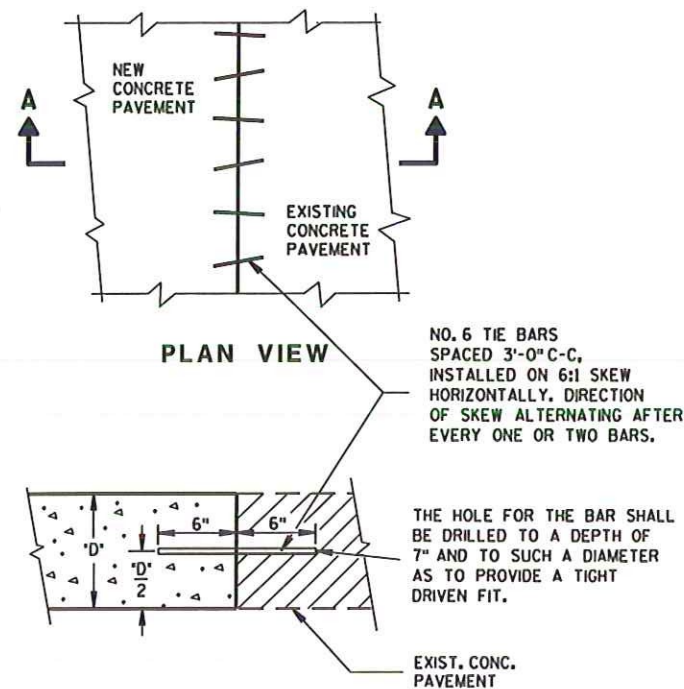
DETAIL "A"

GENERAL NOTES

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

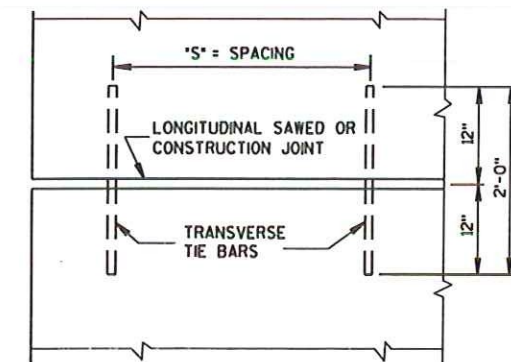
LONGITUDINAL JOINTS SHALL NOT BE SEALED OR FILLED.

TIE BAR SPACINGS ARE VALID ONLY FOR PAVEMENT WIDTHS IN THE TABLE. FOR WIDER PAVEMENTS, TIED CONCRETE SHOULDERS OR RAMPS, THE TIE BAR SPACING SHALL BE AS SHOWN ON THE PLANS.



SECTION A-A
PAVEMENT TIES

PAVEMENT DEPTH 'D'	CLEAR COVER 'C'	SAW CUT GROOVE 'G'	MAXIMUM TIE BAR SPACING "S"	
			PAVEMENT WIDTH 24' OR 26'	30'
6, 6 1/2"	3" ± 1/2"	2"	48"	42"
7, 7 1/2"	3 1/4" ± 1"	2 1/4"	45"	36"
8, 8 1/2"	3 3/4" ± 1"	2 1/2"	39"	30"
9, 9 1/2"	4 1/4" ± 1"	3"	33"	27"
10, 10 1/2"	4 3/4" ± 1"	3 1/4"	30"	24"
11, 11 1/2"	5 1/4" ± 1"	3 3/4"	27"	21"
12"	5 3/4" ± 1"	4"	24"	21"



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT
LONGITUDINAL JOINTS
AND PAVEMENT TIES

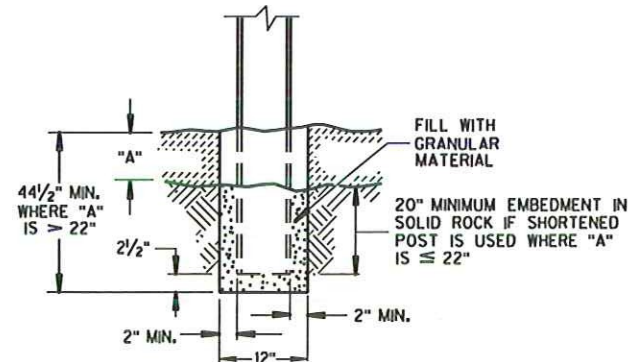
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/21/07
DATE
/S/ Steven W. Krebs
CHIEF MATERIALS MANAGEMENT ENGINEER
FHWA

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.

-
- Technical drawing of a normal shoulder detail. The drawing shows a cross-section of a joint with the following dimensions and components:
- Overall width: 2'-0" (labeled ⑤)
 - Post size: ① 6" X 8" POST
 - Blockout size: -6" X 8" X 1'-2" WOOD OR PLASTIC BLOCKOUT
 - Nail size: -1-10d GALVANIZED NAIL
 - Blockout thickness: 7/8"
 - Post hole: 3/4" HOLE
 - Post size: 5/8" POST BOLT
 - Shoulder height: 2'-3 3/4"
 - Foreslope: 3'-6" MIN.
 - Labels: NORMAL SHOULDER, SHOULDER HINGE POINT, FORESLOPE, FINISHED SHOULDER

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD



3/4" HOLE, 5/8" POST BOLT
THROUGH CENTER OF
POST AND BLOCKOUT

4

PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM

Technical drawing of a wooden post. The post is shown in a perspective view. The top width is 8", the bottom width is 6", and the height is 7". A hole with a diameter of 3/4" is shown. The length of the post is 6'-0" MIN.

OPTIONAL $\frac{1}{8}$ " DIA. HOLE FOR HANDLING DURING GALVANIZING. (ONE PERMITTED)

T

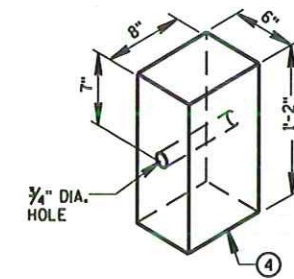
HOLES FOR STEEL PLATE BEAM GUARD, CLASS "A"

③

②

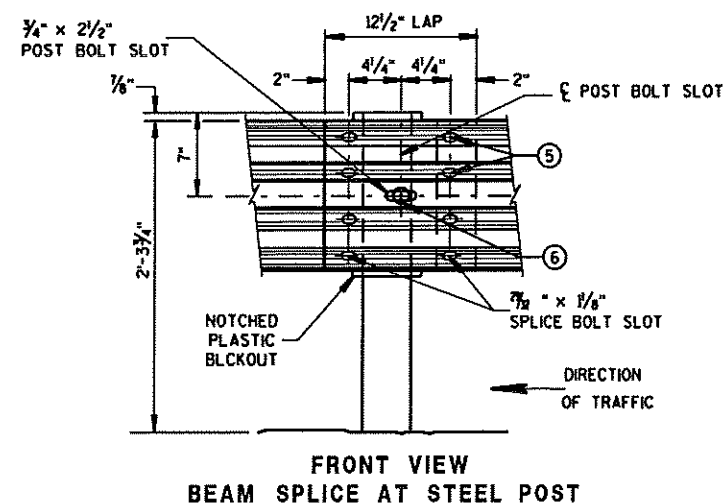
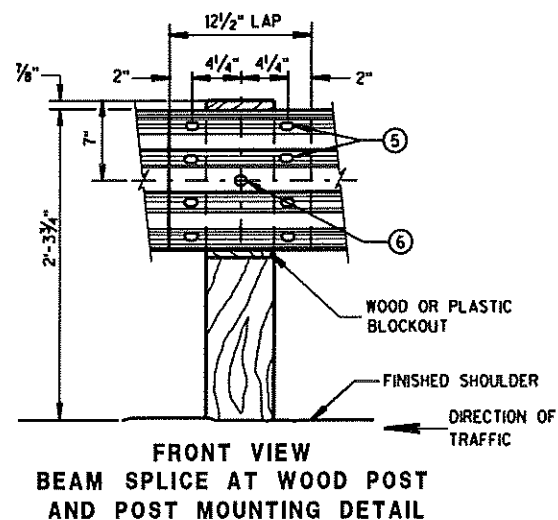
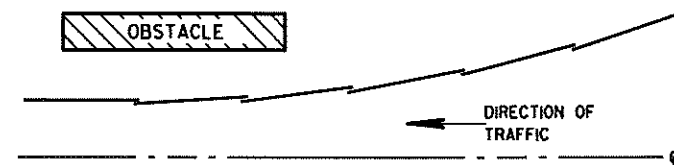
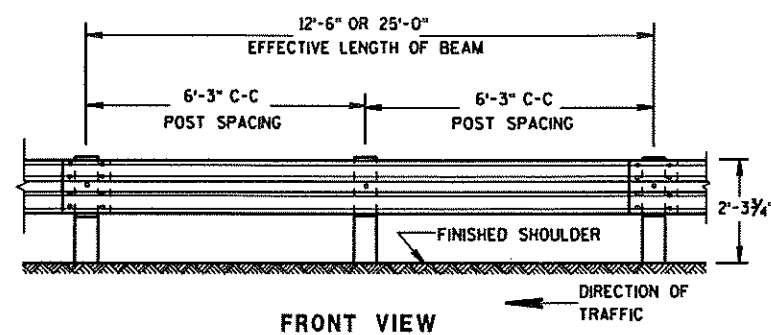
BOLT

ALL HOLES $\frac{1}{16}$ " DIAMETER EXCEPT AS NOTED



STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

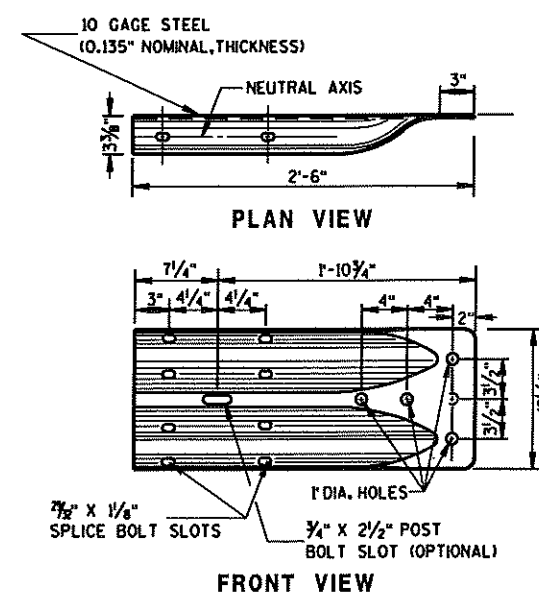
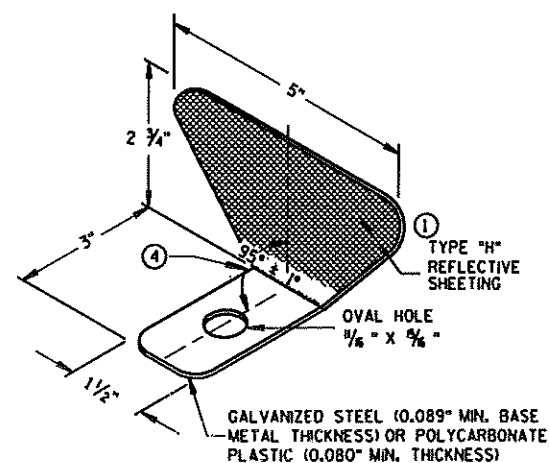
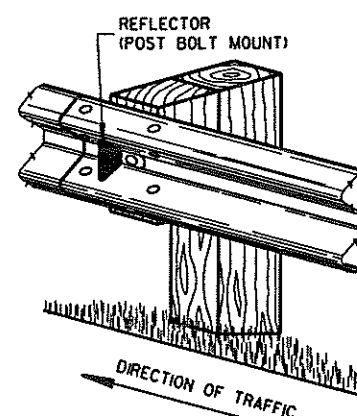
S.D.D. 14 B 15-50



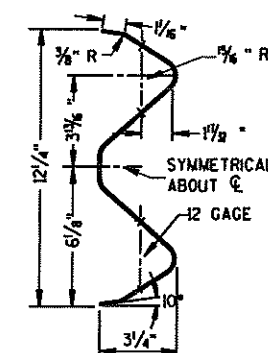
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

REFLECTOR SPACING⁽²⁾

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ③ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 ④ 2	3



SECTION THRU W BEAM



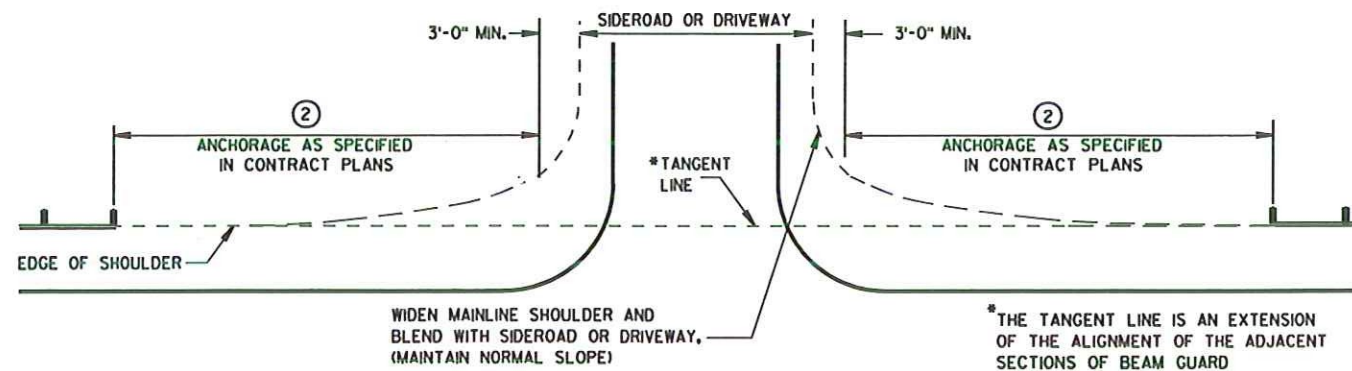
GENERAL NOTES

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - $\frac{5}{8}$ " \times 1 $\frac{1}{4}$ " BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ $\frac{3}{8}$ " \times 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.

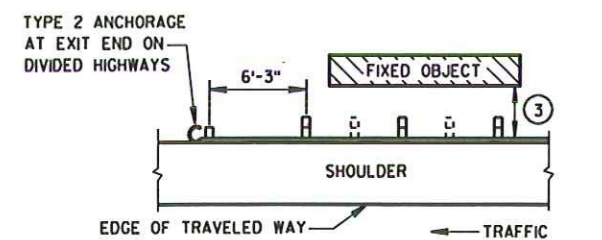
**STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/23/06 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

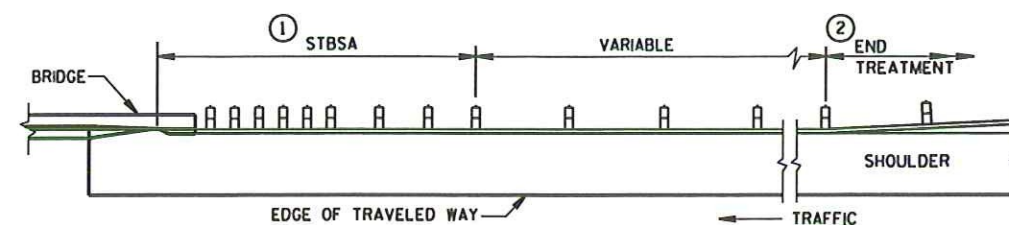
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

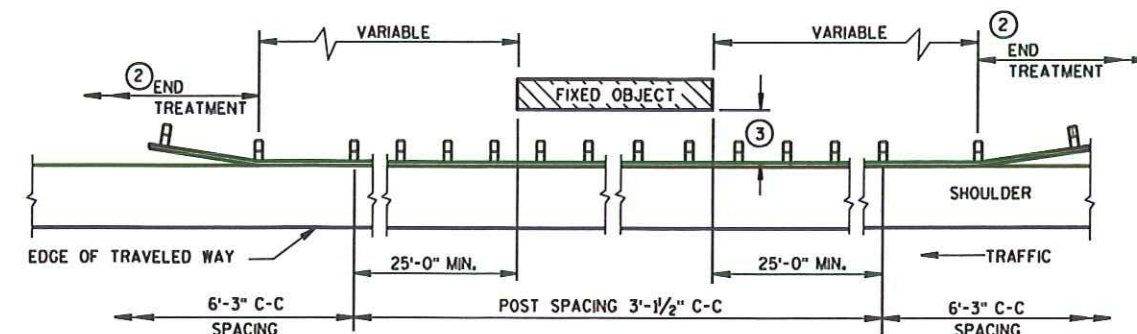
W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE SDD 14B20.
- ② USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"



BEAM GUARD AT FULL WIDTH BRIDGES

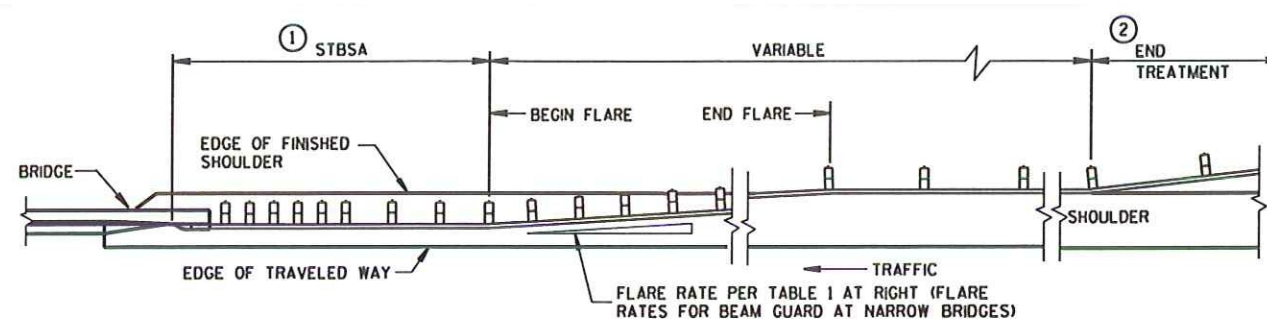


BEAM GUARD AT OSBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

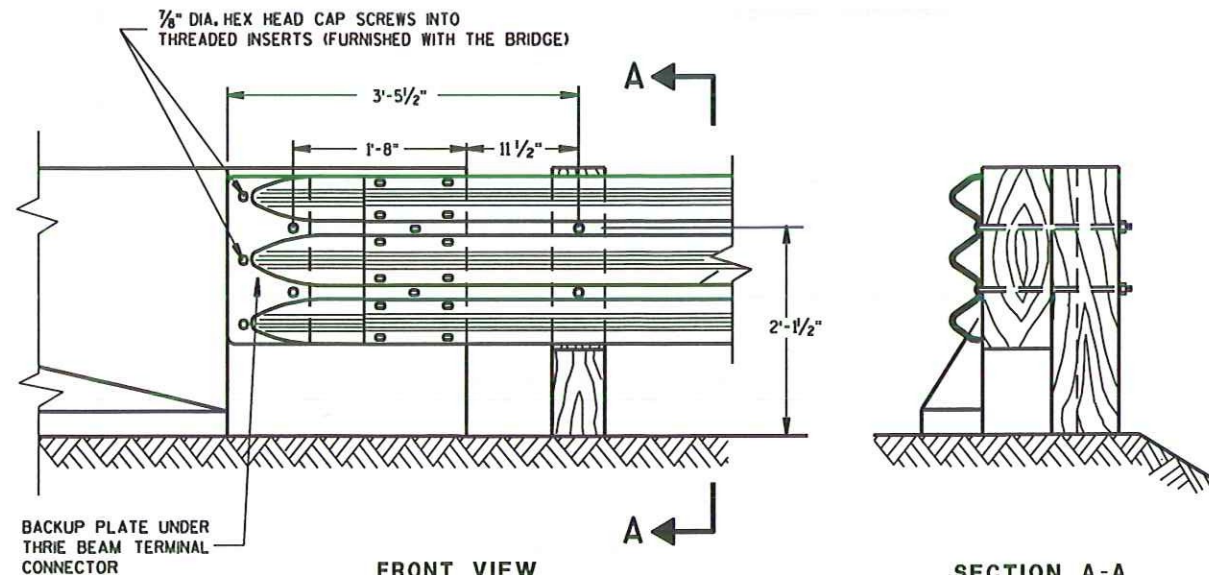
STEEL PLATE BEAM GUARD,
CLASS "A"
(AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-23-06
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

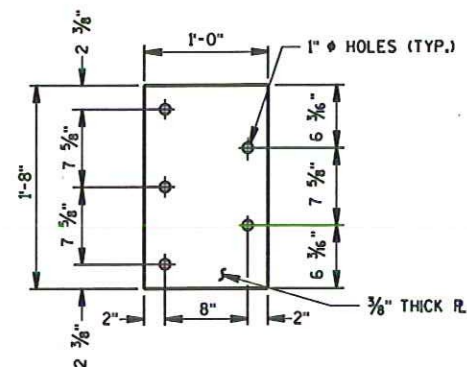


- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0", WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT, OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F-1554, GRADE 55, NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-563 DH.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.
- ⑤ DO NOT ATTACH POST IN "W" TO THRIE BEAM TRANSITION SECTION.

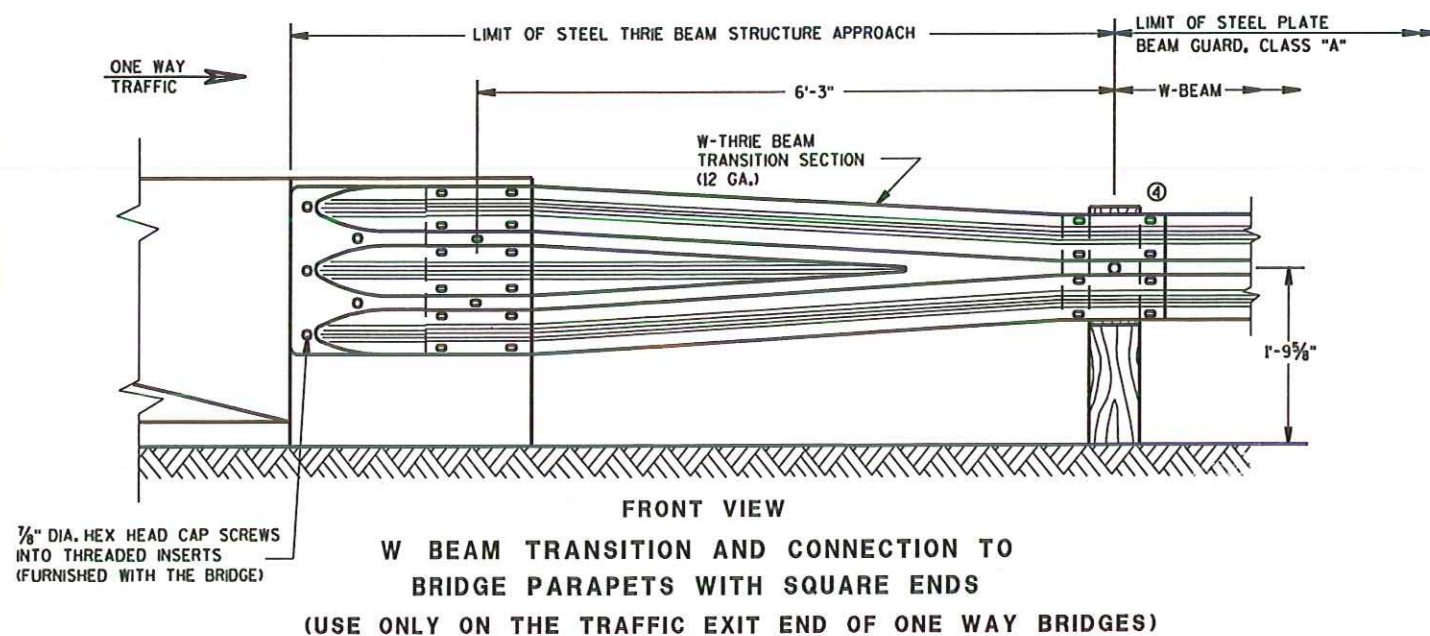


FRONT VIEW
THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS

SECTION A-A



② BACKUP PLATE DETAIL
(USE ONLY AT BRIDGE PARAPET CONNECTIONS)



GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325, AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

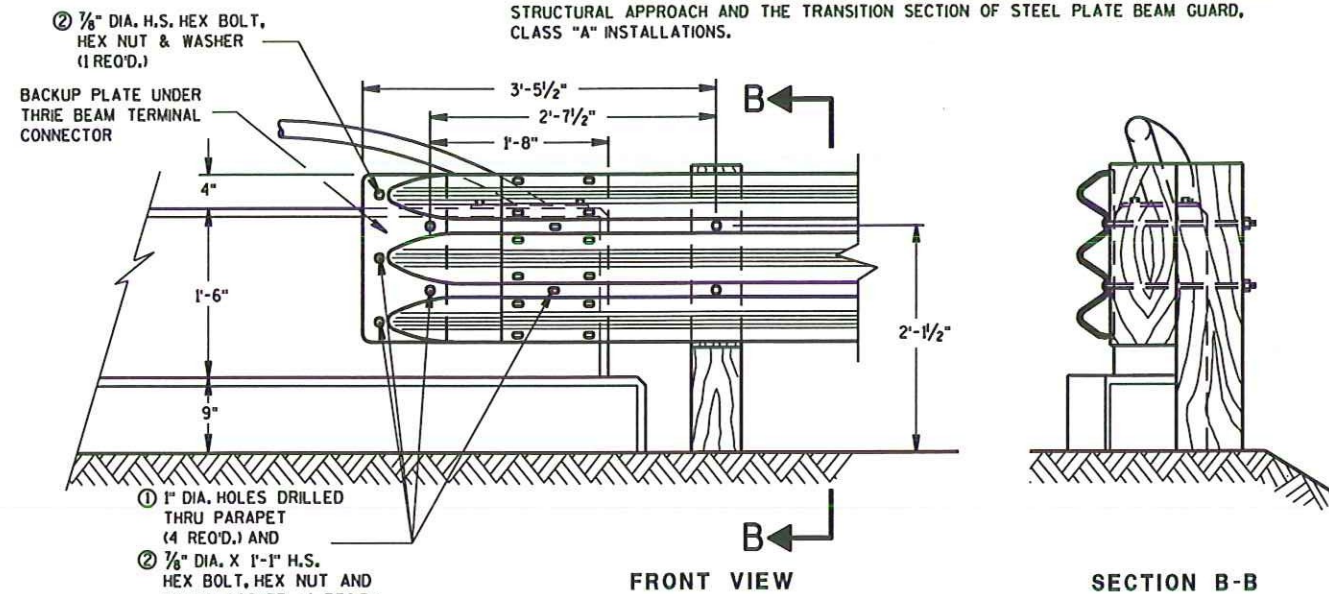
① INCLUDE THE PAYMENT FOR DRILLING BOLT HOLES THROUGH THE PARAPET, AND THE BACKUP PLATE AND ALL BOLTS, NUTS AND WASHERS IN THE ITEM "STEEL THRIE BEAM STRUCTURAL APPROACH".

② EACH BOLT AT THE BACK FACE OF THE PARAPET REQUIRES A HARDENED ROUND STEEL WASHER WITH A 2 1/4" O.D. X 3/8" THICK.

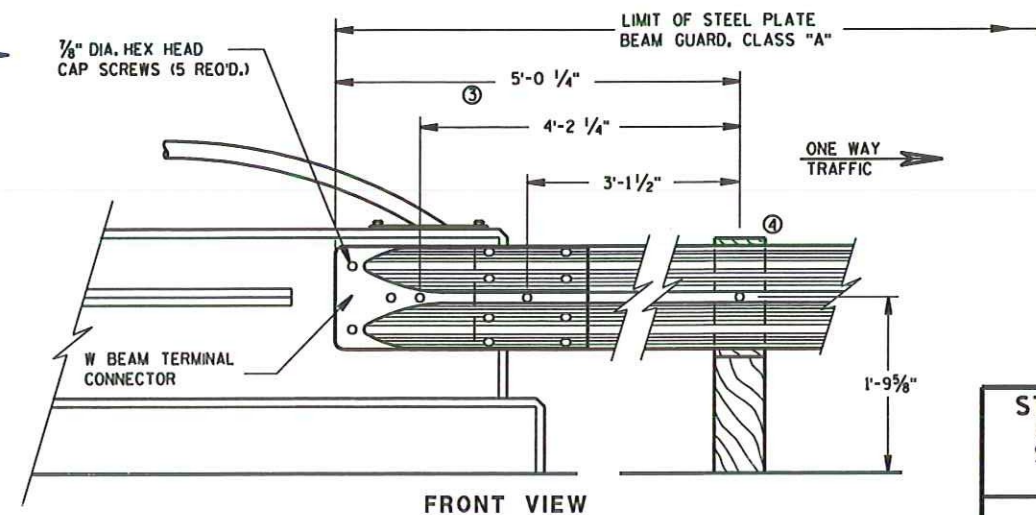
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



THRIE BEAM CONNECTION
TO VERTICAL FACED PARAPETS



W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
SQUARE END AND VERTICAL
FACED PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2-12-04
DATE
FHWA

CHEF ROADWAY DEVELOPMENT ENGINEER

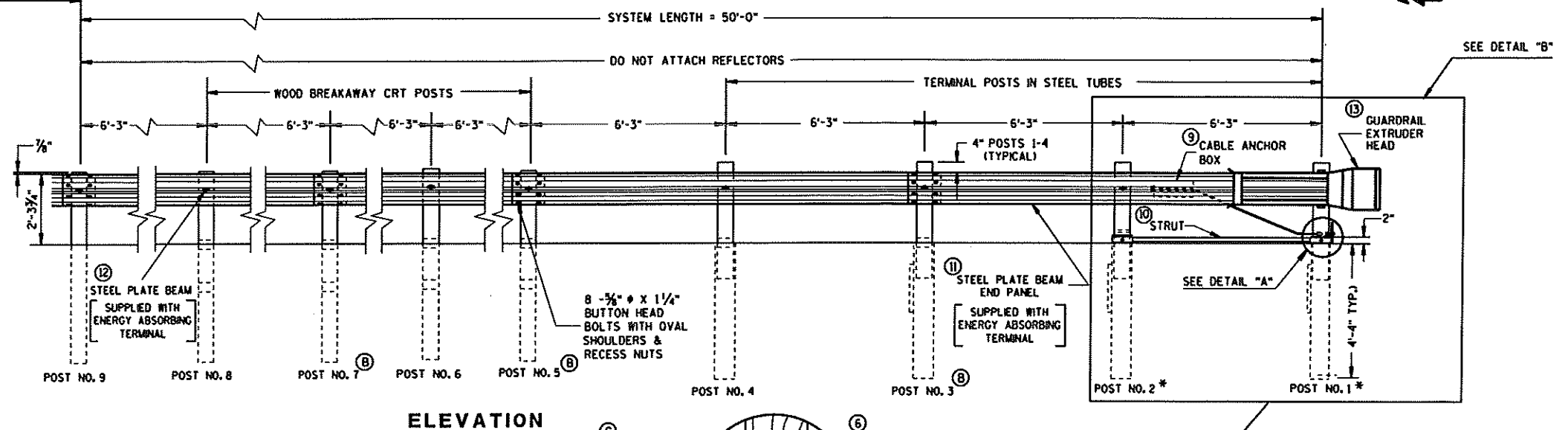
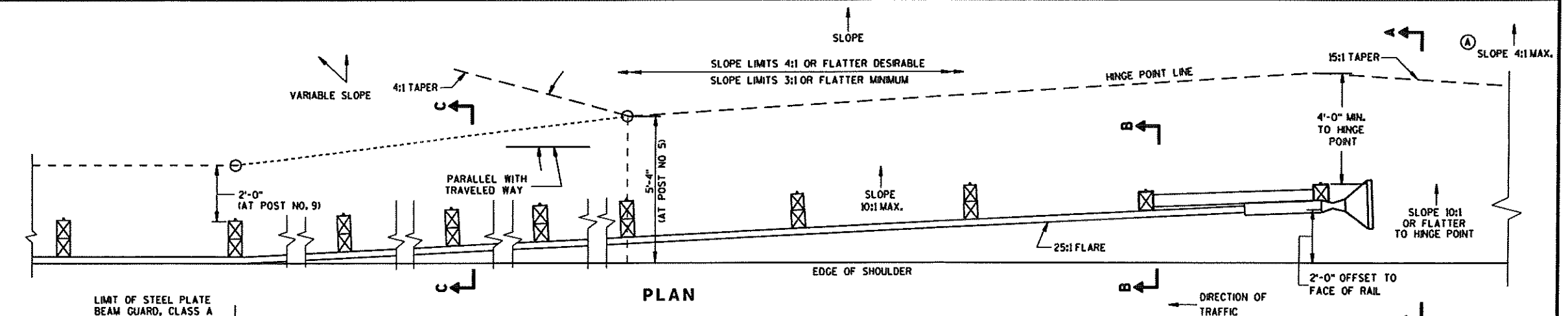
NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5/2" X 7/4" X 3'-9"
②	4	STEEL TUBE: TS 8" X 6" X 0.188", 4'-6" LONG
③	4	SOIL PLATE: 2'-0" X 1'-6" X 1/4"
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6'X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING: 18" X 18"

- (A) USE 3:1 OR FLATTER SLOPE FOR INSTALLATION ON EXISTING HIGHWAYS.
- (B) DO NOT ATTACH GUARDRAIL TO POST BLOCKS AT POSTS NO. 3, 5 & 7.
- (C) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

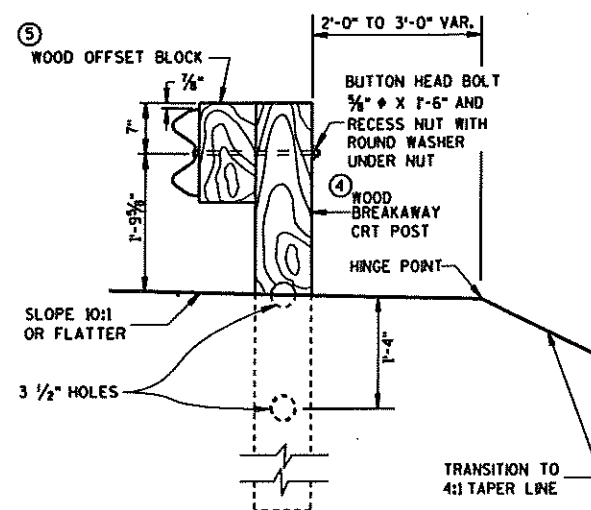
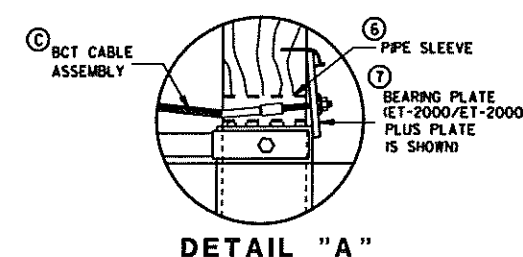
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

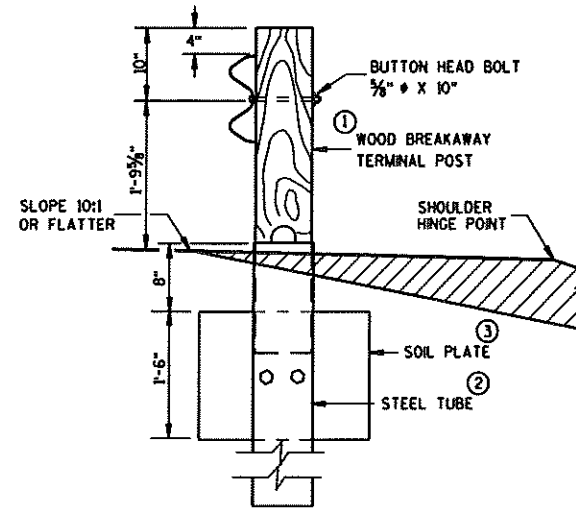
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



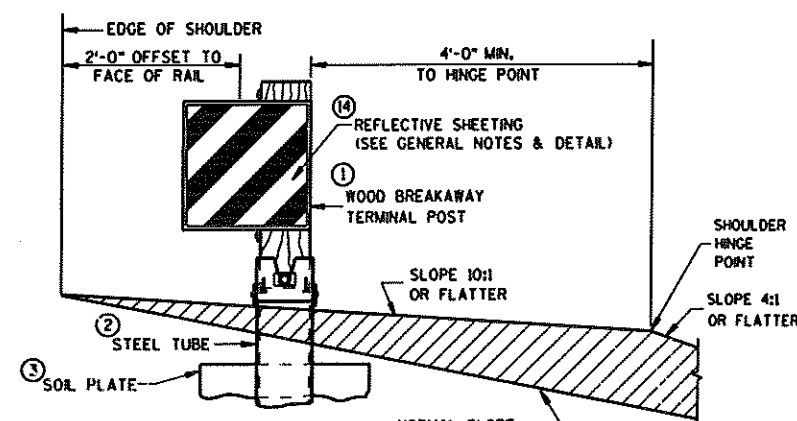
ELEVATION



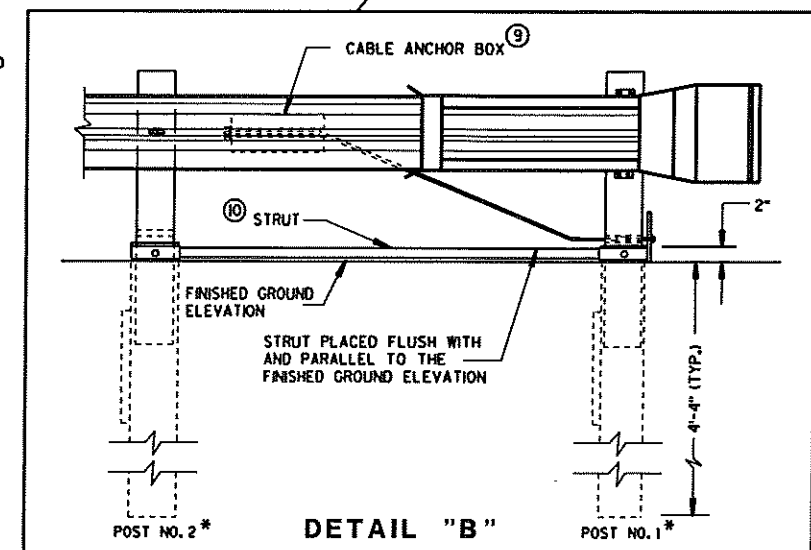
SECTION C-C
TYPICAL AT POST NOS. 4, 6, 8



SECTION B-B
TYPICAL AT POST NO. 2*



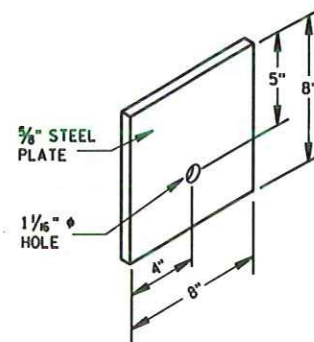
SECTION A-A
TYPICAL AT POST NO. 1*



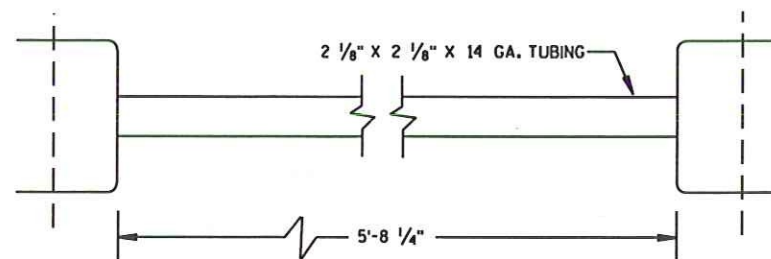
DETAIL "B"

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

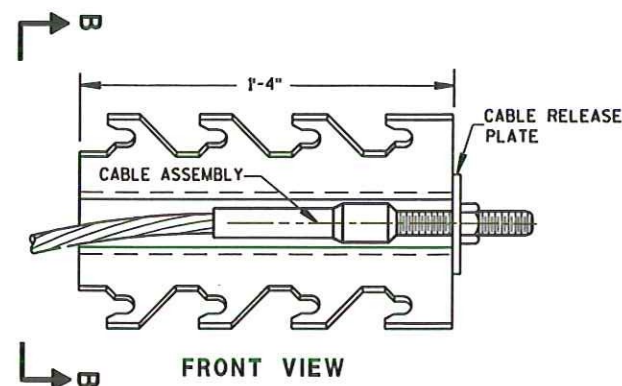
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



STEEL BEARING PLATE (SKT-350)

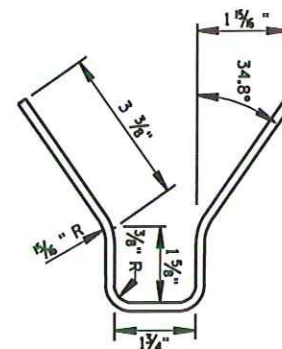


STRUT DETAIL (SKT-350)

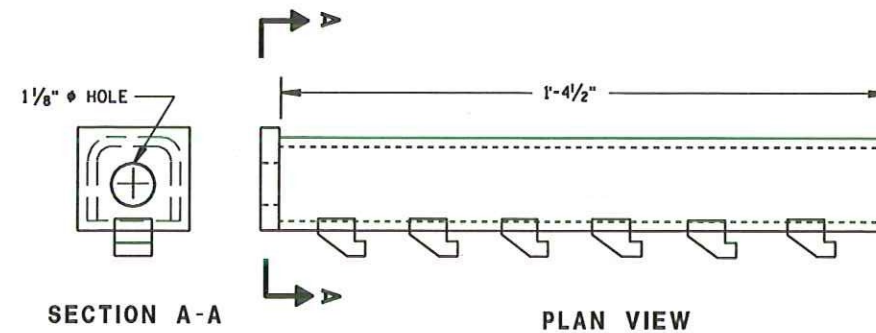


CABLE ANCHOR BOX (SKT-350)

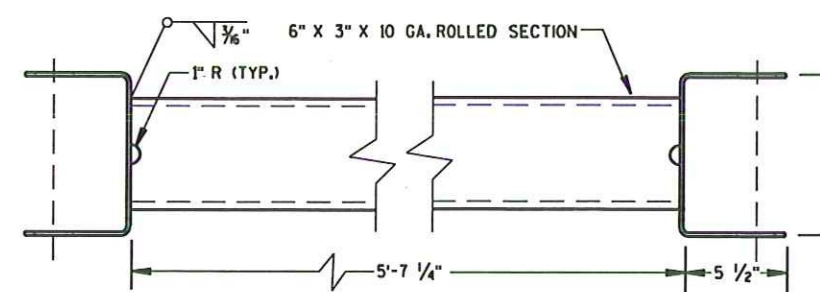
(SKT-350)



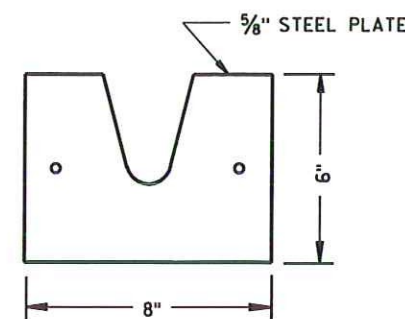
SECTION B-B



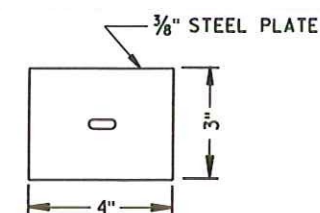
CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



STRUT DETAIL (ET-2000/ET-2000 PLUS)

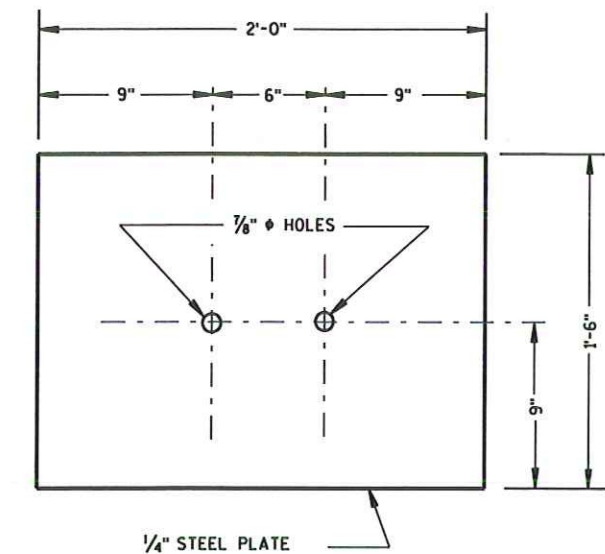


STEEL BEARING PLATE
(ET-2000/ET-2000 PLUS)



BEARING PLATE WASHER
(ET-2000/ET-2000 PLUS)

(ET-2000/ET-2000 PLUS)



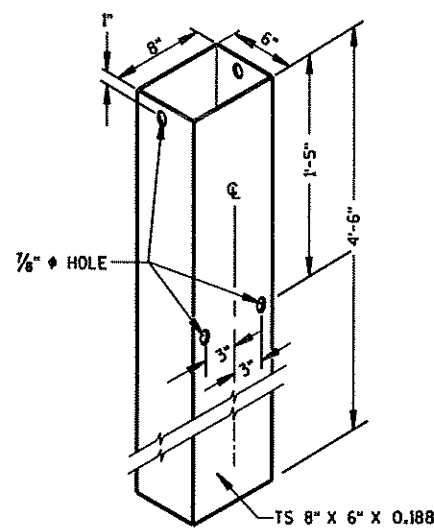
SOIL PLATE
(SKT-350, ET-2000/ET-2000 PLUS)

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

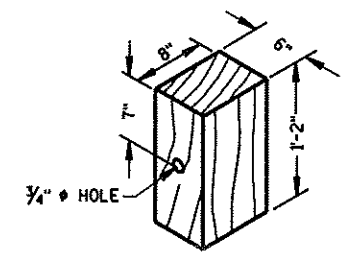
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

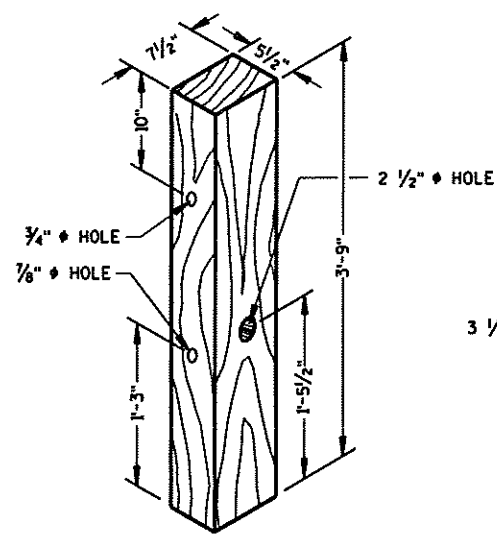
S.D.D. 14 B 24-4C



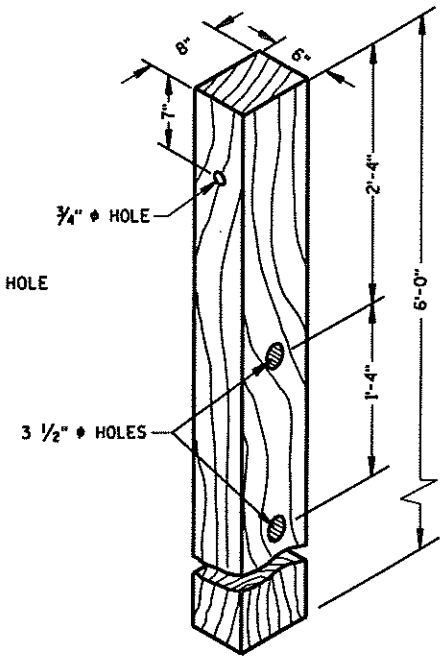
STEEL TUBE
(POSTS NO. 1-4)
THE STEEL TUBE SHALL CONFORM
TO REQUIREMENTS OF ASTM A500



WOOD OFFSET BLOCK
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

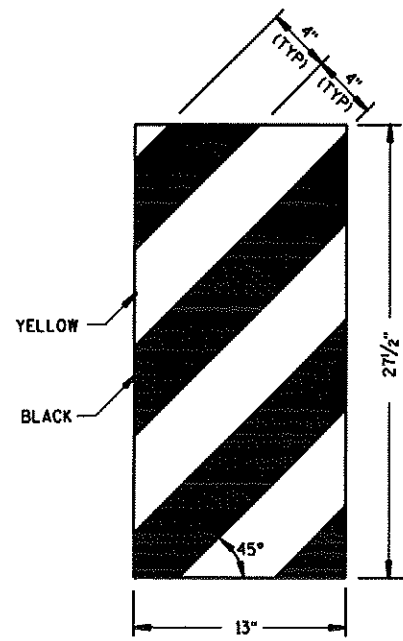


TERMINAL POST
(POSTS NO. 1-4)

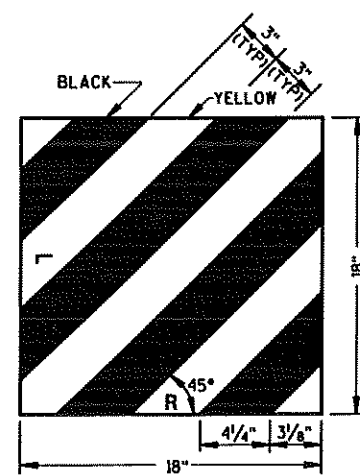


CRT POST
(POSTS NO'S 5-8)

WOOD BREAKAWAY POSTS



ET-2000 PLUS ONLY



ET-2000 AND SKT-350

REFLECTIVE SHEETING DETAILS

GENERAL NOTES

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

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL SHALL BE EITHER THE EXTRUDER TERMINAL (ET-2000), OR THE SEQUENTIAL KINKING TERMINAL (SKT-350). THE CONTRACTOR SHALL NOT INTERMIX PROPRIETARY PRODUCT MATERIALS.

STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

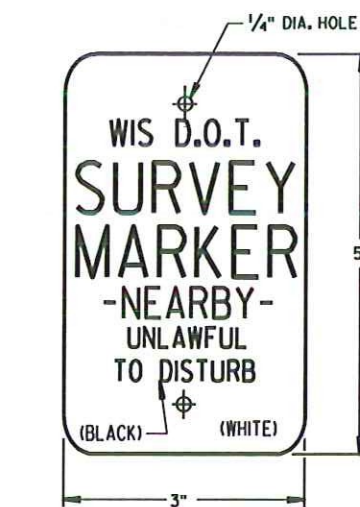
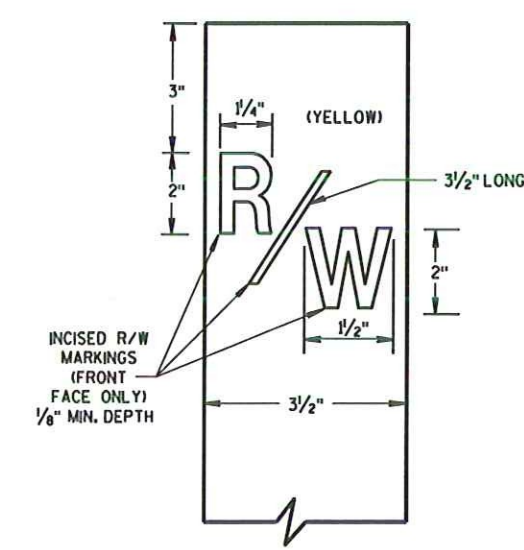
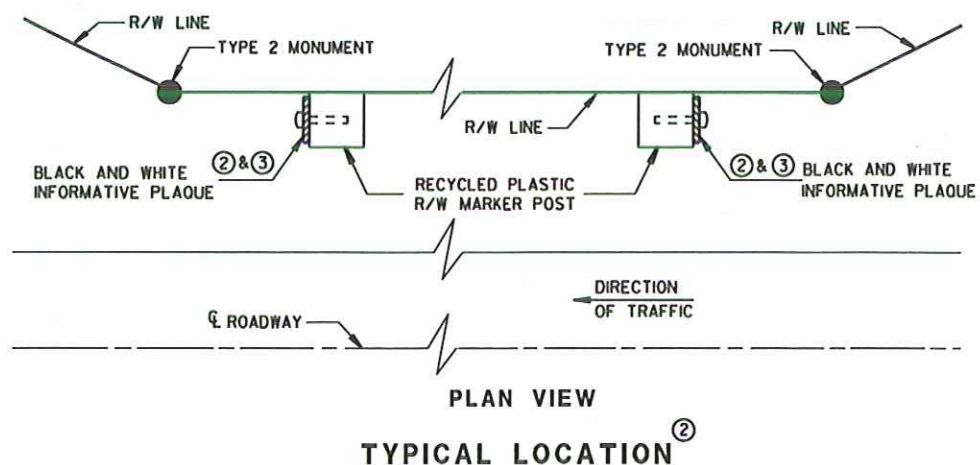
REFLECTIVE SHEETING - SHALL CONFORM TO ASTM SPECIFICATION D4956-94, REFLECTIVE SHEETING TYPE III, BACKING CLASS 4, PERFORMANCE REQUIREMENT TYPE III. THE MESSAGE AND LINES SHALL BE APPLIED TO THE SIGNS BY THE SILK SCREEN STENCIL PROCESS USING A BLACK OR DARK STENCIL PASTE AS A TYPE APPROVED BY THE MANUFACTURER OF THE FACE MATERIAL TO WHICH IT IS TO BE APPLIED. MESSAGE UNITS CUT FROM NONREFLECTIVE SHEETING AND APPLIED TO THE SIGN FACE ARE NOT ACCEPTABLE. AFTER THE APPROACH END OF THE STEEL PLATE BEAM GUARD INSTALLATION IS COMPLETE, CLEAN THE AREA WHERE THE REFLECTIVE SHEETING WILL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION. ONCE CLEAN, APPLY REFLECTIVE SHEETING DIRECTLY TO THE STEEL PLATE BEAM GUARD AS SHOWN. THE CONTRACTOR SHALL TURN OVER THE MANUFACTURERS WARRANTY FOR THE REFLECTIVE SHEETING TO THE DEPARTMENT FOR POTENTIAL DEALING WITH THE MANUFACTURER. PAYMENT OF REFLECTIVE SHEETING IS INCIDENTAL TO STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL.

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

6

S.D.D. 14 B 24-4C

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6-25-03 DATE	 CHIEF ROADWAY DEVELOPMENT ENGINEER FHWA



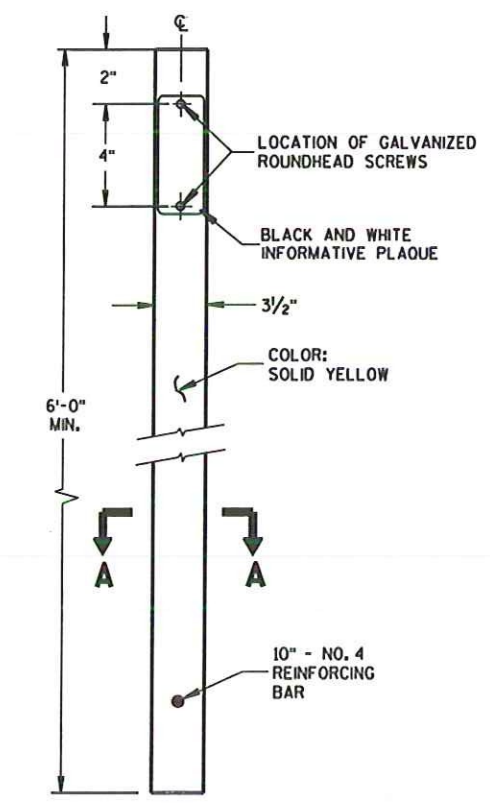
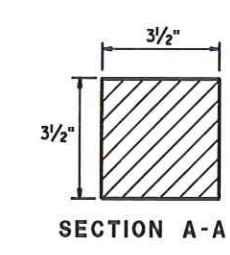
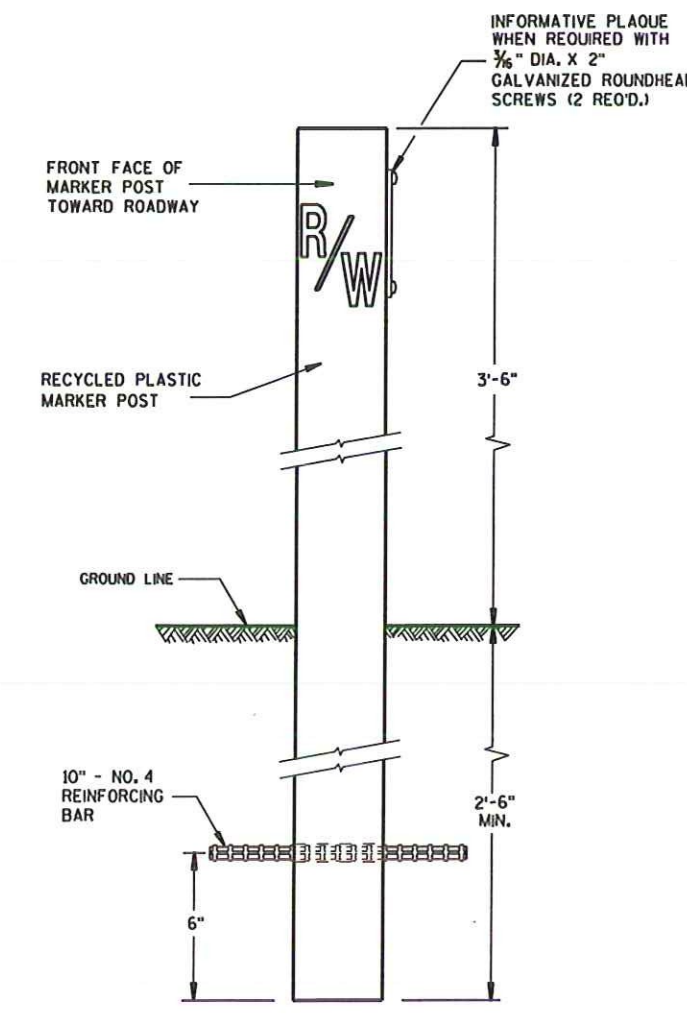
GENERAL NOTES

- 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.
- POSTS SHALL BE ANCHORED AND SET INTO EXCAVATED HOLES AS ILLUSTRATED OR MAY BE DRIVEN AND ANCHORED INTO THE GROUND BY ALTERNATE DEVICES APPROVED BY THE ENGINEER.
- A MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED ADJACENT TO EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION AND BE PLACED ON THE SIDE OF THE POST FACING THE TYPE 2 MONUMENT.
- IN AREAS OF SOLID ROCK, DRILL A 1/2" MIN. BORE HOLE INTO THE ROCK TO A DEPTH OF 12". CUT THE POST SO THAT A LENGTH OF 3'-6" PROTRUDES ABOVE THE GROUND. DRILL A 3/8" PILOT HOLE 1 FOOT INTO THE BOTTOM OF THE POST. DRIVE A 2 FOOT PIECE OF NO. 6 REINFORCING BAR INTO THE POST. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH EPOXY, CONCRETE CEMENT OR EQUIVALENT. PLACE THE POST WITH THE EXTENDED REINFORCING BAR INTO THE BORE HOLE WITH ADHESIVE. DEPENDING ON THE STABILITY OF THE ROCK, DEPTH OF THE BORE HOLE AND REINFORCING BAR MAY BE INCREASED AT THE DIRECTION OF THE ENGINEER.

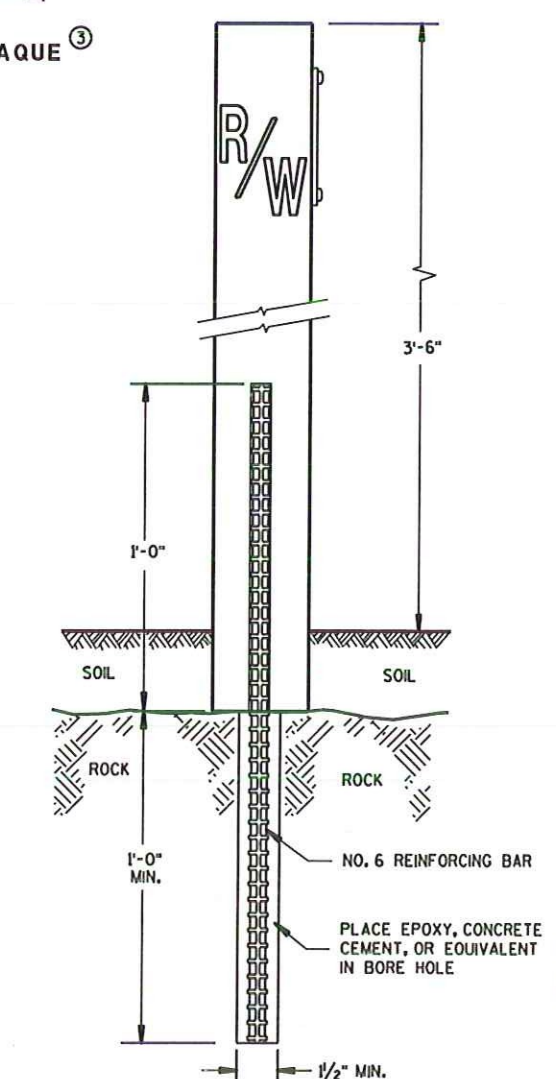
RECYCLED PLASTIC
RIGHT-OF-WAY MARKER POST
FRONT FACE

INFORMATIVE PLAQUE 3

MARKING & SIGNING DETAILS



SIDE VIEW
STANDARD RECYCLED
PLASTIC MARKER POST



FRONT VIEW
ROCK INSTALLATION 4

MARKER POST FOR RIGHT-OF-WAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/24/06 DATE	/S/ K. G. Brockman CHIEF SURVEYING AND MAPPING ENGINEER
FHWA	

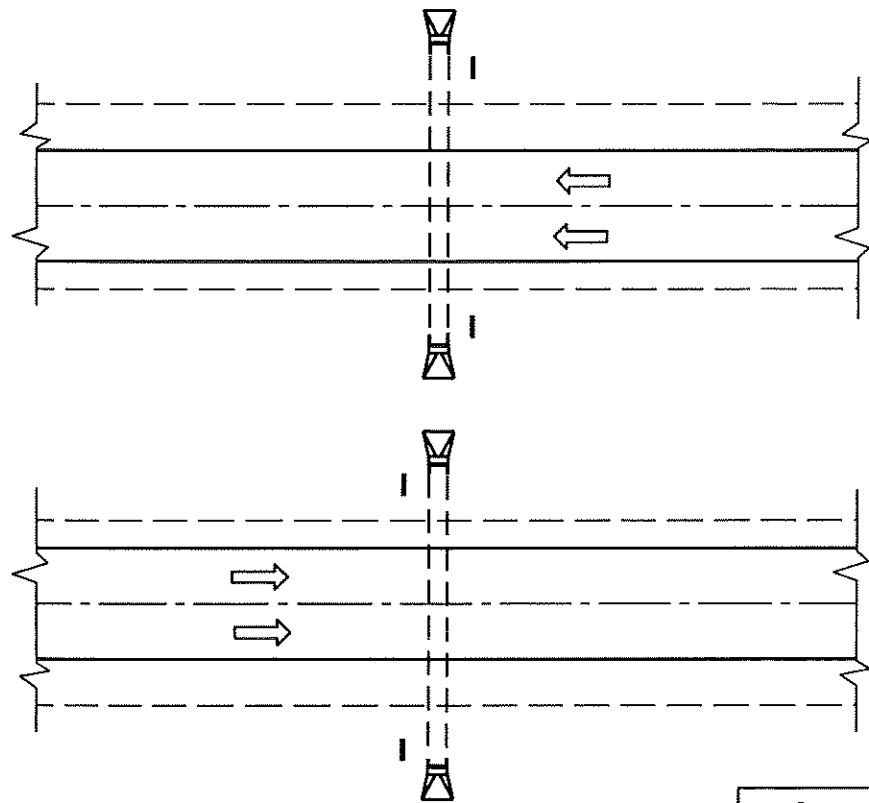
6

6

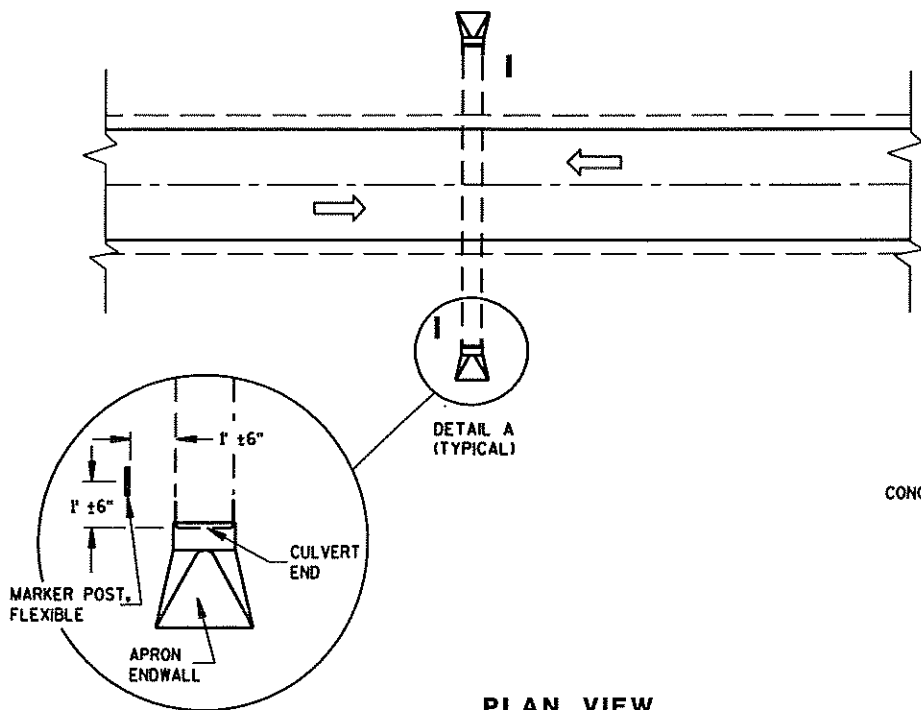
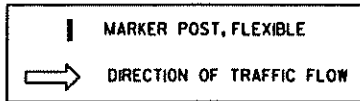
S.D.D. 15 A 1-10

S.D.D. 15 A 1-10

6



PLAN VIEW
DIVIDED HIGHWAY

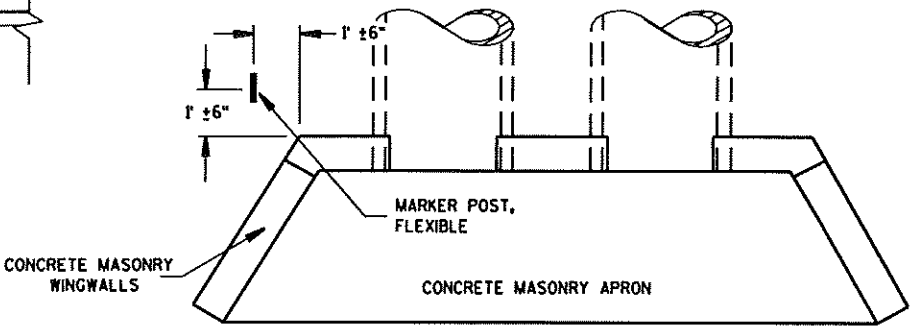


PLAN VIEW
UNDIVIDED HIGHWAY

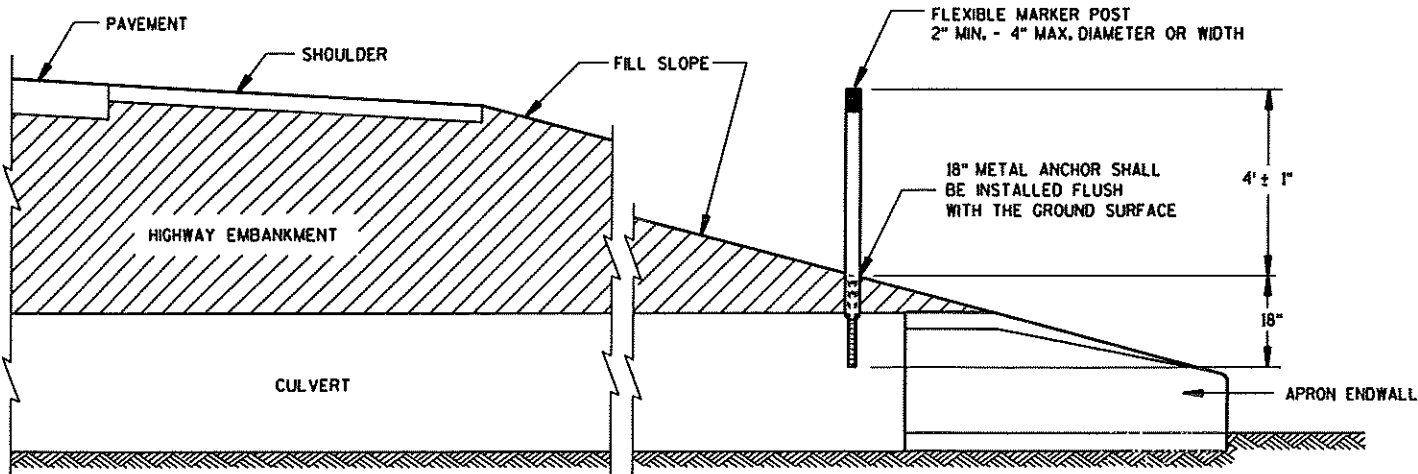
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

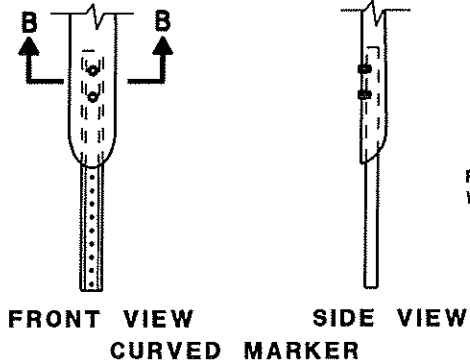
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



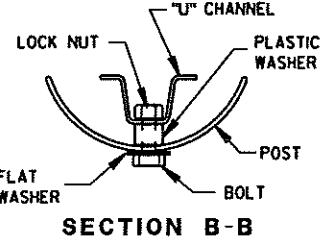
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



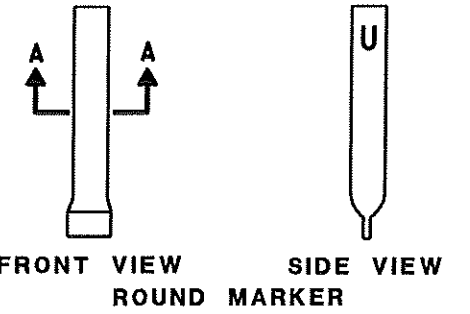
CROSS SECTION
FLEXIBLE MARKER POST



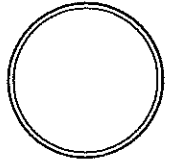
FRONT VIEW
CURVED MARKER



SECTION B-B

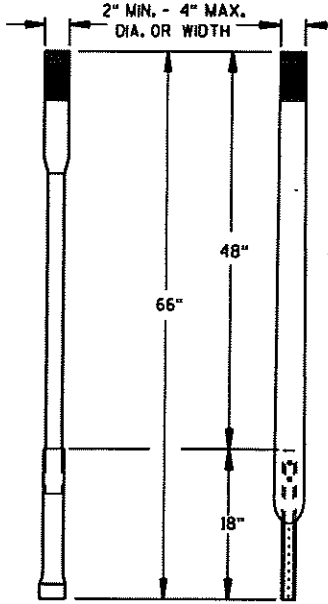


FRONT VIEW
ROUND MARKER



SECTION A-A

FLEXIBLE MARKER POST ANCHORS

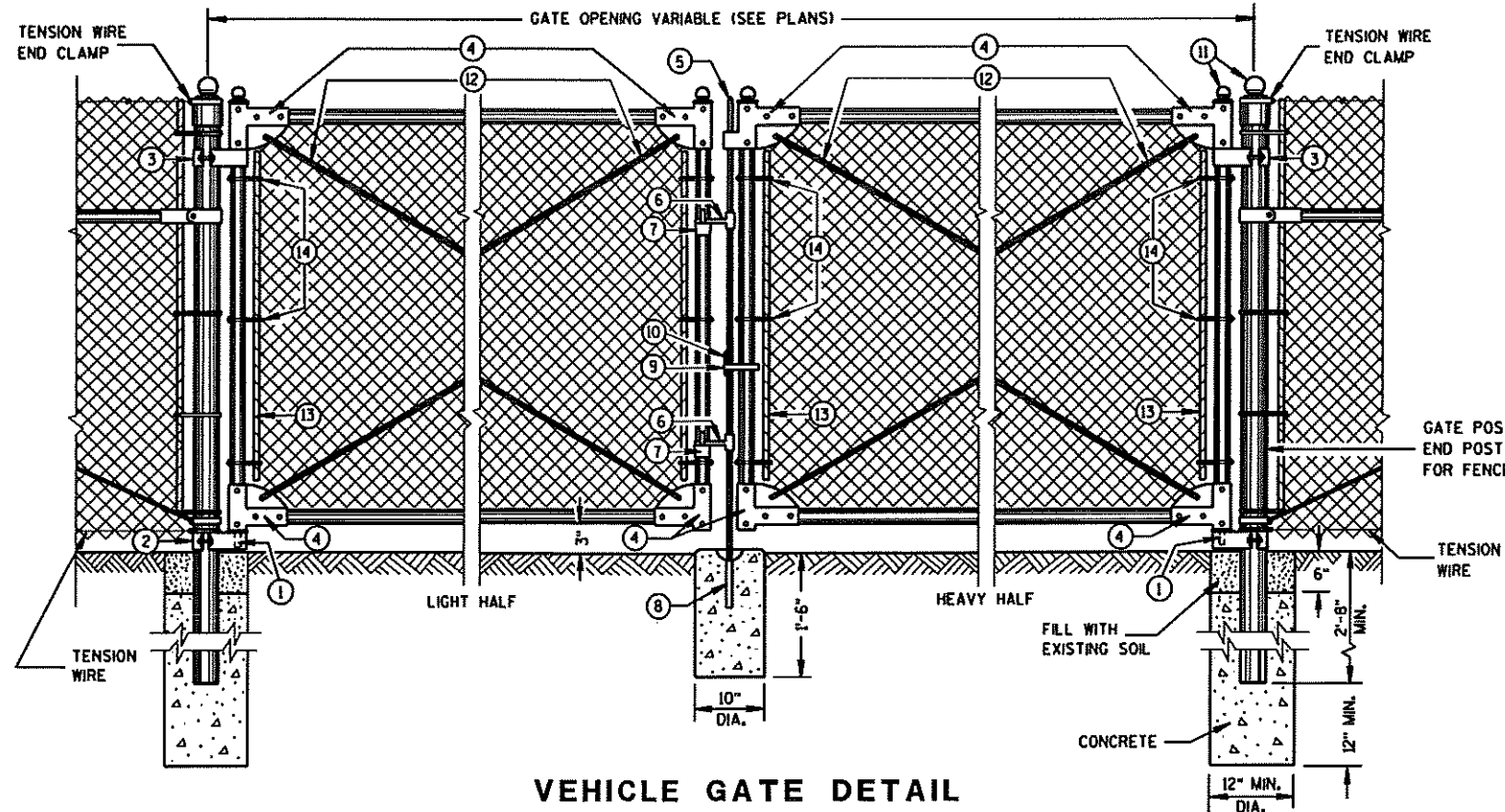


ALTERNATE 1 ALTERNATE 2
FLEXIBLE MARKER POST

MARKER POST, FLEXIBLE, FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/98 DATE FHWA	 CHIEF ROADWAY DEVELOPMENT ENGINEER

S.D.D. 15 A 3-1

S.D.D. 15 A 3-1



VEHICLE GATE DETAIL

LEGEND

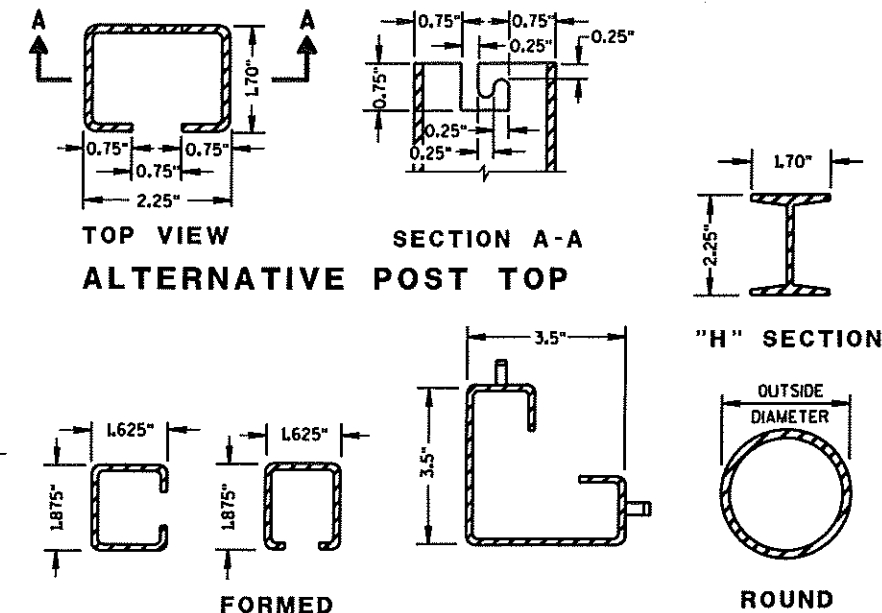
1. STRAIGHT PLUG
2. BOTTOM HINGE
3. TOP HINGE
4. CORNER ELBOW
5. PLUNGER ROD
6. LATCH FORK
7. FORK CATCH
8. PLUNGER ROD CATCH
9. LOCK KEEPER GUIDE
10. LOCK KEEPER
11. ORNAMENTAL TOPS
12. TRUSS RODS
13. TENSION BAR
14. HOOK BOLTS

GENERAL NOTES

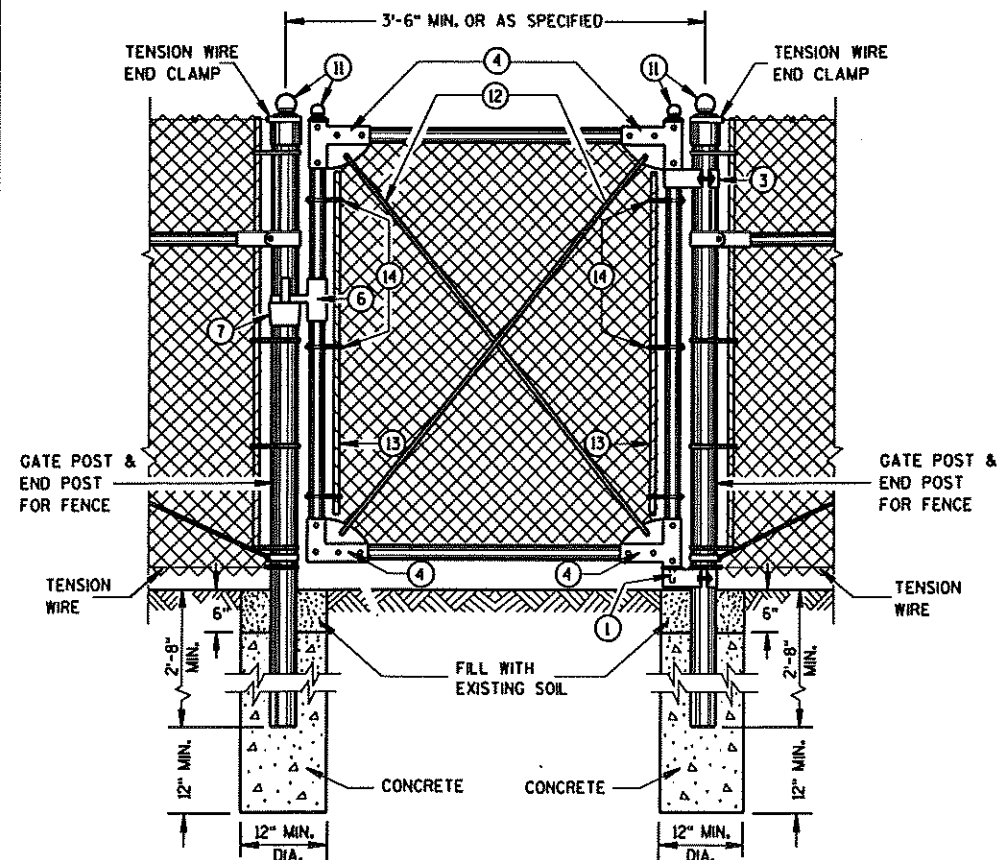
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. DETAILS NOT COVERED BY ANY OF THE ABOVE SHALL CONFORM TO THE MANUFACTURERS SPECIFICATIONS.

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.




CROSS SECTIONS OF POSTS AND RAILS



PEDESTRIAN GATE DETAIL

SHAPE, SIZE AND WEIGHT REQUIREMENTS FOR FENCE POSTS AND RAILS

USE	FENCE HT. FEET	SHAPE	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./L.F.
TERMINAL POSTS **	6 AND LESS	ROUND	2.375	3.65
	6 AND LESS	*ROUND	2.375	3.12
	OVER 6	ROUND	2.875	5.79
	OVER 6	*ROUND	2.875	4.64
	ALL HEIGHTS	FORMED	3.5 X 3.5	5.14
LINE POSTS	6 AND LESS	ROUND	L90	2.72
		*ROUND	L90	2.28
		"H" SECTION	2.25 X L70	3.26
		FORMED	L875 X L625	L65
	OVER 6	ROUND	2.375	3.65
		*ROUND	2.375	3.12
		"H" SECTION	2.25 X L70	3.26
		FORMED	L875 X L625	2.28
BRACE RAIL		ROUND	L66	2.27
		*ROUND	L66	L84
		FORMED	L625 X L25	L35

* HIGH STRENGTH STEEL

** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

GATE FRAME MEMBERS, SIZE AND WEIGHT

GATE FABRIC HEIGHT (FEET)	OUTSIDE DIMENSION (INCHES)	WEIGHT LBS./L.F.
6 OR LESS	Round	1.66
	Round	1.66
	Rectangular	1.50
	OVER 6	
OVER 6	Round	1.90
	Round	1.90
	Rectangular	2.00
	Rectangular	2.52
INTERIOR BRACING	Round	1.66
	Round	1.66
	Rectangular	1.50
	Rectangular	1.84

* HIGH STRENGTH STEEL

GATE POST SIZE AND WEIGHT

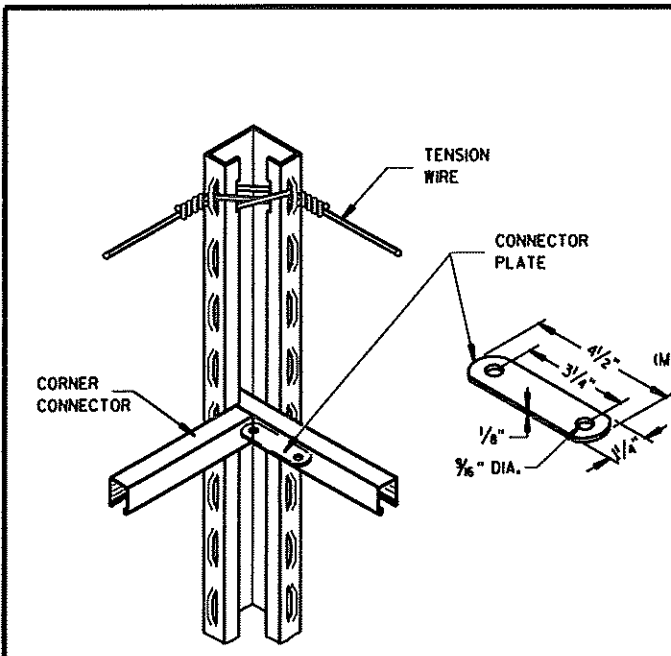
GATE LEAF WIDTH (FEET)	POST SIZE (INCHES)	
	OUTSIDE DIAMETER (INCHES)	WEIGHT LBS./L.F.
6 AND UNDER	2.875	5.79
	2.875	*4.64
OVER 6 TO 12	4.00	9.10
	4.00	*8.65
OVER 12 TO 18	6.62	18.97
	6.62	*18.02

* HIGH STRENGTH STEEL

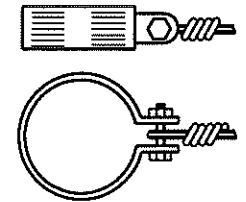
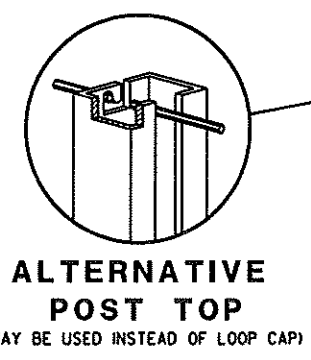
CHAIN LINK FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

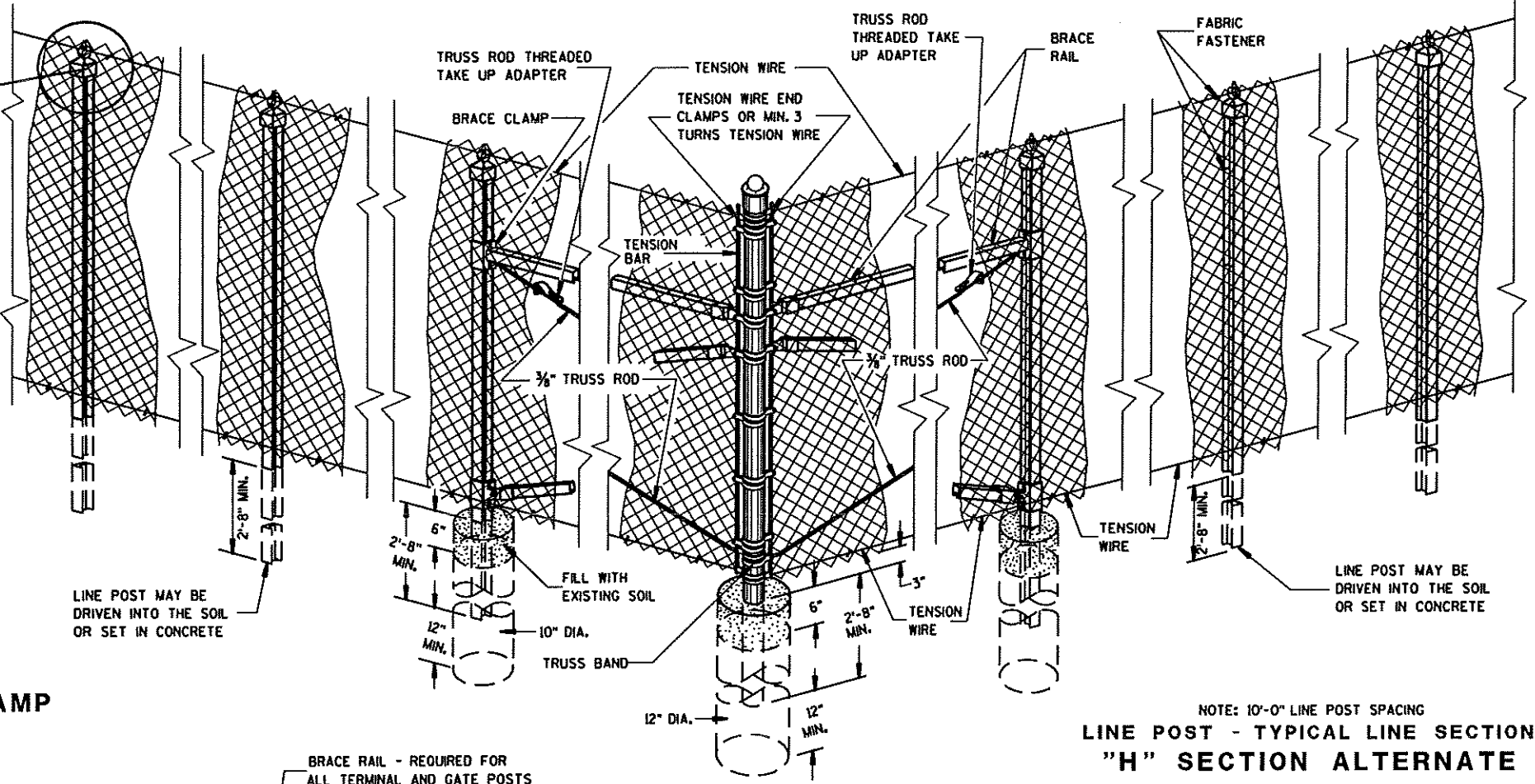
6



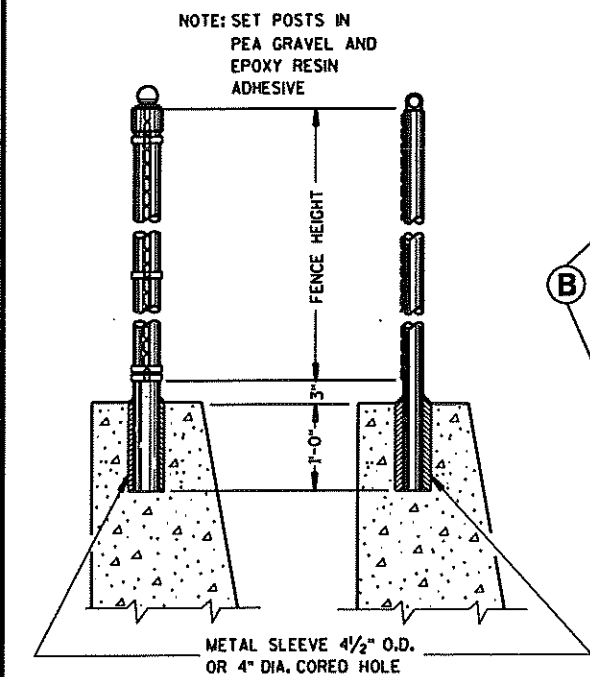
BRACE RAIL CORNER CONNECTION
ROLL FORMED POST



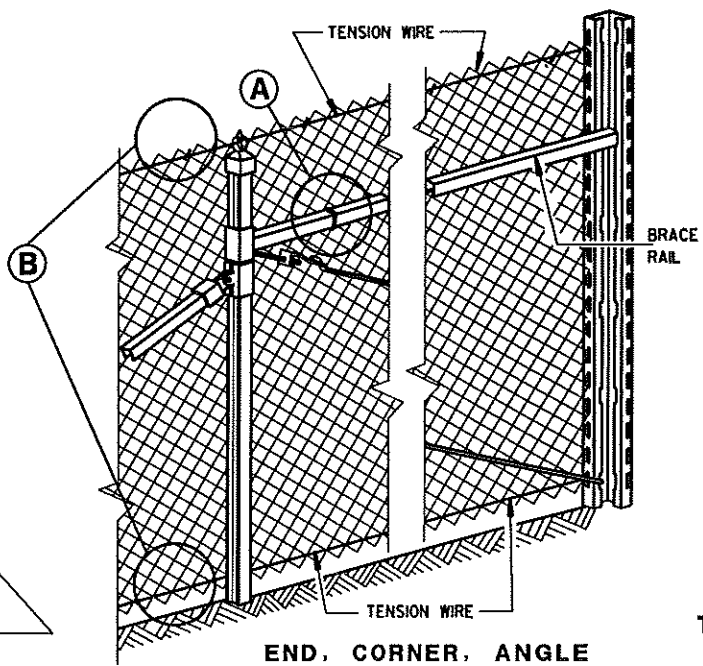
TENSION WIRE END CLAMP



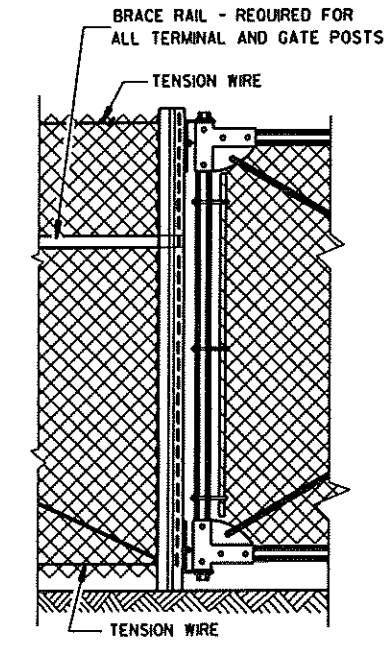
NOTE: 10'-0" LINE POST SPACING
LINE POST - TYPICAL LINE SECTION
"H" SECTION ALTERNATE



END POST & CORNER POST
LINE POST
DETAILS OF FENCE ON WALL

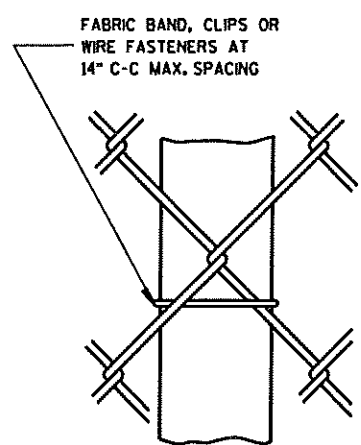


END, CORNER, ANGLE
INTERSECTION & INTERMEDIATE
BRACED POSTS

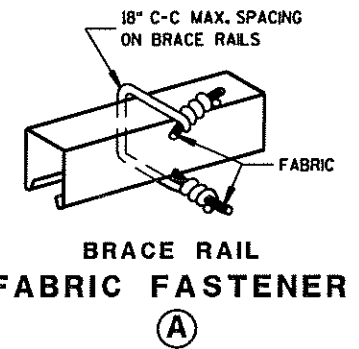
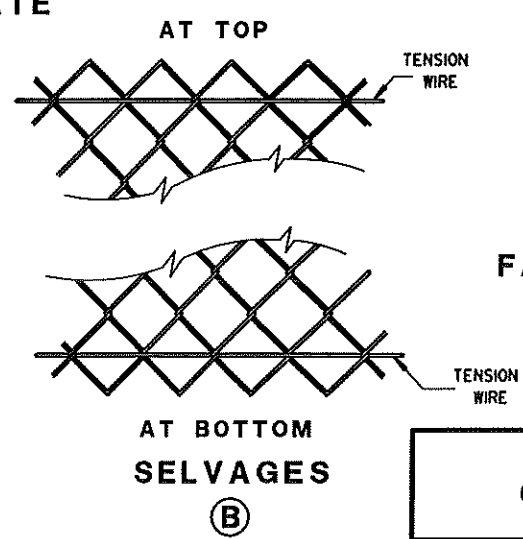


TERMINAL OR GATE POST

END, CORNER, ANGLE
INTERSECTION & INTERMEDIATE
BRACED POSTS
PIPE ALTERNATE



LINE POST
FABRIC FASTENER

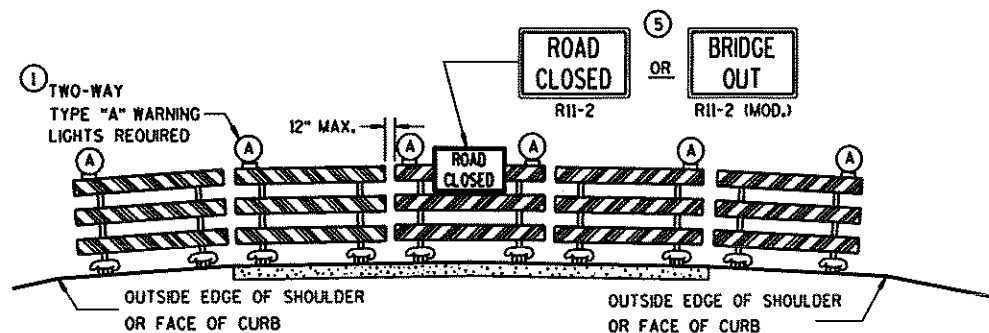


BRACE RAIL
FABRIC FASTENER
A

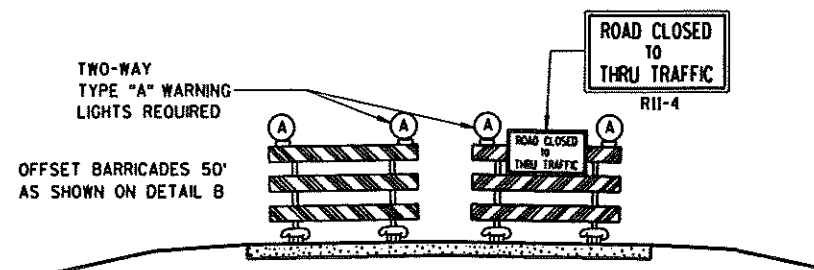
CHAIN LINK FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 5/26/05 DATE	/S/ Beth Connestro CHIEF ROADWAY DEVELOPMENT ENGINEER FHWA

S.D.D. 15 B 3-11b

S.D.D. 15 B 3-11b



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12", (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24", (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21", (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF 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 (APPROX. 8-FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/16/03

DATE

FHWA

Thomas N. Nottke for
CHIEF SIGNS AND MARKING ENGINEER

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

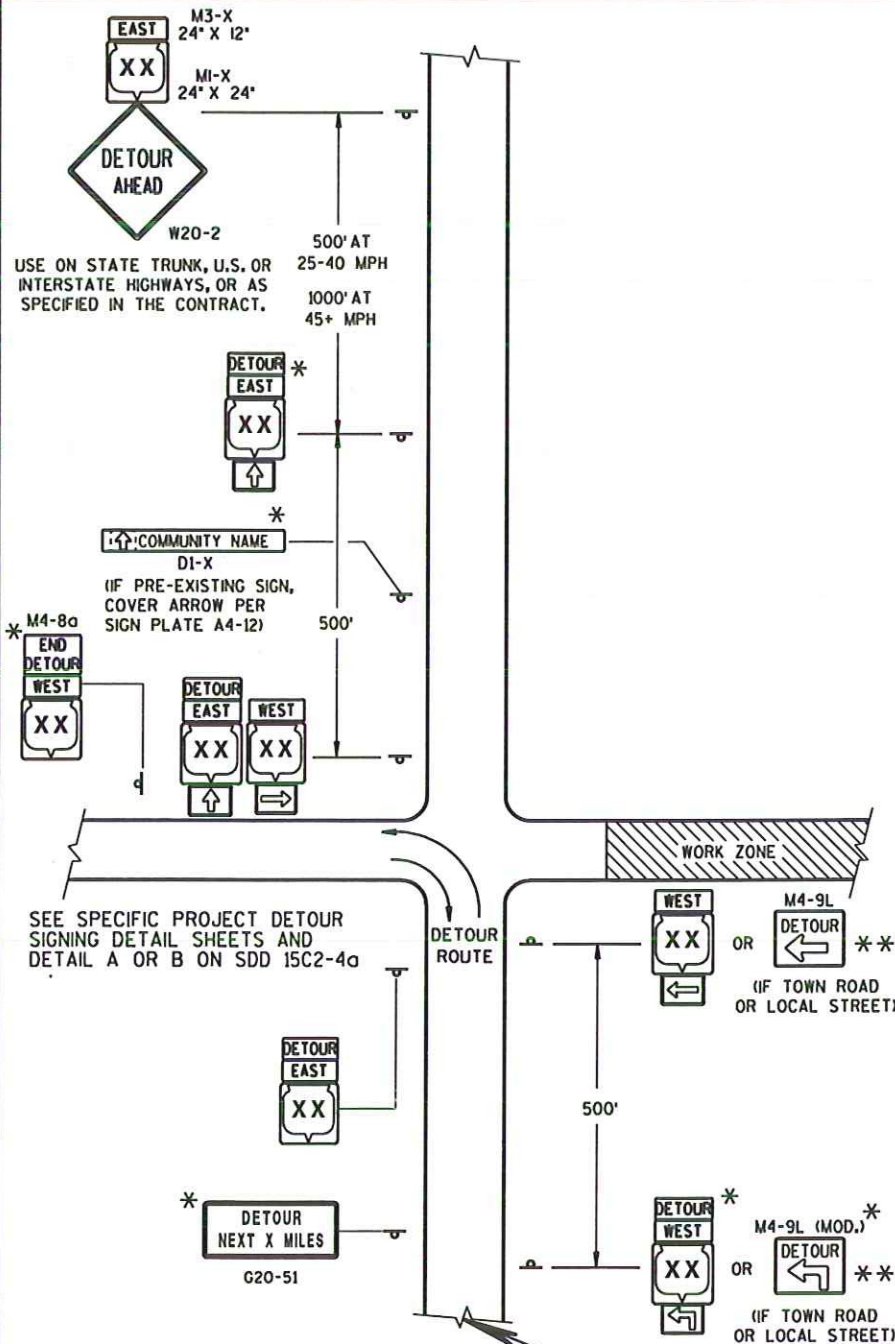
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

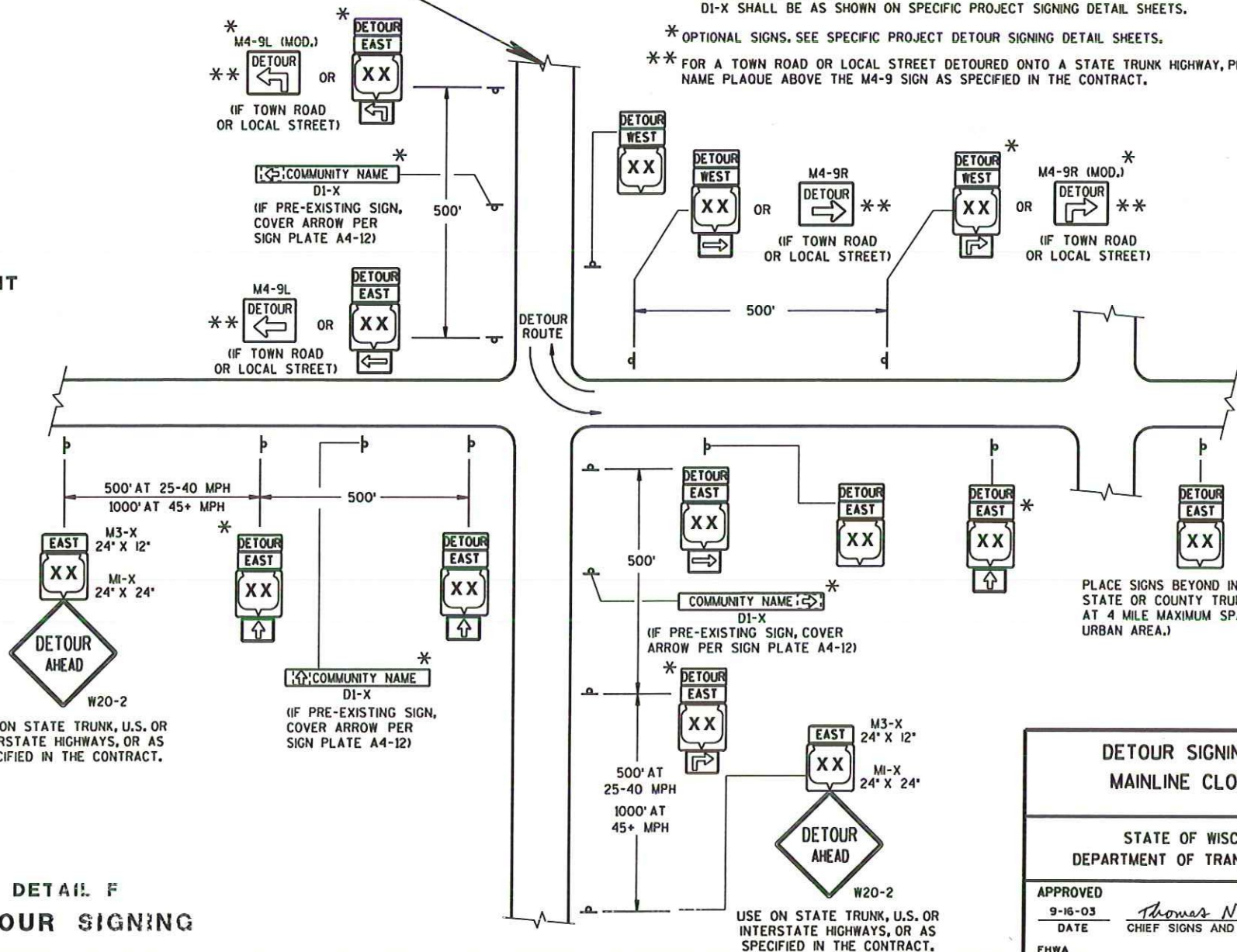
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND

POST MOUNTED SIGN

WORK ZONE

DETOUR EAST
M4-8
M3-X

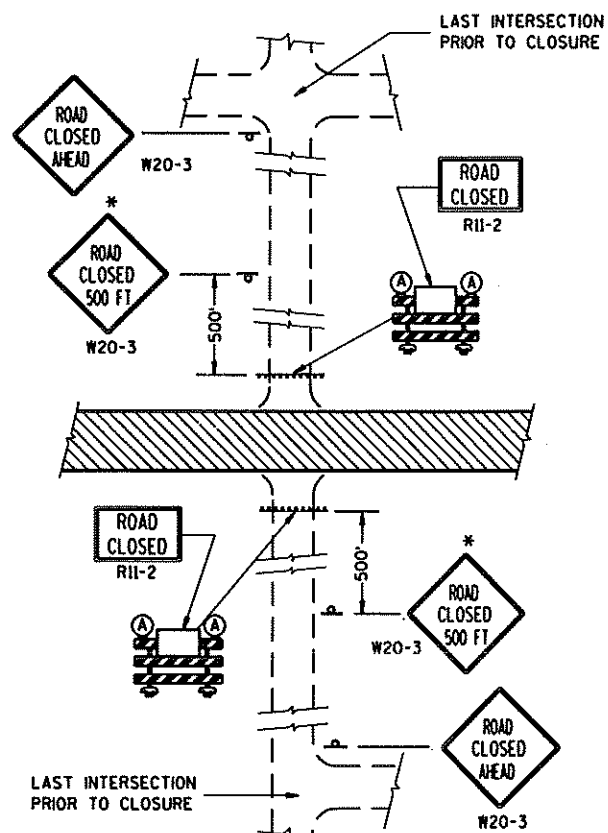
M1-4 OR COUNTY M1-5A OR M1-6

M05-1 OR M06-1 OR M06-1

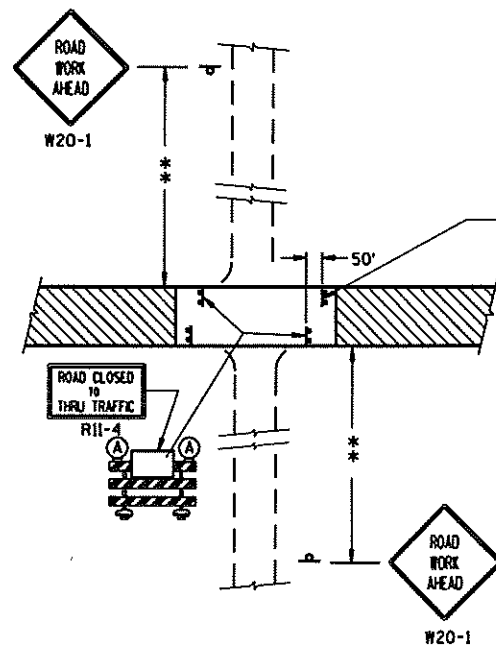
DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

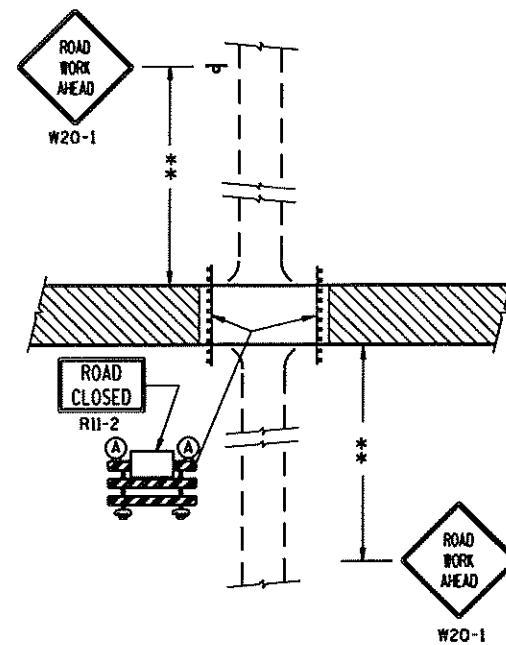
APPROVED
9-16-03
DATE
THOMAS N. NOTTOLM
CHIEF SIGNS AND MARKING ENGINEER
FHWA



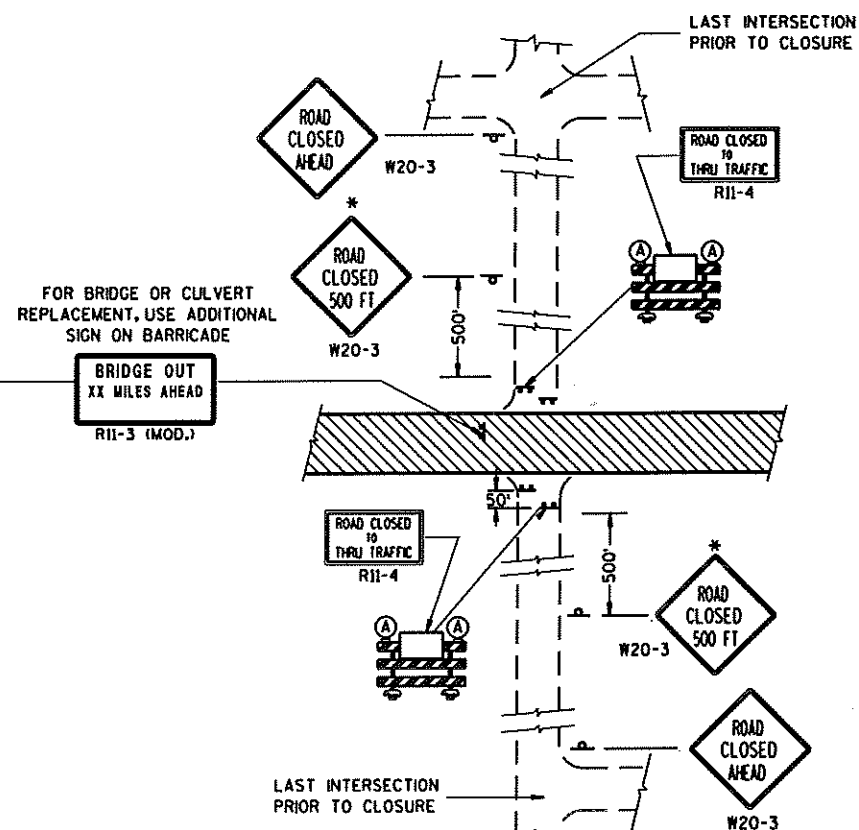
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3 AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3 AND R11-4 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

POST MOUNTED WARNING SIGN

TYPE III BARRICADES

TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)

WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

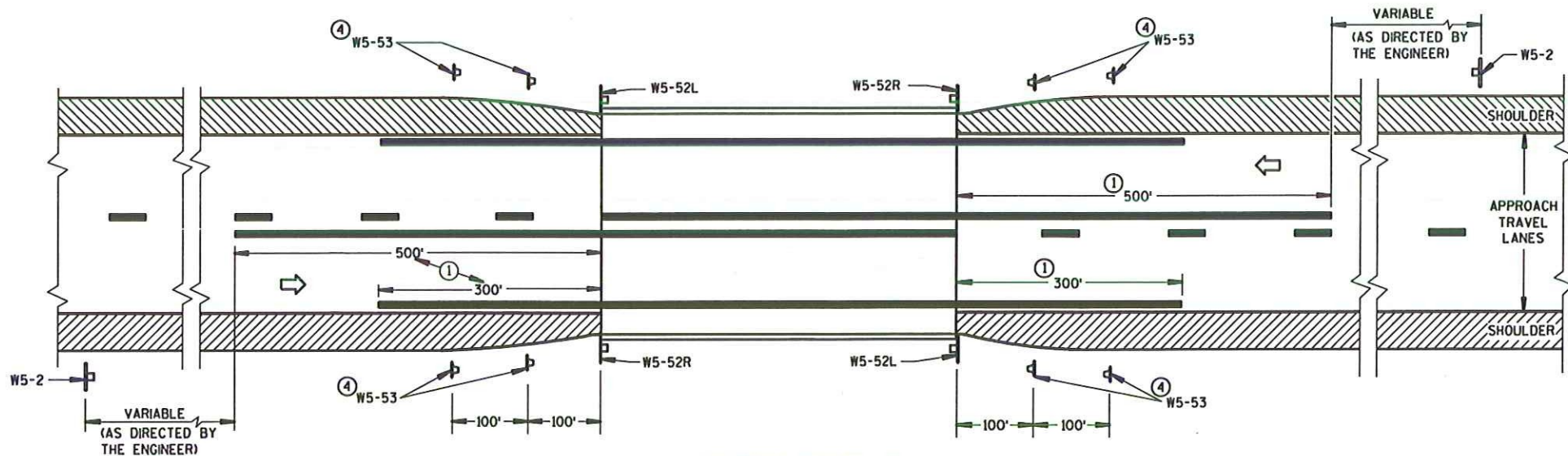
APPROVED

9-16-03

DATE

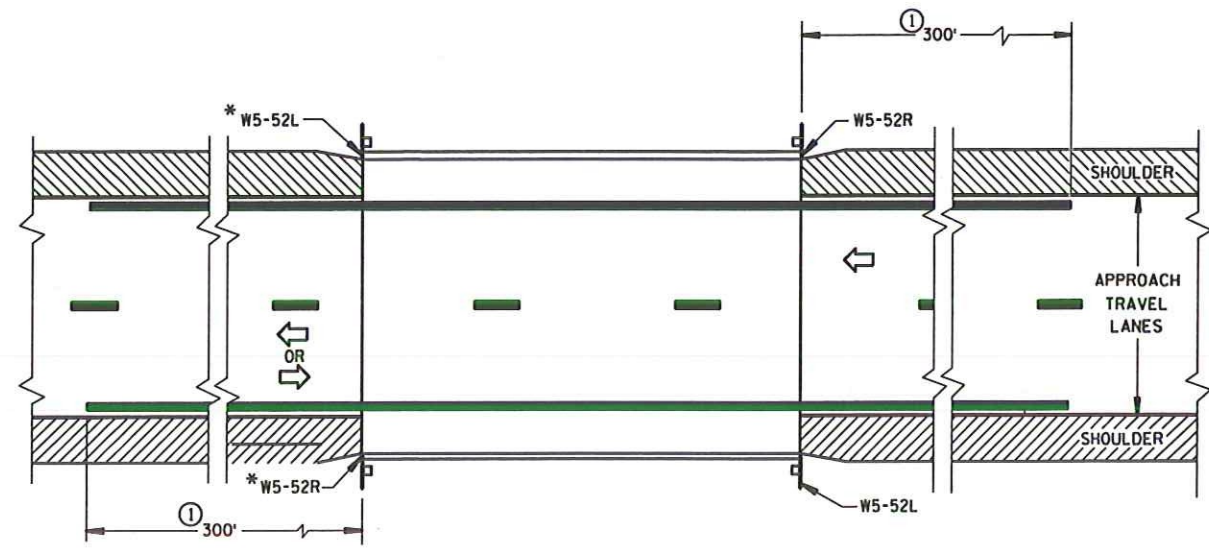
FWHA

Thomas N. Nottmeyer
CHIEF SIGNS AND MARKING ENGINEER



SITUATION 1

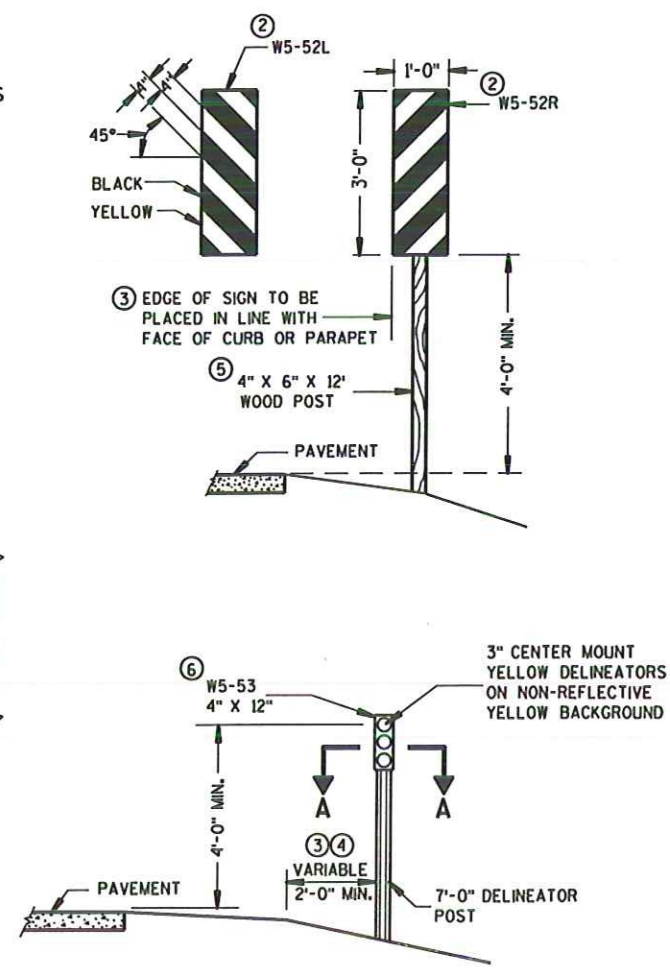
WARRANTING CRITERION:
BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



SITUATION 2

- WARRANTING CRITERIA:
- 1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
 - 2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.

*OMIT ON ONE-WAY TRAVELLED WAYS



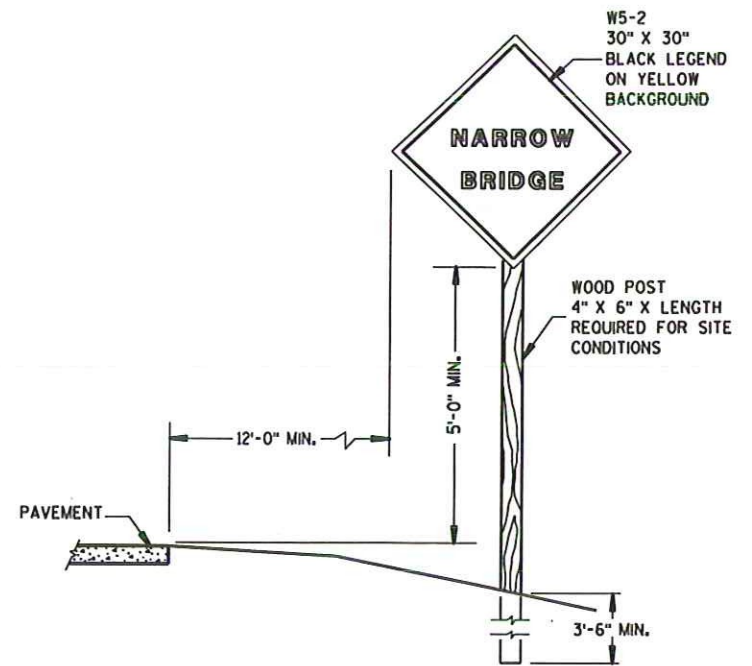
OBJECT MARKER PLACEMENT

GENERAL NOTES

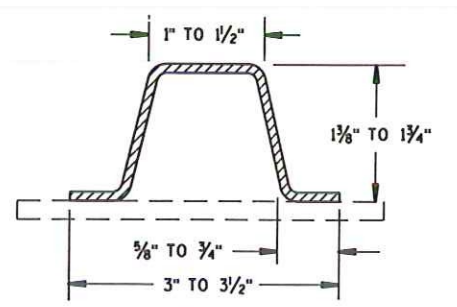
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.
- ⑤ A 12 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.
- ⑥ NON-BID ITEM, INCIDENTAL TO OTHER ITEMS.



SIGN PLACEMENT



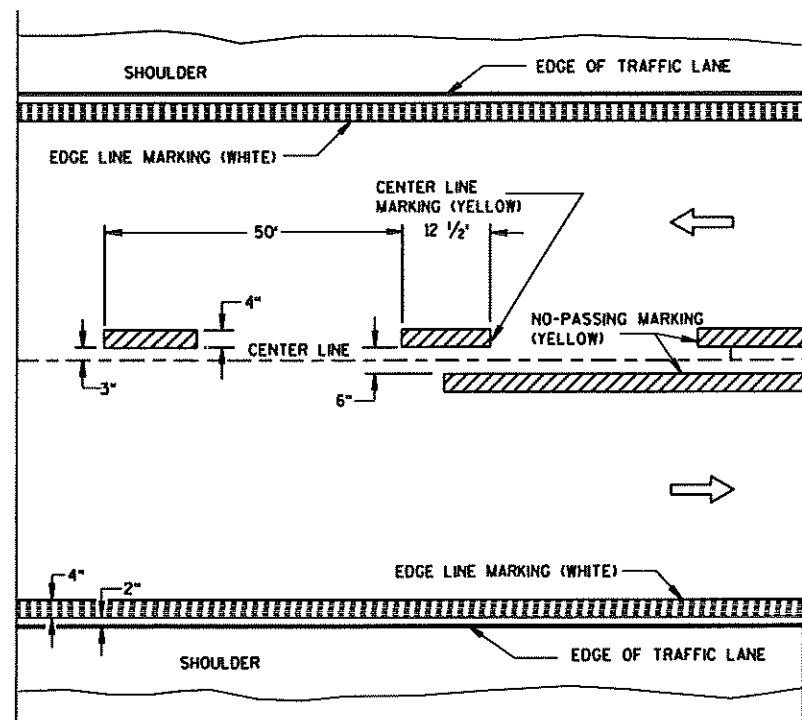
SECTION A-A

(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

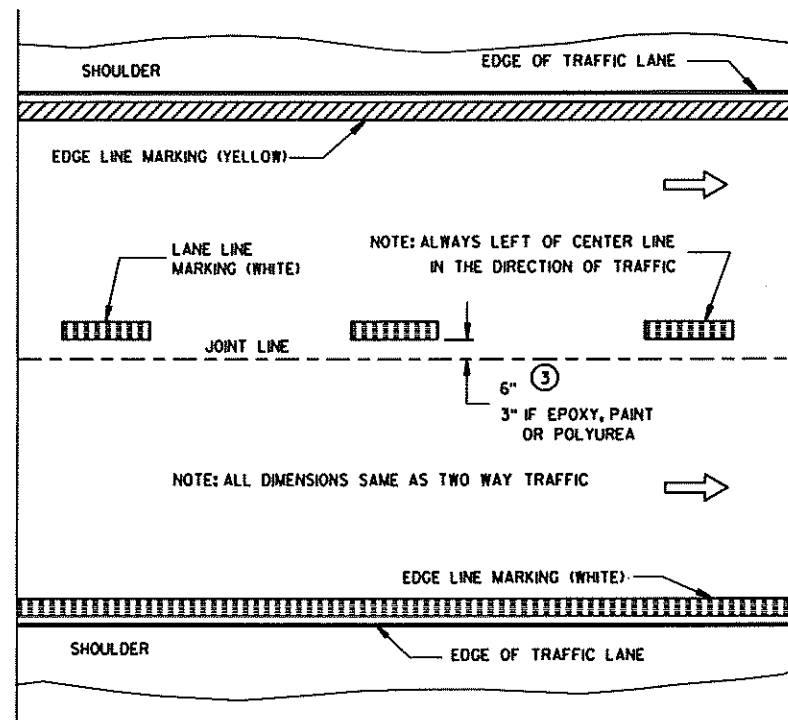
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/5/06 /S/ Thomas N. Notbohm
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

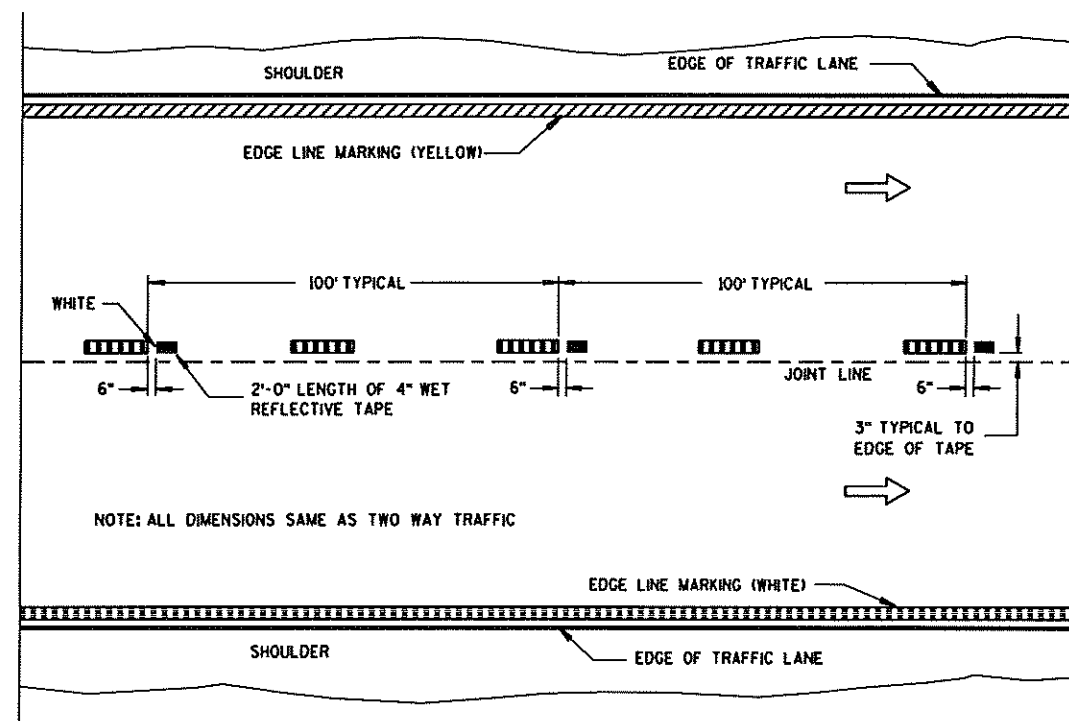
GENERAL NOTES

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

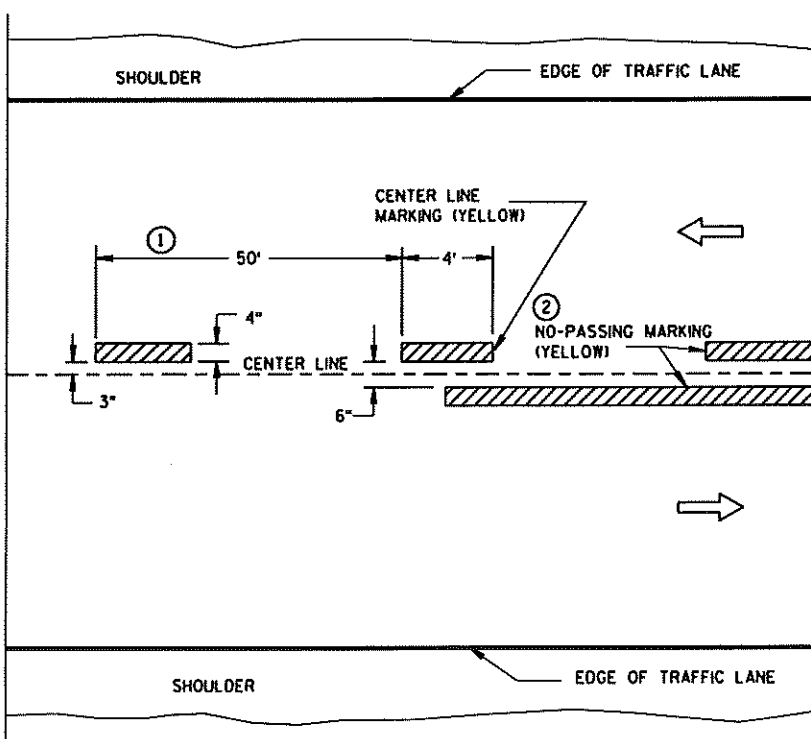
- ① HALF CYCLE LENGTHS (25') WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ DIMENSION FROM THE WHITE REFLECTIVE EDGE FOR WET REFLECTIVE TAPE PLACEMENT ONLY.

NOTE

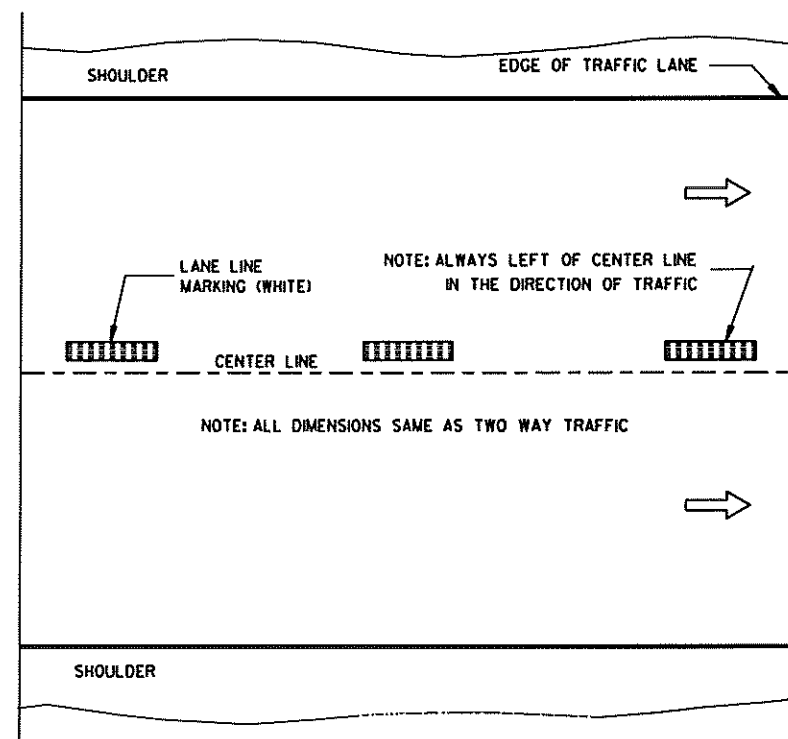
ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE



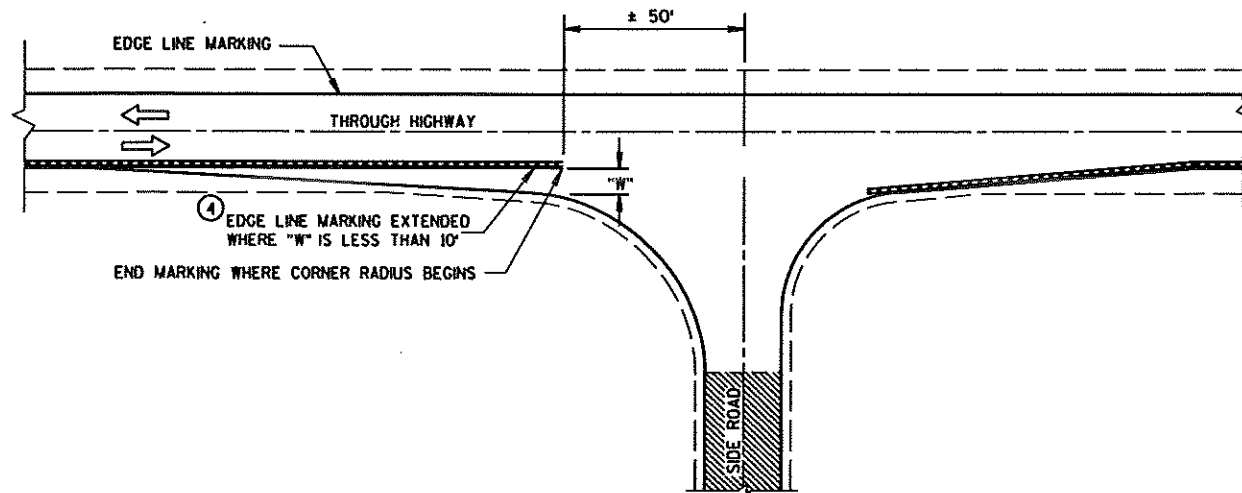
TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

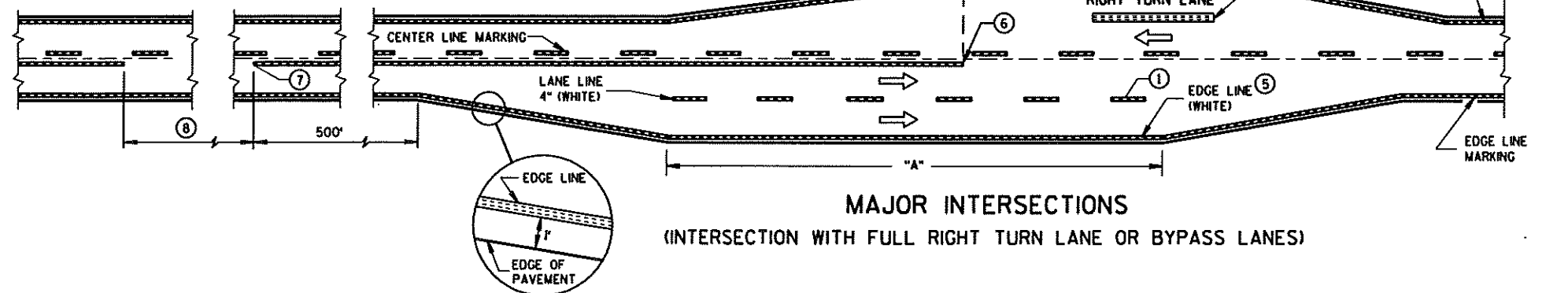
PAVEMENT MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 1-16-07 DATE	/S/ Thomas N. Notbohm STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



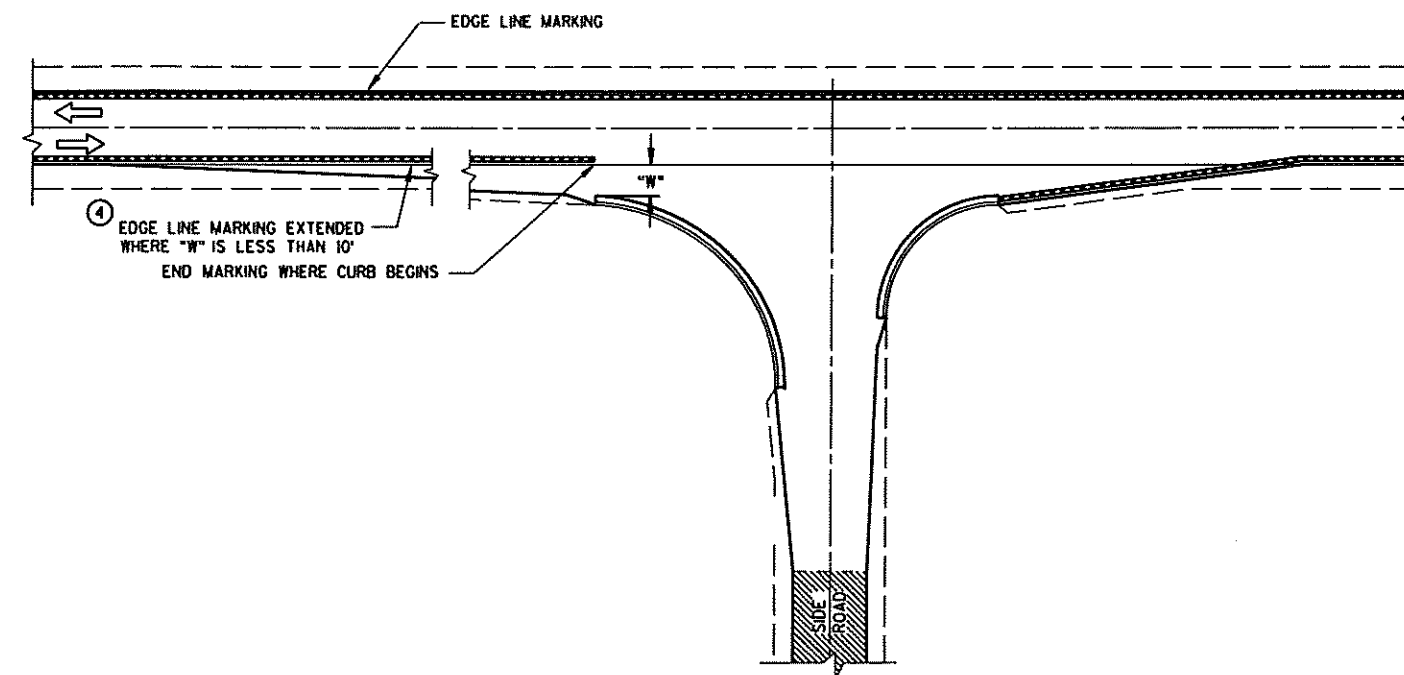
MINOR INTERSECTION WITHOUT CURBS

⑧

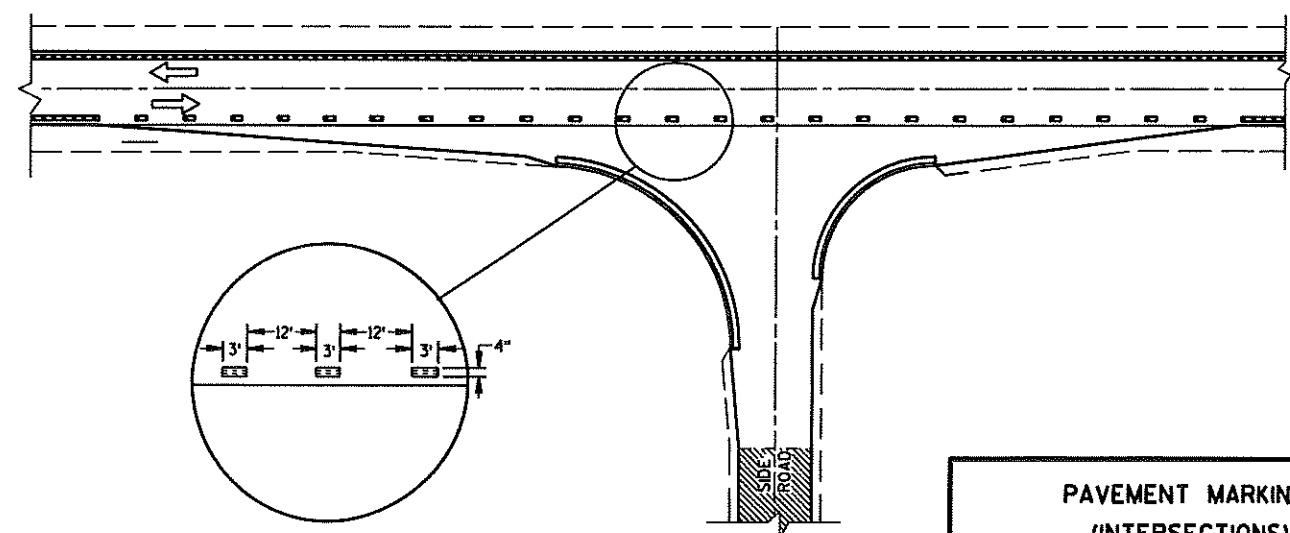
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

GENERAL NOTES

- EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
 - ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
 - ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.
 - ④ LOCATE THE EDGE LINE ALONG THE TAPER WHERE "W" IS 10' OR MORE.
 - ⑤ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

- ⑥ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.
- ⑦ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑧ IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

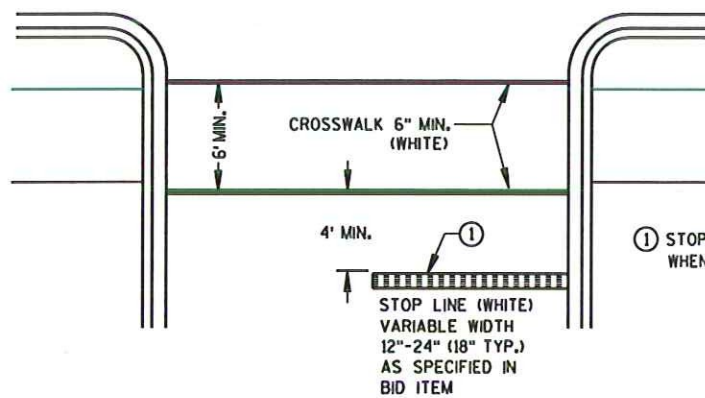
ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

PAVEMENT MARKING (INTERSECTIONS)

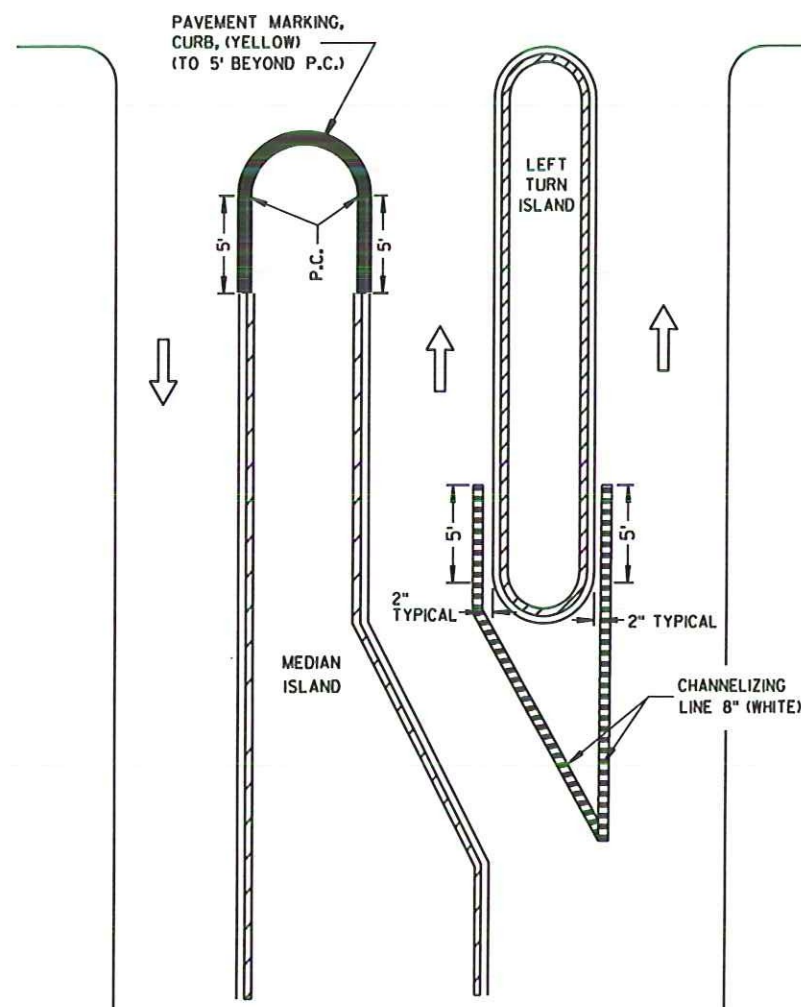
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/15/05
DATE
FHWA

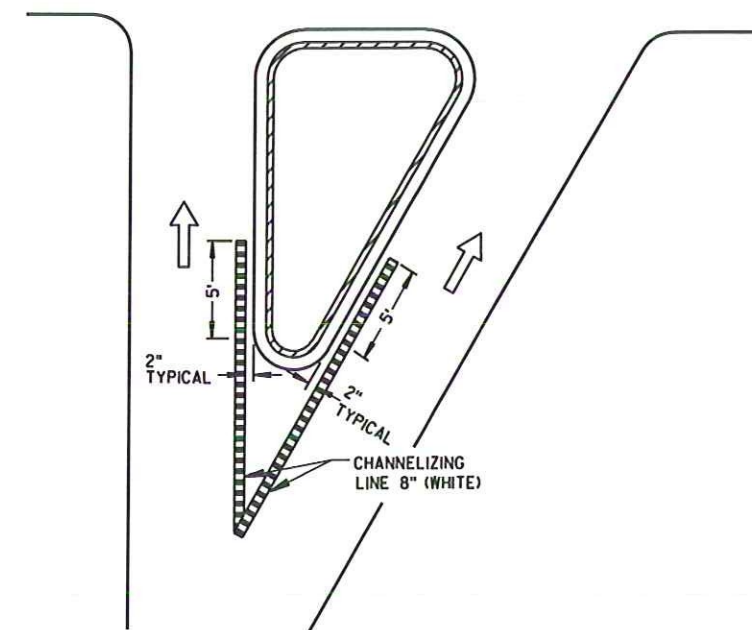
Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN



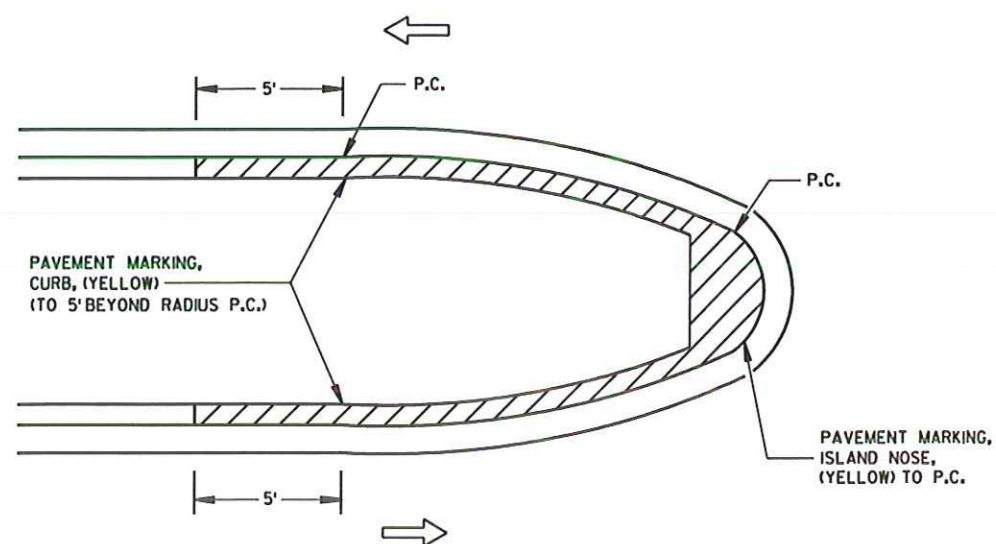
STOP LINE AND CROSSWALK



LEFT TURN & MEDIAN ISLAND



RIGHT TURN ISLAND



MEDIAN ISLAND WITH SLOPED NOSE

NOTE:
ARROW SYMBOL (→)
SHOWS DIRECTION OF TRAVEL

PAVEMENT MARKING
(ISLANDS, STOP LINE &
CROSS WALK)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
1-16-03
DATE
FHW
Deborah L. Knepp
CHIEF SIGNS AND MARKING ENGINEER



W14-3

500'

CENTERLINE
OR LANE LINE (3)NO-PASSING
ZONE MARKING (4)

2'-0"

6'-6"
3'-0"

2'-0"

24'-0"

6'-0"

1'-6"

20'-0"

16'-0"

60'-0"

(5) (SEE TABLE)

PREFERRED PAVEMENT MARKING (3)



W10-1

MATCH LINE

6

CENTERLINE
OR LANE LINE (3)NO-PASSING
ZONE MARKING (4)

20'-0"

8'-0"

2'-0"

2'-0"

22'-0"

6'-0"

22'-0"

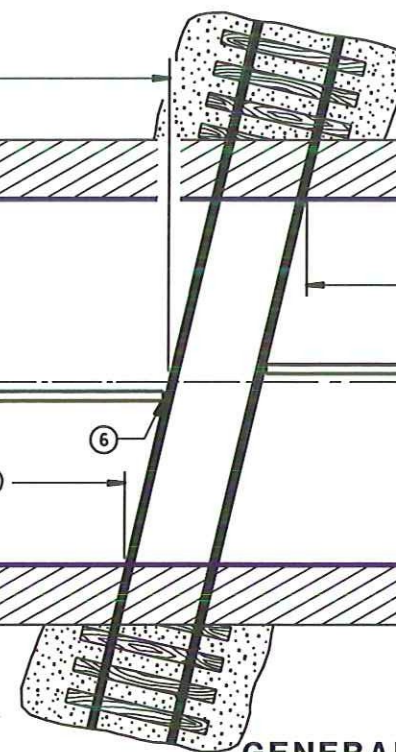
50'-0"

(5) (SEE TABLE)

ALTERNATE PAVEMENT MARKING (3)

(5)

Posted Speed (M.P.H.)	Minimum Dimension (Feet)
25	150
30	200
35	250
40	300
45	400
50	550
55	750
60	1000
65	1000

PERPENDICULAR
TO ROADWAY

GENERAL NOTES

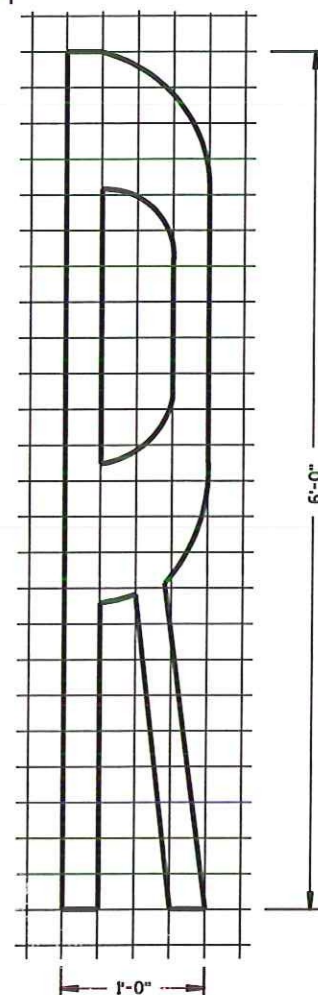
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A THREE-LANE ROADWAY SHOULD BE MARKED WITH A CENTERLINE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE. ALL LETTERS AND SYMBOLS SHALL BE IN CONFORMANCE WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" (ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION).

CENTER OR LANE LINES AND NO-PASSING ZONE MARKINGS SHOWN ON THIS DRAWING ARE REQUIRED AND PAID FOR UNDER OTHER ITEMS IN THE CONTRACT.

- ① A PORTION OF THE PAVEMENT MARKING SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1).
- ② MINIMUM 8' FROM ANY RAILROAD WARNING DEVICES (SIGNALS, GATES, ETC.) OR 25' FROM THE NEAREST RAIL, WHICHEVER DISTANCE IS GREATER.
- ③ REFLECTIVE WHITE.
- ④ REFLECTIVE YELLOW 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE MARKINGS.
- ⑤ TABLE BASED UPON 2C-4 WISCONSIN SUPPLEMENT OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- ⑥ FOR MULTIPLE TRACK CROSSINGS, THE BARRIER LINE SHALL EXTEND TO THE NEAR RAIL OF THE FURTHEST TRACK IN THE DIRECTION OF HIGHWAY TRAVEL.

SIGNING AND PAVEMENT MARKING
DETAILS FOR RAILROAD-HIGHWAY
GRADE CROSSINGSSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/7/06

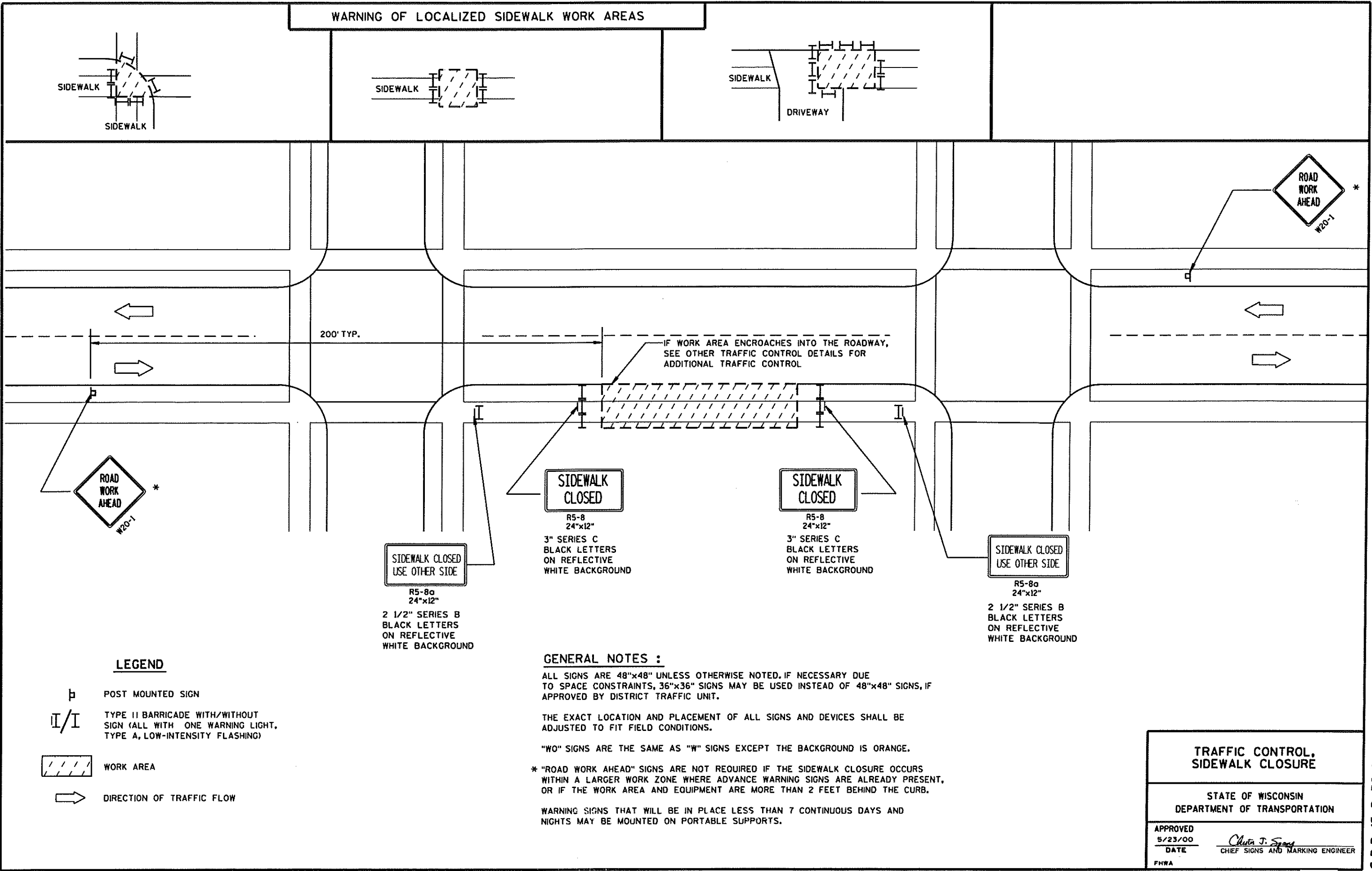
DATE

/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN

FHWA

6

S.D.D. 15 D 30-1



6

S.D.D. 15 D 30-1

LEGEND

- POST MOUNTED SIGN
- *** REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- TEMPORARY PRECAST CONCRETE BARRIER
- FLAGS, 16"x16" MIN., ORANGE
- DRUM
- DRUM WITH WARNING LIGHT, TYPE C (STEADY-BURN)
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC FLOW

GENERAL NOTES :

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

NON-OPERATIONAL EQUIPMENT OR MATERIAL SHALL BE LOCATED BEHIND THE PRECAST CONCRETE BARRIER AND ALLOW SIGHT FOR STOPPED VEHICLES TO SEE APPROACHING TRAFFIC THROUGH THE WORK ZONE.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

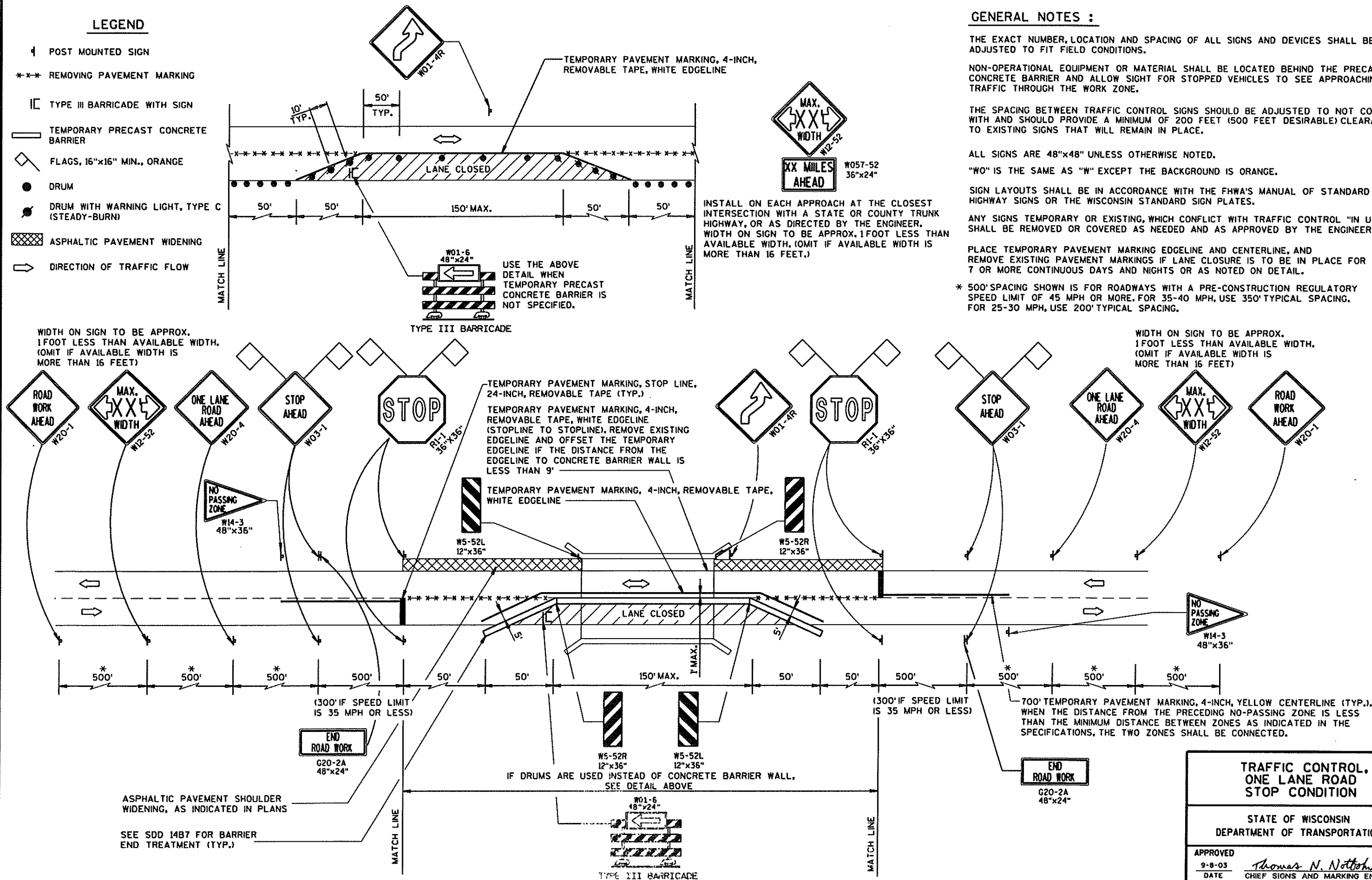
"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

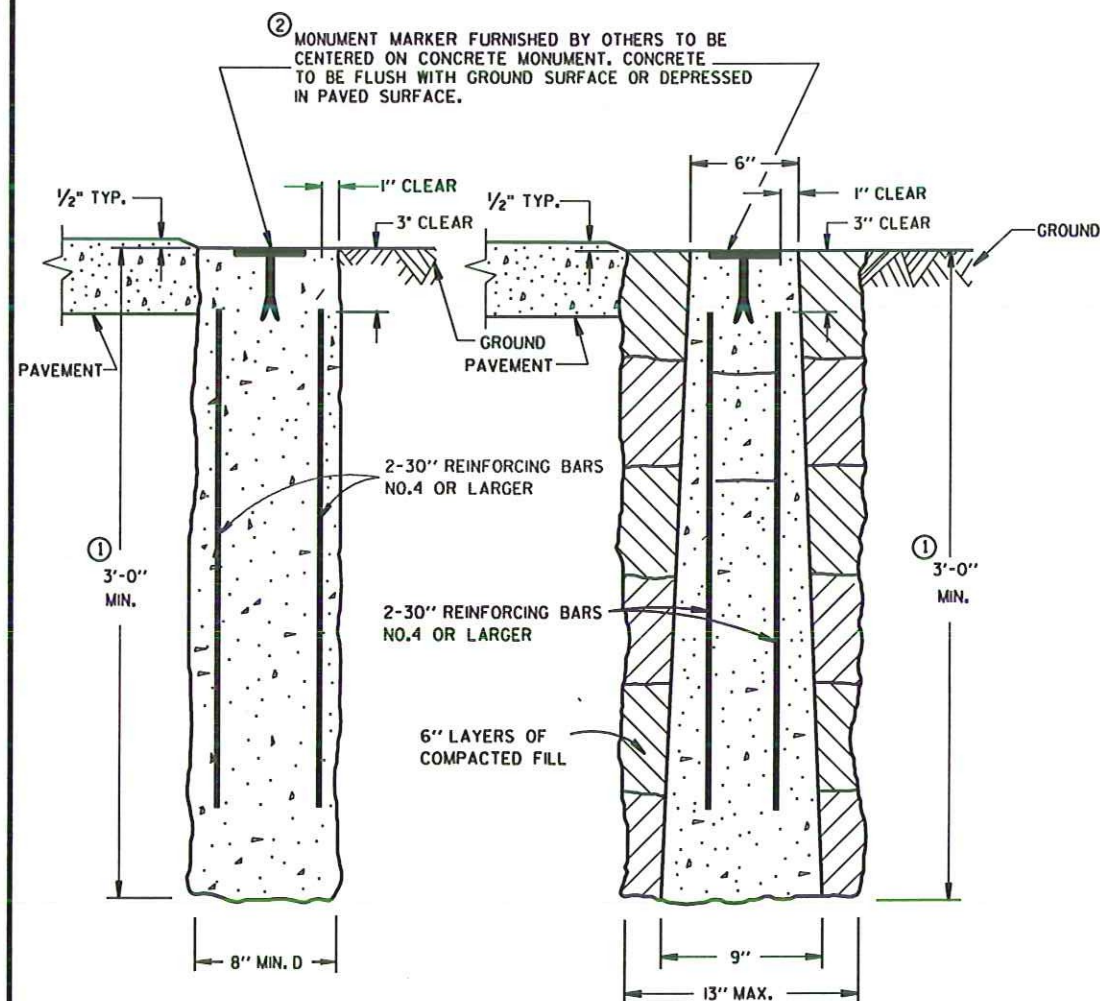
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

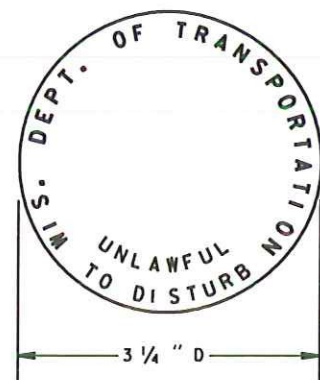
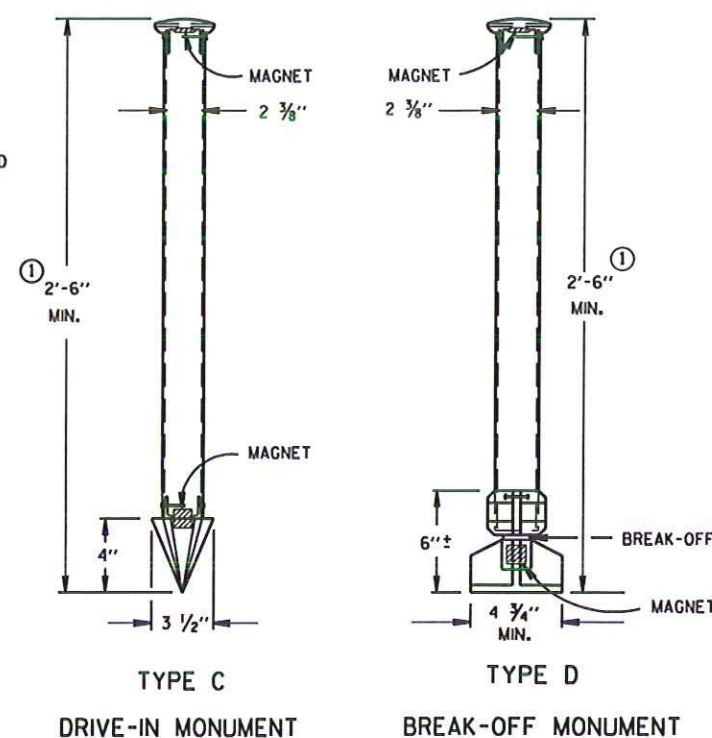
* 500' SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350' TYPICAL SPACING. FOR 25-30 MPH, USE 200' TYPICAL SPACING.





CAST-IN-PLACE

PRECAST

CONCRETE MONUMENTS
TYPE A② WIS DOT MONUMENT MARKER LOGO
FOR TYPES "A", "C" & "D"TYPE C
DRIVE-IN MONUMENTTYPE D
BREAK-OFF MONUMENTALUMINUM 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.

INSTALLED METAL MONUMENTS MUST BE EASILY DETECTED WITH A DIP NEEDLE. INSERT 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.

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.

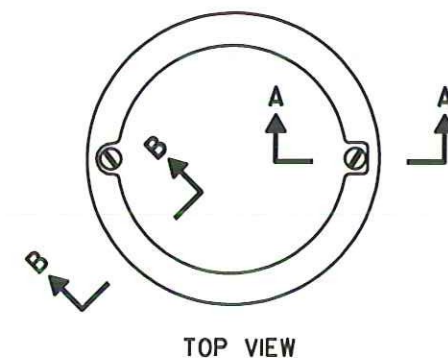
MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

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

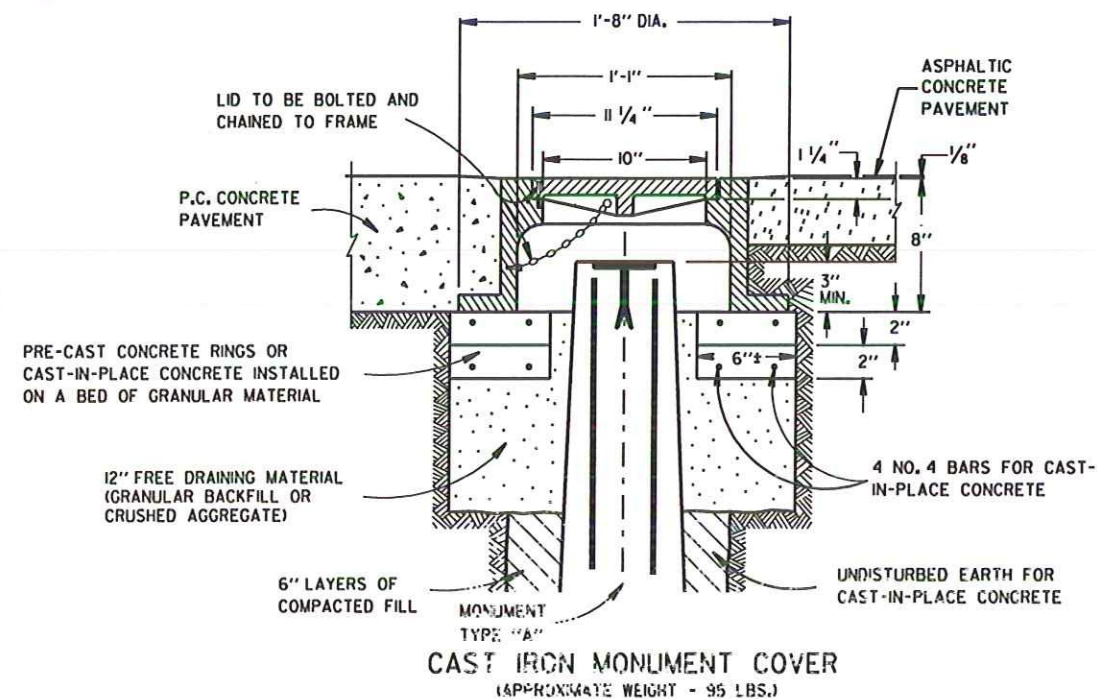
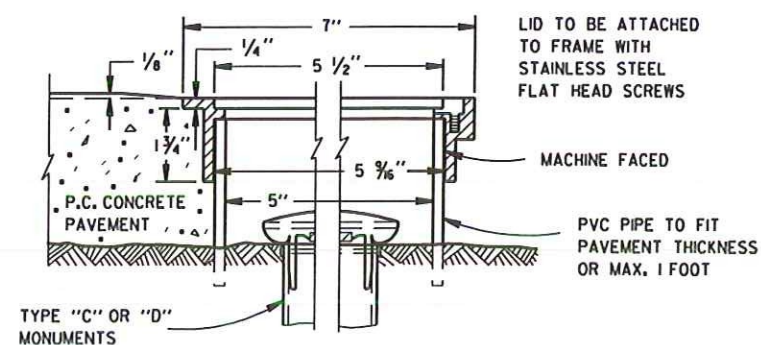
THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

- ① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.
② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WIS DOT MARKER.



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
9/22/99
DATE
FHWA

James D. Hunsicker
CHIEF ROADWAY DEVELOPMENT ENGINEER