

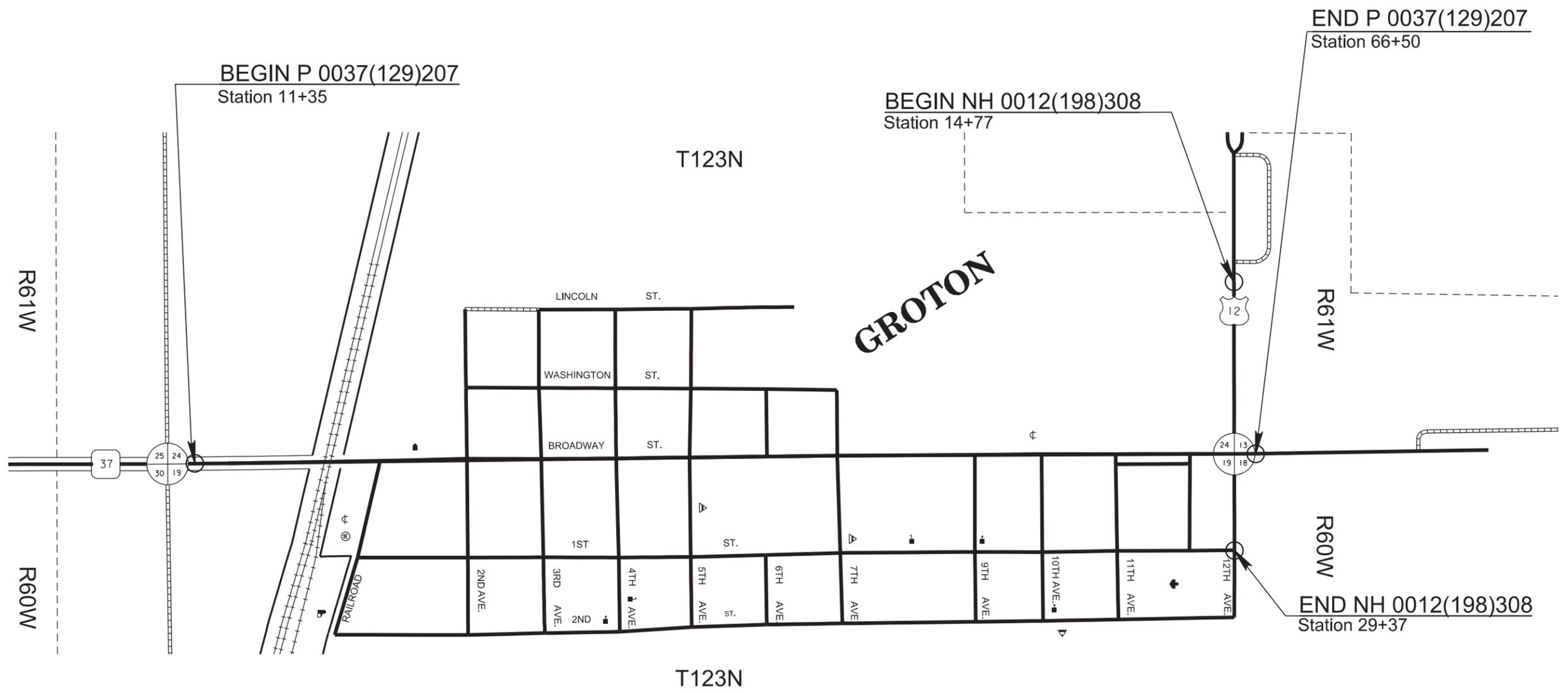
# SECTION C: TRAFFIC CONTROL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C1	C40

Plotting Date: 05/20/2016

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Plot Scale - 1:200

Plotted From - trab17886

File - ...IBrwn 039KtitleC.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C2	C40
Revised 6-29-16			

**Section C Estimate of Quantities**

**P 0037(129)207, PCN 039K**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0010	Flagging	200.0	Hour
634E0020	Pilot Car	50.0	Hour
634E0110	Traffic Control Signs	899.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0265	Type 3 Barricade, 6' Double Sided	10	Each
634E0285	Type 3 Barricade, 8' Double Sided	70	Each
634E0565	Remove Pavement Marking, Arrow	4	Each
634E1002	Detour Signing	601.7	SqFt
634E2000	Longitudinal Pedestrian Barricade	295	Ft
634E2015	Temporary Pedestrian Access Route	Lump Sum	LS
634E2020	Temporary Curb Ramp	8	Each

**NH 0012(198)308, PCN 05AV**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E6005	Pavement Marking Masking, 5"	2,148	Ft
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	568.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	20	Each
634E0380	Tubular Marker	130	Each
634E0390	Replace Tubular Marker	10	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0565	Remove Pavement Marking, Arrow	4	Each
634E0600	4" Temporary Pavement Marking Tape Type I	18,933	Ft
634E1002	Detour Signing	304.0	SqFt

**SEQUENCE OF OPERATIONS**

Work shall consist of grading, storm sewer, curb and gutter, sidewalk, AC surfacing, PCC paving, lighting and signal.

The Contractor shall widen the radius in NW corner of the SD 37 and US 12 junction and the NW corner of US 12 EB and Brown County 12E and place Asphalt Concrete Composite on the detour. The radius at US 12 and SD 37 shall be widened to what the new radius will be. The detour shall be completed prior to work in phase 3 thru 5. The Contractor shall install 10" of Base Course (111 Ton) on the NW corner of SD 37 and US 12 to facilitate traffic during phase 1.

The Contractor shall install construction signing, detour signing and overwidth signing.

The Contractor may choose to work in phase 5 or 6 while simultaneously working in the phase 1 thru 4. Access must be maintained to all businesses and residents for the duration of the project.

Phase 1 shall consist of work from approximately sta 22+10 to sta 29+37 on US 12. The Contractor shall complete the work in the WB lanes while maintaining head to head traffic in the EB lanes. The existing asphalt shall be saw cut 1' west of the centerline on north SD 37. See phase layout for pavement removal for limits of pavement removal and new pavement for this phase. Phase 1 shall consist of storm sewer, removing and replacing drop inlets, concrete surfacing, curb and gutter, sidewalk, turning lane with asphalt concrete, detector loops and conduit. Phase 1 shall be complete prior to starting phase 2. Once work has started on Phase 1, the Contractor shall continuously work on completing all of the work on US 12.

Phase 2 shall consist of work from approximately sta 14+77 to sta 22+10 on US 12. The Contractor shall complete the work in the WB lanes while maintaining head to head traffic in the EB lanes. Phase 2 shall consist of removing and replacing concrete surfacing, curb and gutter, sidewalk, turning lane with asphalt concrete, detector loops and conduit. See phase layout for pavement removal for limits of pavement removal and new pavement for this phase. Phase 2 shall be complete prior to starting phase 3.

Phase 3 shall consist of work from approximately sta 18+64 to sta 25+64 on US 12. The Contractor shall complete the work in the EB lanes while maintaining head to head traffic in the WB lanes. Phase 3 shall consist of removal of remaining pavement, removing and replacing drop inlets, concrete surfacing EB lanes, placing asphalt at tie in points, curb and gutter, sidewalk, detector loops and conduit. Phase 3 for surfacing shall be completed prior to working on phase 4. The Contractor shall coordinate with Ken's Shell Express and Red Horse Inn to accommodate delivery trucks.

Phase 4 shall consist of work from sta 18+64 to sta 25+64 on US 12. The Contractor shall complete work in center turn lane while maintaining traffic in EB and WB lanes. This phase shall consist of placing concrete surfacing and placing asphalt at the tie in points in the center turn lane, detector loops and conduit. The pavement markings on US 12 shall be installed once all pavement has been completed at the end of Phase 4. Stop signs will be used to stop traffic on SD 37 once phase 4 is completed until the traffic signals are installed.

The Contractor shall complete the work from sta 65+13 to 66+50 on SD 37 after all of the surfacing is completed on US 12. This section shall be completed as per the details in phase 6 with the exception that no test section needs to be completed.

Phase 5 shall consist of work from Sta 22+00 to 61+20 on SD 37. The Contractor shall complete this work while maintaining traffic on the detour. This phase will be closed to traffic. Work in this phase can begin once the detour has been paved with asphalt. The Contractor shall maintain access on either 2<sup>nd</sup> Ave. or 3<sup>rd</sup> Ave. and either 4<sup>th</sup> Ave. or 5<sup>th</sup> Ave. at all times during this phase.

Phase 6 will consist of work from Sta 11+35 to 22+00. The Contractor shall coordinate with the RR as they will be replacing the RR signals in conjunction with this project. This phase will be constructed half width under traffic. Flagger and pilot car will be used while work is in progress and shall be opened for two way traffic and the end of each day. The Contractor shall salvage and stockpile the material for this phase in one day so as not to leave a vertical edge. The Contractor shall construct ramps according to the detail for railroad crossing and transition at beginning of project. The Contractor shall blend the granular material with the subgrade, undercut and install a minimum of 3" of Base Course or Base Course, Salvaged to maintain traffic at day's end. A 28' minimum granular surface needs to be maintained when head to head traffic is present. A 200' test section shall be completed on the first day to verify the condition of material and the Contractor's operation. The Engineer will determine the length of the sections that the Contractor can work in one day based upon the test section. After the granular base material has been blended with the subgrade, the Contractor shall stockpile the top half at a location approved by the Engineer and compact the material left in place. The undercut material shall be placed in 2 equal lifts. A minimum of a 12' lane shall be maintained to facilitate traffic while working in this segment.

Traffic Control signs will be the size for conventional road except when there is a median present then the signs will be the size for the expressway.

**TRAFFIC CONTROL**

Traffic shall be maintained in accordance with the Manual on Uniform Traffic Control Devices and as follows:

1. The Contractor shall keep all businesses and residents informed of the progression and prosecution of work in areas which have a direct effect on their access.
2. A night inspection of traffic control signing shall be done by the Contractor's designated employee responsible for traffic control after the signs are revised for each phase of construction. The Contractor shall submit additional log information for this inspection to the Engineer.
3. Construction operations will be allowed during daylight hours only.

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**TRAFFIC CONTROL (CONTINUED)**

4. The Contractor shall conduct weekly meetings at a designated place on or adjacent to the project. Meetings shall be open to the public. Public announcements shall be made so all affected parties are aware of this meeting. The Contractor shall be responsible for the public announcements however; the Engineer shall approve the public announcements prior to submitting to the media. The meetings must be conducted by the Contractor's Superintendent or management person. The purpose of these meetings shall be to:

- Present the work schedule for at least the following week
- Coordinate work activities with subcontractors, city and utility companies
- Coordinate traffic control
- Coordinate public and private access
- Inform businesses, residents, and public of project status

All costs related to weekly meetings and public announcements shall be incidental to the contract lump sum price for TRAFFIC CONTROL, MISCELLANEOUS.

5. The Contractor shall provide the City Police Department, City Fire Department, Ambulance Service and County Sheriff's Office a detailed map showing roadway segment construction work limits and the most appropriate routing for emergency vehicles. Updated maps shall be provided to the departments 24 hours prior to any changes in work limits. Changes in work limits will not be allowed until the 24 hour advance notice requirement has been satisfied.

6. Orange plastic safety fence shall be provided to enclose any areas that are unsafe for the public including the last 50' of pipe excavation that is allowed to be open overnight and during undercutting operations. All related costs to furnish, place and maintain the plastic safety fence shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

7. All traffic control devices used on this project shall be new or in like-new condition, as approved by the Engineer.

8. KEEP RIGHT symbol signs shall be placed at intersections as appropriate, and as directed by the Engineer. KEEP RIGHT signs have been included in the Traffic Control Devices Inventory.

The pavement marking masking breakdown is as follows: Phase 1 & 2 (1000' with a single set up), Phase 3 (848') and Phase 4 (300').

**KEEP RIGHT SIGNS**

Keep Right signs are required as indicated in the plan notes and detail drawings. The Keep Right signs placed on centerline between the head to head traffic shall be mounted with the bottom of the sign a minimum of 20" above the pavement surface. The mounting device used for the sign shall not present a hazard to the motorist should the device be impacted by traffic or tipped over by strong winds. The Keep Right sign shall be backed with a corrugated plastic sign blank, not a metal sign blank. The Keep Right signs shall be a minimum of 18" wide by 24" high.

Tubular marker is a potential option for a device to hold the Keep Right sign. The Contractor shall submit to the Engineer, for approval, the device (method) to be used to display the Keep Right signs.

The Engineer may require the base of the device be secured to the roadway surface with a flexible non-permanent bituminous adhesive capable of being removed from the roadway surface after use, or with an adhesive approved by the Engineer.

**TUBULAR MARKER**

The Engineer shall inspect and approve tubular markers for use prior to the markers being installed on the project. Tubular markers shall be in reasonable close conformance with the following specifications.

Tubular markers shall be a minimum of 28 inches in height and yield on vehicular impact.

Markers may be of a non-tubular design if approved by the Engineer.

Should a Tubular Marker be damaged to the point that the Engineer determines a new Tubular Marker is required; the Contractor shall be compensated for the installation of the new Tubular Marker by the contract unit price per each for "Replace Tubular Marker".

The following are the quantities needed per phase: Phase 1 & 2 (65, a single set up) and phase 3 (65). The will be placed on center line where there is head to head traffic.

**PEDESTRIAN TRAFFIC CONTROL**

The Contractor shall maintain access on either 2<sup>nd</sup> Ave. or 3<sup>rd</sup> Ave. and either 4<sup>th</sup> Ave. or 5<sup>th</sup> Ave. open to vehicle and pedestrian cross traffic (east - west) at all times.

The temporary pedestrian detail shows a typical layout of the Temporary Pedestrian Access Route. The cost for the Temporary Pedestrian Access Route shall be incidental to the contract lump sum price for TEMPORARY PEDESTRIAN ACCESS ROUTE.

The Contractor shall adequately sign and barricade the sidewalk for pedestrian traffic. The Contractor must not leave un-barricaded holes open either overnight or over the weekend. Orange plastic safety fence shall be used to protect these holes whenever unattended. The orange plastic safety fence shall be incidental to the contract lump sum price for TRAFFIC CONTROL, MISCELLANEOUS.

The Contractor shall accommodate pedestrian traffic, including those with disabilities. Bicycle traffic shall also be accommodated. If differing from the plans, the Contractor shall submit a detailed plan to the Engineer on how pedestrian and bicycle traffic will be accommodated during the various phases of the work at the affected locations. This plan should be in conformance with the details contained in these plans for pedestrian accommodation. The plan must be submitted at least 1 week prior to the Preconstruction Meeting.

Some options for consideration to accommodate the pedestrian traffic include:

1. The use of various traffic control devices, as approved by the Engineer, to maintain the pedestrians through or past the immediate work area.
2. The detour of pedestrians and bicycles to the opposite side of the street, alternate routes(s) or around a City block.
3. Manned crossing assistance (crossing guards) combined with an accessible path.

The Contractor shall maintain the existing sidewalk that is used for the pedestrian detour. Maintenance of this detour will include the sweeping of the sidewalk to remove any debris or granular material that may be on the walking surface.

**TEMPORARY PEDESTRIAN ACCESS ROUTE**

A Temporary Pedestrian Access Route (TPAR) shall 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 shall be kept free of any obstructions and hazards, such as holes, debris, mud, snow, construction equipment, traffic control signing, stored materials, etc.

The Contractor shall 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 shall be covered or removed.

**TEMPORARY PEDESTRIAN SIDEWALK**

Temporary Pedestrian Sidewalk shall be a smooth, continuous, non-slip, hard surface. There should be no curbs or abrupt changes in grade or terrain that could cause tripping or be a barrier to wheelchair use.

Temporary Pedestrian Sidewalk shall have a minimum width of 48", with 60" recommended. The Contractor shall try to provide boulevard sidewalk whenever possible for Temporary Pedestrian Sidewalk that is 48" in width. Temporary Pedestrian Sidewalk less than 60" wide shall provide for a 60"x60" passing space at intervals not to exceed 200 ft. Temporary Pedestrian Sidewalk shall have a maximum cross slope of 2%. The maximum grade shall be 5% where the Temporary Pedestrian Sidewalk does not follow the grade of the road.

All costs associated with installing and maintaining a Temporary Pedestrian Access Route, including Temporary Pedestrian Sidewalk, shall be incidental to the contract lump sum price for TEMPORARY PEDESTRIAN ACCESS ROUTE.

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**TEMPORARY CURB RAMP**

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

Temporary Curb Ramps shall be the full width of the temporary pedestrian access route, with a recommended width of 60" and a minimum width of 48". Temporary Curb Ramps shall have a maximum slope of 1:12, and have free draining surfaces with a maximum cross slope of 2 percent. Handrails on Temporary Curb Ramps are not required unless the curb ramp has a rise exceeding 6" and a length exceeding 72".

All costs shall be incidental to the contract unit price per each for TEMPORARY CURB RAMP.

**LONGITUDINAL PEDESTRIAN BARRICADE**

Longitudinal Pedestrian Barricades should not be used to provide positive protection for pedestrians.

Barricade rail supports may not project into pedestrian routes more than 4 inches from the face of the barricade. To prevent any tripping hazard to pedestrians, ballast shall 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 shall be one inch. Joints between devices that do interlock shall 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 shall have continuous bottom and top surfaces. A gap height or opening from the walkway surface up to a maximum of 2 inches is allowed for drainage purposes. The top edge of the bottom portion shall be a minimum of 8 inches above the walkway. The top of the top portion shall be between 34 and 38 inches above the walkway. The top surface shall be smooth to allow safe hand trailing. Both upper and lower surfaces shall share a common vertical plane.

All costs shall be incidental to the contract unit price per foot for LONGITUDINAL PEDESTRIAN BARRICADE.

### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

PCN 039K		CONVENTIONAL ROAD				EXPRESSWAY / INTERSTATE			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R9-9	SIDEWALK CLOSED	8	24" x 12"	2.0	16.0				
R9-10	SIDEWALK CLOSED with ARROW (L or R) USE OTHER SIDE	4	24" x 12"	2.0	8.0				
R9-11	SIDEWALK CLOSED AHEAD with ARROW (L or R) CROSS HERE	6	24" x 18"	3.0	18.0				
R9-11a	SIDEWALK CLOSED with ARROW (L or R) CROSS HERE	6	24" x 12"	2.0	12.0				
R11-2	ROAD CLOSED	18	48" x 30"	10.0	180.0		48" x 30"	10.0	
R11-4	ROAD CLOSED TO THRU TRAFFIC	10	60" x 30"	12.5	125.0				
W8-1	BUMP	4	48" x 48"	16.0	64.0		48" x 48"	16.0	
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0		48" x 48"	16.0	
W20-1	ROAD WORK AHEAD	17	48" x 48"	16.0	272.0		48" x 48"	16.0	
W20-2	DETOUR AHEAD	3	48" x 48"	16.0	48.0	1	48" x 48"	16.0	16.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0		48" x 48"	16.0	
G20-1	ROAD WORK NEXT 1 MILES	2	36" x 18"	4.5	9.0		48" x 24"	8.0	
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0		48" x 24"	8.0	
SPECIAL	Sidewalk Closed Ahead	2	24" x 18"	3.0	6.0		24" x 18"	3.0	
SPECIAL	Pedestrian Detour with up arrow	4	30" x 24"	5.0	20.0		" x "		
<b>TRAFFIC CONTROL SIGNS TOTAL 899 SQFT</b>		<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 883.0</b>				<b>EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT 16.0</b>			

#### TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 6' Double Sided	10 Each
Type 3 Barricade, 8' Double Sided	70 Each

#### DETOUR SIGNING TABLE - PCN 039K

Quantity	Sign Code	Sign Description	Color	Width Inches	Height Inches	Sq. Ft.	Total Sq. Ft.
14	M1-5	SD Route Marker (1 or 2 digits)		24	24	4.00	56.00
5	M1-5	SD Route Marker (1 or 2 digits)		36	36	9.00	45.00
7	M3-1	Direction Marker - North		24	12	2.00	14.00
1	M3-1	Direction Marker - North		36	18	4.50	4.50
7	M3-3	Direction Marker - South		24	12	2.00	14.00
4	M3-3	Direction Marker - South		36	18	4.50	18.00
14	M4-8	Detour		24	12	2.00	28.00
5	M4-8	Detour		30	15	3.13	15.63
2	M4-8a	End Detour		24	18	3.00	6.00
7	M4-9b	Detour with Arrow (L or R)		30	24	5.00	35.00
1	M4-10	Detour Arrow (L or R)		48	18	6.00	6.00
7	M5-1	Advance Turn Arrow 90 degree (L or R)		21	15	2.19	15.31
7	M6-1	Direction Arrow - Horizontal Single Head (L or R)		21	15	2.19	15.31
1	M6-3	Direction Arrow - Vertical Single Head		21	15	2.19	2.19
4		Width Restriction 12 Ft. Maximum US 12 and SD 37 in Groton, Use Alt. Route	Black/Orange	120	84	70.00	280.00
1		SD 37 Closed South of US 12, Use Detour	Black/Orange	102	66	46.75	46.75

**TOTAL : 601.69**

### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

PCN 05AV		CONVENTIONAL ROAD				EXPRESSWAY / INTERSTATE							
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT				
R1-1	STOP	2	30"	5.2	10.4		36"	7.5					
R3-2	LEFT TURN PROHIBITION (symbol)	4	24" x 24"	4.0	16.0		36" x 36"	9.0					
R4-7	KEEP RIGHT (symbol)	10	18" x 24"	3.0	30.0		36" x 48"	12.0					
R11-2	ROAD CLOSED	1	48" x 30"	10.0	10.0		48" x 30"	10.0					
W1-4	REVERSE CURVE (L or R)	2	48" x 48"	16.0	32.0		48" x 48"	16.0					
W4-2	LEFT or RIGHT LANE ENDS (symbol)	1	48" x 48"	16.0	16.0	4	48" x 48"	16.0	64.0				
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0		48" x 48"	16.0					
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6		30" x 30"	6.3					
W20-1	ROAD WORK AHEAD	8	48" x 48"	16.0	128.0	4	48" x 48"	16.0	64.0				
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0	4	48" x 48"	16.0	64.0				
W20-7	FLAGGER (symbol)	3	48" x 48"	16.0	48.0		48" x 48"	16.0					
G20-1	ROAD WORK NEXT 1 MILES		36" x 18"	4.5		2	48" x 24"	8.0	16.0				
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0		48" x 24"	8.0					
<b>TRAFFIC CONTROL SIGNS TOTAL</b>		<b>568 SQFT</b>				<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT</b>		<b>360.0</b>		<b>EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT</b>		<b>208.0</b>	

#### TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 6' Double Sided	0 Each
Type 3 Barricade, 8' Double Sided	20 Each

#### ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	2 Each

#### DETOUR SIGNING TABLE - PCN 05AV

Quantity	Sign Description	Color	Width Inches	Height Inches	Sq. Ft.	Total Sq. Ft.
4	Width Restriction 12 Ft. Maximum US 12 and SD 37 in Groton, Use Alt. Route	Black/Orange	120	84	70.00	280.00
2	No Vehicles Over 12 Ft Wide	Black/White	72	24	12.00	24.00
					<b>TOTAL :</b>	<b>304.00</b>

# Tables of Quantities

Summary of Quantities			
(Quantities are in Section D or F Estimate of Quantities)			
Bid Item	Quantity	Unit	Section
<b>PCN 039K</b>			
Remove Asphalt Concrete Pavement	171	SqYd	B
Undercutting	81	CuYd	B
Pit Run	590.0	Ton	F
Placing Topsoil	85	CuYd	D
Base course	247.6	Ton	F
Asphalt Concrete Composite	1556.6	Ton	F
Special Permanent Seed Mixture 1	2	Lb	D
Mulching	0.1	Ton	D
High Flow Silt Fence	95	Ft	D
Reinforcement Fabric (MSE)	394	SqYd	B
<b>PCN 05AV</b>			
Base course (PCN 05AV)	348.6	Ton	F

Summary of Asphalt Concrete Composite					
Existing Surface	Length (Ft)	Asphalt Thickness (Inches)	Top Width (Ft)	Asphalt Concrete Composite (Ton)	Comments
Asphalt	103	2	25	31.79	Detour - 1st section
Gravel	658	4	25	406.17	Detour - 2nd section
Asphalt	1274	2	22	346.02	Detour - 3rd section
Gravel	1120	4	25	691.36	Detour - 4th section
		4		81.30	Detour - Radius from US 12 to Brown County 12E
		4		38.00	Strengthening SD 37 shoulders N of US 12
<b>Total</b>				<b>1556.65</b>	

\*Starts at US 12 and goes west to the railroad tracks

Quantities for the radius on detour		
(Radius from US 12 to Brown County 12E)		
Bid Item	Quantity	Unit
Undercutting	81	CuYd
Pit Run	590	Ton
Placing Topsoil	85	CuYd
Base course	247.6	Ton
Asphalt Concrete Composite	81.3	Ton
Reinforcement Fabric (MSE)	394	SqYd
Special Permanent Seed Mixture 1	2	Lb
High Flow Silt Fence	95	Ft
Mulching	0.1	Ton

Temporary Access Quantities (PCN 05AV)					
Sta	Rt/Lt	Width (Ft)	Base Course (Ton)	8' Type 3 Barricades	Phase
20+50	Rt	24	75.6	4	3
25+15	Lt	24	54.6	4	1
25+38	Rt	24	54.6	4	3
26+00	Lt	24	54.6	2	1
27+50	Lt	24	54.6	0	1
28+90	Lt	24	54.6	0	1
<b>Total</b>			<b>348.6</b>		

\* Reflectorized drums shall be used to delineate the temporary access. The barricades shall be placed in work area with minimal impact to sight distance. 8 barricades are included in quantities.

Blockouts on US 12				
sta	sta	Lt/Rt		
24+92	25+22	Lt	Phase 1	Both WBL
20+35	20+65	Rt	Phase 3	Both EBL
21+98	22+35	Lt	Phase 3	Center Turn Lane

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	P 0037(129)207 NH 0012(198)308	C8	C40
Plotting Date: 05/09/2016			

# PHASE LAYOUT

FOR REMOVAL

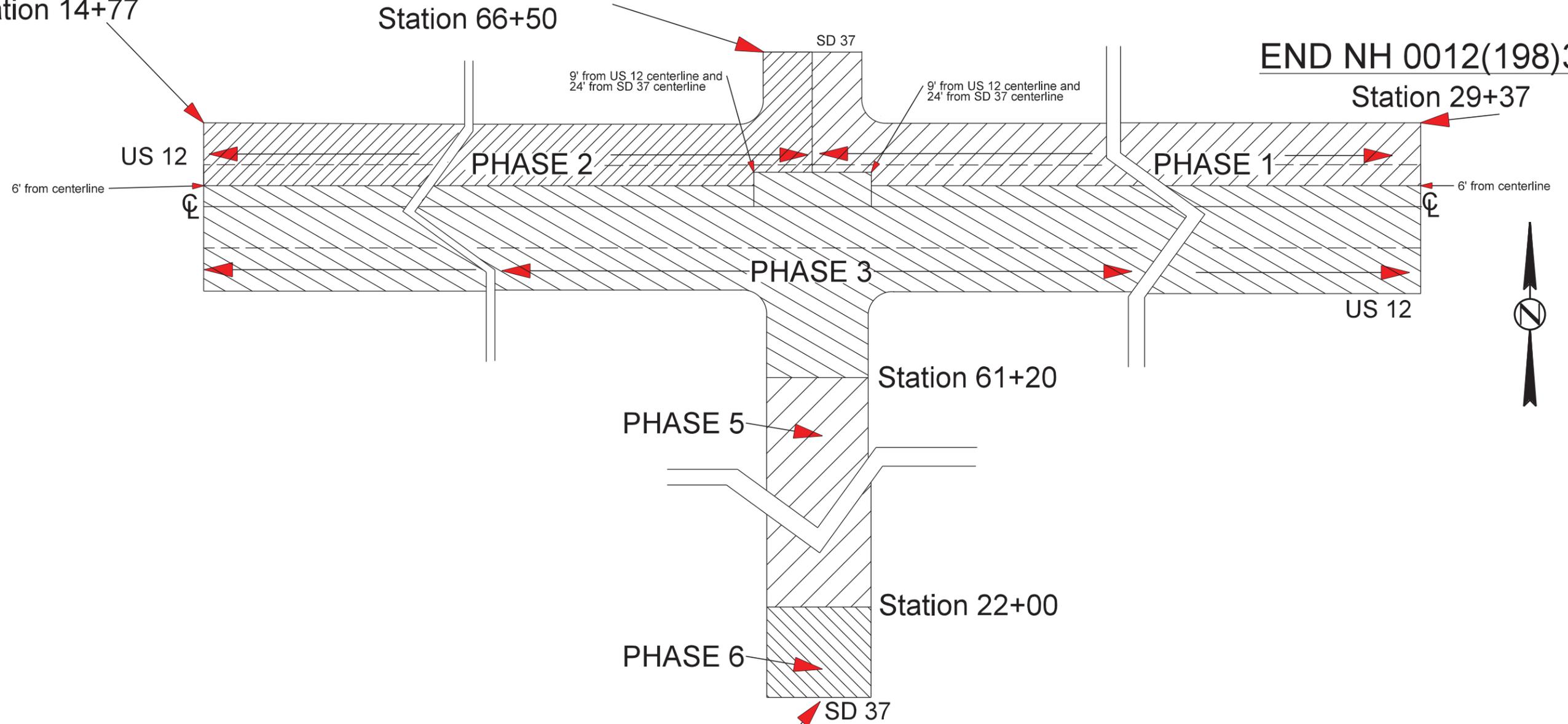
BEGIN NH 0012(198)308 END P 0037(129)207

END NH 0012(198)308

Station 14+77

Station 66+50

Station 29+37



BEGIN P 0037(129)207  
Station 11+35

Note: Actual station shall be determined in the field.

PLOT SCALE - 1:12.6

PLOTTED FROM - TRAB17886

PLOT NAME - 4

FILE - ... \BRWN 039K\PHASE LAYOUT.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C9	C40
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# PHASE LAYOUT

FOR SURFACING

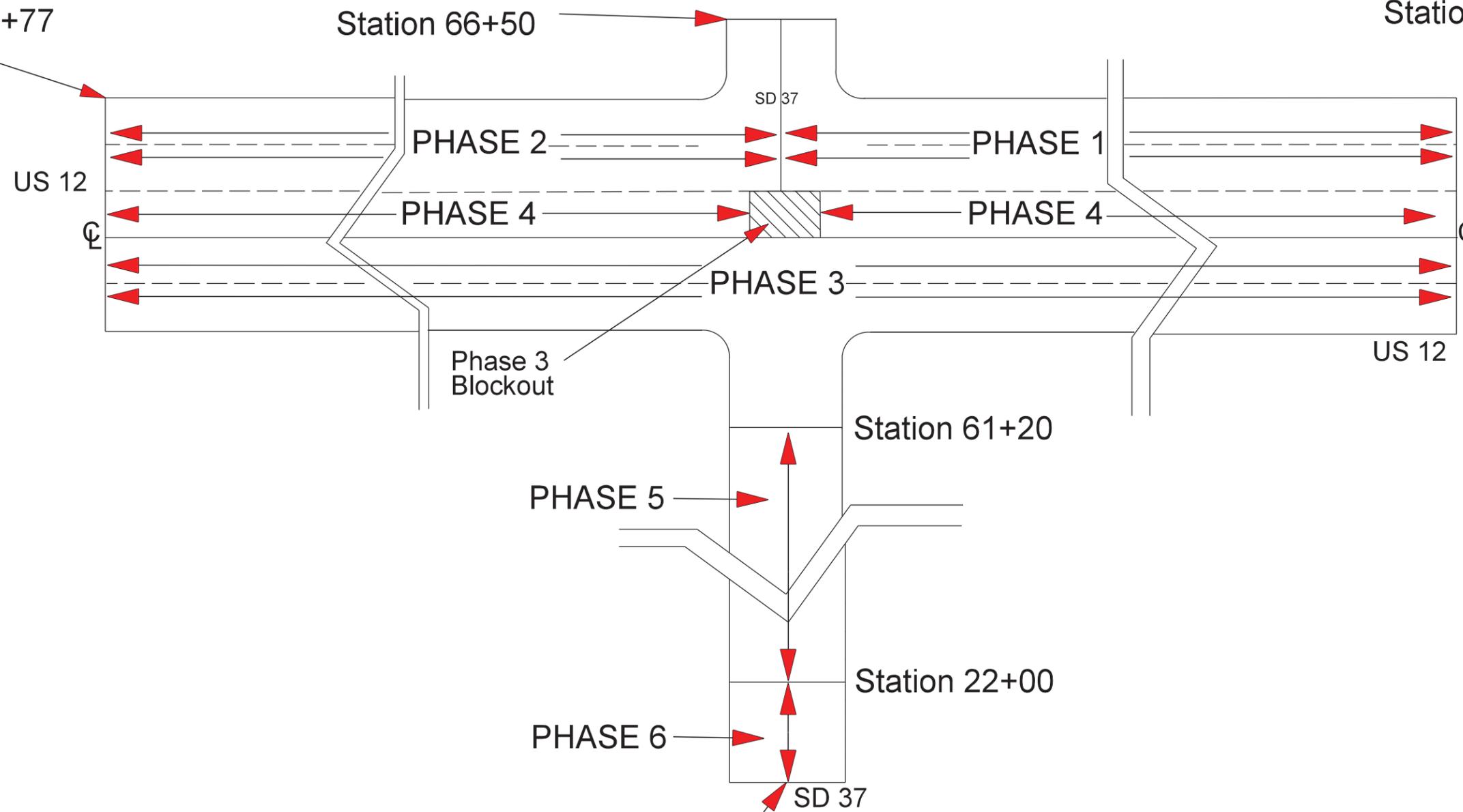
BEGIN NH 0012(198)308    END P 0037(129)207

END NH 0012(198)308

Station 14+77

Station 66+50

Station 29+37



Phase 3  
Blockout

Station 61+20

PHASE 5

Station 22+00

PHASE 6

SD 37

BEGIN P 0037(129)207

Station 11+35

Note: Actual station shall be determined in the field.

PLOT SCALE - 1:12.6

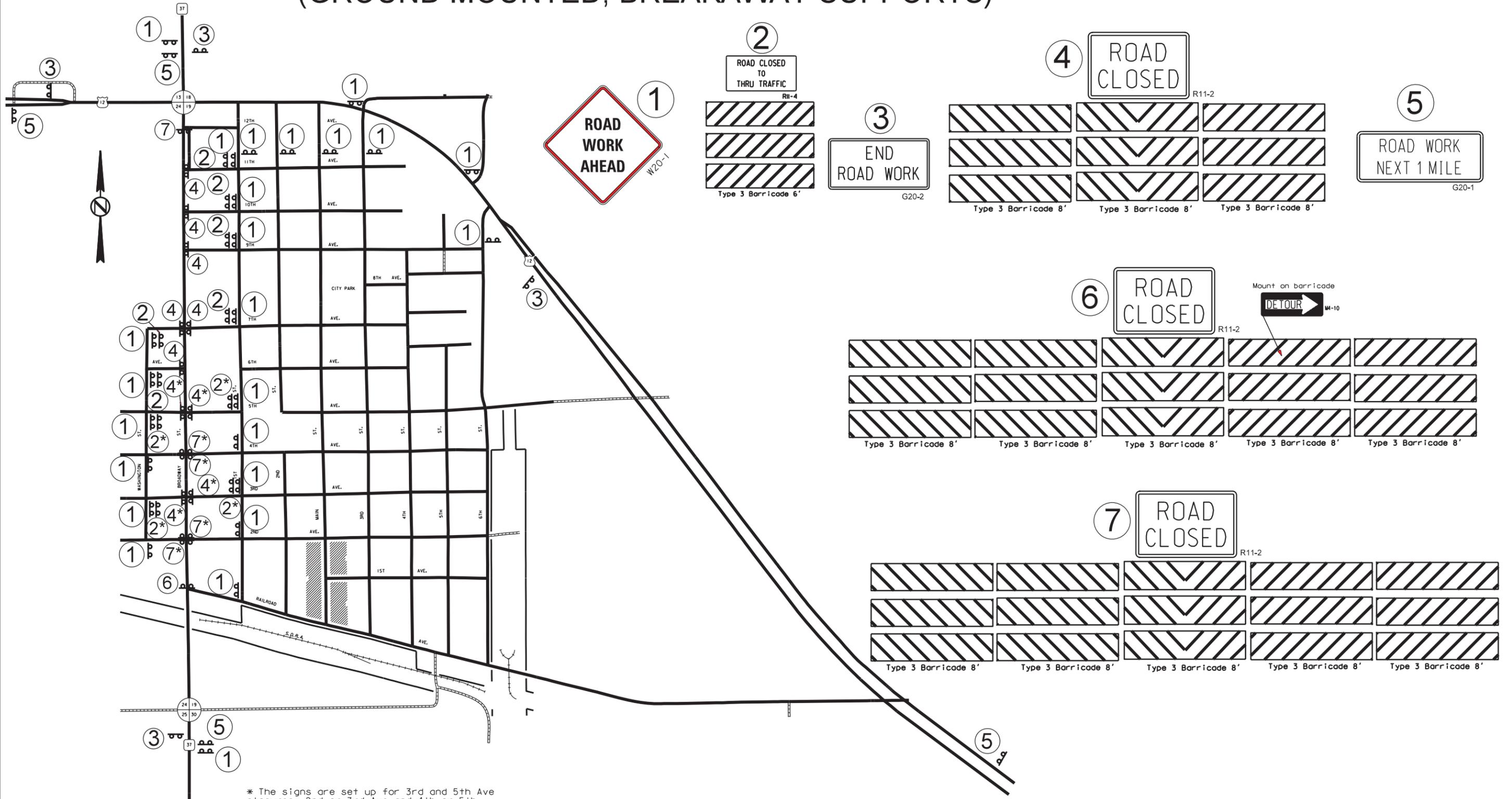
PLOTTED FROM - TRAB17886

PLOT NAME - 4

FILE - ... \BRWN 039K\PHASE LAYOUT.DGN

# FIXED LOCATION SIGNS

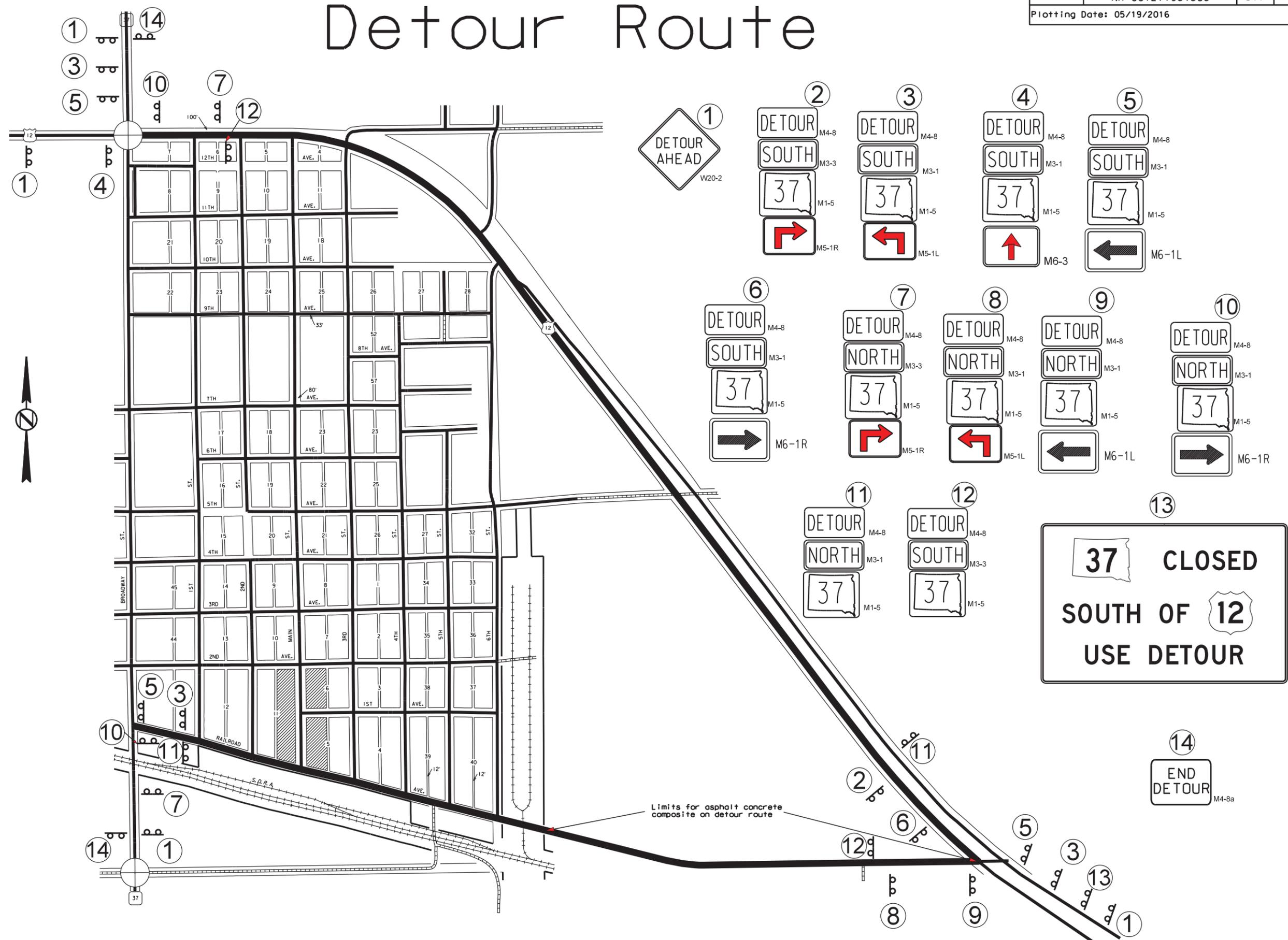
## (GROUND MOUNTED, BREAKAWAY SUPPORTS)



\* The signs are set up for 3rd and 5th Ave closures. 2nd or 3rd Ave and 4th or 5th Ave shall be open to traffic at all times.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C11	C40
Plotting Date: 05/19/2016			

# Detour Route



PLOT SCALE - 1:4680.4

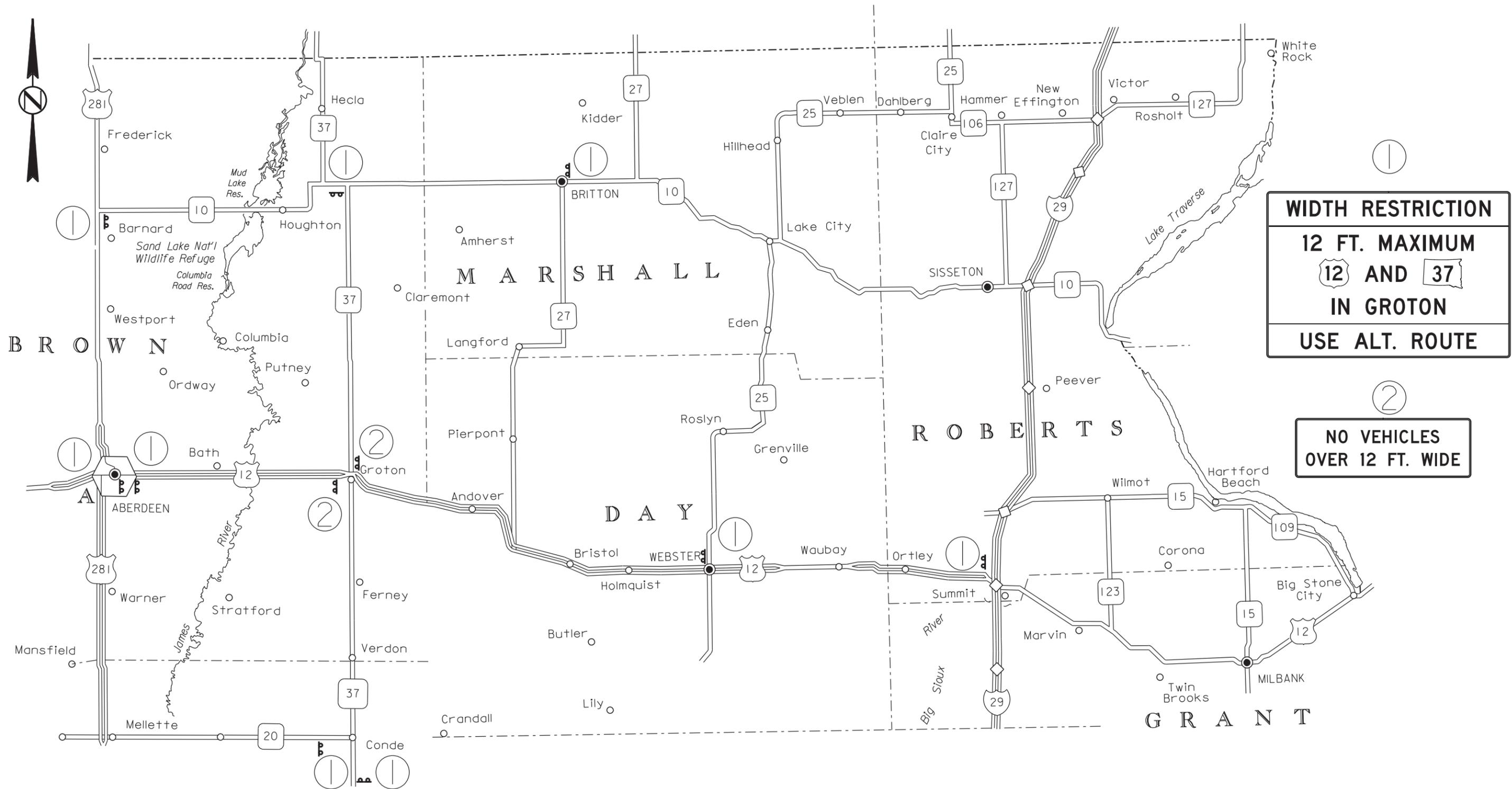
PLOTTED FROM - TRAB17886

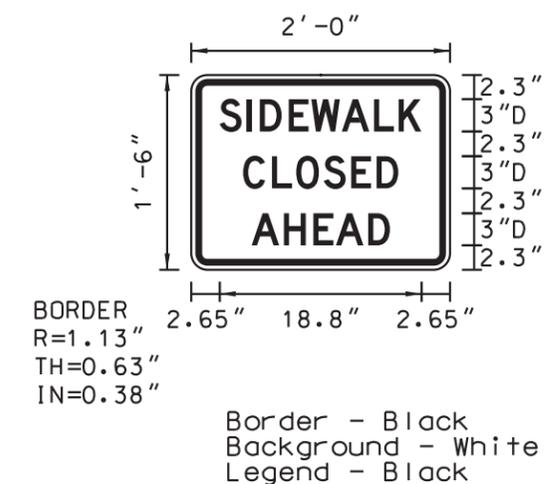
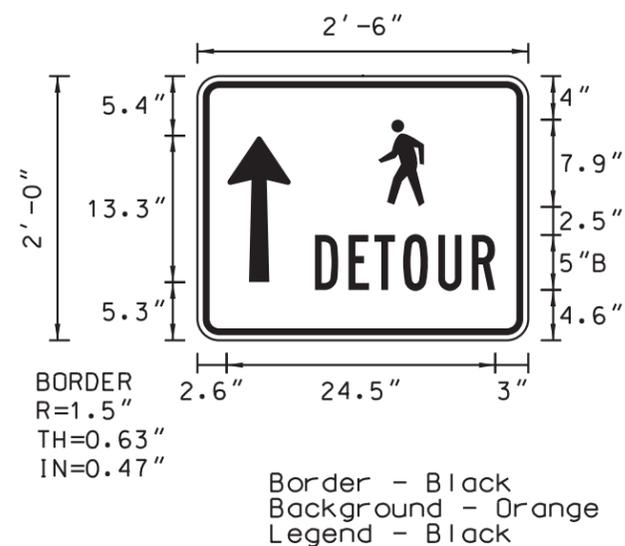
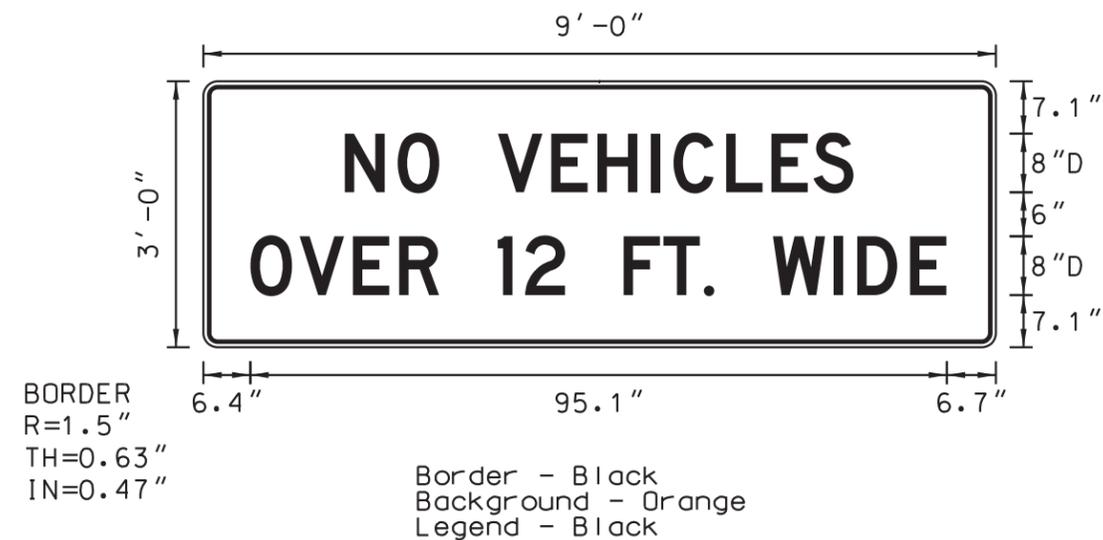
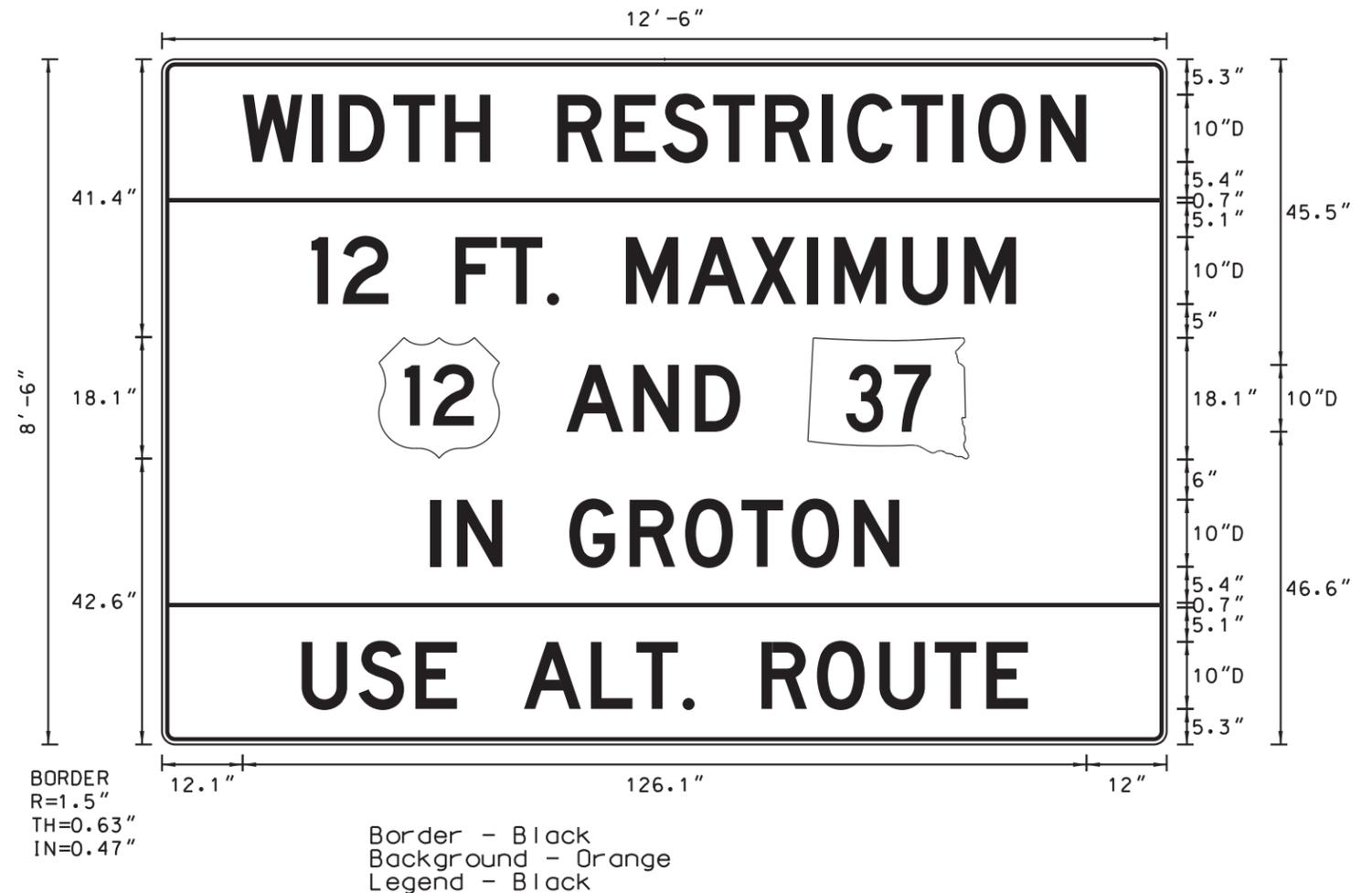
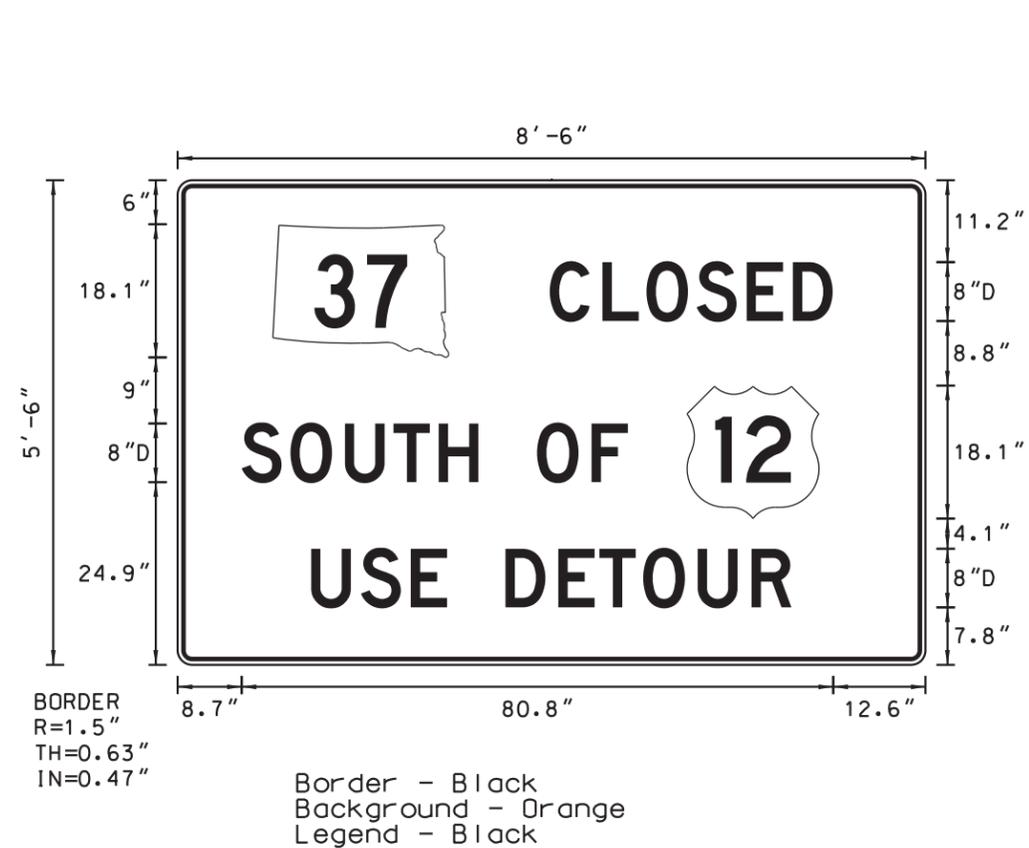
PLOT NAME - 1

FILE - ... \BRWN 039K\DETOUR ROUTE.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C12	C40

# WIDTH RESTRICTION SIGN LOCATION LAYOUT (FIXED LOCATION, GROUND MOUNTED, BREAKAWAY SUPPORTS)





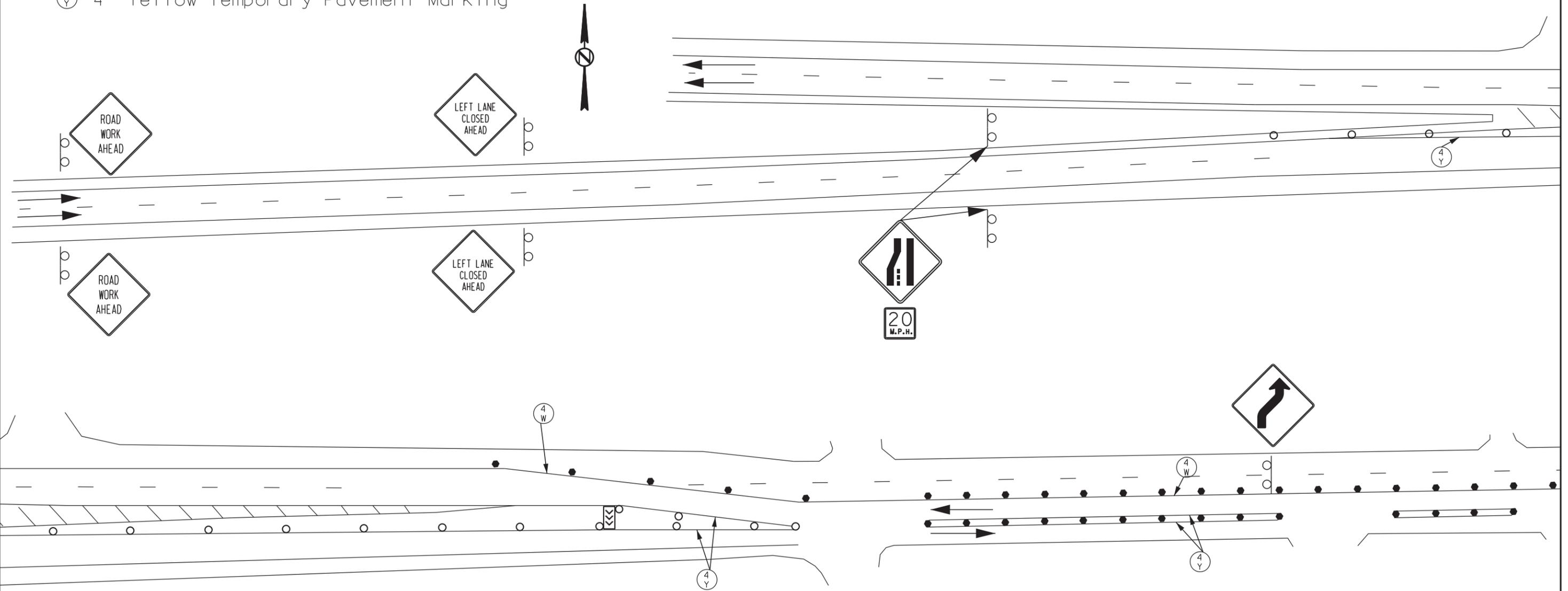
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C14	C40

# Traffic Control Detail

## Phase 1 & 2

### Traffic Control Devices

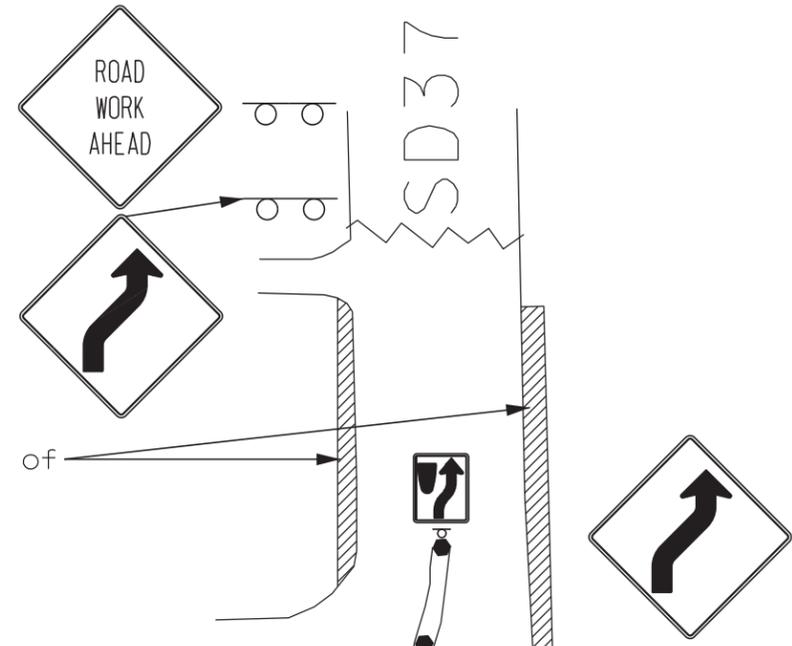
- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- ④ W 4" White Temporary Pavement Marking
- ④ Y 4" Yellow Temporary Pavement Marking



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C15	C40

# Traffic Control Detail

## Phase 1



### Traffic Control Devices

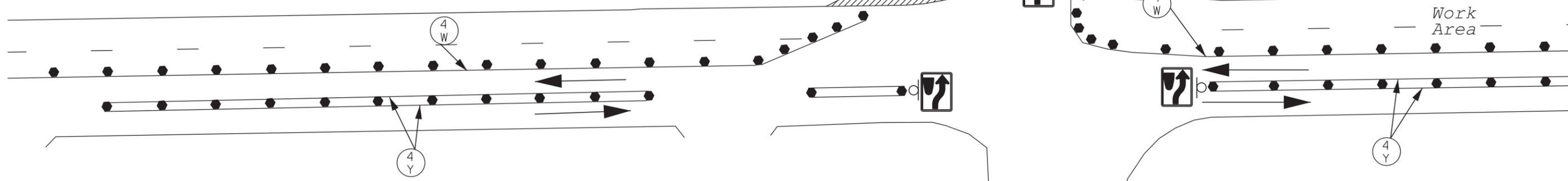
- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- ④ W 4" White Temporary Pavement Marking
- ④ Y 4" Yellow Temporary Pavement Marking



Radius to be widened prior to starting phase 1.

Work Area

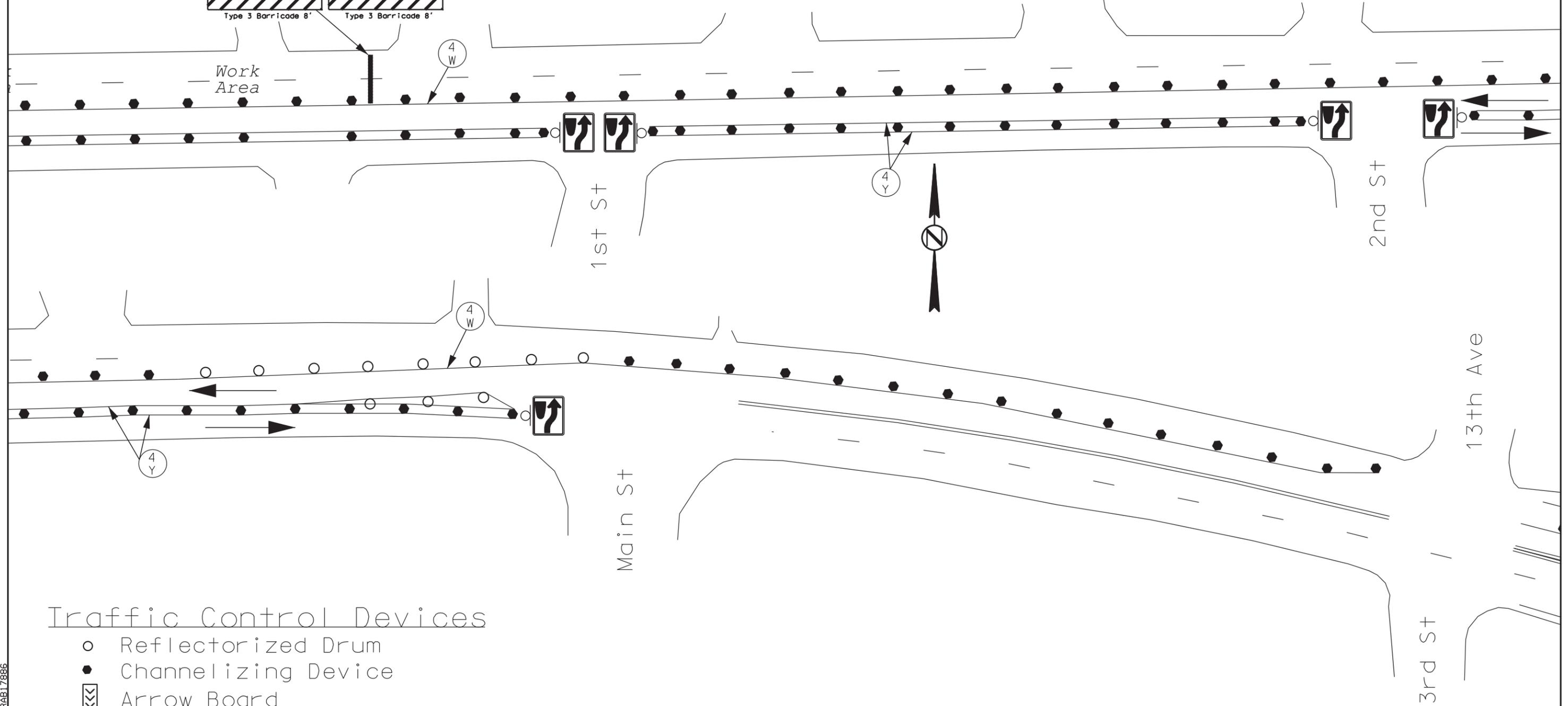
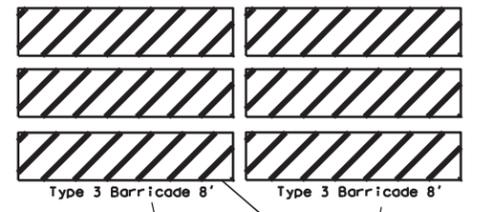
Work Area



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C16	C40

# Traffic Control Detail

## Phase 1 & 2



### Traffic Control Devices

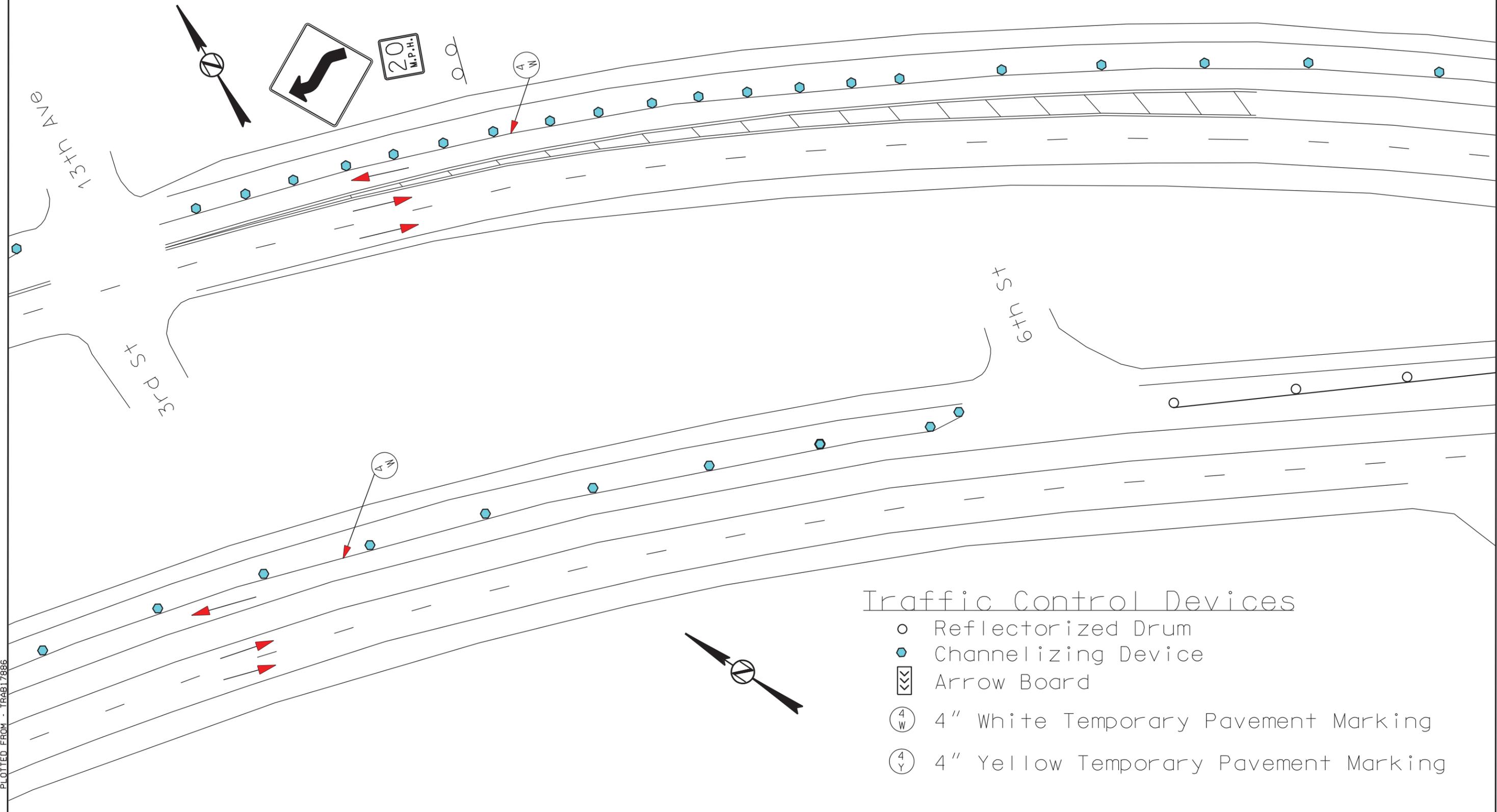
- Reflectorized Drum
- Channelizing Device
- ◀▶ Arrow Board
- Ⓞ 4" White Temporary Pavement Marking
- Ⓢ 4" Yellow Temporary Pavement Marking

PLOTTED FROM - TRAB17886

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C17	C40

# Traffic Control Detail

## Phase 1 & 2



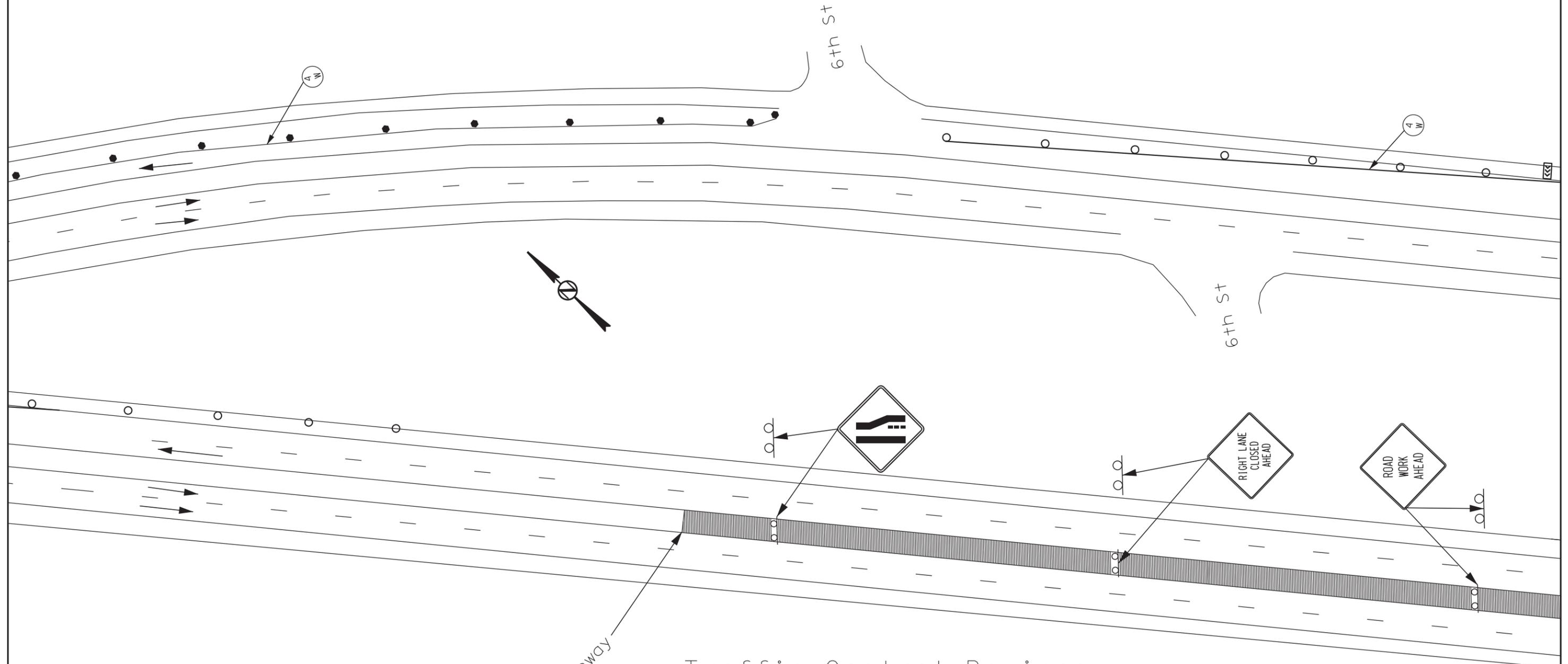
### Traffic Control Devices

- Reflectorized Drum
- Channelizing Device
- ▨ Arrow Board
- Ⓞ 4" White Temporary Pavement Marking
- Ⓢ 4" Yellow Temporary Pavement Marking

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C18	C40

# Traffic Control Detail

## Phase 1 & 2



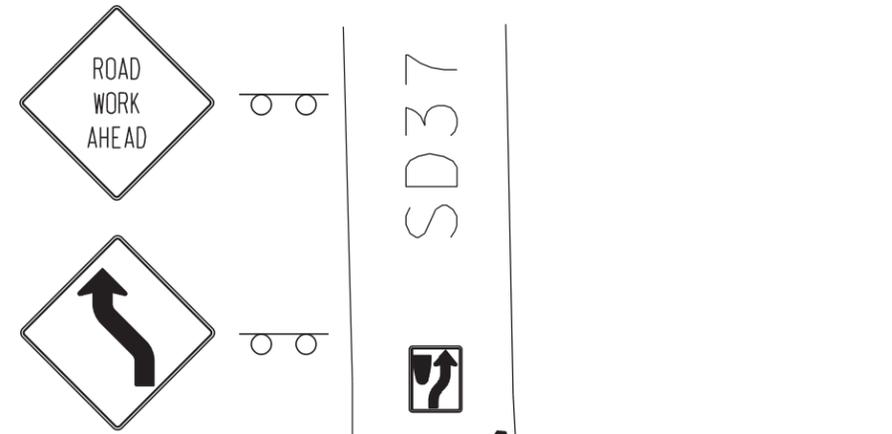
### Traffic Control Devices

- Reflectorized Drum
- Channelizing Device
- ◀▶ Arrow Board
- Ⓞ 4" White Temporary Pavement Marking
- Ⓢ 4" Yellow Temporary Pavement Marking

PLOTTED FROM - TRAB17886

# Traffic Control Detail Phase 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C19	C40

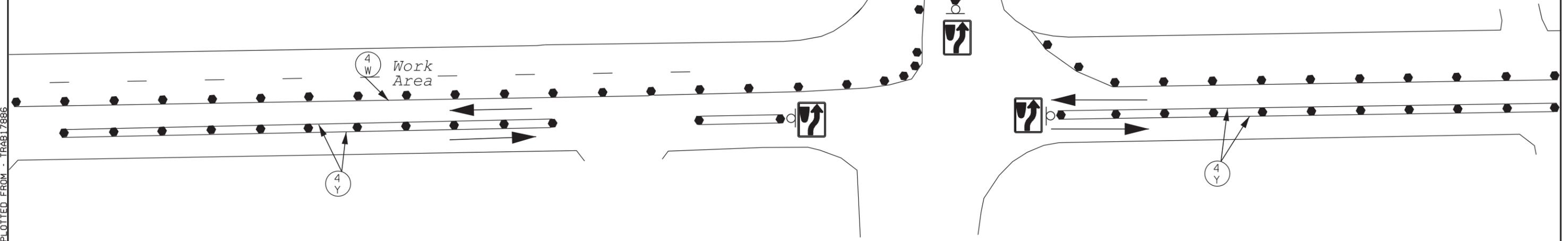


SD37



## Traffic Control Devices

- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- ④ W 4" White Temporary Pavement Marking
- ④ Y 4" Yellow Temporary Pavement Marking



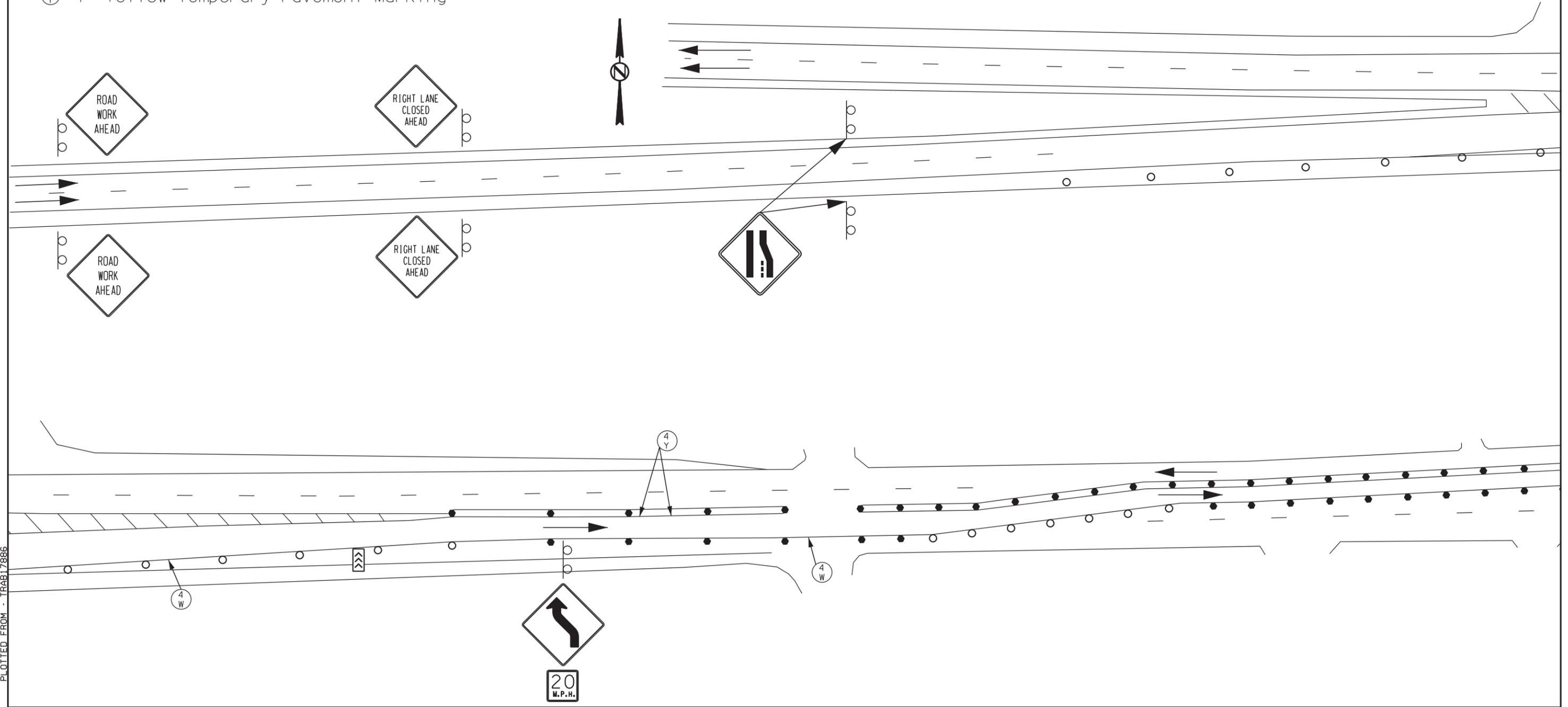
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C20	C40

# Traffic Control Detail

## Phase 3

### Traffic Control Devices

- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- ④<sub>W</sub> 4" White Temporary Pavement Marking
- ④<sub>Y</sub> 4" Yellow Temporary Pavement Marking



PLOTTED FROM - TRAB17886

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C21	C40

# Traffic Control Detail

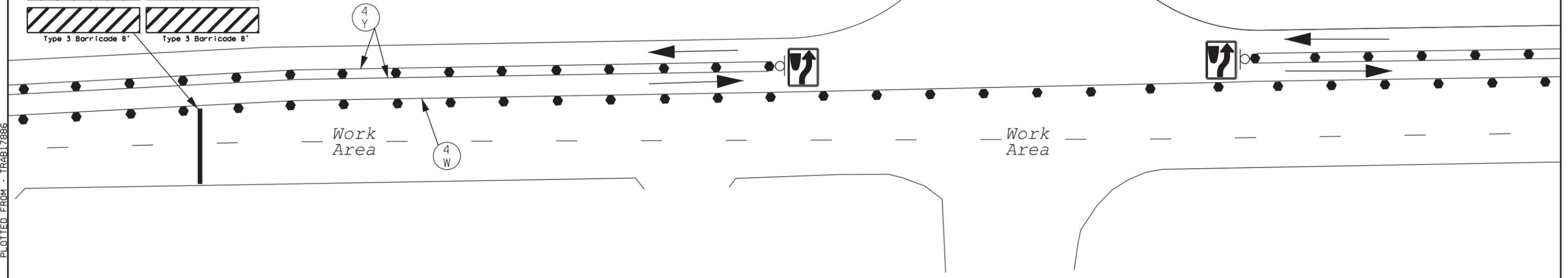
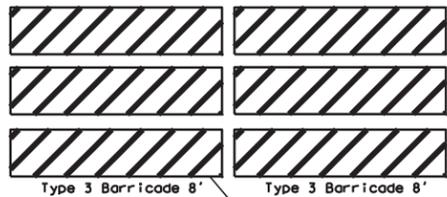
## Phase 3

SD37



### Traffic Control Devices

- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- Ⓞ<sub>4W</sub> 4" White Temporary Pavement Marking
- Ⓞ<sub>4Y</sub> 4" Yellow Temporary Pavement Marking

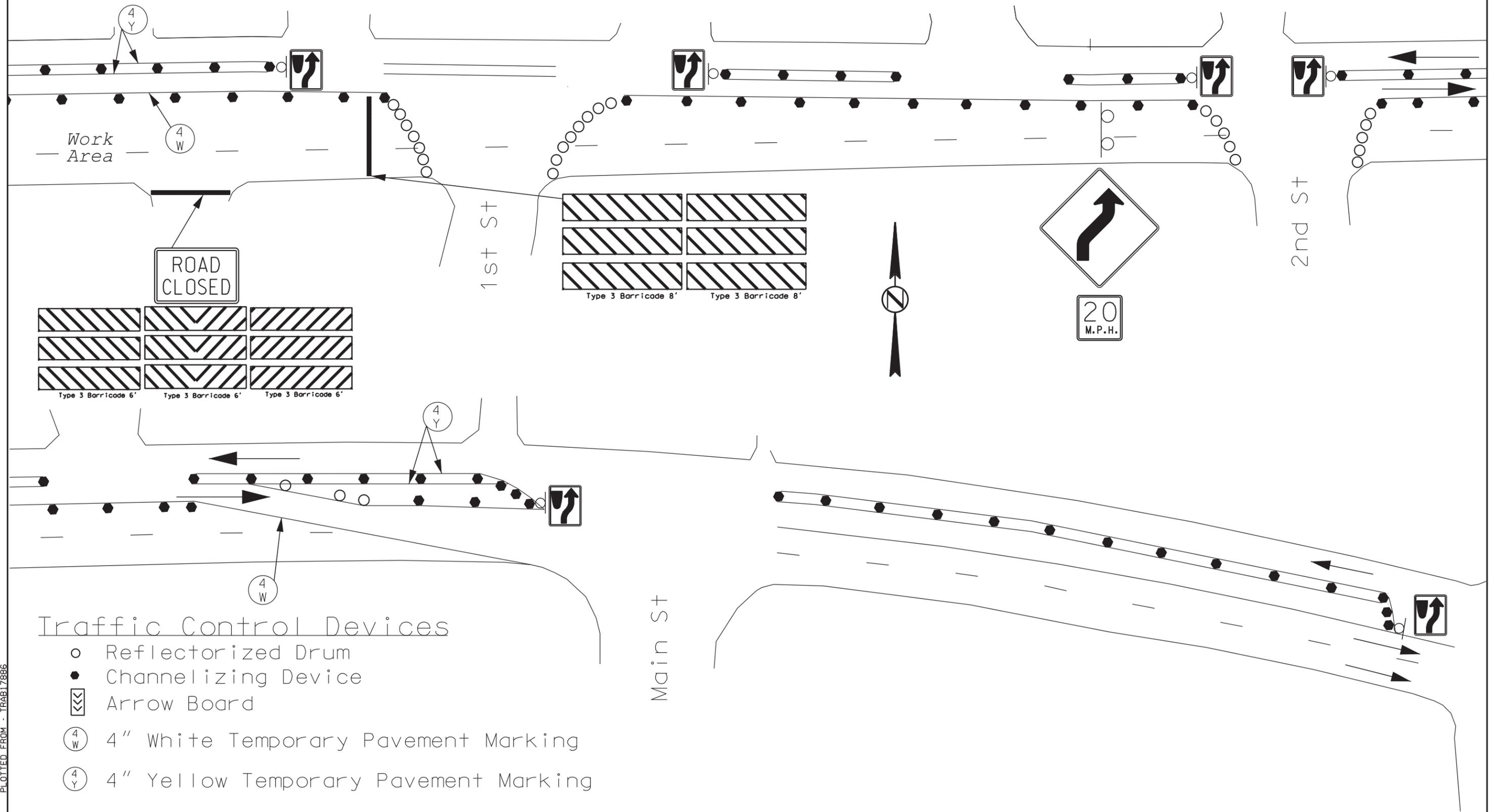


PLOTTED FROM - TRAB17886

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C22	C40

# Traffic Control Detail

## Phase 3



### Traffic Control Devices

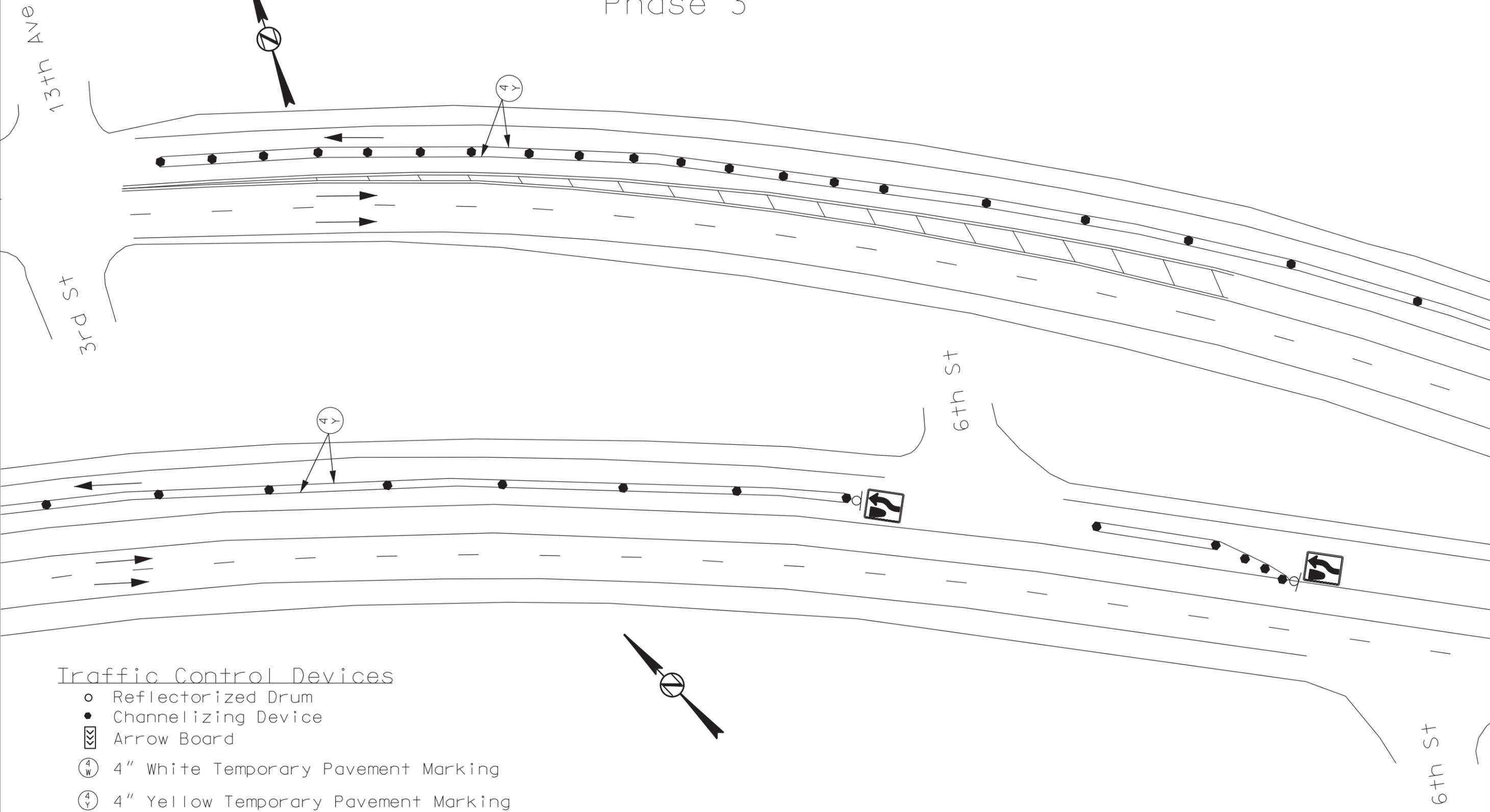
- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- ④ W 4" White Temporary Pavement Marking
- ④ Y 4" Yellow Temporary Pavement Marking

PLOTTED FROM - TRAB17886

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C23	C40

# Traffic Control Detail

## Phase 3



### Traffic Control Devices

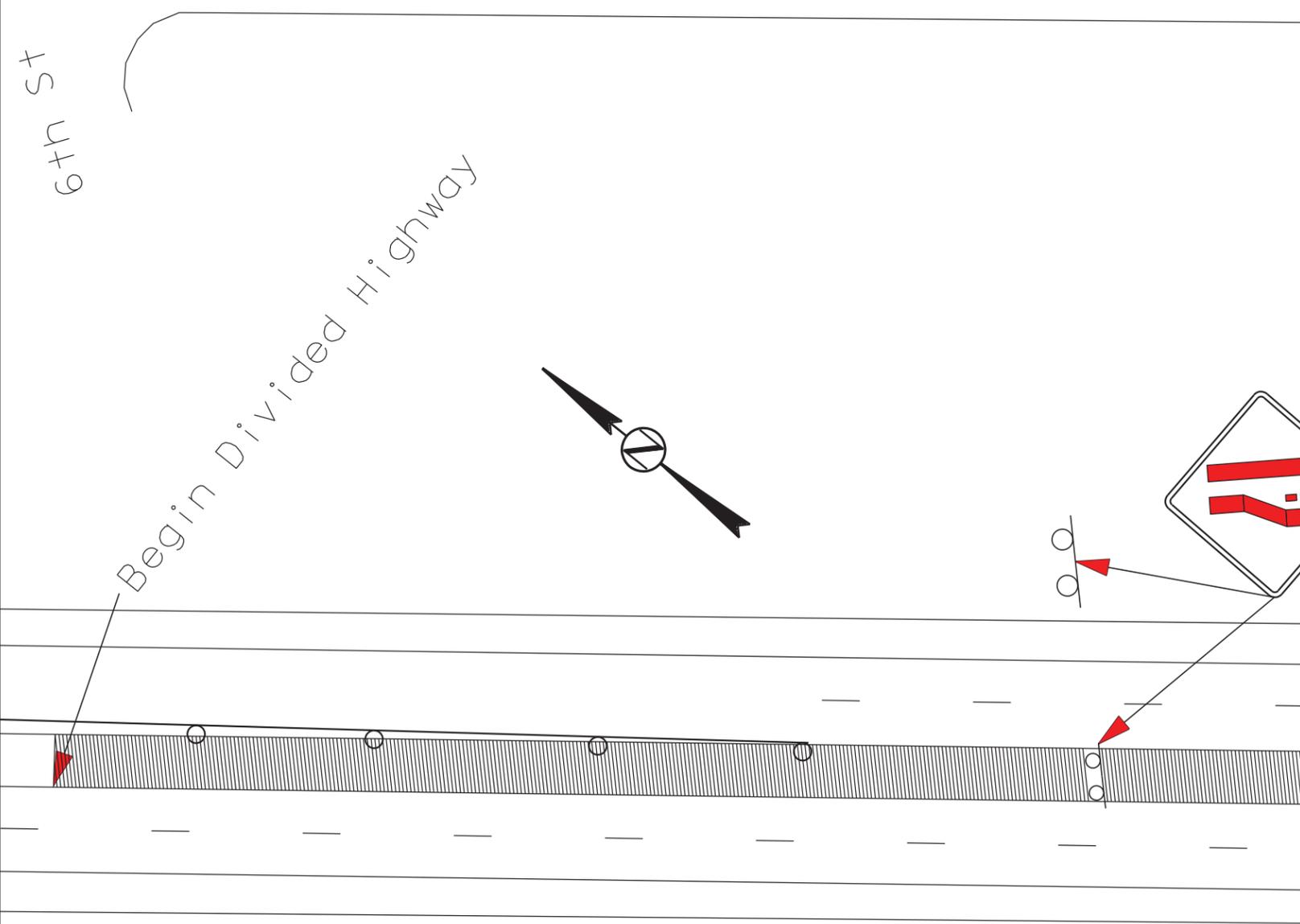
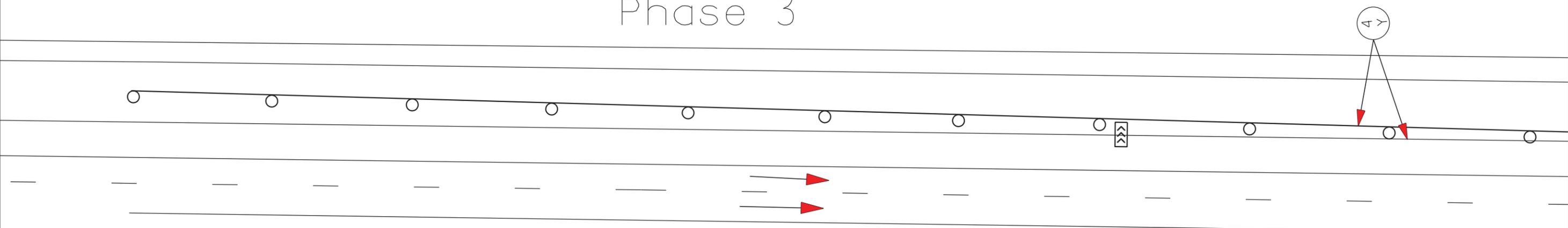
- Reflectorized Drum
- Channelizing Device
- ◀▶ Arrow Board
- ④ 4" White Temporary Pavement Marking
- ④ 4" Yellow Temporary Pavement Marking

PLOTTED FROM - TRAB17886

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C24	C40

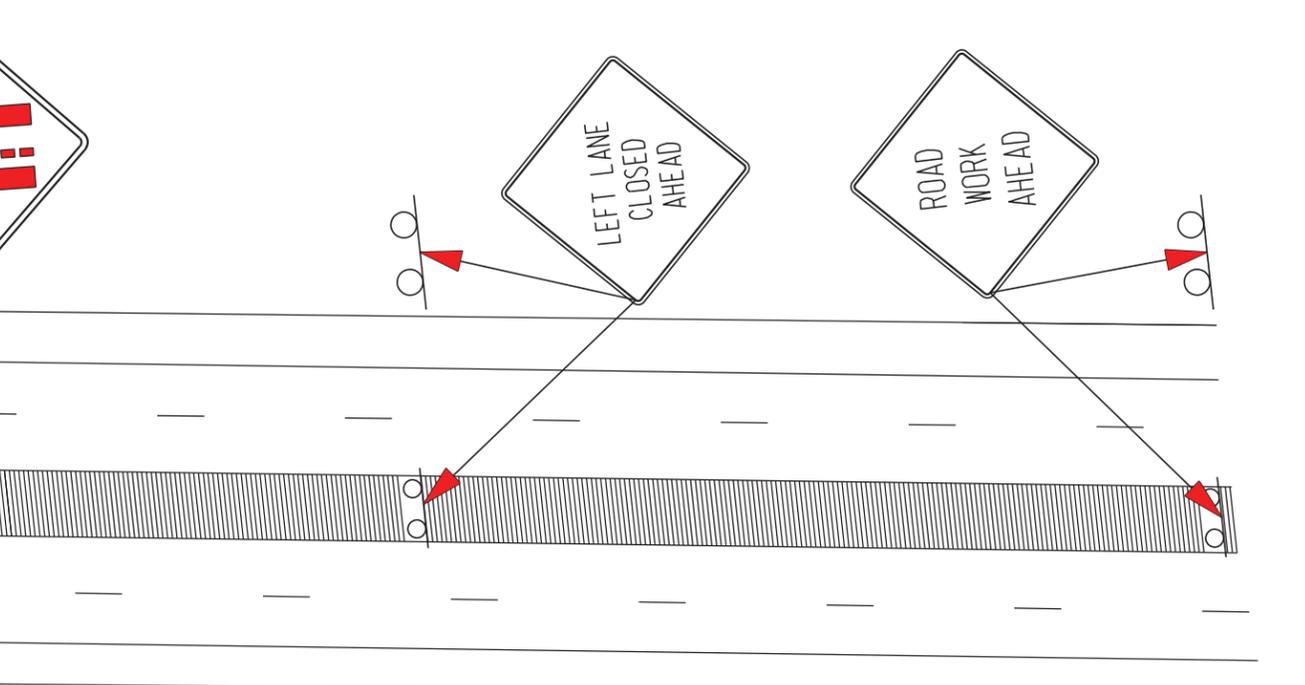
# Traffic Control Detail

## Phase 3



### Traffic Control Devices

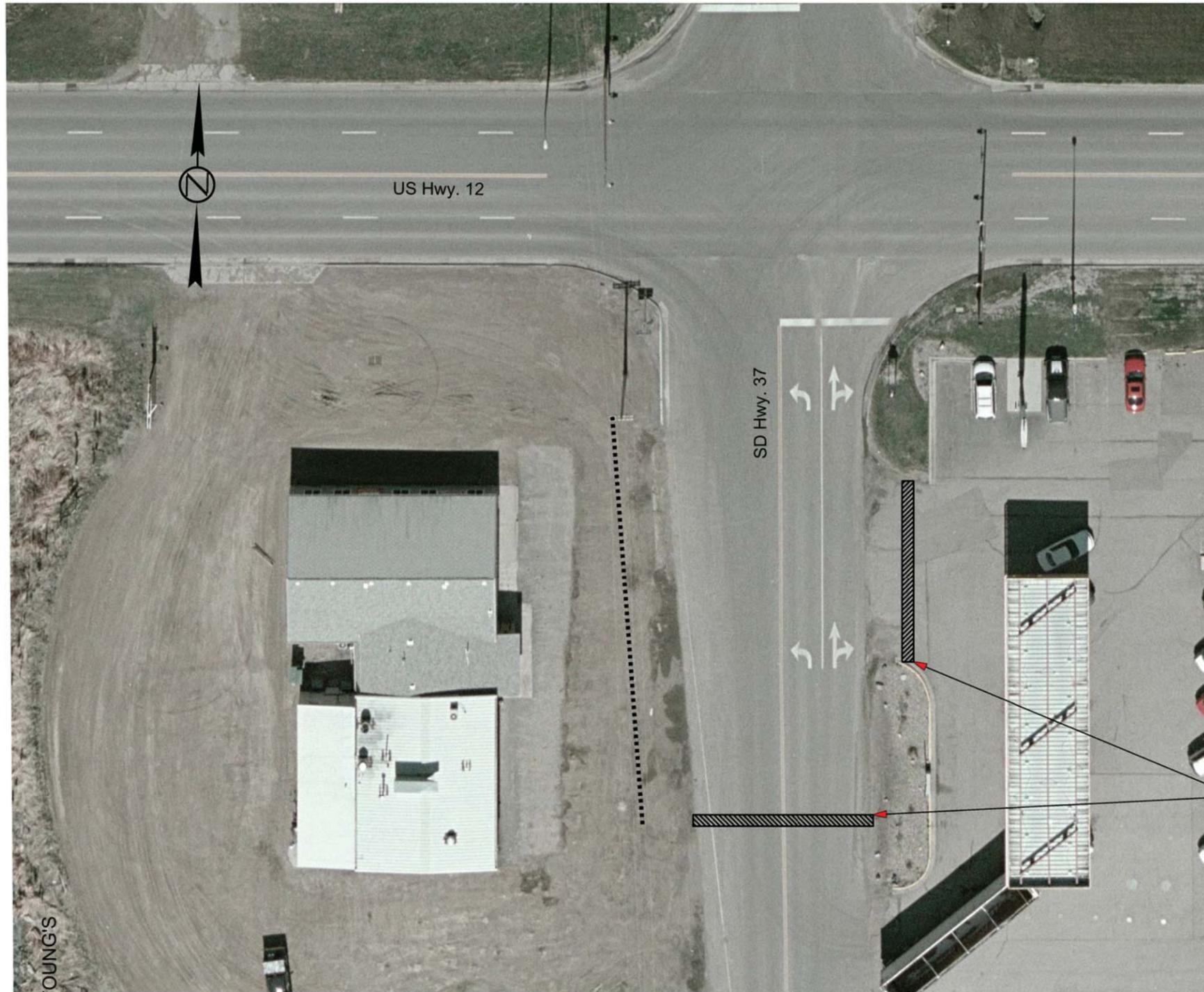
- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- Ⓞ<sup>4</sup><sub>W</sub> 4" White Temporary Pavement Marking
- Ⓞ<sup>4</sup><sub>Y</sub> 4" Yellow Temporary Pavement Marking



PLOTTED FROM - TRAB17886

# Traffic Control Detail

## Phase 3

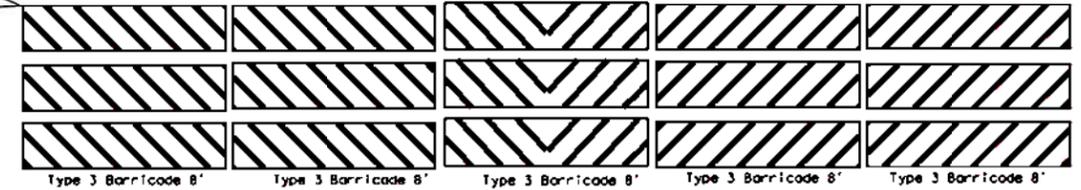


..... Orange Plastic Safety Fence

It is estimated that 125' of orange plastic safety fence be installed just outside of work limits. All costs associated with installation and removal shall be incidental to the contract lump sum price for TRAFFIC CONTROL, MISCELLANEOUS.

ROAD  
CLOSED

R11-2



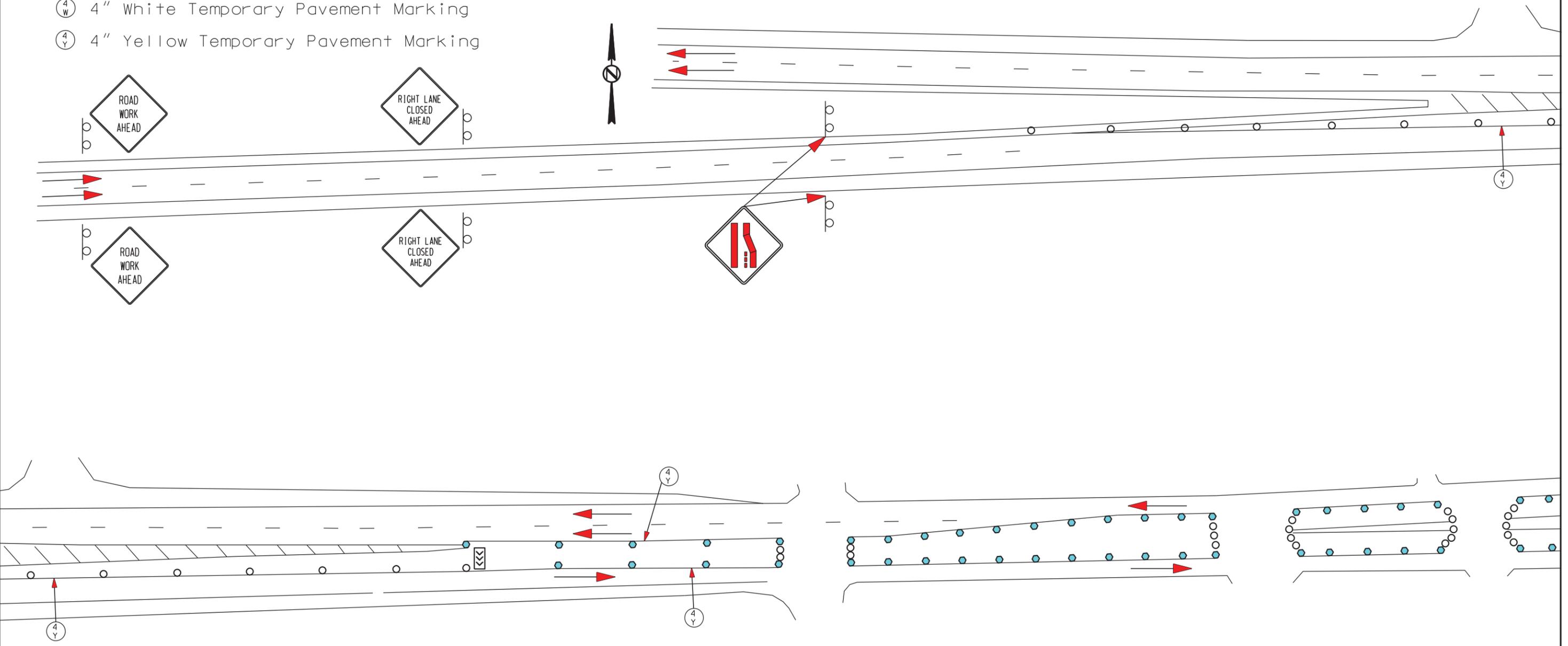
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C26	C40

# Traffic Control Detail

## Phase 4

### Traffic Control Devices

- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- ④ 4" White Temporary Pavement Marking
- ④ 4" Yellow Temporary Pavement Marking

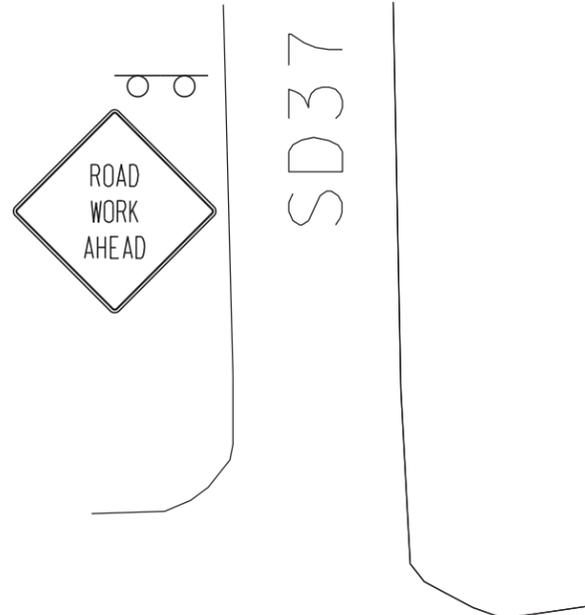


PLOTTED FROM - TRAB17886

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C27	C40

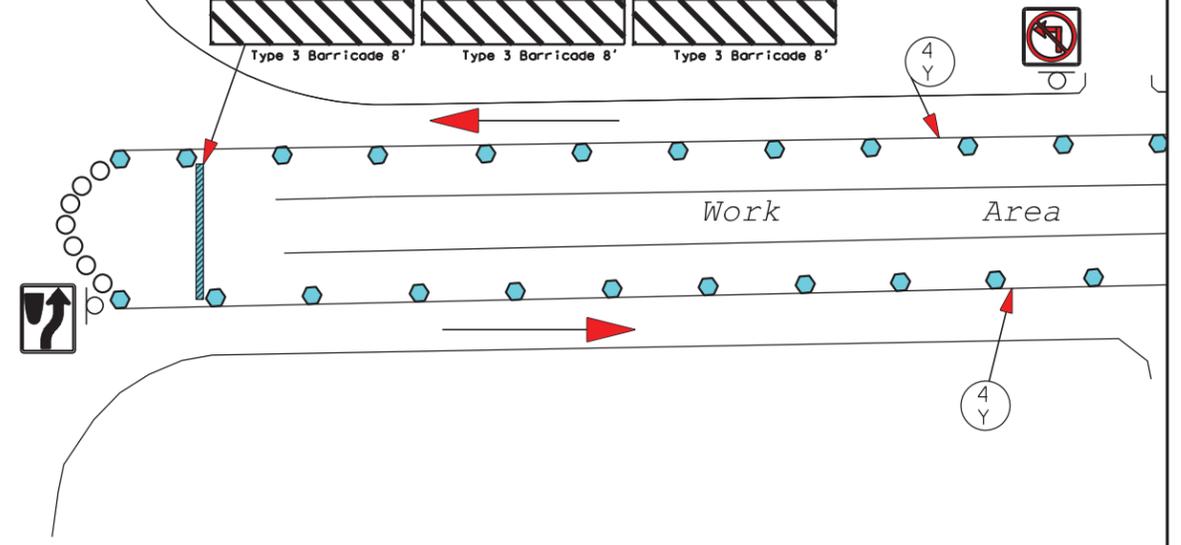
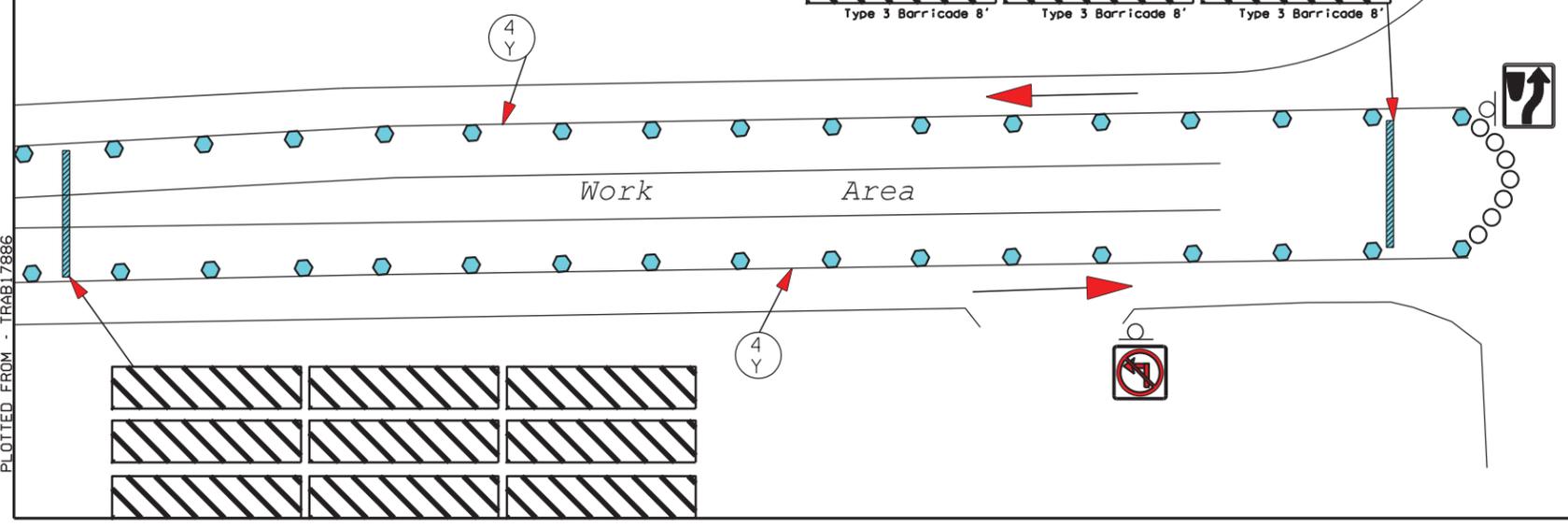
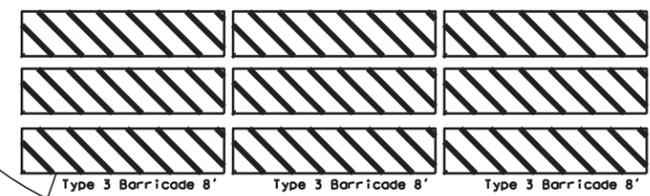
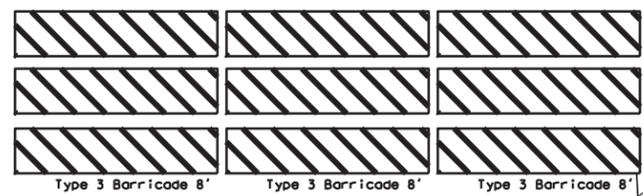
# Traffic Control Detail

## Phase 4



### Traffic Control Devices

- Reflectorized Drum
- Channelizing Device
- ▤ Arrow Board
- Ⓞ<sub>W</sub> 4" White Temporary Pavement Marking
- Ⓞ<sub>Y</sub> 4" Yellow Temporary Pavement Marking

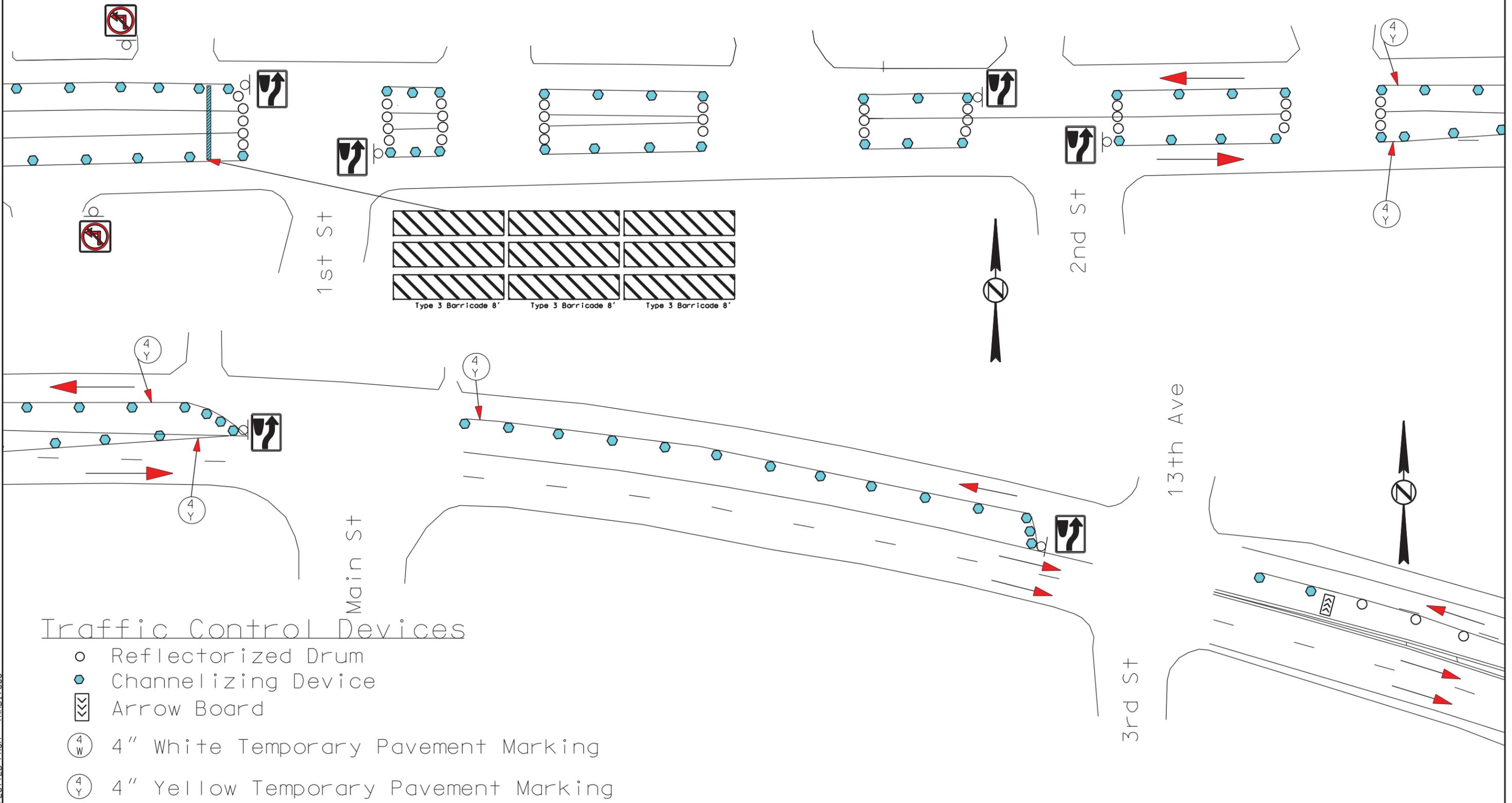


PLOTTED FROM - TRAB17886

# Traffic Control Detail

## Phase 4

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C28	C40

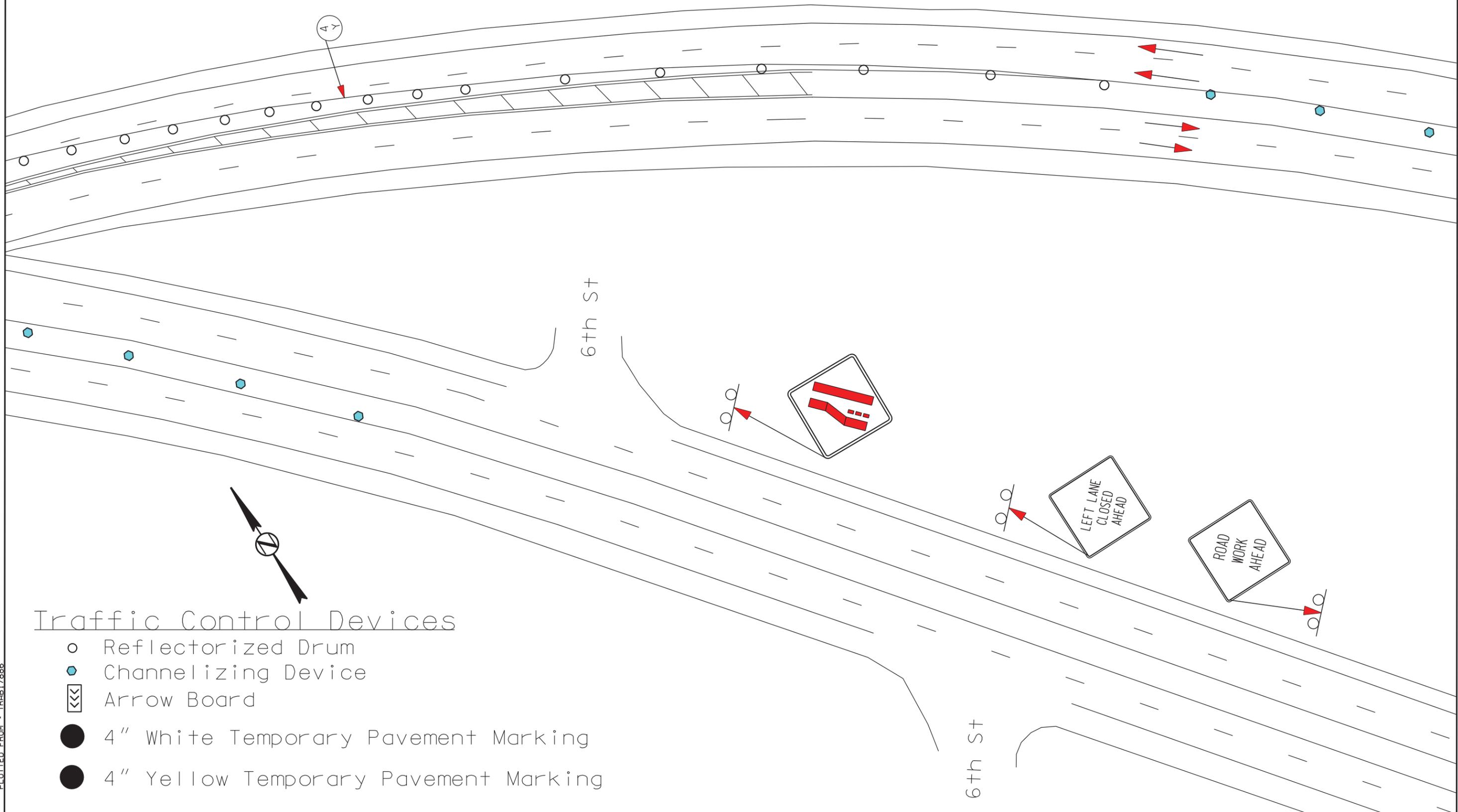


PLOTTED FROM - TRAB17886

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C29	C40

# Traffic Control Detail

## Phase 4

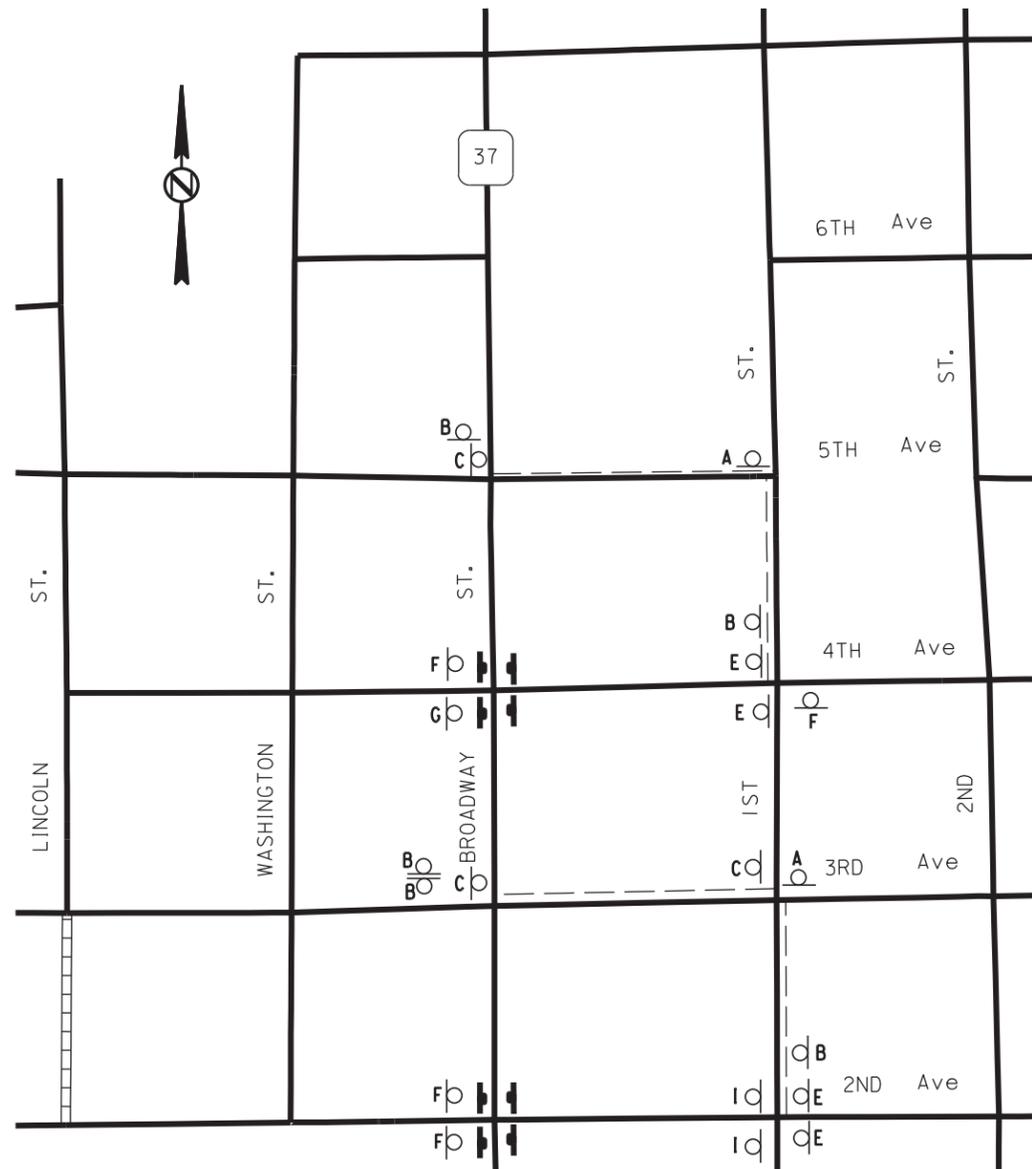


### Traffic Control Devices

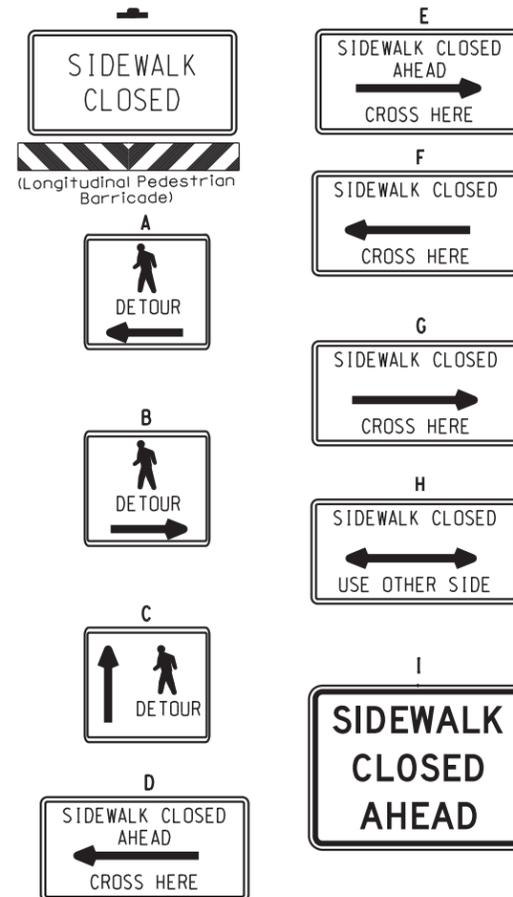
- Reflectorized Drum
- ◆ Channelizing Device
- ◀◀◀ Arrow Board
- 4" White Temporary Pavement Marking
- 4" Yellow Temporary Pavement Marking

# Pedestrian Detour Route for Phase 5

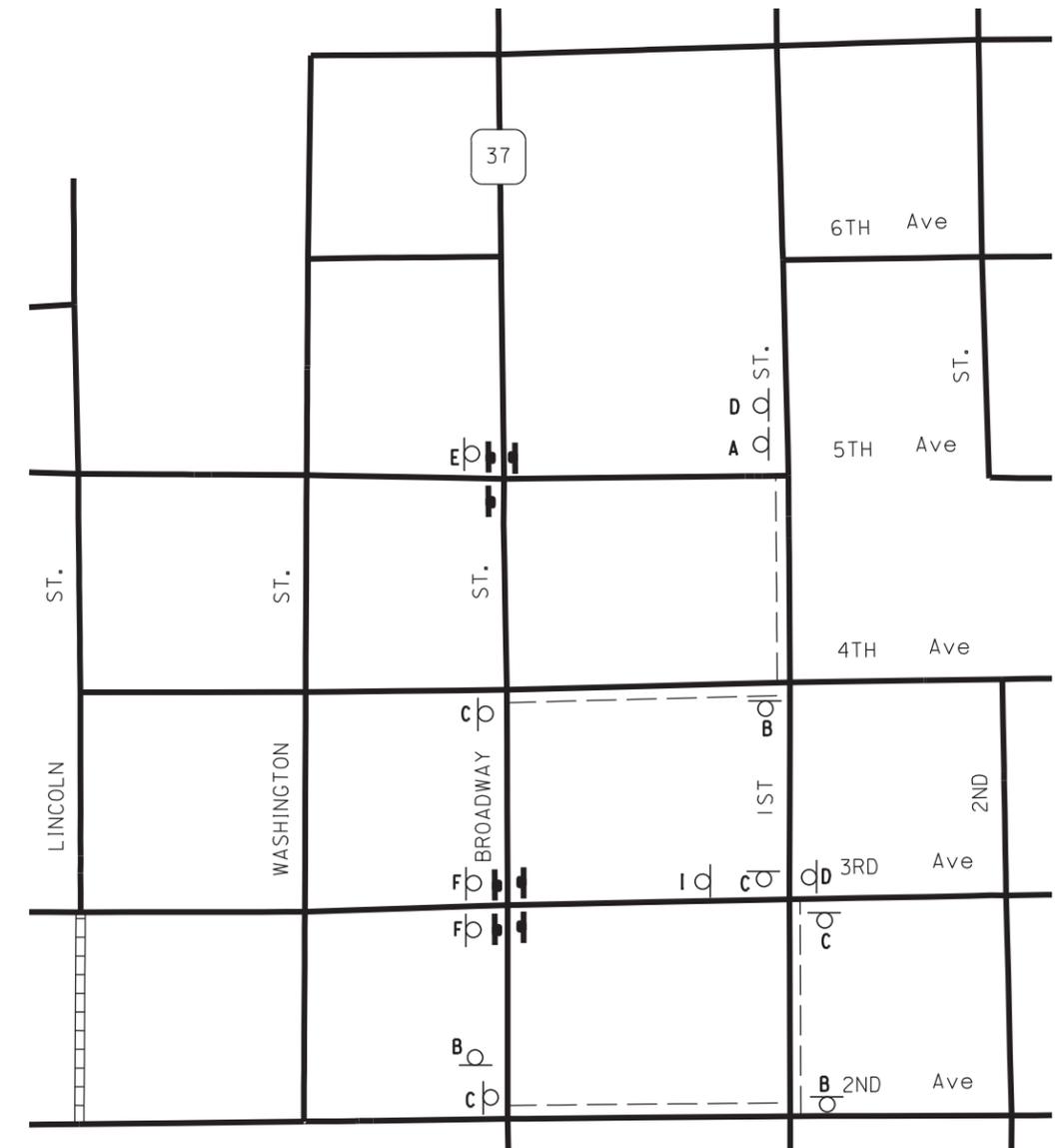
## 2nd & 4th Ave closed



----- Detour Route



## 3rd & 5th Ave closed



**NOTES:**

This detail is to show the general concept of signing for pedestrian traffic control and a pedestrian detour.

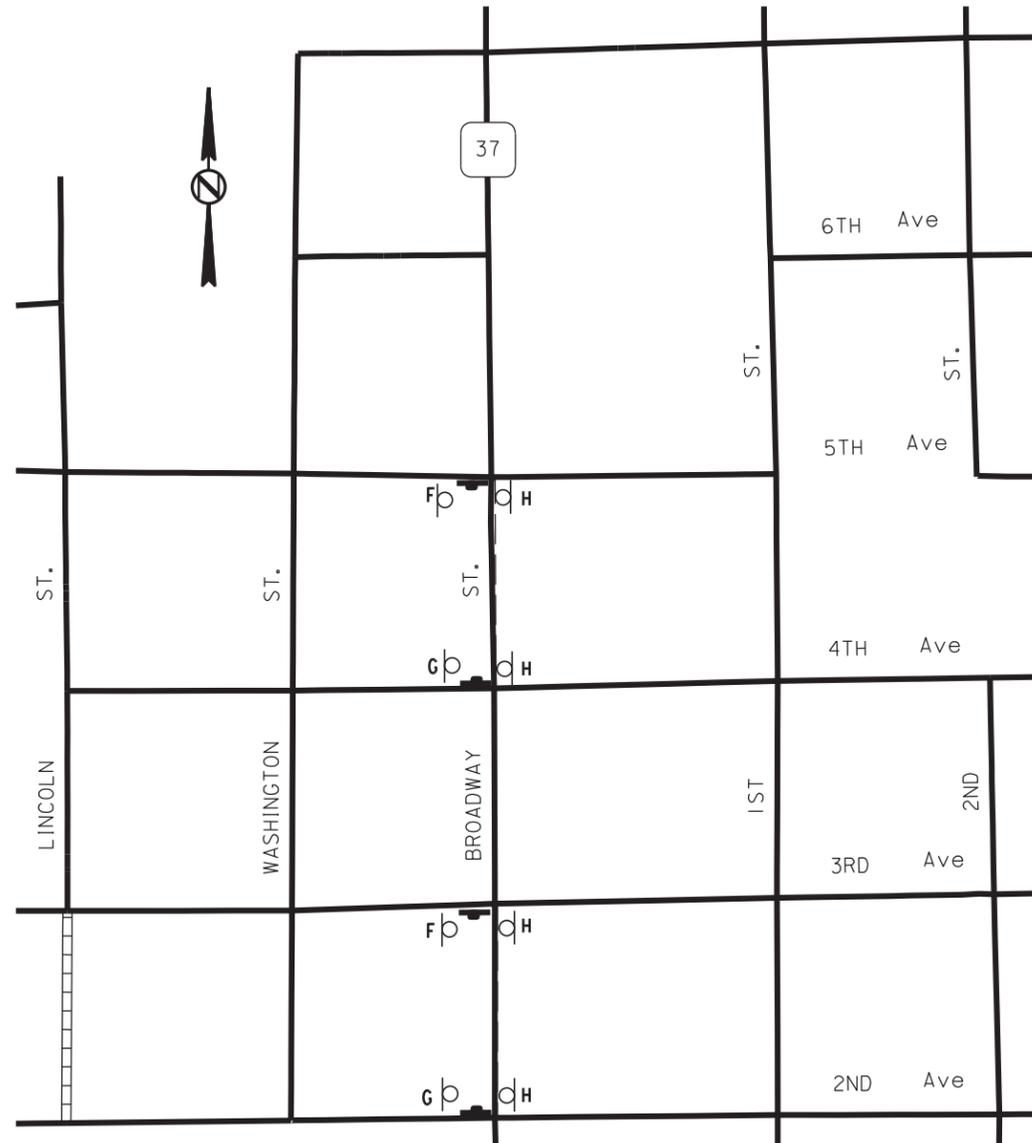
The frequency of intersecting streets that are kept open to pedestrian traffic shall match that of the streets that are kept open for vehicular traffic.

The Contractor shall construct temporary curb ramps along the Pedestrian Detour Path at intersection where a curb cut does not presently exist.

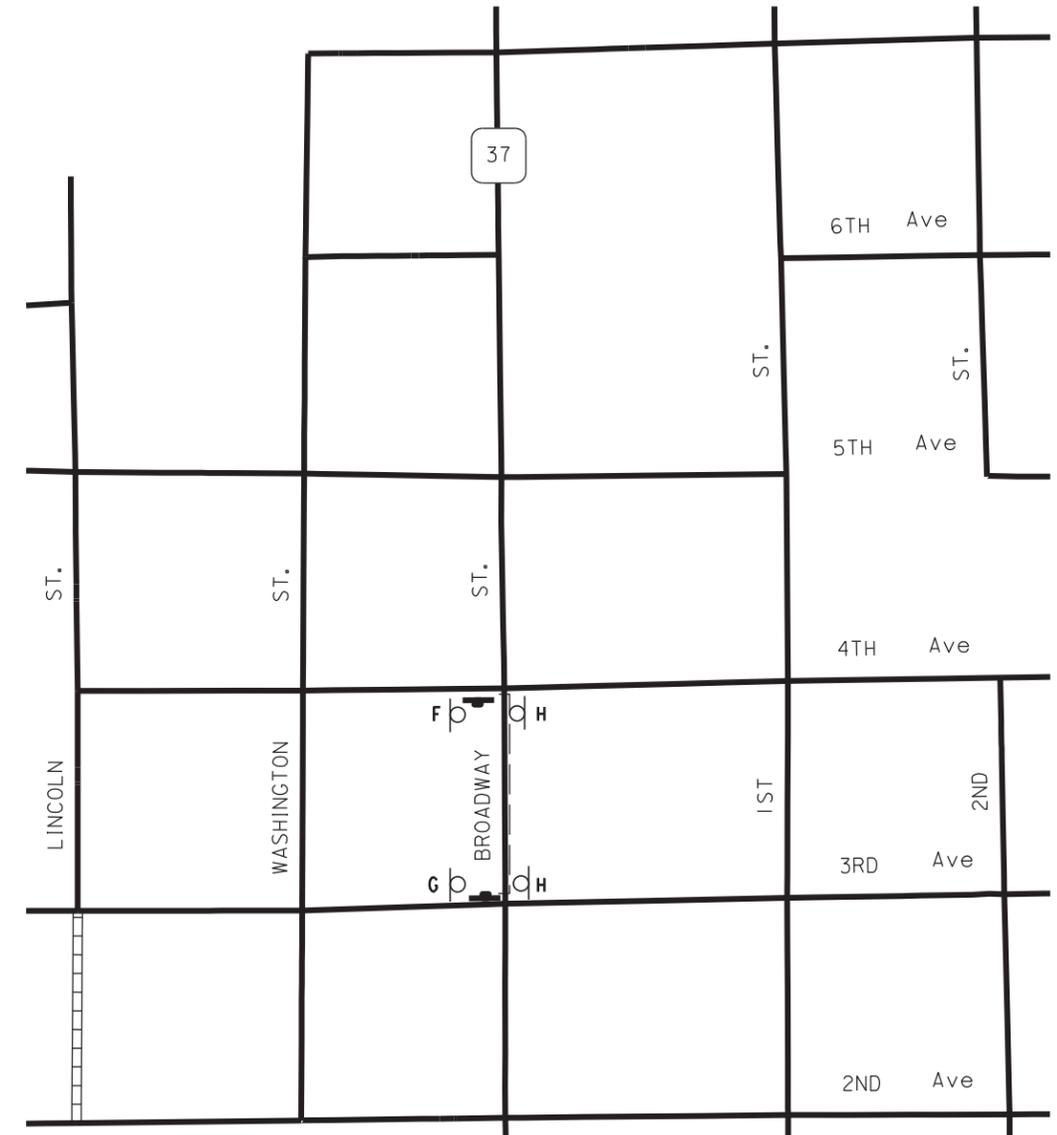
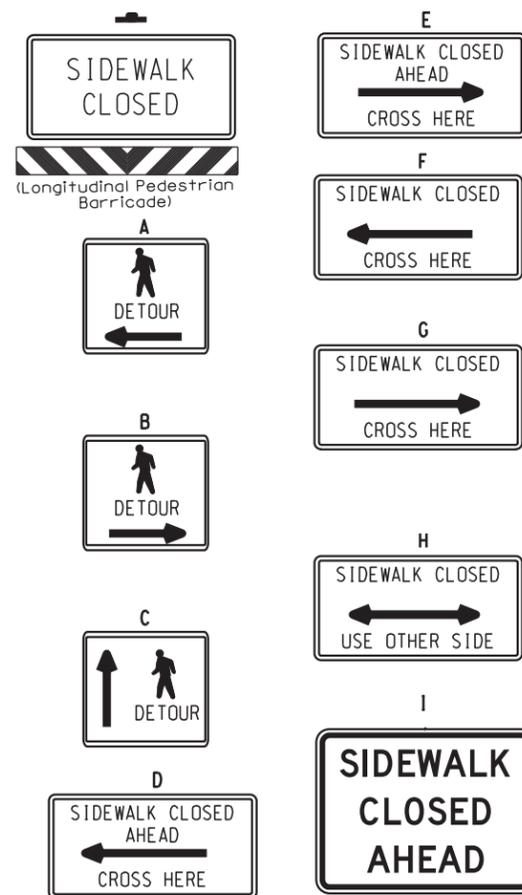
# Pedestrian Detour Route for Phase 5

Sidewalk closed between 2nd & 3rd Ave and between 4th & 5th Ave

Sidewalk closed between 3rd & 4th Ave



----- Detour Route

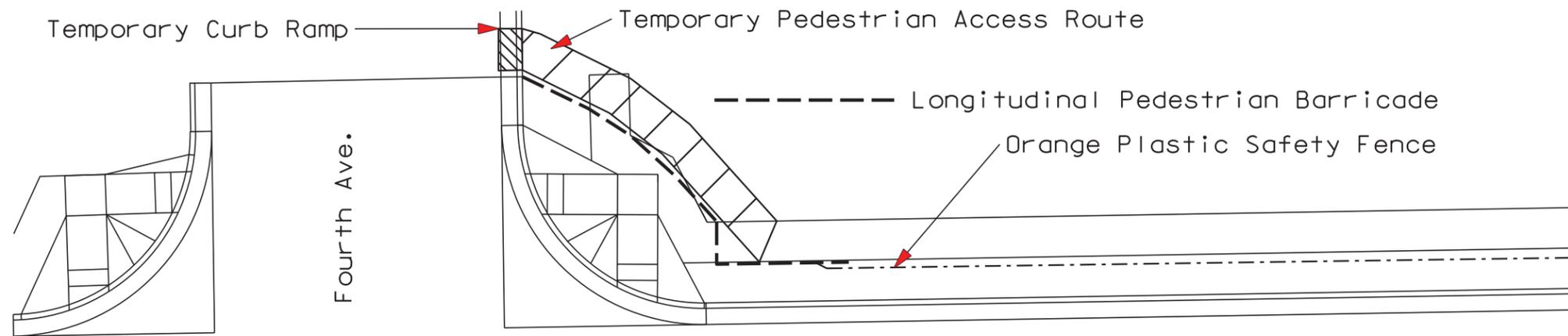


**NOTES:**

This detail is to show the general concept of signing for pedestrian traffic control and a pedestrian detour.

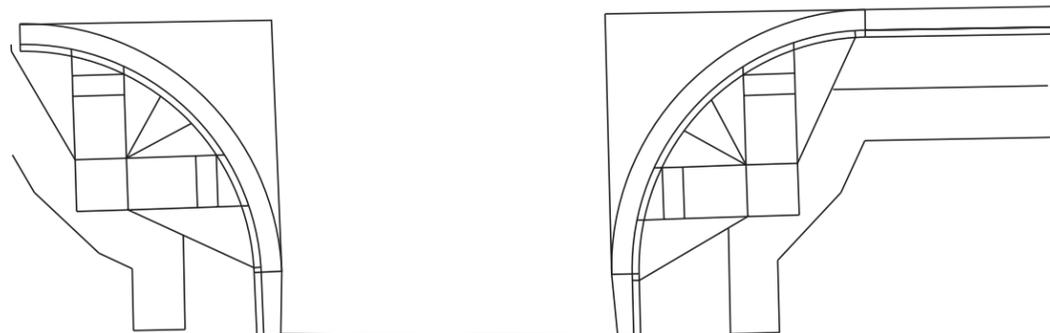
The Contractor shall construct temporary curb ramps along the Pedestrian Detour Path at intersection where a curb cut does not presently exist.

# Temporary Pedestrian Detail



SD 37

33+00



Temporary Pedestrian Detail Quantities

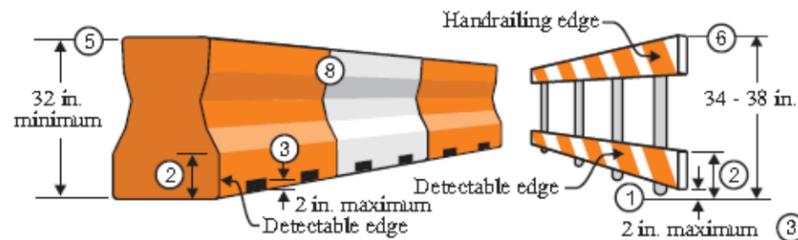
station		Longitudinal Pedestrian Barricades (Ft)	Temporary Curb Ramp (Each)	Temporary Pedestrian Facility
25+50	Lt	70	1	Yes
26+05	Lt	50	1	Yes
27+10	Lt	30	0	Yes
29+13	Lt	50	1	Yes
29+70	Lt	54	1	Yes
29+90	Lt	30	0	Yes
32+85	Lt	55	1	Yes
33+35	Lt	60	1	Yes
36+50	Lt	65	1	Yes
37+00	Lt	45	1	Yes
<b>Pay Quantity</b>		<b>*295</b>	<b>*8</b>	

\*Payment will be based upon the largest quantity being used simultaneously

- This is a typical layout for the temporary pedestrian facility and longitudinal pedestrian barricades.
- The orange plastic safety fence shall be installed 1.5' from the sidewalk on the street side from 2nd Ave to 5th Ave on the west side of SD 37. This shall remain in place until the sidewalk is closed for sidewalk replacement.
- The new sidewalk and curb and gutter shall be backfilled prior to opening the sidewalk.

# Temporary ADA Details

**Longitudinal Pedestrian Barrier and Barricades**



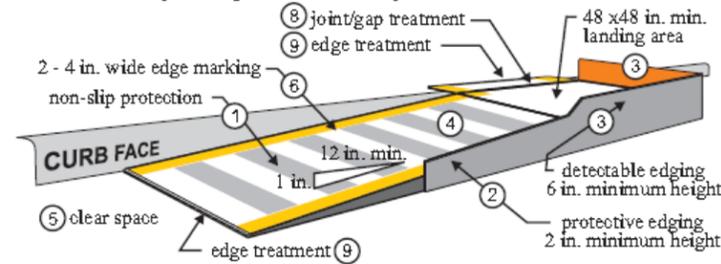
**Longitudinal Pedestrian Barrier**

**Longitudinal Pedestrian Barricade**

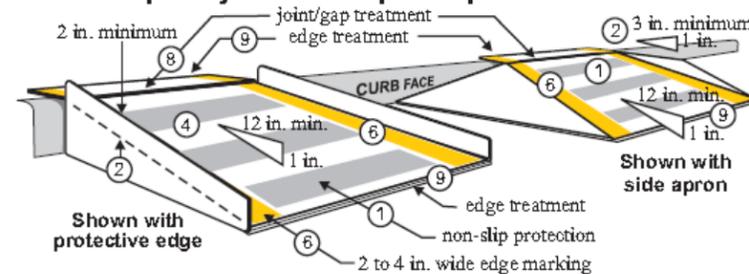
**NOTES:**

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 shall be a minimum of 8 inches above the walkway.
3. Devices shall 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.
6. When either device is combined in a series, the maximum gap between devices that do not interlock shall be 1 inch. Joints between devices that do interlock should be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing.

**Temporary Curb Ramp - Parallel to Curb**



**Temporary Curb Ramp - Perpendicular to Curb**



**NOTES:**

1. Curb ramps shall be 48 inch minimum width with a firm, stable, and non-slip surface.
2. Protective edging with a 2 inch minimum height shall 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 1:33 (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 shall be installed on all curb ramp landings where the walkway changes direction (turns).
4. Curb ramps and landings should have a 1:50 (2%) maximum cross slope.
5. A minimum clear space of 48 inch x 48 inch minimum shall be provided above and below the curb ramp, with a 60 inch x 60 inch clear space preferred.
6. The curb ramp walkway edge shall 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 shall have minimal restriction.
8. Lateral joints or gaps between surfaces shall be less than 0.5 inches in width.
9. Changes between surface heights should not exceed 0.5 inches. Lateral edges should be vertical up to 0.25 inches in height, and beveled at 1:2 between 0.25 inches and 0.5 inches in height.

# Detour Radius Detail

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C34	C40
Revised 6-8-16			

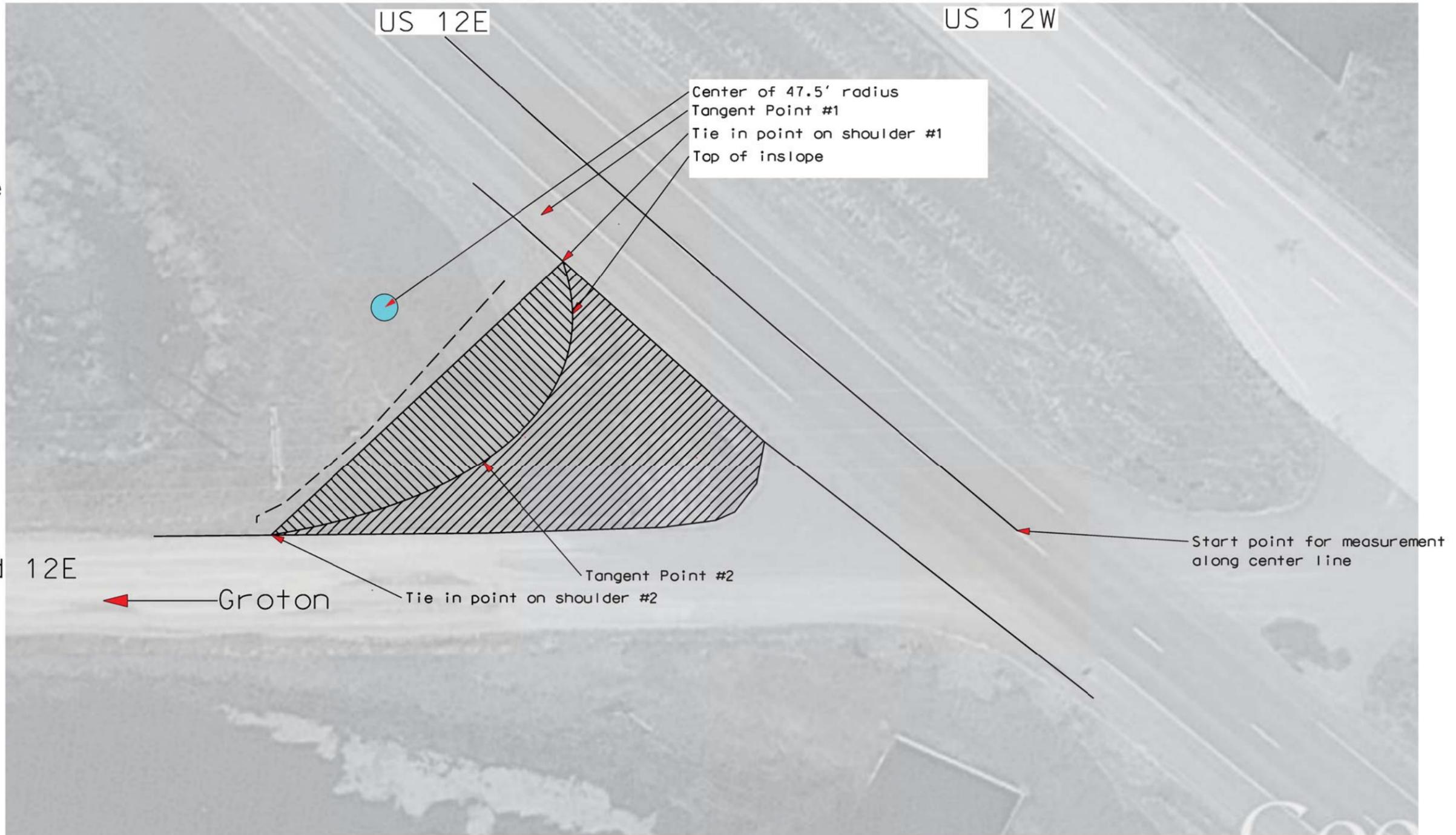
Area to be widened



4:1 inslope



County Road 12E  
(134th St)



High Flow Silt Fence - - - - -

	Distance along center line (Ft)	Distance perpendicular to center line (Ft)
Center of 45' radius	163.62	63.54
Tangent Point #1	151.06	17.7
Tie in Point on shoulder #2	147.64	128.74
Tie in Point on shoulder #1	136.96	23.44
Tangent Point #2	117.5	71.86

\* See notes for more details

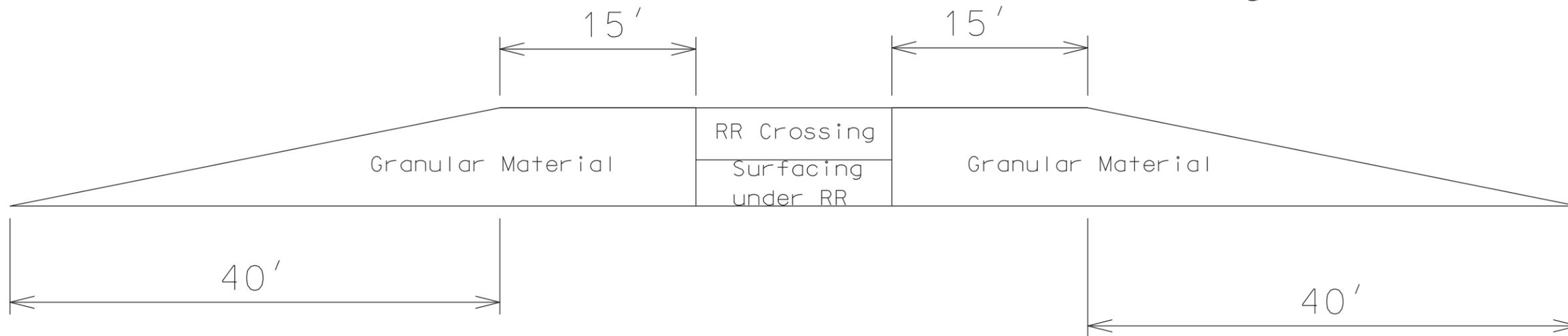
### Sequence for radius

- Install high flow silt fence
- Remove topsoil
- Place pit run as fill material
- Place reinforcement fabric (MSE)
- Place 12" of base course
- Place asphalt concrete composite
- Install permanent seed and mulching

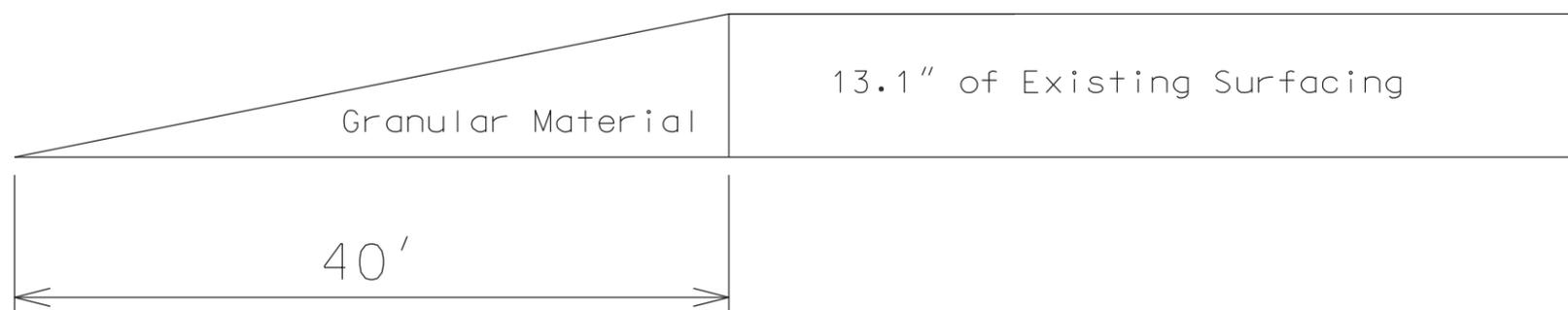
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0037(129)207 NH 0012(198)308	C35	C40

# Transition Detail

## Transition over Railroad Crossing



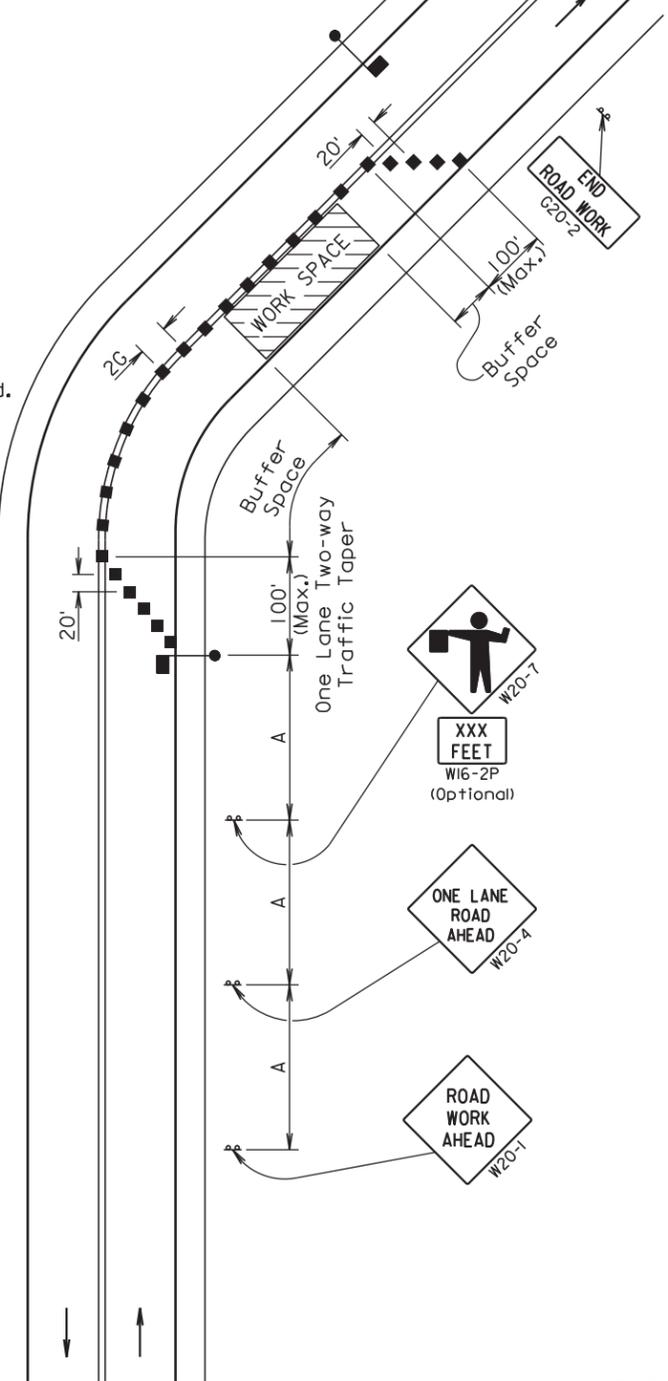
## Transition at beginning/end of project



Note: Both of these transitions will be used during phase 6 to facilitate traffic when the surfacing has been removed. The driving surface shall be a minimum of 28' wide at the end of each day and 42" cones shall be used to delineate the edge of the transitions. The construction and removal of these transitions will be incidental to the various bid items.

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 - 50	500	50
55	750	50
60 - 65	1000	50

Warning sign sequence in opposite direction same as below.



- 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.

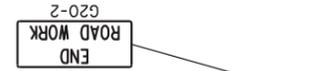
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall 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 shall 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.



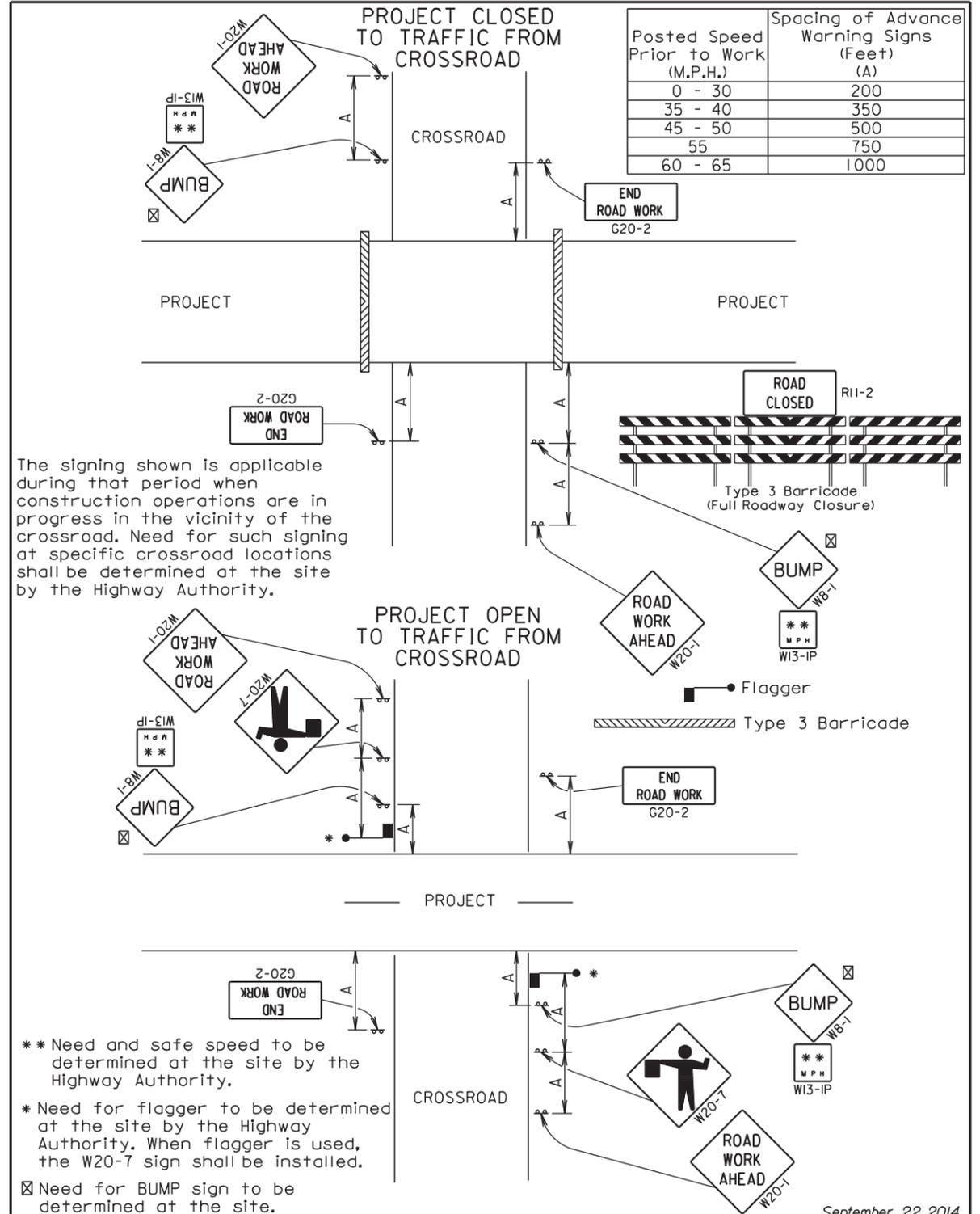
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

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.

September 22, 2014

Published Date: 2nd Qtr. 2016	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			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

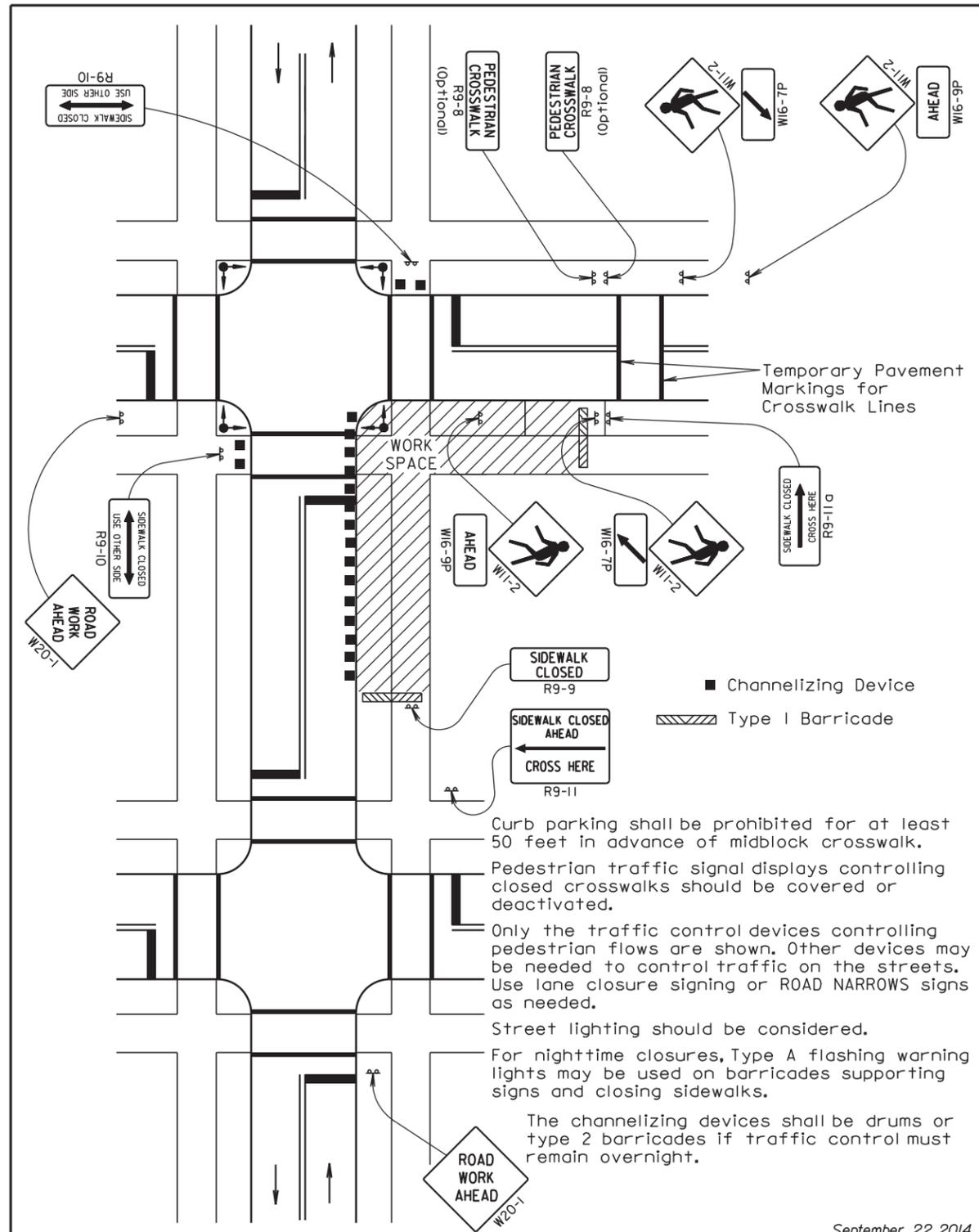
The signing shown is applicable during that period when construction operations are in progress in the vicinity of the crossroad. Need for such signing at specific crossroad locations shall be determined at the site by the Highway Authority.

- \*\* Need and safe speed to be determined at the site by the Highway Authority.
- \* Need for flagger to be determined at the site by the Highway Authority. When flagger is used, the W20-7 sign shall be installed.
- ☒ Need for BUMP sign to be determined at the site.

September 22, 2014

Published Date: 2nd Qtr. 2016	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES CROSSROAD SIGNING	PLATE NUMBER 634.32
			Sheet 1 of 1

PLOTTED FROM - TRAB17886



Curb parking shall 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 shall be drums or type 2 barricades if traffic control must remain overnight.

September 22, 2014

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.

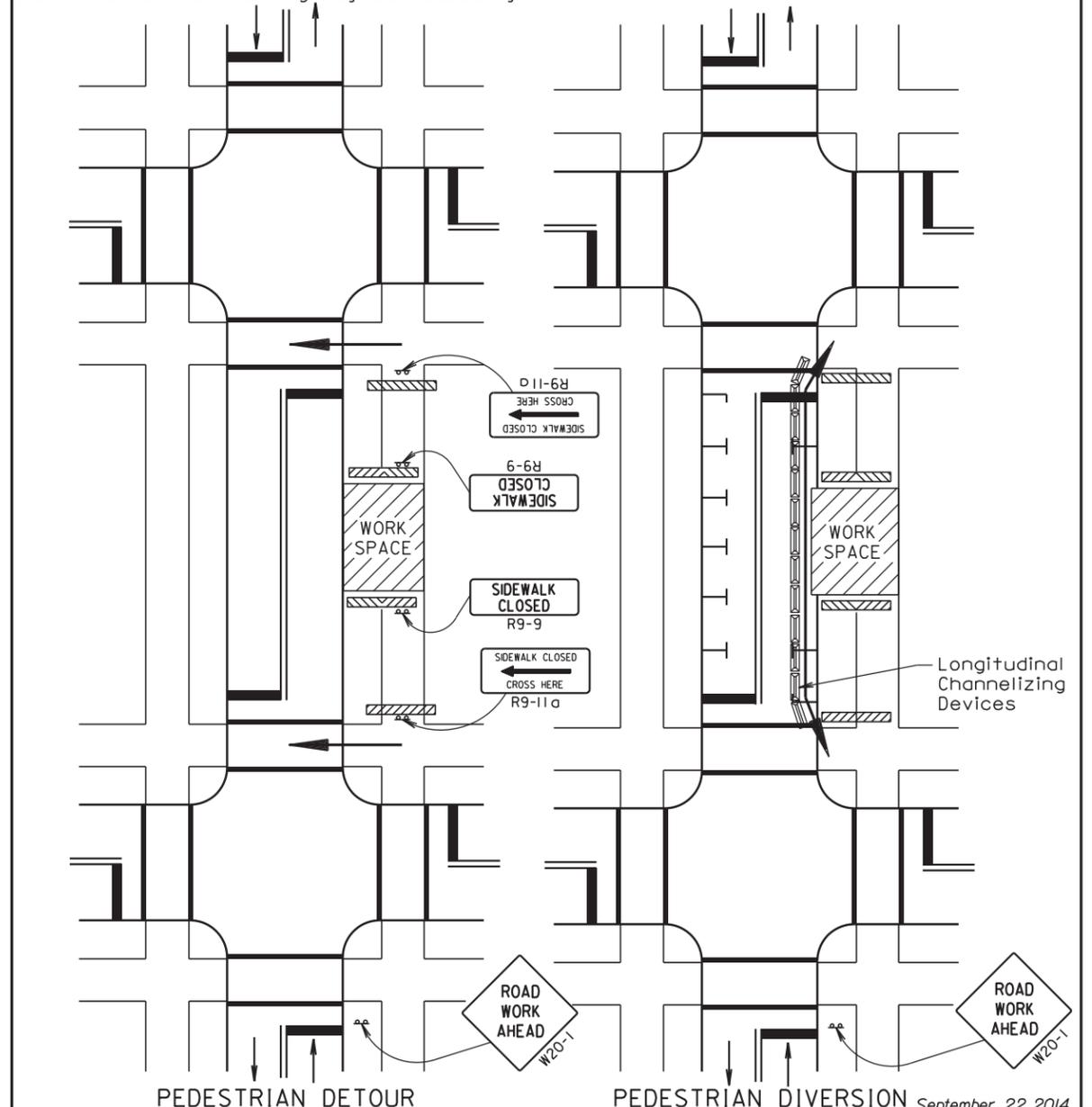
Signs may be placed along a temporary diversion to guide or direct pedestrians. Examples include KEEP RIGHT and KEEP LEFT signs.

Additional advance warning may be necessary.

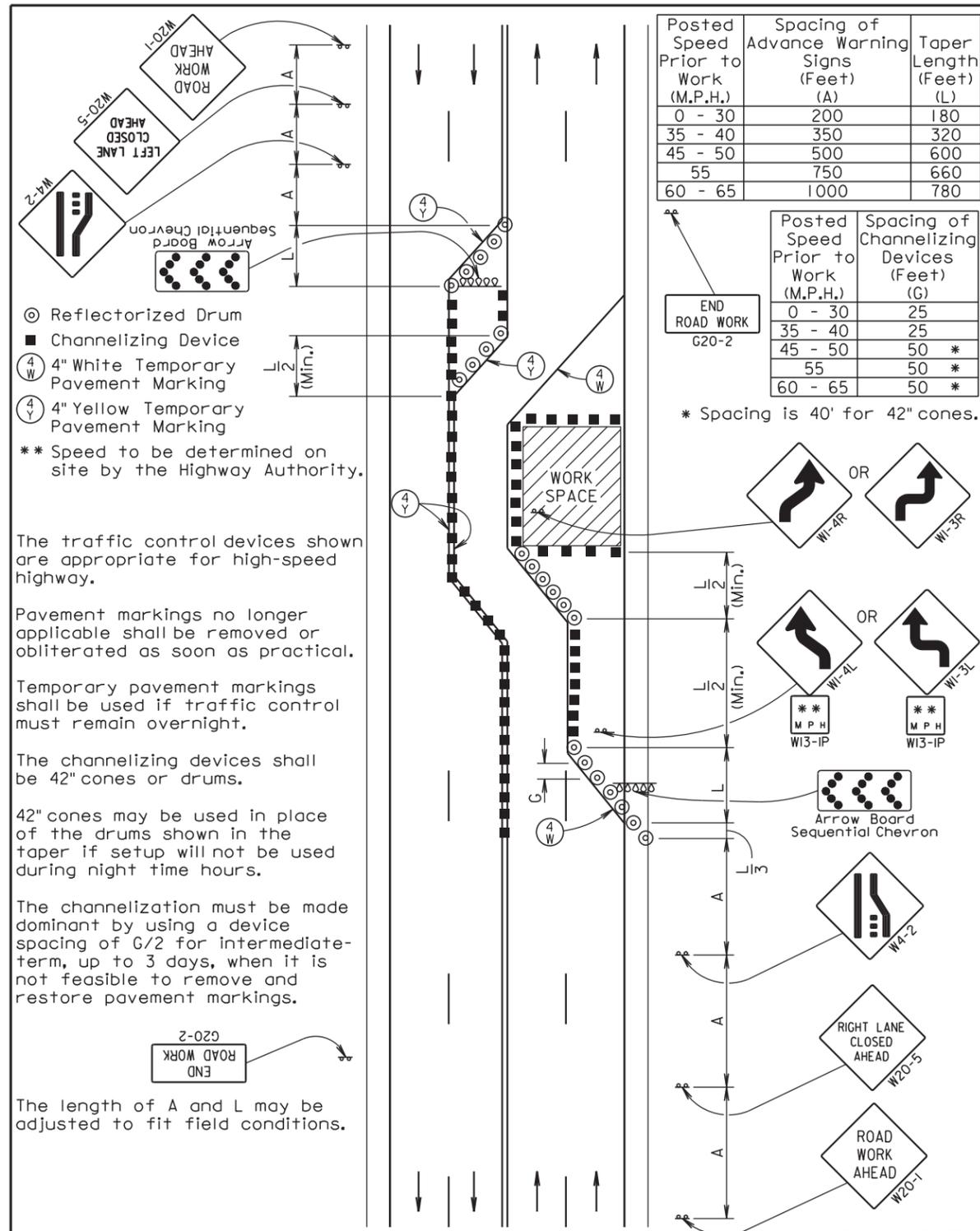
For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing sidewalks. Type C steady-burn lights may be used on channelizing devices separating the temporary pedestrian diversion from vehicular traffic.

Street lighting should be considered.

▨ Type I Barricade  
and  
▨



PLOTTED FROM - TRAB17886



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 65	50 *

\* Spacing is 40' for 42" cones.

The traffic control devices shown are appropriate for high-speed highway.

Pavement markings no longer applicable shall be removed or obliterated as soon as practical.

Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall be 42" cones or drums.

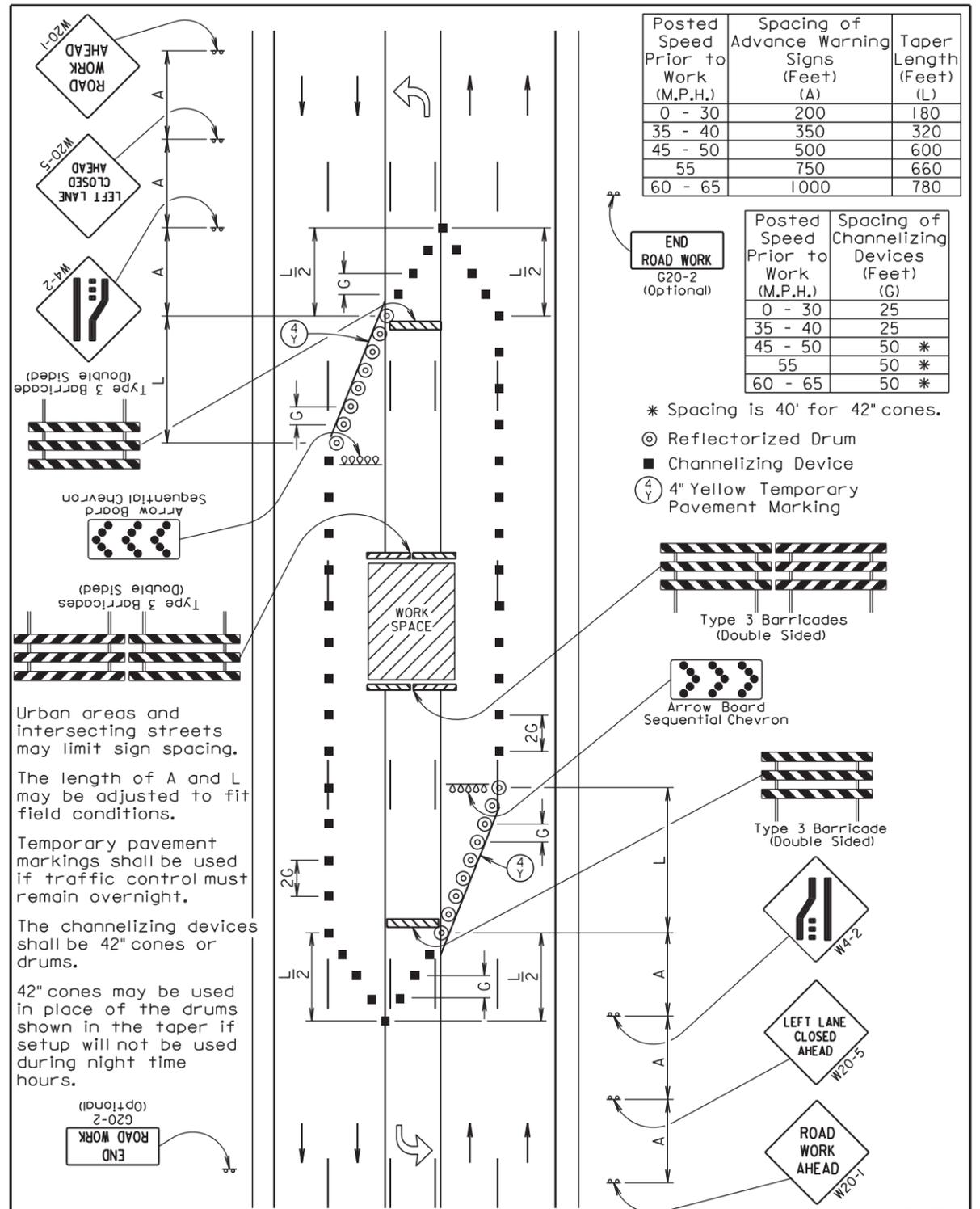
42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

The channelization must be made dominant by using a device spacing of G/2 for intermediate-term, up to 3 days, when it is not feasible to remove and restore pavement markings.



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

September 22, 2014



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 65	50 *

\* Spacing is 40' for 42" cones.

- ⊙ Reflectorized Drum
- Channelizing Device
- ④ 4" Yellow Temporary Pavement Marking

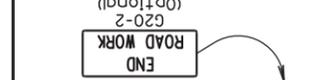
Urban areas and intersecting streets may limit sign spacing.

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

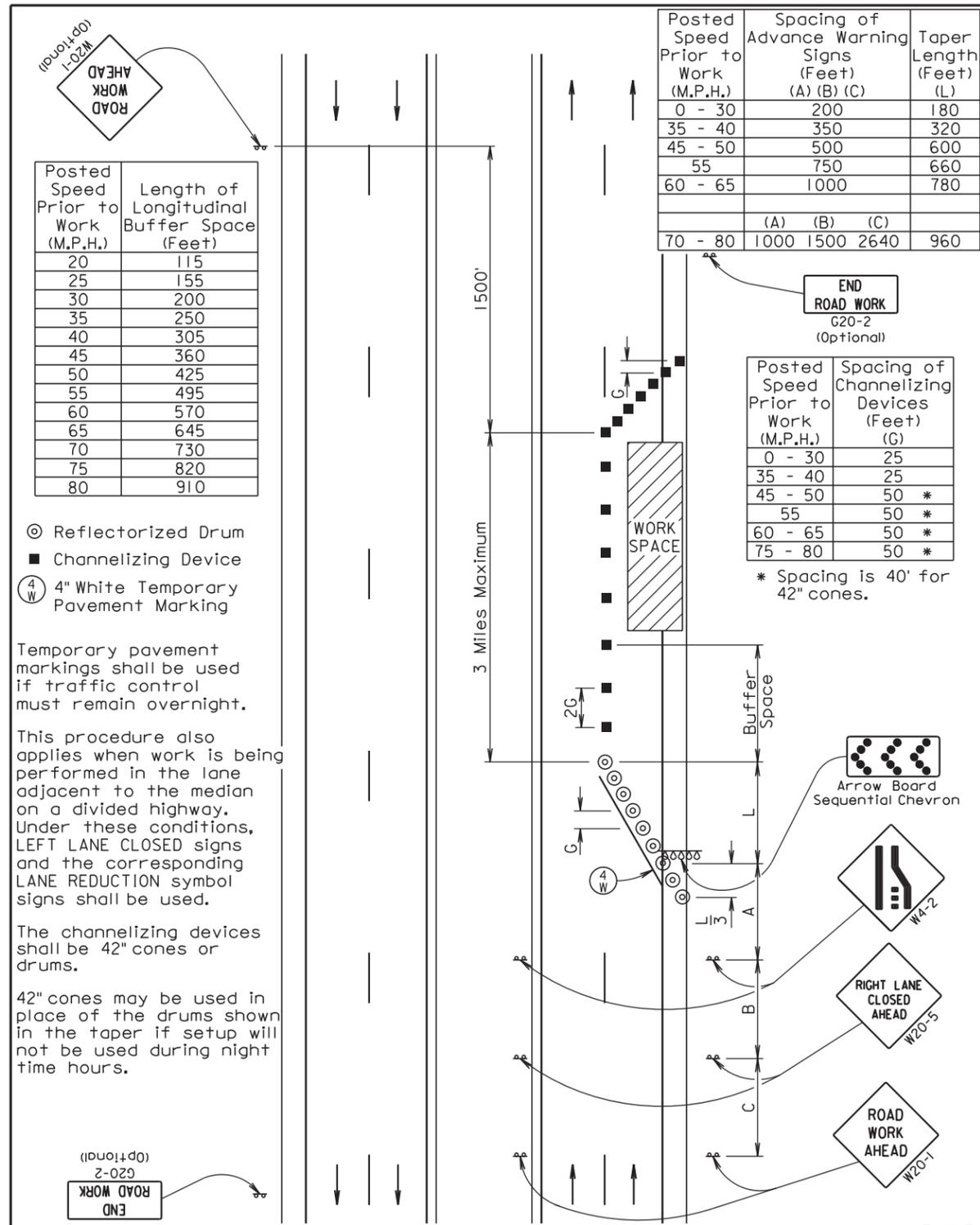
Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall 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.



September 22, 2014



◎ Reflectorized Drum  
 ■ Channelizing Device  
 (4 W) 4" White Temporary Pavement Marking

Temporary pavement markings shall be used if traffic control must remain overnight.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs shall be used.

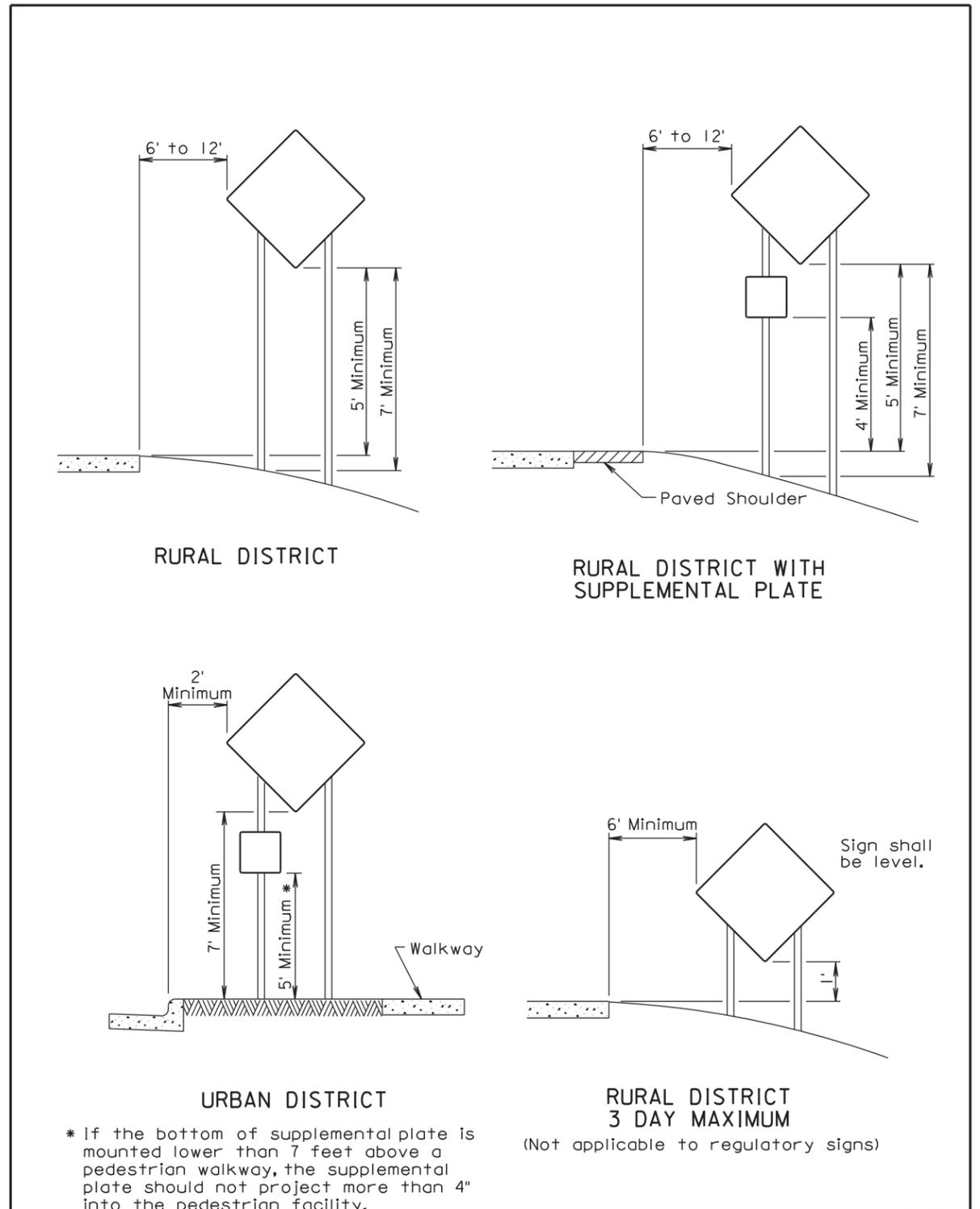
The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 40	25
45 - 50	50 *
55	50 *
60 - 65	50 *
75 - 80	50 *

\* Spacing is 40' for 42" cones.

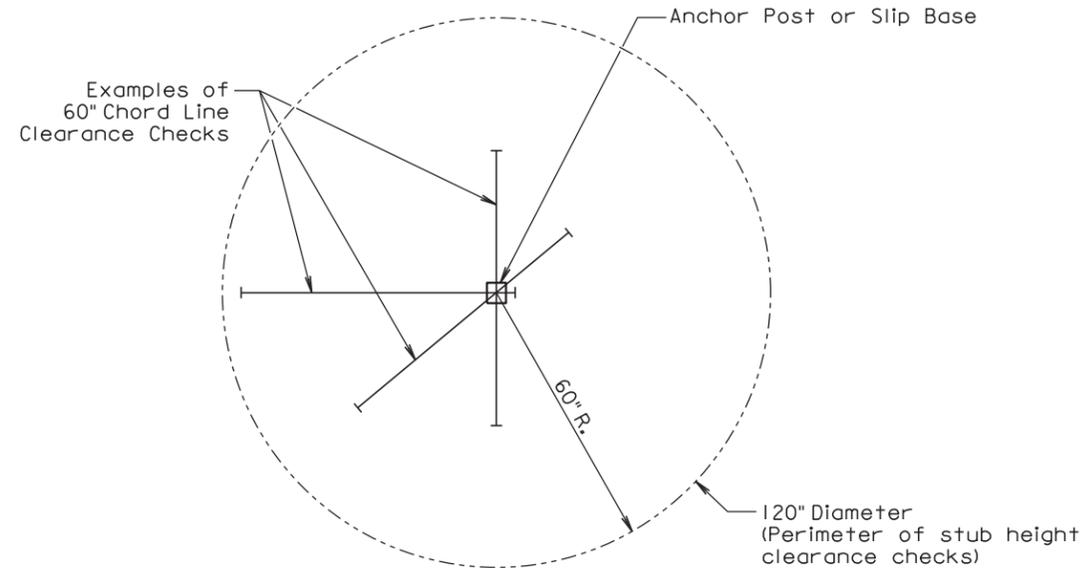
April 15, 2015



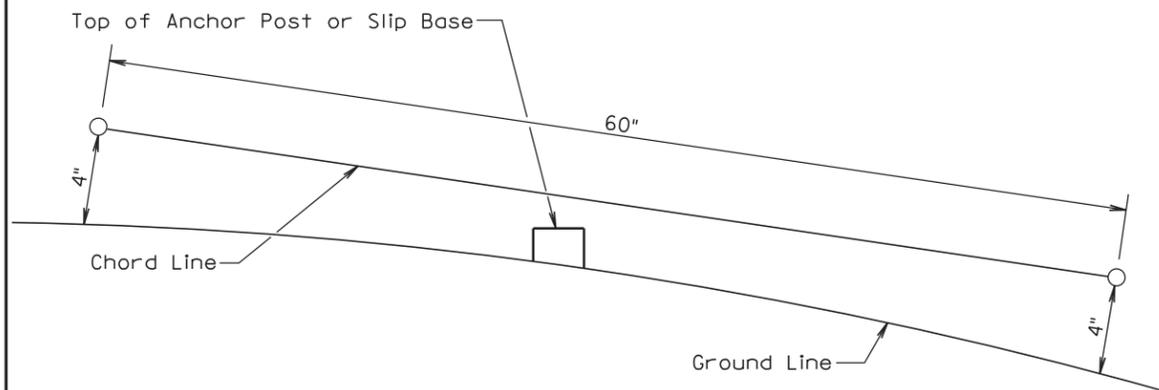
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

PLOTTED FROM - TRAB17886



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



**ELEVATION VIEW**

**GENERAL NOTES:**

The top of anchor posts and slip bases SHALL 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 shall 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.

July 1, 2005

<i>Published Date: 2nd Qtr. 2016</i>	<b>S D D O T</b>	<b>BREAKAWAY SUPPORT STUB CLEARANCE</b>	PLATE NUMBER <b>634.99</b>
			Sheet 1 of 1