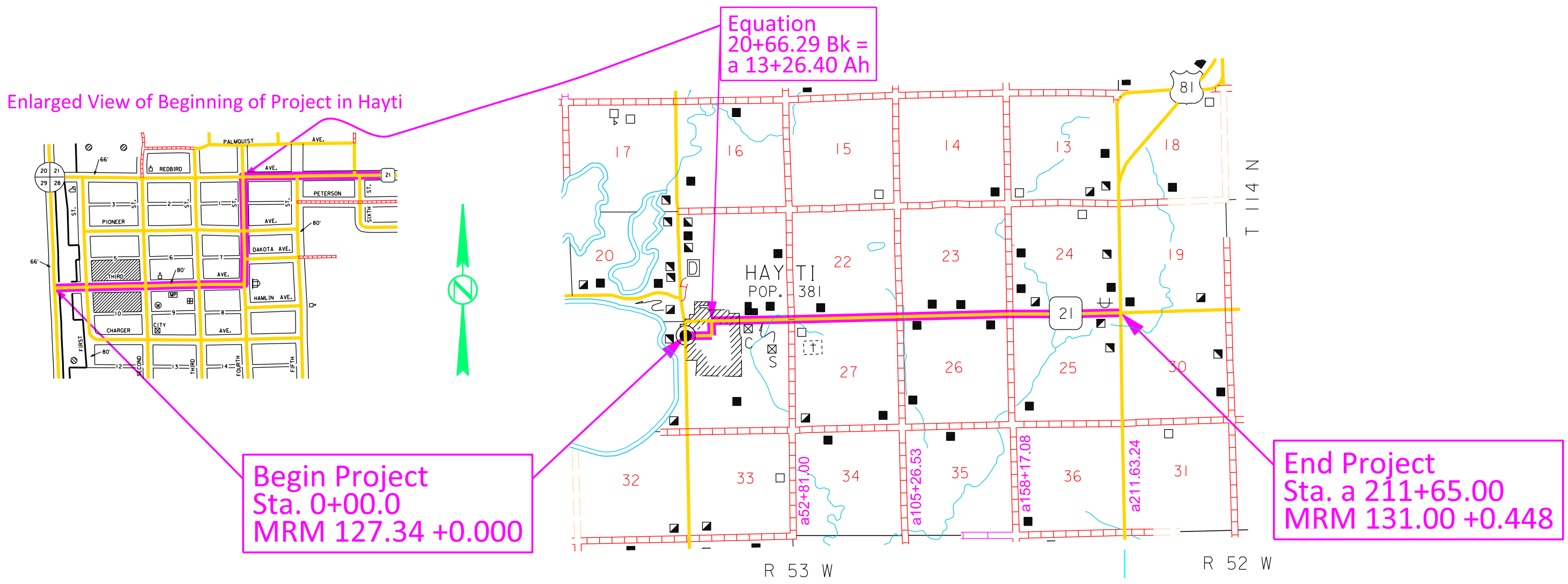


# SECTION C: TRAFFIC CONTROL PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0021(174)127	C1	C14
Plotting Date: 05/01/2023			

## INDEX OF SHEETS

- C1 General Layout W/Index
- C2-C5 Quantity Estimate and Plan Notes
- C6 Fixed Location Signs
- C7-C14 Traffic Control Signs List & Standard Plates



### SECTION C ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
632E1320	2.0"x2.0" Perforated Tube Post	60.0	Ft
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	72	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	12.0	SqFt
634E0010	Flagging	330.0	Hour
634E0020	Pilot Car	150.0	Hour
634E0110	Traffic Control Signs	873.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	23.8	Mile
634E2000	Longitudinal Pedestrian Barricade	200	Ft
634E2020	Temporary Curb Ramp	8	Each

### SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

The following needs to be addressed in the sequence of operations:  
Curb and gutter, sidewalk and curb ramp work need to be completed prior to the start of the milling asphalt concrete.  
Sidewalk work will be limited to one side of SD21, so that pedestrian traffic can be diverted to the sidewalk on the other side of SD21.

### GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

No Parking Signs have been included in the plans for use within the city of Hayti during times when parked cars will interfere with construction activities.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing. Pavement marking removals will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous". Temporary pavement marking will be paid for at the contract unit price per mile/foot for "Temporary Pavement

Marking". The additional channelizing devices will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

### FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

### TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated to be 2.2 miles.

It is estimated that 9 DO NOT PASS (R4-1) and 8 PASS WITH CARE (R4-2) signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary flexible vertical markers (tabs) will be used to mark dashed centerline, No Passing Zones, and applicable lane lines. Paint will not be allowed for temporary pavement marking on the asphalt concrete wear course or after application of the flush seal.

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

### TEMPORARY PAVEMENT MARKING (CONTINUED)

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

Quantities of Temporary Pavement Markings for Sections 1-4 consist of:

- One pass on top of the milled surface
- One pass on top of the final lift of asphalt concrete
- One pass prior to the flush seal, length as determined by the Engineer
- One pass after the flush seal

Quantities of Temporary Pavement Markings for Section 5 consist of:

- One pass on top of the milled surface
- One pass on top of the primed surface
- One pass after the first lift of asphalt concrete
- One pass on top of the final lift of asphalt concrete
- One pass prior to the flush seal, length as determined by the Engineer
- One pass after the flush seal

If the Engineer determines that an additional pass prior to the flush seal is not required, this application of the temporary pavement marking will be eliminated. If the flush seal is eliminated for the project, the application of the temporary pavement marking on top of the flush seal as well as the additional pass prior to the flush seal will be eliminated.

No adjustment in the contract unit price for "Temporary Pavement Marking" will be made because of a variation in quantities.

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

### TRAFFIC CONTROL FOR ASPHALT CONCRETE RESURFACING

The Contractor will need to install LOOSE GRAVEL (W8-7) signs with advisory speed plaques (W13-1P) in areas where loose sand is present during the flush seal operation. LOOSE GRAVEL signs have been included in these plans for this.

### TEMPORARY PEDESTRIAN ACCESS ROUTE

A Temporary Pedestrian Access Route (TPAR) will be provided when crosswalks, sidewalks, or other pedestrian facilities are blocked, closed, or relocated. A TPAR may consist of a combination of existing and/or temporary pedestrian facilities. The TPAR will be kept free of any obstructions and hazards, such as holes, debris, mud, snow, construction equipment, traffic control signing, stored materials, etc.

The Contractor will notify the Engineer at least 72 hours prior to start of any construction operation that will necessitate a change in pedestrian access. Pedestrian traffic signal displays controlling a crosswalk that is closed will be covered or removed.

### LONGITUDINAL PEDESTRIAN BARRICADE

Longitudinal pedestrian barricades should not be used to provide positive protection for pedestrians.

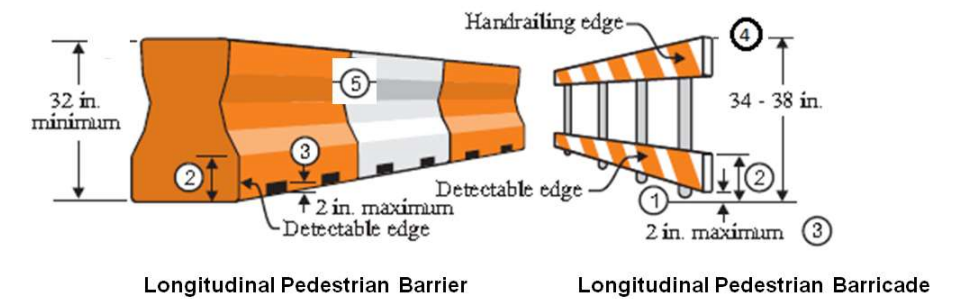
To prevent any tripping hazard to pedestrians, ballast will be located behind or internal to the device.

When longitudinal pedestrian barricades are combined in a series, the maximum gap between devices that do not interlock will be one inch. Joints between devices that do interlock will be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing. When used as a sidewalk closure mechanism, longitudinal pedestrian barricade must run the entire width of the sidewalk. Longitudinal pedestrian barricade should provide a color contrasting pattern. Black should not be used to color any base on a device. The devices should comply with the general color and stripe pattern requirements of Section 6F.68 of the MUTCD.

Longitudinal pedestrian barricade will have continuous bottom and top surfaces. The top surface will be smooth to allow safe hand trailing. Both upper and lower surfaces will share a common vertical plane.

All costs will be incidental to the contract unit price per foot for "Longitudinal Pedestrian Barricade".

### PEDESTRIAN CHANNELIZING DEVICE DETAILS



1. Barricade rail supports may not extend into the pedestrian walkway more than 4 inches from the face of the barricade.
2. The top edge of the bottom portion will be a minimum of 8 inches above the walkway.
3. Devices will not block water drainage from the walkway. A gap height or opening from the walkway surface up to a maximum of 2 inches in height is allowed for drainage purposes.
4. The top edge of the longitudinal pedestrian barricade is to be used as a guiderail to provide visual and tactile guidance to pedestrians along a designated route. The top surface should have a minimum width of 0.5 inches to allow the hand to feel the surface. The surface should be smooth and free of any sharp or abrasive elements to allow safe hand trailing.
5. Longitudinal pedestrian barrier used to provide positive protection from traffic to pedestrians should be crashworthy.

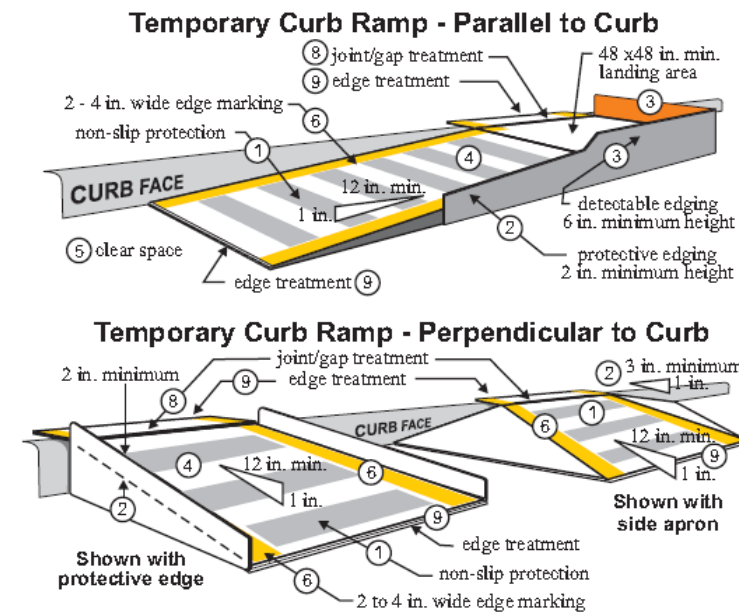
### TEMPORARY CURB RAMP

Temporary curb ramps should be firm, stable, and have a non-slip surface. They will not warp or buckle, and should be made of materials strong enough to support a weight of 800 pounds. Temporary curb ramps will be yellow or color contrasting and contain marked edges, so they are noticeable by pedestrians who have visual impairments. Lateral joints or gaps between surfaces will be a maximum of 0.5 inches in width. Temporary curb ramps will include detectable warning panels.

Temporary curb ramps will be the same width as the temporary pedestrian access route, with a recommended width of 60 inches and a minimum width of 48 inches. Temporary curb ramps will have a maximum slope of 8.3% and have free draining surfaces with a maximum cross slope of 2%. Handrails on temporary curb ramps are not required unless the curb ramp has a rise exceeding 6 inches and a length exceeding 72 inches.

All costs will be incidental to the contract unit price per each for "Temporary Curb Ramp".

## TEMPORARY CURB RAMP DETAILS



1. Curb ramps will be 48-inch minimum width with a firm, stable, and non-slip surface.
2. Protective edging with a 2-inch minimum height will be installed when the curb ramp or landing platform has a vertical drop of 6 inches or greater or has a side apron slope steeper than 33:1 (33%). Protective edging should be considered when curb ramps or landing platforms have a vertical drop of 3 inches or more.
3. Detectable edging with 6 inches minimum height and contrasting color will be installed on all curb ramp landings where the walkway changes direction (turns).
4. Curb ramps and landings should have a 50:1 (2%) maximum cross slope.
5. A minimum clear space of 48 inch x 48 inch minimum will be provided above and below the curb ramp, with a 60 inch x 60 inch clear space preferred.
6. The curb ramp walkway edge will be marked with a contrasting color 2 to 4 inch wide marking. The marking is optional where color contrasting edging is used.
7. Water flow in the gutter system will have minimal restriction.
8. Lateral joints or gaps between surfaces will be less than 0.5 inches in width.
9. Changes between surface heights should not exceed 0.5 inches. Lateral edges between 0.25 inches and 0.5 inches in height, should be vertical up to 0.25 inches in height and beveled at 2:1 between 0.25 inches and 0.5 inches in height.

## GENERAL PERMANENT SIGNING

New sign installations will be staked in the field by the Contractor and checked by the Engineer. The Contractor will give the Engineer a minimum of one week to check staked locations prior to signpost installation. Lateral offset of signs will be as shown in the plans or as directed by the Engineer.

The Contractor will be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

When signs are mounted in an assembly, they will be 1-2 inches apart vertically and horizontally.

The height of the post must not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign will be cut off. No separate payment will be made for cutting the post or for that length cut off.

Aluminum U-Channel stiffeners will be used on all signs 36 inches or greater in width and will conform to ASTM B221 Alloy 6063-T6 or 6061-T6. The U-Channel will be 2 inches in width and free of holes. The U-Channel stiffeners will also be used to connect various signs together so that an entire sign assembly can be erected on a single installation. Stiffeners may be fastened to signs by use of 1/4-inch diameter drive rivets.

The Contractor will use 3/8-inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts will extend through each post.

Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

Prior to use, the Contractor will provide documentation for the sign support devices showing they meet the applicable NCHRP 350 or MASH requirements.

## NEW PERMANENT SIGNING

All signs will be manufactured in accordance with the sheeting manufacturer's recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films.

All Flat Aluminum Signs, Nonremovable Copy High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type IV. All Flat Aluminum Signs, Nonremovable Copy Super/Very High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type XI.

All costs associated with furnishing and installing the new permanent signs, and with furnishing and installing stiffeners and hardware will be incidental to the contract unit price per square foot for "Flat Aluminum Sign, Nonremovable Copy High Intensity".

## DIGITALLY PRINTED SIGNS

Digitally printed signs will be allowed on this project. If the Contractor elects to provide digitally printed signs, such signs will adhere to the following specifications.

### PROTECTIVE OVERLAY FILM

Permanent traffic signs printed with digital ink systems will be fabricated with a full sign protective overlay film designed to provide a smooth surface needed for retroreflectivity, and to protect the sign from fading and UV degradation. The overlaminates will comply with the retroreflective sheeting manufacturer's recommendations to ensure proper adhesion and transparency and will also meet the reflective film durability as identified in Table 1.

Table 1: Retroreflective Film Minimum Durability Requirements

ASTM D4956 Type	Full Sign Replacement Term (years)	Sheeting Replacement Term (years)
I	0	7
III	7	10
IV	7	10
VIII	7	10
IX	7	12
XI	7	12

## FABRICATION

Retroreflective sheeting will be applied to a properly cleaned and prepared aluminum sign blank in accordance with the retroreflective sheeting manufacturer's recommendations. Sign legend will be applied using digital print technologies and systems in accordance with the retroreflective sheeting manufacturer's recommendations and the requirements of these plans.

Finished signs will be free of ragged edges and must be supplied clean and free of scratches, grease, oil, lubricants or other contaminants. Minor blemishes (dirt speck, dust, etc.) may settle on the fresh ink surface or become entrapped between the sheeting surface and transparent overlay film due to static charge within the sign shop environment. Any blemish must be minor and not interfere with the communication of the sign message to the motorist. The blemish must not be visible to the naked eye when viewed from 30 feet or greater.

After application of the retroreflective sheeting, sign blanks will be stacked and packaged face to face, back to back, and protected in accordance with the sheeting manufacturer's recommendations. Finished signs will be securely packaged to prevent damage during transit or storage according to the sheeting manufacturer's recommendations.

### DIGITALLY PRINTED SIGNS (CONTINUED)

#### TRAFFIC SIGN PERFORMANCE WARRANTY PROVISIONS

Based on the ASTM Type of sheeting specified, traffic control signs will be warranted for the duration shown in Table 1. Full product terms and conditions are as established by each sheeting manufacturer and may contain certain limitations based on sheeting and ink colors, and geographic exposure of the sign. A copy of the warranty document with complete details of terms and conditions will be supplied if requested by the Engineer.

#### CERTIFIED DIGITAL SIGN FABRICATOR

Sign fabricators using digital imaging methods to produce regulated traffic signs must be certified by the reflective sheeting manufacturer whose materials are used to produce the delivered signs.

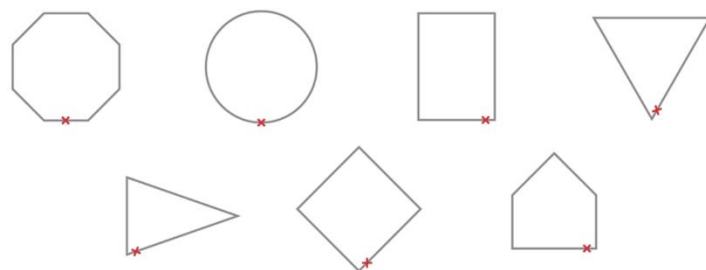
#### DATE TAGGING SIGNS WITH PERTINENT INFORMATION

All digitally printed signs are required to be date-tagged with the following 2 components:

- Date tags on the back of signs  
Tags will have the following information and be fabricated with material and printing system that are as durable as the warranted sign.
  - Name of Sign Fabricator
  - Date the sign was fabricated (month and year)
  - Process that was used for sign fabrication (digitally printed)
  - Supplier of sheeting that was used for fabricating the sign.

#### 2. Border date

The month and year (mm/yyyy) of sign fabrication will be printed in the border of the sign in 3/8" sans serif font. Border date will be printed with the same warranted printed system as the sign face. The date should be printed in the locations indicated below.



### SQUARE TUBE ANCHOR SLEEVE

The Contractor will furnish and install new 2.5" x 2.5" x 18", 12 Gauge square tube anchor sleeve or equivalent components as approved by the Engineer for 2.0" x 2.0" perforated tube posts. A 2.25" x 2.25" x 4', 12 Gauge perforated tube post will be used as the anchor post for installation with the square tube anchor sleeve.

### SIGNPOST INSTALLATION IN CONCRETE

On concrete surfaces, a core will be drilled for sign installation. The core diameter will be sized accordingly depending on post size. Concrete surrounding the core must not be cracked or damaged.

All costs associated with installation in concrete will be incidental to the sign installation

### ADA RESERVED PARKING SIGNS

A quantity of 6 signs are required on this project. Signs will be installed in front of the ADA stalls, perpendicular to roadway at the following locations: Sta 2+88 L, 3+29 R, 3+50 R, 5+80 L, 7+93 L, and 9+40 R.

ADA Reserved Parking signs will require a 10 Ft 2.0" x 2.0" Perforated Tube Post along with one Square Tube Anchor Sleeve for each sign installation.



This sign shall have a white background with a green border and legend. The handicapped symbol shall be white surrounded by a blue square with rounded corners.

### DELINEATIONS

4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post will be installed in the rural section from Sta. a 21+34 to Sta. a 210+70. Installation and spacing will be as per Standard Plates 634.42 and 634.46. Delineator will be installed prior to starting the Full Depth Reclamation operations. Delineators will remain in place on the project.

# FIXED LOCATION SIGN LAYOUT

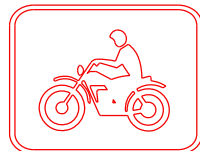
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0021(174)127	C6	C14
Plotting Date: 01/08/2024			

**A**

ROAD WORK  
NEXT 4 MILES

**B**

GROOVED  
PAVEMENT



Next  
Miles

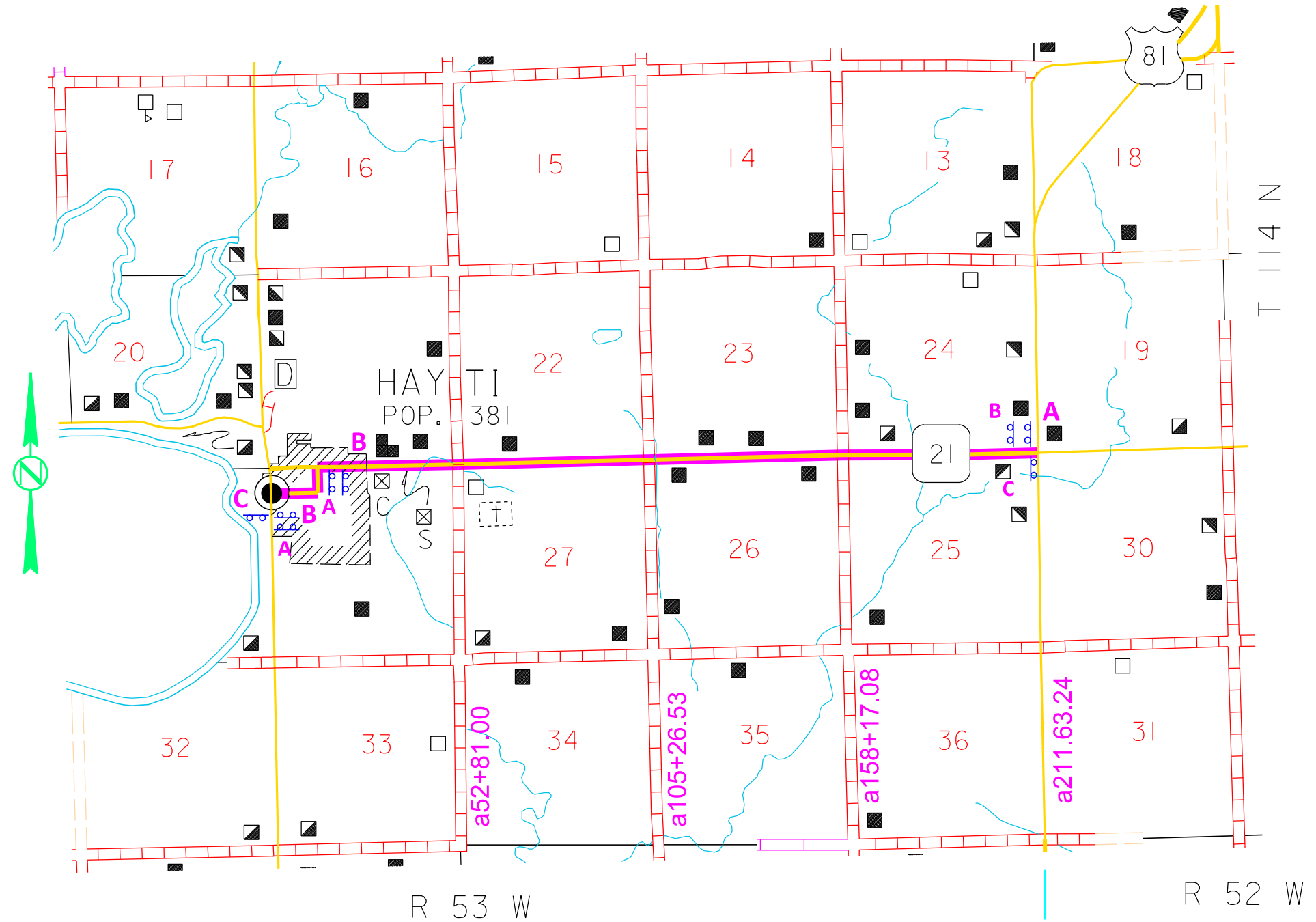
\*GROOVED PAVEMENT signs will only be visible when condition exists. Signs will be covered and removed when the grooved road condition is not present

ROAD  
WORK  
AHEAD

W20-1 ROAD WORK AHEAD signs will be mounted on portable supports, and will be placed on intersecting roadways as directed by the engineer. ROAD WORK AHEAD signs will be moved as necessary to keep current with the work activities.

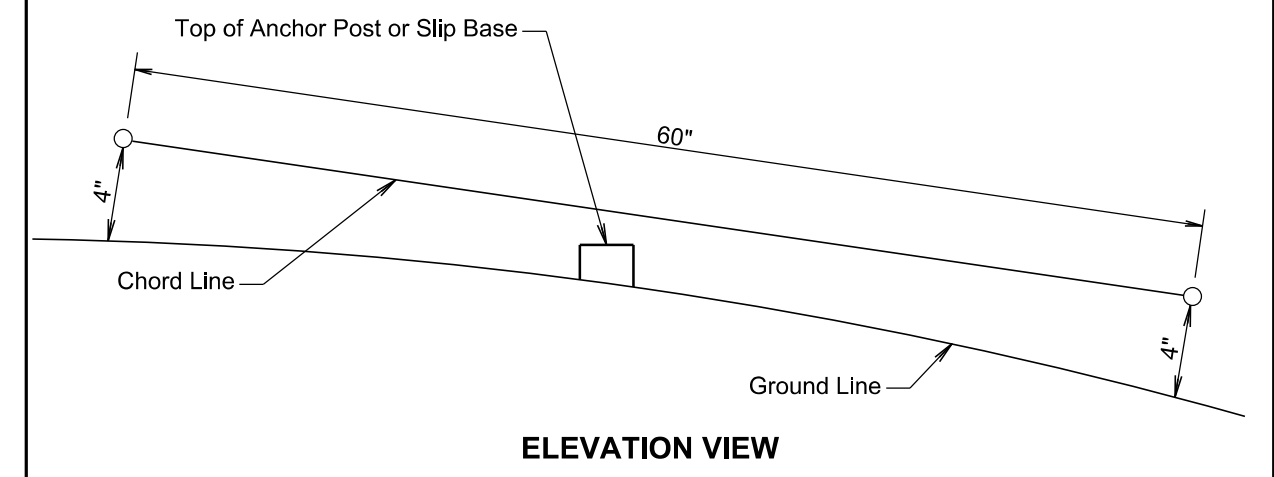
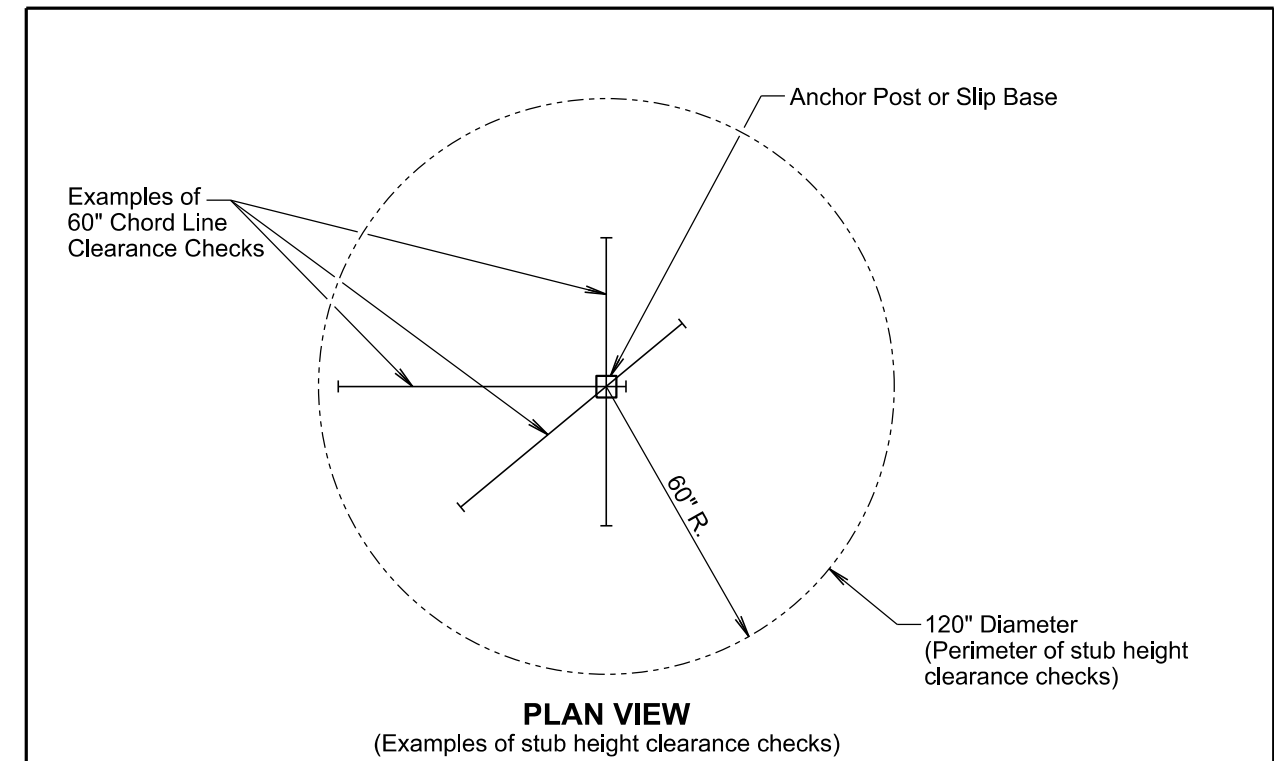
**C**

END  
ROAD WORK



### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R8-3	NO PARKING (symbol)	6	24" x 24"	4.0	24.0
R9-9	SIDEWALK CLOSED	6	24" x 12"	2.0	12.0
R9-10	SIDEWALK CLOSED with ARROW (L or R) USE OTHER SIDE	6	24" x 12"	2.0	12.0
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W7-3aP	NEXT __ MILES (plaque)	3	36" x 30"	7.5	22.5
W8-1	BUMP	6	48" x 48"	16.0	96.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	4	48" x 48"	16.0	64.0
SPECIAL	WINDROW	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	4	48" x 48"	16.0	64.0
W8-15	GROOVED PAVEMENT	3	48" x 48"	16.0	48.0
W8-15P	MOTORCYCLE (plaque)	3	24" x 18"	3.0	9.0
W11-2	PEDESTRIAN (symbol)	4	36" x 36"	9.0	36.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W16-7P	DOWNWARD DIAGONAL ARROW (plaque)	4	24" x 12"	2.0	8.0
W16-9P	AHEAD (plaque)	4	30" x 18"	3.8	15.2
W20-1	ROAD WORK AHEAD	8	48" x 48"	16.0	128.0
W20-3	ROAD CLOSED AHEAD	3	48" x 48"	16.0	48.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	4	30" x 18"	3.8	15.2
G20-1	ROAD WORK NEXT __ MILES	3	36" x 18"	4.5	13.5
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT</b>			<b>873.6</b>

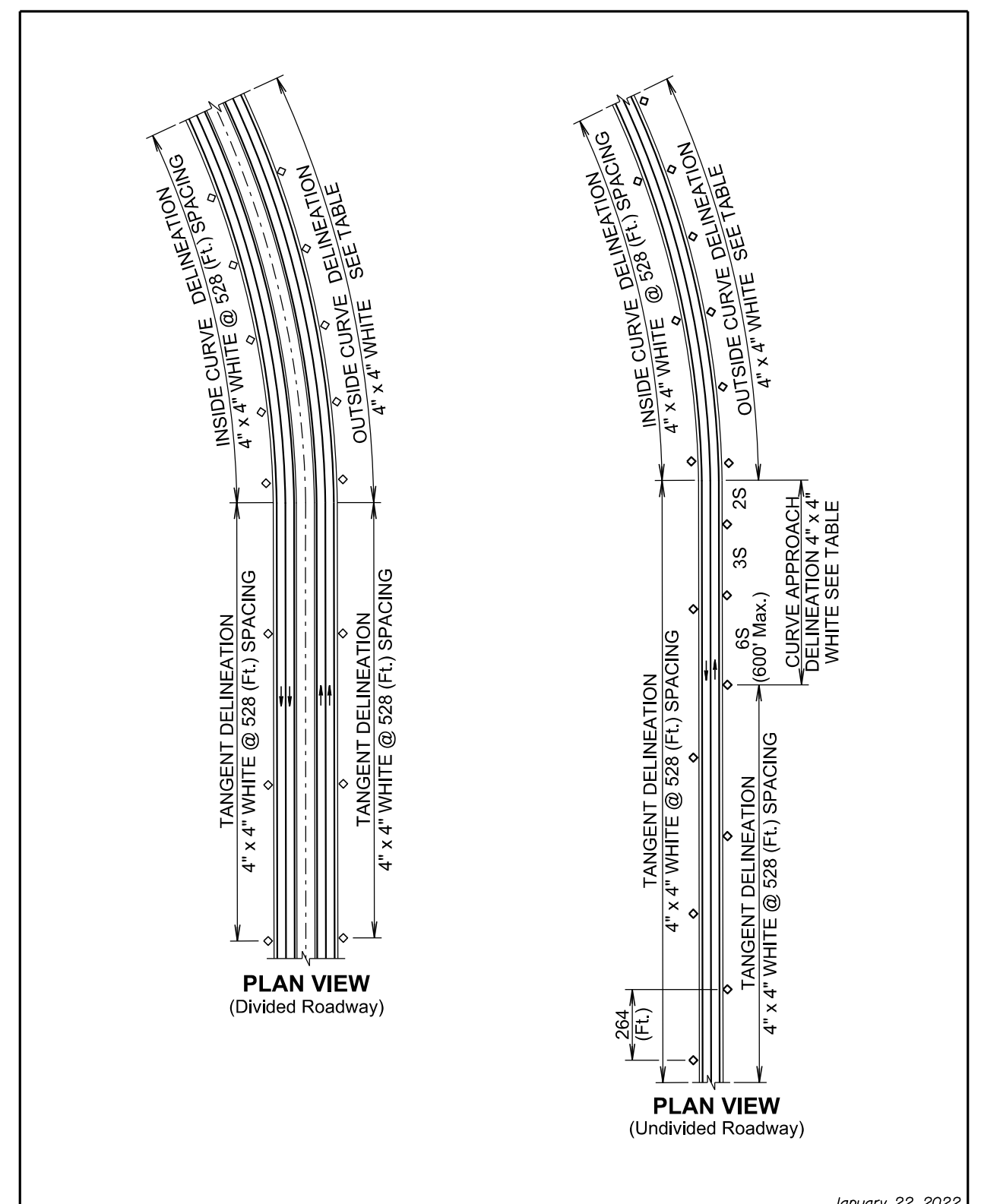
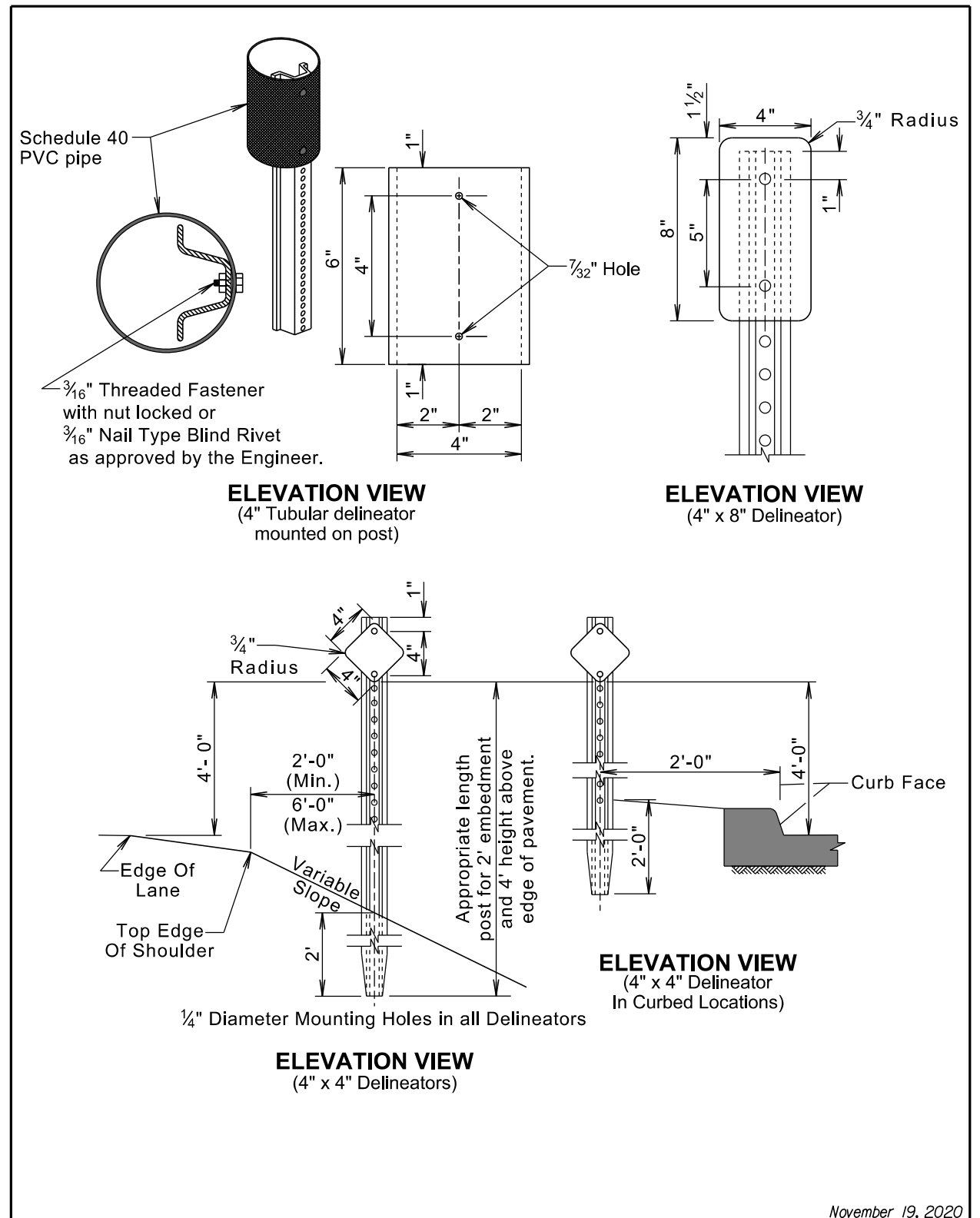


**GENERAL NOTES:**

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

January 22, 2021





**GENERAL NOTES:**

Delineators will be located 8 feet outside the outer edge of shoulder. When a roadside barrier or other obstruction intrudes into the space between the pavement edge and the extension of the line of delineators, the delineators should be in line with the barrier or in line with the innermost edge of the obstruction.

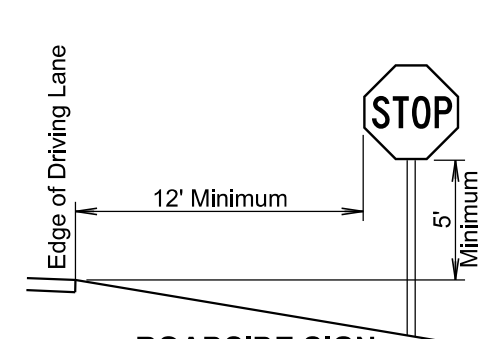
When normal spacing is interrupted by driveways, crossroads, or approaches, delineators falling within such areas may be moved in either direction a distance not exceeding one-quarter of the standard spacing. Delineators still falling within such areas should be eliminated.

The spacing for specific radii may be interpolated from the table. The minimum spacing should be 20 feet. The spacing on curves should not exceed 300 feet. In advance of or beyond a curve, and proceeding away from the end of the curve, the spacing of the first delineator is 2S, the second 3S, and the third 6S, but not to exceed 300 feet. S refers to the delineator spacing for specific radii computed from the formula  $S = 3\sqrt{R - 50}$ . The distances for S shown in the table were rounded to the nearest 5 feet.

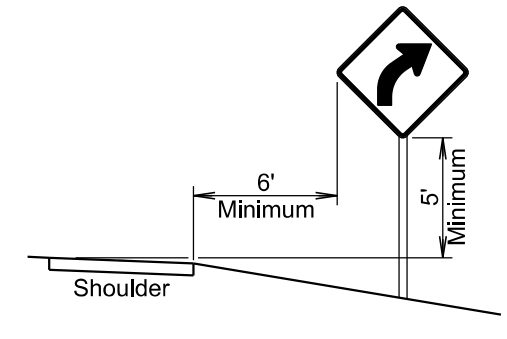
Curve approach delineation is not required if curve delineation spacing exceeds 100 ft.

DELINEATOR SPACING OUTSIDE CURVE				
Radius of Curve (Ft.)	Curve Delineator Spacing (Ft.)	Curve Approach Spacing (Ft.)		
		A	B	C
50	20	40	65	125
115	25	50	75	150
150	30	60	90	180
180	35	70	110	215
250	40	85	125	250
300	45	95	140	285
400	55	110	170	300
500	65	125	190	300
600	70	140	210	300
700	75	150	230	300
800	80	165	245	300
900	85	175	260	300
1000	90	185	275	300

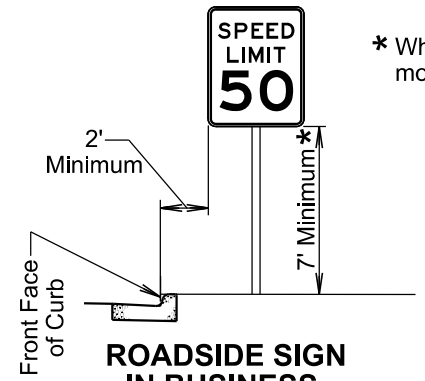
January 22, 2022



**ROADSIDE SIGN  
IN RURAL AREA**

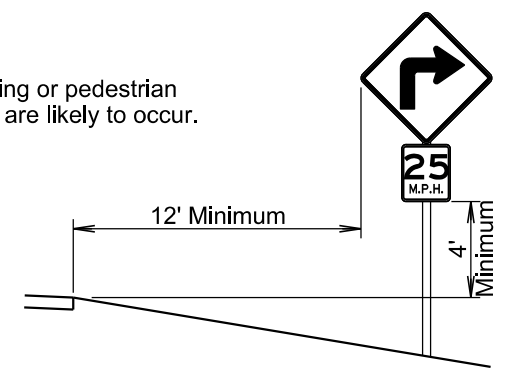


**ROADSIDE SIGN  
IN RURAL AREA**  
(If shoulder width is greater than 6 foot)

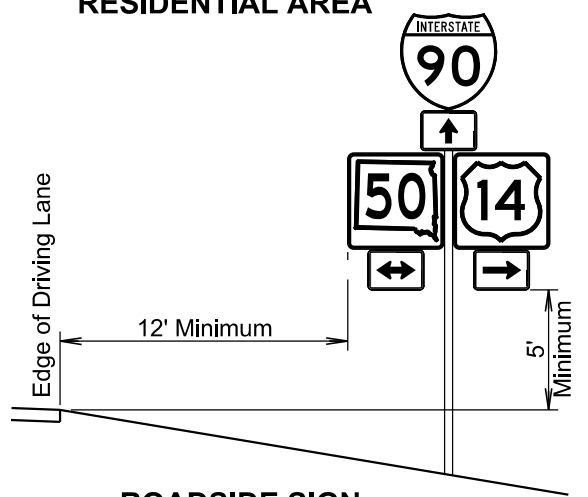


**ROADSIDE SIGN  
IN BUSINESS,  
COMMERCIAL, OR  
RESIDENTIAL AREA**

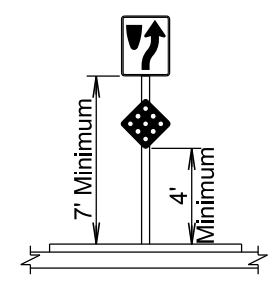
\* Where parking or pedestrian movements are likely to occur.



**WARNING SIGN ADVISORY  
SPEED PLAQUE IN RURAL AREA**



**ROADSIDE SIGN  
IN RURAL AREA**



**SIGN ON NOSE  
OF MEDIAN**

November 19, 2020

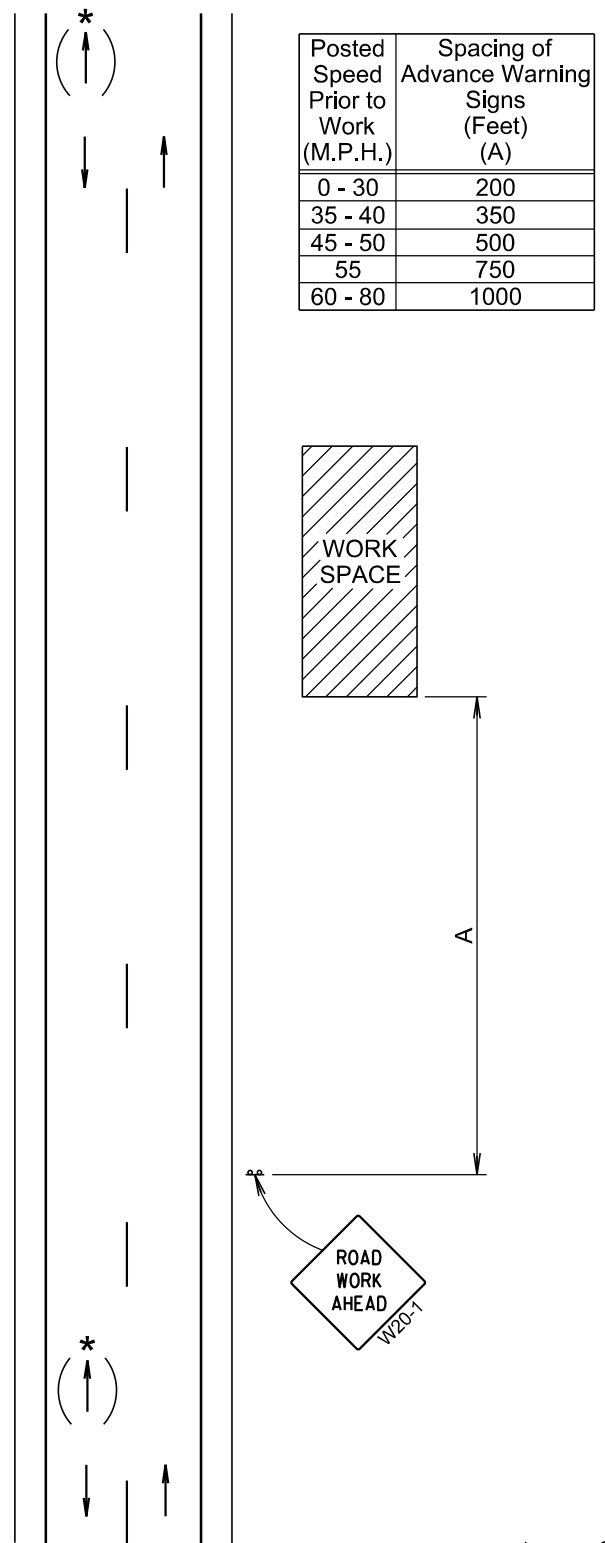
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

\* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



January 22, 2021

\*In situations where multiple work locations in a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.

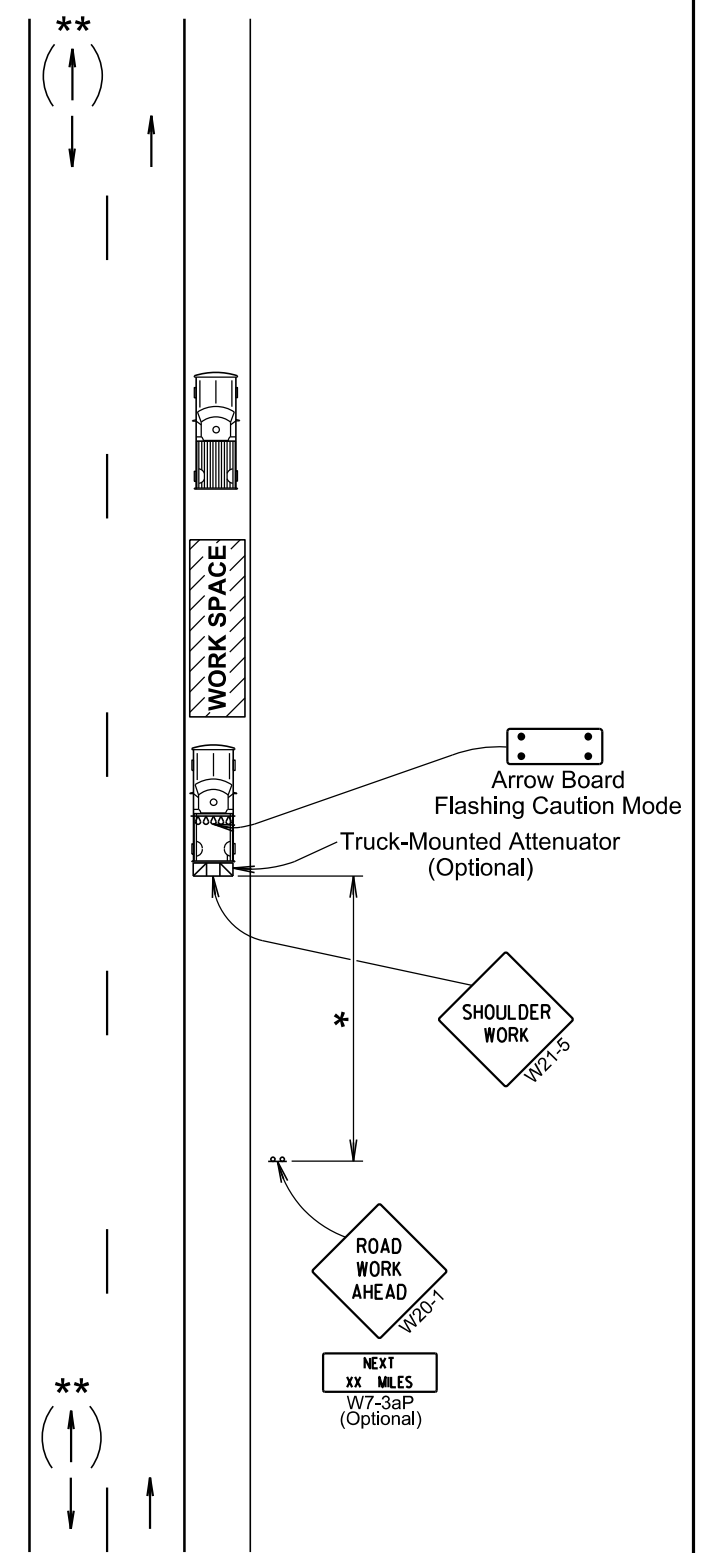
The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

Arrow board is required for intermittently and continuously moving mobile operations when work exceeds 1 hour.

\*\* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

In situations where the distance between the advance warning signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ROAD WORK AHEAD sign.

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



January 22, 2021

\* Messages on signs will vary depending on the operation being conducted.

Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

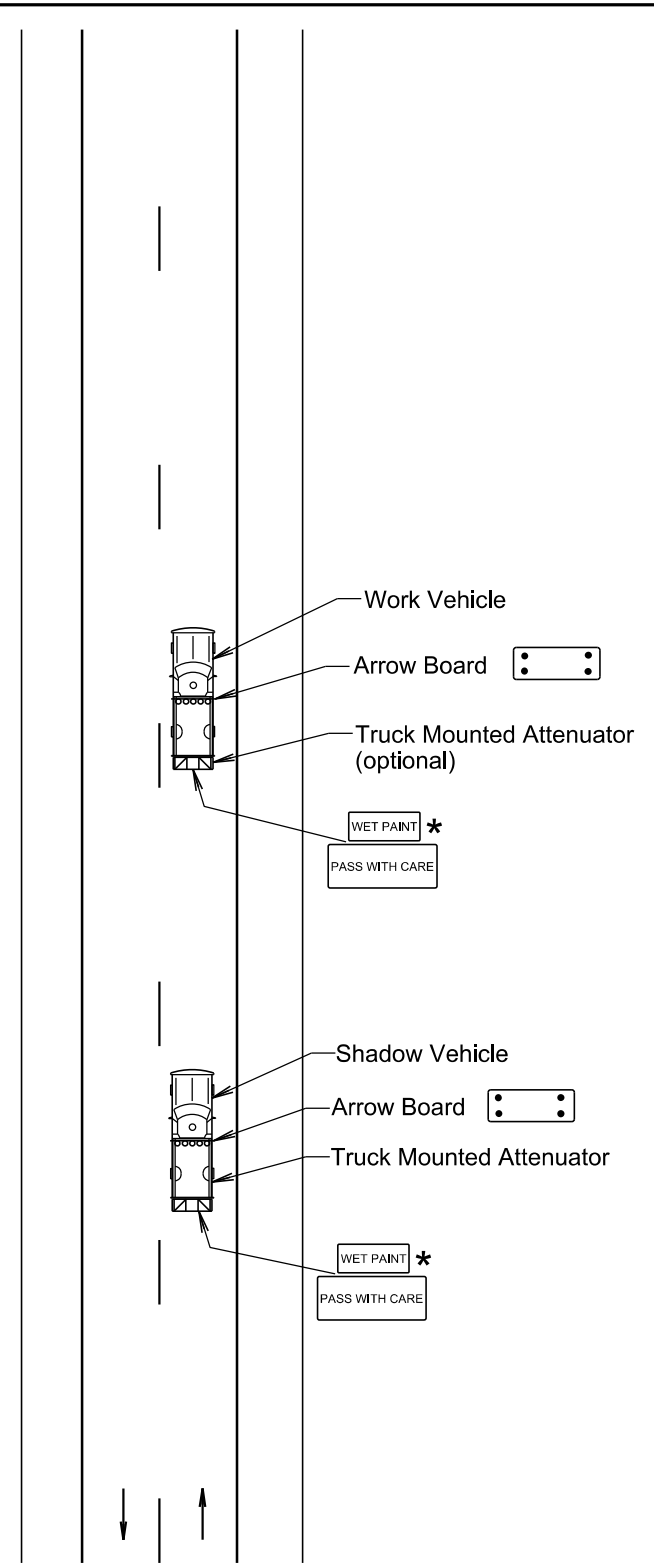
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

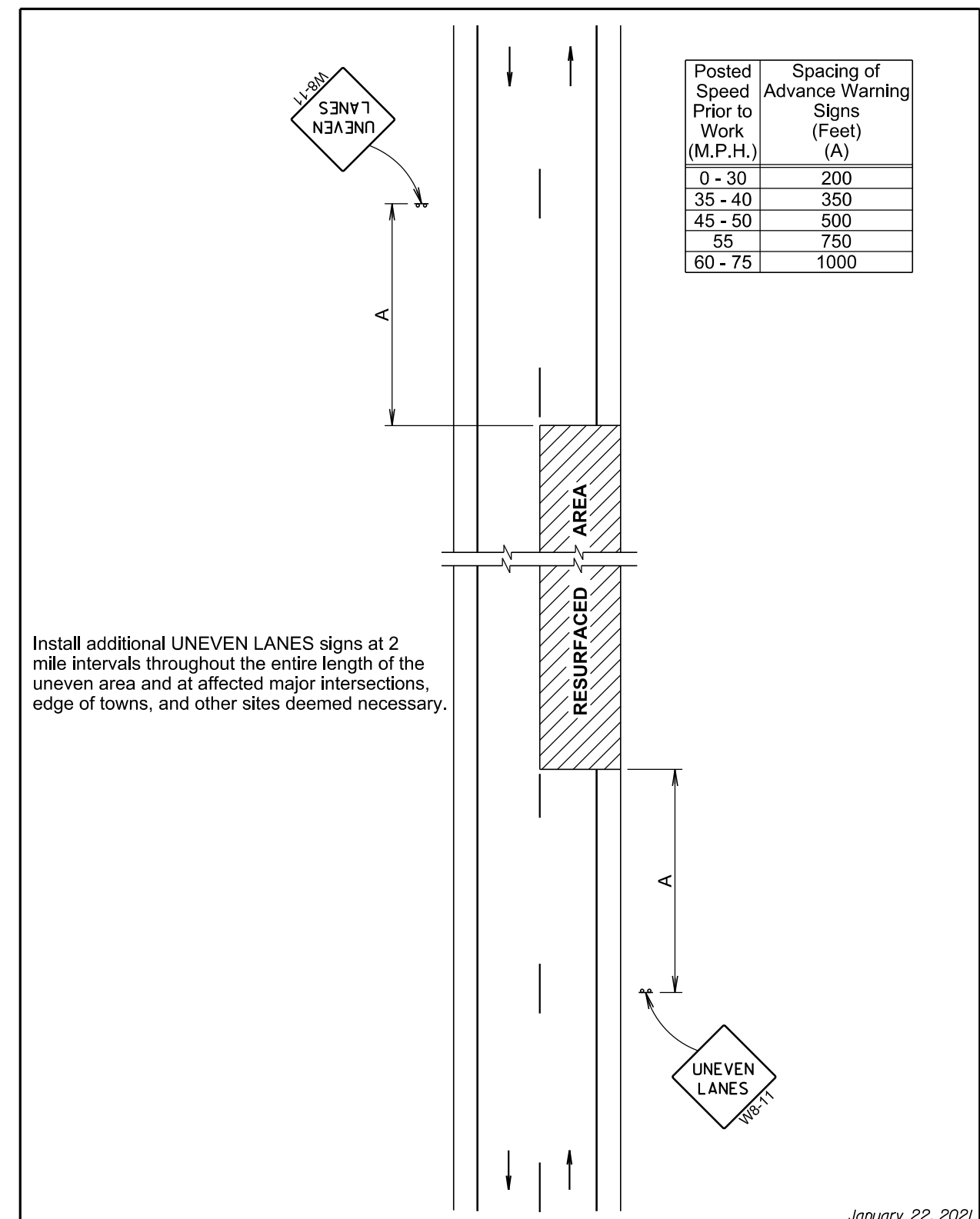
When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



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Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

January 22, 2021

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

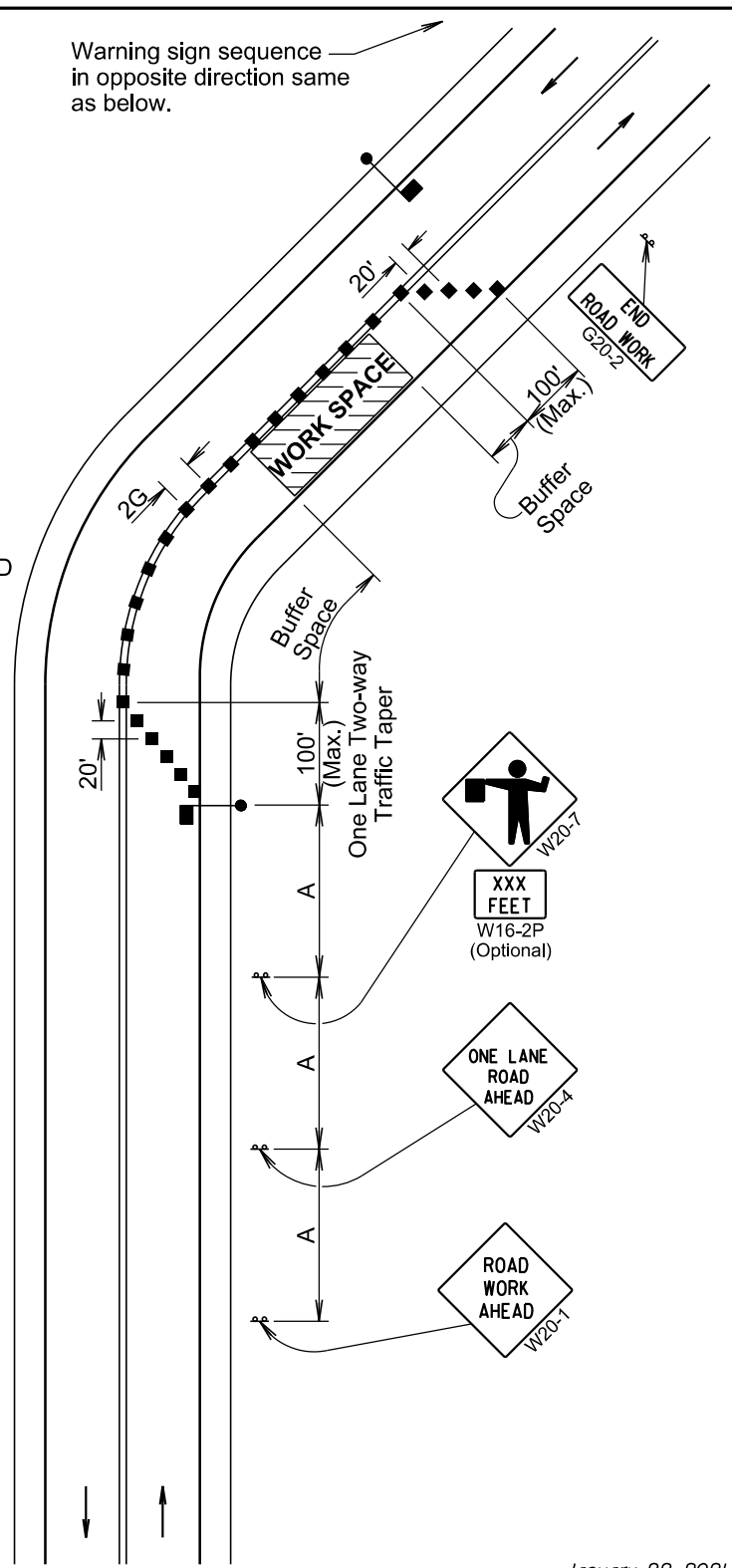
The channelizing devices will be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

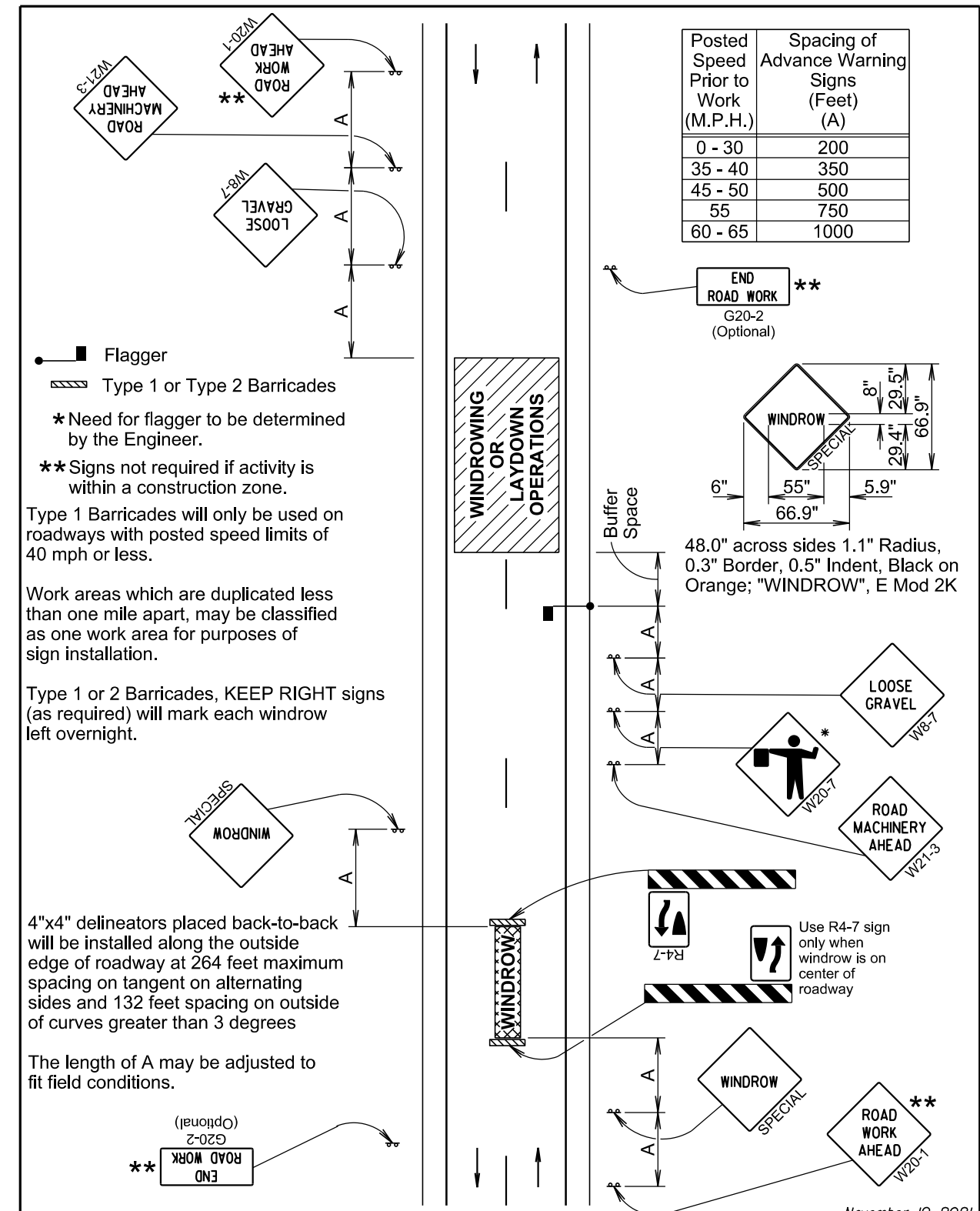
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



January 22, 2021

<b>S D D O T</b>	<b>LANE CLOSURE WITH FLAGGER PROVIDED</b>	PLATE NUMBER <b>634.23</b>
	Published Date: 2024	Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

- Flagger
- Type 1 or Type 2 Barricades

\* Need for flagger to be determined by the Engineer.

\*\* Signs not required if activity is within a construction zone.

Type 1 Barricades will only be used on roadways with posted speed limits of 40 mph or less.

Work areas which are duplicated less than one mile apart, may be classified as one work area for purposes of sign installation.

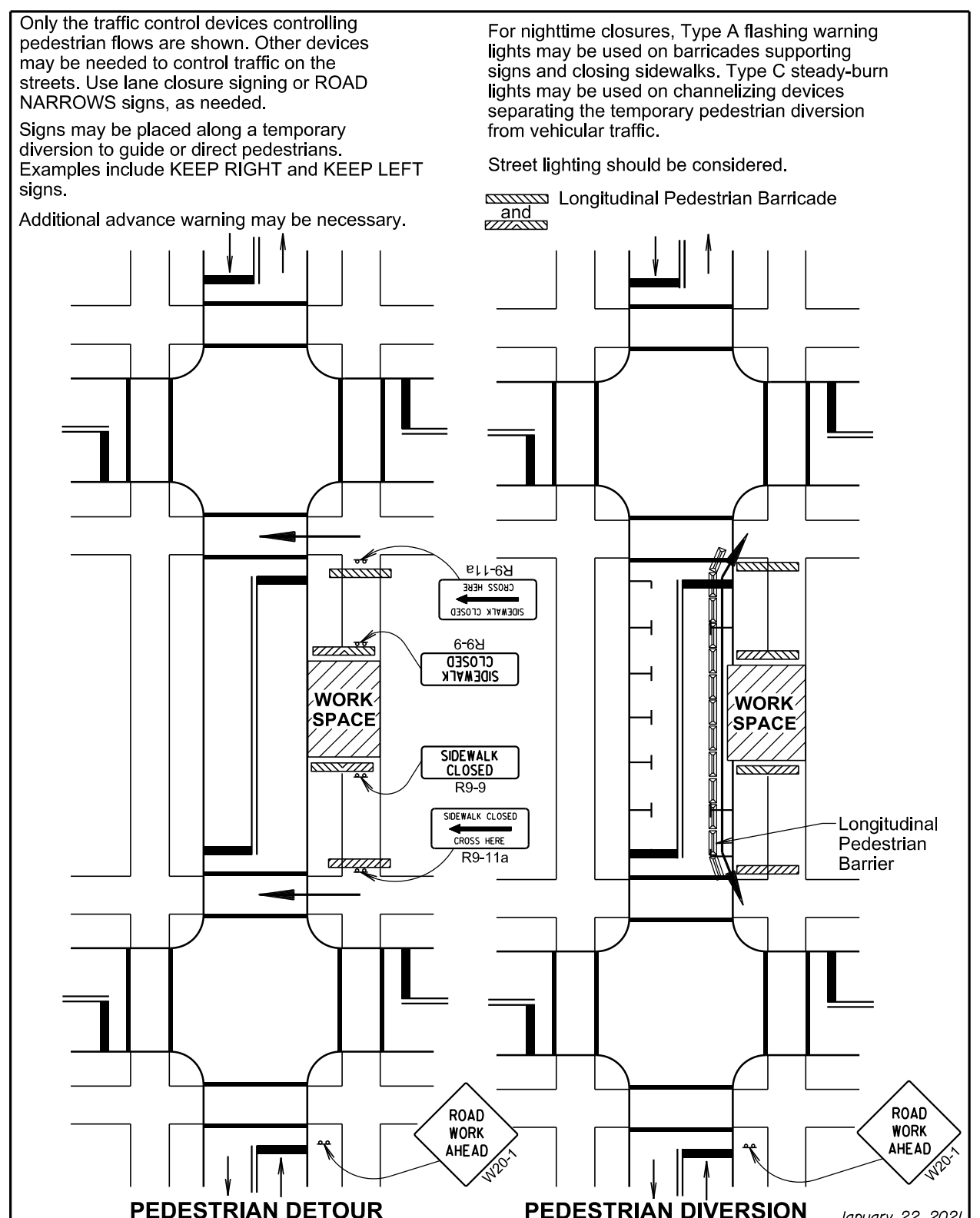
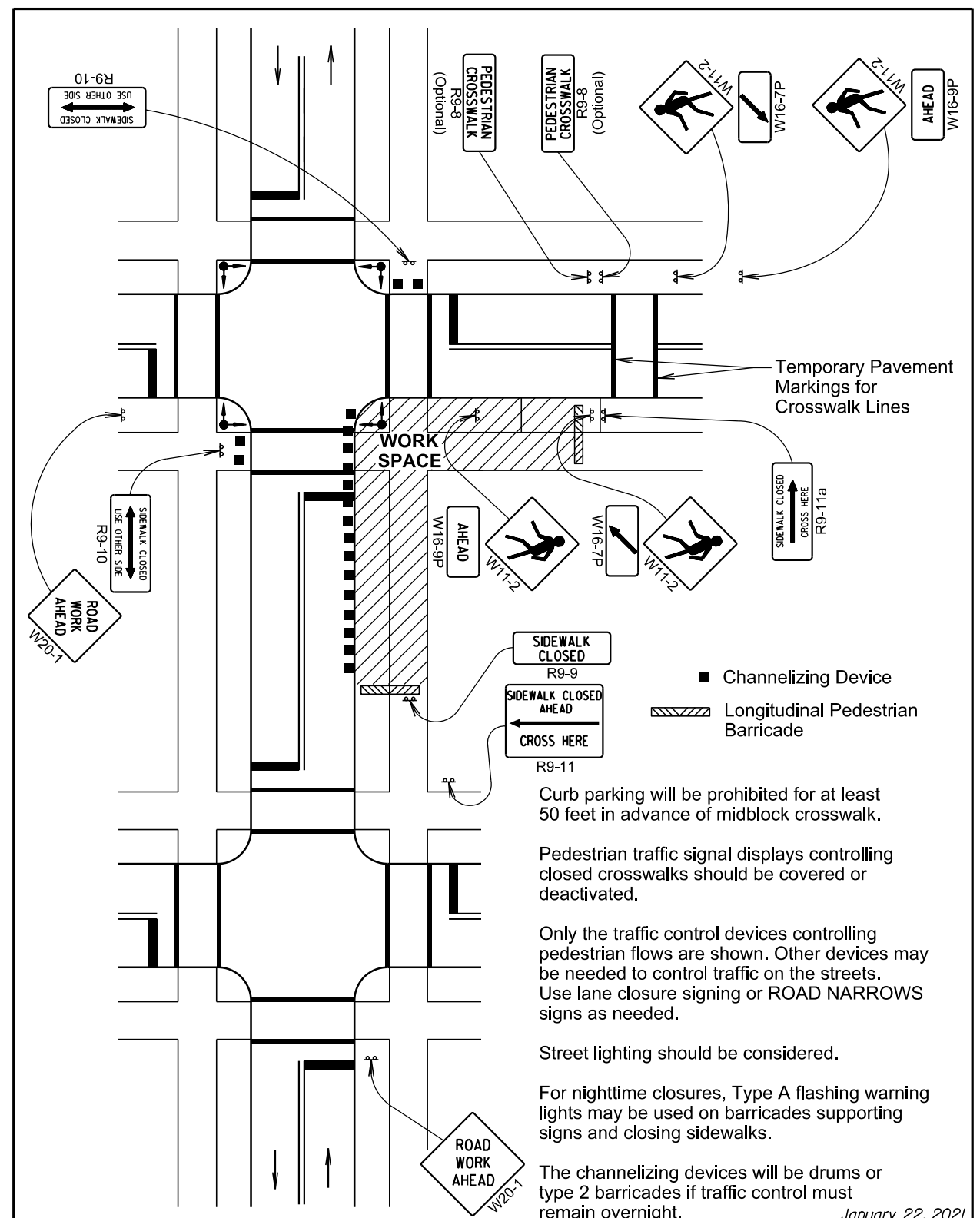
Type 1 or 2 Barricades, KEEP RIGHT signs (as required) will mark each windrow left overnight.

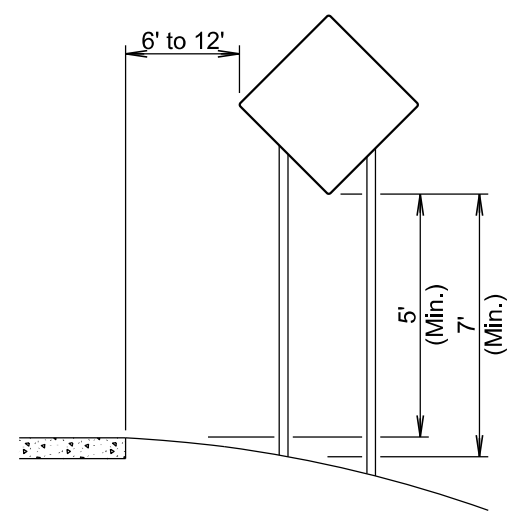
4"x4" delineators placed back-to-back will be installed along the outside edge of roadway at 264 feet maximum spacing on tangent on alternating sides and 132 feet spacing on outside of curves greater than 3 degrees

The length of A may be adjusted to fit field conditions.

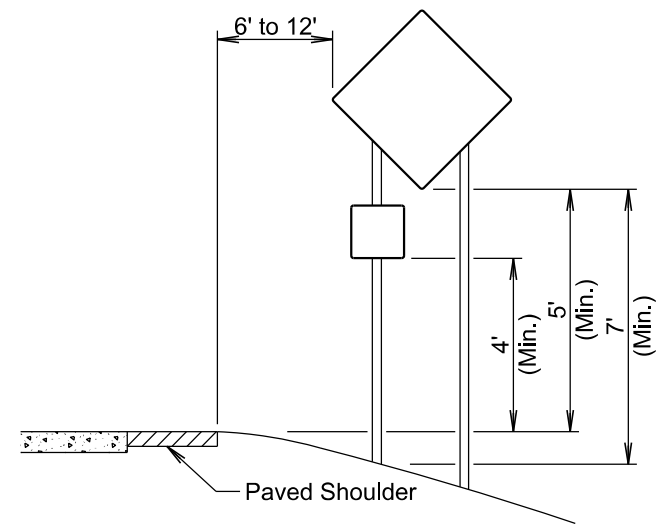
November 19, 2021

<b>S D D O T</b>	<b>WINDROWING OR LAYDOWN OPERATION</b>	PLATE NUMBER <b>634.27</b>
	Published Date: 2024	Sheet 1 of 1

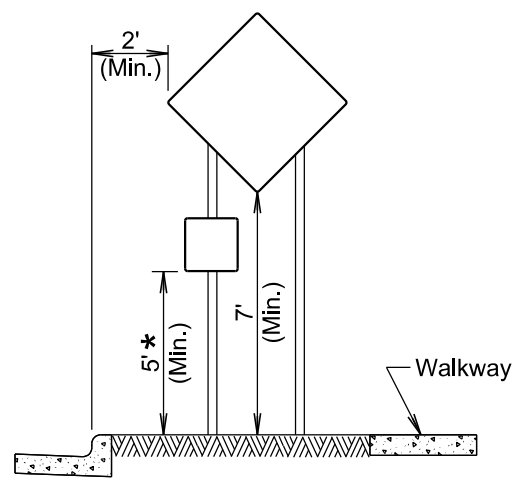




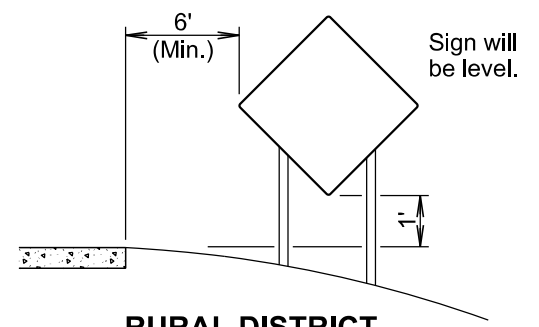
**RURAL DISTRICT**



**RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE**



**URBAN DISTRICT**

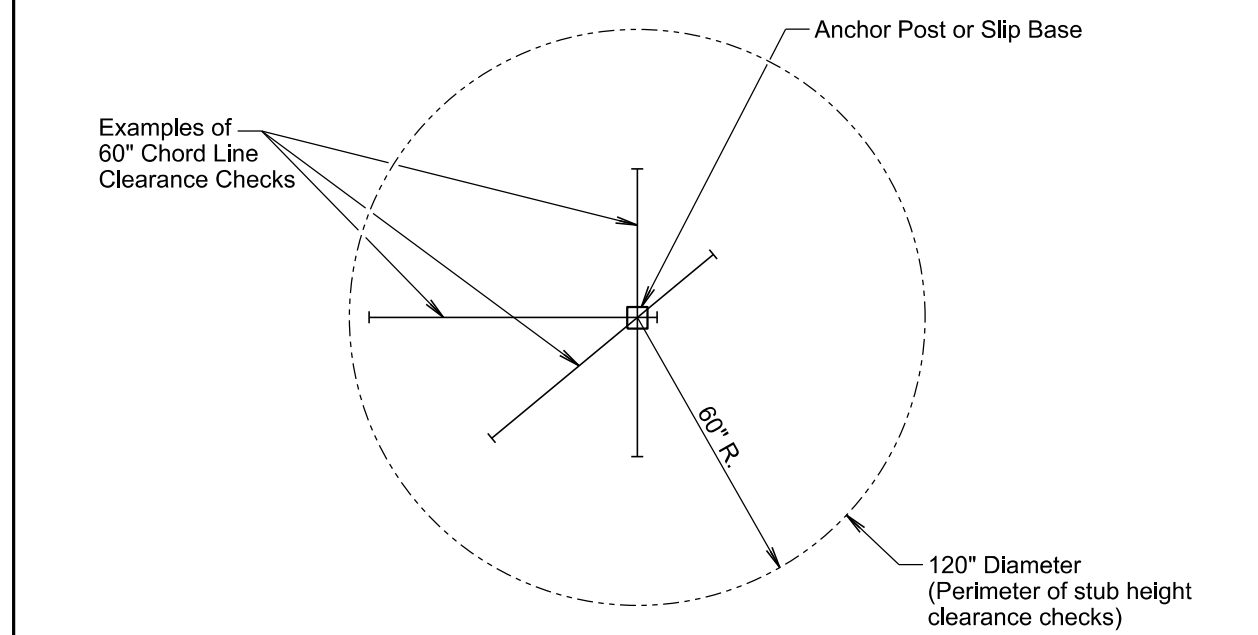


**RURAL DISTRICT  
3 DAY MAXIMUM**  
(Not applicable to regulatory signs)

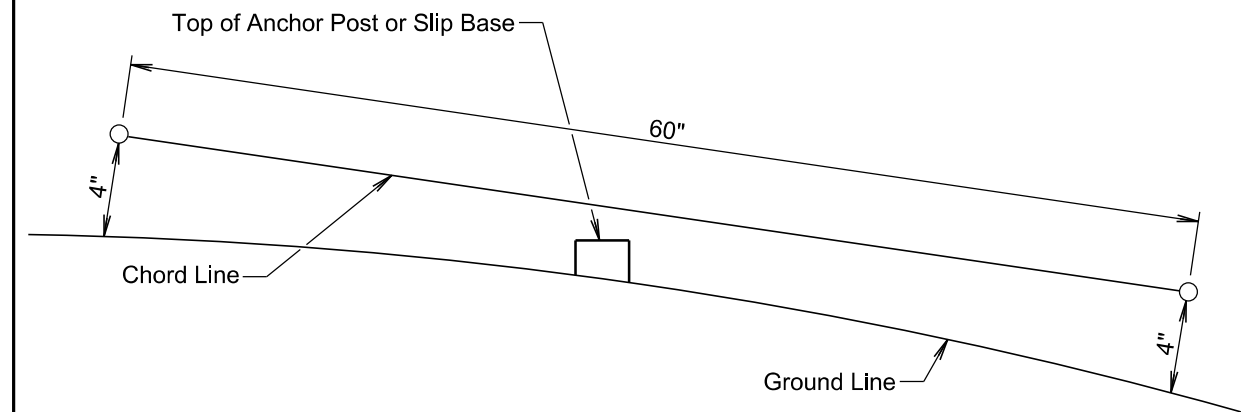
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2024	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



**PLAN VIEW**  
(Examples of stub height clearance checks)



**ELEVATION VIEW**

**GENERAL NOTES:**

- The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.
- At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.
- The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

Published Date: 2024	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1