

Proposed Revisions to the MDT Detailed Drawings April 2022 Edition

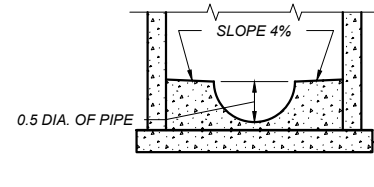
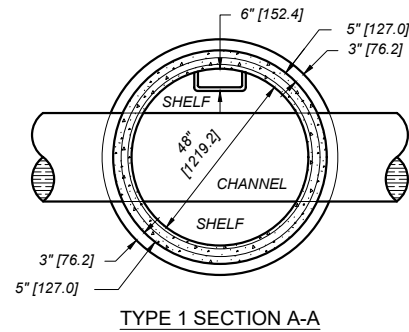
Detailed Drawing No.	Detailed Drawing Title	Remarks
604-02	CONCRETE MANHOLE	Revised to include minimum lid opening dimension.
606-53B	BOX BEAM BRIDGE APPROACH SECTION - TYPE 4	New Drawing
606-55	BOX BEAM TERMINAL SECTION - MBEAT	Revised to include note defining station limit location.
606-80	SCHEDULE OF GUARDRAIL HARDWARE	Revised to include Box Beam Bridge Approach Section – Type 4 parts. Now a two-page table.
606-80A	SCHEDULE OF GUARDRAIL HARDWARE	New drawing, now a two-page table.
606-97	BOX BEAM GUARDRAIL HARDWARE	Revised to include Box Beam Bridge Approach Section – Type 4 parts.
606-98A	BOX BEAM GUARDRAIL HARDWARE	New drawing for Box Beam Bridge Approach Section – Type 4 parts.
606-99A	BOX BEAM GUARDRAIL HARDWARE	New drawing for Box Beam Bridge Approach Section – Type 4 parts.
609-05	MISCELLANEOUS CURBS	Revised to include note providing quantity information for concrete curbs.
618-00	CHANNELIZING DEVICES AND OBJECT MARKERS	Miscellaneous format revisions.
618-01	CONSTRUCTION SIGN DETAILS	Revised to update posts or poles to MASH requirements. Revised to include optional mounting detail. Miscellaneous format revisions.
618-02	PORTABLE SIGN SUPPORT ASSEMBLY	Miscellaneous format revisions.
618-03	BARRICADES	Miscellaneous format revisions.
618-04	TWO-LANE WORK ZONE	Miscellaneous format revisions.
618-08	TWO-LANE WORK AREAS	Miscellaneous format revisions.
618-10	TWO-LANE WORK ZONE SEAL COAT	Miscellaneous format revisions.
618-12	TWO-LANE WORK AREA LANE CLOSURE - FLAGGER CONTROLLED	Miscellaneous format revisions.
618-13	TWO-LANE WORK ZONE LANE CLOSURE – SIGNAL CONTROLLED	Miscellaneous format revisions.
618-14	TWO-LANE EQUIPMENT ENTRANCES	Miscellaneous format revisions.
618-16	TWO-LANE EQUIPMENT ENTRANCES	Miscellaneous format revisions.
618-18	TWO-LANE WORK ZONE DIVERSION	Miscellaneous format revisions.
618-20	DIVIDED FOUR-LANE WORK ZONE	Miscellaneous format revisions.
618-21	TEMPORARY ENTRANCE RAMP MEDIAN CROSSOVER	Miscellaneous format revisions.

Proposed Revisions to the MDT Detailed Drawings April 2022 Edition continued...

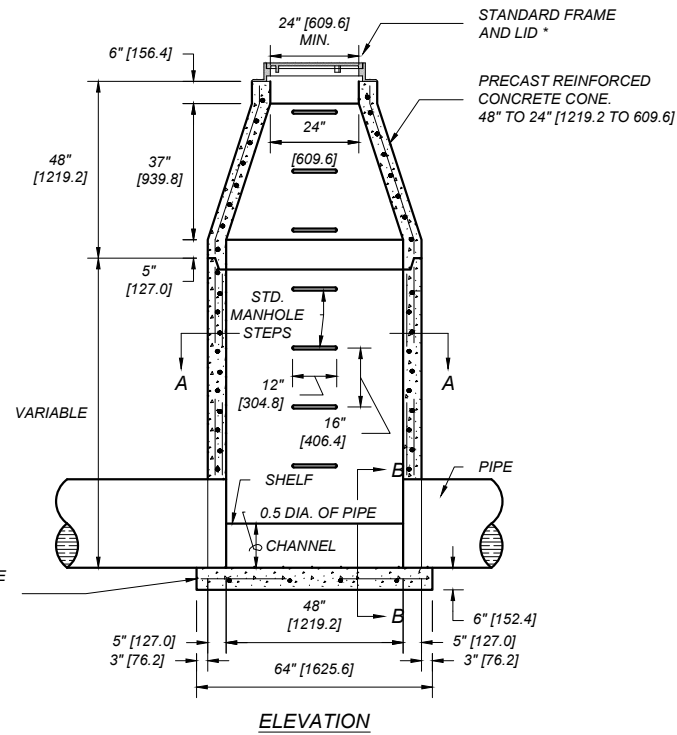
618-22	TEMPORARY EXIT RAMP MEDIAN CROSSOVER	Miscellaneous format revisions.
618-24	DIVIDED FOUR-LANE WORK AREAS	Miscellaneous format revisions.
618-27	DIVIDED FOUR-LANE EQUIPMENT ENTRANCE	Miscellaneous format revisions.
618-28	DIVIDED FOUR-LANE MEDIAN CROSSING	Miscellaneous format revisions.
618-30	TEMPORARY FOUR-LANE TO TWO-LANE MEDIAN CROSSOVER	Miscellaneous format revisions.
618-32	TEMPORARY TWO-LANE TO FOUR-LANE MEDIAN CROSSOVER	Miscellaneous format revisions.
618-33	DIVIDED FOUR-LANE SINGLE LANE CLOSURE LANE SHIFT	Miscellaneous format revisions.
618-34	SHORT DURATION OR SHORT-TERM STATIONARY CREW SIGNING	Miscellaneous format revisions.
618-M1	MAINTENANCE GUIDELINE FOR SHORT-TERM TWO-LANE CRACK SEALING WORK ZONE	Miscellaneous format revisions.
618-M2	MAINT. GUIDELINE FOR SHORT-TERM TWO-LANE CHIP SEAL & OVERLAY (PILOTED TRAFFIC)	Miscellaneous format revisions.
618-M3	MAINTENANCE GUIDELINE FOR SHORT-TERM LANE CLOSURE ON INERSTATE	Miscellaneous format revisions.
618-M4	MOBILE OPERATIONS	Miscellaneous format revisions.
618-U01	LANE CLOSURE-FLAGGER CONTROLLED (URBAN TWO-LANE, TWO-WAY ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U02	WORK ZONE OCCUPIES ONE HALF ROAD (LOW SPEED URBAN TWO-LANE, TWO-WAY ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U03	WORK ZONE IN CENTER OF ROAD (URBAN TWO-LANE, TWO-WAY ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U05	SIDEWALK CLOSURES AND BYPASS WALKWAY	Miscellaneous format revisions.
618-U15	LANE CLOSURE (URBAN TWO-LANE, TWO-WAY ROAD WITH TWO-WAY LEFT TURN LANE)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U16	TURN LANE CLOSURE (URBAN TWO-LANE, TWO-WAY LEFT TURN LANE)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U20	RIGHT LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U25	LEFT TURN CLOSURE (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U30	LEFT LANE CLOSURES (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U35	DOUBLE LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U40	RIGHT LANE CLOSURE-WORK AREA BEYOND INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U45	LEFT LANE CLOSURE-WORK AREA BEYOND INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.

Proposed Revisions to the MDT Detailed Drawings April 2022 Edition continued...

618-U50	DOUBLE LANE CLOSURE AT INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
618-U60	LEFT LANE CLOSURE (URBAN LOW SPEED, MULTI-LANE, UNDIVIDED ROAD WITH TWO-WAY LEFT TURN LANE)	Revised sign spacing table to include 45 mph option. Miscellaneous format revisions.
619-06	PLYWOOD SHEET INCREMENT GUIDE SIGN CONSTRUCTION DETAILS	Drawing Removed
619-08	GUIDE SIGN CLEARANCE AND MOUNTING DETAILS	Revised to remove references to plywood sheeting.
619-10	SHEET ALUMINUM OVERLAY	Revised to remove references to plywood sheeting.
619-30	SIGN HINGE DETAIL	Revised to remove references to plywood sheeting.
619-32	MILEPOST (REFERENCE POST) DETAILS	Revised dimension tables for Series "B".
621-00	MANHOLE AND VALVE BOX ADJUSTMENT DETAILS	Revised to include minimum lid opening dimension.
621-05	OPTIONAL MANHOLE AND VALVE BOX ADJUSTMENT DETAILS	Revised to include minimum lid opening dimension.
900-20	PUBLIC SIGNAGE - STORMWATER	New Drawing



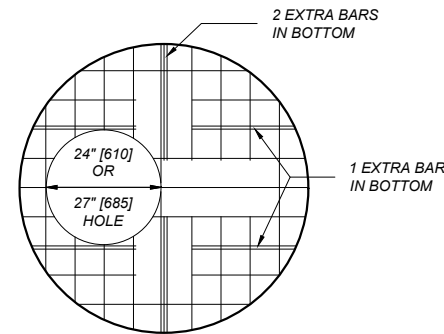
TYPE 1 SECTION B-B



ELEVATION

TYPE 1 MANHOLE

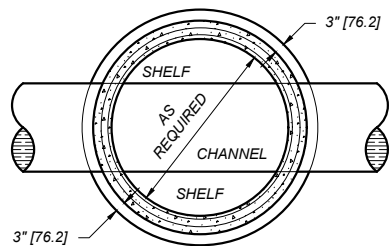
* MINIMUM WEIGHT FOR FRAME AND LID IS 400 LB [180 kg]. TOOL RING AND COVER TO A MACHINE FIT. A LIGHTER FRAME AND LID MAY BE USED IF APPROVED BY THE FACILITY OWNER RESPONSIBLE FOR MAINTENANCE OF THE MANHOLE.



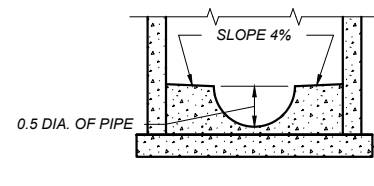
TYPE 3 MANHOLE ROOF SLAB

NOTE:

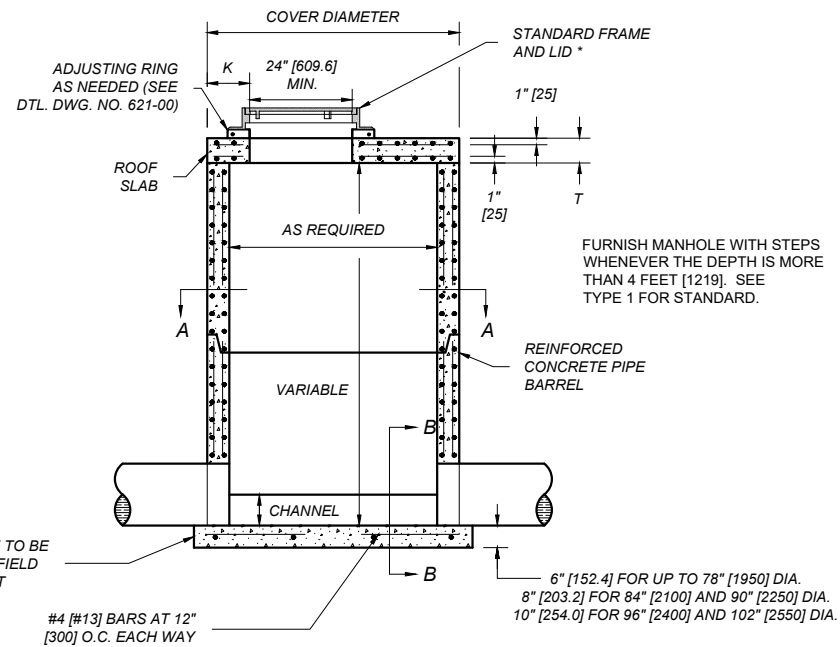
CENTER THE OPENING OVER THE ROOF SLAB FOR TYPE I, II, IV AND V INLETS ON 48" [1200] COMBINATION TYPE 3 MANHOLES.



TYPE 3 SECTION A-A



TYPE 3 SECTION B-B



TYPE 3 MANHOLE

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

NOTES:

- UPPER PART IS A CONE TO REDUCE DIAMETER FROM 48" TO 24" [1219.2 TO 609.6]. CUT BOTTOM OF LOWER SECTION SQUARE TO FIT BASE. GROUT JOINT BETWEEN BASE AND WALL. A GROUT CONSISTING OF ONE PART PORTLAND CEMENT AND TWO PARTS APPROVED SAND MAY BE USED; AN APPROVED PREMIXED GROUT, AVAILABLE COMMERCIALY, MAY BE USED.
- CONFORM ALL MANHOLE CONSTRUCTION, EXCEPT FRAME, LID, AND BASE, TO AASHTO M 199 [199M]. THIS PROVIDES THAT REINFORCEMENT MAY BE MADE OF (1) COLD DRAWN STEEL WIRE- AASHTO M 32 [32M], (2) STEEL WIRE FABRIC- AASHTO M 55 [55M], OR (3) STEEL BARS- AASHTO M 31 [31M].
- THE CONSTRUCTION AND REINFORCEMENT OF THE BASE FOR EACH TYPE MUST BE COMPATIBLE WITH THE CONDITIONS AND THE WEIGHT OF THE SUPER-STRUCTURE. AASHTO M 199 [199M] PROVIDES FOR 4000 PSI [27.6 MPa] CONCRETE. THE MIX CALLS FOR 6 SACKS OF CEMENT PER CUBIC YARD [335 kg/m³]. REINFORCEMENT SHOWN IS ILLUSTRATIVE ONLY. SEE AASHTO M 199 [199M].
- THE ECCENTRIC CONE TRANSITION WILL BE PERMITTED WHEN ITS USE WILL BE AS GOOD OR BETTER THAN THE ONES SHOWN, OR IF IT IS MORE ADAPTABLE TO EXISTING CONDITIONS.
- USE MANHOLE STEPS THAT ARE METALLIC AND COATED WITH COPOLYMER POLYPROPYLENE, OR AN APPROVED EQUAL. THE MINIMUM DESIGN LIVE LOAD FOR A SINGLE CONCENTRATED LOAD IS 300 POUNDS [135 kg].

TYPE 3 MANHOLE ROOF SLAB

PIPE DIA.	SLAB DIA.	T	K	BOTTOM BARS	TOP BARS
48"	58"	6"	6"	#4 AT 6"	~
54"	65"	8"	6"	#4 AT 6"	~
60"	72"	8"	7"	#4 AT 6"	#3 AT 6"
66"	79"	8"	7"	#4 AT 6"	#3 AT 6"
72"	86"	8"	8"	#4 AT 6"	#3 AT 6"
78"	93"	8"	8"	#4 AT 4"	#4 AT 4"
84"	100"	8"	9"	#4 AT 4"	#4 AT 4"
90"	107"	8"	9"	#4 AT 4"	#4 AT 4"
96"	114"	8"	9"	#5 AT 4"	#4 AT 4"
102"	121"	8"	9"	#5 AT 4"	#4 AT 4"

TYPE 3 MANHOLE ROOF SLAB (METRIC)

PIPE DIA.	SLAB DIA.	T	K	BOTTOM BARS	TOP BARS
1200	1473.2	152.4	152.4	#13 AT 150	~
1350	1651.0	203.2	152.4	#13 AT 150	~
1500	1828.8	203.2	177.8	#13 AT 150	#10 AT 150
1650	2006.6	203.2	177.8	#13 AT 150	#10 AT 150
1800	2184.4	203.2	203.2	#13 AT 150	#10 AT 150
1950	2362.2	203.2	203.2	#13 AT 100	#13 AT 100
2100	2540.0	203.2	228.6	#13 AT 100	#13 AT 100
2250	2717.8	203.2	228.6	#13 AT 100	#13 AT 100
2400	2895.6	203.2	228.6	#16 AT 100	#13 AT 100
2550	3073.4	203.2	228.6	#16 AT 100	#13 AT 100

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 604.711 DWG. NO. 604-02

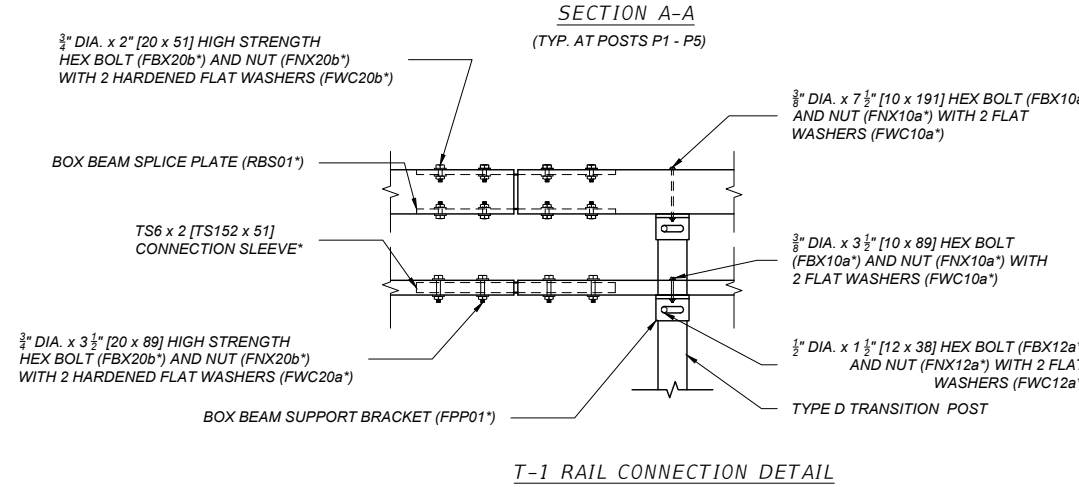
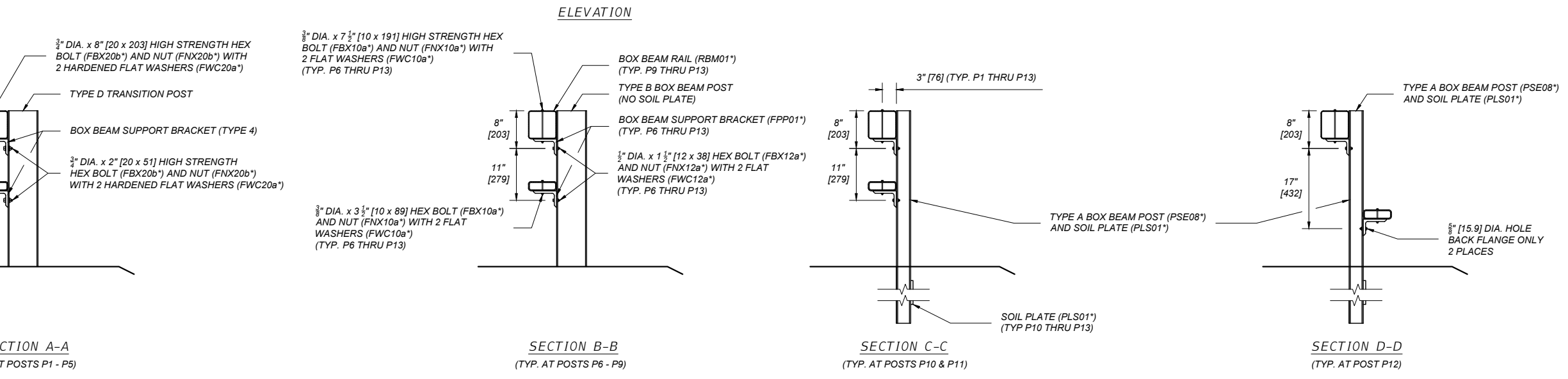
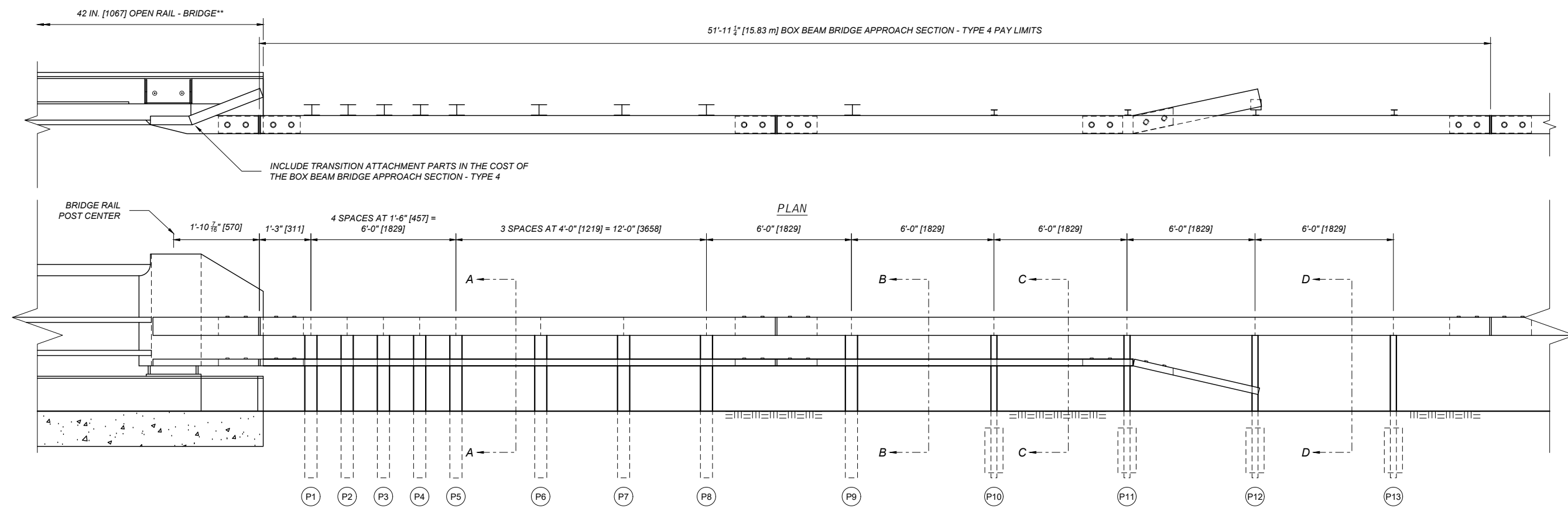
CONCRETE MANHOLE

EFFECTIVE: #####



--REVISED--

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NOTES:

*SEE DTL. DWG. NO. 606-80 FOR SCHEDULE OF GUARDRAIL HARDWARE.

**SEE BRIDGE PLANS

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 606

DWG. NO. 606-53B

BOX BEAM BRIDGE APPROACH SECTION - TYPE 4

EFFECTIVE: ####

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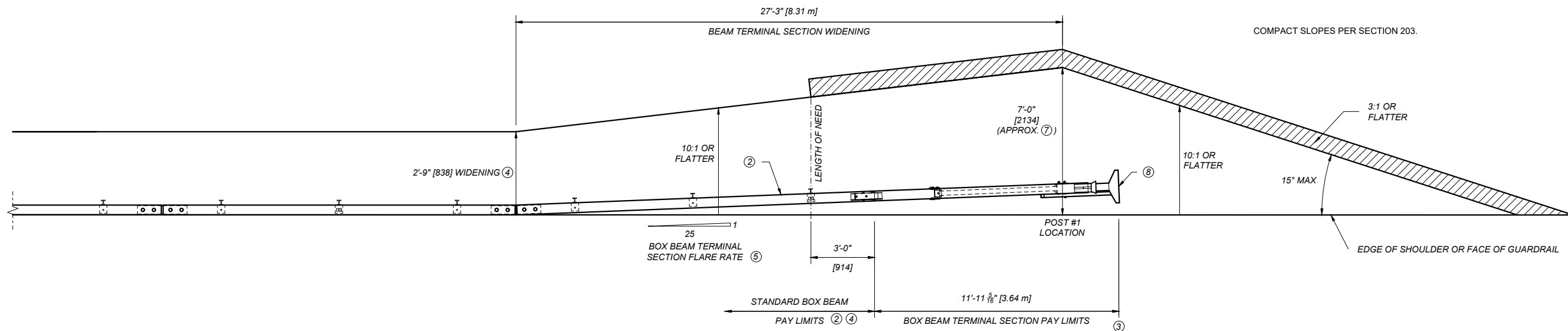
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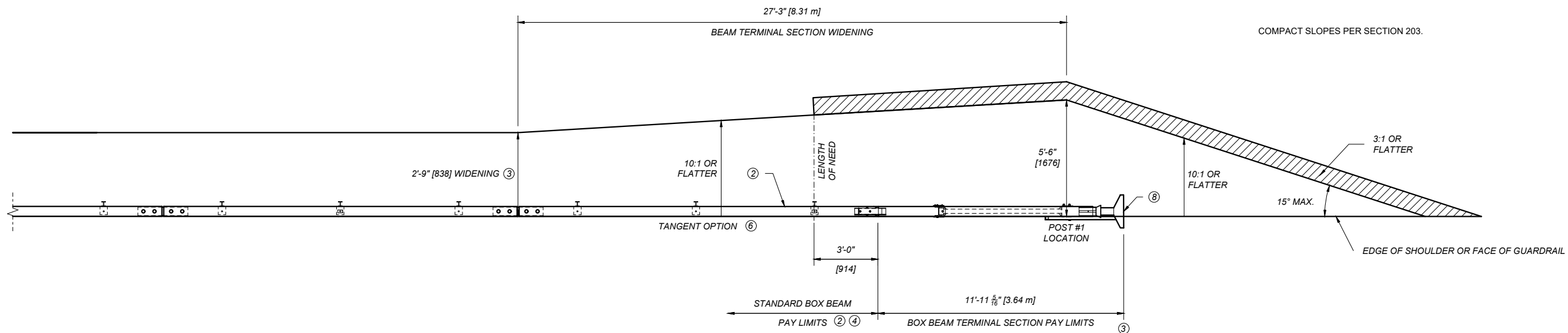
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MONTANA
Department of Transportation

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ROAD SYSTEMS MBEAT TERMINAL (FLARED) ①



ROAD SYSTEMS MBEAT TERMINAL (TANGENT) ①

- ① REFER TO MANUFACTURER'S DETAIL AND ASSEMBLY INSTRUCTIONS.
- ② THE MBEAT REQUIRES AN 18'-0" [5.49 m] LONG (MINIMUM) SECTION OF STANDARD BOX BEAM RAIL FOR MASH TEST LEVEL 3 APPLICATIONS.
- ③ LOCATION EQUALS STATION LIMITS INDICATED IN THE PLANS.
- ④ SEE DTL. DWG. NO. 606-50 FOR STANDARD BOX BEAM GUARDRAIL AND ASSOCIATED DETAILS.
- ⑤ FLARE THE END SECTION AWAY FROM TRAFFIC AT A RATE OF 25:1 FOR 30 FEET [9.14 m] (ILLUSTRATED). FLARES OF 25:1 FOR 48 FEET [14.63 m] MAY ALSO BE USED.

- ⑥ THE FLARE MAY BE OMITTED ON ROADS WITH SHOULDERS GREATER THAN 2 FEET [0.6 m] IN WIDTH. DO NOT FLARE THE END SECTION ON INTERSTATE APPLICATIONS.
- ⑦ 7'-0" [2134] WIDENING DIMENSION ALLOWS FOR BOX BEAM TERMINAL SECTION FLARE AND SYSTEM WIDTH. A MINIMUM WIDENING DISTANCE OF 5'-0" [1524] IS REQUIRED BEHIND POST LOCATION #1.
- ⑧ PLACE A SELF-ADHESIVE OBJECT MARKER ON THE FACE OF THE NOSE ASSEMBLY, HAVING ALTERNATING RETRO-REFLECTIVE BLACK AND YELLOW STRIPES SLOPED DOWNWARD AT AN ANGLE OF 45° TOWARDS THE SIDE ON WHICH TRAFFIC IS TO PASS.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

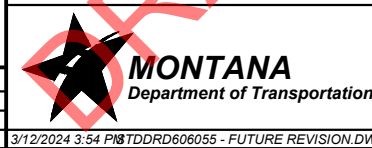
REFERENCE DWG. NO.
STANDARD SPEC. 606-55
SECTION 606

BOX BEAM TERMINAL SECTION - MBEAT

EFFECTIVE: #####

--REVISED--

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SCHEDULE OF GUARDRAIL HARDWARE					DTL DWGS. WHERE PARTS USED																						
DESIGNATION ①	DESCRIPTION	METRIC DESCRIPTION	DTL DWG NO (606-###)	GUARDRAIL TYPE ②	606-05A	606-05B	606-07	606-09	606-11A	606-11B	606-18	606-23A	606-23B	606-24A	606-24B	606-25A	606-25B	606-46	606-50	606-52	606-53	606-53A	606-53B	606-54	606-55		
FBB01-05	5/8" DIA. GUARDRAIL BOLT & RECESS NUT	M16 GUARDRAIL BOLT & RECESS NUT	82	W	X			X	X																	X	
FBB01-05	5/8" DIA. GUARDRAIL BOLT	M16 GUARDRAIL BOLT	82	W		X				X																	
FBB06-07	5/8" DIA. GUARDRAIL BOLT & RECESS NUT	M16 GUARDRAIL BOLT & RECESS NUT	82	W								X	X														
FBX10a	3/8" DIA. HEX BOLT	M10 HEX BOLT	82	B															X	X	X	X	X	X	X	X	
FBX12a	1/2" DIA. HEX BOLT	M12 HEX BOLT	82	B															X	X	X	X	X	X	X	X	
FBX14a	9/16" DIA. HEX BOLT	M14 HEX BOLT	82	B															X	X	X	X	X	X	X	X	
FBX16a	5/8" DIA. HEX BOLT	M16 HEX BOLT	82	W							X							X								X	
FBX20a	3/4" DIA. HEX BOLT	M20 HEX BOLT	82	W														X									
FBX20b	3/4" DIA. HIGH STRENGTH HEX BOLT*	M20 HIGH STRENGTH HEX BOLT*	82	B														X			X	X	X	X	X	X	
FBX22a	7/8" DIA. HEX BOLT	M22 HEX BOLT	82	W							X								X		X	X	X	X	X	X	
FBX22b	7/8" DIA. HIGH STRENGTH HEX BOLT*	M22 HIGH STRENGTH HEX BOLT*	82	W								X	X	X	X												
FBX24b	1" DIA. HIGH STRENGTH HEX BOLT*	M24 HIGH STRENGTH HEX BOLT*	82	B								X	X	X	X								X				
FCA01	CABLE ASSEMBLY	CABLE ASSEMBLY	84	W							X							X									
FMM01	CABLE WEDGE	CABLE WEDGE	94	C																						X	
FMM02	POST SLEEVE	POST SLEEVE	84	W						X								X									
FNS20	3/4" DIA. SQUARE NUT	M20 SQUARE NUT	82	C																						X	
FNX10a	3/8" DIA. HEX NUT	M10 HEX NUT	82	B															X	X	X	X	X	X	X	X	
FNX12a	1/2" DIA. HEX NUT	M12 HEX NUT	82	B															X	X	X	X	X	X	X	X	
FNX14a	9/16" DIA. HEX NUT	M14 HEX NUT	82	B																						X	
FNX16a	5/8" DIA. HEX NUT	M16 HEX NUT	82	W		X				X	X							X								X	
FNX20a	3/4" DIA. HEX NUT	M20 HEX NUT	82	C.W														X						X	X		
FNX20b	3/4" DIA. HIGH STRENGTH HEX NUT	M20 HIGH STRENGTH HEX NUT	82	B																			X	X	X	X	
FNX22b	7/8" DIA. HIGH STRENGTH HEX NUT	M22 HIGH STRENGTH HEX NUT	82	B								X	X	X	X								X	X	X	X	
FNX24a	1" DIA. HEX NUT	M24 HEX NUT	82	W							X							X									
FNX24b	1" DIA. HIGH STRENGTH HEX NUT	M24 HIGH STRENGTH HEX NUT	82	B																			X				
FPA01	GUARDRAIL ANCHOR BRACKET & END PLATE	GUARDRAIL ANCHOR BRACKET & END PLATE	84	W							X							X									
FPB01	BEARING PLATE	BEARING PLATE	18 & 46	W							X							X									
FPP01	BOX BEAM SUPPORT BRACKET	BOX BEAM SUPPORT BRACKET	97	B															X	X	X	X	X	X	X	X	
FRH20a	3/4" DIA. HOOKED ANCHOR ROD	M20 HOOKED ANCHOR ROD	82	C																						X	
FWC10a	3/8" DIA. FLAT WASHER	M10 FLAT WASHER	82	B															X	X	X	X	X	X	X	X	
FWC12a	1/2" DIA. FLAT WASHER	M12 FLAT WASHER	82	B															X	X	X	X	X	X	X	X	
FWC14a	9/16" DIA. FLAT WASHER	M14 FLAT WASHER	82	B																						X	
FWC16a	5/8" DIA. FLAT WASHER	M16 FLAT WASHER	82	W	X	X		X	X	X	X	X	X					X									
FWC20a	3/4" DIA. FLAT WASHER	M20 FLAT WASHER	82	C.W														X						X	X		
FWC20b	3/4" DIA. HARDENED FLAT WASHER	M20 HARDENED FLAT WASHER	82	B															X		X	X	X	X	X	X	
FWC24a	1" DIA. FLAT WASHER	M24 FLAT WASHER	82	W							X							X									
FWR03	RECTANGULAR PLATE WASHER	RECTANGULAR PLATE WASHER	84	W							X																
PDB01	8" WOOD BLOCKOUT	8" WOOD BLOCKOUT	05A & 05B, 11A & 11B	W	X	X			X	X																	
PDB11	12" WOOD BLOCKOUT	12" WOOD BLOCKOUT	09, 23A & 23B	W				X				X	X														
PDE02	WOOD GUARDRAIL POST	WOOD GUARDRAIL POST	05A & 11A	W	X				X																		
PDE09	CRT POST	CRT POST	46	W				X											X								
PDF01	WOOD BREAKAWAY POST	WOOD BREAKAWAY POST	46	W							X								X								
PFP01	STRUT AND YOKE ASSEMBLY	STRUT AND YOKE ASSEMBLY	18	W							X																
PLS01	SOIL PLATE	SOIL PLATE	92 & 97	B															X	X	X	X	X				
PLS03	SOIL PLATE	SOIL PLATE	46	W														X									
PSE05	TYPE D BOX BEAM POST	TYPE D BOX BEAM POST	97	B																	X						
PSE08	TYPE A BOX BEAM POST	TYPE A BOX BEAM POST	97	B															X		X	X	X	X	X	X	
PTE05	STEEL TUBE	STEEL TUBE	46	W														X									
PTE06	STEEL TUBE	STEEL TUBE	18	W							X																
PWE01	STEEL GUARDRAIL POST	STEEL GUARDRAIL POST	05B	W		X				X																	
RBM01	BOX BEAM RAIL	BOX BEAM RAIL	98	B															X		X	X	X	X	X	X	
RBM05	BOX BEAM TERMINAL RAIL	BOX BEAM TERMINAL RAIL	98	B																	X						
RBS01	BOX BEAM SPLICE PLATE	BOX BEAM SPLICE PLATE	98	B															X				X				
RCE03	CABLE END ASSEMBLY	CABLE END ASSEMBLY	94	C																						X	
RCM01	3/4" DIA. CABLE	19.1 DIA. CABLE	94	C																						X	
RTE01b	THRIE-BEAM TERMINAL CONNECTOR	THRIE-BEAM TERMINAL CONNECTOR	23A & 23B	W								X	X														
RTM01a-b	4-SPACE THRIE-BEAM (6'-3" LENGTH)	4-SPACE THRIE-BEAM (1.905 m LENGTH)	23A & 23B	W								X	X														
RTM02a-b	8-SPACE THRIE-BEAM (12'-6" LENGTH)	8-SPACE THRIE-BEAM (3.81 m LENGTH)	23A & 23B	W								X	X														
RWE01a-b	W-BEAM END SECTION (FLARED)	W-BEAM END SECTION (FLARED)	88	W							X																
RWE02a-b	W-BEAM TERMINAL CONNECTOR	W-BEAM TERMINAL CONNECTOR	88	W										X	X	X	X	X									
RWE06a-b	W-BEAM END SECTION (BUFFER)	W-BEAM END SECTION (BUFFER)	88	W															X								
RWM02a-b	2-SPACE W-BEAM (12'-6" LENGTH)	2-SPACE W-BEAM (3.81 m LENGTH)	88	W																						X	
RWM04a-b	4-SPACE W-BEAM (12'-6" LENGTH)	4-SPACE W-BEAM (3.81 m LENGTH)	88	W	X	X		X	X	X	X	X	X														
RWM08a-b	8-SPACE W-BEAM (12'-6" LENGTH)	8-SPACE W-BEAM (3.81 m LENGTH)	88	W				X																			
RWM14a	BCT TERMINAL RAIL SECTION	BCT TERMINAL RAIL SECTION	18	W							X																
RWM22a-b	W-BEAM (25'-0" LENGTH)	W-BEAM (7.62 m LENGTH)	88	W	X	X		X	X	X	X																
RWT02a-b	W-BEAM TO THRIE-BEAM TRANSITION SECTION (7'-3 1/2" LENGTH)	W-BEAM TO THRIE-BEAM TRANSITION SECTION (2.223 m LENGTH)	23A & 23B	W								X	X														

* FURNISH HIGH STRENGTH BOLTS IN ACCORDANCE WITH ASTM F3125 GRADE A325

NOTES:

① SEE AASHTO-AGC-ARTBA JOINT COMMITTEE TASK FORCE 13 REPORT "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" PUBLICATION FOR ADDITIONAL AND DETAILED HARD

SCHEDULE OF GUARDRAIL HARDWARE					DTL DWGS WHERE PARTS USED																				
DESIGNATION ①	DESCRIPTION	METRIC DESCRIPTION	DTL DWG NO. (606-###)	GUARDRAIL TYPE ②	606-05A	606-05B	606-07	606-09	606-11A	606-11B	606-18	606-23A	606-23B	606-24A	606-24B	606-25A	606-25B	606-46	606-50	606-52	606-53	606-53A	606-53B	606-54	606-55
N/A	TYPE B BOX BEAM POST	TYPE B BOX BEAM POST	97	B																					
N/A	TYPE F SUPPORT BRACKET	TYPE F SUPPORT BRACKET	97	B																					
N/A	SUPPORT BRACKET WITH TS6 x 6 x 3/16 BLOCKOUT	SUPPORT BRACKET WITH TS152 x 152 x 4.8 BLOCKOUT	97	B																			X		
N/A	TRANSITION POST	TRANSITION POST	97	B																			X		
N/A	TYPE D TRANSITION POST	TYPE D TRANSITION POST	97	B																				X	
N/A	TS6 x 6 x 3/16 BR. APP. SECT. UPPER RAIL NO. 1	TS152 x 152 x 4.8 BR. APP. SECT. UPPER RAIL NO. 1	98A	B																		X		X	
N/A	TS6 x 2 x 1/4 BR. APP. SECT. LOWER RAIL NO. 1	TS152 x 51 x 6.4 BR. APP. SECT. LOWER RAIL NO. 1	98A	B																		X		X	
N/A	TS6 x 2 x 1/4 BR. APP. SECT. LOWER RAIL NO. 2	TS152 x 51 x 6.4 BR. APP. SECT. LOWER RAIL NO. 2	98A	B																		X			
N/A	TS6 x 2 TO TS6 x 6 CONNECTION SLEEVE	TS152 x 51 TO TS152 x 152 CONNECTION SLEEVE	98A	B																		X			
N/A	TS6 x 6 CONNECTION SLEEVE	TS152 x 152 CONNECTION SLEEVE	98A	B																				X	
N/A	TS6 x 2 CONNECTION SLEEVE	TS152 x 51 CONNECTION SLEEVE	98A	B																		X		X	
N/A	TS6 x 6 x 3/16 TRANSITION RAIL	TS152 x 152 x 4.8 TRANSITION RAIL	98	B																			X		
N/A	1/4" SHIM PLATE	6.4 SHIM PLATE	99	B																			X		
N/A	ANCHOR RAIL SECTION	ANCHOR RAIL SECTION	99	B																			X		
N/A	RUB RAIL ANCHOR BRACKET (JERSEY RAIL)	RUB RAIL ANCHOR BRACKET (JERSEY RAIL)	99	B																			X		
N/A	RUB RAIL ANCHOR BRACKET (VERTICAL BRIDGE RAIL)	RUB RAIL ANCHOR BRACKET (VERTICAL BRIDGE RAIL)	99	B																			X		
N/A	TS6 x 2 x 3/16 RUB RAIL	TS152 x 51 x 4.8 RUB RAIL	99	B																			X		
N/A	RUB RAIL FLARE SLEEVE	RUB RAIL FLARE SLEEVE	98A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (BENT PLATE)	TYPE 4 TRANSITION ATTACHMENT (BENT PLATE)	99A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (TOP STIFFENER)	TYPE 4 TRANSITION ATTACHMENT (TOP STIFFENER)	99A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (SIDE STIFFENER)	TYPE 4 TRANSITION ATTACHMENT (SIDE STIFFENER)	99A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (BOTTOM STIFFENER)	TYPE 4 TRANSITION ATTACHMENT (BOTTOM STIFFENER)	99A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (UPPER RAIL ATTACHMENT)	TYPE 4 TRANSITION ATTACHMENT (UPPER RAIL ATTACHMENT)	99A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (RUB RAIL ATTACHMENT)	TYPE 4 TRANSITION ATTACHMENT (RUB RAIL ATTACHMENT)	99A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (MOUNTING TAB)	TYPE 4 TRANSITION ATTACHMENT (MOUNTING TAB)	99A	B																				X	
N/A	TYPE 4 TRANSITION ATTACHMENT (GUSSET)	TYPE 4 TRANSITION ATTACHMENT (GUSSET)	99A	B																				X	

* FURNISH HIGH STRENGTH BOLTS IN ACCORDANCE WITH ASTM F3125 GRADE A325

NOTES:

① SEE AASHTO-AGC-ARTBA JOINT COMMITTEE TASK FORCE 13 REPORT "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" PUBLICATION FOR ADDITIONAL AND DETAILED HARDWARE SPECIFICATIONS.


② GUARDRAIL TYPE CODES:

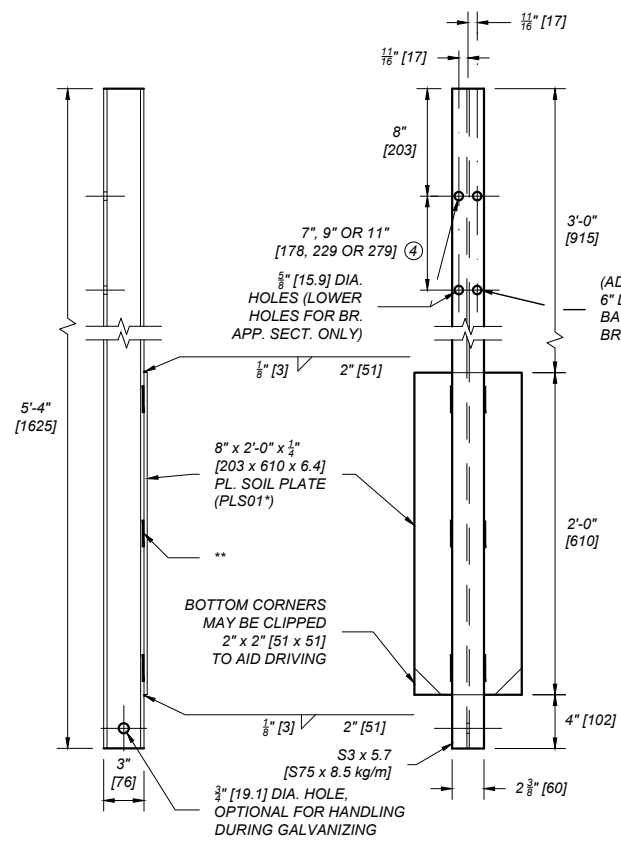
W = W-BEAM METAL GUARDRAIL
C = CABLE GUARDRAIL
B = BOX BEAM GUARDRAIL

ALL METRIC DESCRIPTION DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

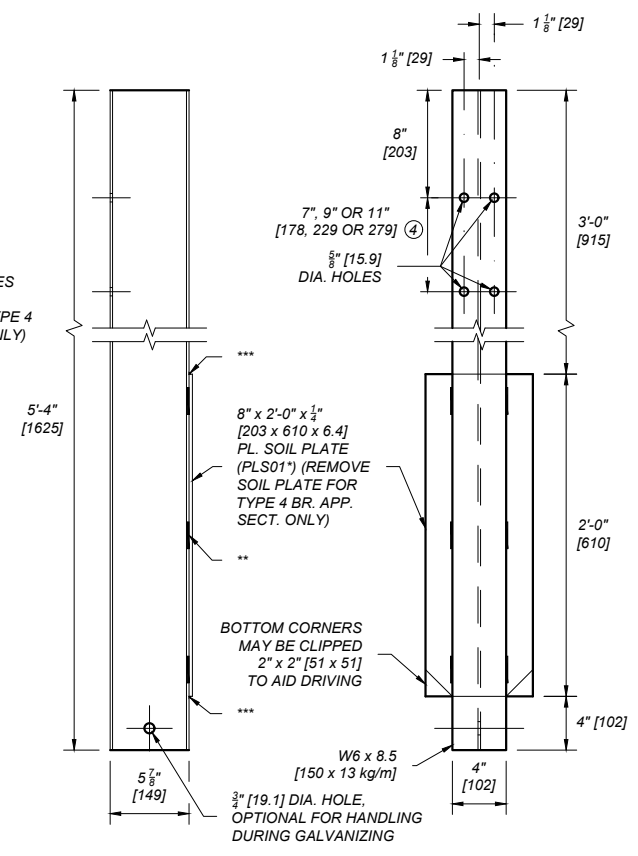
--REVISED--

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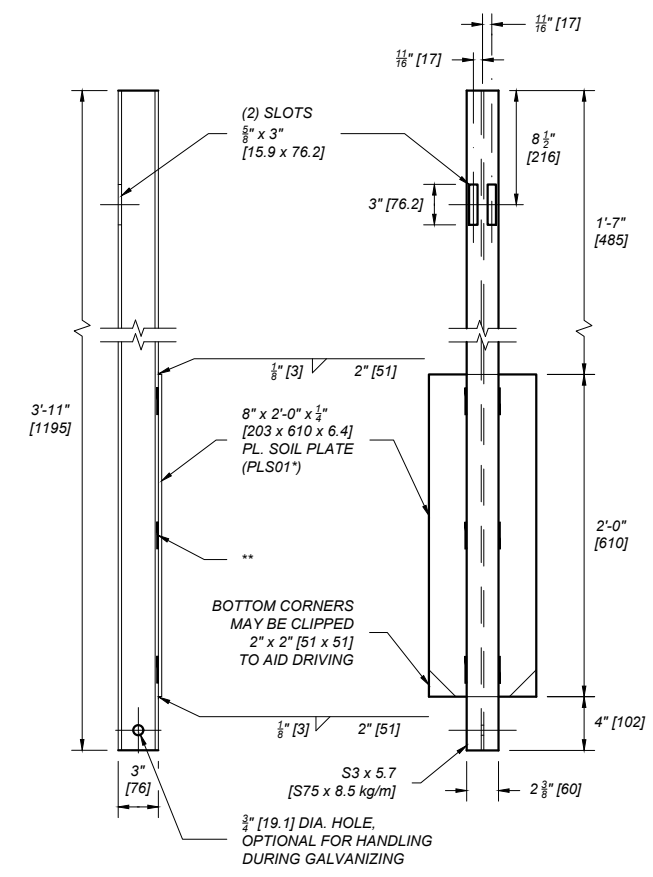
DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 606	DWG. NO. 606-80A
SCHEDULE OF GUARDRAIL HARDWARE	
EFFECTIVE: ####	
 MONTANA Department of Transportation	
3/8/2024 8:54 AMSTDDRD606080 - FUTURE REVISION.DWG	



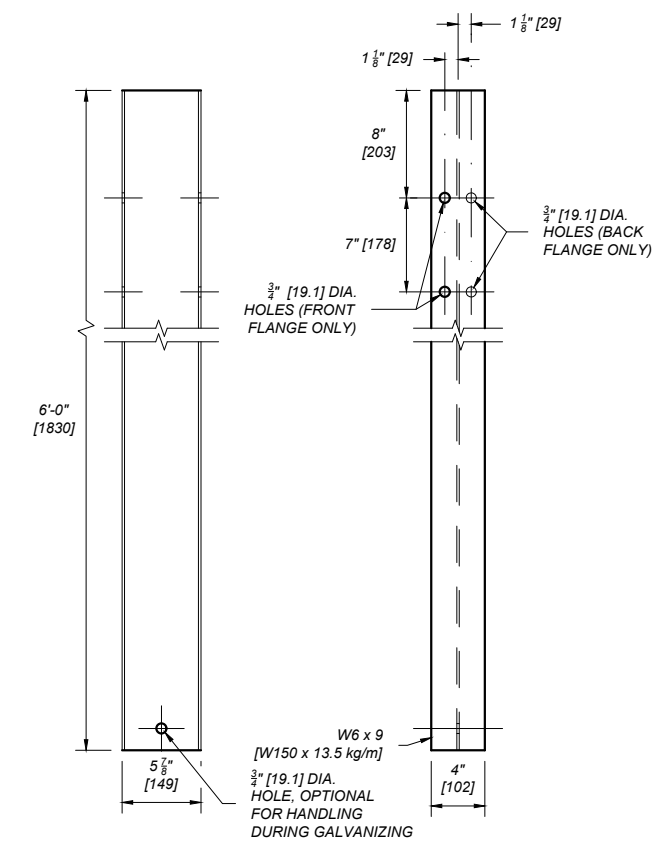
TYPE A BOX BEAM POST AND SOIL PLATE
PSE08* AND PLS01*



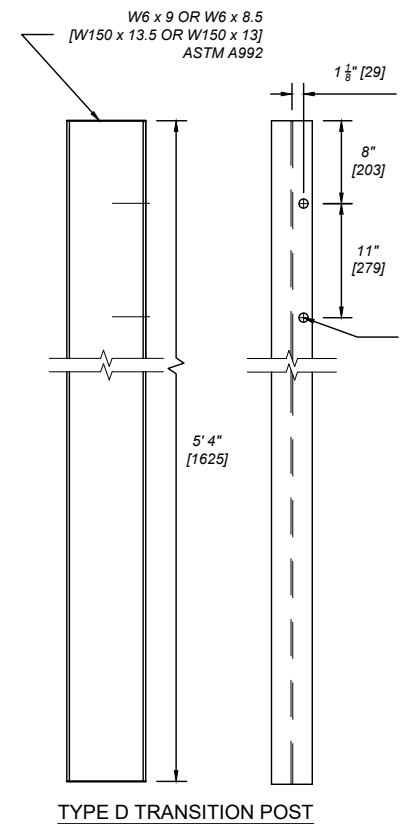
TYPE B BOX BEAM POST AND SOIL PLATE
PLS01*



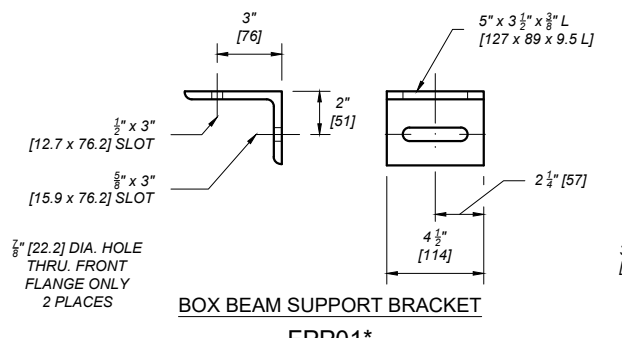
TYPE D BOX BEAM POST AND SOIL PLATE
PSE05* AND PLS01*



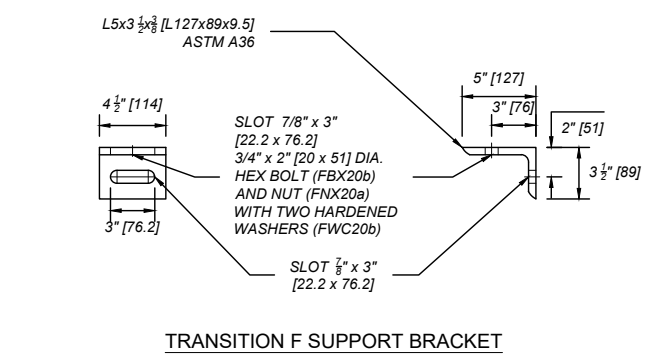
TRANSITION POST



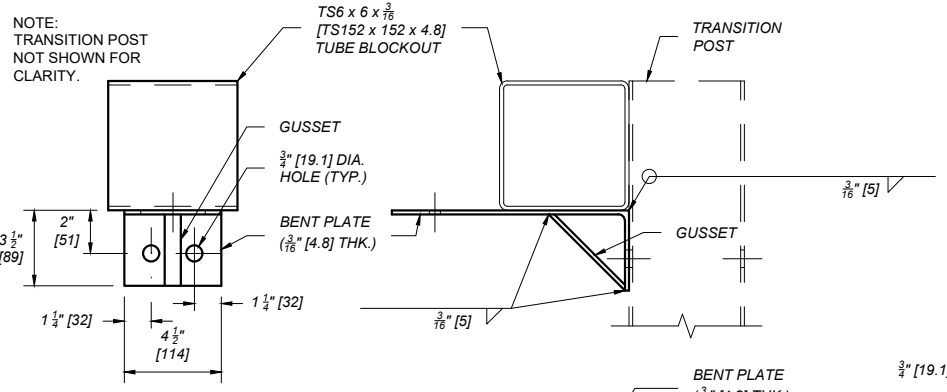
TYPE D TRANSITION POST



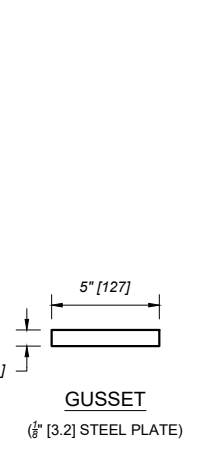
BOX BEAM SUPPORT BRACKET
FPP01*



TRANSITION F SUPPORT BRACKET



SUPPORT BRACKET W/BLOCKOUT



GUSSET
(3/4" [3.2] STEEL PLATE)

- NOTES:
- MANUFACTURE POSTS USING STEEL CONFORMING TO AASHTO M 183 [183M] (ASTM A 36 [36M]). MANUFACTURE SOIL PLATES, SUPPORT BRACKETS AND MISC. COMPONENTS USING AASHTO M 270 [270M] (ASTM A 709 [709M]) GRADE 36 [250] STEEL. ALL WELDING IS TO CONFORM TO THE APPLICABLE AWS CODE.
 - MANUFACTURE BLOCKOUTS FROM EITHER ASTM A 500 GRADE B COLD-ROLLED TUBING, ASTM A 501 HOT-ROLLED TUBING OR AUTOMOTIVE ROLLOVER PROTECTIVE STEEL (ROPS). WHEN ASTM A 500 GRADE B STEEL IS USED, TEST THE MATERIAL PER ASTM E 436.
 - GALVANIZE FABRICATED POSTS, BLOCKOUTS, BRACKETS AND MISC. COMPONENTS IN ACCORDANCE WITH SUBSECTION 711.08. DO NOT PUNCH, DRILL, OR CUT AFTER GALVANIZING.
 - SEE DTL DWG. NO. 606-53 OR 606-53B (BOX BEAM BR. APP. SECT.) FOR REQUIRED LOCATION OF LOWER HOLES IN TYPE A AND B POSTS.
- * SEE DTL DWG. NO. 606-80 FOR SCHEDULE OF GUARDRAIL HARDWARE.

- ** 1/8" [3] 2-10" [51-254]
1/8" [3] 2-10" [51-254]
*** 1/8" [3] 3 1/2" [89]

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

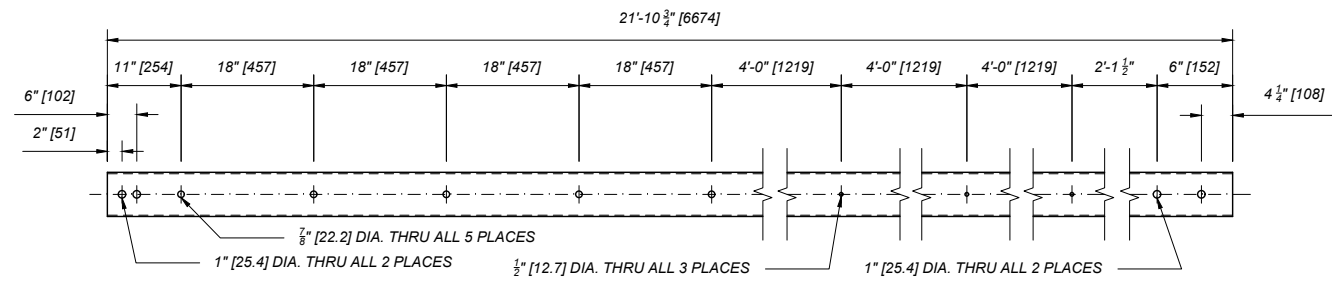
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DETAILED DRAWINGS
REFERENCE STANDARD SPEC. SECTION 606
DWG. NO. 606-97

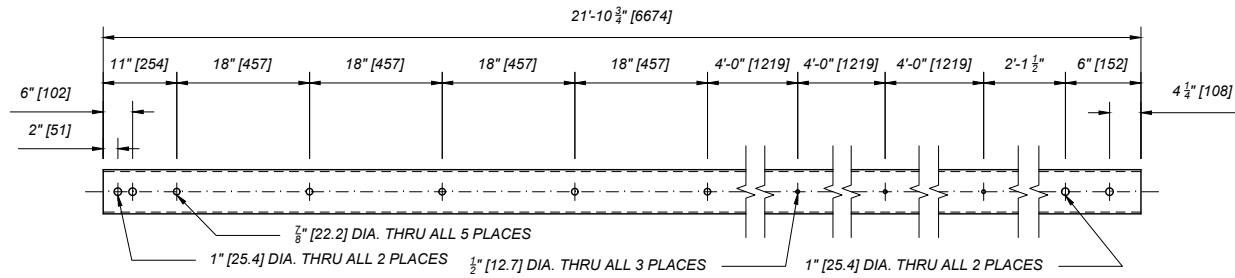
BOX BEAM GUARDRAIL HARDWARE
EFFECTIVE: ####

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Department of Transportation
1/31/2024 8:34 AM TDDRR606097 - FUTURE REVISION.DWG



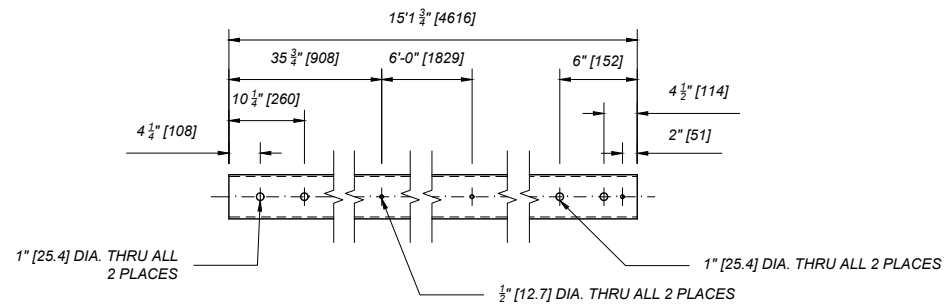
T-1 TRANSITION RAIL

HSS 6x6x3/8 [HSS 152x152x4.8]
ASTM A500 GRADE B



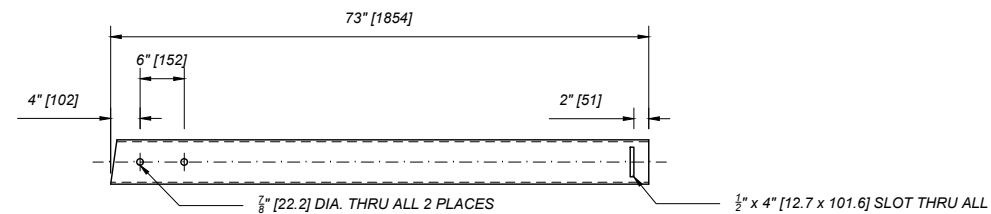
R-1 TRANSITION RUB RAIL

HSS 6x2x1/2 [HSS 152x51x6.4]
ASTM A500 GRADE B



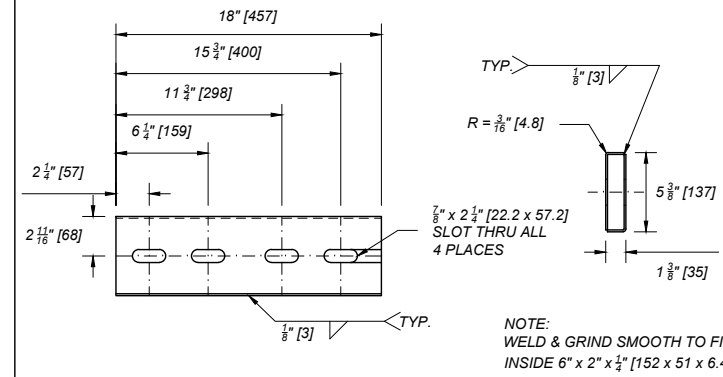
R-2 TRANSITION RUB RAIL

HSS 6x2x1/2 [HSS 152x51x6.4]
ASTM A500 GRADE B



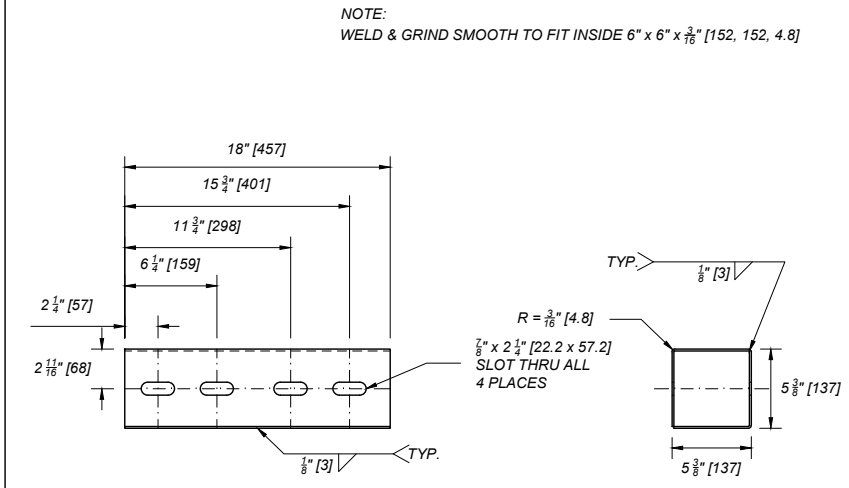
R-3 TRANSITION RUB RAIL

HSS 6x2x1/2 [HSS 152x51x6.4]
ASTM A500 GRADE B



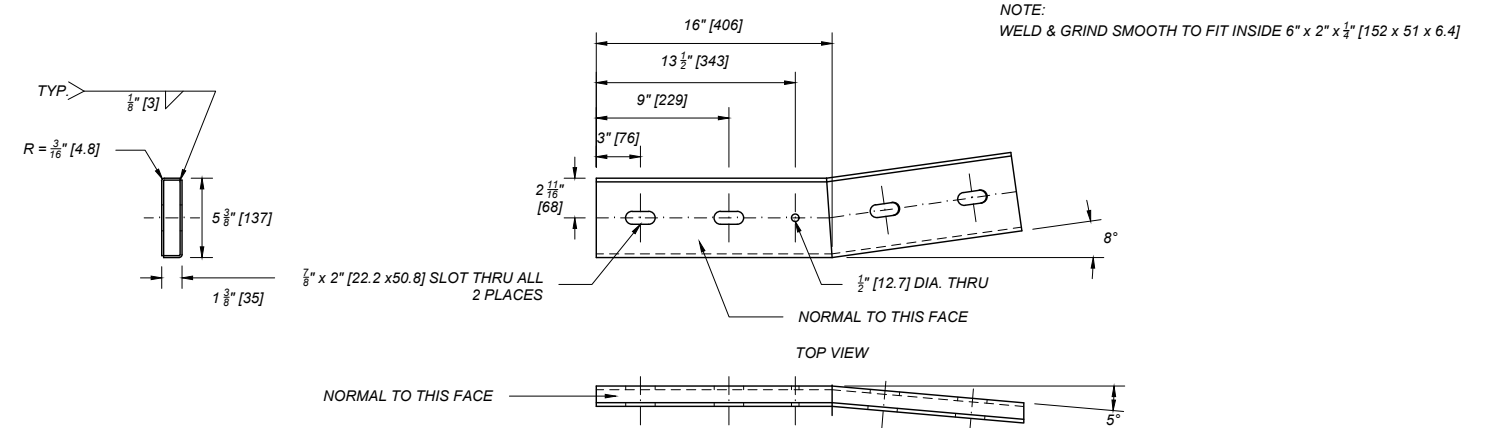
LOWER BRIDGE RAIL CONNECTION SLEEVE

ASTM A36 PLATE, 18" x 3/8" [457 x 4.8]
3/4" DIA. x 3 1/2" [20 x 89] HIGH STRENGTH HEX BOLT (FBX20b*) AND NUT (FNX20b*) WITH 2 HARDENED FLAT WASHERS (FWC20a*)



UPPER BRIDGE RAIL CONNECTION SLEEVE

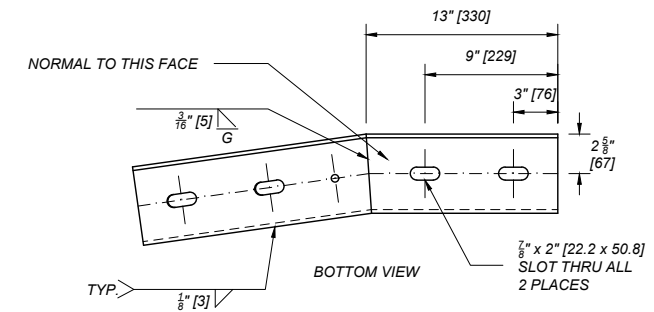
ASTM A36 PLATE, 18" x 3/8" [457 x 4.8]
3/4" DIA. x 7 1/2" [20 x 191] HIGH STRENGTH HEX BOLT (FBX20b*) AND NUT (FNX20b*) WITH 2 HARDENED FLAT WASHERS (FWC20a*)



RUB RAIL FLARE SLEEVE

NOTE: BRIDGE APPROACH END PART SHOWN. MIRROR FOR BRIDGE DEPARTURE END.

3/16" [4.8] ASTM A36 PLATE
3/4" DIA. x 3 1/2" [20 x 89] HIGH STRENGTH HEX BOLT (FBX20b*) AND NUT (FNX20b*) WITH 2 HARDENED FLAT WASHERS (FWX20a*)



UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

--REVISED--

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NOTES:
*SEE DTL. DWG. NO. 606-80 FOR SCHEDULE OF GUARDRAIL HARDWARE.

DETAILED DRAWINGS
REFERENCE STANDARD SPEC. SECTION 606
DWG. NO. 606-98A

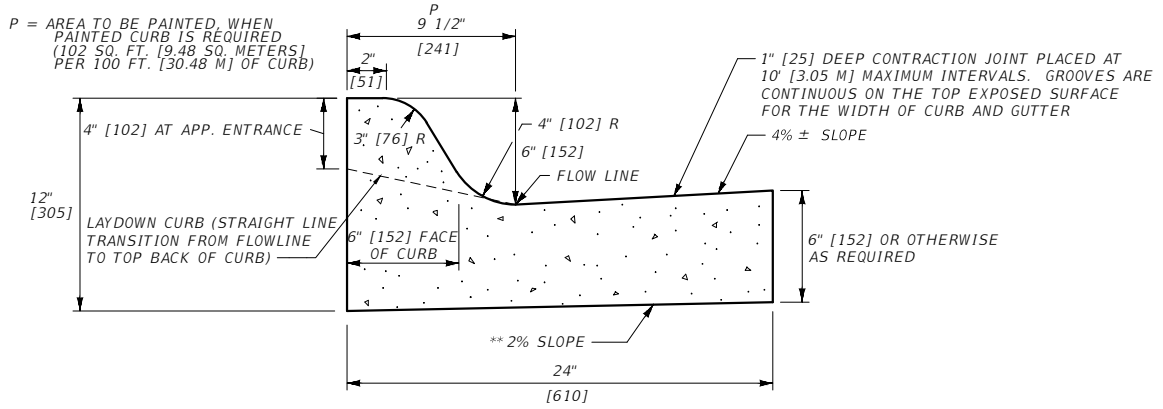
BOX BEAM GUARDRAIL HARDWARE

EFFECTIVE: #####

MONTANA
Department of Transportation

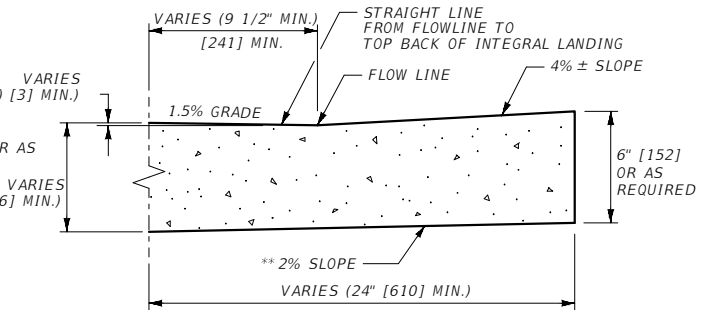
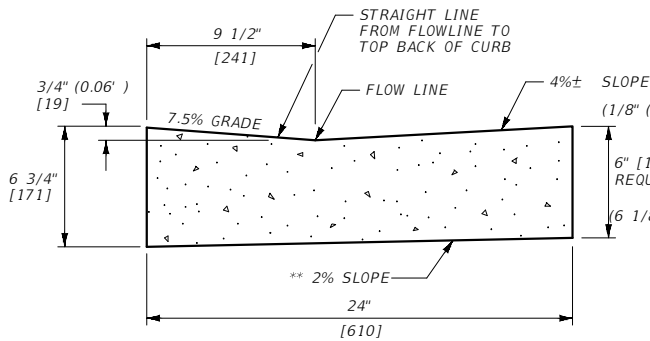
CONCRETE CURBS

1 CUBIC YARD [0.765 cu m] OF CONCRETE WILL MAKE ABOUT 22.3 LINEAR FEET [6.80 lin m] OF CURB. *



CONCRETE ADA LAYDOWN CURBS

CONCRETE ADA LAYDOWN CURBS
USE WHEN LANDING IS PLACED INTEGRAL WITH CURB & GUTTER (SEE DTL. DWG. NO. 608-35)



JOINTS:

(A) WHEN INTEGRAL WITH, TIED TO, OR PLACED AGAINST PORTLAND CEMENT CONCRETE PAVEMENT (P.C.C.P.): MATCH TRANSVERSE CONTRACTION AND/OR EXPANSION JOINTS IN THE ADJACENT P.C.C.P. SLAB. IF REQUIRED, EXTEND 1/2" [13] MIN. WIDTH PREFORMED EXPANSION JOINTS COMPLETELY THROUGH CURB AND GUTTER THE SAME WIDTH AS THE P.C.C.P. SLAB JOINT. FILL CURB AND GUTTER EXPANSION JOINTS WITH PREFORMED EXPANSION JOINT FILLER.

(B) ALL OTHER CASES:
SPACE CONTRACTION JOINTS IN CURB AND GUTTER AT 10 FOOT [3.05 m] INTERVALS OR LESS EXCEPT AS SPECIFIED IN (A) ABOVE. EXTEND 1/2" [13] MIN. WIDTH EXPANSION JOINTS COMPLETELY THROUGH CURB AND GUTTER EVERY 100 FEET [30.48 m] (± 30 FEET [9.14 m]), AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL, AND FILL WITH EXPANSION JOINT FILLER.

(C) CONTRACTION JOINTS:
CONTRACTION JOINTS ARE 1/8" [3] MIN. AND 3/8" [10] MAX. IN WIDTH. FORM JOINTS BY SAWING OR SCORING TO A MINIMUM DEPTH OF 1" [25]. FORM SCORED JOINTS BY A TOOL WHICH WILL LEAVE ROUNDED CORNERS AND DESTROY AGGREGATE INTERLOCK TO A MINIMUM DEPTH OF 1" [25].

(D) OTHER JOINTS:
SEPARATE THE CURB AND GUTTER FROM ADJACENT SIDEWALK AT POINTS SHOWN ON DTL. DWG. NO. 608-05 WITH A BOND BREAKER MATERIAL, EXCEPT AT APPROACH LAYDOWN CURB LOCATIONS, WHICH REQUIRE SEPARATION USING 1/2" [13] MIN. WIDTH PREFORMED EXPANSION JOINT MATERIAL. PLACE 1/2" [13] MIN. WIDTH PREFORMED EXPANSION JOINT MATERIAL AT ALL CURB RETURNS, BRIDGES, DROP INLETS, AND WHERE MEETING CURB AND GUTTER IN PLACE.

EXPANSION JOINT FILLER MATERIAL:
USE PREFORMED EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF SECTION 707.

BOND BREAKER MATERIAL:
USE A 15 OR 30 POUND [6.8 OR 13.6 KILOGRAM] ROOFING FELT MATERIAL, OR OTHER PRODUCT AS APPROVED BY THE PROJECT MANAGER. DO NOT USE EXPANSION JOINT MATERIAL.

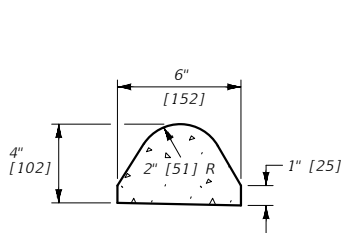
RADII:
MINIMUM CURB RETURN RADII = 10' [3.05 m]. 15' [4.57 m] RADII ARE DESIRABLE FOR STREETS.

CONCRETE:
UNLESS OTHERWISE SPECIFIED, CONSTRUCT CONCRETE CURBS AND CONCRETE INTEGRAL CURB AND GUTTER WITH CLASS GENERAL CONCRETE OR APPROVED EQUAL.

* QUANTITIES FOR ESTIMATING PURPOSES ONLY.

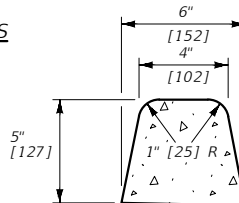
** THE SLOPE OF THE BOTTOM OF THE CURB AND GUTTER SHOULD MATCH THE SUPERELEVATION OF THE ROADWAY.

CONCRETE CURBS



CURB SECTION

1 CUBIC FOOT [0.305 cu m] OF CONCRETE WILL MAKE ABOUT 8 LINEAR FEET [2.44 lin m] OF CURB. *



CURB SECTION

1 CUBIC FOOT [0.305 cu m] OF CONCRETE WILL MAKE ABOUT 5 LINEAR FEET [1.52 lin m] OF CURB. *

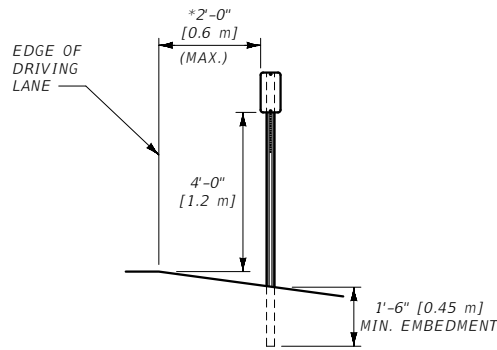
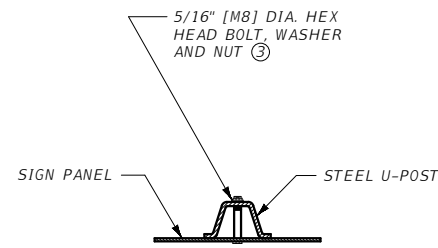
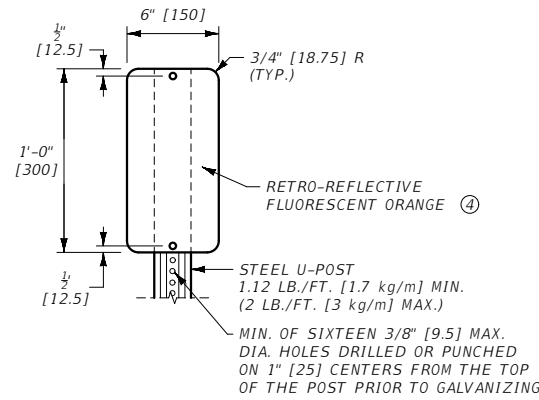
UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

NOTES:

- WHEN CURB IS USED IN CONJUNCTION WITH GUARDRAIL, USE THE 4" [102] HIGH TYPE. OTHERWISE, THE CONTRACTOR MAY USE EITHER SECTION.
- CONFORM ALL MATERIALS AND CONSTRUCTION PER SECTION 609.
- PROVIDE CONTRACTION JOINTS IN CONCRETE CURBS AS DESCRIBED IN NOTE (B) ABOVE.

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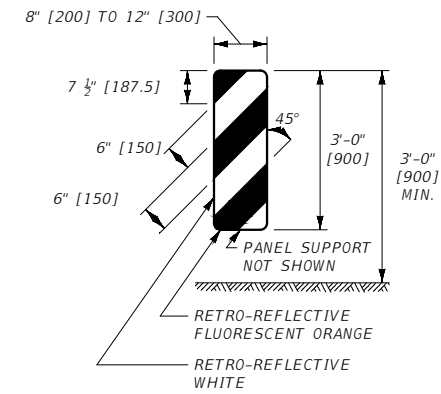
DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 609, 707	DWG. NO. 609-05
MISCELLANEOUS CURBS	
EFFECTIVE: ####	
3/14/2024 1:36 P8TDDRD609005 - FUTURE REVISION.DWG	



TYPE 2 OBJECT MARKER

TYPE 2 OBJECT MARKER NOTES:

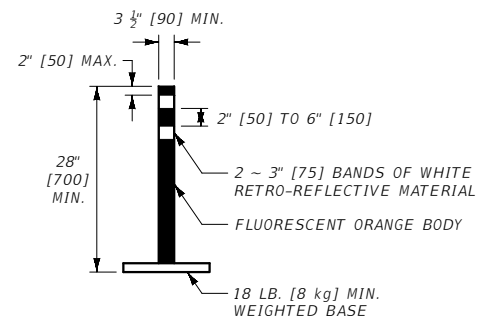
- ① USE TYPE 2 OBJECT MARKERS TO DELINEATE ROADSIDE CONSTRICTIONS OF THE CLEAR ZONE (i.e. DROP OFFS, OBSTACLES, ABRUPT CHANGES IN ROADWAY ALIGNMENT, ETC.)
 - ② DO NOT USE TYPE 2 OBJECT MARKERS AS CHANNELIZING DEVICES.
 - ③ ATTACH PANELS TO POSTS AT BOTH TOP AND BOTTOM HOLE LOCATIONS.
 - ④ USE RETRO-REFLECTIVE SHEETING AS PER THE CONTRACT.
- * REDUCE OR ELIMINATE THE 2'-0" [0.6 m] DISTANCE WHEN OBSTACLE OR HAZARD IS LESS THAN 2'-0" [0.6 m] FROM THE EDGE OF THE DRIVING LANE.



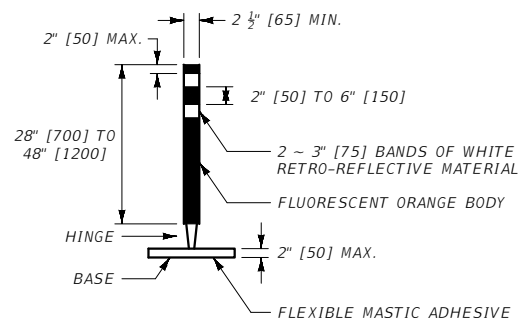
PORTABLE VERTICAL PANEL
 (VP-1R SHOWN. REVERSE FOR VP-1L.)

PORTABLE VERTICAL PANEL NOTES:

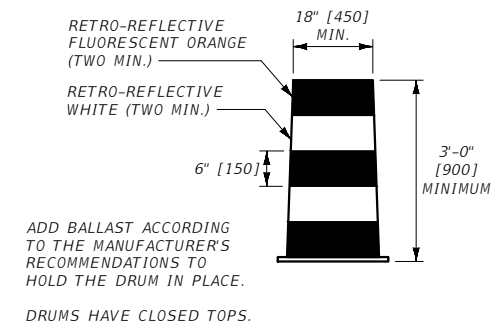
- ① USE PORTABLE VERTICAL PANELS AS CHANNELIZING DEVICES ONLY. DO NOT USE PORTABLE VERTICAL PANELS TO DELINEATE ROADSIDE CONSTRICTIONS OF THE CLEAR ZONE.
- ② VERTICAL PANELS DESIGNATED "R" ARE PLACED TO THE RIGHT SIDE OF APPROACHING TRAFFIC. THOSE DESIGNATED "L" ARE PLACED TO THE LEFT SIDE.
- ③ USE RETRO-REFLECTIVE SHEETING AS PER THE CONTRACT.



FLEXIBLE GUIDE POST
(TUBULAR MARKER)



HINGED FLEXIBLE GUIDE POST
(TUBULAR MARKER)
 (SELF RIGHTING AFTER IMPACT)



PLASTIC DRUM

FLEXIBLE GUIDE POST AND PLASTIC DRUM NOTES:

- ① USE FLEXIBLE GUIDE POSTS AND PLASTIC DRUMS AS CHANNELIZING DEVICES.
- ② USE ASTM TYPE III RETRO-REFLECTIVE SHEETING ON ALL PLASTIC DRUMS AND FLEXIBLE GUIDE POSTS.
- ③ USE ONE SIZE GUIDE POST FOR CONTINUOUS RUNS.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-00

CHANNELIZING DEVICES AND OBJECT MARKERS

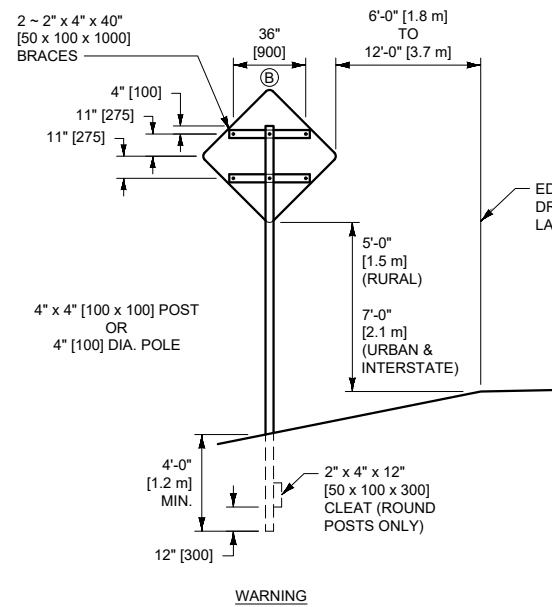
EFFECTIVE: ####

GENERAL NOTES:

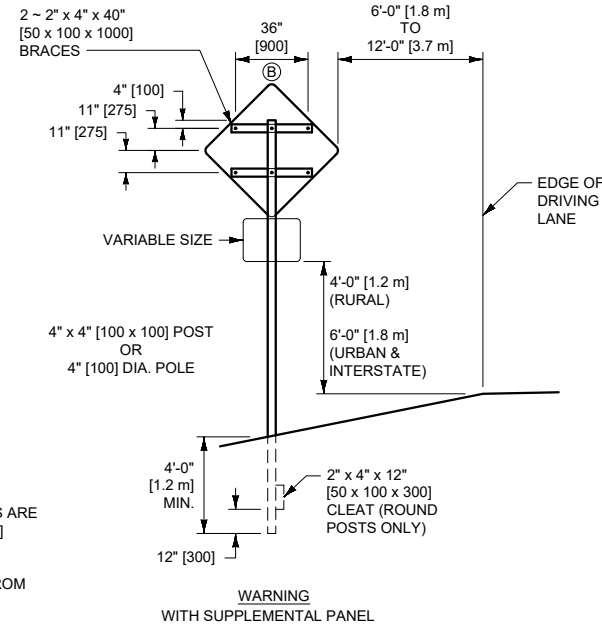
- ① SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PART 6 FOR ADDITIONAL INFORMATION.

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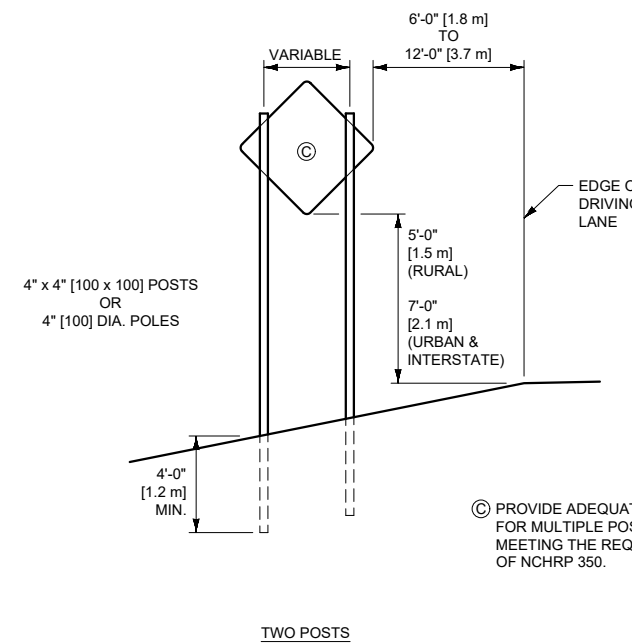




(A) ALL WARNING SIGNS ARE 48" x 48" [1200 x 1200] IN SIZE.
 (B) DIMENSIONS ARE FROM | BOLT TO | BOLT.

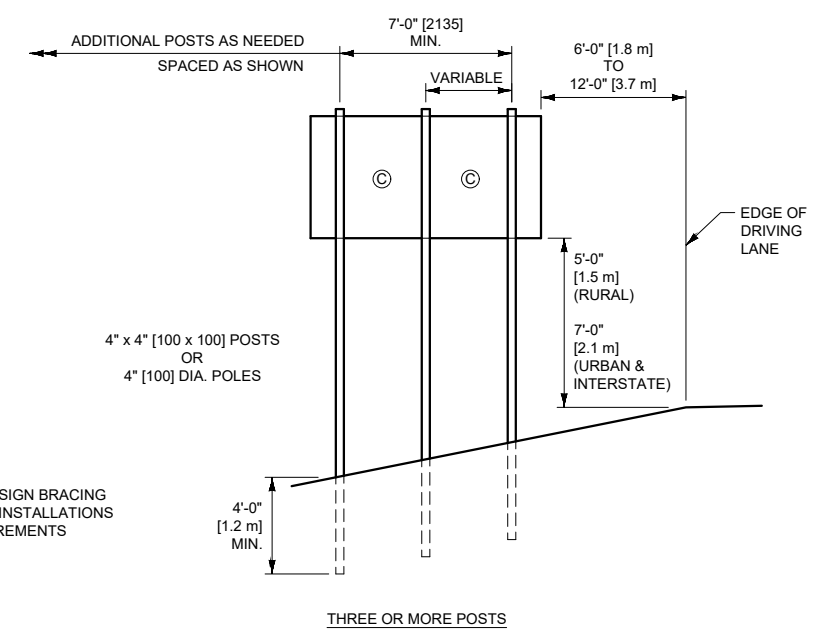


WARNING WITH SUPPLEMENTAL PANEL



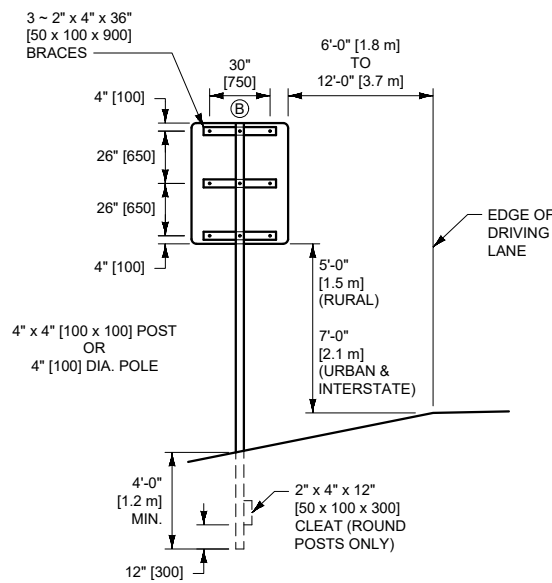
(C) PROVIDE ADEQUATE SIGN BRACING FOR MULTIPLE POST INSTALLATIONS MEETING THE REQUIREMENTS OF NCHRP 350.

TWO POSTS

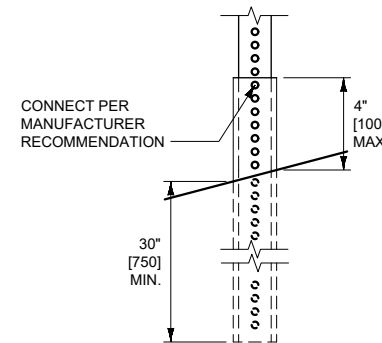


THREE OR MORE POSTS

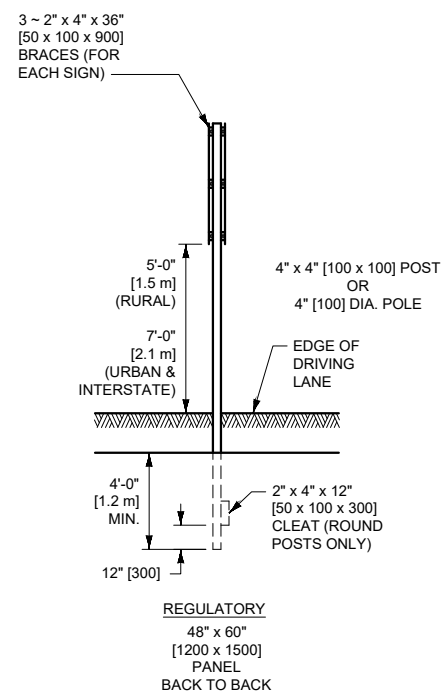
TYPICAL MULTIPLE POST INSTALLATIONS
 (FOR CONSTRUCTION SIGNING ONLY)



REGULATORY
 48" x 60"
 [1200 x 1500]
 PANEL

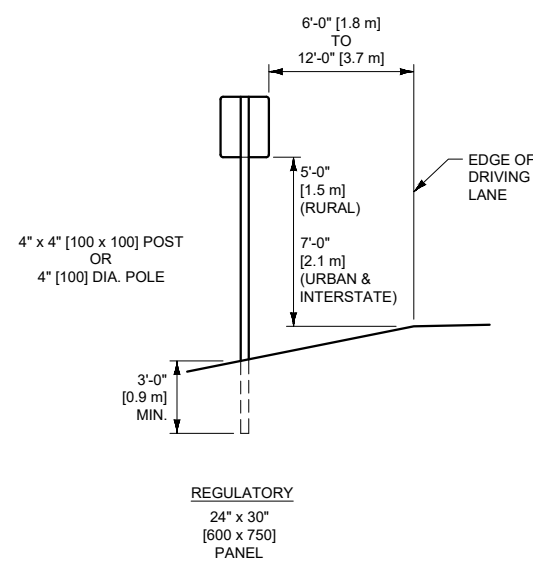


OPTIONAL TELES PAR MOUNTING
 (FOR CONSTRUCTION SIGNING ONLY)

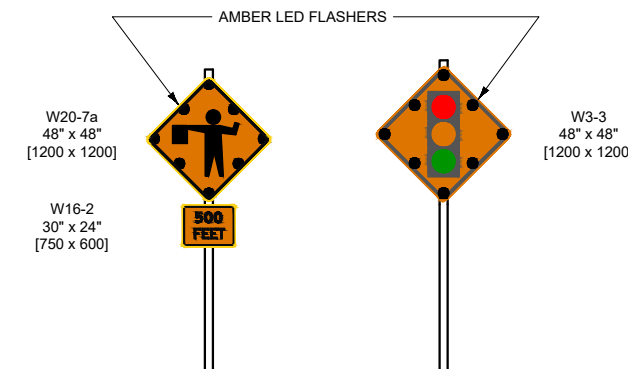


REGULATORY
 48" x 60"
 [1200 x 1500]
 PANEL
 BACK TO BACK

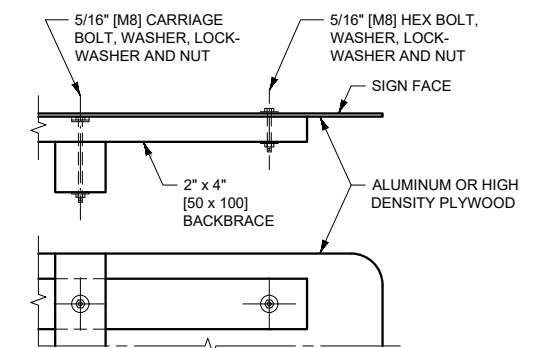
TYPICAL SIGN MOUNTINGS
 (FOR CONSTRUCTION SIGNING ONLY)



REGULATORY
 24" x 30"
 [600 x 750]
 PANEL



FLASHING FLAGGER AND SIGNAL AHEAD SIGN



SIGN FASTENING DETAILS

- NOTES:
- FURNISH AND INSTALL POSTS OR POLES MEETING MASH REQUIREMENTS.
 - FURNISH POST OR POLE LENGTHS TO ACCOMMODATE THE FOUNDATION DEPTH, THE MOUNTING HEIGHT AND THE MOUNTINGS
 - BACKFILL FOUNDATION HOLES IN 8" [205] LIFTS, THOROUGHLY TAMPING EACH LIFT.
 - IN HIGH WIND AREAS INSTALL LARGER POSTS OR POLES COMPLYING WITH THE FOUNDATION AND BREAKAWAY REQUIREMENTS OF DTL DWG. NO. 619-20. THE MINIMUM POST SPACING FOR MULTIPLE POSTS LARGER THAN 4" [100] IS 7'-0" [2135].
 - VERTICAL ALIGNMENT OF SIGNS IS TO BE WITHIN 5° OF PLUMB (1" IN 1' [85 IN 1000]).
 - USE THE URBAN MOUNTING HEIGHTS IN BUSINESS, COMMERCIAL, AND RESIDENTIAL DISTRICTS WHERE PARKING AND/OR PEDESTRIAN MOVEMENT IS LIKELY TO OCCUR, OR WHERE THERE ARE OTHER OBSTRUCTIONS TO VIEW. URBAN MOUNTING HEIGHTS MAY ALSO BE USED IN RURAL AREAS FOR INCREASED VISIBILITY.
 - ENSURE THE AMBER LED FLASHERS MEET REQUIREMENTS OF STANDARD SPECIFICATION 715.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

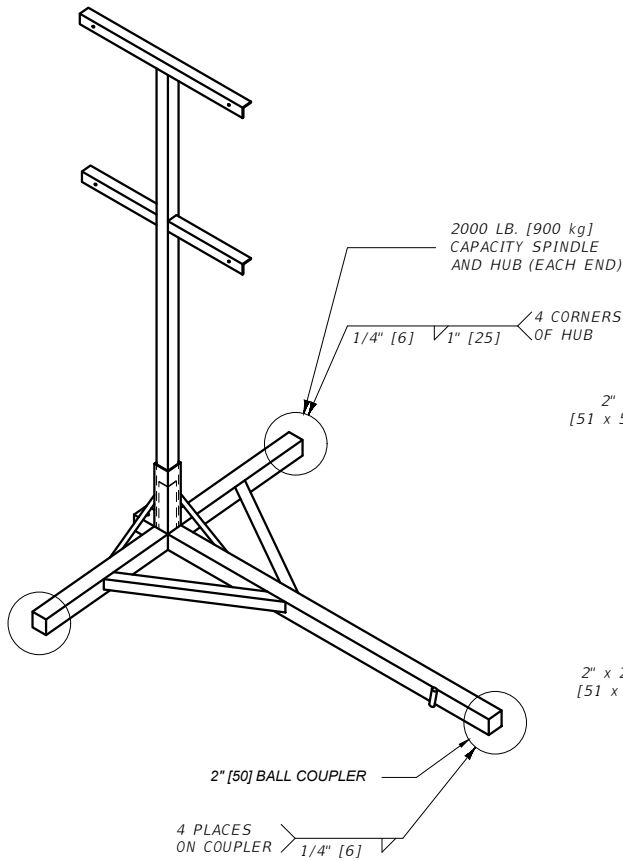
DETAILED DRAWINGS
 REFERENCE STANDARD SPEC. SECTION 618, 715
 DWG. NO. 618-01

CONSTRUCTION SIGN DETAILS

EFFECTIVE: ####

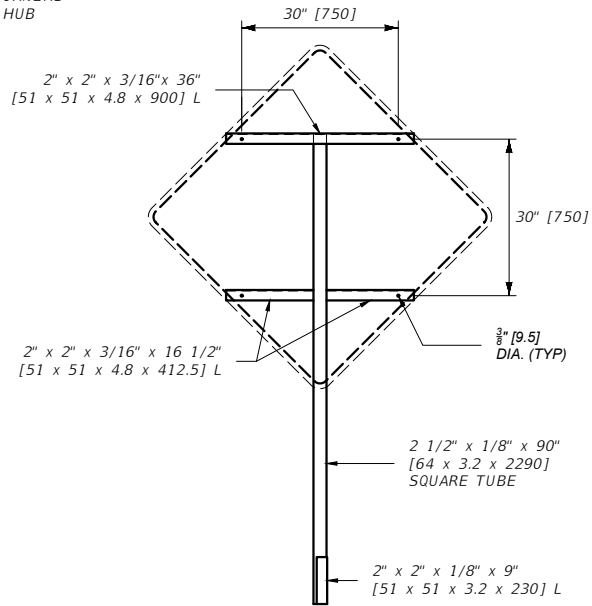


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NOTES:

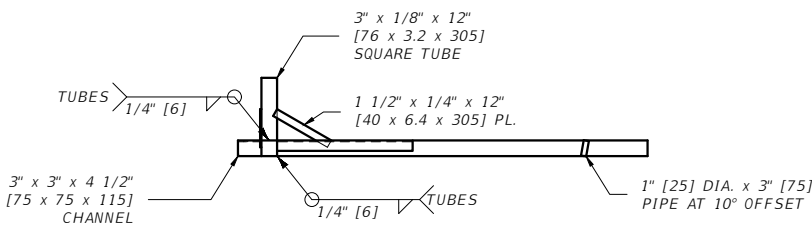
- ① THE MAXIMUM WEIGHT OF THIS ASSEMBLY IS 250 POUNDS [115 kg].
- ② USE A 14" [355] WHEEL AND TIRE.
- ③ AUTOMOTIVE AND EQUIPMENT AXLE ASSEMBLIES MAY NOT BE USED FOR TRAILER-MOUNTED SIGN SUPPORTS.
- ④ OTHER NCHRP 350 OR MASH CRASH TESTED ASSEMBLIES ARE ACCEPTABLE.



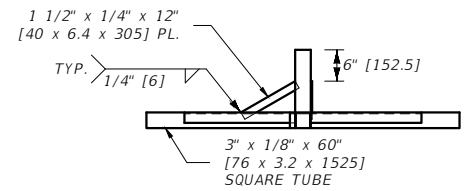
FRONT

RIGHT

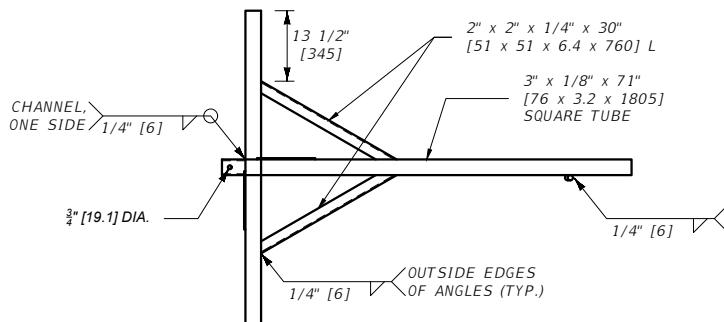
SIGN SUPPORT



FRONT



RIGHT



TOP

TRAILER

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618, 715

DWG. NO. 618-02

PORTABLE SIGN SUPPORT ASSEMBLY

EFFECTIVE: ####



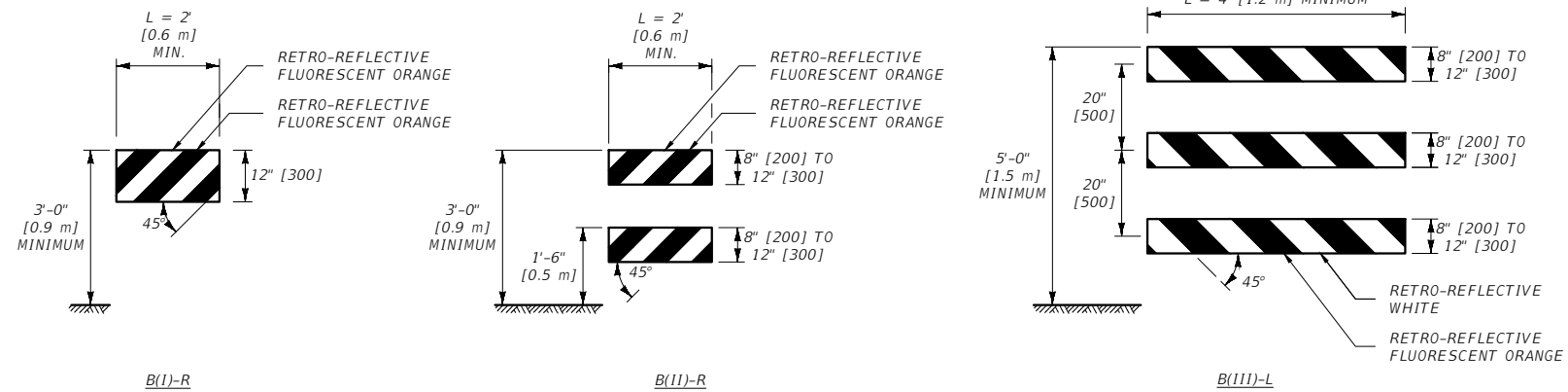
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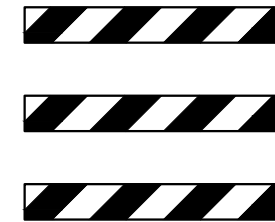
PORTABLE BARRICADES



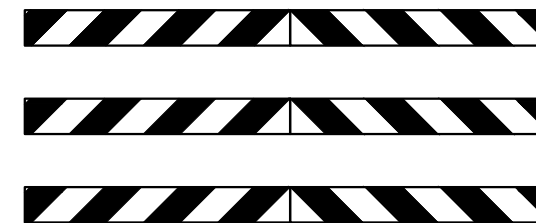
PORTABLE BARRICADE NOTES:

- ① RAIL STRIPES ARE 6" [150] IN WIDTH FOR BARRICADES 3' [0.9 m] OR GREATER IN LENGTH. FOR BARRICADES LESS THAN 3' [0.9 m] IN LENGTH, 4" [100] STRIPES MAY BE USED.
- ② THE PREDOMINANT COLOR FOR OTHER BARRICADE COMPONENTS IS WHITE, BUT UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED.
- ③ WHERE B(III) BARRICADES ARE TO FACE TRAFFIC FROM TWO DIRECTIONS, STRIPING ON BOTH THE FRONT AND REAR SIDES IS REQUIRED.
- ④ USE MATERIALS FOR BARRICADE FRAMEWORK, ASSEMBLY, ATTACHED SIGNS, AND MEANS OF SIGN ATTACHMENT THAT MEET NCHRP 350 AND/OR MASH REQUIREMENTS FOR WORK ZONE DEVICES. OPTIONS FOR SIGN ATTACHMENT ARE:
 - SIGNS UP TO 10 SQ FT [3.0 SQ m] MUST BE BOLTED TO THE TOP RAIL.
 - SIGNS OVER 16 SQ FT [4.9 SQ m] MUST BE BOLTED TO THE RAILS AND BOTH UPRIGHT SUPPORTS.
 - SIGNS MAY BE MOUNTED BEHIND THE BARRICADE ON A SEPERATE NCHRP 350 AND/OR MASH APPROVED SIGN SUPPORT.
- ⑤ USE SANDBAGS OF SUFFICIENT WEIGHT TO HOLD THE BARRICADES IN PLACE. WATERPROOF SANDBAGS DURING PERIODS OF FREEZING WEATHER.
- ⑥ USE RETRO-REFLECTIVE SHEETING AS PER THE CONTRACT.

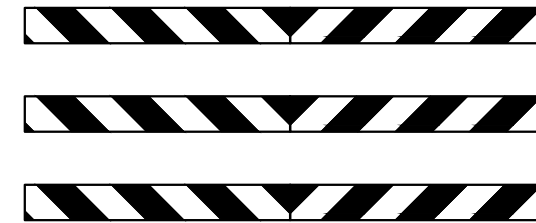
RAIL STRIPES



WHERE BARRICADES EXTEND ENTIRELY ACROSS THE ROADWAY, POSITION BARRICADES SO THE STRIPES SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH THE ROAD USERS MUST TURN.



WHERE BOTH LEFT AND RIGHT TURNS ARE PERMITTED, POSITION BARRICADES SO THE STRIPES SLOPE DOWNWARD IN BOTH DIRECTIONS AWAY FROM THE CENTER OF THE BARRICADE OR BARRICADES.



WHERE NO TURNS ARE PERMITTED, POSITION THE BARRICADES SO THE STRIPES SLOPE DOWNWARD IN BOTH DIRECTIONS TOWARDS THE CENTER OF THE BARRICADE OR BARRICADES.

GENERAL NOTES:

- ① SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PART 6 FOR ADDITIONAL INFORMATION.

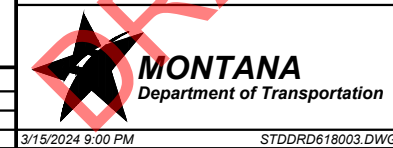
UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618 DWG. NO. 618-03

BARRICADES

EFFECTIVE: ####

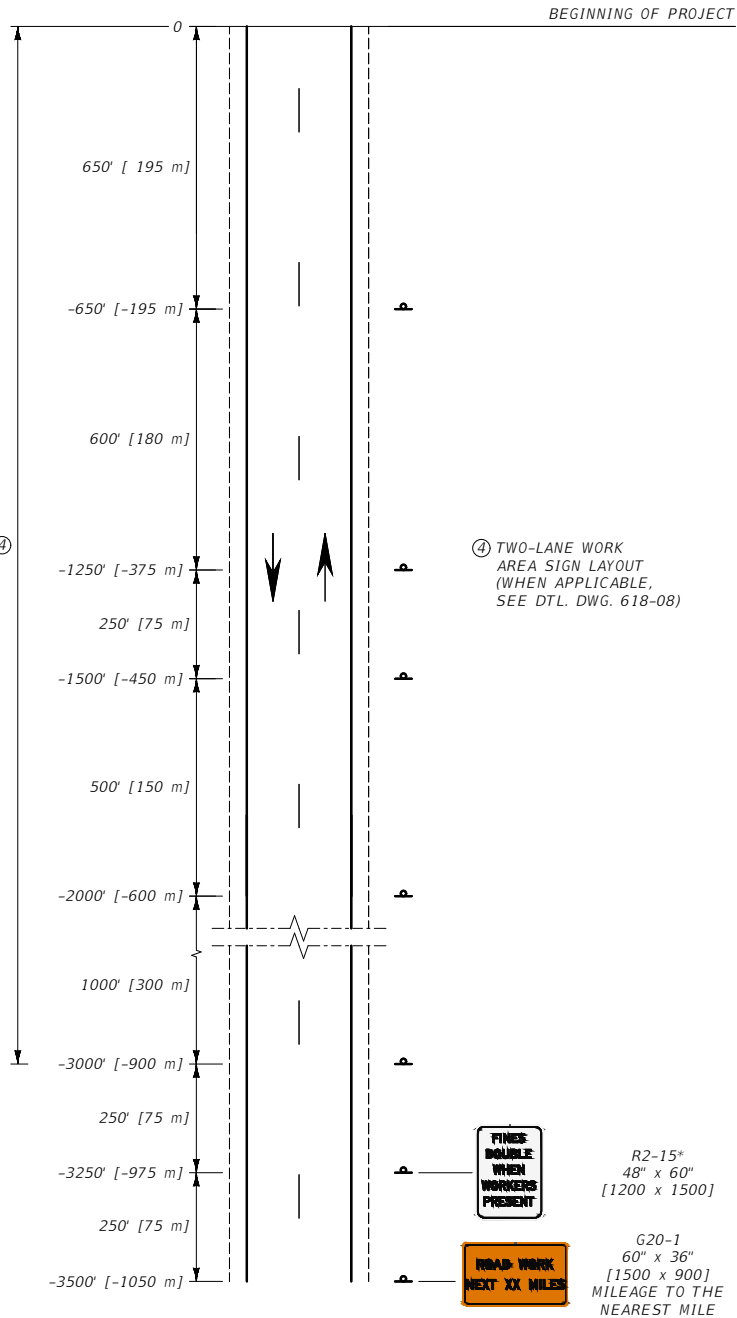
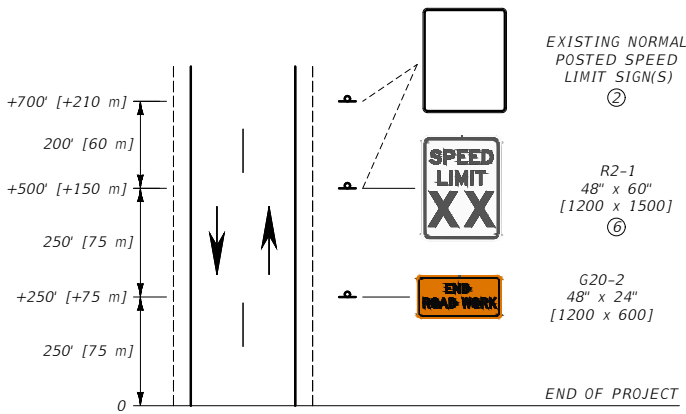


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NOTES:

- ① THIS SIGN LAYOUT IS INTENDED TO BE A PERMANENT INSTALLATION FOR THE DURATION OF THE CONSTRUCTION PROJECT, AS APPROVED BY THE PROJECT MANAGER. COVER OR REMOVE ANY SIGNS WHEN NOT IN USE, INCLUDING SPEED LIMIT SIGNS NOT WARRANTED. REMOVE ANY SIGN SUPPORTS IF THEY WILL NOT BE NEEDED WITHIN 90 DAYS.
- ② POST THE END OF WORK ZONE SPEED LIMIT CONSISTING OF ONE SIGN WHEN THE NORMAL POSTED SPEED LIMIT FOR ALL VEHICLES IS THE SAME. USE TWO SIGNS WHEN CAR, TRUCK AND NIGHTTIME SPEED LIMITS ARE DIFFERENT.
- ③ INCLUDE REGULATORY SIGNING ONLY IF A WORK ZONE OR ROADWAY HAS CONDITIONS THAT WARRANT SPEED RESTRICTIONS. MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ④ IN ADDITION TO THE SIGNS SHOWN, INCLUDE THE APPROPRIATE TWO-LANE WORK AREA SIGNS (DTL. DWG. 618-08) WHEN A WORK AREA IS LOCATED AT THE BEGINNING OR END OF THE WORK ZONE.
- ⑤ SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
- ⑥ POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.

* DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618

DWG. NO. 618-04

TWO-LANE WORK ZONE

EFFECTIVE: ####

MONTANA
Department of Transportation

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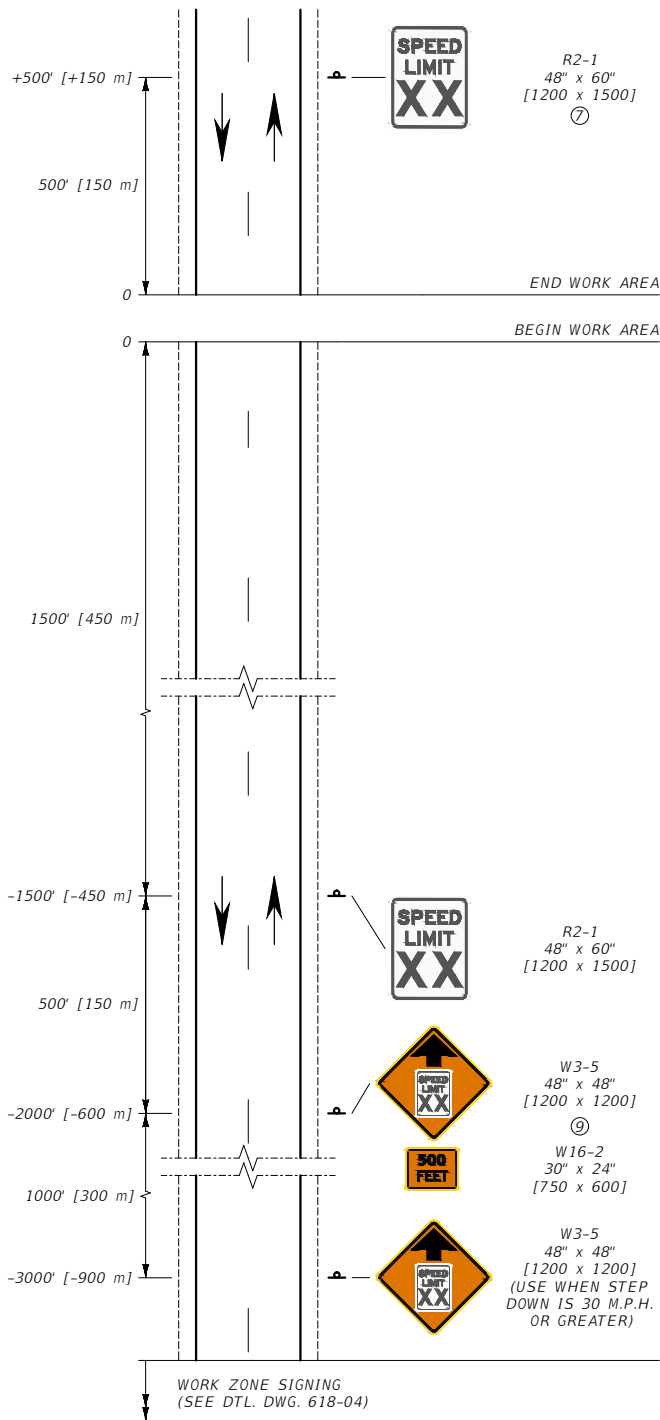
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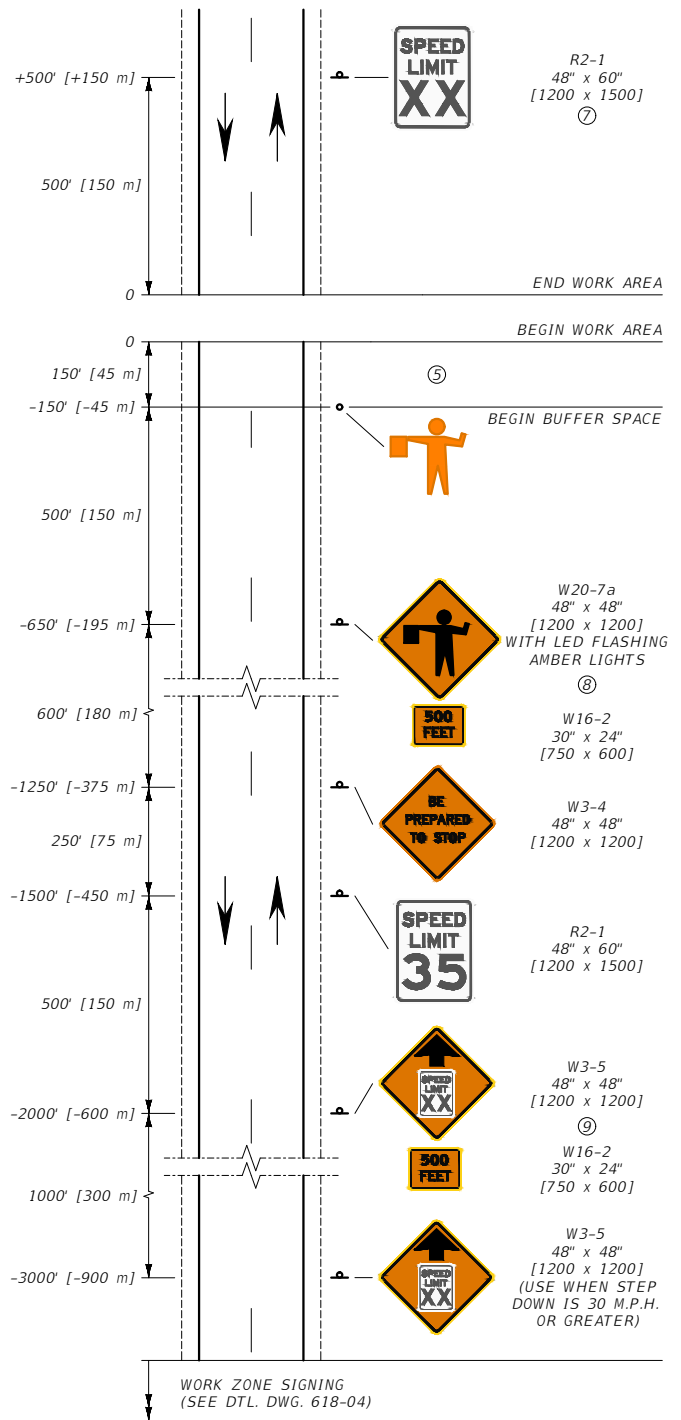
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WORK AREA WITH NO FLAGGER



WORK AREA WITH FLAGGER

NOTES:

- ① THESE SIGN LAYOUTS ALSO USED IN CONJUNCTION WITH THE PERMANENT LAYOUT ILLUSTRATED ON DTL. DWG. 618-04 FOR WORK AREAS LOCATED AT THE BEGIN AND END OF THE WORK ZONES.
- ② XX = SPEED DETERMINED BY THE PROJECT MANAGER.
- ③ INCLUDE REGULATORY SIGNING ONLY IF THERE IS REASON TO RESTRICT SPEED WITHIN THE WORK ZONE. REMOVE OR COVER EXISTING REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ④ SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION. COMBINE SUCCESSIVE WORK AREAS WHEN LESS THAN 1.0 MILE [1.6 km] APART.
- ⑤ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ⑥ PROVIDE A SECOND FLAGGER WHEN REQUIRED PER SECTION 618.
- ⑦ POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
- ⑧ ENSURE THE AMBER LED FLASHERS MEET REQUIREMENTS OF STANDARD SPECIFICATION 715 AND DTL. DWG. 618-01.
- ⑨ INCLUDE THESE SIGNS WITH ALL FLAGGERS. INCLUDE THESE SIGNS WITHIN WORK ZONES WHEN STEP DOWN IS 20 M.P.H. OR GREATER.

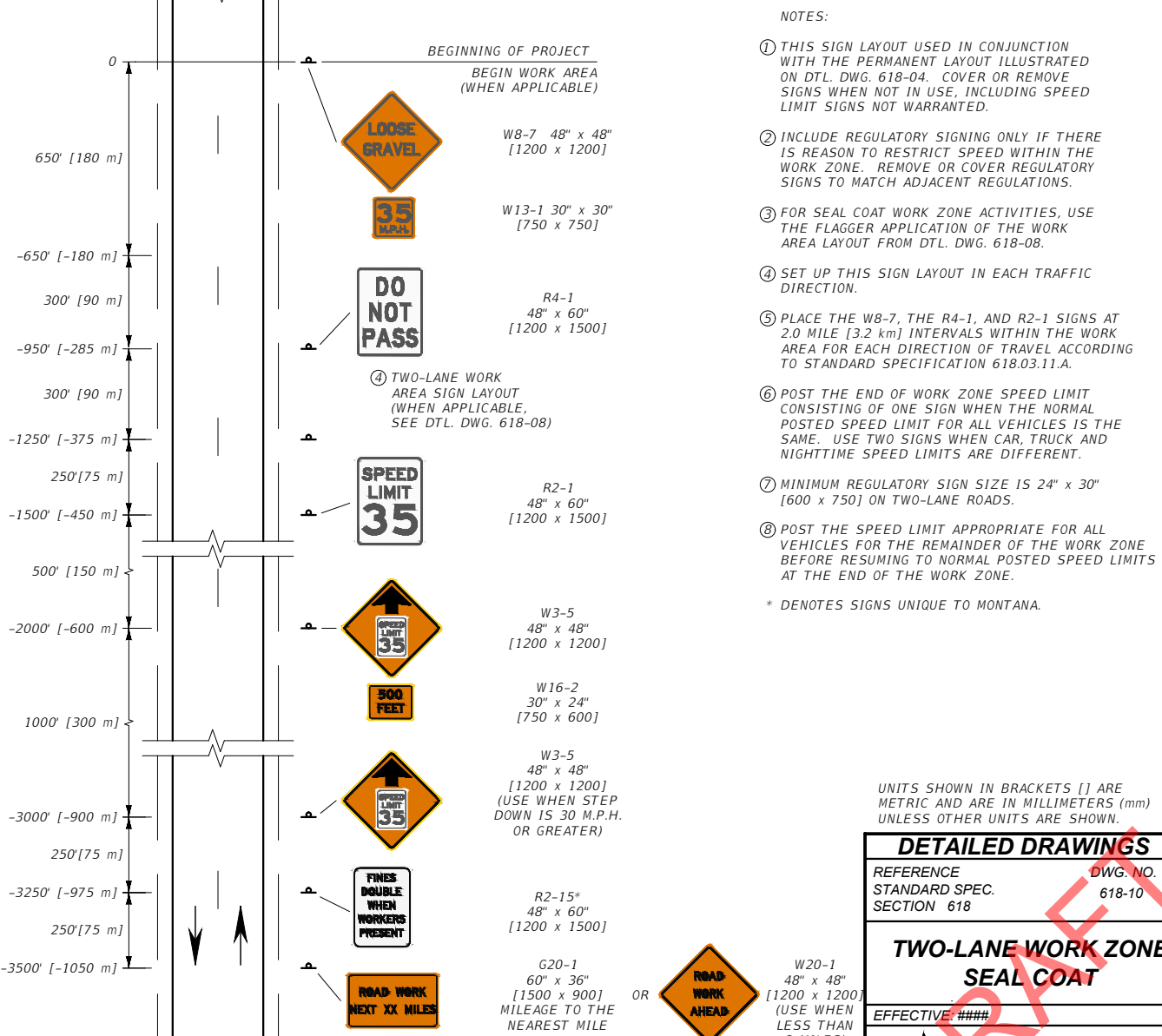
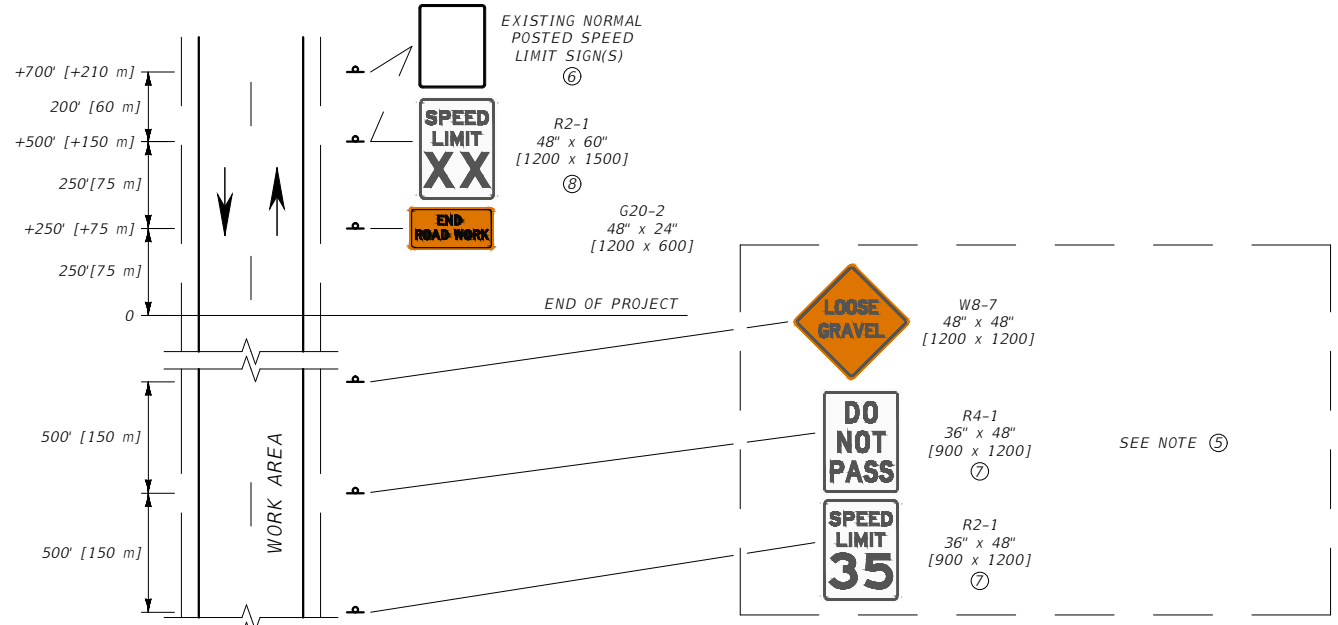
* DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618, 715	DWG. NO. 618-08
TWO-LANE WORK AREAS	
EFFECTIVE: ####	
<div style="display: flex; justify-content: space-between;"> 3/19/2024 10:16 AM STDDR618008.DWG </div>	

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- NOTES:
- THIS SIGN LAYOUT USED IN CONJUNCTION WITH THE PERMANENT LAYOUT ILLUSTRATED ON DTL. DWG. 618-04. COVER OR REMOVE SIGNS WHEN NOT IN USE, INCLUDING SPEED LIMIT SIGNS NOT WARRANTED.
 - INCLUDE REGULATORY SIGNING ONLY IF THERE IS REASON TO RESTRICT SPEED WITHIN THE WORK ZONE. REMOVE OR COVER REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
 - FOR SEAL COAT WORK ZONE ACTIVITIES, USE THE FLAGGER APPLICATION OF THE WORK AREA LAYOUT FROM DTL. DWG. 618-08.
 - SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
 - PLACE THE W8-7, THE R4-1, AND R2-1 SIGNS AT 2.0 MILE [3.2 km] INTERVALS WITHIN THE WORK AREA FOR EACH DIRECTION OF TRAVEL ACCORDING TO STANDARD SPECIFICATION 618.03.11.A.
 - POST THE END OF WORK ZONE SPEED LIMIT CONSISTING OF ONE SIGN WHEN THE NORMAL POSTED SPEED LIMIT FOR ALL VEHICLES IS THE SAME. USE TWO SIGNS WHEN CAR, TRUCK AND NIGHTTIME SPEED LIMITS ARE DIFFERENT.
 - MINIMUM REGULATORY SIGN SIZE IS 24" x 30" [600 x 750] ON TWO-LANE ROADS.
 - POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
- * DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

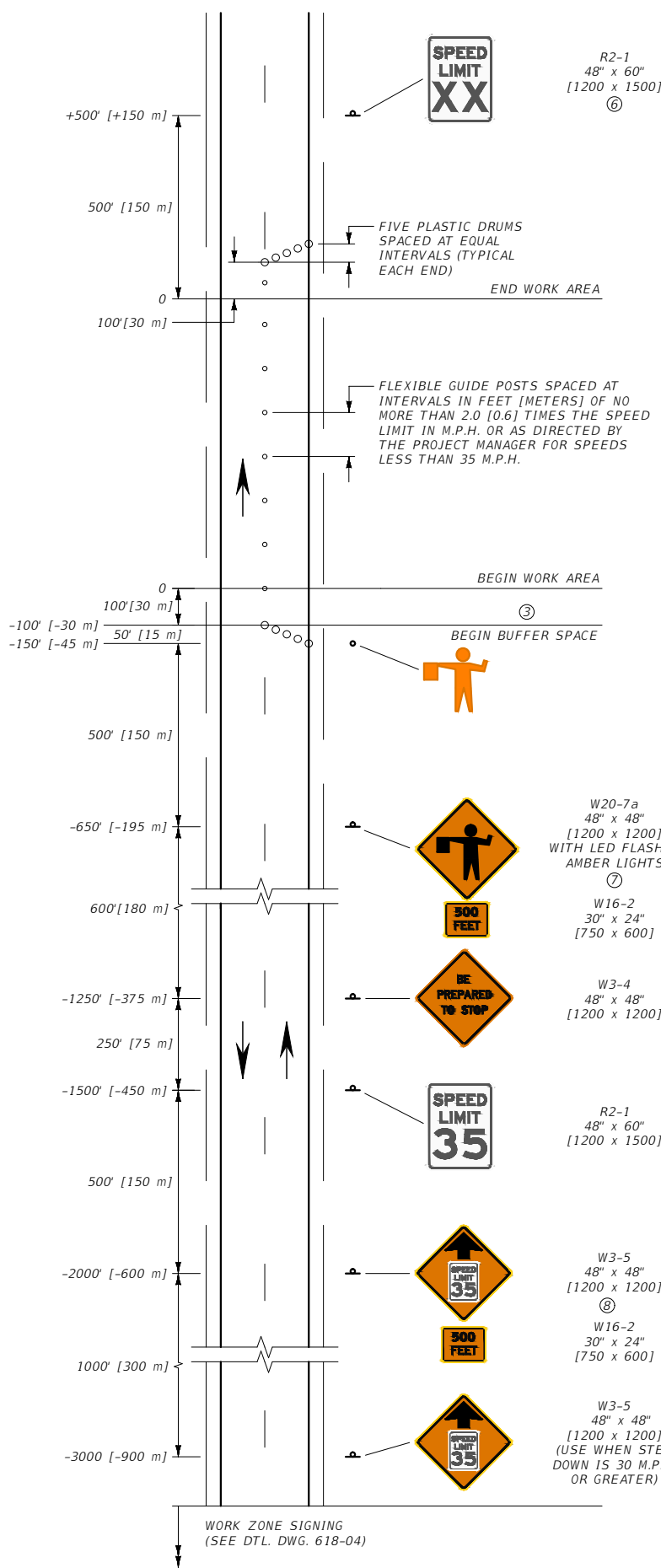
DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-10
TWO-LANE WORK ZONE SEAL COAT	
EFFECTIVE: ####	

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MONTANA
Department of Transportation

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- NOTES:
- ① MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
 - ② SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
 - ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
 - ④ PROVIDE A SECOND FLAGGER WHEN REQUIRED BY SECTION 618.03.14.
 - ⑤ XX = SPEED DETERMINED BY THE PROJECT MANAGER.
 - ⑥ POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
 - ⑦ ENSURE THE AMBER LED FLASHERS MEET REQUIREMENTS OF STANDARD SPECIFICATION 715 AND DTL. DWG. 618-01.
 - ⑧ INCLUDE THESE SIGNS WITH ALL FLAGGERS. INCLUDE THESE SIGNS WITHIN WORK ZONES WHEN STEP DOWN IS 20 M.P.H. OR GREATER.
- * DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

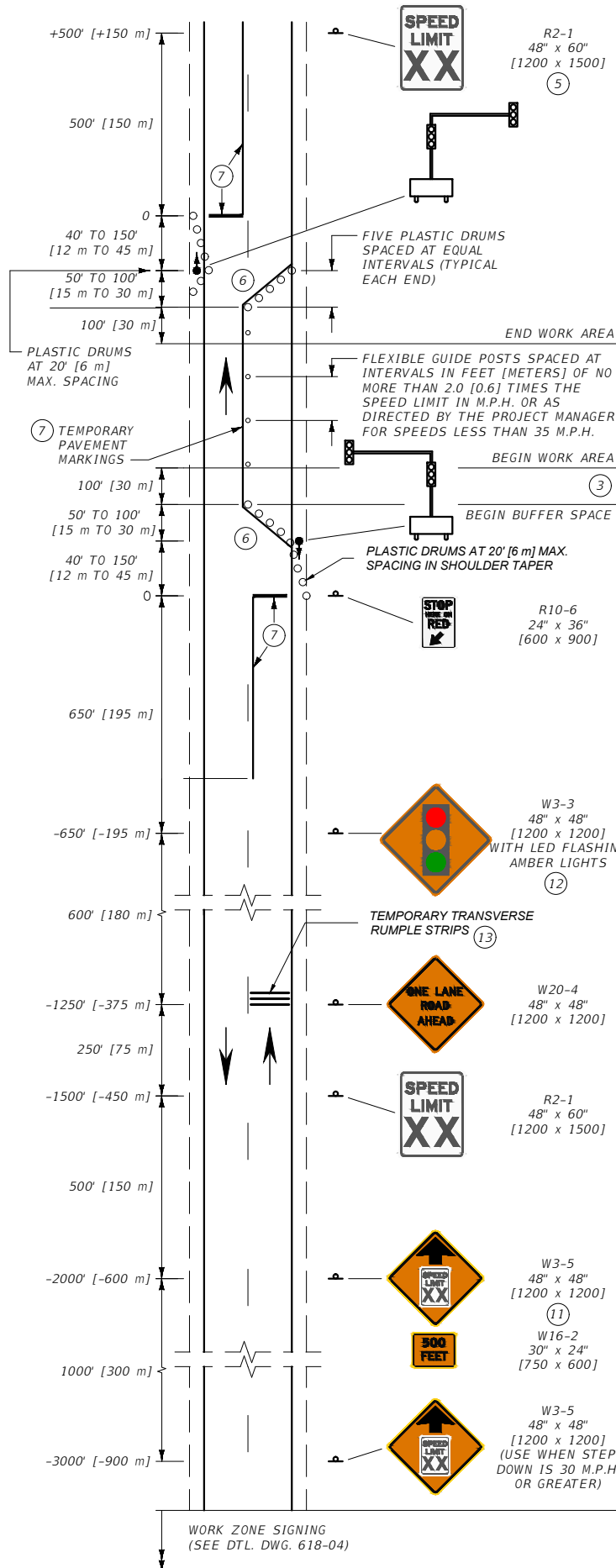
DETAILED DRAWINGS

REFERENCE	DWG. NO.
STANDARD SPEC.	618-12
SECTION 618, 715	
TWO-LANE WORK AREA	
LANE CLOSURE - FLAGGER	
CONTROLLED	
EFFECTIVE: ####	

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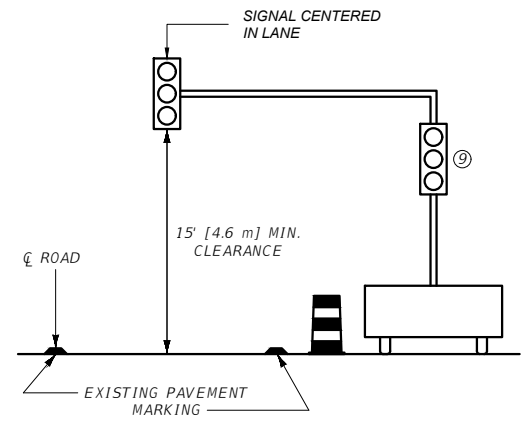
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- NOTES:
- 1 MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
 - 2 SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
 - 3 THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
 - 4 XX = SPEED DETERMINED BY THE PROJECT MANAGER.
 - 5 POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
 - 6 REMOVE ANY CONFLICTING PAVEMENT MARKINGS BETWEEN THE STOP LINE AND WORK ZONE BOUNDARY.
 - 7 PLACE TEMPORARY PAVEMENT MARKINGS AS SHOWN WHEN ROADWAY SURFACE IS PAVED AND THE SIGNALS WILL BE IN PLACE LONGER THAN 3 DAYS. REMOVABLE TEMPORARY TAPE PAVEMENT MARKINGS AND MASKING MAY BE USED. IF TRAFFIC PAINT IS USED FOLLOW 620.03.6 FOR APPLICATION THICKNESS AND GLASS BEAD RATE. TEMPORARY STRIPING INSTALLATION AND MAINTENANCE AND MARKING REMOVAL COST IS INCIDENTAL TO SIGNAL INSTALLATION COST. STOP BARS MUST BE 24" WIDE AND SPAN THE ENTIRE LANE WIDTH. UPON REMOVAL OF THE TEMPORARY TRAFFIC CONTROL SIGNALS, REMOVE ALL TEMPORARY PAVEMENT MARKINGS USING NONDESTRUCTIVE METHODS AND RESTORE PERMANENT OR INTERIM PAVEMENT MARKINGS.
 - 8 TEMPORARY TRAFFIC CONTROL SIGNALS ARE TO MEET THE PHYSICAL DISPLAY AND OPERATIONAL REQUIREMENTS OF PERMANENT TRAFFIC CONTROL SIGNALS.
 - 9 ESTABLISH TEMPORARY TRAFFIC CONTROL SIGNAL TIMING BY CONSULTING WITH AN AUTHORIZED TRAFFIC ENGINEER. ENSURE RED CLEARANCE INTERVAL DURATIONS ALLOW VEHICLES TRAVELING IN OPPOSING DIRECTIONS TO CLEAR THE SINGLE LANE SECTION. INCORPORATE SAFEGUARDS TO AVOID CONFLICTING SIGNAL INDICATIONS AT OPPOSITE ENDS OF THE WORK ZONE.
 - 10 USE TEMPORARY TRAFFIC CONTROL SIGNS AND DEVICES TO DIRECT TRAFFIC ENTERING FROM APPROACHES INTO THE SIGNAL CONTROLLED MAINLINE WORK AREA.
 - 11 INCLUDE THESE SIGNS WITH ALL FLAGGERS. INCLUDE THESE SIGNS WITHIN WORK ZONES WHEN STEP DOWN IS 20 M.P.H. OR GREATER.
 - 12 ENSURE AMBER LED FLASHERS MEET STANDARD SPECIFICATION 715 AND DTL. DWG. 618-01 REQUIREMENTS.
 - 13 TEMPORARY TRANSVERSE RUMBLE STRIPS REQUIRED FOR NIGHTTIME OPERATIONS. REFER TO STANDARD SPECIFICATION 618.03.14.

* DENOTES SIGNS UNIQUE TO MONTANA.



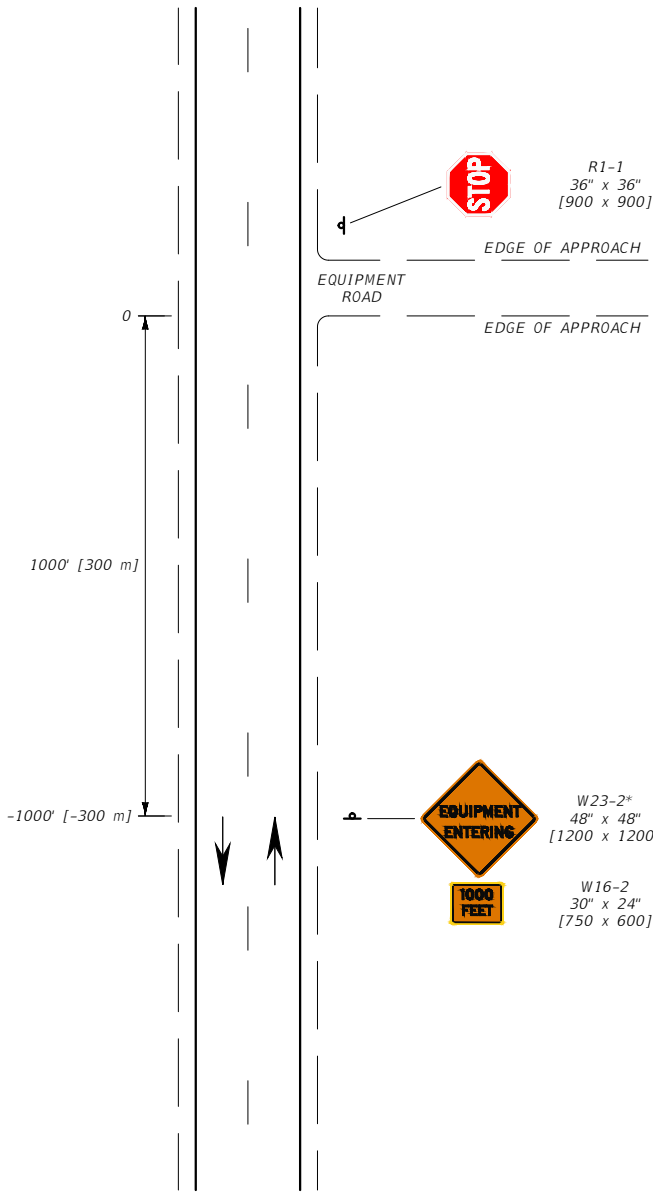
TEMPORARY TRAFFIC CONTROL SIGNAL DETAIL

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-13
TWO-LANE WORK ZONE LANE CLOSURE - SIGNAL CONTROLLED	
EFFECTIVE: ####	


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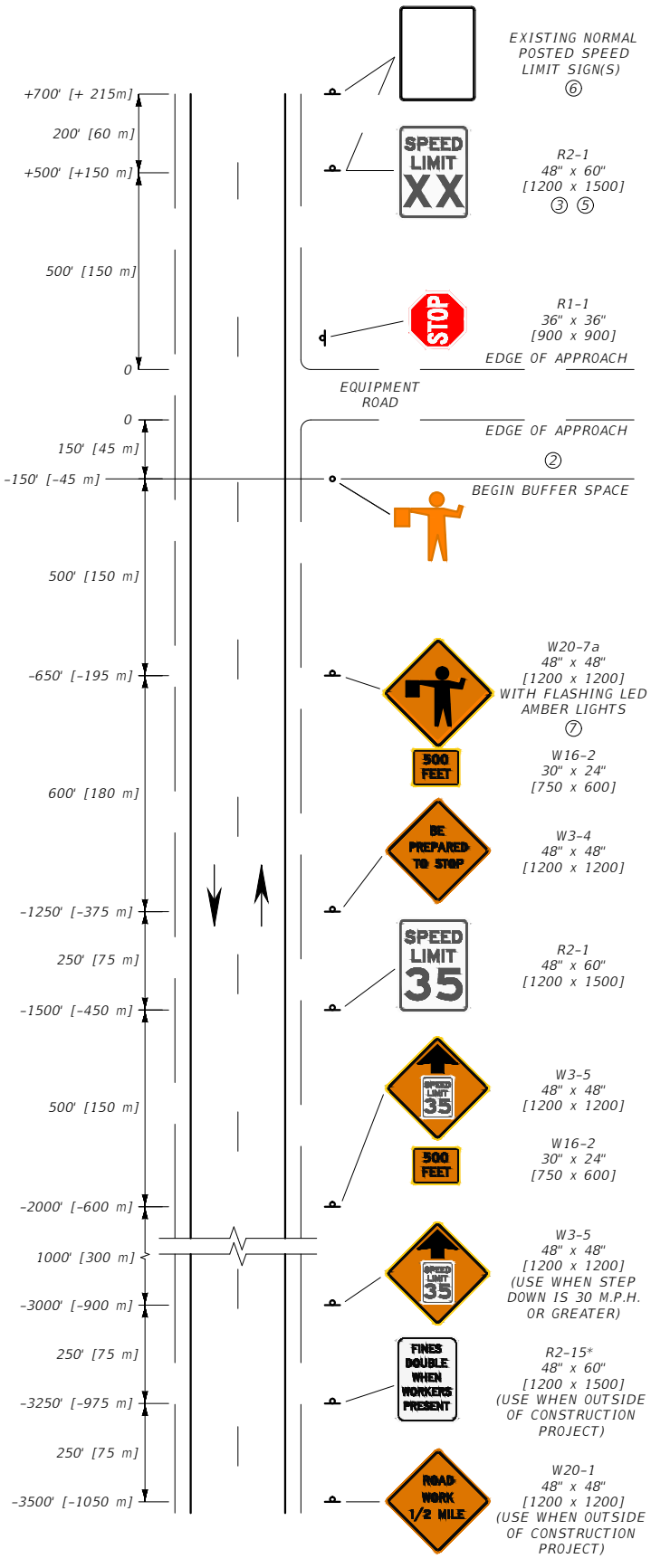


- NOTES:
- ① USE THIS SIGN LAYOUT WHEN APPROPRIATE. OTHERWISE REFER TO DTL. DWG. 618-16 WHEN A FLAGGER IS NEEDED.
 - ② SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION, AS NEEDED.
- * DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-14
TWO-LANE EQUIPMENT ENTRANCES	
EFFECTIVE: ####	
	

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- NOTES:
- ① SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION, AS NEEDED.
 - ② BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS AFFECTING STOPPING DISTANCE.
 - ③ XX = SPEED DETERMINED BY THE PROJECT MANAGER.
 - ④ WHEN THIS SIGN LAYOUT OCCURS OUTSIDE OF A CONSTRUCTION PROJECT INCLUDE THE W20-1 AND R2-15* SIGNS.
 - ⑤ POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
 - ⑥ OUTSIDE THE PROJECT, USE A SINGLE SIGN TO POST THE SPEED LIMIT WHEN THE NORMALLY POSTED SPEED LIMIT IS THE SAME FOR ALL VEHICLES. USE TWO SEPARATE SPEED LIMIT SIGNS TO DENOTE TRUCK SPEED LIMIT, AND CAR DAYTIME/NIGHTTIME SPEED LIMITS.
 - ⑦ ENSURE AMBER LED FLASHERS MEET STANDARD SPECIFICATION SECTION 715 AND DTL. DWG. 618-01 REQUIREMENTS.
- * DENOTES SIGNS UNIQUE TO MONTANA.

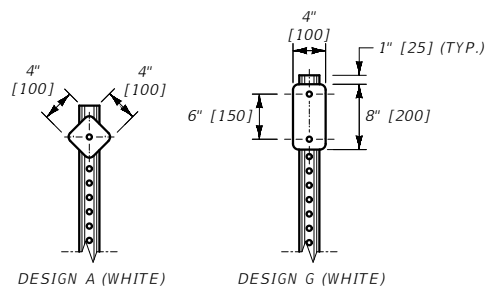
EQUIPMENT ENTRANCE WITH FLAGGER

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618, 715	DWG. NO. 618-16
TWO-LANE EQUIPMENT ENTRANCES	
EFFECTIVE: ####	
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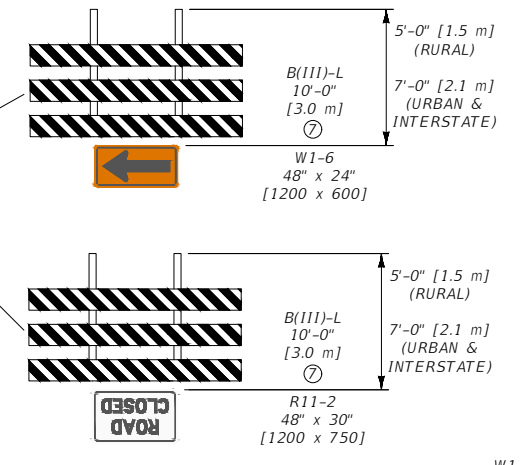
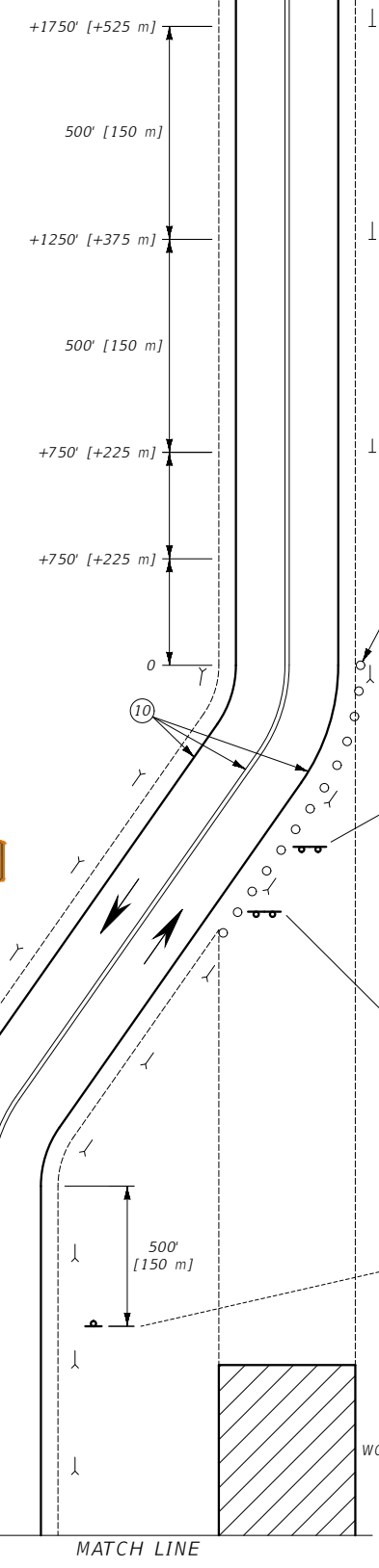
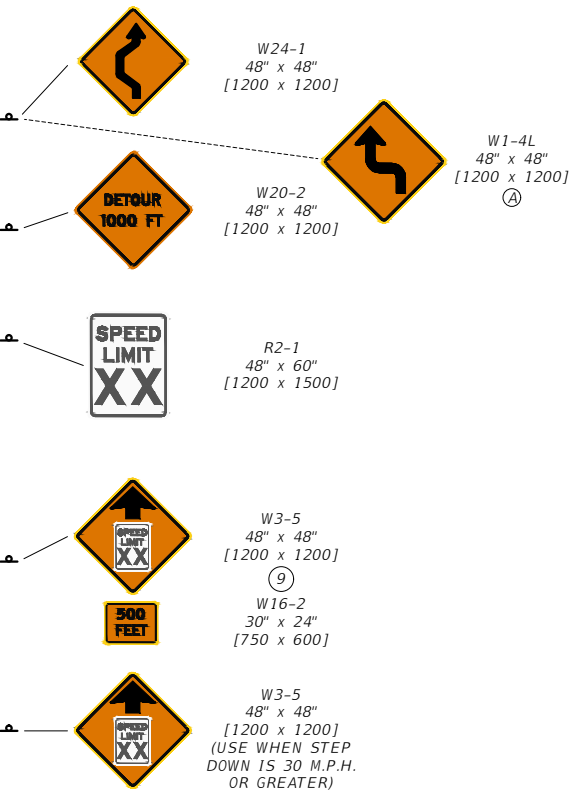
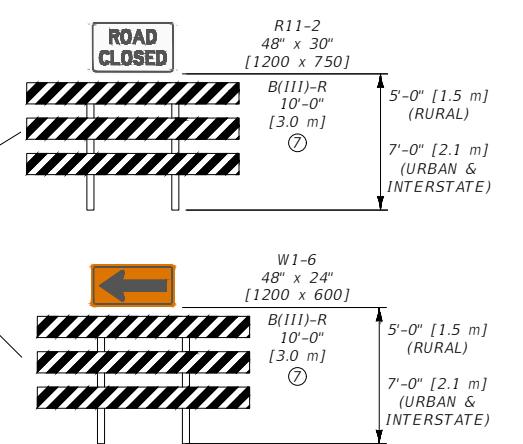
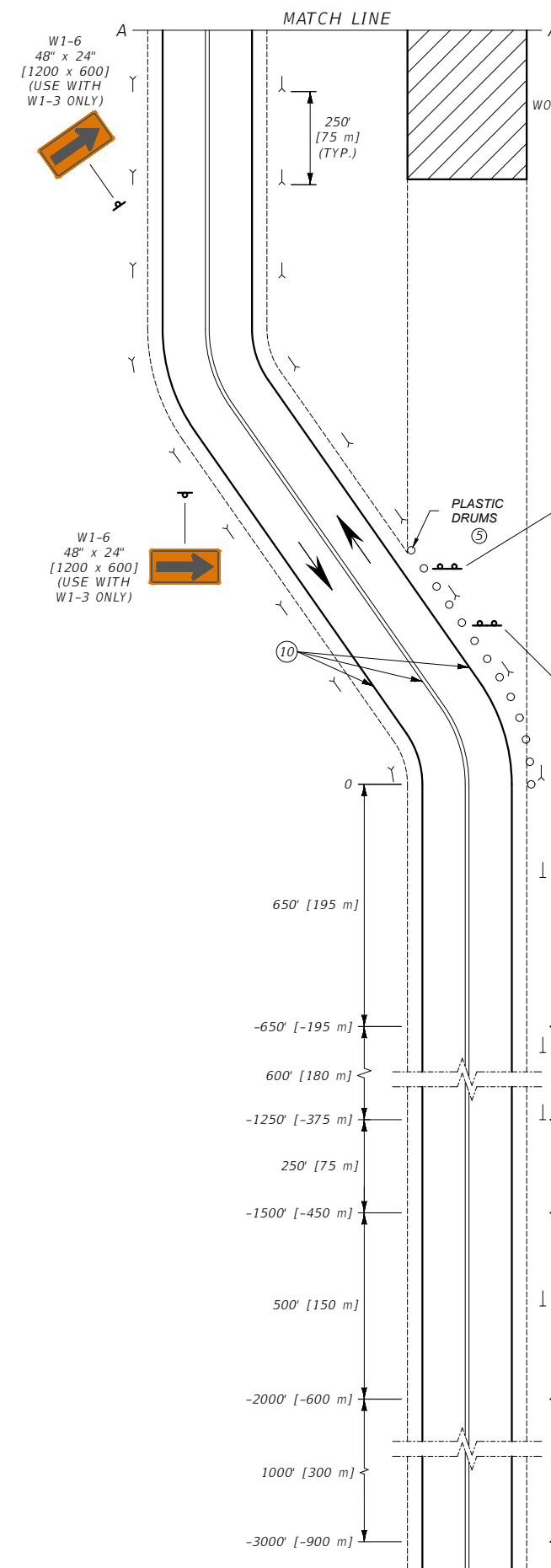
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- NOTES:
- SET UP THE SIGN LAYOUT IN THIS DRAWING FOR BOTH TRAFFIC DIRECTIONS.
 - PAVED DETOURS 24 FEET [7.2 m] WIDE OR GREATER REQUIRE 4 INCH [100] WHITE SHOULDER STRIPES AND APPROPRIATE CENTERLINE STRIPES.
 - UNPAVED DETOURS MAY REQUIRE ADDITIONAL DELINEATION.
 - USE ONLY POST MOUNTED SIGNS. DO NOT USE PORTABLE SIGN MOUNTS.
 - PLACE PLASTIC DRUMS AT INTERVALS IN FEET [METERS] OF NO MORE THAN ONE [0.3] TIMES THE SPEED LIMIT IN M.P.H. OR AS DIRECTED BY THE PROJECT MANAGER FOR SPEEDS LESS THAN 35 M.P.H.
 - XX = SPEED DETERMINED BY THE DETOUR DESIGN SPEED OR THE PROJECT MANAGER.
 - SEE DTL. DWG. 618-03.
 - POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
 - INCLUDE THESE SIGNS WITH ALL FLAGGERS. INCLUDE THESE SIGNS WITHIN WORK ZONES WHEN STEP DOWN IS 20 M.P.H. OR GREATER.
 - PROVIDE PAVEMENT MARKINGS TO DELINEATE CENTERLINE AND LANE EDGE LINE THROUGHOUT TRANSITION FROM PAVED TO GRAVELED SURFACE. REMOVE NO LONGER APPLICABLE PERMANENT PAVEMENT MARKINGS WITHIN THE TRAVELED WAY PER STANDARD SPECIFICATION 618.03.5.
- * DENOTES SIGNS UNIQUE TO MONTANA.



DELINEATOR LEGEND	
	DESIGN A
	DESIGN G

- (A) USE W1-4 OR W1-3 SIGNS WHEN TANGENT DISTANCE ALONG THE DIVERSION IS MORE THAN 600' [180 m].
- (B) USE W1-3 SIGNS ONLY WHEN CURVE DESIGN SPEEDS ARE 30 M.P.H. [50 km/hr] OR LESS.



UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618

DWG. NO. 618-18

TWO-LANE WORK ZONE DIVERSION

EFFECTIVE: ####

MONTANA
Department of Transportation

3/18/2024 11:10 AM STDRR0618018.DWG

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R2-1
48" x 60"
[1200 x 1500]
②

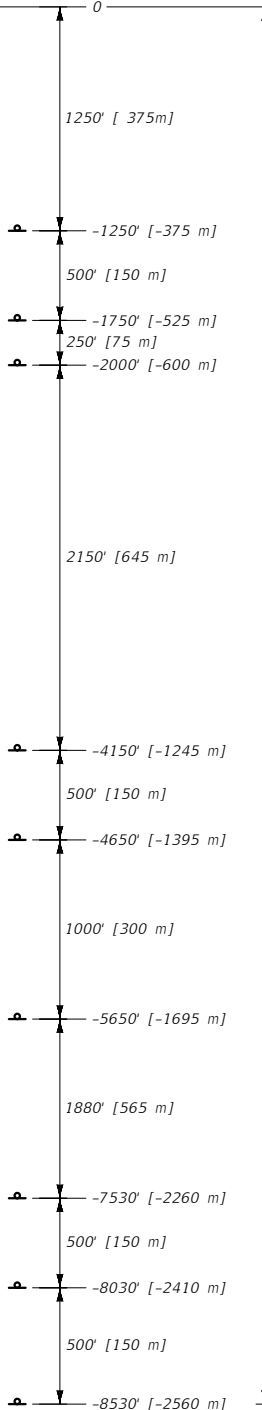
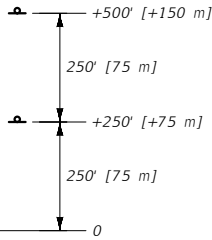


G20-2
48" x 24"
[1200 x 600]



END OF PROJECT

BEGINNING OF PROJECT



NOTES:

- ① THIS SIGN LAYOUT IS INTENDED TO BE A PERMANENT INSTALLATION FOR THE DURATION OF THE CONSTRUCTION PROJECT, AS APPROVED BY THE PROJECT MANAGER. COVER OR REMOVE SIGNS WHEN NOT IN USE, INCLUDING SPEED LIMIT SIGNS NOT WARRANTED. REMOVE ANY SIGN SUPPORTS IF THEY WILL NOT BE NEEDED WITHIN 90 DAYS.
- ② POST THE END OF WORK ZONE SPEED LIMIT CONSISTING OF ONE LIMIT WHEN THE NORMAL POSTED SPEED LIMIT FOR ALL VEHICLES IS THE SAME. WHEN CAR AND TRUCK SPEED LIMITS DIFFER, POST BOTH LIMITS ON A SINGLE SIGN.
- ③ INCLUDE REGULATORY SIGNING ONLY IF A WORK ZONE OR ROADWAY HAS CONDITIONS THAT WARRANT SPEED RESTRICTIONS. MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ④ SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
- ⑤ IN ADDITION TO THE SIGNS SHOWN, INCLUDE THE APPROPRIATE FOUR-LANE WORK ZONE SIGNS (DTL. DWG. 618-24) WHEN A WORK AREA FALLS AT THE BEGIN OR END OF THE WORK ZONE.
- ⑥ DIVIDED FOUR-LANE IS SHOWN. FOR UN-DIVIDED FOUR-LANE, PLACE SIGNS ON RIGHT SIDE ONLY.

* DENOTES SIGNS UNIQUE TO MONTANA.

FOUR-LANE WORK AREA SIGN LAYOUT (WHEN APPLICABLE, SEE DTL. DWG. 618-24)

⑥

(2) R2-15*
48" x 60"
[1500 x 900]



(2) G20-1
60" x 36"
[1500 x 900]



MILEAGE TO THE NEAREST MILE OR

(2) W20-1
48" x 48"
[1200 x 1200] (USE WHEN LESS THAN 2 MILES [3.2 km])



UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-20
DIVIDED FOUR-LANE WORK ZONE	
EFFECTIVE: ####	

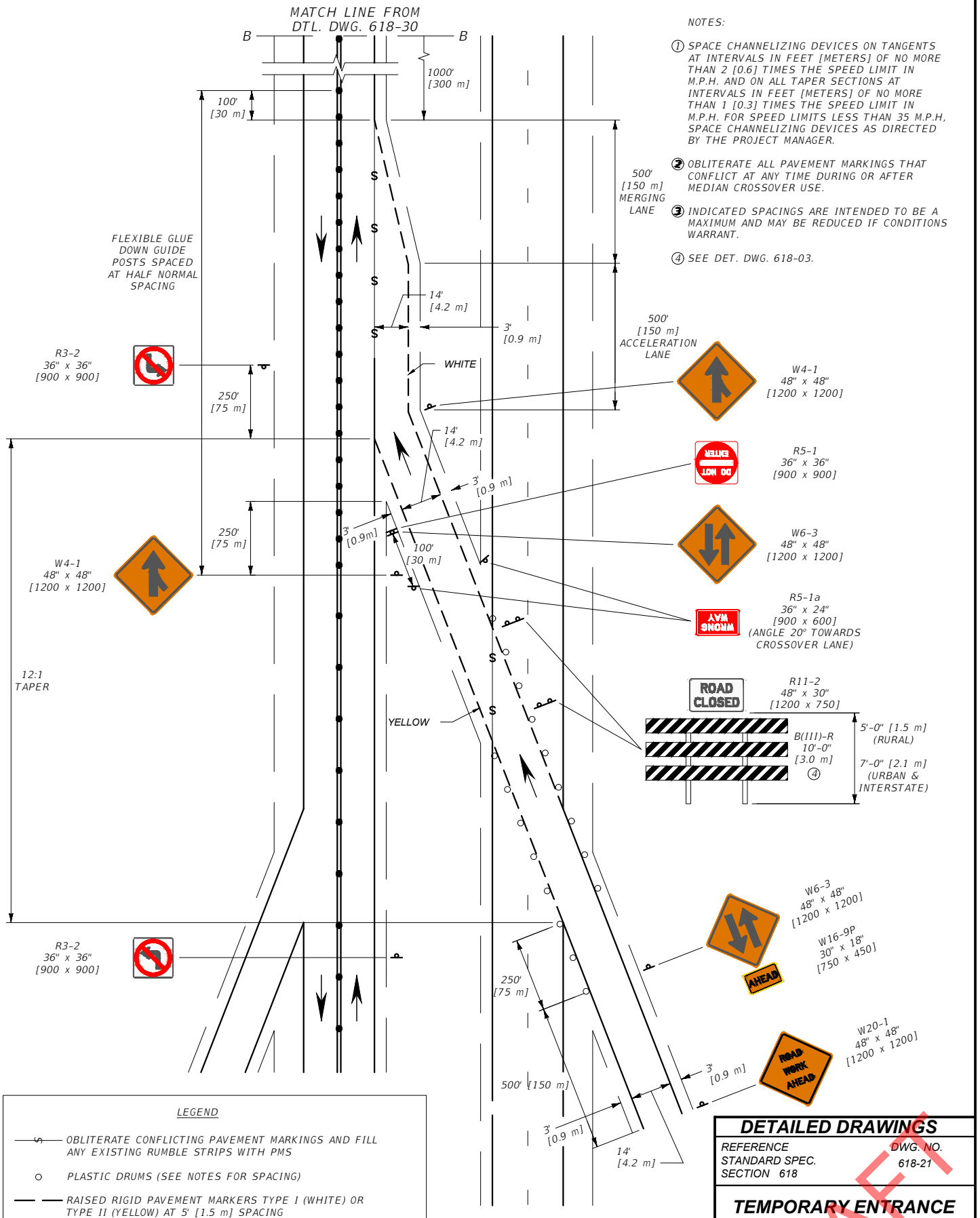
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MATCH LINE FROM
DTL. DWG. 618-30

NOTES:

- ① SPACE CHANNELIZING DEVICES ON TANGENTS AT INTERVALS IN FEET [METERS] OF NO MORE THAN 2 [0.6] TIMES THE SPEED LIMIT IN M.P.H. AND ON ALL TAPER SECTIONS AT INTERVALS IN FEET [METERS] OF NO MORE THAN 1 [0.3] TIMES THE SPEED LIMIT IN M.P.H. FOR SPEED LIMITS LESS THAN 35 M.P.H., SPACE CHANNELIZING DEVICES AS DIRECTED BY THE PROJECT MANAGER.
- ② OBLITERATE ALL PAVEMENT MARKINGS THAT CONFLICT AT ANY TIME DURING OR AFTER MERGING LANE.
- ③ INDICATED SPACINGS ARE INTENDED TO BE A MAXIMUM AND MAY BE REDUCED IF CONDITIONS WARRANT.
- ④ SEE DET. DWG. 618-03.



LEGEND

- S — OBLITERATE CONFLICTING PAVEMENT MARKINGS AND FILL ANY EXISTING RUMBLE STRIPS WITH PMS
- PLASTIC DRUMS (SEE NOTES FOR SPACING)
- — — RAISED RIGID PAVEMENT MARKERS TYPE I (WHITE) OR TYPE II (YELLOW) AT 5' [1.5 m] SPACING
- ==== DOUBLE YELLOW PAINT OR DOUBLE PLASTIC PAVEMENT MARKING TABS AT 5' [1.5 m] SPACING
- FLEXIBLE GLUE-DOWN GUIDE POSTS ON TWO-LANE (SEE NOTES FOR SPACING EXCEPT AS SHOWN)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE DWG. NO.
STANDARD SPEC. 618-21
SECTION 618

TEMPORARY ENTRANCE
RAMP MEDIAN CROSSOVER

EFFECTIVE: ####

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MONTANA
Department of Transportation

3/19/2024 10:29 AM STDDR618021.DWG

LEGEND

- OBLITERATE CONFLICTING PAVEMENT MARKINGS AND FILL ANY EXISTING RUMBLE STRIPS WITH PMS
- PLASTIC DRUMS (SEE NOTES FOR SPACING)
- — RAISED RIGID PAVEMENT MARKERS TYPE I (WHITE) OR TYPE II (YELLOW) AT 5' [1.5 m] SPACING
- ==== DOUBLE YELLOW PAINT OR DOUBLE PLASTIC PAVEMENT MARKING TABS AT 5' [1.5 m] SPACING
- FLEXIBLE GLUE-DOWN GUIDE POSTS ON TWO-LANE (SEE NOTES FOR SPACING EXCEPT AS SHOWN)

E5-1
60" x 48"
[1500 x 1200]



R3-2
36" x 36"
[900 x 900]



FLEXIBLE GLUE
DOWN GUIDE
POSTS SPACED
AT HALF NORMAL
SPACING

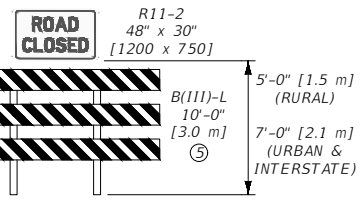
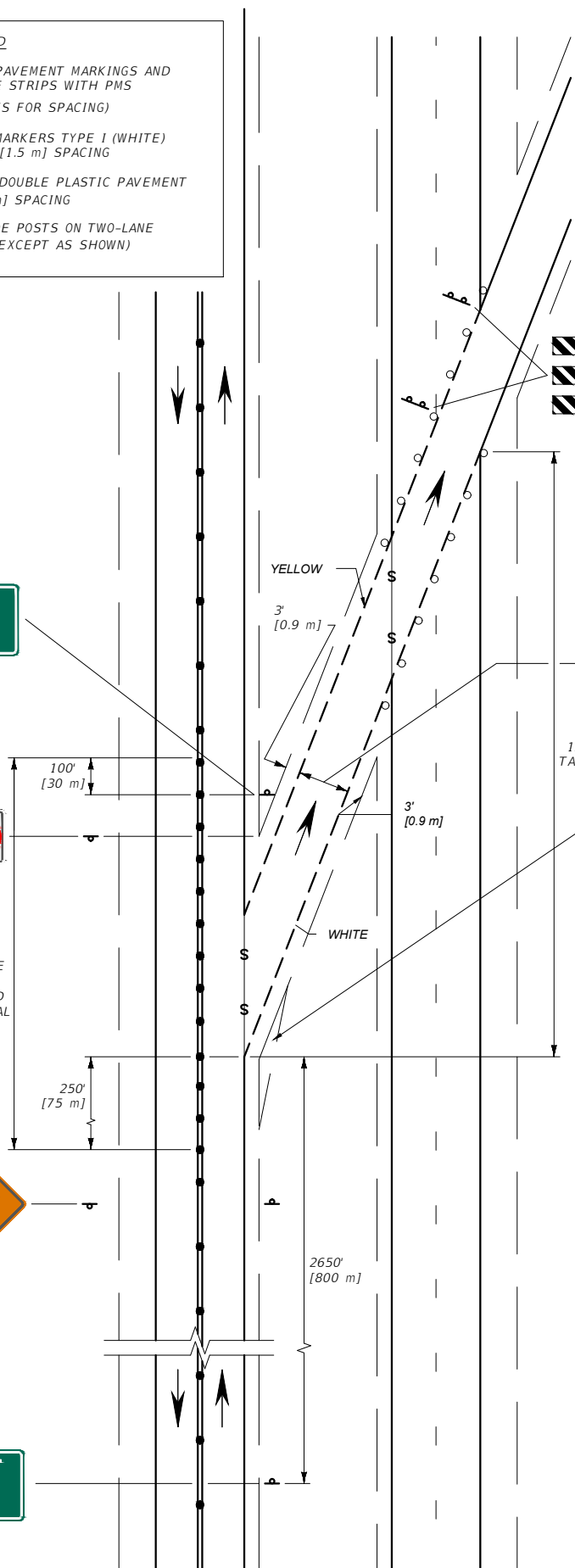
W6-3
48" x 48"
[1200 x 1200]



E7-1
72" x 36"
[1800 x 900]



UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.



ADDITIONAL PLANT MIX SURFACING TO ALLOW FOR SAFE TURNING MOVEMENTS (SEE DTL. DWG. 618-32 FOR DIMENSIONS)

NOTES:

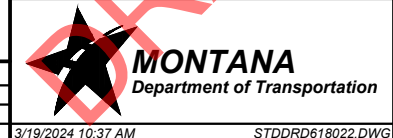
- ① SPACE CHANNELIZING DEVICES ON TANGENTS AT INTERVALS IN FEET [METERS] OF NO MORE THAN 2 [0.6] TIMES THE SPEED LIMIT IN M.P.H. AND ON ALL TAPER SECTIONS AT INTERVALS IN FEET [METERS] OF NO MORE THAN 1 [0.3] TIMES THE SPEED LIMIT IN M.P.H. FOR SPEED LIMITS LESS THAN 35 M.P.H. SPACE CHANNELIZING DEVICES AS DIRECTED BY THE PROJECT MANAGER.
- ② OBLITERATE ALL PAVEMENT MARKINGS THAT CONFLICT AT ANY TIME DURING OR AFTER MEDIAN CROSSOVER USE.
- ③ INDICATED SPACINGS ARE INTENDED TO BE A MAXIMUM AND MAY BE REDUCED IF CONDITIONS WARRANT.
- ④ PROVIDE ADDITIONAL SIGNING FOR EXIT DESTINATION WHEN EXIT DELINEATION IS NOT VISIBLE.
- ⑤ SEE DET. DWG. 618-03.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618 DWG. NO. 618-22

**TEMPORARY EXIT RAMP
MEDIAN CROSSOVER**

EFFECTIVE: ####

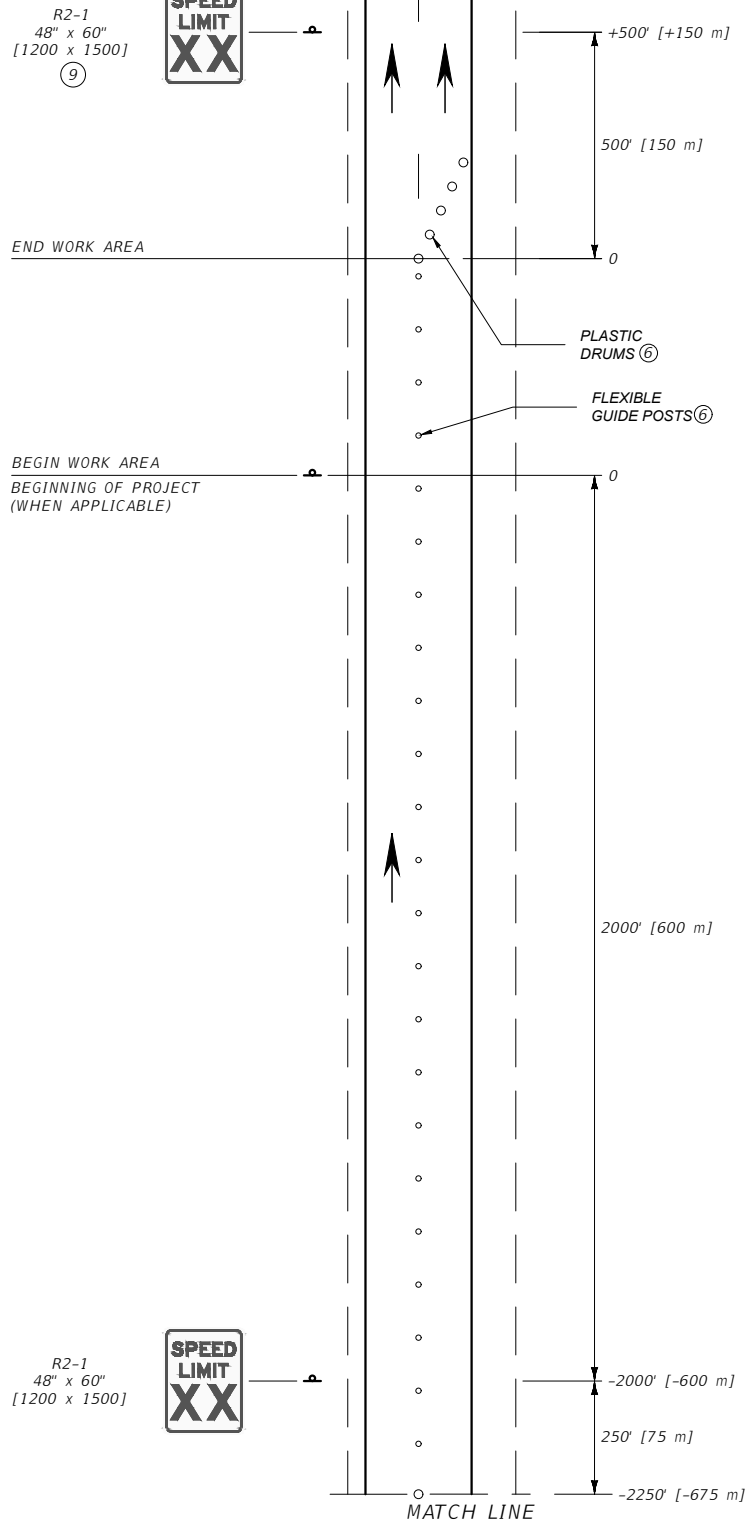
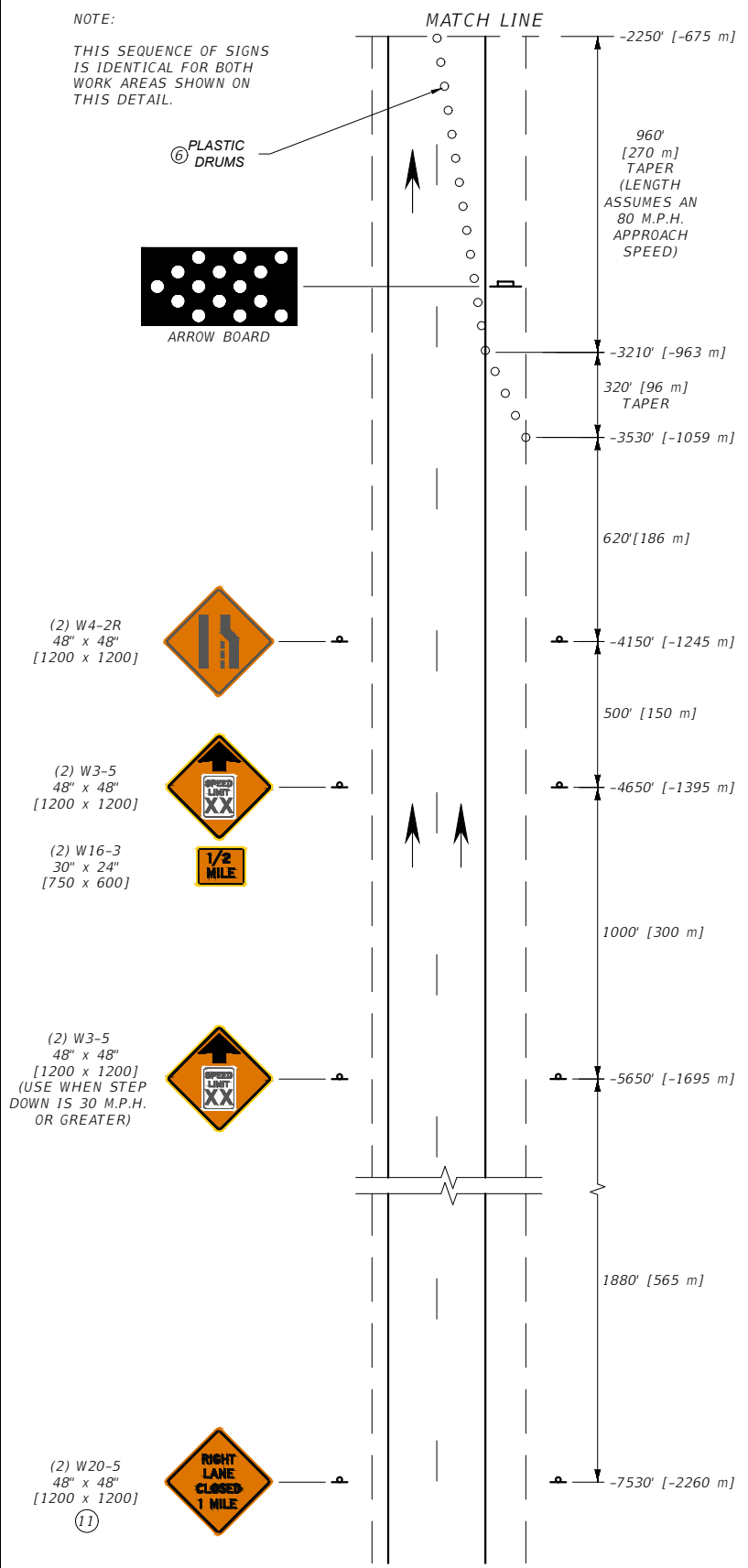


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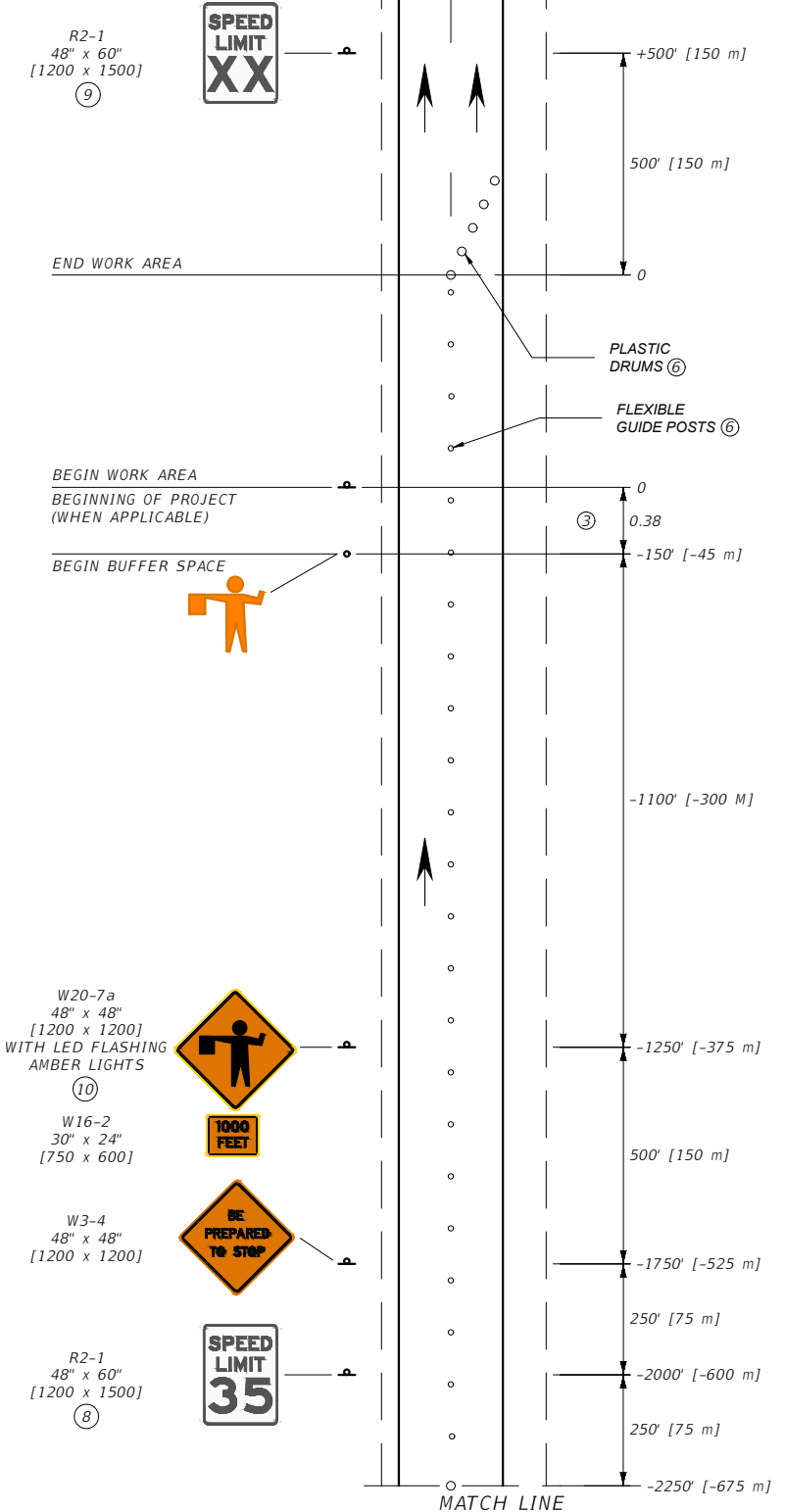
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NOTE:

THIS SEQUENCE OF SIGNS IS IDENTICAL FOR BOTH WORK AREAS SHOWN ON THIS DETAIL.



WORK AREA WITH NO FLAGGER



WORK AREA WITH FLAGGER

NOTES:

- ① THESE SIGN LAYOUTS ALSO USED IN CONJUNCTION WITH THE PERMANENT LAYOUT ILLUSTRATED ON DTL. DWG. 618-20 FOR WORK AREAS LOCATED AT THE BEGIN AND END OF THE WORK ZONES.
- ② INCLUDE REGULATORY SIGNING ONLY IF THERE IS REASON TO RESTRICT SPEED WITHIN THE WORK ZONE. MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ XX = SPEED DETERMINED BY THE PROJECT MANAGER.
- ⑤ PROVIDE A SECOND FLAGGER WHEN REQUIRED BY STANDARD SPECIFICATIONS, SECTION 618.
- ⑥ SPACE FLEXIBLE GUIDE POSTS ON TANGENTS AT INTERVALS IN FEET [METERS] OF NO MORE THAN TWO [0.6] TIMES THE SPEED LIMIT IN M.P.H. SPACE PLASTIC DRUMS IN ALL TAPER SECTIONS AT INTERVALS IN FEET [METERS] OF NO MORE THAN ONE [0.3] TIMES THE SPEED LIMIT IN M.P.H. FOR SPEED LIMITS LESS THAN 35 M.P.H., SPACE CHANNELIZING DEVICES AS DIRECTED BY THE PROJECT MANAGER.
- ⑦ WHEN PORTABLE SIGNS ARE USED, PLACE AS DIRECTED BY THE PROJECT MANAGER.
- ⑧ IF FLAGGER IS MORE THAN ONE MILE [1.6 km] FROM THE LANE CLOSURE, INCLUDE W3-5 SIGNS, AS REQUIRED.
- ⑨ POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
- ⑩ ENSURE THE AMBER LED FLASHING LIGHTS MEET REQUIREMENTS OF STANDARD SPECIFICATION 715 AND DTL. DWG. 618-01.
- ⑪ POST THE W20-5 AFTER THE W20-1 OR G20-1 AND THE R2-15 IF THE MERGING TAPER OCCURS AT THE BEGINNING OF PROJECT.

* DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618, 715

DWG. NO. 618-24

DIVIDED FOUR-LANE WORK AREAS

EFFECTIVE: ####

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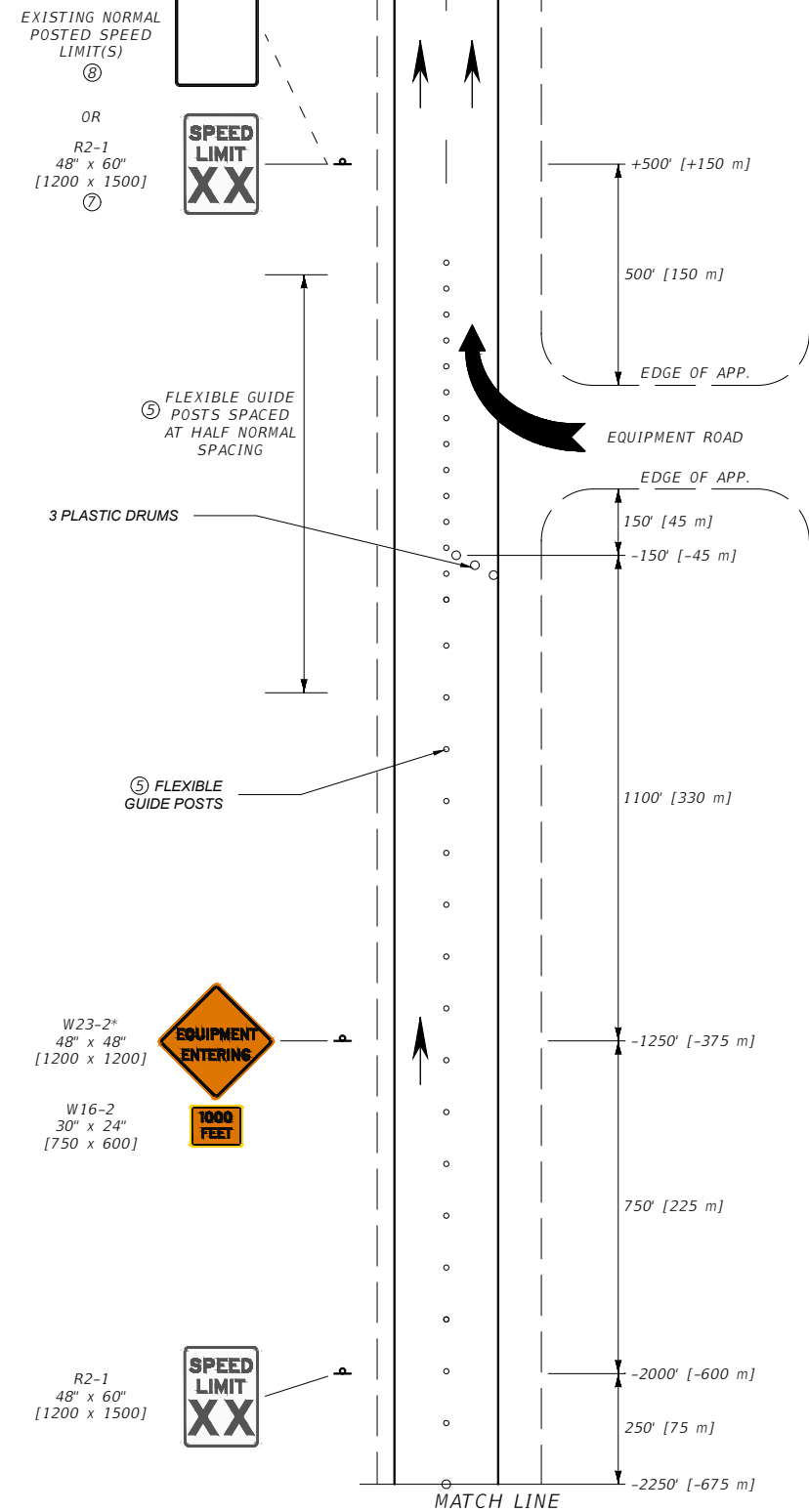
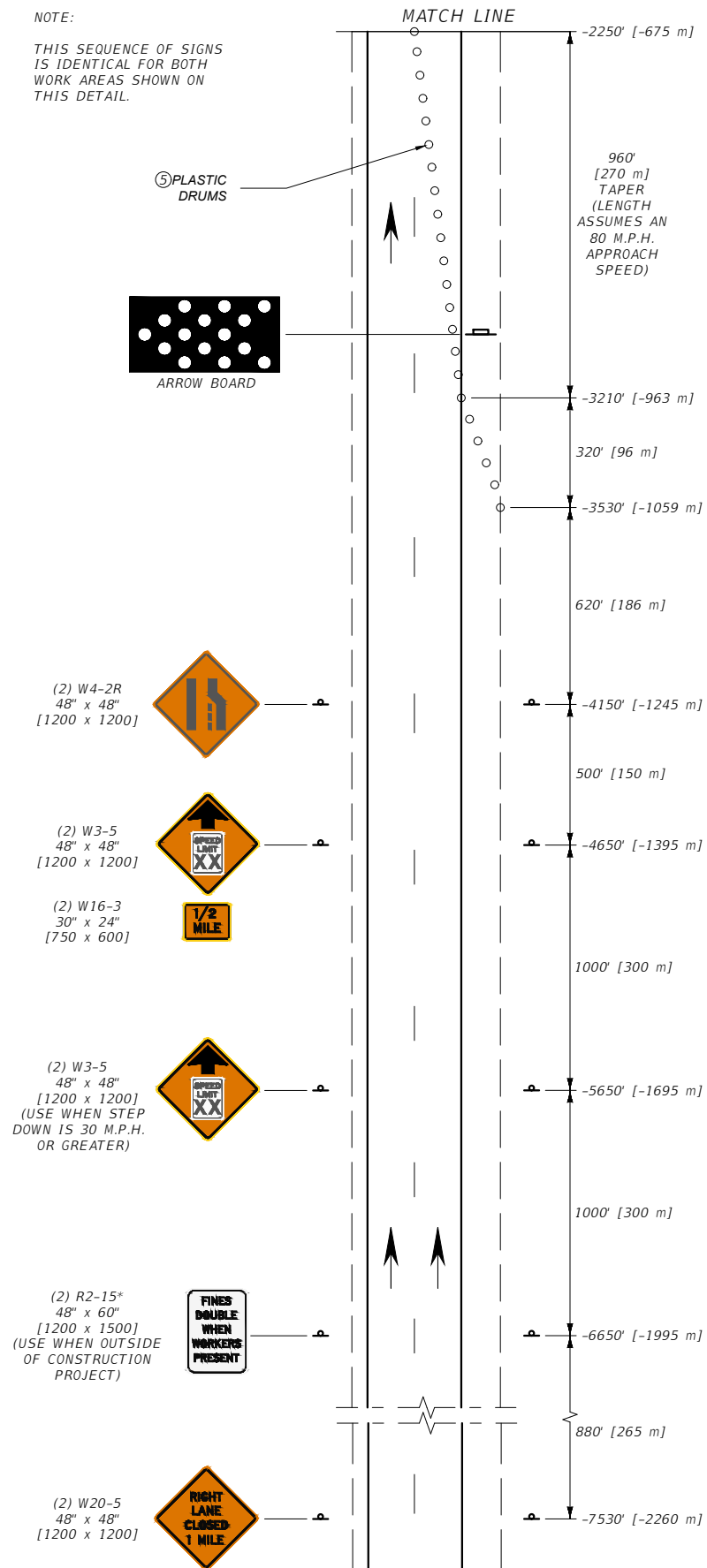
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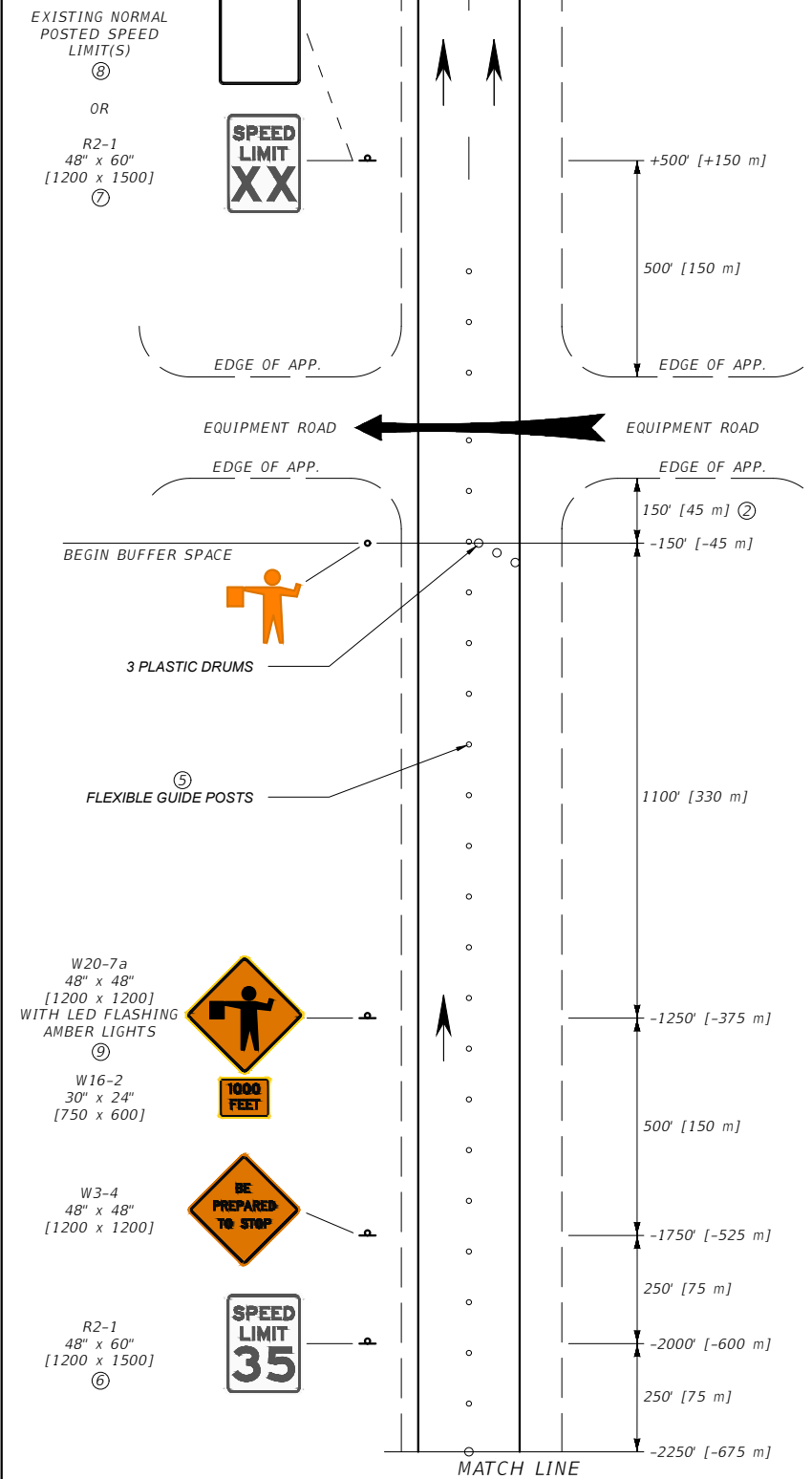
MONTANA
Department of Transportation

3/19/2024 10:46 AM STDDR0618024.DWG

NOTE:
THIS SEQUENCE OF SIGNS IS IDENTICAL FOR BOTH WORK AREAS SHOWN ON THIS DETAIL.



EQUIPMENT ENTRANCE WITH NO FLAGGER



EQUIPMENT ENTRANCE WITH FLAGGER

- NOTES:
- ① INCLUDE SPEED LIMIT SIGNING ONLY IF THERE IS REASON TO RESTRICT SPEED WITHIN THE WORK ZONE. REMOVE OR COVER REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
 - ② THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
 - ③ XX = SPEED DETERMINED BY THE PROJECT MANAGER.
 - ④ WHEN THIS OCCURS OUTSIDE OF A CONSTRUCTION PROJECT, INCLUDE THE W20-1 AND R2-15* SIGNS.
 - ⑤ SPACE FLEXIBLE GUIDE POSTS ON TANGENTS AT INTERVALS IN FEET [METERS] OF NO MORE THAN TWO [0.6] TIMES THE SPEED LIMIT IN M.P.H. SPACE PLASTIC DRUMS IN ALL TAPER SECTIONS AT INTERVALS IN FEET [METERS] OF NO MORE THAN ONE [0.3] TIMES THE SPEED LIMIT IN M.P.H. FOR SPEED LIMITS LESS THAN 35 M.P.H., SPACE CHANNELIZING DEVICES AS DIRECTED BY THE PROJECT MANAGER.
 - ⑥ IF FLAGGER IS MORE THAN ONE MILE [1.6 km] FROM THE LANE CLOSURE, INCLUDE W3-5 SIGNS, AS REQUIRED.
 - ⑦ POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
 - ⑧ WHEN OUTSIDE OF A CONSTRUCTION PROJECT, POST THE SPEED LIMIT CONSISTING OF ONE LIMIT WHEN THE NORMAL POSTED SPEED LIMIT FOR ALL VEHICLES IS THE SAME. WHEN CAR AND TRUCK SPEED LIMITS DIFFER, POST BOTH LIMITS ON A SINGLE SIGN.
 - ⑨ ENSURE THE AMBER LED FLASHERS MEET REQUIREMENTS OF SECTION 715 AND DTL. DWG. 618-01.
 - ⑩ POST THE W20-5 AFTER THE W20-1 OR THE G20-1 AND THE R2-15 IF THE MERGING TAPER OCCURS AT THE BEGINNING OF PROJECT.
- * DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618, 715	DWG. NO. 618-27

DIVIDED FOUR-LANE EQUIPMENT ENTRANCE

EFFECTIVE: ####

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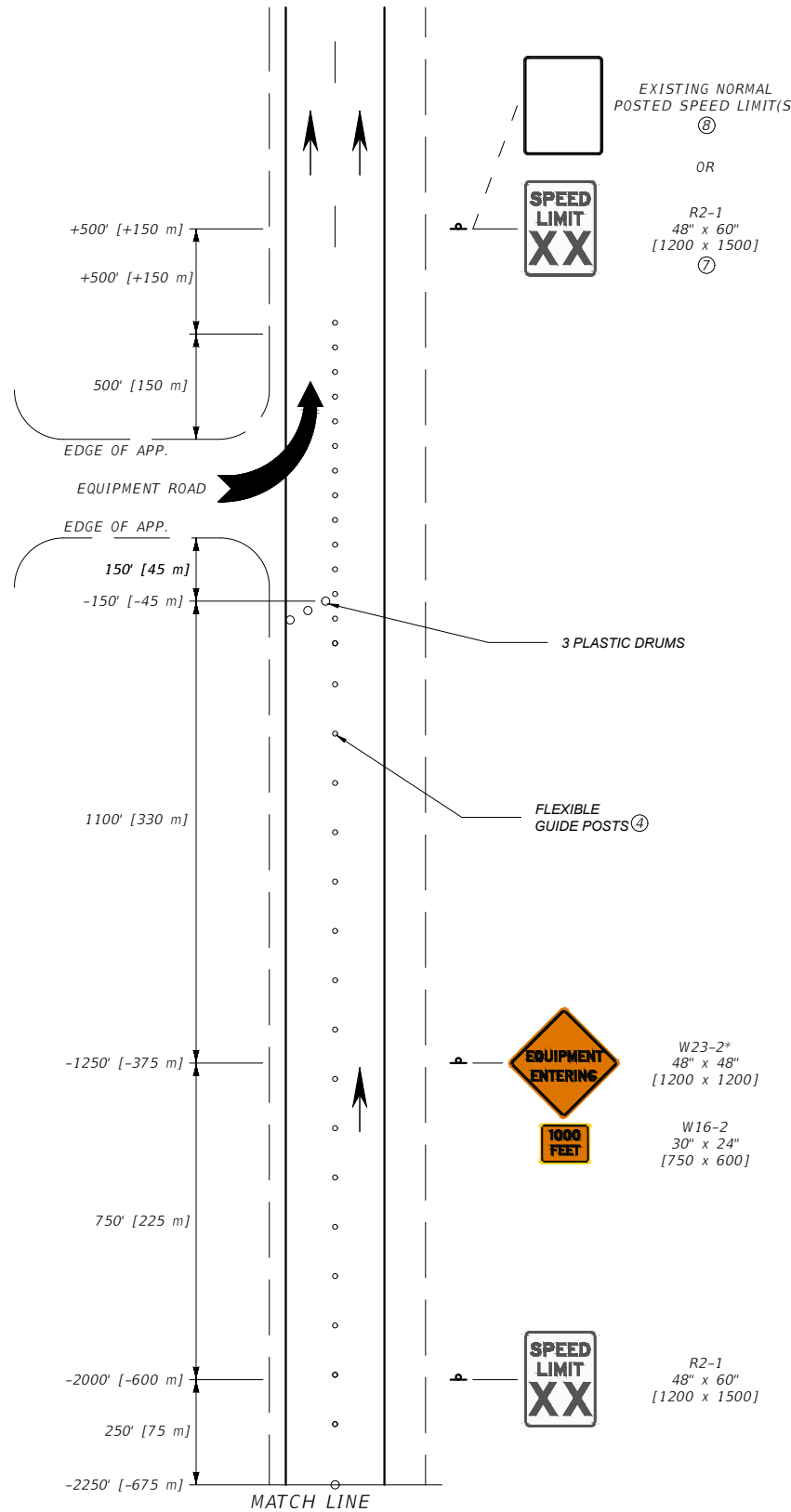
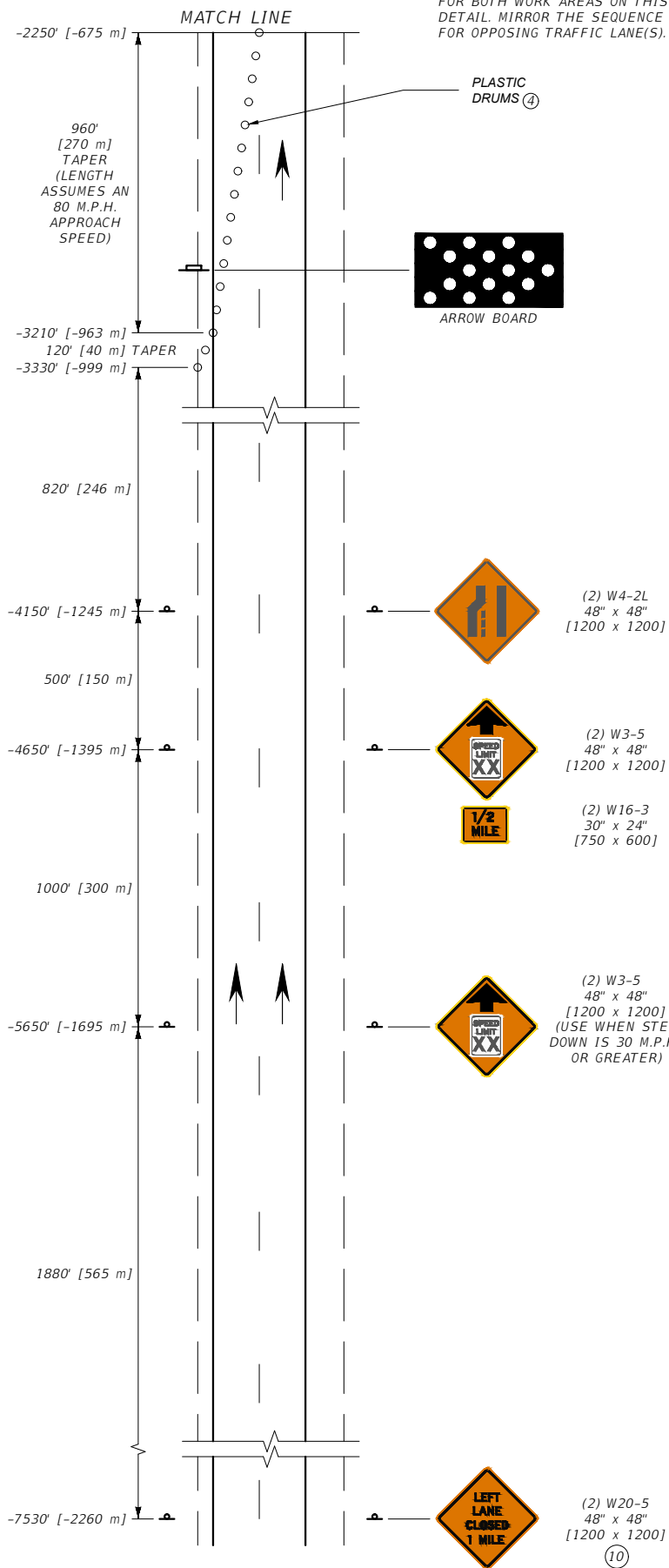
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MONTANA Department of Transportation

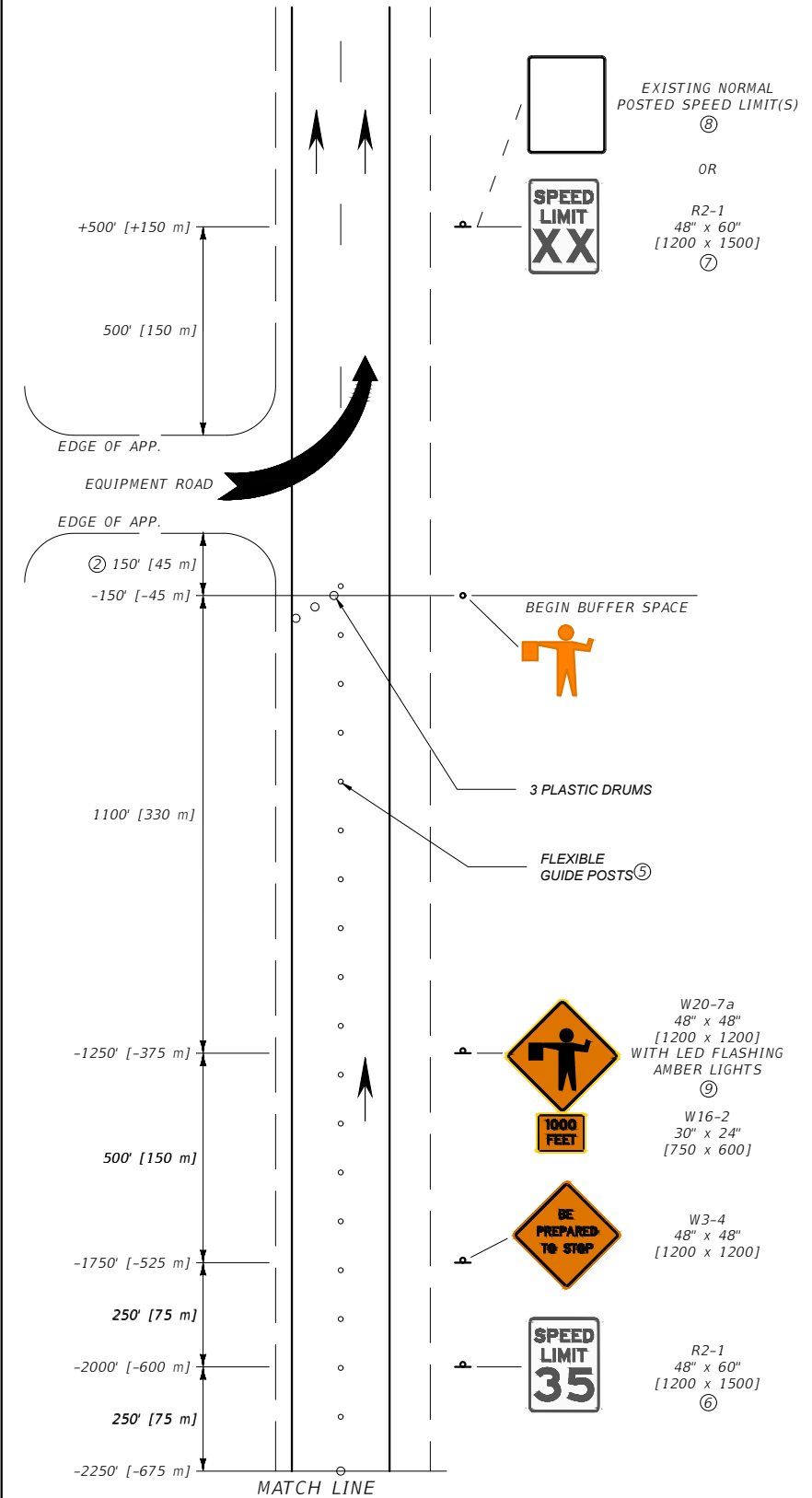
3/18/2024 9:20 AM STDDR0618027.DWG

NOTE:

THIS SIGN SEQUENCE IS IDENTICAL FOR BOTH WORK AREAS ON THIS DETAIL. MIRROR THE SEQUENCE FOR OPPOSING TRAFFIC LANE(S).



MEDIAN CROSSING WITH NO FLAGGER (USE WITH WIDE MEDIANS)



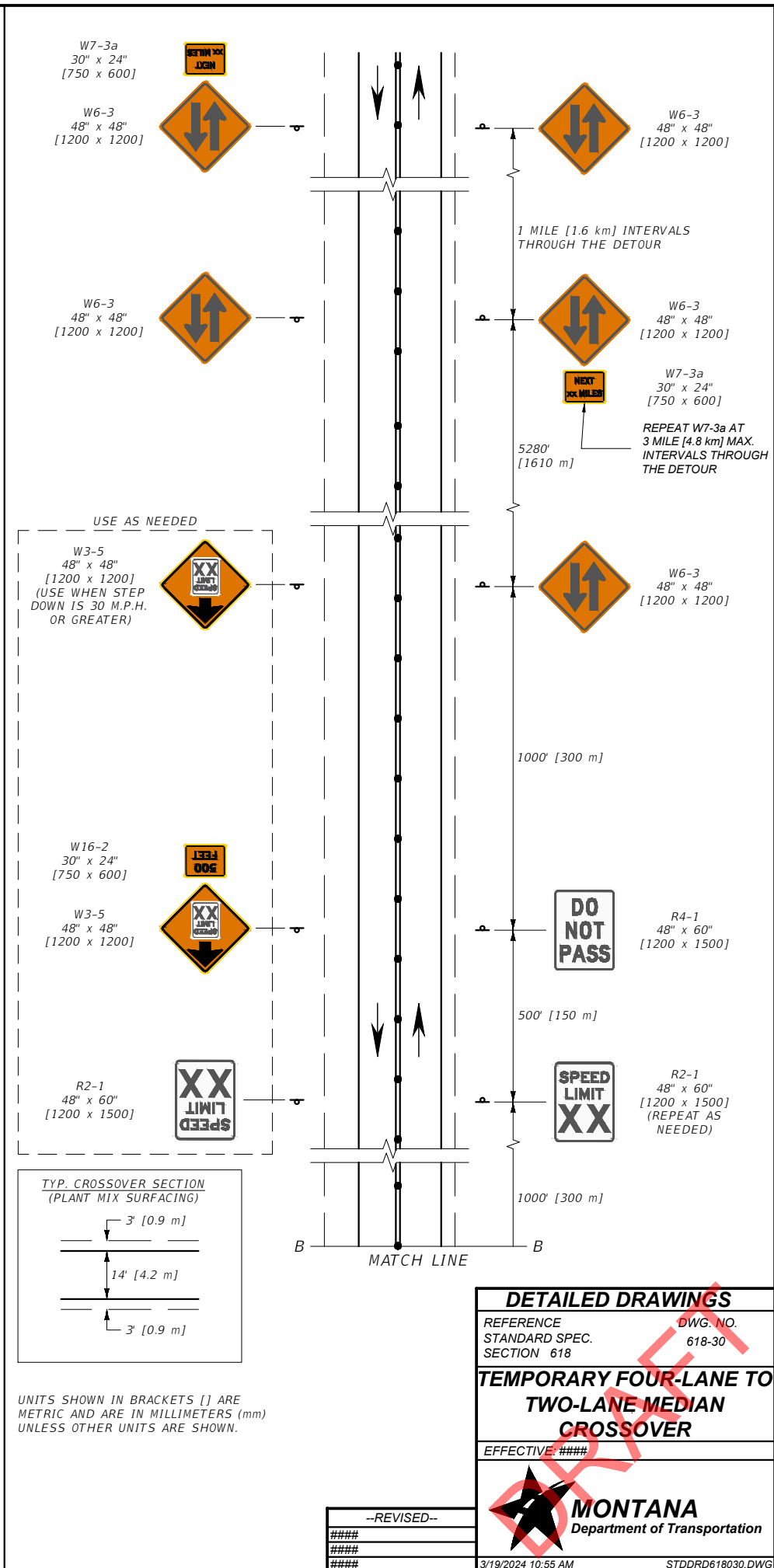
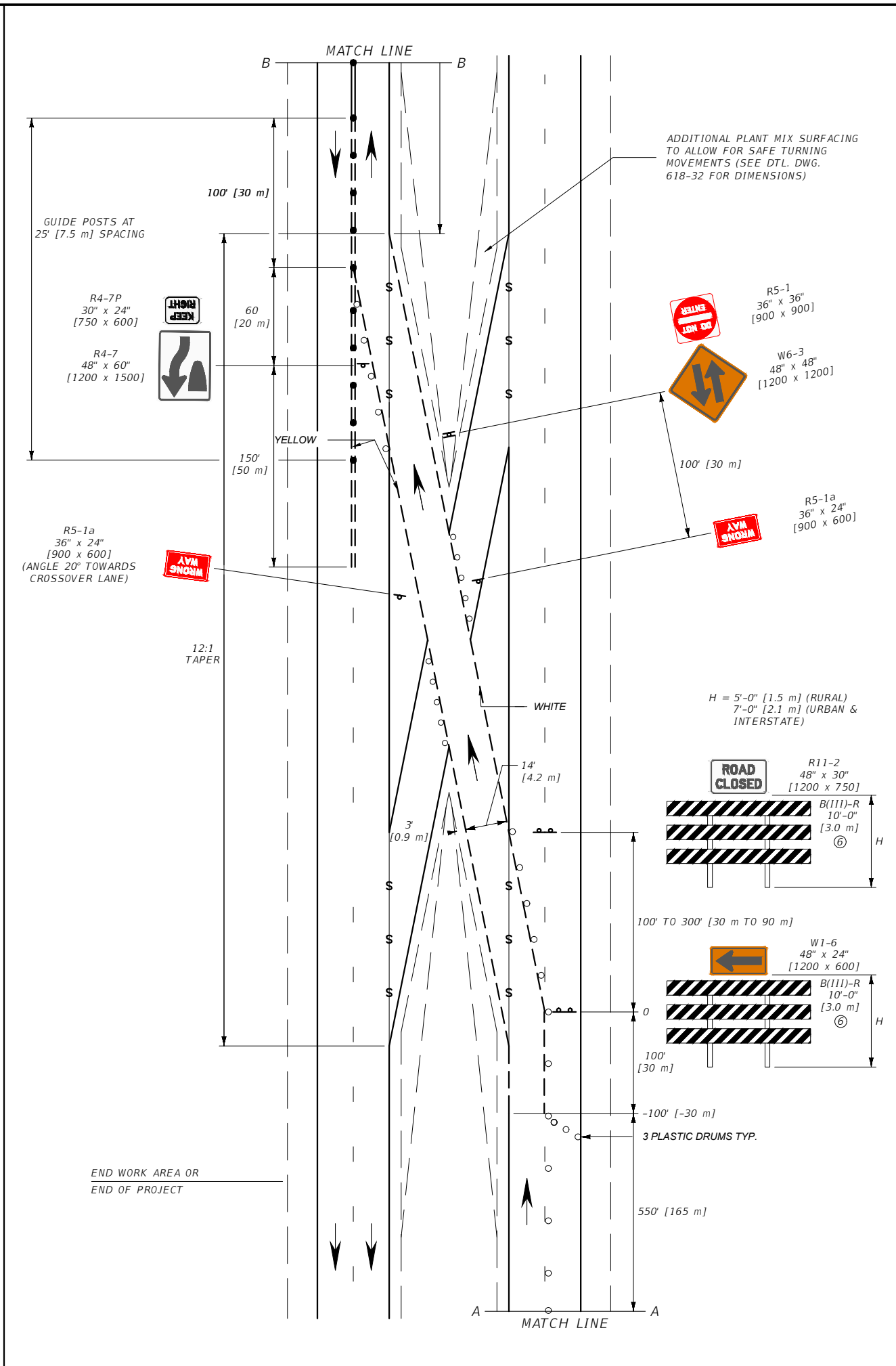
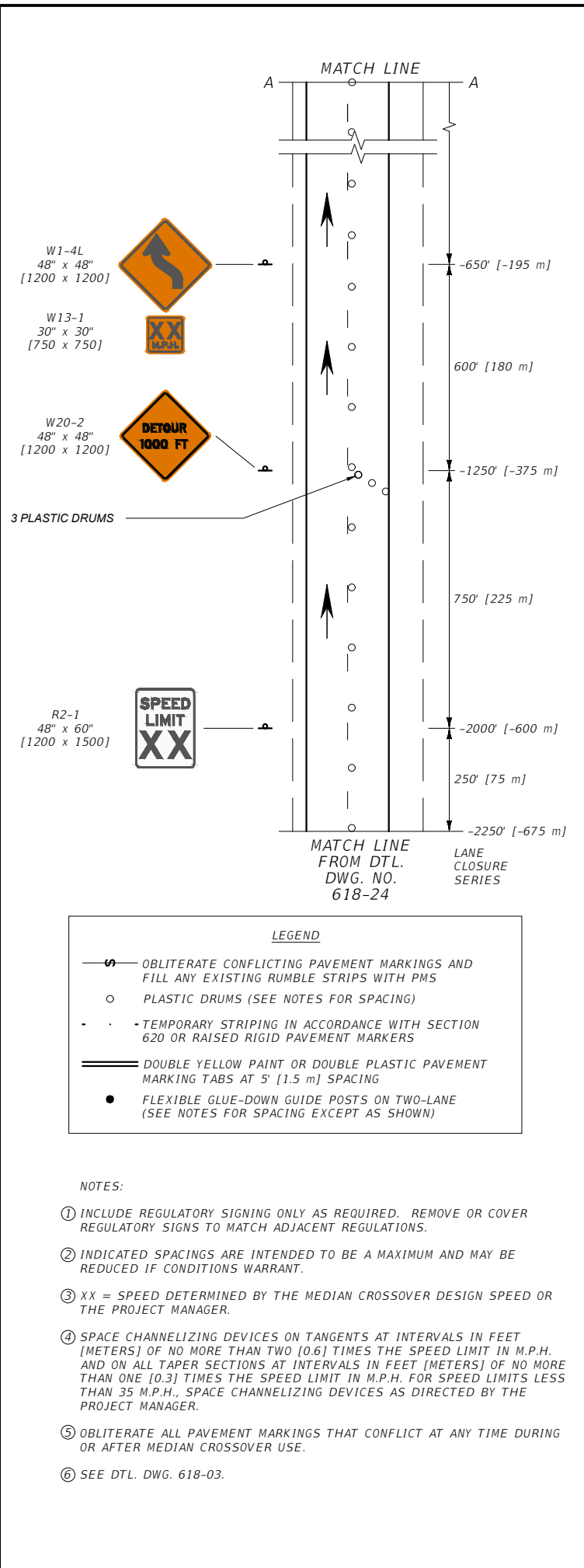
MEDIAN CROSSING WITH FLAGGER (USE WITH NARROW MEDIANS)

- NOTES:
- INCLUDE SPEED LIMIT SIGNING ONLY IF THERE IS REASON TO RESTRICT SPEED WITHIN THE WORK ZONE. REMOVE OR COVER REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
 - THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
 - XX = SPEED DETERMINED BY THE PROJECT MANAGER.
 - WHEN THIS OCCURS OUTSIDE OF A CONSTRUCTION PROJECT, INCLUDE THE W20-1 AND R2-15* SIGNS.
 - SPACE FLEXIBLE GUIDE POSTS ON TANGENTS AT INTERVALS IN FEET [METERS] OF NO MORE THAN TWO [0.6] TIMES THE SPEED LIMIT IN M.P.H. SPACE PLASTIC DRUMS IN ALL TAPER SECTIONS AT INTERVALS IN FEET [METERS] OF NO MORE THAN ONE [0.3] TIMES THE SPEED LIMIT IN M.P.H. FOR SPEED LIMITS LESS THAN 35 M.P.H., SPACE CHANNELIZING DEVICES AS DIRECTED BY THE PROJECT MANAGER.
 - IF FLAGGER IS MORE THAN ONE MILE [1.6 km] FROM THE LANE CLOSURE, INCLUDE W3-5 SIGNS, AS REQUIRED.
 - POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMALSTED POSTED SPEED LIMITS AT THE END OF WORK ZONE.
 - WHEN OUTSIDE OF A CONSTRUCTION PROJECT, POST THE SPEED LIMIT CONSISTING OF ONE LIMIT WHEN THE NORMAL POSTED SPEED LIMIT FOR ALL VEHICLES IS THE SAME. WHEN CAR AND TRUCK SPEED LIMITS DIFFER, POST BOTH LIMITS ON A SINGLE SIGN.
 - ENSURE THE AMBER LED FLASHERS MEET REQUIREMENTS OF SECTION 715 AND DTL. DWG. 618-01.
 - POST THE W20-5 AFTER THE W20-1 OR G20-1 AND THE R2-15 IF THE MERGING TAPER OCCURS AT THE BEGINNING OF PROJECT.
- * DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS
 REFERENCE STANDARD SPEC. SECTION 618, 715
 DWG. NO. 618-28

DIVIDED FOUR-LANE MEDIAN CROSSING
 EFFECTIVE: ####



DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618

DWG. NO. 618-30

TEMPORARY FOUR-LANE TO TWO-LANE MEDIAN CROSSOVER

EFFECTIVE: ####

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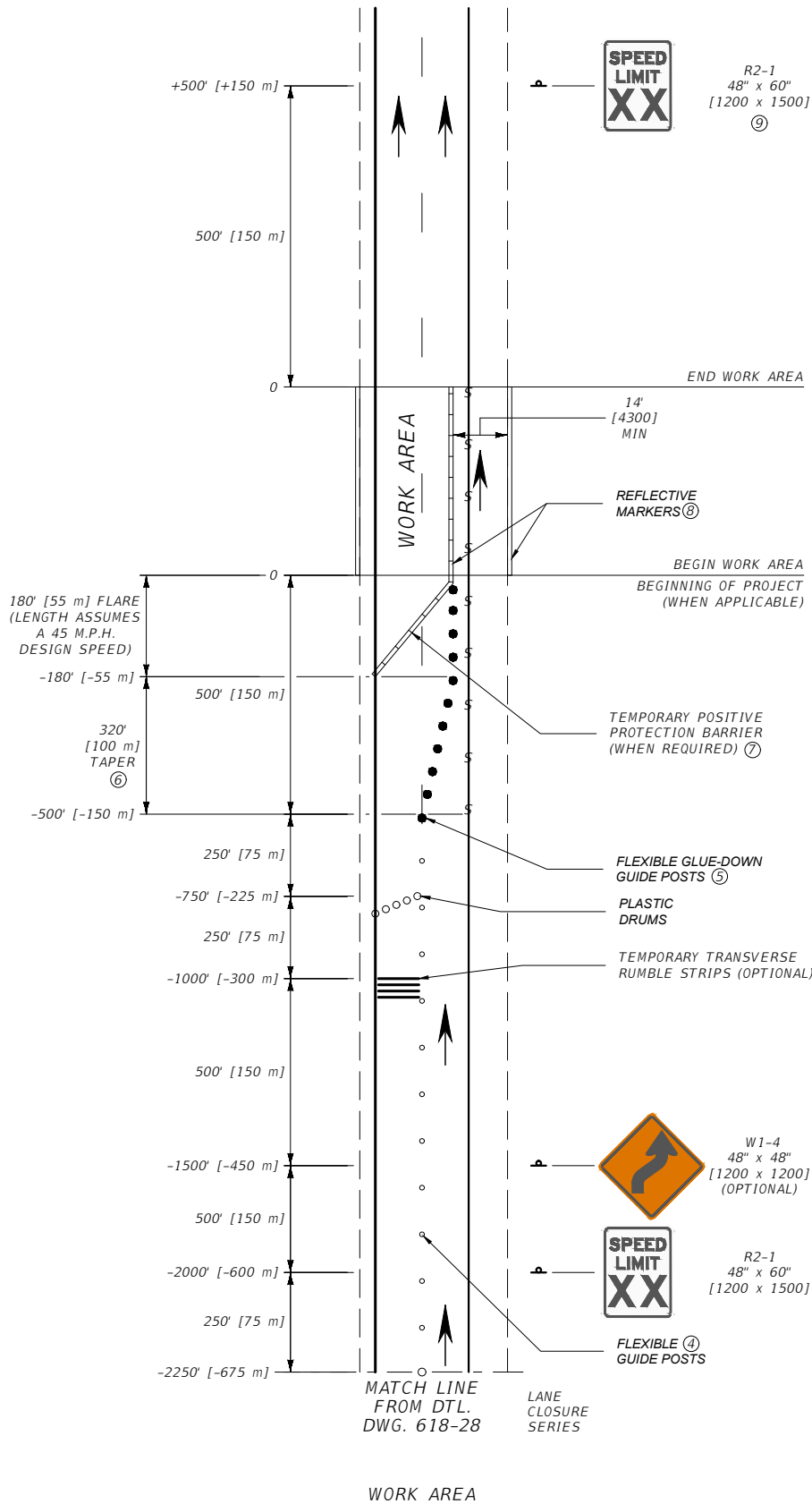
STDRD618030.DWG

MONTANA
Department of Transportation

NOTES:

- ① THESE SIGN LAYOUTS USED IN CONJUNCTION WITH THE LAYOUT ILLUSTRATED ON DTL. DWG. 618-28.
- ② INCLUDE REGULATORY SIGNING ONLY AS REQUIRED. REMOVE OR COVER REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ③ XX = SPEED DETERMINED BY THE PROJECT MANAGER.
- ④ SPACE CHANNELIZING DEVICES ON TANGENTS AT INTERVALS IN FEET [METERS] OF NO MORE THAN TWO [0.6] TIMES THE SPEED LIMIT IN M.P.H. AND ON ALL TAPER SECTIONS AT INTERVALS IN FEET [METERS] OF NO MORE THAN ONE [0.3] TIMES THE SPEED LIMIT IN M.P.H. FOR SPEED LIMITS LESS THAN 35 M.P.H., SPACE CHANNELIZING DEVICES AS DIRECTED BY THE PROJECT MANAGER.
- ⑤ SPACE FLEXIBLE GLUE-DOWN GUIDE POSTS USED FOR LANE SHIFT TAPER AT INTERVALS IN FEET [METERS] OF M.P.H.
- ⑥ THE LANE SHIFT TAPER LENGTH ASSUMES AN 8' [2400] LANE SHIFT OFFSET AND AN 80 M.P.H. APPROACH SPEED. CONTACT THE PROJECT MANAGER IF CONDITIONS VARY.
- ⑦ TEMPORARY POSITIVE PROTECTION BARRIER CAN TERMINATE AT THE CENTER OF THE CLOSED LANE FOR ACCESS PURPOSES IF AN APPROVED TEMPORARY IMPACT ATTENUATOR IS USED.
- ⑧ PLACE REFLECTIVE MARKERS ALONG THE TOP OF TEMPORARY BARRIER AND ENSURE REFLECTORS ON EXISTING BARRIER ARE INTACT.
- ⑨ POST THE SPEED LIMIT APPROPRIATE FOR ALL VEHICLES FOR THE REMAINDER OF THE WORK ZONE BEFORE RESUMING TO NORMAL POSTED SPEED LIMITS AT THE END OF THE WORK ZONE.
- ⑩ OBLITERATE CONFLICTING PAVEMENT MARKINGS BEGINNING AT THE SHIFTING TAPER AND CONTINUING THROUGH THE WORK AREA.

* DENOTES SIGNS UNIQUE TO MONTANA.

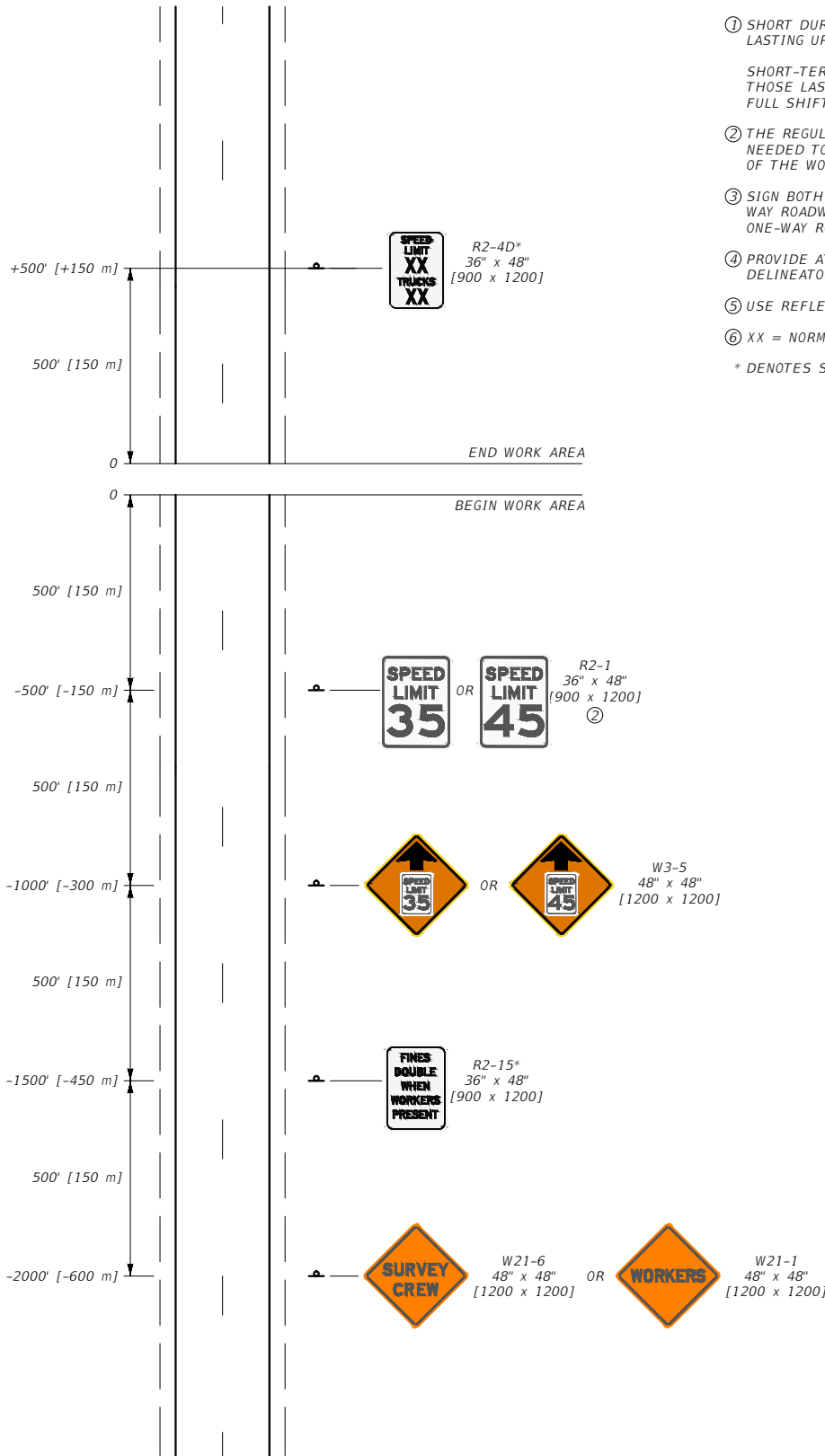


LEGEND	
	OBLITERATE CONFLICTING PAVEMENT MARKINGS ⑩
	PLASTIC DRUMS (SEE NOTES FOR SPACING)
	FLEXIBLE GLUE-DOWN GUIDE POSTS (SEE NOTES FOR SPACING)
	FLEXIBLE GUIDE POSTS

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UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.


DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-33
DIVIDED FOUR-LANE SINGLE LANE CLOSURE LANE SHIFT	
EFFECTIVE: ####	
3/18/2024 2:15 PM	STDDR618033.DWG



NOTES:

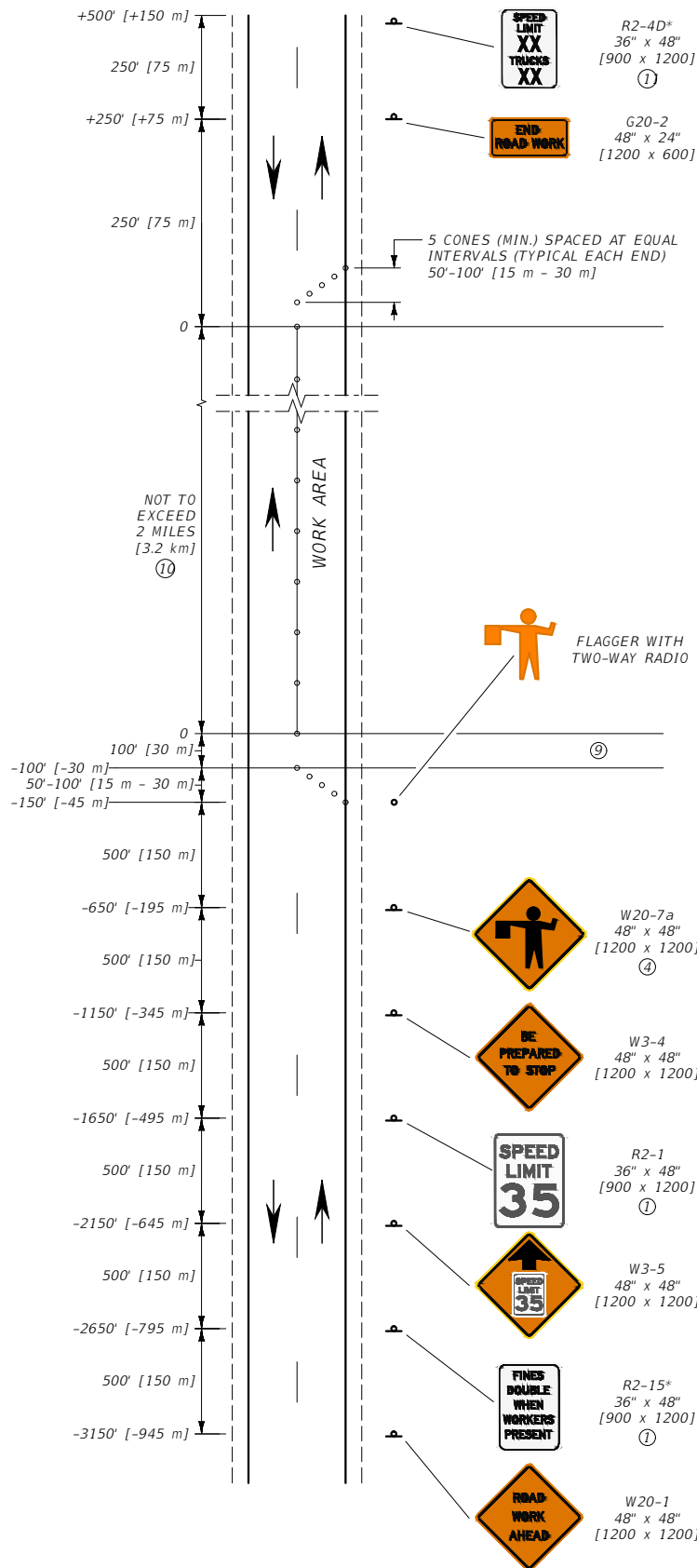
- ① SHORT DURATION ACTIVITIES ARE DEFINED AS THOSE LASTING UP TO ONE HOUR.
SHORT-TERM STATIONARY ACTIVITIES ARE DEFINED AS THOSE LASTING GREATER THAN ONE HOUR, UP TO A FULL SHIFT.
 - ② THE REGULATORY SPEED SIGNS MUST MOVE AS NEEDED TO REMAIN WITHIN 500 FEET [150 m] OF THE WORK AREA.
 - ③ SIGN BOTH TRAVEL DIRECTIONS ON TWO-LANE, TWO-WAY ROADWAYS OR BOTH SHOULDERS ON TWO-LANE, ONE-WAY ROADWAYS.
 - ④ PROVIDE AT LEAST THE DISTANCE SHOWN FOR DELINEATOR MOUNTED SIGNS.
 - ⑤ USE REFLECTIVE DEVICES.
 - ⑥ XX = NORMAL POSTED SPEED LIMIT(S).
- * DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-34
SHORT DURATION OR SHORT-TERM STATIONARY CREW SIGNING	
EFFECTIVE: ####	
 MONTANA Department of Transportation	
3/19/2024 11:13 AM	STDDRD618034.DWG

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NOTES:

- ① MINIMUM REGULATORY SIGN SIZE IS 24" X 30" [600 x 750] ON TWO-LANE ROADS.
- ② ON ROADWAYS WITH HIGH TRAFFIC VOLUMES OR VISIBILITY RESTRICTIONS, A 500' [150 m] SPACING FOR ALL SIGNS IS RECOMMENDED.
- ③ SPACE CHANNELIZING DEVICES AT INTERVALS IN FEET [METERS] EQUAL TO TWICE [0.6 TIMES] THE SPEED LIMIT IN M.P.H. THROUGH THE BUFFER AND WORK AREA.
- ④ IF A NEED ARISES TO INCREASE VEHICLE STORAGE, ADD AN ADDITIONAL W20-7a "FLAGGER AHEAD" SIGN BETWEEN THE R2-1 AND W3-4 SIGNS AND/OR CONSIDER AN ADDITIONAL ADVANCE FLAGGER.
- ⑤ A MIRROR IMAGE OF THIS SIGN SEQUENCE IS REQUIRED FOR THE TRAFFIC FROM THE OPPOSITE DIRECTION.
- ⑥ FOR MORE INFORMATION OR CLARIFICATION CONTACT THE DISTRICT TRAFFIC ENGINEER. FOR EXAMPLE, IF WORK ZONE IS CLOSE TO A HORIZONTAL CURVE, A VERTICAL CURVE, A BRIDGE, INTERCHANGE, POOR SIGHT DISTANCE, OR OTHER SPECIAL CONDITION.
- ⑦ COVER ANY CONFLICTING SIGNS IN THE WORK ZONE.
- ⑧ SHORT-TERM WORK ZONE SIGNING IS NOT REQUIRED TO BE POST MOUNTED.
- ⑨ THE BUFFER SPACE CAN BE LATERAL AND LONGITUDINAL AND MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ⑩ TYPICALLY 2 MILES [3.2 km] IS THE MAX. WORK AREA. HOWEVER, WHEN SIGHT DISTANCE, BUFFER ZONES OR ACCOMPLISHMENT RATES FOR EQUIPMENT ARE CONSIDERED, SOME MINOR ADJUSTMENTS TO THIS MAX. MAY BE CONSIDERED.
- ⑪ XX = NORMAL POSTED SPEED LIMIT(S).

* DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.
FOR USE BY MDT FORCES

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618 DWG. NO. 618-M1

MAINTENANCE GUIDELINE FOR SHORT-TERM TWO-LANE CRACK SEALING WORK ZONE

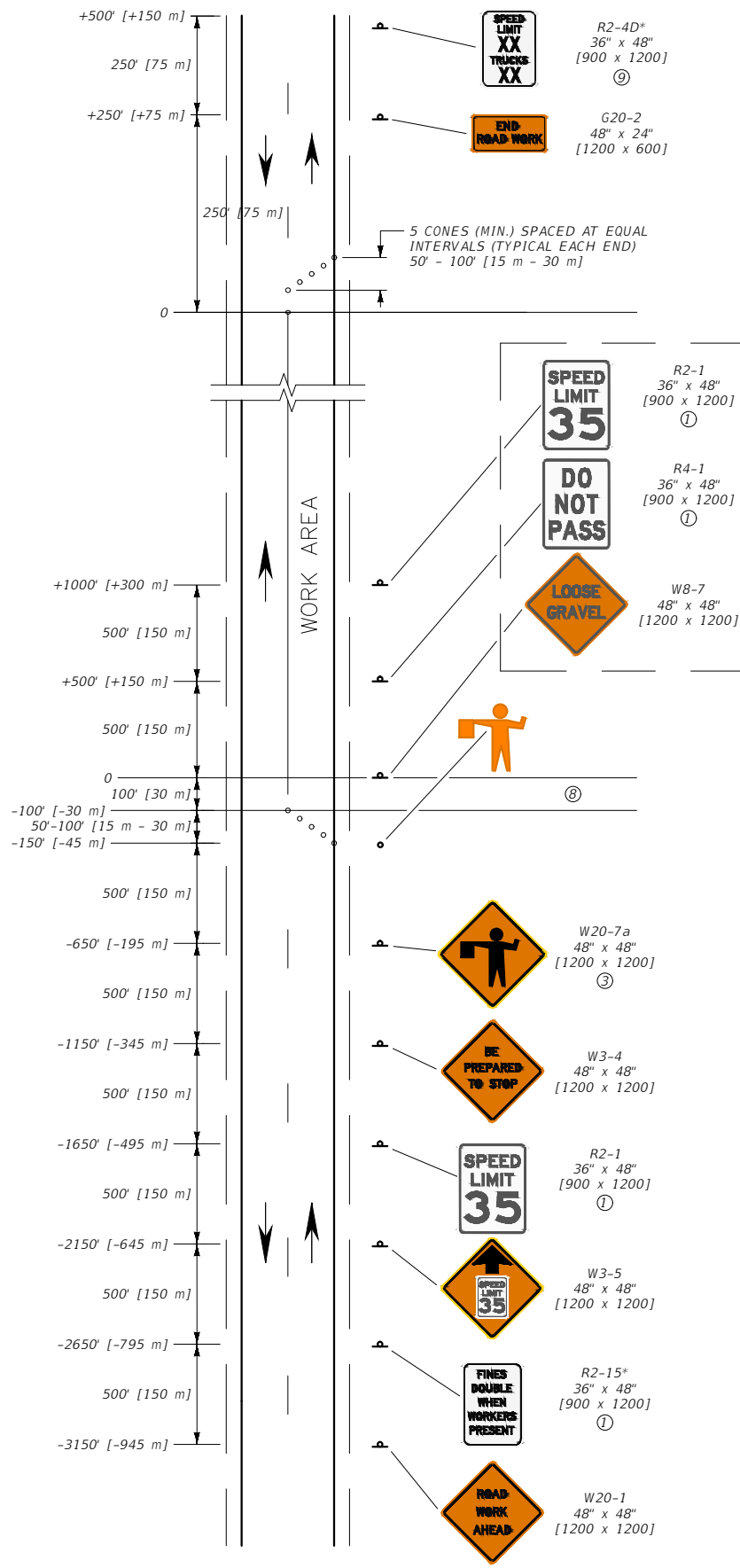
EFFECTIVE: ####

MONTANA
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NOTE:
TO BE POSTED AT THE START OF THE WORK AREA AND REPEATED AT TWO-MILE [3.2 km] INTERVALS UNTIL THE SURFACE IS SWEEPED AND STRIPED.

- NOTES:
- ① MINIMUM REGULATORY SIGN SIZE IS 24" x 30" [600 x 750] ON TWO-LANE ROADS.
 - ② ON ROADWAYS WITH HIGH TRAFFIC VOLUMES OR VISIBILITY RESTRICTIONS, A 500' [150 m] SPACING FOR ALL SIGNS IS RECOMMENDED.
 - ③ IF A NEED ARISES TO INCREASE VEHICLE STORAGE, ADD AN ADDITIONAL W20-7a "FLAGGER AHEAD" SIGN BETWEEN THE R2-1 AND W3-4 SIGNS AND/OR CONSIDER AN ADDITIONAL ADVANCE FLAGGER.
 - ④ A MIRROR IMAGE OF THIS SIGN SEQUENCE IS REQUIRED FOR THE TRAFFIC FROM THE OPPOSITE DIRECTION.
 - ⑤ FOR MORE INFORMATION OR CLARIFICATION CONTACT THE DISTRICT TRAFFIC ENGINEER. FOR EXAMPLE, IF WORK ZONE IS CLOSE TO A HORIZONTAL CURVE, A VERTICAL CURVE, A BRIDGE, INTERCHANGE, POOR SIGHT DISTANCE OR OTHER SPECIAL CONDITION.
 - ⑥ COVER ANY CONFLICTING SIGNS IN THE WORK ZONE.
 - ⑦ SHORT-TERM WORK ZONE SIGNING IS NOT REQUIRED TO BE POST MOUNTED.
 - ⑧ THE BUFFER SPACE CAN BE LATERAL AND LONGITUDINAL AND MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
 - ⑨ XX = NORMAL POSTED SPEED LIMIT(S).

* DENOTES SIGNS UNIQUE TO MONTANA.
UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.
FOR USE BY MDT FORCES

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-M2
MAINT. GUIDELINE FOR SHORT-TERM TWO-LANE CHIP SEAL & OVERLAY (PILOTED TRAFFIC)	
EFFECTIVE: ####	

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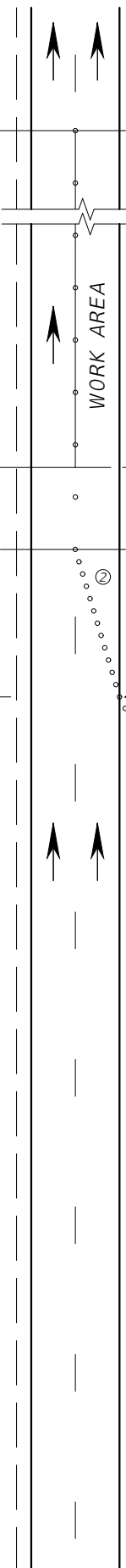
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MONTANA
Department of Transportation

3/18/2024 9:25 AM STDDRD6180M2.DWG

+500' [+150 m]
 250' [75 m]
 +250' [+75 m]
 250' [75 m]
 0
 0
 500' [150 m]
 -500' [-150 m]
 960' [300 m]
 -1460' [-450 m]
 940' [285 m]
 -2400' [-720 m]
 800' [240 m]
 800' [240 m]
 -4000' [-1200 m]
 800' [240 m]
 -4800' [-1440 m]
 900' [270 m]
 -5700' [-1710 m]
 900' [270 m]
 -6600' [-1980 m]

NOT TO EXCEED 2 MILES [3.2 km] (10)



SPEED LIMIT XX TRUCKS XX
 R2-4D*
 36" x 48"
 [900 x 1200]
END ROAD WORK
 G20-2
 48" x 24"
 [1200 x 600]

SPEED LIMIT 45 OR **SPEED LIMIT 55**
 R2-1
 36" x 48"
 [900 x 1200] (9)

ARROW BOARD (4)

W4-2R
 48" x 48"
 [1200 x 1200] (2)

SPEED LIMIT 55 OR **SPEED LIMIT 65**
 R2-1
 36" x 48"
 [900 x 1200] (2)

RIGHT LANE CLOSED AHEAD
 W20-5
 48" x 48"
 [1200 x 1200] (2)

SPEED LIMIT 55 OR **SPEED LIMIT 65**
 W3-5
 48" x 48"
 [1200 x 1200] (2)

FINES DOUBLE WHEN WORKERS PRESENT
 R2-15*
 36" x 48"
 [900 x 1200] (2)

ROAD WORK AHEAD
 W20-1
 48" x 48"
 [1200 x 1200] (2)

- NOTES:
- USE A MINIMUM 320' [100 m] SHOULDER TAPER.
 - USE THIRTEEN APPROVED CHANNELIZING DEVICES FOR A 12' [3.6 m] LANE CLOSURE TAPER (80 M.P.H. SPACED AT 80' [25 m]). ASSURE THAT THE TAPER IS A MINIMUM LENGTH OF 960' [300 m].
 - SPACE CHANNELIZING DEVICES AT INTERVALS IN FEET [METERS] EQUAL TO TWICE [0.6 TIMES] THE SPEED LIMIT IN M.P.H. THROUGH THE BUFFER AND WORK AREA.
 - PLACE THE ARROW BOARD ON THE SHOULDER AT THE START OF THE TRAVEL LANE CLOSURE TAPER.
 - THE BUFFER SPACE CAN BE LATERAL AND LONGITUDINAL. KEEP THE BUFFER SPACE CLEAR OF EQUIPMENT AND PERSONNEL.
 - FOR MORE INFORMATION OR CLARIFICATION CONTACT THE DISTRICT TRAFFIC ENGINEER. FOR EXAMPLE, IF WORK AREA IS CLOSE TO A HORIZONTAL CURVE, A VERTICAL CURVE, A BRIDGE, INTERCHANGE, POOR SIGHT DISTANCE OR OTHER SPECIAL CONDITION.
 - COVER ANY CONFLICTING SIGNS IN THE WORK AREA.
 - SHORT-TERM WORK ZONE SIGNING IS NOT REQUIRED TO BE POST MOUNTED.
 - WHEN THE WORK AREA CHANGES WITHIN THE WORK ZONE, THESE SIGNS SHOULD BE MOVED TO REFLECT THE ACTUAL WORK AREA.
 - TYPICALLY 2 MILES [3.2 km] IS THE MAX. WORK AREA. HOWEVER, WHEN SIGHT DISTANCE, BUFFER ZONES OR ACCOMPLISHMENT RATES FOR EQUIPMENT ARE CONSIDERED, SOME MINOR ADJUSTMENTS TO THIS MAX. MAY BE CONSIDERED.
 - XX = NORMAL POSTED SPEED LIMIT(S).
- * DENOTES SIGNS UNIQUE TO MONTANA.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.
 FOR USE BY MDT FORCES

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-M3
MAINTENANCE GUIDELINE FOR SHORT-TERM LANE CLOSURE ON INTERSTATE	
EFFECTIVE: ####	

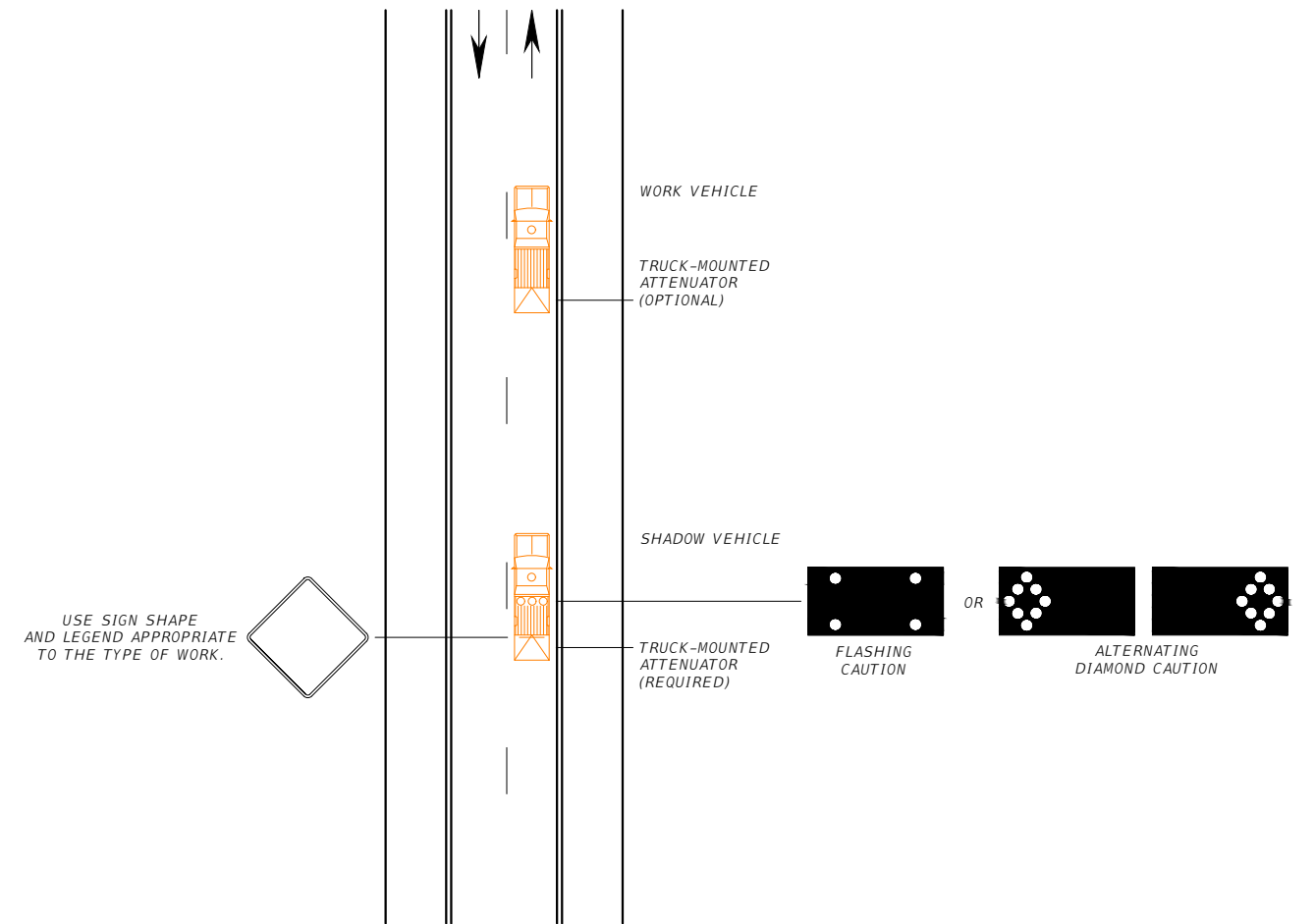
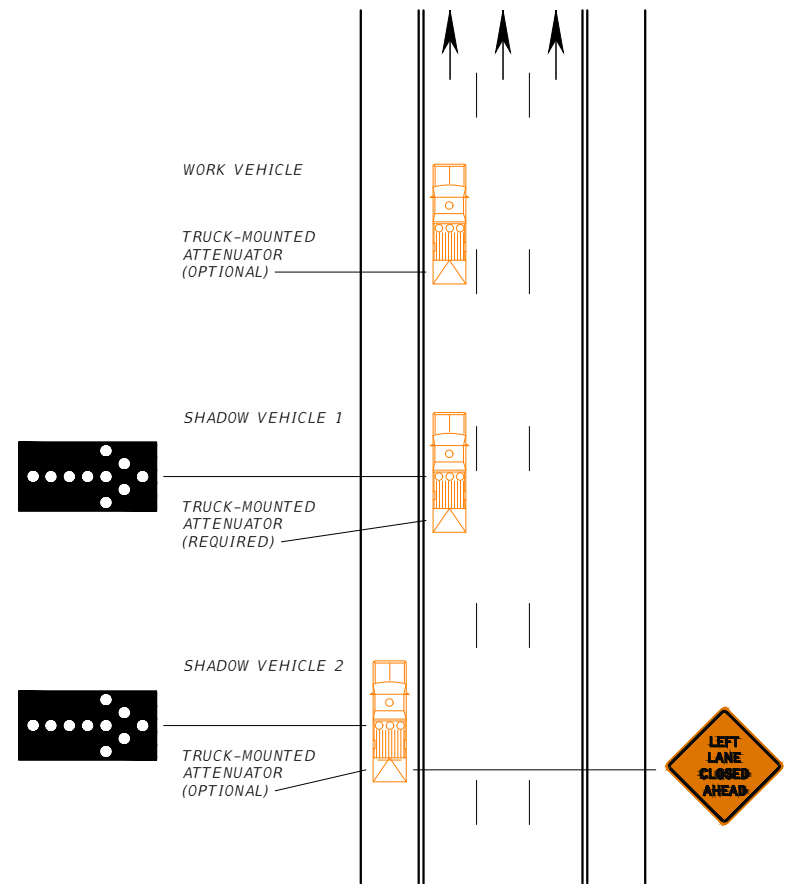
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 Department of Transportation

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MOBILE OPERATIONS ON MULTILANE ROAD

MOBILE OPERATIONS ON TWO-LANE ROAD



NOTES:

- ① PLACE APPROPRIATE LANE CLOSURE SIGN ON SHADOW VEHICLE 2 SO AS NOT TO OBSCURE THE ARROW BOARD.
- ② FOLLOW THE WORK OPERATION WITH SHADOW VEHICLE 2 SO AS TO PROVIDE ADEQUATE SIGHT DISTANCE FOR VEHICULAR TRAFFIC APPROACHING FROM THE REAR.
- ③ COVER OR TURN THE SIGN LEGENDS ON VEHICLE-MOUNTED SIGNS FROM VIEW WHEN WORK IS NOT IN PROGRESS.
- ④ WHEN THE WORK VEHICLE OCCUPIES AN INTERIOR LANE OF A DIRECTIONAL ROADWAY HAVING A RIGHT SHOULDER 10 FEET (3 m) OR MORE IN WIDTH, DRIVE SHADOW VEHICLE 2 ALONG THE RIGHT-HAND SHOULDER WITH A SIGN INDICATING WORK IS TAKING PLACE IN THE INTERIOR LANE.
- ⑤ ON HIGH-SPEED ROADWAYS, A THIRD SHADOW VEHICLE MAY BE USED WITH SHADOW VEHICLE 1 IN THE CLOSED LANE, SHADOW VEHICLE 2 STRADDLING THE EDGE LINE, AND SHADOW VEHICLE 3 ON THE SHOULDER. WHERE ADEQUATE SHOULDER WIDTH IS NOT AVAILABLE, SHADOW VEHICLE 3 MAY ALSO STRADDLE THE EDGE LINE.
- ⑥ THE MINIMUM ARROW BOARD SIZE IS TYPE B, 60 INCHES X 30 INCHES (1500 X 750).
- ⑦ VARY THE DISTANCE BETWEEN THE WORK LOCATION AND SHADOW VEHICLE 2 TO PROVIDE ADEQUATE SIGHT DISTANCE FOR VEHICULAR TRAFFIC APPROACHING FROM THE REAR.
- ⑧ MAINTAIN A MINIMUM SPACING BETWEEN THE WORK VEHICLE AND SHADOW VEHICLES, AND BETWEEN EACH SHADOW VEHICLE TO DETER ROAD USERS FROM DRIVING IN BETWEEN.

NOTES:

- ① TRUCK-MOUNTED ATTENUATOR IS REQUIRED FOR SHADOW VEHICLE.
- ② EQUIP SHADOW VEHICLE WITH VEHICLE-MOUNTED SIGN. USE SIGN SHAPE AND LEGEND APPROPRIATE TO THE TYPE OF WORK.
- ③ MOUNT VEHICLE-MOUNTED SIGN IN A MANNER SO EQUIPMENT OR SUPPLIES DO NOT OBSCURE THE SIGN.
- ④ COVER OR TURN THE SIGN LEGENDS ON VEHICLE-MOUNTED SIGNS FROM VIEW WHEN WORK IS NOT IN PROGRESS.
- ⑤ WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, MAINTAIN A MINIMUM DISTANCE FROM THE WORK VEHICLE WITH THE SHADOW VEHICLE AND PROCEED AT THE SAME SPEED.
- ⑥ SLOW DOWN THE SHADOW VEHICLE IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

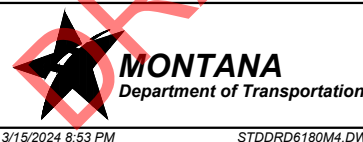
REFERENCE STANDARD SPEC. SECTION 618 DWG. NO. 618-M4

MOBILE OPERATIONS

EFFECTIVE: ####

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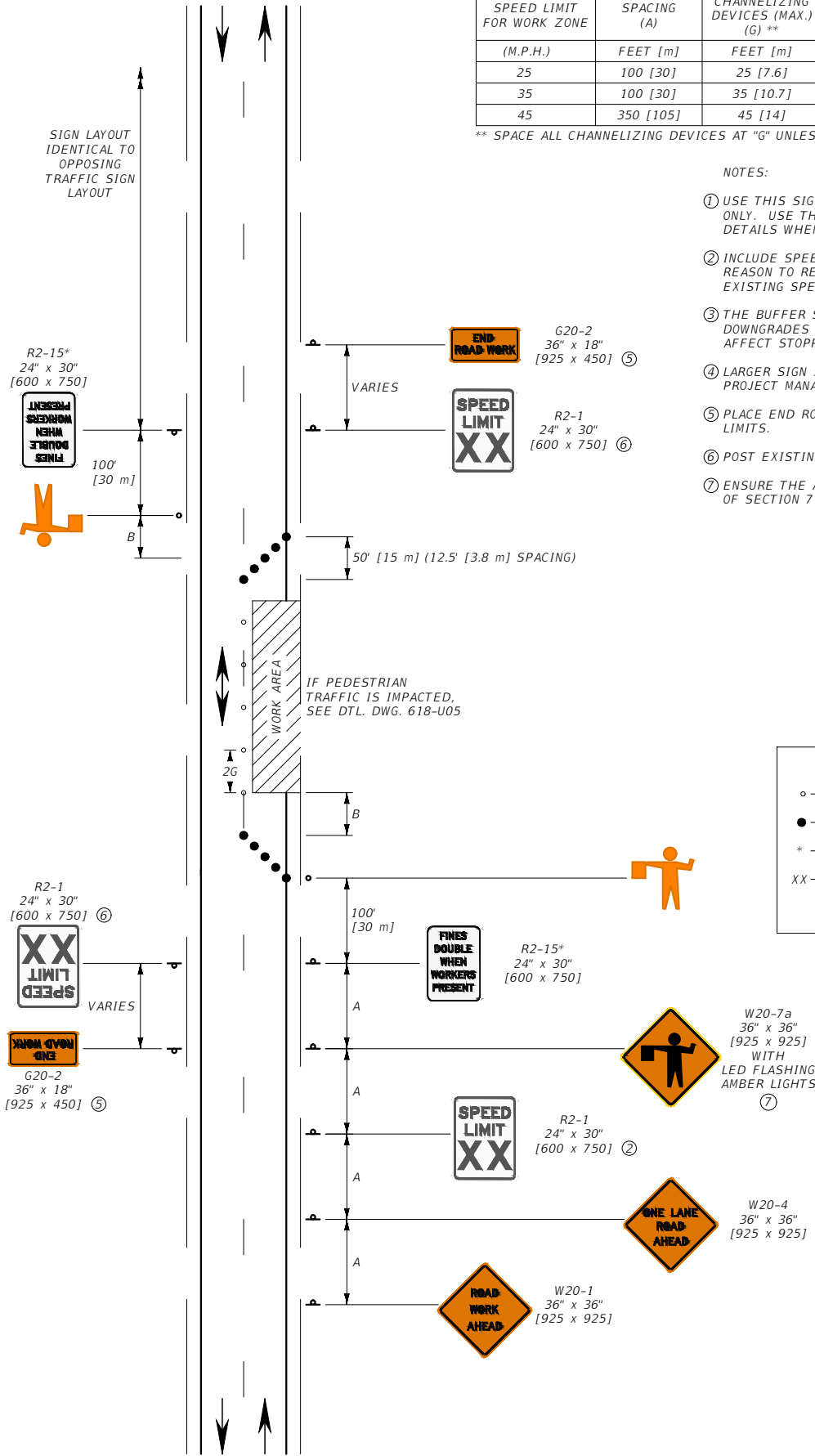


POSTED SPEED LIMIT FOR WORK ZONE	SIGN SPACING (A)	SPACING OF CHANNELIZING DEVICES (MAX.) (G) **	BUFFER SPACE ③ (B)
(M.P.H.)	FEET [m]	FEET [m]	FEET [m]
25	100 [30]	25 [7.6]	155 [45]
35	100 [30]	35 [10.7]	250 [75]
45	350 [105]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑤ PLACE END ROADWORK SIGN AT END OF PROJECT LIMITS.
- ⑥ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑦ ENSURE THE AMBER LED FLASHERS MEET REQUIREMENTS OF SECTION 715 AND DTL. DWG. 618-01.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U01
LANE CLOSURE-FLAGGER CONTROLLED (URBAN TWO-LANE, TWO-WAY ROAD)	
EFFECTIVE: ####	

MONTANA
Department of Transportation

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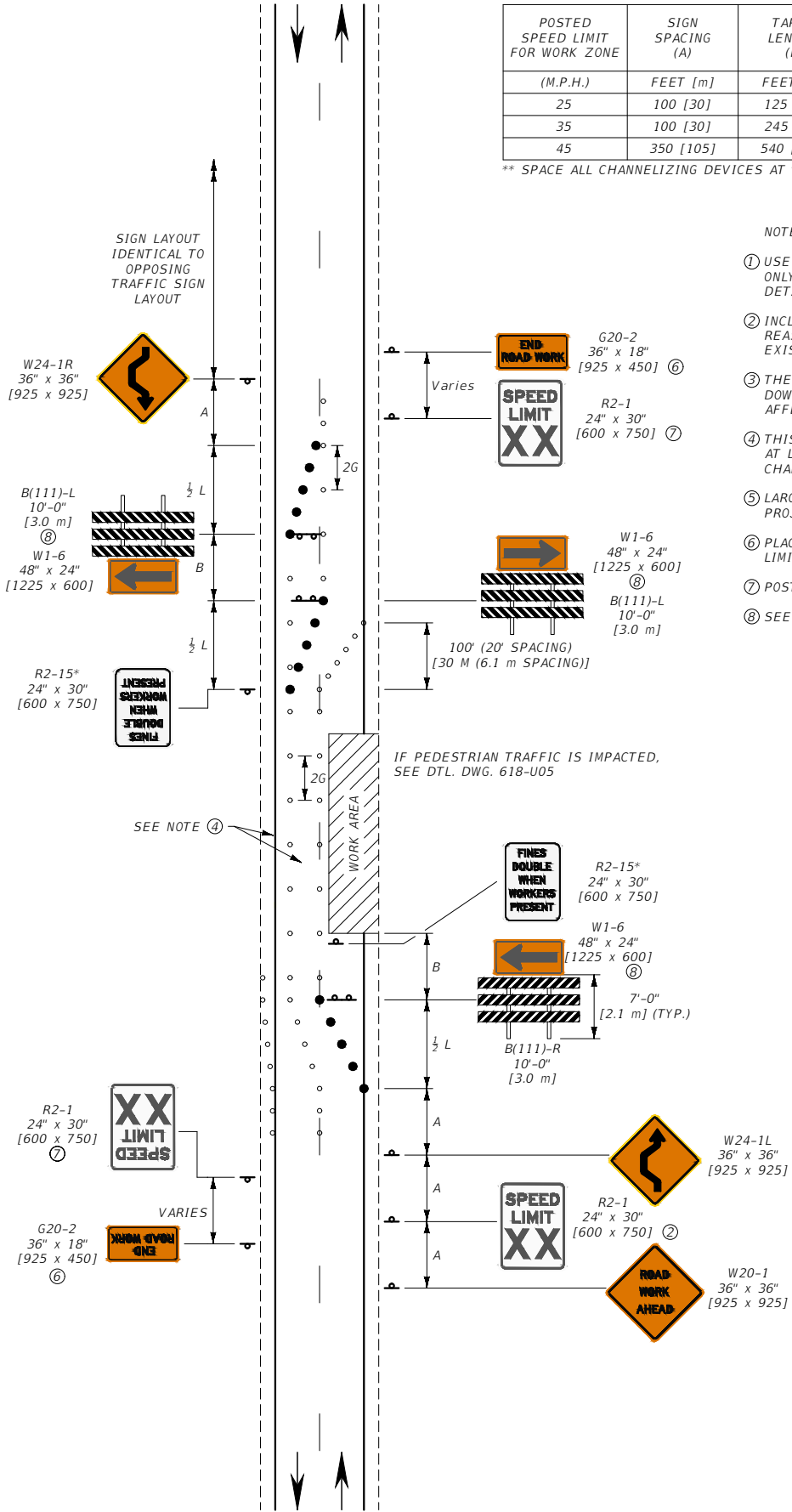
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POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) FEET [m]	TAPER LENGTH (L) FEET [m]	SPACING OF CHANNELIZING DEVICES (MAX.) (G) ** FEET [m]	BUFFER SPACE (B) FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ THIS LAYOUT SHOULD ONLY BE USED WHEN THERE IS AT LEAST 10' [3.0 m] IN WIDTH BETWEEN THE CHANNELIZING DEVICES AND THE EDGE OF PAVEMENT.
- ⑤ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑥ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑦ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑧ SEE DTL. DWG. 618-03.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U02
WORK ZONE OCCUPIES ONE HALF OF ROAD (LOW SPEED URBAN TWO-LANE TWO-WAY ROAD)	
EFFECTIVE: ####	

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MONTANA
Department of Transportation

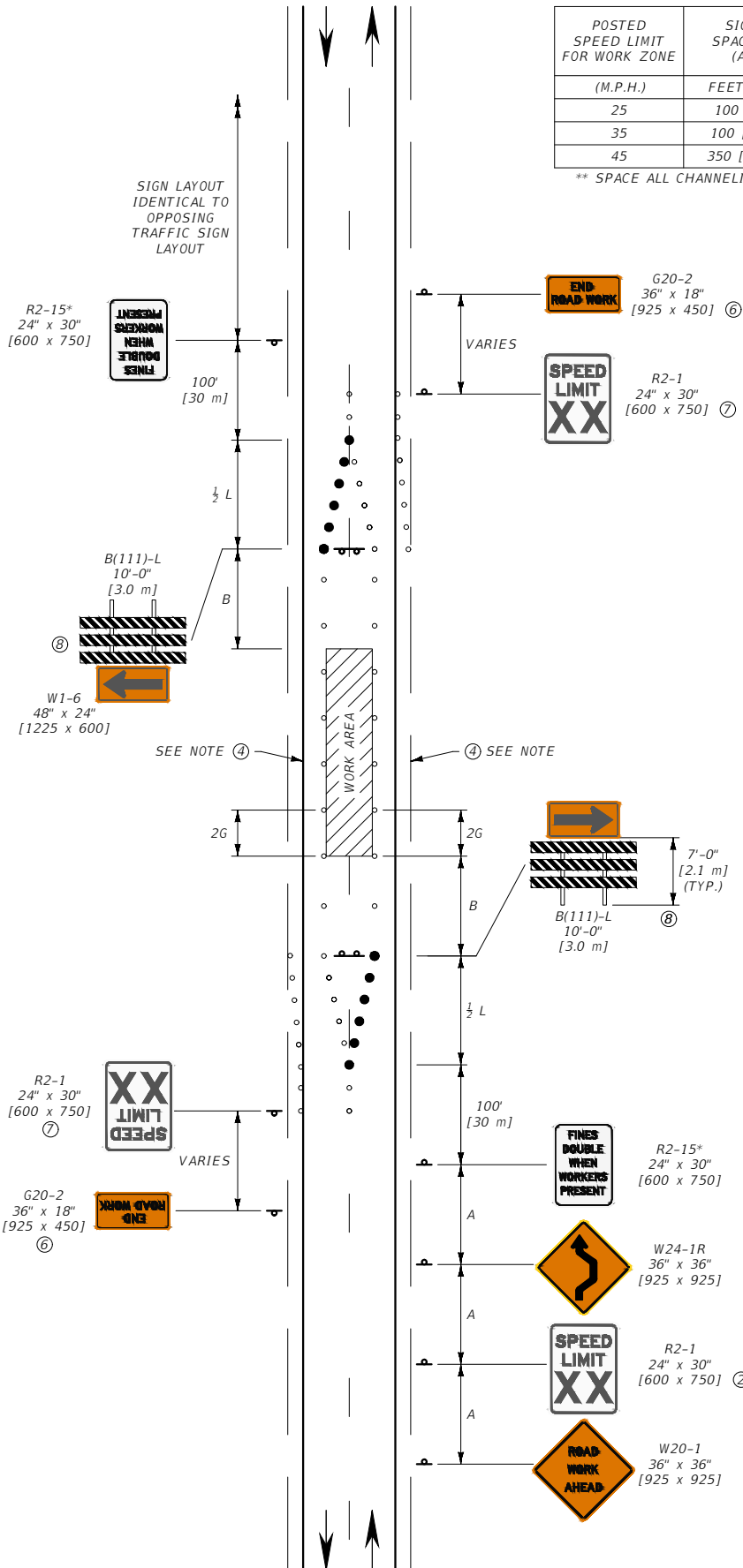
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POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) FEET [m]	TAPER LENGTH (L) FEET [m]	SPACING OF CHANNELIZING DEVICES (MAX.) (G) ** FEET [m]	BUFFER SPACE (B) FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ THIS LAYOUT SHOULD ONLY BE USED WHEN THERE IS AT LEAST 10' [3 m] IN WIDTH BETWEEN THE CHANNELIZING DEVICES AND THE EDGE OF PAVEMENT. PROVIDE NO PARKING SIGNS WHEN APPROPRIATE.
- ⑤ LARGER SIGNS MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑥ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑦ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑧ SEE DTL. DWG. 608-03.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER.
(25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U03
WORK ZONE IN CENTER OF ROAD (URBAN TWO-LANE, TWO-WAY ROAD)	
EFFECTIVE: ####	
MONTANA Department of Transportation	

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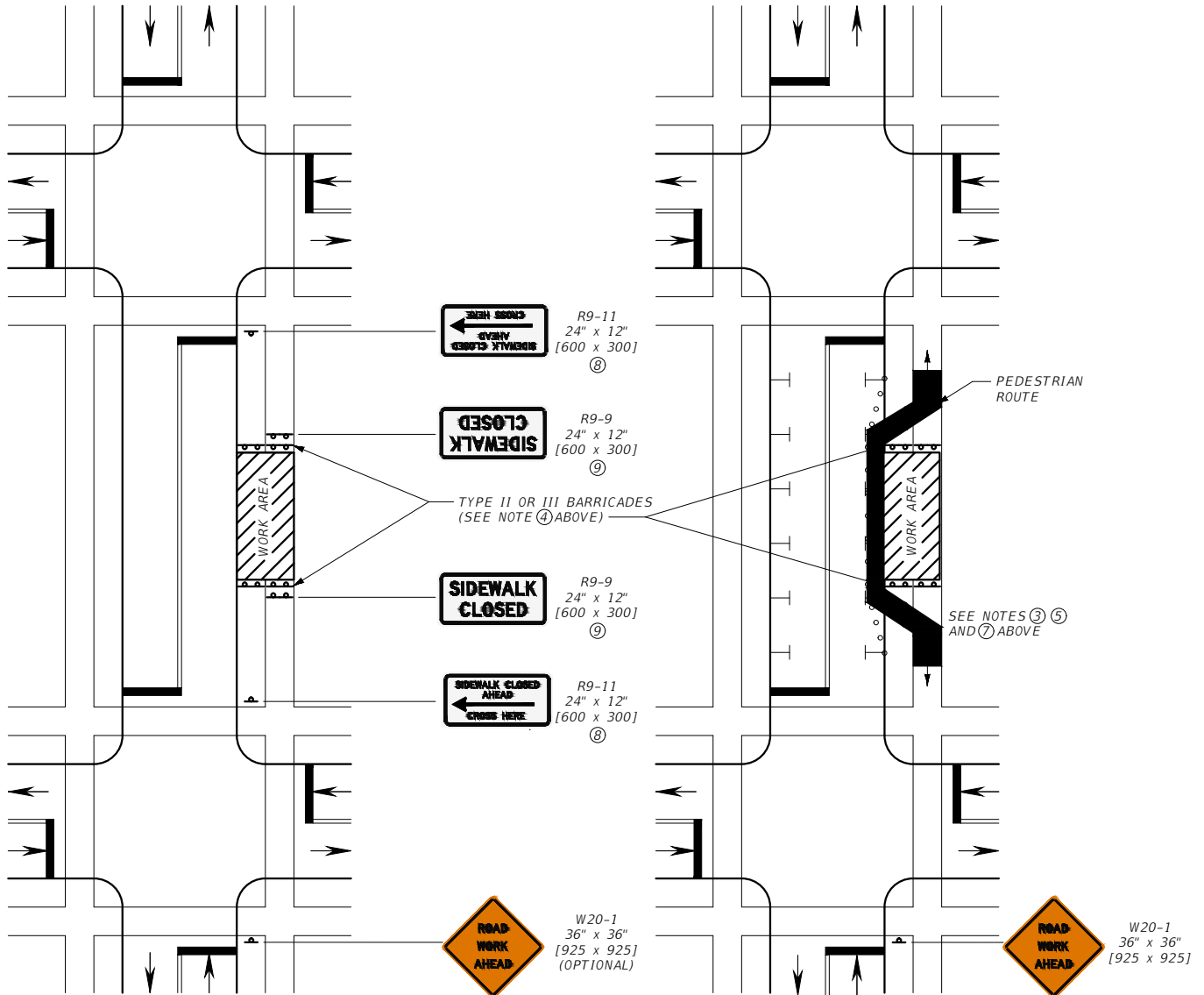
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NOTES:

- ① MINIMAL TRAFFIC CONTROL DEVICES CONTROLLING PEDESTRIAN FLOWS ARE SHOWN. OTHER DEVICES MAY BE NEEDED TO CONTROL TRAFFIC ON THE STREETS. USE THE APPROPRIATE PARKING LANE CLOSURE WHEN NEEDED.
- ② DO NOT DIRECT PEDESTRIANS INTO A LANE OF MOVING TRAFFIC.
- ③ WHERE SPEEDS EXCEED 25 M.P.H., PHYSICAL BARRIERS SHOULD BE USED TO SEPARATE THE TEMPORARY WALKWAY FROM VEHICULAR TRAFFIC. FLEXIBLE GUIDE POSTS WITH DETECTABLE EDGING IS THE MINIMUM REQUIREMENT FOR SEPARATION. PROVIDE LARGER PHYSICAL BARRIERS, AS DETERMINED BY THE PROJECT MANAGER, ON A CASE BY CASE BASIS.
- ④ SEE DTL. DWG. 618-03.
- ⑤ PROVIDE A PHYSICAL BARRIER, WITH A MINIMUM 6 INCH [150 mm] HEIGHT DETECTABLE EDGING, BETWEEN THE PEDESTRIAN DETOUR WALKWAY AND THE WORK AREA. PROVIDE LARGER PHYSICAL BARRIERS TO PROTECT PEDESTRIANS FROM HAZARDS IN THE WORK AREA, AS DETERMINED BY THE PROJECT MANAGER.
- ⑥ ENSURE THAT ENTIRE WALKWAY MEETS ADA REQUIREMENTS. PROVIDE A MINIMUM WALKWAY WIDTH OF 5 FEET [1525 mm] AND A FIRM, STABLE, SLIP RESISTANT WALKING SURFACE ALONG ENTIRE WALKWAY.
- ⑦ PROVIDE TEMPORARY RAMPS AND DETECTABLE EDGING (MINIMUM 6 INCH HEIGHT [150 mm]) ON BOTH SIDES OF WALKWAY ALONG TEMPORARY PEDESTRIAN DETOUR ROUTE. SEE MUTCD FOR ADDITIONAL GUIDANCE.
- ⑧ PLACE R9-11 ON SIGN POSTS (AS SHOWN BELOW) IF BUSINESS ACCESS IS REQUIRED. PLACE TYPE I BARRICADE ON SIDEWALK WITH R9-11 SIGN IF BUSINESS ACCESS IS NOT REQUIRED.
- ⑨ PLACE TYPE I BARRICADE ON SIDEWALK WITH R9-9 SIGN.

PEDESTRIAN DETOUR

BYPASS WALKWAY PROVIDED THROUGH WORK ZONE⑥



LEGEND
 ○ - FLEXIBLE GUIDE POSTS

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U05
SIDEWALK CLOSURES AND BYPASS WALKWAY	
EFFECTIVE: ####	
MONTANA Department of Transportation	

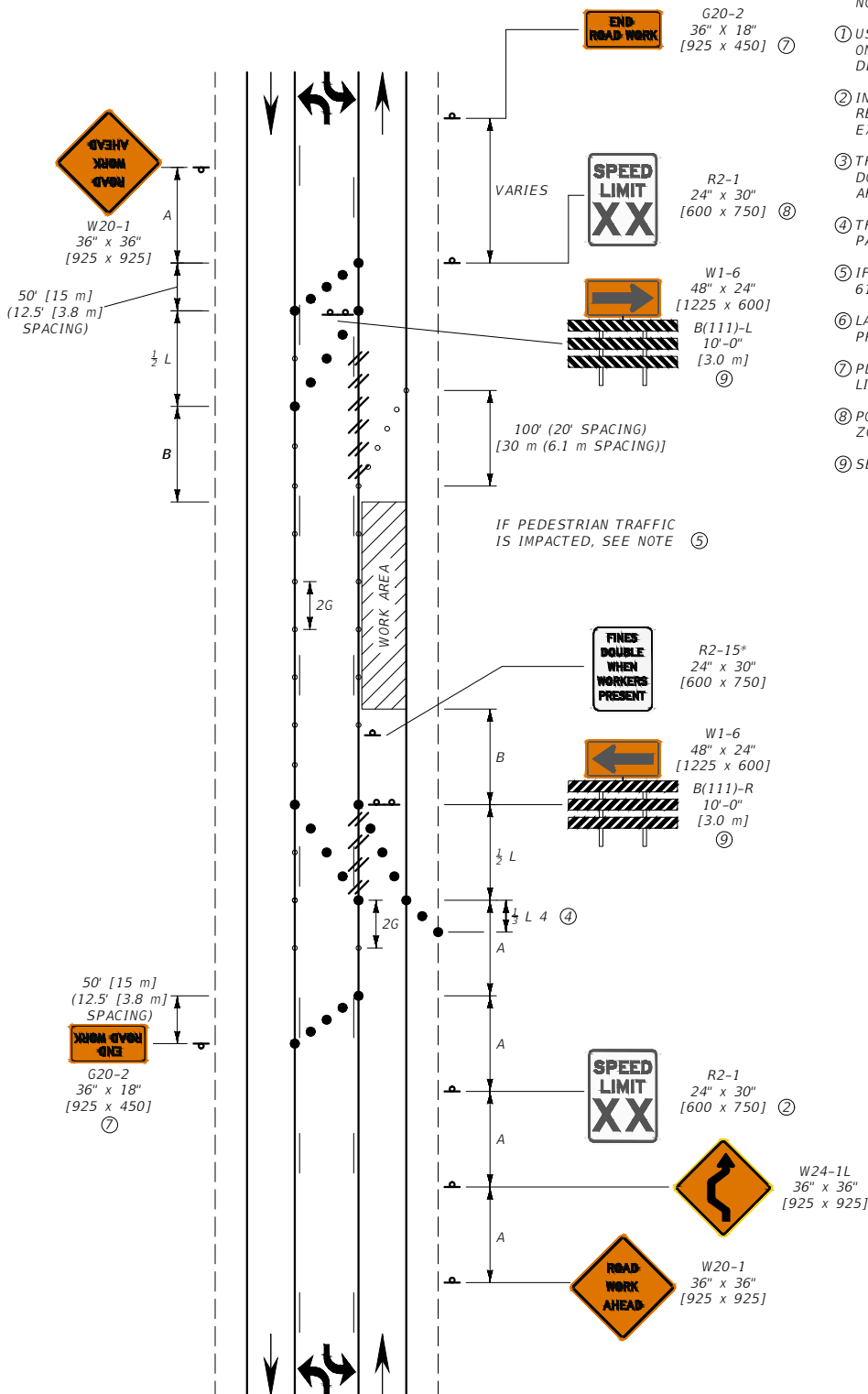
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POSTED SPEED LIMIT FOR WORK ZONE	SIGN SPACING (A)	TAPER LENGTH (L)	SPACING OF CHANNELIZING DEVICES (MAX.) (G) **	BUFFER SPACE (B) ③
(M.P.H.)	FEET [m]	FEET [m]	FEET [m]	FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE EXISTING CONFLICTING SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ THE SHOULDER TAPER MAY BE OMITTED WHEN THE PAVED SHOULDER IS LESS THAN 8' [2.4 m] IN WIDTH.
- ⑤ IF PEDESTRIAN TRAFFIC IS IMPACTED SEE DTL. DWG. 618-U05.
- ⑥ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑦ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑧ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑨ SEE DTL. DWG. 618-03.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.

SPEED DETERMINED BY THE PROJECT
XX - MANAGER.
(25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

// - OBLITERATE CONFLICTING PAVEMENT MARKINGS WHEN WORK OPERATION IS LONGER THAN 3 DAYS.
(DO NOT REMOVE THERMOPLASTIC)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U15
LANE CLOSURE (URBAN TWO-LANE, TWO-WAY ROAD WITH TWO-WAY LEFT TURN LANE)	
EFFECTIVE: ####	
MONTANA Department of Transportation	
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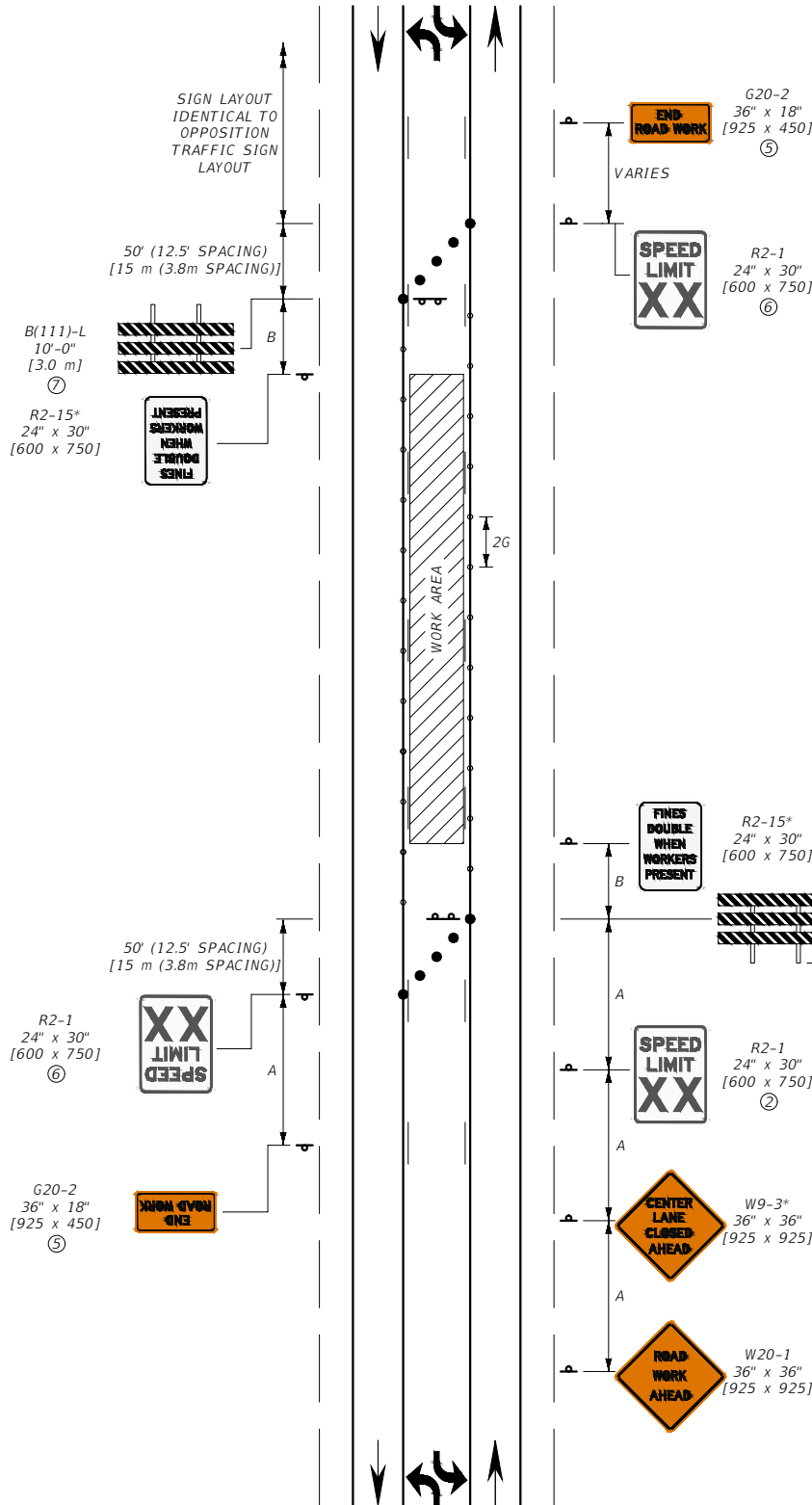
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POSTED SPEED LIMIT FOR WORK ZONE	SIGN SPACING (A)	TAPER LENGTH (L)	SPACING OF CHANNELIZING DEVICES (MAX.) (G) **	BUFFER SPACE ③ (B)
(M.P.H.)	FEET [m]	FEET [m]	FEET [m]	FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑤ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑥ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑦ SEE DTL. DWG. 618-03.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS THAT ARE UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U16
TURN LANE CLOSURE (URBAN TWO-LANE, TWO-WAY LEFT TURN LANE)	
EFFECTIVE: ####	

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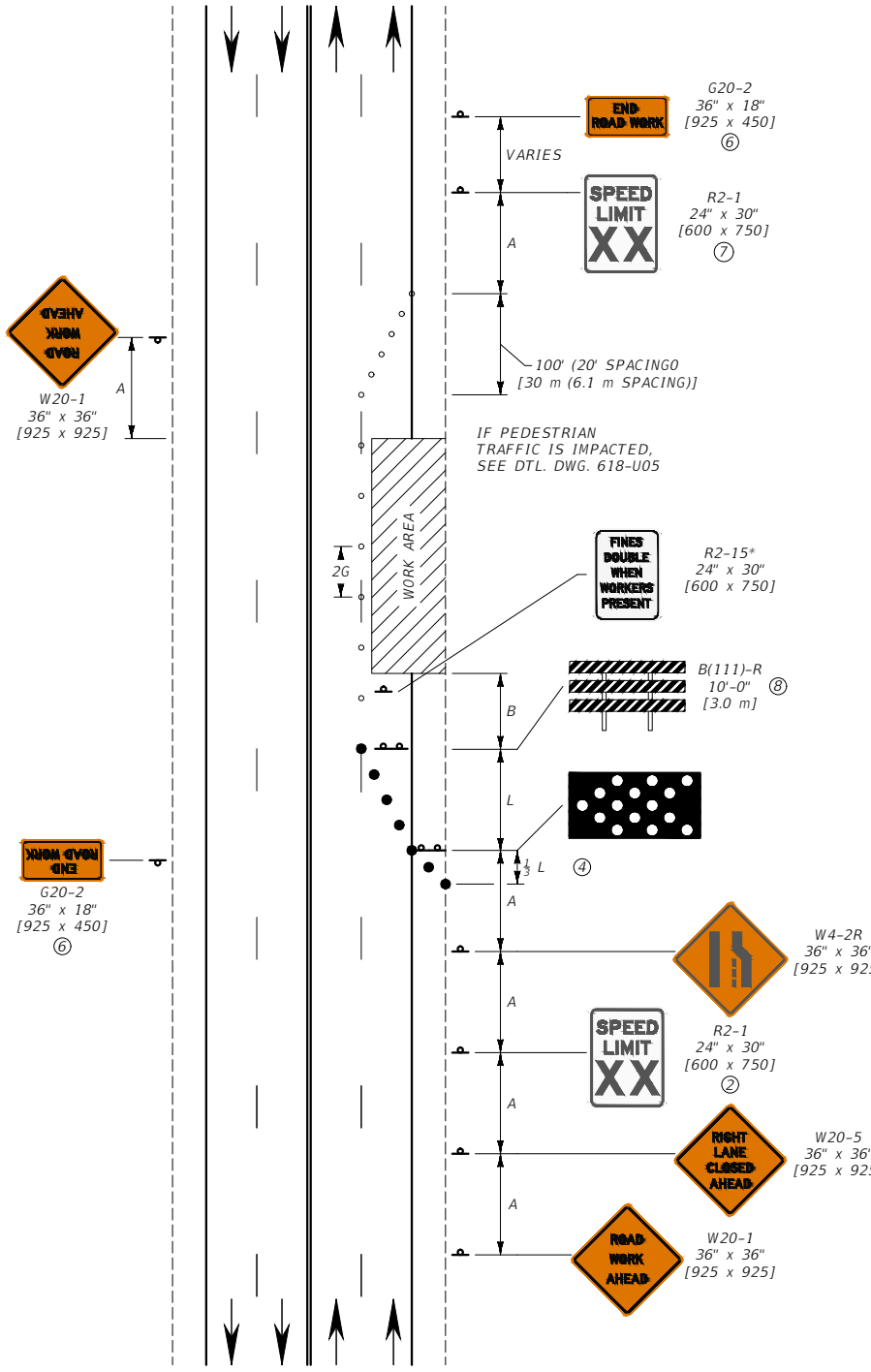
MONTANA
Department of Transportation

POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) FEET [m]	TAPER LENGTH (L) FEET [m]	SPACING OF CHANNELIZING DEVICES (MAX.) (G) ** FEET [m]	BUFFER SPACE (B) FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ THE SHOULDER TAPER MAY BE OMITTED WHEN PAVED SHOULDER IS LESS THAN 8' [2.4 m] IN WIDTH.
- ⑤ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑥ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑦ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑧ SEE DTL. DWG. 618-03.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U20
RIGHT LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD)	
EFFECTIVE: ####	
MONTANA Department of Transportation	

--REVISED--

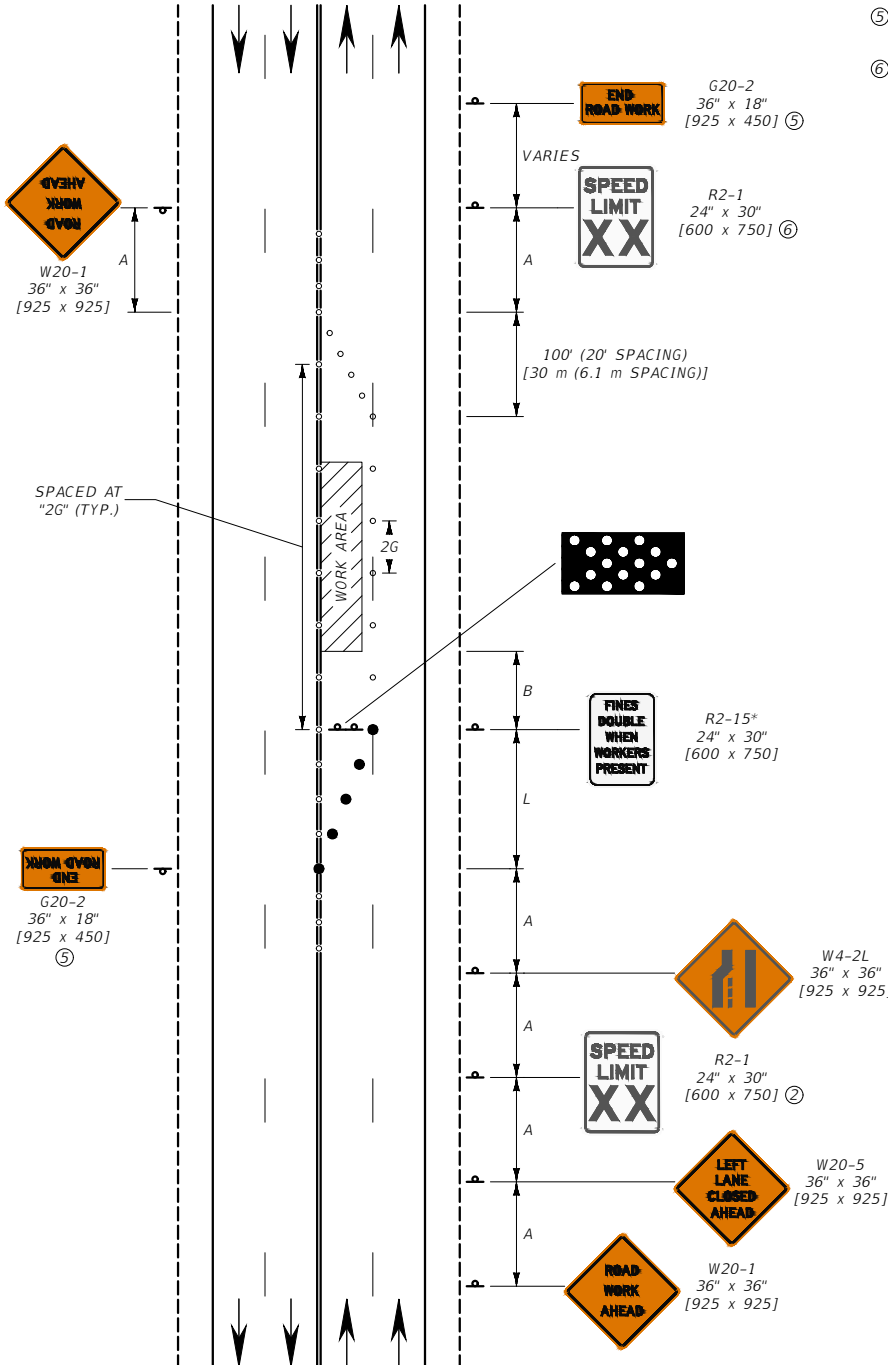
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POSTED SPEED LIMIT FOR WORK ZONE	SIGN SPACING (A)	TAPER LENGTH (L)	SPACING OF CHANNELIZING DEVICES (MAX.) (G) **	BUFFER SPACE ③ (B)
(M.P.H.)	FEET [m]	FEET [m]	FEET [m]	FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑤ PLACE END ROAD WORK SIGN AT END OF PROJECT LIMITS.
- ⑥ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U25
LEFT TURN CLOSURE (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD)	
EFFECTIVE: ####	

--REVISED--

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MONTANA
Department of Transportation

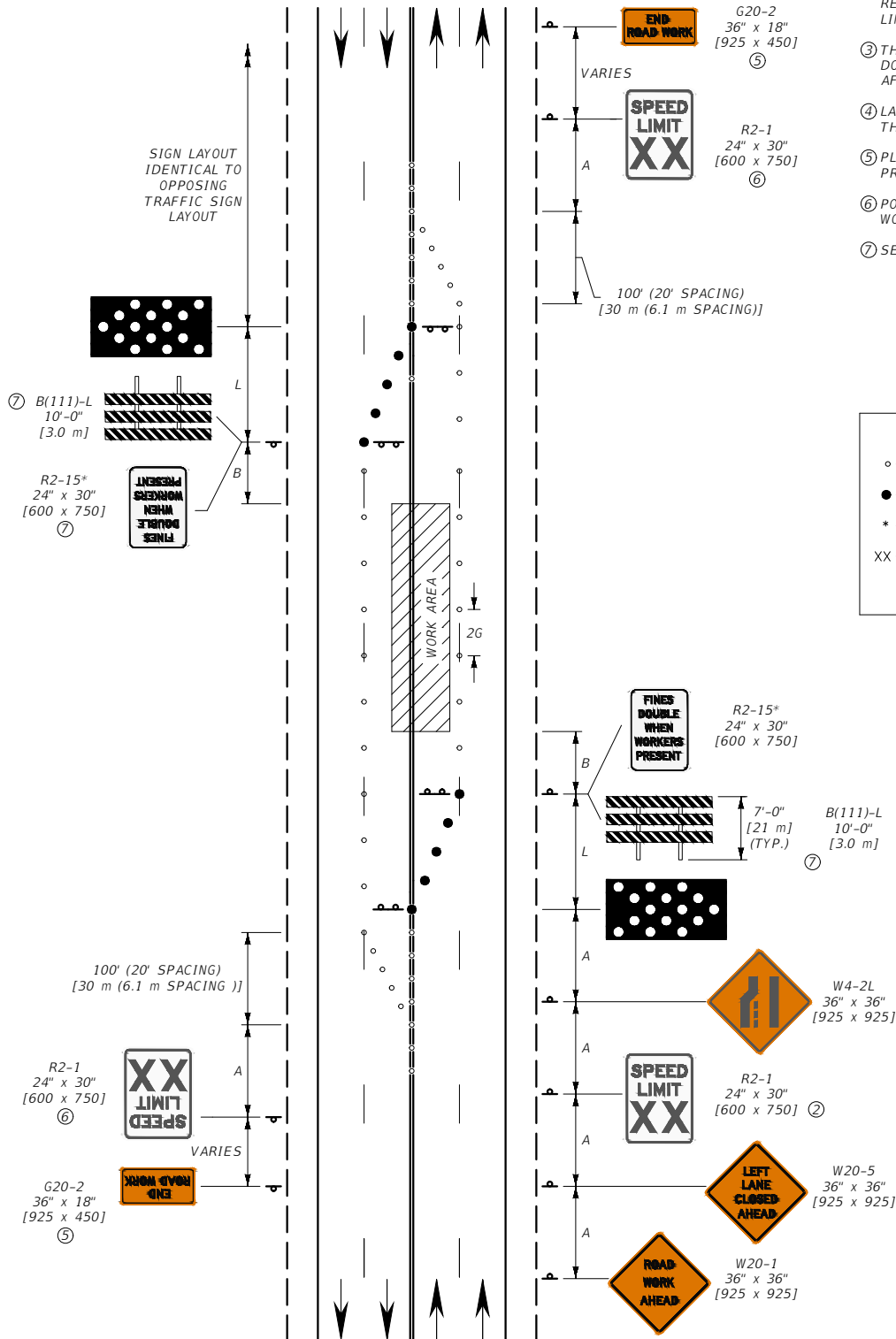
3/19/2024 11:25 AM DDDRD618U25 - FUTURE REVISION.DWG

POSTED SPEED LIMIT FOR WORK ZONE	SIGN SPACING (A)	TAPER LENGTH (L)	SPACING OF CHANNELIZING DEVICES (MAX.) (G) **	BUFFER SPACE ③ (B)
(M.P.H.)	FEET [m]	FEET [m]	FEET [m]	FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED, COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑤ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑥ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑦ SEE DTL. DWG. 618-03.



LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

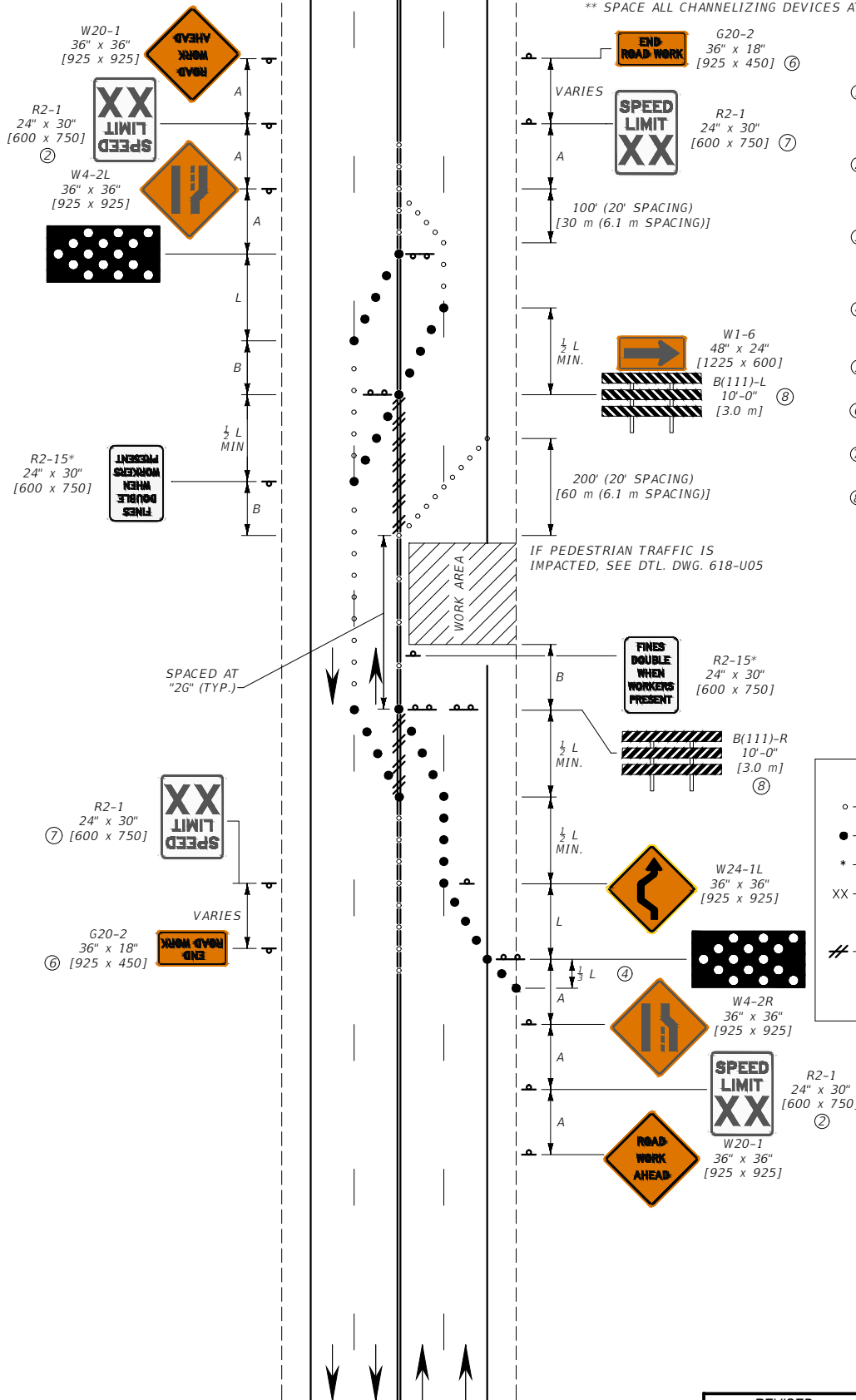
DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U30
LEFT LANE CLOSURES (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD)	
EFFECTIVE: ####	

--REVISED--

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POSTED SPEED LIMIT FOR WORK ZONE	SIGN SPACING (A)	TAPER LENGTH (L)	SPACING OF CHANNELIZING DEVICES (MAX.) (G) **	BUFFER SPACE ③ (B)
(M.P.H.)	FEET [m]	FEET [m]	FEET [m]	FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.



NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ THE SHOULDER TAPER MAY BE OMITTED WHEN THE PAVED SHOULDER IS LESS THAN 8' [2.4 m] IN WIDTH.
- ⑤ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑥ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑦ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑧ SEE DTL. DWG. 618-03.

LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)
- ≠ - OBLITERATE CONFLICTING PAVEMENT MARKINGS WHEN WORK OPERATION IS LONGER THAN 3 DAYS. (DO NOT REMOVE THERMOPLASTIC)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

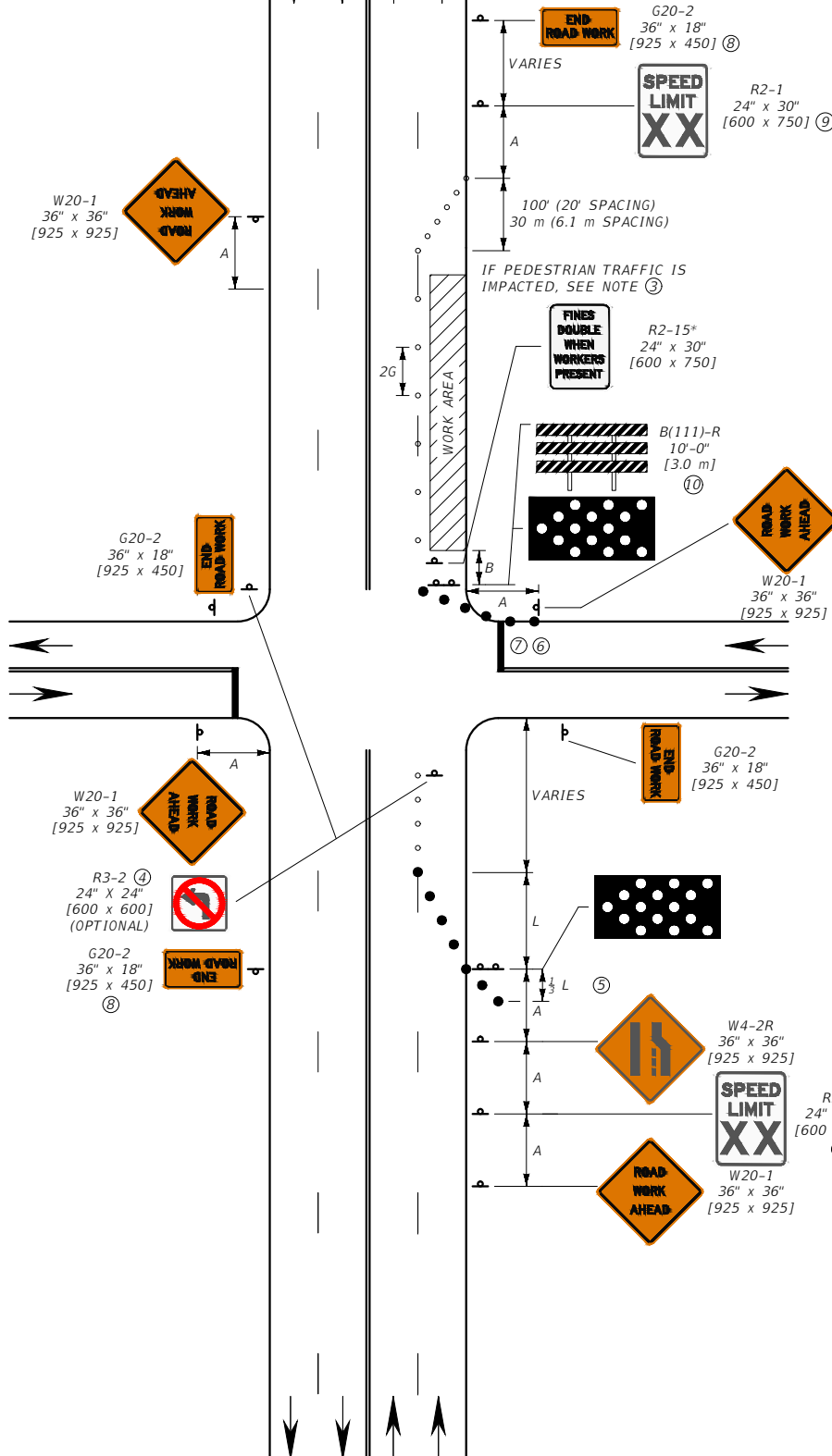
DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U35
DOUBLE LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD)	
EFFECTIVE: ####	

--REVISED--

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POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A)	TAPER LENGTH (L)	SPACING OF CHANNELIZING DEVICES (MAX.) (G) **	BUFFER SPACE ① (B)
FEET [m]	FEET [m]	FEET [m]	FEET [m]	FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.



- NOTES:
- USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
 - INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
 - IF PEDESTRIAN TRAFFIC IS IMPACTED BY THE WORK ZONE, USE THE INFORMATION AND DEVICES SHOWN IN DTL. DWG. 618-U05.
 - LEFT TURNING MOVEMENTS MAY BE PROHIBITED TO MAINTAIN CAPACITY FOR THROUGH VEHICULAR TRAFFIC (UNLESS CONTROLLED BY TRAFFIC SIGNAL).
 - INCLUDE A SHOULDER TAPER WHEN PAVED SHOULDER IS 8' [2.4 m] OR GREATER IN WIDTH OR WHEN A PARKING LANE IS PRESENT.
 - IF LIMITED SIGHT DISTANCE FROM THIS APPROACH, CONSIDER RIGHT TURN ONLY OR CLOSING THE APPROACH.
 - LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
 - PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
 - POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
 - SEE DTL. DWG. 618-03.
 - THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.

LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U40
RIGHT LANE CLOSURE-WORK AREA BEYOND INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD)	
EFFECTIVE: #####	

MONTANA
Department of Transportation

3/18/2024 9:50 AM TDDRD618U40 - FUTURE REVISION.DWG

--REVISED--

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LANE CLOSURE IS OPTIONAL WHEN THE CREW IS NOT AT THE WORK SITE.

R2-15*
24" x 30"

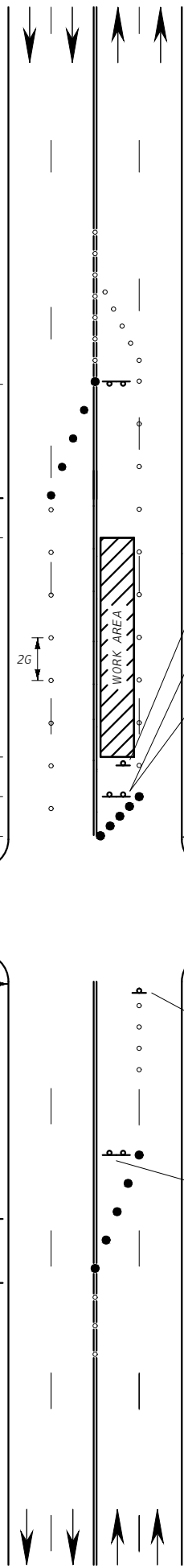
G20-2
36" x 18"
⑥

W20-1
36" x 36"

R2-1
24" x 30" ⑦

G20-2
36" x 18"
⑥

SIGN LAYOUT IDENTICAL TO OPPOSING TRAFFIC SIGN LAYOUT



G20-2
36" x 18"
⑥

R2-1
24" x 30" ⑦

R2-15*
24" x 30"

B(111)-L
10'-0" ⑧

W20-1
36" x 36"

G20-2
36" x 18"
⑥

R3-7
30" x 30" (OPTIONAL) ③

W4-2L
36" x 36"

R2-1
24" x 30" ②

W20-1
36" x 36"

POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) FEET	TAPER LENGTH (L) FEET	SPACING OF CHANNELIZING DEVICES (G) (MAX.) FEET	BUFFER SPACE (B) FEET
25	100	125	25	155
35	100	245	35	250
45	350	540	45	360

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

- NOTES:
- USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
 - INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
 - NORMAL PROCEDURE IS TO COMPLETELY CLOSE THE LEFT LANE, BUT IF THE LEFT LANE HAS SIGNIFICANT LEFT-TURNING TRAFFIC, THE OPTION SHOWN MAY BE USED. ADJUST FLEXIBLE GUIDE POSTS TO ALLOW THE TURNING MOVEMENTS.
 - LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
 - IF LIMITED SIGHT DISTANCE FROM EITHER APPROACH, CONSIDER RIGHT TURNS ONLY OR CLOSING EACH APPROACH WHEN CONDITIONS WARRANT.
 - PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
 - POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
 - SEE DTL. DWG. 618-03.
 - THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.

LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

R3-2
24" X 24" (OPTIONAL)

FOR INTERSECTION APPROACHES REDUCED TO A SINGLE LANE, LEFT TURNS MAY BE PROHIBITED TO MAINTAIN CAPACITY FOR THROUGH TRAFFIC. WHEN PROHIBITING A TURN, TWO TURN PROHIBITION SIGNS SHOULD BE USED, ONE ON THE NEAR SIDE AND, SPACE PERMITTING, ONE ON THE FAR SIDE OF THE INTERSECTION.

LANE CLOSURE IS OPTIONAL WHEN THE CREW IS NOT AT THE WORK SITE.

R2-15*
600 x 750 ⑧

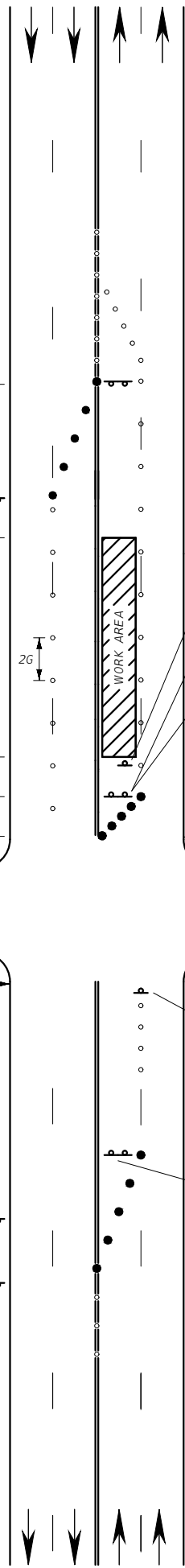
G20-2
925 x 450 ⑥

W20-1
925 x 925

R2-1
600 x 750 ⑦

G20-2
925 x 450 ⑥

SIGN LAYOUT IDENTICAL TO OPPOSING TRAFFIC SIGN LAYOUT



G20-2
925 x 450 ⑥

R2-1
600 x 750 ⑦

R2-15*
600 x 750

B(111)-L
3.0 m ⑧

W20-1
925 x 925

G20-2
925 x 450 ⑥

R3-7
750 x 750 (OPTIONAL) ③

W4-2L
925 x 925

R2-1
600 x 750 ②

W20-1
925 x 925

POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) m	TAPER LENGTH (L) m	SPACING OF CHANNELIZING DEVICES (G) (MAX.) m	BUFFER SPACE (B) m
25	30	40	7.6	45
35	30	75	10.7	75
45	105	165	14	110

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

- NOTES:
- USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
 - INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
 - NORMAL PROCEDURE IS TO COMPLETELY CLOSE THE LEFT LANE, BUT IF THE LEFT LANE HAS SIGNIFICANT LEFT-TURNING TRAFFIC, THE OPTION SHOWN MAY BE USED. ADJUST FLEXIBLE GUIDE POSTS TO ALLOW THE TURNING MOVEMENTS.
 - LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
 - IF LIMITED SIGHT DISTANCE FROM EITHER APPROACH, CONSIDER RIGHT TURNS ONLY OR CLOSING EACH APPROACH WHEN CONDITIONS WARRANT.
 - PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
 - POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
 - SEE DTL. DWG. 618-03.
 - THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.

LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

R3-2
600 x 600 (OPTIONAL)

FOR INTERSECTION APPROACHES REDUCED TO A SINGLE LANE, LEFT TURNS MAY BE PROHIBITED TO MAINTAIN CAPACITY FOR THROUGH TRAFFIC. WHEN PROHIBITING A TURN, TWO TURN PROHIBITION SIGNS SHOULD BE USED, ONE ON THE NEAR SIDE AND, SPACE PERMITTING, ONE ON THE FAR SIDE OF THE INTERSECTION.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618

DWG. NO. 618-U45

LEFT LANE CLOSURE-WORK AREA BEYOND INTERSECTION (URBAN MULTI-LANE UNDIVIDED ROAD)

EFFECTIVE: ####

---REVISED---

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MONTANA
Department of Transportation

3/19/2024 11:36 AM DRRD618U45 - FUTURE REVISION.DWG

POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) FEET	TAPER LENGTH (L) FEET	SPACING OF CHANNELIZING DEVICES (MAX.) (G) ** FEET	BUFFER SPACE (B) FEET
25	100	125	25	155
35	100	245	35	250
45	350	540	45	360

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

- USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- IF PEDESTRIAN TRAFFIC IS IMPACTED BY THE WORK ZONE, USE THE INFORMATION AND DEVICES SHOWN IN DTL. DWG. 618-U5.
- INCLUDE A SHOULDER TAPER WHEN PAVED SHOULDER IS 8' OR GREATER IN WIDTH OR WHEN A PARKING LANE IS PRESENT.
- KEEP RIGHT SIGNS MAY BE OMITTED IF THERE IS INSUFFICIENT SPACE TO PLACE THE BACK-TO-BACK KEEP RIGHT SIGN AND NO LEFT TURN SYMBOL SIGNS.
- IF LIMITED SIGHT DISTANCE FROM THIS APPROACH, CONSIDER RIGHT TURN ONLY OR CLOSING THE APPROACH.
- LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- SEE DTL. DWG. 618-03.

LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)
- /// - OBLITERATE CONFLICTING PAVEMENT MARKINGS WHEN WORK OPERATION IS LONGER THAN 3 DAYS. (DO NOT REMOVE THERMOPLASTIC).

R3-2
24" X 24"
(OPTIONAL)

FOR INTERSECTION APPROACHES REDUCED TO A SINGLE LANE, LEFT TURNS MAY BE PROHIBITED TO MAINTAIN CAPACITY FOR THROUGH TRAFFIC. WHEN PROHIBITING A TURN, TWO TURN PROHIBITION SIGNS SHOULD BE USED, ONE ON THE NEAR SIDE AND, SPACE PERMITTING, ONE ON THE FAR SIDE OF THE INTERSECTION.

POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) m	TAPER LENGTH (L) m	SPACING OF CHANNELIZING DEVICES (MAX.) (G) ** m	BUFFER SPACE (B) m
25	30	40	7.6	45
35	30	75	10.7	75
45	105	165	14	110

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.

NOTES:

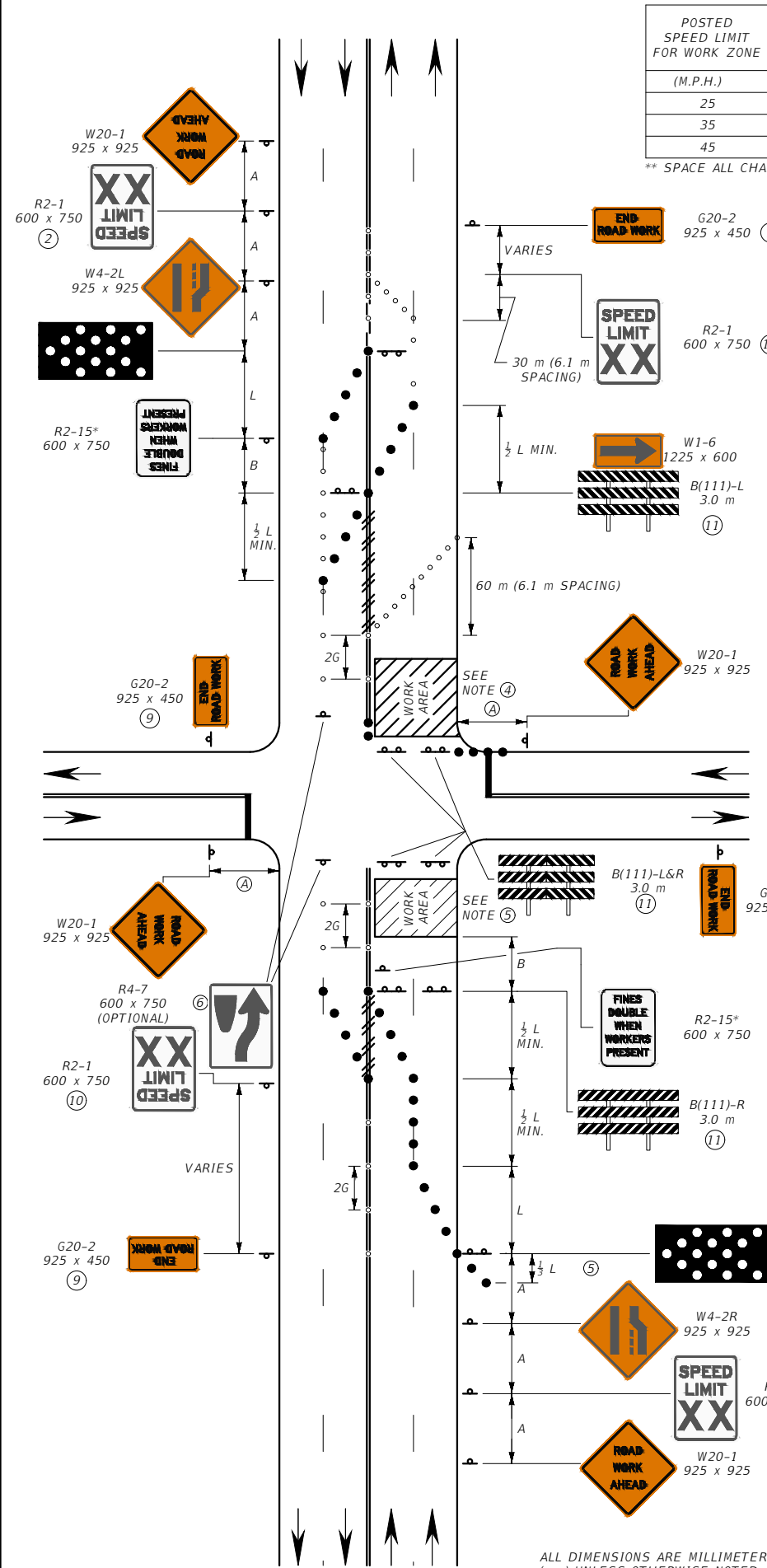
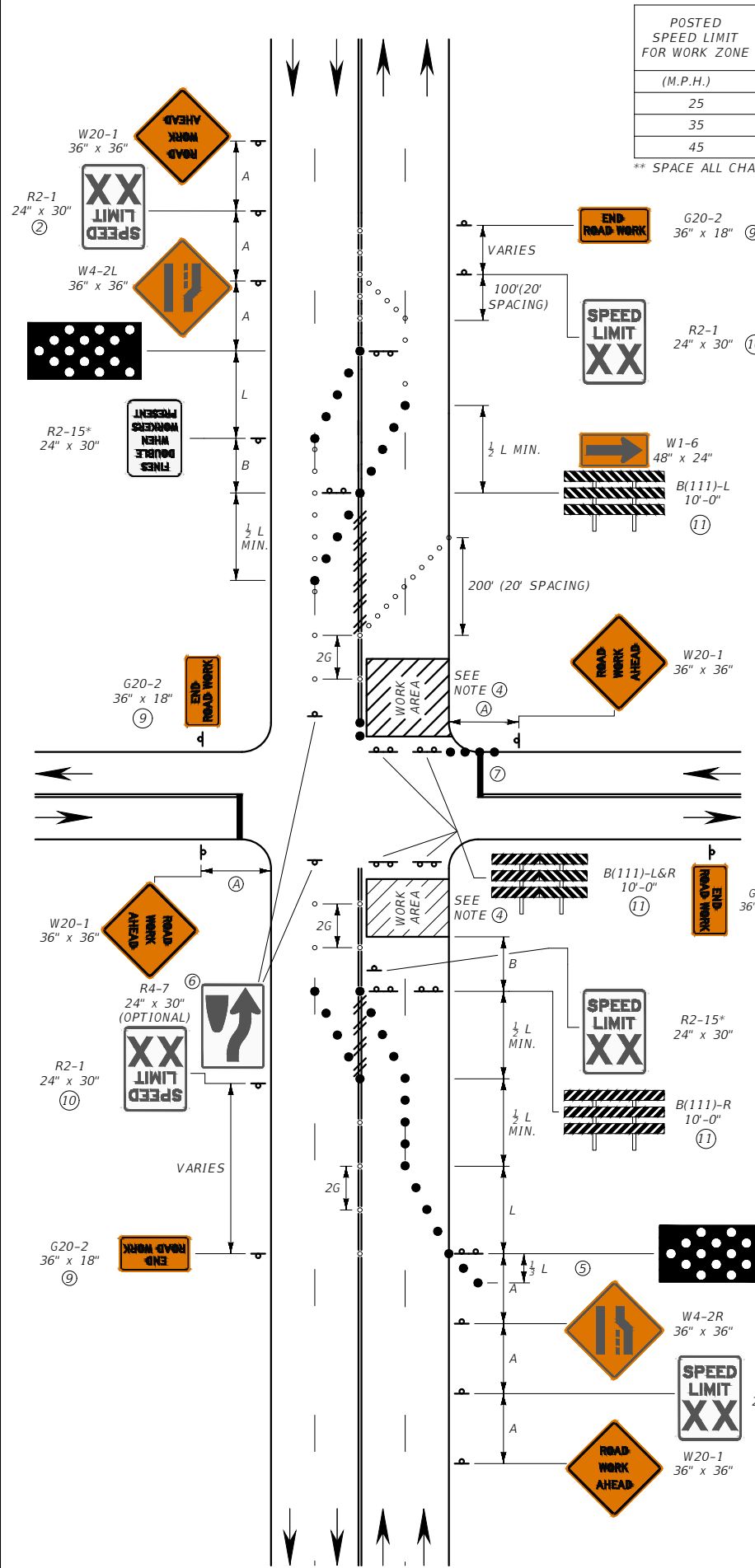
- USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- IF PEDESTRIAN TRAFFIC IS IMPACTED BY THE WORK ZONE, USE THE INFORMATION AND DEVICES SHOWN IN DTL. DWG. 618-U5.
- INCLUDE A SHOULDER TAPER WHEN PAVED SHOULDER IS 2.4 m OR GREATER IN WIDTH OR WHEN A PARKING LANE IS PRESENT.
- KEEP RIGHT SIGNS MAY BE OMITTED IF THERE IS INSUFFICIENT SPACE TO PLACE THE BACK-TO-BACK KEEP RIGHT SIGN AND NO LEFT TURN SYMBOL SIGNS.
- IF LIMITED SIGHT DISTANCE FROM THIS APPROACH, CONSIDER RIGHT TURN ONLY OR CLOSING THE APPROACH.
- LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- SEE DTL. DWG. 618-03.

LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER. (25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)
- /// - OBLITERATE CONFLICTING PAVEMENT MARKINGS WHEN WORK OPERATION IS LONGER THAN 3 DAYS. (DO NOT REMOVE THERMOPLASTIC).

R3-2
600 X 600
(OPTIONAL)

FOR INTERSECTION APPROACHES REDUCED TO A SINGLE LANE, LEFT TURNS MAY BE PROHIBITED TO MAINTAIN CAPACITY FOR THROUGH TRAFFIC. WHEN PROHIBITING A TURN, TWO TURN PROHIBITION SIGNS SHOULD BE USED, ONE ON THE NEAR SIDE AND, SPACE PERMITTING, ONE ON THE FAR SIDE OF THE INTERSECTION.



ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 618

DWG. NO. 618-U50

DOUBLE LANE CLOSURE AT INTERSECTION (URBAN MULTI-LANE UNDIVIDED ROAD)

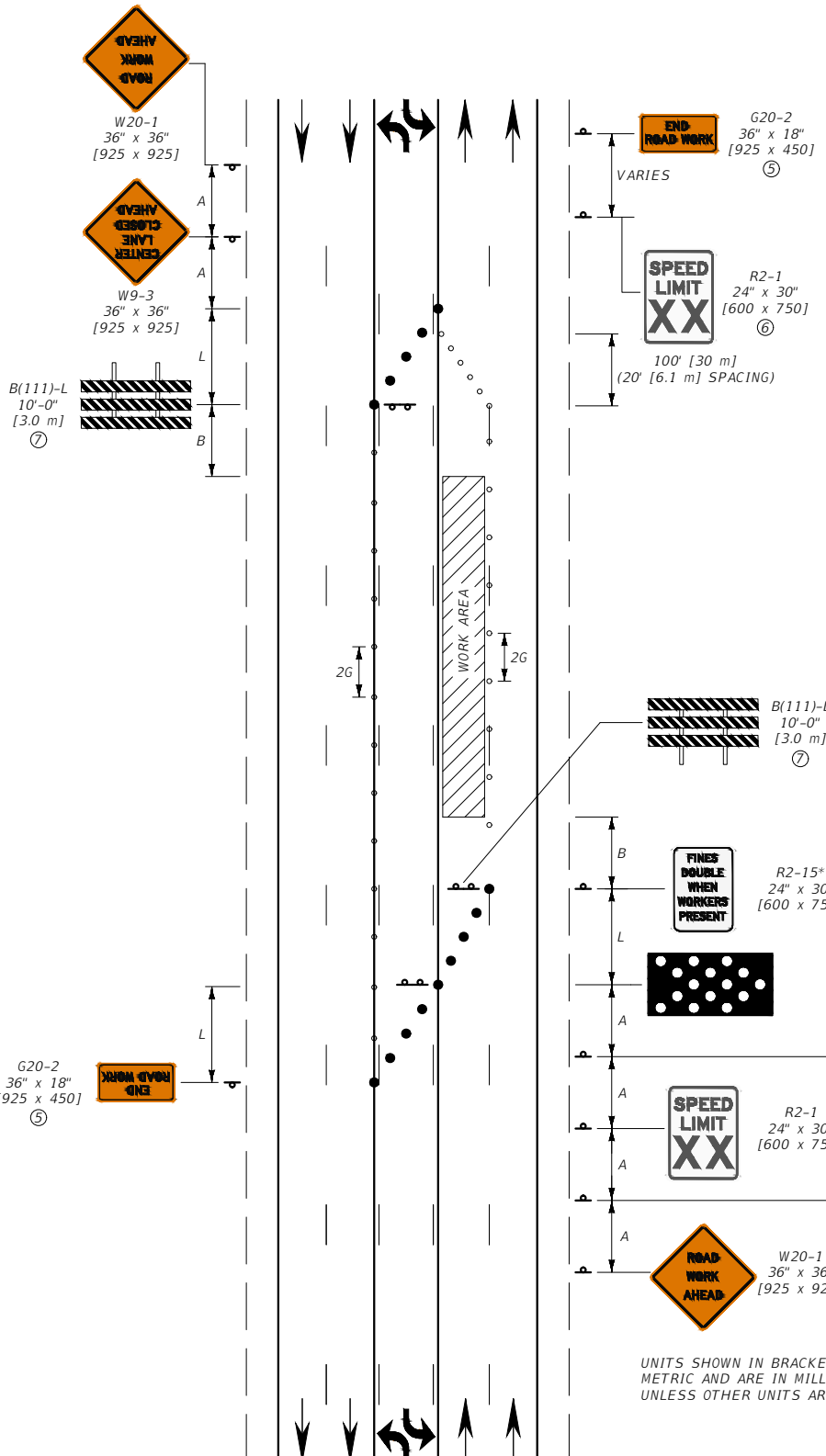
EFFECTIVE: ####

MONTANA
Department of Transportation

3/18/2024 10:00 AM DRRD618U50 - FUTURE REVISION.DWG

POSTED SPEED LIMIT FOR WORK ZONE (M.P.H.)	SIGN SPACING (A) FEET [m]	TAPER LENGTH (L) FEET [m]	SPACING OF CHANNELIZING DEVICES (MAX.) (G) ** FEET [m]	BUFFER SPACE ③ (B) FEET [m]
25	100 [30]	125 [40]	25 [7.6]	155 [45]
35	100 [30]	245 [75]	35 [10.7]	250 [75]
45	350 [105]	540 [165]	45 [14]	360 [110]

** SPACE ALL CHANNELIZING DEVICES AT "G" UNLESS OTHERWISE NOTED.



NOTES:

- ① USE THIS SIGN LAYOUT IN URBAN APPLICATIONS ONLY. USE THE RURAL, OPEN ROADWAY SIGNING DETAILS WHEN HIGHER SPEED LIMITS ARE USED.
- ② INCLUDE SPEED LIMIT SIGNS ONLY IF THERE IS A REASON TO RESTRICT SPEED. COVER OR REMOVE CONFLICTING EXISTING SPEED LIMIT SIGNS.
- ③ THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- ④ LARGER SIGN SIZES MAY BE APPROVED BY THE PROJECT MANAGER.
- ⑤ PLACE END ROAD WORK SIGNS AT END OF PROJECT LIMITS.
- ⑥ POST EXISTING SPEED LIMIT IF CHANGED BY WORK ZONE.
- ⑦ SEE DTL. DWG. 618-03.

LEGEND

- - FLEXIBLE GUIDE POSTS
- - PLASTIC DRUMS
- * - DENOTES SIGNS UNIQUE TO MONTANA.
- XX - SPEED DETERMINED BY THE PROJECT MANAGER.
(25 M.P.H. OR 35 M.P.H. OR 45 M.P.H.)

DETAILED DRAWINGS

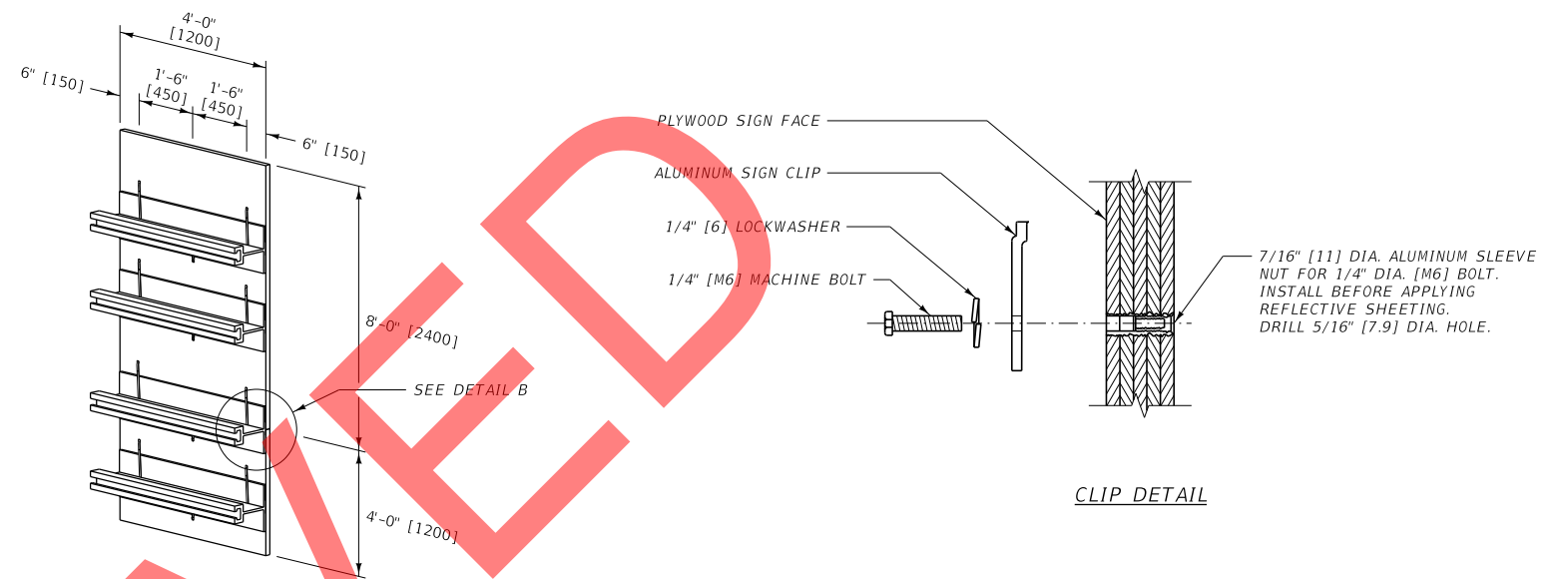
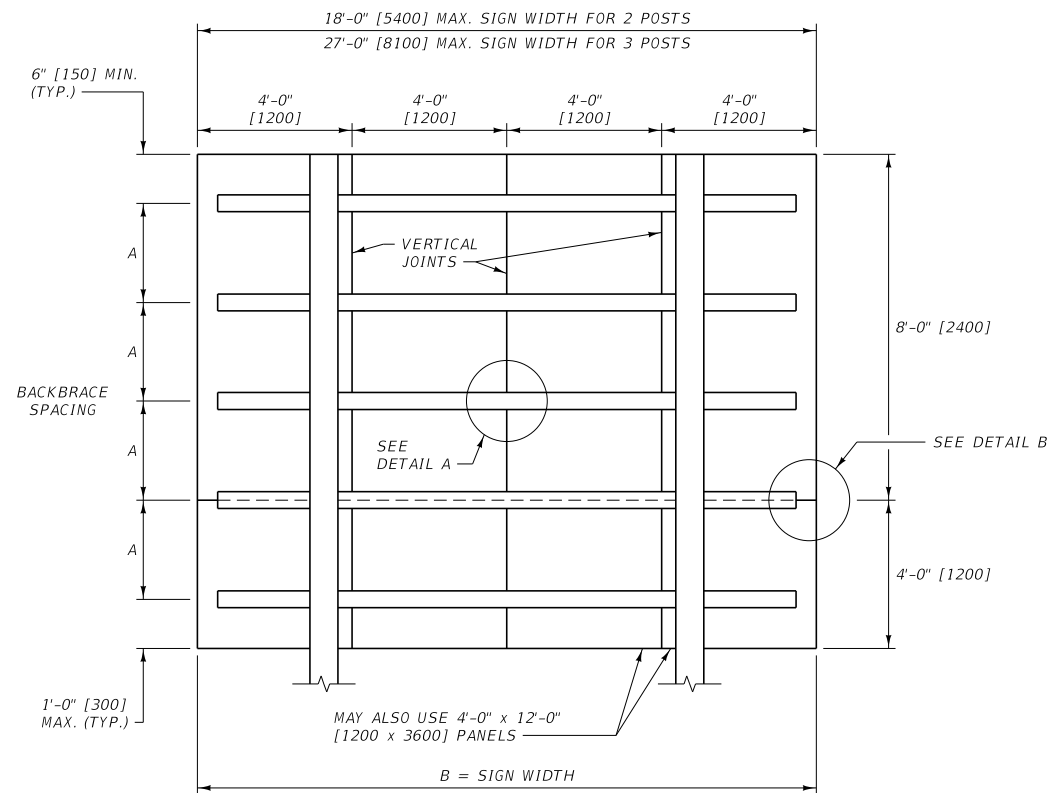
REFERENCE STANDARD SPEC. SECTION 618	DWG. NO. 618-U60
LEFT LANE CLOSURE (URBAN LOW SPEED, MULTI-LANE, UNDIVIDED ROAD WITH TWO-WAY LEFT TURN LANE)	
EFFECTIVE: ####	

MONTANA
Department of Transportation

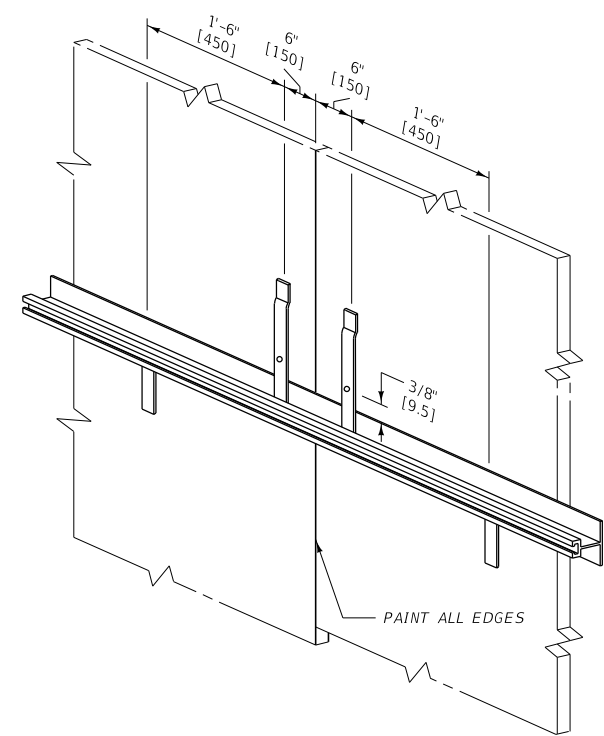
UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

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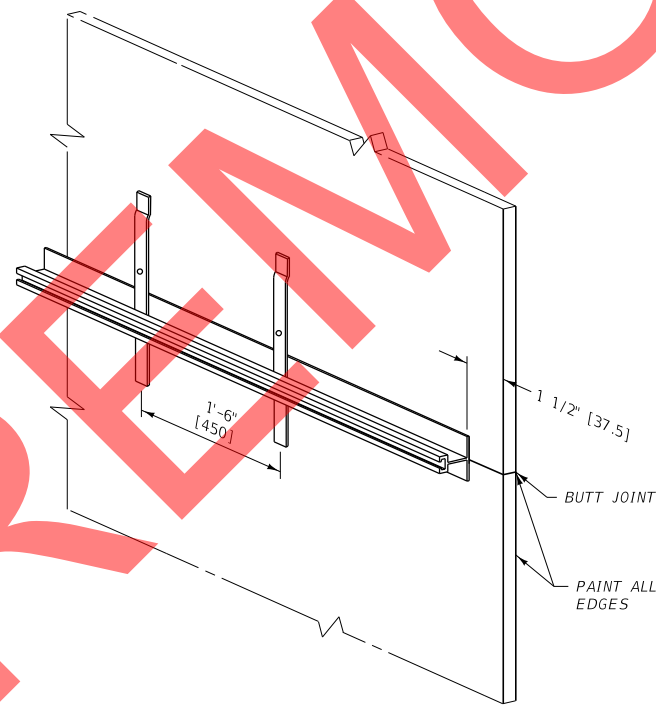
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ALUMINUM CLIP PLACEMENT



DETAIL A
VERTICAL JOINT



DETAIL B
HORIZONTAL JOINT

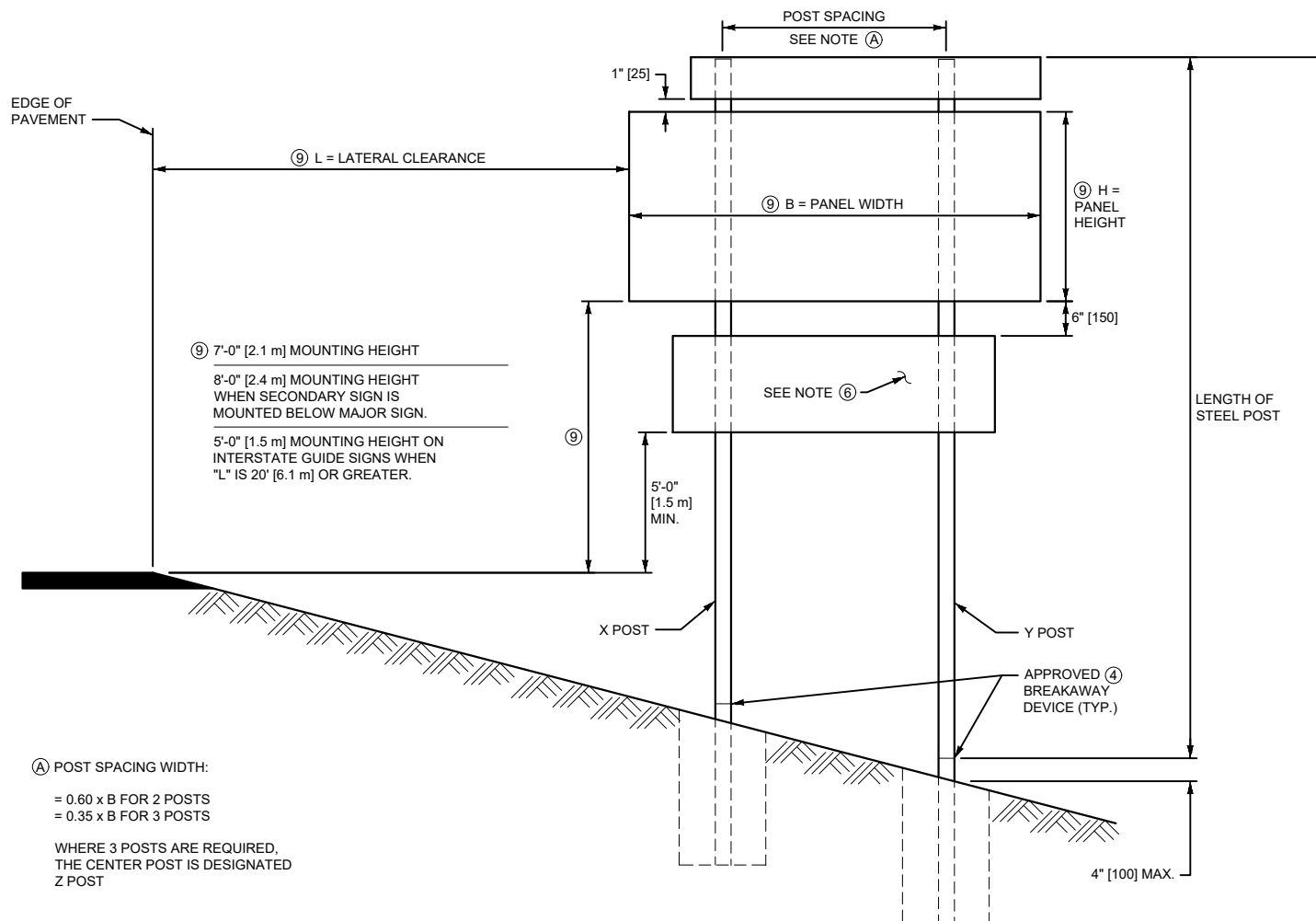
BACKBRACING TABLE - PLYWOOD SIGNS		
DIMENSIONS		
MAXIMUM BACKBRACE SPACING "A"	MAXIMUM WIDTH "B"	
	2 POST	3 POST
1'-8"	18'-0"	27'-0"
1'-10"	17'-0"	25'-8"
2'-0"	16'-6"	24'-8"
2'-6"	14'-9"	22'-0"
3'-0"	13'-6"	20'-0"
3'-6"	12'-6"	18'-6"
METRIC DIMENSIONS		
MAXIMUM BACKBRACE SPACING "A" (mm)	MAXIMUM WIDTH "B"	
	2 POST (mm)	3 POST (mm)
500	5400	8100
550	5100	7700
600	4950	7400
750	4425	6600
900	4050	6000
1050	3750	5550

NOTES:

- ① CONFORM ALL PLYWOOD SIGNS TO SECTIONS 619 AND 704.
- ② ON SIGNS 4'-0" [1200] HIGH AND GREATER, DO NOT USE ANY PANELS LESS THAN 4'-0" [1200] IN HEIGHT.
- ③ DO NOT USE HORIZONTAL JOINTS ON SIGNS LESS THAN 4'-0" [1200] IN HEIGHT.
- ④ FOR SIGNS WITH WIDTHS THAT ARE NOT IN MULTIPLES OF 4'-0" [1200], PLACE THE ODD LENGTH PANEL ON THE INSIDE EDGE.
- ⑤ FOR SIGNS OVER 10'-0" [3000] IN HEIGHT, THE FULL HEIGHT MAY BE OBTAINED WITH PANELS HAVING A FACTORY SCARFED JOINT IN LIEU OF USING STANDARD LENGTH PANEL AS SHOWN.
- ⑥ THE MINIMUM SIZE PANEL IS 1'-6" [450] WIDE BY 4'-0" [1200] HIGH.
- ⑦ CONSTRUCT PLYWOOD SIGNS OF ONE PIECE OF PLYWOOD UNLESS THE PLANS SPECIFY OTHERWISE FOR SPECIAL DESIGN SIGNS.
- ⑧ USE HARDWARE MEETING THE REQUIREMENTS OF SECTION 704.

UNITS SHOWN IN BRACKETS () ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

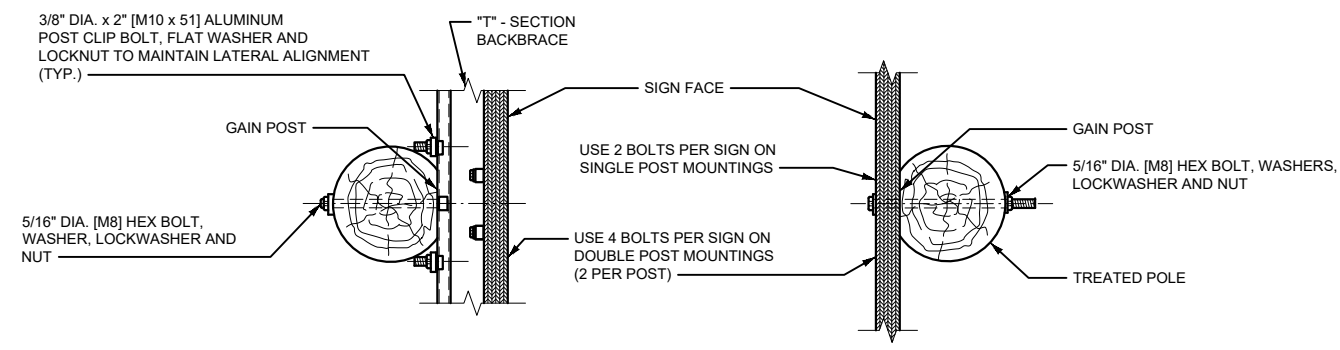
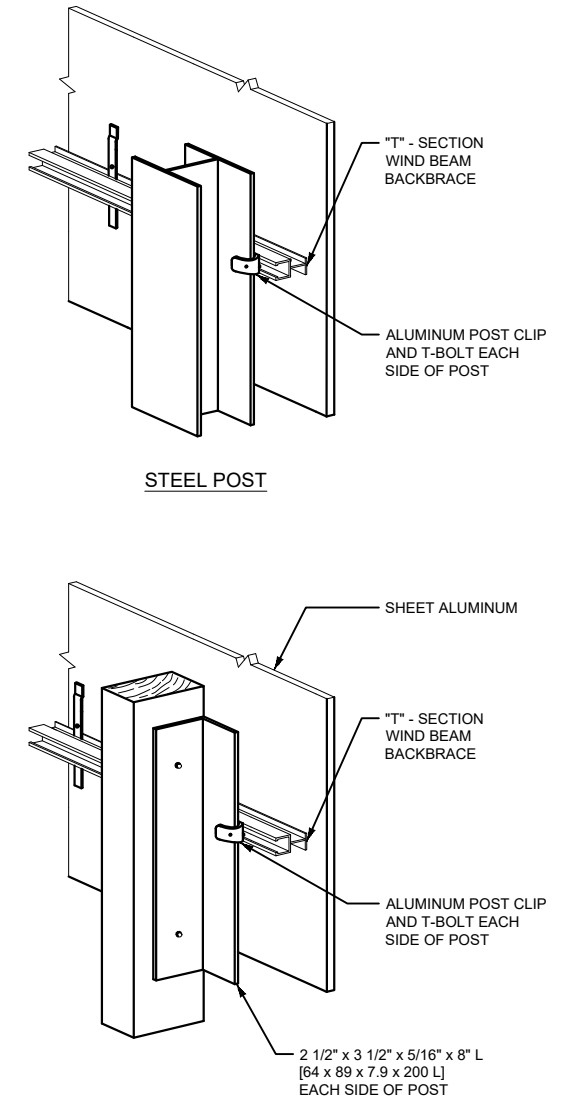
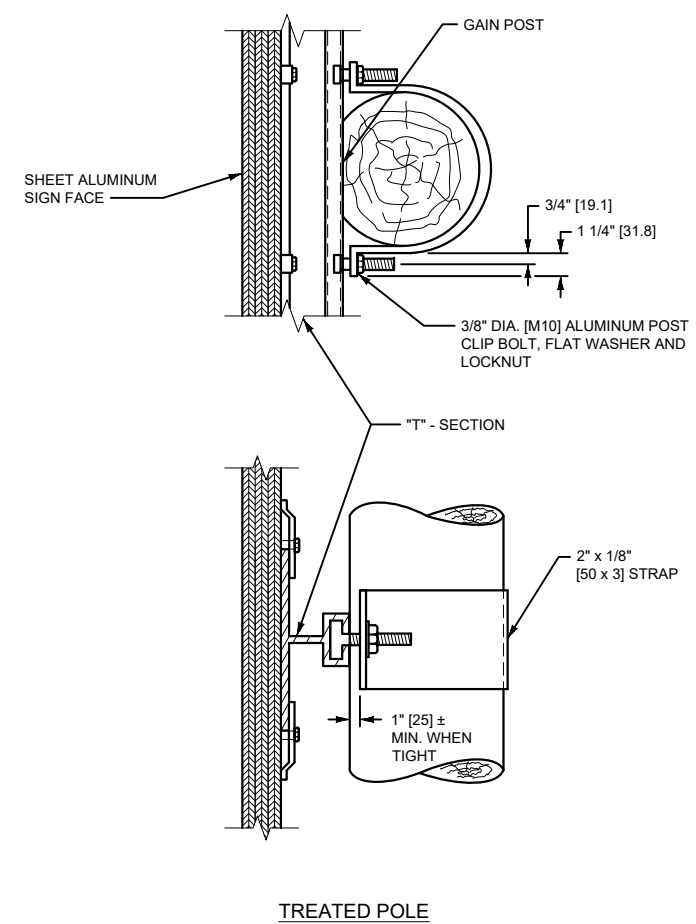
DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 619.704	DWG. NO. 619-06
PLYWOOD SHEET INCREMENT GUIDE SIGN CONSTRUCTION DETAILS	



(A) POST SPACING WIDTH:
 = 0.60 x B FOR 2 POSTS
 = 0.35 x B FOR 3 POSTS
 WHERE 3 POSTS ARE REQUIRED,
 THE CENTER POST IS DESIGNATED
 Z POST

- NOTES:
- MOUNTING SYSTEMS SHOWN ARE TYPICAL. OTHER SYSTEMS MAY BE APPROVED BY THE PROJECT MANAGER.
 - USE HARDWARE MEETING THE REQUIREMENTS OF SECTION 704.
 - GAIN THE TOP HALF OF WOOD POLES ACCORDING TO THE TABLE ON DTL. DWG. NO. 619-20.
 - SEE THE SIGNING PLANS FOR THE TYPES OF POSTS AND FOUNDATIONS.
 - MOUNT ONE-PANEL SIGNS DIRECTLY TO WOOD POLES OR POSTS, WHEN SPECIFIED IN THE PLANS, BY BOLTING THROUGH THE SIGN PLATE AND THE POLE AS REQUIRED BY THE DETAILED DRAWINGS, SPECIFICATIONS AND DESIGN. USE "T"-SECTION WIND BEAMS WHEN REQUIRED BY DTL. DWG. NO. 619-06.
 - SUSPEND LARGE SUPPLEMENTAL SIGNS, ADDED AFTER INITIAL SIGN INSTALLATION, FROM MAJOR SIGN PANEL OR BACKBRACING. ATTACHMENT TO MULTIPLE POSTS/POLES IS NOT ALLOWED.
 - USE POST SPACING, POST SIZE AND BREAKAWAY DEVICES SPECIFIED IN THE PLANS AND IN THE SPECIFICATIONS. FOR INFORMATION REGARDING APPROPRIATE BREAKAWAY DEVICES FOR NEW INSTALLATIONS NOT SUPPORTED BY THE PLANS, CONTACT THE TRAFFIC UNIT.
 - IN LOCATING SIGNS, AVOID PLACING POSTS IN DITCH BOTTOMS WHERE THEY WOULD IMPEDE DRAINAGE.
 - DIMENSIONS ARE SPECIFIED IN THE SIGNING PLANS.

MOUNTING DETAILS



DOUBLE POLE MOUNT

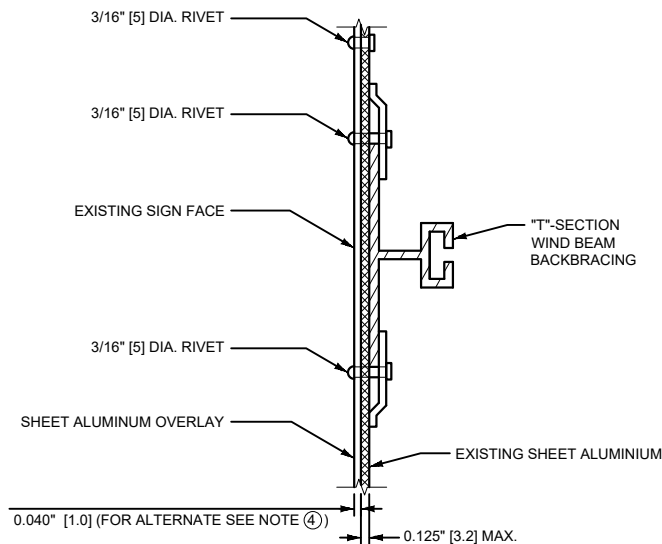
TREATED POLE SINGLE OR DOUBLE
 (USED WHEN "T"-BAR WIND BEAMS NOT REQUIRED)

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 619, 704	DWG. NO. 619-08
GUIDE SIGN CLEARANCE AND MOUNTING DETAILS	
EFFECTIVE: #####	

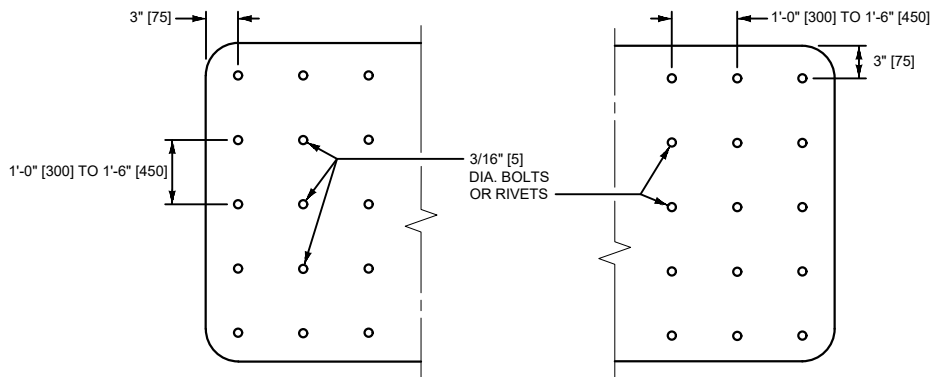
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EXISTING PLYWOOD SIGNS

EXISTING ALUMINUM SIGNS



FASTENER PATTERN

NOTES:


- ① REMOVE ALL RAISED LETTERS, NUMERALS, SYMBOLS, BORDERS AND PREVIOUS SIGN OVERLAYS TO BE REPLACED, AND CLEAN SIGN FACE TO A SMOOTH SURFACE BEFORE OVERLAYING.
- ② ALL LETTERS, NUMERALS, SYMBOLS AND BORDERS ARE TYPE "C" CUTOUT UNLESS OTHERWISE SPECIFIED, AND APPLIED TO THE BACKGROUND SHEETING PRIOR TO FIELD APPLICATION OF THE SIGN.
- ③ THE SIZE OF ALL GUIDE SIGN OVERLAYS AND LEGENDS MUST BE VERIFIED BY THE PROJECT MANAGER PRIOR TO FABRICATION.
- ④ AN ADHESIVE-BACKED SHEETING MAY BE USED AS AN ALTERNATIVE ON SIGN WIDTHS OF 6'-0" [1800] OR LESS IF IT IS PREFABRICATED TO A MINIMUM THICKNESS OF 0.005" [0.13] AND CONSTRUCTED OF PREAPPLIED REFLECTIVE SHEETING ON ADHESIVE-BACKED ALUMINUM. APPLY ADHESIVE-BACKED OVERLAY SHEETING WHEN AIR AND SURFACE TEMPERATURES ARE ABOVE 50°F (10°C). DO NOT USE THIS TYPE OF OVERLAY MATERIAL ON OVERHEAD SIGNS.
- ⑤ PROVIDE A MINIMUM REFLECTIVE SHEETING INTENSITY OF TYPE 4, MEETING THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, UNLESS SPECIFIED OTHERWISE.
- ⑥ APPLY ALL MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

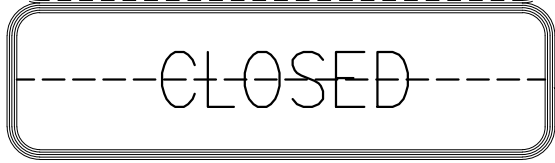
- ⑦ USE ALUMINUM ALLOY TYPE 6061-T6 OR AA5052-H38. CONVERSION COAT ALL ALUMINUM WITH A PROCESS SUCH AS ALODINE 1200 (OR EQUAL), AND RINSE AND DRY THOROUGHLY. PROTECT IT FROM SOIL BY ACCEPTABLE METHODS.
- ⑧ SIGN OVERLAYS MAY REQUIRE REMOVAL OF THE SIGN FROM THE POSTS TO AVOID PROJECTING BOLT HEADS. DO NOT LEAVE WARNING AND REGULATORY SIGNS TO BE OVERLAYED UNDISPLAYED FOR MORE THAN ONE (1) HOUR DURING DAYLIGHT. DO NOT LEAVE GUIDE SIGNS UNDISPLAYED FOR MORE THAN TEN (10) HOURS DURING DAYLIGHT. INSURE SIGNS TO BE OVERLAYED ARE OPERATIONAL PRIOR TO DARKNESS.
- ⑨ OVERLAY SIGNS SMALLER THAN 4'-0" x 6'-0" [1200 x 1800] WITH ONE PANEL OF MATERIAL. FOR SEAMS IN LARGE OVERLAYS, USE RIVETS OR BOLTS SPACED AS SHOWN ON THIS DRAWING AND PLACE PARALLEL TO AND NO MORE THAN 3" [75] Laterally FROM THE SEAM.
- ⑩ USE HARDWARE MEETING THE REQUIREMENTS OF SECTION 704.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

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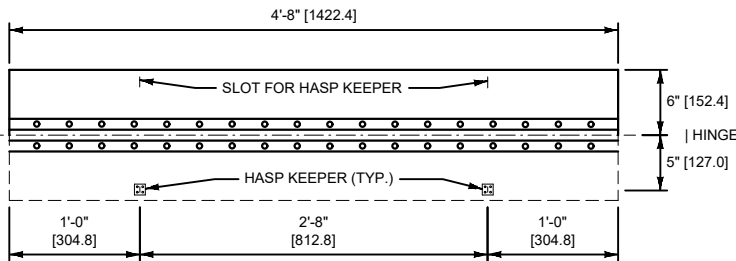
DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 619, 704	DWG. NO. 619-10
SHEET ALUMINUM OVERLAY	
EFFECTIVE: ####	
	
MONTANA Department of Transportation	
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8" [200] UPPER CASE SERIES "E" MODIFIED

HINGE

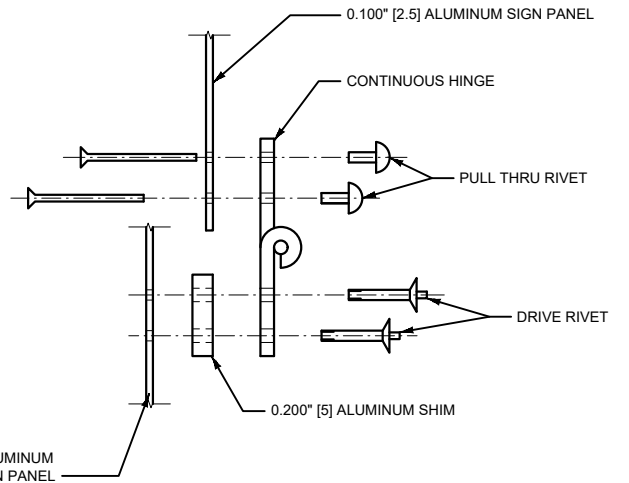
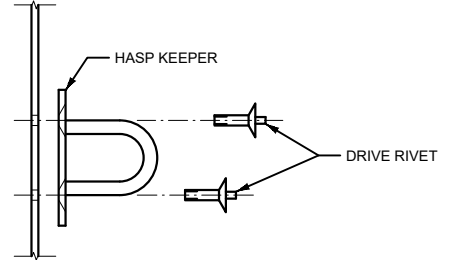
8" [200] UPPER CASE SERIES "E" MODIFIED



HINGE DETAIL EXAMPLE

(5'-6" x 4'-0" [1650 x 1200] D8-2A WEIGH STATION SIGN SHOWN)

ALUMINUM SHEET MOUNTING



NOTES:

- ① SEE SIGNS AND SIGNING MATERIALS CATALOG FOR COMPLETE LISTING OF SIGNS AND SIGN SIZES. DESIGNS ARE AVAILABLE FROM THE TRAFFIC ENGINEERING SIGNING UNIT FOR SIGNS UNIQUE TO MONTANA.
- ② THE SIGN PANEL CONSISTS OF 0.125" [3.2] ALUMINUM SHEET INCREMENT AS SPECIFIED ON THE PLANS. THE HINGED PANEL CONSISTS OF 0.100" [2.5] SHEET ALUMINUM.
- ③ PAINT ALL HARDWARE VISIBLE ON THE SIGN FACE OR COVER WITH RETRO-REFLECTIVE SHEETING, THE SAME COLOR AS THE SIGN.
- ④ SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.
- ⑤ SUPPLEMENTAL SIGN PANEL BELOW MAJOR SIGN PANEL MUST HAVE RETRO-REFLECTORIZED LEGEND AND BACKGROUND MATCHING COLORS OF MAJOR PANEL.
- ⑥ THE MINIMUM MOUNTING HEIGHT TO THE BOTTOM OF THE SECONDARY PANEL IS 5'-0" [1.5 m].
- ⑦ USE HARDWARE MEETING THE REQUIREMENTS OF SECTION 704.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 619, 704 DWG. NO. 619-30

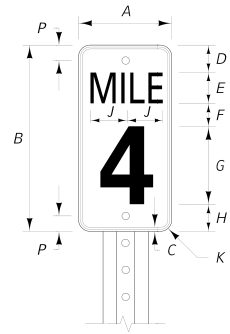
SIGN HINGE DETAIL

EFFECTIVE: ####

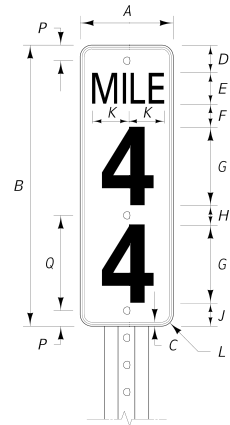
--REVISED--

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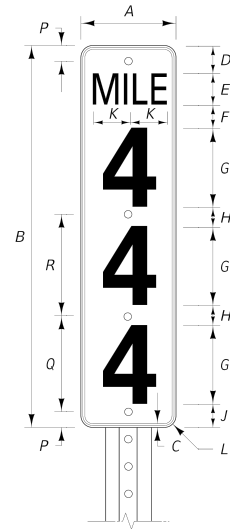




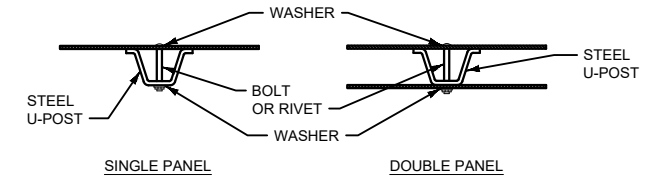
D10-1 AND D10-4



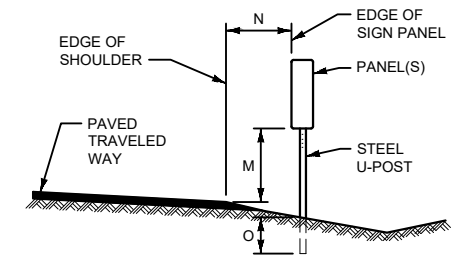
D10-2 AND D10-5



D10-3 AND D10-6



TYPICAL PANEL MOUNTING



* NORMALLY IN LINE WITH DELINEATORS

TYPICAL PLACEMENT

PANEL DIMENSION INFORMATION

INTERSTATE			
DIMENSION	D10-4 (1 DIGIT)	D10-5 (2 DIGIT)	D10-6 (3 DIGIT)
A	12.0"	12.0"	12.0"
B	24.0"	36.0"	48.0"
C	0.5"	0.5"	0.5"
D	3.5"	3.0"	3.0"
E	4.0" SERIES "B"	4.0" SERIES "B"	4.0" SERIES "B"
F	3.0"	3.0"	3.0"
G [⊙]	10.0" SERIES "D"	10.0" SERIES "D"	10.0" SERIES "D"
H	3.5"	3.0"	2.5"
J	4.0"	3.0"	3.0"
K	1.5"	4.0"	4.0"
L	~	1.5"	1.5"
P	2.0"	2.0"	2.0"
Q	~	12.5"	12.5"
R	~	~	12.5"

NON-INTERSTATE			
DIMENSION	D10-1 (1 DIGIT)	D10-2 (2 DIGIT)	D10-3 (3 DIGIT)
A	10.0"	10.0"	10.0"
B	18.0"	27.0"	36.0"
C	0.5"	0.5"	0.5"
D	3.0"	3.0"	3.0"
E	4.0" SERIES "B"	4.0" SERIES "B"	4.0" SERIES "B"
F	2.0"	2.0"	2.0"
G [⊙]	6.0" SERIES "D"	6.0" SERIES "D"	6.0" SERIES "D"
H	3.0"	3.0"	3.0"
J	4.0"	3.0"	3.0"
K	1.5"	4.0"	4.0"
L	~	1.5"	1.5"
P	1.5"	1.5"	1.5"
Q	~	9.0"	9.0"
R	~	~	9.0"

[⊙]OPTICALLY CENTER DIGITS ON VERTICAL I OF PANEL.

METRIC PANEL DIMENSION INFORMATION

INTERSTATE #			
DIMENSION	D10-4 (1 DIGIT)	D10-5 (2 DIGIT)	D10-6 (3 DIGIT)
A	300	300	300
B	600	900	1200
C	10	10	10
D	88	75	75
E	100 SERIES "B"	100 SERIES "B"	100 SERIES "B"
F	75	75	75
G [⊙]	250 SERIES "D"	250 SERIES "D"	250 SERIES "D"
H	87	75	63
J	98	75	74
K	40	98	98
L	~	40	40
P	50	50	50
Q	~	313	313
R	~	~	313

NON-INTERSTATE #			
DIMENSION	D10-1 (1 DIGIT)	D10-2 (2 DIGIT)	D10-3 (3 DIGIT)
A	250	250	250
B	450	675	900
C	10	10	10
D	75	75	75
E	100 SERIES "B"	100 SERIES "B"	100 SERIES "B"
F	50	50	50
G [⊙]	150 SERIES "D"	150 SERIES "D"	150 SERIES "D"
H	75	75	75
J	98	75	75
K	30	98	98
L	~	30	30
P	37.5	37.5	37.5
Q	~	225	225
R	~	~	225

[⊙]OPTICALLY CENTER DIGITS ON VERTICAL I OF PANEL.

ALL UNITS ARE IN MILLIMETERS (mm)

NOTES:

- MILEPOST PANELS CONSIST OF A RETRO-REFLECTORIZED WHITE LEGEND AND BORDER ON A RETRO-REFLECTORIZED GREEN BACKGROUND.
- MOUNT ALL MILEPOSTS ON STEEL U-POSTS (MIN. 2 LB./FT. [3 kg/m]) EXCEPT THE D10-6, WHICH IS MOUNTED ON A STEEL U-POST (MIN. 3 LB./FT. [4.5 kg/m]) AS NOTED IN THE SIGNING PLANS.
- USE GALVANIZED OR CADMIUM PLATED 5/16" DIA. [M8] BOLT, NUT AND WASHER, AND JAM THREADS AFTER TIGHTENING. USE 5/16" [8] DIA. ALUMINUM OR CADMIUM PLATED BOLT RIVETS OR PAINT RIVET HEADS WITH BRILLIANT GREEN SIGN ENAMEL.
- DO NOT RELOCATE OR MOVE A MILEPOST ONCE IT HAS BEEN PROPERLY PLACED.
- USE HARDWARE MEETING THE REQUIREMENTS OF SECTION 704.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 619, 704 DWG. NO. 619-32

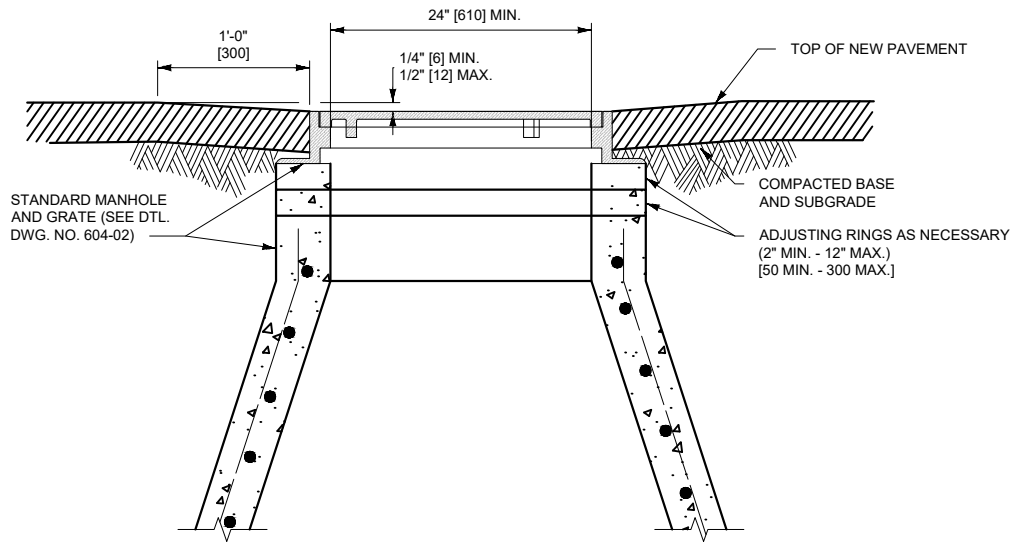
MILEPOST (REFERENCE POST) DETAILS

EFFECTIVE: #####

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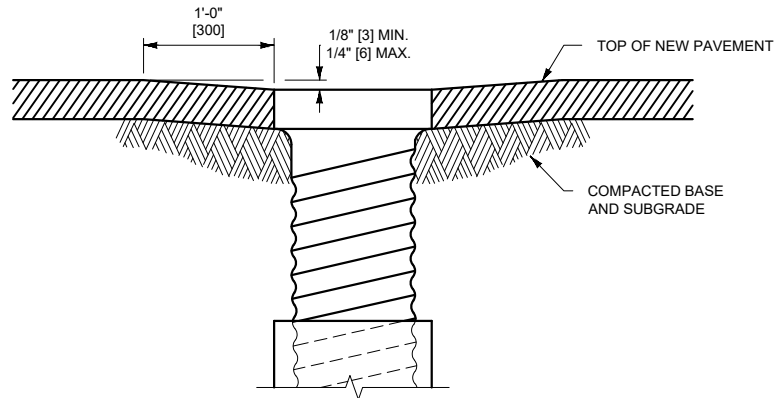




NOTES:

- ① ADJUST MANHOLES UPWARD WITH ADJUSTING RINGS UNDER FRAME.
- ② ADJUST MANHOLES DOWNWARD BY REMOVING CONE AND BARREL SECTIONS AS NECESSARY AND REPLACING WITH SECTIONS OF LENGTH REQUIRED TO MATCH GRADE.
- ③ SLOPE MANHOLE FRAME AS REQUIRED TO MATCH SLOPE OF STREET.
- ④ MAKE FINAL MANHOLE ADJUSTMENTS BEFORE PAVING.

MANHOLE ADJUSTMENT DETAIL




NOTES:

- ① ADJUST WATER VALVES UPWARD OR DOWNWARD AS REQUIRED.
- ② MAKE FINAL ADJUSTMENT BEFORE PAVING.

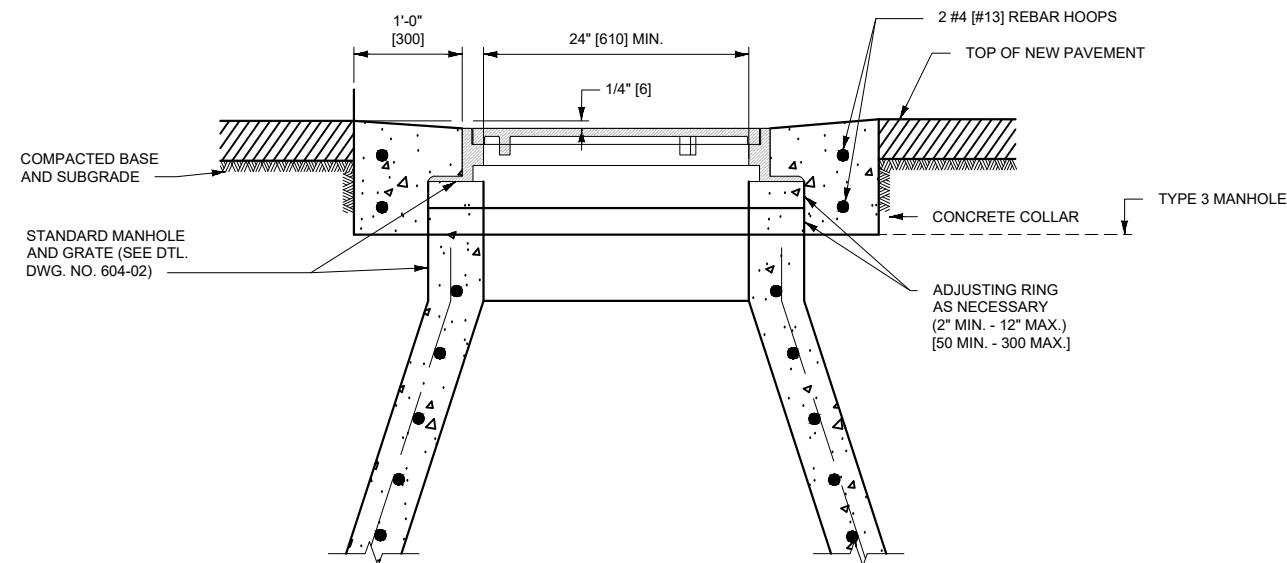
VALVE BOX ADJUSTMENT DETAIL

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 604, 621	DWG. NO. 621-00
MANHOLE AND VALVE BOX ADJUSTMENT DETAILS	
EFFECTIVE: ####	
	

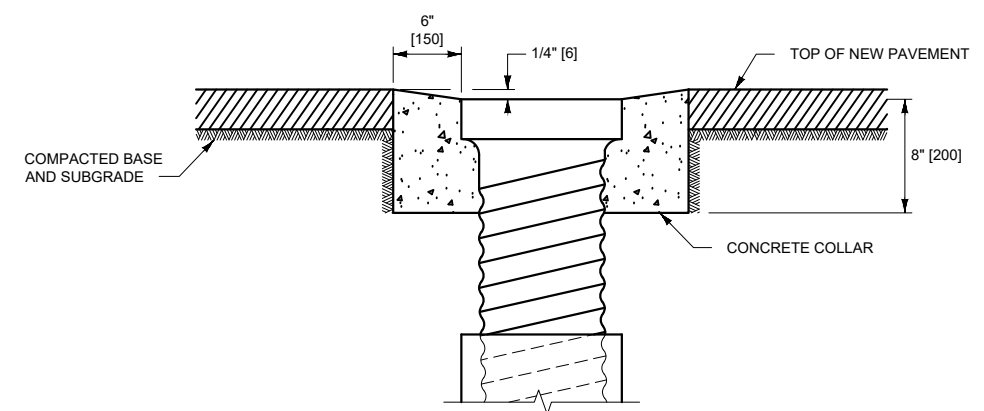
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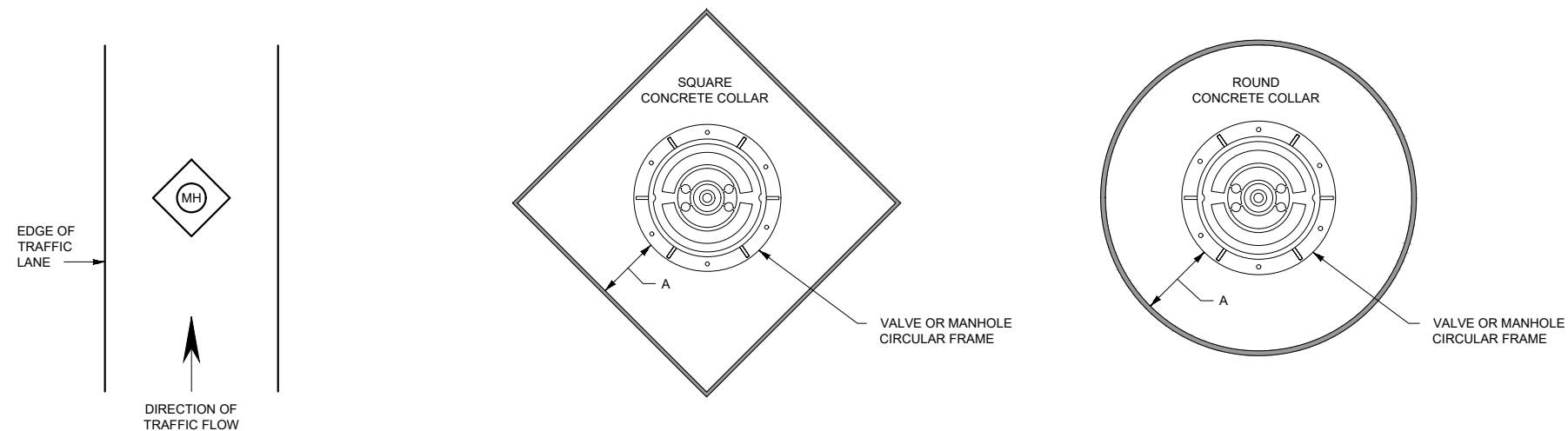
- NOTES:
- ① ADJUST MANHOLES UPWARD WITH ADJUSTING RINGS UNDER FRAME.
 - ② ADJUST MANHOLES DOWNWARD BY REMOVING CONE AND BARREL SECTIONS AS NECESSARY AND REPLACING WITH SECTIONS OF LENGTH REQUIRED TO MATCH GRADE.
 - ③ SLOPE MANHOLE FRAME AS REQUIRED TO MATCH SLOPE OF STREET.
 - ④ CONSTRUCT CONCRETE COLLAR OF CLASS GENERAL CONCRETE OR APPROVED EQUAL.

MANHOLE ADJUSTMENT DETAIL



- NOTES:
- ① ADJUST WATER VALVES UPWARD OR DOWNWARD AS REQUIRED.
 - ② CONSTRUCT CONCRETE COLLAR OF CLASS GENERAL CONCRETE OR APPROVED EQUAL.

VALVE BOX ADJUSTMENT DETAIL



TYPE	DIMENSIONS	SQUARE COLLAR QUANTITIES	ROUND COLLAR QUANTITIES
		CLASS GENERAL CONCRETE	
MANHOLE	1'-0" [300]	0.5 C.Y. [0.4m ³]	0.4 C.Y. [0.3m ³]
VALVE	0'-6" [150]	0.2 C.Y. [0.2 m ³]	0.1 C.Y. [0.1 m ³]

CONCRETE COLLAR DETAIL

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS

REFERENCE STANDARD SPEC. SECTION 604, 621

DWG. NO. 621-05

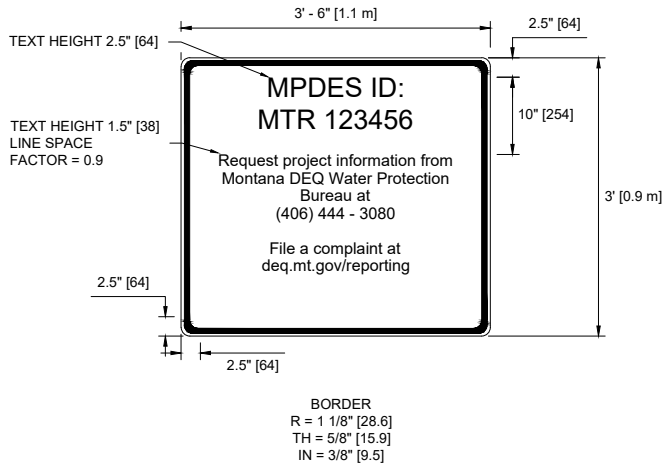
OPTIONAL MANHOLE AND VALVE BOX ADJUSTMENT DETAILS

EFFECTIVE: ####

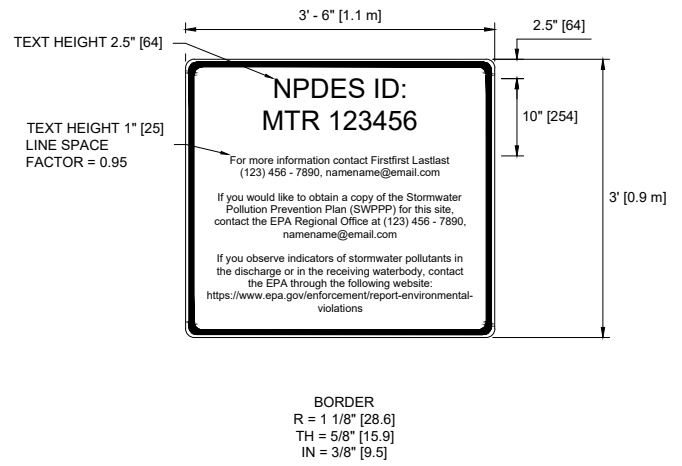
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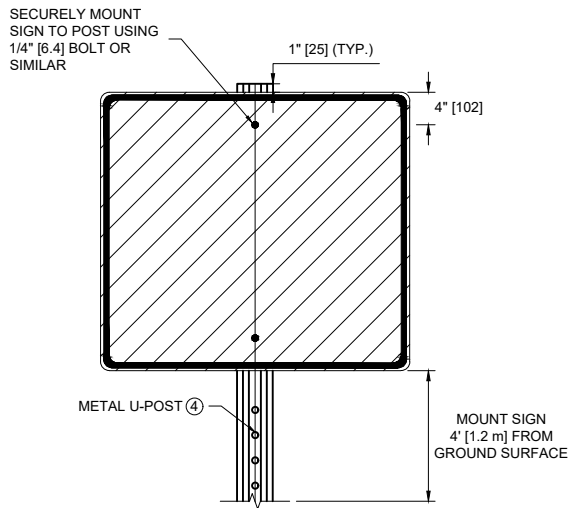
MONTANA
Department of Transportation



MPDES SWPPP SIGN DETAIL



NPDES SWPPP SIGN DETAIL




SWPPP SIGN POST DETAIL

NOTES:

- ① INSTALL SIGNAGE AT A PUBLICLY ACCESSIBLE LOCATION NEAREST THE MOST ACTIVE PROJECT PORTION.
- ② INSTALL SIGN FACE PARALLEL TO TRAVEL DIRECTION WITH TEXT FACING ROADWAY.
- ③ USE NON-RETRO-REFLECTIVE SIGN FACE MATERIAL.
- ④ AFFIX SIGN TO METAL U-POST (MIN. 3 LB./FT. [4.5 kg/m]) DRIVEN 2' [0.6 m] (MIN.) IN THE GROUND.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS	
REFERENCE STANDARD SPEC. SECTION 208, 704	DWG. NO. 900-20
PUBLIC SIGNAGE - STORMWATER	
EFFECTIVE: ####	
 MONTANA Department of Transportation	
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