



Wisconsin Department of Transportation

Division of Transportation Systems Development

Bureau of Project Development
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Madison, WI 53705

Telephone: (608) 266-1631
Facsimile (FAX): (608) 266-8459

February 6, 2019

NOTICE TO ALL CONTRACTORS:

**Proposal #05: 1110-13-71, WISC 2019 119
Rosendale-Oshkosh
SCL-IH 41
STH 26
Winnebago County**

Letting of February 12, 2019

This is Addendum No. 01, which provides for the following:

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
72A-72AR	Standard Detail Drawings – The Standard Detail Drawings were inadvertently omitted from the plan set

Plan Sheets

The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:
Added: 72A – 72AR

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

Mike Coleman

Proposal Development Specialist
Proposal Management Section

END OF ADDENDUM

Standard Detail Drawing List

08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	STILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A10-02A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C08-19B	PAVEMENT MARKING (TURN LANES)
15C08-19C	PAVEMENT MARKING (TURN LANES)
15C11-07B	CHANNELIZING DEVICES, DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-05A	MOVING PAVEMENT MARKING OPERATION MULTI-LANE TWO-WAY ROADWAY
15C21-08	SIGNING AND MARKING FOR TWO LANE TO FOUR LANE DIVIDED TRANSITIONS
15C27-03A	DOUBLE ARROW WARNING SIGN PLACEMENT
15C27-03B	PAVEMENT MARKING (ISLANDS)
15C35-03A	PAVEMENT MARKING (INTERSECTIONS)
15D20-04	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-06	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

GENERAL NOTES

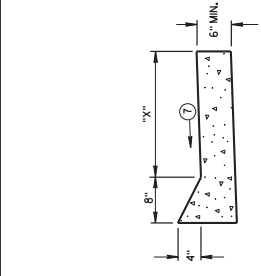
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT. PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS. INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. 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 AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- 1 THE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND T, BTT.
- 2 THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- 3 USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- 4 THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- 5 THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- 6 WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- 7 USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- 8 INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

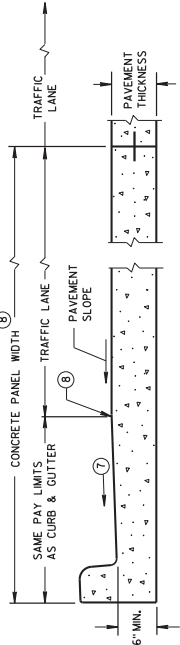
* BIKE LANE IS NOT SHOWN.



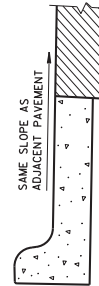
TYPES TBT & TBTT

TBT & TBTT	"X"
30"	22"
36"	28"

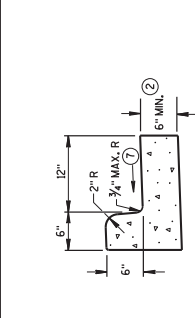
CONCRETE CURB & GUTTER



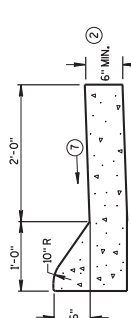
PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



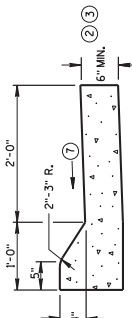
REVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)



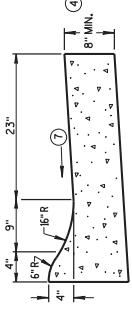
CONCRETE CURB & GUTTER 18''



6'' SLOPED CURB TYPES A & D

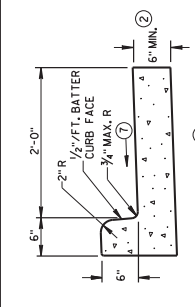


4'' SLOPED CURB TYPES 1 & D

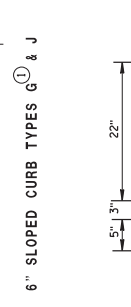


4'' SLOPED CURB TYPES R & T

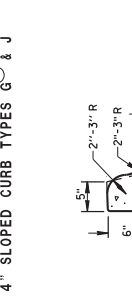
CONCRETE CURB & GUTTER 36''



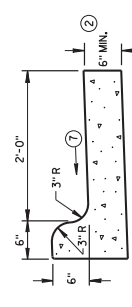
6'' SLOPED CURB TYPES G & J



4'' SLOPED CURB TYPES G & J



TYPES K & L (OPTIONAL CURB SHAPE)



CONCRETE CURB & GUTTER 30''

Addendum No. 01
ID 1110-13-71
Added Sheet 72B
February 6, 2019

CONCRETE CURB & GUTTER
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

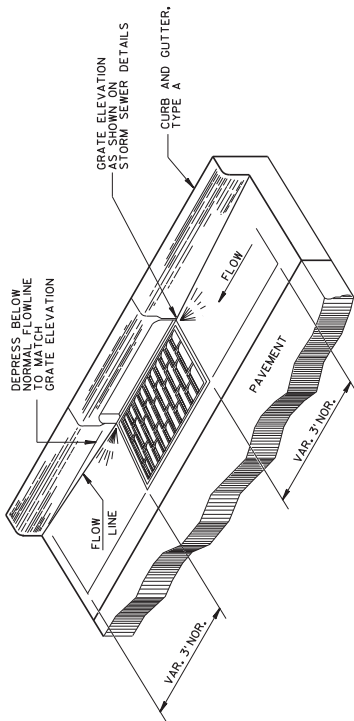
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT. PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

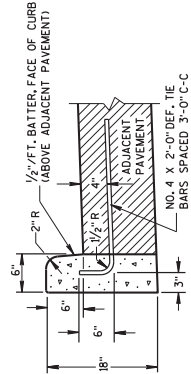
① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE UPGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

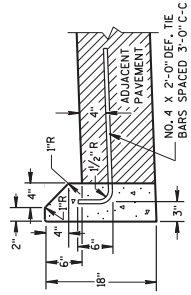
③ REFER TO SDD 8018 AND SDD 8019 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



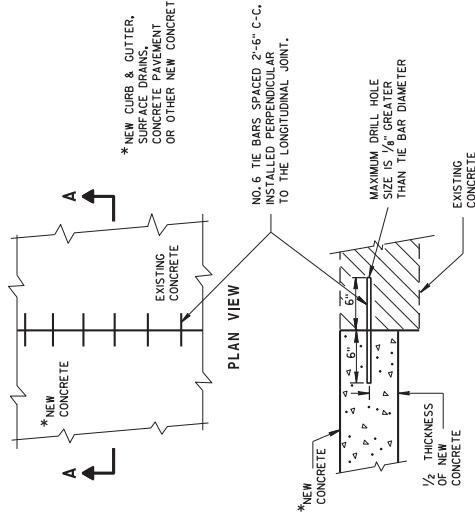
DETAIL OF CURB AND GUTTER AT INLETS
(TYPE H INLET COVER SHOWN)



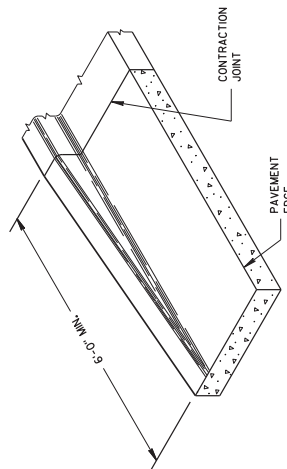
TYPES A & D



TYPES G & J

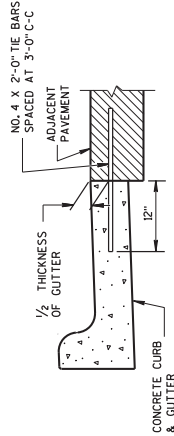


SECTION A-A
TIE BARS DRILLED INTO EXISTING PAVEMENT

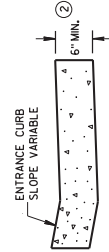


END SECTION CURB & GUTTER

CONCRETE CURB



TYPICAL TIE BAR LOCATION



DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

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ID 1110-13-71
Added Sheet 72C
February 6, 2019

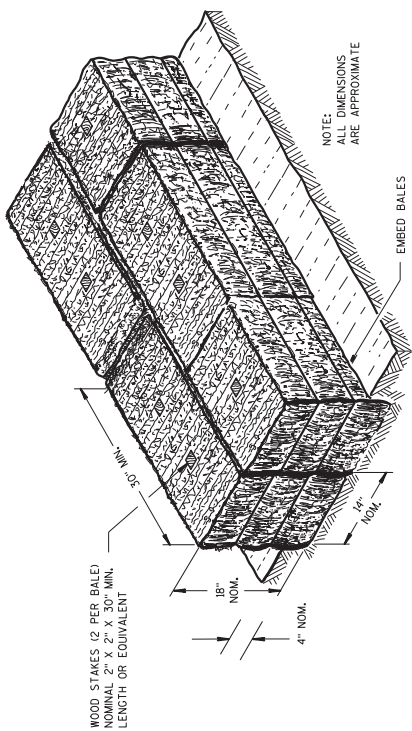
CONCRETE CURB, TIES
CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

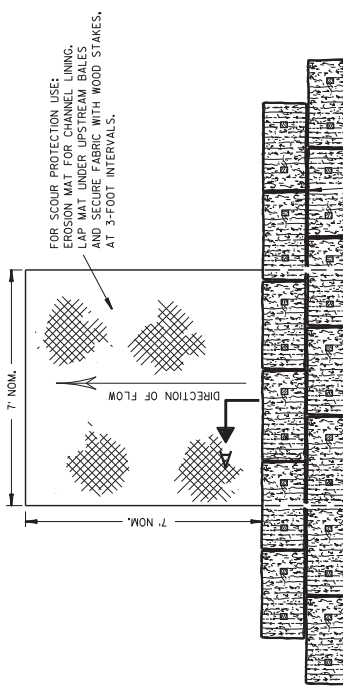
APPROVED
June 2017
DATE
R. Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

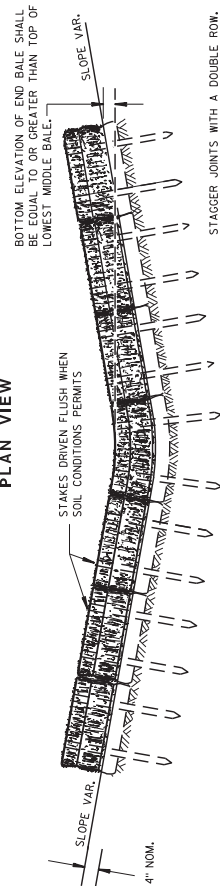
- 1 TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.



SECTION A-A

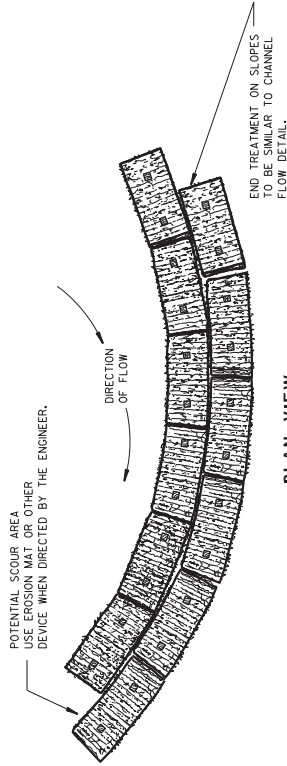


PLAN VIEW



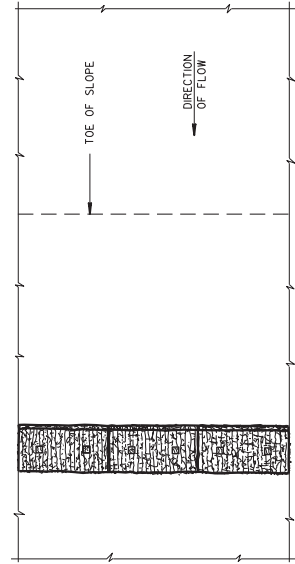
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

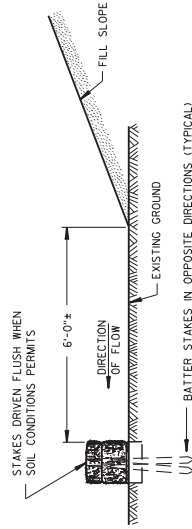


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

Addendum No. 01
ID 1110-13-71
Added Sheet 72D
February 6, 2019

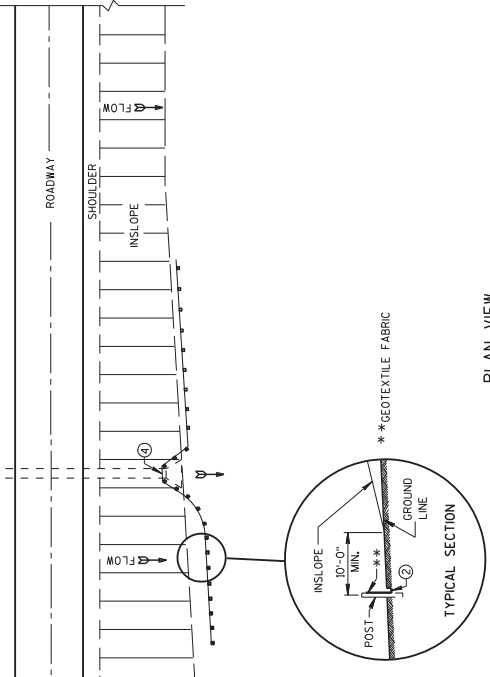
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/20/02
DATE

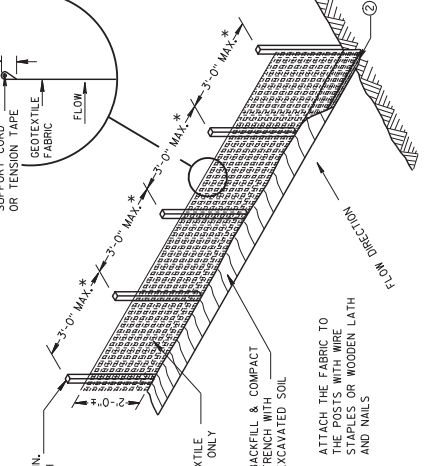
/s/ Beth Connors
CHIEF ROADWAY DEVELOPMENT ENGINEER

PHWA



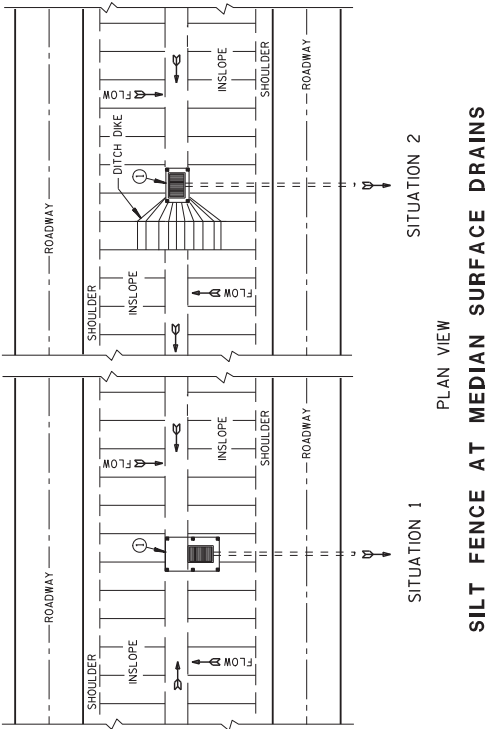
TYPICAL APPLICATION OF SILT FENCE

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS



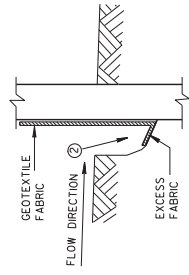
* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

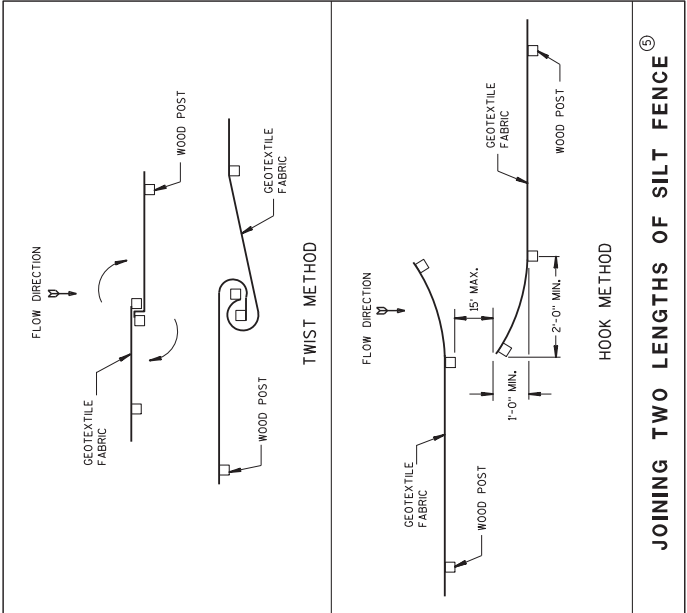


SILT FENCE AT MEDIAN SURFACE DRAINS

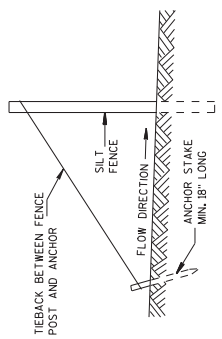
- GENERAL NOTES**
- DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.
- HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
 - FOR MANUAL INSTALLATIONS THE TRENCH 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.
 - WOOD POSTS SHALL BE A MINIMUM SIZE OF 1/8" X 1/2" OF OAK OR HICKORY.
 - SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
 - 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 TIE; AT LEAST 180 DEGREES; B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL



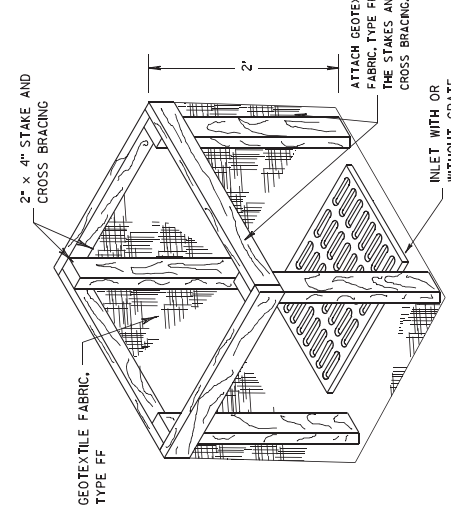
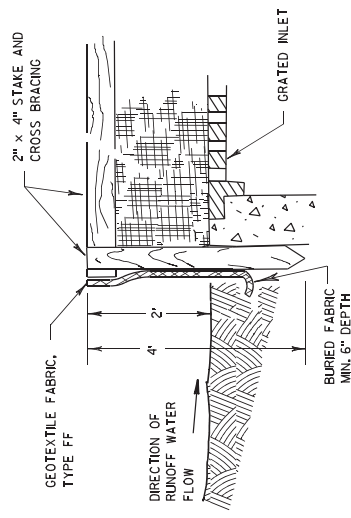
JOINING TWO LENGTHS OF SILT FENCE



SILT FENCE TIE BACK (WHEN REQUIRED BY THE ENGINEER)

Addendum No. 01
ID 1110-13-71
Added Sheet 72E
February 6, 2019

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05	/s/ Beth Connors, P.E. DATE: _____ CHEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

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

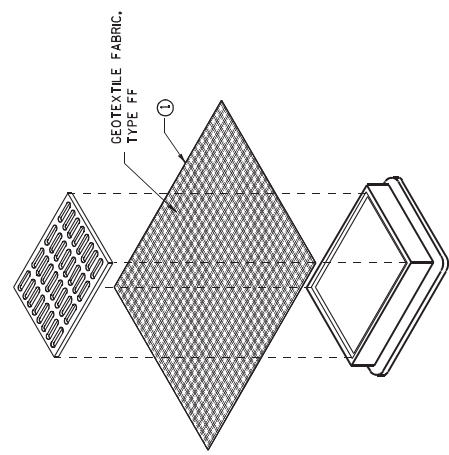
MANUFACTURED ALTERNATIVES, APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

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.

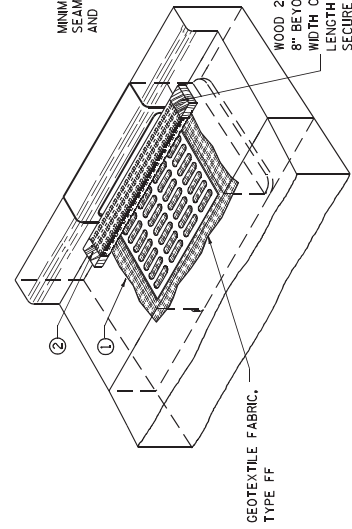
② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

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.

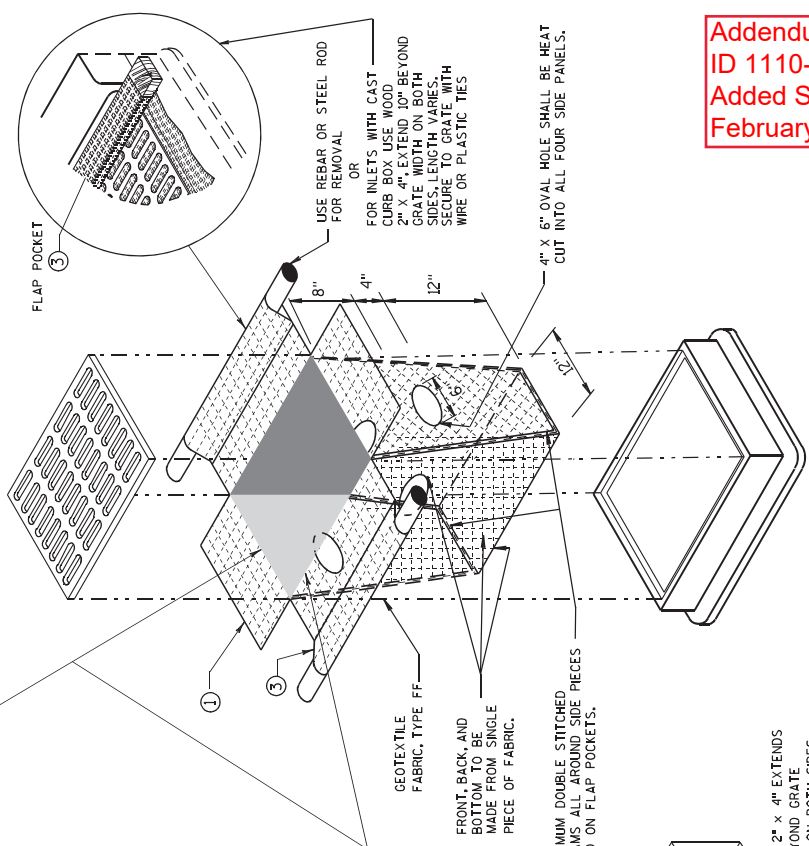
TYPE D

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 SNIP 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 SPECIFICATIONS AS PER THE PLAN DIMENSION LENGTH AND WIDTH TO MATCH



INLET PROTECTION, TYPE D

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

Addendum No. 01
 ID 1110-13-71
 Added Sheet 72F
 February 6, 2019

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN	
DEPARTMENT OF TRANSPORTATION	
APPROVED	DATE
10/16/02	/s/ Beth Connestra
PHWA	
CHIEF ROADWAY DEVELOPMENT ENGINEER	

REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 1/2	72 1/2	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	8	31	46	73	35	2 1/2	3 to 1
21	2 3/4	9 1/2	37	46	73	40	2 3/4	3 to 1
24	3	11	43 1/2	46	73	46	3	3 to 1
27	3 1/4	12 1/2	49 1/2	46	73	52	3 1/4	3 to 1
30	3 1/2	14	54	46	73	58	3 1/2	3 to 1
36	4	18	63	46	73	68	4	3 to 1
42	4 1/2	21	72	46	73	78	4 1/2	3 to 1
48	5	24	81	46	73	88	5	3 to 1
54	5 1/2	27	90	46	73	98	5 1/2	2 1/2 to 1
60	6	30	99	46	73	108	6	2 to 1
66	6 1/2	33	108	46	73	117	6 1/2	2 to 1
72	7	36	117	46	73	126	7	2 to 1
78	7 1/2	39	126	46	73	135	7 1/2	2 to 1
84	8	42	135	46	73	144	8	2 to 1
90	8 1/2	45	144	46	73	153	8 1/2	2 to 1

*MINIMUM
**MAXIMUM

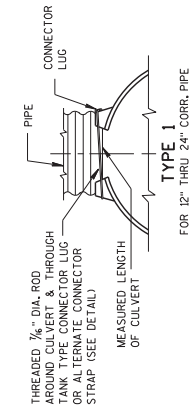
METAL APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	BODY SLOPE	
	A	B	H	L	L1	L2	W			
15	.064	.060	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
18	.064	.060	7	8	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
21	.064	.060	8	10	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
24	.064	.060	9	12	36	18	29 3/4	42	2 1/2 to 1	1 Pc.
27	.064	.075	10	13	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	48	21	42	54	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	57	24	48 1/2	60	2 1/2 to 1	1 Pc.
42	.079	.105	16	22	66	27	54	72	2 1/2 to 1	1 Pc.
48	.079	.105	18	24	75	30	60	84	2 1/2 to 1	1 Pc.
54	.079	.105	20	27	84	33	67 1/2	96	2 1/2 to 1	1 Pc.
60	.079	.105	22	30	93	36	75	108	2 1/2 to 1	1 Pc.
66	.079	.105	24	33	102	39	82 1/2	120	2 to 1	1 Pc.
72	.079	.105	26	36	111	42	90	132	2 to 1	1 Pc.
78	.079	.105	28	39	120	45	97 1/2	144	2 to 1	1 Pc.
84	.079	.105	30	42	129	48	105	156	2 to 1	1 Pc.
90	.079	.105	32	45	138	51	112 1/2	168	2 to 1	1 Pc.
96	.079	.105	34	48	147	54	120	180	2 to 1	1 Pc.

x EXCEPT CENTER PANEL SEE GENERAL NOTES



ALTERNATE FOR TYPE 1 CONNECTION END SECTION CONNECTOR STRAP



FOR 12" THRU 24" CORR. PIPE

FOR 30" THRU 96" CORR. PIPE

FOR 12" THRU 24" CORR. PIPE

FOR 30" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

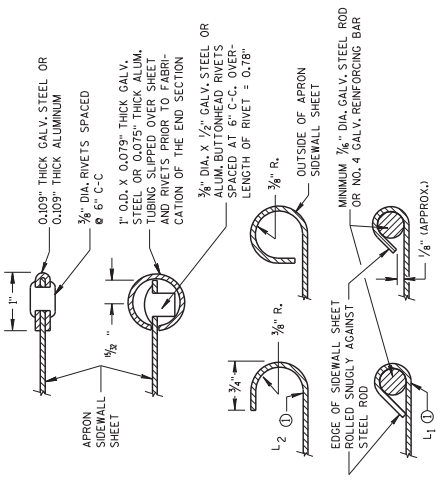
FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE

FOR 42" THRU 96" CORR. PIPE



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 APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CURLETT PIPE OR WELDED STEEL. GALVANIZED STEEL ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CURLETT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" THICK CENTER PANELS. ALL OTHER SIZES SHALL HAVE 0.079" THICK 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. 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. FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

MEASURED LENGTH OF CURLETT

MEASURED LENGTH OF CURLETT

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END CORNER PLATE OR RESISTANCE SPOT WELDS WHICH WILL HOLD TOGETHER TIGHTLY

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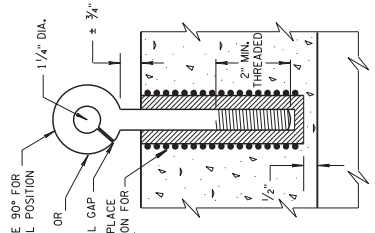
Addendum No. 01
ID 1110-13-71
Added Sheet 72G
February 6, 2019

APRON ENDWALLS FOR CURLETT PIPE
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED _____ DATE 11/30/14 P.H.A.
/s/ Roy L. Rinesmith CHIEF ROADWAY DEVELOPMENT ENGINEER

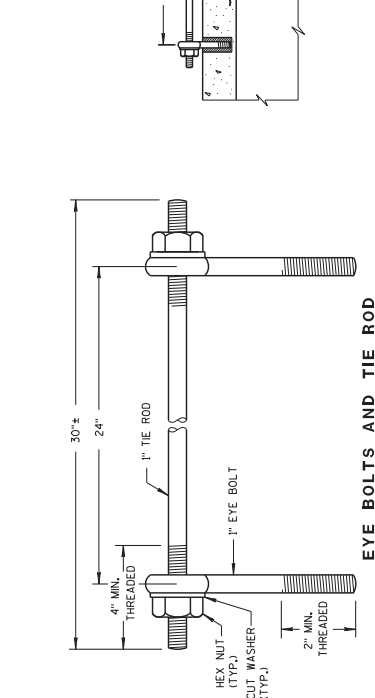
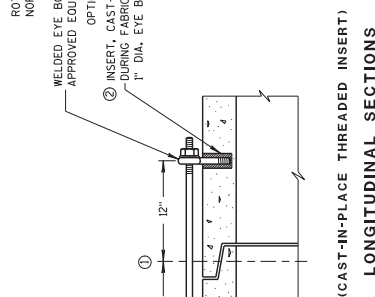
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS. CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE TIES SHALL BE CAST-IN-PLACE OR BELL AND SPOOT JOINTS, UNLESS OTHERWISE STATED IN THE CONTRACT. MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENROLLS IF REQUIRED. DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- 1. JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.
- 2. ϕ OF TONGUE OR GROOVE OR BELL AND SPOOT JOINTS.
- 3. THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- 4. HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ϕ OF TONGUE AND GROOVE.
- 5. BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- 6. OPENING TO BE ROD DIAMETER PLUS 1/16".
- 7. LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.

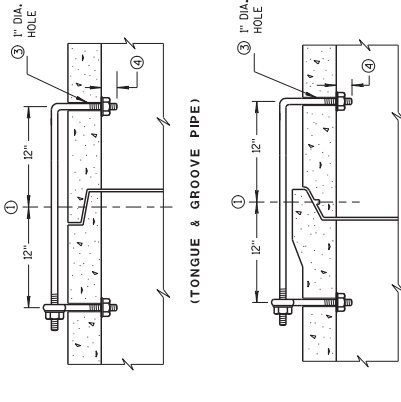


(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

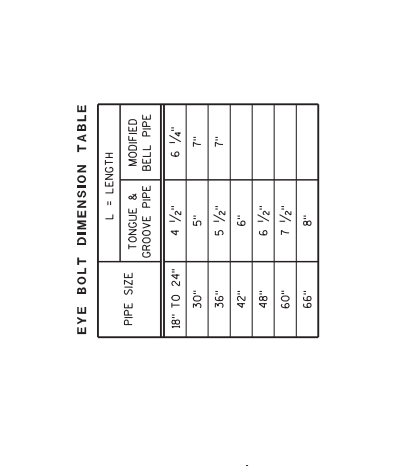


6
EYE BOLTS AND TIE ROD

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



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)

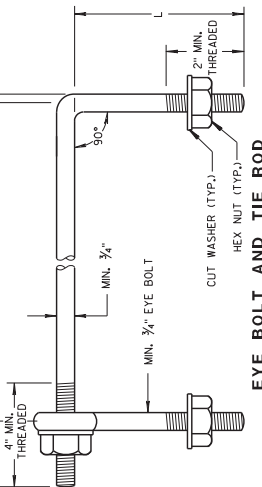
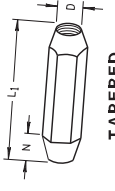
EYE BOLT DIMENSION TABLE

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

ADJUSTABLE TIE ROD TABLE

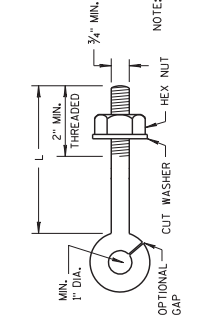
PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	L ₂	N
12-60	3/4"	3/4"	5	1/2	1/2
66-84	3/4"	3/4"	5	1/2	1/2
90-108	1"	1"	7	1 1/4"	1 1/4"

DIMENSIONS SHOWN ARE IN INCHES



EYE BOLT AND TIE ROD

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

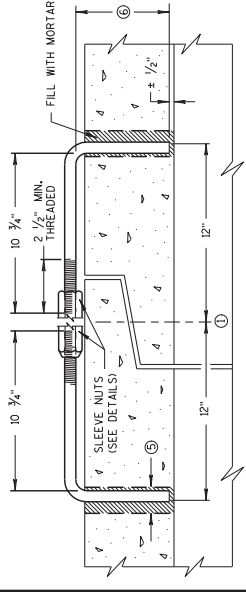


EYE BOLT

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

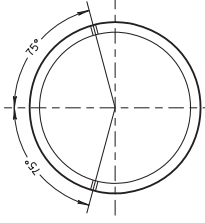
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



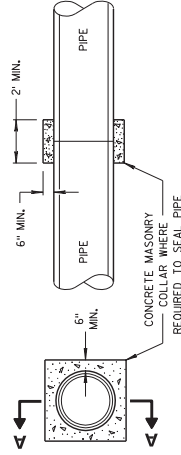
LONGITUDINAL SECTION

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



TRANSVERSE SECTION

PLACEMENT OF (3) CAST-IN-PLACE INSERTS FOR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

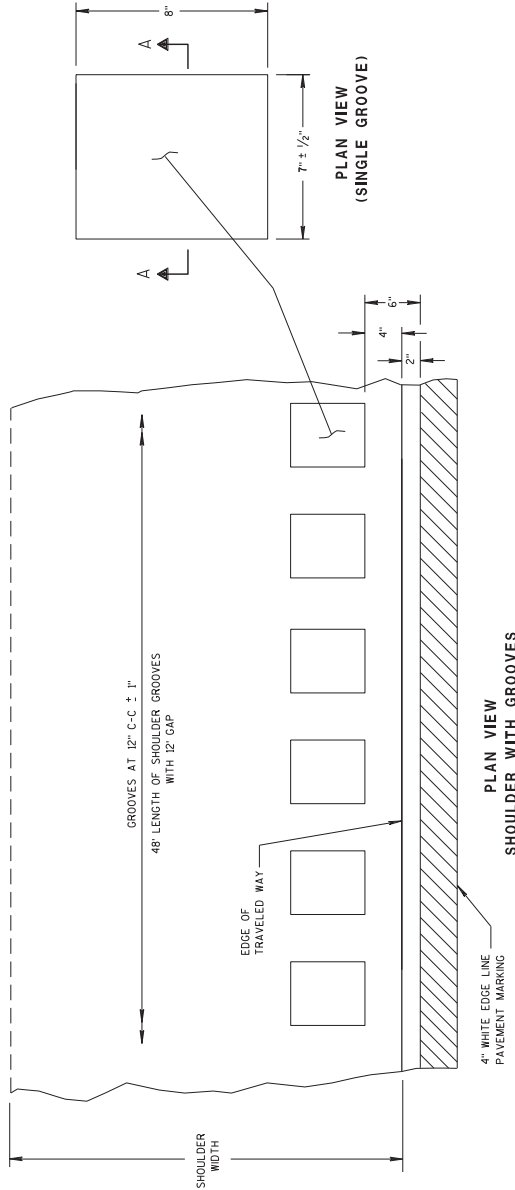
APPROVED
6/5/2012
DATE
/s/ Jeffrey H. Zogg
ENGINEER
ROADWAY STANDARDS DEVELOPMENT
FHWA

Addendum No. 01
ID 1110-13-71
Added Sheet 72H
February 6, 2019

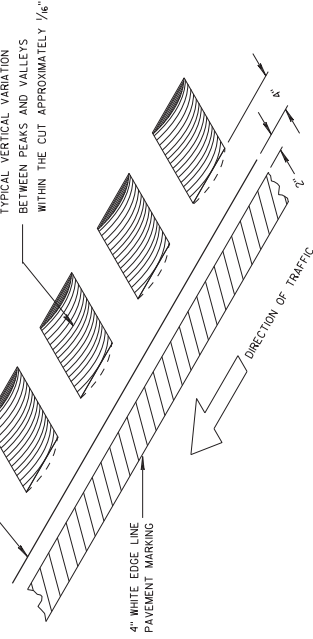
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS. DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

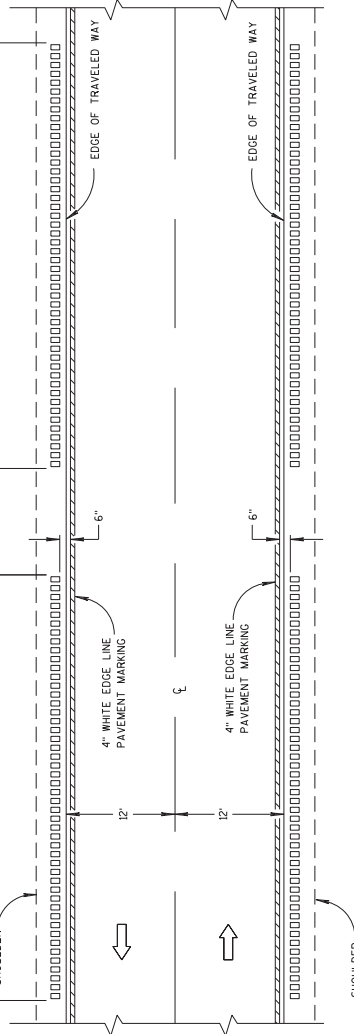
① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



PLAN VIEW WITH GROOVES



ISOMETRIC



TYPE 1
2-LANE SHOULDER RUMBLE STRIP

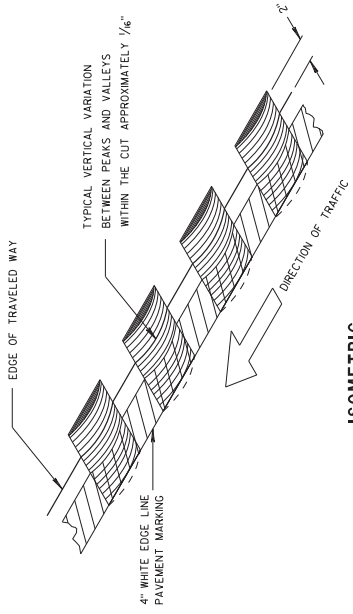
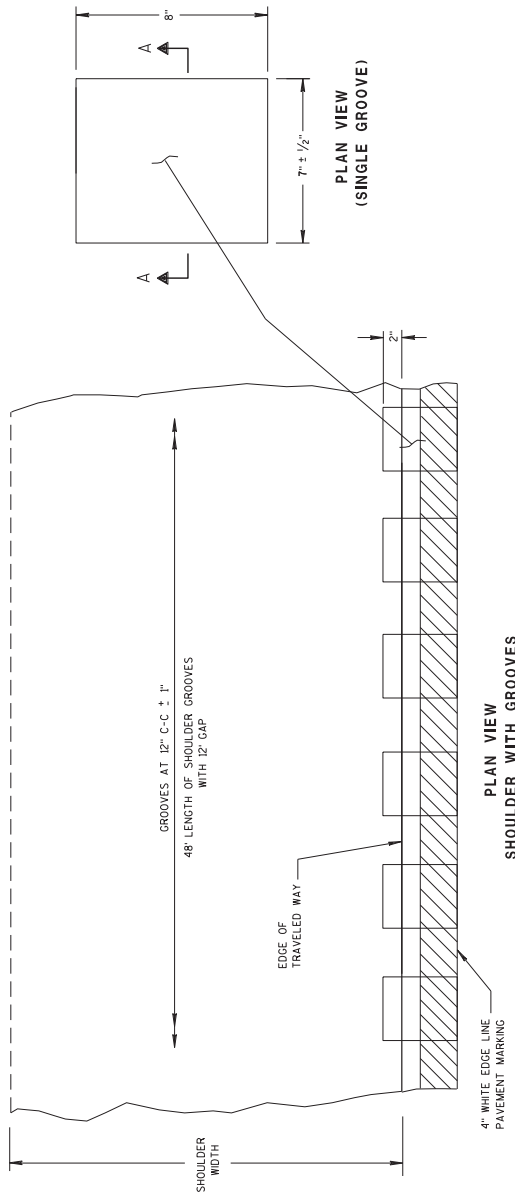
Addendum No. 01
ID 1110-13-71
Added Sheet 721
February 6, 2019

SECTION A-A

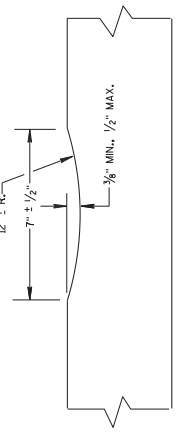
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS. DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.

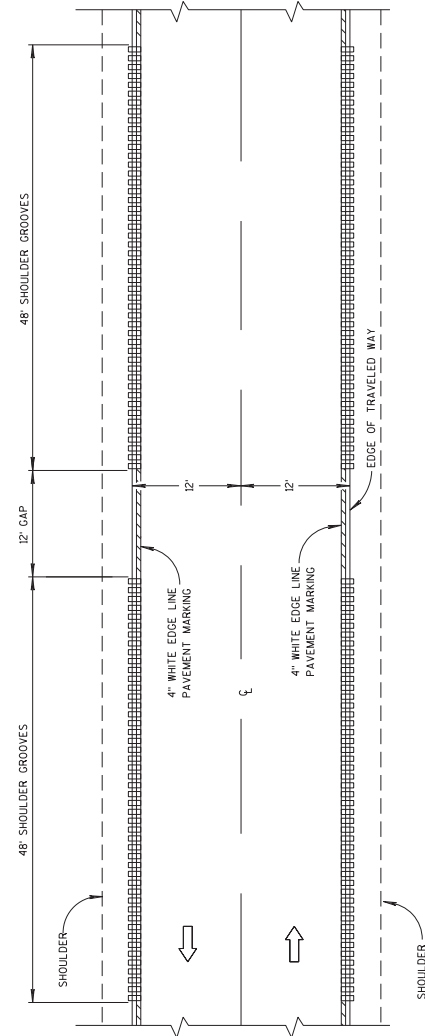


ISOMETRIC



SECTION A-A

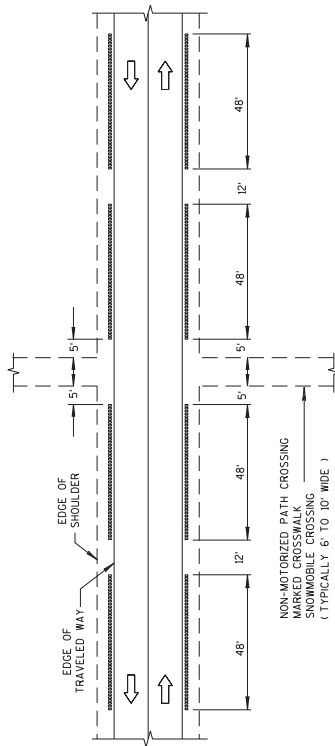
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP



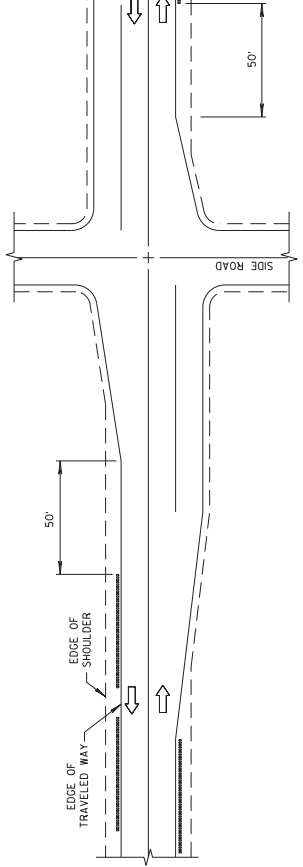
**TYPE 2
2-LANE SHOULDER RUMBLE STRIP**

Addendum No. 01
ID 1110-13-71
Added Sheet 72J
February 6, 2019

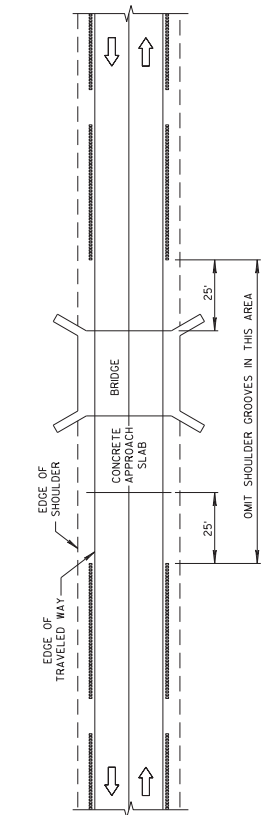
**2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING**
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



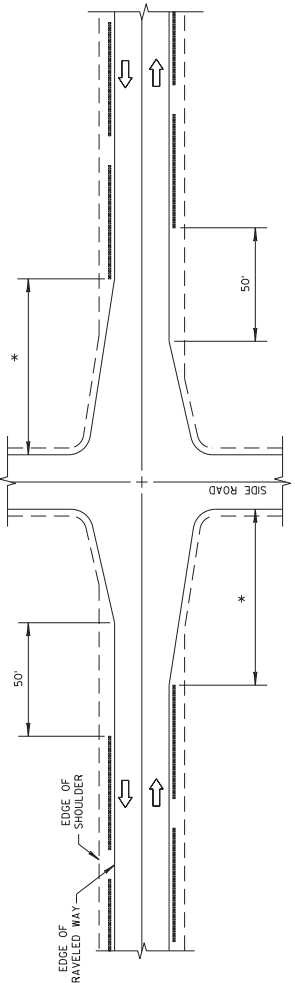
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



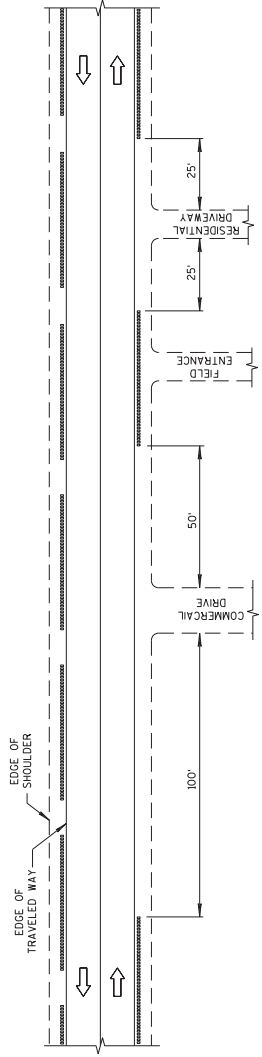
SHOULDER GROOVES AT WITH RIGHT TURN LANE



SHOULDER GROOVES AT BRIDGES



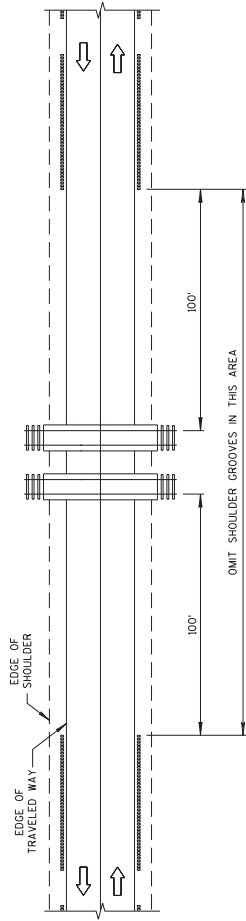
SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



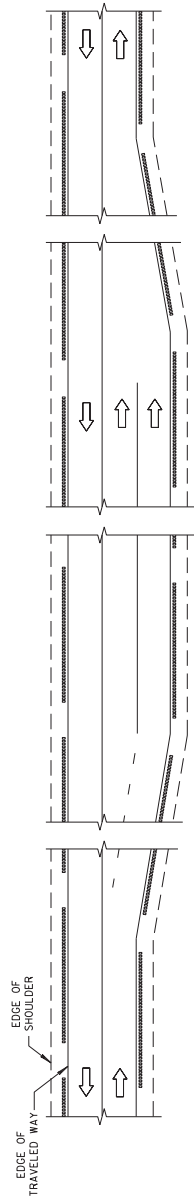
SHOULDER GROOVES AT DRIVEWAYS ①

Addendum No. 01
ID 1110-13-71
Added Sheet 72K
February 6, 2019

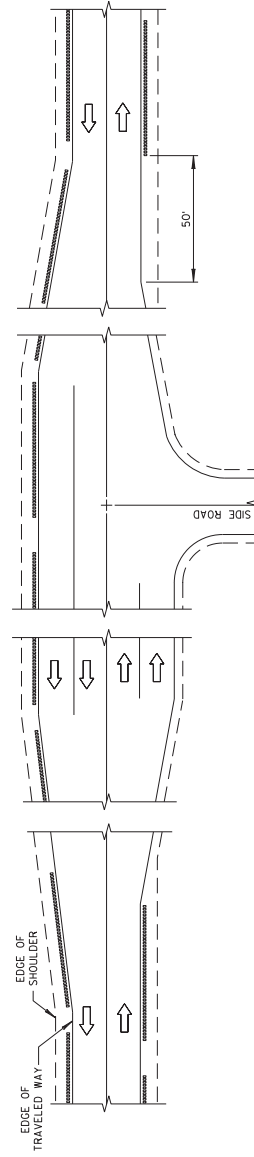
2-LANE RURAL
SHOULDER RUMBLE STRIP - MILLING
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

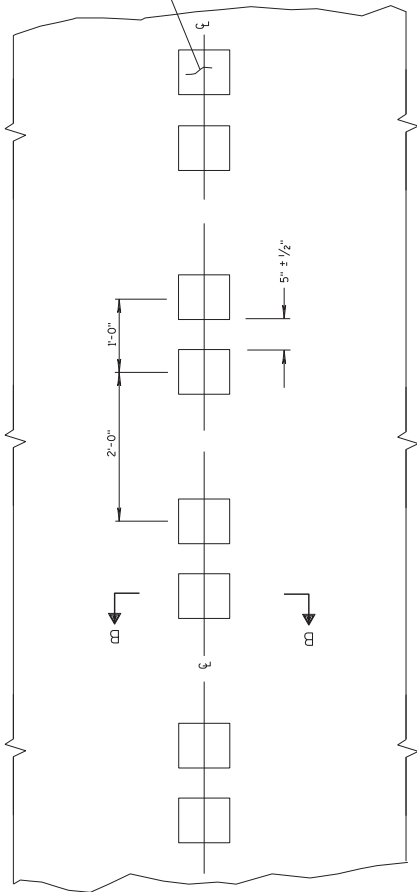
Addendum No. 01
 ID 1110-13-71
 Added Sheet 72L
 February 6, 2019

2-LANE RURAL SHOULDER RUMBLE STRIP - MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/s/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
DATE	7/2018
FHWA	

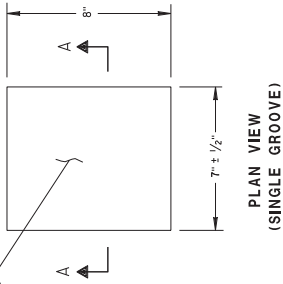
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS. DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING. INSTALL PERMANENT MARKING EPOXY 4-INCH AFTER THE GROOVES ARE INSTALLED. SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

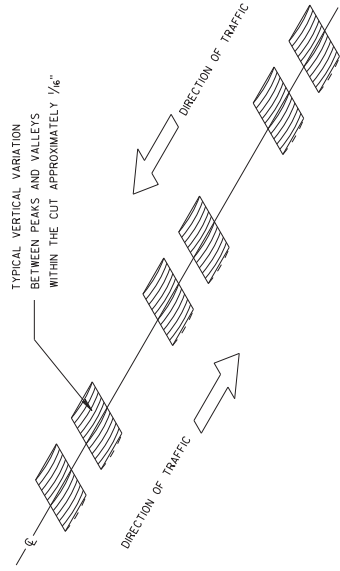
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



PLAN VIEW
CENTER LINE WITH GROOVES

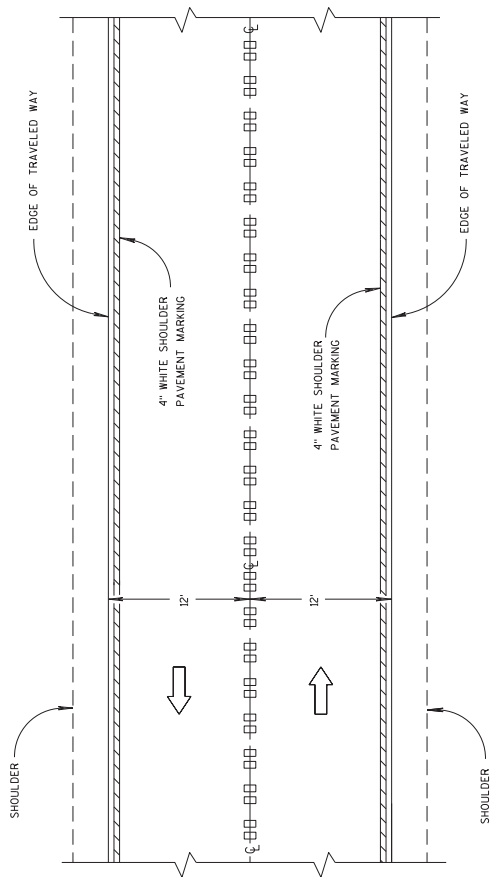


PLAN VIEW
(SINGLE GROOVE)

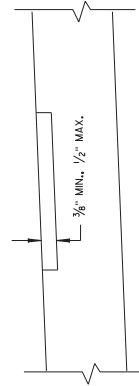


ISOMETRIC

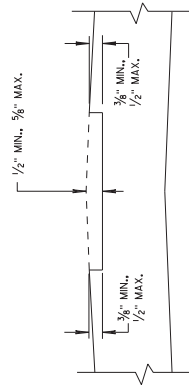
PLACEMENT DETAIL FOR MILLED RUMBLE STRIP



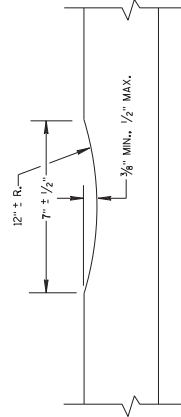
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



SECTION B-B
CROWNED ROADWAY



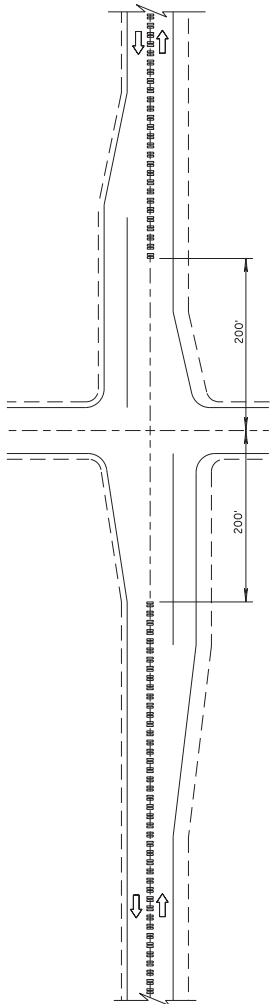
SECTION A-A

Addendum No. 01
ID 1110-13-71
Added Sheet 72M
February 6, 2019

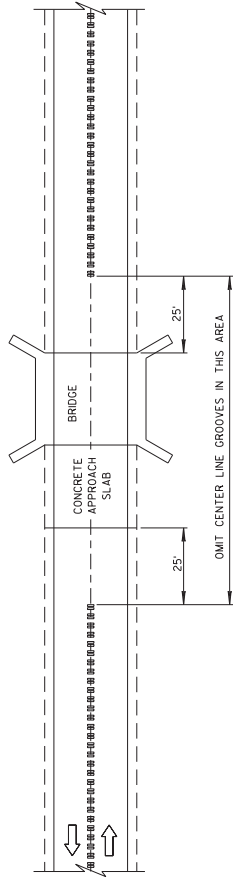
2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

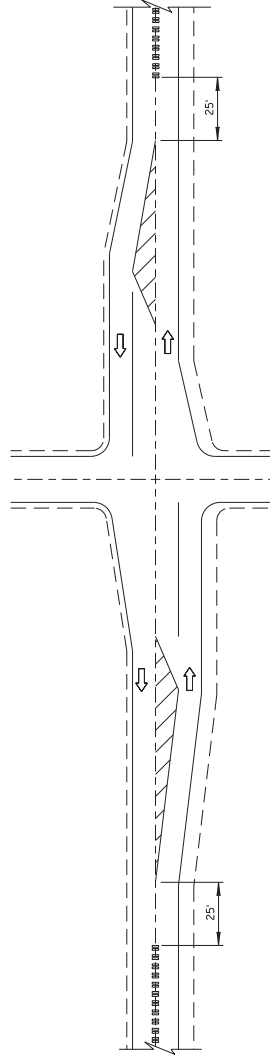
① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



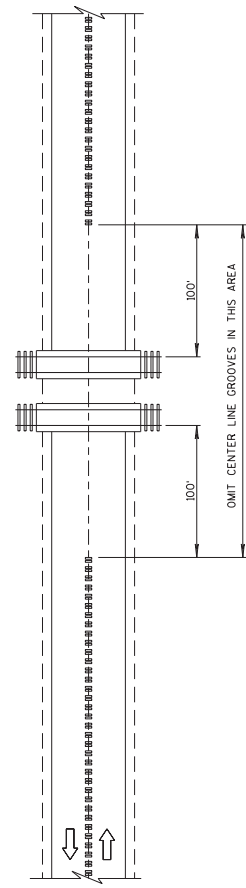
CENTER LINE GROOVES AT INTERSECTIONS



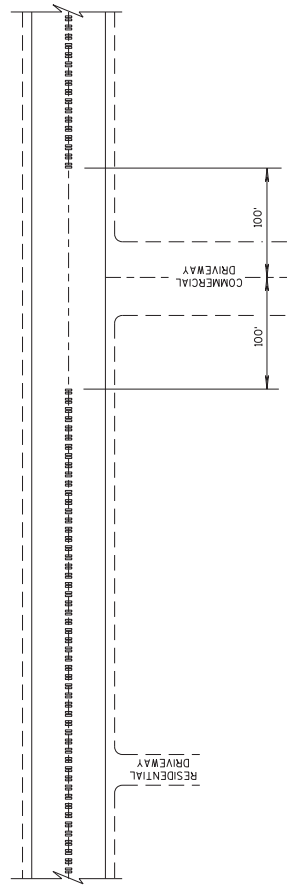
CENTER LINE GROOVES AT BRIDGES



CENTER LINE GROOVES AT INTERSECTIONS (WITH LEFT TURN LANES)



CENTER LINE GROOVES AT RAILROADS

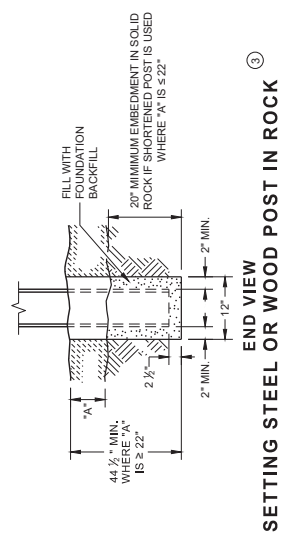


CENTER LINE GROOVES AT DRIVEWAYS ①

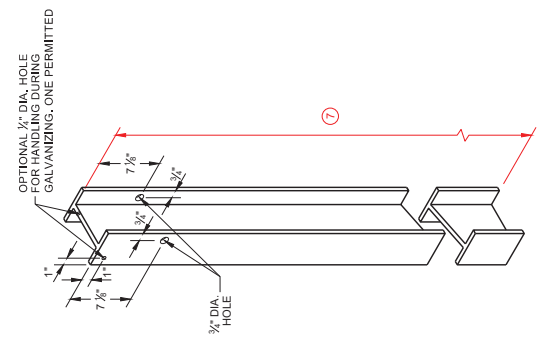
Addendum No. 01
ID 1110-13-71
Added Sheet 72N
February 6, 2019

S.D.D. 13 A 11-3b	
2-LANE RURAL CENTER LINE RUMBLE STRIP MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	/s/ Rodney Taylor
DATE	7/2018
	ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
	FHWA

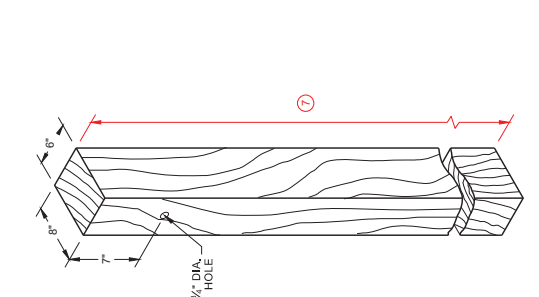
- ① WOOD OR STEEL POSTS (W6X9 OR 6X6(S)) MAY BE USED. DO NOT INTERNALLY WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO THE LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7'-0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6'-0".



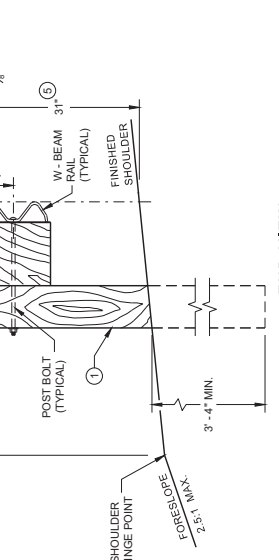
SETTING STEEL OR WOOD POST IN ROCK
END VIEW



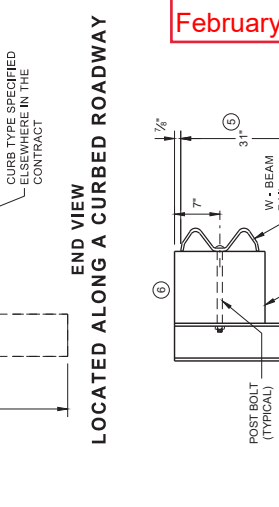
STEEL POST & HOLE PUNCHING DETAIL
(W 6 X 9)



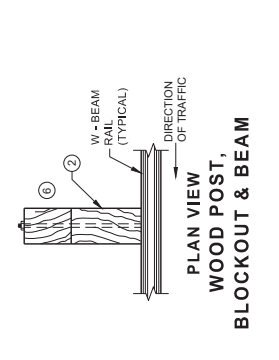
WOOD POST
(6" X 8") NOMINAL



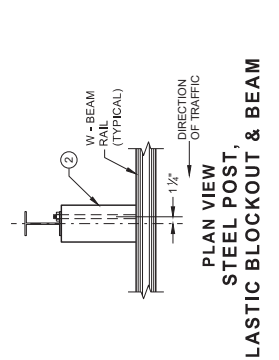
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



LOCATED ALONG A CURBED ROADWAY
END VIEW



WOOD OR PLASTIC BLOCKOUT



PLASTIC BLOCKOUT & BEAM
STEEL POST,
STEEL POST,

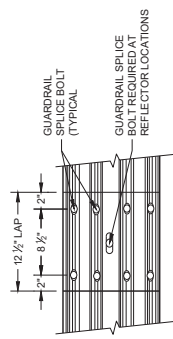
Addendum No. 01
ID 1110-13-71
Added Sheet 720
February 6, 2019



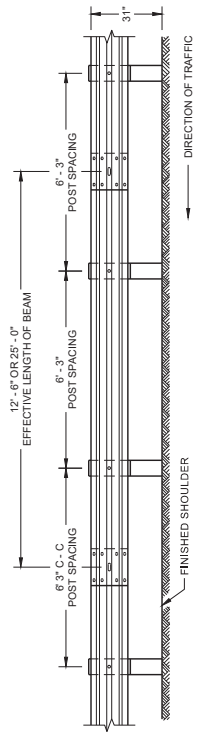
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)
END VIEW

GENERAL NOTES

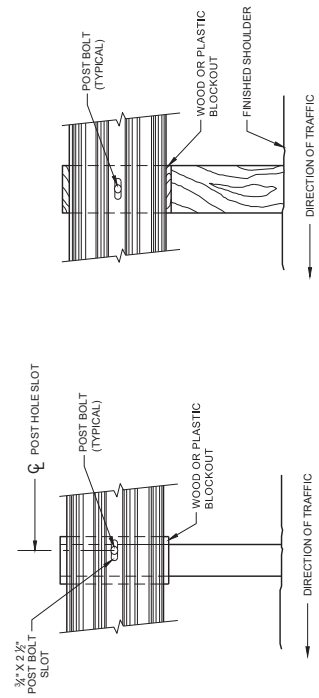
- DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
- 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 1/2" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 1/2" DIAMETER ASTM A307 DOUBLE RECESSED (DR) HEAVY HEX NUT AND 1/2" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARDRAIL SPLICE BOLTS ARE A 1/2" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 1/2" DIAMETER ASTM A307 DOUBLE RECESSED (DR) HEAVY HEX NUT.



MID-SPAN BEAM SPLICE

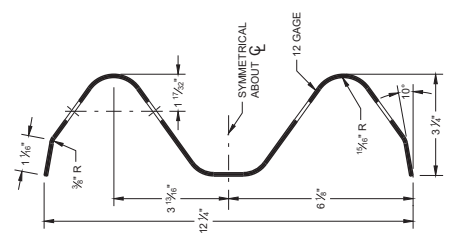


**FRONT VIEW
POST SPACING STANDARD INSTALLATION**

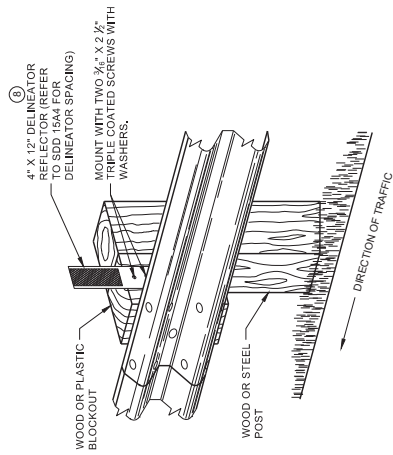


FRONT VIEW AT STEEL POST

FRONT VIEW AT WOOD POST

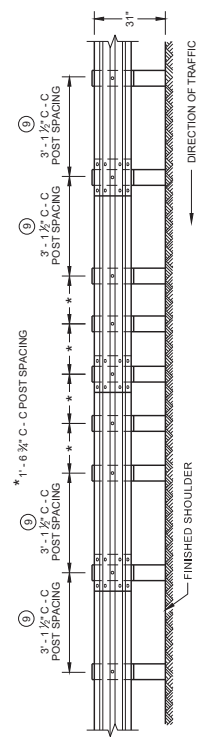
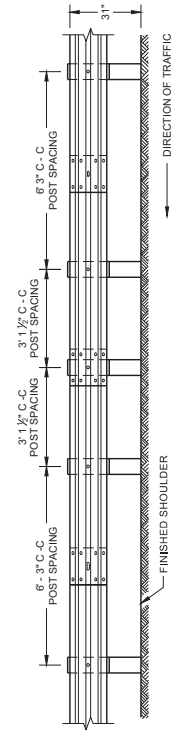


SECTION THRU W-BEAM RAIL



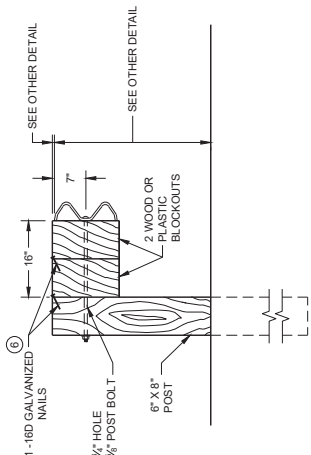
ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**

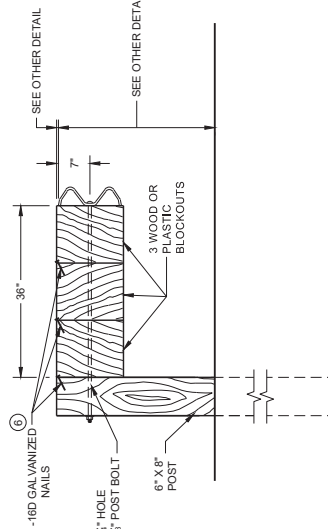


**FRONT VIEW
QUARTER POST SPACING (QS)**

Addendum No. 01
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Added Sheet 72P
February 6, 2019



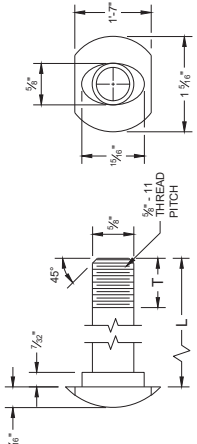
DETAIL FOR 16" BLOCKOUT DEPTH
 IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

NOTES:
 UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL. DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

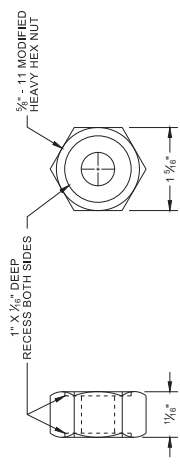
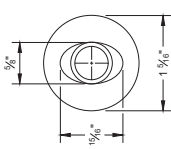
NOTE:
 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
 2. IF THE BOLT EXTENDS MORE THAN 1/2" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.



POST BOLT TABLE

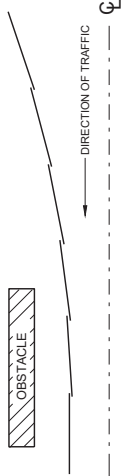
L	T (MIN.)
1 1/2"	1 1/2"
2"	1 1/2"
10"	4"
14"	4 1/2"
18"	4"
21"	4 1/2"
25"	4"

ALTERNATE BOLT HEAD

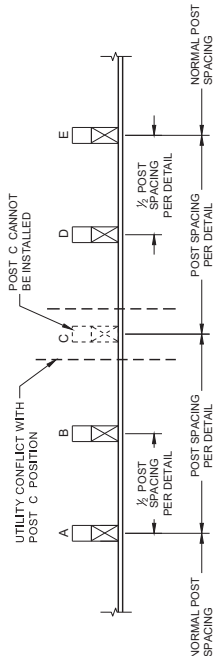


POST BOLT, SPLICE BOLT AND RECESS NUT

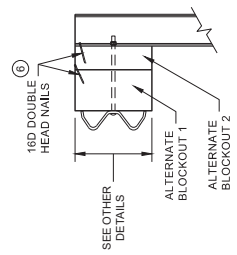
WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



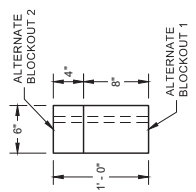
PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



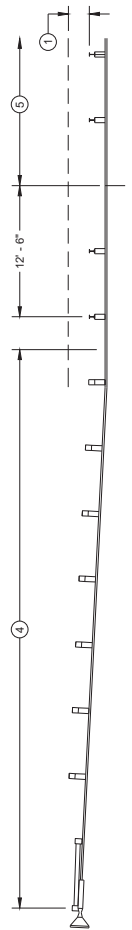
SIDE VIEW



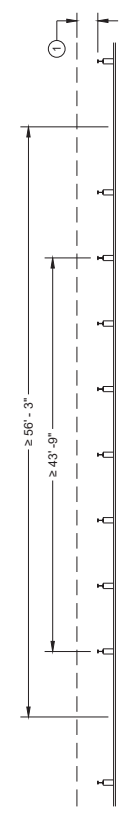
PLAN VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

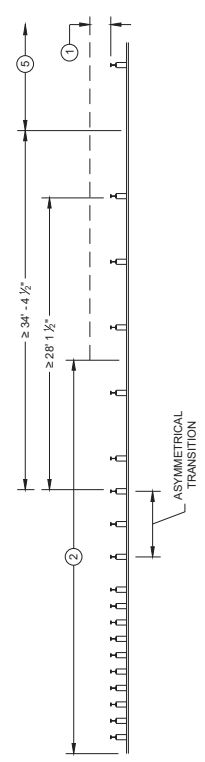
Addendum No. 01
 ID 1110-13-71
 Added Sheet 72Q
 February 6, 2019



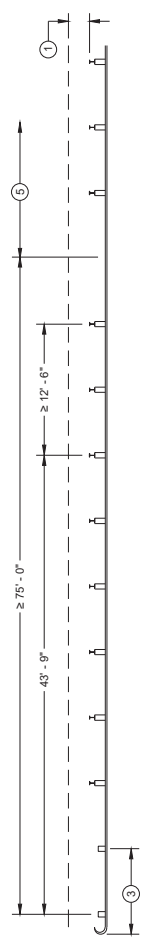
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



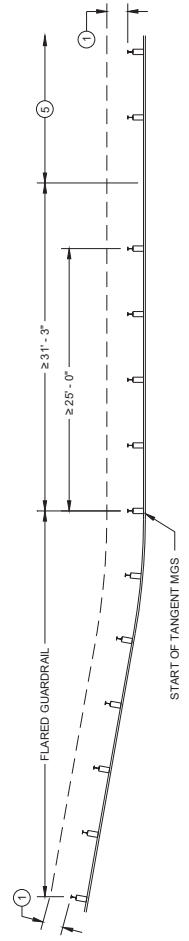
MISSING POST IN NORMAL BEAM GUARD RUN



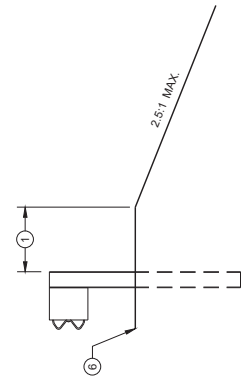
MISSING POST NEAR APPROACH THREE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD

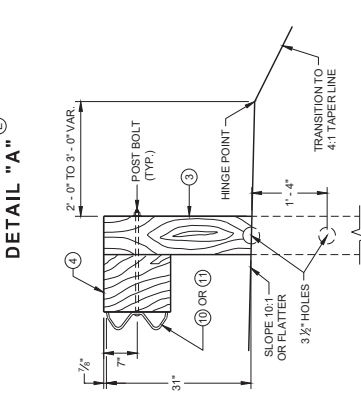
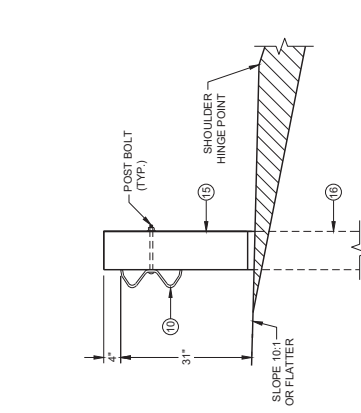
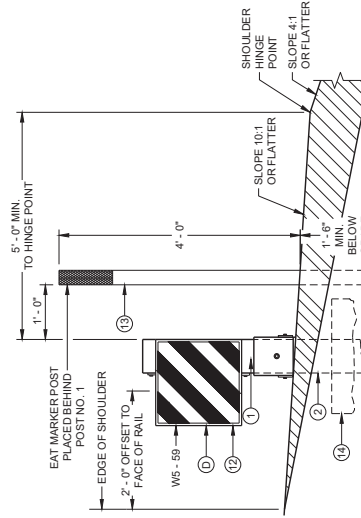
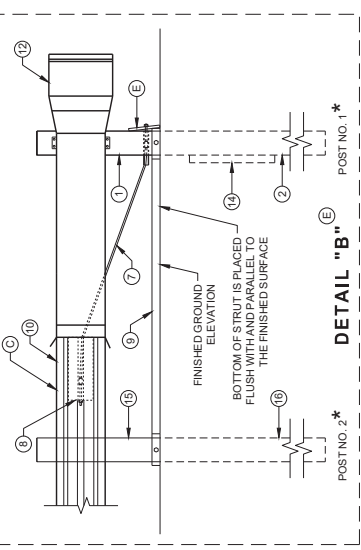
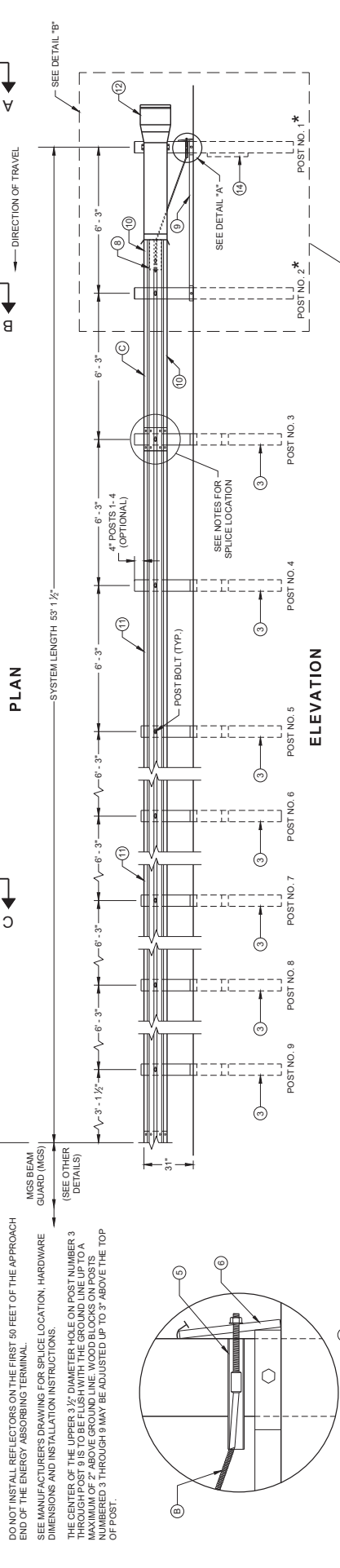
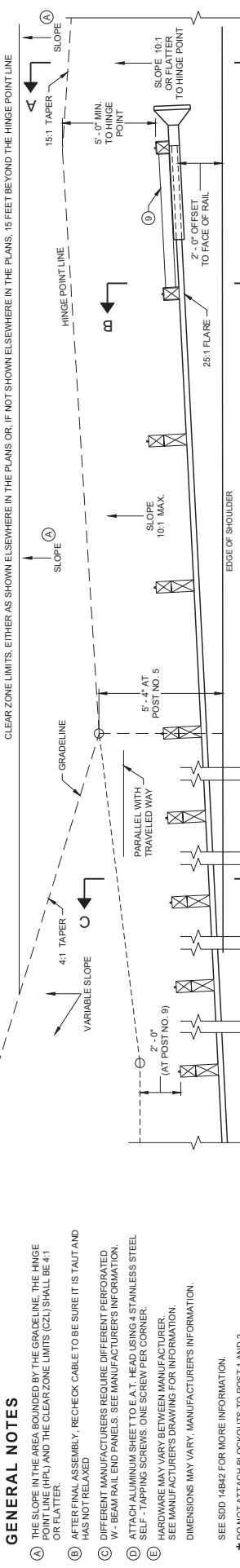


CROSS SECTION VIEW

Addendum No. 01
 ID 1110-13-71
 Added Sheet 72R
 February 6, 2019

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	DATE
IS/ Rodney Taylor	7/2019
ROADWAY DEVELOPMENT	UNIT SUPERVISOR
FORM	

- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO SOILS. MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER DESIGN.



GENERAL NOTES

- A THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEARZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
 - B AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
 - C DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
 - D ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS, ONE SCREW PER CORNER.
 - E HARDWARE MAY VARY BETWEEN MANUFACTURERS. SEE MANUFACTURER'S DRAWING FOR INFORMATION. DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.
- SEE SDD 14B42 FOR MORE INFORMATION.
- * DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.
 - DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.
 - THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

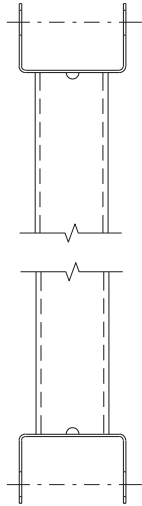
Addendum No. 01
ID 1110-13-71
Added Sheet 72S
February 6, 2019

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

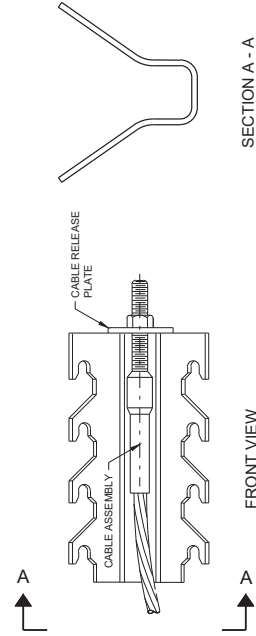
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS

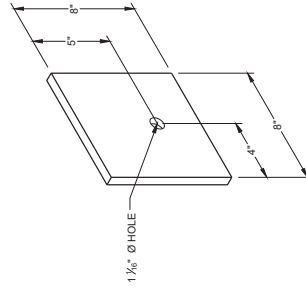
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS/EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
1	UPPER POST NO. 1 6" X 6" TUBE
2	LOWER POST NO. 1
3	WOOD CRT
4	WOOD BLOCKOUT
5	PIPE SLEEVE
6	BEARING PLATE
7	BCT CABLE ASSEMBLY
8	ANCHOR CABLE BOX
9	GROUND STRUT
10	PERFORATED W-BEAM RAIL END PANEL, 12'6" LONG.
11	STANDARD W-BEAM RAIL MULTIPLE SECTIONS REQUIRED.
12	IMPACT HEAD
13	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
14	SOIL PLATE
15	UPPER POST NO. 2
16	LOWER POST NO. 2



GENERIC GROUND STRUT (E)



GENERIC ANCHOR CABLE BOX (E)

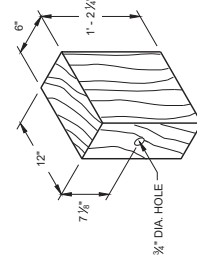


BEARING PLATE (E)

Addendum No. 01
ID 1110-13-71
Added Sheet 72T
February 6, 2019

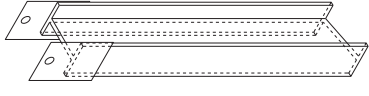
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

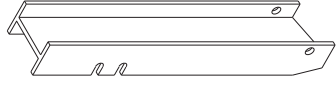


WOOD BLOCKOUT (4)

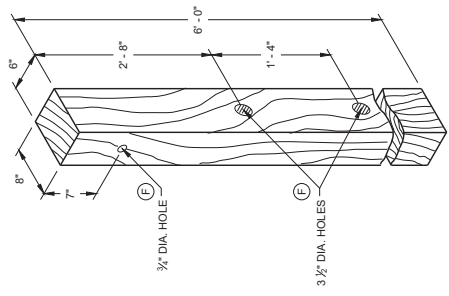
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



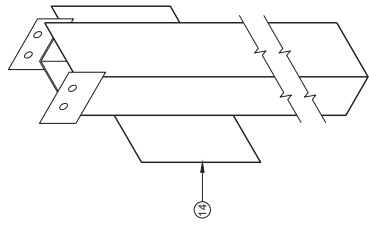
LOWER POST NO. 2 (15)(E)



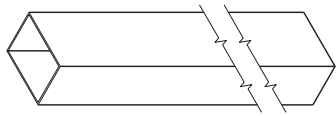
UPPER POST NO. 2 (15)(E)



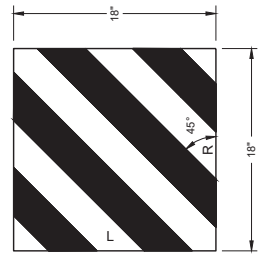
WOOD CRT POST (3)(E)
POSTS NUMBER 3-9



LOWER POST NO. 1 (2)(E)

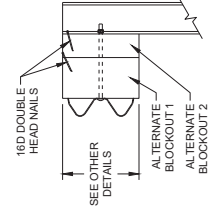


UPPER POST NO. 1 (1)(E)



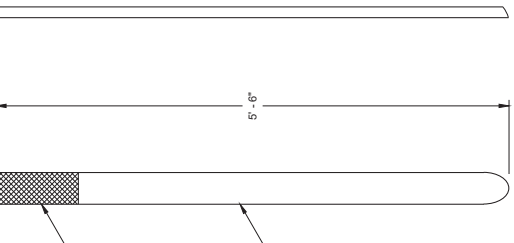
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



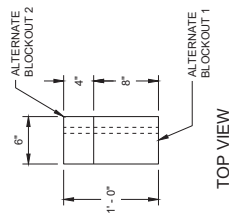
SIDE VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



TOP VIEW

Addendum No. 01
ID 1110-13-71
Added Sheet 72U
February 6, 2019

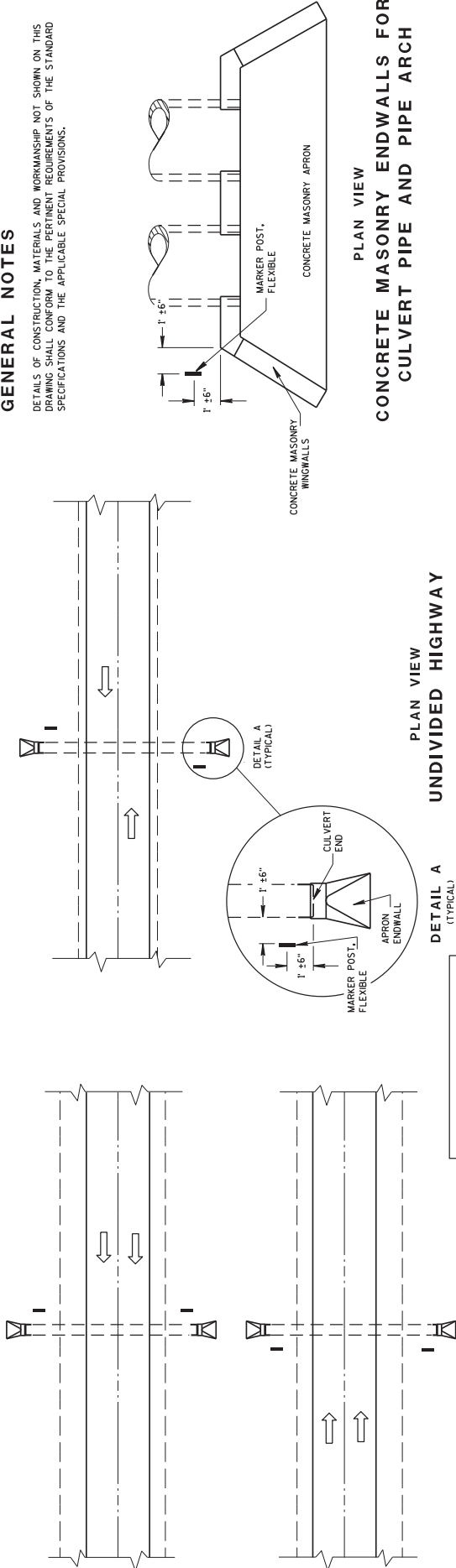
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

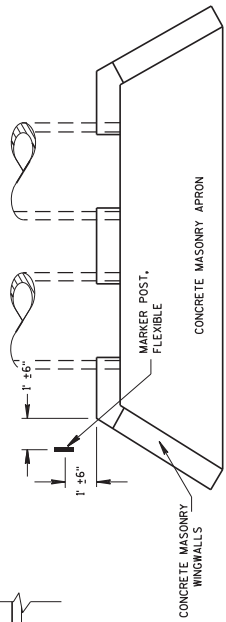
APPROVED: /S/ Rodney Taylor
DATE: 7/2018
ROADWAY SAFETY IMPROVEMENT UNIT SUPERVISOR

GENERAL NOTES

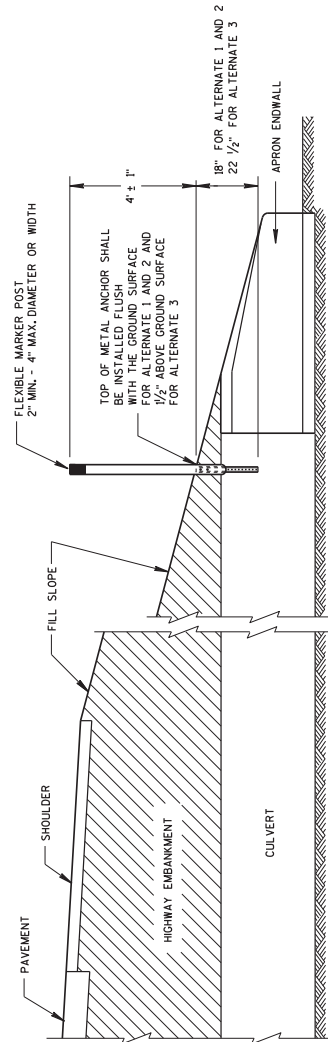
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



**PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH**



FLEXIBLE MARKER POST LOCATION



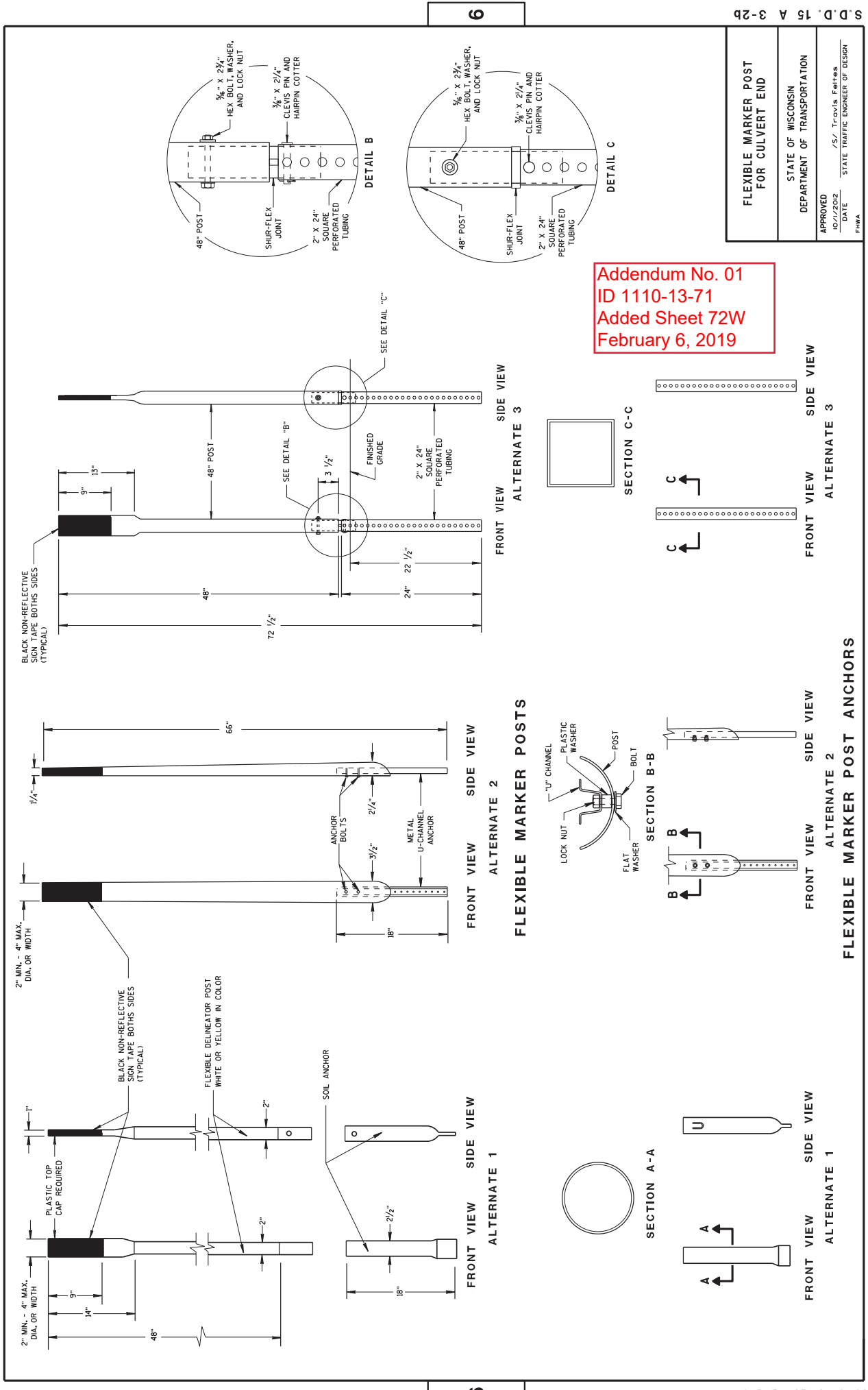
**CROSS SECTION
FLEXIBLE MARKER POST**

Addendum No. 01
ID 1110-13-71
Added Sheet 72V
February 6, 2019

FLEXIBLE MARKER POST
FOR CULVERT END

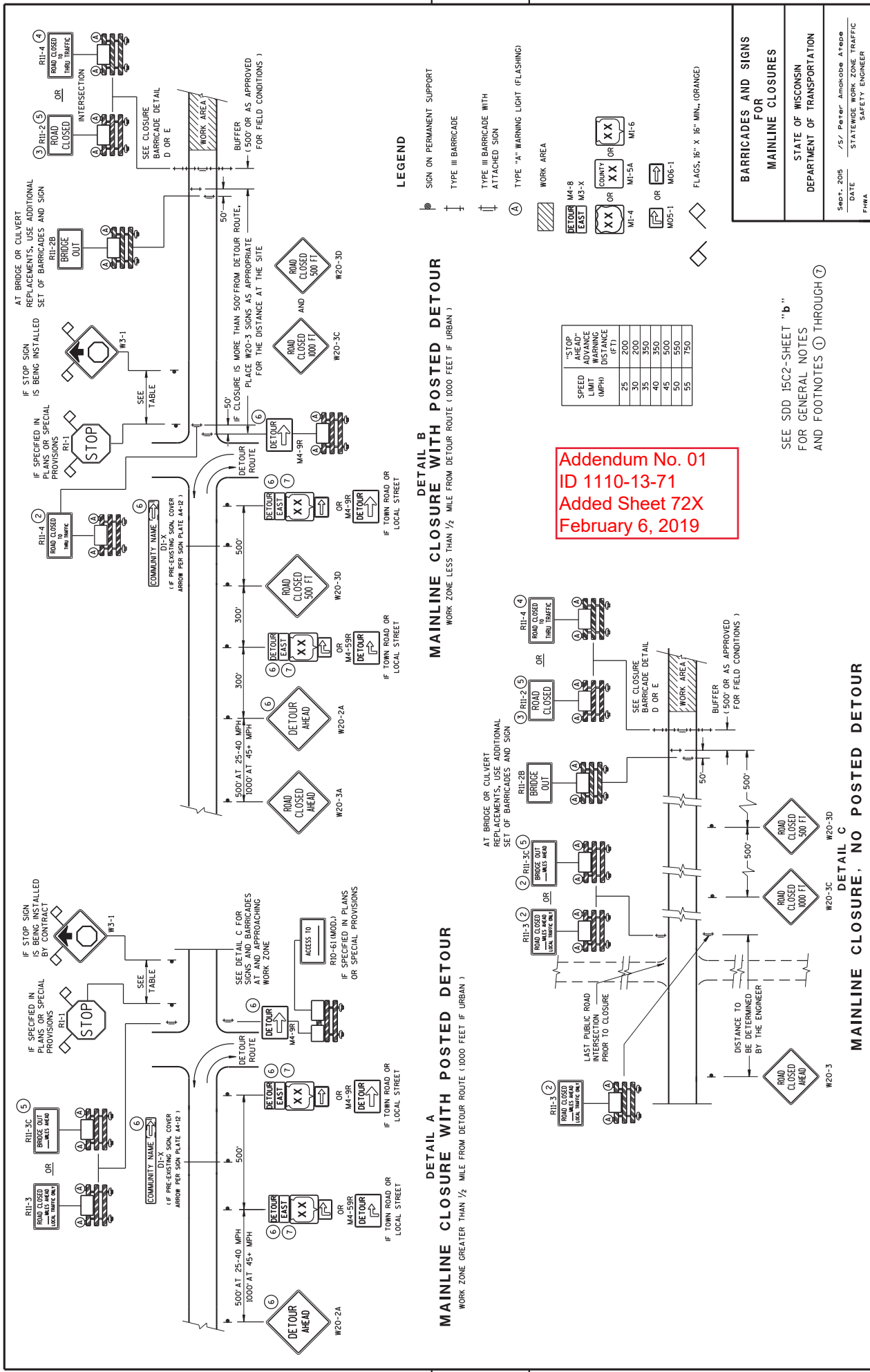
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

72V



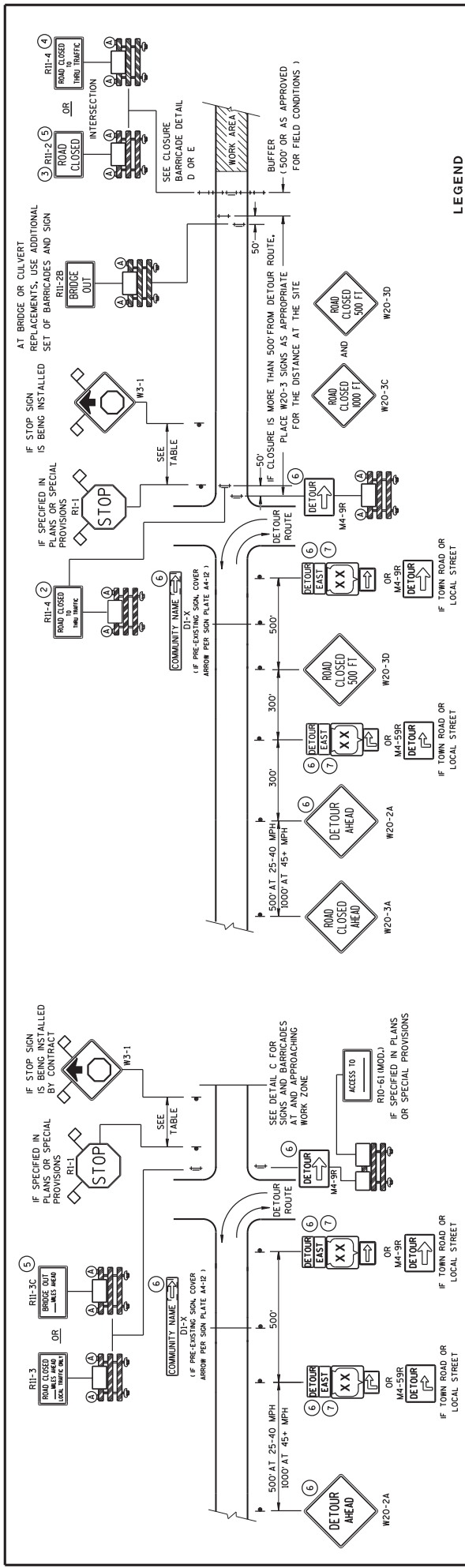
Addendum No. 01
 ID 1110-13-71
 Added Sheet 72W
 February 6, 2019

FLEXIBLE MARKER POST FOR CULVERT END
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED DATE 10/1/2012 /S/ Travis Feibes STATE TRAFFIC ENGINEER OF DESIGN P.W.A.



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
 WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
 WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

LEGEND

- ⊕ SIGN ON PERMANENT SUPPORT
- ⊕ TYPE III BARRICADE
- ⊕ TYPE III BARRICADE WITH ATTACHED SIGN
- ⊕ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA
- ⊕ DETOUR EAST
- ⊕ DETOUR WEST
- ⊕ MI-4
- ⊕ MI-5A
- ⊕ MI-6
- ⊕ MI-51
- ⊕ M06-1
- ⊕ M05-1
- ⊕ FLAGS, 16" X 16" MIN., ORANGE

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

Addendum No. 01
ID 1110-13-71
Added Sheet 72X
February 6, 2019

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

Sept. 2005 / S/ Peter Amodeo Attkide
 DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
 FHWA

SEE SDD 15C2-SHEET "b" FOR GENERAL NOTES AND FOOTNOTES THROUGH 7

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.

"W" 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 SHALL BE 24" X 12", 18" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-9 SHALL BE 24" X 21", 136" X 136" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-9 SHALL BE 24" X 24" IF NEEDED TO MATCH EXISTING SIGNS.)

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M4-9 SHALL BE 24" X 24" IF NEEDED TO MATCH EXISTING SIGNS.)

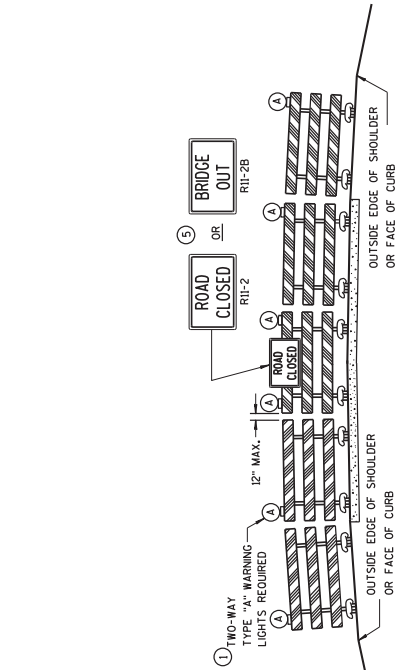
M4-9 SHALL BE 24" X 24" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-9 SHALL BE 24" X 24" IF NEEDED TO MATCH EXISTING SIGNS.)

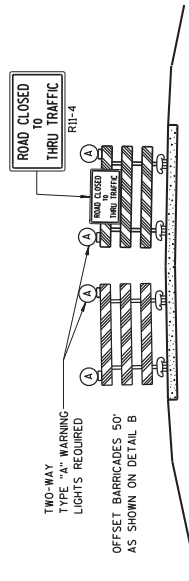
M4-9 SHALL BE 24" X 24" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-9 SHALL BE 24" X 24" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-9 SHALL BE 24" X 24" IF NEEDED TO MATCH EXISTING SIGNS.)



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
 APPROACH VIEW

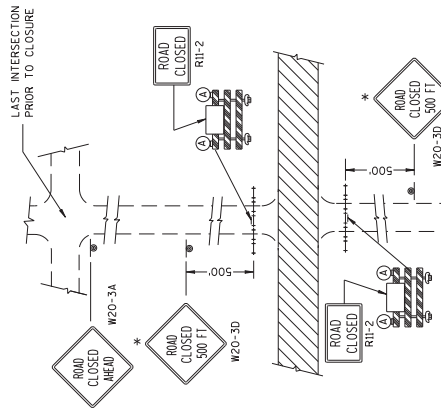


DETAIL E
LANE CLOSURE BARRICADE DETAIL
 APPROACH VIEW

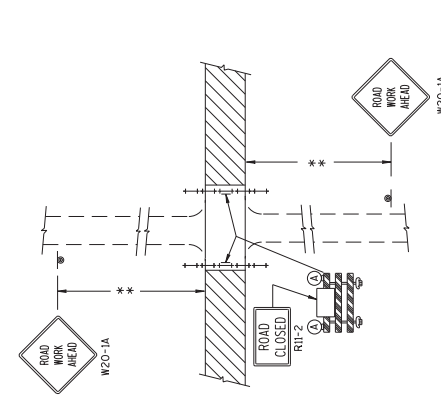
SEE SDD 15C2-SHEET "a" FOR LEGEND

Addendum No. 01
 ID 1110-13-71
 Added Sheet 72Y
 February 6, 2019

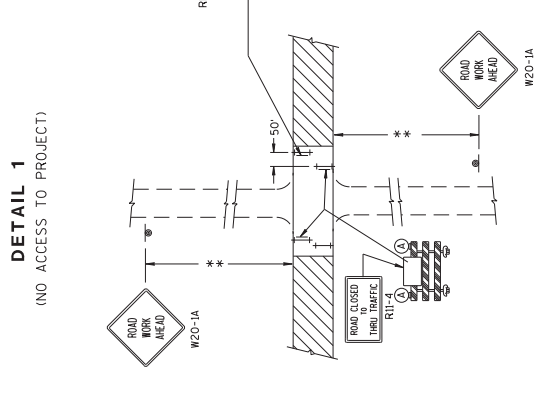
BARRICADES AND SIGNS FOR MAINLINE CLOSURES
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
Sept. 2005 /S/ Peter Amokobbe Atsde DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER PHWA



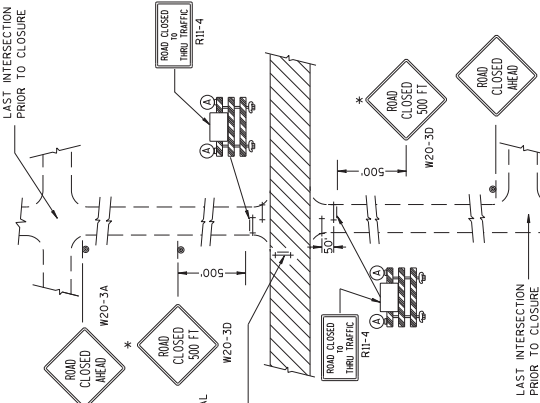
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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 BE 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 RII-2, RII-3 AND RII-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.

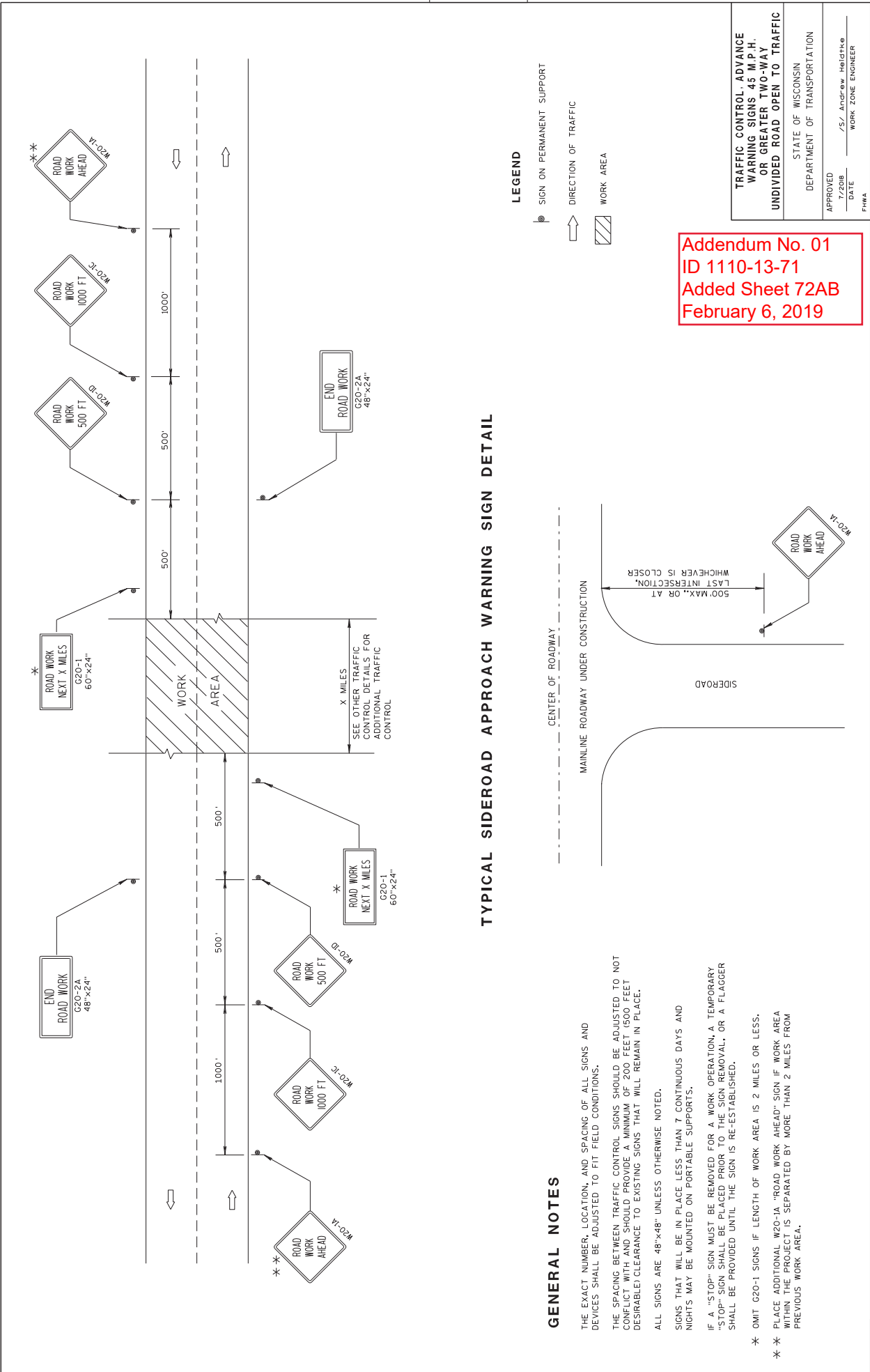
ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
 RII-2 SHALL BE 48" X 30"
 RII-4 AND RII-3 SHALL BE 60" X 30".

Addendum No. 01
ID 1110-13-71
Added Sheet 72AA
February 6, 2019

LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	DATE
7/2008	7/2008
/s/ Andrew Heitko WORK ZONE ENGINEER	
FHWA	



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

- LEGEND**
- SIGN ON PERMANENT SUPPORT
 - ⇨ DIRECTION OF TRAFFIC
 - ▨ WORK AREA

Addendum No. 01
 ID 1110-13-71
 Added Sheet 72AB
 February 6, 2019

GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.
- 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" X 48" UNLESS OTHERWISE NOTED.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- 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.
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- * PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.


TRAFFIC CONTROL - ADVANCE WARNING SIGNS - 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN	
DEPARTMENT OF TRANSPORTATION	
APPROVED	DATE
/S/ Andrew Heidtko	7/20/08
WORK ZONE ENGINEER	PIWA

GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W4-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

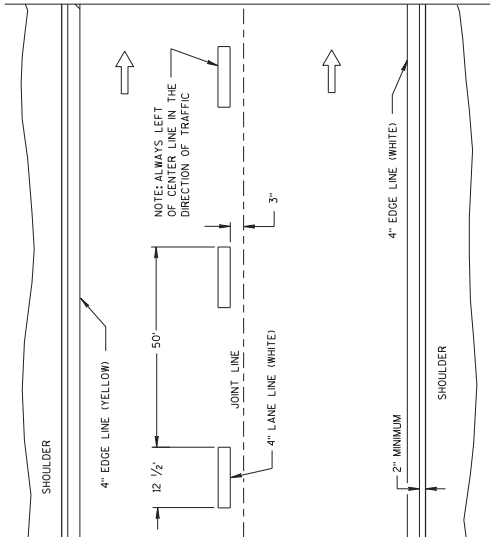
NOTE

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

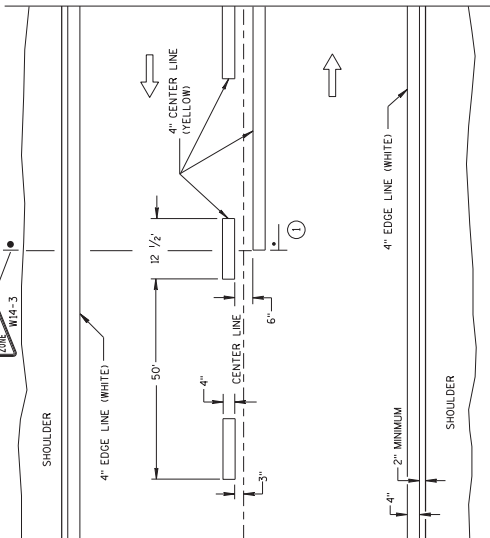
LEGEND

 "T" MARKING

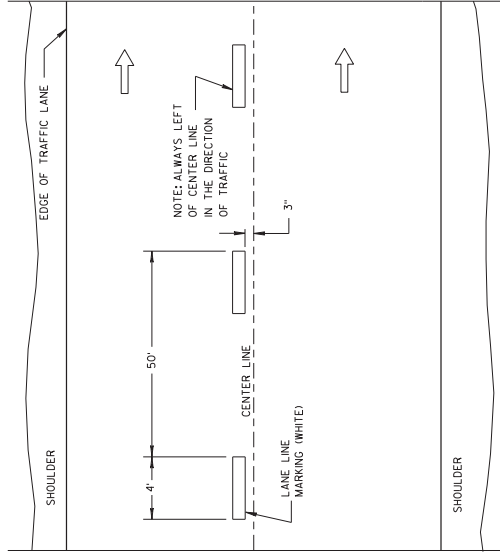
 POST MOUNTED SIGN



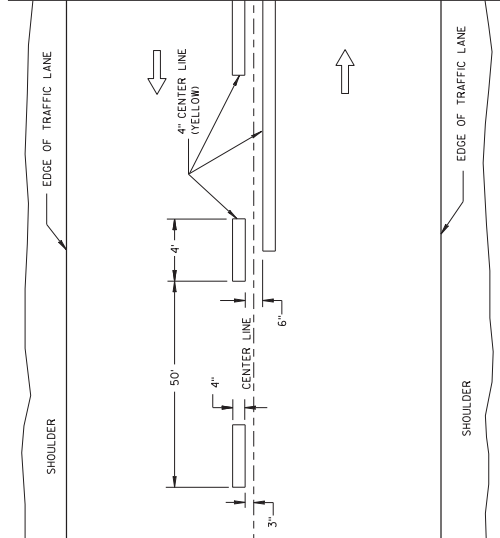
ONE WAY TRAFFIC



TWO WAY TRAFFIC



ONE WAY TRAFFIC



TWO WAY TRAFFIC

PERMANENT PAVEMENT MARKING

TEMPORARY PAVEMENT MARKING

Addendum No. 01
ID 1110-13-71
Added Sheet 72AC
February 6, 2019

**LONGITUDINAL MARKING
(MAINLINE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/20/08
DATE
/S/ Matthew R. Rouch
STATE SIGNING AND MARKING ENGINEER
FHWA

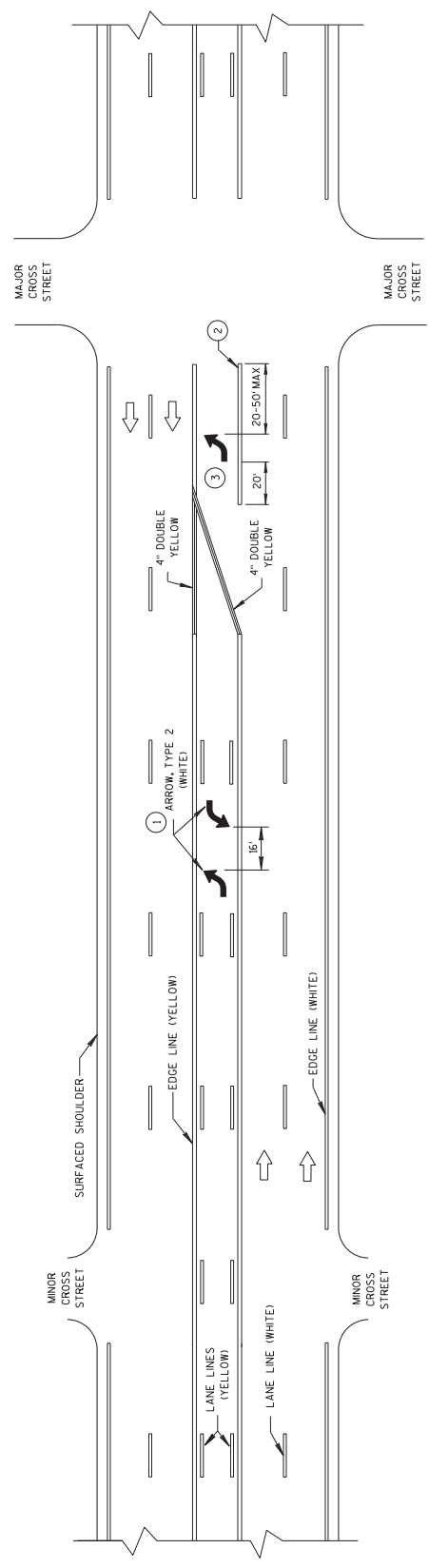
Addendum No. 01
ID 1110-13-71
Added Sheet 72AD
February 6, 2019

PAVEMENT MARKING
(TURN LANES)
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

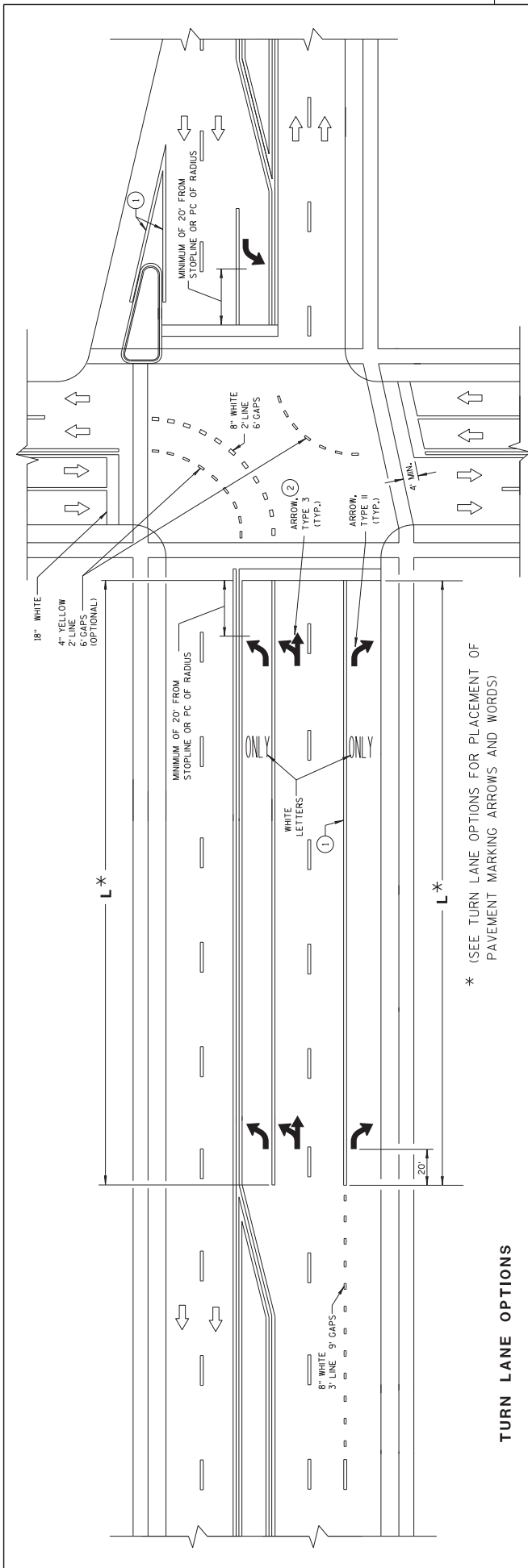
72AD

GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 8" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT

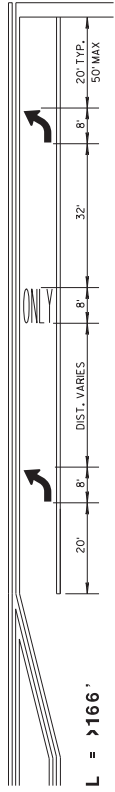
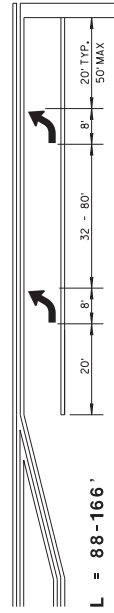
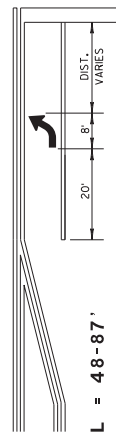


TWO WAY LEFT TURN LANE



TURN LANE OPTIONS

LENGTH OF TURN BAY (L) OF 0-47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS

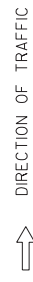


* (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

GENERAL NOTES

① 8" WHITE

② QUANTITY AND LOCATION OF TYPE 3 ARROW ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION, THE ARROWS AND ONLY MARKING ARE ELIMINATED.



L = LENGTH OF TURN BAY

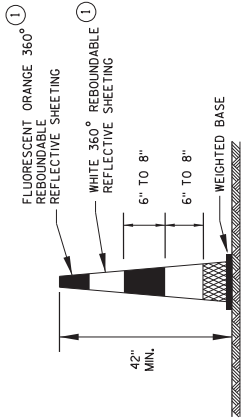
Addendum No. 01
ID 1110-13-71
Added Sheet 72AE
February 6, 2019

PAVEMENT MARKING (TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

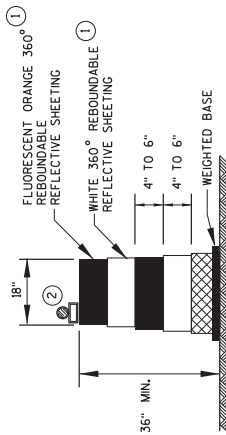
GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

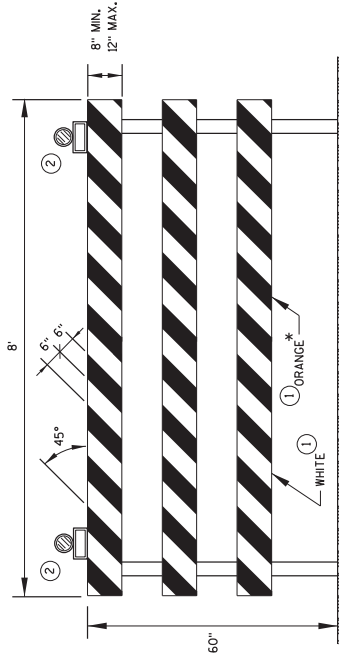


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS



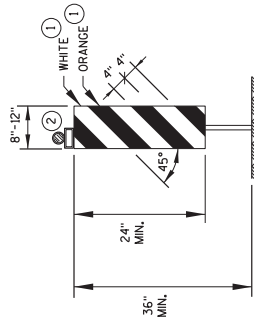
DRUM



TYPE 3 BARRICADE

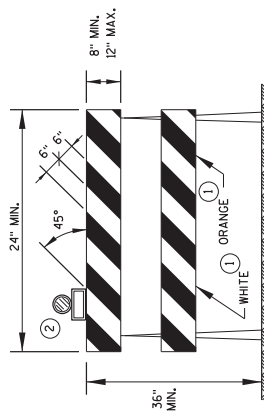
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS
OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION, USE RED SHEETING.



VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE 2 BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED.
ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

Addendum No. 01
ID 1110-13-71
Added Sheet 72AF
February 6, 2019

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED DATE: June 2017 WORK ZONE ENGINEER /s/ Andrew Heitfke P.W.A.

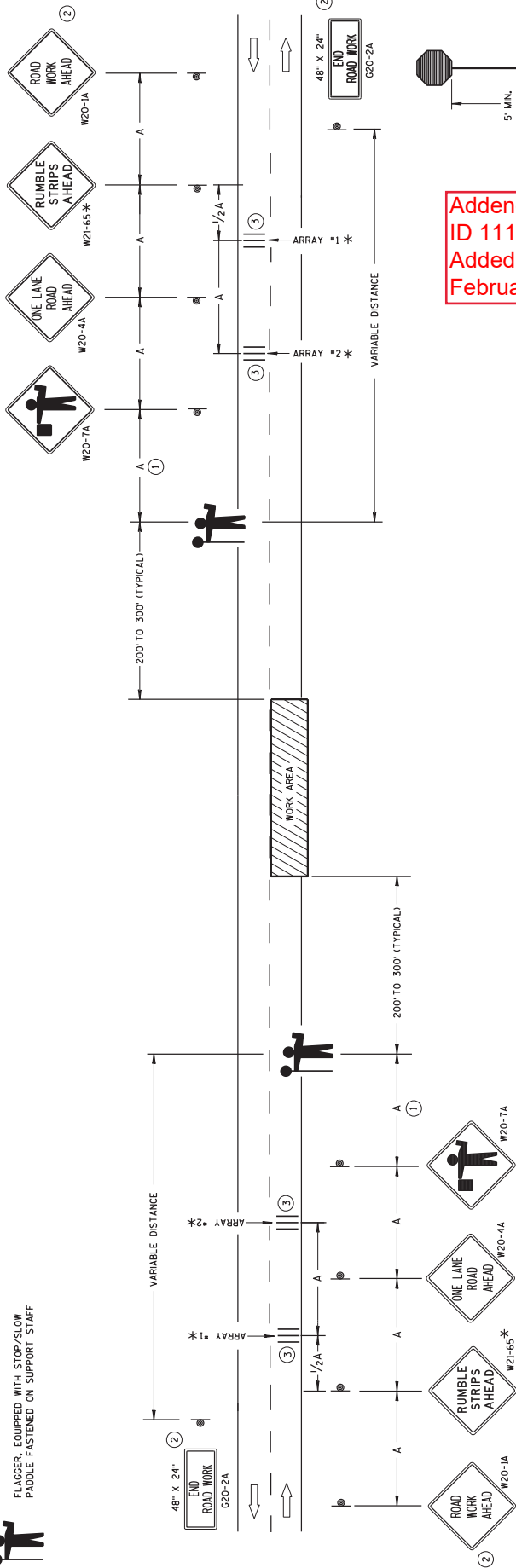
LEGEND

- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING A
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING A.



Addendum No. 01
ID 1110-13-71
Added Sheet 72AG
February 6, 2019

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.
- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE LOCATION OF ALL FLAGGERS) SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.
- "W" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

- WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, TRAFFIC CONTROL SHOULD BE PROVIDED AS SPECIFIED IN THE PLANS, AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY MUST BE EASILY IDENTIFIED BY THE SIGNING OPERATOR. SIGNING SHOULD BE STOPPED IMMEDIATELY IF THE FLAGGING OPERATION IS NOT IN EFFECT. REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- * UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.
- ① FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SHOWN) AS PRACTICALLY AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- ③ EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

STOP/SLOW PADDLE
ON SUPPORT STAFF

TRAFFIC CONTROL FOR
LANE CLOSURE WITH
FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
APPROVED _____
DATE June 2017
WORK ZONE ENGINEER
P.W.A.

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON. VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.
 IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.
 ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

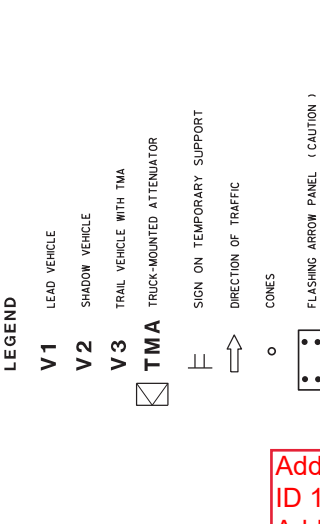
DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.
 THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGE LINE MARKING.
 WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

- ① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CORE TIMES AND TRAFFIC VOLUME.
- ② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.
- ③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.
- ④ SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.



MOVING PAVEMENT MARKING OPERATIONS TWO-LANE TWO-WAY ROADWAY



MOVING PAVEMENT MARKING OPERATIONS TWO-LANE TWO-WAY ROADWAY

APPROVED	STATE OF WISCONSIN
Sep 11, 2017	DEPARTMENT OF TRANSPORTATION
DATE	
/s/ Andrew Heigtko	
WORK ZONE ENGINEER	
PHWA	

Addendum No. 01
 ID 1110-13-71
 Added Sheet 72AH
 February 6, 2019

GENERAL NOTES

SIGNING AND MARKING IS SHOWN AS TYPICAL PLACEMENT. FIELD CONDITIONS MAY DICTATE CHANGES IN SIGNING AND MARKING PLACEMENT.

A DISTANCE DEPENDENT ON SPEED (SEE TABLE)

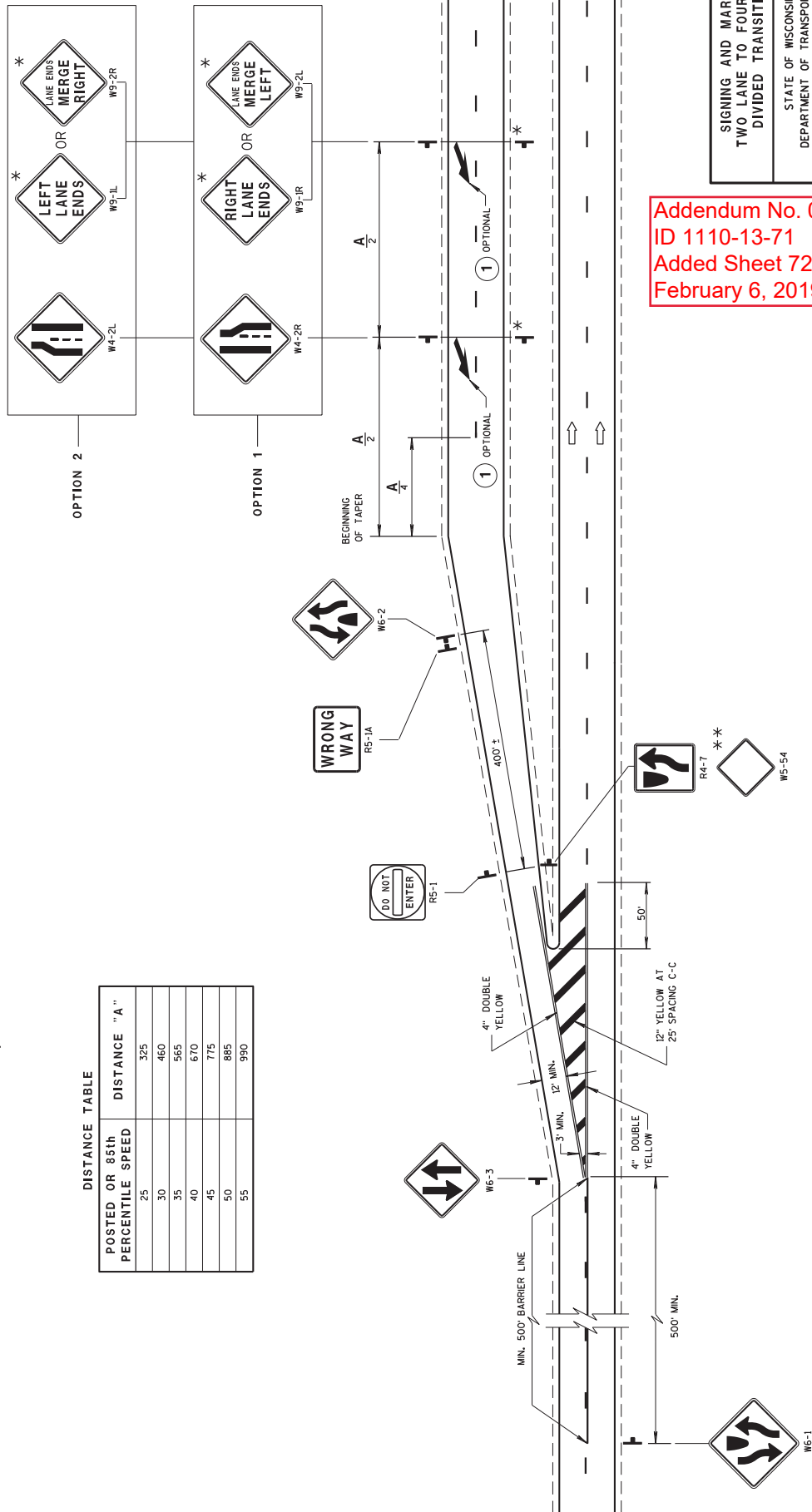
1 USED ONLY WHEN APPROVED BY REGION TRAFFIC ENGINEER.

SYMBOLS

- * SIGNS MAY BE OMITTED IF SPACE DOES NOT PERMIT
- ** IF POSTED SPEED 45 MPH OR GREATER, PLACE W5-54 SIGN UNDER RR-7 SIGN. MOUNT W5-54 SIGN AT 4' MOUNTING HEIGHT (TOP OF ROADWAY TO BOTTOM OF SIGN)
- F POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	325
30	460
35	565
40	670
45	775
50	885
55	990



Addendum No. 01
 ID 1110-13-71
 Added Sheet 72AJ
 February 6, 2019

SIGNING AND MARKING
 TWO LANE TO FOUR LANE
 DIVIDED TRANSITIONS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 DATE June 2017
 /s/ Matthew R. Rauch
 STATE SIGNING AND MARKING ENGINEER
 FHWA

Addendum No. 01
 ID 1110-13-71
 Added Sheet 72AK
 February 6, 2019

**DOUBLE ARROW
 WARNING SIGN PLACEMENT**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED _____
 DATE 7/2019
 BY Matthew R. Rauch
 STATE SIGNAGE MARKING
 ENGINEER

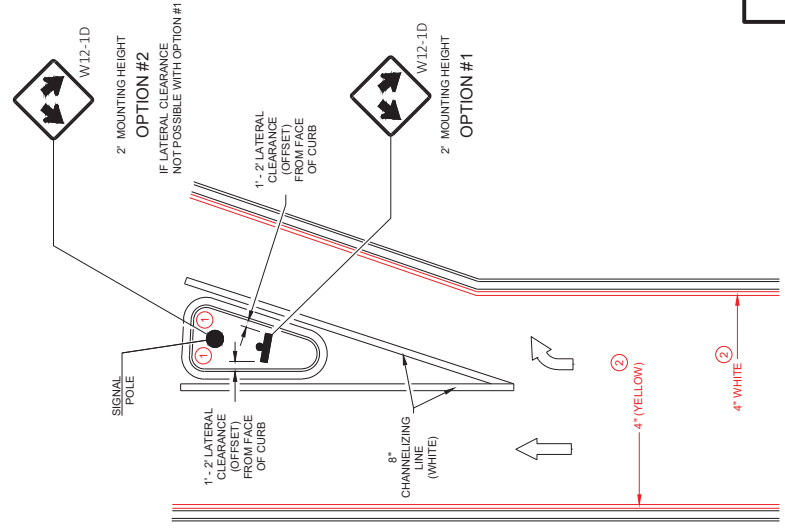
GENERAL NOTES

APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.
 SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.

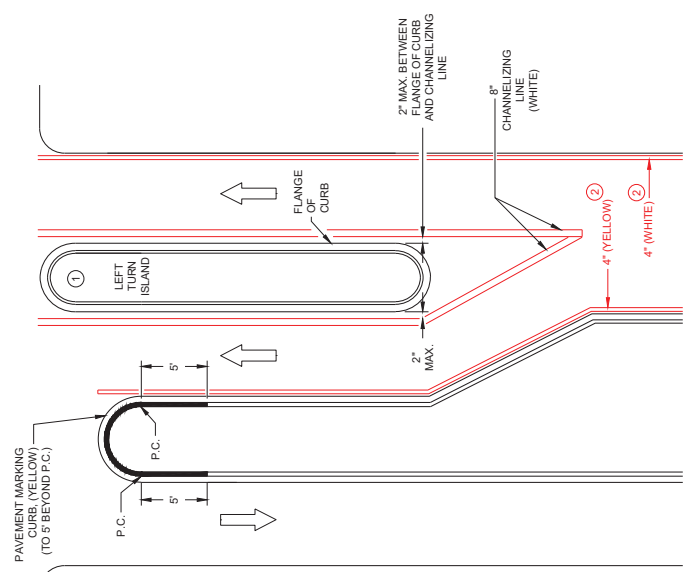
- ① MARK CURB NOSES YELLOW.
- ② MARK ACCORDING TO TABLE.



REQUIREMENTS FOR EDGE LINES	
POSTED SPEED	IS THERE CONTINUOUS LIGHTING?
	YES
	NO
≤ 30 MPH	NO
35 OR 40 MPH	OPTIONAL
≥ 45 MPH	RECOMMENDED
	REQUIRED



RIGHT TURN ISLAND



LEFT TURN & MEDIAN ISLAND

Addendum No. 01
ID 1110-13-71
Added Sheet 72AL
February 6, 2019

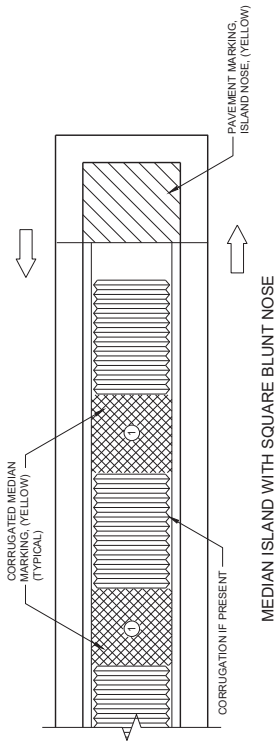
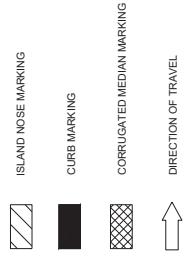
**PAVEMENT MARKINGS
(ISLANDS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

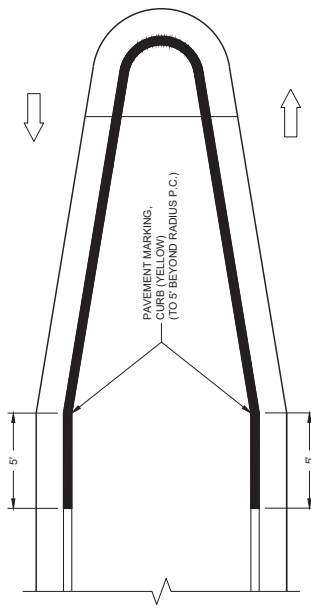
APPROVED _____
DATE 7/2019
STATE SIGNER _____
CONTRACT MARKING ENGINEER
FPM

GENERAL NOTES

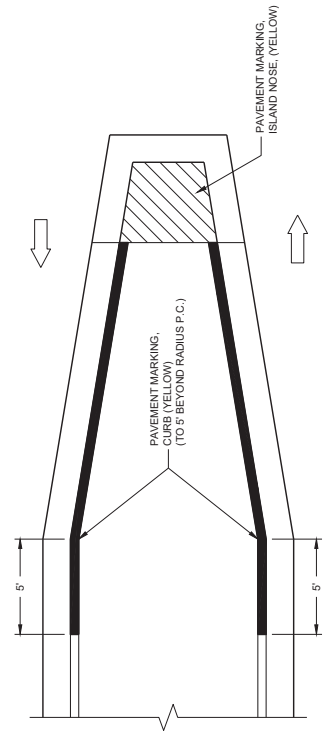
WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC LANE FROM TRAFFIC LANE OR FROM SHOULDER, THE CORRU- GATED MEDIAN SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

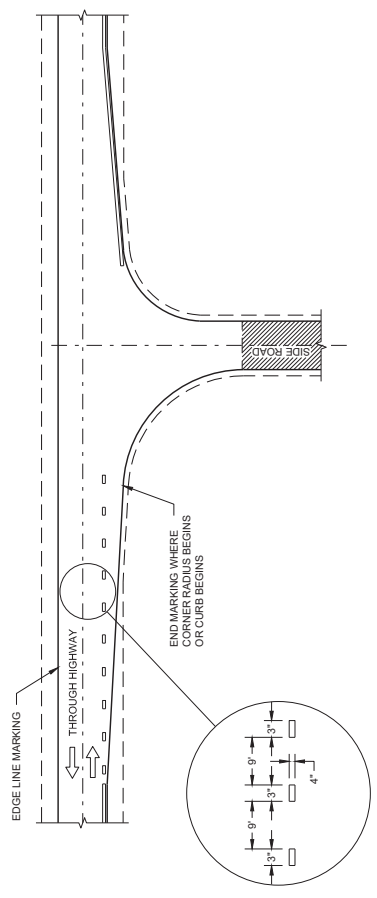
**TYPICAL PLACEMENT OF
PAVEMENT MARKING ON MEDIAN ISLANDS**

GENERAL NOTES

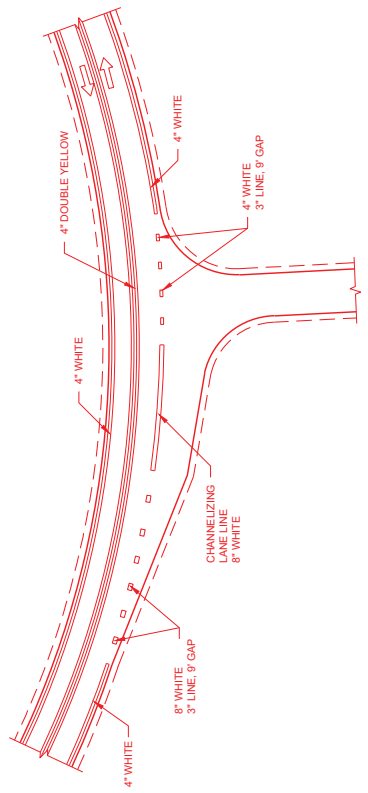
OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

- 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 BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER

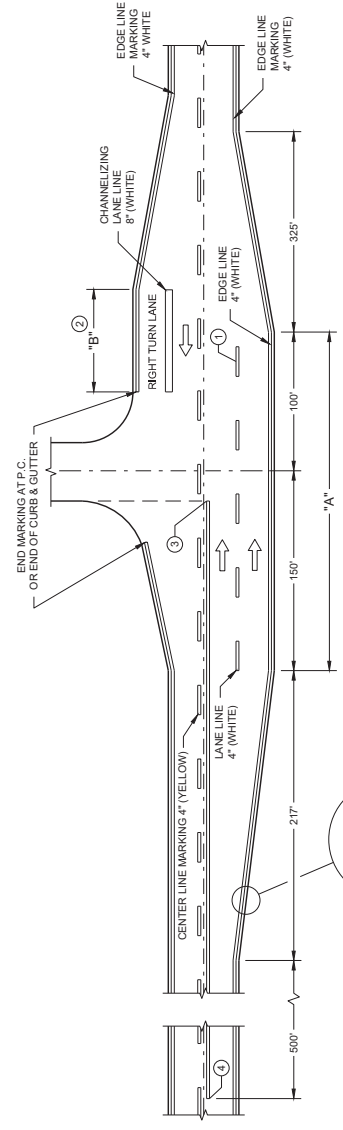
ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



MINOR INTERSECTION



INTERSECTION ON OUTSIDE OF CURVE



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

Addendum No. 01
ID 1110-13-71
Added Sheet 72AM
February 6, 2019

**PAVEMENT MARKING
(INTERSECTIONS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

72AM

GENERAL NOTES

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE, FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION. THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS 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.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS, ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

BARRICADES IN A CLOSED LANE 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.

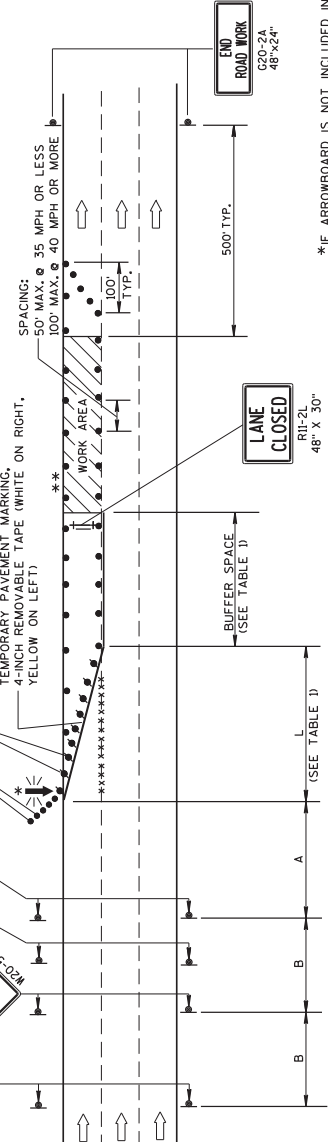
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

(S) DRUMS SPACED @ 10' INTERVALS AS NEEDED IN FRONT OF ARROW BOARD

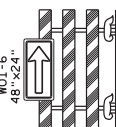
SPACING:
25' @ 35 MPH OR LESS
50' @ 40 MPH OR MORE

TEMPORARY PAVEMENT MARKING, 4-INCH REMOVABLE TAPE (WHITE ON RIGHT, YELLOW ON LEFT)



*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)



LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- WORK AREA

TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	1600'	280'
55	1660'	335'

FOR LANE WIDTH OTHER THAN 12':
 L = WS AT 45 MPH OR GREATER
 L = WS² AT 40 MPH OR LESS
 L = TAPER LENGTH IN FEET
 S = NON-CONSTRUCTION SPEED LIMIT (MPH)
 W = WIDTH OF LANE CLOSURE

Addendum No. 01
 ID 1110-13-71
 Added Sheet 72AN
 February 6, 2019

TRAFFIC CONTROL - SINGLE LANE CLOSURE - NON-FREEWAY/EXPRESSWAY	
DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016	/s/ Peter Amkobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER. THE SPACING BETWEEN 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. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"W" SIGNS ARE THE SAME AS "W" SIGNS 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.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

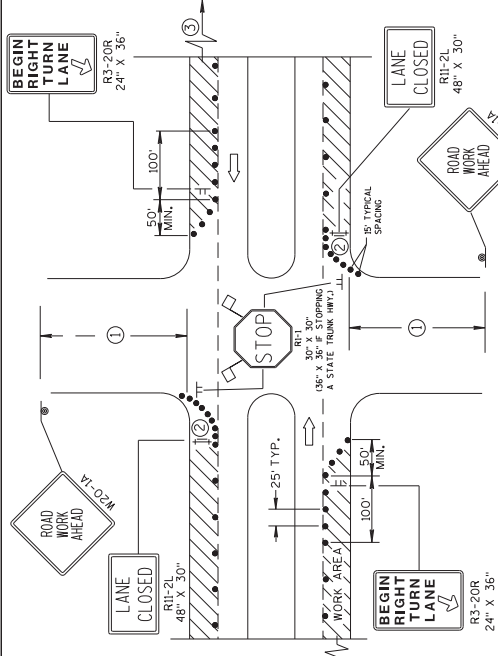
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

BARRICADES IN A CLOSED LANE 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.

① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER, 350' IF 35-40 MPH, 200' IF 25-30 MPH.

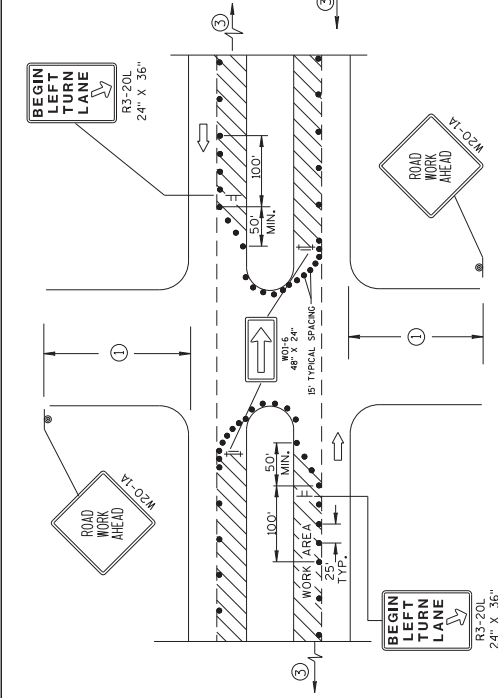
② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.

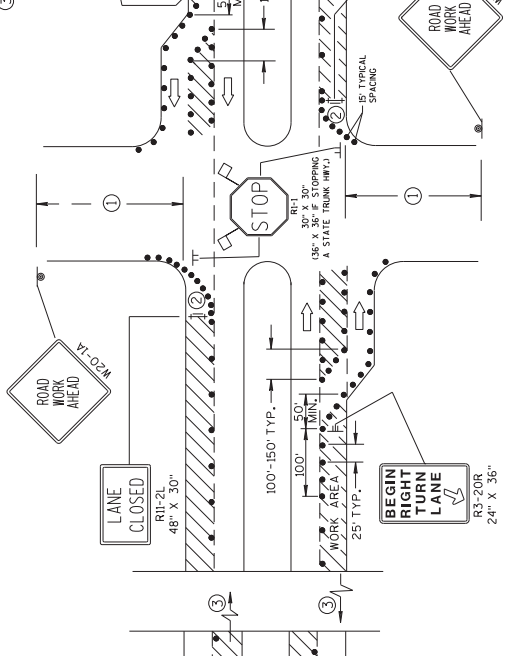


DETAIL A
FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING

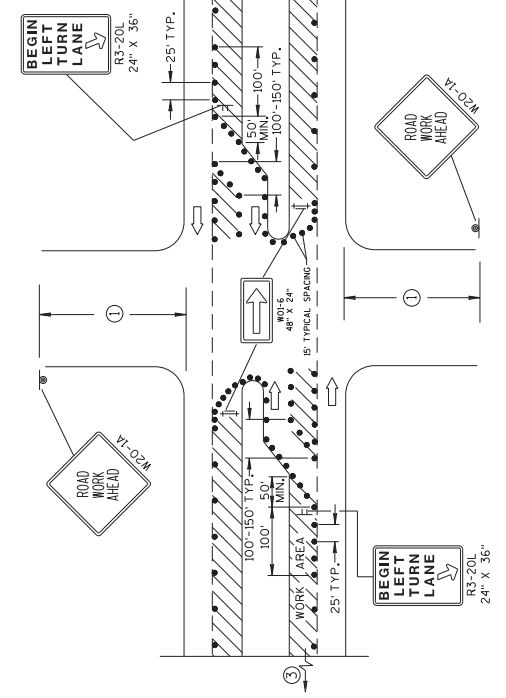
PROVIDE TURN LANES AT INTERSECTIONS, WHENEVER STAGING OF WORK ALLOWS, TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.



DETAIL B
FOR RIGHT LANE CLOSURE AT INTERSECTION



DETAIL C
FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)



DETAIL D
FOR RIGHT LANE CLOSURE AT INTERSECTION (WITH RIGHT TURN BAY OPEN)

LEGEND

- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ⊙ SIGN ON TEMPORARY SUPPORT (15' MIN. MOUNTING HEIGHT)
- ⊙ TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE "A" WARNING LIGHT (FLASHING)
- ➔ DIRECTION OF TRAFFIC
- ▨ FLAGS, 16" X 16" MIN., (ORANGE)
- ▨ WORK AREA

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE	
STATE OF WISCONSIN	
DEPARTMENT OF TRANSPORTATION	
APPROVED	/s/ Andrew Heitko
DATE	7/2018
WORK ENGINEER	
FHWA	

Addendum No. 01
ID 1110-13-71
Added Sheet 72AO
February 6, 2019

GENERAL NOTES

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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

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.

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

TABLE A

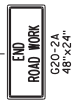
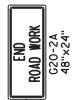
SHOULDER TAPER LENGTH (FEET)	BUFFER SPACE (FEET)
4	10
6	15
8	20
10	25
20	50
30	75
40	100
50	125
60	150
70	175
100	250
150	375
185	450
495	

SHOULDER TAPER LENGTH = $\frac{1}{2}L$

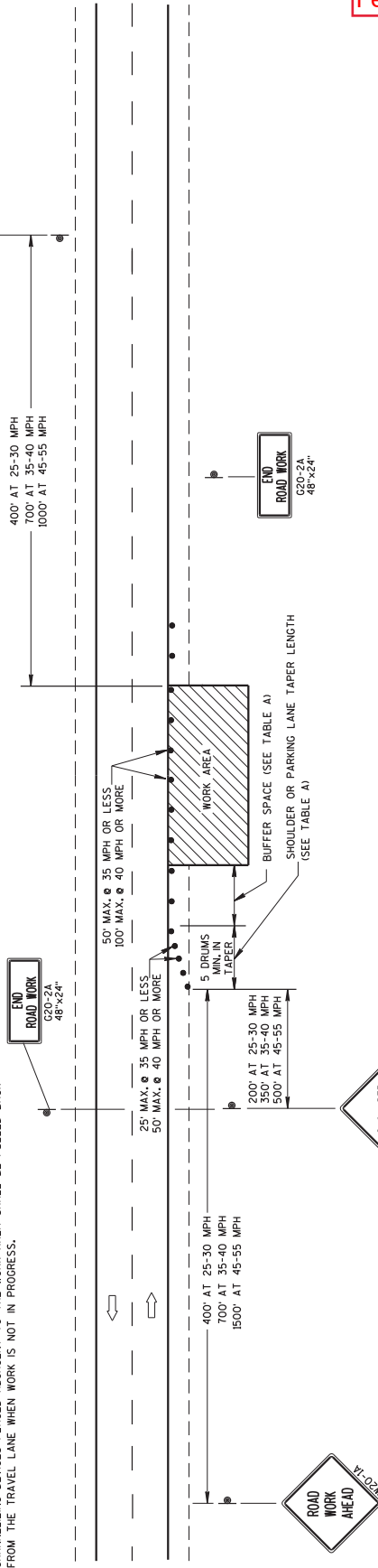
W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH
L = WS AT 45 MPH OR GREATER

L = $\frac{WS^2}{60}$ AT 40 MPH OR LESS



OR
IF TRAFFIC CONTROL DEVICES ENCRUSH ONTO TRAVELED WAY, USE



LEGEND

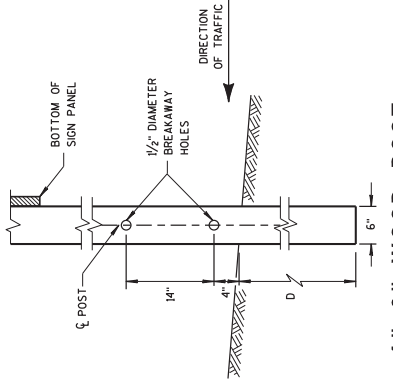
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- ➔ DIRECTION OF TRAFFIC
- ▨ WORK AREA

Addendum No. 01
ID 1110-13-71
Added Sheet 72AP
February 6, 2019

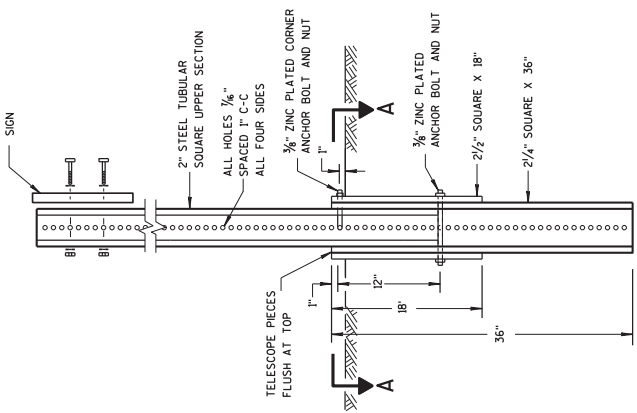
TRAFFIC CONTROL.
WORK ON SHOULDER OR
PARKING LANE.
UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 14, 2015
DATE
/s/ Peter Amakobe Atepe
STATEWIDE TRAFFIC
SAFETY ENGINEER
FHWA



4" X 6" WOOD POST MODIFICATION



DETAIL OF TUBULAR STEEL SIGN POST

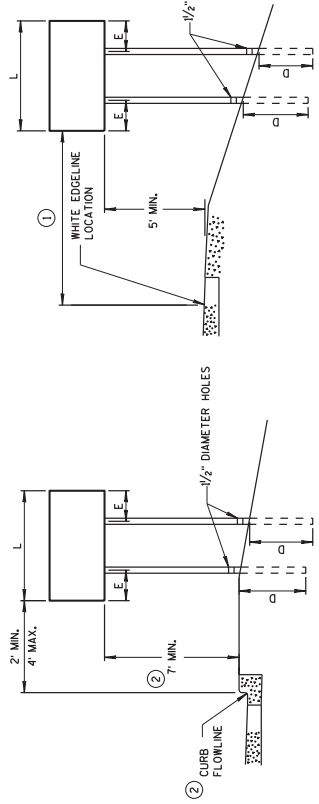
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE). SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

GENERAL NOTES

- 1 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- 2 THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK VERTICAL CLEARANCE IS MEASURED FROM THE BOTTOM OF THE SIGN PANEL. VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- 3 FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

Addendum No. 01
ID 1110-13-71
Added Sheet 72AQ
February 6, 2019



POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

4" X 6" WOOD POST

POST SPACING REQUIREMENTS	NUMBER OF WOOD POSTS REQUIRED	
	L	E
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE 3

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

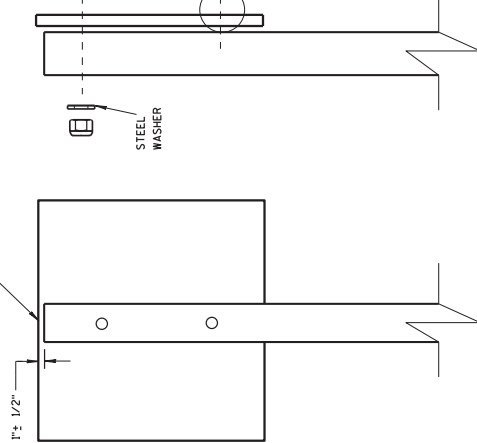
RURAL AREA

URBAN AREA

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SIGN SHALL BE MOUNTED TO PROJECT ABOVE THE TOP OF THE POST



WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
 - B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3
- THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CRUMMUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" x 3"

MACHINE BOLTS - 3/8" x 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS

RIVETS - 3/8" (6605-9) BULB-TITE, TRIFOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.075 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. x 3/8" I.D. x 1/4" STEEL

1-1/4" O.D. x 3/8" I.D. x .080 NYLON FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

Addendum No. 01
ID 1110-13-71
Added Sheet 72AR
February 6, 2019

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017	/s/ Andrew Heitke WORK ZONE ENGINEER
DATE	PHWA

