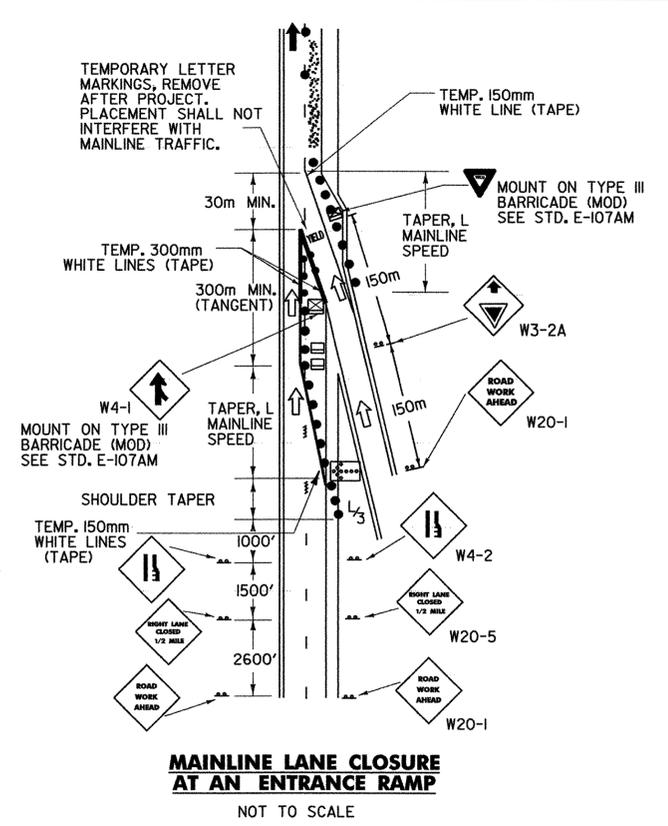


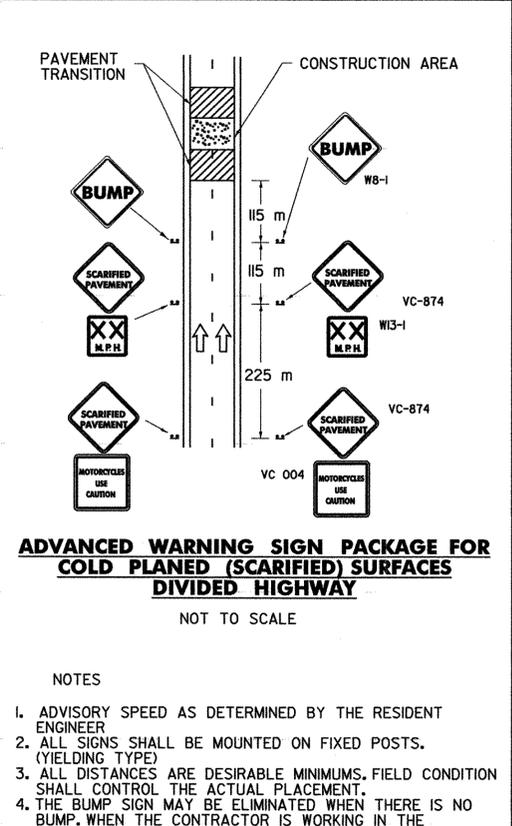
- NOTES**
1. ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
 2. CHANNELIZING DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE TABLE ON THIS SHEET.
 3. ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
 4. TAPER RATES ARE BASED ON THE POSTED MAINLINE AND EXIT SPEEDS.
 5. TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
 6. LANE CLOSURES AND TAPER LENGTHS L, AS DETAILED ON THIS SHEET.
 7. EXIT SIGN SHALL BE MOUNTED A MINIMUM OF 2.1 METERS ABOVE THE GROUND AND HIGH ENOUGH TO BE SEEN ABOVE CHANNELIZING DEVICES.

- LEGEND**
- REFLECTIVE PLASTIC DRUMS
 - PAVEMENT MARKING REMOVAL
 - ↑ INDICATES TRAFFIC FLOW
 - ▨ WORK AREA
 - ⚡ FLASHING ARROW PANEL
 - TYPE III BARRICADES
 - ▣ TYPE III BARRICADES (MOD.)

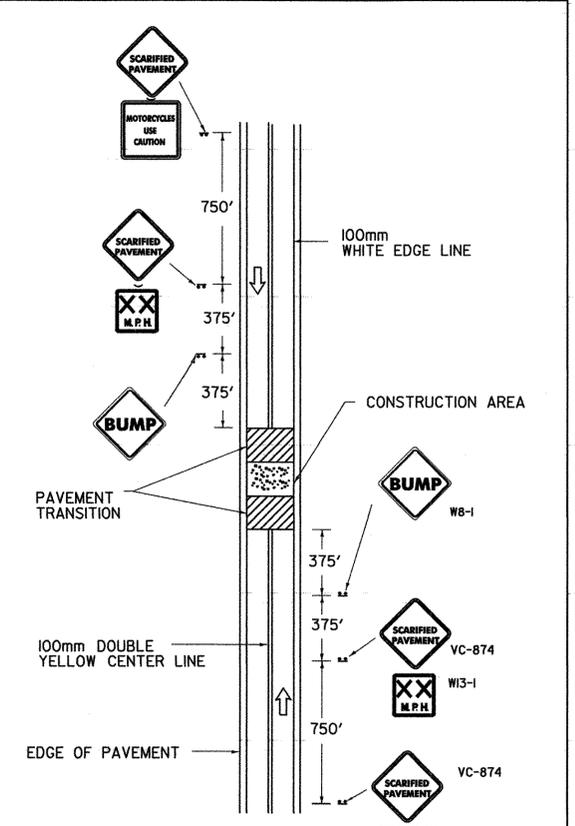
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.



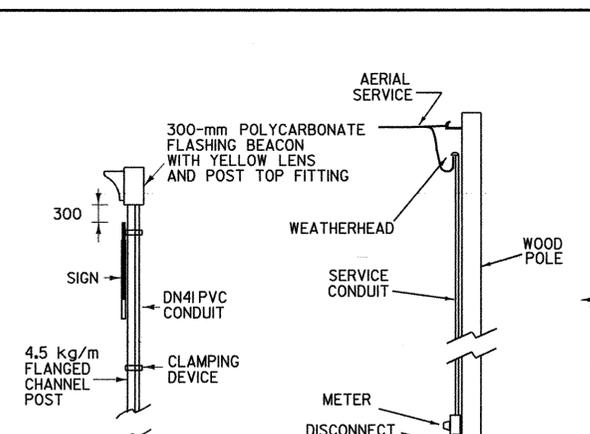
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC. IF THE LENGTH OF THE ACCELERATION LANE IS NOT ADEQUATE, THE YIELD SIGN SHALL BE REPLACED WITH A STOP SIGN. IF A STOP SIGN IS USED, IT SHOULD BE ACCOMPANIED BY A STOP BAR.



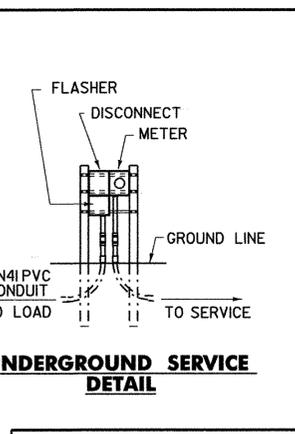
- NOTES**
1. ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER.
 2. ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE).
 3. ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
 4. THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD. E-103M.
 5. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE RESIDENT ENGINEER (WHEN PASSING, TURNING OR TRUCK CLIMBING LANES LIMIT VISIBILITY).



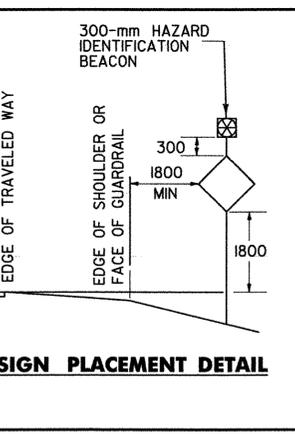
- NOTES**
1. ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER.
 2. ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE).
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 5. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE RESIDENT ENGINEER (WHEN PASSING, TURNING OR TRUCK CLIMBING LANES LIMIT VISIBILITY).



FLASHING BEACON DETAIL

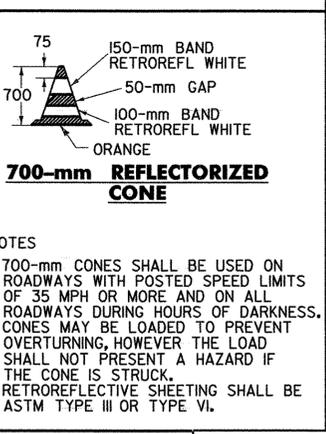


AERIAL SERVICE WITHOUT LUMINAIRE



SIGN PLACEMENT DETAIL

- NOTES**
1. AT THE CONTRACTOR'S OPTION:
 - A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).
 - B. POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.
 - C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
 2. THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
 3. BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
 4. BOTTOM OF THE BEACON SHALL BE A MIN. OF 2400 mm AND A MAX. OF 3600 mm ABOVE THE EDGE OF THE TRAVELED WAY.
 5. FOR URBAN AREA PLACEMENT SEE STD. E-121M.
 6. FOR POWER DROP STANCHIONS SEE STD. E-175M.



700-mm REFLECTORIZED CONE

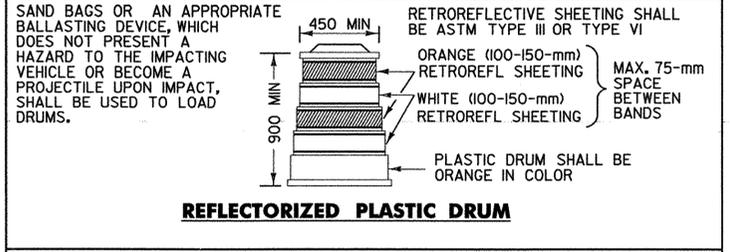
- NOTES**
1. ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER.
 2. ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE).
 3. ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
 4. THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD. E-103M.
 5. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE RESIDENT ENGINEER (WHEN PASSING, TURNING OR TRUCK CLIMBING LANES LIMIT VISIBILITY).

CHANNELIZING DEVICES

TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:
 $L = 0.6WS$ FOR DESIGN SPEEDS OF 70 km/h OR GREATER
 $L = WS^2/155$ FOR DESIGN SPEEDS OF 60 km/h OR LESS
 WHERE: L = MINIMUM LENGTH OF TAPER IN METERS
 W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN METERS
 S = DESIGN SPEED IN KILOMETERS PER HOUR

POSTED SPEED OR 85th PERCENTILE (km/h)	DESIGN SPEED (km/h)	TAPER LENGTHS (m)			TANGENT SECTION LENGTHS (L/2) (m)	MINIMUM BUFFER SPACE LENGTH (m)	MAXIMUM CHANNELIZING DEVICE SPACING (m)		BARRIER FLARE RATE (MIN)
		MERCING 3.6-m LANE (L)	SHIFTING W=4.8 m (L/2)	SHOULDER W=3 m (L/3)			TAPER	ALONG LANE LINE & WORK ZONE	
≤40	60	90	55	25	45	50	11	22	1:9
45	70	160	100	40	80	65	13	26	1:9
50	80	180	115	50	90	85	15	30	1:11
55	90	200	130	55	100	100	17	34	1:13
60 & 65	100	220	145	60	110	135	19	38	1:13
70	110	240	160	65	120	170	21	42	1:13

(ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.)



REFLECTORIZED PLASTIC DRUM

OTHER STDS. E-101M, E-102M, E-102AM, E-103M, E-107AM, E-110M, E-121M, REQUIRED: E-136M, E-150M, E-175M

REVISIONS AND CORRECTIONS
 JUNE 13, 1997 - ORIGINAL APPROVAL DATE
 MARCH 1, 2004 - ADDED ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED TWO WAY HIGHWAYS

APPROVED
 DIRECTOR OF PROGRAM DEVELOPMENT
 TRAFFIC OPERATIONS ENGINEER
 FEDERAL HIGHWAY ADMINISTRATION

TRAFFIC CONTROL MISCELLANEOUS DETAILS

