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JOB # 10

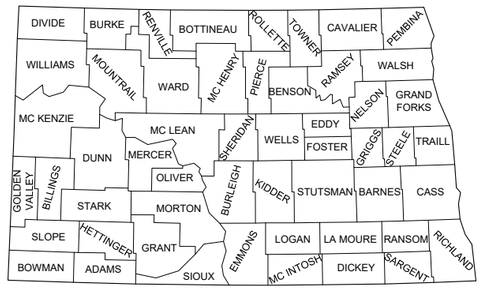
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

TAC-6-081(106)181

WALSH COUNTY
City of Minto, North Dakota
Sidewalks, Curb & Gutter, and Incidentals

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	10/1/2020
Supplemental Specifications	NONE

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
WILSON AVE	0.14	-
FOURTH ST TO 2ND ST	0.62	-
TOTAL=	0.76	-



STATE COUNTY MAP

DESIGNER
JACOB BARNEY, PE

DESIGNER
ERIK BRATAGER, EIT

ND DEPARTMENT OF TRANSPORTATION
OFFICE OF PROJECT DEVELOPMENT

Chad M. Orn, /s/ 11/30/2020

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D-101-20, 21	Linestyles
D-101-30, 31, 32	Symbols
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D-704-8	Breakaway Systems For Construction Zone Signs
D-704-9, 10, 11	Construction Sign Details
D-704-13	Barricade and Channelizing Device Details
D-704-14	Construction Sign Punching and Mounting Details
D-704-25	Lane Closures on Urban Streets
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Number	Description
PSP 15(20)	Permits and Environmental Considerations

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Minto, North Dakota

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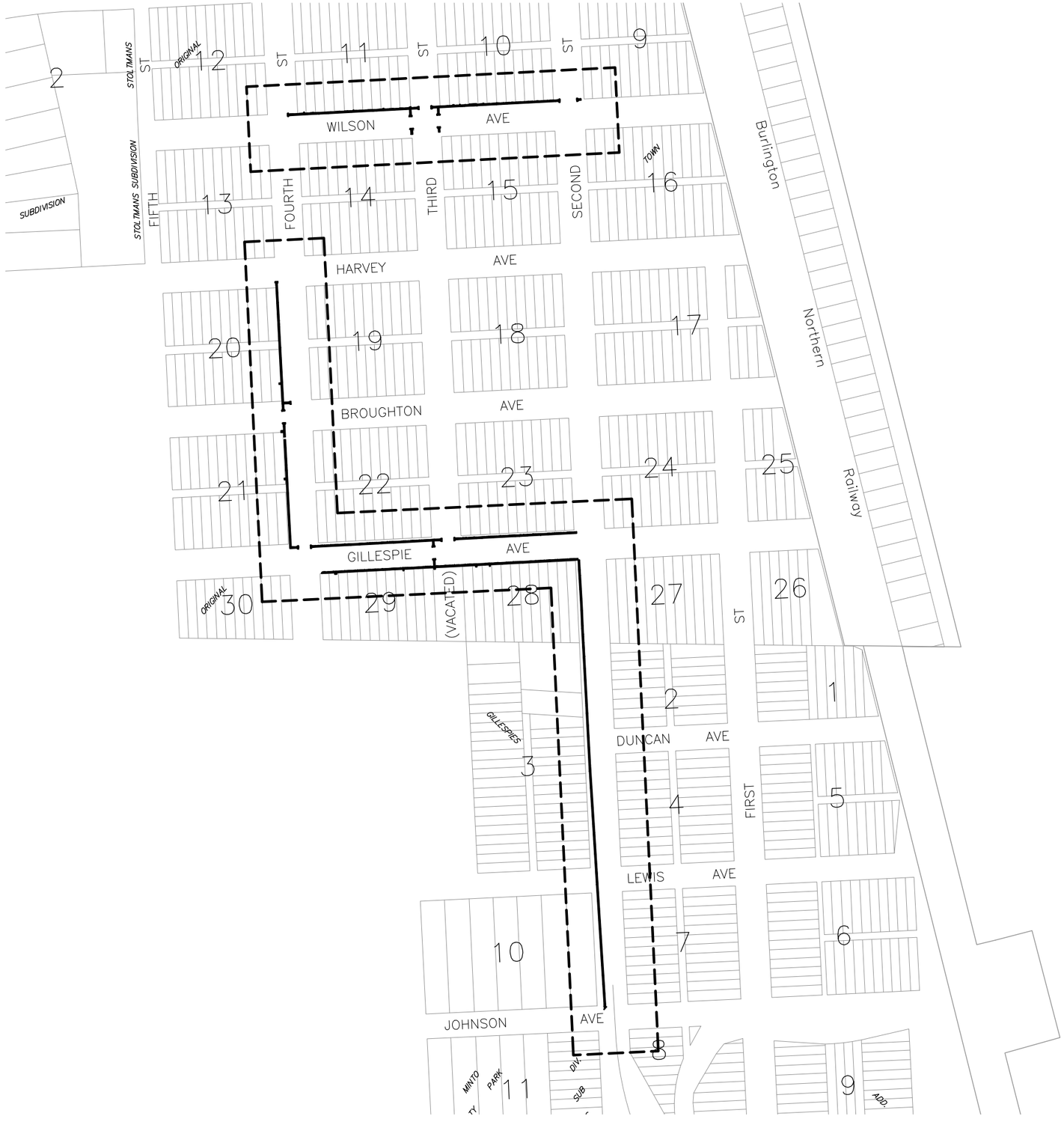

NORTH

LEGEND

SIDEWALK CONCRETE

150' 0 150' 300'

Scale in Feet

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Scope of Work

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GENERAL NOTES

100-P01 PLAN SCALE: Plan sheets indicate a specific scale. Be aware that during reproduction operation, the plan sheets may have been distorted (reduced or increased) and may no longer scale properly at the indicated scale.

100-P02 CONSTRUCTION LIMITS: The contractor's operation is limited to the easement or right-of-way lines. Any damage or disturbance of personal property beyond those easement or right-of-way lines shall be restored to existing conditions The contractor is allowed to work on school property and City of Minto Property, as per agreement between City of Minto and Minto School District.

100-P03 PROTECTION OF EXISTING FACILITIES: The contractor shall exercise care in construction operations to ensure that trees, shrubs, grasses, sod, signs, fences, and other site improvements located both within and adjacent to the project limits are not damaged. The project limits include the area within the existing right-of-way. Any damage caused by the Contractor shall be repaired by the contractor at the contractor's expense.

100-P04 EXISTING UTILITY LOCATIONS: Contractor's equipment shall work around utility poles, bases and pedestals within the construction area that are not to be disturbed. Contractor shall contact all residents living adjacent to the construction site and inquire about the existence of any private utilities/sprinklers systems in the construction area. All private utilities/sprinklers systems, if disturbed, shall be restored to preconstruction condition at the Contractor's expense.

100-P05 TRAFFIC CONTROL: Contractor Shall maintain two-way traffic at all times. If the Contractor's operations require lane closures flagging shall be provided at the contractors expense.

105-P01 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic. In addition, if any dirt, debris or mud is drug out onto the street during the days of operations, it shall be swept up before shutting down operations for the evening. All costs connected with this work shall be included in the price bid for other items.

202-P01 ABUTTING PAVEMENT: Where new pavement will abut existing pavement, a full depth vertical saw cut shall be made along the entire length of the butt joint. Coulter cuts will not be allowed. The material to be removed shall then be removed without disturbing the material that is desidgnated to remain. The new pavement shall be placed as to match the existing pavement and so as to provide a satisfactory surface profile. All labor, materials, and equipment required for saw cutting shall be incidental to price bid for "Removal of Concrete Pavement".

202-P02 REMOVAL OF CURB & GUTTER AND BITUMINOUS PAVEMENT: Removal of bituminous pavement adjacent to the curb and gutter and any Curb & Gutter shall be included in the price bid for "Removal of Curb & Gutter" (LF). All labor, equipment and materials required to remove, load, haul, and dispose of the material shall be included in the bid item for "Removal of Curb & Gutter". The Contractor shall remove and dispose of offsite the existing bituminous or concrete curb & gutter in accordance with all local and governmental laws and regulations.

203-P01 TOPSOIL - IMPORTED: The contractor shall remove and dispose of existing topsoil as needed to allow for placement of the sidewalk. After completion of the project and prior to seeding, the contractor shall import topsoil for all disturbed construction areas. The cost for removing, stockpiling, and spreading imported topsoil shall be included in the unit price bid for "Topsoil - Imported". Minimum depth of topsoil replacement shall be 4 inches.

216-P01 WATER: The cost for water needed for compaction and dust control shall be included in the price bid for "Sidewalk Concrete 4In".

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General Notes

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Minto, North Dakota

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	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
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GENERAL NOTES

253-P01 SEEDING AND HYDRAULIC MULCH: Provide hydraulic mulch and seeding as specified in Section 253. Apply water in a manner that provides uniform coverage and prevents erosion and damage to the final surface. Provide sufficient water to maintain surface moisture in the top 2 inches of the soil until such time as the grass (not cover crop) has been evenly established to a height of 2 inches. Provide a seed mix as follows:

Grass Species	Percent by Weight
Slender Creeping Red Fescue	20%
Strong Creeping Red Fescue	20%
Kentucky Bluegrass	20%
Hard Fescue	20%
Sheeps Fescue	20%

Rate of Seeding: 4-6 lbs/1,000 sf.
All costs associated with SEEDING AND HYDRAULIC MULCH including materials, equipment and labor shall be included in the bid price for "Hydraulic Much"

704-P01 CONSTRUCTION SIGNING: The contractor will be responsible for traffic control during construction. Tubular Markers, Sidewalk Barricades and Type III Barricades (as specified in Standard Drawing D-704-13) have been included for the contractor's use to delineate their work zone and close the sidewalk as needed. Equipment Working (W20-51-48) signs have been included to provide advance warning of the work zone to the traveling public, and Sidewalk Closed (R9-9-48) signs have been provided for sidewalk closures as needed. Layout W on Standard Drawing D-704-25 shall be used as guidance for establishing the work zone. Sidewalk shall be closed to the public at all times work is in progress. Contractor shall limit closures to one side of one city block or 350' at a time unless approved by the Engineer. No additional payment beyond the one set up per situation will be made. The cost of any additional devices required to accommodate the Contractor's operations shall be included in the unit price for "Traffic Control Signs".

704-P02 TEMPORARY CURB RAMP: Provide curb ramps with a firm, stable, non-slip surface the same width as the temporary pedestrian access route. Maintain a clear space above and below the curb ramp of at least 48 × 48 inches. Construct ramps with a slope of 12:1 or flatter.

Maintain a maximum curb ramp and turning platform cross-slope of 50:1 (2%) on parallel curb ramps.

Maintain 0.5-inch maximum width lateral joints or gaps between surfaces and maximum 0.5-inch surface height changes.

Maintain water flow in gutter system.

The pay item “Temporary Curb Ramp” includes both Temporary Perpendicular Curb Ramps and Temporary Parallel Curb Ramps. Include costs for materials and labor to provide, maintain, and remove curb ramps in the contract unit price for “Temporary Curb Ramp”.

704-P03 PEDESTRIAN CHANNELIZATION:Provide pedestrian channelization meeting the following requirements:

- Interlocked with a 1” maximum gap between devices;
- Upper rail with a smooth continuous guide handrail positioned 32 to 38 inches above the walkway;
- A smooth lower edge on the pedestrian side of the wall to allow sight impaired cane tapping positioned based on the following requirements:
  - The bottom edge is less than 2 inches above the walkway; and
  - The top edge a minimum of 6 inches above the walkway
- Openings in the bottom of the wall to allow for water passage;
- Support legs that do not impede the clear walkway;
- In compliance with NCHRP Report 350 or MASH Test Level 3 (TL3);
- Channelization portions are orange or white, or a combination of orange and white, in color.

Install the pedestrian channelization as follows:

- Place pedestrian channelization to delineate a clear, temporary pedestrian pathway directing pedestrians through the work area;
- Provide a minimum, continuous, clear width of 48 inches, free of vertical discontinuities greater than 0.25 inches and obstructions;
- Where the clear width of a temporary pedestrian access route is less than 60 inches, provide passing spaces at maximum intervals of 200 feet that have minimum dimension of 60 × 60 inches.
- Move and reset the pedestrian channelization as needed for multiple phase construction.

The Engineer will pay for the maximum required length of pedestrian channelization used at one time. The Engineer will measure channelization in place and will not make any deductions in length for hinged gaps or connection hardware. If pedestrian channelization is necessary to delineate both sides of the walkway, the Engineer will measure both sides of the walkway.

Include all costs to furnish, install, maintain, move, relocate, replace, and remove pedestrian channelization in the contract unit price for “Pedestrian Channelization.”

704-P04 TEMPORARY PEDESTRIAN SURFACING: Provide a stable, firm, weather resistant, non-slip surfacing to be used for the temporary pedestrian access connections as shown in Section 100 Work Zone Traffic Control plan sheets.

Place the temporary surfacing to a minimum width of 5 feet, a maximum cross slope of 2% and a maximum running slope of 5%. Construct and maintain the surface with no vertical discontinuities greater than 0.25 inches and free of barriers to wheelchair use. Compacted aggregate is not an acceptable surface.

Include all costs to furnish, construct, maintain and remove the pedestrian access surfacing in the price bid for “Temporary Curb Ramp”.

708-P01 INLET PROTECTION-SPECIAL: Prior to any disturbance on-site, install inlet protection per the "Inlet Protection-Special" detail in Section 20 of the Plans. Remove and reset inlet protection as needed to accommodate construction operations.
Once site is stabilized and inlet protection is no longer necessary, remove and dispose of inlet protection once approved by the Engineer. Include all costs for furnishing, installing, maintaining (cleaning), and replacing damaged devices in the contract unit price for “Inlet Protection Special”.

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General Notes

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Minto, North Dakota

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GENERAL NOTES

748-P01 CURB AND GUTTER - TYPE 1: All excavation necessary to construct the curb and gitter to the grade established by the engineer shall be included in the contractor's bid price for "Curb and Gutter". In the event that no excavation is required, any sod or vegetation within the construction area shall be removed, The excavated material shall be removed by the contractor and disposed of in a location approved by the engineer.
All excavated areas shall be thoroughly compacted to a depth slightly below subgrade and on this compacted surface shall be placed with a layer of Class 5 aggregate a minimum of four inches (4") in depth to bring the grade to proper elevation. Cost of said material shall be considered incidental to the price bid for Curb and Gutter". The grade shall be dampened ahead of the placing of concrete.

Bituminous pavement necessary to fill along curb and gutter shall be laid in equal depth lifts equal to the depth of the adjacent pavement, but not less than 4". Adjoining vertical faces shall be tack coated prior to installation of patching material. All costs associated with bituminous patching including, materials, equipments and labor will not be measured separately but shall be considered incidental to CURB AND GUTTER - TYPE 1.

750-P01 JOINT SEALANTS: All P.C.C. pavement, curb and gutter, sidewalk, and driveway concrete joints shall be sealed with hot-poured elastic or silicone joint sealant material. All labor, equipment and materials required to seal joints shall be included in the price bid for the concrete pavements.

750-P02 SIDEWALK CONCRETE 4 IN: All excavation necessary to construct the sidewalk to the grade established by the engineer shall be included in the contractor's bid price for "Sidewalk Concrete 4 In". In the event that no excavation is required, any sod or vegetation within the construction area shall be removed, The excavated material shall be removed by the contractor and disposed of in a location approved by the engineer. The contractor shall also blend the aggregate at alleys and driveways into the new concrete edge.
All excavated areas shall be thoroughly compacted to a depth slightly below subgrade and on this compacted surface shall be placed with a layer of Class 5 aggregate a minimum of four inches (4") in depth to bring the grade to proper elevation. Cost of said material shall be considered incidental to the price bid for Sidewalk Concrete 4In and sidewalk concrete 6in. The grade shall be dampened ahead of the placing of concrete.

Type 1A ADA curb ramps shall be used unless noted on the plan sheets. All cost to install ADA curb ramps shall be included in the "Sidewalk Concrete 4In" bid item.

Sidewalk that crosses driveways will be thickened to 6 inches and paid for as "Sidewalk Concrete 6In".

Any curb stops or gate valves within the new sidewalk concrete limits shall be set flush with the top of the new sidewalk. Adjustable tops and housing for the curb stops will be furnished by the City Water Department (701-248-3858) and installed by the contractor. All costs required to install the adjustable curb stops or gate valves to grade shall be included in the price bid for "Sidewalk Concrete 4In".

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General Notes

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SUMMARY OF QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
103	0100	CONTRACT BOND	L Sum	1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	1765
202	0130	REMOVAL OF CURB & GUTTER	LF	172
203	0119	TOPSOIL - IMPORTED	CY	200
253	0200	HYDRAULIC MULCH	SY	1600
702	0100	MOBILIZATION	L Sum	1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	428
704	1052	TYPE III BARRICADE	EA	4
704	1054	SIDEWALK BARRICADE	EA	2
704	1056	PEDESTRIAN CHANNELIZATION	LF	350
704	1060	DELINEATOR DRUMS	EA	4
704	1067	TUBULAR MARKER	EA	50
704	2108	TEMPORARY CURB RAMP	EA	2
708	1540	INLET PROTECTION-SPECIAL	EA	12
748	0140	CURB AND GUTTER - TYPE 1	LF	172
750	0115	SIDEWALK CONCRETE 4IN	SY	1635
750	0140	SIDEWALK CONCRETE 6IN	SY	225
750	2115	DETECTABLE WARNING PANELS	SF	200

BASIS OF ESTIMATE

AGGREGATE BASE COURSE: QUANTITY BASED ON A DEPTH OF 4IN OF COMPACTED IN PLACE MATERIAL.

HYDRAULIC MULCH: QUANTITY BASED ON SEEDING 2' BEYOND SIDEWALK EDGE PLUS 0.10 ACRES FOR STAGING AREAS. BID ITEM INCLUDES SEEDING PER NDDOT SPEC. 251.

ALL COSTS ASSOCIATED WITH SIDEWALK CONCRETE 4IN INCLUDING 4" AGGREGATE BASE, MATERIALS, EQUIPMENT AND LABOR SHALL BE INCLUDED IN THE BID PRICE FOR "SIDEWALK CONCRETE 4IN". AGGREGATE BASE IS COMPACTED VOLUME IN PLACE.

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Basis of Estimate

Transportation Alternatives Program
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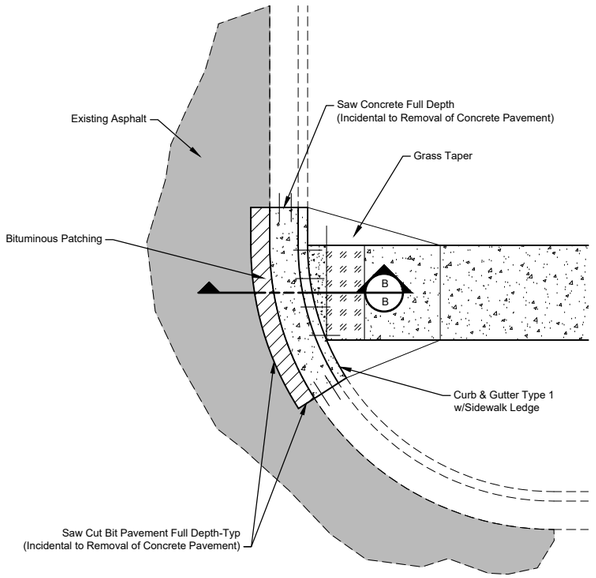
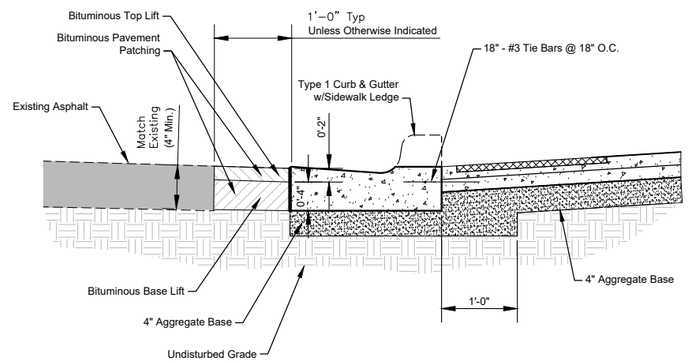
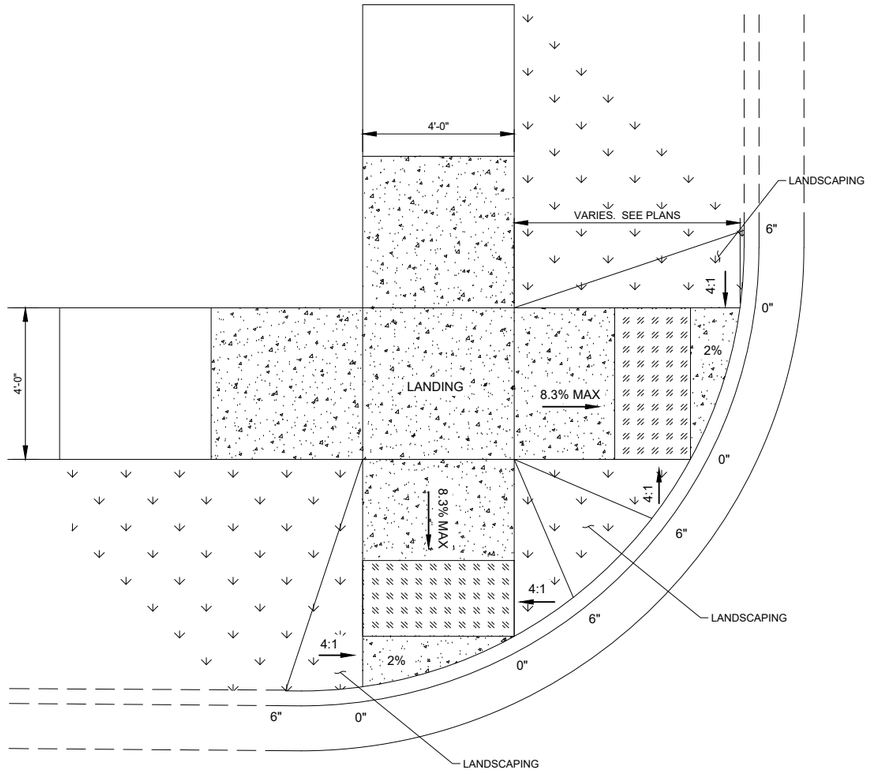


BITUMINOUS PATCHING ADJACENT TO CURB AND GUTTER



Section B-B



TYPE 1A CURB RAMP - D750-3

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Details

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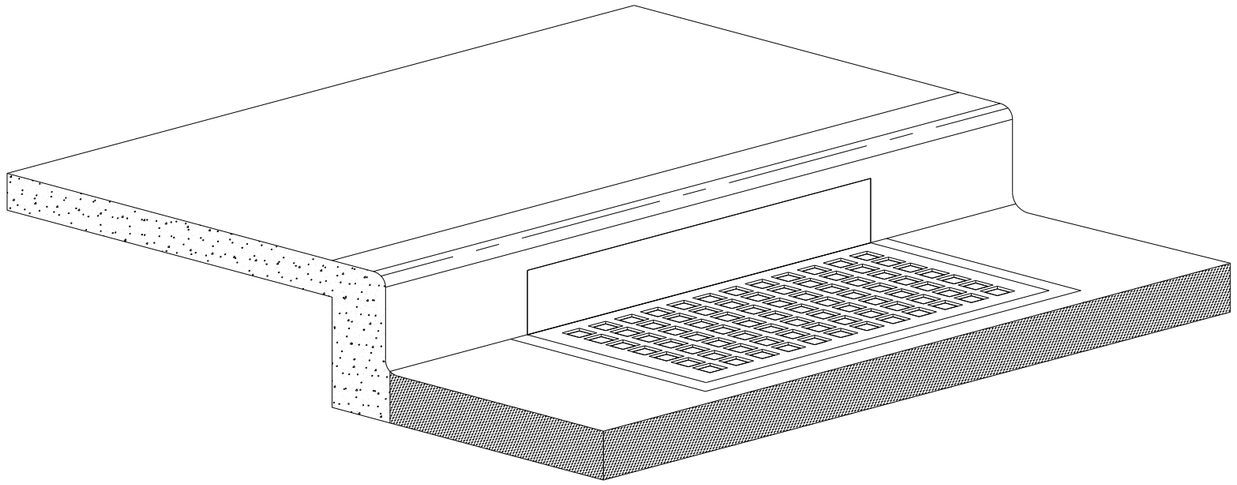


Inlet Protection Device

Installation Notes:

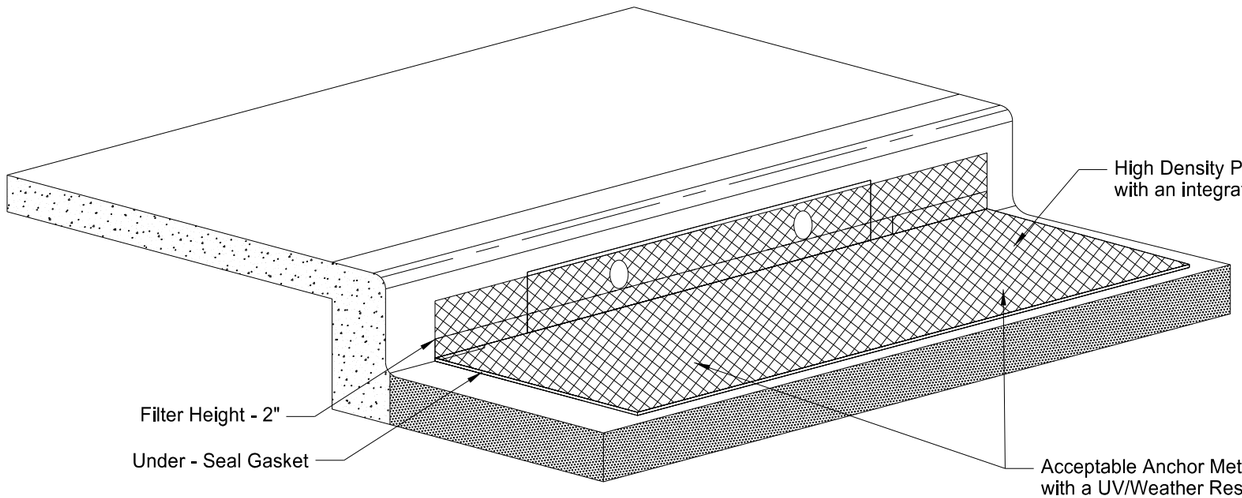
1. Place device tightly against drain opening and cover entire grate. Extend the device at least 2 inches past the grate toward the street.

2. Overlap the segments at longer openings.

3. Anchor the device so that water cannot flow behind it.

General Notes:

1. Remove material that falls into the inlet during maintenance or removal of the device.



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Inlet Protection Device

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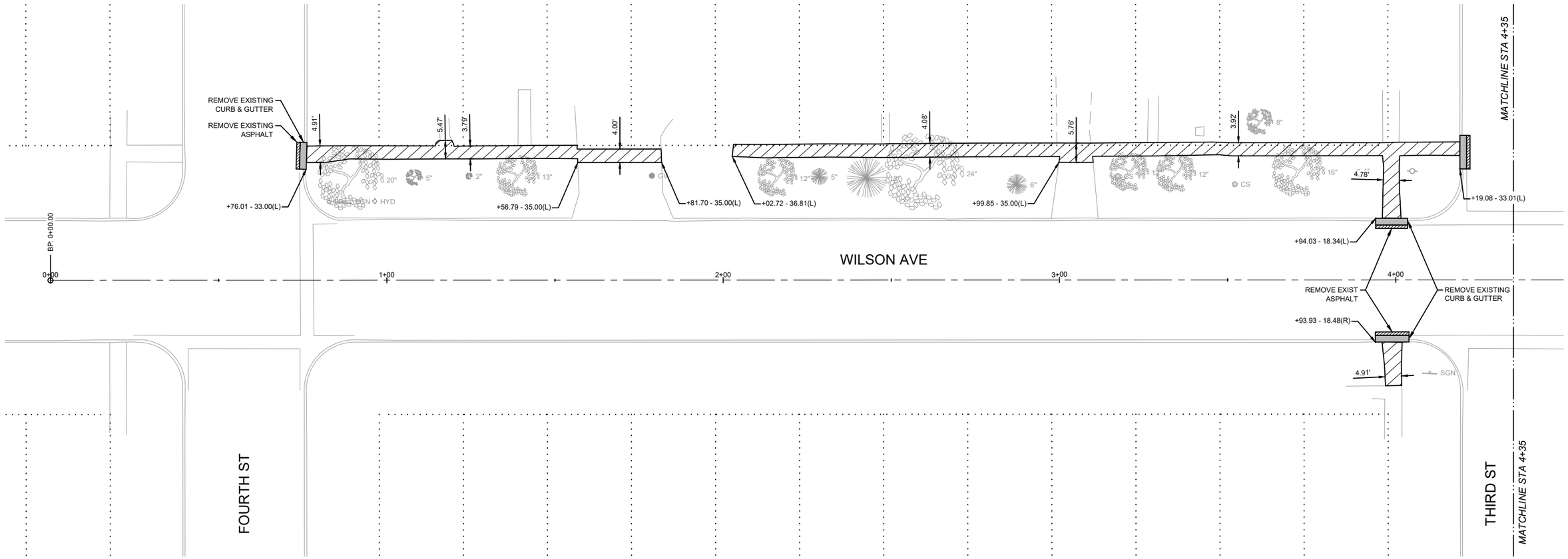

REMOVAL OF CONCRETE PAVEMENT

STA 0+76 LT	47.8 SY	STA 3+94 RT	7.6 SY
STA 2+03 LT	107.4 SY		

REMOVAL OF CURB & GUTTER

STA 0+76 LT	9.0 LF	STA 3+94 RT	9.0 LF
STA 3+94 LT	9.0 LF		
STA 4+19 LT	9.0 LF		

NORTH

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

15' 0 15' 30'
Scale in Feet

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Removals
Wilson Avenue

Transportation Alternatives Program
Minto, North Dakota

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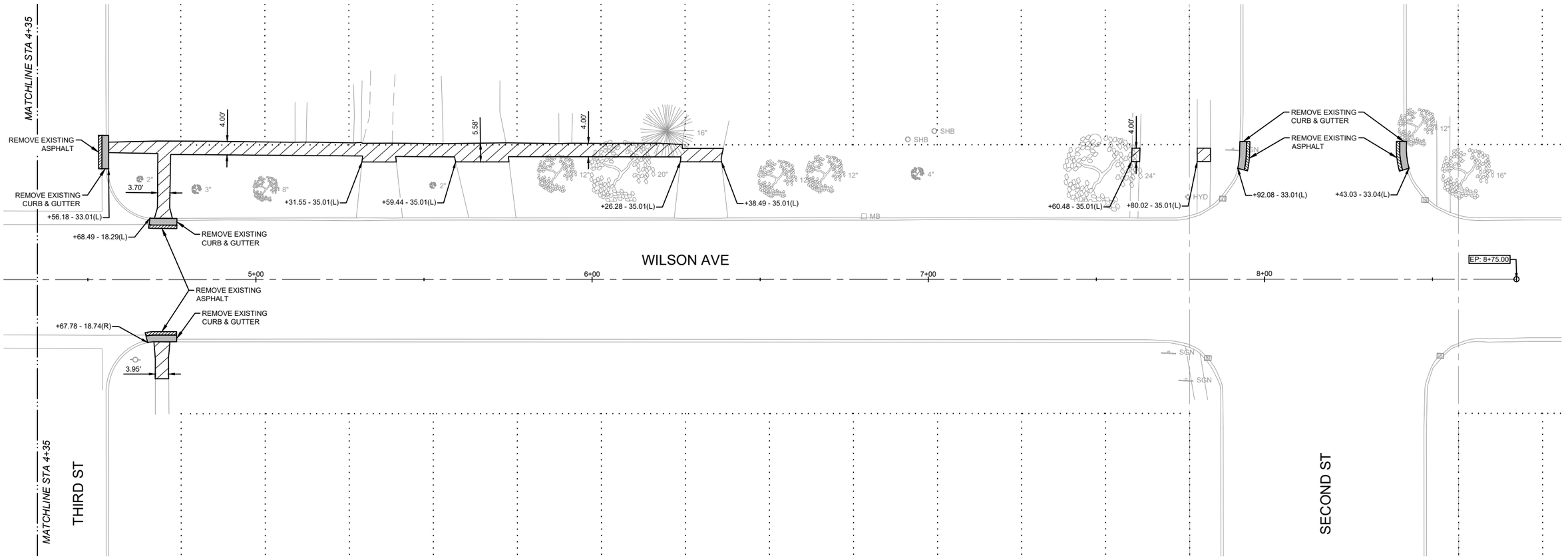

REMOVAL OF CONCRETE PAVEMENT

STA 4+56 LT	96.9 SY	STA 4+68 RT	5.1 SY
STA 7+60 LT	1.3 SY		
STA 7+80 LT	1.8 SY		

REMOVAL OF CURB & GUTTER

STA 4+56 LT	9.0 LF	STA 4+68 RT	9.8 LF
STA 4+68 LT	9.0 LF		
STA 7+92 LT	9.0 LF		
STA 8+43 LT	9.0 LF		

NORTH

LEGEND

CURB & GUTTER REMOVAL

SIDEWALK REMOVAL

EXISTING ASPHALT REMOVAL

15' 0 15' 30'

Scale in Feet

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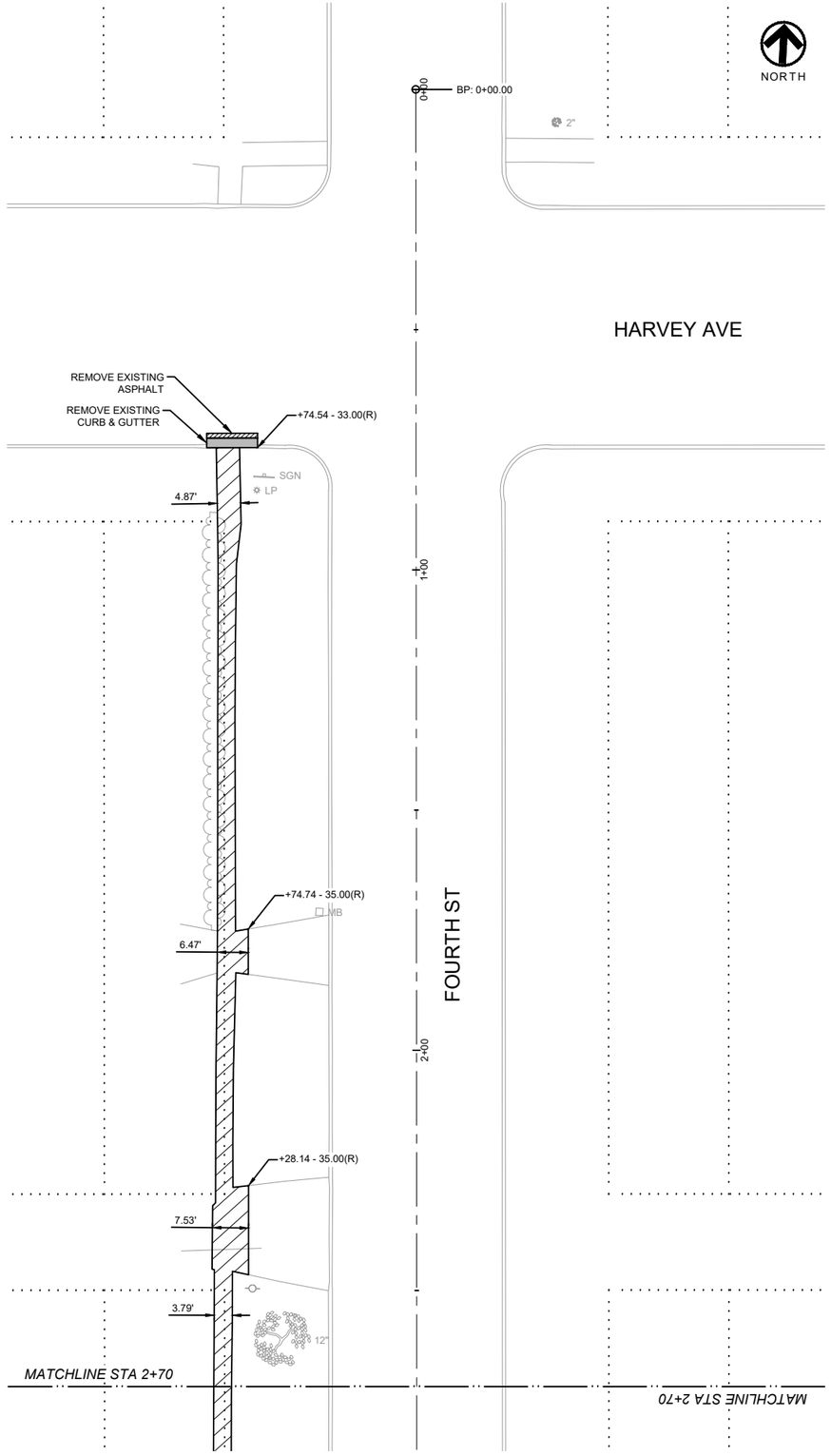
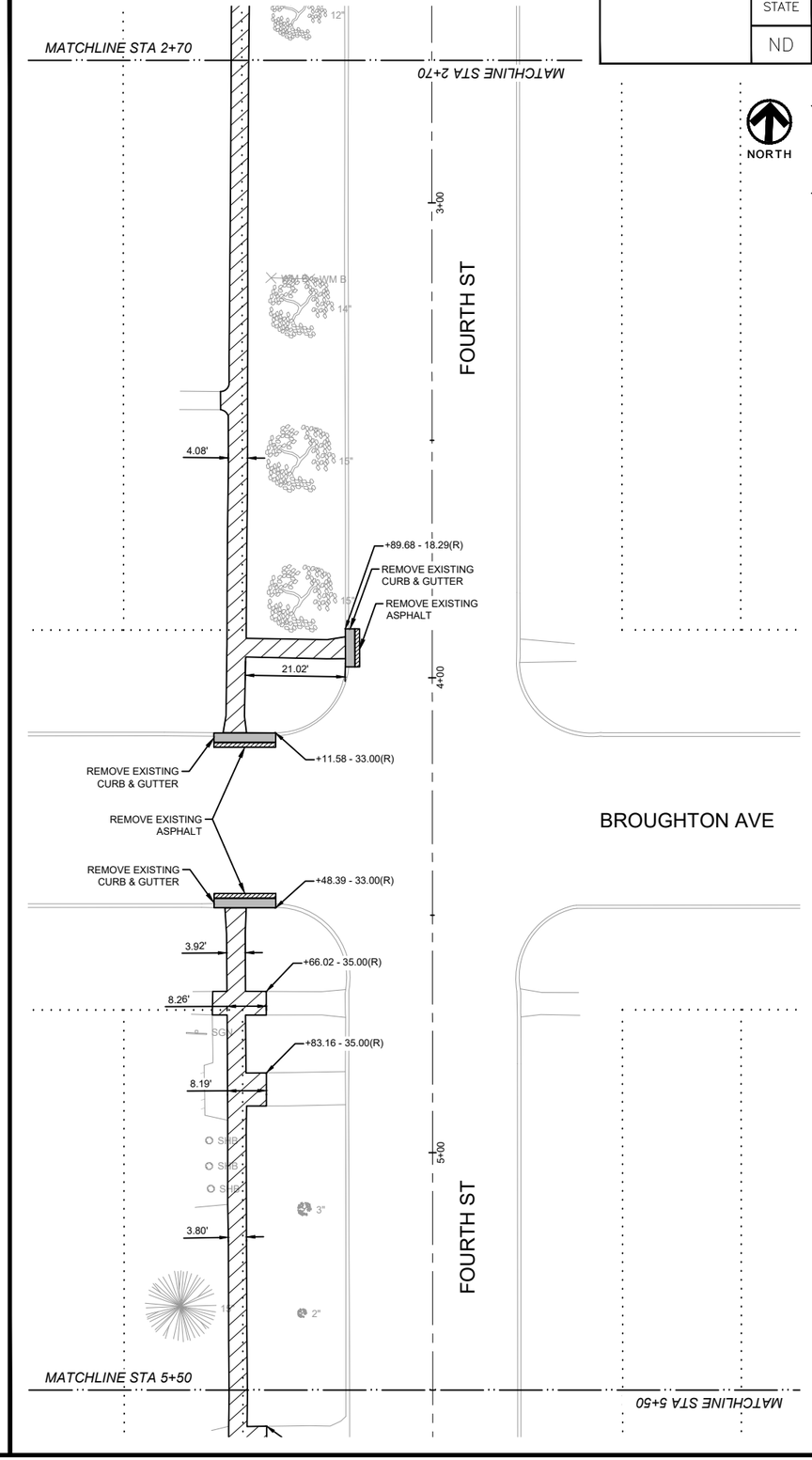
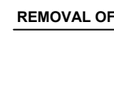
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	40	3







BROUGHTON AVE

REMOVAL OF CONCRETE PAVEMENT

STA 0+75 RT	167.0 SY
STA 4+48 RT	51.1 SY

REMOVAL OF CURB & GUTTER

STA 0+75 RT	9.0 LF
STA 3+90 RT	9.0 LF
STA 4+12 RT	9.0 LF
STA 4+48 RT	9.0 LF

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

15' 0 15' 30'

Scale in Feet

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REV'D.

Removals
Fourth Street to Second Street

Transportation Alternatives Program
Minto, North Dakota

DRWN. BY	CHK'D BY	PROJECT NO.	DATE
E. Bratager	J. Barney	P00120-2018-004	October 2020

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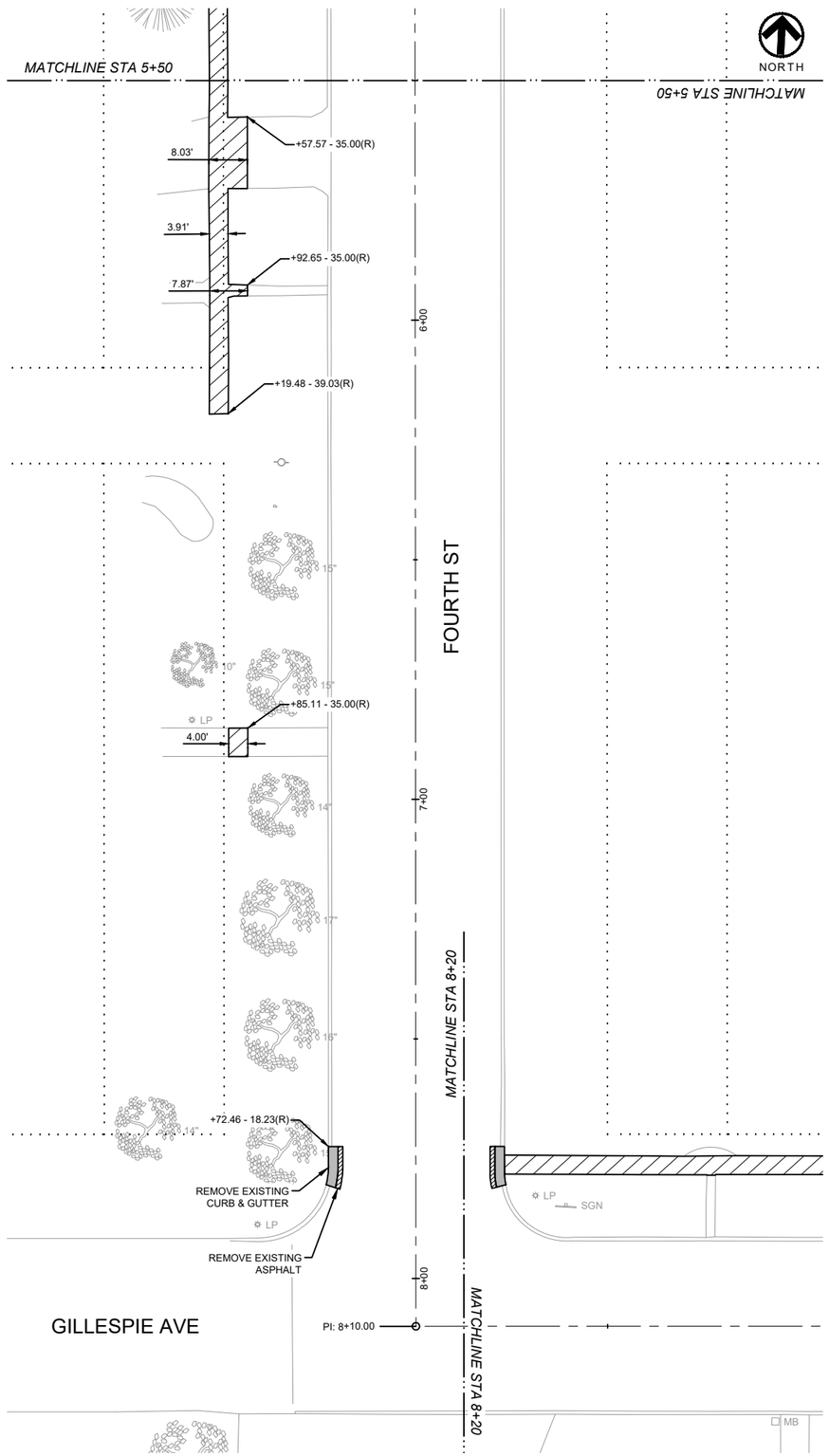

	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	40	4

REMOVAL OF CONCRETE PAVEMENT

STA 5+50 RT	40.0 SY
STA 6+85 RT	3.3 SY

REMOVAL OF CURB & GUTTER

STA 7+72 RT	9.0 LF

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

15' 0 15' 30'

Scale in Feet

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Removals
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Minto, North Dakota

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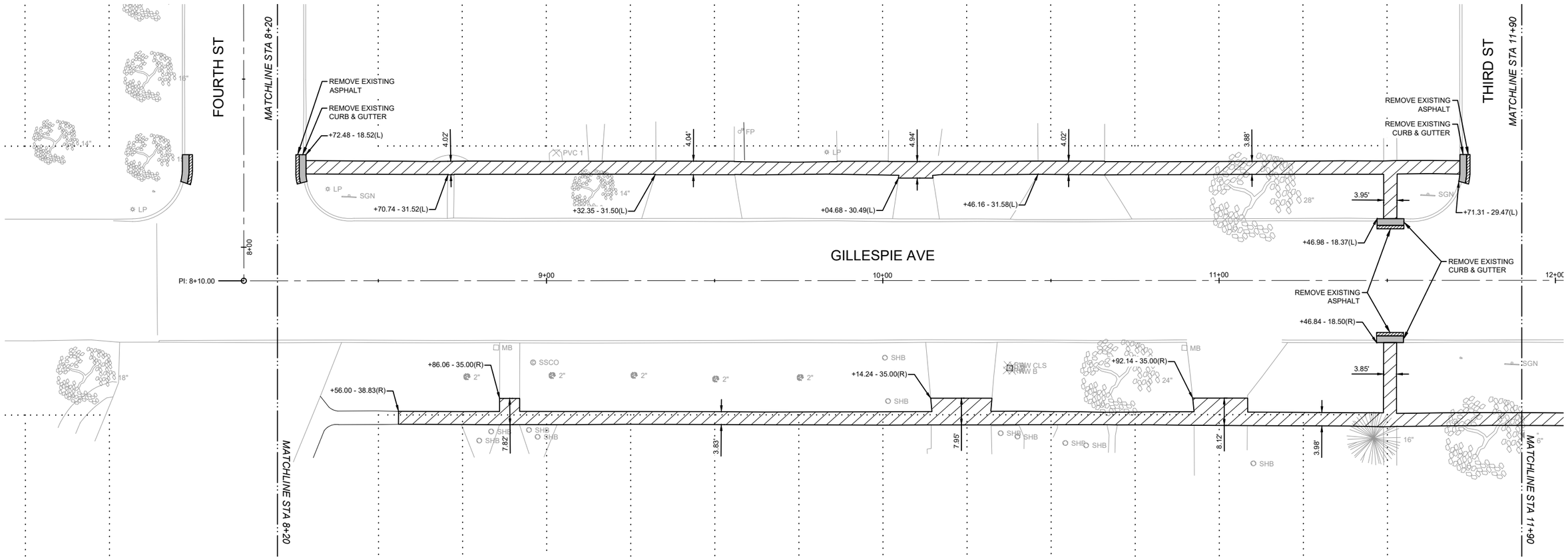
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	40	5



REMOVAL OF CONCRETE PAVEMENT

STA 7+72 LT	161.8 SY	STA 8+56 RT	176.5 SY

REMOVAL OF CURB & GUTTER

STA 7+72 LT	9.0 LF	STA 11+47 RT	9.0 LF
STA 11+47 LT	9.0 LF		
STA 11+71 LT	9.0 LF		

NORTH

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

15' 0 15' 30'

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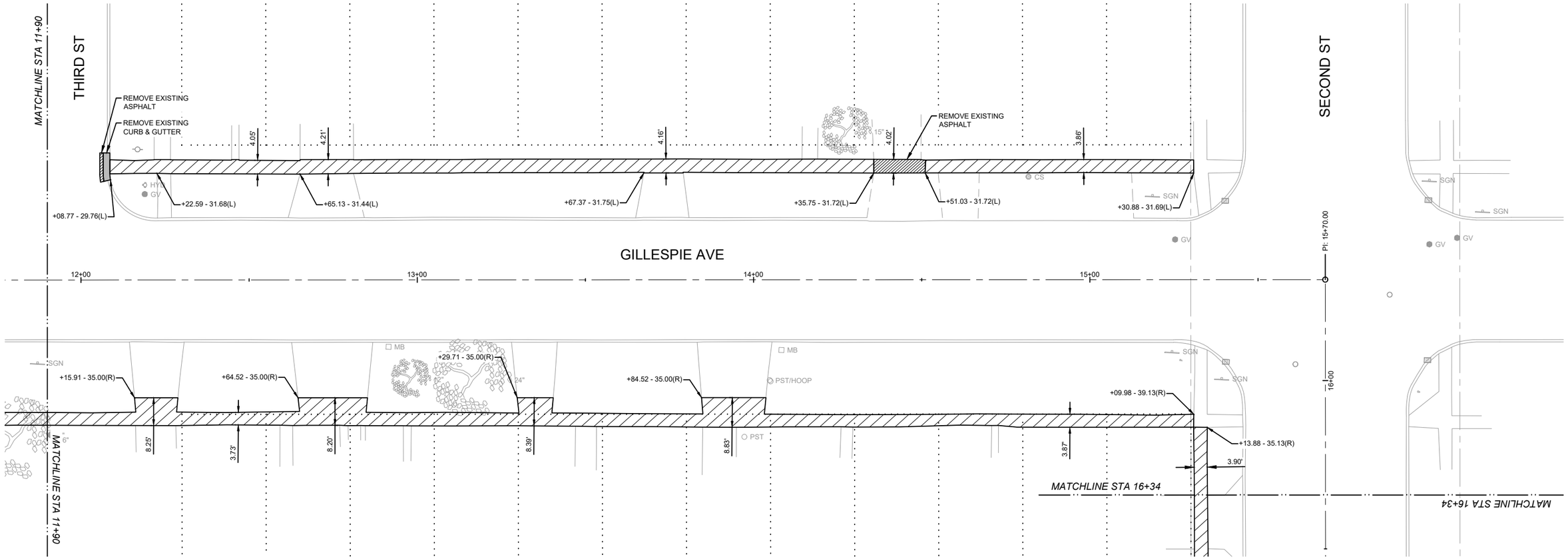
	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	40	6



REMOVAL OF CONCRETE PAVEMENT

STA 12+09 LT	105.4 SY	STA 11+90 RT	205.6 SY
STA 14+36 LT	8.9 SY		
STA 14+51 LT	46.0 SY		

REMOVAL OF CURB & GUTTER

STA 12+09 LT	9.0 LF

NORTH

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

15' 0 15' 30'

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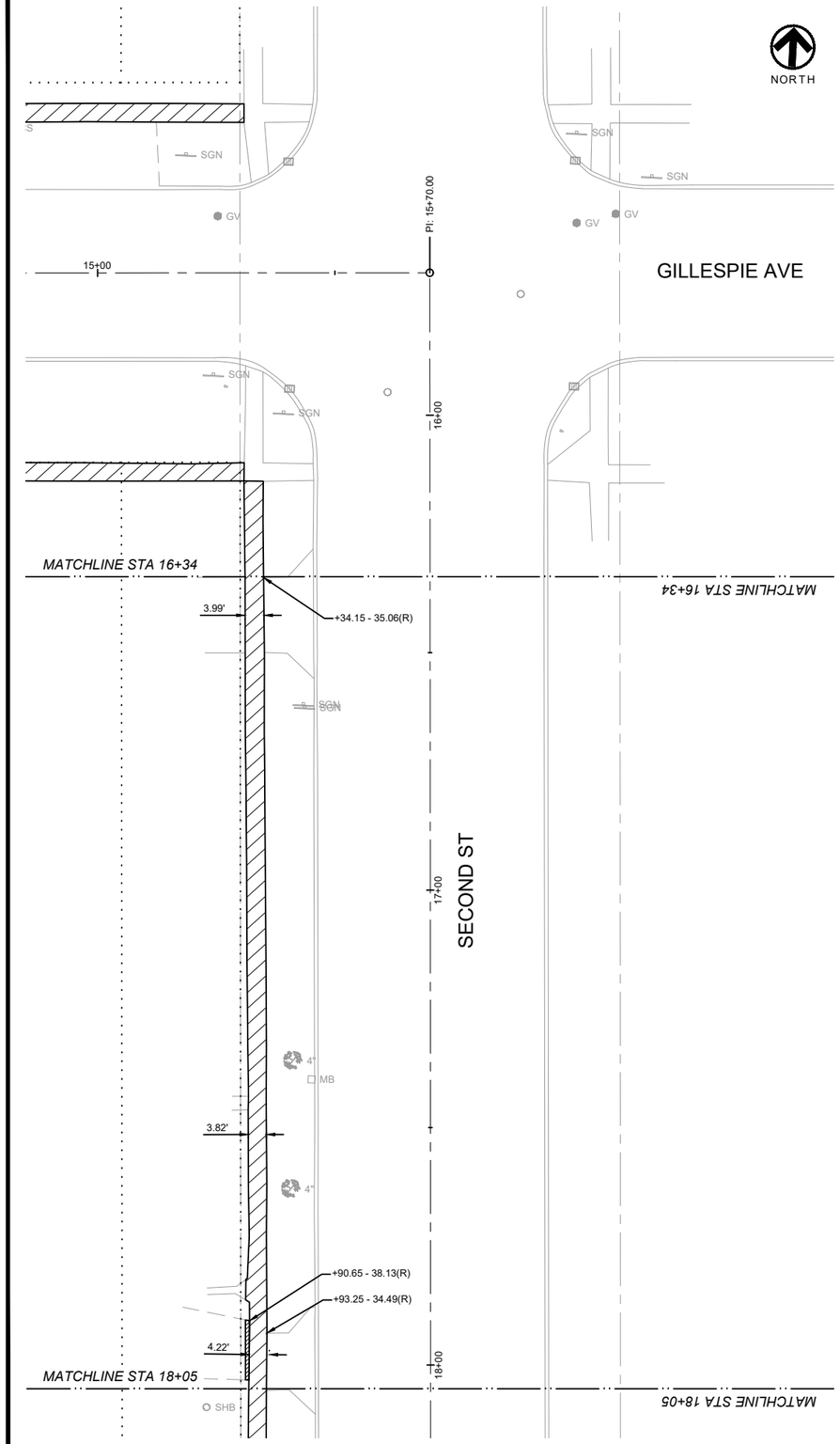
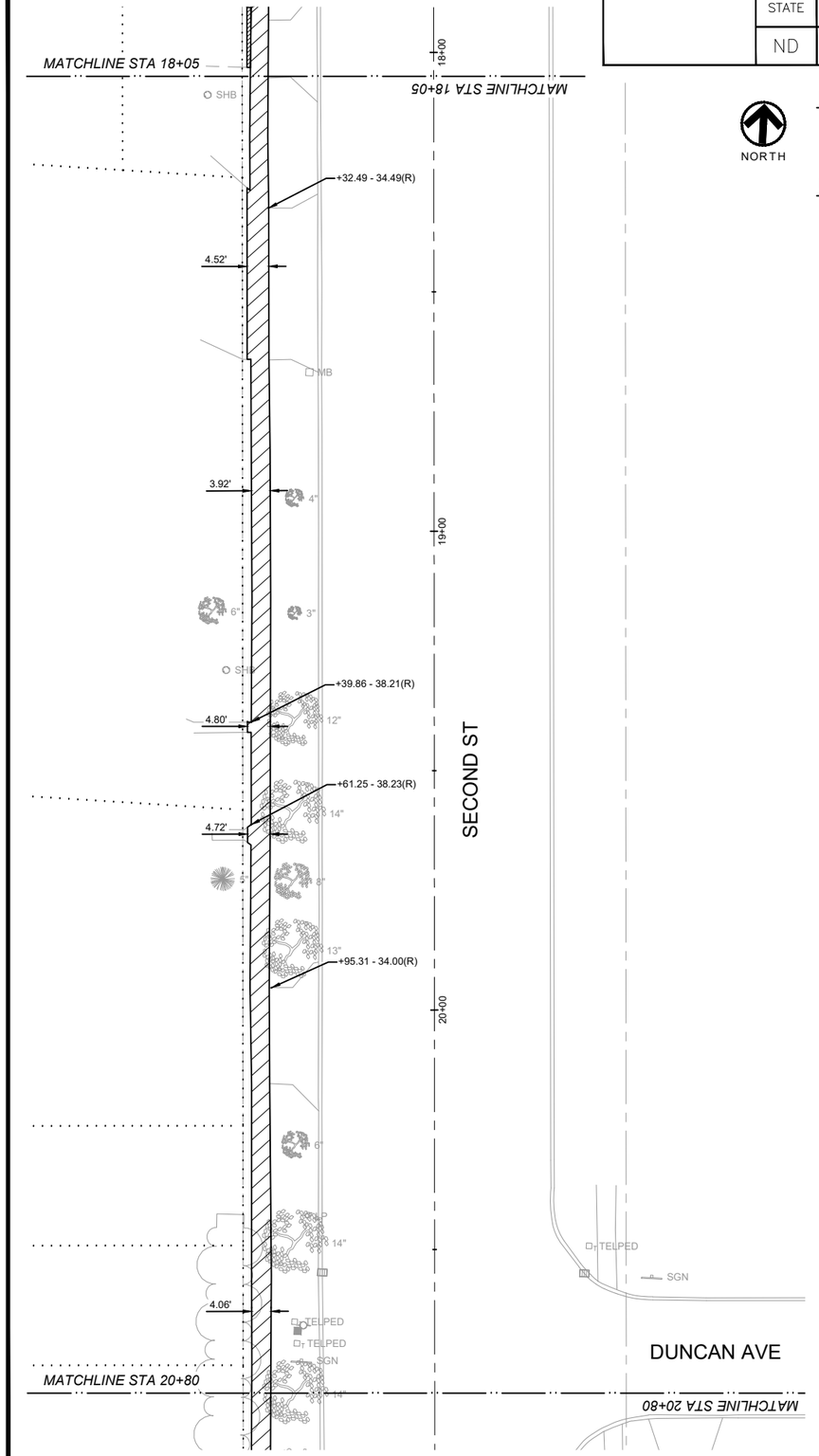
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	40	7





REMOVAL OF CONCRETE PAVEMENT

STA 16+34 RT	202.4 SY
STA 17+91 RT	1.1 SY

REMOVAL OF CURB & GUTTER

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

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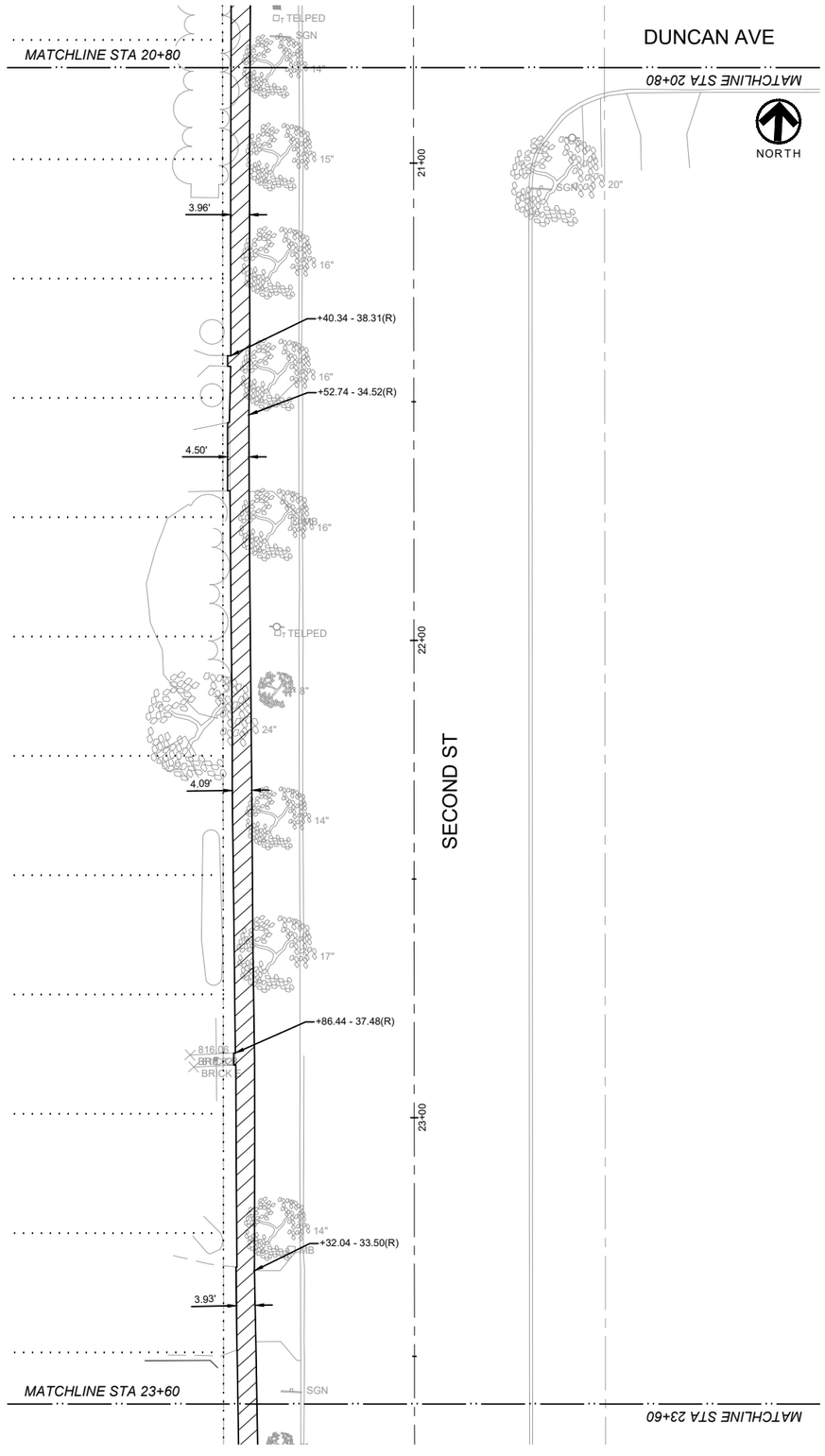
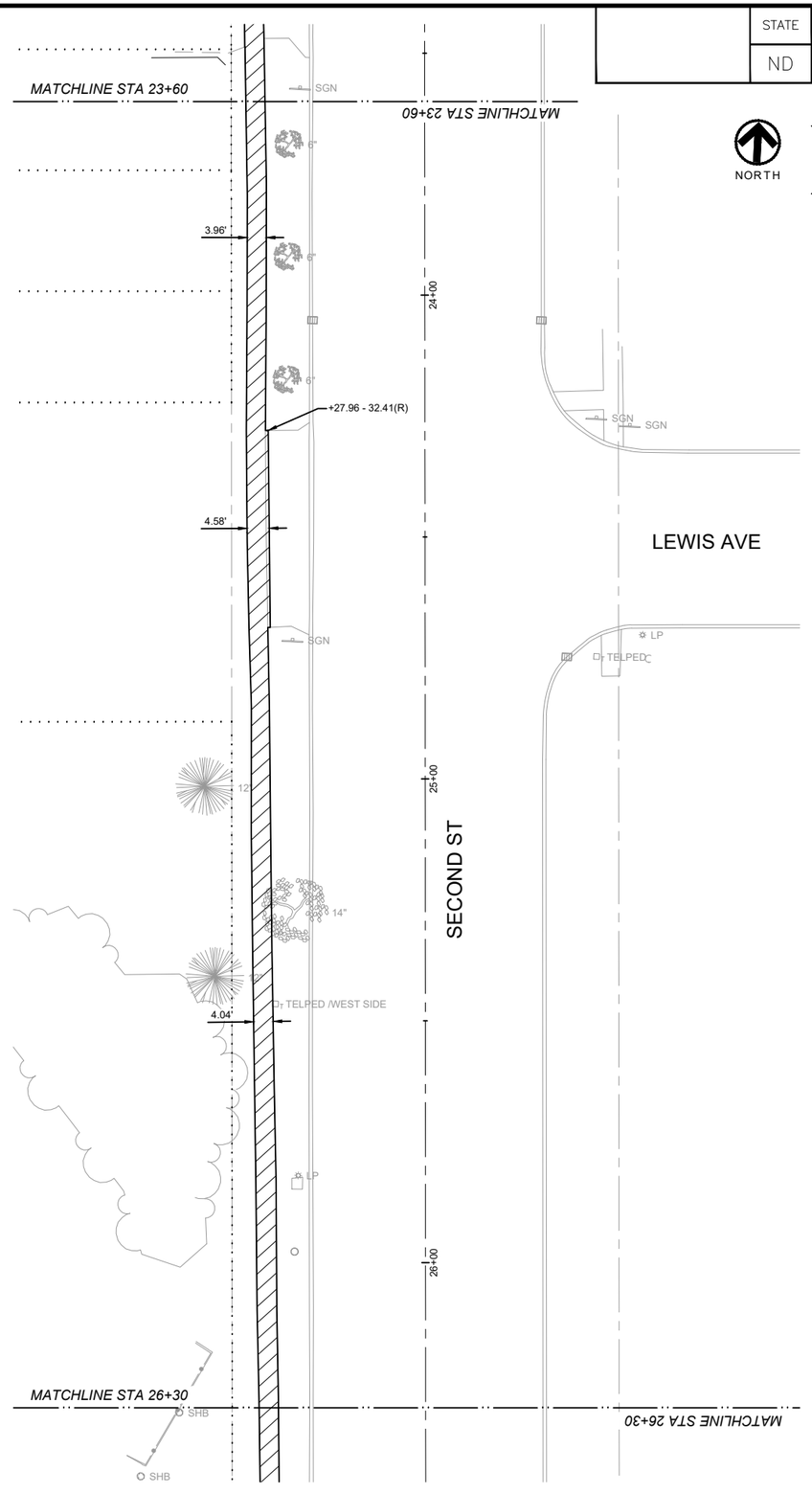
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	40	8





REMOVAL OF CONCRETE PAVEMENT

STA 20+80 RT	253.4 SY

REMOVAL OF CURB & GUTTER

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

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Removals
Fourth Street to Second Street

Transportation Alternatives Program
Minto, North Dakota

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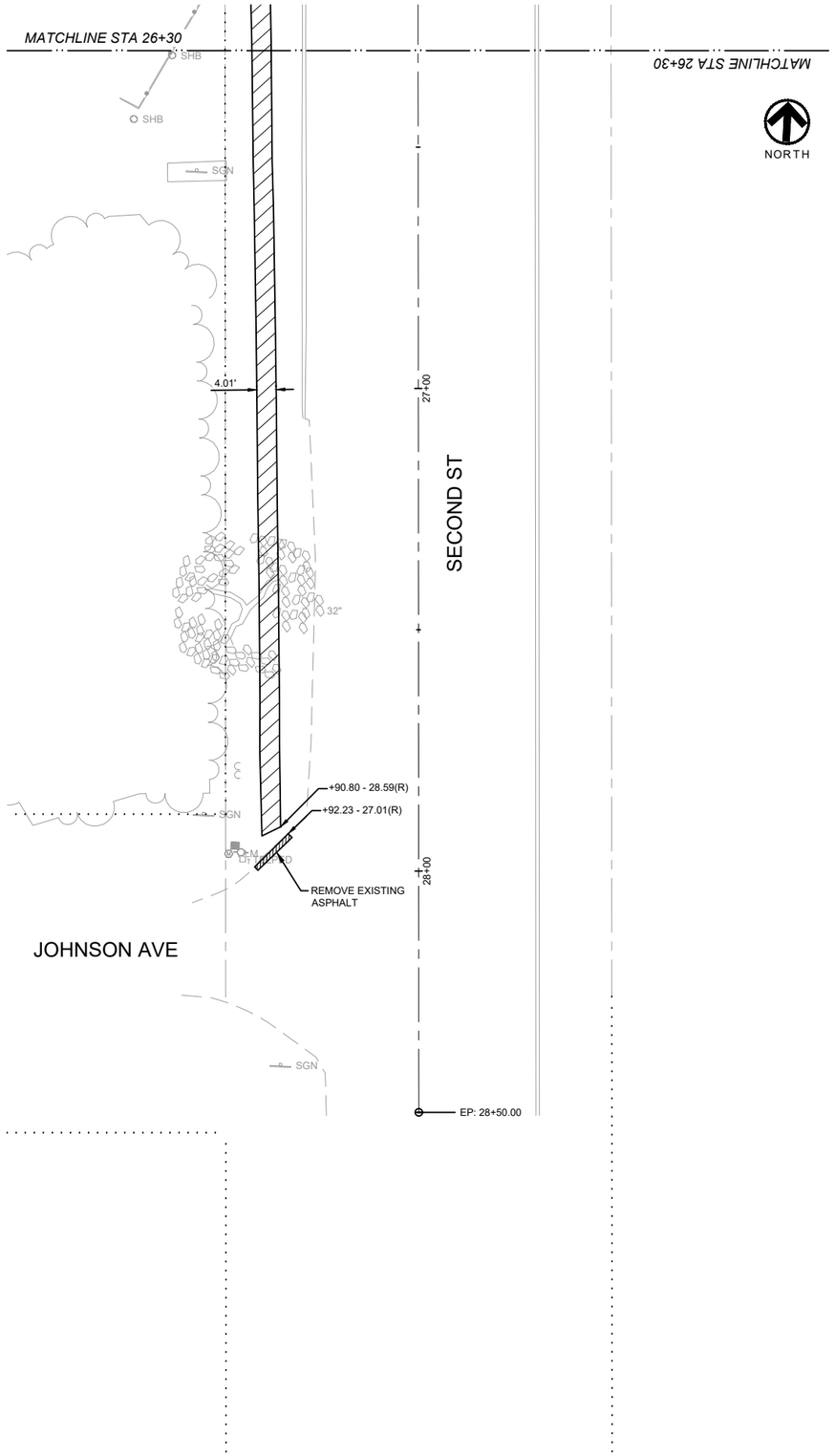

STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	40	9

REMOVAL OF CONCRETE PAVEMENT

STA 26+30 RT	71.8 SY
STA 27+92 RT	1.2 SY

REMOVAL OF CURB & GUTTER

LEGEND

- CURB & GUTTER REMOVAL
- SIDEWALK REMOVAL
- EXISTING ASPHALT REMOVAL

15' 0 15' 30'

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Removals
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Minto, North Dakota

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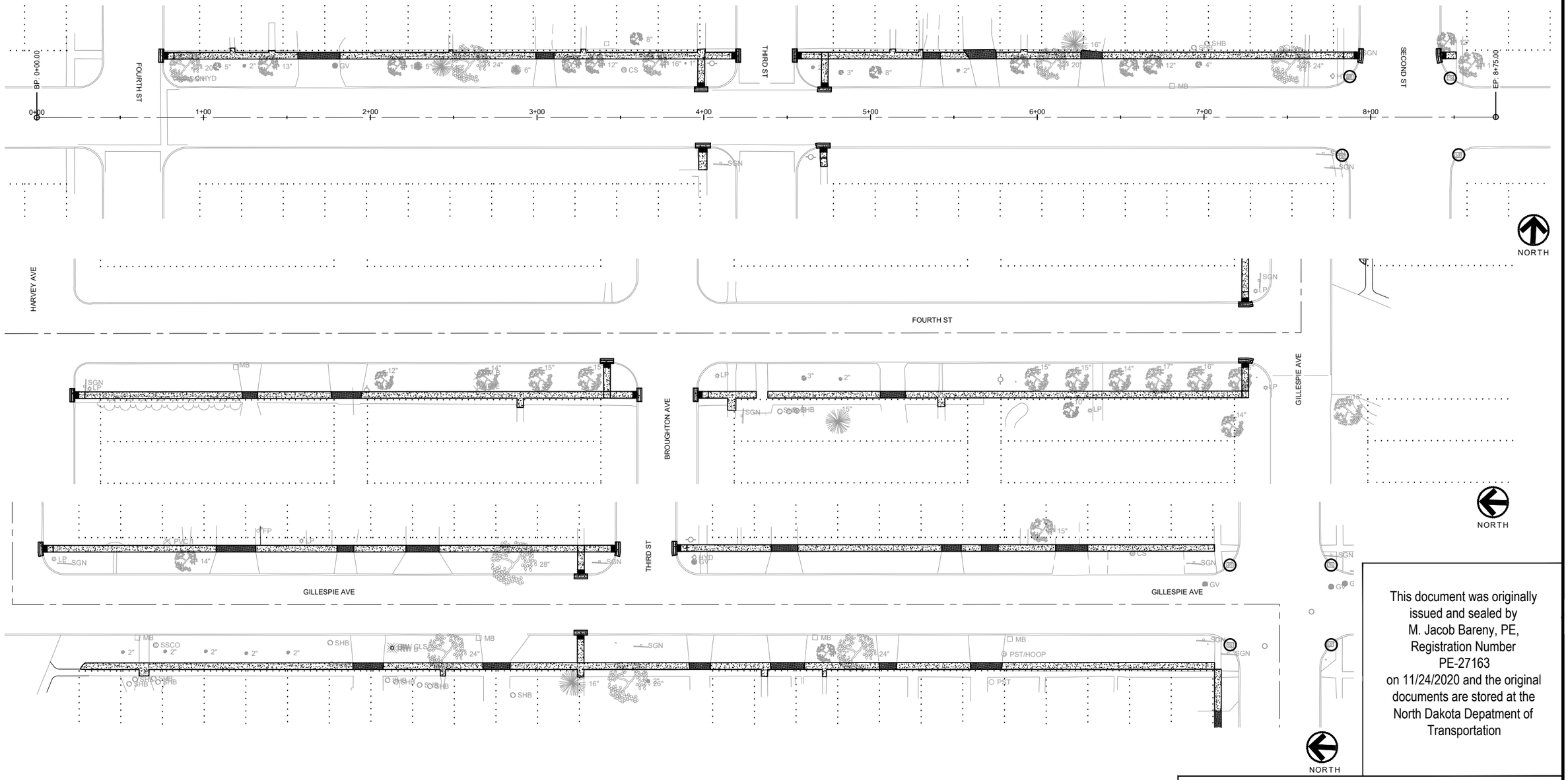
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	76	1



LEGEND

INLET PROTECTION - SPECIAL

30' 0 30' 60'

Scale in Feet

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REV'D.

Temporary Erosion Control

Transportation Alternatives Program
Minto, North Dakota

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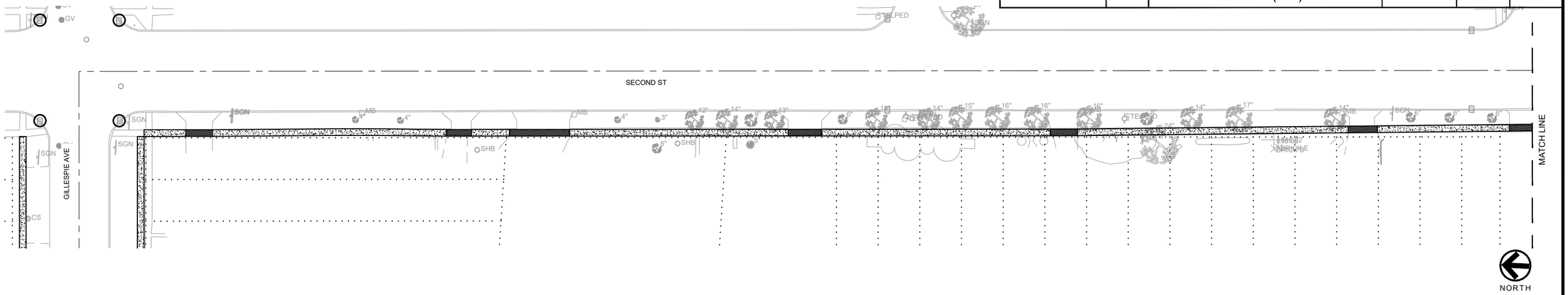
	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	76	2



LEGEND

INLET PROTECTION - SPECIAL

30' 0 30' 60'

Scale in Feet

REV'D.

Temporary Erosion Control

Transportation Alternatives Program
Minto, North Dakota

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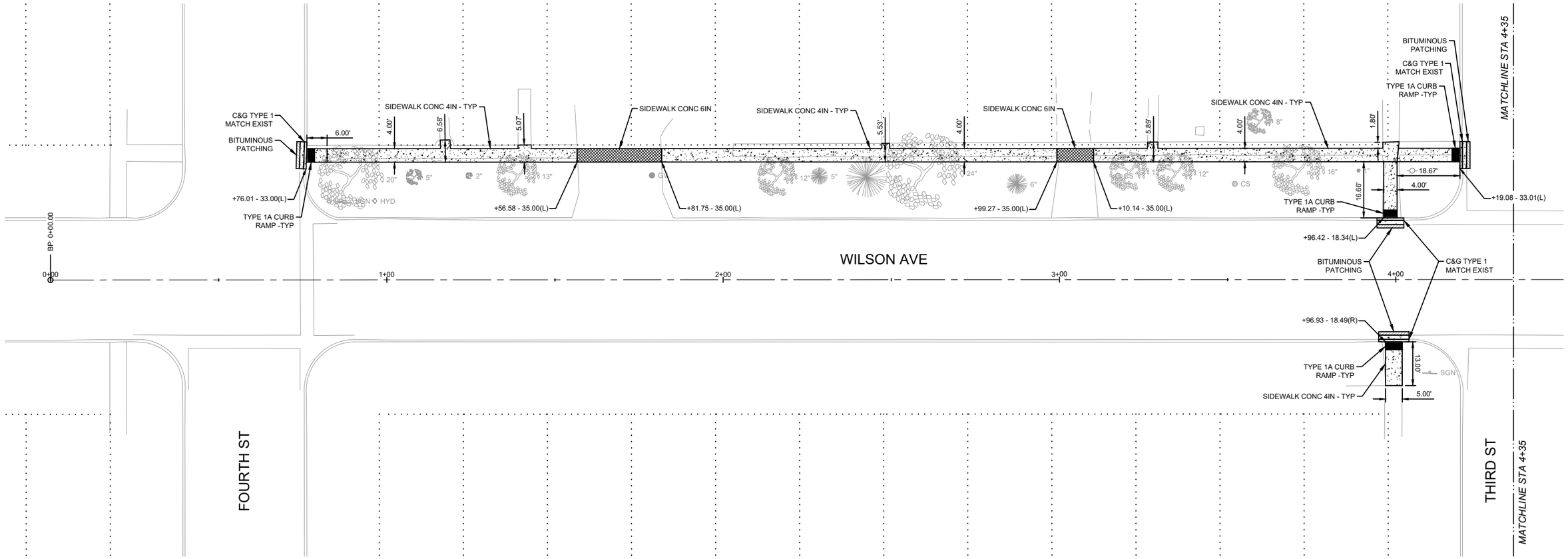
	ND	TAC-6-081(106)181	22574	80	1



CURB AND GUTTER - TYPE 1

STA 0+76.01 LT	9.0 LF	STA 3+96.93 RT	9.0 LF
STA 3+96.42 LT	9.0 LF		
STA 4+19.08 LT	9.0 LF		

SIDEWALK CONCRETE 4IN

STA 0+76.01 LT	38.8 SY	STA 3+96.93 RT	9.2 SY
STA 1+81.75 LT	52.7 SY		
STA 3+10.14 LT	61.1 SY		

SIDEWALK CONCRETE 6IN

STA 1+56.58 LT	11.1 SY		
STA 2+99.27 LT	4.9 SY		

DETECTABLE WARNING PANELS

STA 0+76.01 LT	10 SF	STA 3+96.93 RT	10 SF
STA 3+96.42 LT	10 SF		
STA 4+19.08 LT	10 SF		

HYDRAULIC MULCH

STA 0+76.01 LT	141.3 SY	STA 0+76.01 RT	5.8 SY

NORTH

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'
Scale in Feet

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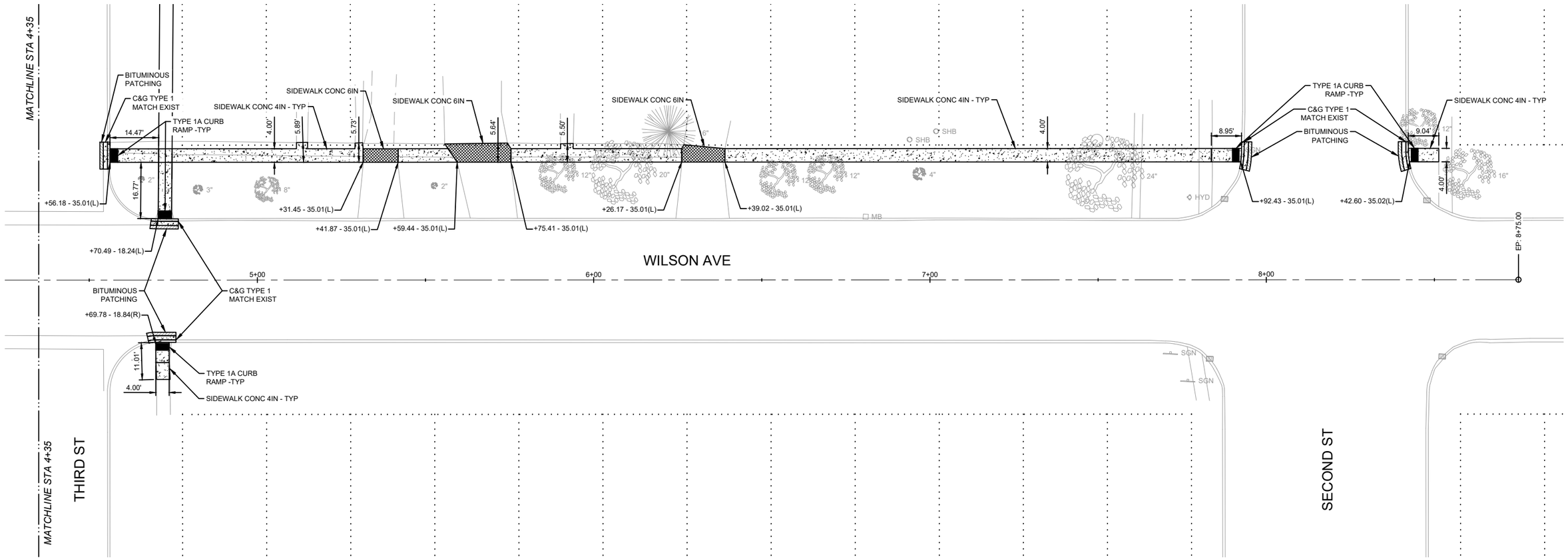

CURB AND GUTTER - TYPE 1

STA 4+56.18 LT	9.0 LF	STA 4+69.78 RT	9.0 LF
STA 4+70.49 LT	9.0 LF		
STA 7+92.43 LT	9.0 LF		
STA 8+42.60 LT	9.0 LF		

SIDEWALK CONCRETE 4IN

STA 4+56.18 LT	52.3 SY	STA 4+69.78 RT	8.1 SY
STA 5+41.87 LT	7.2 SY		
STA 5+75.41 LT	23.2 SY		
STA 6+39.02 LT	70.1 SY		
STA 8+42.60 LT	5.8 SY		

SIDEWALK CONCRETE 6IN

STA 5+31.45 LT	4.7 SY		
STA 5+59.44 LT	11.0 SY		
STA 6+26.17 LT	6.6 SY		

DETECTABLE WARNING PANELS

STA 4+56.18 LT	10 SF	STA 4+69.78 RT	10 SF
STA 4+70.49 LT	10 SF		
STA 7+92.43 LT	10 SF		
STA 8+42.60 LT	10 SF		

HYDRAULIC MULCH

STA 4+56.18 LT	149.3 SY	STA 4+56.18 RT	4.9 SY

NORTH

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'
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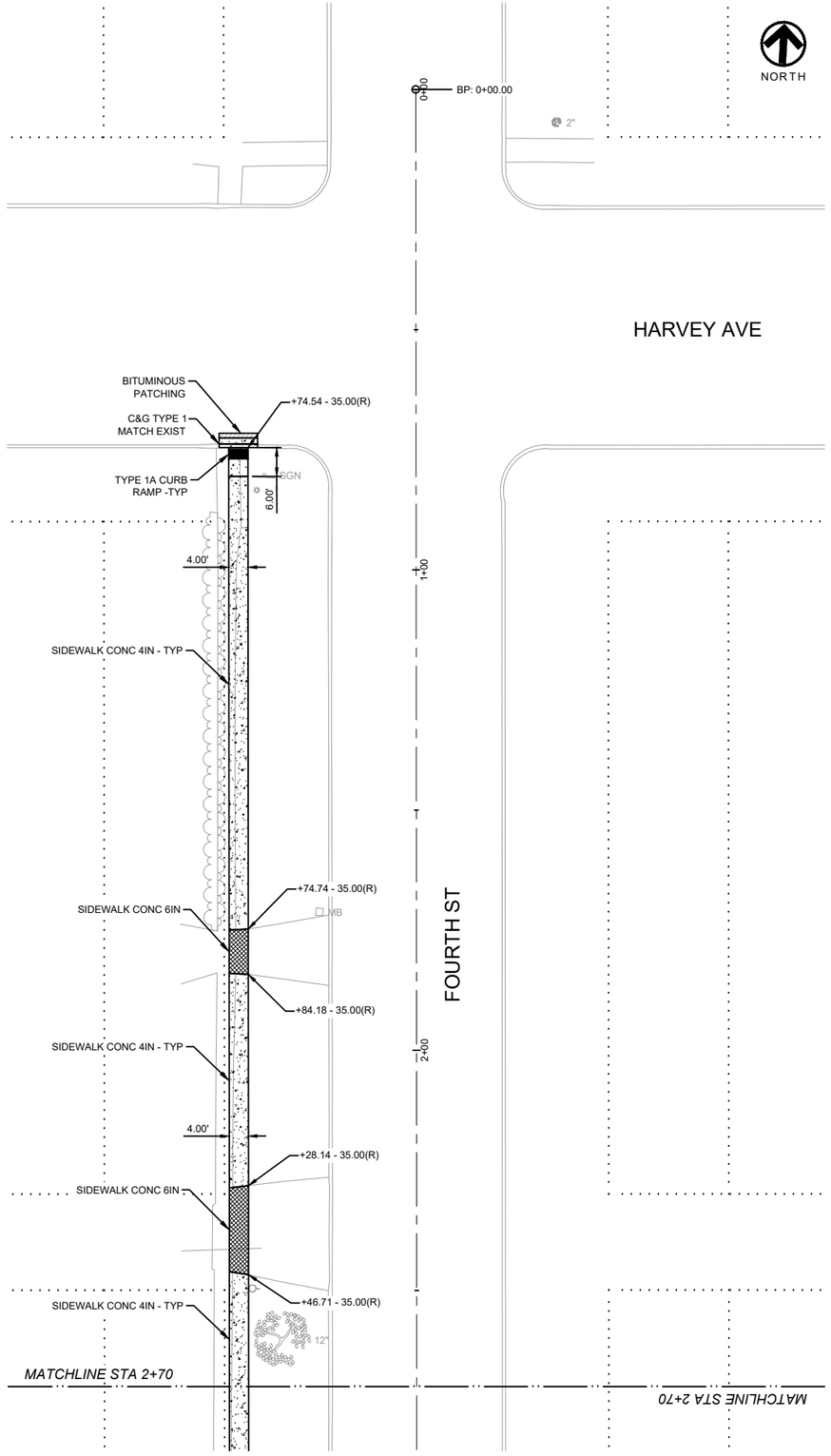

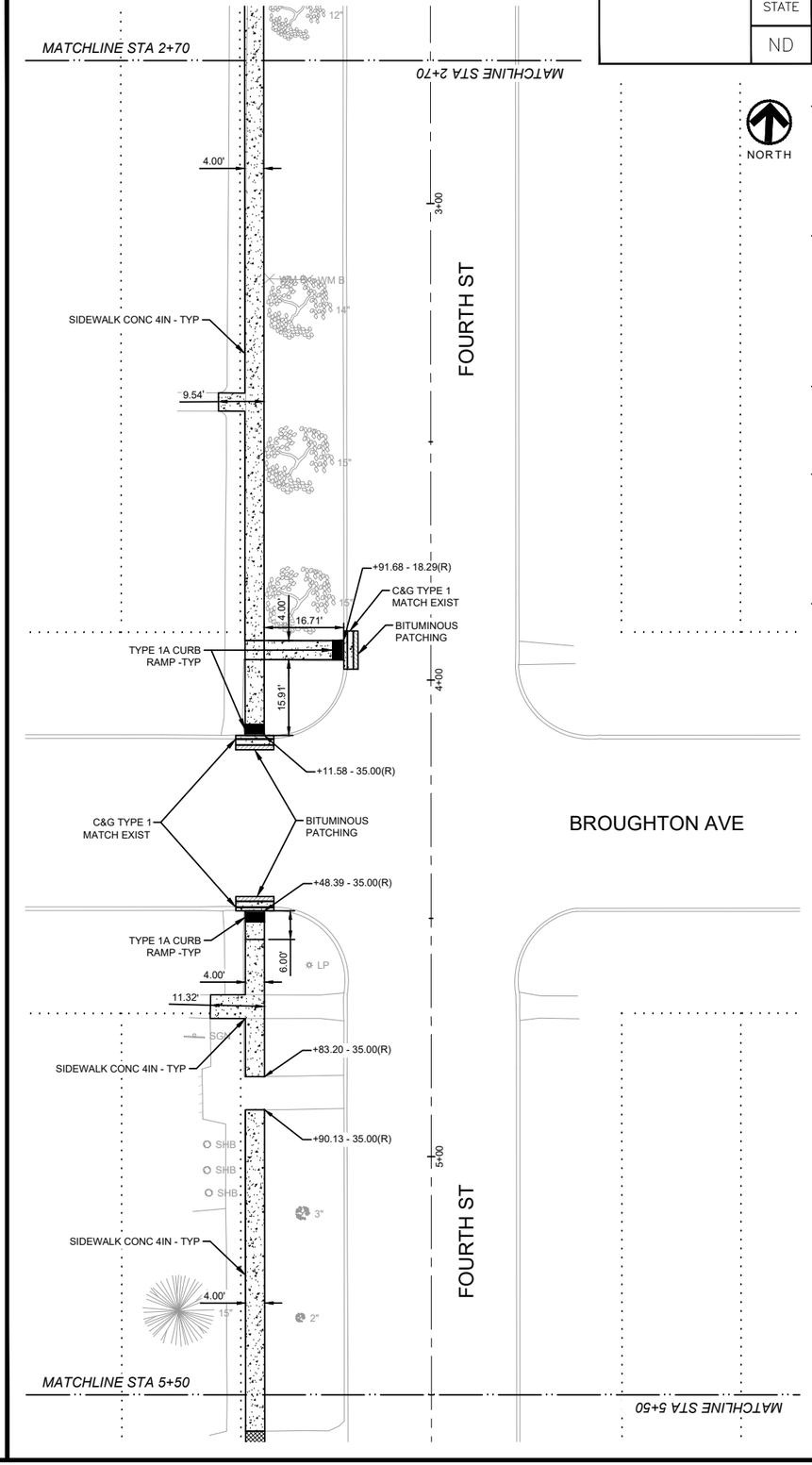

BROUGHTON AVE

CURB AND GUTTER - TYPE 1

STA 0+74.54 RT	9.0 LF
STA 3+91.68 RT	9.0 LF
STA 4+11.58 RT	9.0 LF
STA 4+48.39 RT	9.0 LF

SIDEWALK CONCRETE 4IN

STA 0+74.54 RT	46.4 SY
STA 1+84.18 RT	19.7 SY
STA 2+46.71 RT	86.8 SY
STA 4+48.39 RT	21.3 SY
STA 4+90.13 RT	30.0 SY

SIDEWALK CONCRETE 6IN

STA 1+74.74 RT	4.1 SY
STA 2+28.14 RT	8.0 SY

DETECTABLE WARNING PANELS

STA 0+74.54 RT	10.0 SF
STA 3+91.68 RT	10.0 SF
STA 4+11.58 RT	10.0 SF
STA 4+48.39 RT	10.0 SF

HYDRAULIC MULCH

STA 0+74.54 LT	189.8 SY

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'
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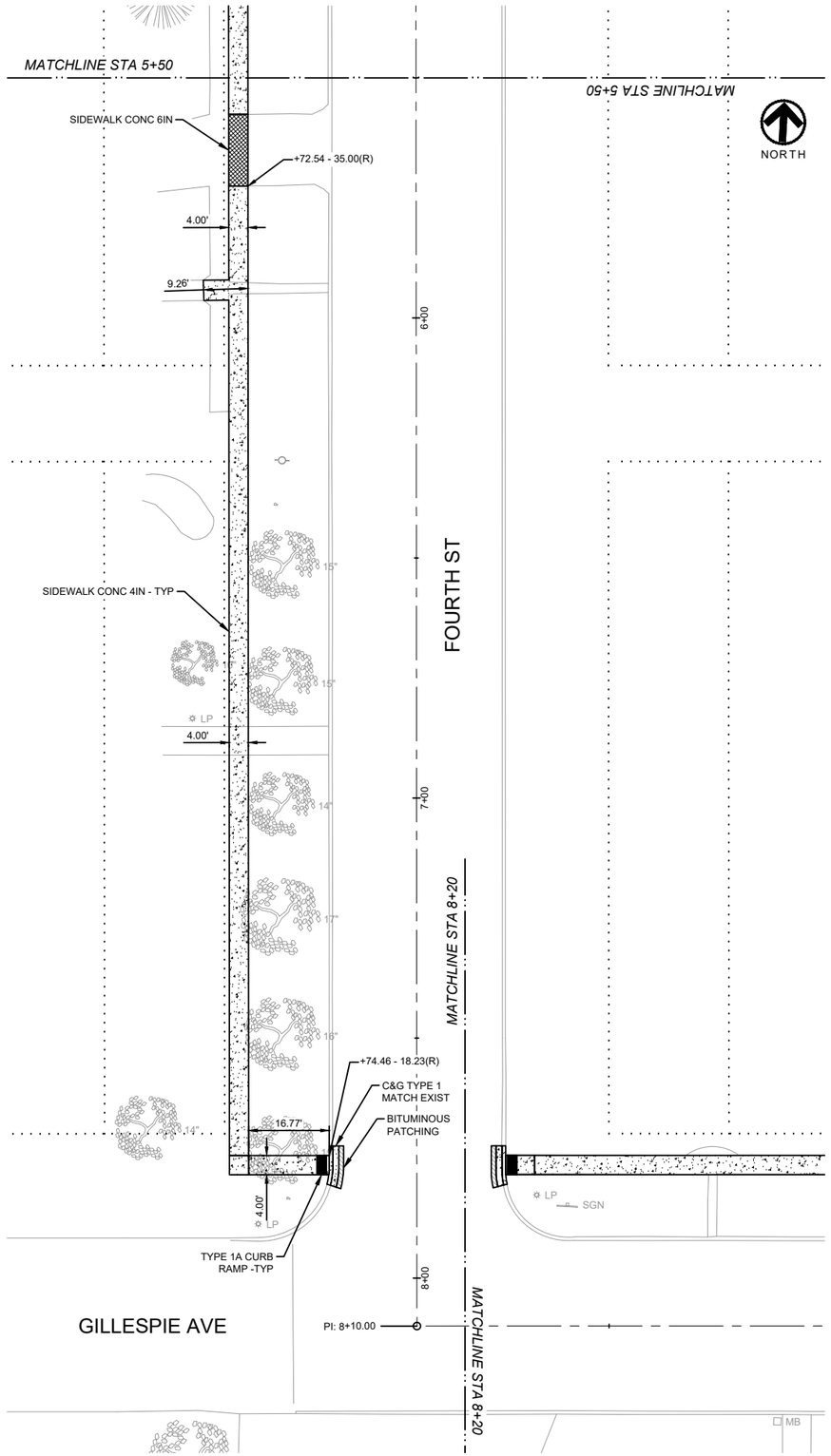

	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	80	4

CURB AND GUTTER - TYPE 1

STA 7+74.46 RT	9.0 LF

SIDEWALK CONCRETE 4IN

STA 5+72.54 RT	103.0 SY

SIDEWALK CONCRETE 6IN

STA 5+57.57 RT	6.7 SY

DETECTABLE WARNING PANELS

STA 7+74.46 RT	10.0 SF

HYDRAULIC MULCH

STA 5+57.57 LT	0.0 SY	STA 5+57.57 RT	101.3 SY

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'

Scale in Feet

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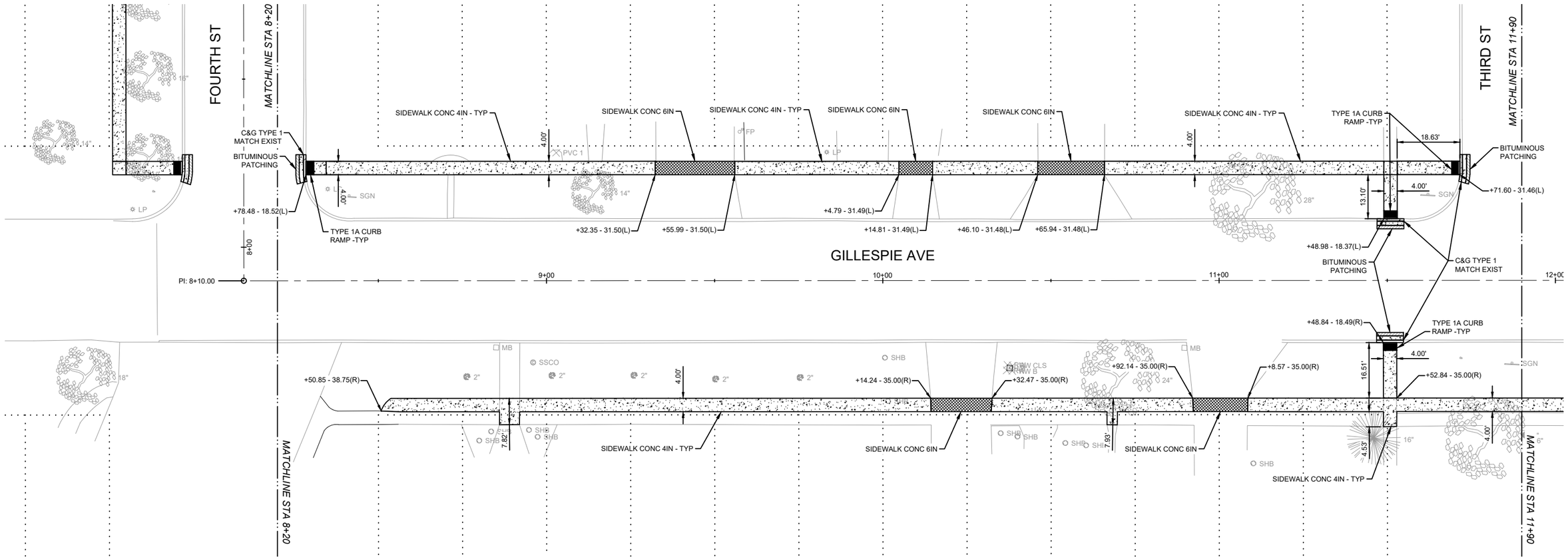
	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	80	5



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CURB AND GUTTER - TYPE 1

STA 7+78.48 LT	9.0 LF	STA 11+48.84 RT	10.0 LF
STA 11+48.98 LT	9.0 LF		
STA 11+71.60 LT	9.0 LF		

SIDEWALK CONCRETE 4IN

STA 7+78.48 LT	47.9 SY	STA 8+50.85 RT	75.0 SY
STA 9+55.99 LT	21.7 SY	STA 10+32.47 RT	28.0 SY
STA 10+14.81 LT	13.9 SY	STA 11+08.57 RT	47.2 SY
STA 10+65.94 LT	56.4 SY		

SIDEWALK CONCRETE 6IN

STA 9+32.35 LT	10.5 SY	STA 10+14.24 RT	8.1 SY
STA 10+04.79 LT	4.5 SY	STA 10+92.14 RT	7.3 SY
STA 10+46.10 LT	8.8 SY		

DETECTABLE WARNING PANELS

STA 7+78.48 LT	10.0 SF	STA 11+48.84 RT	10.0 SF
STA 11+48.98 LT	10.0 SF		
STA 11+71.60 LT	10.0 SF		

HYDRAULIC MULCH

STA 7+78.48 LT	134.2 SY	STA 7+78.48 RT	125.8 SY

NORTH

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'
Scale in Feet

REV'D.

Transportation Alternatives Program
Minto, North Dakota

DRWN. BY	CHK'D BY	PROJECT NO.	DATE
E. Bratager	J. Barney	P00120-2018-004	October 2020

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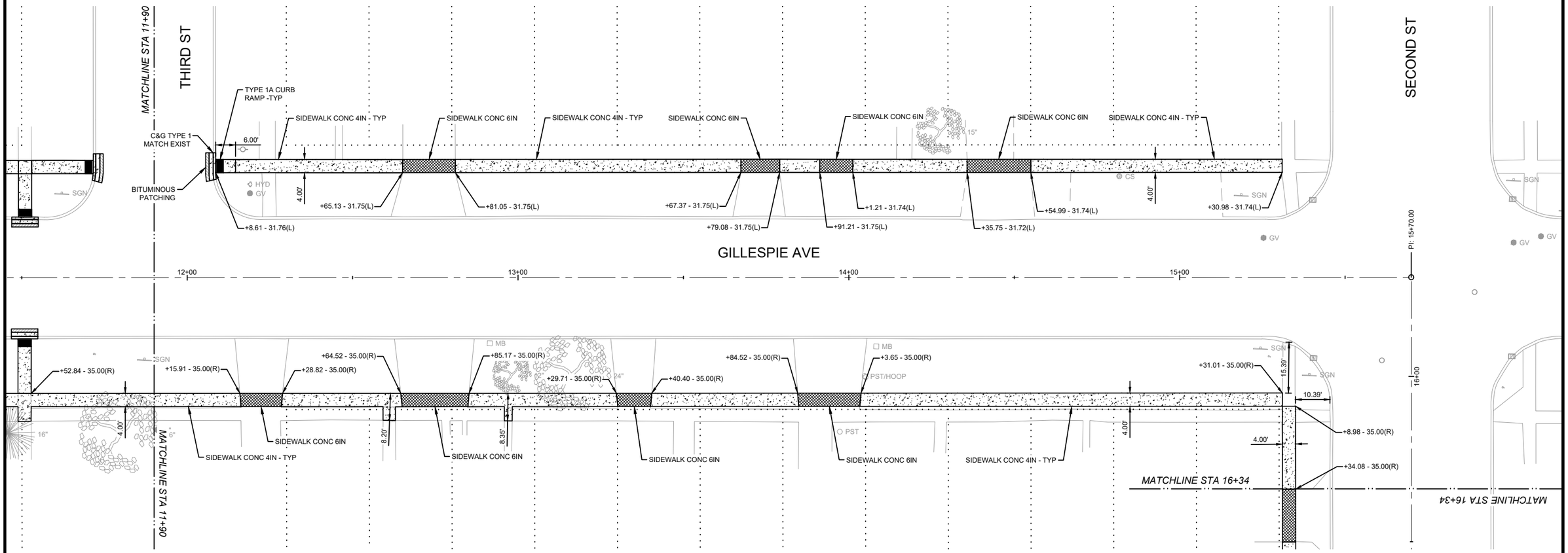
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	80	6



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CURB AND GUTTER - TYPE 1

STA 12+08.61 LT	9.0 LF

SIDEWALK CONCRETE 4IN

STA 12+08.61 LT	27.0 SY	STA 11+52.84 RT	11.7 SY
STA 12+81.05 LT	38.4 SY	STA 12+28.92 RT	17.9 SY
STA 13+79.08 LT	5.4 SY	STA 12+85.27 RT	21.1 SY
STA 14+01.21 LT	15.4 SY	STA 13+40.49 RT	19.8 SY
STA 14+54.99 LT	33.8 SY	STA 14+03.75 RT	56.7 SY
		STA 16+08.98 RT	11.2 SY

SIDEWALK CONCRETE 6IN

STA 12+65.13 LT	7.1 SY	12+15.91 RT	5.6 SY
STA 13+67.37 LT	5.2 SY	12+64.52 RT	9.1 SY
STA 13+91.21 LT	4.4 SY	13+29.71 RT	4.6 SY
STA 14+35.75 LT	8.6 SY	13+84.52 RT	8.4 SY

DETECTABLE WARNING PANELS

STA 12+08.61 LT	10.0 SF

HYDRAULIC MULCH

STA 12+08.61 LT	142.2 SY	STA 12+08.61 RT	176.9 SY

NORTH

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'
Scale in Feet

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Minto, North Dakota

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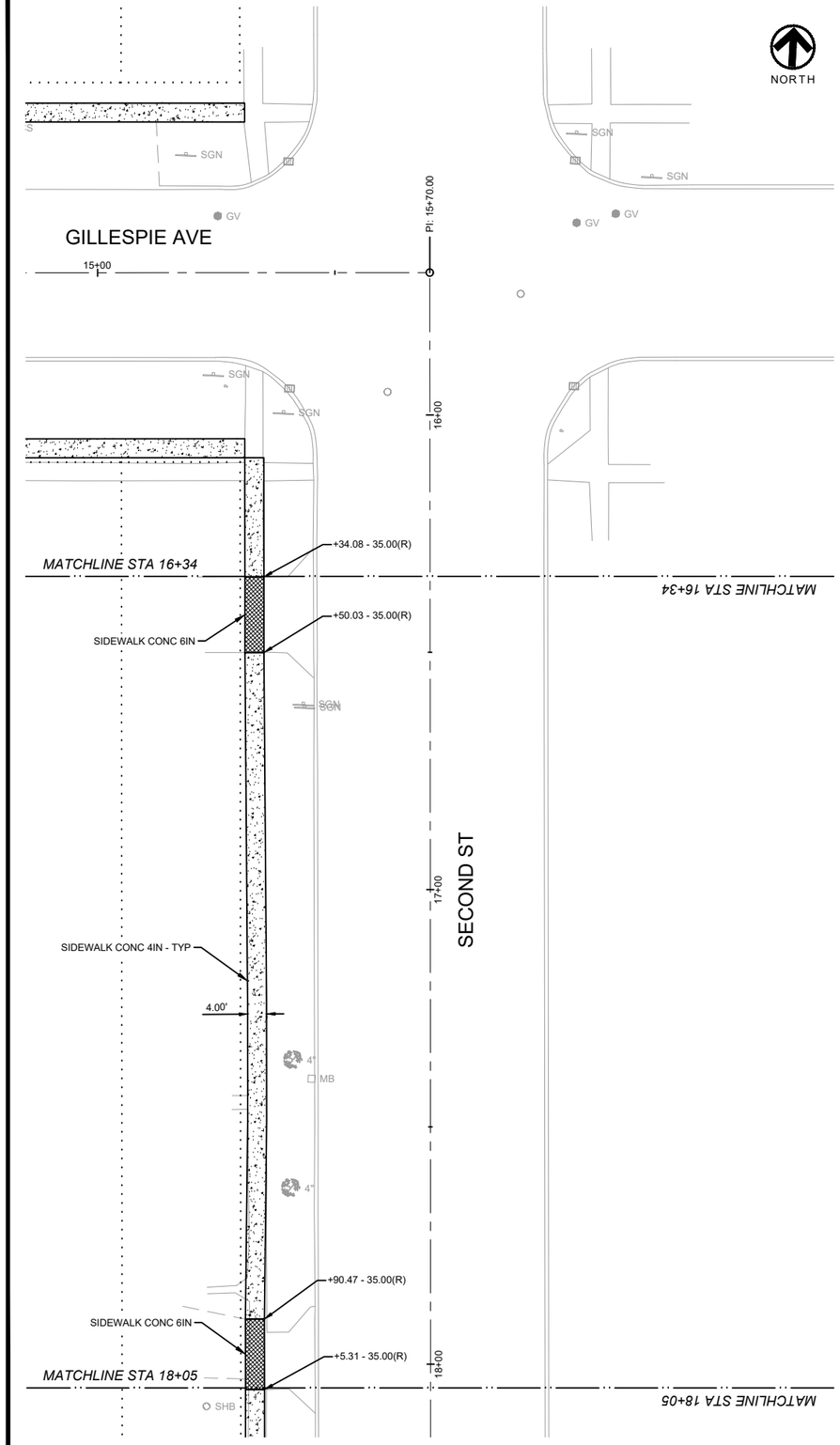
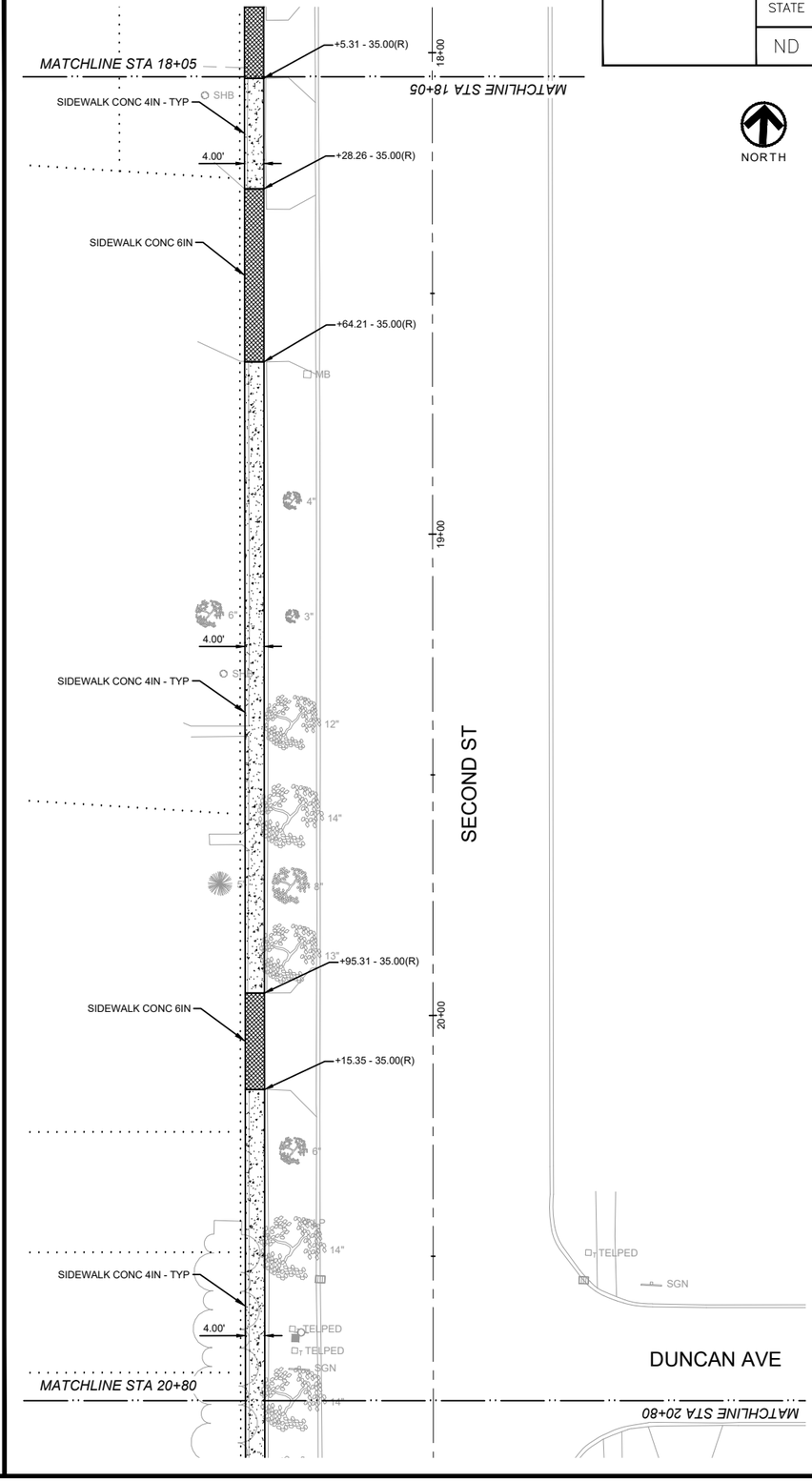
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	80	7





CURB AND GUTTER - TYPE 1

SIDEWALK CONCRETE 4IN

STA 16+50.03 RT	62.4 SY
STA 18+05.31 RT	10.2 SY
STA 18+64.21 RT	58.3 SY
STA 20+15.35 RT	61.0 SY

SIDEWALK CONCRETE 6IN

STA 16+34.08 RT	7.1 SY
STA 17+90.47 RT	6.6 SY
STA 18+28.26 RT	16.0 SY
STA 19+95.31 RT	8.9 SY

DETECTABLE WARNING PANELS

HYDRAULIC MULCH

STA 16+50.03 LT	0.0 CY	STA 16+50.03 RT	164.9 SY

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'
Scale in Feet

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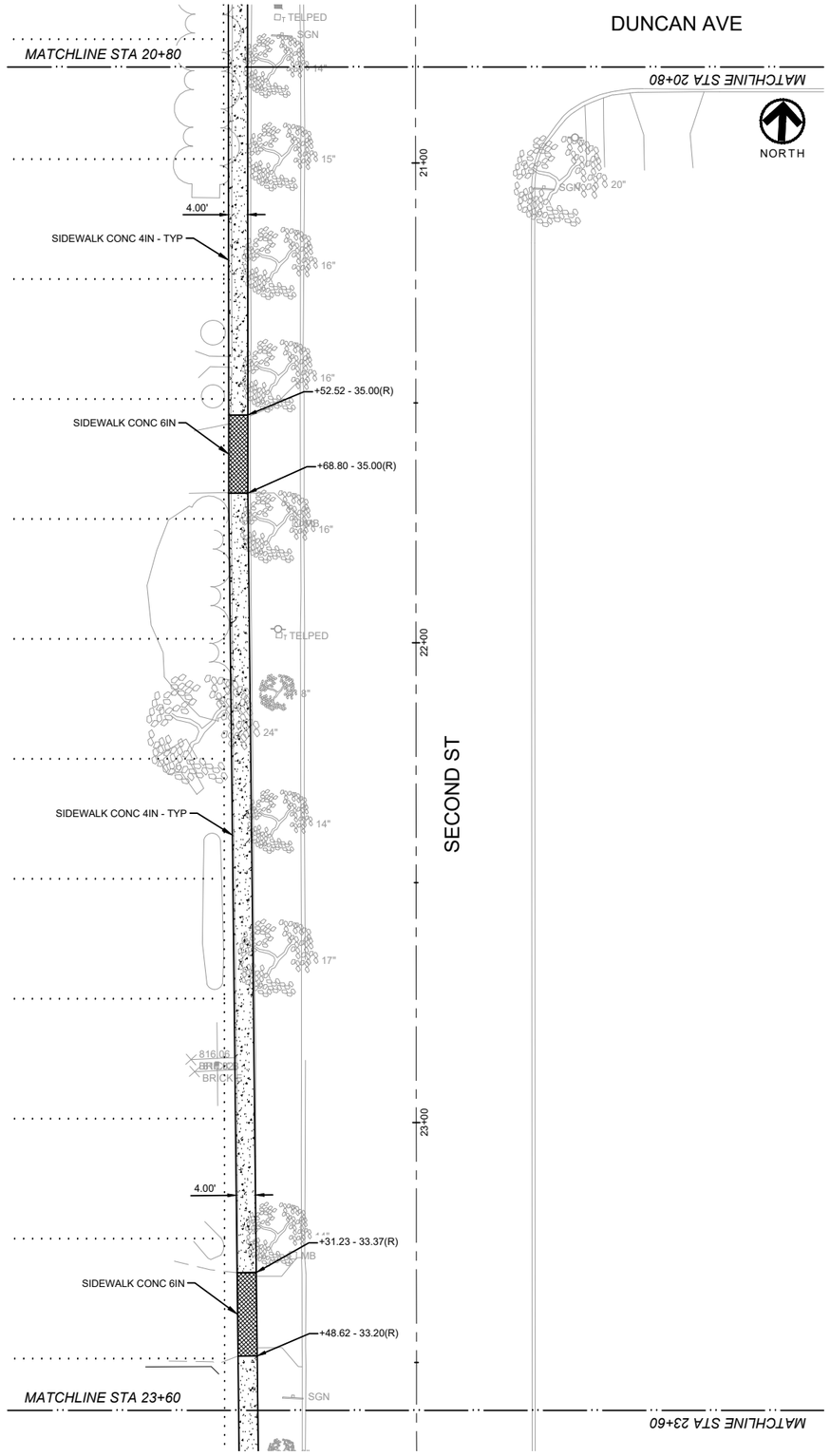
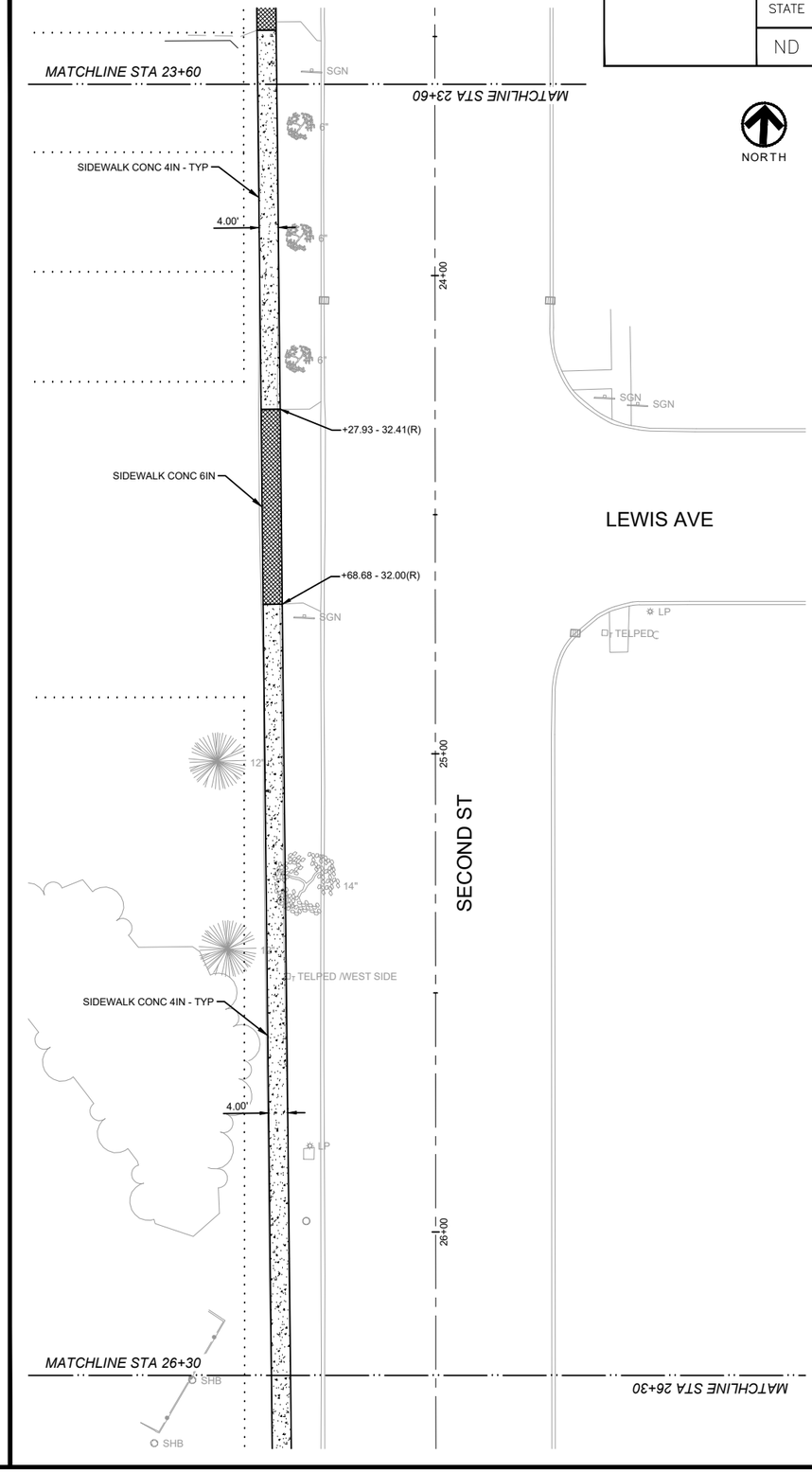
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	80	8





CURB AND GUTTER - TYPE 1

SIDEWALK CONCRETE 4IN

STA 21+68.80 RT	72.2 SY
STA 23+48.62 RT	35.3 SY
STA 24+68.68 RT	71.6 SY

SIDEWALK CONCRETE 6IN

STA 21+52.52 RT	7.3 SY
STA 23+31.23 RT	7.4 SY
STA 24+27.93 RT	18.1 SY

DETECTABLE WARNING PANELS

HYDRAULIC MULCH

STA 20+80.00 RT	224.9 SY

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

15' 0 15' 30'
Scale in Feet

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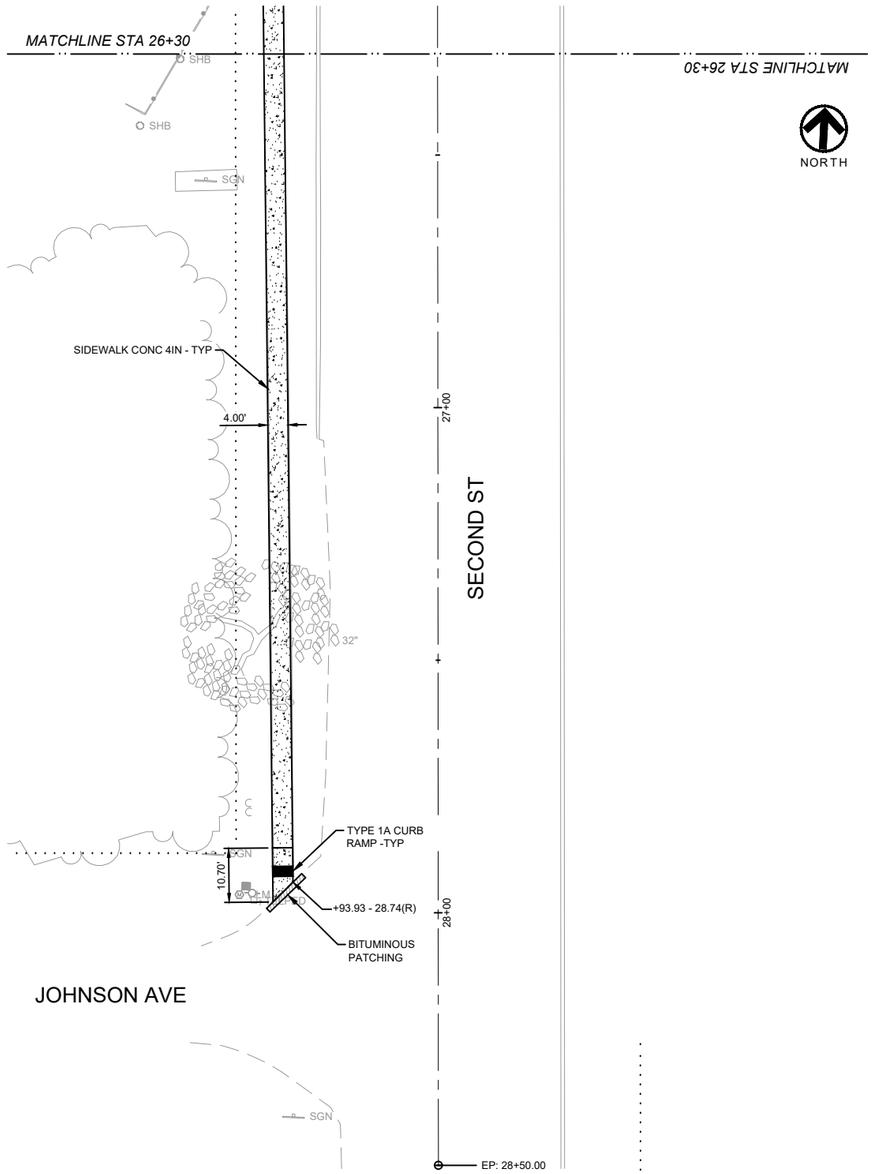

STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	80	9

CURB AND GUTTER - TYPE 1

SIDEWALK CONCRETE 4IN

STA 28+33.71 RT	77.1 SY

SIDEWALK CONCRETE 6IN

DETECTABLE WARNING PANELS

STA 27+93.93 RT	10.0 SF

HYDRAULIC MULCH

STA 26+30 LT	0.0 SY	STA 26+30 RT	81.3 SY

LEGEND

- BITUMINOUS PATCHING
- SIDEWALK CONCRETE - 6IN
- SIDEWALK CONCRETE - 4IN
- DETECTABLE WARNING PANEL
- 1116.66 PROPOSED GRADE SPOT ELEVATION

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Minto, North Dakota

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAC-6-081(106)181	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE		35	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES		28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)		18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**2**	**26**	**52**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		70	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS		43	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW		36	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)		7	
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-2-60	60"x60"	YIELD		29	
R2-1-36	**36"x48"**	**SPEED LIMIT __ (Portable only)**	**2**	**30**	**60**
R2-1-48	48"x60"	SPEED LIMIT __		39	
R2-1aP-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**2**	**10**	**20**
R3-2-48	48"x48"	NO LEFT TURN		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)		14	
R7-1-12	12"x18"	NO PARKING ANY TIME		11	
R9-10-24	**24"x12"**	**SIDEWALK CLOSED USE OTHER SIDE (Mounted on barricade)**	**2**	**3**	**6**
R9-11a-24	**24"x12"**	**SIDEWALK CLOSED CROSS HERE (Mounted on barricade)**	**2**	**3**	**6**
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)		12	
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)		12	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)		15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT		35	
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT		35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT		35	
W1-6-48	**48"x24"**	**ONE DIRECTION LARGE ARROW**	**2**	**26**	**52**
W3-1-48	48"x48"	STOP AHEAD		35	
W3-3-48	48"x48"	SIGNAL AHEAD		35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**2**	**35**	**70**
W3-5-48	48"x48"	SPEED REDUCTION AHEAD		35	
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC		35	
W8-1-48	48"x48"	BUMP		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER LINE		35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE		35	
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)		14	
W14-3-64	64"x48"	NO PASSING ZONE		28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)		10	
W16-9p-30	**30"x18"**	**AHEAD (Mounted on pedestrian sign post)**	**2**	**11**	**22**
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**2**	**35**	**70**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT or _ MILE		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT or _ MILE		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE		35	
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE		35	
W20-7-48	48"x48"	FLAGGER		35	
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back		5	
W20-52P-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)		12	
W21-1-48	**48"x48"**	**WORKERS**	**2**	**35**	**70**
W21-2-48	48"x48"	FRESH OIL		35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE		35	
W21-5-48	48"x48"	SHOULDER WORK		35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE		35	
W21-6-48	48"x48"	SURVEY CREW		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W21-52-48	48"x48"	PAVEMENT BREAKS		35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**428**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1048	PORTABLE RUMBLE STRIPS	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**4**
704-1054	**SIDEWALK BARRICADE**	**EA**	**2**
704-1060	**DELINEATOR DRUMS**	**EACH**	**4**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**50**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	STACKABLE VERTICAL PANELS	EACH	
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1500	OBLITERATION OF PVMT MK	SF	
704-2108	**TEMPORARY CURB RAMP**	**EA**	**2**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

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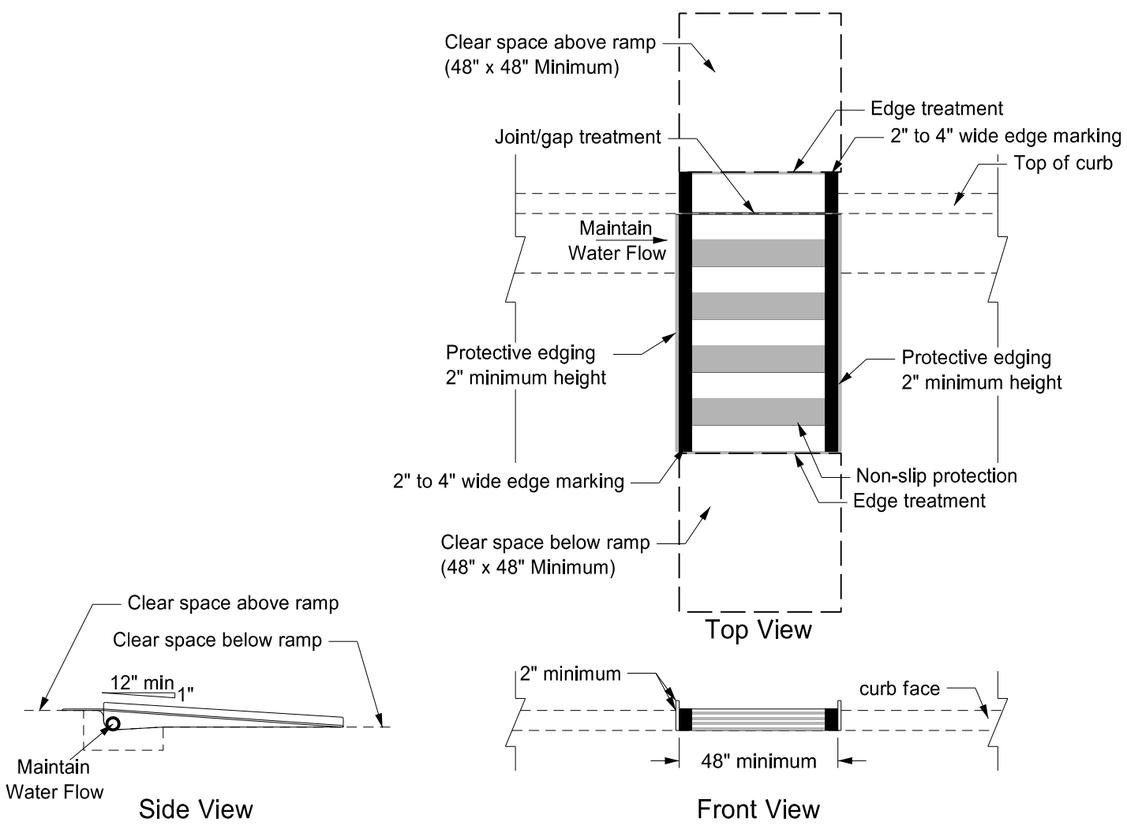
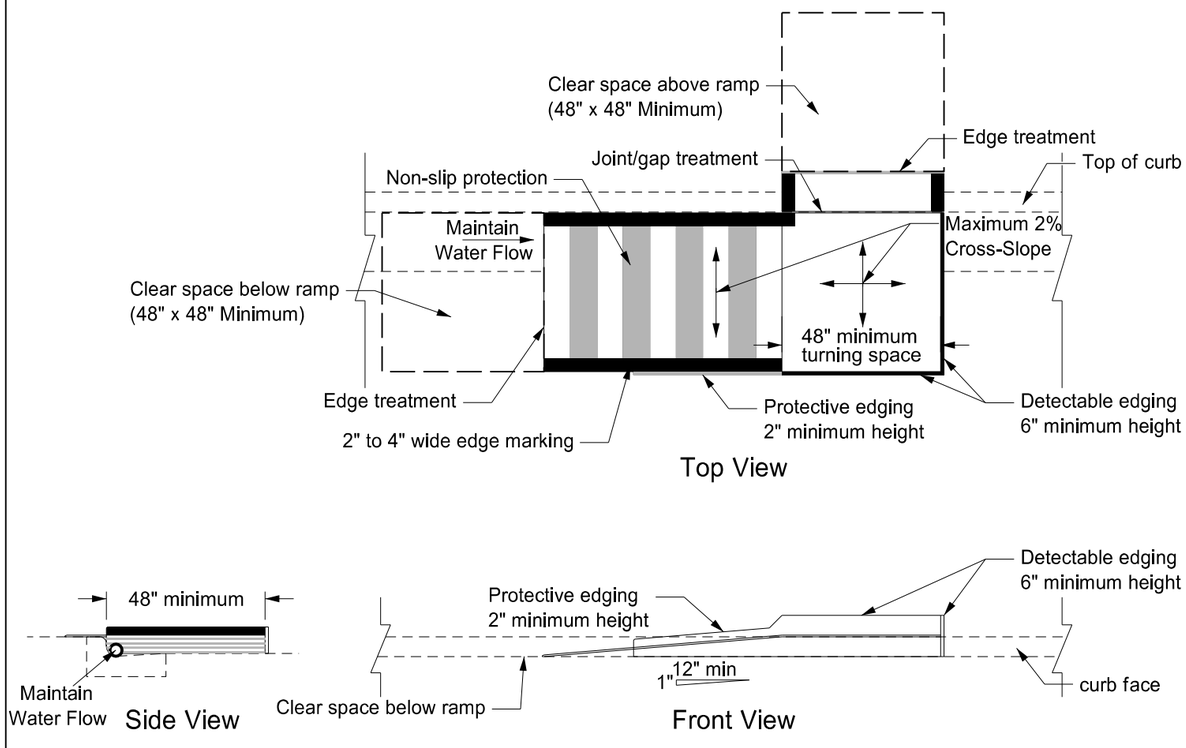
Traffic Control Devices List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAC-6-081(106)181	100	2

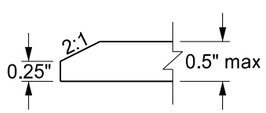


Temporary Perpendicular Curb Ramp



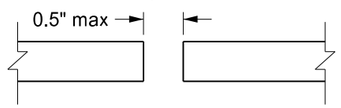
Temporary Parallel Curb Ramp

Edge Treatment



Maximum Surface
Height Change Detail

Joint/Gap Treatment



Maximum Width
Lateral Joints or Gaps

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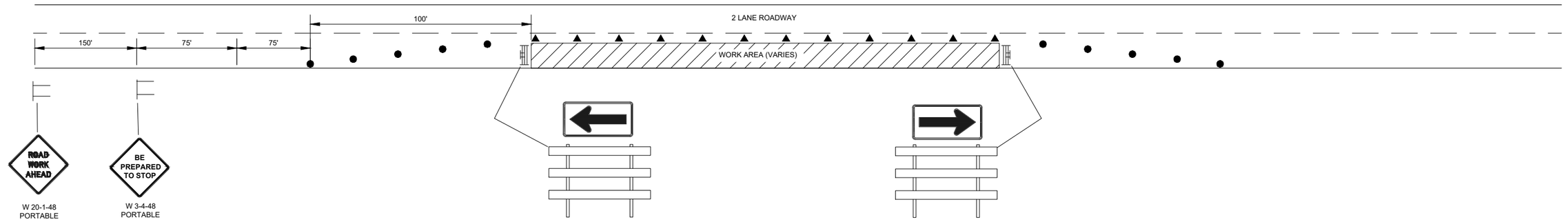
Temporary Pedestrian Curb Ramp Details

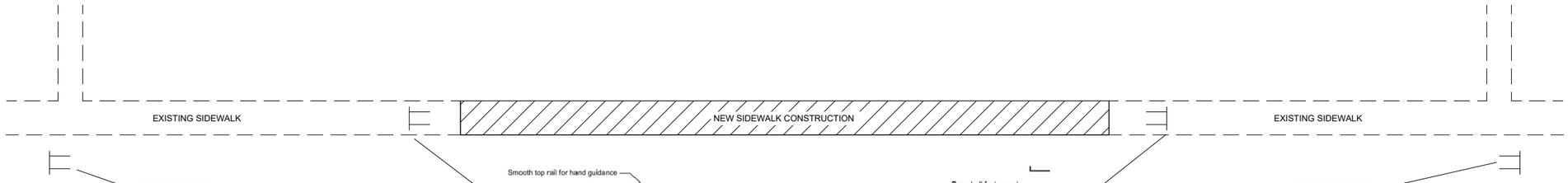
Transportation Alternatives Program
Minto, North Dakota

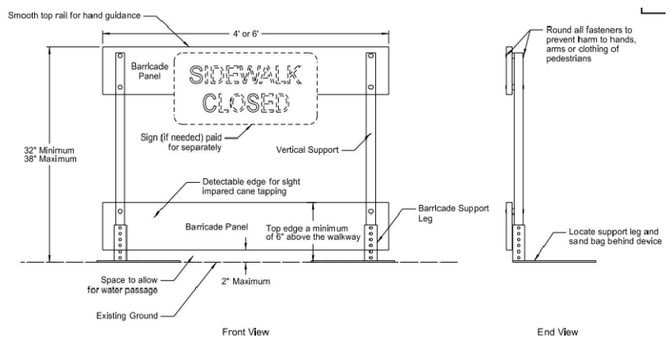
	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	100	3



LEGEND

- DELINEATOR DRUMS (4 EACH)
- TUBULAR MARKERS (50 EACH)
- TYPE III BARRICADE (4 EACH)





SIDEWALK BARRICADES:

1. PROVIDE SELF STANDING SIDEWALK BARRICADE WITH NO SUPPORTS EXTENDING INTO THE PEDESTRIANS PATH.
2. USE ORANGE OR ORANGE AND WHITE DIAGONAL STRIPED BARRICADE PANELS CONTRASTING WITH THE WALKWAY SURFACE.
3. PROVIDE ADA COMPLIANT AND NCHRP 350 OR MASH TEST LEVEL 3 APPROVED SIDEWALK BARRICADES.
4. INCLUDE ALL COSTS TO FURNISH, MAINTAIN AND REMOVE SIDEWALK BARRICADES IN THE PRICE BID FOR "SIDEWALK BARRICADE"

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REV'D.

Construction Sign Layout

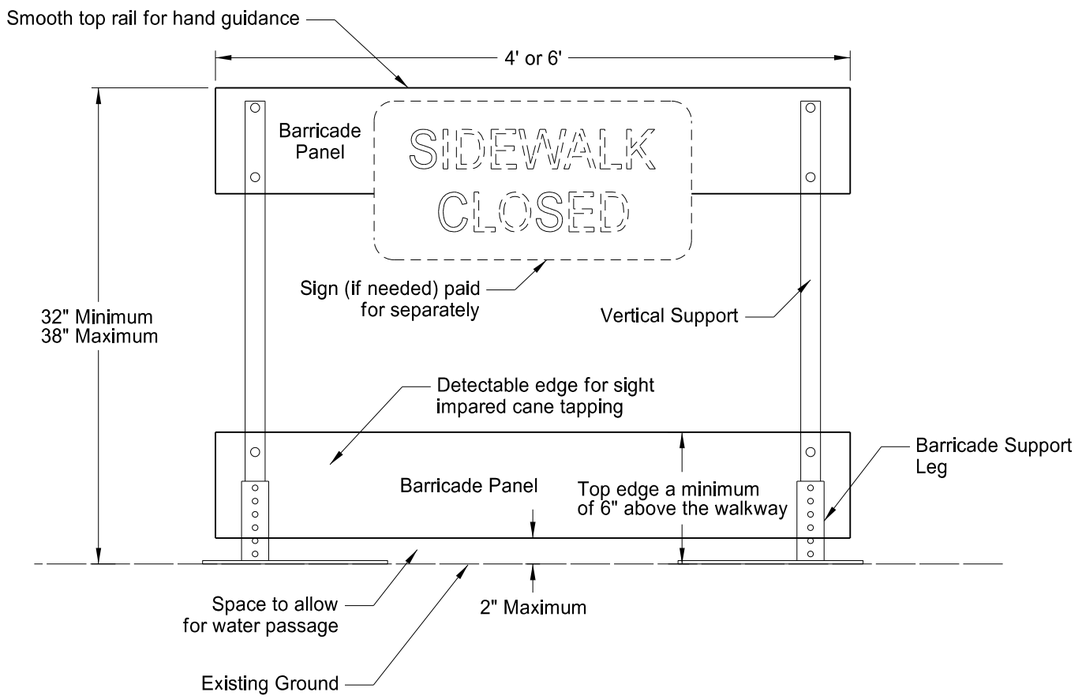
Transportation Alternatives Program
Minto, North Dakota

DRWN. BY	CHK'D BY	PROJECT NO.	DATE
E. Bratager	J. Barney	P00120-2018-004	October 2020

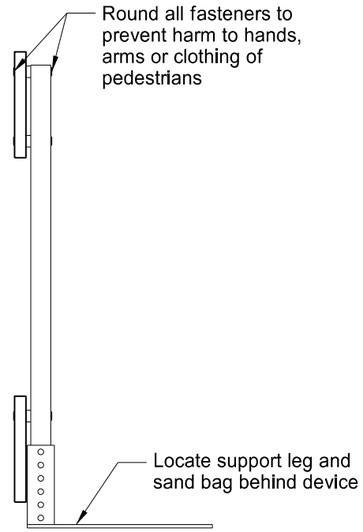
File: \\AE2S.com\Nasun\Projects\M\Minto\00120-2018-004 - minto 2019 tap\CAD Dwgs\01-Civil\Plan Sheets\100 Sign Layout.dwg

AE2S ● 4050 Garden View Dr Ste 200 Grand Forks, ND 58201 ● (t) 701-746-8087 (f) 701-746-0370

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-6-081(106)181	100	4



Front View

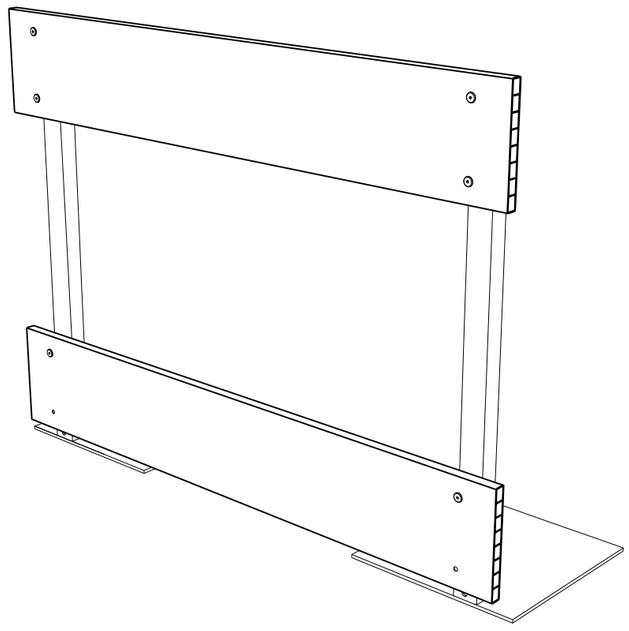


End View

NOTES:

Sidewalk Barricades

1. Provide self standing sidewalk barricade with no supports extending into the pedestrians path.
2. Use orange or orange and white diagonal striped barricade panels contrasting with the walkway surface.
3. Provide ADA compliant and NCHRP 350 or Mash Test Level 3 (TL3) approved sidewalk barricades.
4. Include all costs to furnish, maintain and remove sidewalk barricades in the price bid for "Sidewalk Barricade".



Perspective View

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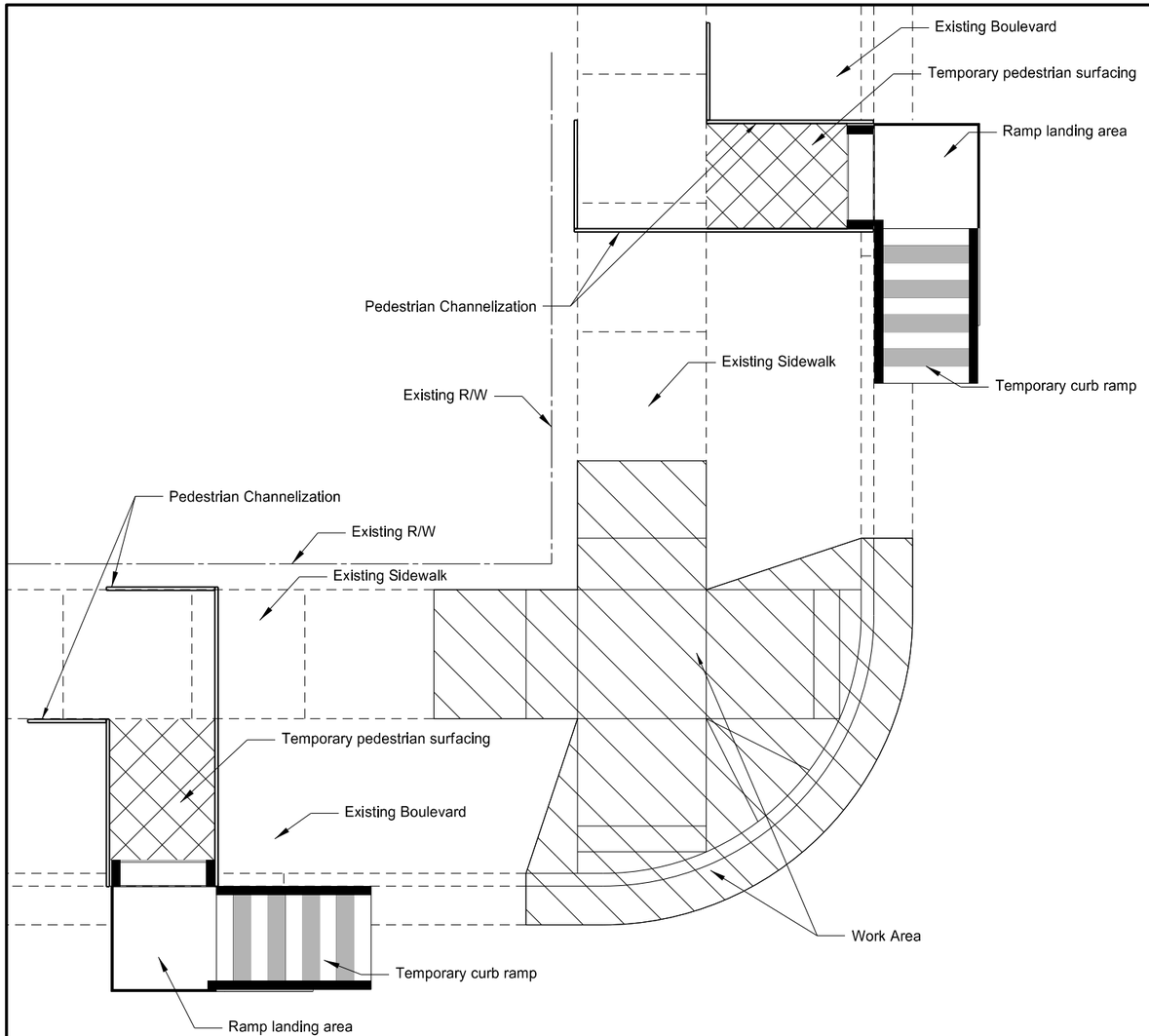
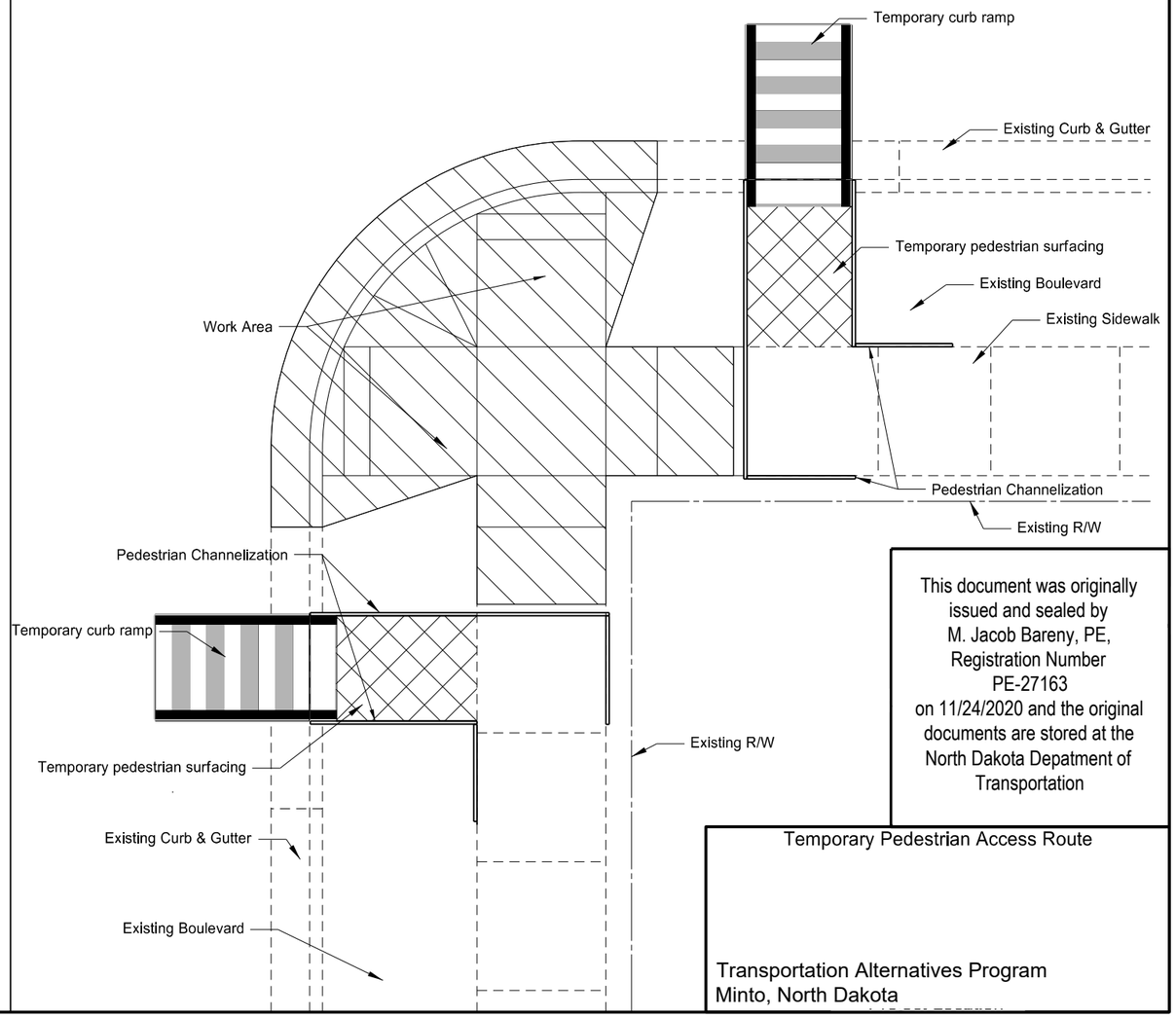
Sidewalk Barricade

Transportation Alternatives Program
Minto, North Dakota

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAC-6-081(106)181	100	5





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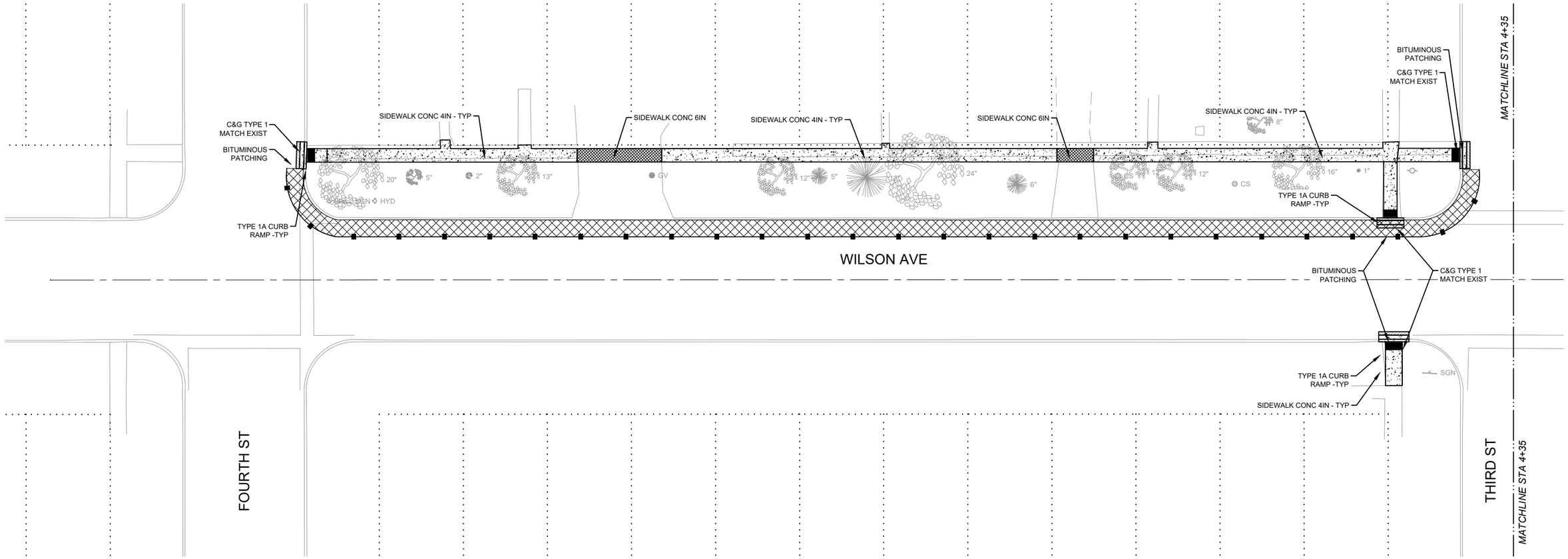
Temporary Pedestrian Access Route

Transportation Alternatives Program
Minto, North Dakota

	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	100	6



NORTH

15' 0 15' 30'

Scale in Feet

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LEGEND

- WORK AREA BITUMINOUS PATCHING
- WORK AREA SIDEWALK CONCRETE - 6IN
- WORK AREA SIDEWALK CONCRETE - 4IN
- TEMPORARY PEDESTRIAN ACCESS ROUTE
- PEDESTRIAN CHANNELIZATION

REV'D.

Transportation Alternatives Program
Minto, North Dakota

DRWN. BY	CHK'D BY	PROJECT NO.	DATE
E. Bratager	J. Barney	P00120-2018-004	October 2020

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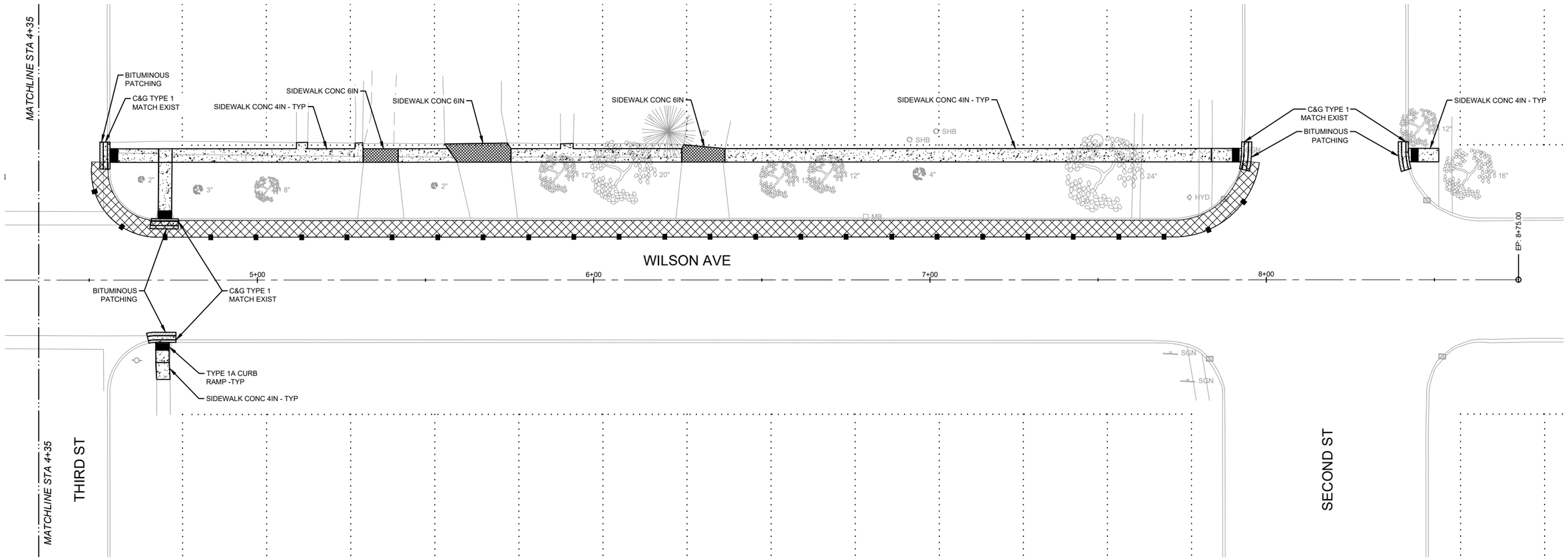
	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	100	7



NORTH

15' 0 15' 30'

Scale in Feet

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LEGEND

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Minto, North Dakota

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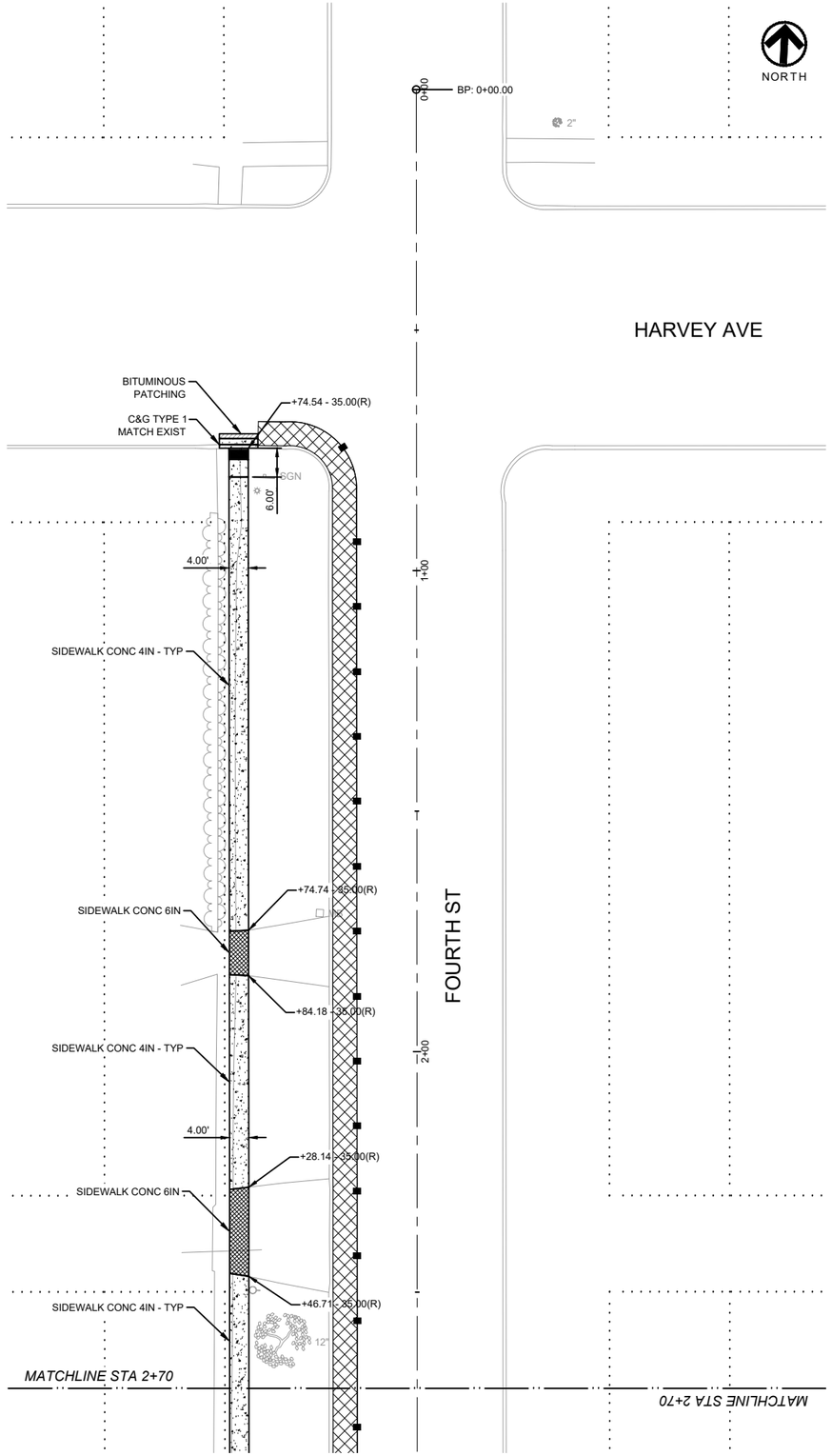
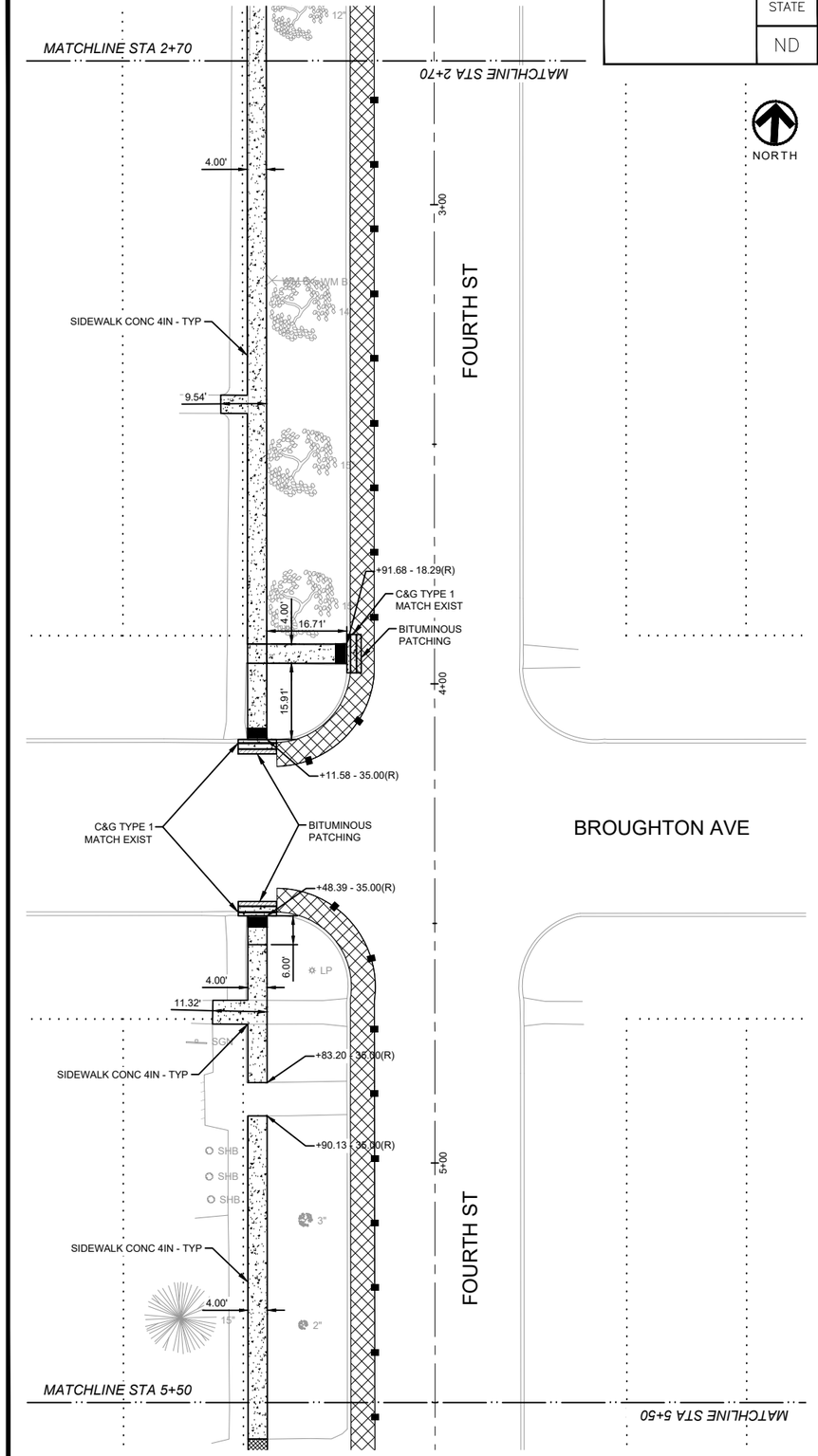
STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
ND	TAC-6-081(106)181	22574	100	8





BROUGHTON AVE

15' 0 15' 30'
Scale in Feet

LEGEND

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- WORK AREA SIDEWALK CONCRETE - 4IN
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Transportation Alternatives Program
Minto, North Dakota

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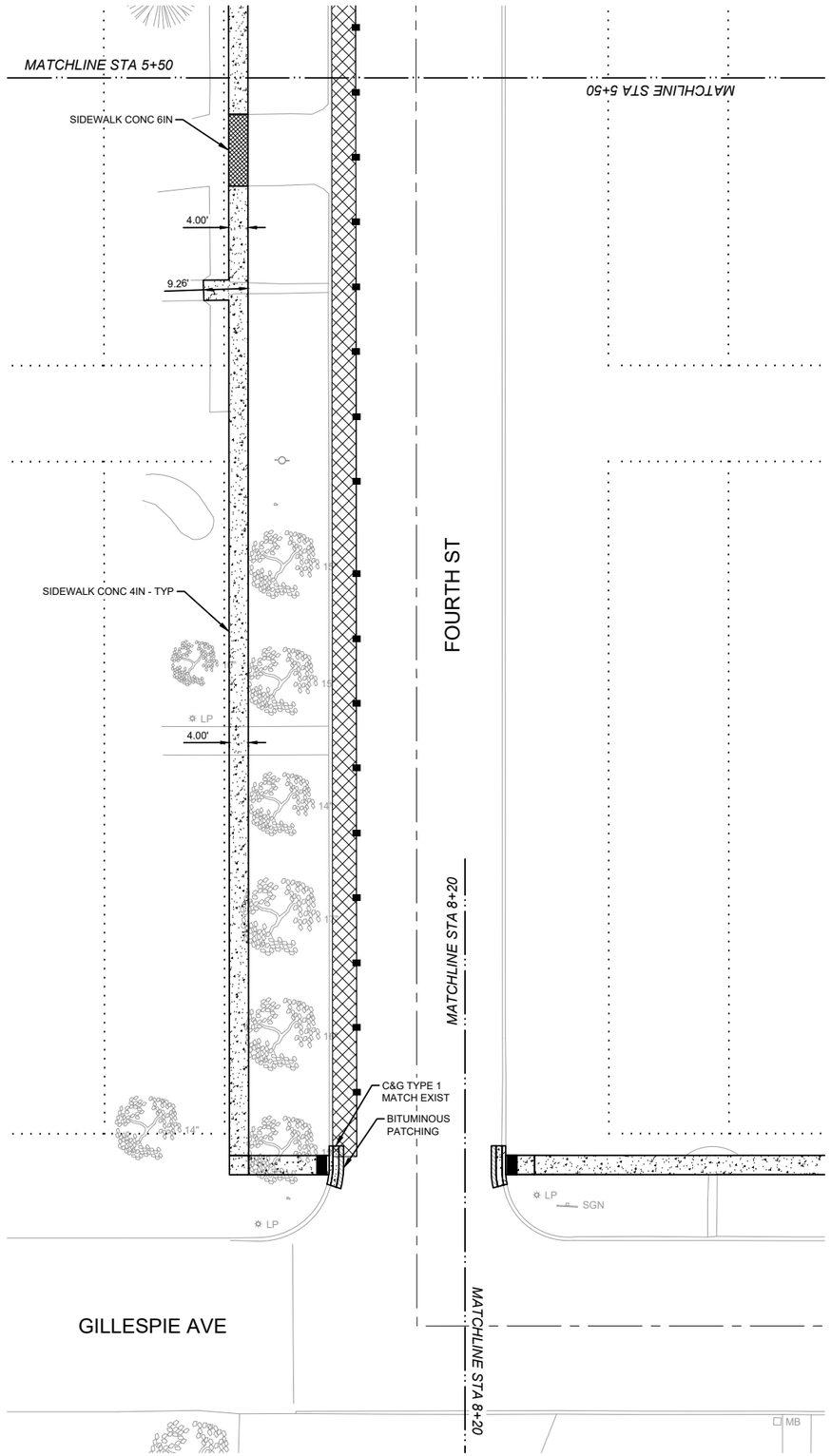
	STATE	PROJECT NO.	PCN	SEC. NO.	SHEET NO.
	ND	TAC-6-081(106)181	22574	100	9



NORTH

15' 0 15' 30'

Scale in Feet

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Transportation Alternatives Program
Minto, North Dakota

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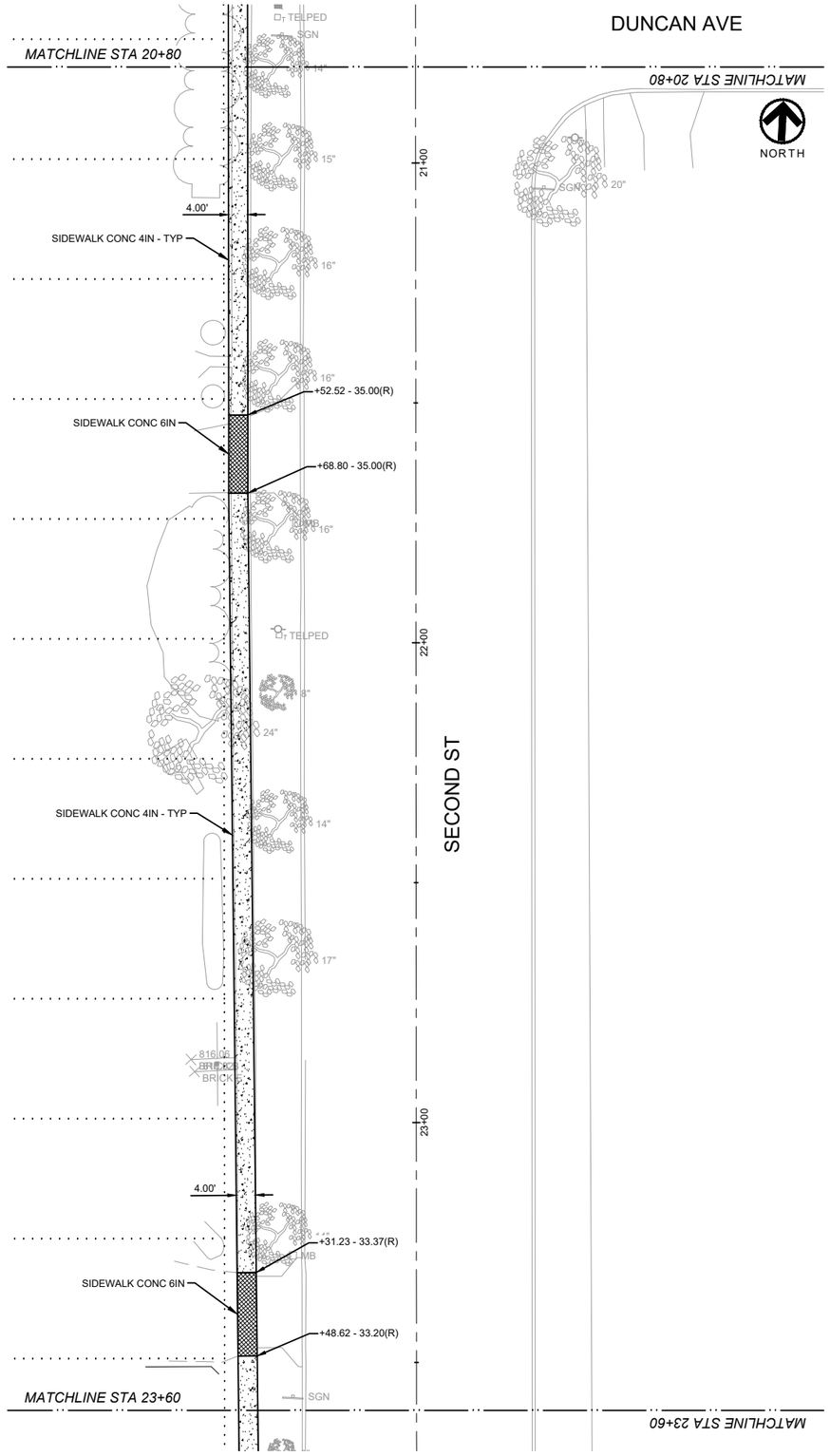

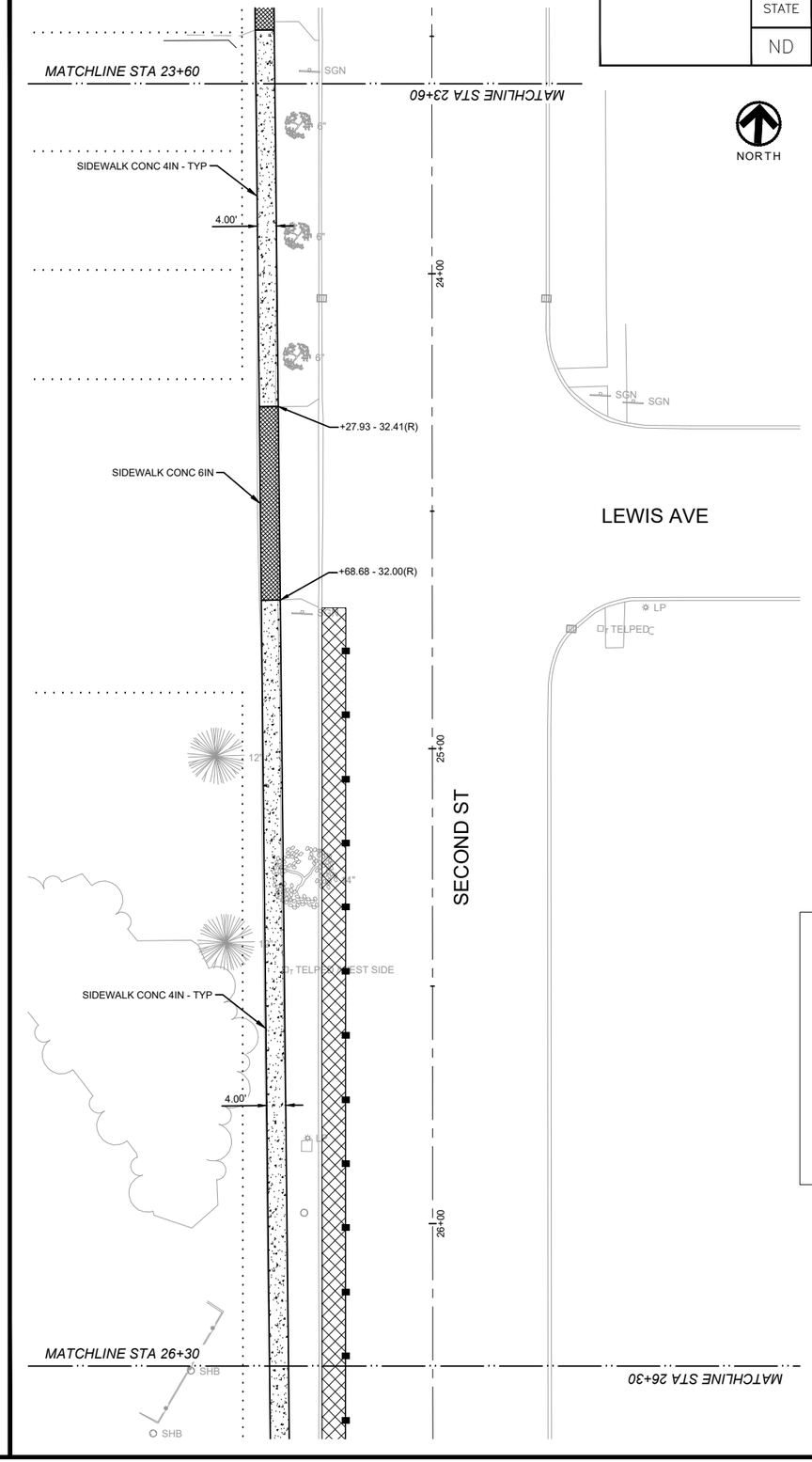

15' 0 15' 30'
Scale in Feet

LEGEND

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Transportation Alternatives Program
Minto, North Dakota

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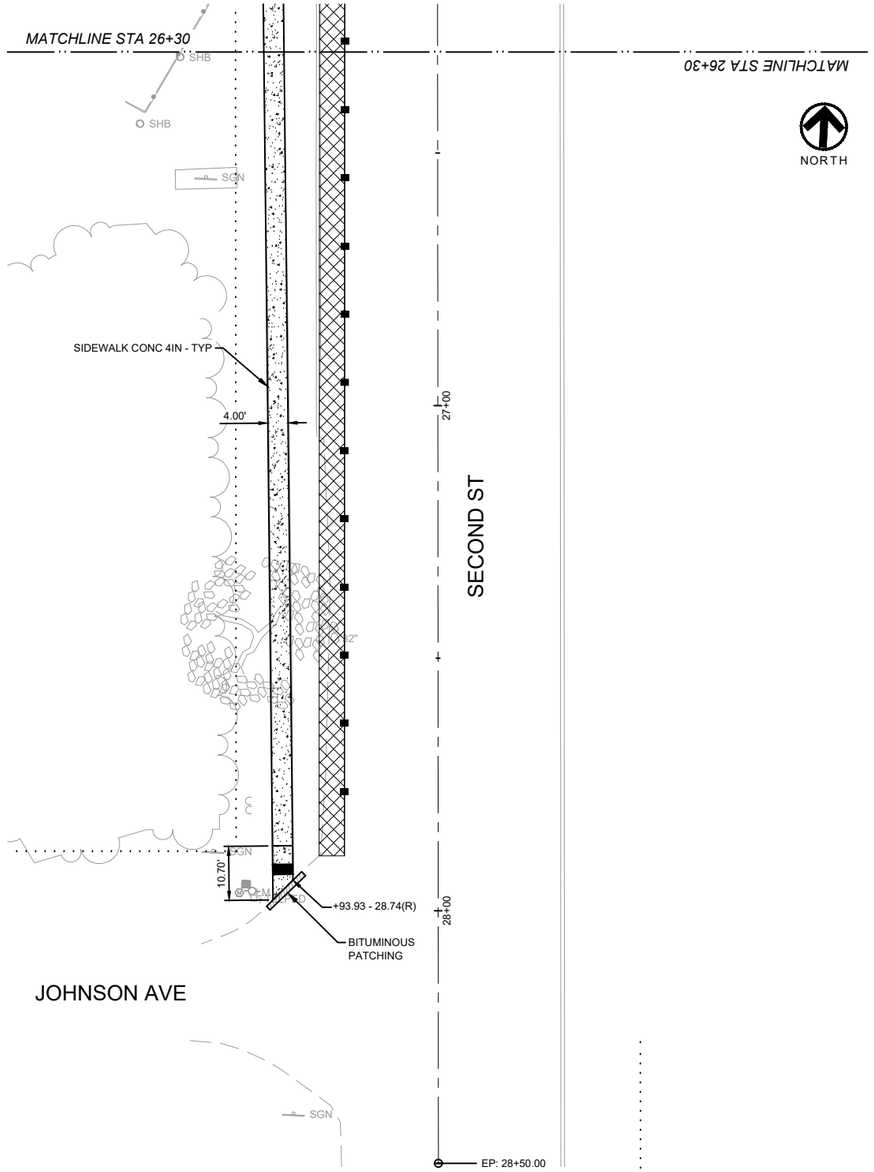
ND	TAC-6-081(106)181	22574	100	11



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Transportation Alternatives Program Minto, North Dakota

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NDDOT ABBREVIATIONS

D-101-1

?	This is a special text character used in the labeling of existing features. It indicates a feature that has an unknown characteristic, potentially based on: lack of description, location accuracy or purpose.
Abn	abandoned
Abut	abutment
Ac	acres
Adj	adjusted
Aggr	aggregate
Ahd	ahead
ARV	air release valve
Align	alignment
Al	alley
Alt	alternate
Alum	aluminum
ADA	Americans with Disabilities Act
A	ampere
&	and
Appr	approach
Approx	approximate
ACP	asbestos cement pipe
Asph	asphalt
AC	asphalt cement
Assmd	assumed
@	at
Atten	attenuation
ATR	automatic traffic recorder
Ave	Avenue
Avg	average
ADT	average daily traffic
Az	azimuth
Bk	back
BF	back face
Bs	backsight
Balc	balcony
B Wire	barbed wire
Barr	barricade
Btry	battery
Brg	bearing
BI	beehive inlet
Beg	begin
BG	below grade
BM	bench mark
Bkwy	bikeway
Bit	bituminous
Blk	block
Bd Ft	board feet
BH	bore hole
BS	both sides
Bot	bottom
Blvd	Boulevard
Bndry	boundary
BC	brass cap
Brkwy	breakaway
Br	bridge
Bldg	building
BV	butterfly valve
Byp	bypass
C Gdrl	cable guardrail
Calc	calculate
Cd	candela
CIP	cast iron pipe
CB	catch basin
CRS	cationic rapid setting
C Gd	cattle guard
C To C	center to center
CI or ℄	centerline
Cm	centimeter
Ch	chain
Chnlk	chain-link
Ch Blk	channel block
Ch Ch	channel change
Chk	check
Chsld	chiseled
Cir	circle
Cl	class
Cl	clay
Cl F	clay fill
Cl Hvy	clay heavy
Cl Lm	clay loam
Clnt	clean-out
Clr	clear
Cl&gr	clearing & grubbing
Co S	coal slack
C Gr	coarse gravel
CS	coarse sand
Comb.	combination
Coml	commercial
Compr	compression
CADD	computer aided drafting & design
Conc	concrete
CECB	concrete erosion control blanket
Cond	conductor
Const	construction
Cont	continuous
CSB	continuous split barrel sample
Contr	contraction
Contr	contractor
CP	control point
Coord	coordinate
Cor	corner
Corr	corrected
CAES	corrugated aluminum end section
CAP	corrugated aluminum pipe
CMES	corrugated metal end section
CMP	corrugated metal pipe
CPVCP	corrugated poly-vinyl chloride pipe
CSES	corrugated steel end section
CSFES	corrugated steel flared end section
CSP	corrugated steel pipe
CSTES	corrugated steel traversable end section
C	coulomb
Co	County
Crse	course
Ct	Court
Xarm	cross arm
Xbuck	cross buck
Xsec	cross sections
Xing	crossing
Xrd	Crossroad
Crn	crown
CF	cubic feet
M3	cubic meter
M3/s	cubic meters per second
CY	cubic yard
Cy/mi	cubic yards per mile
Culv	culvert
C&G	curb & gutter
CI	curb inlet
CR	curb ramp
CS	curve to spiral
C	cut
Dd Ld	dead load
Defl	deflection
Defm	deformed
Deg or D	degree
Dlnt	delineate
Dlntr	delineator
Depr	depression
Desc	description
Det	detail
DWP	detectable warning panel
Dtr	detour
Dia or ø	diameter
Dir	direction
Dist	distance
DM	disturbed material
DB	ditch block
DG	ditch grade
Dbl	double
Dn	down
Dwg	drawing
Dr	drive
Drwy	driveway
DI	drop inlet
D	dry density
DSDS	dynamic speed display sign
Ea	each
Esmt	easement
E	East
EB	Eastbound
Elast	elastomeric
EL	electric locker
E Mtr	electric meter
Elec	electric/al
EDM	electronic distance meter
Elev or El	elevation
Ellipt	elliptical
Emb	embankment
Emuls	emulsion/emulsified
ES	end section
Engr	engineer
ESS	environmental sensor station
Eq	equal
Eq	equation
Evgr	evergreen
Exc	excavation
Exst	existing
Exp	expansion
Expy	Expressway
E	external of curve
Extru	extruded
FOS	factor of safety
F	Fahrenheit
FS	far side
F	farad
Fed	Federal
FP	feed point
Ft	feet/foot
Fn	fence
Fn P	fence post
FO	fiber optic
FB	field book
FD	field drive
F	fill
FAA	fine aggregate angularity
FS	fine sand
FH	fire hydrant
Fl	flange
Flrd	flared
FES	flared end section
F Bcn	flashing beacon
FA	flight auger sample
FL	flow line
Ftg	footing
FM	force main
Fs	foresight

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
04-23-18	General Revisions
09-20-18	General Revisions

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NDDOT ABBREVIATIONS

D-101-2

Fnd	found
Fdn	foundation
Frac	fractional
Frwy	freeway
Frt	front
FF	front face
F Disp	fuel dispenser
FFP	fuel filler pipes
FLS	fuel leak sensor
Furn	furnish/ed
Gal	gallon
Galv	galvanized
Gar	garage
Gs L	gas line
G Reg	gas line regulator
GMV	gas main valve
G Mtr	gas meter
GSV	gas service valve
GVP	gas vent pipe
GV	gate valve
Ga	gauge
Geod	geodetic
GIS	Geographical Information System
G	giga
GPS	Global Positioning System
Gov	government
Grd	graded/grade
Gr	gravel
Grnd	ground
GWM	ground water monitor
Gdrl	guardrail
Gtr	gutter
H Plg	H piling
Hdwl	headwall
Ha	hectare
Ht	height
HI	height of instrument
Hel	helical
H	henry
Hz	hertz
HDPE	high density polyethylene
HM	high mast
HP	high pressure
HPS	high pressure sodium
Hwy	highway
Hor	horizontal
HBP	hot bituminous pavement
HMA	hot mix asphalt
Hr	hour(s)
Hyd	hydrant
Ph	hydrogen ion content
Id	identification
In or "	inch
Incl	inclinometer tube
IMH	inlet manhole
ID	inside diameter
Inst	instrument
Intchg	interchange
Intmdt	intermediate
Intscn	intersection
Inv	invert
IM	iron monument
I Pn	Iron Pin
IP	iron Pipe
Jt	joint
J	joule
Jct	junction
K	kelvin
Kn	kilo newton
Kpa	kilo pascal
Kg	kilogram
Kg/m3	kilogram per cubic meter
Km	kilometer
K	Kip(s)
LS	Land Surveyor (licensed)
LSIT	Land Surveyor In Training
Ln	lane
Lg	large
Lat	latitude
Lt	left
L	length of curve
Lens	lenses
Lvl	level
LB	level book
Lvlng	leveling
Lht	light
LP	light pole
Ltg	lighting
Lig Co	lignite coal
Lig Sl	lignite slack
LF	linear foot
Liq	liquid
LL	liquid limit
L	litre
Lm	loam
Loc	location
LC	long chord
Long.	longitude
Lp	loop
LD	loop detector
Lm	lumen
Lum	luminaire
L Sum	lump sum
Lx	lux
Mb	mailbox
ML	main line
M Hr	man hour
MH	manhole
Mkd	marked
Mkr	marker
Mkg	marking
MA	mast arm
Matl	material
Max	maximum
MC	meander corner
Meas	measure
Mdn	median
MD	median drain
MC	medium curing
M	mega
Mer	meridian
M	meter
M/s	meters per second
M	mid ordinate of curve
MGS	Midwest Guardrail System
Mi	mile
MM	mile marker
MP	mile post
Ml	milliliter
Mm	millimeter
Mm/hr	millimeters per hour
Min	minimum
Misc	miscellaneous
Mon	monument
Mnd	mound
Mtbl	mountable
Mtd	mounted
Mtg	mounting
Mk	muck
Mun	municipal
N	nano
NGS	National Geodetic Survey
NS	near side
Neop	neoprene
Ntwk	network
N	newton
N	North
NE	North East
NW	North West
NB	Northbound
No. or #	number
Obsc	obscure(d)
Obsn	observation
Ocpd	occupied
Ocpy	occupy
Off Loc	office location
O/s	offset
OC	on center
C	one dimensional consolidation
OC	organic content
Orig	original
O To O	out to out
OD	outside diameter
OH	overhead
PMT	pad mounted transformer
Pg	pages
Pntd	painted
Pr	pair
Pnl	panel
Pk	park
PK	Parker-Kalon nail
Pa	pascal
PSD	passing sight distance
Pvmt	pavement
Ped	pedestal
Ped	pedestrian
PPP	pedestrian pushbutton post
Pen.	penetration
Perf	perforated
Per.	perimeter
PL	pipeline
Pl	place
P&P	plan & profile
PL	plastic limit
P Cap	plastic cap
Pl or ℙ	plate
Pt	point
PCC	point of compound curve
PC	point of curve
PI	point of intersection
PRC	point of reverse curvature
PT	point of tangent
POC	point on curve
POT	point on tangent
PE	polyethylene
PVC	polyvinyl chloride
PCC	Portland Cement concrete
Lb or #	pounds
PP	power pole
Preempt	preemption
Prefab	prefabricated
Prfmd or Pref	preformed
Prep	preperation
Press.	pressure

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
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08-03-15	General Revisions
04-23-18	General Revisions

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NDDOT ABBREVIATIONS

D-101-3

PRV	pressure relief valve
Prestr	prestressed
Pvt	private
PD	private drive
Prod.	production/produce
Prog	programmed
Prop.	property
Prop Ln	property line
Ppsd	proposed
PB	pull box
Qty	quantity
Qtr	quarter
Rad or R	radius
RR	railroad
Rlwy	railway
Rsd	raised
RTP	random traverse point
Rge or R	range
RC	rapid curing
Rec	record
Rcy	recycle
RAP	recycled asphalt pavement
RPCC	recycled portland cement concrete
Ref	reference
R Mkr	reference marker
RM	reference monument
RP	reference point
Refl	reflectorized
RCB	reinforced concrete box
RCES	reinforced concrete end section
RCFES	reinforced concrete flared end section
RCTES	reinforced concrete traversable end section
RCP	reinforced concrete pipe
RCPS	reinforced concrete pipe sewer
Reinf	reinforcement
Res	reservation
Rs	residence
Ret	retaining
Rev	reverse
Rt	right
R/W	right of way
Riv	river
Rd	road
Rdbd	road bed
Rdwy	roadway
RWIS	roadway weather information system
Rk	rock
Rt	route
Salv	salvage(d)
Sd	sand
Sdy Cl	sandy clay
Sdy Cl Lm	sandy clay loam
Sdy Fl	sandy fill
Sdy Lm	sandy loam
San	sanitary sewer line
Sc	scoria
Sec	seconds
Sec	section
SL	section line
Sep	separation
Seq	sequence
Serv	service
Sh	shale
Sht	sheet
Shtng	sheeting
Shldr	shoulder
Sw or Sdwk	sidewalk
S	siemens
SD	sight distance
SN	sign number
Sig	signal
Si Cl	silt clay
Si Cl Lm	silty clay loam
Si Lm	silty loam
Sgl	single
SRCP	slotted reinforced concrete pipe
SC	slow curing
SS	slow setting
Sm	small
S	South
SE	South East
SW	South West
SB	Southbound
Sp	spaces
Spcl	special
SA	special assembly
SP	special provisions
G	specific gravity
Spk	spike
SC	spiral to curve
ST	spiral to tangent
SB	split barrel sample
SH	sprinkler head
SV	sprinkler valve
Sq	square
SF	square feet
Km2	square kilometer
M2	square meter
SY	square yard
Stk	stake
Std	standard
N	standard penetration test
Std Specs	standard specifications
Sta	station
Sta Yd	station yards
Stm L	steam line
SEC	steel encased concrete
SMA	stone matrix asphalt
SSD	stopping sight distance
SD	storm drain
St	street
SPP	structural plate pipe
SPPA	structural plate pipe arch
Str	structure
Subd	subdivision
Sub	subgrade
Sub Prep	subgrade preperation
Ss	subsoil
SE	superelevation
SS	supplement specification
Supp	supplemental
Surf	surfacing
Surv	survey
Sym	symmetrical
SI	systems international
Tan	tangent
T	tangent (semi)
TS	tangent to spiral
Tel	telephone
Tel B	Telephone Booth
Tel P	telephone pole
Tv	television
Temp	temperature
Temp	temporary
TBM	temporary bench mark
T	tesla
T	thinwall tube sample
T/mi	tons per mile
Ts	topsoil
Twp or T	township
Traf	traffic
TSCB	traffic signal control box
Tr	trail
Transf	transformer
TB	transit book
Trans	transition
TT	transmission tower
TES	traversable end section
Trans	transverse
Trav	traverse
TP	traverse point
Trtd	treated
Trmt	treatment
Qc	triaxial compression
TERO	tribal employment rights ordinance
Tpl	triple
TP	turning point
Typ	typical
Qu	unconfined compressive strength
Ugrnd	underground
USC&G	US Coast & Geodetic Survey
USGS	US Geologic Survey
Util	utility
VG	valley gutter
Vap	vapor
Vert	vertical
VC	vertical curve
VCP	vitrified clay pipe
V	volt
Vol	volume
Wkwy	walkway
W	water content
WGV	water gate valve
WL	water line
WM	water main
WMV	water main valve
W Mtr	water meter
WSV	water service valve
WW	water well
W	watt
Wrng	wearing
Wb	weber
WIM	weigh in motion
W	west
WB	westbound
Wrng	wiring
W/	with
W/o	without
WC	witness corner
WGS	world geodetic system
Z	zenith

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
08-03-15	General Revisions
04-23-18	General Revisions

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NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

702COM	702 Communications
ACCENT	Accent Communications
AGASSIZ WU	Agassiz Water Users Incorporated
AGC	Assiociated General Contractors of America
All PI	Alliance Pipeline
ALL SEAS WU	All Seasons Water Users Association
AMOCO PI	Amoco Pipeline Company
AMRDA HESS	Amerada Hess Corporation
AT&T	AT&T Corporation
B PAW	Bear Paw Energy Incorporated
BAKER ELEC	Baker Electric
BASIN ELEC	Basin Electric Cooperative Incorporated
BEK TEL	Bek Communications Cooperative
BELLE PL	Belle Fourche Pipeline Company
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railway
BOEING	Boeing
BRNS RWD	Barnes Rural Water District
BURK-DIV ELEC	Burke-Divide Electric Cooperative
BURL WU	Burleigh Water Users
Cable One	Cable One
CABLE SERV	Cable Services
CAP ELEC	Capital Electric Cooperative Incorporat
CASS CO ELEC	Cass County Electric Cooperative
CASS RWU	Cass Rural Water Users Incorporated
CAV ELEC	Cavalier Rural Electric Cooperative
CBLCOM	Cablecom Of Fargo
CENEX PL	Cenex Pipeline
CENT PL WATER DIST	Central Pipe Line Water District
CENT PWR ELEC	Central Power Electric Cooperative
COE	Corps of Engineers
CONS TEL	Consolidated Telephone
CONT RES	Continental Resource Inc
CPR	Canadian Pacific Railway
D O E	Department Of Energy
DAK CARR	Dakota Carrier Network
DAK CENT TEL	Dakota Central Telephone
DAK RWD	Dakota Rural Water District
DGC	Dakota Gasification Company
DICKEY R NET	Dickey Rural Networks
DICKEY RWU	Dickey Rural Water Users Association
DICKEY TEL	Dickey Telephone
DNRR	Dakota Northern Railroad
DOME PL	Dome Pipeline Company
DVELEC	Dakota Valley Electric Cooperative
DVMW	Dakota, Missouri Valley & Western
ENBRDG	Enbridge Pipelines Incorporated
ENVENTIS	Enventis Telephone
FALK MNG	Falkirk Mining Company
FHWA	Federal Highway Administration
G FKS-TRL WD	Grand Forks-traill Water District
GETTY TRD & TRAN	Getty Trading & Transportation
GLDN W ELEC	Golden West Electric Cooperative
GRGS CO TEL	Griggs County Telephone
GTR RAMSEY WD	Greater Ramsey Water District
GT PLNS NAT GAS	Great Plains Natural Gas Company
HALS TEL	Halstad Telephone Company
IDEA1	Idea1
INT-COMM TEL	Inter-Community Telephone Company
KANEB PL	Kaneb Pipeline Company
KEM ELEC	Kem Electric Cooperative Incorporated
KOCH GATH SYS	Koch Gathering Systems Incorporated
LKHD PL	Lakehead Pipeline Company
LNGDN RWU	Langdon Rural Water Users Incorporated
LWR YELL R ELEC	Lower Yellowstone Rural Electric
MCKNZ CON	McKenzie Consolidated Telcom
MCKNZ ELEC	McKenzie Electric Cooperative
MCKNZ WRD	McKenzie County Water Resource District
MCLEOD	McLeod USA
MCLN ELEC	McLean Electric Cooperative
MCLN-SHRDN R WAT	McLean-Sheridan Rural Water
MDU	Montana-dakota Utilities
MID-CONT CABLE	Mid-Continent Cable
MIDSTATE TEL	Midstate Telephone Company
MINOT CABLE	Minot Cable Television
MINOT TEL	Minot Telephone Company
MISS VALL COMM	Missouri Valley Communications
MISS W W S	Missouri West Water System
MNKOTA PWR	Minnkota Power
MOR-GRAN-SOU ELEC	Mor-gran-sou Electric Cooperative
MOUNT-WILLI ELEC	Mountrail-williams Electric Cooperative
MRE LBTY TEL	Moore & Liberty Telephone
MUNICIPAL	City Water And Sewer
MUNICIPAL	City Of '.....'
N CENT ELEC	North Central Electric Cooperative
N VALL W DIST	North Valley Water District
ND PKS & REC	North Dakota Parks And Recreation
ND TEL	North Dakota Telephone Company
NDDOT	North Dakota Department of Transportation
NDSU SOIL SCI DEPT	NDSU Soil Science Department
NEMONT TEL	Nemont Telephone
NODAK R ELEC	Nodak Rural Electric Cooperative
NOON FRMS TEL	Noonan Farmers Telephone Company
NPR	Northern Plains Railroad
NSP	Northern States Power
NTH PRAIR RW	Northern Prairie Rural Water Association
NTHN BRDR PL	Northern Border Pipeline
NTHN PLNS ELEC	Northern Plains Electric Cooperative Incorporated
NTHWSTRN REF	Northwestern Refinery Company
NW COMM	Northwest Communication Cooperation
NWRWD	Northwest Rural Water District
ONEOK	Oneok gas
OSHA	Occupational Safety and Health Administration
OTTR TL PWR	Otter Tail Power Company
P L E M	Prairielands Energy Marketing
POLAR COM	Polar Communications
PVT ELEC	Private Electric
QWEST	Qwest Communications
R&T W SUPPLY	R & T Water Supply Association
RED RIV TEL	Red River Rural Telephone
RESVTN TEL	Reservation Telephone
ROBRTS TEL	Roberts Company Telephone
R-RIDER ELEC	Roughrider Electric Cooperative
RRVW	Red River Valley & Western Railroad
S CENT REG WD	South Central Regional Water District
S E W U	South East Water Users Incorporated
SCOTT CABLE	Scott Cable Television Dickinson
SHERDN ELEC	Sheridan Electric Cooperative
SHEYN VLY ELEC	Sheyenne Valley Electric Cooperative
SKYTECH	Skyland Technologies Incorporated
SLOPE ELEC	Slope Electric Cooperative Incorporated
SOURIS RIV TELCOM	Souris River Telecommunications
ST WAT COMM	State Water Commission
STATE LN WATER	State Line Water Cooperative
STER ENG	Sterling Energy
STUT RWU	Stutsman Rural Water Users
SW PL PRJ	Southwest Pipeline Project
T M C	Turtle Mountain Communications
TCI	TCI of North Dakota
TESORO HGH PLNS PL	Tesoro High Plains Pipeline
TRI-CNTY WU	Tri-County Water Users Incorporated
TRL CO RWU	Traill County Rural Water Users
UNTD TEL	United Telephone
UPPR SOUR WUA	Upper Souris Water Users Association
US SPRINT	U.S. Sprint
USAF MSL CABLE	U.S.A.F. Missile Cable
USFWS	US Fish and Wildlife Service
USW COMM	U.S. West Communications
VRNDRY ELEC	Verendrye Electric Cooperative
W RIV TEL	West River Telephone Incorporated
WEB	W. E. B. Water Development Association
WILLI RWA	Williams Rural Water Association
WILSTN BAS PL	Williston Basin Interstate Pipeline Company
WLSH RWD	Walsh Water Rural Water District
WOLVRTN TEL	Wolverton Telephone
XLENER	Xcel Energy
YSVR	Yellowstone Valley Railroad

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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DATE	CHANGE
04-23-18	General Revisions
09-20-18	General Revisions

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Line Styles

D-101-20

Existing Topography

- Existing Ground Void
- Existing Cemetary Boundary
- Existing Box Culvert Bridge
- Existing Concrete Surface
- Existing Drainage Structure
- Existing Gravel Surface
- Existing Riprap
- Existing Dirt Surface
- Existing Asphalt Surface
- Existing Tie Point Line
- Existing Railroad Centerline
- Existing Guardrail Cable
- Existing Guardrail Metal
- Existing Edge of Water
- Existing Fence
- Existing Railroad
- Existing Field Line
- Exst Flow
- Existing Curb
- Existing Valley Gutter
- Existing Driveway Gutter
- Existing Curb and Gutter
- Existing Mountable Curb and Gutter

- Existing 3-Cable w Posts
- Site Boundary
- Existing Berm, Dike, Pit, or Earth Dam
- Existing Ditch Block
- Existing Tree Boundary
- Existing Brush or Shrub Boundary
- Existing Retaining Wall
- Existing Planter or Wall
- Existing W-Beam Guardrail with Posts
- Existing Railroad Switch
- Gravel Pit - Borrow Area
- Existing Wet Area-Vegetation Break

Proposed Topography

- 3-Cable w Posts
- Flow
- Fence
- Remove Line
- Wall
- Retaining Wall (Plan View)
- W-Beam w Posts

Existing Utilities

- Existing Electrical
- Existing Fiber Optic Line
- Existing TV Fiber Optic
- Existing Gas Pipe
- Existing Overhead Utility Line
- Existing Power
- Existing Fuel Pipeline
- Existing Undefined Above Ground Pipe Line
- Existing Sanitary Sewer
- Existing Sanitary Force Main
- Existing Storm Drain
- Existing Storm Drain Force Main
- Existing Culvert
- Existing Telephone Line
- Existing TV Line
- Existing Water or Steam Line
- Existing Under Drain
- Existing Slotted Drain
- Existing Conduit
- Existing Conductor
- Existing Down Guy Wire Down Guy
- Existing Underground Vault or Lift Station

Proposed Utilities

- 24 Inch Pipe
- Reinforced Concrete Pipe
- Under Drain
- Edge Drain

Traffic Utilities

- Conductor
- Fiber Optic
- Existing Loop Detector
- Existing Double Micro Loop Detector
- Micro Loop Detector Double
- Existing Micro Loop Detector
- Micro Loop Detector
- Signal Head with Mast Arm
- Existing Signal Head with Mast Arm

Sign Structures

- Existing Overhead Sign Structure
- Existing Overhead Sign Structure Cantilever
- Overhead Sign Structure Cantilever

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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DATE	CHANGE
09-23-16	Added and Revised Items, Organized by Functional Groups

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Line Styles

D-101-21

Right Of Way

- Easement
- Existing Easement
- Right of Way
- Existing Right of Way
- Existing Right of Way Railroad
- Existing Right of Way Not State Owned
- Existing Government Lot Line
- Existing Adjacent Block Lines
- Existing Adjacent Lot Lines
- Existing Adjacent Property Line
- Existing Adjacent Subdivision Lines
- Sight Distance Triangle Line
- Dimension Leader

Boundary Control

- Existing City Corporate Limits or Reservation Boundary
- Existing State or International Line
- Existing Township
- Existing County
- Existing Section Line
- Existing Quarter Section Line
- Existing Sixteenth Section Line
- Existing Centerline
- Tangent Line

Cross Sections and Typicals

- Existing Ground
- Existing Topsoil (Cross Section View)
- Existing Ground Void (Not Surveyed) (void — void — void — v)
- Existing Concrete
- Existing Aggregate (Cross Section View)
- Existing Curb and Gutter (Cross Section View)
- Existing Asphalt (Cross Section View)
- Existing Reinforcement Rebar

Geotechnical

- Geotextile Fabric Type D (D — D)
- Geogrid (Geo — Geo)
- Geotextile Fabric Type R (R — R)
- Geotextile Fabric Type R1 (R — R)
- Geotextile Fabric Type RR (RR — RR)
- Geotextile Fabric Type S (S — S)
- Subgrade Reinforcement
- Failure Line

Countours

- Depression Contours
- Supplemental Contour

Profile

- Subgrade, Subcut or Ditch Grade
- Topsoil Profile

Striping

- Centerline Pavement Marking
- Barrier with Centerline Pavement Marking
- Barrier Pavement Marking
- Stripe 4 IN Dotted Extension White
- Stripe 8 IN Dotted Extension White
- Stripe 8 IN Lane Drop

Pavement Joints

- Doweled Joint
- Tie Bar 30 Inch 4 Foot Center to Center
- Tie Bar 18 Inch 3 Foot Center to Center
- Tie Bar at Random Spacing

Bridge Details

- Hidden Object
- Small Hidden Object
- Large Hidden Object
- Phantom Object
- Centerline Main
- Centerline
- Existing Ground (Details)
- Existing Conditions
- Sheet Piling

Erosion Control

- Limits of Const Transition Line
- Bale Check
- Rock Check
- Floating Silt Curtain (S — S)
- Silt Fence (SF — SF)
- Excavation Limits
- Fiber Rolls

Environmental

- Wetland Mitigation
- Existing Wetland Easement USFWS
- Existing Wetland Jurisdictional
- Existing Wetland
- Tree Row

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Symbols

D-101-30

North Arrow (Half Scale)

Truck Mounted Attenuator

Type I Barricade

Type II Barricade

Type III Barricade

Catch Basin

Cairn or Stone Circle

Video Detection Camera

Storm Drain Cap or Stub

Corrugated Metal End Section 18 Inch

Corrugated Metal End Section 24 Inch

Corrugated Metal End Section 30 Inch

Corrugated Metal End Section 36 Inch

Corrugated Metal End Section 42 Inch

Corrugated Metal End Section 48 Inch

Concrete Foundation

Ground Connection Conductor

Neutral Connection Conductor

Phase 1 Connection Conductor

Phase 2 Connection Conductor

Traffic Cone

Signal Controller

Pad Mounted Signal Controller

Alignment Data Point

Emergency Vehicle Detector

Attenuation Device

Diamond Grade Delineator Type A

Diamond Grade Delineator Type B

Diamond Grade Delineator Type C

Diamond Grade Delineator Type D

Diamond Grade Delineator Type E

Flexible Delineator

Flexible Delineator Type A

Flexible Delineator Type B

Flexible Delineator Type C

Flexible Delineator Type D

Flexible Delineator Type E

Delineator Type A

Delineator Type A Reset

Delineator Type B

Delineator Type B Reset

Delineator Type C

Delineator Type D

Delineator Type E

Delineator Drums

Spot Elevation

Existing Access Control Arrow

Existing Artifact

Existing Flashing Beacon

Existing Benchmark

Existing Railroad Battery Box

Existing Bush or Shrub

Existing Gas Cap or Stub

Existing Sanitary Cap or Stub

Existing Storm Drain Cap or Stub

Existing Water Cap or Stub

Existing Sanitary Cleanout

Existing Concrete Foundation

Existing Traffic Signal Controller

Existing Pad Mounted Signal Controller

Existing Sixteenth Section Corner

Existing Quarter Section Corner

Existing Section Corner

Existing Railroad Crossbuck

Existing Satellite Dish

Existing Fuel Dispensers

Existing Flexible Delineator Type A

Existing Flexible Delineator Type B

Existing Flexible Delineator Type C

Existing Flexible Delineator Type D

Existing Flexible Delineator Type E

Existing Delineator Type A

Existing Delineator Type B

Existing Delineator Type C

Existing Delineator Type D

Existing Delineator Type E

Existing EFB Misc

Existing Flashing Beacon

Existing Pipe Mounted Flasher

Existing Pad Mounted Feed Point

Existing Pipe Mounted Feed Point with Pad

Existing Pole Mounted Feed Point

Existing Railroad Frog

Existing Snow Gate 18

Existing Snow Gate 28

Existing Snow Gate 40

Existing Headwall

Existing Pedestrian Head with Number

Existing Signal Head

Existing Sprinkler Head

Existing Fire Hydrant

Existing Catch Basin Drop Inlet

Existing Curb Inlet

Existing Manhole Inlet

Existing Junction Box

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Symbols

D-101-31

- Existing Light Standard
- Existing High Mast Light Standard 10 Luminaire
- Existing High Mast Light Standard 3 Luminaire
- Existing High Mast Light Standard 4 Luminaire
- Existing High Mast Light Standard 5 Luminaire
- Existing High Mast Light Standard 6 Luminaire
- Existing High Mast Light Standard 7 Luminaire
- Existing High Mast Light Standard 8 Luminaire
- Existing High Mast Light Standard 9 Luminaire
- Existing Overhead Sign Structure Load Center
- Existing Luminaire
- Existing Light Standard Luminaire
- Existing Federal Mailbox
- Existing Private Mailbox
- Existing Meander Section Corner
- Existing Meter
- Existing Electrical Manhole
- Existing Gas Manhole
- Existing Sanitary Manhole
- Existing Sanitary Force Main Manhole
- Existing Sanitary Manhole with Valve
- Existing Storm Drain Manhole
- Existing Force Main Storm Drain Manhole
- Existing Force Main Storm Drain Manhole with Valve
- Existing Telephone Manhole
- Existing Manhole with Valve Water
- Existing Water Manhole
- Existing Mile Post Type A
- Existing Mile Post Type B
- Existing Mile Post Type C
- Existing Reference Marker
- Existing RW Marker
- Existing Utility Marker
- Iron Monument Found
- Iron Pin R/W Monument
- Existing Object Marker Type I
- Existing Object Marker Type II
- Existing Object Marker Type III
- Existing Electrical Pedestal
- Existing Telephone Pedestal
- Existing Fiber Optic Telephone Pedestal
- Existing TV Pedestal
- Existing Fiber Optic TV Pedestal
- Existing Fuel Filler Pipes
- Existing Traverse PI Aerial Panel
- Existing Pole
- Existing Power Pole
- Existing Power Pole with Transformer
- Existing Telephone Pole
- Existing Wood Pole
- Existing Post
- Existing Pedestrian Push Button Post
- Existing Control Point CP
- Existing Control Point GPS-RTK
- Existing Control Point TRI
- Existing Reference Marker Point NGS
- Existing Pull Box
- Existing Intelligent Transportation Pull Box
- Existing Water Pump
- Existing Slotted Reinforced Concrete Pipe
- Existing RR Profile Spot
- Existing Fuel Leak Sensors
- Existing Highway Sign
- Existing Miscellaneous Spot
- Existing Lighting Standard Pole
- Existing Traffic Signal Standard
- Existing Transformer
- Existing Large Evergreen Tree
- Existing Small Evergreen Tree
- Existing Large Tree
- Existing Small Tree
- Existing Tree Trunk
- Existing Pad Mounted Traffic Signal Control Box
- Existing Undefined Manhole
- Existing Undefined Pull Box
- Existing Undefined Pedestal
- Existing Undefined Valve
- Existing Undefined Pipe Vent
- Existing Gas Valve
- Existing Water Valve
- Existing Fuel Pipe Vent
- Existing Gas Pipe Vent
- Existing Sanitary Pipe Vent
- Existing Storm Drain Pipe Vent
- Existing Water Pipe Vent
- Existing Weather Station
- Existing Ground Water Well Bore Hole
- Existing Windmill or Tower
- Existing Witness Corner
- Flashing Beacon
- Flagger
- Pipe Mounted Flasher
- Sanitary Force Main with Valve

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Symbols

D-101-32

- Pad Mounted Feed Point
- Pipe Mounted Feed Point with Pad
- Pole Mounted Feed Point
- Headwall
- Double Headwall with Vegitation Barrier
- Single Headwall with Vegitation Barrier
- Pole Mounted Head
- Sprinkler Head
- Fire Hydrant
- Inlet Type 1
- Inlet Type 2
- Double Inlet Type 2
- Inlet Grate Type 2
- Junction Box
- High Mast Light Standard 10 Luminaire
- High Mast Light Standard 3 Luminaire
- High Mast Light Standard 4 Luminaire
- High Mast Light Standard 5 Luminaire
- High Mast Light Standard 6 Luminaire
- High Mast Light Standard 7 Luminaire
- High Mast Light Standard 8 Luminaire
- High Mast Light Standard 9 Luminaire
- Relocate Light Standard
- Overhead Sign Structure Load Center
- Light Standard 100 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 1000 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 150 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 175 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 200 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 250 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 310 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 35 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 400 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 50 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 70 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 700 Watt High Pressure Sodium Vapor Luminaire
- Manhole
- Manhole 48 Inch
- Sanitary Force Main Manhole
- Sanitary Sewer Manhole
- Storm Drain Manhole
- Storm Drain Manhole with Inlet
- Reset Mile Post
- Mile Post Type A
- Mile Post Type B
- Mile Post Type C
- Right of Way Marker
- Tubular Marker
- Alignment Monument
- Iron Pin Reference Monument
- Object Marker Type I
- Object Marker Type II
- Object Marker Type III
- Caution Mode Arrow Panel
- Back to Back Vertical Panel Sign
- Double Direction Arrow Panel
- Left Directional Arrow Panel
- Right Directional Arrow Panel
- Sequencing Arrow Panel
- Truck Mounted Arrow Panel
- Power Pole
- Wood Pole
- Pedestrian Push Button Post
- Property Corner
- Pull Box
- Intelligent Transportation Pull Box
- Sanitary Pump
- Storm Drain Pump
- Reinforced Pavement
- Reinforced Concrete End Section 15 Inch
- Reinforced Concrete End Section 18 Inch
- Reinforced Concrete End Section 24 Inch
- Reinforced Concrete End Section 30 Inch
- Reinforced Concrete End Section 36 Inch
- Reinforced Concrete End Section 42 Inch
- Reinforced Concrete End Section 48 Inch
- Reinforced Concrete End Section 54 Inch
- Reset Right of Way Marker
- Reset USGS Marker
- Right of Way Markers
- Riser 30 Inch
- Continuous Split Barrel Sample (CSB)
- Flight Auger Sample (FA)
- Split Barrel Sample (SB)
- Thinwall Tube Sample
- Highway Sign
- SNOW GATE 18 FT
- SNOW GATE 28 FT
- SNOW GATE 40 FT
- Standard Penetration Test (N)
- Transformer
- Inclinometer Tube (Incl)
- Underdrain Cleanout
- Excavation Unit
- Water Valve

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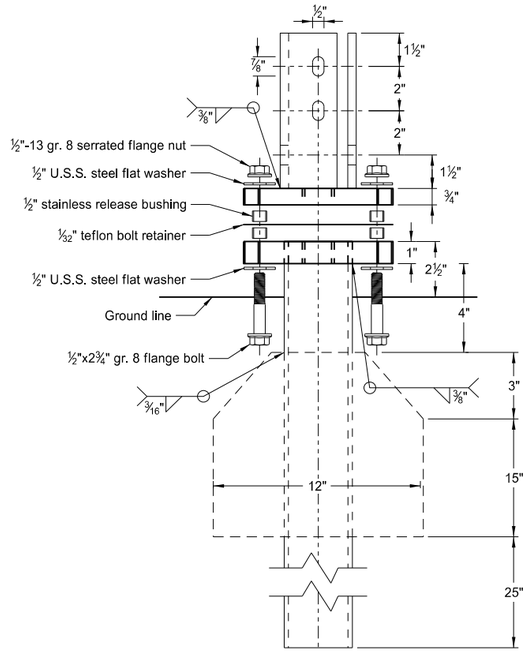
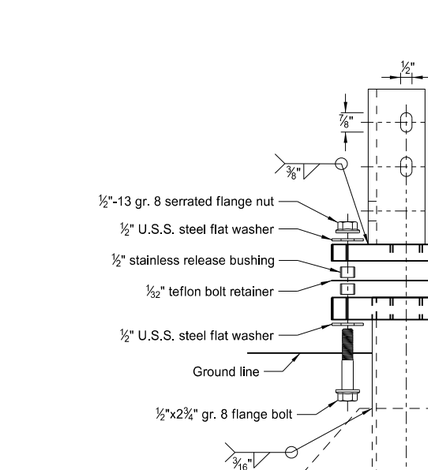
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

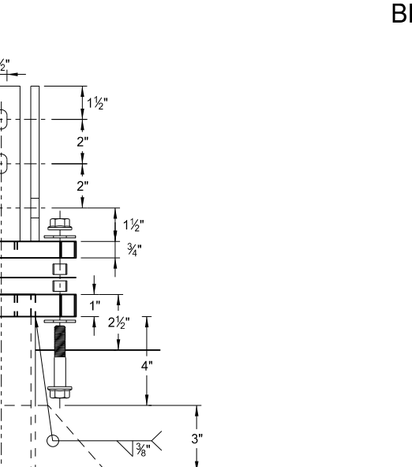
D-704-7



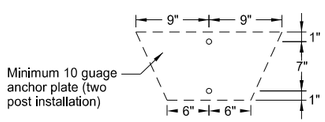
Multi-Directional
Slip Base Assembly



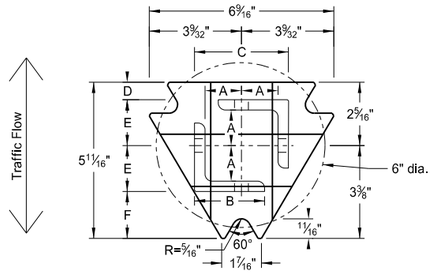
Anchor Unit and Post Assembly



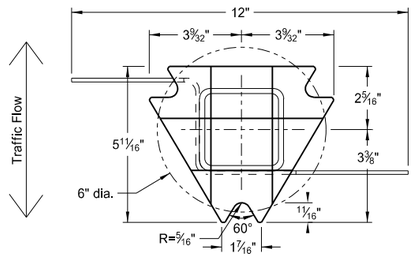
Multi-Directional
Slip Base Anchor Unit
and Post Sleeve Assembly



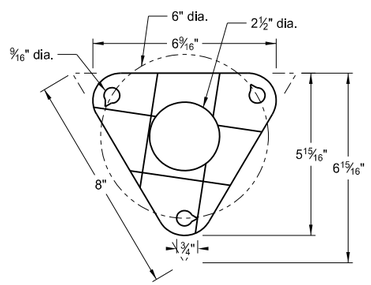
Perforated Tube



Top Post Receiver
Plate - ASTM A572 grade 50
Angle Receiver - 2½"x2½"x⅜" ASTM A36 structural angle



Bottom Soil Stub
Tube - 3"x3"x7 gauge ASTM A500 grade B tube
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011
Plate - ASTM A572 grade 50



Bolt Retainer for Base Connection
Bolt Retainer- 1/32" Reprocessed Teflon

Notes:

1. Torque slip base bolts as specified by manufacturer.
2. Use anchor with 43.9 KSI yield strength and 59.3 KSI tensile strength.
3. Provide 4" vertical clearance for anchor or breakaway base. Measure the 4"x60" measurement above and below post location and back and ahead of post.
4. In concrete sidewalk, use same anchor without wings.
5. Provide more than 7' between the first and fourth posts of a four post sign.

Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thick-ness Gauge	Sleeve Size in.	Wall Thick-ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2¼
1	2¼	12			No	2½
1	2½	12			(A)	3
1	2½	10			Yes	
1	2¼	12	2	12	Yes	
1	2½	12	2¼	12	Yes	
2	2	12			No	2¼
2	2¼	12			No	2½
2	2½	12			Yes	
2	2½	12			Yes	
2	2¼	10	2	12	Yes	
2	2½	12	2¼	12	Yes	
3 & 4	2½	12			Yes	
3 & 4	2½	10			Yes	
3 & 4	2½	12	2¼	12	Yes	
3 & 4	2¼	12	2	12	Yes	
3 & 4	2½	10	2³/16	10	Yes	

Properties of Telescoping Perforated Tube						
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in.⁴	Cross Sec. Area in.²	Section Modulus in.³
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2³/16 x 2³/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.785

Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2³/16"x10 ga.	1⁹/64"	2½"	3¹/32"	2⁵/32"	1³³/64"	1⅞"
2½"x10 ga.	1⁹/32"	2½"	3⁵/16"	⅝"	1²¹/32"	1¾"

(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.

(B) For additional wind load, insert the 2³/16"x10 ga. into 2½"x10 ga.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp

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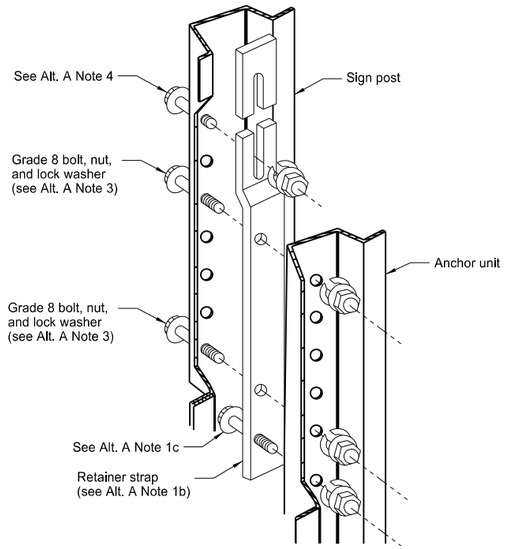
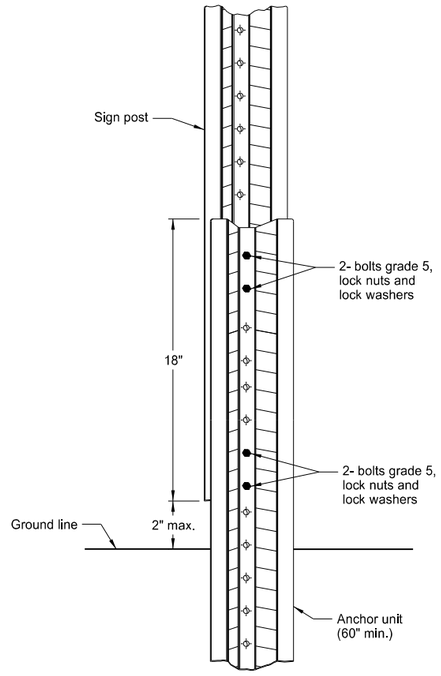
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post

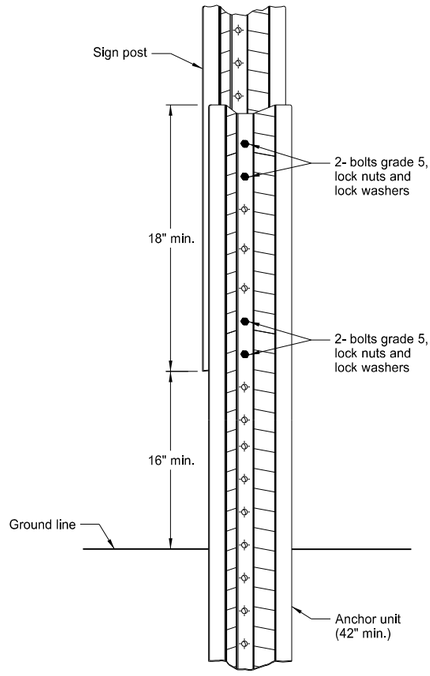


Detail A



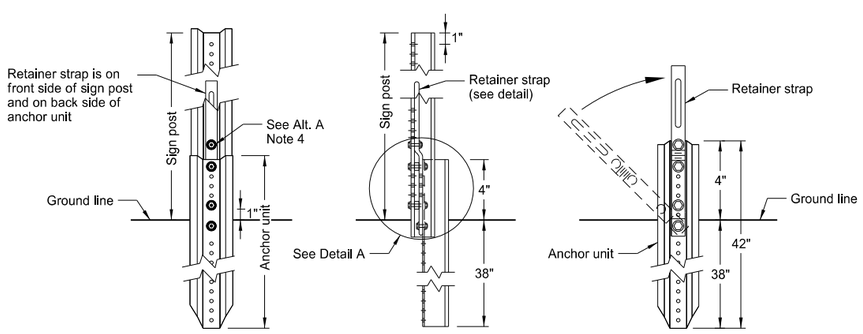
Breakaway U-Channel Splice Detail
Alternate B
(2.5 and 3 lb/ft)

Install a maximum of 3 posts within 7'.



Breakaway U-Channel Splice Detail
Alternate C
(2.5 and 3 lb/ft)

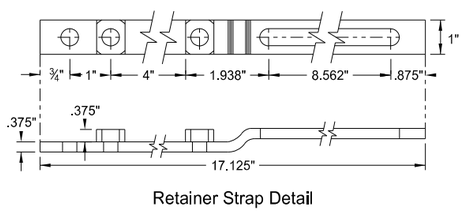
Install a maximum of 3 posts within 7'.



Front View Side View Back View

Breakaway U-Channel Detail
Alternate A

Install a maximum of 2 posts within 7'.



Retainer Strap Detail

Alternate A Steps of Installation:

1. a) Drive anchor unit to within 12" of ground level.
   b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
   c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
   d) Rotate strap 90° to left.
2. a) Drive anchor unit to 4" above ground.
   b) Rotate strap to vertical position.
3. a) Place 5/16"x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
   b) Alternately tighten two connector bolts.
4. Complete assembly by tightening 5/16"x2" bolt (this fastens sign post to retainer strap).
5. Properly nest base post, strap, and sign post. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp

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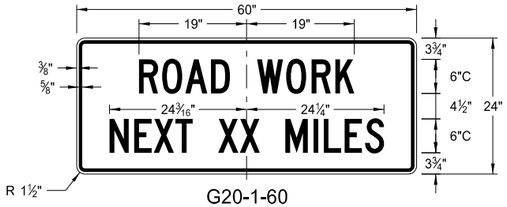
CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS



G20-1-60
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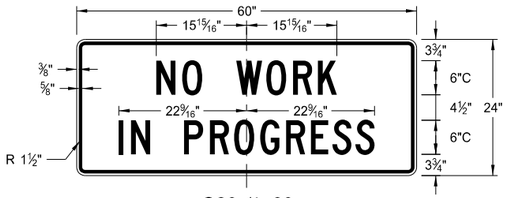
Background: orange



G20-1b-60
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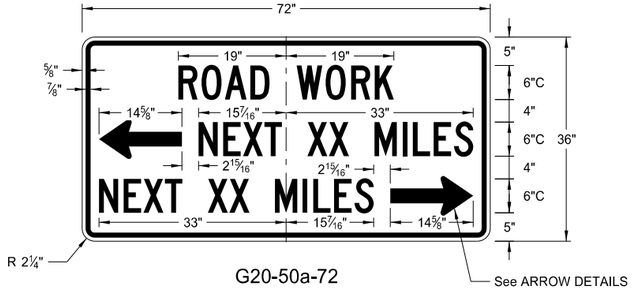
Background: orange



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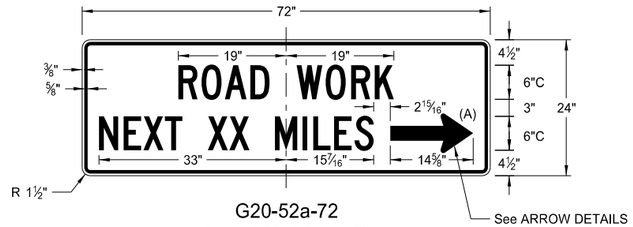

G20-52a-72
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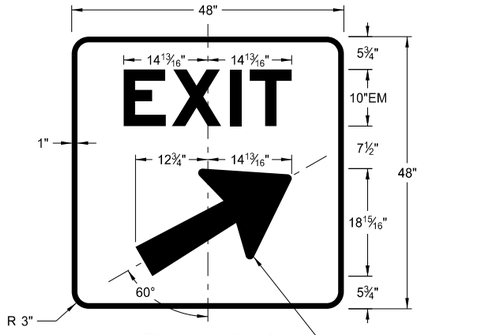
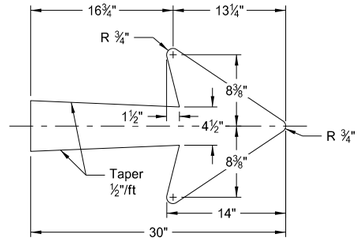
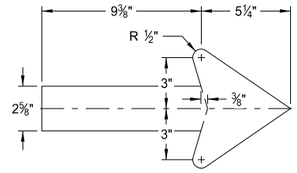


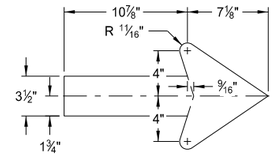
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



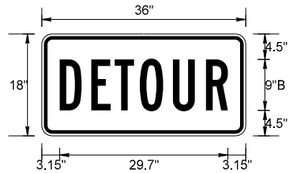
E5-1-48



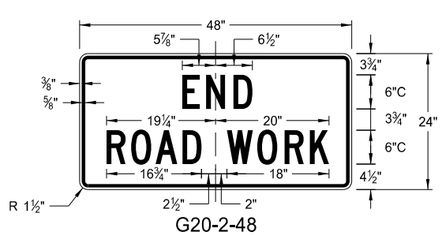
G20-50a-72
G20-52a-72



M4-9(L or R)-30
Right or Left



M4-8-36
Legend: black (non-refl)
Background: orange



G20-2-48
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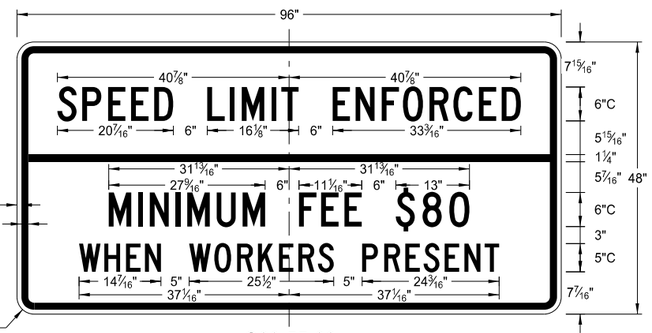

G20-55-96
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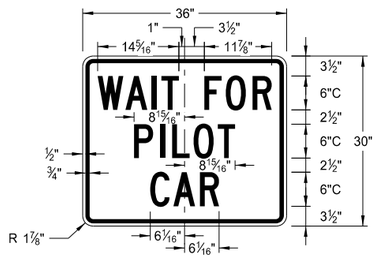
Background: orange



G20-4b-36
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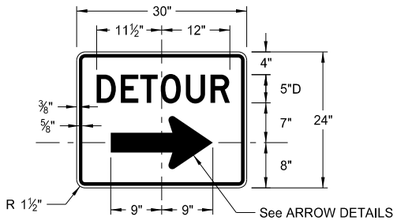
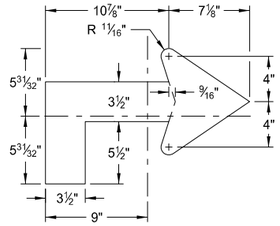
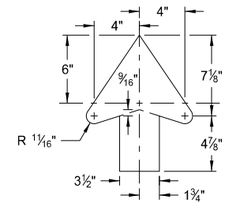


M4-9(L or R)-30 &
M4-9-30
Legend: black (non-refl)
Background: orange



M4-9(L or R)-30
Advanced Right or Left



M4-9-30
Straight

ARROW DETAILS

NOTES:

(A) Arrow may be right or left of the legend to indicate construction to the right or left.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17 10-03-19	Added sign & background color New Design Engineer PE Stamp

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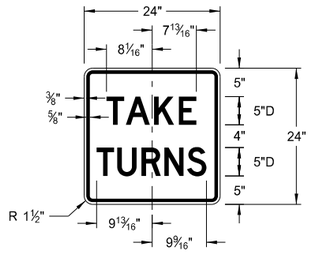
CONSTRUCTION SIGN DETAILS
REGULATORY SIGNS



R1-50P-24
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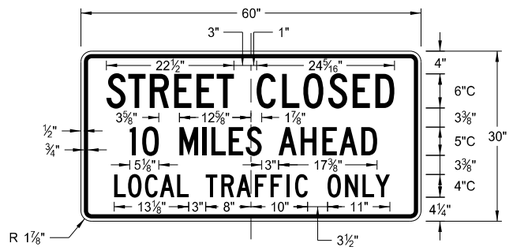
Background: white



R11-3c-60
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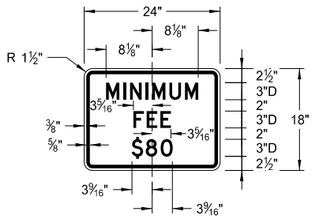

R2-1aP-24
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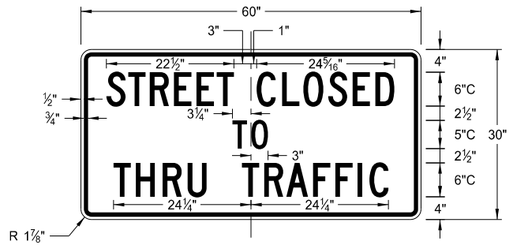

R11-4a-60
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Background: white

R11-2a-48
Legend: black (non-refl)
Background: white

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Revised sign number
10-03-19	New Design Engineer PE Stamp

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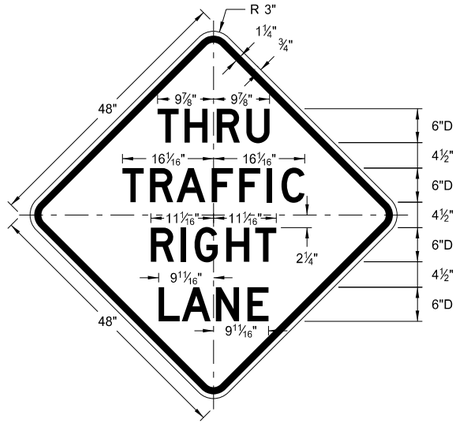
CONSTRUCTION SIGN DETAILS
WARNING SIGNS



W5-8-48
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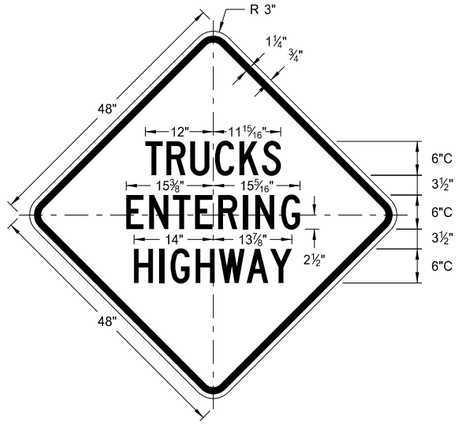
Background: orange



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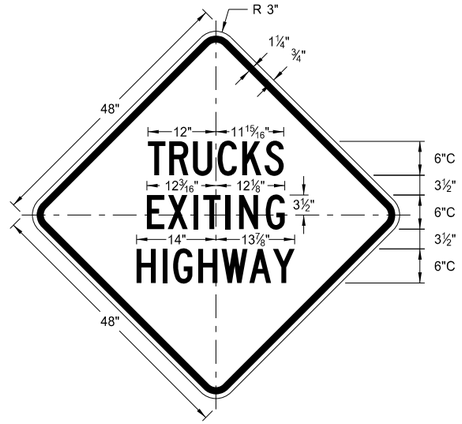

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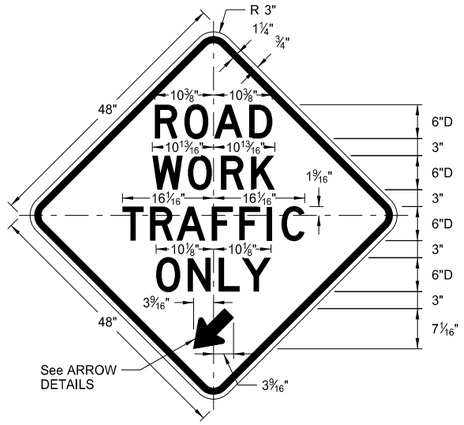

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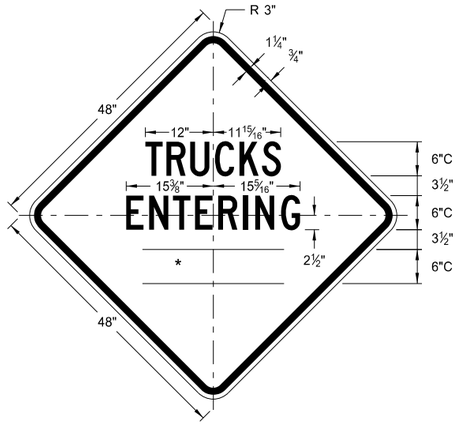

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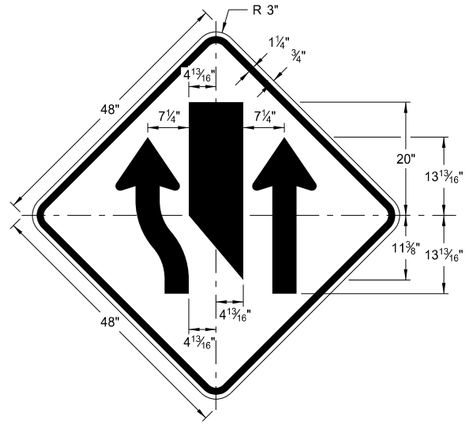

W9-3a-48
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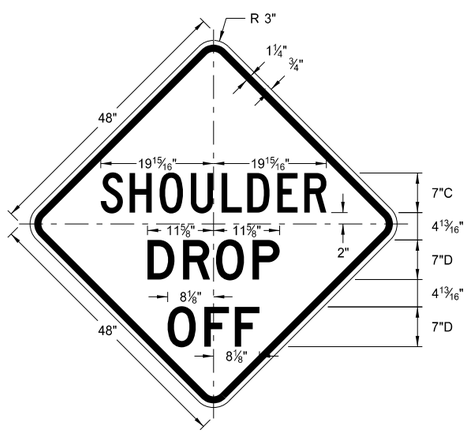
Background: orange



W8-9a-48
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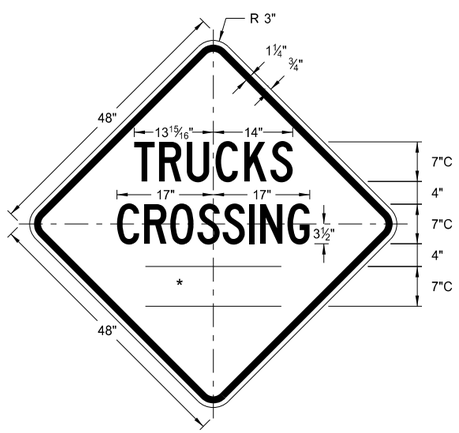
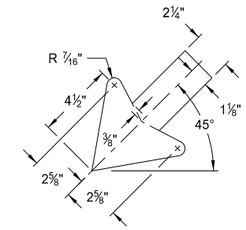


W8-55-48
Legend: black (non-refl)
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

* DISTANCE MESSAGES



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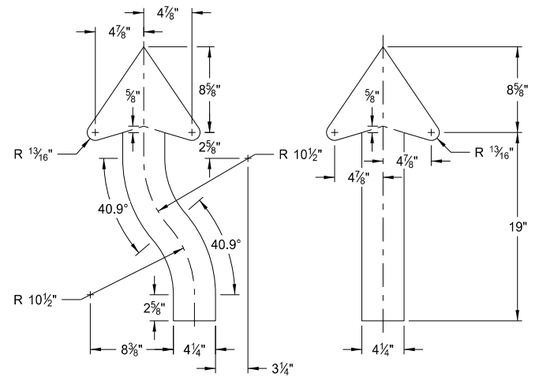


W9-3a-48

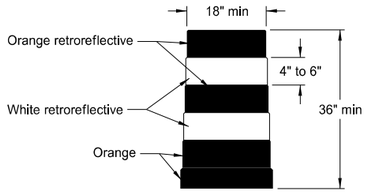
ARROW DETAILS

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 10/03/19 and the original document is stored at the North Dakota Department of Transportation

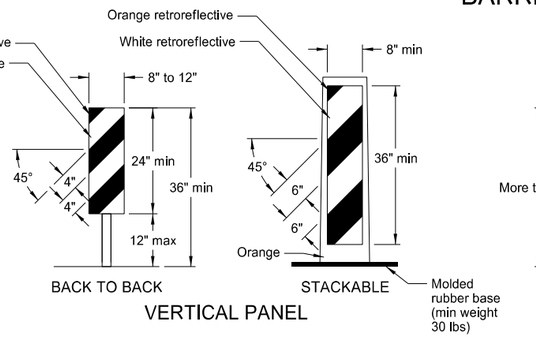
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



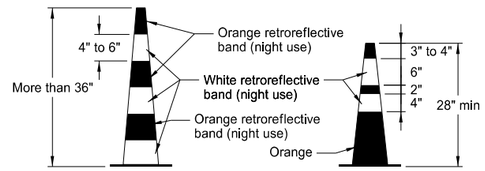
DELINEATOR DRUM

Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectorized spaces between the horizontal orange and white stripes. Avoid placement of stripes on drum ribs or indentations. Use closed top drums that will not allow collection of debris. Do not place ballast on the top of drum.



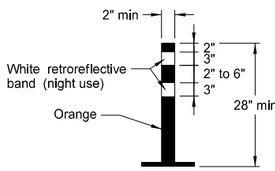
VERTICAL PANEL

Provide alternating orange and white retroreflective stripes, sloping downward in direction vehicular traffic is to pass. Place retroreflective sheeting on both sides of panel with a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective material on the vertical panel is 36 inches or more, use a stripe width of 6 inches.



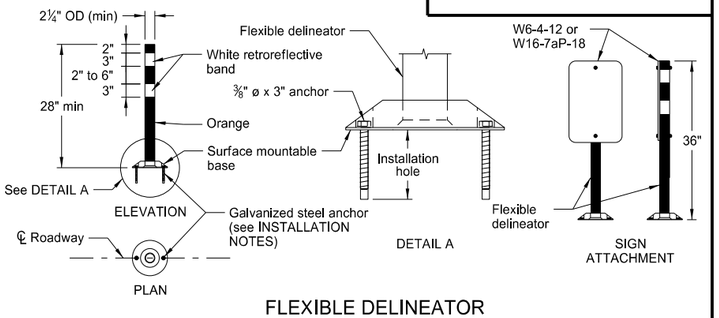
TRAFFIC CONE

Provide retroreflectorization of cones more than 36" in height by alternating orange and white retroreflective stripes. Use a minimum of two orange and two white stripes for each cone with the top stripe being orange. Use maximum 3" nonretroreflectorized space between the orange and white stripes.



TUBULAR MARKER

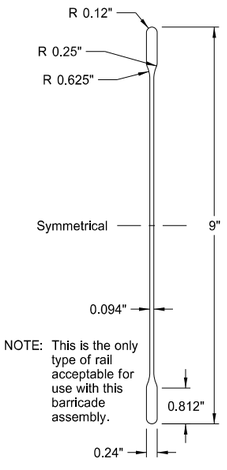
Provide retroreflectorization of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



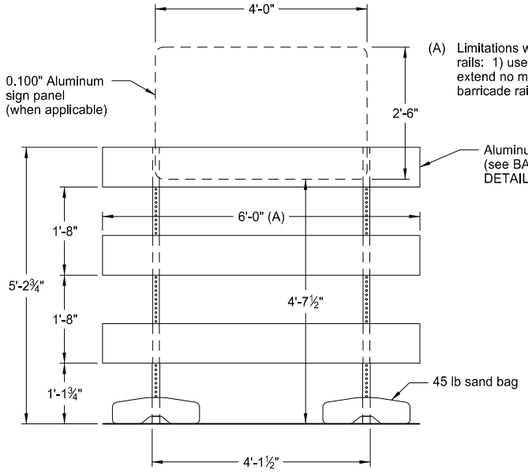
FLEXIBLE DELINEATOR

INSTALLATION NOTES:

1. Drill installation holes to diameter and depth required by manufacturer's specifications.
2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
3. In lieu of bolted down base, use an 8" x 8" butyl pad or hot melt butyl. Remove butyl as close as possible to pavement surface.

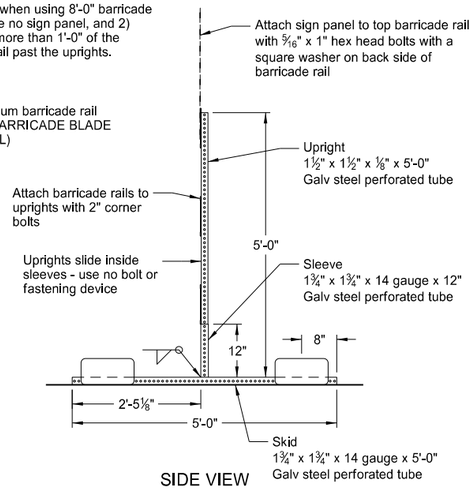


BARRICADE BLADE DETAIL



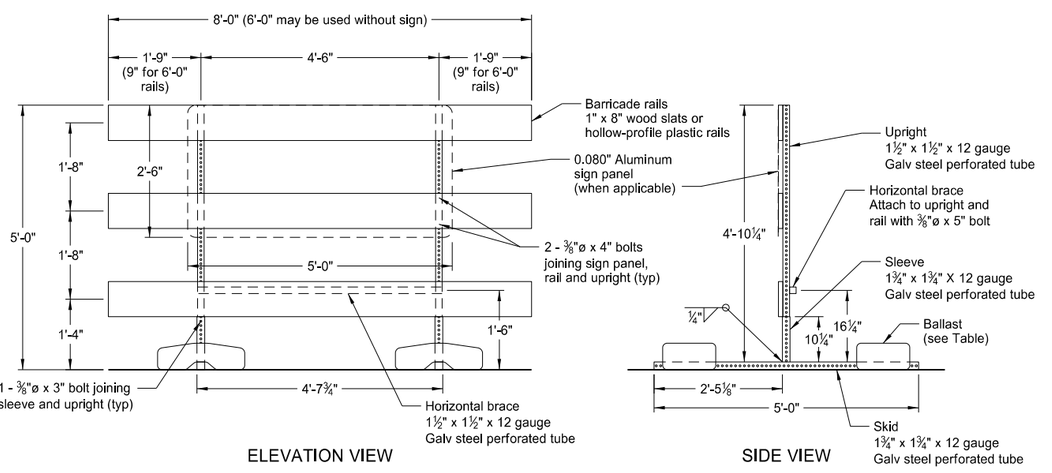
ELEVATION VIEW

(A) Limitations when using 8'-0" barricade rails: 1) use no sign panel, and 2) extend no more than 1'-0" of the barricade rail past the uprights.



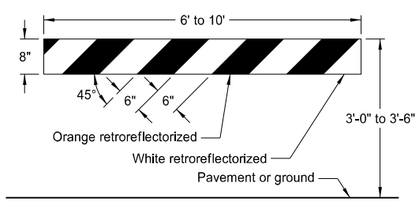
SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

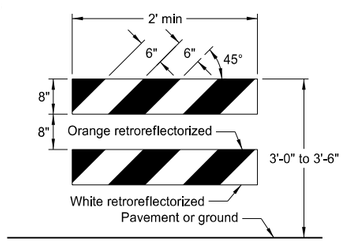


BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

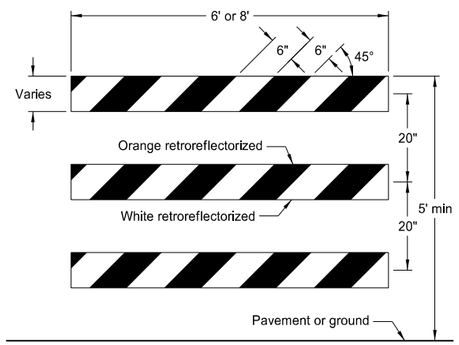
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", use a rail stripe width of 4".



TYPE I BARRICADE

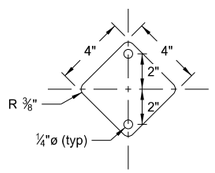


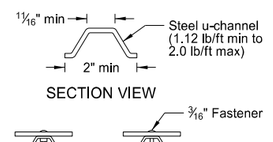
TYPE II BARRICADE

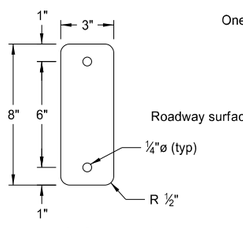


TYPE III BARRICADE

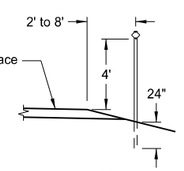
BARRICADE RAIL DETAILS







REFLECTOR DETAIL



ELEVATION

DELINEATORS

MINIMUM BALLAST
(For each side of barricade support)

Without Sign	4 - 25 lb sandbags
With Sign	6 - 25 lb sandbags

Note: Number of sandbags based on a wind speed of 55 MPH. Sandbags assumed to be placed at or near the ends of the skids.

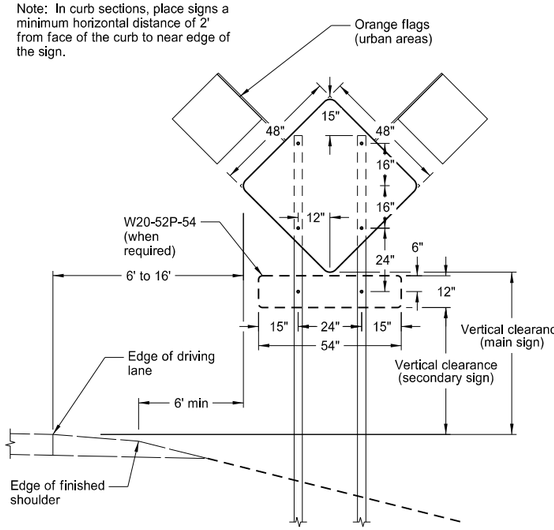
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17 11-01-19	Updated to active voice Revised details for Flexible Delineator

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

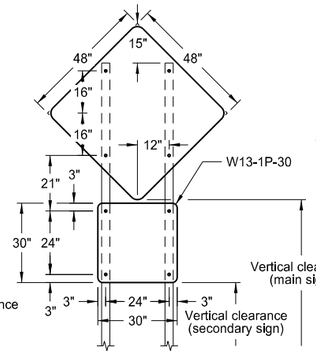
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

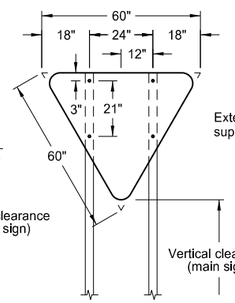
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



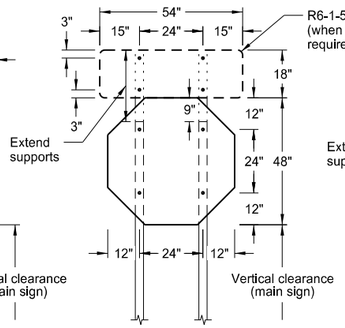
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



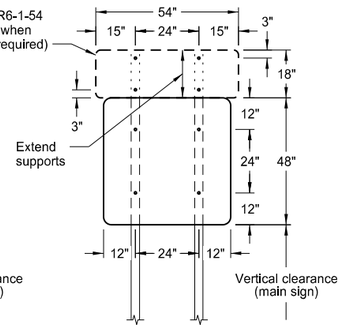
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



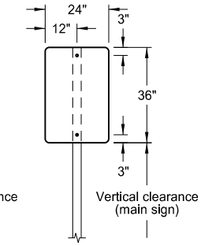
R1-2-60 - YIELD SIGN



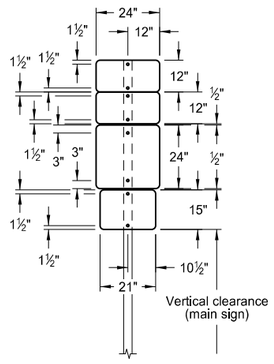
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



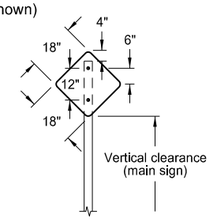
48" x 48" SIGN
(with R6-1-54 sign as required)



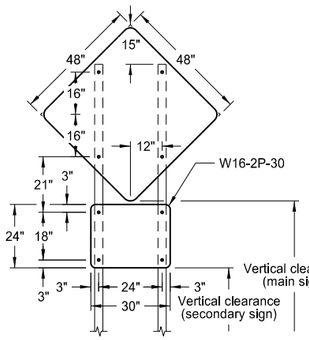
24" x 36" SIGN



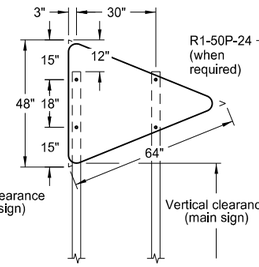
24" x 24"
ROUTE MARKER
ASSEMBLY



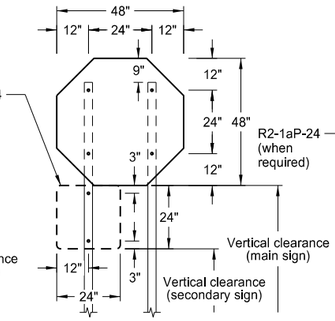
18" x 18"
DIAMOND SIGN



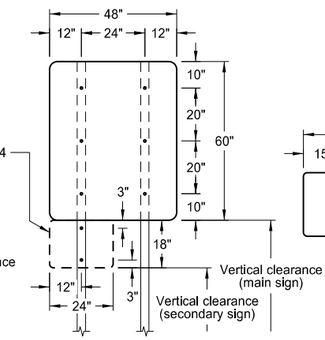
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



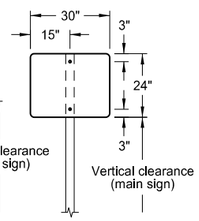
W14-3-64 - PENNANT SIGN



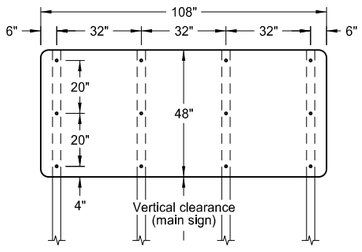
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



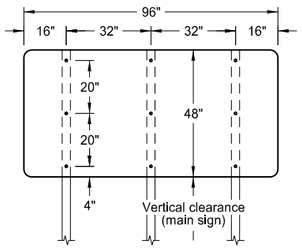
48" x 48" SIGN
(with R2-1aP-24 sign as required)



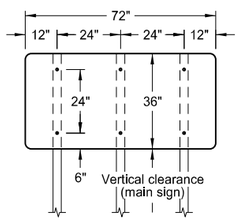
30" x 24" SIGN



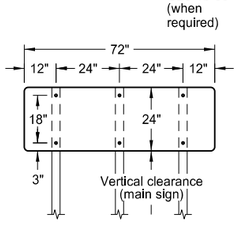
108" x 48" SIGN



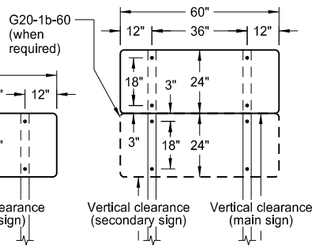
96" x 48" SIGN



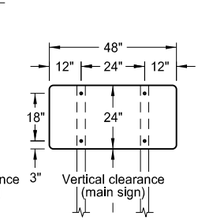
72" x 36" SIGN



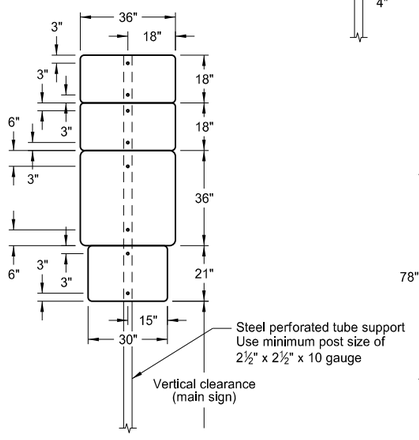
72" x 24" SIGN



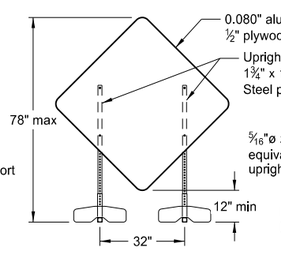
60" x 24" SIGN



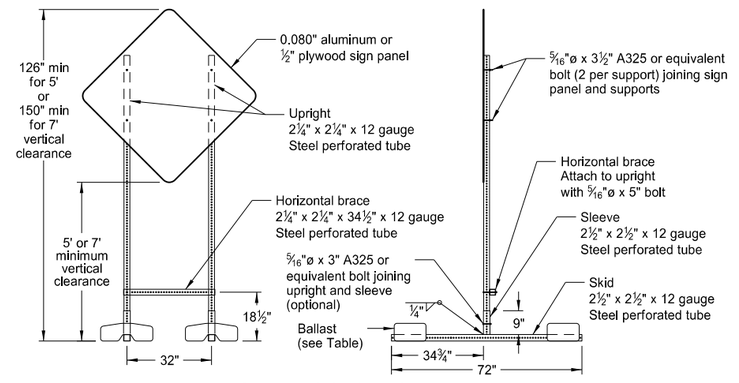
48" x 24" SIGN



36" x 36"
ROUTE MARKER
ASSEMBLY



PORTABLE SIGN SUPPORT
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT
HIGH-MOUNTING HEIGHT

NOTES:

1. Sign Supports: Galvanize or paint supports. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPH.

   Place signs over 50 square feet on 2½" x 2½" perforated tube supports as a minimum.

   Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.

2. Sign Panels: Provide sign panels made of 0.100" aluminum, ½" plywood, or other approved material, except where noted. Punch all holes round for ⅜" bolts.

3. Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on lane closure sign)

4. Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with:

   Interstate - white legend on blue background
   Interstate Business Loop - white legend on green background
   US and State - black legend on white background
   County - yellow legend on blue background

5. Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.) In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb.

   The vertical clearance to secondary signs is 1'-0" less than the vertical clearance stated above.

   Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.

6. Portable Signs: Provide portable signs that meet the vertical clearance stated above when it is necessary to place signs within the pavement surface.

   Use of low-mounting height (minimum 12" vertical clearance) portable signs for 5 days or less, is allowed as long as the view of the sign is not obstructed. Time delays caused by unforseen circumstances, such as equipment breakdown, rain, subgrade failures, etc., will not accrue towards the 5 day period. Use of R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 is allowed for longer than 5 days.

   Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to a maximum surface area of 16 square feet.

MINIMUM BALLAST
(For each side of sign support base)

Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

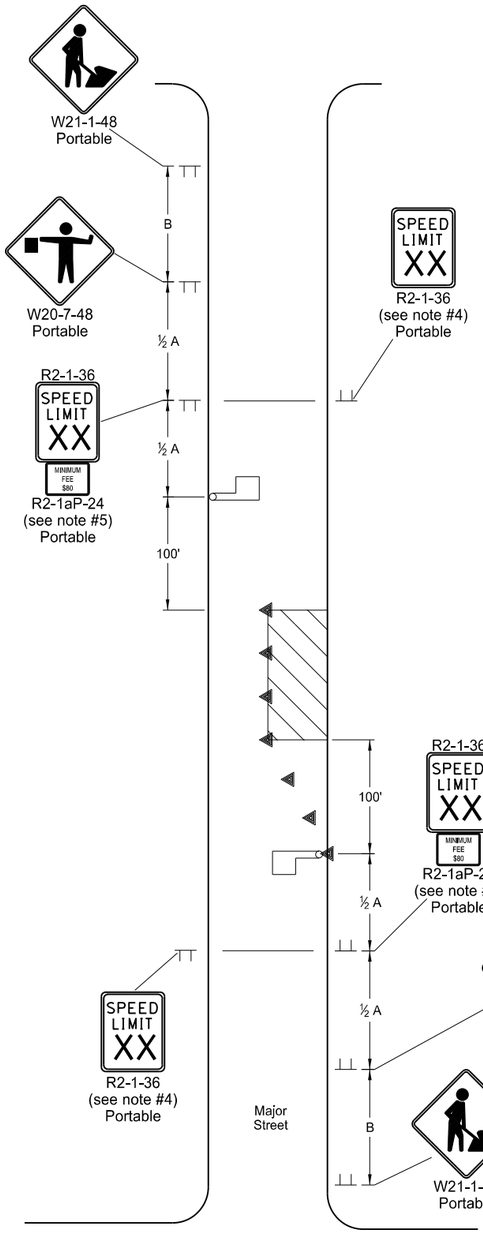
Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-4-13	
REVISIONS	
DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

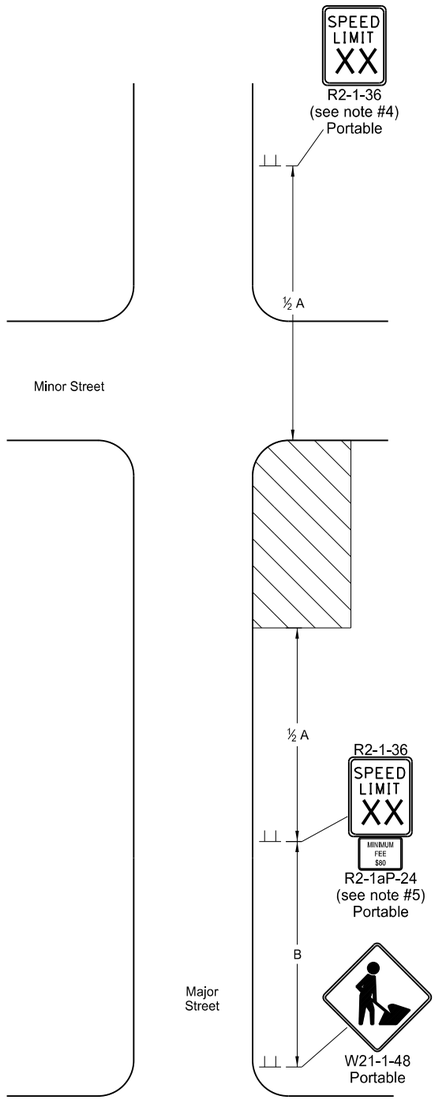
LANE CLOSURES ON URBAN STREETS LAYOUTS

D-704-25



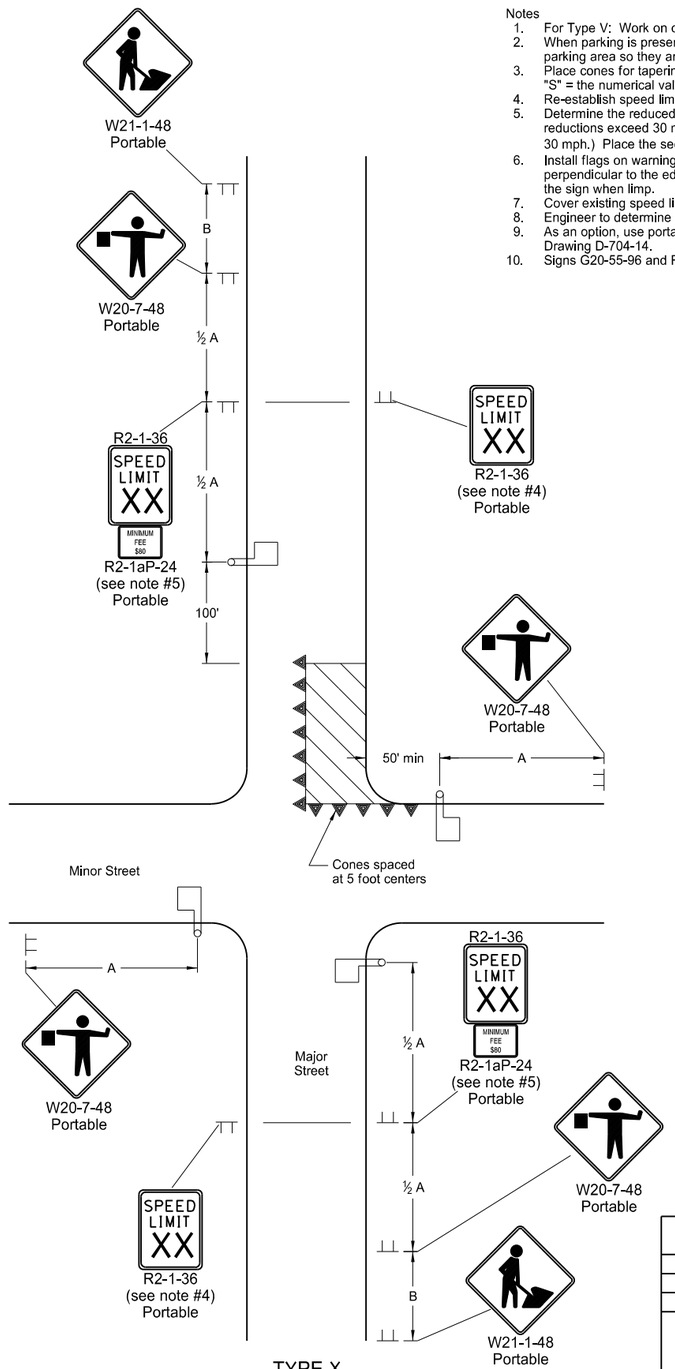
TYPE V
LANE CLOSURE ON URBAN STREET

Portion of roadway closed to traffic only
during daylight hours (mid block location).



TYPE W
WORK BEYOND CURB ON URBAN STREET

Work area outside driving lane and no closure necessary.



TYPE X
LANE CLOSURE NEAR INTERSECTION ON URBAN STREET

Portion of roadway closed to traffic only
during daylight hours (end block location).

Notes

1. For Type V: Work on one side of roadway at a time so as not to block off more than one lane of traffic.
2. When parking is present, place signs so they are entirely visible above parked vehicles or at the edge of the parking area so they are visible to oncoming traffic. Place signs on portable mounts when located on roadway.
3. Place cones for tapering traffic at 3 equal spaces and cones for tangents at dimension "S".
   "S" = the numerical value of speed limit.
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
6. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inches square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
7. Cover existing speed limit signs within reduced speed zones.
8. Engineer to determine safe speed, when necessary.
9. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
10. Signs G20-55-96 and R2-1aP-24 are not required for urban projects.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

KEY

Sign | Work area | Cones | Flagger

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

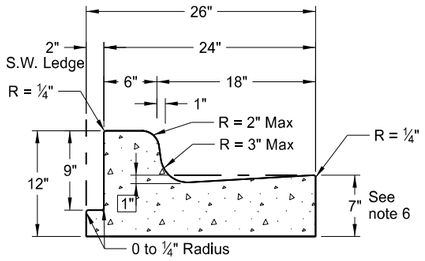
REVISIONS

DATE	CHANGE
8-17-17	Updated notes & removed signs
11-01-19	Revised note & added Min Fee sign

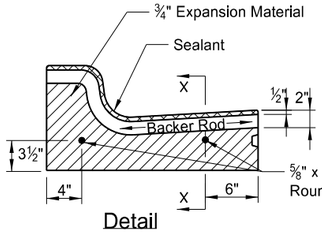
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

Curb & Gutter and Valley Gutter

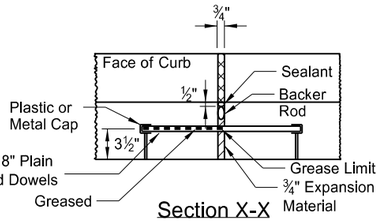
D-748-1



Curb & Gutter Type 1 (Sec. A & B)
Adjacent to Concrete Sidewalk, Median, or Parking Lot.
(Sec. A shown. See Sec B for additional details.)

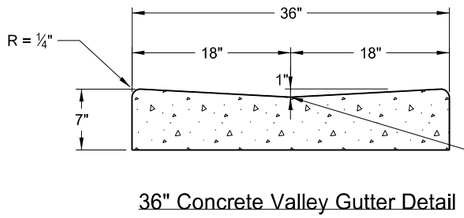


Detail

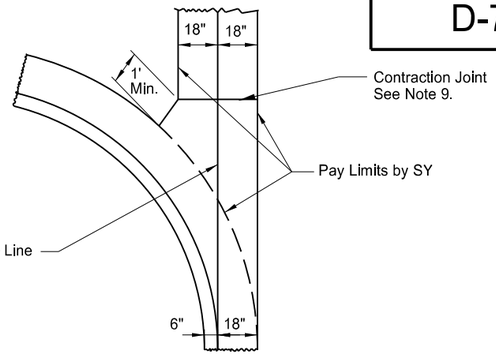


Section X-X

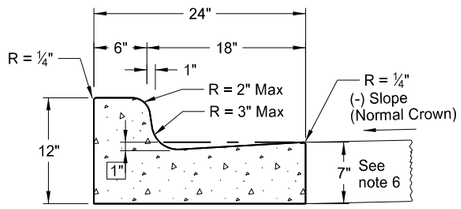
Isolation Joint



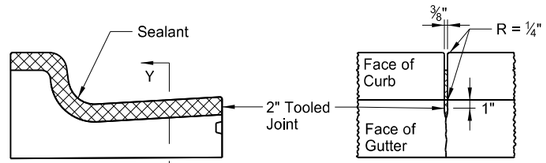
36" Concrete Valley Gutter Detail



36" Concrete Valley Gutter Plan



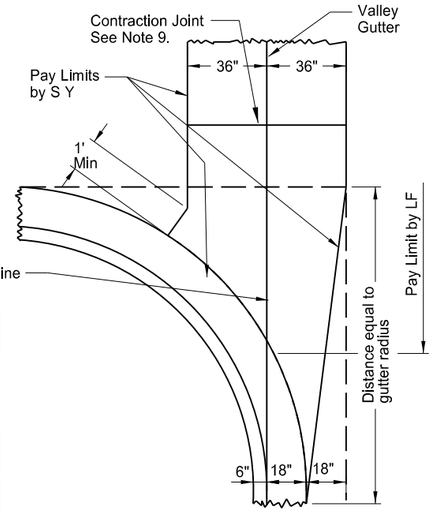
Curb & Gutter Type 1 (Sec. A)



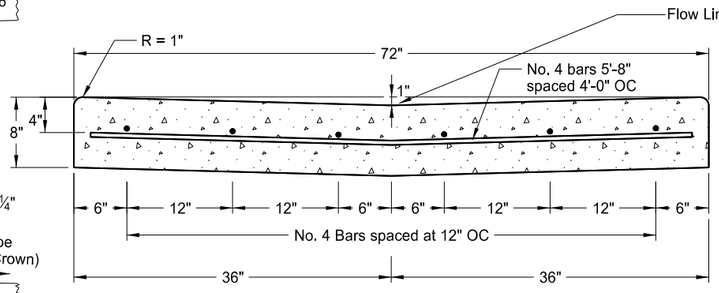
Detail

Section Y-Y

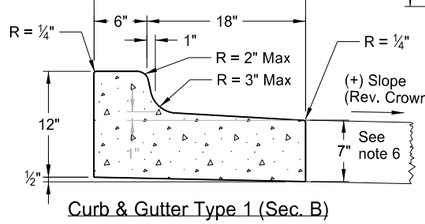
Contraction Joint



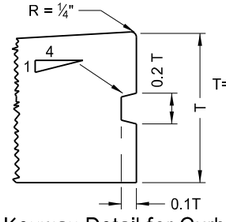
72" Concrete Valley Gutter Plan



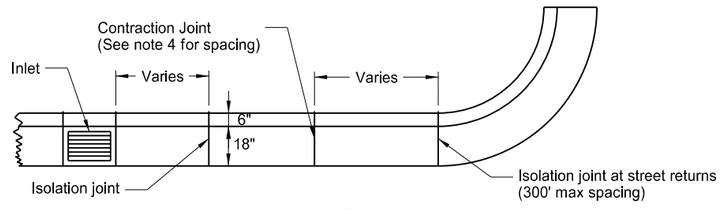
72" Concrete Valley Gutter Detail



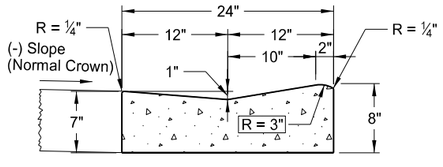
Curb & Gutter Type 1 (Sec. B)



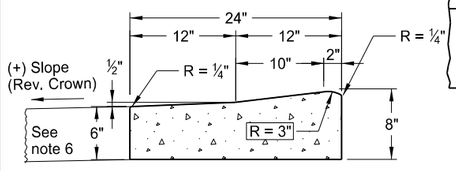
Keyway Detail for Curb & Gutter
(To be used with PCC Pavement and Drives)



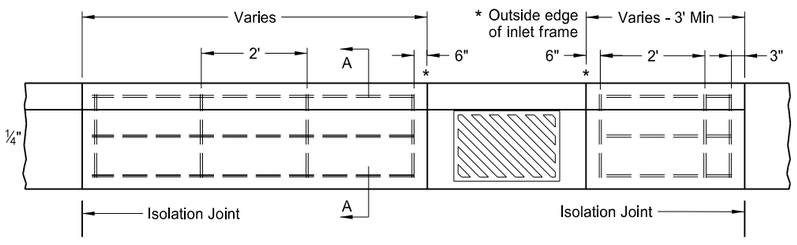
Joint Location Detail



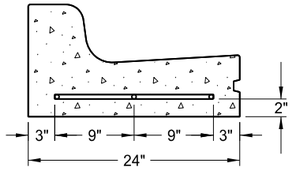
Mountable Curb & Gutter Type 1 (Sec. A)



Mountable Curb & Gutter Type 1 (Sec. B)



Curb & Gutter Reinforcing at Inlets



Section A-A

NOTES:

1. Use Curb and Gutter Type 1 (Sec. A & B). Use section "A" with (-) pavement slopes and section "B" with (+) pavement slopes.
2. Contraction Joints: Tool the Curb & Gutter 2" as shown on the contraction joint details.
3. Isolation Joints: Use ¾" expansion joint filler for isolation joint material. Form the backer rod and joint sealant opening with a pre-cut piece of wood or other material approved by the engineer. Dowel supports are not required on the second pour at a cold joint. Install plastic or metal caps and greased dowels in the cold joint for the second pour.
4. Joint Spacing: For hot bituminous pavements use a 10' max joint spacing for the curb and gutter with panels on each side of the inlets. For concrete pavements match the joint spacing for the curb and gutter to the pavement joint on PCC Pavements (approximately 15' spacing.)
5. Joint sealing: Seal contraction and isolation joints as shown in the details. Use joint sealant for contraction joints that conforms to section 826.02B. Use sealant for expansion joints specified in note 3 above. Tool and install sealant in accordance with the manufacturer's recommendations.
6. Face of Gutter Depth: For hot bituminous pavement use 7" gutter depth as shown. For PCC pavements, match the gutter depth to the depth of adjacent PCC pavement or to construct a 7" depth as shown.
7. Tie curb and gutter to abutting PCC pavement with No. 3 bars, 1'-6" in length, spaced at 4' centers.
8. On street returns and other locations where new curb and gutter ends and does not abut existing curb and gutter, taper the last two (2) feet of the curb from 6" in height to 0". Install a 1/2" premolded full depth isolation joint, the same shape as the curb and gutter just ahead of the taper. Install an 18" tie bar across the joint.
9. Valley Gutter Joints: Form, saw, or score ⅛" min. to ⅜" max. width contraction joints (a minimum 2" depth) at approx 10' intervals. Seal the joints with hot poured elastic type joint sealer (Section 826.02A.2 of the Standard Specifications.) Include all costs for the joint and sealant in the price bid for Valley Gutter.

NOTE: Use #4 deformed reinforcing bars without splices. Include all costs for reinforcing bars at inlet locations (even inlets located on radii) in the price bid for "Curb and Gutter - Type 1." Extend reinforcement to the second joint (rebar placed through the first joint) in cases where the 3' min. panel length cannot be obtained.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

8-7-2013

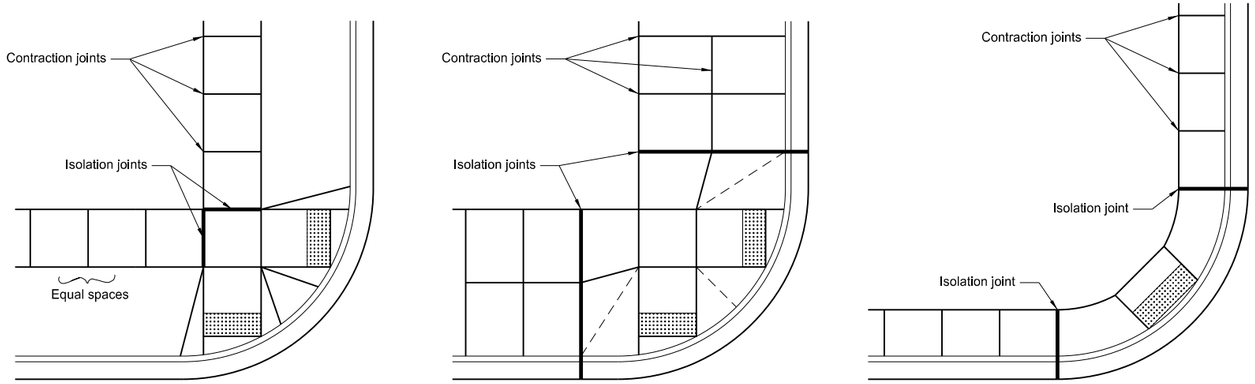
REVISIONS

DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engr PE Stamp.

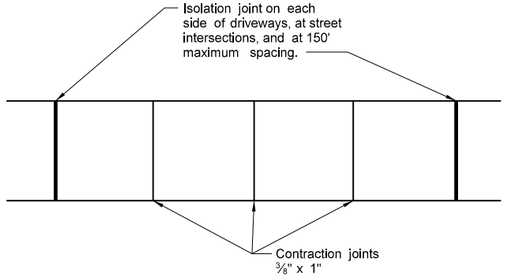
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8-27-19 and the original document is stored at the North Dakota Department of Transportation

SIDEWALK

D-750-2



Typical Joint Layouts



NOTES:

1. Curb ramp and detectable warning panel layouts for informational purposes only. See Standard Drawing D-750-3 for curb ramp and detectable warning panel details.
2. Joint Spacing: Vary transverse contraction joint spacing from 4' to 6' to create approximate square panels.

   Use longitudinal contraction joints when sidewalk width is 8' or greater, and space at half the sidewalk width.

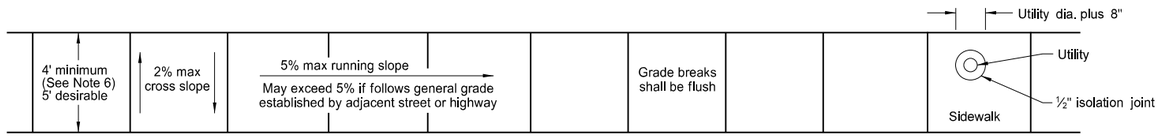
   Saw or groove contraction joints to a minimum depth of 1/3 the depth of the concrete.

   When sidewalk is adjacent to curb & gutter, vary the sidewalk joint spacing to match curb & gutter joints.

   Use isolation joints between separate concrete pours, or between old and new concrete.
3. Include all costs for labor, equipment, and material necessary to construct contraction and isolation joints in the price bid for sidewalk concrete.
4. Use 4" sidewalk concrete thickness unless otherwise specified.
5. Use 4" base material thickness unless otherwise specified. Include all costs for labor and materials necessary to place the base material in the price bid for "Salvage Base Course" or "Aggregate Base Course CL 5."

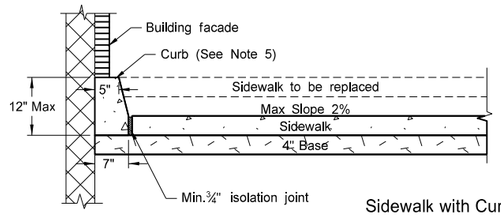
   Modify existing ground slope with landscaping as needed. If not possible, such as adjacent buildings, use a vertical curb as shown in the detail below. The Engineer will measure curb at the unit price bid for "Curb - Type I" per lineal foot.
6. Sidewalk Width & Grade: Provide a continuous 4' min clear width pedestrian access route with max 2% concrete cross slope, excluding flares. The width of the curb cannot be counted as part of the pedestrian access route.

   When clear width of pedestrian access routes is less than 5.0', provide passing spaces at a maximum of 200' with a minimum size of 5.0' by 5.0'.

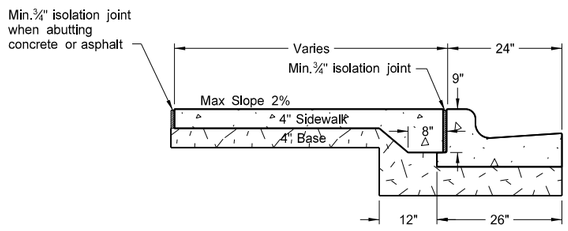


Sidewalk Width and Grade

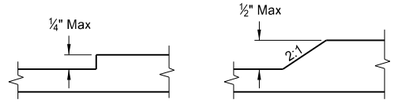
Utility Blockout



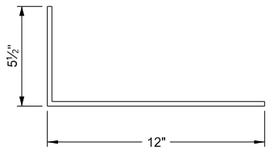
Sidewalk with Curb Detail
(Building face application)



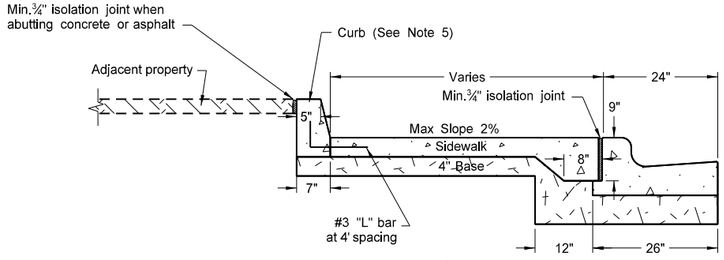
Sidewalk Detail
(Installed adjacent to curb and gutter)



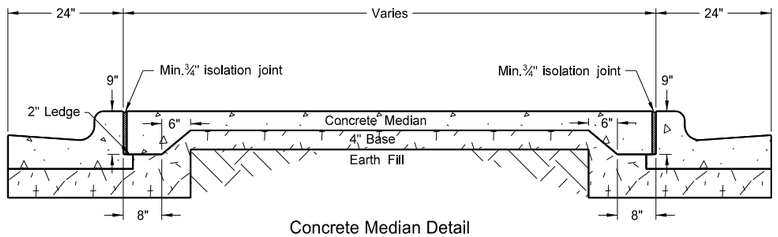
Vertical Discontinuities
(As needed for utility covers, vaults, grating, etc..)



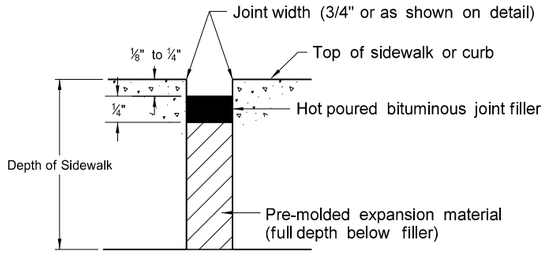
"L"Bar Detail
#3 Bar



Sidewalk with Curb Detail
(Adjacent property application)



Concrete Median Detail



Typical Isolation Joint Seal
(longitudinal and transverse)

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-26-13	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice.
09-05-18	Added sidewalk details for width and grade and passing lane requirements.
08-27-19	New Design Engineer PE Stamp.

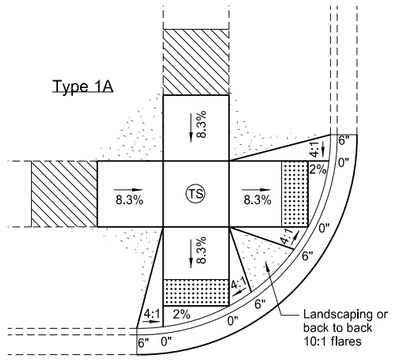
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 08/27/19 and the original document is stored at the North Dakota Department of Transportation

CURB RAMP DETAILS

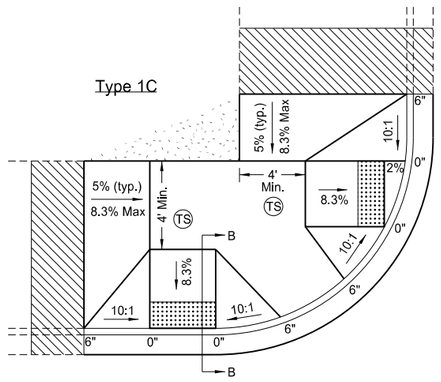
D-750-3

+More Right of Way — Less Right of Way-

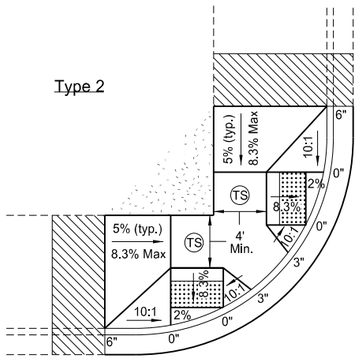
Type 1A



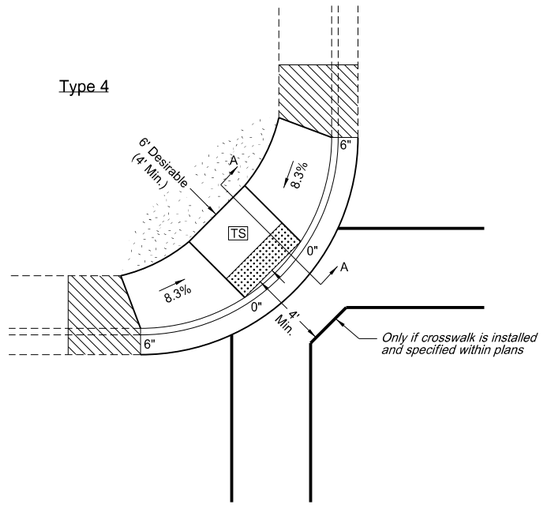
Type 1C



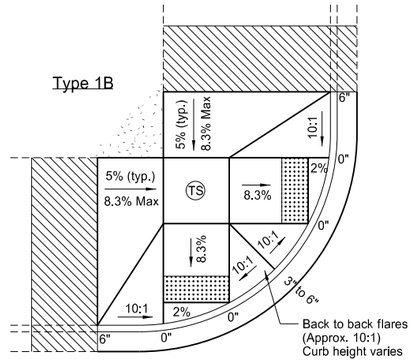
Type 2



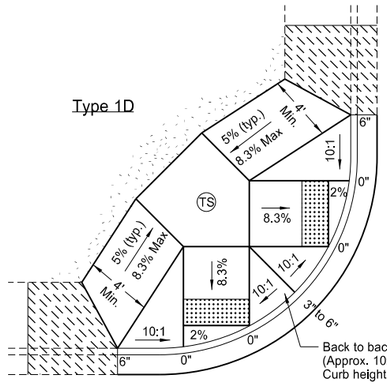
Type 4



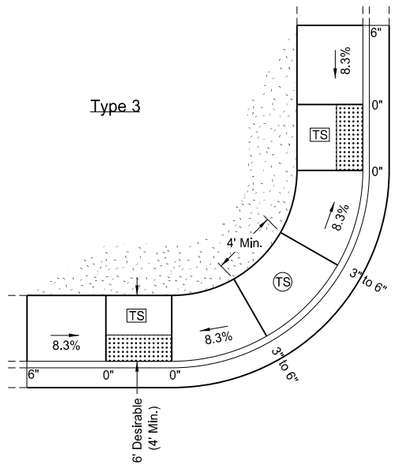
Type 1B



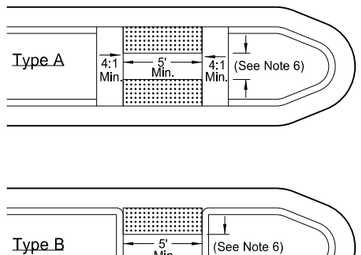
Type 1D

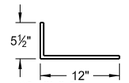


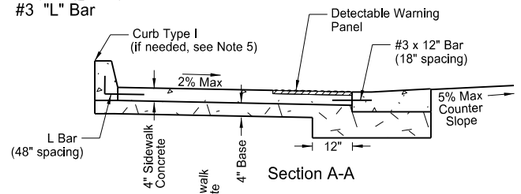
Type 3

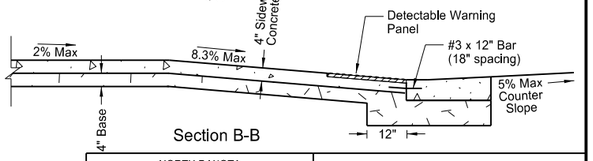


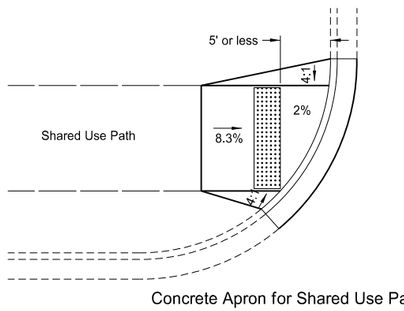
Median Refuge Islands (Cut-Through)

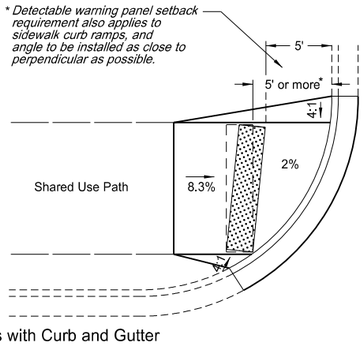




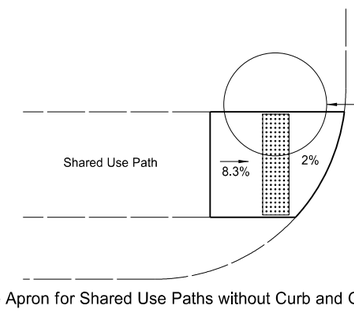




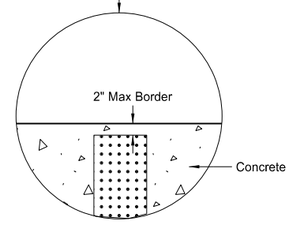


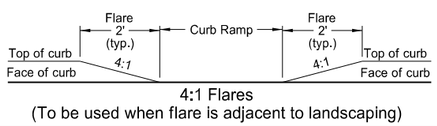


Concrete Apron for Shared Use Paths with Curb and Gutter

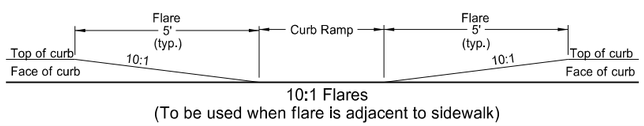


Concrete Apron for Shared Use Paths without Curb and Gutter





4:1 Flares
(To be used when flare is adjacent to landscaping)



10:1 Flares
(To be used when flare is adjacent to sidewalk)

NOTES:

1. Ramp width is the useable portion of the ramp, excluding flares. Match curb ramp width to existing sidewalk width (4' minimum or 5' for island ramps.) Match ramp width to existing shared use path width. Maximum ramp length is 15'.
2. Desirable turning space size is 5' x 5' or larger with a minimum size of 4' x 4'. The maximum slope for turning spaces is 2% in any direction.
3. Match detectable warning panel width to ramp width. Radial panels are allowed. Place detectable warning panel within the lower turning space.
4. Provide a continuous 4' minimum width pedestrian access route with max 2% concrete cross slope, excluding flares.
5. Modify existing ground slope with landscaping, as needed. If not possible, such as adjacent buildings, use a vertical curb as shown in the detail below. The Engineer will measure curb at the unit price bid for "Curb - Type I" per lineal foot.
6. Islands: If the grade of the island curb ramp is less than 2%, provide a minimum distance of 2' between warning panels. If the grade of the island curb ramp is steeper than 2%, provide a turning space between the ramps.

LEGEND:

- : Detectable Warning Panel
- : Landscaping
- : Transitional tie-in segment if needed for retrofits. Max grade slope 8.3%.
- TS : Upper Turning Space
- TS : Lower Turning Space
- 0", 3", or 6" : Curb Height
- 8.3% : All slopes shown are max grades. Flatter slopes may be used.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

11-26-13

REVISIONS

DATE	CHANGE
10-17-17	Updated to active voice.
09-05-18	Revised Notes, Revision for Turning Space, Added Passing Space Requirements, Turned Detectable Warning Panel

This document was originally issued and sealed by Roger Weigel, Registration Number PE-2930, on 09-05-2018 and the original document is stored at the North Dakota Department of Transportation