

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(00)386	1	16

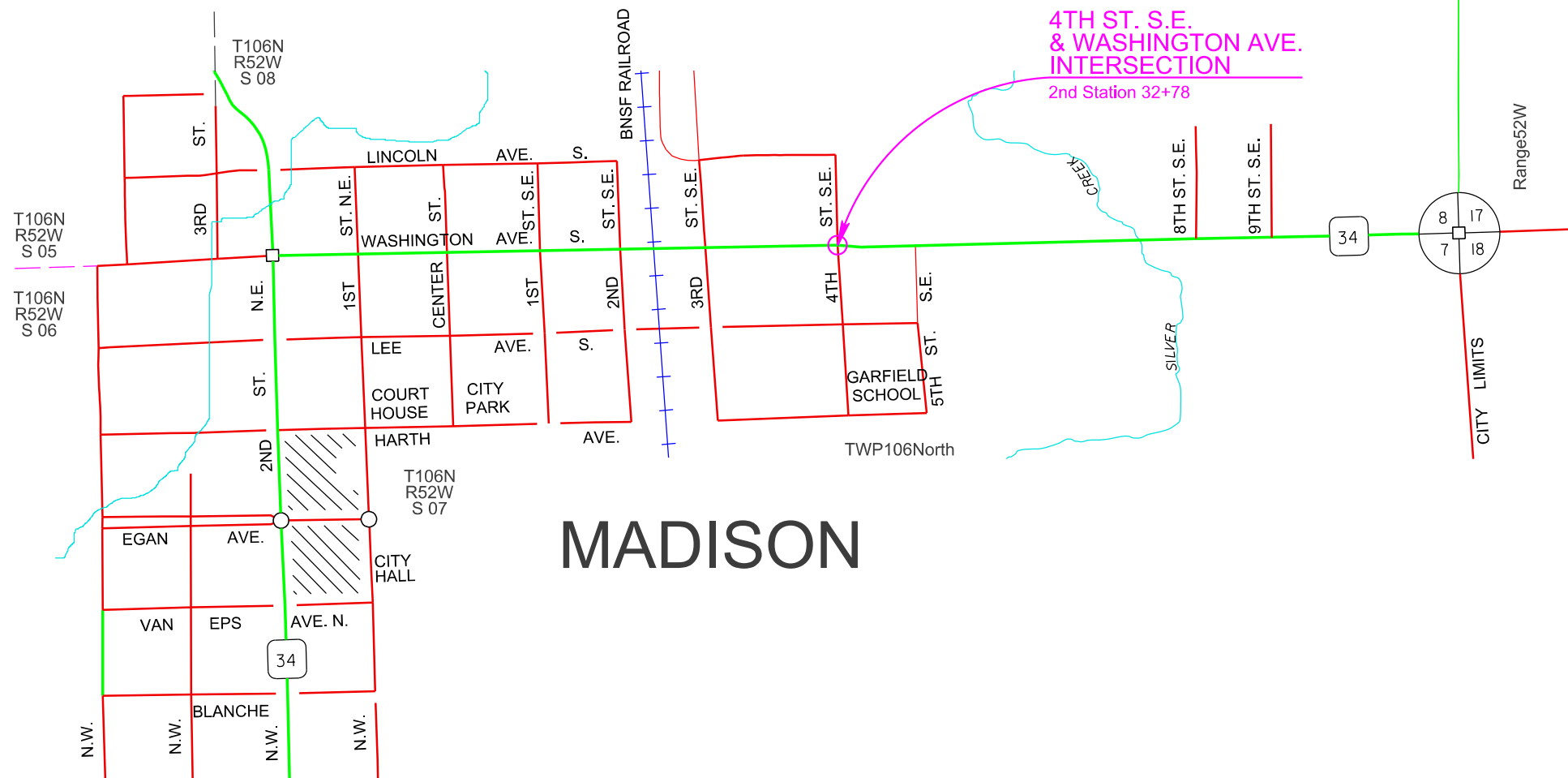
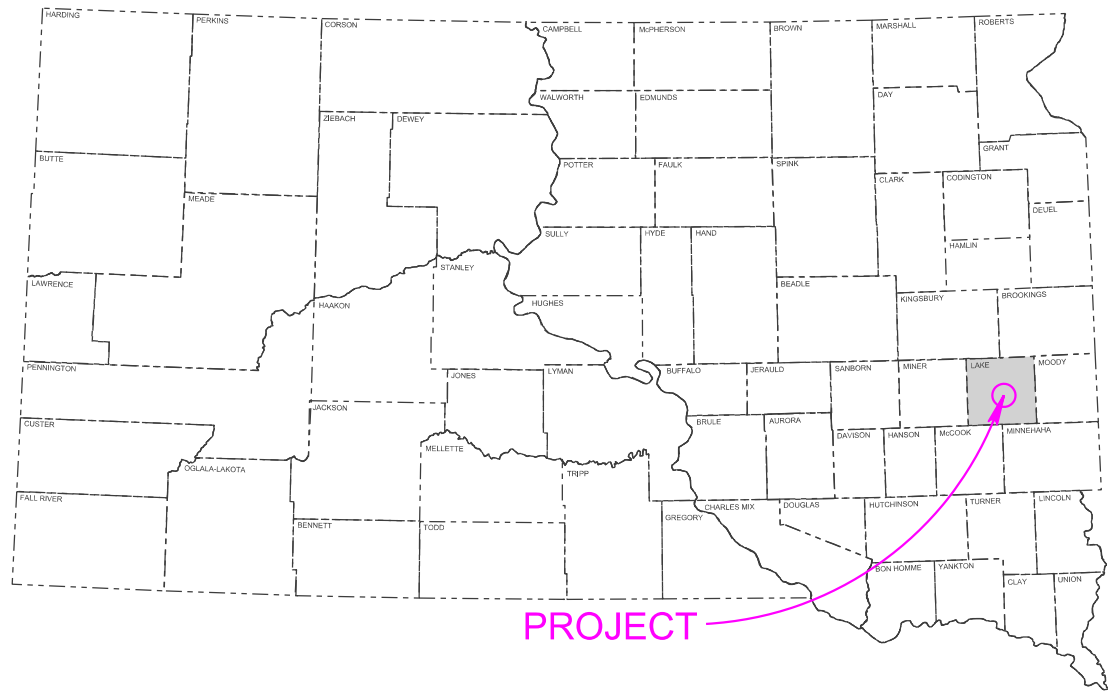
Plotting Date: 01/17/2024

PROJECT NH 0034(00)386
SD HIGHWAY 34
LAKE COUNTY
RECTANGULAR RAPID FLASHING
BEACON INSTALLATION
PCN 08LF

INDEX OF SHEETS

- 1: General Layout with Index
- 2-5: Estimate of Quantities with Plan Notes and Cable and Conduit Tables
- 6: Sign Table
- 7-8: Layouts
- 9: Special Sign Detail
- 10-16: Typical and Standard Plates

PLOT SCALE - 1:199,975



DESIGN DESIGNATION

ADT (2020)	7031
ADT (2040)	8325
DHV	1119
D	50.0%
T DHV	0.7%
T ADT	1.6%
V	35 MPH

STORM WATER PERMIT
(None Required)

MADISON

3

April 17, 2024

PLOTTED FROM - TRM113314

PLOT NAME - 20

FILE - ... \08LF_MISC_CONTAINER.DGN

ESTIMATE OF QUANTITIES

NH 0034(00)387, PCN 08LF

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0130	Remove Traffic Sign	2	Each
632E1340	2.5"x2.5" Perforated Tube Post	29.6	Ft
634E0110	Traffic Control Signs	358.3	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	4	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0560	Remove Pavement Marking, 4" or Equivalent	634	Ft
634E0575	Remove Pavement Marking, Area	14.0	SqFt
634E2025	Longitudinal Pedestrian Barrier	10	Ft
635E5020	2' Diameter Footing	8.0	Ft
635E5980	Rectangular Rapid Flashing Beacon System	2	Each

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

Construction and/or demolition debris may not be disposed of within the Public ROW.

Action Taken/Required:

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

COMMITMENT H: WASTE DISPOSAL SITE (CONTINUED)

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25; the Contractor will contact the Project Engineer to determine if project changes are necessary to avoid utility impacts.

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

SCOPE OF WORK

The work on this project includes, but is not limited to, furnishing and installing new rectangular rapid flashing beacons, aluminum signs, pedestal poles, foundations, pedestrian push buttons and associated electrical work.

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.

SUPPLYING AS BUILT PLANS

If the Rapid Rate Flashing Beacon systems is constructed differently than what is stated in the plans, the Contractor will supply as built plans to the Engineer and a copy will be sent to the Traffic Design Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

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.

GENERAL PERMANENT SIGNING (CONTINUED)

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.

REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed in the Permanent Signing Table will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for "Remove Traffic Sign". Quantities will be per assembly at the contract unit price per each.

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 "Rectangular Rapid Flashing Beacon System".

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 overlaminated 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

DIGITALLY PRINTED SIGNS (CONTINUED)

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.

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

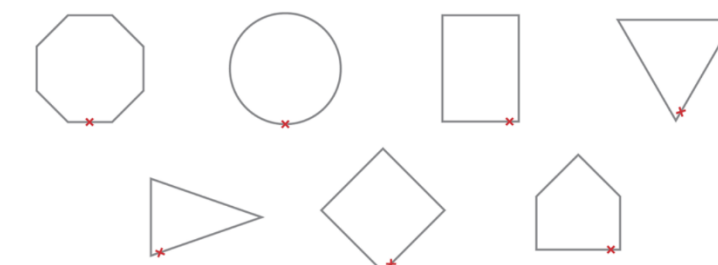
Sign fabricators using digital imaging methods to produce regulated traffic signs must be certified by the reflective sheeting manufacturer whose materials are used to produce the delivered signs.

DATE TAGGING SIGNS WITH PERTINENT INFORMATION

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

1. 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 POST SLEEVE

All 2.5" x 2.5", 12 Gauge perforated tube post will be sleeved with a 2-3/16" x 2-3/16" x 4", 12 Gauge perforated tube post.

SIGNPOST INSTALLATION IN CONCRETE

On concrete surfaces, a core will be drilled out 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.

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor will submit shop drawings and catalog cuts in accordance with Section 985 of the Specifications.

PDF submittals will be sent to the following email addresses:

John.Less@state.sd.us
Stacy.Bartlett@state.sd.us

ON-SITE INSPECTION

An on-site inspection of the traffic rapid rectangular flashing beacons will be conducted before acceptance of the project once the rapid rectangular flashing beacons are completed and operational. The on-site inspection will be conducted by the Project Engineer or Region Traffic Engineer with the Contractor, City Traffic Engineer, and the Traffic Design Engineer present.

ACCESSIBLE PEDESTRIAN SIGNAL

The work will consist of furnishing and installing accessible pedestrian signals (APS). Each APS will consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a latching light emitting diode (LED) indicator light, a solid-state electronic control board, a power supply, wiring, and all necessary mounting hardware. The operation and performance of the APS units will meet the requirements of MUTCD Sections 4E.08 to 4E.13. and the applicable sections of NEMA Standards Publication TS-2.

The APS units will be capable of supporting a minimum of 16 push button stations.

All mounting fasteners will be stainless steel; all threads will be coated with anti-seize compound meeting the requirements of USA Dept. of Defense specification MIL-PRF-907F.

The push button component of APS will meet the requirements of Section 985.1 S of the Specifications except that all housings and external hardware will be aluminum, powder coated yellow.

The APS control unit will include capability to monitor the push buttons and pedestrian signal head displays. Conflicts will cause the channel to be powered off.

The APS control unit will include capability to monitor communications with the push buttons. Communication faults will automatically reset the control unit.

Two licensed copies of any APS programming software will be furnished. All software programming, firmware updates, and audio message programming of the APS will be through USB port or Ethernet connection.

All costs for furnishing and installing the accessible pedestrian signal including labor, materials, and equipment, will be incidental to the contract unit price per each for "Rectangular Rapid Flashing Beacon System".

RECTANGULAR RAPID FLASHING BEACON SYSTEM

The Rectangular Rapid Flashing Beacon (RRFB) System will consist of the following:

- Individual RRFB as shown in the plans
- W11-2 (crossing warning) signs as shown in the plans
- W16-7P (diagonal arrow) plaques as shown in the plans
- R10-25 (push button) signs as shown in the plans
- All necessary electronic programming and flash units, hardware, and wiring to make the system operational.
- APS Units are required in place of standard push buttons and poles.
- APS buttons will be programmed with the voice message, "FLASHING YELLOW LIGHTS ARE ON".
- Solar Powered Panel as shown in the plans
- Solar Powered Panel Batteries and Cabinets as shown in the plans

Beacon Dimensions and Placement in Sign Assembly:

Each individual RRFB will consist of two rectangular-shaped yellow indications, each with an LED-array-based light source. The size of each indication will be at least 5 inches wide by at least 2 inches high.

The two indications will be aligned horizontally, with the longer dimension horizontal and with a minimum space between the two indications of at least 7 inches, measured from the nearest edge of one indication to the nearest edge of the other indication.

The outside edges of the RRFB will not project beyond the outside edges of the W11-2 sign.

Each RRFB will be located between, and immediately adjacent to, the bottom of the W11-2 sign and the top of the W16-7P plaque.

Beacon Flashing Requirements:

When actuated, the indications in each RRFB will flash in a rapidly flashing sequence. The RRFB will provide 75 flashing sequences per minute. During each 800-millisecond flashing sequence, the left and right RRFB indications will operate using the following sequence:

1. The indication on the left-hand side will be illuminated for approximately 50 milliseconds.
2. Both indications will be dark for approximately 50 milliseconds.
3. The indication on the right-hand side will be illuminated for approximately 50 milliseconds.
4. Both indications will be dark for approximately 50 milliseconds.
5. The indication on the left-hand side will be illuminated for approximately 50 milliseconds.
6. Both indications will be dark for approximately 50 milliseconds.
7. The indication on the right-hand side will be illuminated for approximately 50 milliseconds.
8. Both indications will be dark for approximately 50 milliseconds.
9. Both indications will be illuminated for approximately 50 milliseconds.
10. Both indications will be dark for approximately 50 milliseconds.
11. Both indications will be illuminated for approximately 50 milliseconds.
12. Both indications will be dark for approximately 250 milliseconds.

RECTANGULAR RAPID FLASHING BEACON SYSTEM (CONTINUED)

The light intensity of the indications during daytime conditions will meet the minimum specifications for Class 1 yellow peak luminous intensity in the Society of Automotive Engineers (SAE) Standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005.

Each RRFB will be equipped with an automatic signal dimming device to reduce illumination levels during periods of reduced ambient light.

Beacon Operation:

Each RRFB will be normally dark, will initiate operation only upon pedestrian actuation, and will cease operation 33 seconds after the pedestrian actuation.

All RRFB indications will simultaneously commence operation and simultaneously cease operation.

The programmed operation period will be immediately initiated upon each pedestrian actuation, including when the actuation occurs while the RRFB are already flashing and when the actuation occurs immediately after the indications have ceased flashing.

A small light directed at and visible to pedestrians in the crosswalk will be installed integral to the RRFB or push button, to give confirmation that each beacon is in operation.

Control Enclosure:

All enclosures will be aluminum and comply with the requirements for NEMA 3R type.

All materials and installation costs necessary for the operation of each system will be incidental to the contract unit price per each for "Rectangular Rapid Flashing Beacon System".

Solar Power

The solar-powered RRFB signs will operate continually 24 hours a day, 7 days a week, 365 days a year, under ambient temperature conditions (-40° F to +160° F)..

The solar-powered RRFB signs will be self-contained, with all components mounted within the housing.

The solar-powered RRFB signs will be MUTCD compliant.

The solar-powered RRFB signs will contain a battery system of adequate design and capacity to provide operation 24 hours per day, seven days per week, 365 days per year, considering the average number of cloudy sunless days in Madison, South Dakota. The batteries will be field replaceable, have a 5-6 year service life, and will be stored inside a weatherproof enclosure. Battery life must be warranted for 5-years. No prorated of batteries replaced under warranty will be allowed. Batteries must be installed in a weatherproof enclosure so constructed or protected that exposure to the weather will not interfere with successful operation.

The solar-powered RRFB signs will be equipped with a mounting plate or other design for attachment to a 2.5" square tubular post. The solar panel will be mounted above the W11-2 sign and aimed adequately toward the sun regardless of the sign and sun position.

Any software required to set up or program the solar-powered RRFB signs will be provided to Corey Pinkley, Region Traffic Engineer at the South Dakota Department of Transportation in Mitchell, South Dakota, at 605-995-8129.

RECTANGULAR RAPID FLASHING BEACON SYSTEM (CONTINUED)

The Contractor will provide all labor and equipment necessary to install and start operation of the solar-powered RRFB signs. Payment for furnishing and installing the solar-powered RRFB signs will be paid for at the contract unit price for each "Rectangular Rapid Flashing Beacon System".

REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT

Markings that fall outside of the new groove will be obliterated using additional methods approved by the Engineer. Removal of the existing markings will be accomplished without causing damage to the pavement, pavement joints, or joint sealant. The Contractor will repair any damage to the pavement, pavement joints, or joint sealant for no additional payment and at no cost to the State. All costs for materials, labor, and equipment necessary to remove the existing markings will be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or Equivalent".

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.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

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.

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

The Contractor must accommodate pedestrian traffic with appropriate arrangements prior to sidewalk access being blocked by the work zone.

TRAFFIC CONTROL SIGNS

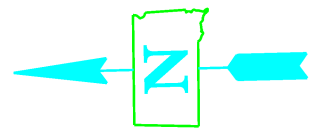
ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
R3-2	LEFT TURN PROHIBITION (symbol)	1	24" x 24"	4.0	4.0
R3-7L	LEFT LANE MUST TURN LEFT	1	30" x 30"	6.3	6.3
R4-7	KEEP RIGHT (symbol)	1	24" x 30"	5.0	5.0
R9-8	PEDESTRIAN CROSSWALK	2	36" x 18"	4.5	9.0
R9-9	SIDEWALK CLOSED	1	24" x 12"	2.0	2.0
R9-10	SIDEWALK CLOSED (ARROW L or R) USE OTHER SIDE	2	24" x 12"	2.0	4.0
R9-11	SIDEWALK CLOSED AHEAD (ARROW L or R) CROSS HERE	1	24" x 18"	3.0	3.0
R9-11a	SIDEWALK CLOSED (ARROW L or R) CROSS HERE	1	24" x 12"	2.0	2.0
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	4	48" x 48"	16.0	64.0
W11-2	PEDESTRIAN (symbol)	4	36" x 36"	9.0	36.0
W16-7P	DOWNWARD DIAGONAL ARROW (plaque)	2	24" x 12"	2.0	4.0
W16-9P	AHEAD (plaque)	2	30" x 18"	3.8	7.6
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 358.3			

SIGN TABLE

Station	Distance from Centerline and Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	Remove Traffic Sign (Each)	2.5"x2.5" Perforated Tube Post 10 Ga. (Ft)	(N.A.B.I.) 48" Winged Slip Base Anchor (Each)	Direction Sign Faces	Current Type of Post	Remarks
SD34 / WASHINGTON AVE. & 4TH ST. SE											
33+11	39' L	Pedestrian Crossing	W11-2			1	14.8	1	NORTH	Steel Perforated Tube	Remove existing sign assembly.
		Right Diagonal Arrow	W16-7P								Black Symbols on Flourescent Yellow-Green Background
		Pedestrian Crossing	W11-2								BACK TO BACK SIGNS
		Left Diagonal Arrow	W16-7P								Black Symbols on Flourescent Yellow-Green Background
		PUSH BUTTON TO TURN ON WARNING LIGHTS	R10-25	9	12						R10-25 sign is incidental to the Rectangular Rapid Flashing Beacon system.
33+19	32' R	Pedestrian Crossing	W11-2			1	14.8	1	NORTH	Steel Perforated Tube	Remove existing sign assembly.
		Left Diagonal Arrow	W16-7P								Black Symbols on Flourescent Yellow-Green Background
		Pedestrian Crossing	W11-2								BACK TO BACK SIGNS
		Right Diagonal Arrow	W16-7P								Black Symbols on Flourescent Yellow-Green Background
		PUSH BUTTON TO TURN ON WARNING LIGHTS	R10-25	9	12						R10-25 sign is incidental to the Rectangular Rapid Flashing Beacon system.
Bid Item Number						110E0130	632E1340	N.A.			
					TOTAL	2	29.6				

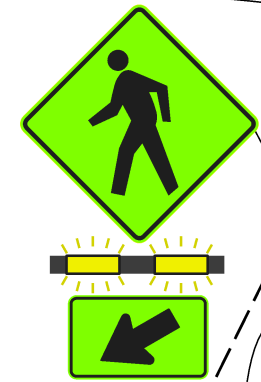
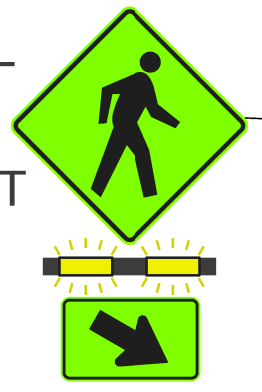
SPECIAL SIGNING LAYOUT



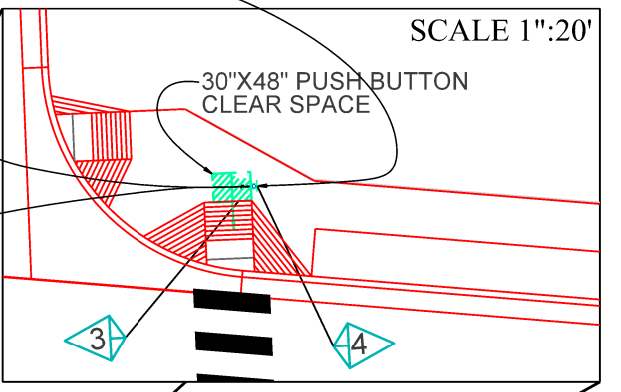
Scale 1":40'

33+11 - 39' L
ATTACH RRFB, CABINET,
AND NEW SIGNS TO
PERFORATED TUBE POST

ESTIMATE OF QUANTITIES			
KEY	ITEM	EST. QUANT.	UNIT
	CONCRETE FOOTING	2	EACH
	RECTANGULAR RAPID FLASHING BEACON (1-4) INCIDENTAL TO RRFB SYSTEM	4	EACH
	ACCESSIBLE PEDESTRIAN SIGNAL INCIDENTAL TO RRFB SYSTEM (P1, P2)	2	EACH
	DOWNWARD DIAGONAL ARROW SIGN W16-7P L/ W16-7P R.(F.I. Y.-Gr.) INCIDENTAL TO RRFB SYSTEM	4	EACH
	PED. SIGN W11-2 (F.I. Y.-Gr.) 4 - INCIDENTAL TO RRFB SYSTEM	4	EACH
	PEDESTRIAN CROSSING SIGN, R10-25 INCIDENTAL TO RRFB SYSTEM	2	EACH



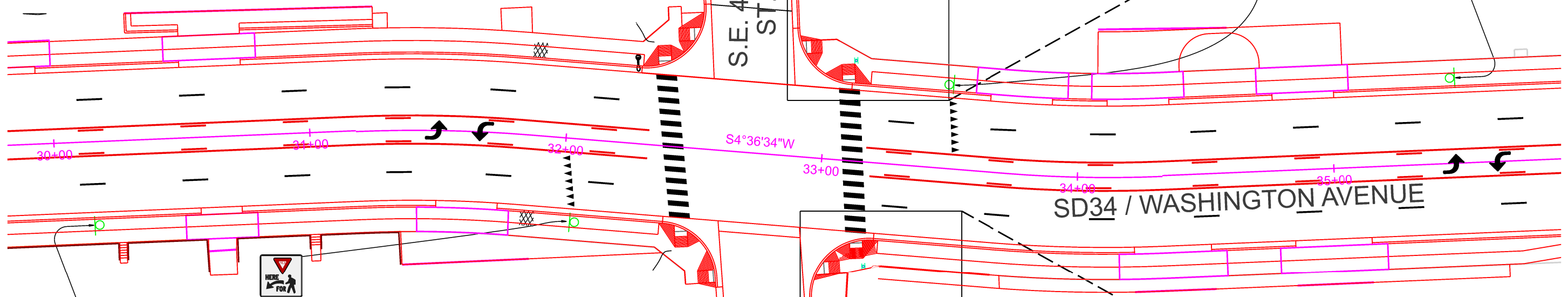
P2
33+11 - 39' L



Do Not Disturb Existing 35+45 L



Do Not Disturb Existing 33+35 L



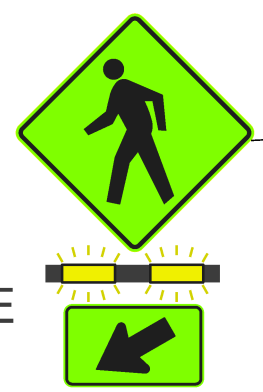
Do Not Disturb Existing 32+02 R



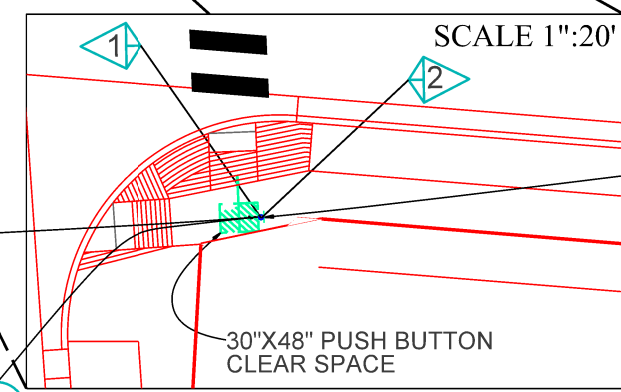
AHEAD

Do Not Disturb Existing 30+15 R

ATTACH RRFB AND NEW SIGNS TO PERFORATED TUBE POST, 33+19 - 32' R



P1
33+19- 32' R



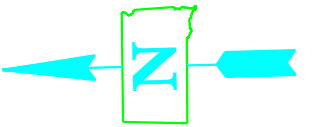
PLOT SCALE - 1:40, 3757

PLOTTED FROM - TRM113314

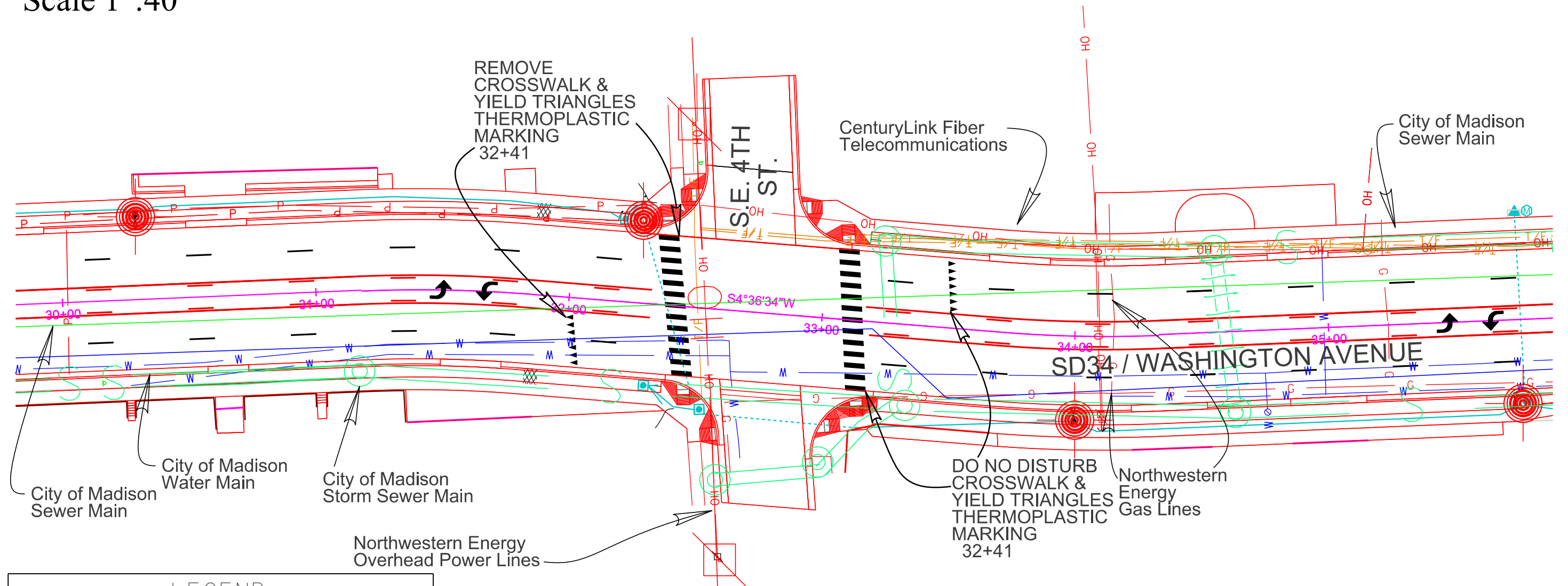
PLOT NAME - 3

FILE - ... \08LF_MISC_CONTAINER.DGN

UTILITY & MARKING LAYOUT



Scale 1":40'



LEGEND	
KEY	DESCRIPTION
▲	ELECTRICAL SERVICE CABINET, EXISTING
Ⓜ	METER SOCKET, EXISTING
Ⓜ	TYPE 1 ELECTRICAL, EXISTING JUNCTION BOX (JB1,2, & 3)
— T/F —	FIBER, TELECOMMUNICATIONS, EXISTING
— S —	SEWER LINE, EXISTING
— P —	UNDERGROUND POWER LINE, EXISTING
— W —	WATER LINE, EXISTING
— OH —	OVERHEAD POWER LINE, EXISTING
— G —	GAS LINE, EXISTING
	THERMOPLASTIC PAVEMENT MARKING, 24" WHITE, EXISTING
▲▲▲▲▲	THERMOPLASTIC PAVEMENT MARKING, SOLID AREA WHITE, EXISTING

PLOT SCALE - 1:40, 3757

PLOTTED FROM - TRM113314

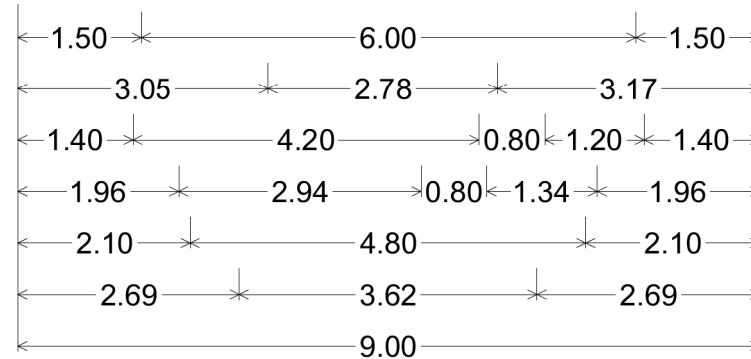
PLOT NAME - 5

FILE - ... \08LF_MISC_CONTAINER.DGN

SPECIAL SIGNING DETAILS
FLAT ALUMINUM SIGN WITH NON-REMOVABLE COPY-HIGH INTENSITY SHEETING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0034(00)386	9	16

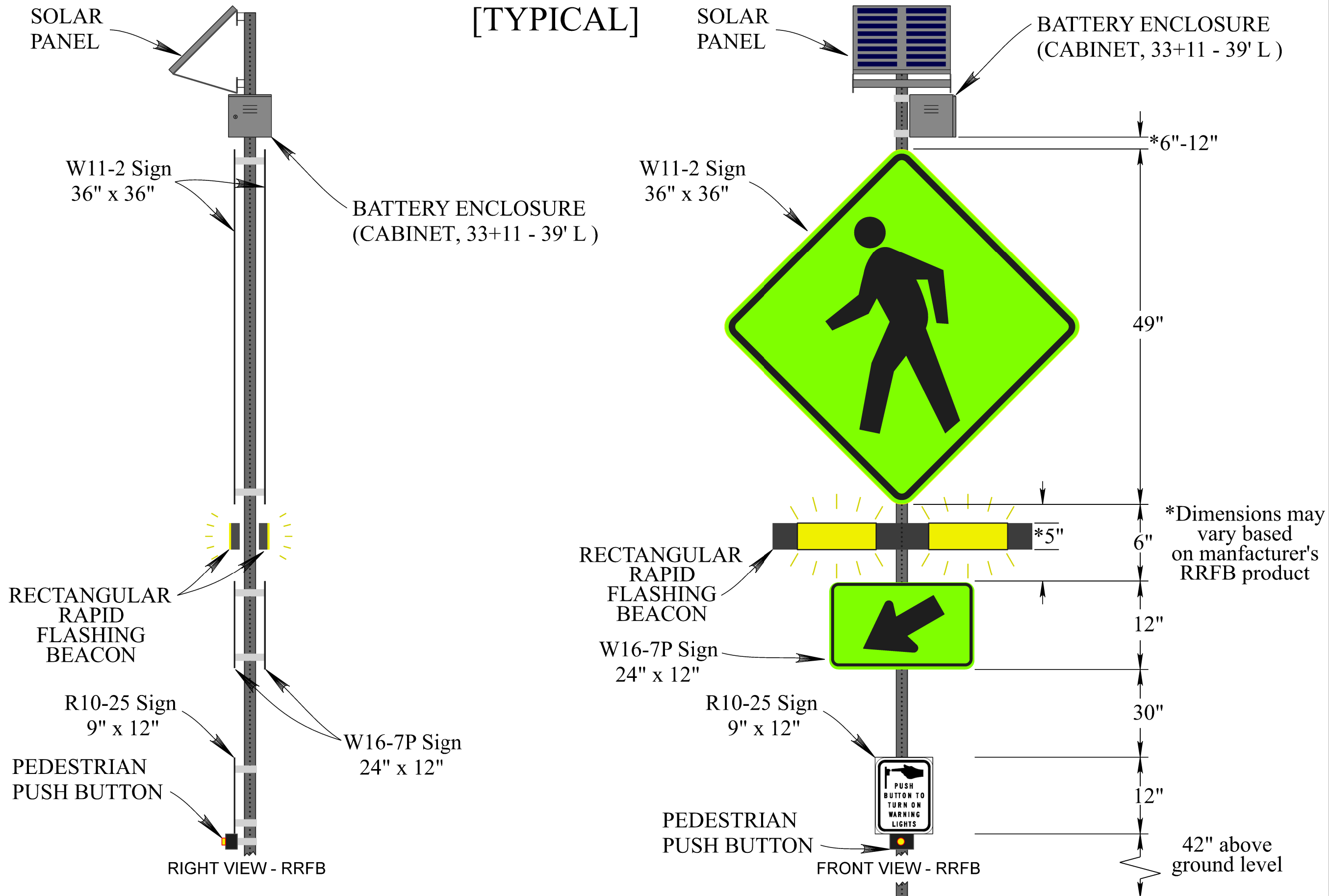
Plotting Date: 02/20/2024 REV. 2-20-2024, JMP



R10-25_9x12;
 1.50" Radius, 0.38" Border, 0.38" Indent, Black on White;
 "PUSH", C specified length;
 "BUTTON TO", C specified length;
 "TURN ON", C specified length;
 "WARNING", C specified length;
 "LIGHTS", C specified length;

SOLAR POWERED RRFB INSTALLATION [TYPICAL]

STATE OF SOUTH DAKOTA	PROJECT NH 0034(00)386	SHEET 10	TOTAL SHEETS 16
Plotting Date: 02/20/2024		REV. 2-20-2024, JMP	



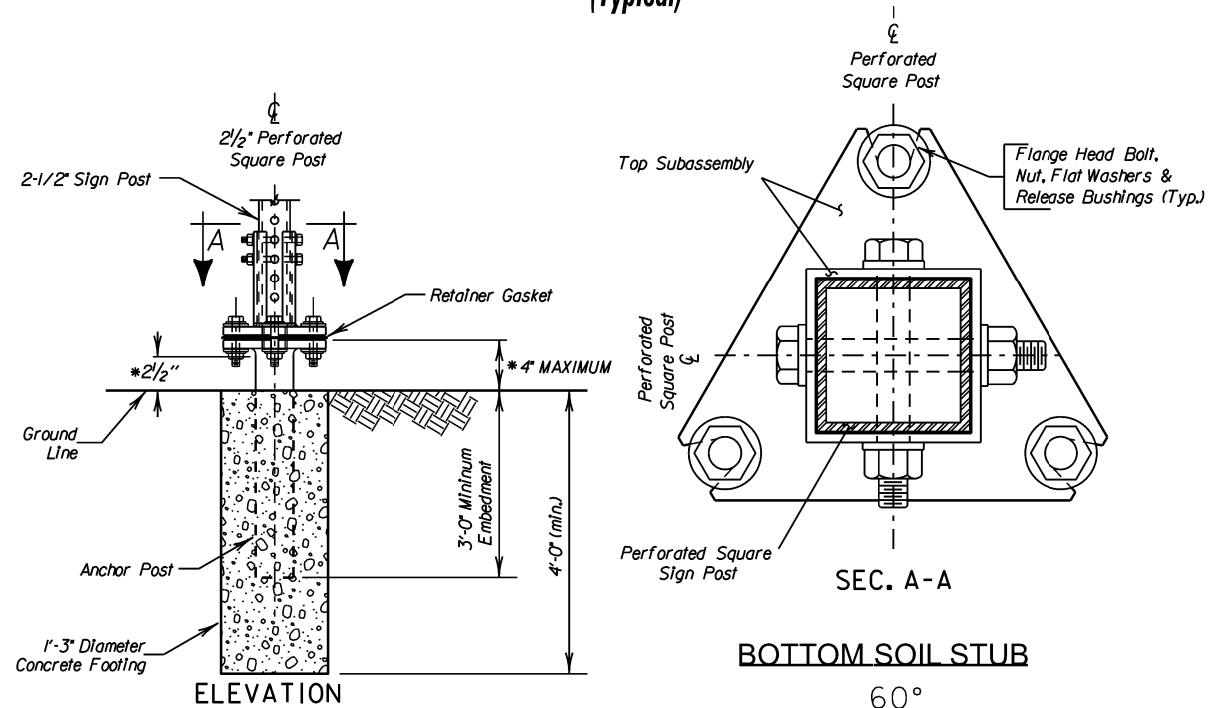
PLOT SCALE - 1/2"=5'-0"

PLOTTED FROM - TRM113314

PLOT NAME - 7

FILE - ... \08LF_MISC_CONTAINER.DGN

2 1/2" SQUARE STEEL PERFORATED TUBE POST BREAKAWAY SLIP BASE DETAILS FOR CONCRETE FOOTING INSTALLATIONS (Typical)

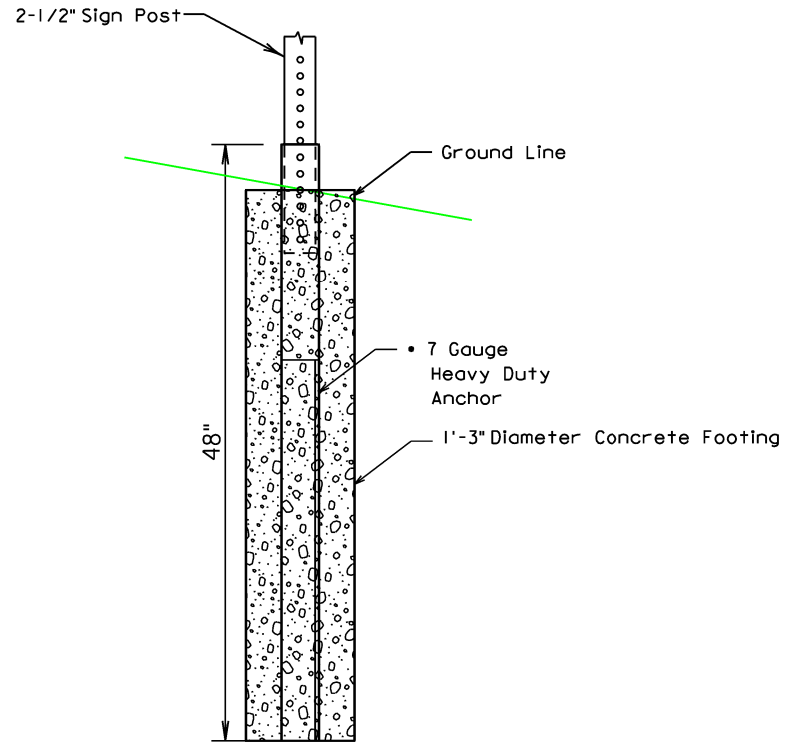


* - Dimensions shown may vary by Manufacturer. The Contractor will use Manufacturer recommended assembly parts and procedures. Sign installations must meet MASH NCHRP 350 breakaway requirements.

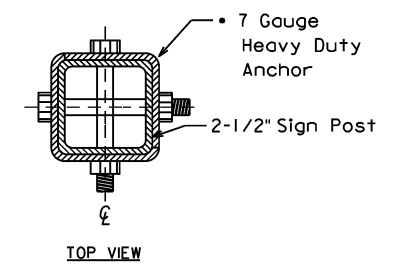
GENERAL NOTES-

1. The manufacturer must provide certification that the breakaway system furnished will develop the full shear and bending yield strength of the sign post section being spliced.
2. All posts will be galvanized in accordance with ASTM A653, Des. G-90.
3. All hardware must be galvanized in accordance with ASTM A153.

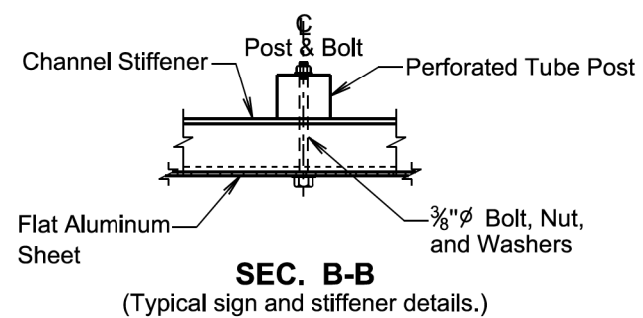
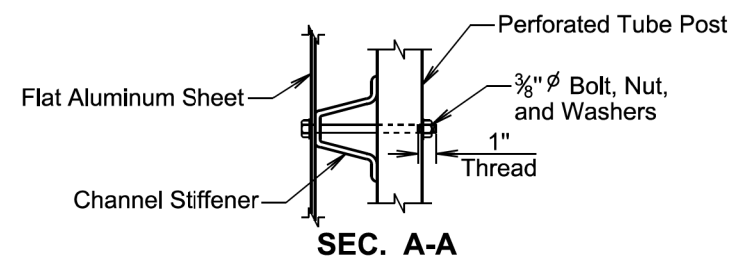
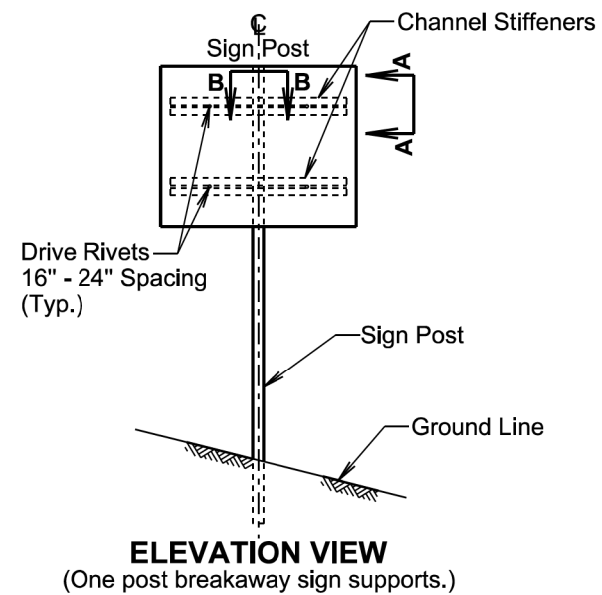
2-1/2" PEFORATED TUBE POST BREAKAWAY ANCHOR NON-SLIP BASE DETAILS FOR CONCRETE FOOTING INSTALLATIONS (Typical)



POST SIZE	
Sign Post	2 1/2"
Anchor Post	3" •
• 7 Gauge Anchor	



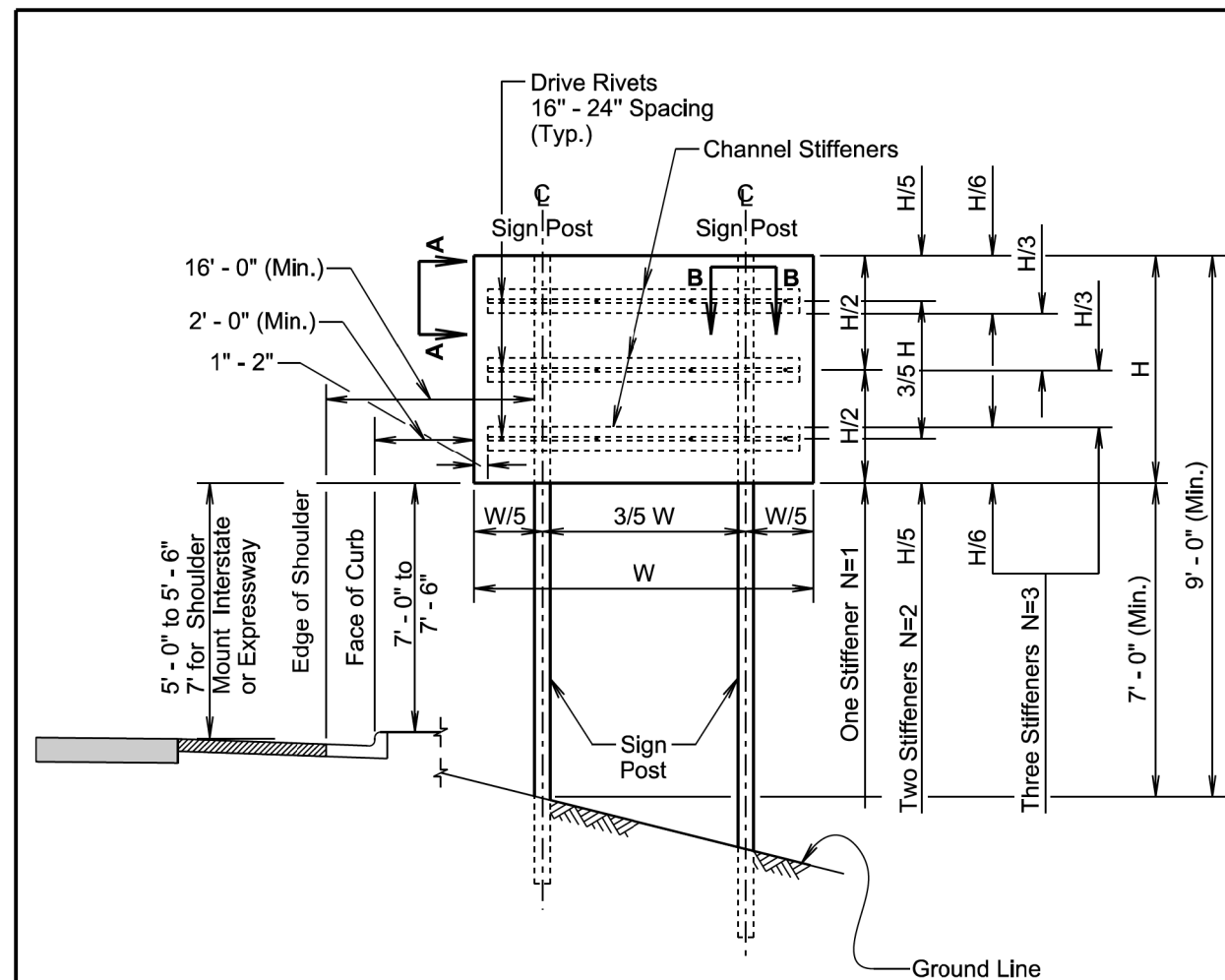
Dimensions shown may vary by Manufacturer. The Contractor must use Manufacturer recommended assembly parts and procedures. Sign installations must meet MASH NCHRP 350 breakaway requirements.



∅ A plastic washer, as recommended by the sheeting manufacturer, will be installed between the sign face and the metal washer shown.

November 19, 2020

Published Date: 2024	S D D O T	SIGN STIFFENER DETAILS	PLATE NUMBER 632.60
			Sheet 1 of 2



GENERAL NOTES:

The number of stiffeners used (N) will be as follows:
 If $H \leq 2' - 0''$ then $N = 1$
 if $2' - 0'' < H \leq 8' - 0''$ then $N = 2$
 if $8' - 0'' < H \leq 15' - 0''$ then $N = 3$
 where H is the vertical dimension of the sign.

A minimum of two bolts will be required to fasten the sign to each post.

November 19, 2020

Published Date: 2024	S D D O T	SIGN STIFFENER DETAILS	PLATE NUMBER 632.60
			Sheet 2 of 2

PLOT SCALE - 1:199,992

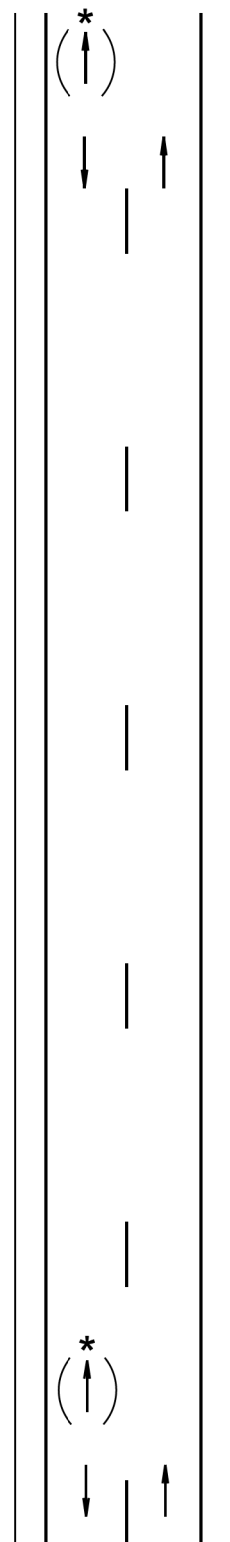
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

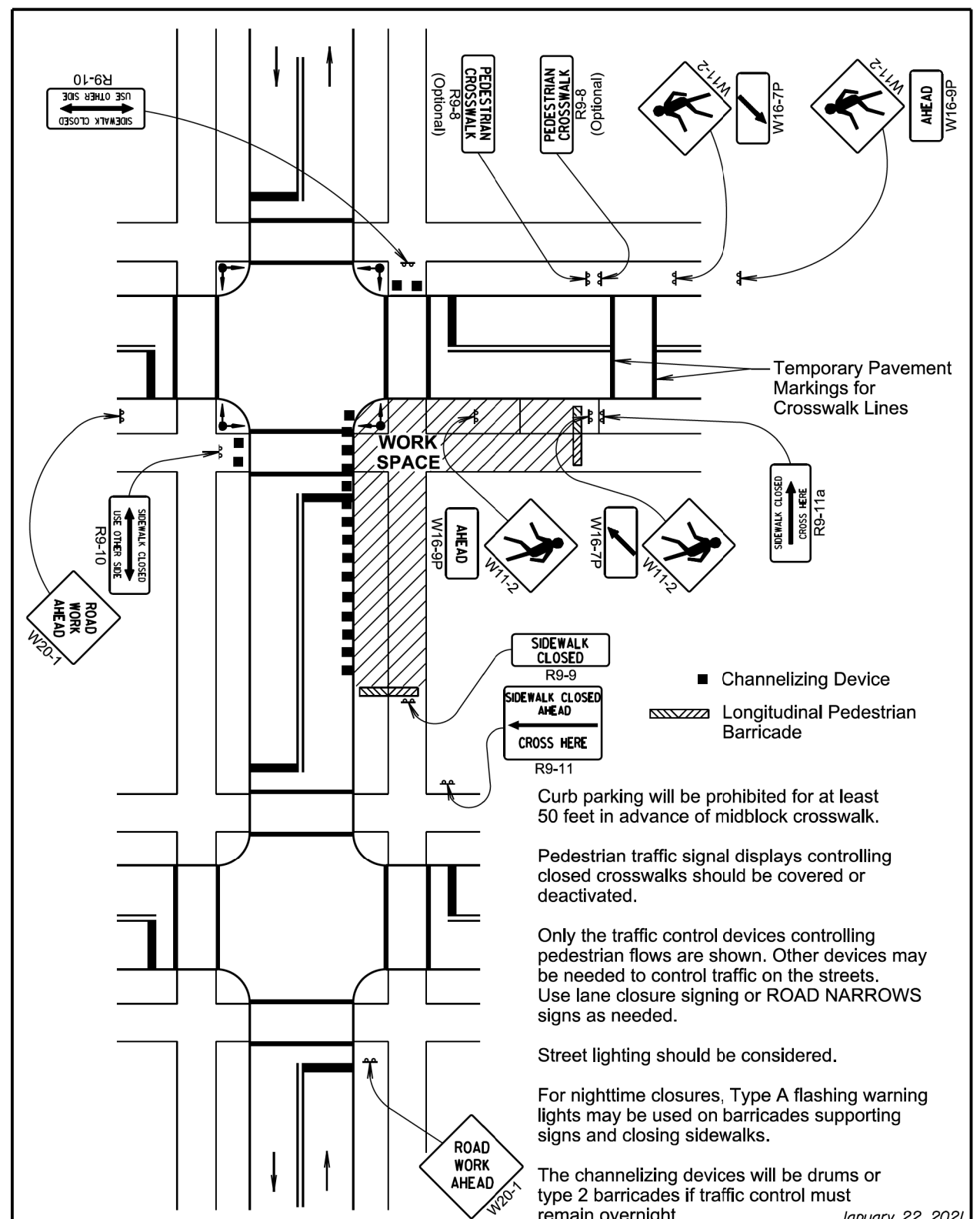


Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000



January 22, 2021

Published Date: 2024	S D D O T	WORK BEYOND THE SHOULDER	PLATE NUMBER
			634.01
			Sheet 1 of 1



Curb parking will be prohibited for at least 50 feet in advance of midblock crosswalk.

Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.

Only the traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets. Use lane closure signing or ROAD NARROWS signs as needed.

Street lighting should be considered.

For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing sidewalks.

The channelizing devices will be drums or type 2 barricades if traffic control must remain overnight.

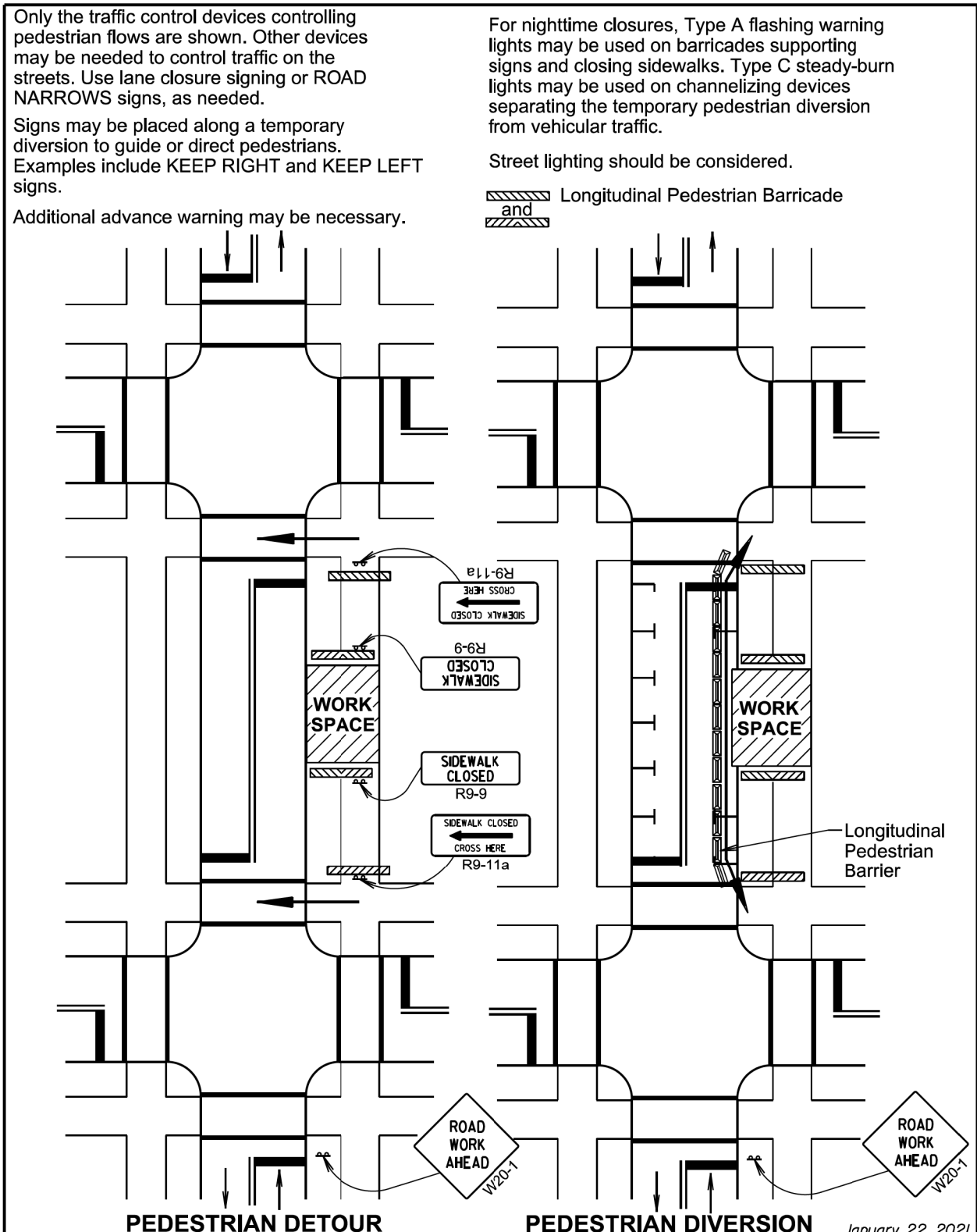
January 22, 2021

Published Date: 2024	S D D O T	SIDEWALK CLOSURES AND PEDESTRIAN DETOURS	PLATE NUMBER
			634.33
			Sheet 1 of 1

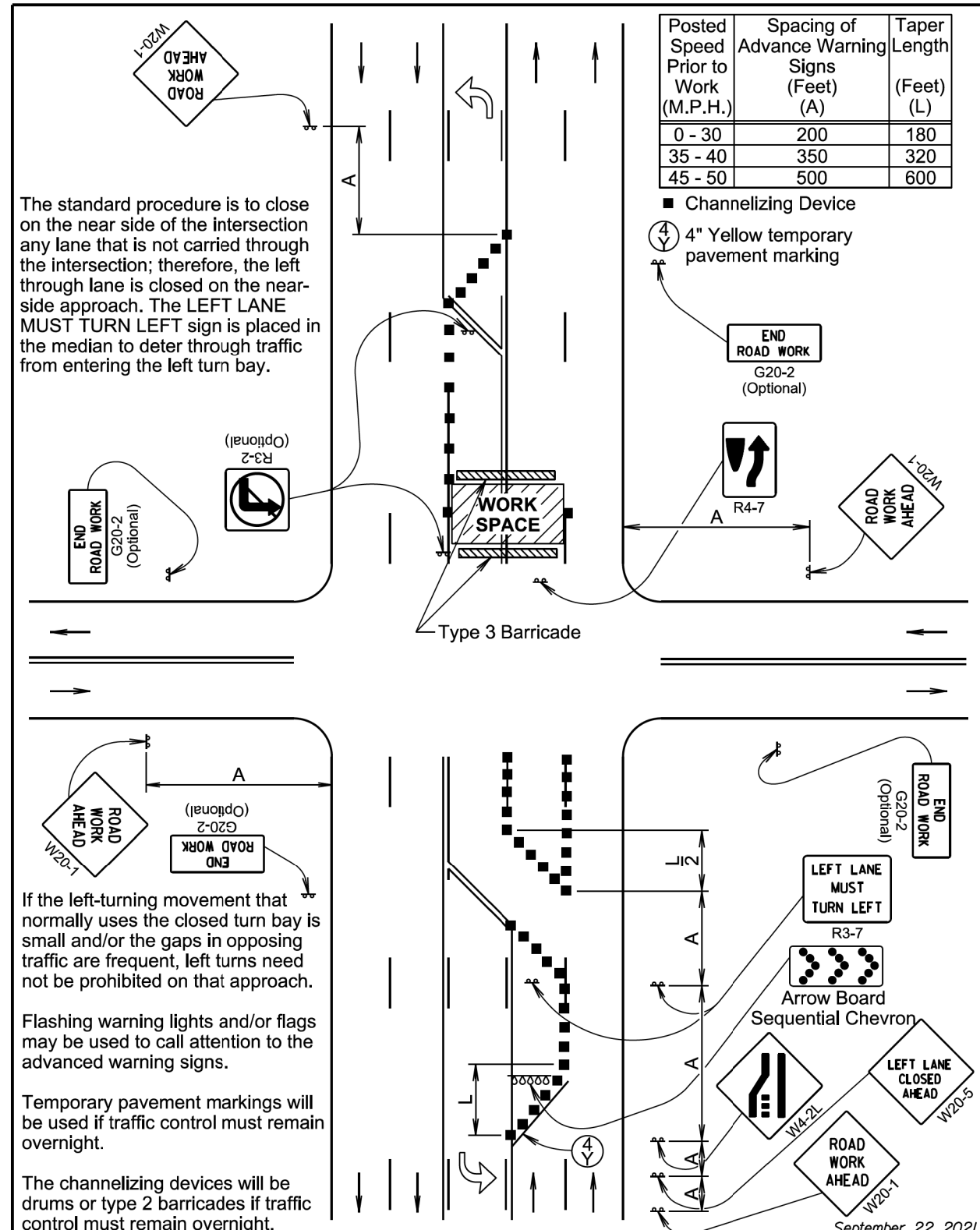
PLOT NAME - 10

FILE - ... \08LF_MISC_CONTAINER.DGN

Plotting Date: 02/20/2024



Published Date: 2024	S D D O T	PEDESTRIAN DETOUR AND PEDESTRIAN DIVERSION	PLATE NUMBER 634.34
			Sheet 1 of 1



Published Date: 2024	S D D O T	MULTIPLE LANE CLOSURES AT INTERSECTION	PLATE NUMBER 634.45
			Sheet 1 of 1

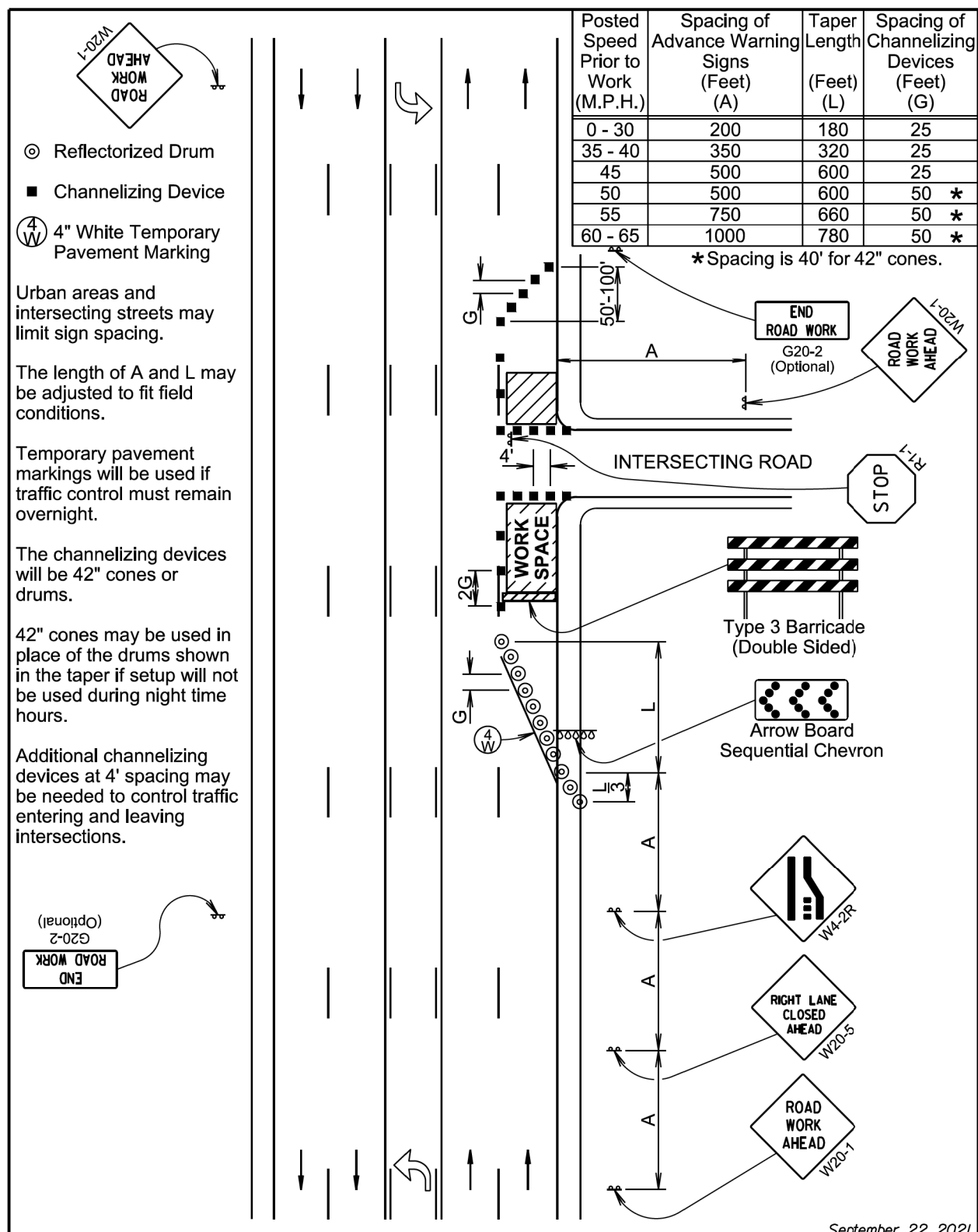
PLOT SCALE - 1:199,992

PLOT NAME - 11
FILE - ... \08LF_MISC_CONTAINER.DGN

PLOTTED FROM: L1199_992

PLOT NAME: 12

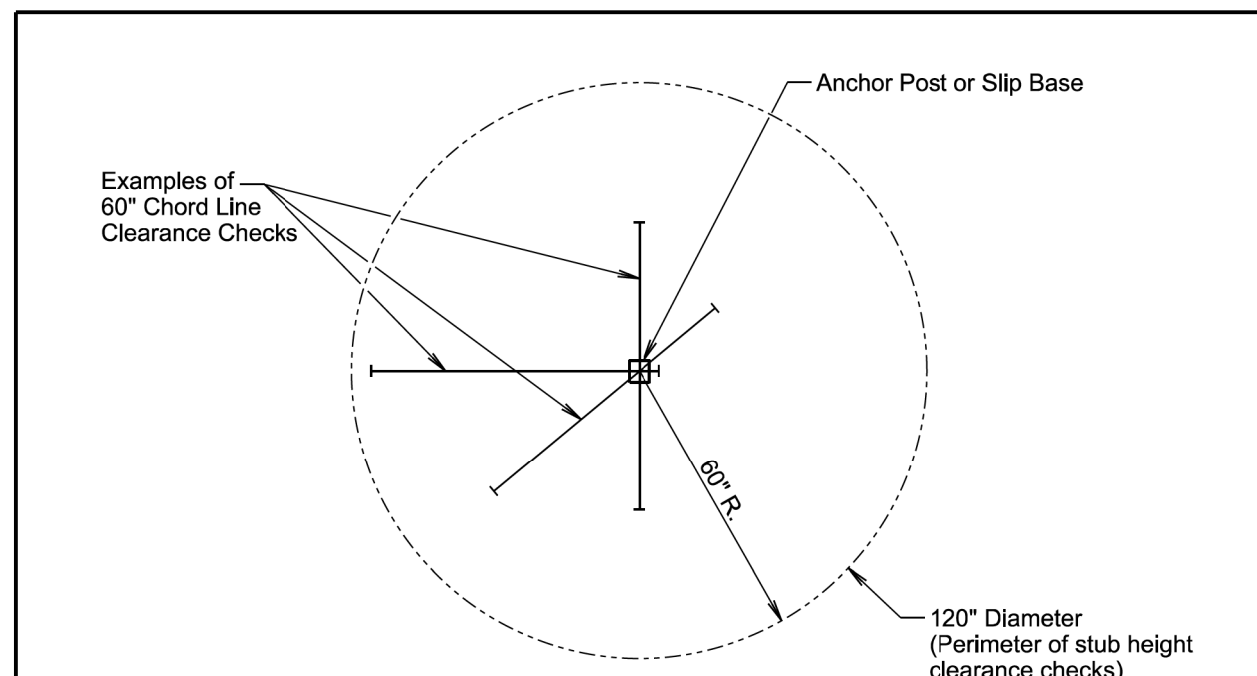
FILE: \08LF_MISC_CONTAINER.DGN



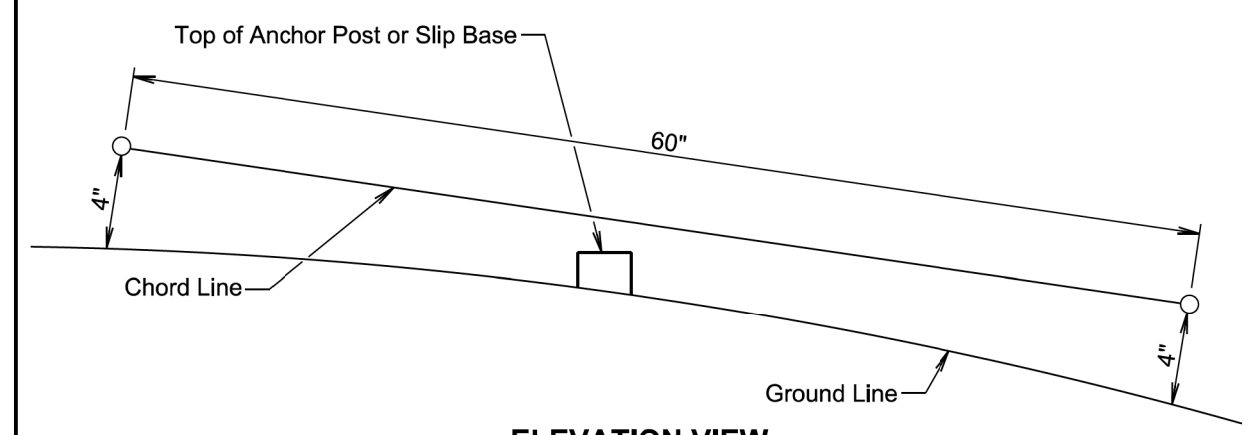
- ⊙ Reflectorized Drum
 - Channelizing Device
 - Ⓞ 4" White Temporary Pavement Marking
- Urban areas and intersecting streets may limit sign spacing.
- The length of A and L may be adjusted to fit field conditions.
- Temporary pavement markings will be used if traffic control must remain overnight.
- The channelizing devices will be 42" cones or drums.
- 42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.
- Additional channelizing devices at 4' spacing may be needed to control traffic entering and leaving intersections.

September 22, 2021

Published Date: 2024	S D D O T	5-LANE, OUTSIDE LANE CLOSED	PLATE NUMBER 634.60
			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

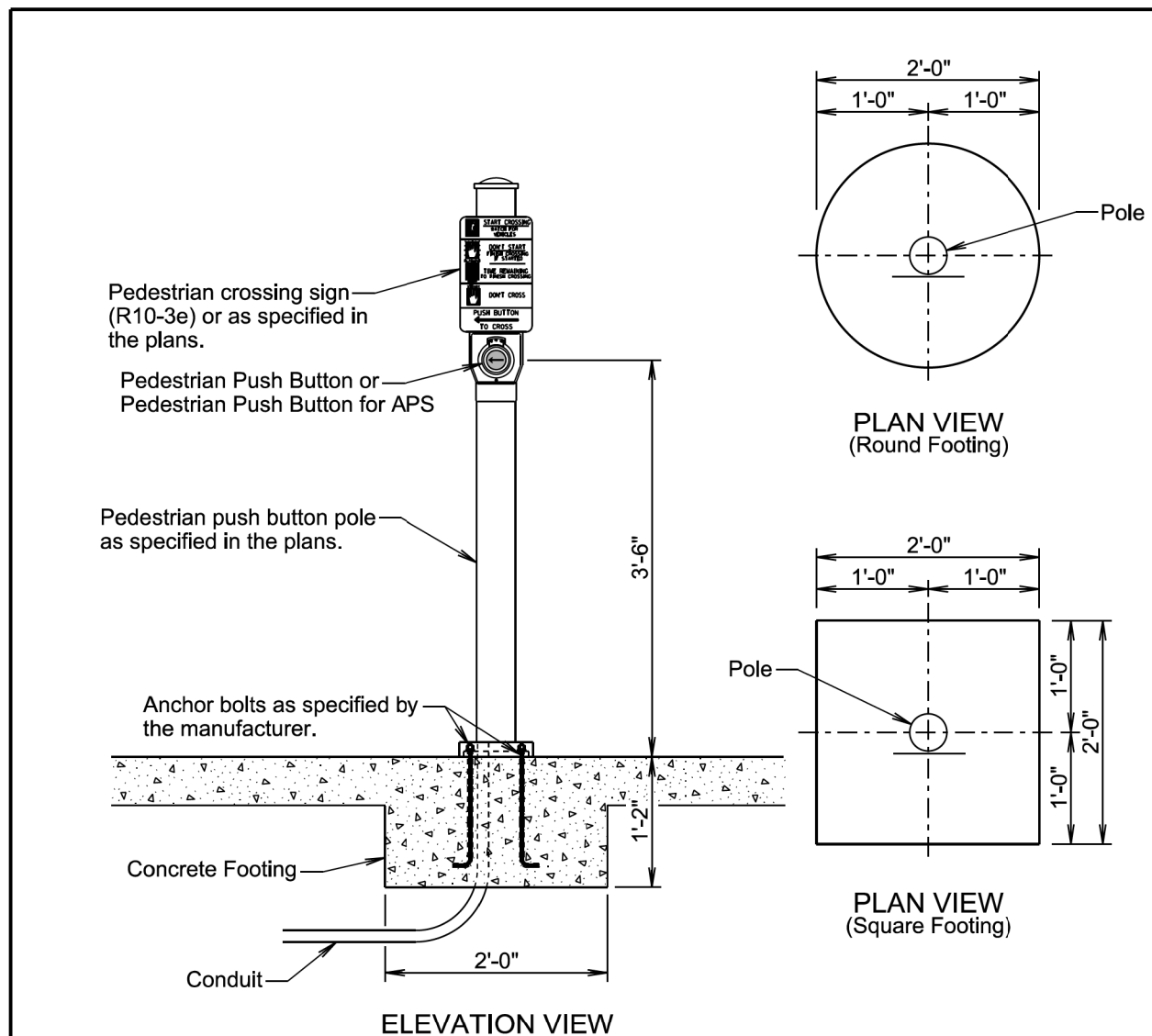
Published Date: 2024	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

PLOT SCALE - 1:199,992

PLOTTED FROM - TRM113314

PLOT NAME - 13

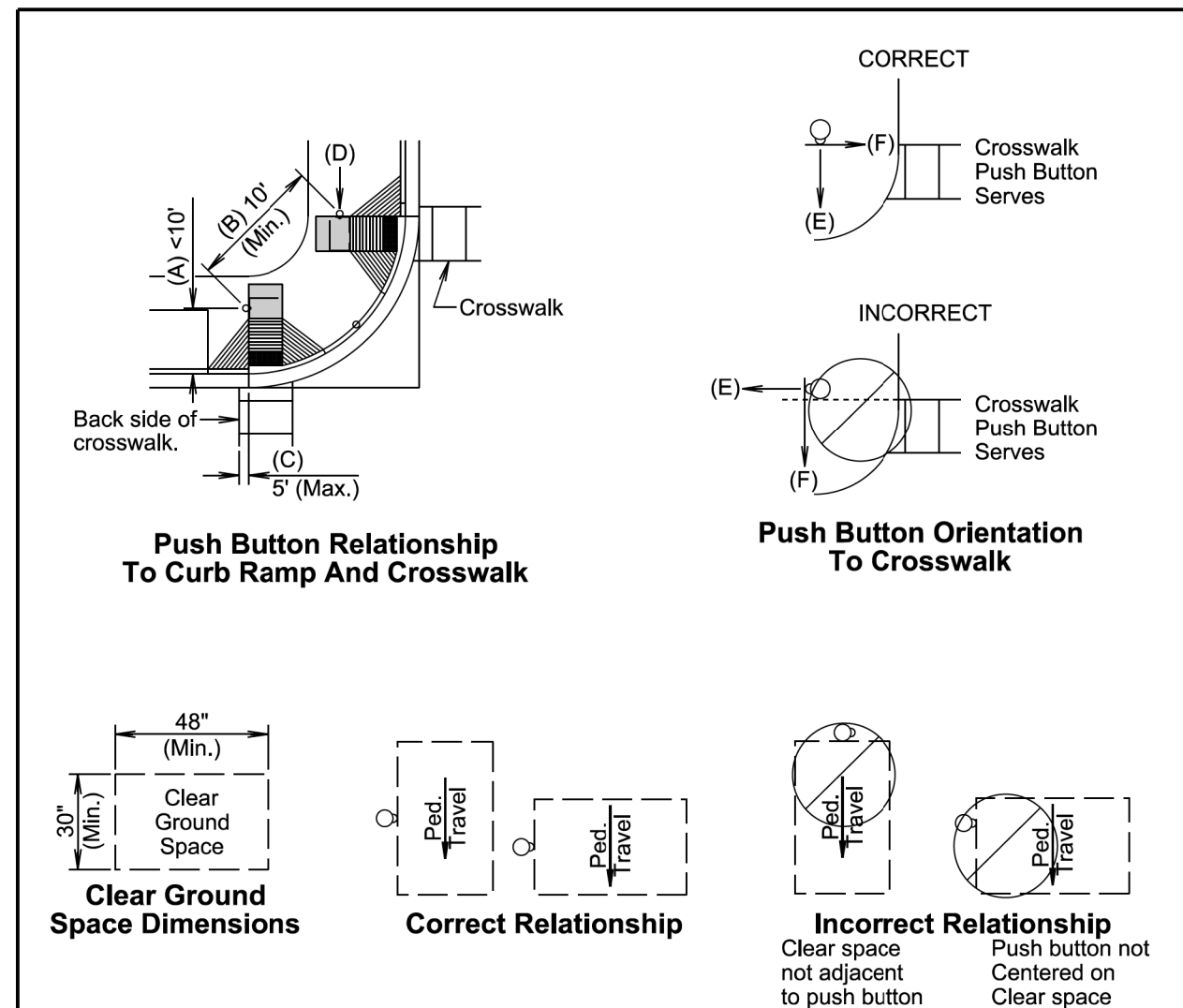
FILE - ... \08LF_MISC_CONTAINER.DGN



May 9, 2020

SDDOT	PEDESTRIAN PUSH BUTTON POLE	PLATE NUMBER 635.57
		Sheet 1 of 2

Published Date: 2024



General Notes:

Pedestrian Push Buttons Location and Orientation Requirements:

- (A) Within 10 feet from the front face of curb.
- (B) Where two push buttons are provided, the push buttons should have at least 10 feet of separation from each other.
- (C) If two curb ramps are used, the push button should be within 5 feet of the backside of the crosswalk.
- (D) The push button should be mounted adjacent to a clear ground space (within 10 inches maximum reach).
 The clear ground space will be a least 30 inches x 48 inches and will slope no more than 50:1 (2%) in any direction. The push button will be centered on either side of the clear ground space (either the 30 inch or 48 inch side). The 30 inch x 48 inch clear ground space shouldn't touch the detectable warning panel.
- (E) The push button should face the edge of roadway.
- (F) The push button face should be parallel to the crosswalk being used.

The push button poles will not interfere with the minimum clear width of the Pedestrian Access Route.

May 9, 2020

SDDOT	PEDESTRIAN PUSH BUTTON POLE	PLATE NUMBER 635.57
		Sheet 2 of 2

Published Date: 2024