

DESIGN DATA				
Traffic	Average Daily - 16th St SW to 6th St SW			
Current 2020	Pass: 7320	Trucks: 140	Total: 7460	
Forecast 2040	Pass: 8935	Trucks: 195	Total: 9130	
	Average Daily - 6th St SW to South Broadway / US 83			
Current 2020	Pass: 12985	Trucks: 320	Total: 13305	
Forecast 2040	Pass: 15845	Trucks: 435	Total: 16280	
	Average Daily - 16th St SE to 27th St SE			
Current 2020	Pass: 7915	Trucks: 260	Total: 8175	
Forecast 2040	Pass: 9660	Trucks: 355	Total: 10015	
Clear Zone Distance: N/A		Design Speed: N/A		
Minimum Sight Dist. for Stopping: N/A		Bridges: N/A		
Sight Dist. for No Passing Zone: N/A				
Pavement Design Life N/A				
Design Accumulated One-way flexible ESALs: N/A				

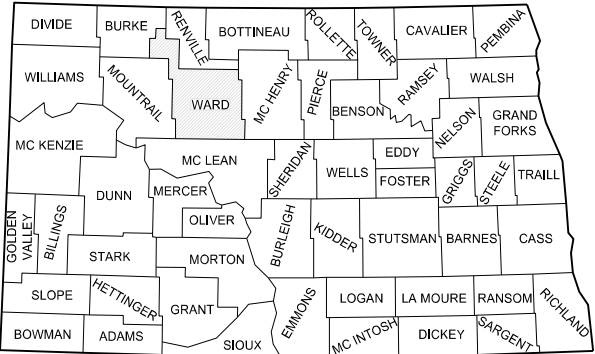
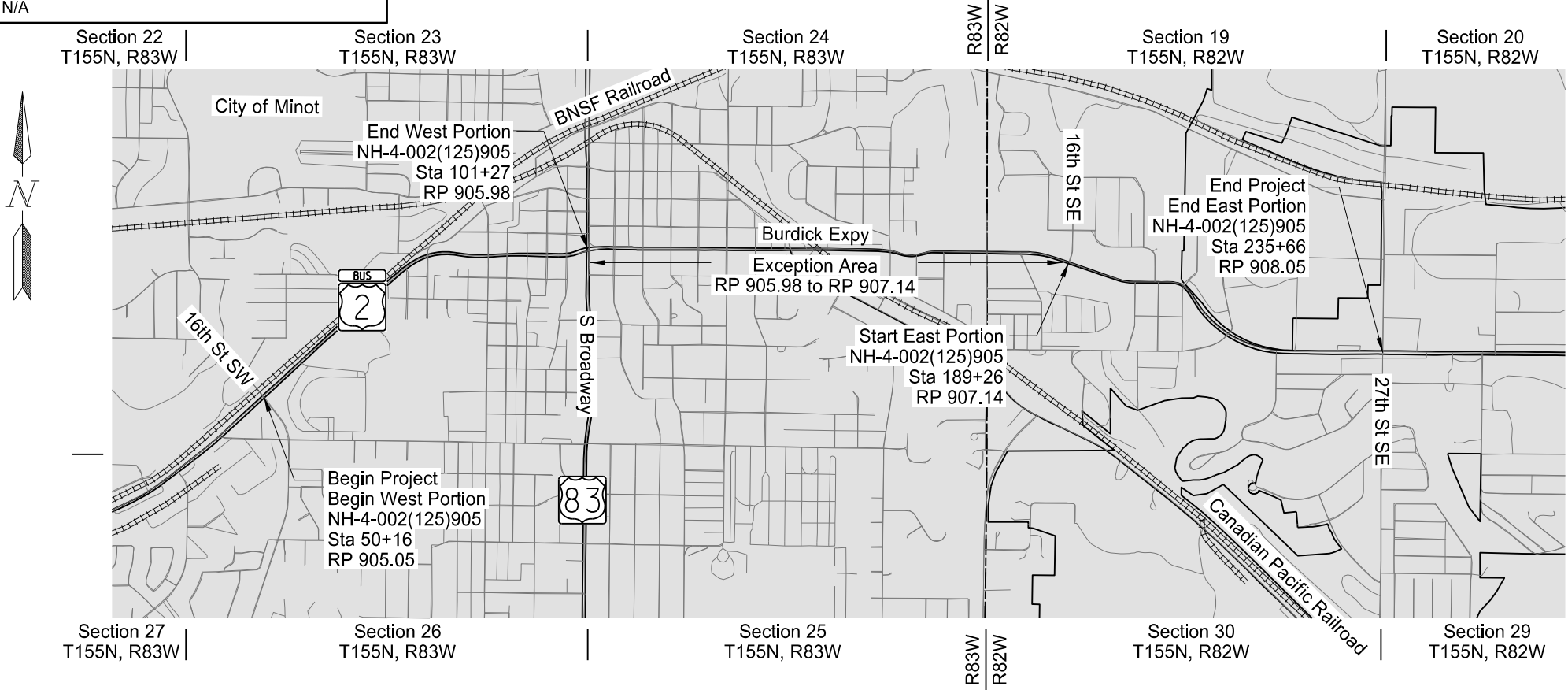
JOB # 26  
NORTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

NH-4-002(125)905

Ward County  
City of Minot  
Burdick Expy / US 2B - 16th St SW to S Broadway / US 83; 16th St SE to 27th St SE  
ADA Curb Ramp Improvements

	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	22216	1	1

GOVERNING SPECIFICATIONS: 2020 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.			
PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES	
NH-4-002(125)905	1.84	3.00	



STATE COUNTY MAP

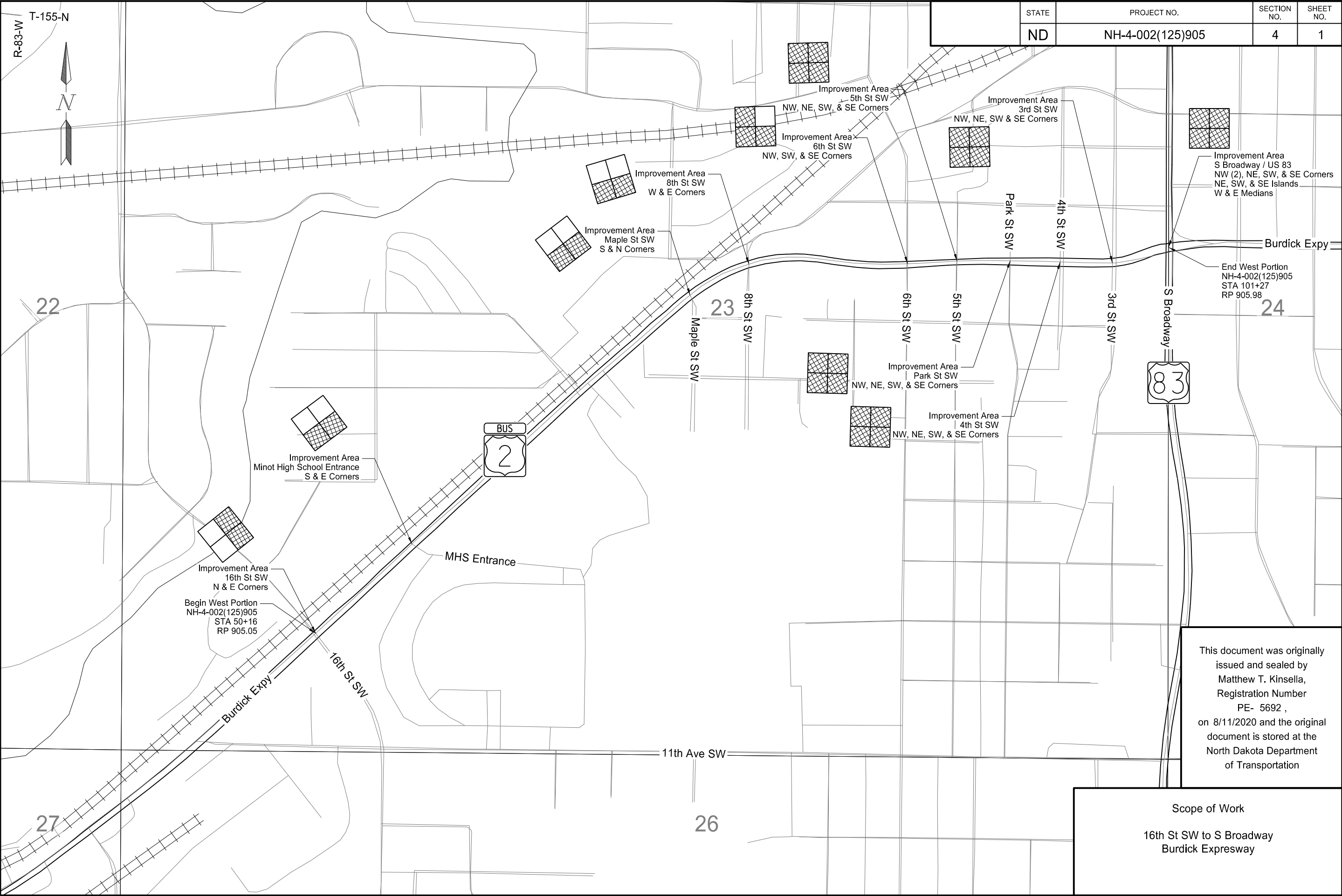
DESIGNER Alex Ausk, PE
DESIGNER Dalton Dryburgh, EI
DESIGNER Jacob Gunderson

ND DEPARTMENT OF TRANSPORTATION OFFICE OF PROJECT DEVELOPMENT	
Approval Name Chad M. Orn /s/	Date Signed 8/31/2020

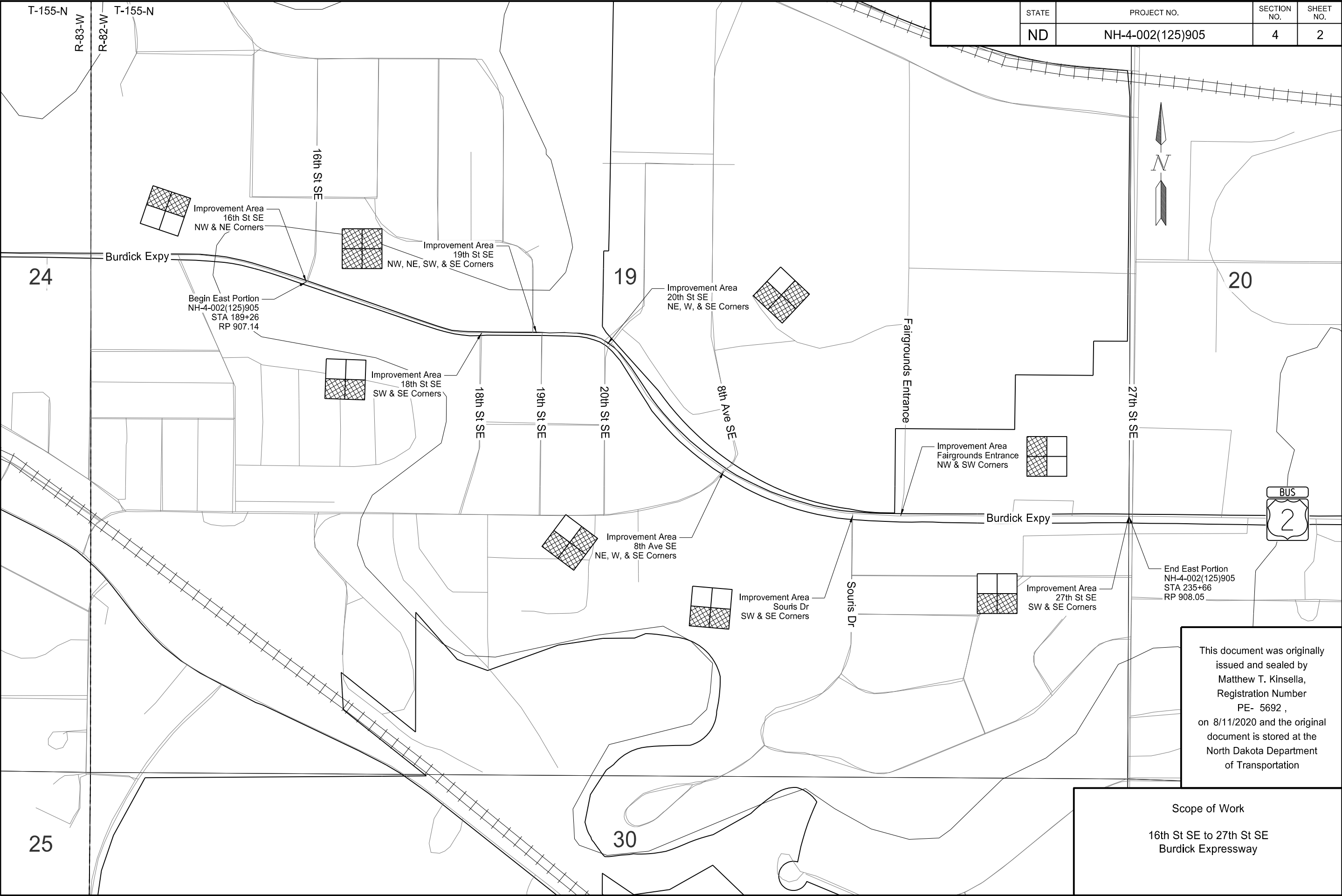
Apex Engineering Group, Inc.

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SP 75(20)	Temporary Pedestrian Facilities								
SSP 1	Temporary Erosion and Sediment Best Management Practices								



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**NOTES**

- 100-P01 TIED PROJECT: This project is tied to project NHU-4-002(131)906 PCN 22446 – Burdick Expy from 1<sup>st</sup> St SW to Valley St. Coordinate traffic control between the two projects where appropriate.

100-P02 TRINITY HOSPITAL EMERGENCY TRAUMA CENTER: Trinity Hospital Emergency / Trauma Center parking is located in close vicinity to this project. Burdick Expressway is a main corridor that is used by the hospital for emergency response. Trinity Hospital will need to be notified of construction phasing due to the impact of emergency response for the duration of this project.

100-P03 CONTRACTOR PARKING/STAGING AREA RESTRICTIONS: Parking of personal vehicles, construction equipment, storage of construction materials, or work area on private property is prohibited without written permission by the property owner.

Staging of construction materials, storing of personal vehicles or construction equipment in the City’s right of way outside of the constriction work zone is prohibited.

105-200 UTILITY COORDINATION: A utility coordination meeting is required.

107-500 PAVEMENT SWEEPING: Sweep the roadway adjacent to the construction area at the end of each day. Utilize a vacuum or pickup type sweeper.

107-P01 ACCESS FOR BUSINESSES: Provide an access plan that maintains access to all businesses for review by the Engineer and the City of Minot at least one week prior to the preconstruction meeting. This plan is subject to approval by the Engineer and the City.

107-P02 UTILITIES: Notify all utility owners of the project schedule as specified in Section 105.03, “Cooperation with Utility Owners”.

107-P03 SPECIAL EVENTS – STATE FAIR: The North Dakota State Fair is scheduled for July 23-31, 2021. All work including concrete, patching, striping & landscaping at the 20<sup>th</sup> St SE, 8<sup>th</sup> Ave SE, Souris Dr, East Fairgrounds Entrance, and 27<sup>th</sup> St SE locations shall be completed by July 16, 2021. The work area is to be free of debris, equipment, stockpiled materials and unnecessary traffic control devices. Sweep pavement with vacuum or pick-up style sweeper prior to July 22<sup>nd</sup>.

107-P04 SPECIAL EVENTS – STATE FAIR PARADE: Burdick Expressway is the designated parade route for the North Dakota State Fair Parade on Saturday, July 24<sup>th</sup>. No work is to take place on the project on this date. Work area is to be free of debris, equipment, stockpiled materials and unnecessary traffic control devices. Remove all traffic control devices along Burdick Expressway prior to the start of the parade and reinstall the devices immediately after the completion of the parade. Sweep pavement with vacuum or pick-up style sweeper prior to Saturday morning.
- 107-P05 SPRINKLER SYSTEM: The property at 1738 Burdick Expy E (Oakwood Court Apartments) has an underground sprinkler system. Notify the property owner (Tom Alexander, Minot Housing Authority, 701-852-0485 x103) prior to starting work adjacent to this property. Any damage to the sprinkler system shall be repaired at the Contractor’s expense.

108-P01 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required. Provide a suitable meeting facility. Have a room approved by the Engineer.

Organize a biweekly meeting with the business owners and residents along Burdick Expressway corridor including side streets. The meeting will follow the same requirements of the weekly planning meeting.

202-P01 REMOVAL OF CONCRETE: Concrete roadway, concrete sidewalk, curb, and curb and gutter designated for removal may vary in thickness. There will be no additional compensation for the removal of extra thickness. Include the removal of aggregate or embankment beneath the roadway, sidewalk, curb and curb and gutter in the costs of “Removal of Concrete Pavement” or “Removal of Curb & Gutter” bid items.

202-P02 REMOVAL OF BITUMINOUS SURFACING: Bituminous surfacing designated for full depth removal may vary in thickness. There will be no additional compensation for the removal of extra thickness. Include any costs for the removal of aggregate or embankment beneath the pavement in the “Removal of Bituminous Surfacing” bid item.

202-P03 REMOVE AND RESET CONCRETE PARKING BLOCKS: Remove and reset existing concrete parking blocks to their original position. Include all labor and equipment to remove and reset concrete parking blocks in the costs of “Removal of Concrete Pavement”.

430-P01 PATCHING: Submit a mix design that meets FAA 43 for approval. The Hot Mix Asphalt used for patching will be accepted by one random aggregate and mix sample representing the plan quantity for the project.

624-P01 REMOVE PEDESTRIAN RAILING: Remove pedestrian railing in such a way to leave the remaining railing with smooth edges and in safe and operable condition, as approved by the Engineer.

704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.

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704-P01 TRAFFIC CONTROL PHASING: The traffic control details, as indicated on the plans, have been developed on the basis that this project will be constructed in phases as described below. The work zone traffic control summary lists include the required number of devices for each phase of work. Devices will be moved as required for each phase. The following traffic control phasing for the construction of pedestrian ramps, new curb and gutter, and other items has been developed for this project:

Phase 1: Construct proposed ADA Ramps at 16<sup>th</sup> St SW, MHS Entrance, Maple St SW, and 8<sup>th</sup> St SW. Construct proposed valley gutter at Maple St SW and 8<sup>th</sup> St SW.

- Work area is restricted to a maximum of two quadrants of an intersection at one time. Multiple intersections can be worked on concurrently.
- Start work on the MHS entrance after May 28, 2021.
- (1) Lane closure adjacent to the curb and gutter.
- Maintain two lanes of traffic at all times.
- Provide temporary curb ramps, pedestrian channelization, and temporary pedestrian surfacing.
- Construct proposed pedestrian ADA ramps at all intersections, including new curb and gutter, ramps, landings (upper and lower landings), signal foundations (where applicable), and full depth pavement replacement (where applicable).
- Provide temporary pedestrian surfacing to transition proposed sidewalk into existing sidewalk. If the cross slope of the existing sidewalk exceeds 2%, transition the temporary pedestrian surfacing at a maximum rate of 0.5% per 1 linear foot of surfacing.
- Construct valley gutter at Maple St SW and 8<sup>th</sup> St SW one-half at a time, so that vehicles can still pass through the other half of the intersection.

Phase 2a: Construct proposed ADA Ramps on north side of Burdick Expressway at 6<sup>th</sup> St SW, 5<sup>th</sup> St SW, Park St SW, 4<sup>th</sup> St SW, and 3<sup>rd</sup> St SW, using same requirements as Phase 1. Construct proposed pedestrian pushbutton poles on north side at 6<sup>th</sup> St SW.

Phase 2b: Construct proposed ADA Ramps on south side of Burdick Expressway at 6<sup>th</sup> St SW, 5<sup>th</sup> St SW, Park St SW, 4<sup>th</sup> St SW, and 3<sup>rd</sup> St SW, using same requirements as Phase 1. Construct proposed pedestrian pushbutton poles on south side at 6<sup>th</sup> St SW.

Phase 3: Construct proposed ADA Ramps, pigmented imprinted concrete, and flexible delineators at the South Broadway (US 83) intersection, in the following subphases and as shown in Section 100:

- 3a: NE Quad, SW Quad, SE Quad
- 3b: NW Quad, NE Island, E Median
- 3c: SE Island, SW Island
- 3d: W Median

Lane closures are as shown in Section 100. Each subphase shall be completed before the next subphase begins. Provide temporary curb ramps, pedestrian channelization, and temporary pedestrian surfacing. Provide temporary pedestrian surfacing to transition proposed sidewalk into existing sidewalk. If the cross slope of the existing sidewalk exceeds 2%, transition the temporary pedestrian surfacing at a maximum rate of 0.5% per 1 linear foot of surfacing.

Phase 4a: Construct proposed ADA Ramps on north side of Burdick Expressway at 16<sup>th</sup> St SE, 19<sup>th</sup> St SE, 20<sup>th</sup> St SE, 8<sup>th</sup> Ave SE, and Fairgrounds Entrance, using same requirements as Phase 1. Close north crossing at Fairgrounds Entrance and 20<sup>th</sup> St SE during construction.

Phase 4b: Construct proposed ADA Ramps on south side of Burdick Expressway at 18<sup>th</sup> St SE, 19<sup>th</sup> St SE, 20<sup>th</sup> St SE, 8<sup>th</sup> Ave SE, Souris Dr, Fairgrounds Entrance, and 27<sup>th</sup> St SE using same requirements as Phase 1.

704-P02 TRAFFIC CONTROL DEVICES: The traffic control devices list has been developed using the layouts shown in the plans and the following layouts shown on the Standard Drawings:

D-704-23 Type P  
D-704-34 Lane closure

704-P03 TRAFFIC CONTROL DEVICES: Traffic control devices have been provided for a single full lane closure of multiple sites simultaneously, as listed in the phase descriptions in Note 704-P02. Closure of the outside driving lane will be permitted during daylight hours while construction within the intersection is active. Remove temporary lane closures at the end of each working day if possible. Lane closures must remain at all times if there are drop offs within the work zone. If ordinary operation is not restored, provide 24-hour flagger operations until normal traffic operation can be restored. No additional payments will be made for flagging if ordinary traffic operation is not restored at the end of each working day.

The following devices remain in place for the duration a construction site is active:

1. W20-1-48 – Road Work Ahead
2. G20-2-48 – End Road Work
3. All pedestrian signing devices – See Section 100
4. All lane narrowing devices
5. Temporary safety fence and devices adjacent to active work zones
6. Pedestrian channelization and curb ramps – See Section 100

Supply and maintain temporary ramps and pedestrian rail system as shown in the plans. Include all costs associated with supplying and maintaining devices in the price bid for “Traffic Control Signs”.

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NOTES

708-P01 INLET PROTECTION: Furnish, install and maintain (clean) drainage inlet filter assemblies to collect sediment in surface storm water runoff. Dispose of debris or silt that has accumulated in the bag. Periodic cleaning of the filter is needed as necessary. Remove drainage inlet filter when vegetation has established.

Provide Wimco, Lange IPD, Flexstorm, Danady Curbsack, or an approved equal.

Keep filter in place until after the gradient surfaces are stabilized and the surrounding street is clean of debris. Include all costs related to the material, installation, maintenance, replacement and removal in the price bid for "Inlet Protection-Special".

748-P01 CURB & GUTTER: The standard curb and gutter will be 6 inches; however, the height may need to be adjusted to match the height of the existing curb and gutter. The height adjustment and all other costs when matching the existing curb height will be included in the costs of "Curb & Gutter".

748-P02 CURB-TYPE 1: The height of the "Curb-Type 1" will vary depending on the existing locations and will need to match the existing elevations at tie in locations.

750-P01 DETECTABLE WARNING PANELS: Panels may need to be cut or modified in the field to fit the proposed design.

750-P02 DETECTABLE WARNING PANELS: Install unpainted, cast iron plates manufactured by East Jordan Iron Works, Neenah Foundry, or approved equal.

750-P03 PIGMENTED IMPRINTED CONCRETE: The concrete will be a colored and stamped 4" sidewalk with a herringbone stamp pattern and colored release agent/color hardener. Include an integral concrete color mix, either dry or liquid and include a colored stamp release agent to be selected upon approved color choice below. Develop a mix design using any size coarse aggregate specified in Section 802.01 C.2, "Coarse Aggregate" and with a 60-40 fine aggregate-coarse aggregate ratio. Provide a pigment from the list below or provide an approved equal. To be considered an approved equal, pigments must meet the requirements of ASTM C 979.

- 1. Butterfield Uni-Mix (U10 Sonoran Tan or U24 Georgia Clay)
- 2. Scofield Standard (C-21 Adobe Tan or 1017 Barcelona Brown)
- 3. Davis Colors (Omaha Tan or Sequoia Tan)

Use the same supplier for all colored concrete placed under the contract. The color shall be uniform throughout the entire project. As part of the approval process, contractor shall provide a 2'x2' mockup depicting the two color options specified above (from only one manufacturer or equal to be chosen by contractor) for Engineer and Owner to evaluate prior to final selection. The approved mockup and final color choice will be the standard of which to compare project area concrete for color, texture, and finish appearance. Cure and seal concrete using curing compound that meets the requirements of ASTM C 309, Type 1 and include slip resistant additive.

Include all costs in the price bid for "PIGMENTED IMPRINTED CONCRETE".

750-P04 SIDEWALK AGGREGATE: Provide aggregate needed to grade sidewalk meeting specifications of "Aggregate Base Course CL 5". Include all costs associated with aggregate in the price bid for "Sidewalk Concrete 4In."

750-P05 ADA RAMPS AND LANDINGS: Dimensions shown in Section 80 are approximate. Adjustments may be required so maximum grades are not exceeded. Flatter grades or slopes may be used as directed by the Engineer.

The designated ADA turning spaces as designated in Section 80 per the legend as "Landing Area" are to be placed separately and installed prior to adjacent ADA ramps and/or sidewalks allowing for a minimum of 24 hours of cure time.

762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items.

970-P01 LANDSCAPE PREPARATION: Minimal grading will be required adjacent to the locations designated for sidewalk and curb & gutter replacement. Blend the existing topsoil adjacent to the sidewalk and or curb & gutter to eliminate any steep slopes or vertical edges. Any excess topsoil will become property of the Contractor and must be removed from the project site. Any needed topsoil must be imported to the project if necessary. Include all costs associated with topsoil in the contract price for "Landscape Preparation".

Include all costs associated with removing and resetting paver blocks in the SE quadrant of the 8<sup>th</sup> Ave SE intersection in the price bid for "Landscape Preparation".

Use sod as specified in Section 252 of the NDDOT Standard Specifications.

Areas sodded after September 15 will not be accepted until they show evidence of established growth after May 15 of the following year. Water sodded areas a minimum of 4 weeks after placement in order to provide sufficient moisture for growth. Prevent runoff or puddling. Do not drive water trucks over turf areas.

Perform maintenance on sodded areas for 4 weeks after completion of sodding over the entire disturbed area. Maintenance of the sodded areas includes eradicating weeds, maintaining erosion control devices, protecting installed areas from traffic, mowing, watering & post fertilization. Repair and re-establish areas that are rutted, damaged or destroyed at the Contractor's expense. Mow sodded areas 24 hours prior to final inspection. Sodded areas will be rejected if they contain weeds or bald spots larger than 3" in diameter. Include the cost for materials, equipment, labor, maintenance and incidentals in the contract price for "Landscape Preparation".

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**ENVIRONMENTAL NOTES**

ENVIRONMENTAL NOTES (EN): There were no environmental commitments required to secure approval of this project.

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Estimated Quantities						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
						ND	NH-4-002(125)905	8	1
					NHU-4-002(131)906				
SPEC	CODE	ITEM DESCRIPTION	UNIT	NH Funding	City Funding		TOTAL		
103	0100	CONTRACT BOND	L SUM	0.3			0.3		
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	1237			1237		
202	0130	REMOVAL OF CURB & GUTTER	LF	1972			1972		
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	583			583		
261	0200	WEIGHTED FIBER ROLLS	LF	510			510		
261	0201	REMOVE WEIGHTED FIBER ROLLS	LF	510			510		
430	2000	PATCHING	TON	158			158		
624	0119	REMOVE PEDESTRIAN RAILING	LF	6			6		
702	0100	MOBILIZATION	L SUM	0.3			0.3		
704	1000	TRAFFIC CONTROL SIGNS	UNIT	969			969		
704	1052	TYPE III BARRICADE	EA	6			6		
704	1058	PEDESTRIAN WALKWAY	LF	975			975		
704	1060	DELINEATOR DRUMS	EA	147			147		
704	1067	TUBULAR MARKERS	EA	73			73		
704	1086	SEQUENCING ARROW PANEL-TYPE B	EA	1			1		
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	1			1		
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	2240			2240		
704	2108	TEMPORARY CURB RAMP	EA	26			26		
708	1540	INLET PROTECTION-SPECIAL	EA	42			42		
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	42			42		
722	6160	ADJUST INLET	EA	9			9		
722	6200	ADJUST MANHOLE	EA	1			1		
722	6240	ADJUST UTILITY APPURTENANCE	EA	9			9		
748	0100	CURB & GUTTER	LF	1603			1603		
748	0120	CURB & GUTTER MOUNTABLE-TYPE I	LF	333			333		
748	0520	CURB-TYPE I	LF	303			303		
748	1030	VALLEY GUTTER 72IN	SY		63		63		
750	0030	PIGMENTED IMPRINTED CONCRETE	SY		126		126		
750	0115	SIDEWALK CONCRETE 4IN	SY	1188			1188		
750	2115	DETECTABLE WARNING PANELS	SF	798			798		
754	0170	FLEXIBLE DELINEATORS	EA		11		11		
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	181.7			181.7		
754	0592	RESET SIGN PANEL	EA	18			18		
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	1961			1961		
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	1010			1010		
772	9814	TRAFFIC SIGNAL SYSTEM - SITE 4	EA		1		1		
970	0008	LANDSCAPE PREPARATION	SY	247			247		

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MATERIALS

- Patching @ 2.0 Ton/CY
- \*PG 58S-28 Asphalt Cement @ 6.0%
- \*Tack Coat @ 0.05 Gal/SY
  
- \*Included in the price bid for Patching

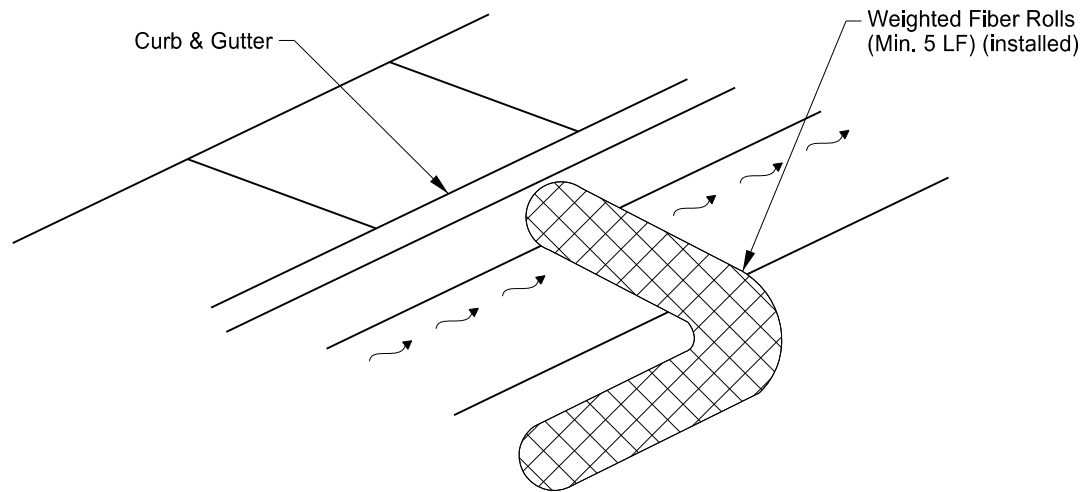
754-0170 Flexible Delineators (100% City Cost)			
Intersection	Location	Type	Sta/Offset
S Broadway	NW Island	Flexible Delineator	Sta 100+56.31 - 46.1' Lt
S Broadway	NW Island	Flexible Delineator	Sta 100+59.50 - 62.9' Lt
S Broadway	NW Island	Flexible Delineator	Sta 100+80.98 - 47.9' Lt
S Broadway	W Median	Flexible Delineator	Sta 99+46.60 - 9.8' Lt
S Broadway	E Median	Flexible Delineator	Sta 100+83.13 - 8.1' Rt
S Broadway	SW Island	Flexible Delineator	Sta 99+39.08 - 37.4' Rt
S Broadway	SW Island	Flexible Delineator	Sta 99+58.18 - 50.5' Rt
S Broadway	SW Island	Flexible Delineator	Sta 99+60.48 - 37.6' Rt
S Broadway	SE Island	Flexible Delineator	Sta 100+36.47 - 55.1' Rt
S Broadway	SE Island	Flexible Delineator	Sta 100+40.32 - 37.7' Rt
S Broadway	SE Island	Flexible Delineator	Sta 100+51.53 - 37.7' Rt

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Basis of Estimate

Burdick Expressway

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Weighted Fiber Roll Detail

Notes:

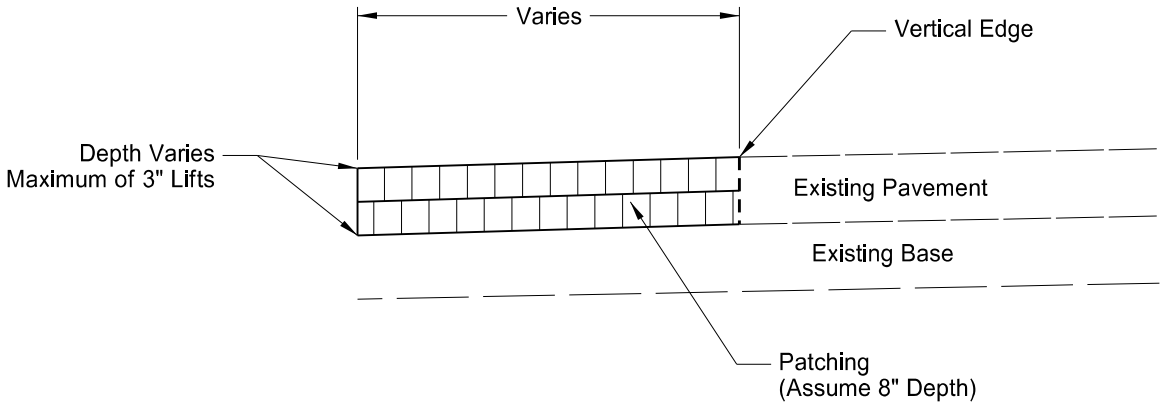
1. Provide materials that meet the following specifications:  
Netting tube filled with wood curled excelsior and weighted inner core.  
Roll Diameter: 6 Inches  
Weight: 8.33 Pounds per Lineal Foot
2. Place weighted fiber rolls down slope from unprotected downstream areas, tight against and along the curb and gutters, to provide complete protection.
3. Remove and properly dispose of accumulated silt and debris to allow for proper function of device after every rain event, or as necessary for proper function.
4. Price includes weighted fiber roll, placement, and maintenance after each rain event. All cost related to this work shall be included in the price bid for "Weighted Fiber Rolls".
5. Removal of weighted fiber rolls shall be done after the up gradient surfaces are stabilized and surrounding streets and gutters are clean of debris.
6. Fiber Roll should be placed to avoid being in driving lane.

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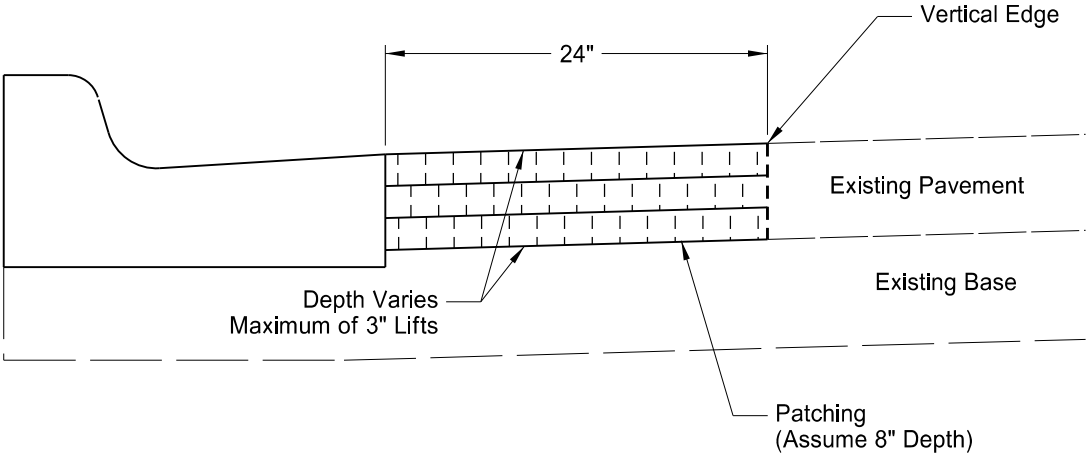
Weighted Fiber Rolls Detail

Burdick Expy  
16th St SW to 27th St SE

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Pavement Patching Areas (Parking Lots)  
(Locations Vary)

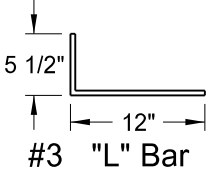
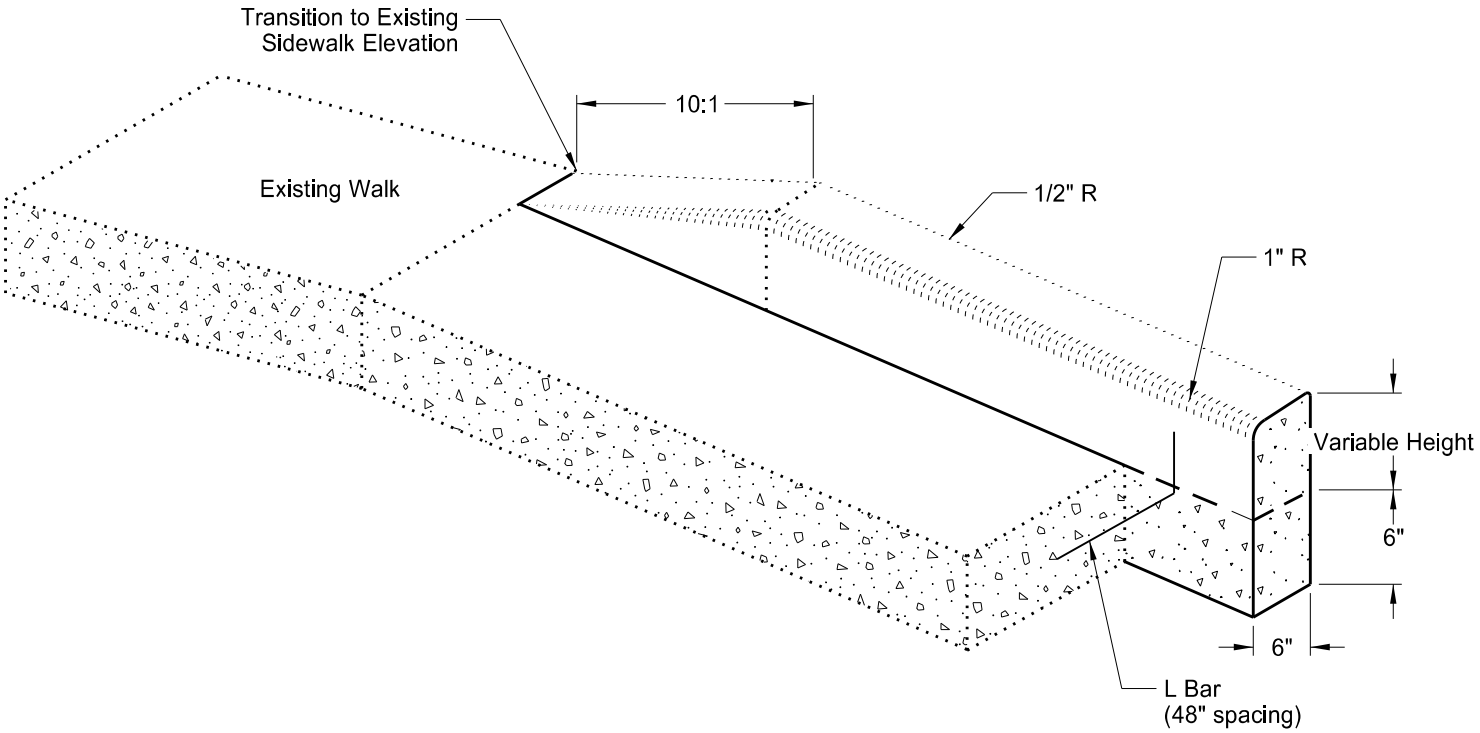


Pavement Patching Areas (Roadway)  
(Locations Vary)

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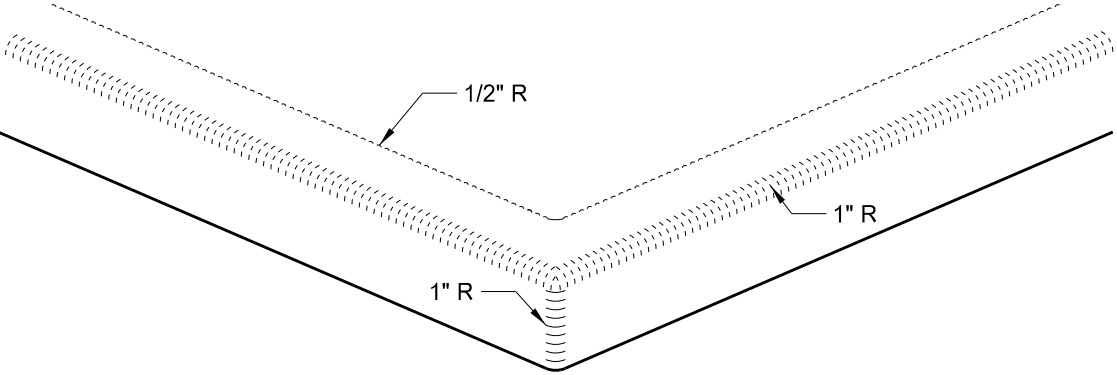
Patching Detail  
Burdick Expy  
16th St SW to 27th St SE

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	20	3



Curb-Type I Adjacent to Landscape

- Notes:
- All Curb-Type I contraction joints to match concrete walk joints.
  - End tapers at transition section to match inplace sidewalk grades.
  - All Curb-Type I to match bottom of adjacent walk.
  - See curb ramp details of Curb-Type I.



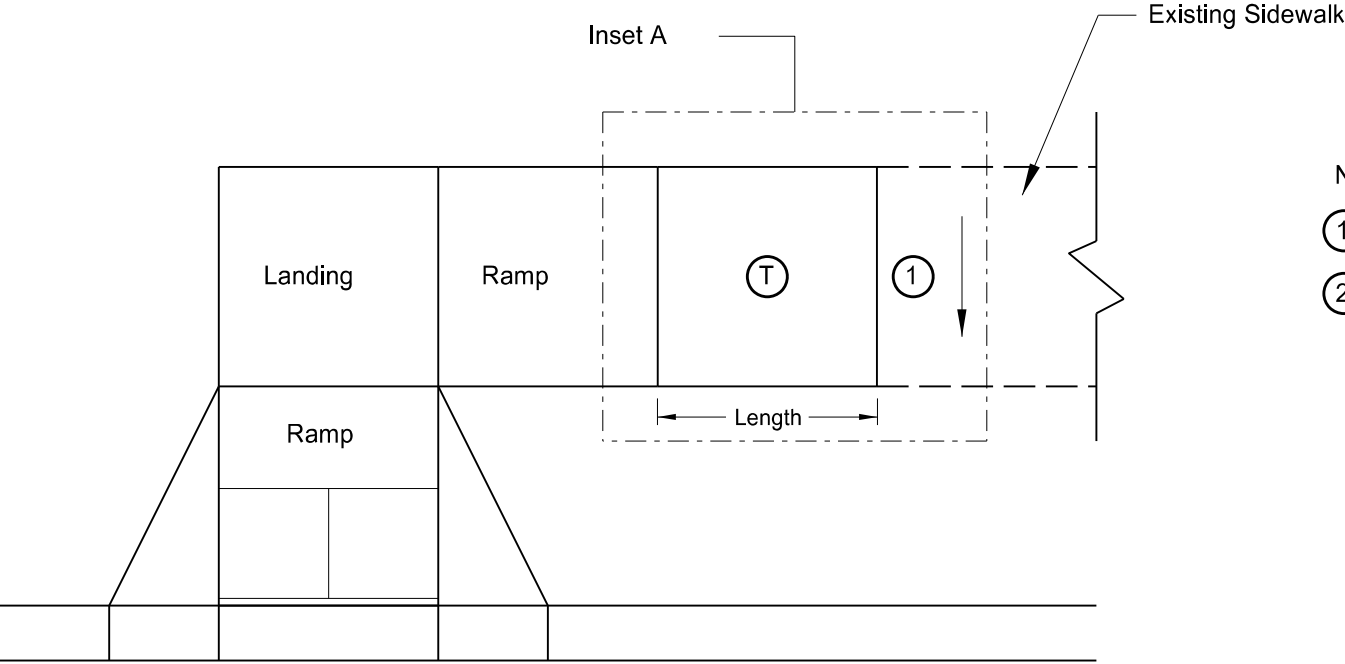
Curb-Type I Intersection

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Curb - Type I Detail

Burdick Expy  
16th St SW to 27th St SE

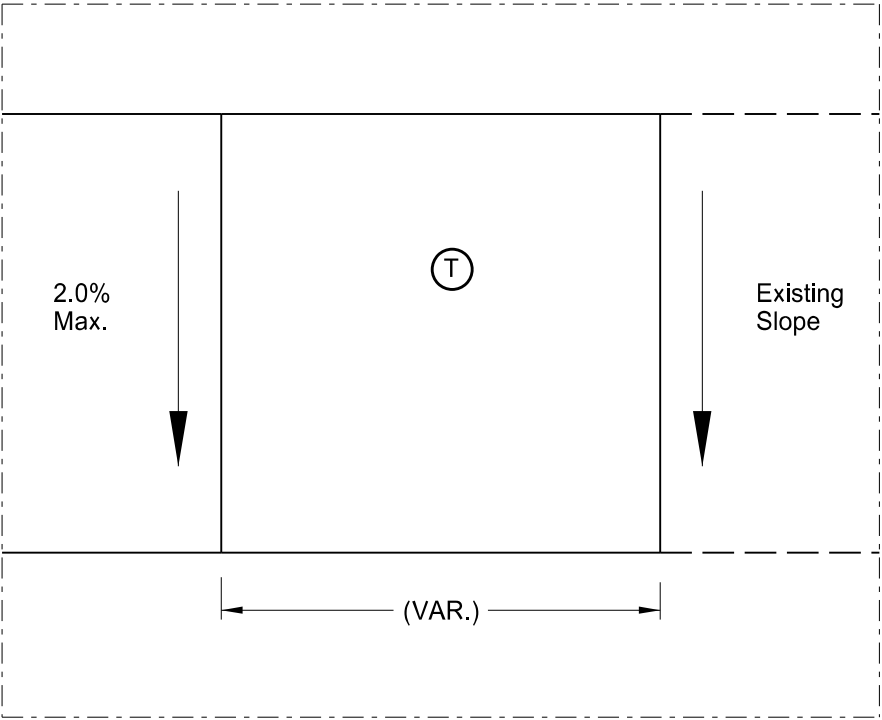
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	20	4



- Notes:
- ① Existing cross-slope greater than 2%.
  - ② When PAR width is greater than 6' or the running slope is greater than 5% double the calculated transition length.

LEGEND

- Ⓣ Transition panel(s) - To be used for transitioning the cross-slope of a ramp to the existing walk cross-slope. Rate of transition should be 0.5% per 1 linear foot of walk



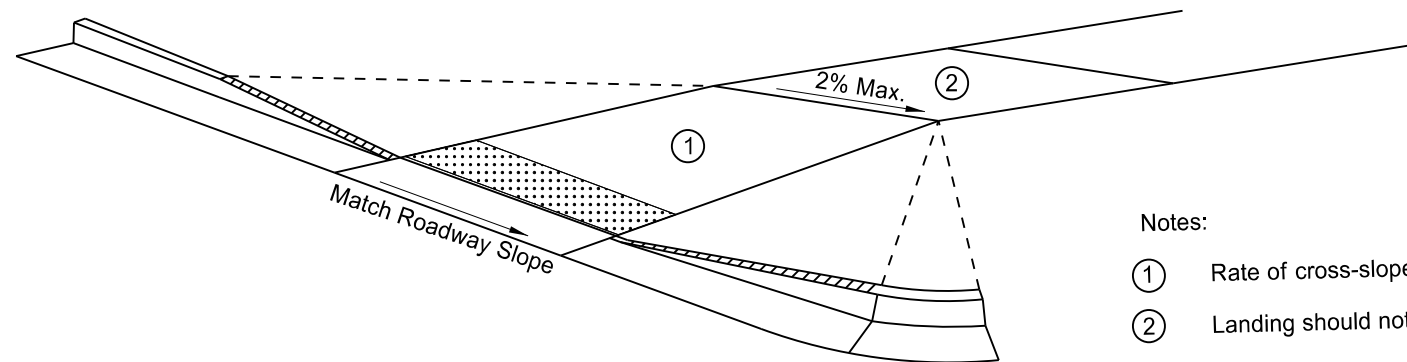
Inset A  
Transition Panel ②

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Transition Panel Detail

Burdick Expy  
16th St SW to 27th St SE

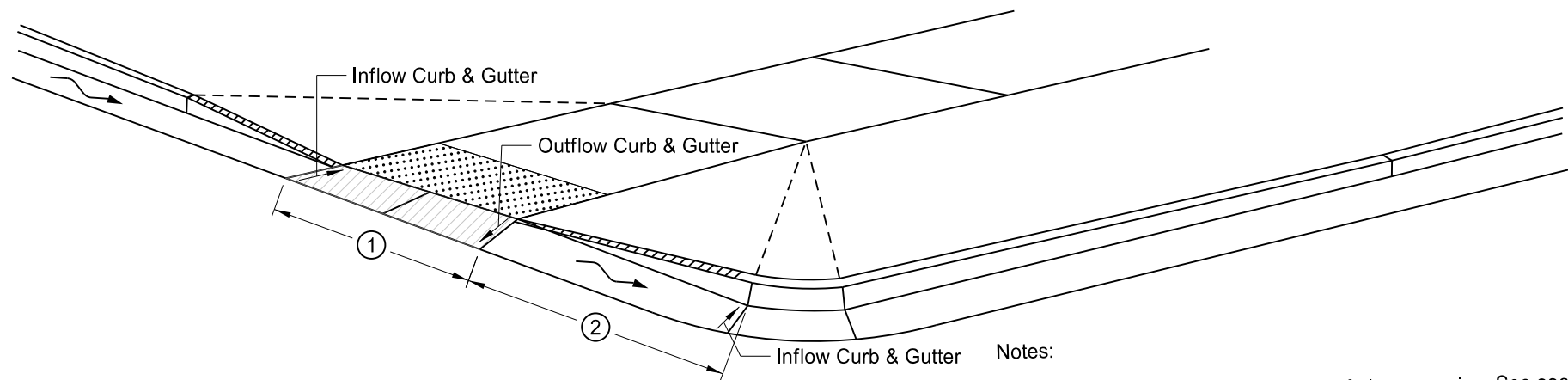
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	20	5



Notes:

- ① Rate of cross-slope transition varies. See sections 80 & 82 for more information.
- ② Landing should not exceed 2% slope in all directions.

Tilting Ramp



Notes:

- ① Curb transition length and rate of change varies. See section 80 & 82 for more information.
- ② Curb transition length to be determined in field by Engineer.

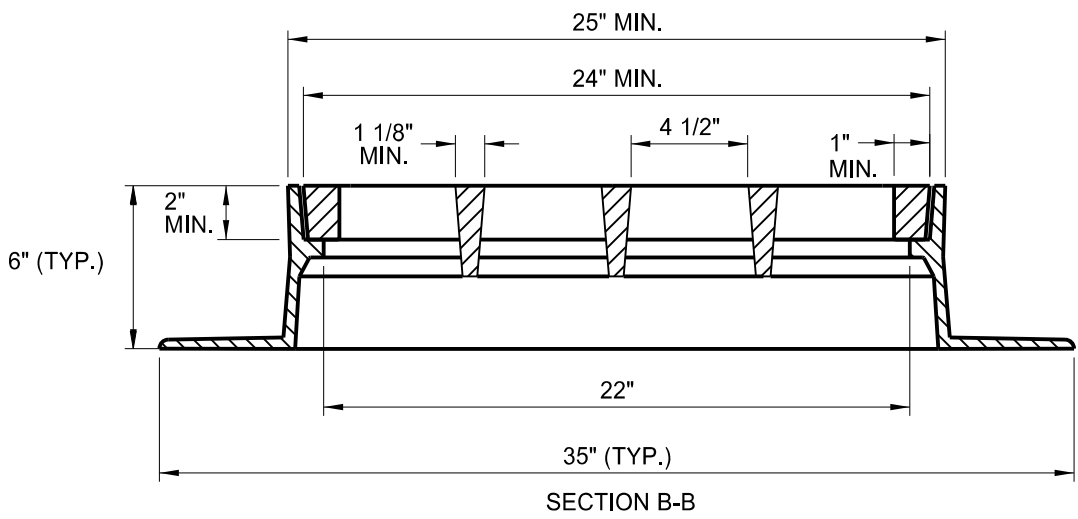
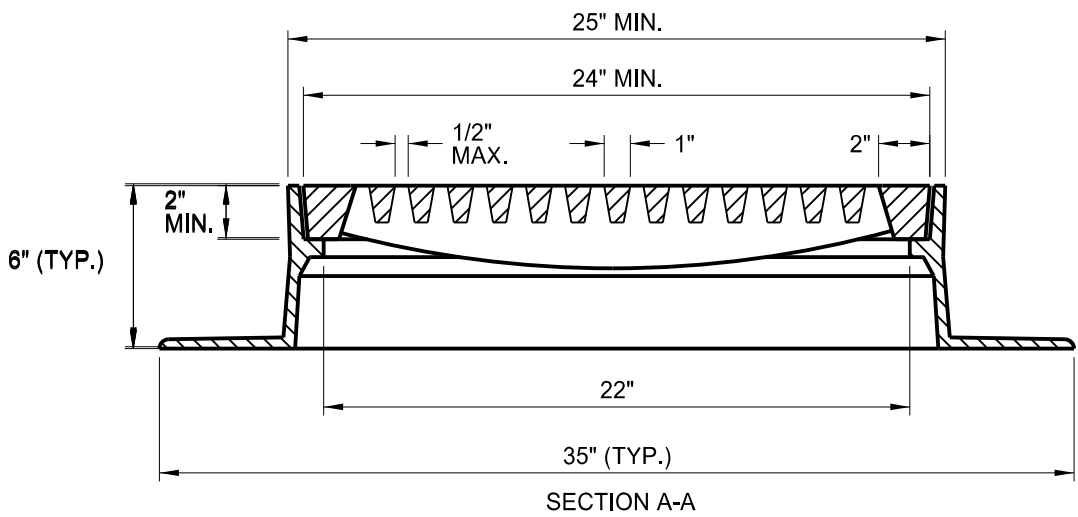
Curb Transition

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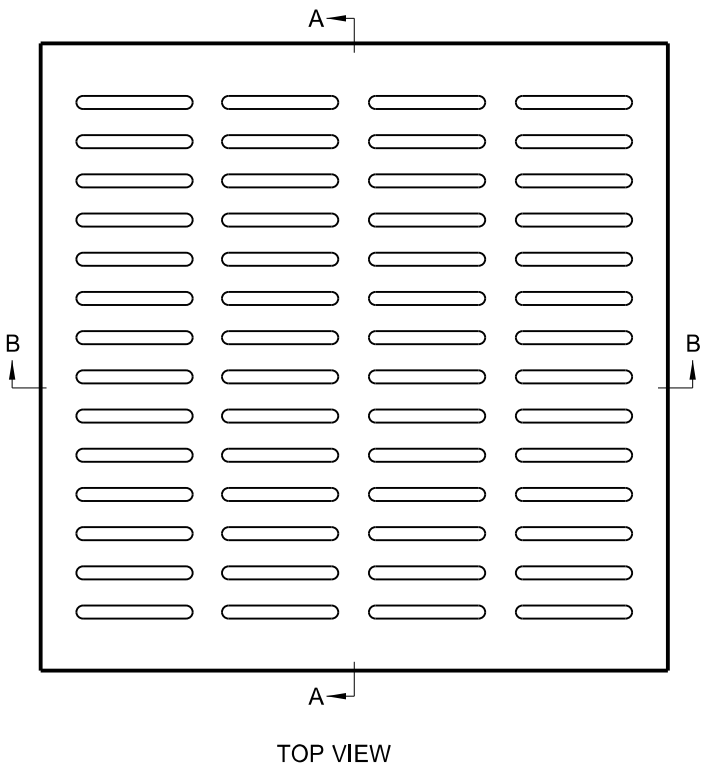
Curb Tranistion & Tilting Ramp

Burdick Expy  
16th St SW to 27th St SE

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	20	6



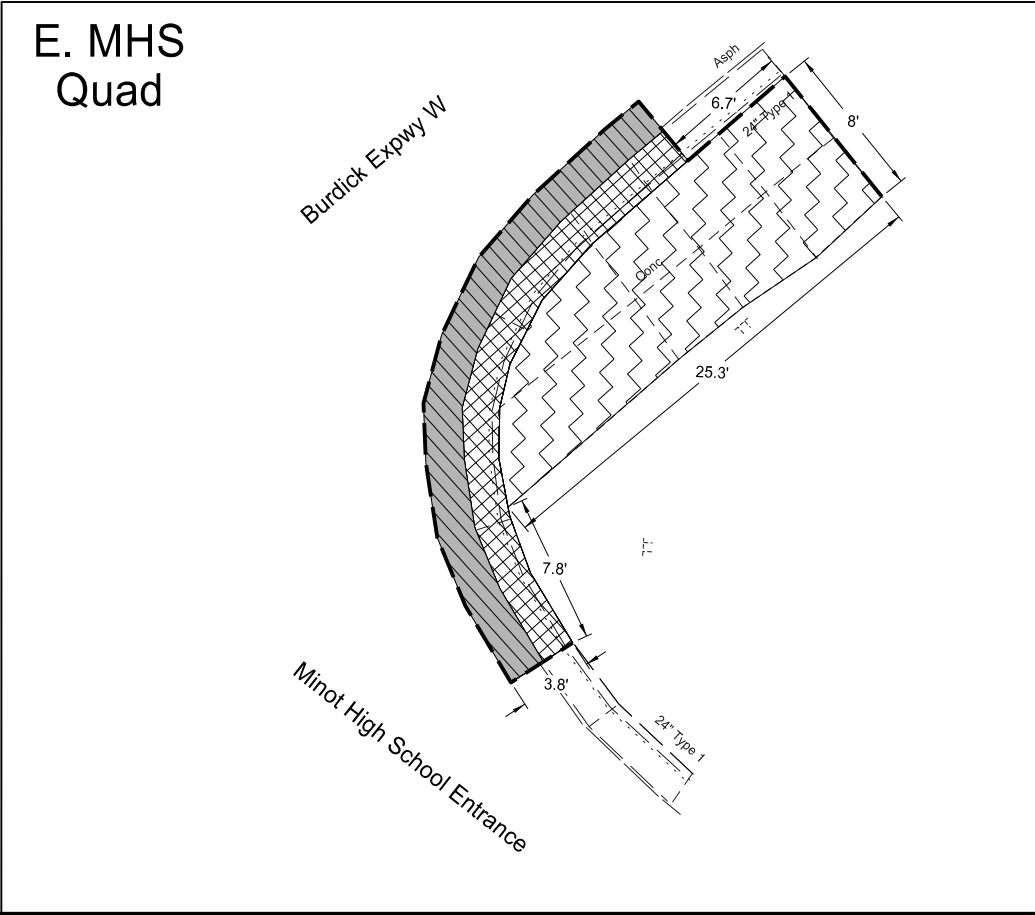
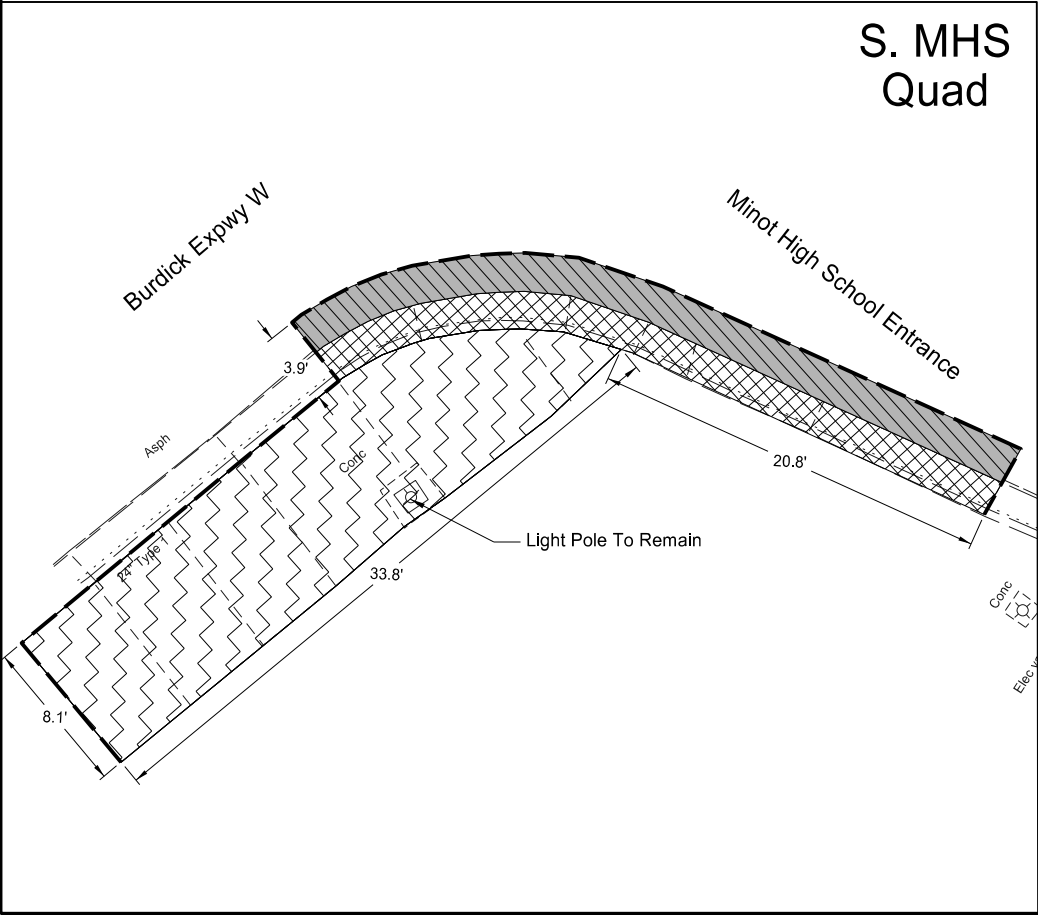
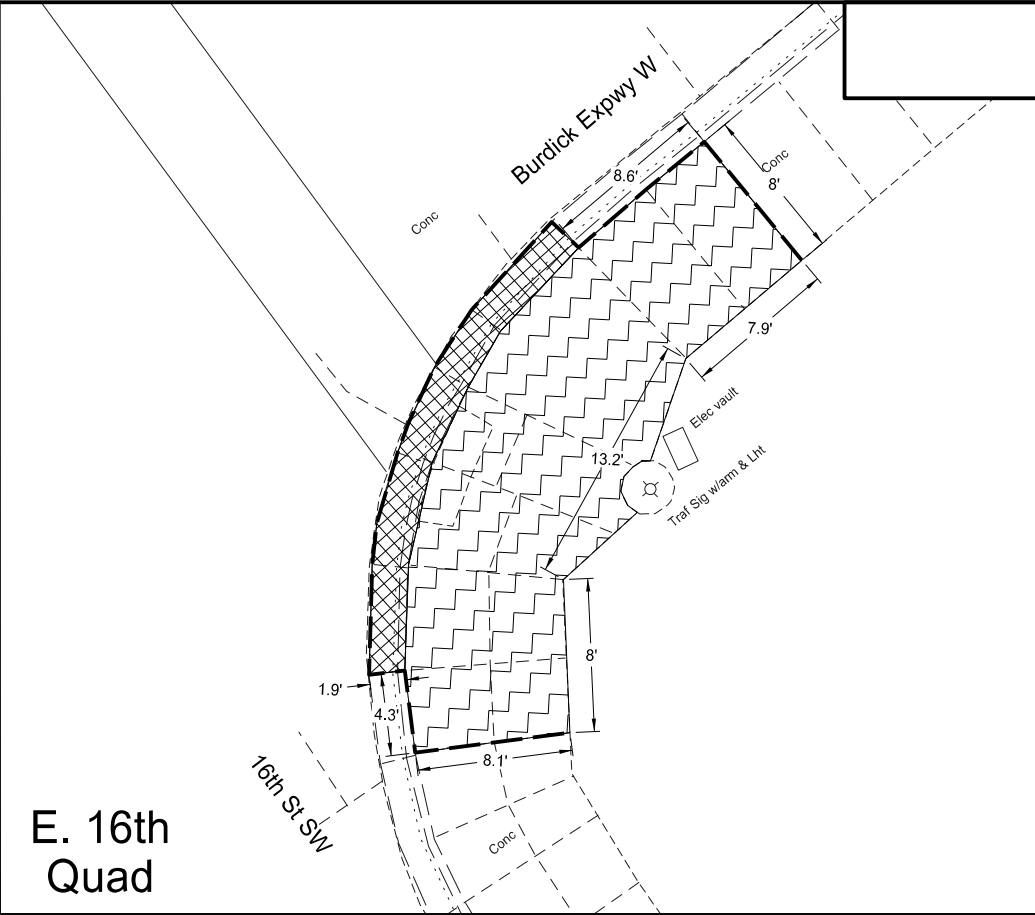
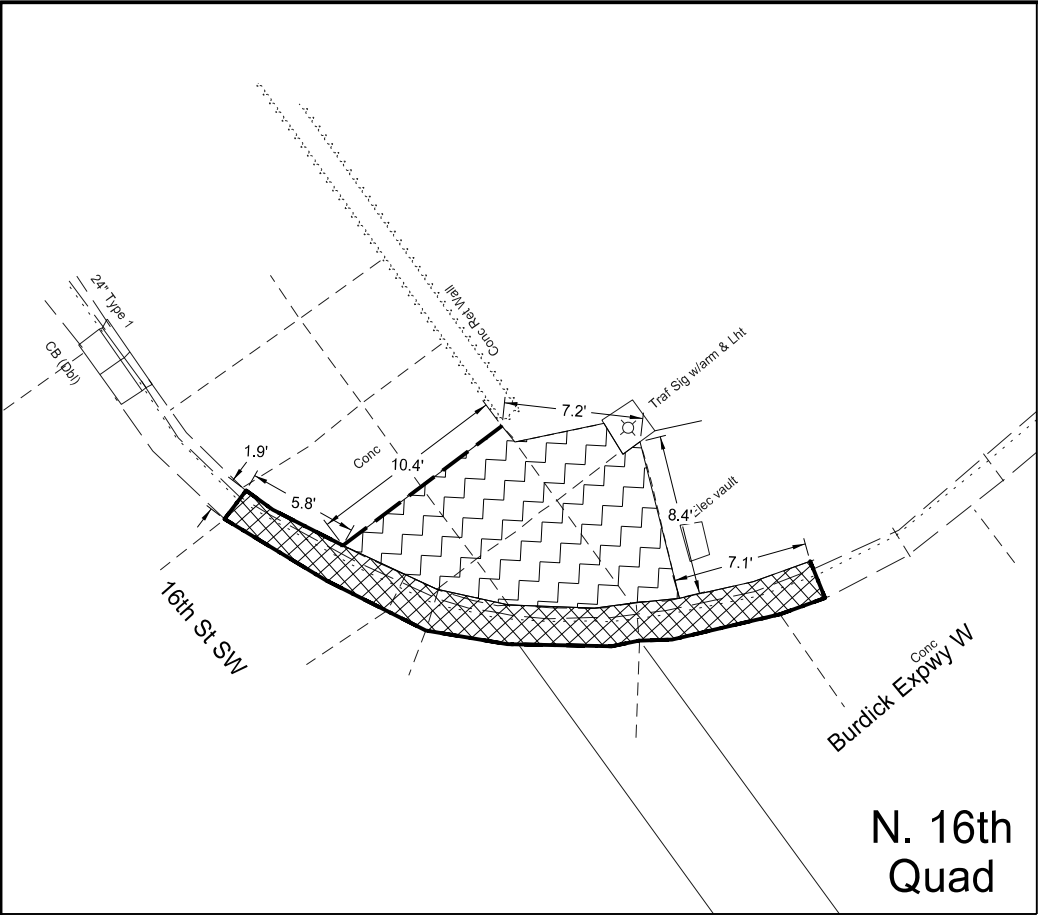
↑  
DOMINANT DIRECTION OF  
PEDESTRIAN TRAVEL.



Notes:  
Grate casting is ADA compliant.  
  
Place grate perpendicular to the dominant direction  
of pedestrian travel.  
  
Use an ADA safe grate casting with a new frame  
casting due to the non-standard grate size.

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ADA Inlet Grate  
  
Burdick Expy  
16th St SW to 27th St SE



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	40	1

SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		N. Quad 16th SE	13	SY
		E. Quad 16th SE	32	SY
		S. Quad MHS	27	SY
		E. Quad MHS	19	SY
202	0130	REMOVAL OF CURB & GUTTER		
		N. Quad 16th SE	33	LF
		E. Quad 16th SE	26	LF
		S. Quad MHS	38	LF
		E. Quad MHS	35	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		S. Quad MHS	9	SY
		E. Quad MHS	8	SY

LEGEND

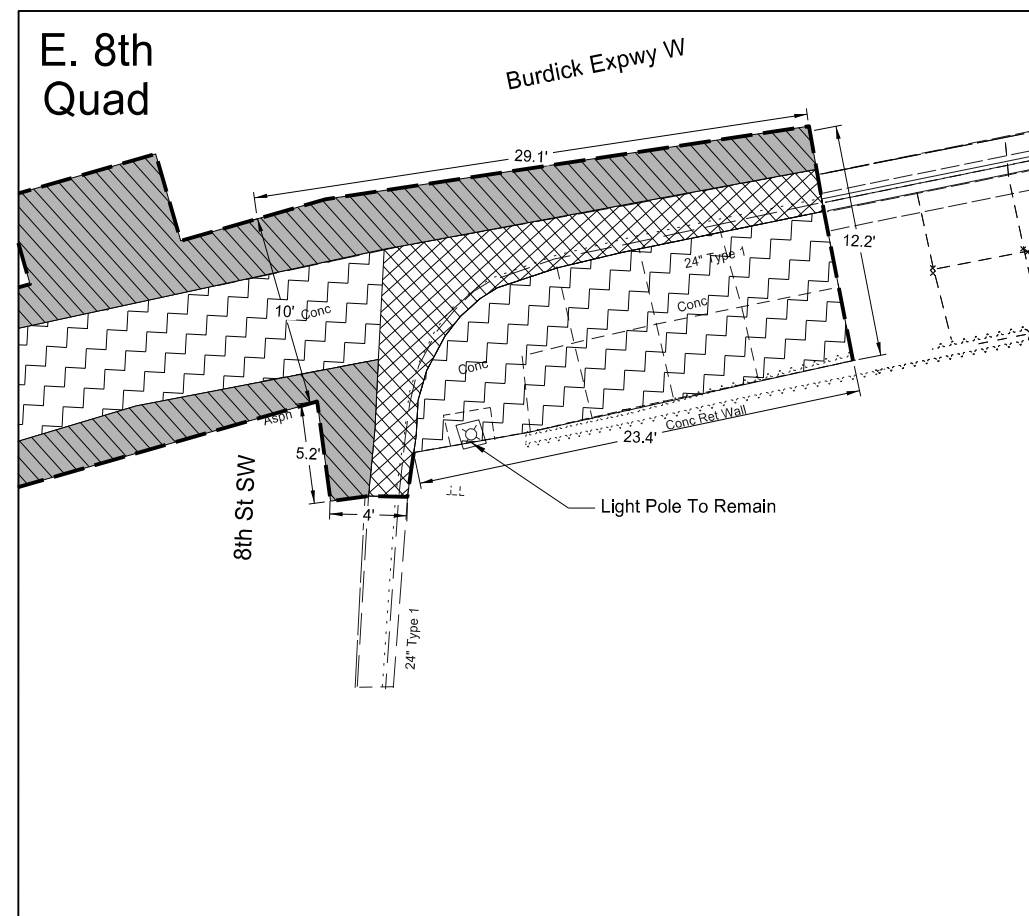
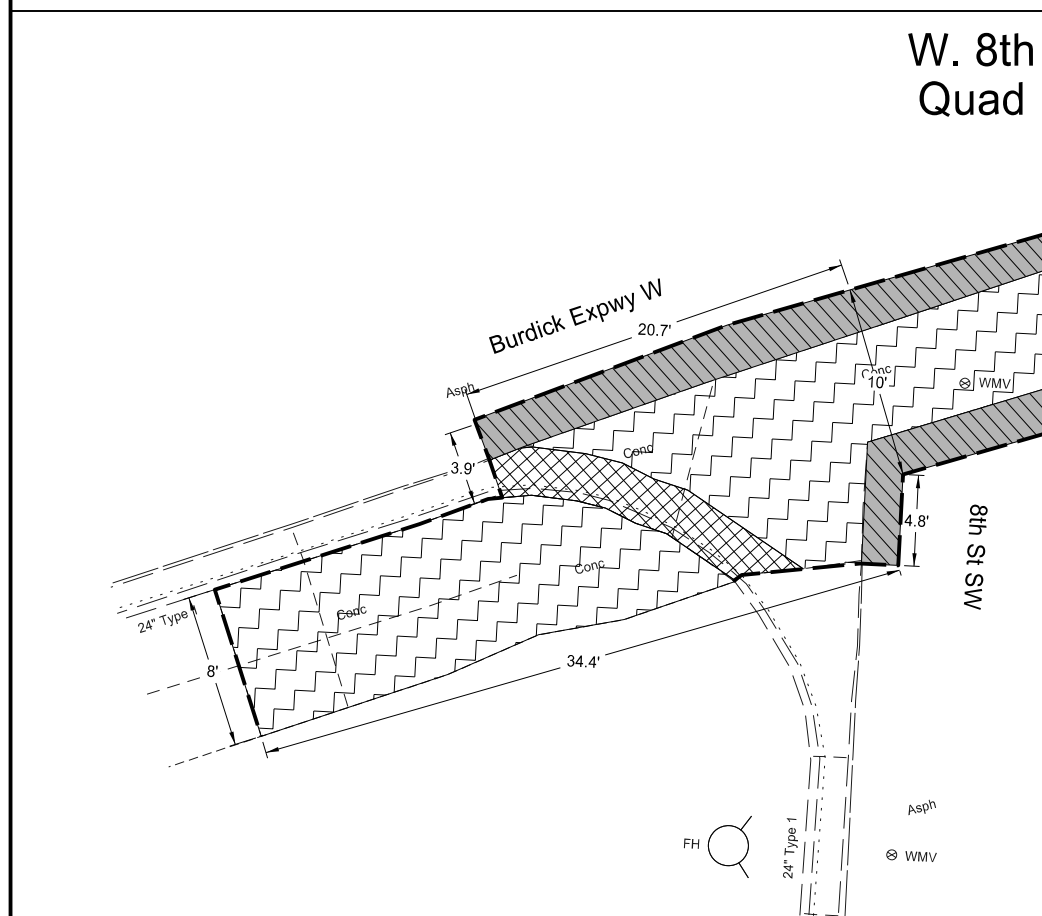
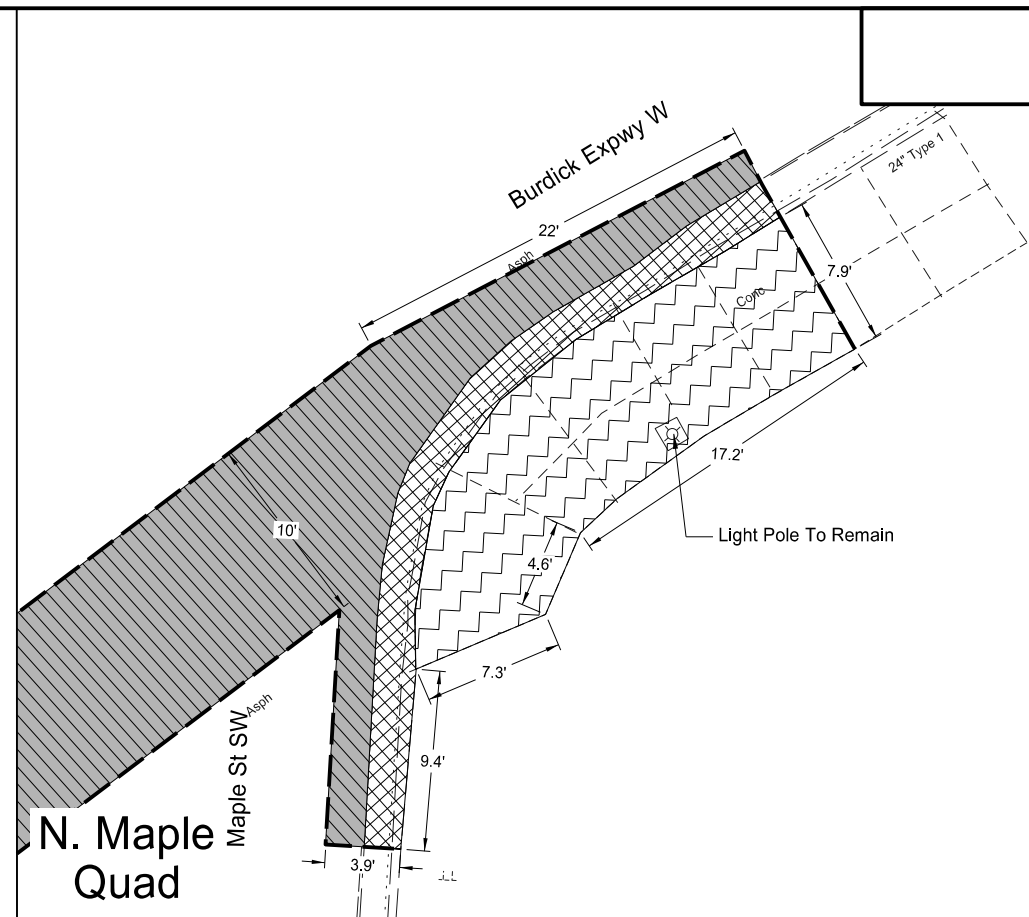
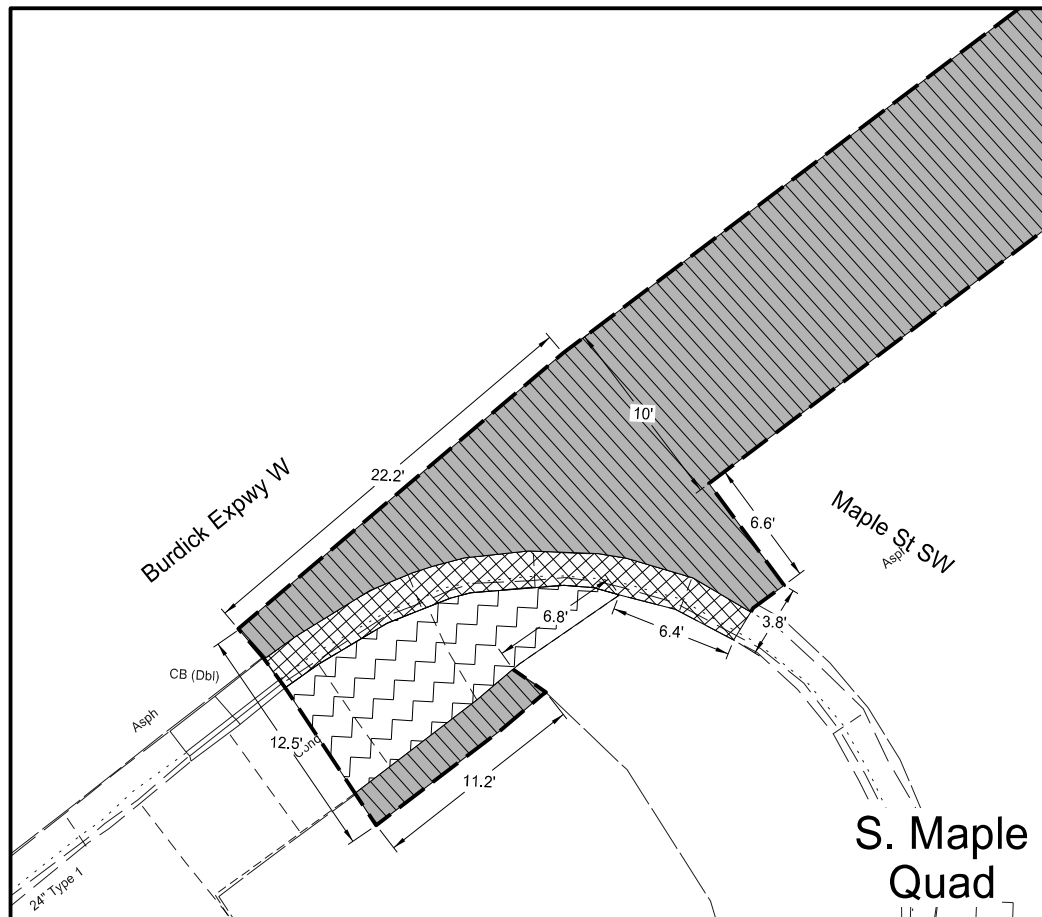
- Removal Limits
- [Hatched Pattern] Removal of Bituminous Surfacing
- [Cross-hatched Pattern] Removal of Curb & Gutter
- [Wavy Pattern] Removal of Concrete Pavement

North Arrow

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Removals

MHS Entrance & 16th St SW  
N & S ADA Quadrants of Each







STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	40	2

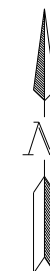
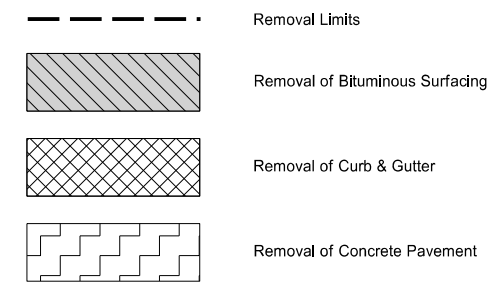
SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		S. Quad Maple	9	SY
		N. Quad Maple	10	SY
		8th SW	72	SY
202	0130	REMOVAL OF CURB & GUTTER		
		S. Quad Maple	27	LF
		N. Quad Maple	44	LF
		W. Quad 8th SW	18	LF
		E. Quad 8th SW	30	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		Maple	103	SY
		8th SW	36	SY

Date	Time	Location	Weather	Wind	Temp	Humidity	Pressure	Visibility	Remarks

**LEGEND**

	Removal Limits
	Removal of Bituminous Surfacing
	Removal of Curb & Gutter
	Removal of Concrete Pavement

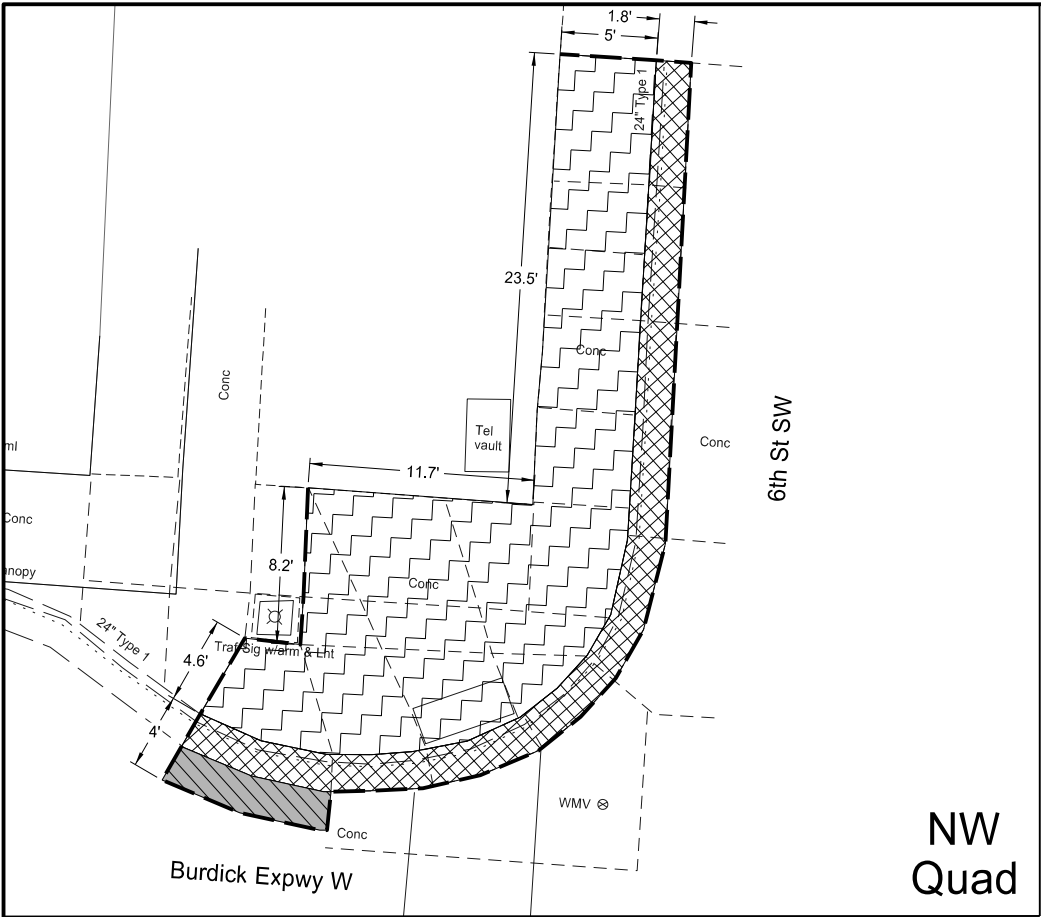
### LEGEND



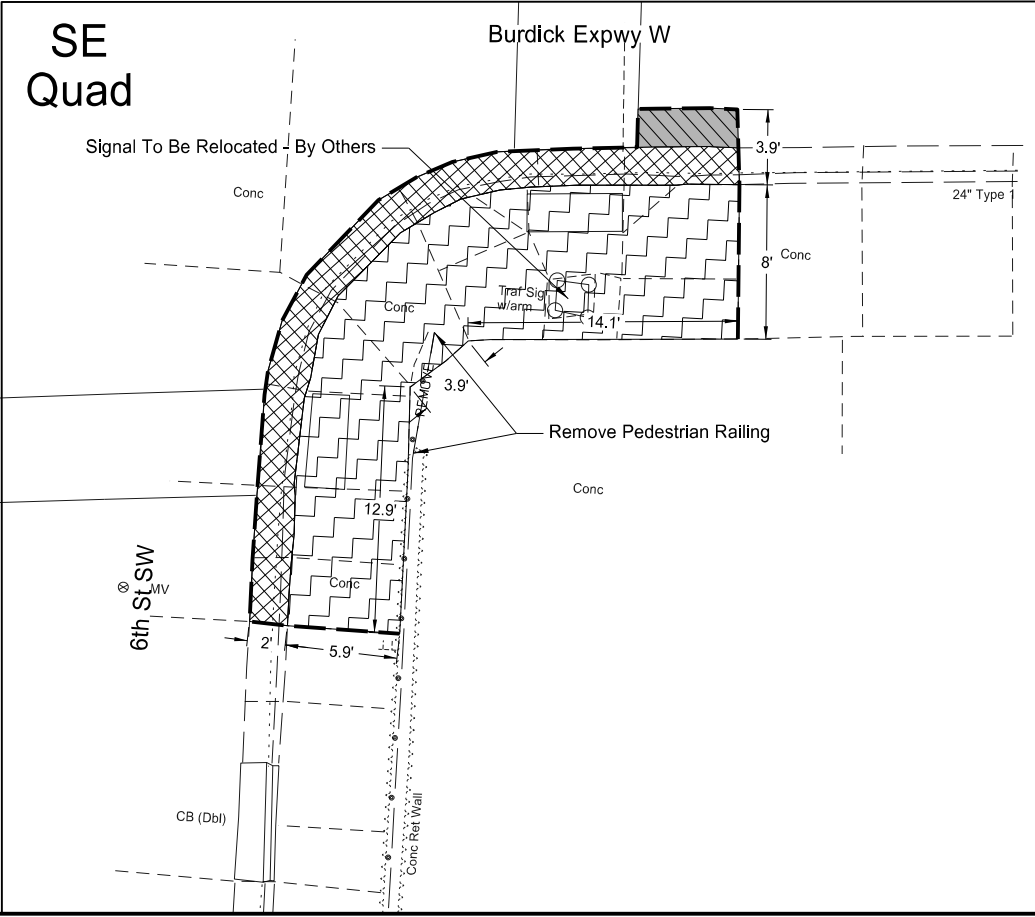
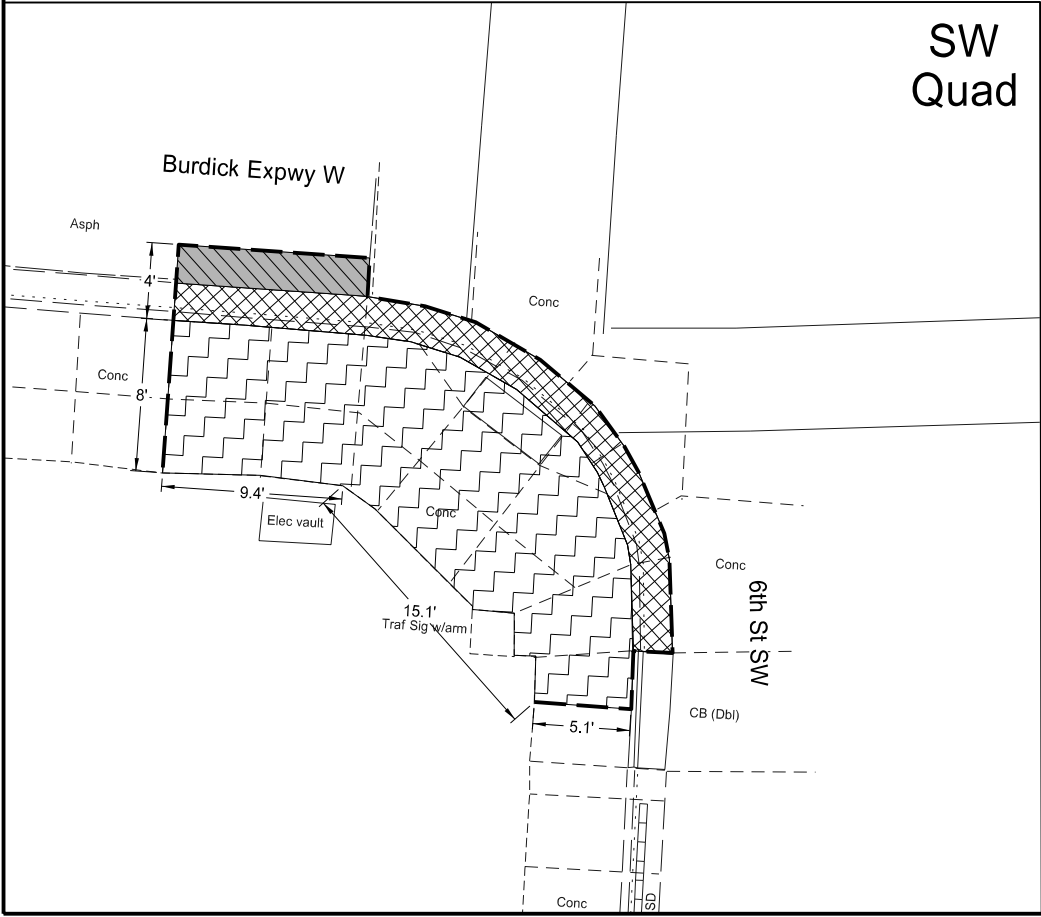
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## Removals

Maple St & Burdick Expy, 8th St & Burdick Expy  
N & S Maple St, E & W 8th St



No Work  
In  
This Quadrant



STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		40	3
SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		NW Quad	37	SY
		SW Quad	27	SY
		SE Quad	27	SY
202	0130	REMOVAL OF CURB & GUTTER		
		NW Quad	57	LF
		SW Quad	37	LF
		SE Quad	43	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		NW Quad	2	SY
		SW Quad	2	SY
		SE Quad	2	SY
624	0119	REMOVE PEDESTRIAN RAILING		
		SE Quad	6	LF

LEGEND

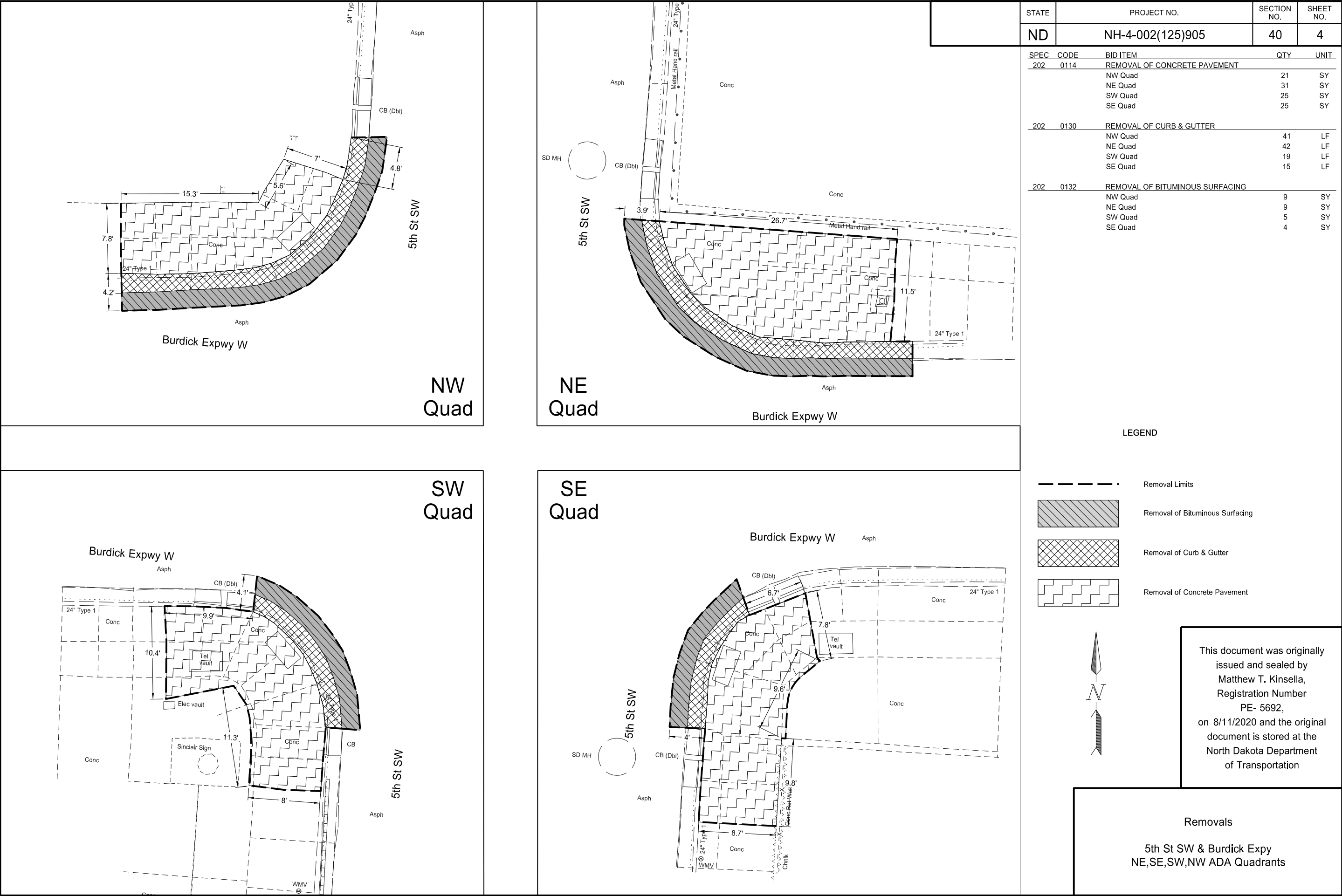
- Removal Limits
- [Hatched Box] Removal of Bituminous Surfacing
- [Cross-hatched Box] Removal of Curb & Gutter
- [Stippled Box] Removal of Concrete Pavement

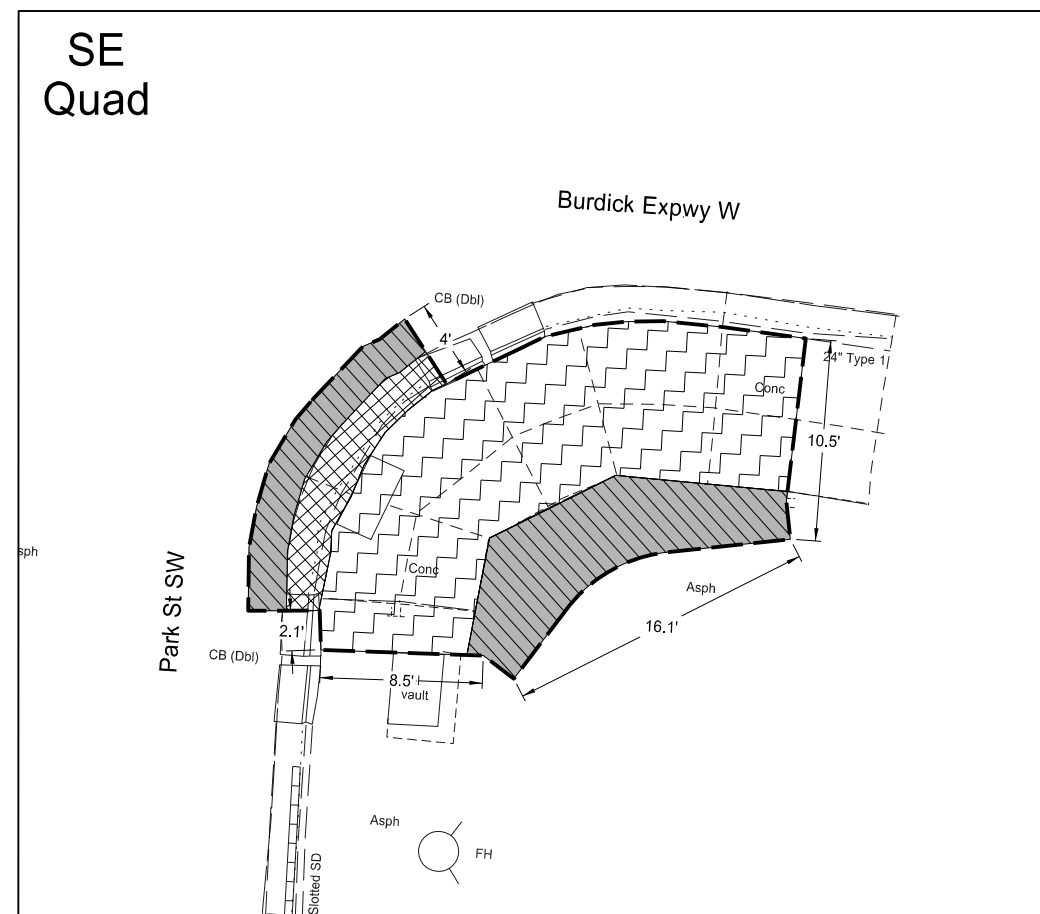
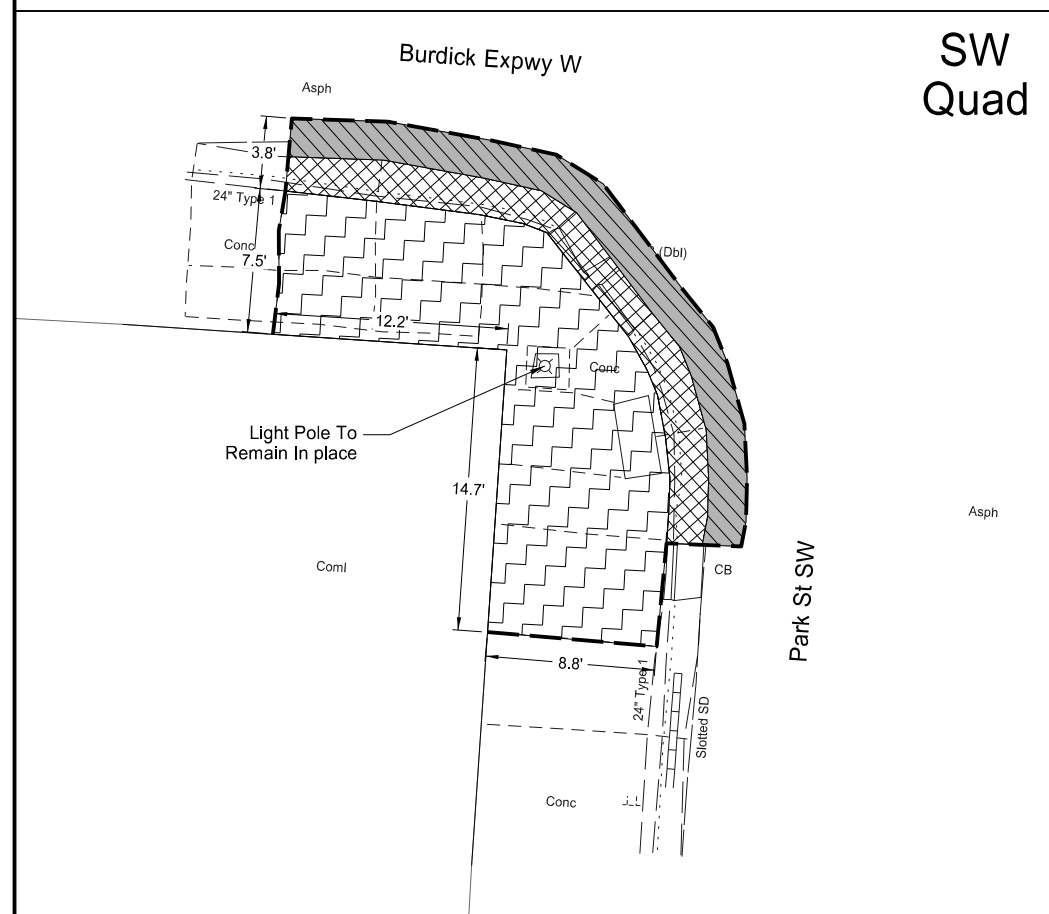
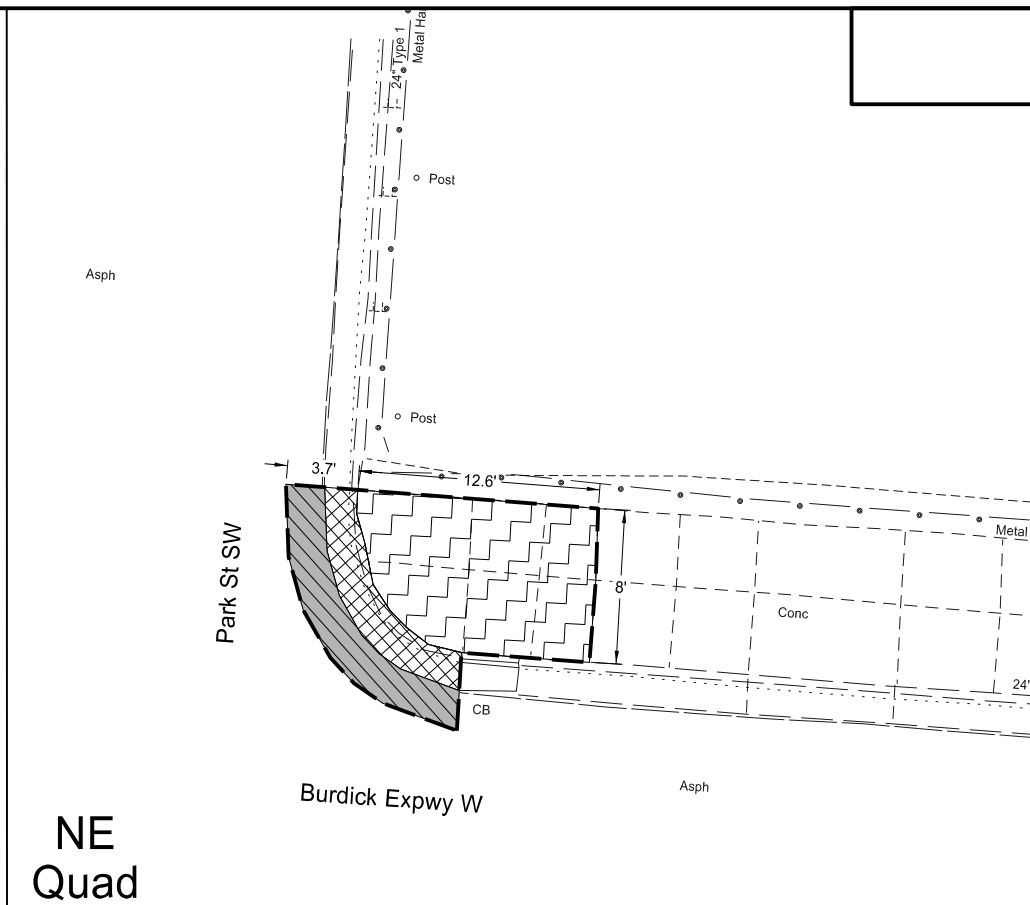
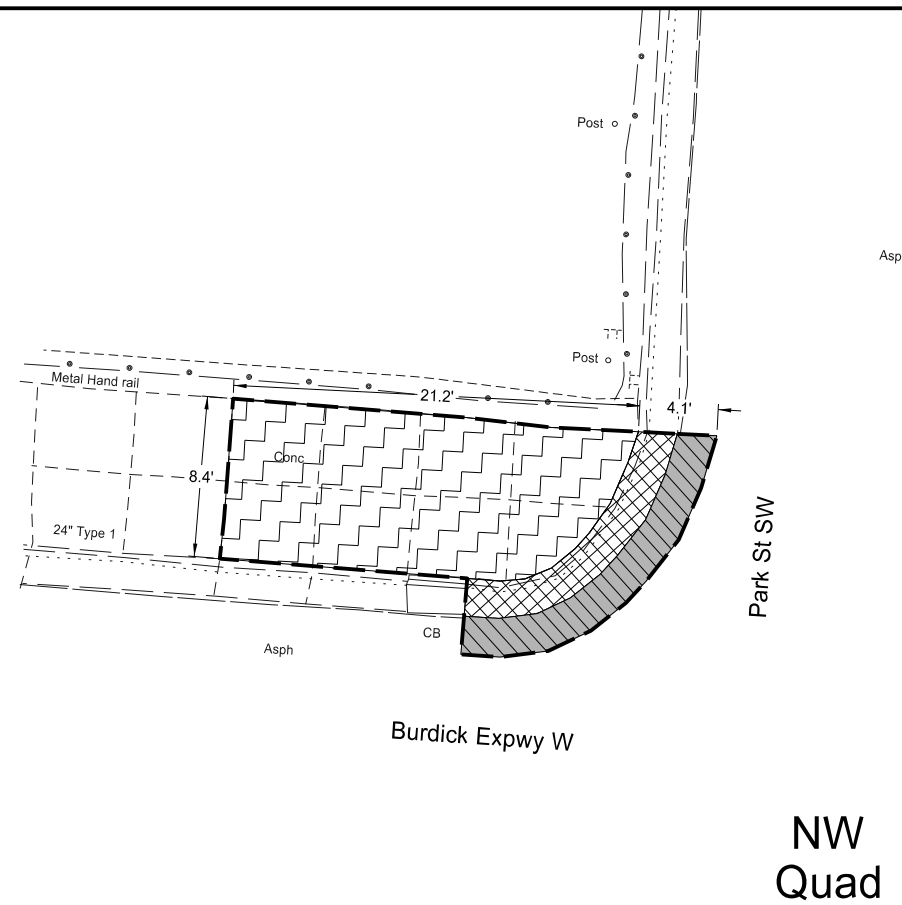


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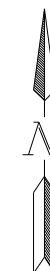
Removals

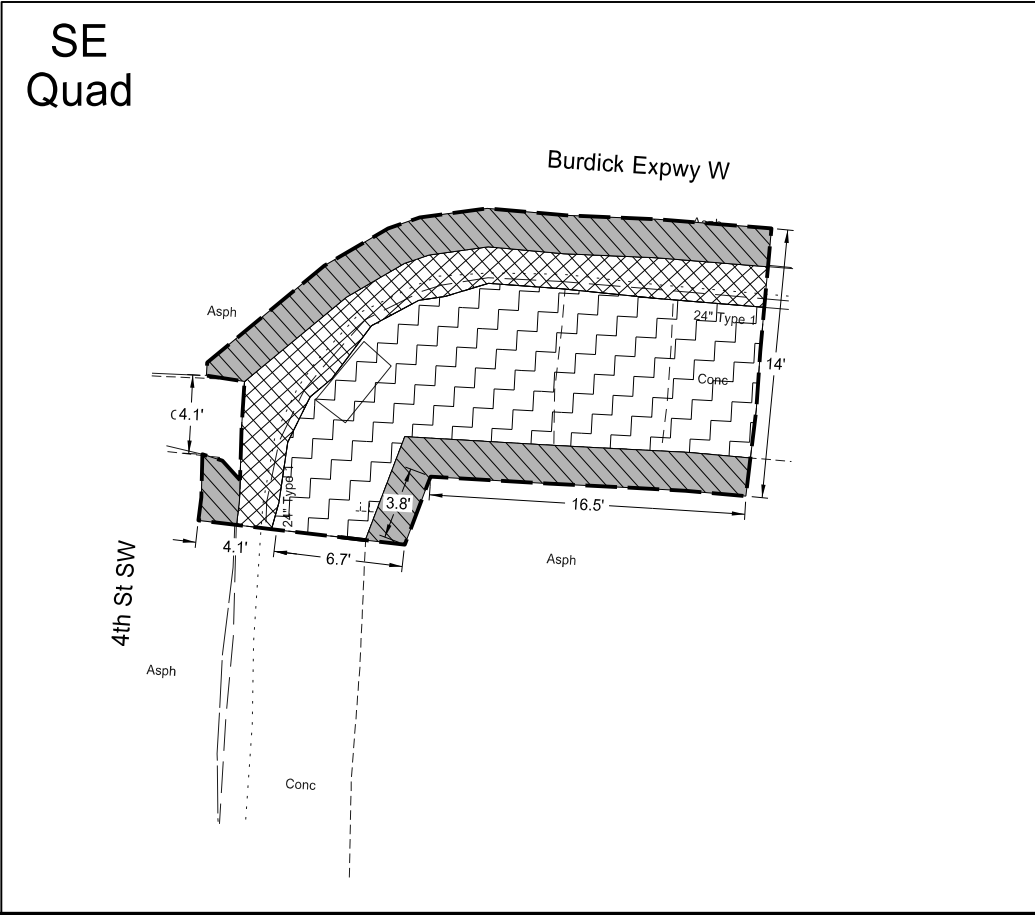
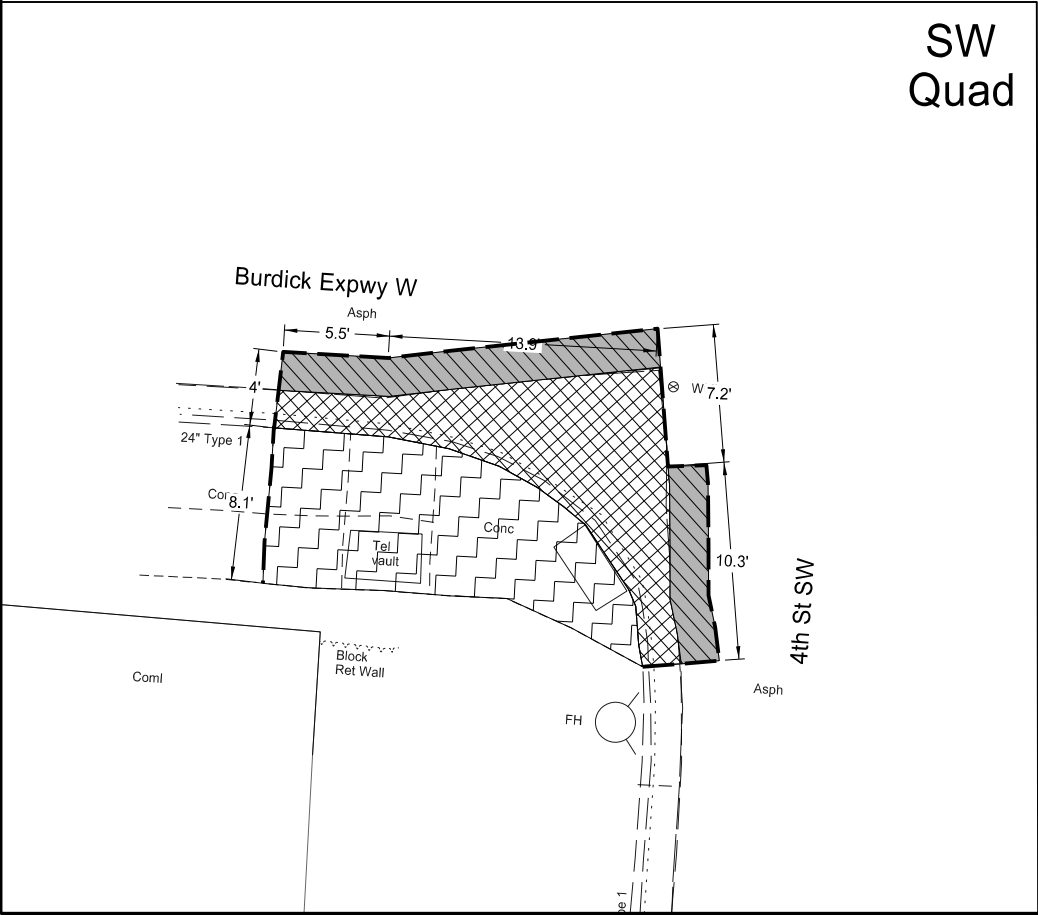
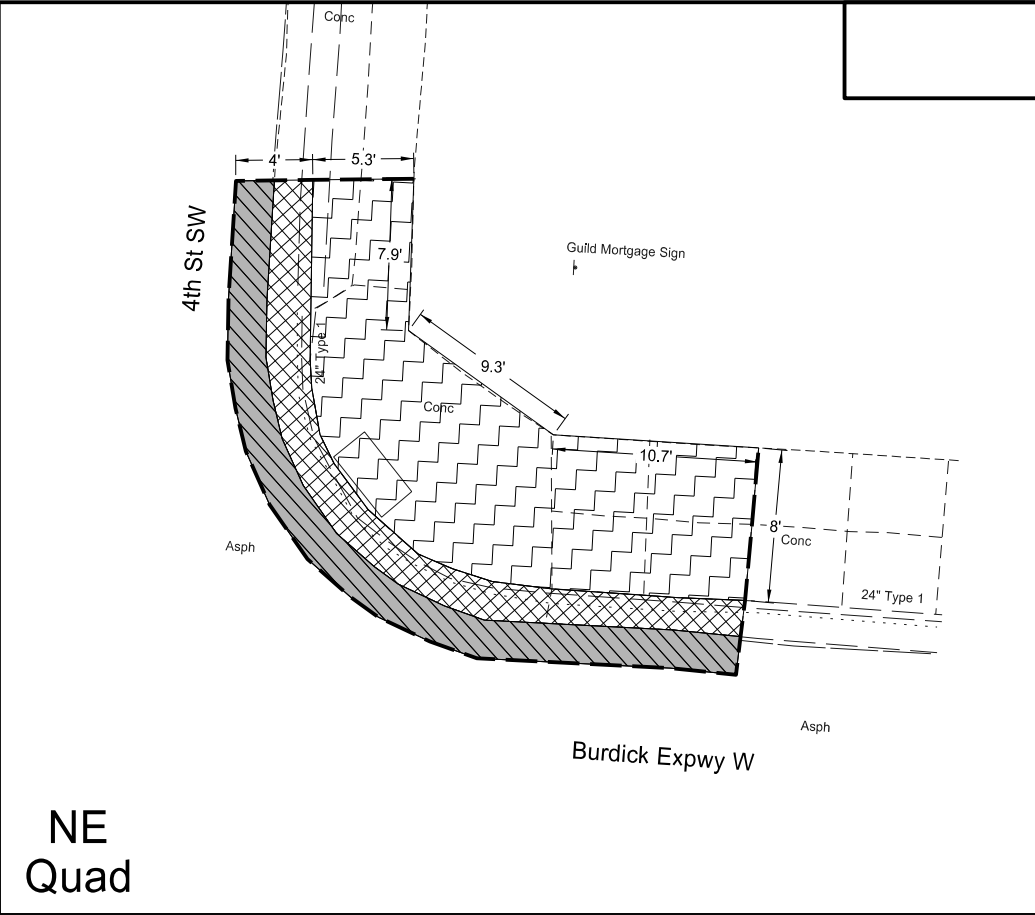
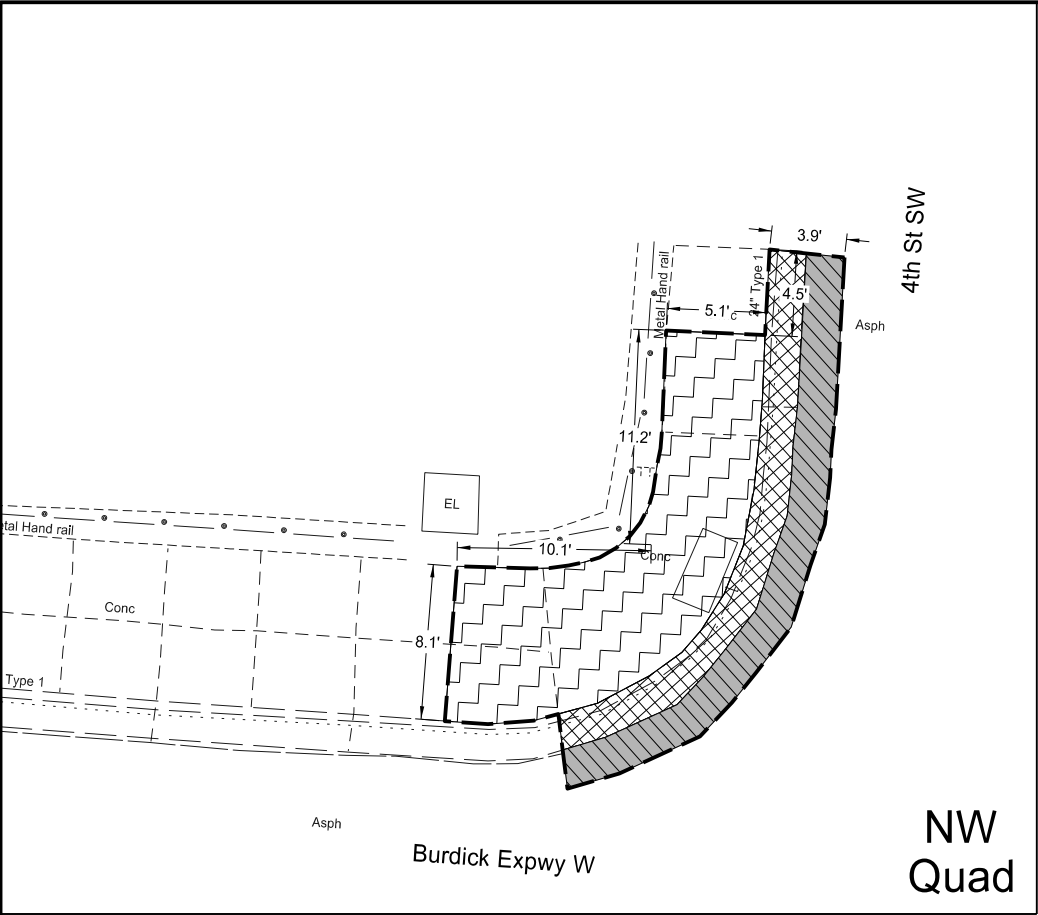
6th St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants





### LEGEND





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	40	6

SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		NW Quad	18	SY
		NE Quad	27	SY
		SW Quad	15	SY
		SE Quad	22	SY
202	0130	REMOVAL OF CURB & GUTTER		
		NW Quad	30	LF
		NE Quad	42	LF
		SW Quad	36	LF
		SE Quad	34	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		NW Quad	7	SY
		NE Quad	10	SY
		SW Quad	7	SY
		SE Quad	12	SY

LEGEND

- Removal Limits
- [Hatched Box] Removal of Bituminous Surfacing
- [Cross-hatched Box] Removal of Curb & Gutter
- [Wavy Box] Removal of Concrete Pavement

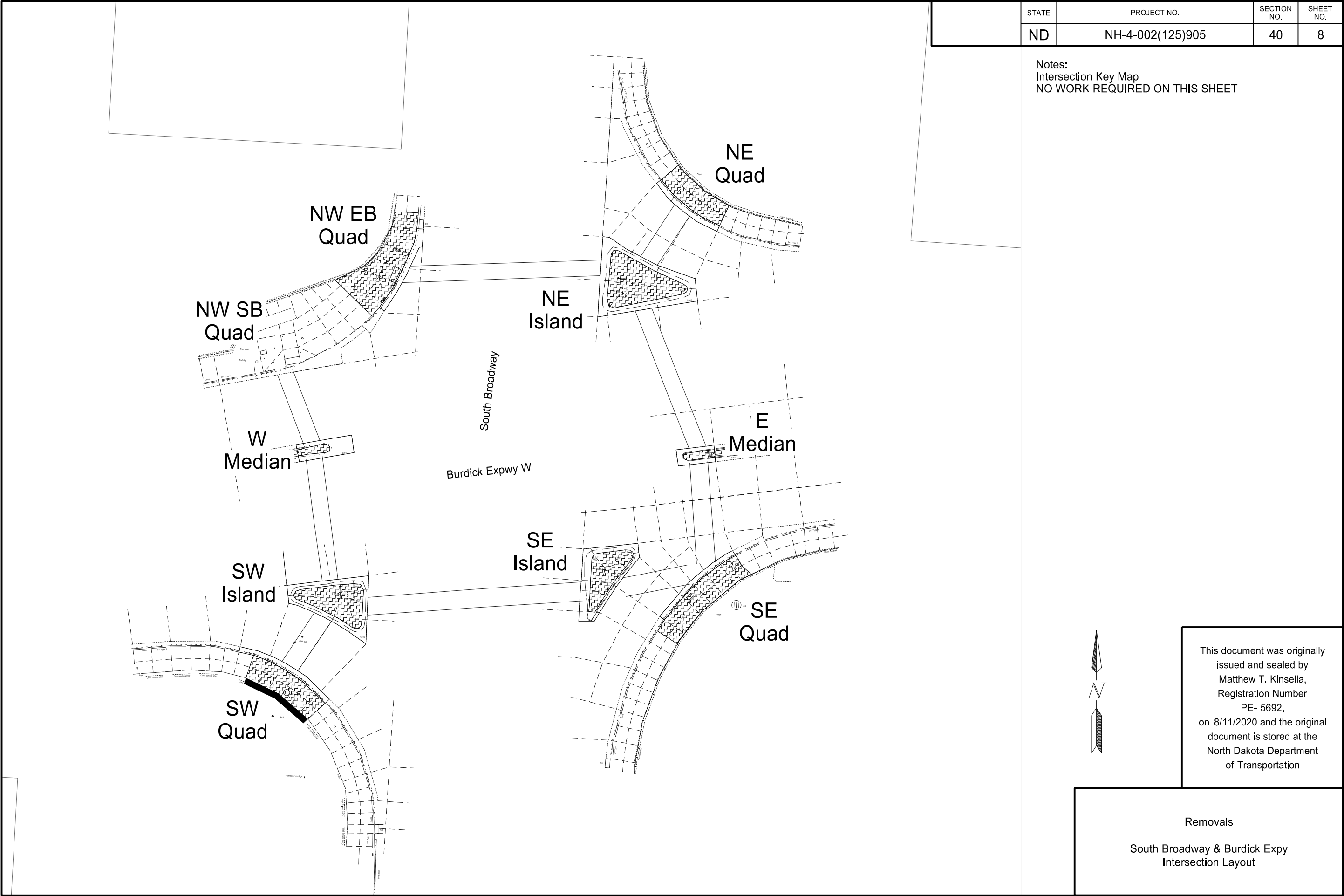
North Arrow

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Removals

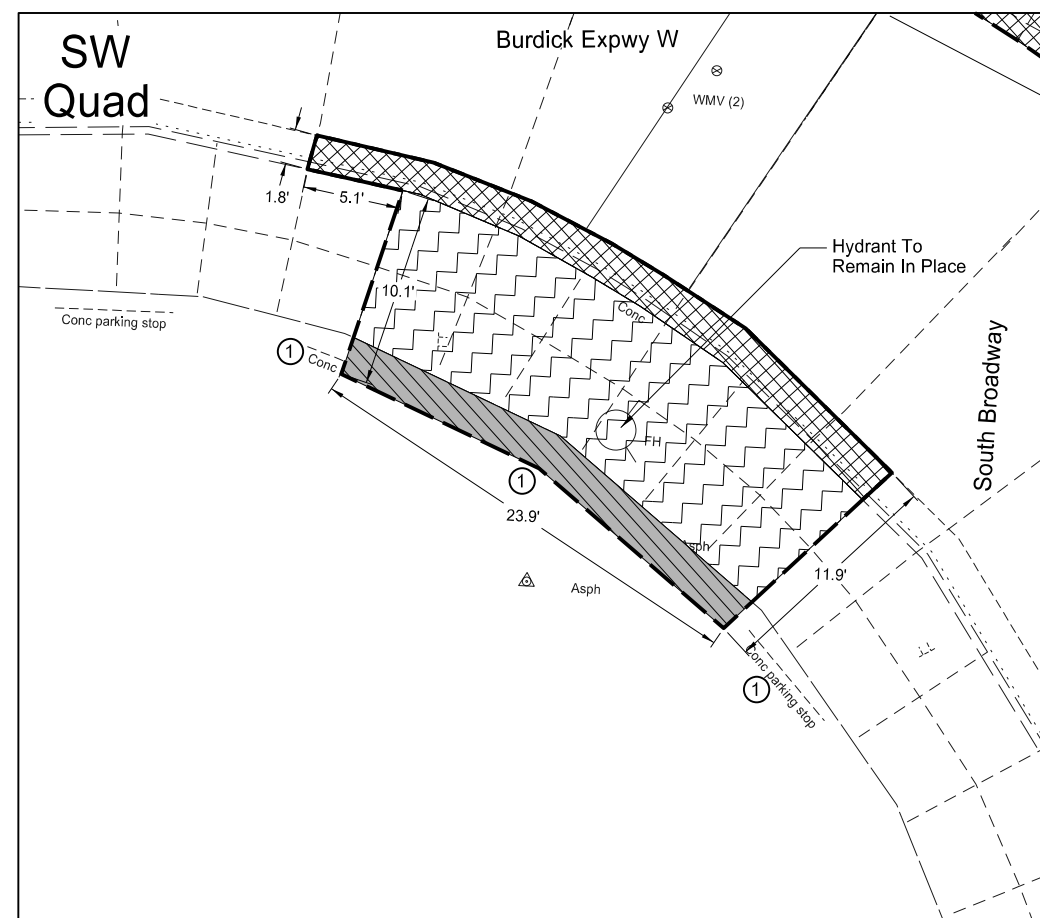
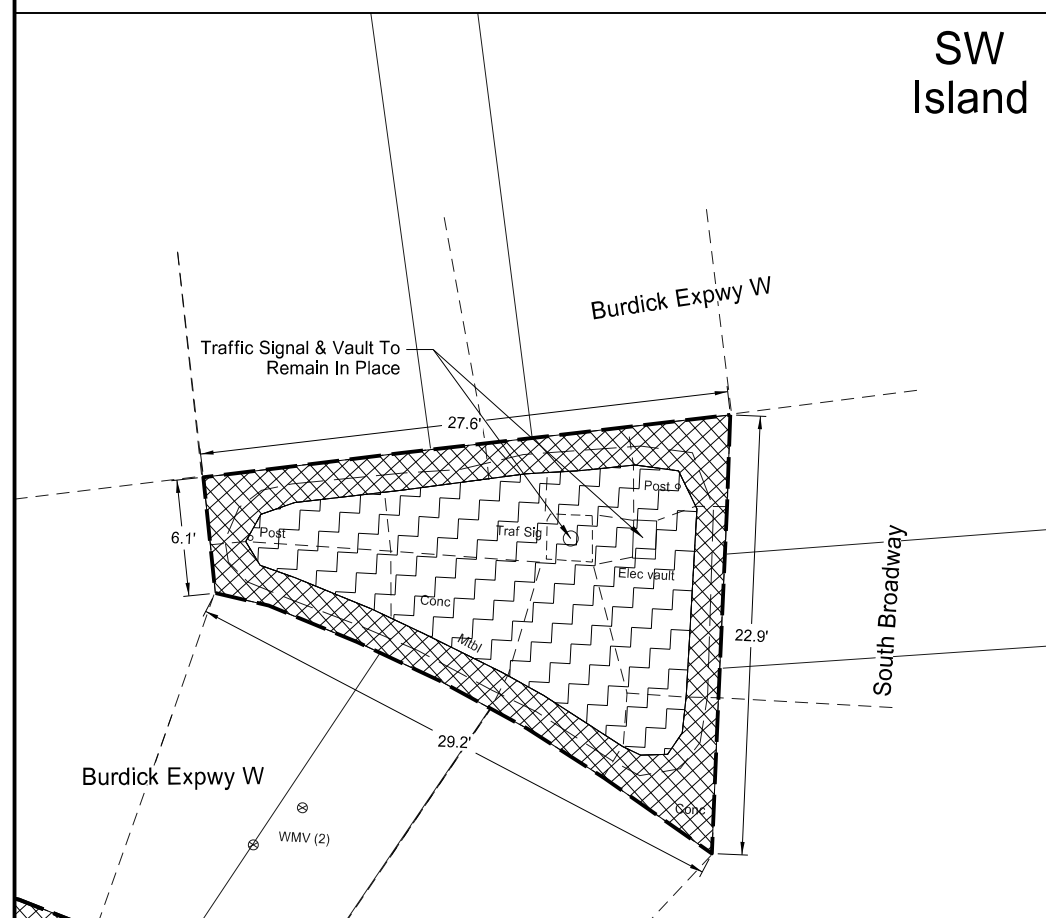
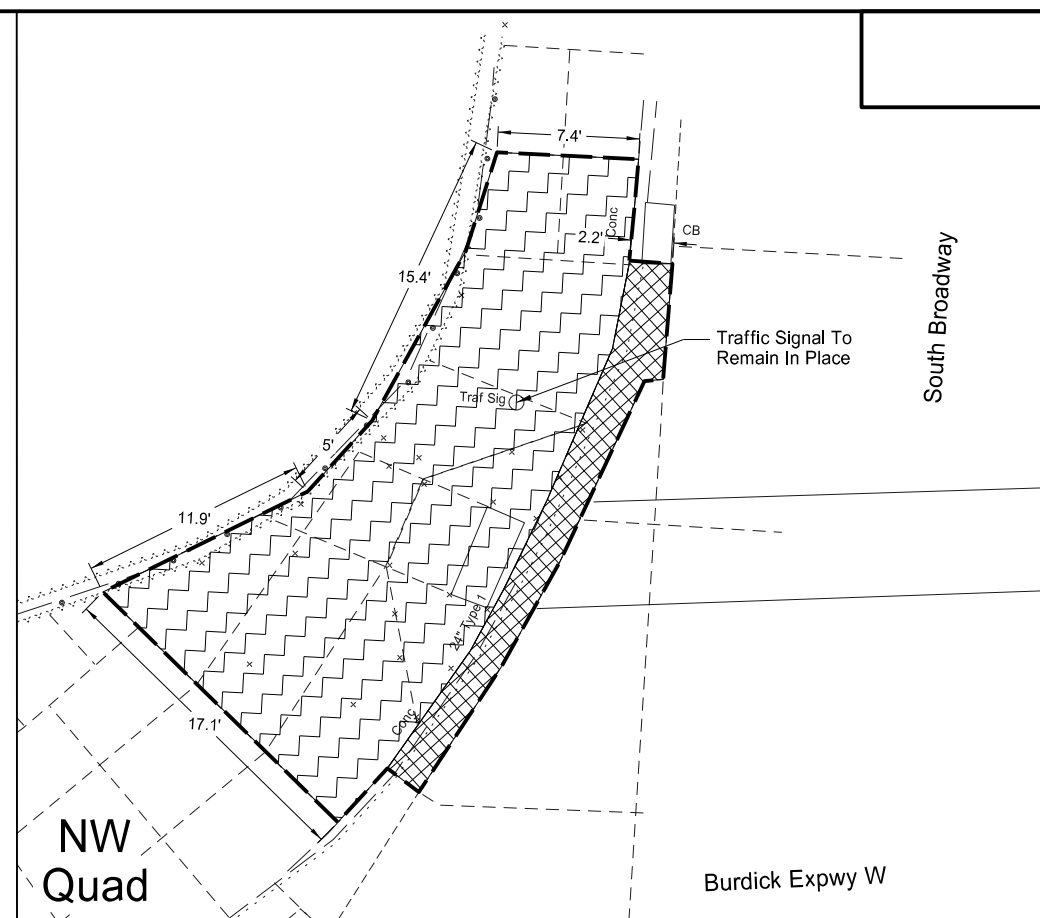
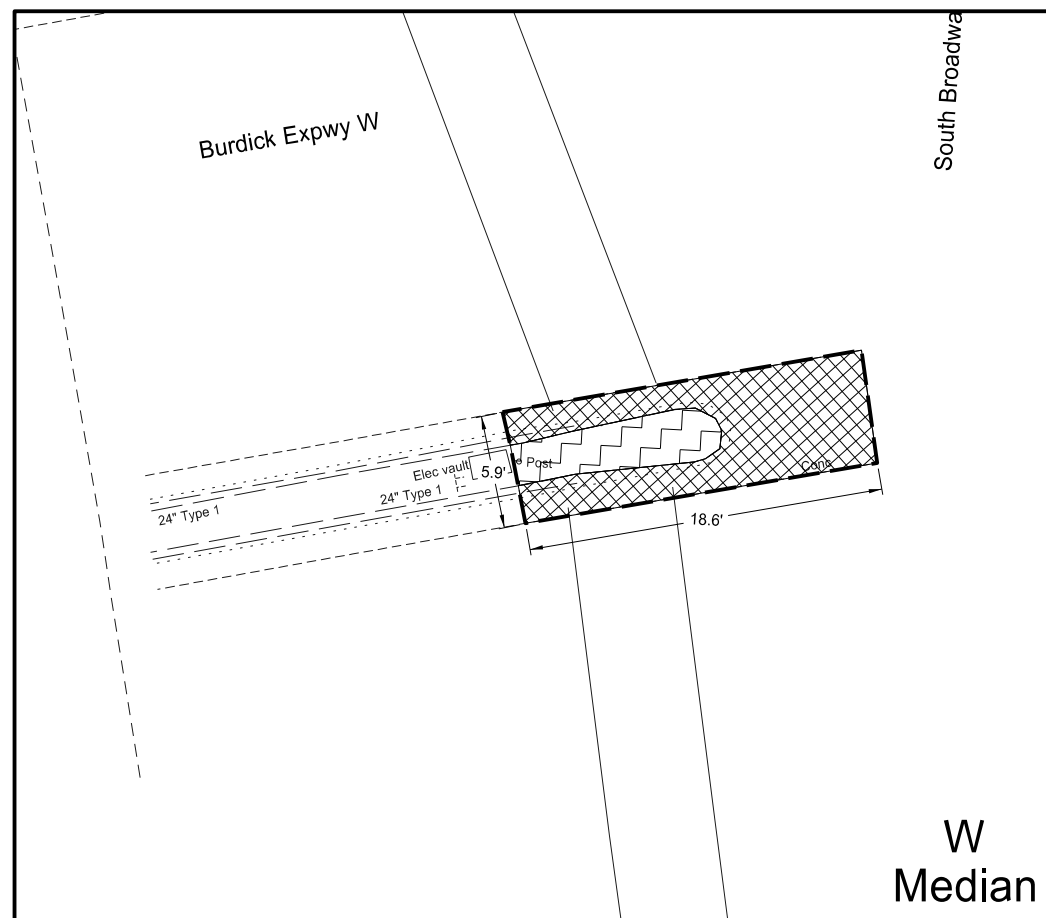
4th St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants






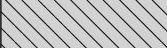


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	40	8

Notes:  
Intersection Key Map  
NO WORK REQUIRED ON THIS SHEET



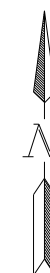
STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		40	9
SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		W Median	3	SY
		NW Quad	43	SY
		SW Island	23	SY
		SW Quad	25	SY
202	0130	REMOVAL OF CURB & GUTTER		
		W Median	44	LF
		NW Quad	32	LF
		SW Island	86	LF
		SW Quad	35	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		SW Quad	5	SY

### LEGEND

- |   |                                 |
|---|---------------------------------|
|    | Removal Limits                  |
|    | Removal of Bituminous Surfacing |
|   | Removal of Curb & Gutter        |
|  | Removal of Concrete Pavement    |

Notes:

- ① See section 6 notes for concrete parking block information.

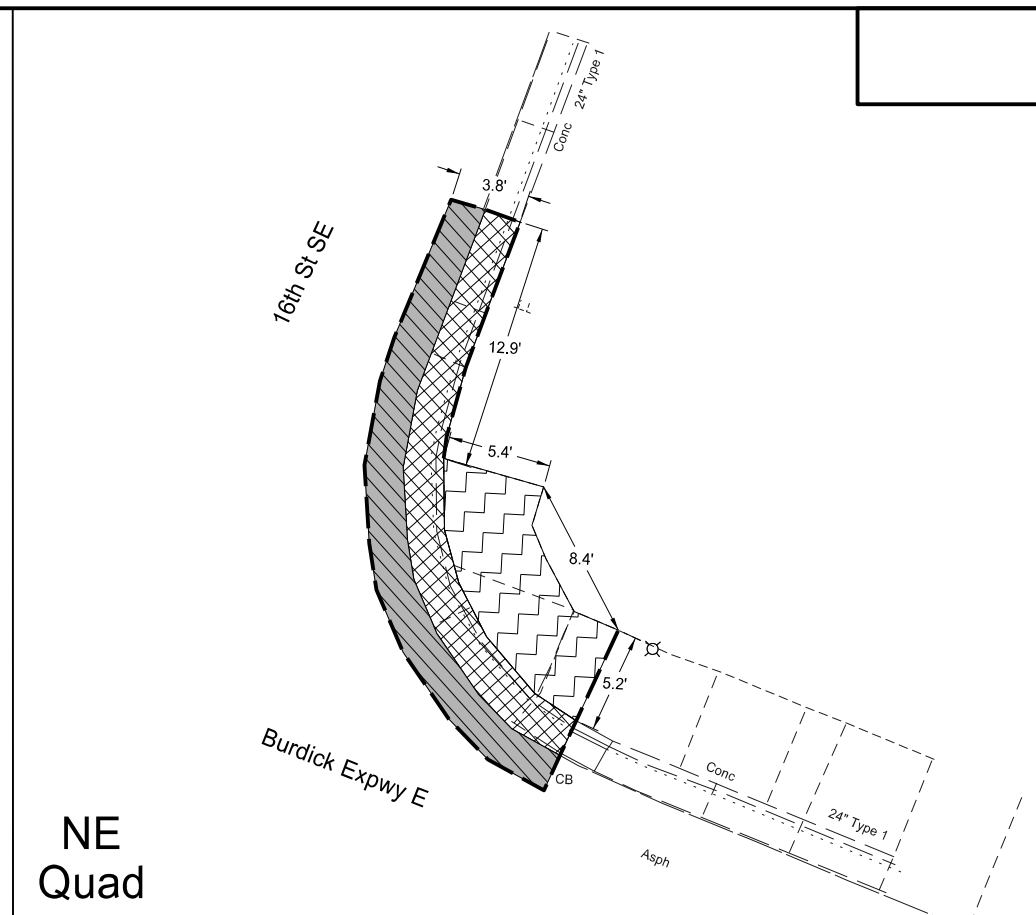
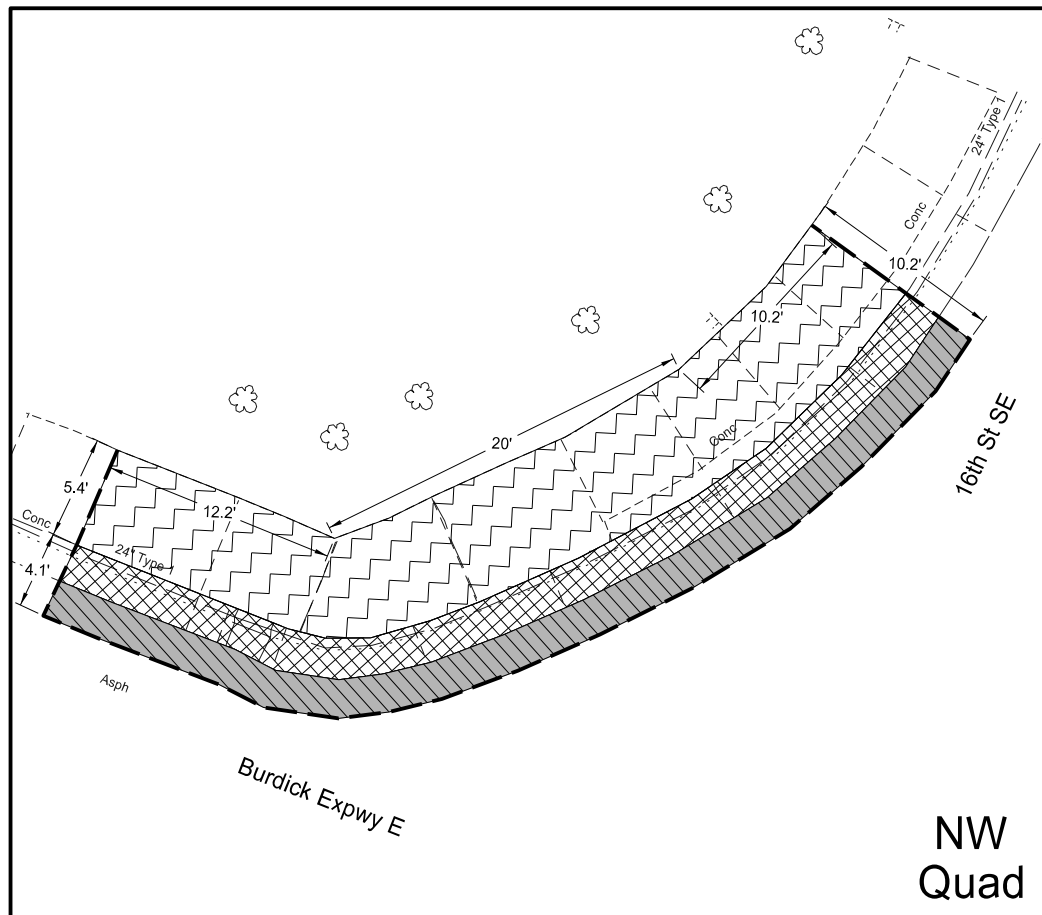


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## Removals





South Broadway & Burdick Expy  
NW, SW ADA Quadrants & SW Median

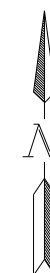




STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		40	11
SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		NW Quad	30	SY
		NE Quad	7	SY
202	0130	REMOVAL OF CURB & GUTTER		
		NW Quad	53	LF
		NE Quad	32	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		NW Quad	12	SY
		NE Quad	7	SY

### LEGEND

- |   |                                 |
|---|---------------------------------|
|  | Removal Limits                  |
|  | Removal of Bituminous Surfacing |
|  | Removal of Curb & Gutter        |
|  | Removal of Concrete Pavement    |



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Removals

16th St SE & Burdick Expy  
NW & NE ADA Quadrants

STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		40	12
SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		SW Quad	18	SY
		SE Quad	23	SY
202	0130	REMOVAL OF CURB & GUTTER		
		SW Quad	35	LF
		SE Quad	37	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		SW Quad	9	SY
		SE Quad	9	SY

LEGEND

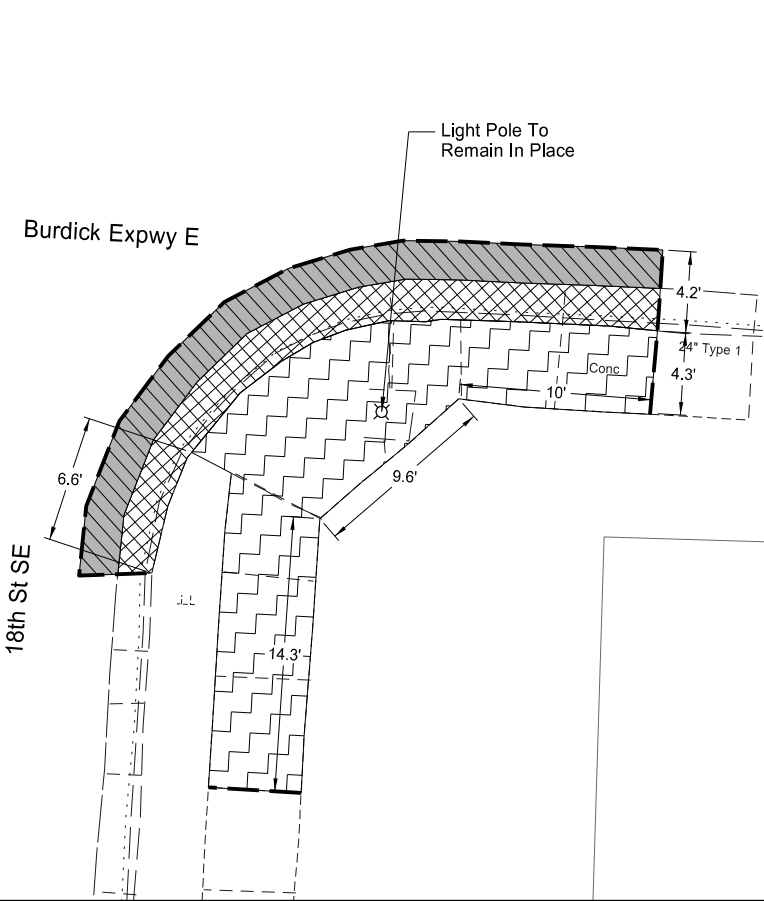
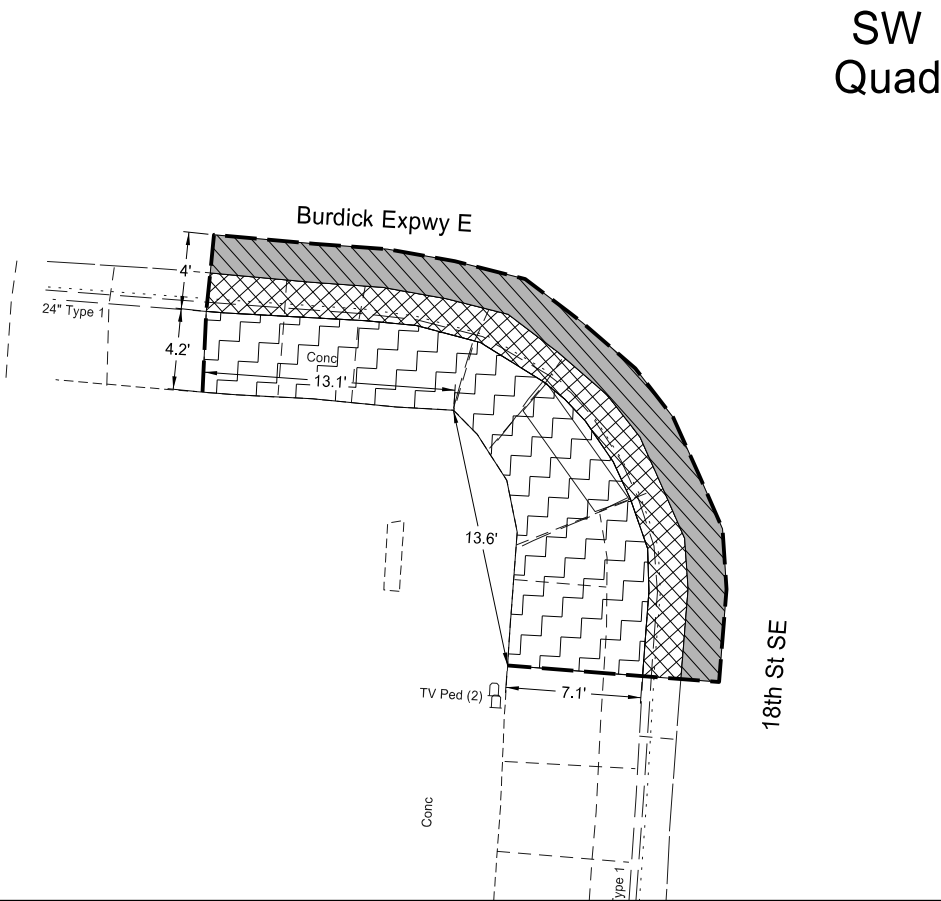
- Removal Limits
- Removal of Bituminous Surfacing
- Removal of Curb & Gutter
- Removal of Concrete Pavement

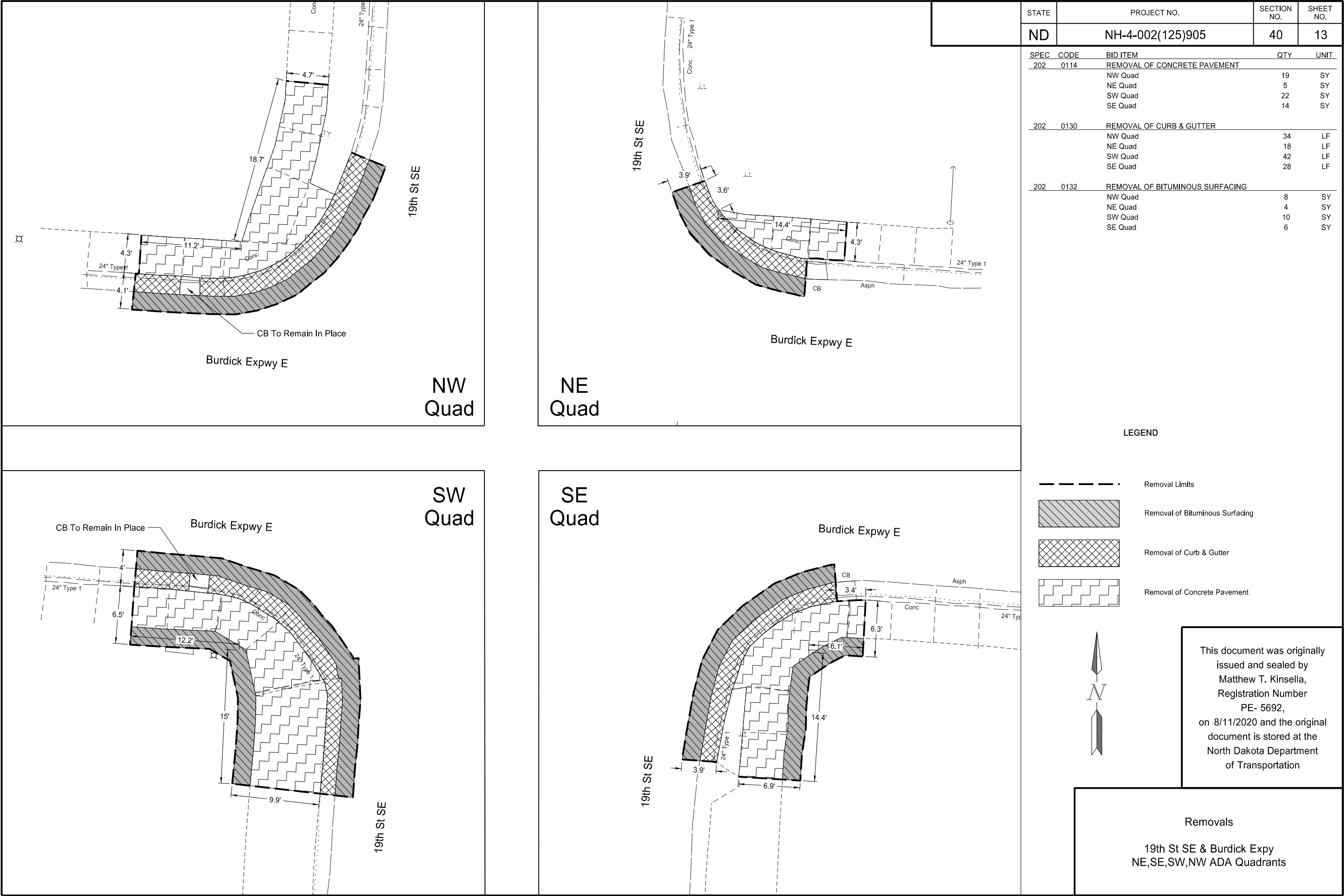


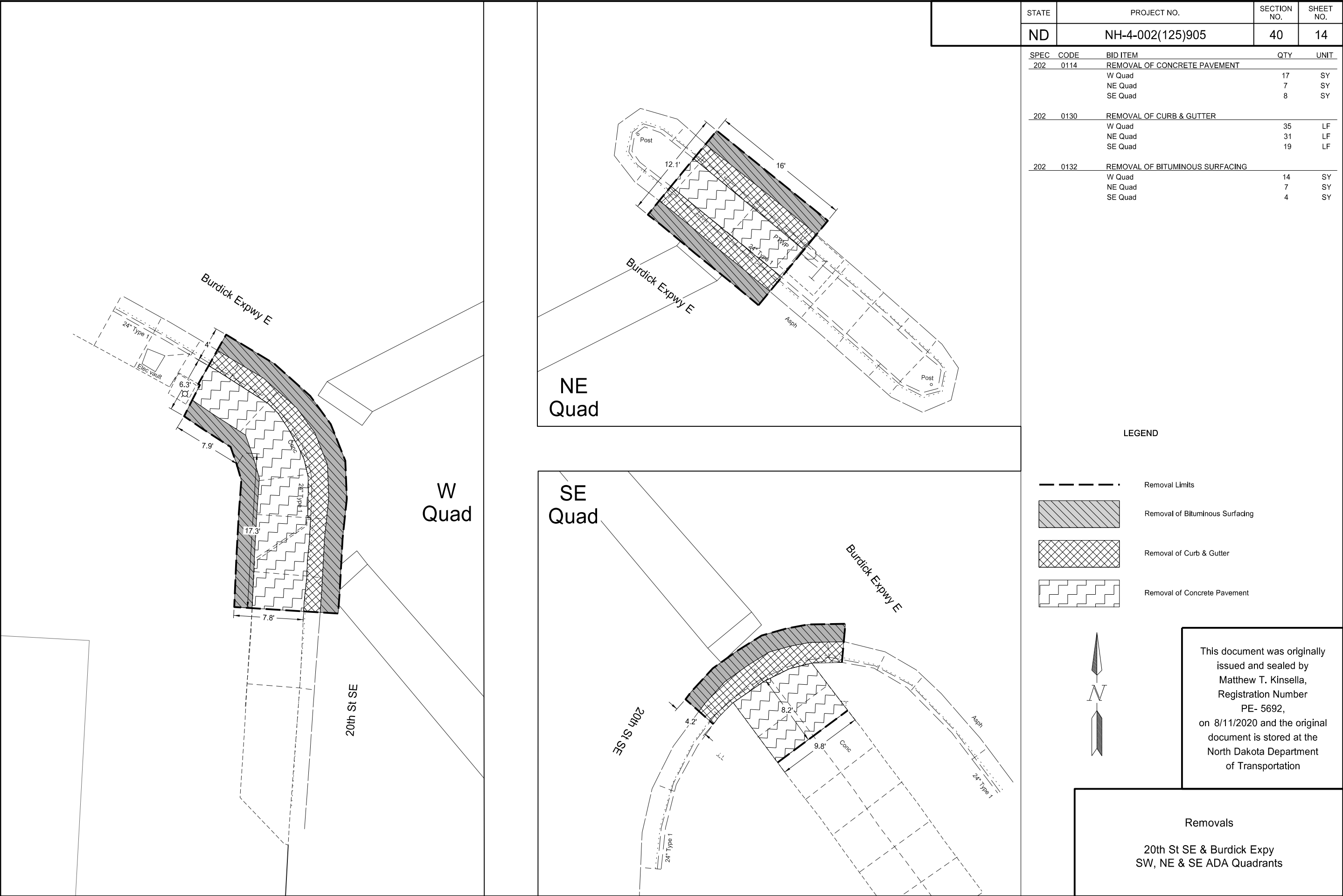
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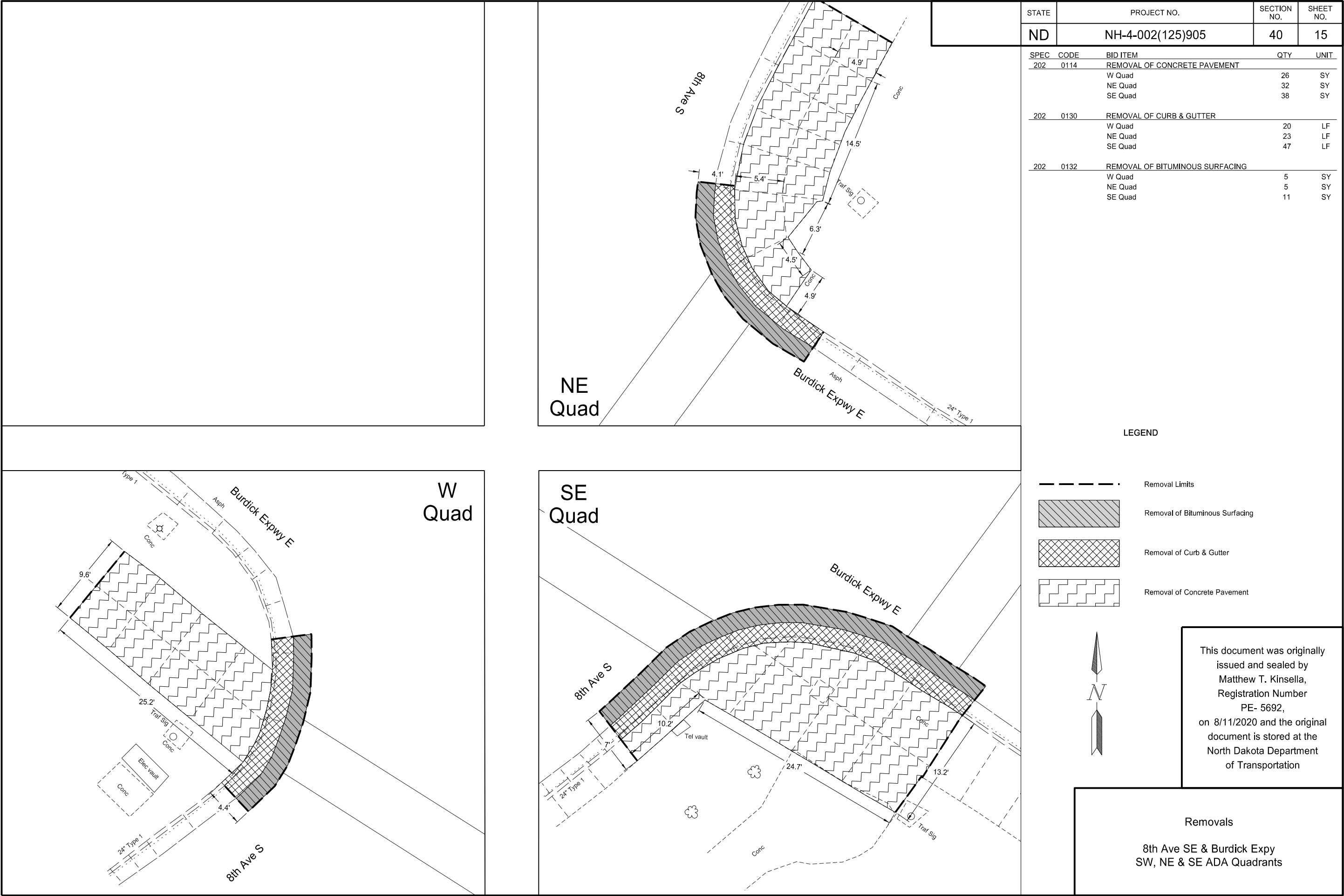
Removals

18th St SE & Burdick Expy  
SW & SE ADA Quadrants









STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		40	16
SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		SW Quad	26	SY
		SE Quad	25	SY
202	0130	REMOVAL OF CURB & GUTTER		
		SW Quad	40	LF
		SE Quad	42	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		SW Quad	10	SY
		SE Quad	10	SY

LEGEND

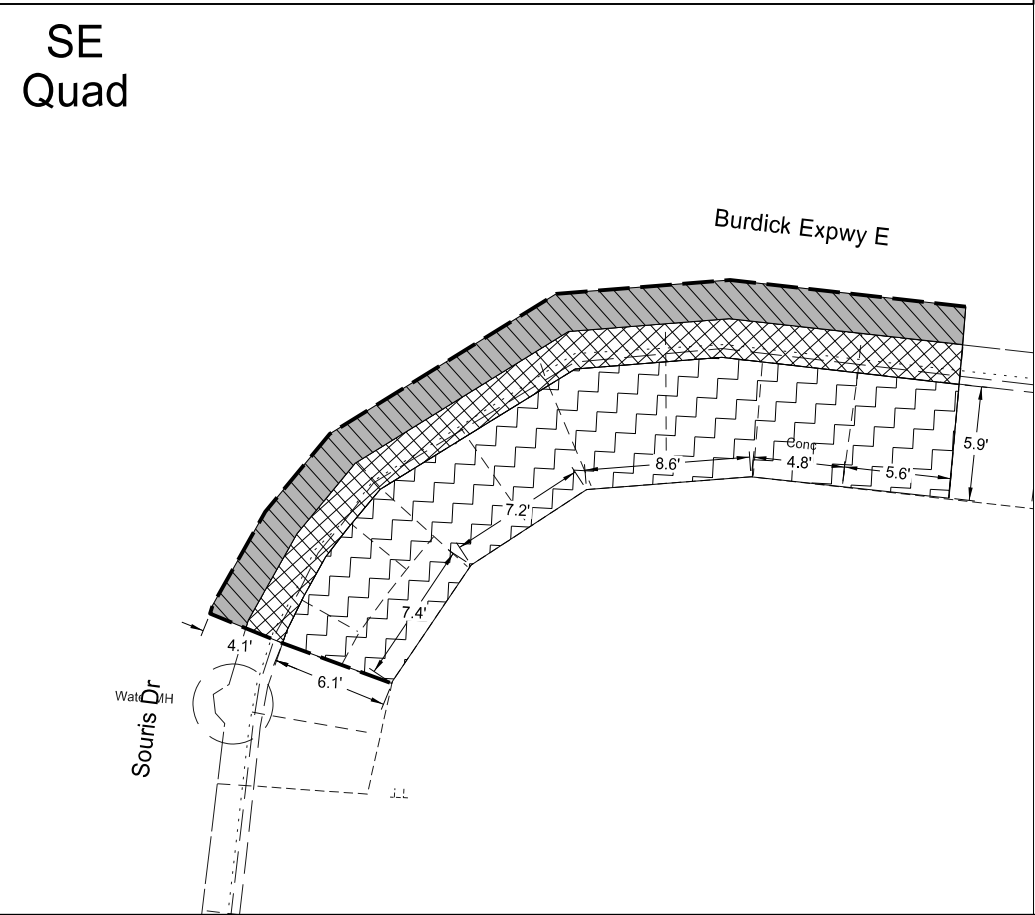
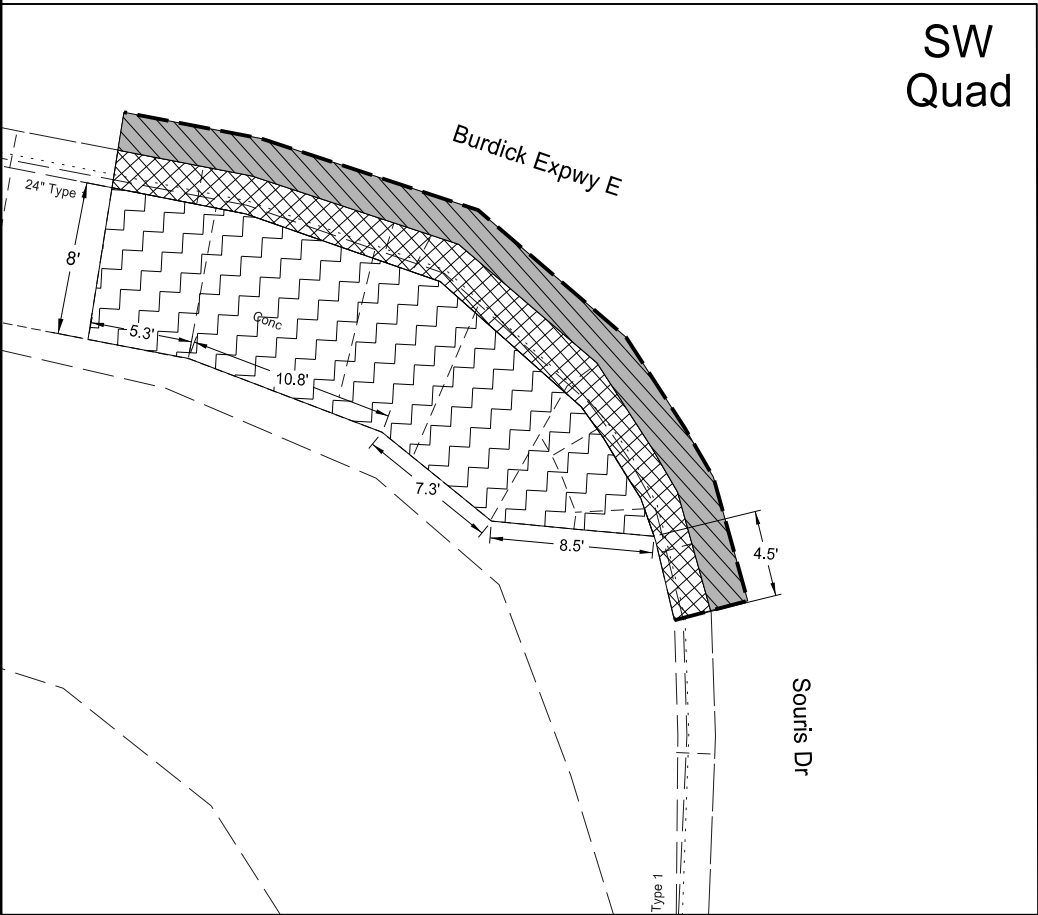
- Removal Limits
- Removal of Bituminous Surfacing
- Removal of Curb & Gutter
- Removal of Concrete Pavement

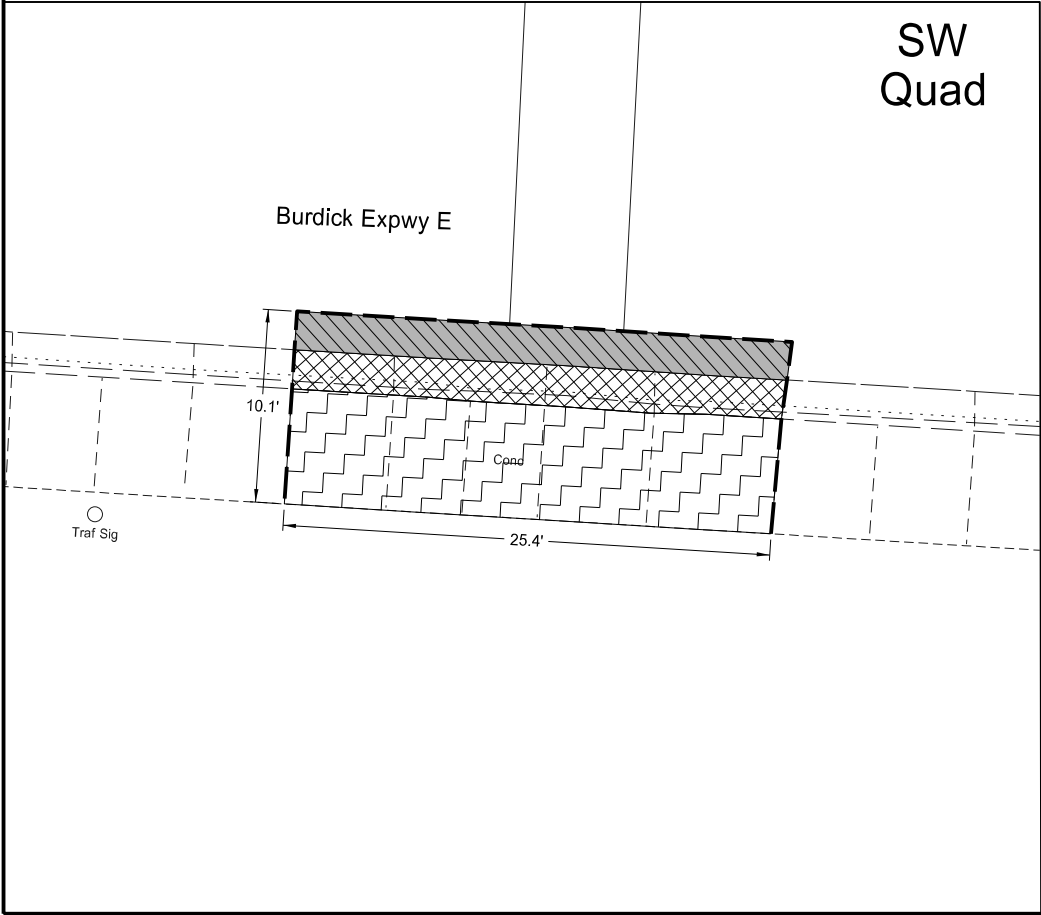
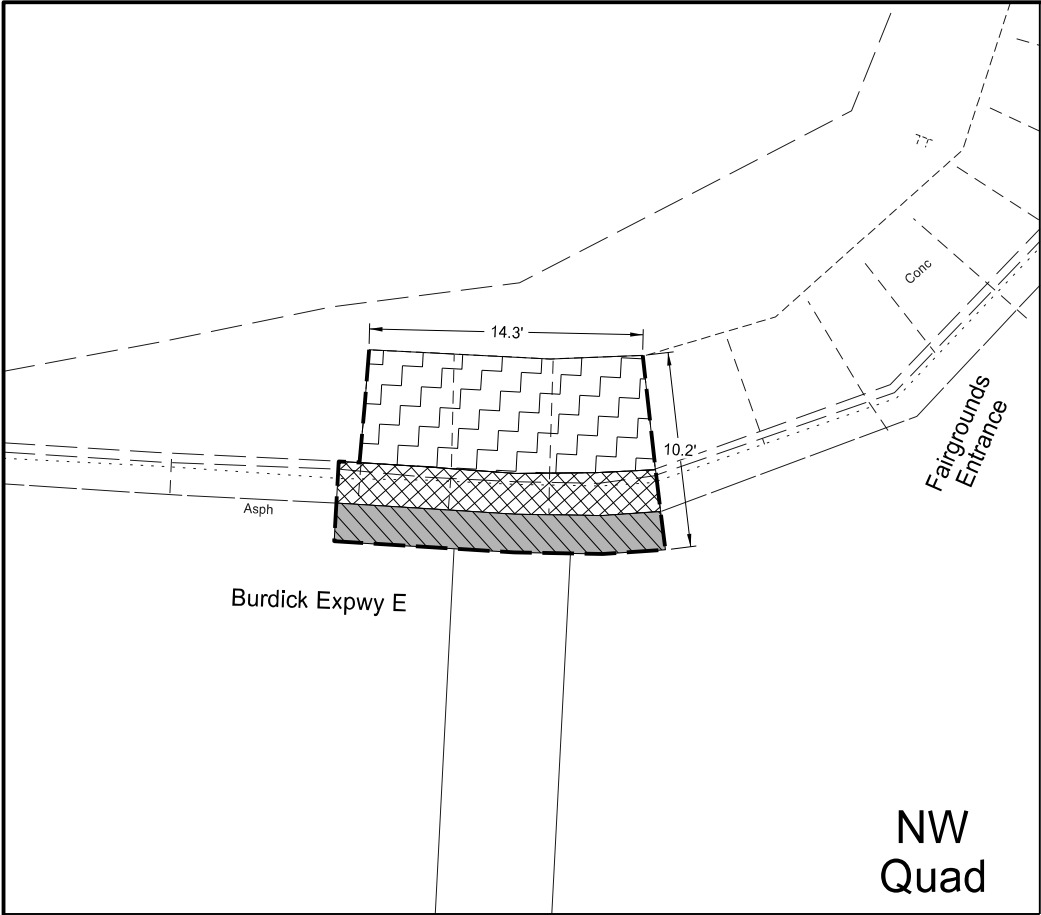


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Removals

Souris Dr & Burdick Expy  
SW & SE ADA Quadrants





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	40	17

SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		NW Quad	10	SY
		SW Quad	17	SY
202	0130	REMOVAL OF CURB & GUTTER		
		NW Quad	17	LF
		SW Quad	26	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		NW Quad	4	SY
		SW Quad	6	SY

LEGEND

- Removal Limits
- [Hatched Box] Removal of Bituminous Surfacing
- [Cross-hatched Box] Removal of Curb & Gutter
- [Stippled Box] Removal of Concrete Pavement



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Removals

Fairground Entrance & Burdick Expy  
NW & SW ADA Quadrants

STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		40	18
SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		SW Quad	22	SY
		SE Quad	34	SY
202	0130	REMOVAL OF CURB & GUTTER		
		SW Quad	41	LF
		SE Quad	50	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		SW Quad	9	SY
		SE Quad	12	SY

LEGEND

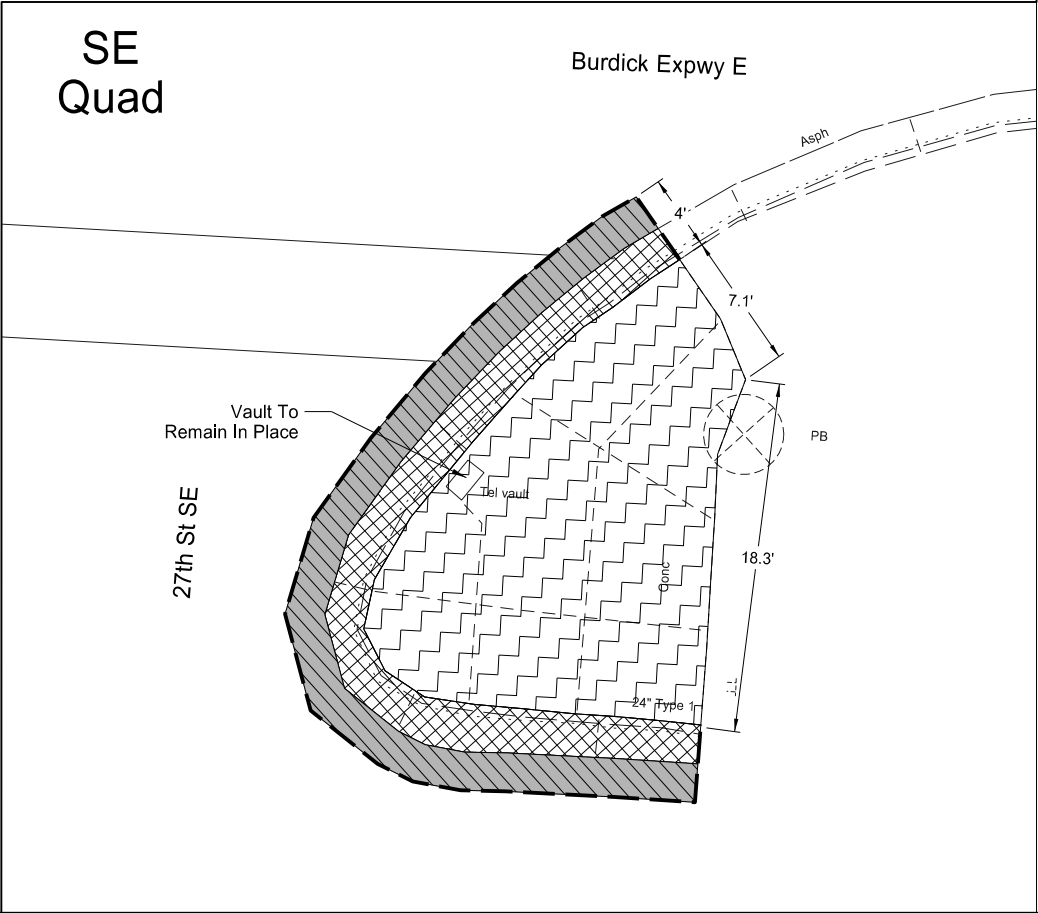
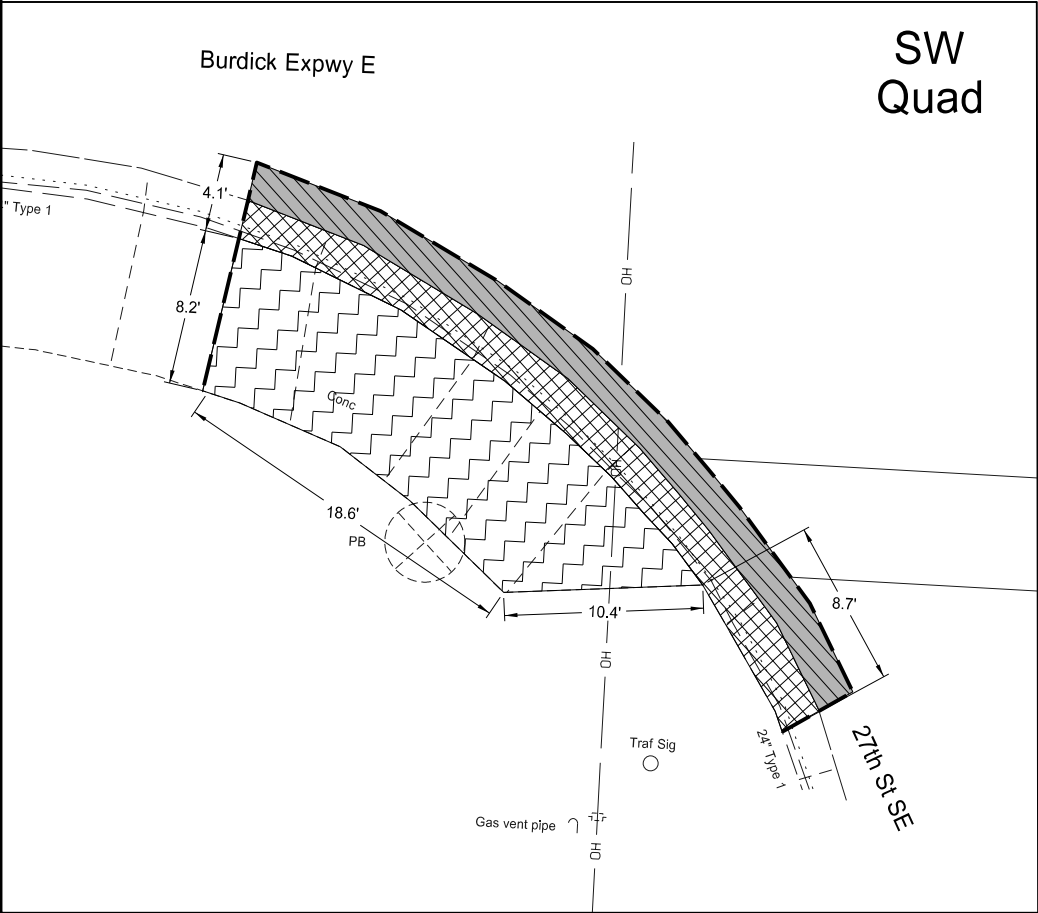
- Removal Limits
- Removal of Bituminous Surfacing
- Removal of Curb & Gutter
- Removal of Concrete Pavement



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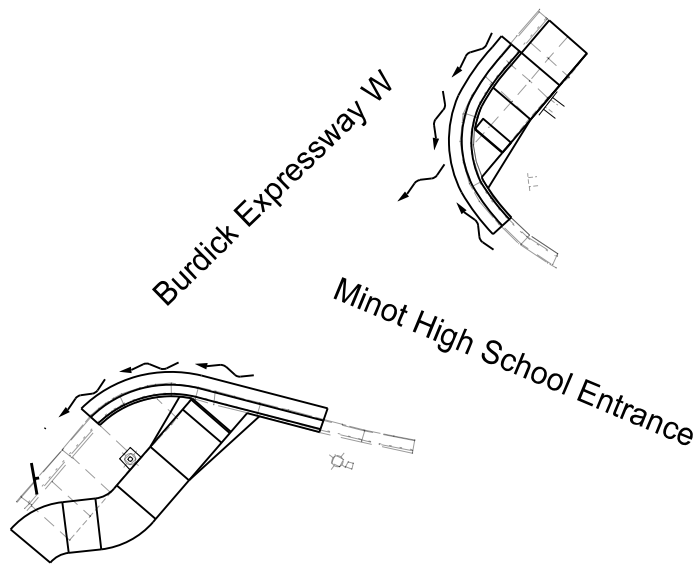
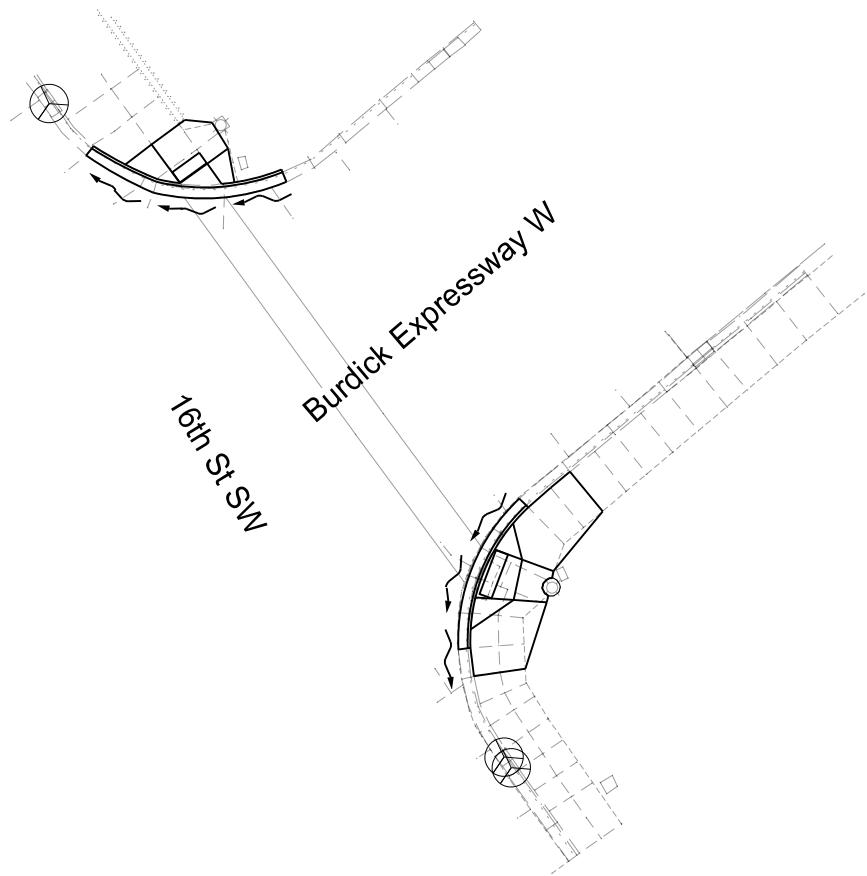
Removals

27th St SE & Burdick Expy  
SW & SE ADA Quadrants




STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	76	1


SPEC	CODE	BID ITEM	QTY	UNIT
261	0200	WEIGHTED FIBER ROLLS		
		S. Quad MHS	5	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS		
		S. Quad MHS	5	LF
708	1540	INLET PROTECTION-SPECIAL		
		N. Quad 16th SW	1	EA
		E. Quad 16th SW	2	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL		
		N. Quad 16th SW	1	EA
		E. Quad 16th SW	2	EA




LEGEND



Inlet Protection - Special

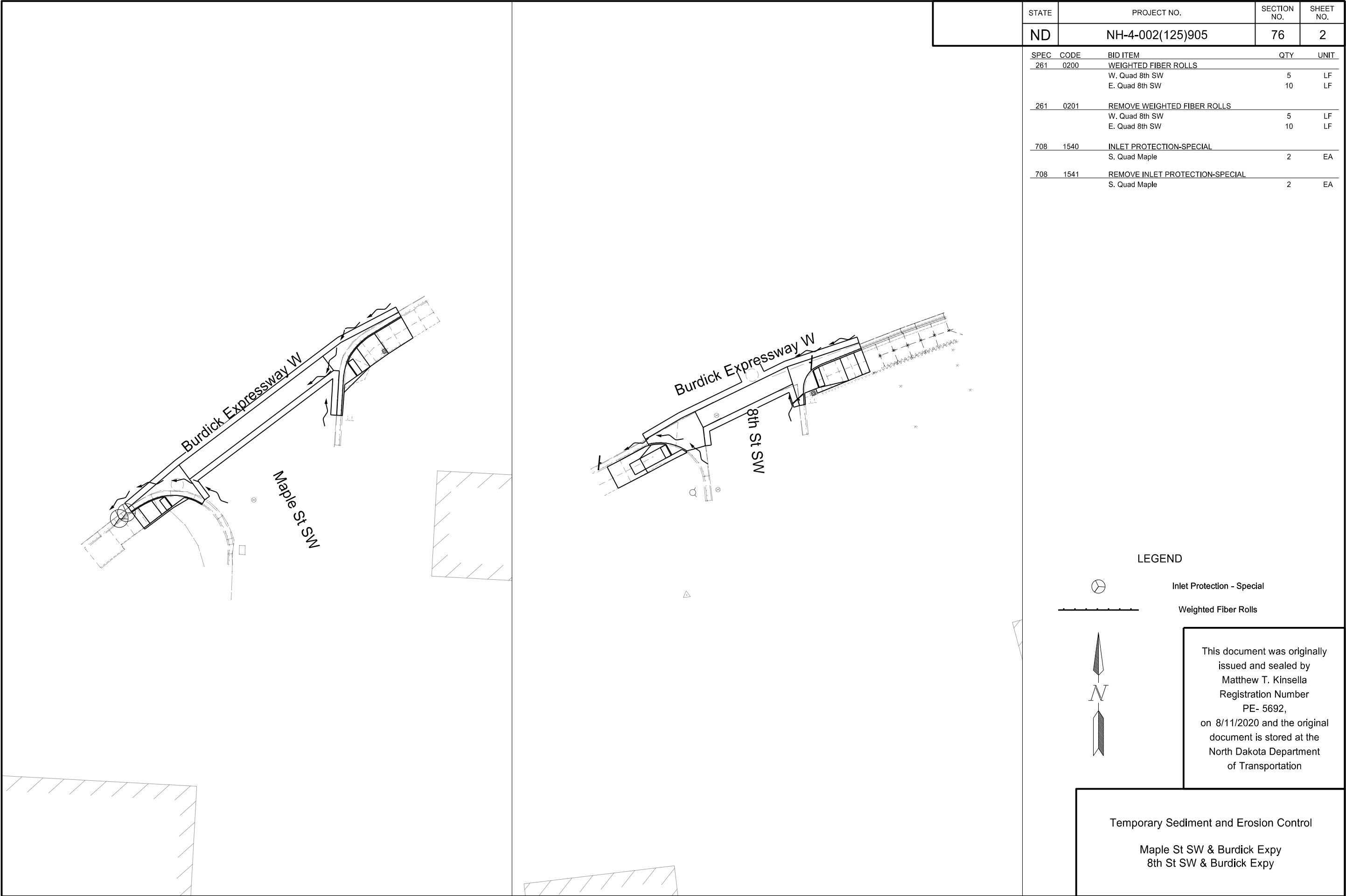


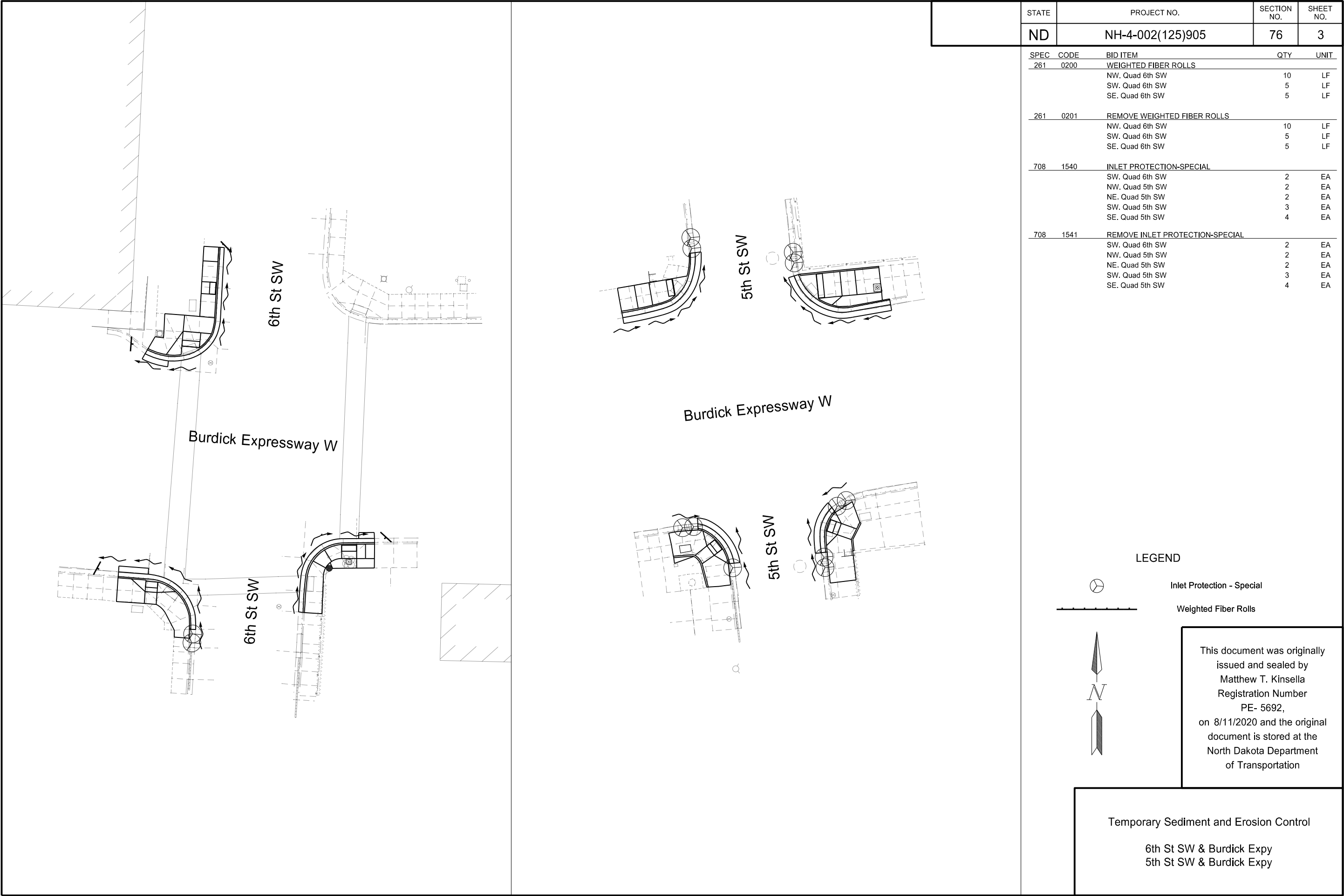
Weighted Fiber Rolls



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Temporary Sediment and Erosion Control  
16th St SW & Burdick Expy  
MHS Entrance & Burdick Expy







STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	76	3

SPEC	CODE	BID ITEM	QTY	UNIT
261	0200	WEIGHTED FIBER ROLLS		
		NW. Quad 6th SW	10	LF
		SW. Quad 6th SW	5	LF
		SE. Quad 6th SW	5	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS		
		NW. Quad 6th SW	10	LF
		SW. Quad 6th SW	5	LF
		SE. Quad 6th SW	5	LF
708	1540	INLET PROTECTION-SPECIAL		
		SW. Quad 6th SW	2	EA
		NW. Quad 5th SW	2	EA
		NE. Quad 5th SW	2	EA
		SW. Quad 5th SW	3	EA
		SE. Quad 5th SW	4	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL		
		SW. Quad 6th SW	2	EA
		NW. Quad 5th SW	2	EA
		NE. Quad 5th SW	2	EA
		SW. Quad 5th SW	3	EA
		SE. Quad 5th SW	4	EA


LEGEND



Inlet Protection - Special

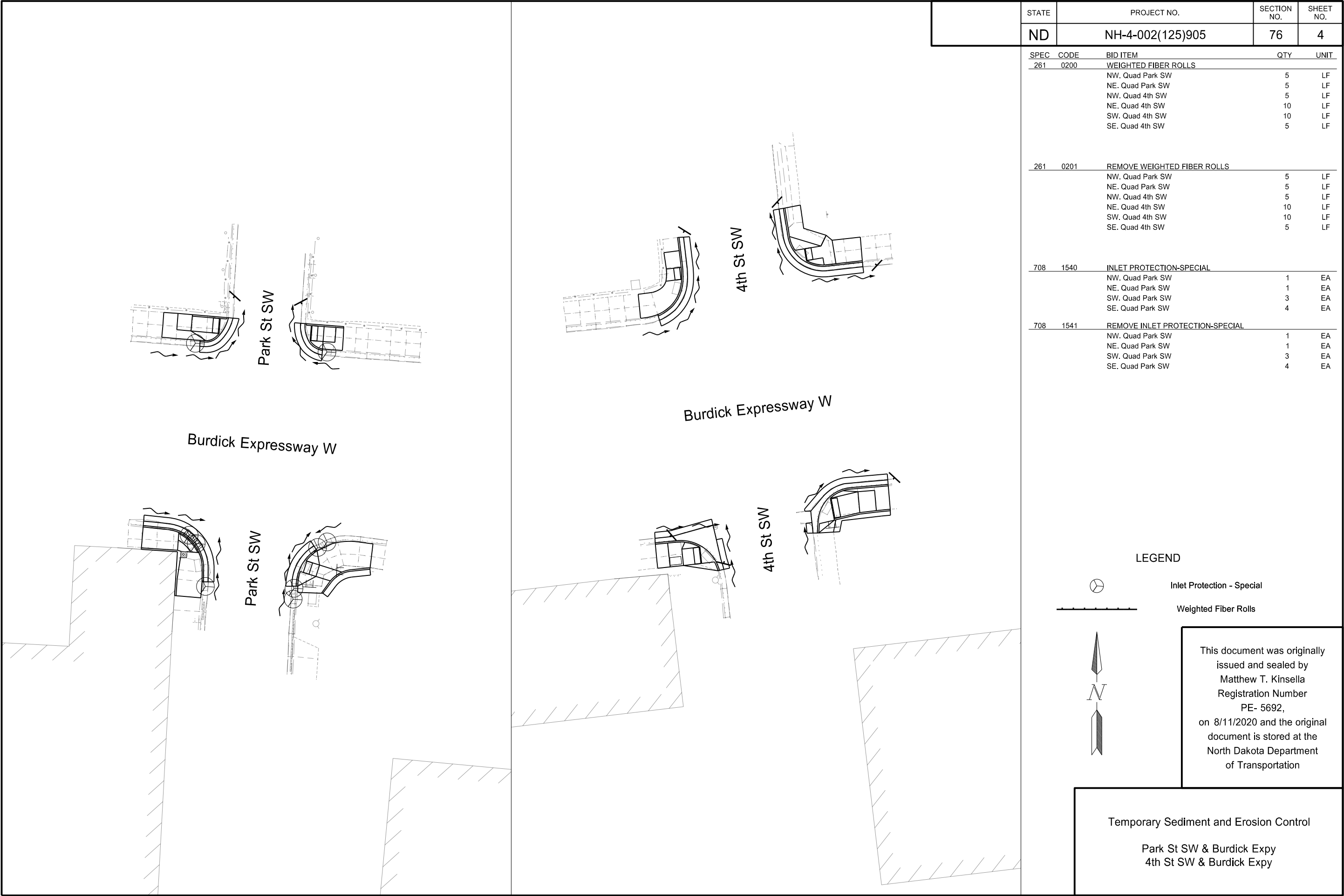


Weighted Fiber Rolls



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Temporary Sediment and Erosion Control  
  
6th St SW & Burdick Expy  
5th St SW & Burdick Expy




STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	76	4

SPEC	CODE	BID ITEM	QTY	UNIT
261	0200	WEIGHTED FIBER ROLLS		
		NW. Quad Park SW	5	LF
		NE. Quad Park SW	5	LF
		NW. Quad 4th SW	5	LF
		NE. Quad 4th SW	10	LF
		SW. Quad 4th SW	10	LF
		SE. Quad 4th SW	5	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS		
		NW. Quad Park SW	5	LF
		NE. Quad Park SW	5	LF
		NW. Quad 4th SW	5	LF
		NE. Quad 4th SW	10	LF
		SW. Quad 4th SW	10	LF
		SE. Quad 4th SW	5	LF
708	1540	INLET PROTECTION-SPECIAL		
		NW. Quad Park SW	1	EA
		NE. Quad Park SW	1	EA
		SW. Quad Park SW	3	EA
		SE. Quad Park SW	4	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL		
		NW. Quad Park SW	1	EA
		NE. Quad Park SW	1	EA
		SW. Quad Park SW	3	EA
		SE. Quad Park SW	4	EA


LEGEND



Inlet Protection - Special



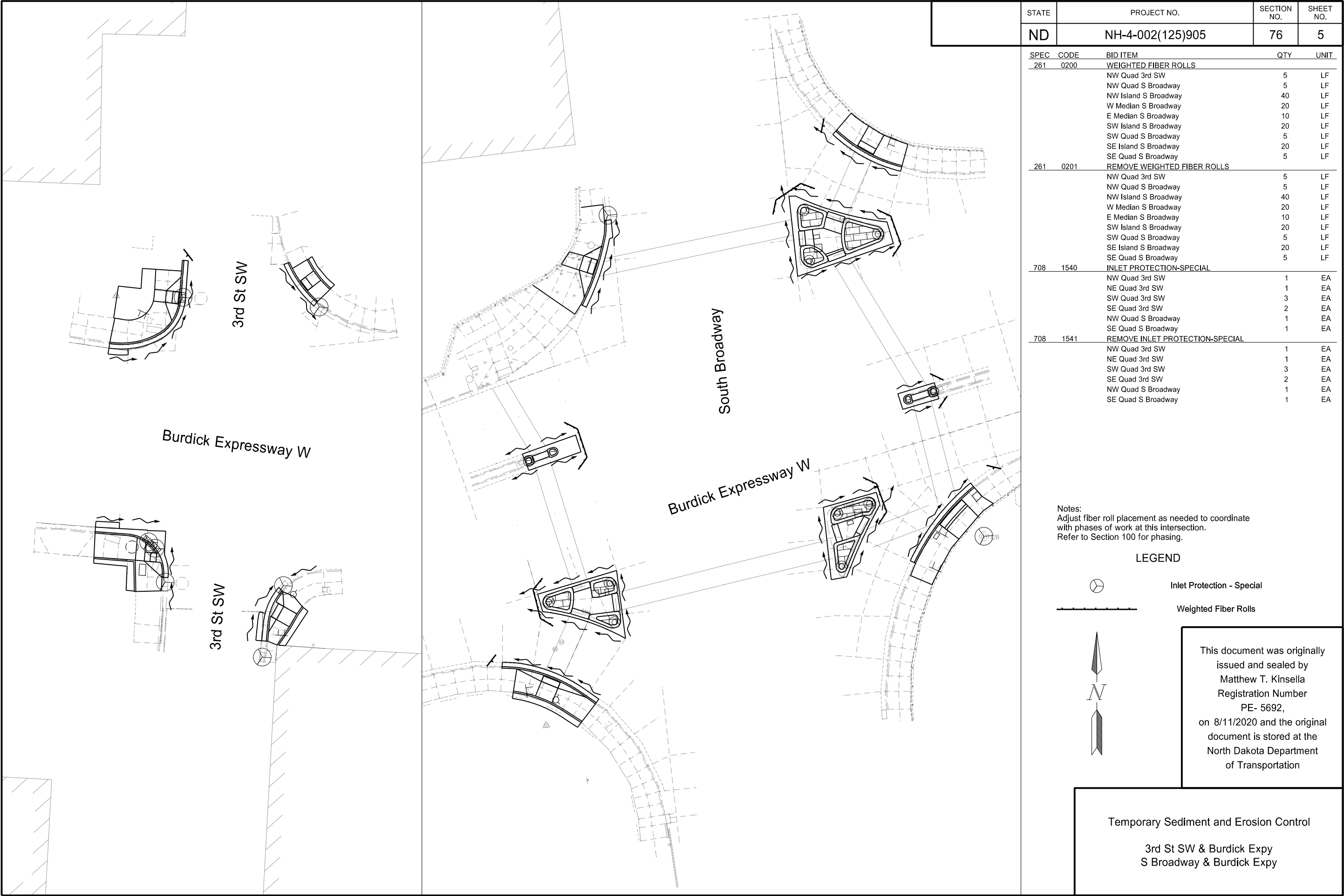
Weighted Fiber Rolls



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Temporary Sediment and Erosion Control

Park St SW & Burdick Expy  
4th St SW & Burdick Expy





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	76	5

SPEC	CODE	BID ITEM	QTY	UNIT
261	0200	WEIGHTED FIBER ROLLS		
		NW Quad 3rd SW	5	LF
		NW Quad S Broadway	5	LF
		NW Island S Broadway	40	LF
		W Median S Broadway	20	LF
		E Median S Broadway	10	LF
		SW Island S Broadway	20	LF
		SW Quad S Broadway	5	LF
		SE Island S Broadway	20	LF
		SE Quad S Broadway	5	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS		
		NW Quad 3rd SW	5	LF
		NW Quad S Broadway	5	LF
		NW Island S Broadway	40	LF
		W Median S Broadway	20	LF
		E Median S Broadway	10	LF
		SW Island S Broadway	20	LF
		SW Quad S Broadway	5	LF
		SE Island S Broadway	20	LF
		SE Quad S Broadway	5	LF
708	1540	INLET PROTECTION-SPECIAL		
		NW Quad 3rd SW	1	EA
		NE Quad 3rd SW	1	EA
		SW Quad 3rd SW	3	EA
		SE Quad 3rd SW	2	EA
		NW Quad S Broadway	1	EA
		SE Quad S Broadway	1	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL		
		NW Quad 3rd SW	1	EA
		NE Quad 3rd SW	1	EA
		SW Quad 3rd SW	3	EA
		SE Quad 3rd SW	2	EA
		NW Quad S Broadway	1	EA
		SE Quad S Broadway	1	EA

Notes:  
Adjust fiber roll placement as needed to coordinate with phases of work at this intersection.  
Refer to Section 100 for phasing.

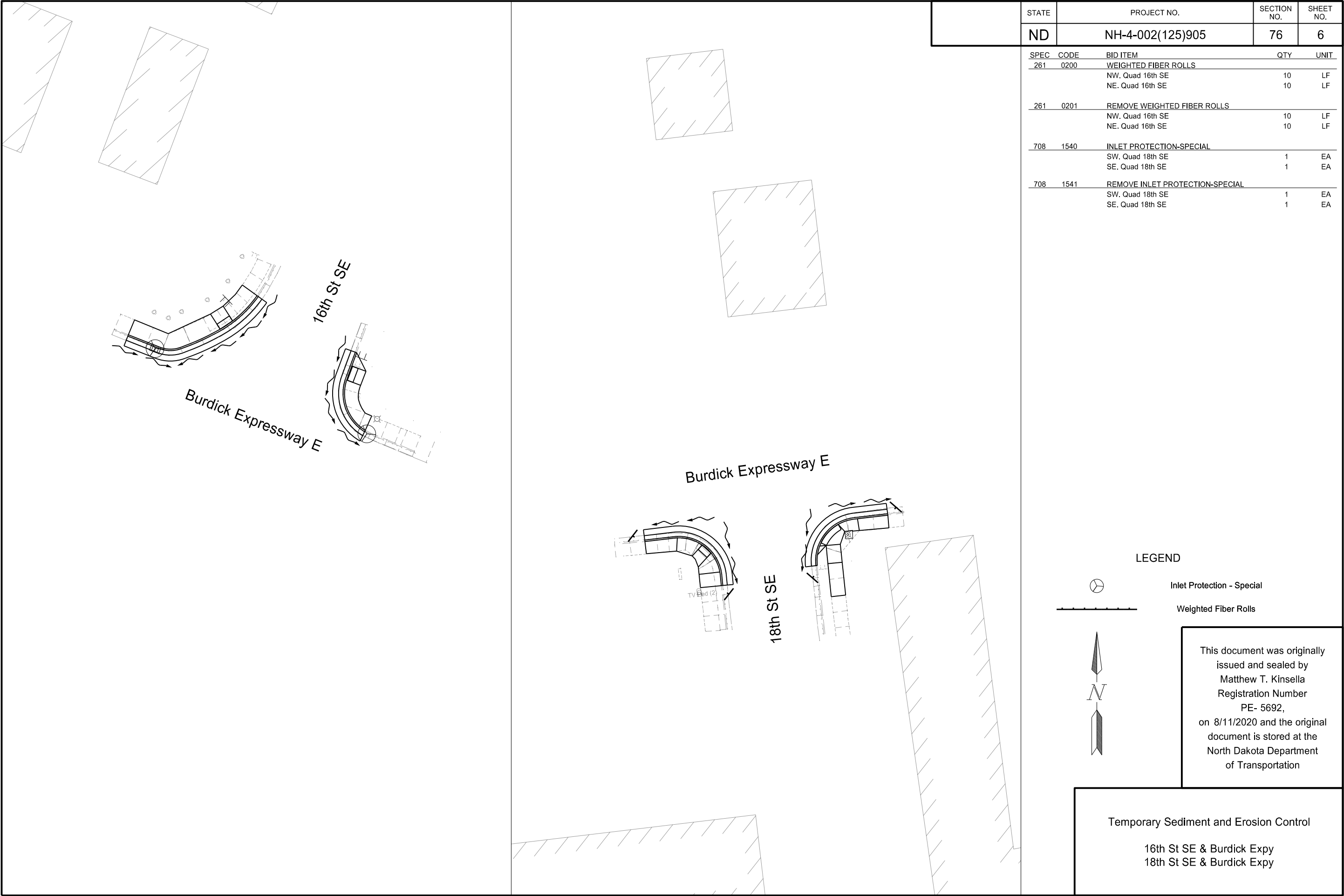
LEGEND

-  Inlet Protection - Special
-  Weighted Fiber Rolls

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Temporary Sediment and Erosion Control


3rd St SW & Burdick Expy  
S Broadway & Burdick Expy




STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	76	6

SPEC	CODE	BID ITEM	QTY	UNIT
261	0200	WEIGHTED FIBER ROLLS		
		NW. Quad 16th SE	10	LF
		NE. Quad 16th SE	10	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS		
		NW. Quad 16th SE	10	LF
		NE. Quad 16th SE	10	LF
708	1540	INLET PROTECTION-SPECIAL		
		SW. Quad 18th SE	1	EA
		SE. Quad 18th SE	1	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL		
		SW. Quad 18th SE	1	EA
		SE. Quad 18th SE	1	EA


LEGEND



Inlet Protection - Special



Weighted Fiber Rolls

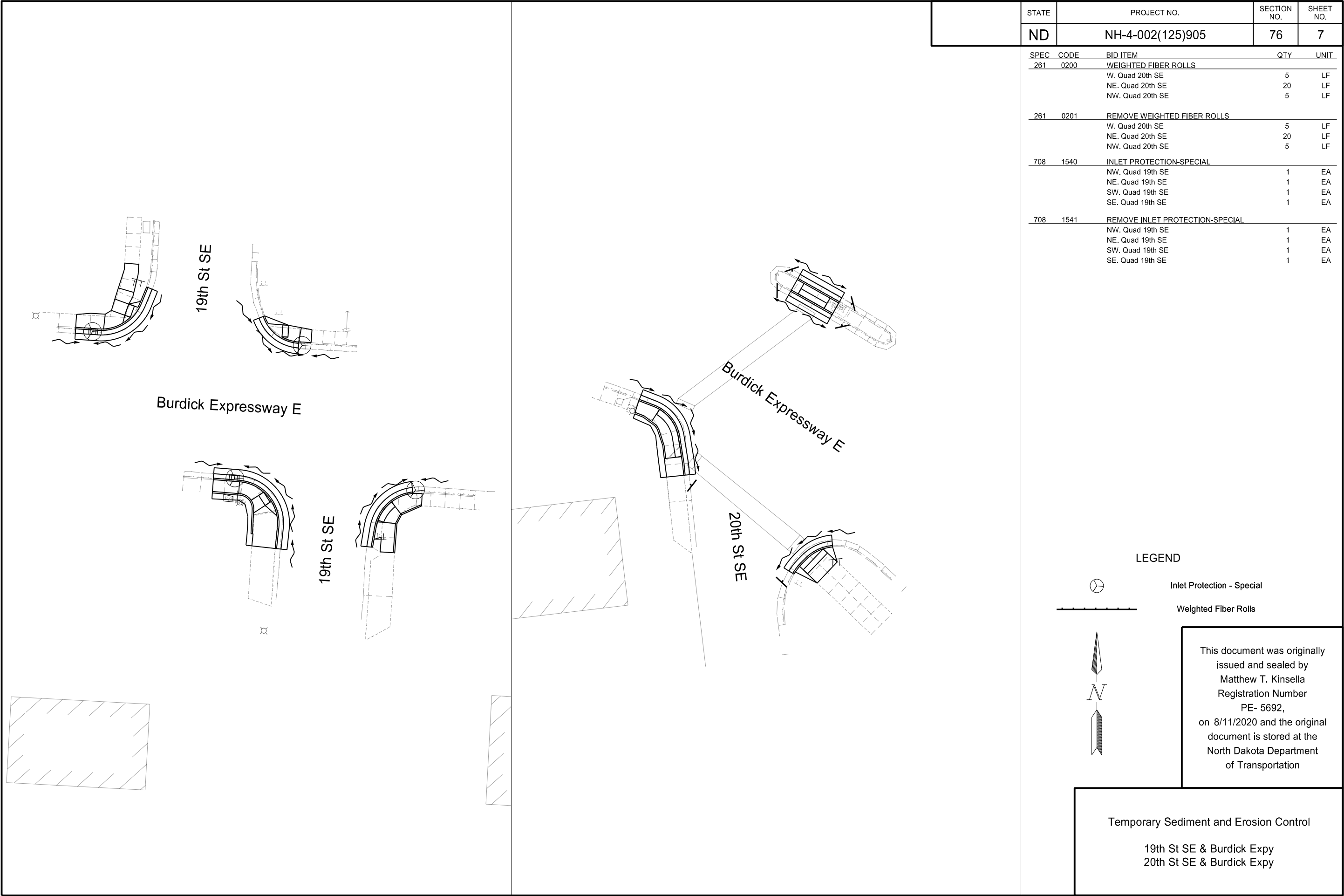


N

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Temporary Sediment and Erosion Control

16th St SE & Burdick Expy  
18th St SE & Burdick Expy

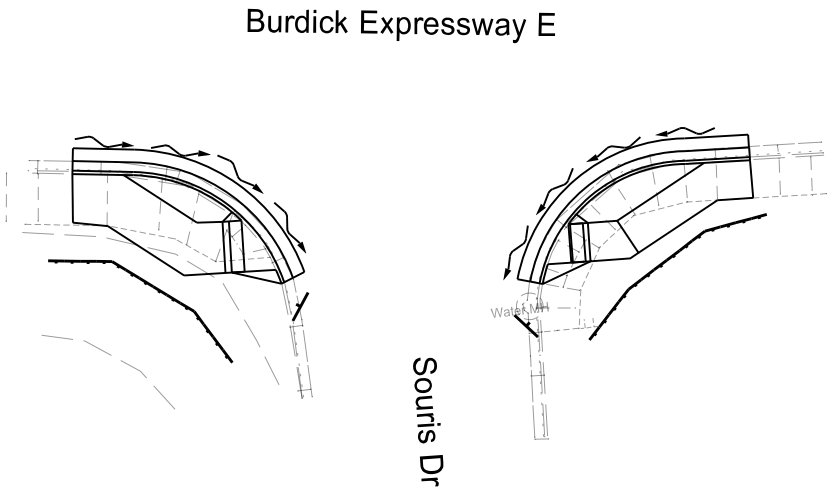
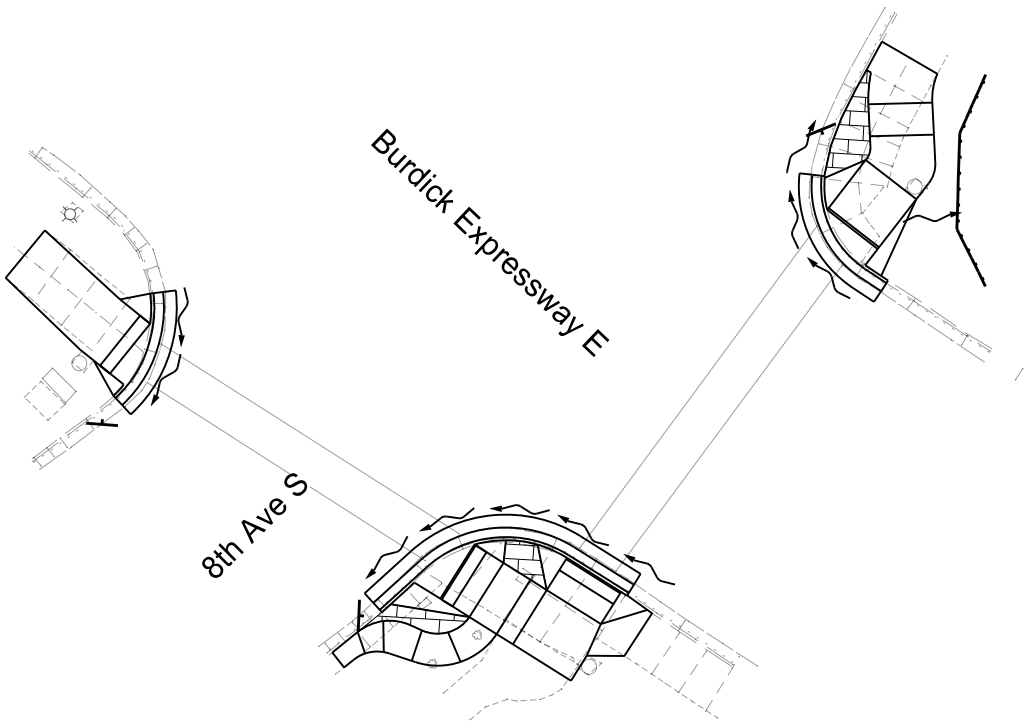


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	76	7

SPEC	CODE	BID ITEM	QTY	UNIT
261	0200	WEIGHTED FIBER ROLLS		
		W. Quad 20th SE	5	LF
		NE. Quad 20th SE	20	LF
		NW. Quad 20th SE	5	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS		
		W. Quad 20th SE	5	LF
		NE. Quad 20th SE	20	LF
		NW. Quad 20th SE	5	LF
708	1540	INLET PROTECTION-SPECIAL		
		NW. Quad 19th SE	1	EA
		NE. Quad 19th SE	1	EA
		SW. Quad 19th SE	1	EA
		SE. Quad 19th SE	1	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL		
		NW. Quad 19th SE	1	EA
		NE. Quad 19th SE	1	EA
		SW. Quad 19th SE	1	EA
		SE. Quad 19th SE	1	EA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	76	8

SPEC	CODE	BID ITEM	QTY	UNIT
261	0200	WEIGHTED FIBER ROLLS		
		NE. Quad 8th SE	40	LF
		W. Quad 8th SE	5	LF
		SE. Quad 8th SE	5	LF
		SW. Quad Souris	40	LF
		SE. Quad Souris	40	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS		
		NE. Quad 8th SE	40	LF
		W. Quad 8th SE	5	LF
		SE. Quad 8th SE	5	LF
		SW. Quad Souris	40	LF
		SE. Quad Souris	40	LF



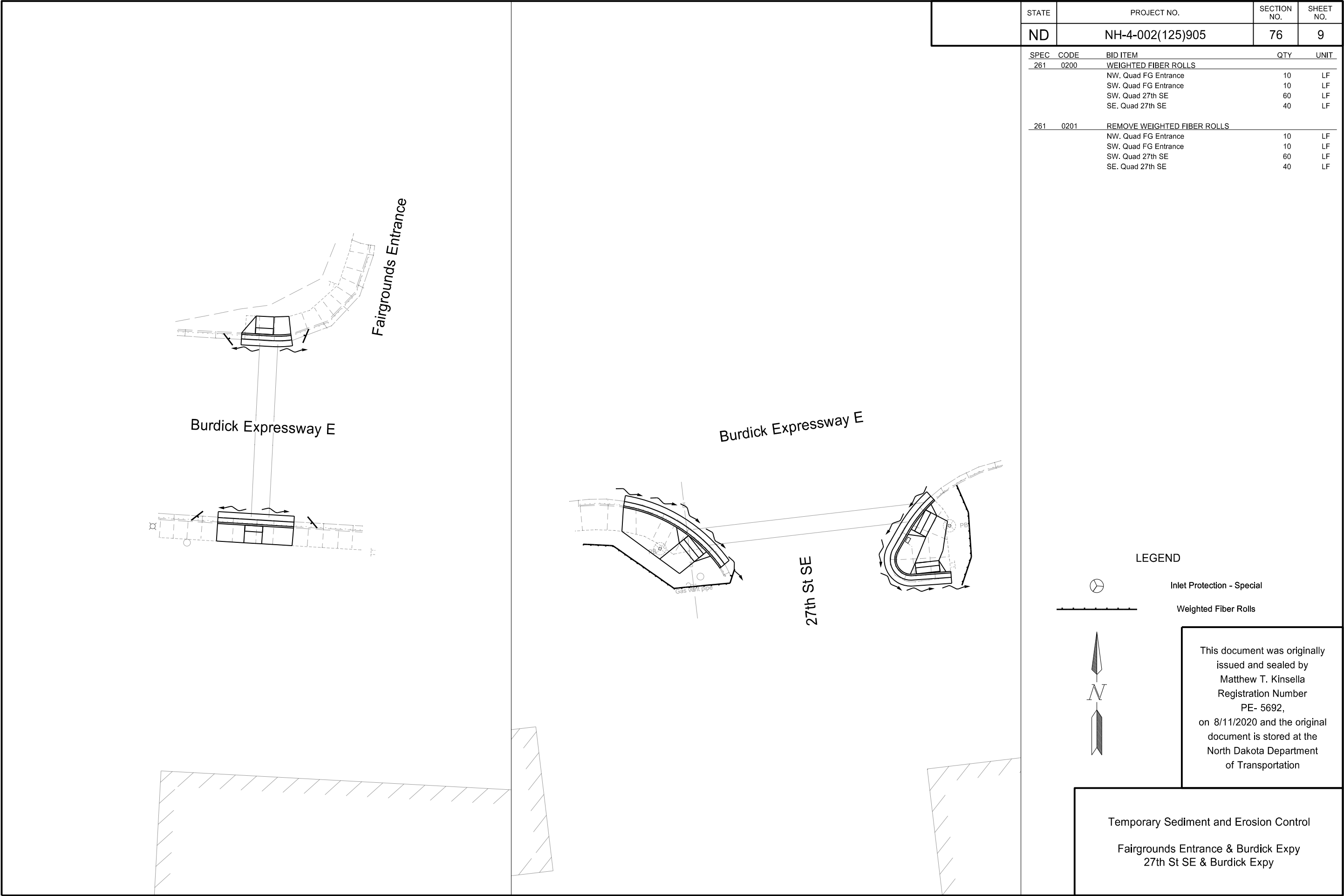
LEGEND

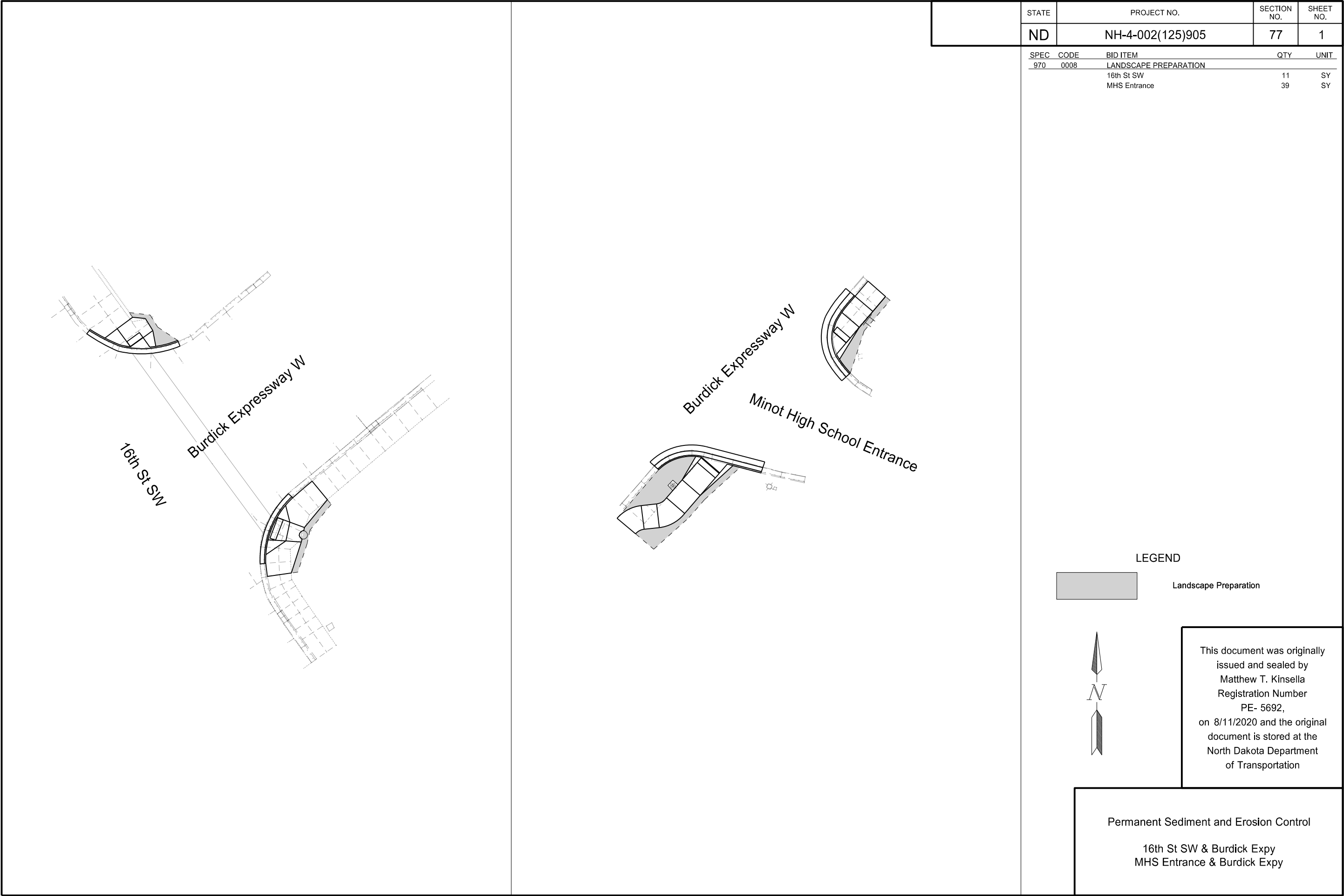
- Inlet Protection - Special
- Weighted Fiber Rolls



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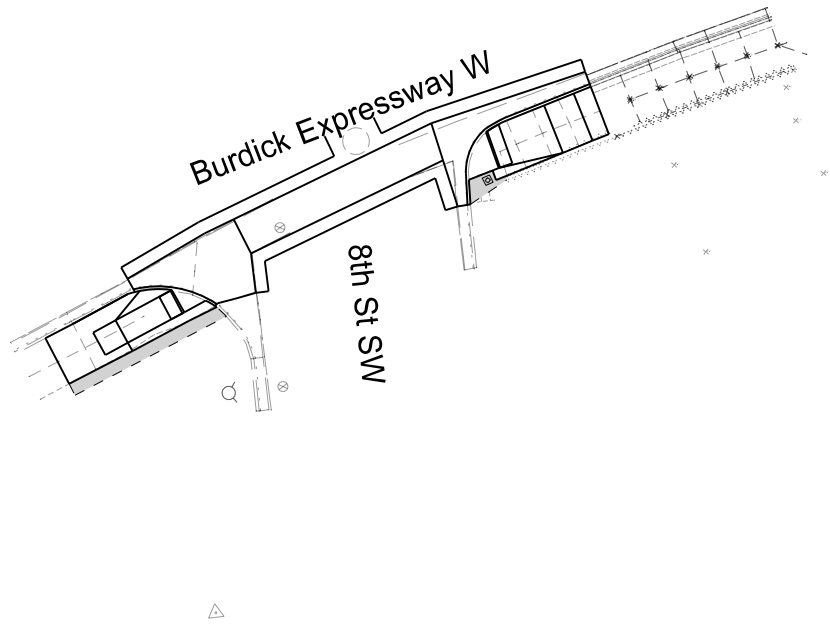
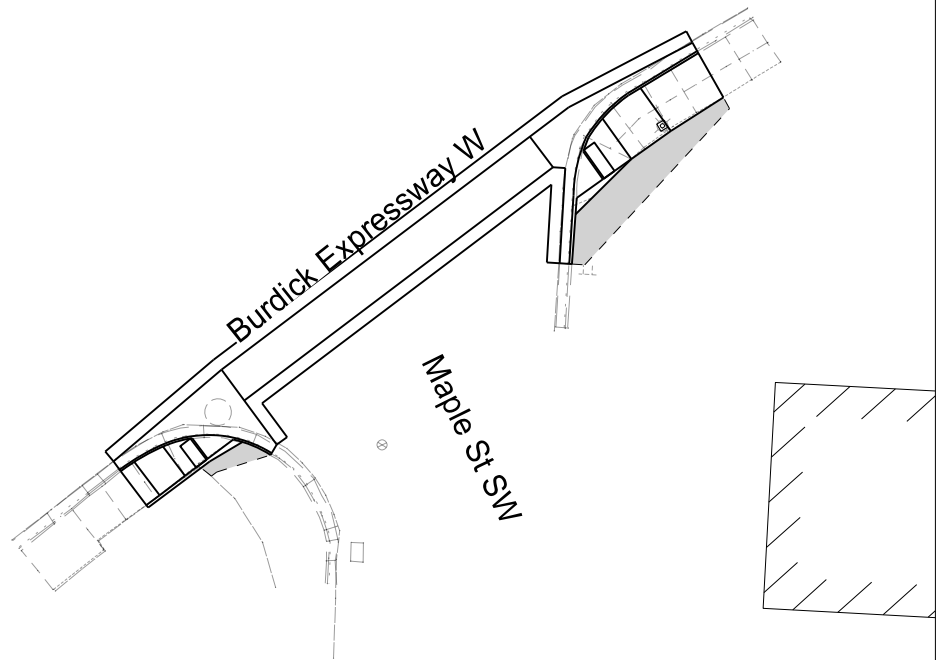
Temporary Sediment and Erosion Control  
8th Ave SE & Burdick Expy  
Souris Dr & Burdick Expy





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	77	2

SPEC	CODE	BID ITEM	QTY	UNIT
970	0008	LANDSCAPE PREPARATION		
		Maple St	21	SY
		8th St SW	8	SY



LEGEND



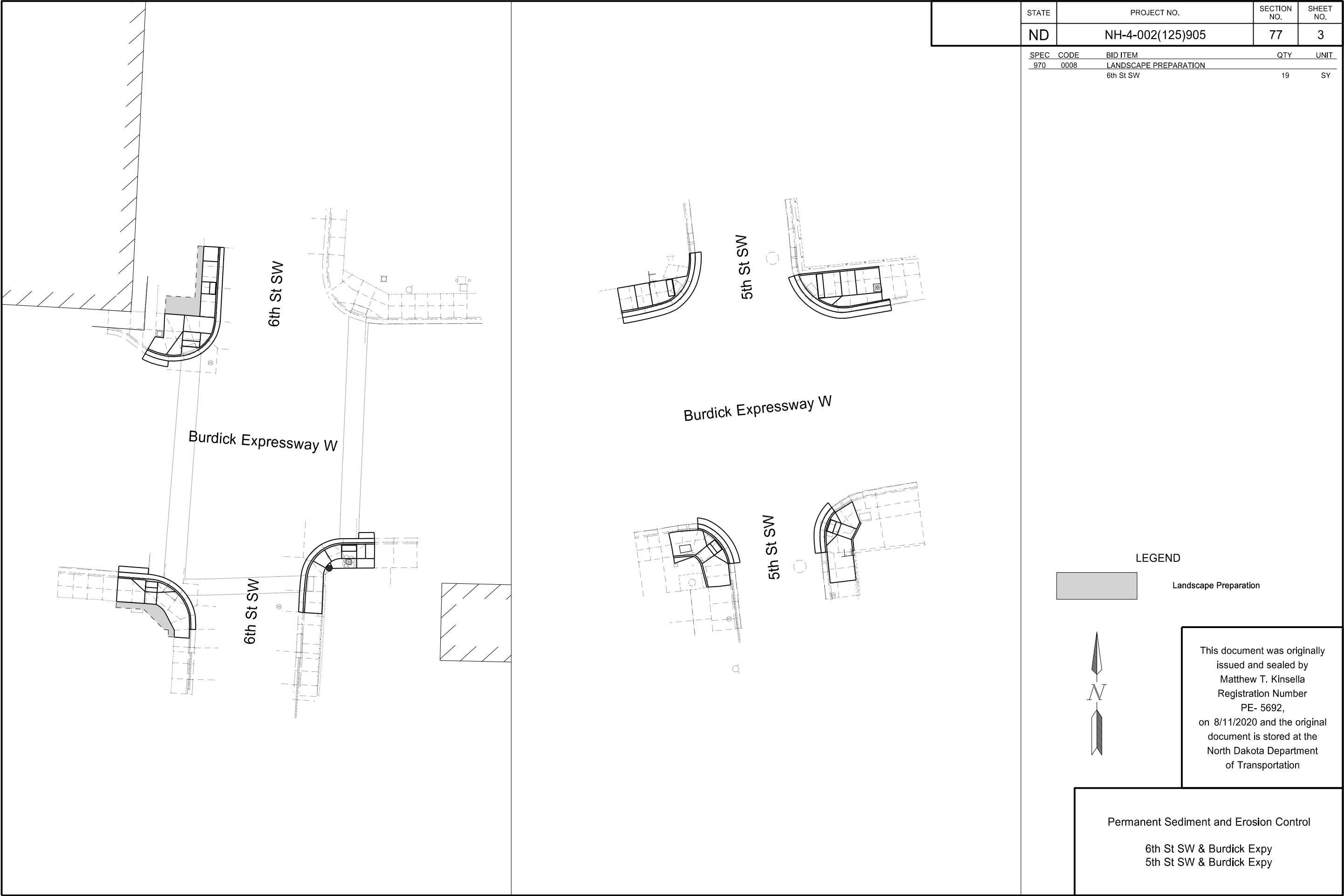
Landscape Preparation



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Permanent Sediment and Erosion Control

Maple St SW & Burdick Expy  
8th St SW & Burdick Expy



STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		77	3
SPEC	CODE	BID ITEM	QTY	UNIT
970	0008	LANDSCAPE PREPARATION		
		6th St SW	19	SY

LEGEND



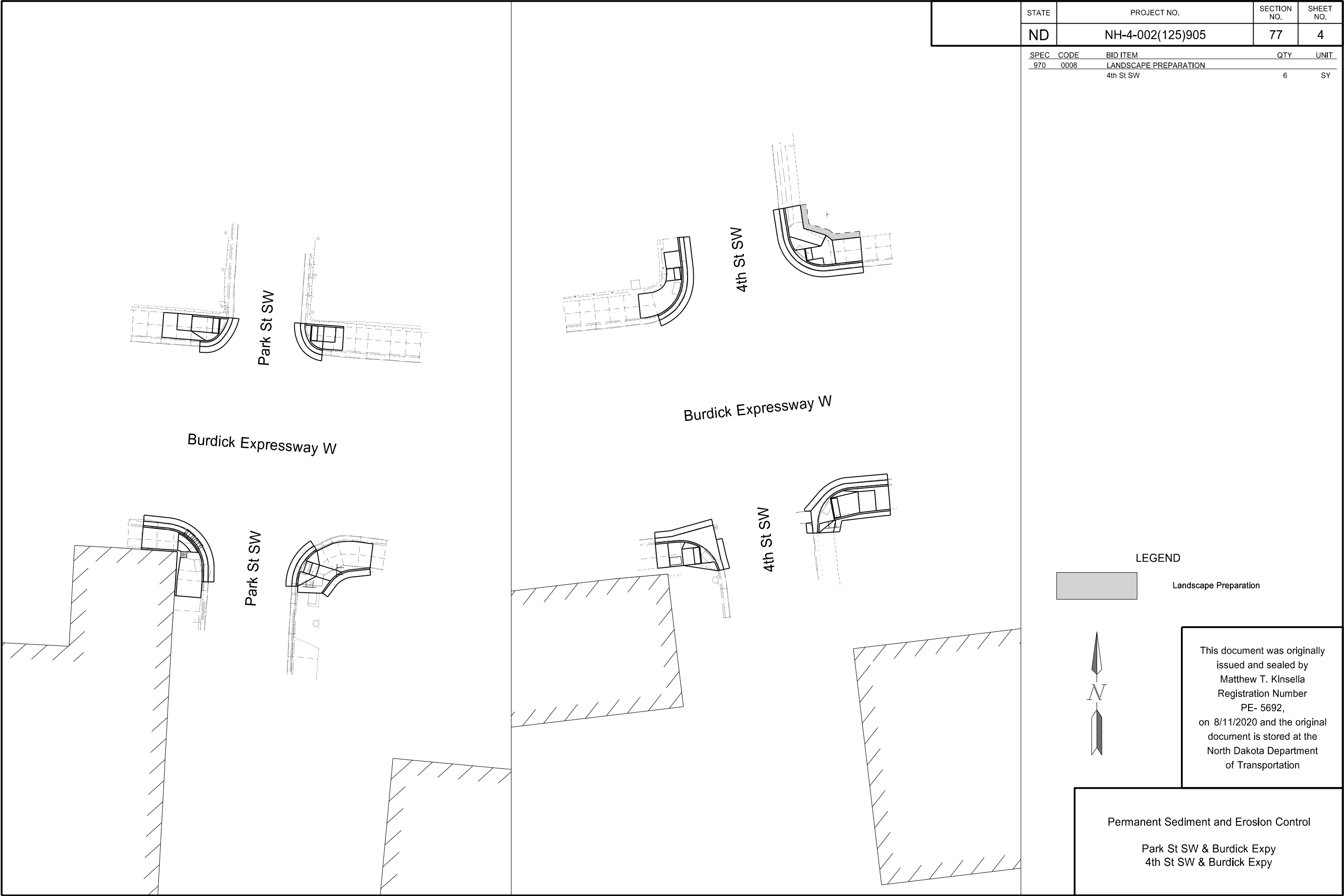
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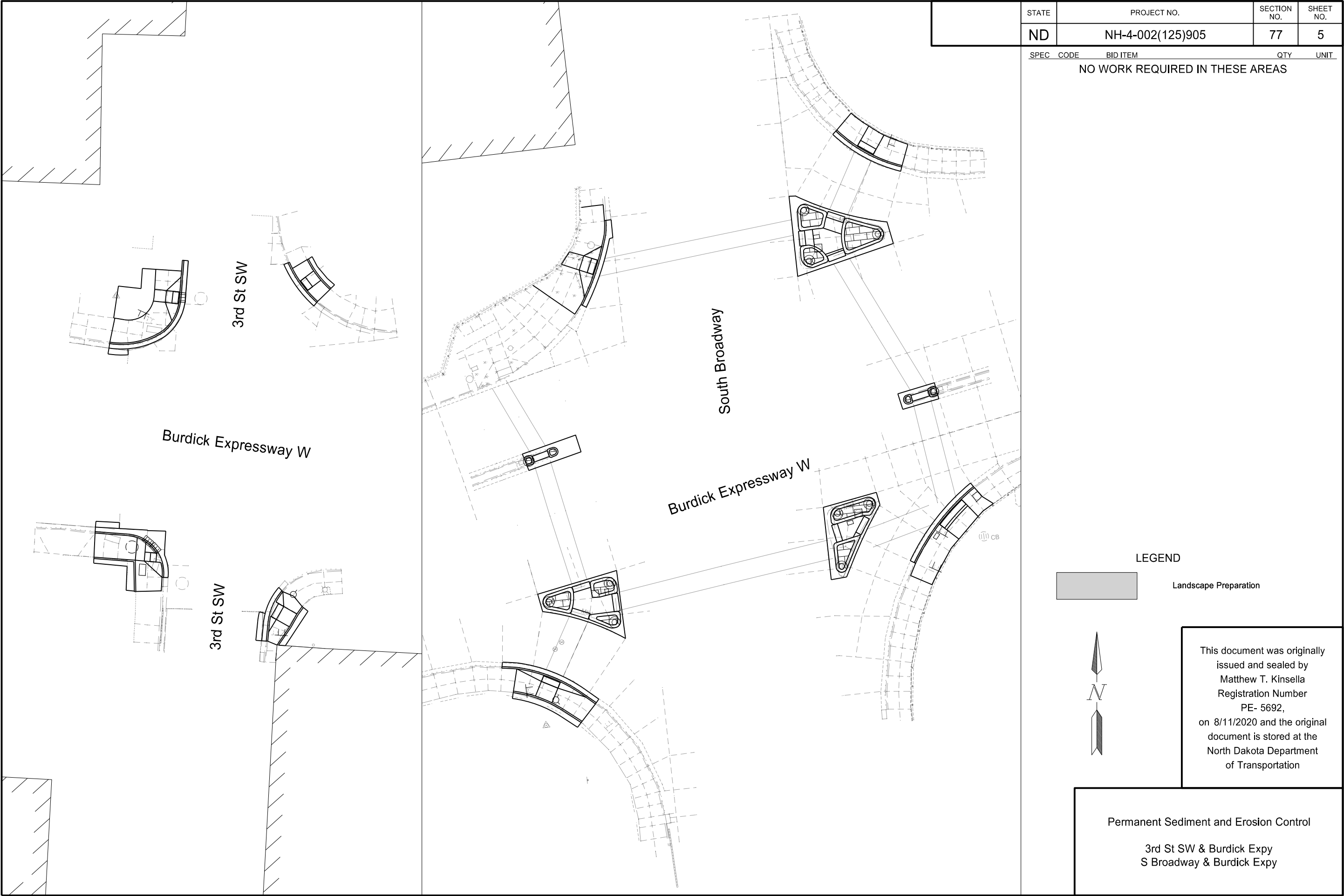
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Permanent Sediment and Erosion Control

6th St SW & Burdick Expy  
5th St SW & Burdick Expy



STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		77	4
SPEC	CODE	BID ITEM	QTY	UNIT
970	0008	LANDSCAPE PREPARATION		
		4th St SW	6	SY



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	77	5

SPEC	CODE	BID ITEM	QTY	UNIT
------	------	----------	-----	------

NO WORK REQUIRED IN THESE AREAS

LEGEND



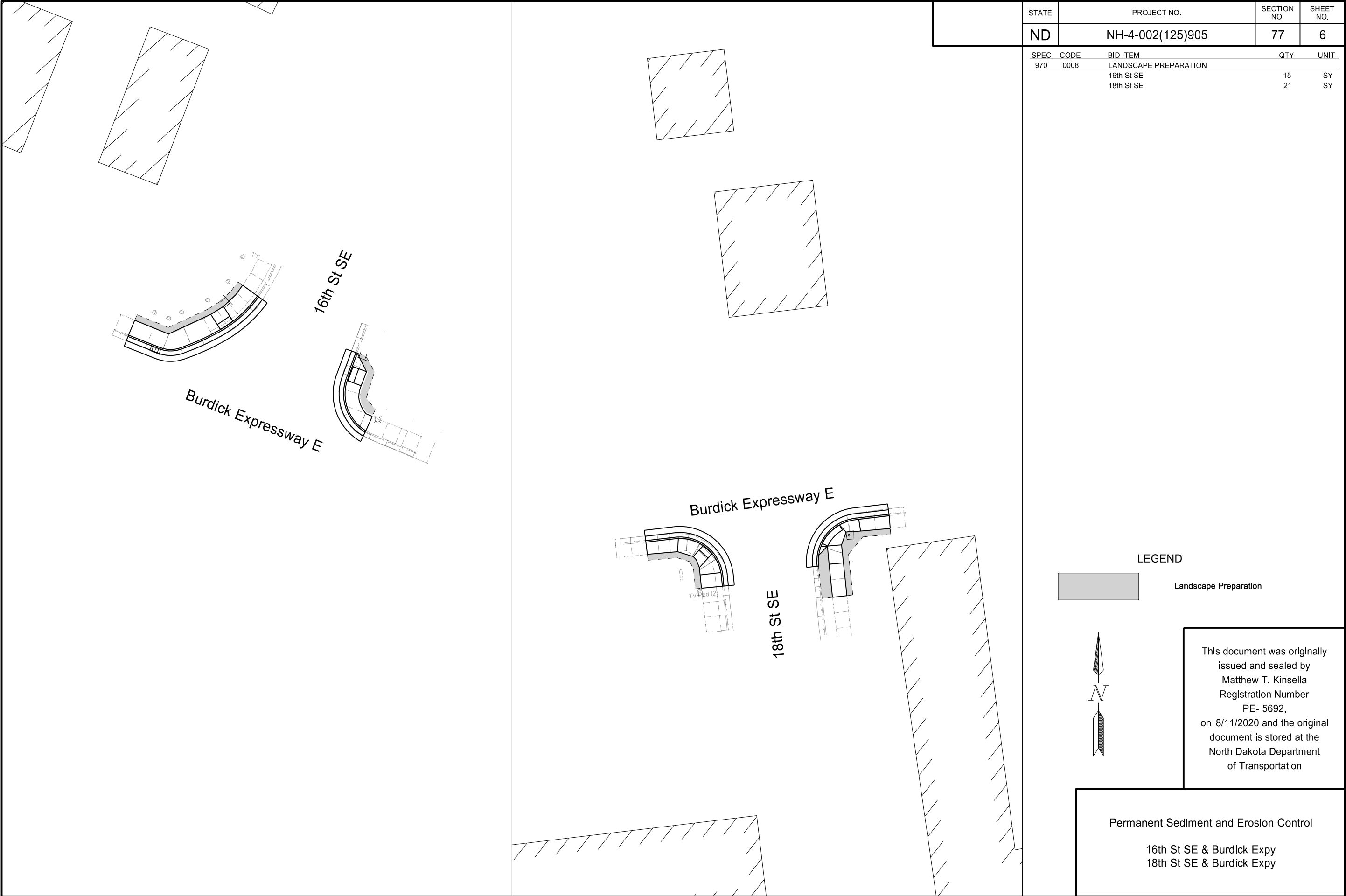
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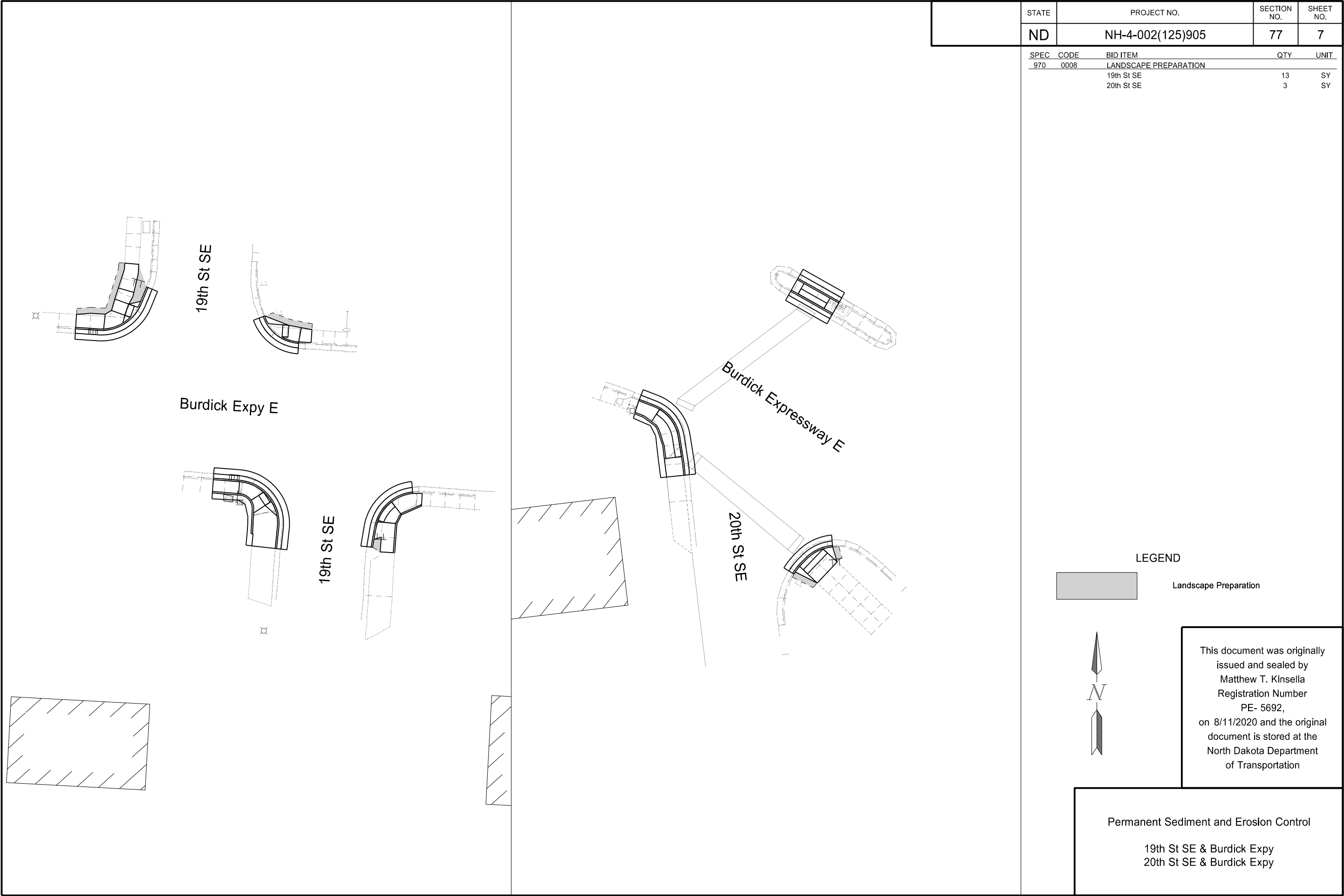


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Permanent Sediment and Erosion Control

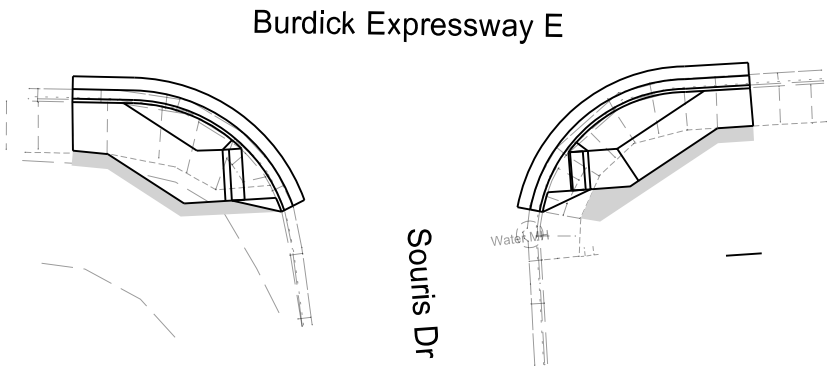
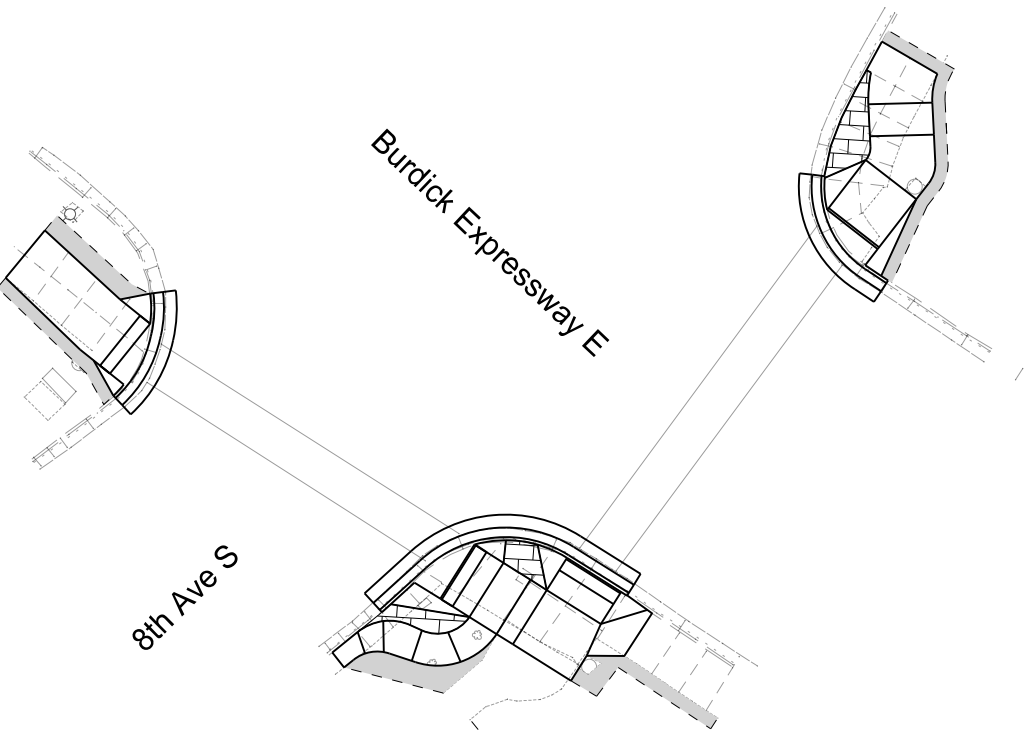
3rd St SW & Burdick Expy  
S Broadway & Burdick Expy





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	77	8

SPEC	CODE	BID ITEM	QTY	UNIT
970	0008	LANDSCAPE PREPARATION		
		8th Ave SE	36	SY
		Souris Dr	15	SY



LEGEND



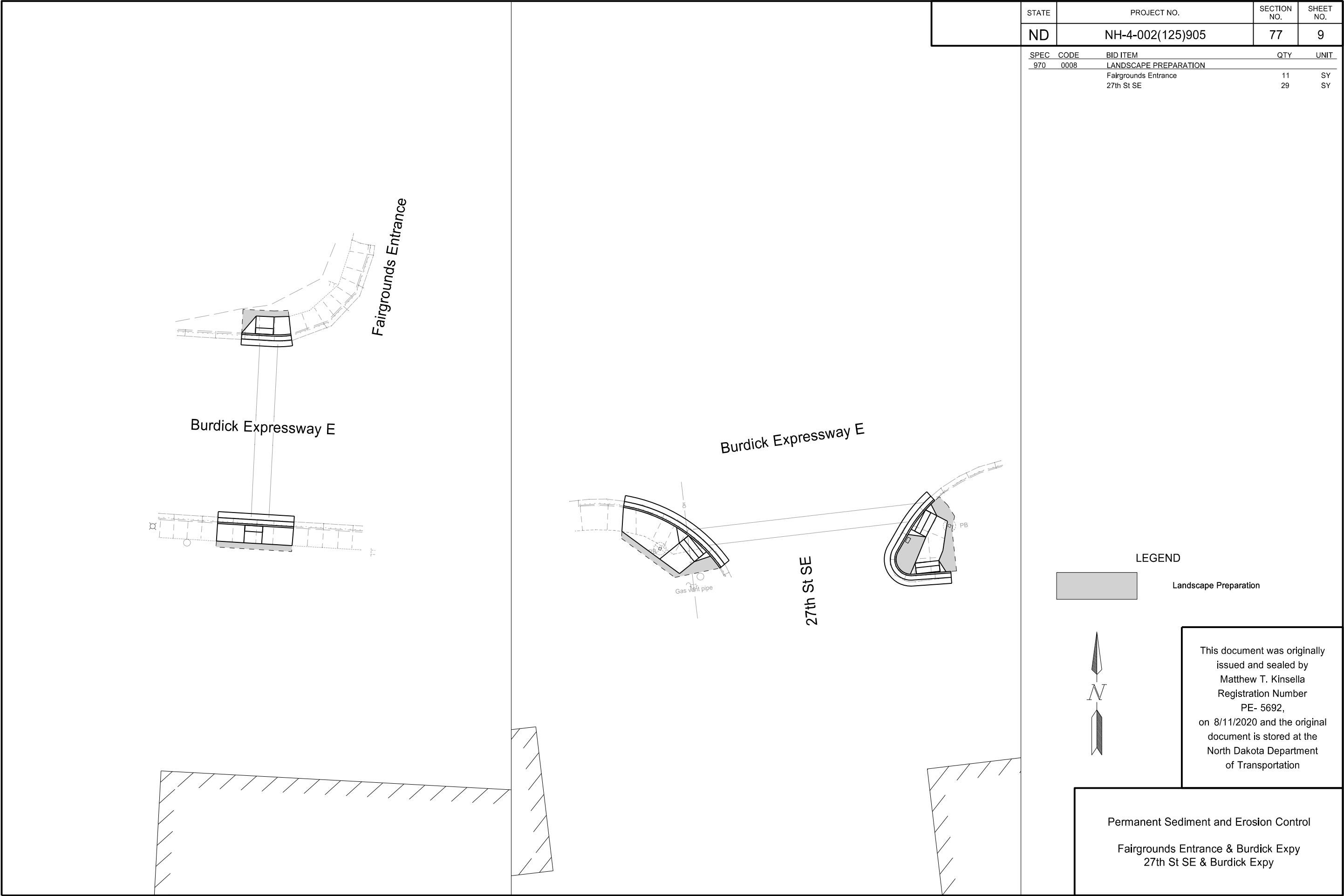
Landscape Preparation



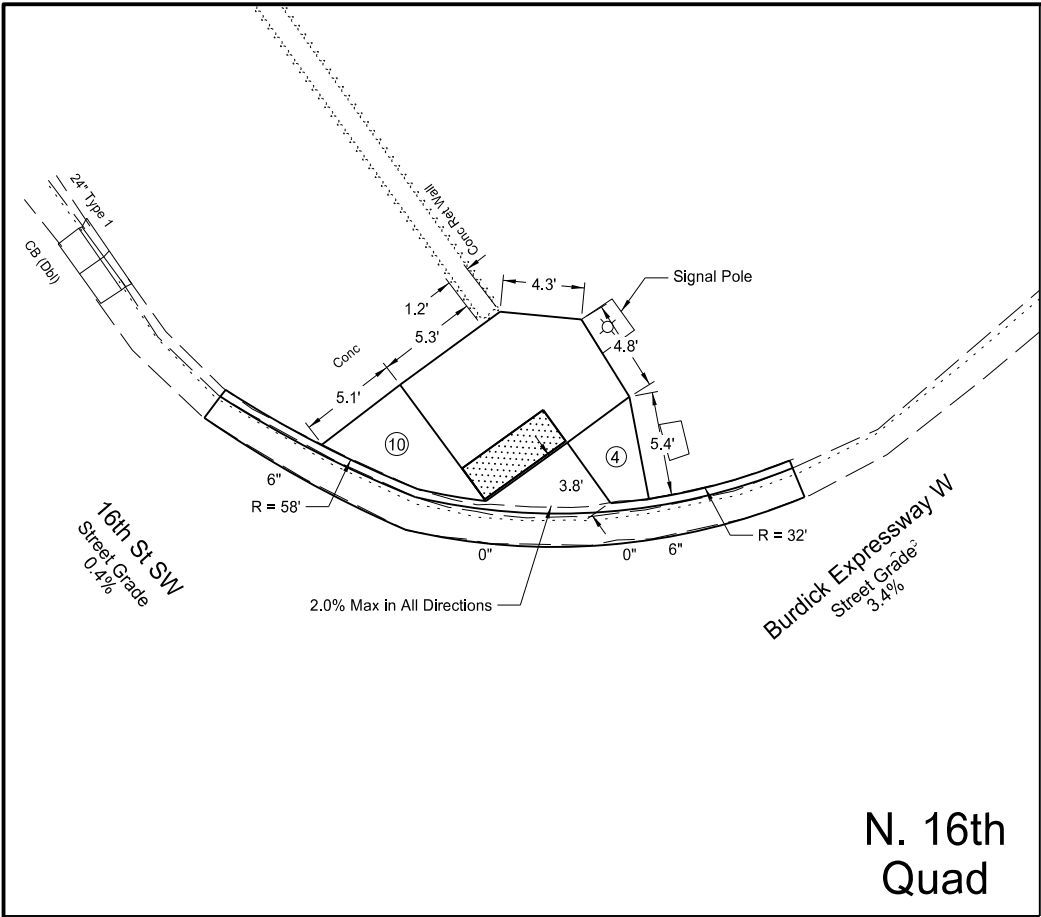
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Permanent Sediment and Erosion Control

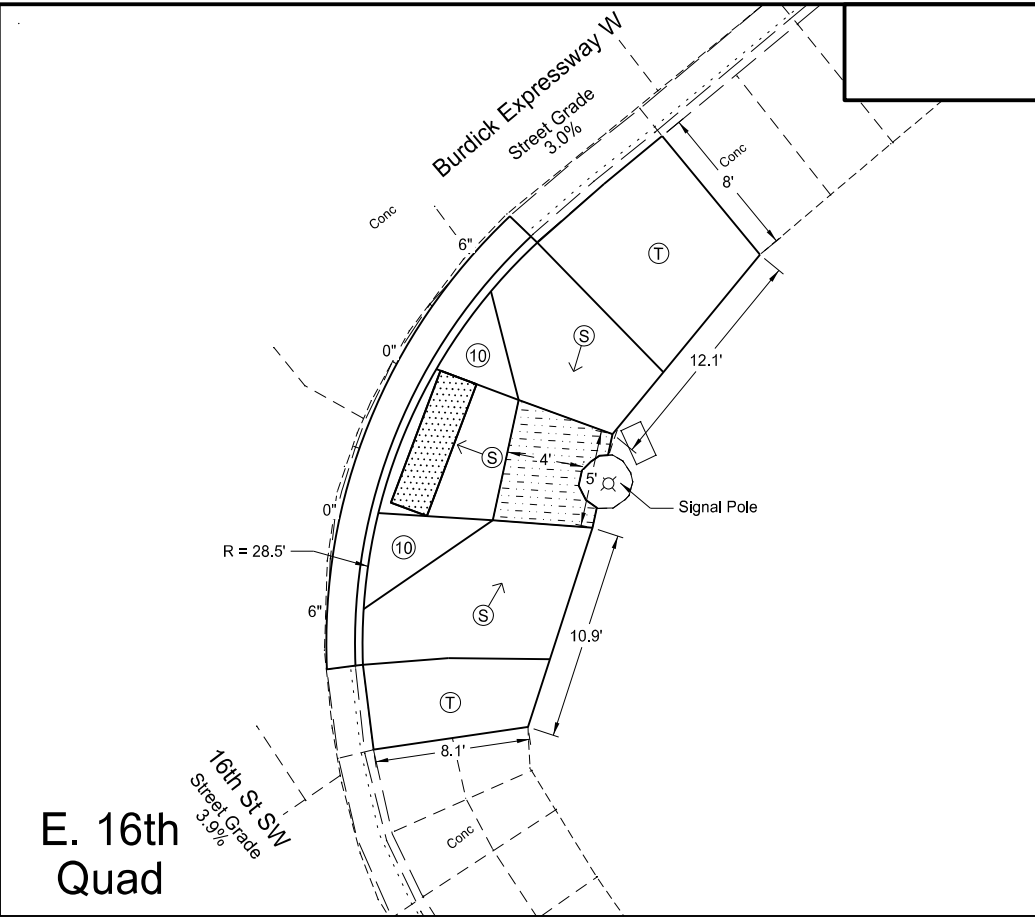
8th Ave SE & Burdick Expy  
Souris Dr & Burdick Expy



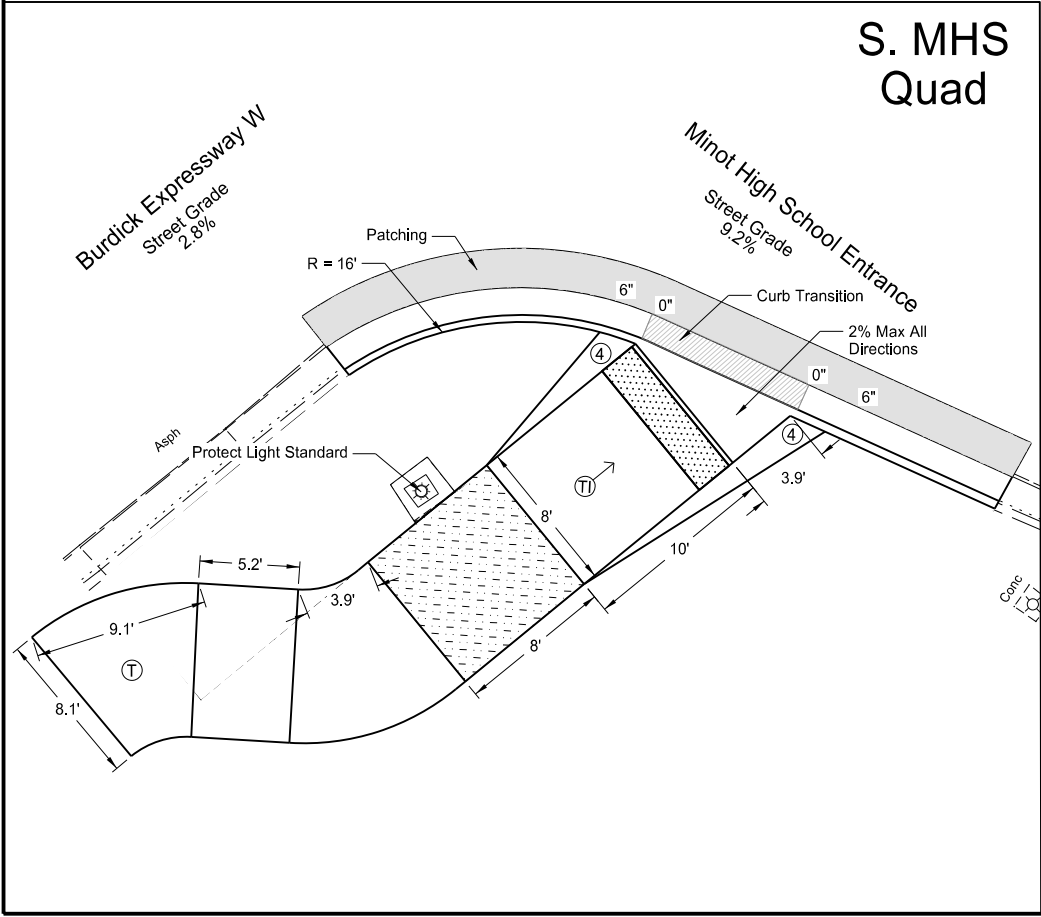
STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		77	9
SPEC	CODE	BID ITEM	QTY	UNIT
970	0008	LANDSCAPE PREPARATION		
		Fairgrounds Entrance	11	SY
		27th St SE	29	SY



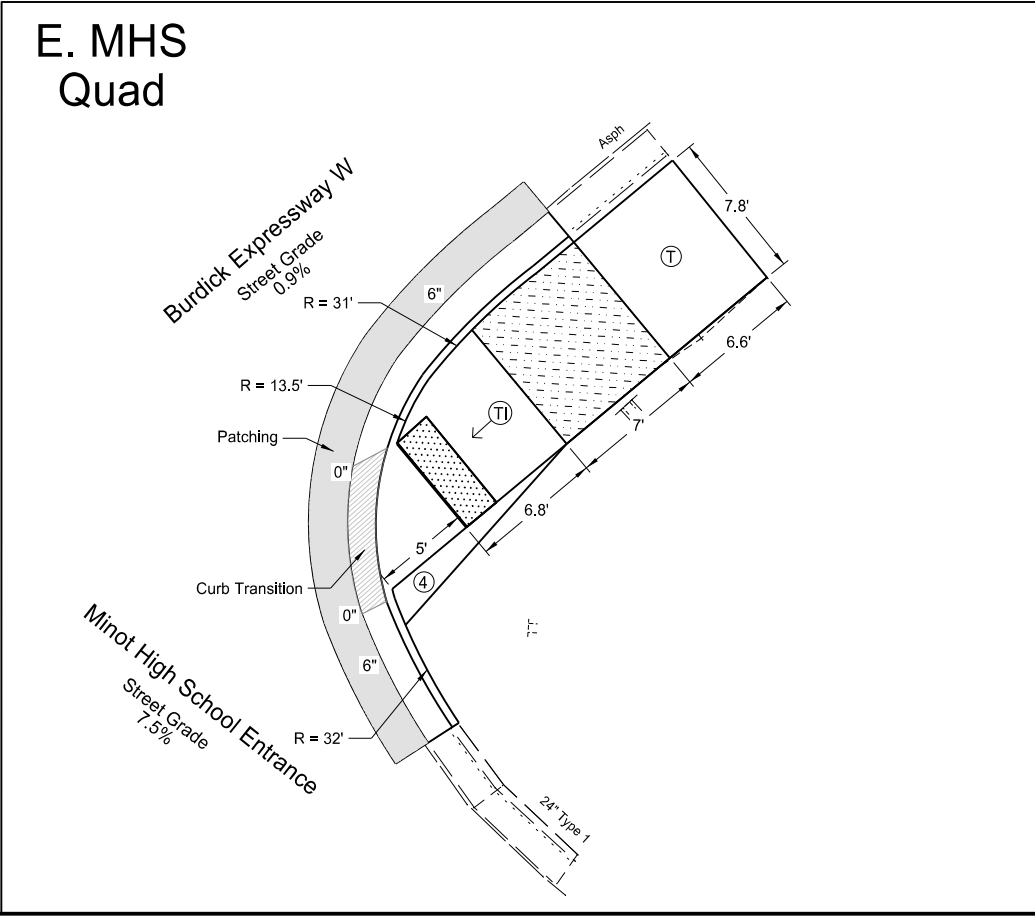
N. 16th Quad



E. 16th Quad



S. MHS Quad



E. MHS Quad

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	1

SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		S MHS	4	TON
		E MHS	3	TON
748	0100	CURB & GUTTER		
		N 16th SW	33	LF
		E 16th SW	26	LF
		S MHS	37	LF
		E MHS	33	LF
750	0115	SIDEWALK CONCRETE 4IN		
		N 16th SW	11	SY
		E 16th SW	35	SY
		S MHS	35	SY
		E MHS	18	SY
750	2115	DETECTABLE WARNING PANELS		
		N 16th SW	10	SF
		E 16th SW	15	SF
		S MHS	16	SF
		E MHS	12	SF

**LEGEND**

Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail

Transition Panel Slope, PAR width, and Cross  
Slope Will Vary

Flare Slope Maximum of 4:1

Flare Slope Maximum of 10:1

Pigmented Imprinted Concrete

Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions

Detectable Warning Panels

Patching

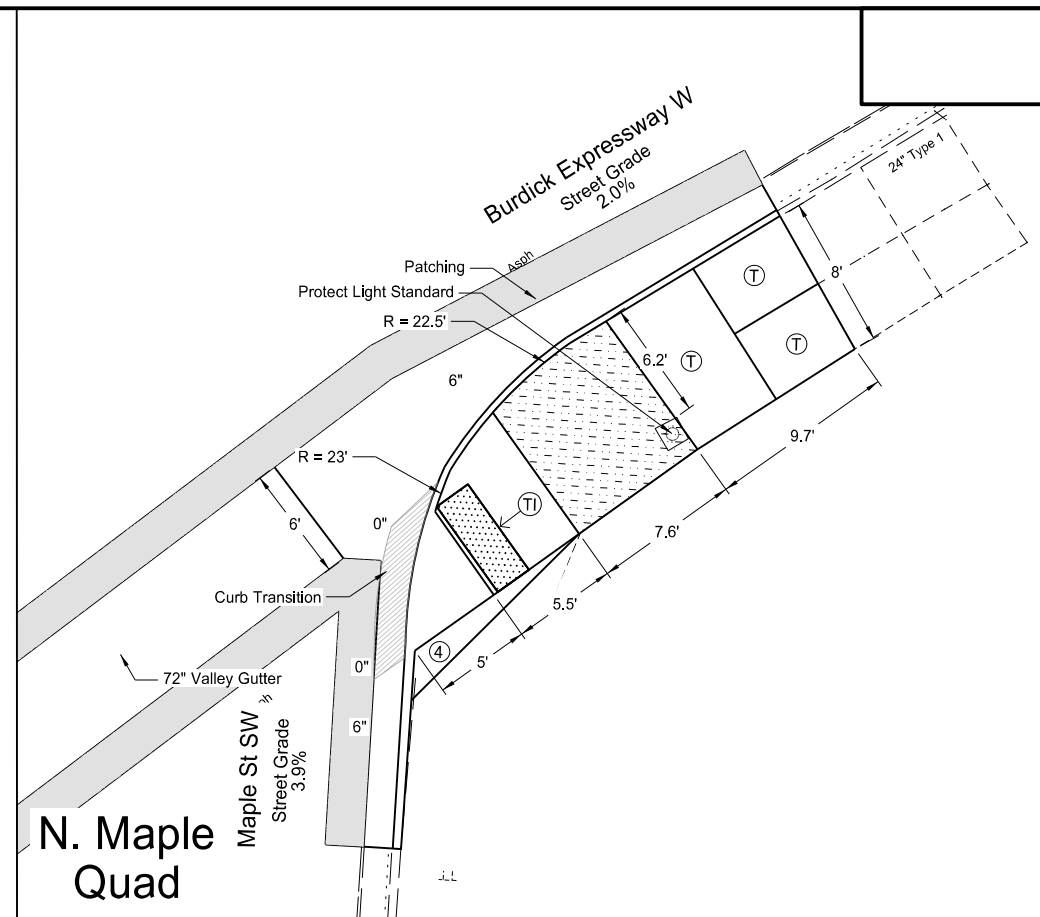
**Notes:**

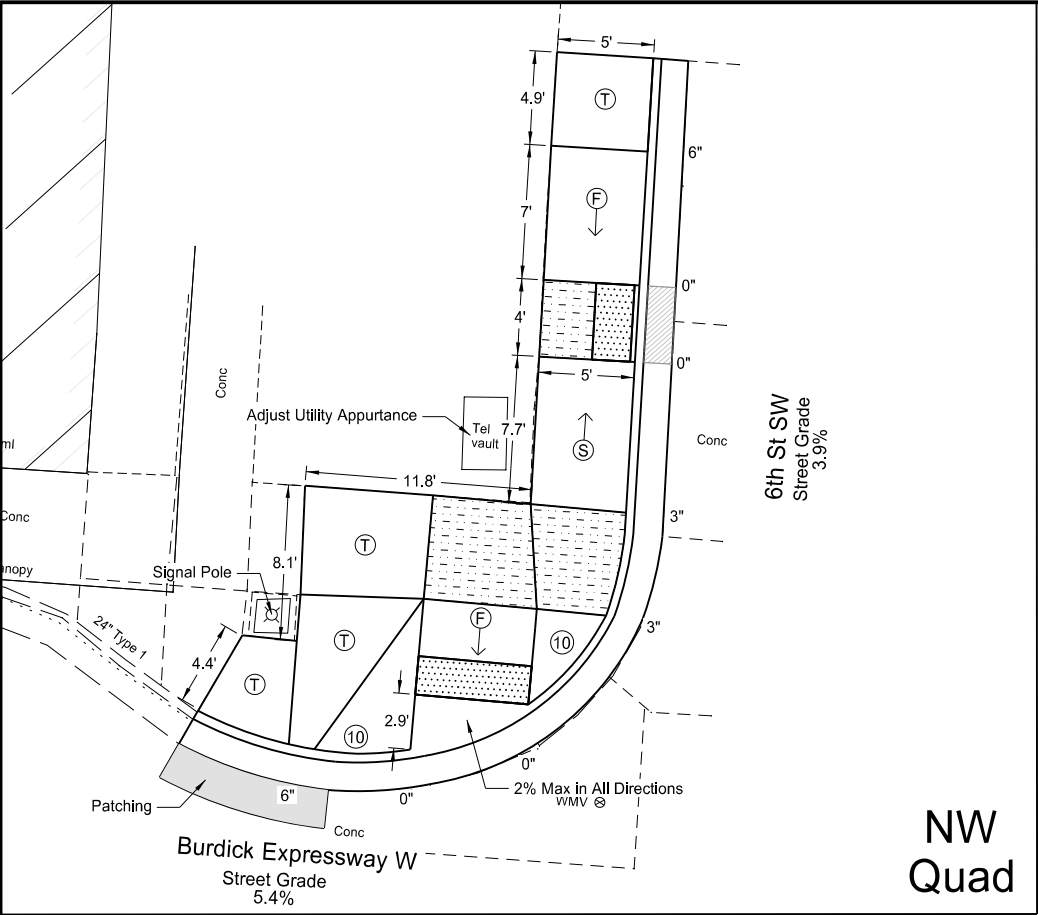
- Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
- See Standard Drawing D-750-2 for more details.
- See Standard Drawing D-750-3 for more details.
- See Curb - Type I detail in section 20.

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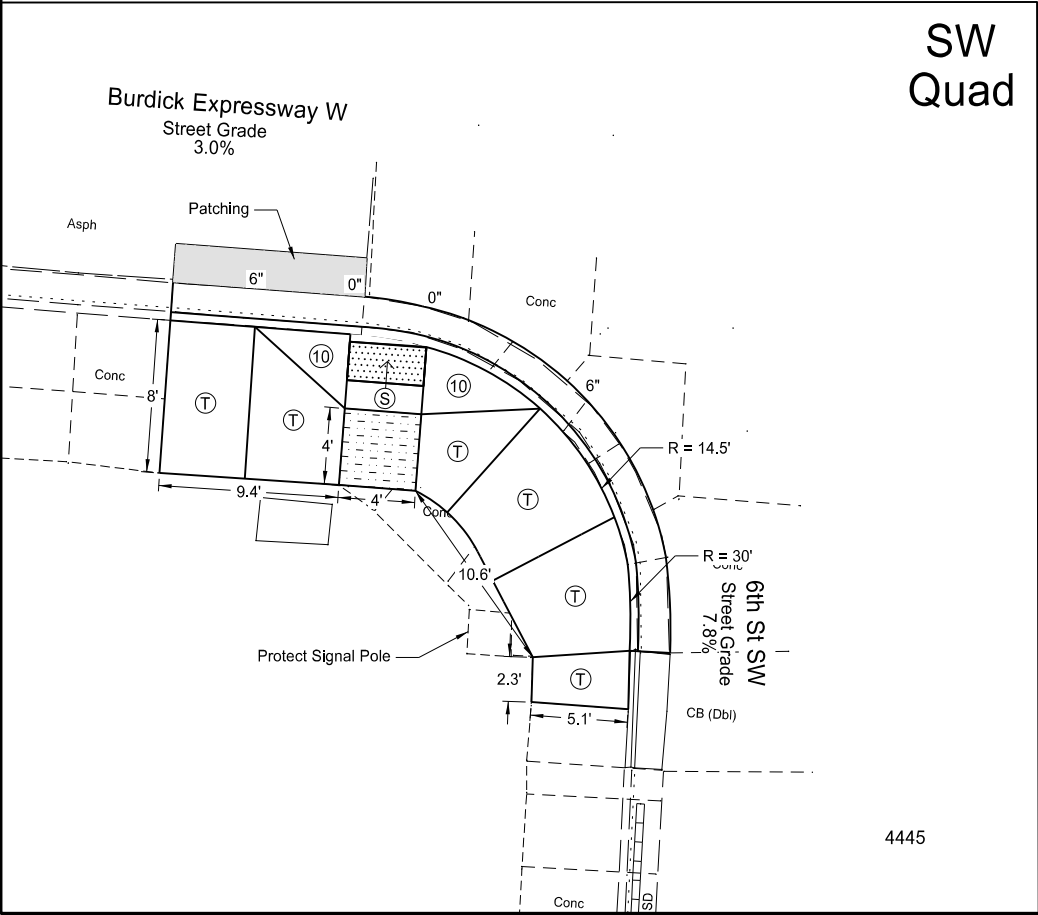
**ADA Curb Ramp Improvements**

16th St SW & Burdick Expy, MHS & Burdick Expy  
N & E 16th, S & E MHS

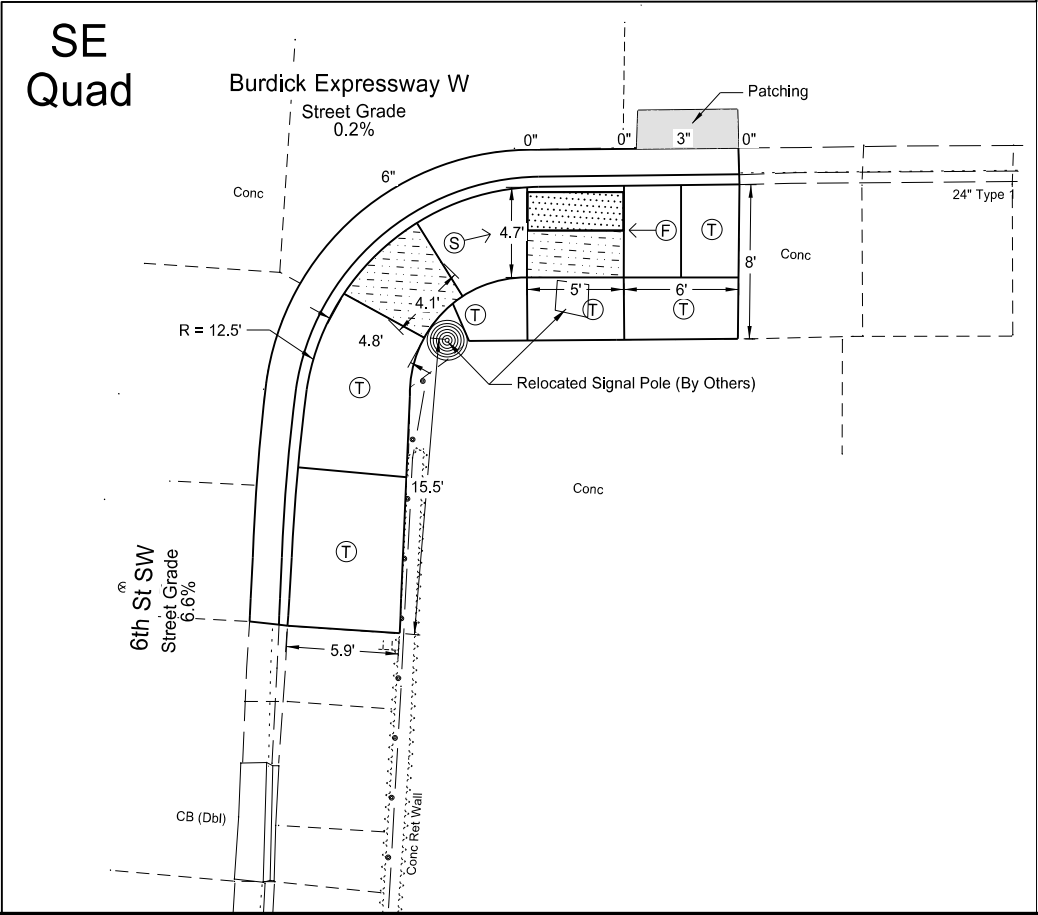
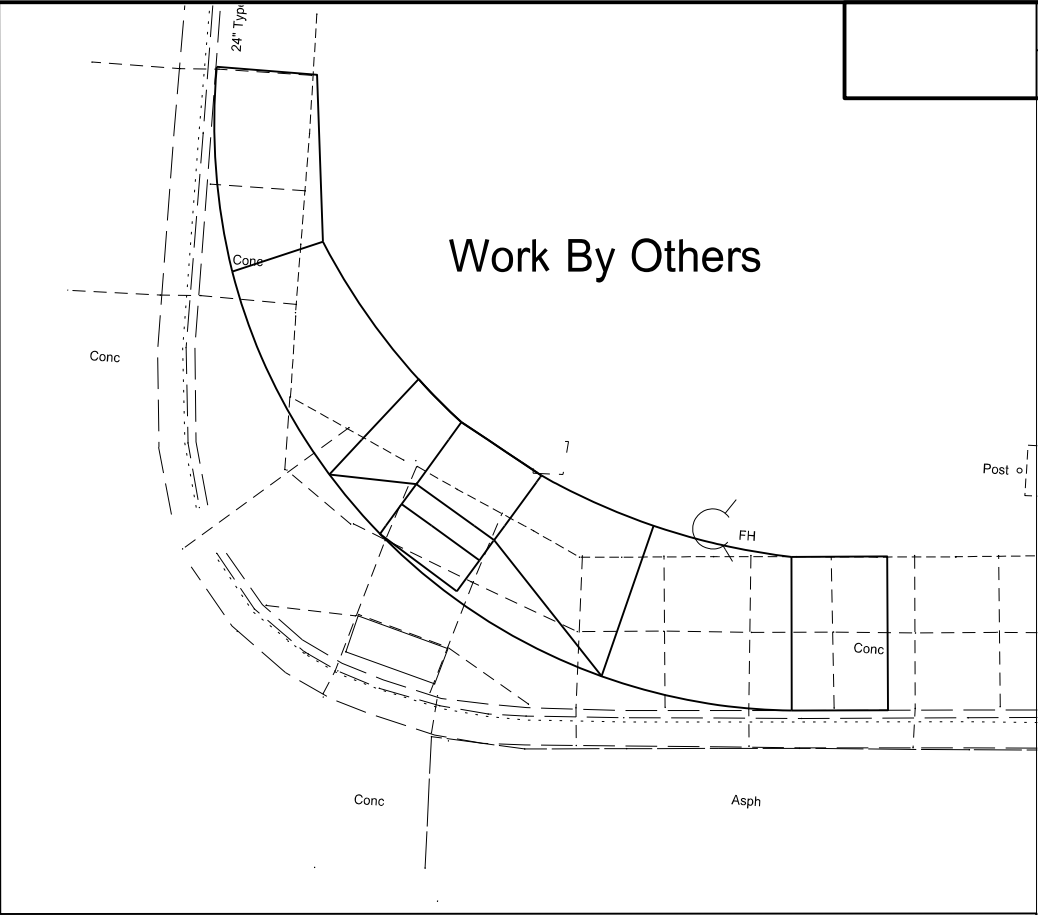




NW  
Quad



SW  
Quad



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	3

SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		NW Quad	1	TON
		SW Quad	1	TON
		SE Quad	1	TON
748	0100	CURB & GUTTER		
		NW Quad	57	LF
		SW Quad	37	LF
		SE Quad	43	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	36	SY
		SW Quad	25	SY
		SE Quad	26	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	20	SF
		SW Quad	8	SF
		SE Quad	10	SF

**LEGEND**

Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail

Transition Panel Slope, PAR width, and Cross  
Slope Will Vary

Flare Slope Maximum of 4:1

Flare Slope Maximum of 10:1

Pigmented Imprinted Concrete

Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions

Detectable Warning Panels

Patching

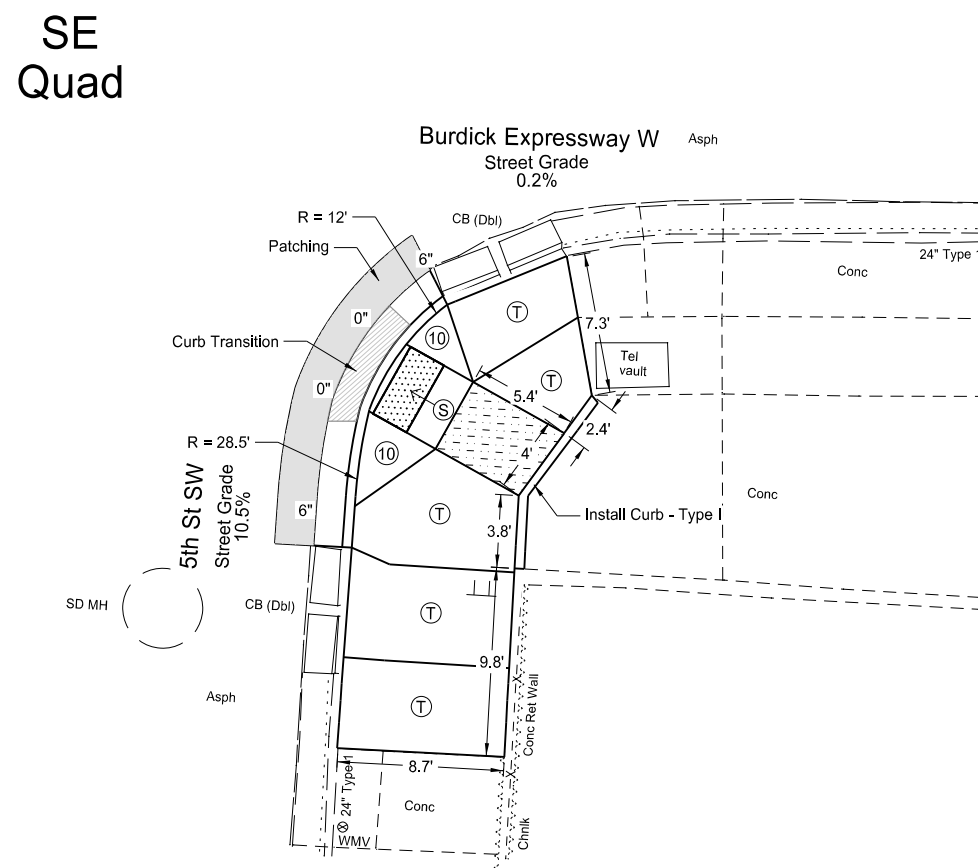
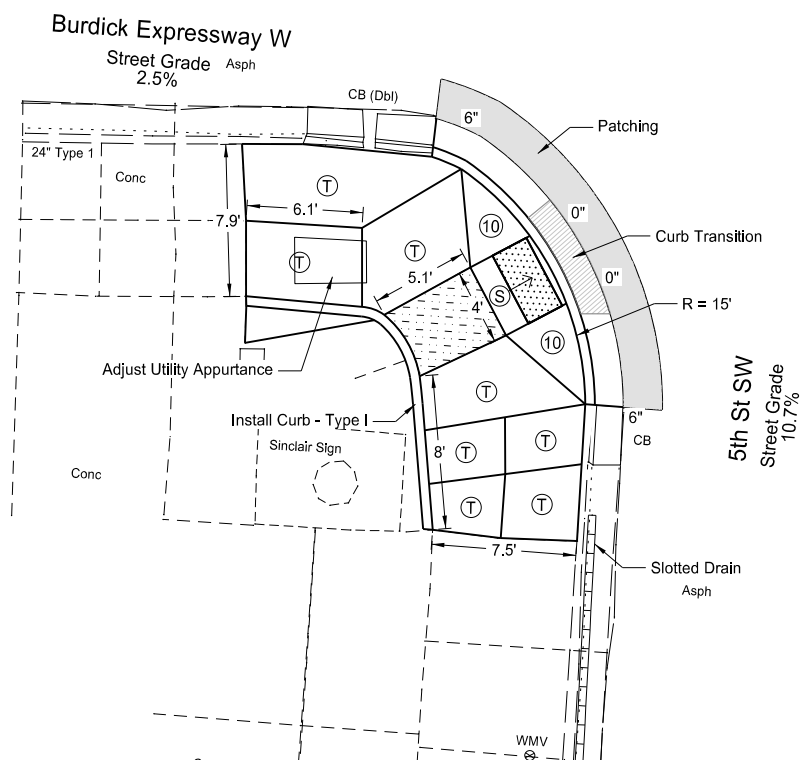
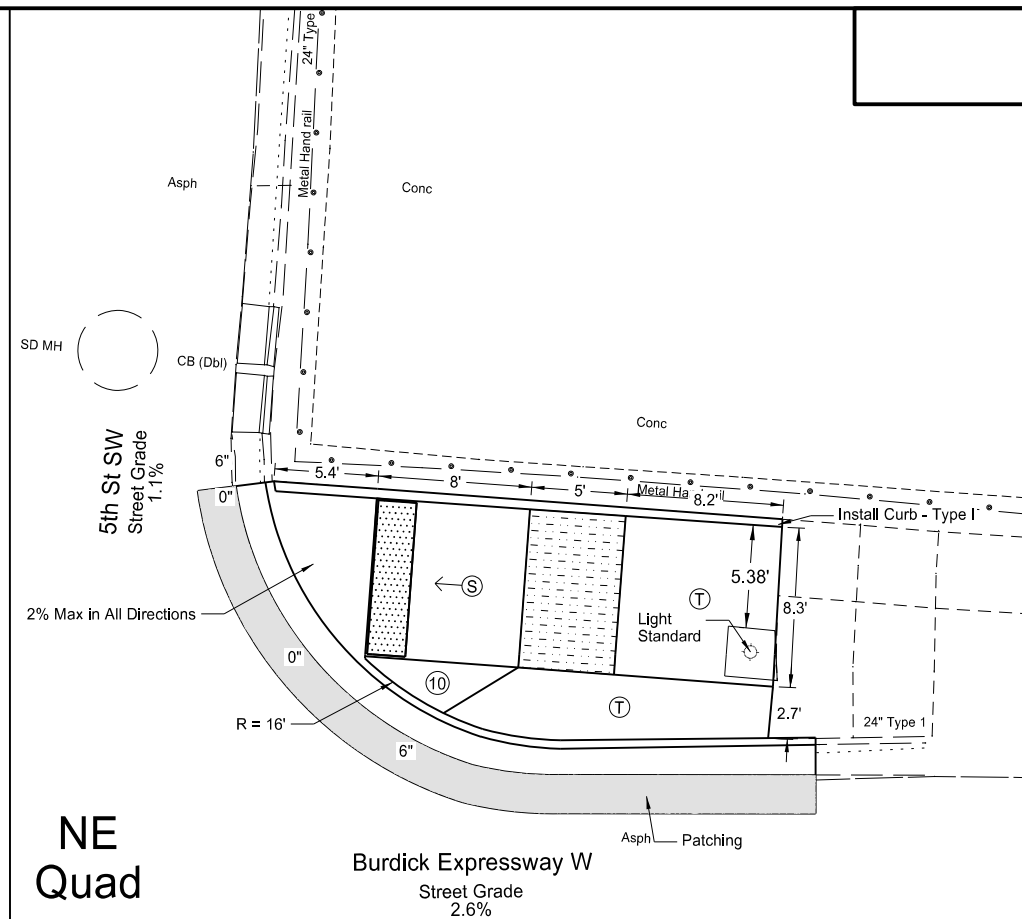
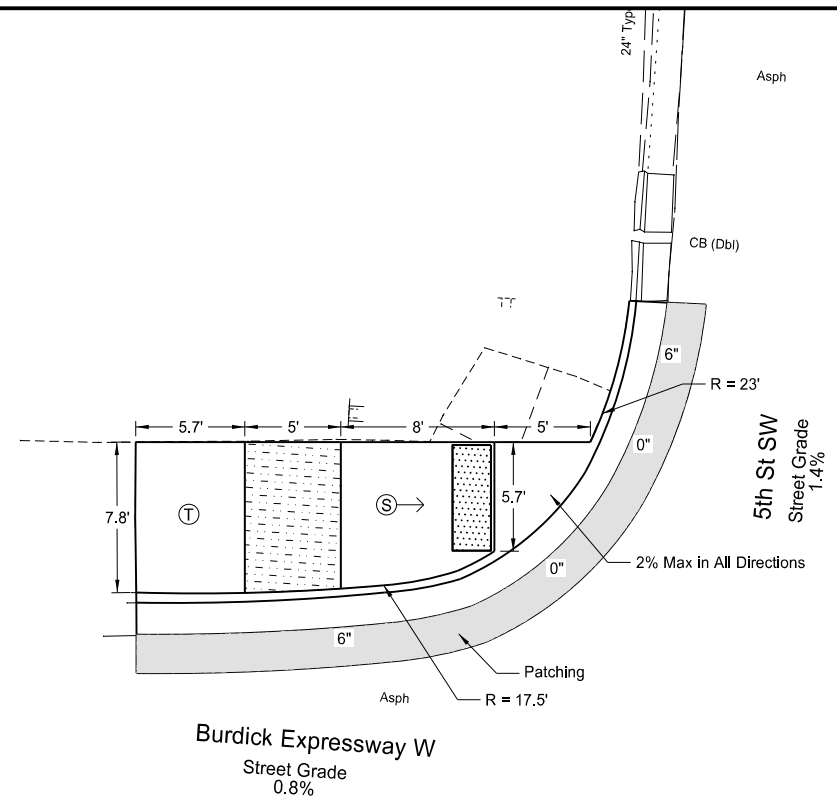
**Notes:**

- Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
- See Standard Drawing D-750-2 for more details.
- See Standard Drawing D-750-3 for more details.
- See Curb - Type I detail in section 20.

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ADA Curb Ramp Improvements

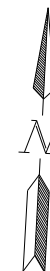
6th St SW & Burdick Expy  
NW,SE,SW ADA Quadrants



STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		80	4
SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		NW Quad	4	TON
		NE Quad	4	TON
		SW Quad	2	TON
		SE Quad	2	TON
722	6240	ADJUST UTILITY APPURTENANCE		
		SW Quad	1	EA
748	0100	CURB & GUTTER		
		NW Quad	37	LF
		NE Quad	38	LF
		SW Quad	19	LF
		SE Quad	16	LF
748	0520	CURB-TYPE I		
		NE Quad	27	LF
		SW Quad	18	LF
		SE Quad	10	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	16	SY
		NE Quad	26	SY
		SW Quad	25	SY
		SE Quad	24	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	11	SF
		NE Quad	17	SF
		SW Quad	8	SF
		SE Quad	8	SF

LEGEND

- Notes:
1. Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
  2. See Standard Drawing D-750-2 for more details.
  3. See Standard Drawing D-750-3 for more details.
  4. See Curb - Type I detail in section 20.



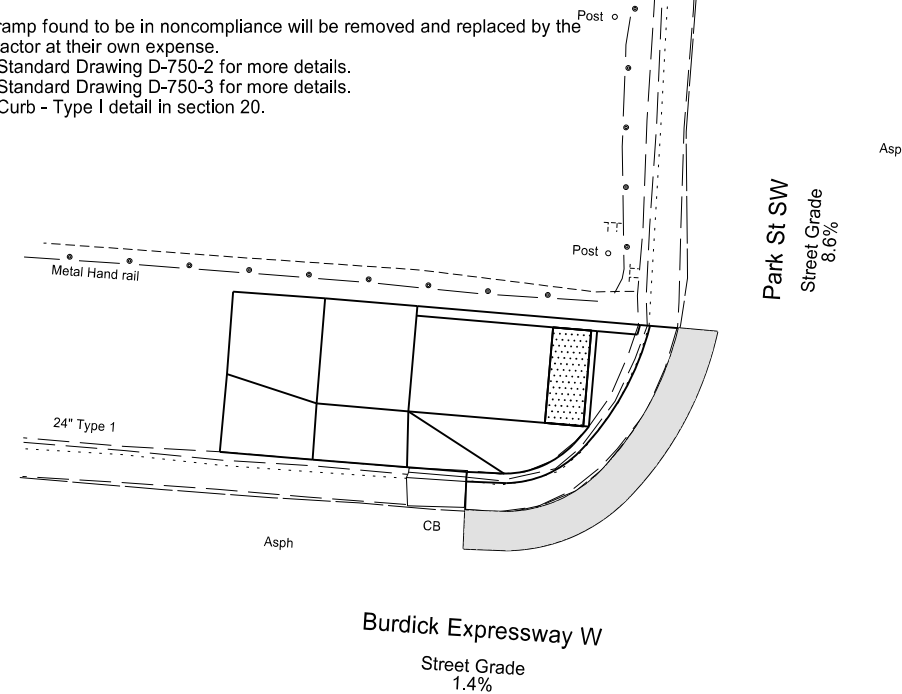
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### ADA Curb Ramp Improvements

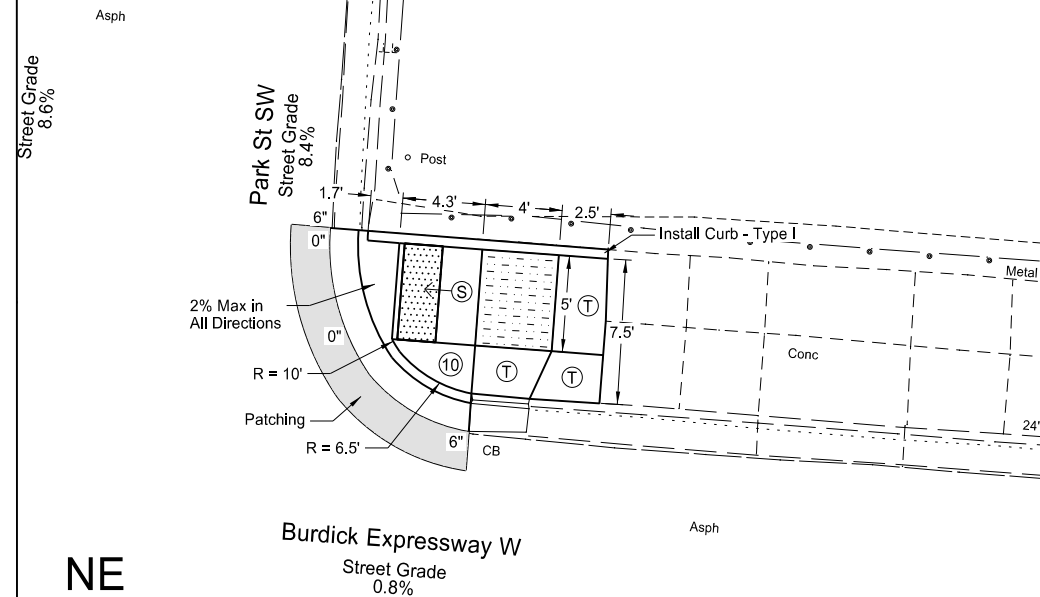
5th St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants

Notes:

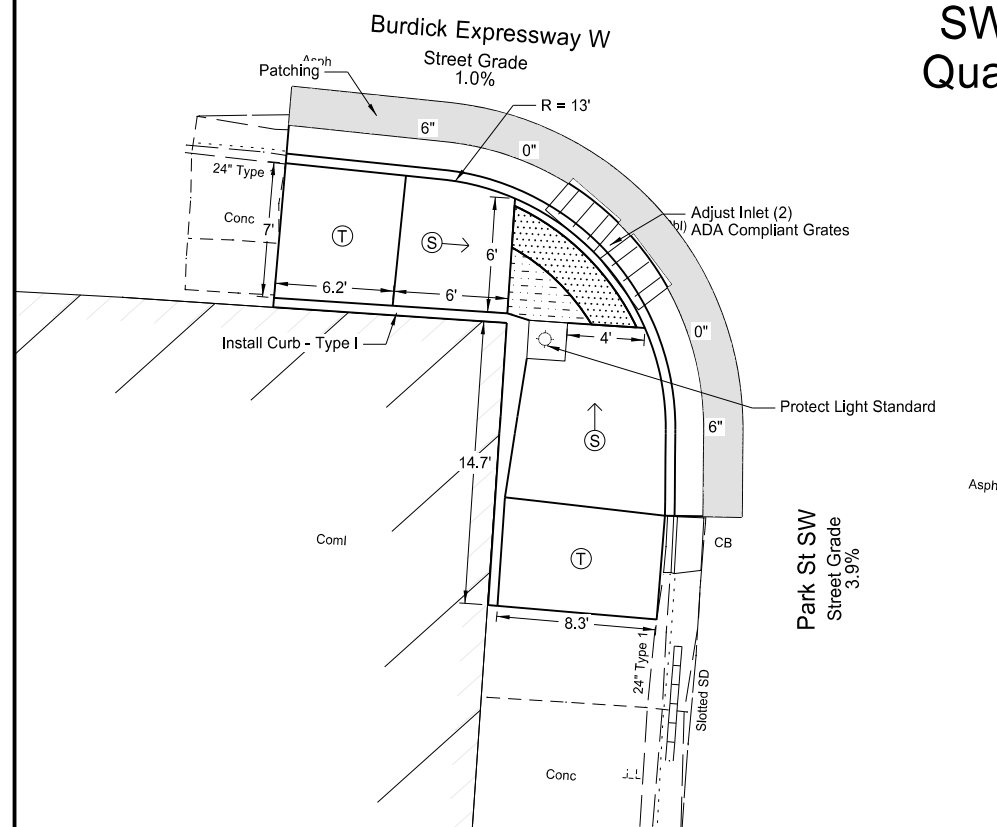
1. Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
2. See Standard Drawing D-750-2 for more details.
3. See Standard Drawing D-750-3 for more details.
4. See Curb - Type I detail in section 20.



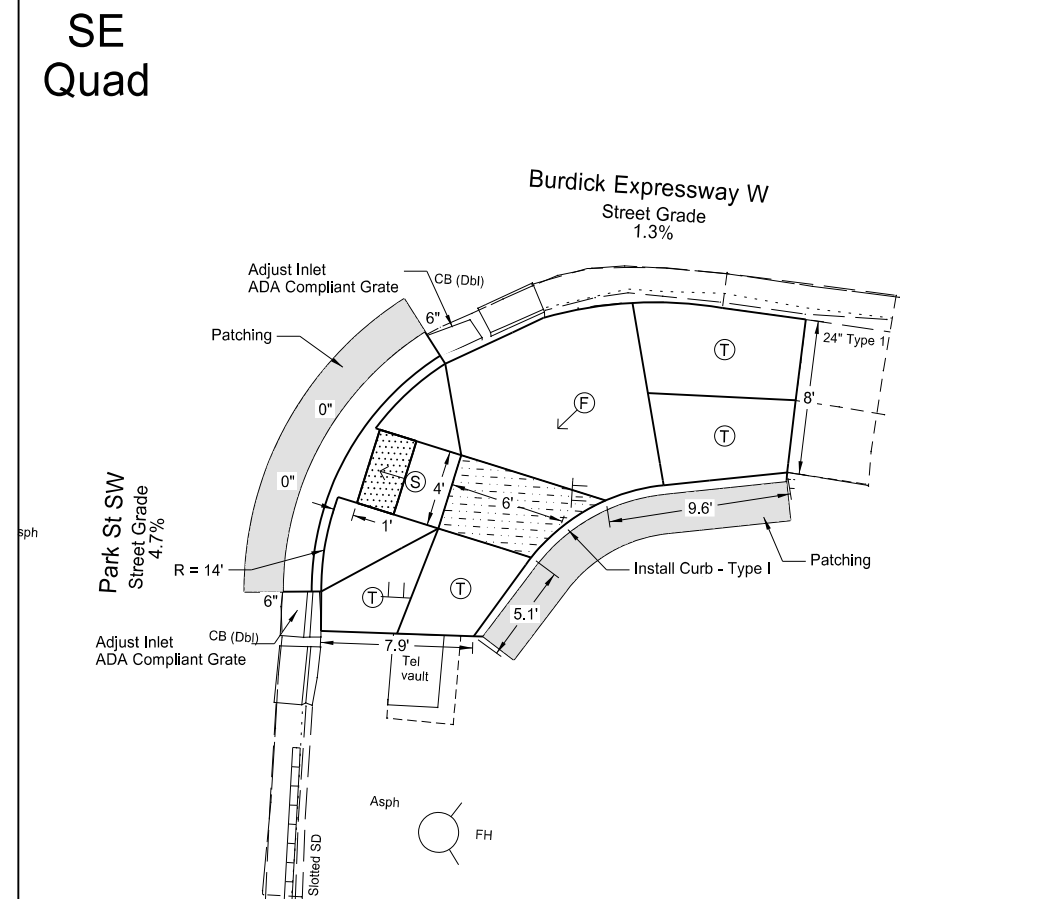
NW  
Quad



NE  
Quad



SW  
Quad



SE  
Quad

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	5

SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		NW Quad	2	TON
		NE Quad	2	TON
		SW Quad	4	TON
		SE Quad	2	TON
722	6160	ADJUST INLET		
		SW Quad	2	EA
		SE Quad	2	EA
748	0100	CURB & GUTTER		
		NW Quad	16	LF
		NE Quad	14	LF
		SW Quad	35	LF
		SE Quad	16	LF
748	0520	CURB-TYPE I		
		NW Quad	12	LF
		NE Quad	13	LF
		SW Quad	27	LF
		SE Quad	19	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	7	SY
		NE Quad	9	SY
		SW Quad	25	SY
		SE Quad	29	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	10	SF
		NE Quad	10	SF
		SW Quad	15	SF
		SE Quad	8	SF



#### LEGEND

Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred



Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred



Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail



Transition Panel Slope, PAR width, and Cross  
Slope Will Vary



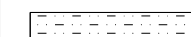
Flare Slope Maximum of 4:1



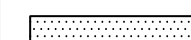
Flare Slope Maximum of 10:1



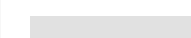
Pigmented Imprinted Concrete



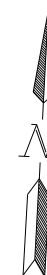
Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions



Detectable Warning Panels



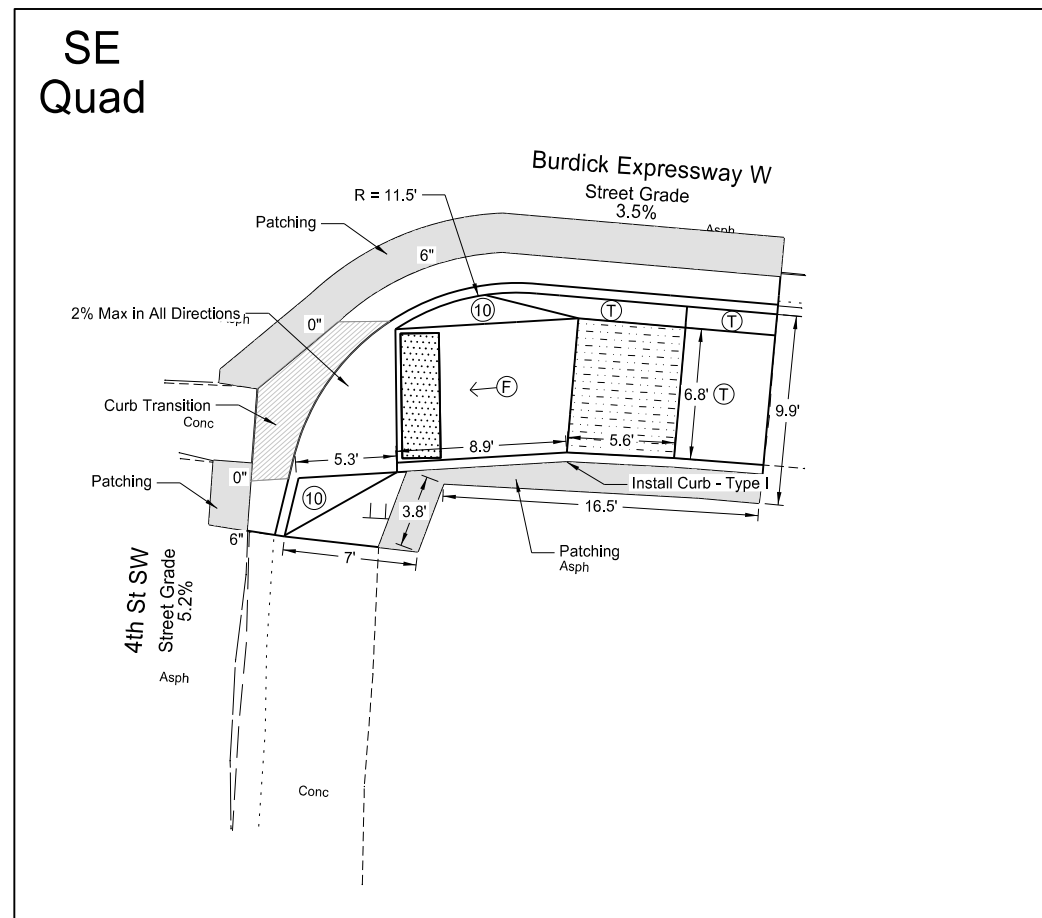
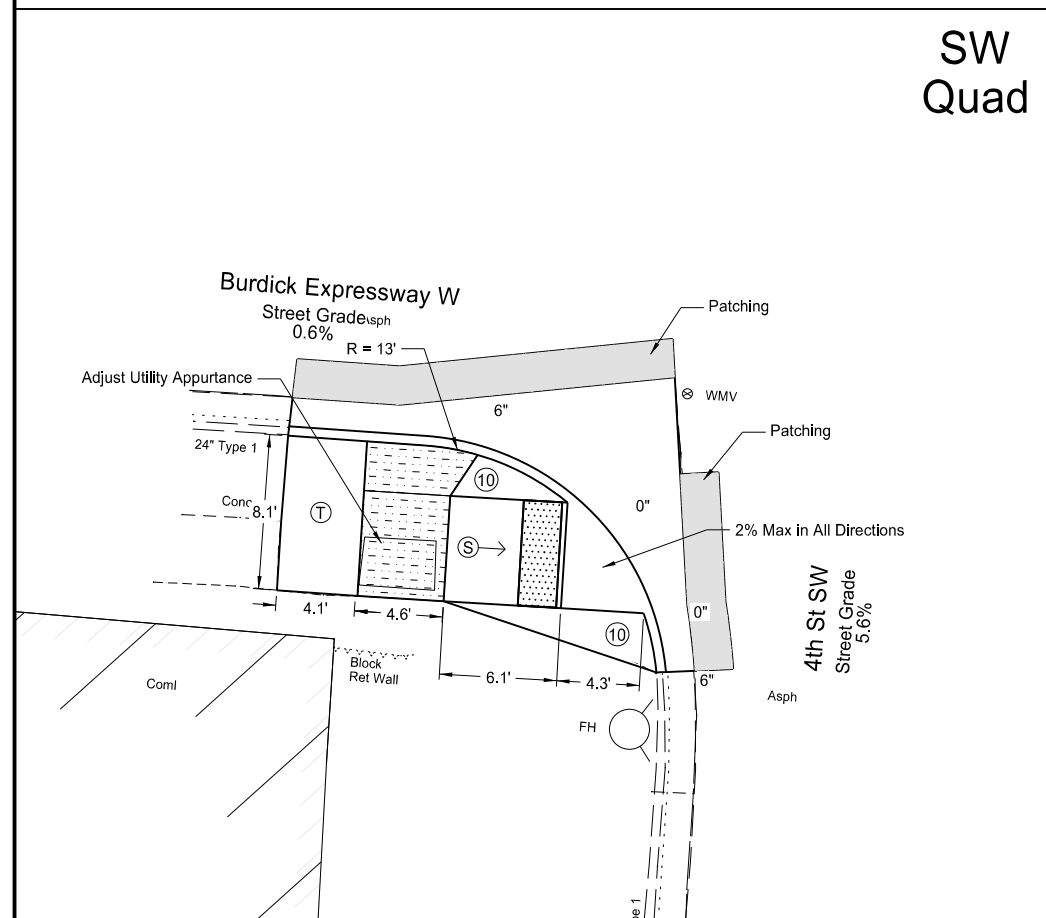
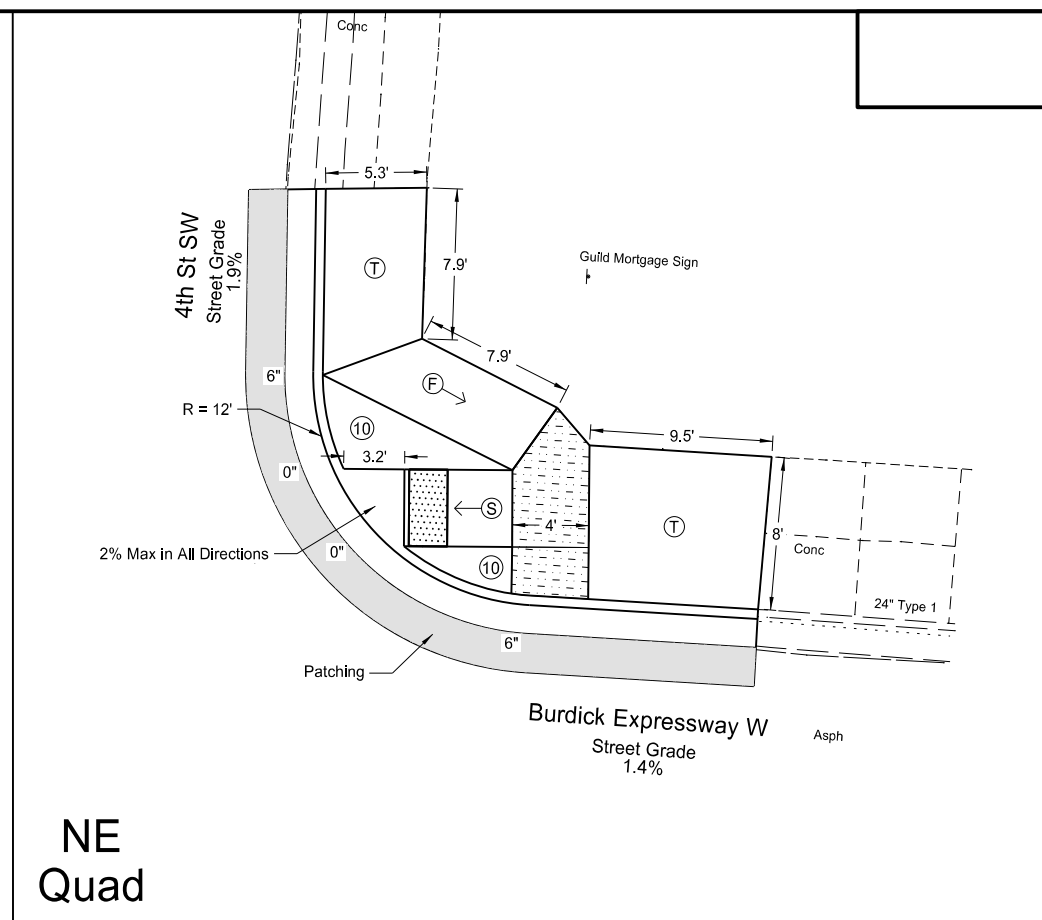
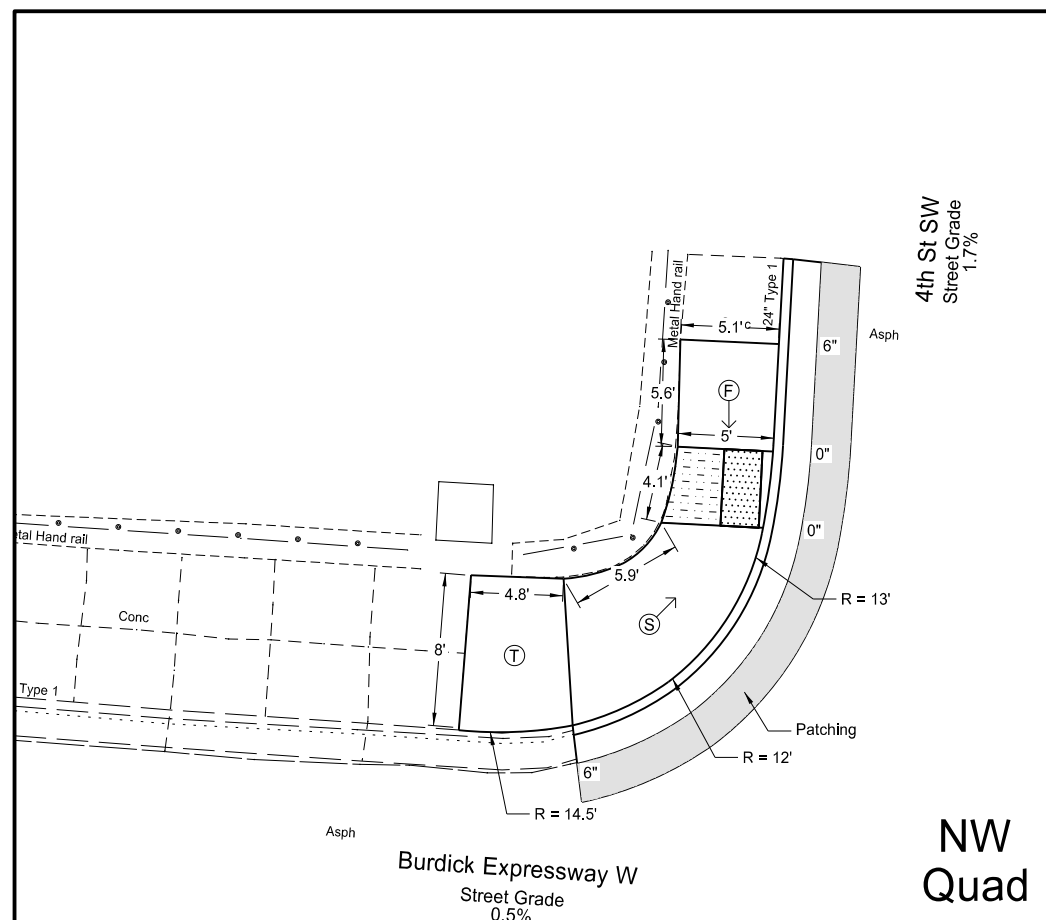
Patching



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ADA Curb Ramp Improvements

Park St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants



STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		80	6

SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	Patching		
		NW Quad	3	TON
		NE Quad	4	TON
		SW Quad	3	TON
		SE Quad	5	TON
722	6240	ADJUST UTILITY APPURTENANCE		
		SW Quad	1	EA
748	0100	CURB & GUTTER		
		NW Quad	32	LF
		NE Quad	42	LF
		SW Quad	27	LF
		SE Quad	37	LF
748	0520	CURB-TYPE I		
		SE Quad	19	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	18	SY
		NE Quad	27	SY
		SW Quad	14	SY
		SE Quad	20	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	8	SF
		NE Quad	8	SF
		SW Quad	11	SF
		SE Quad	13	SF

### LEGEND

S

Steep Ramp

-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred

-Cross Slope Maximum of 2.0% / 1.5% Preferred

F

Flat Ramp

-Running Slope Less Than 5.0%

-Cross Slope Maximum of 2.0% / 1.5% Preferred

TI

Tilting Ramp at Maximum Rate of 0.5% / ft,

See Detail

T

Transition Panel Slope, PAR width, and Cross Slope Will Vary

4

Flare Slope Maximum of 4:1

10

Flare Slope Maximum of 10:1

Pigmented Imprinted Concrete

Landing Area

-Slope Maximum of 2.0% / 1.5% Preferred

-All Directions

Detectable Warning Panels

Patching

Notes:

- Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
- See Standard Drawing D-750-2 for more details.
- See Standard Drawing D-750-3 for more details.
- See Curb - Type I detail in section 20.

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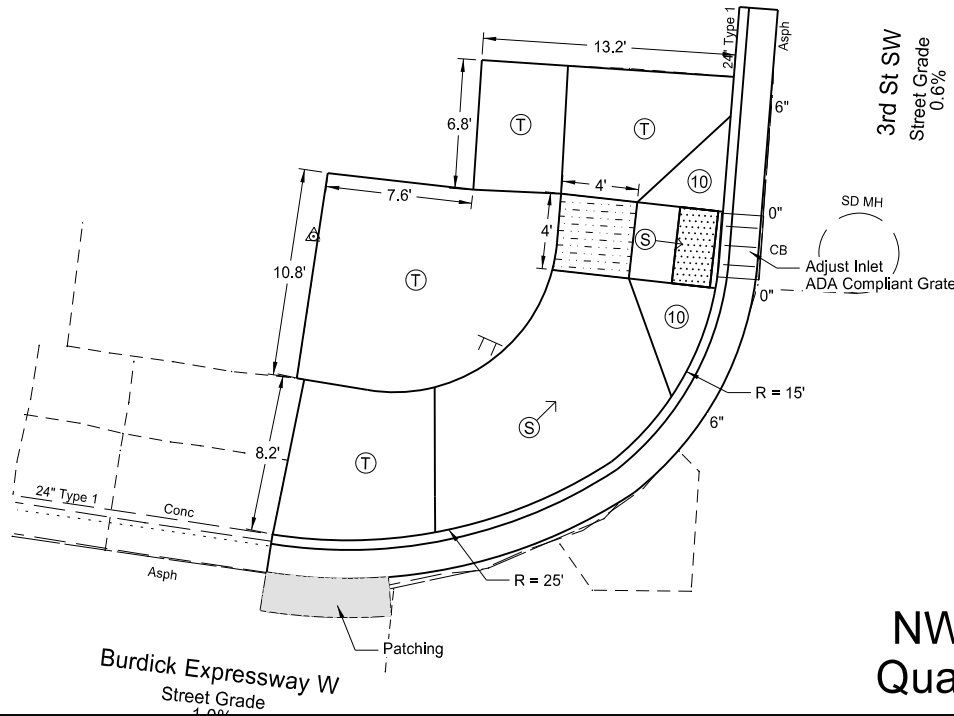
ADA Curb Ramp Improvements

4th St SW & Burdick Expy

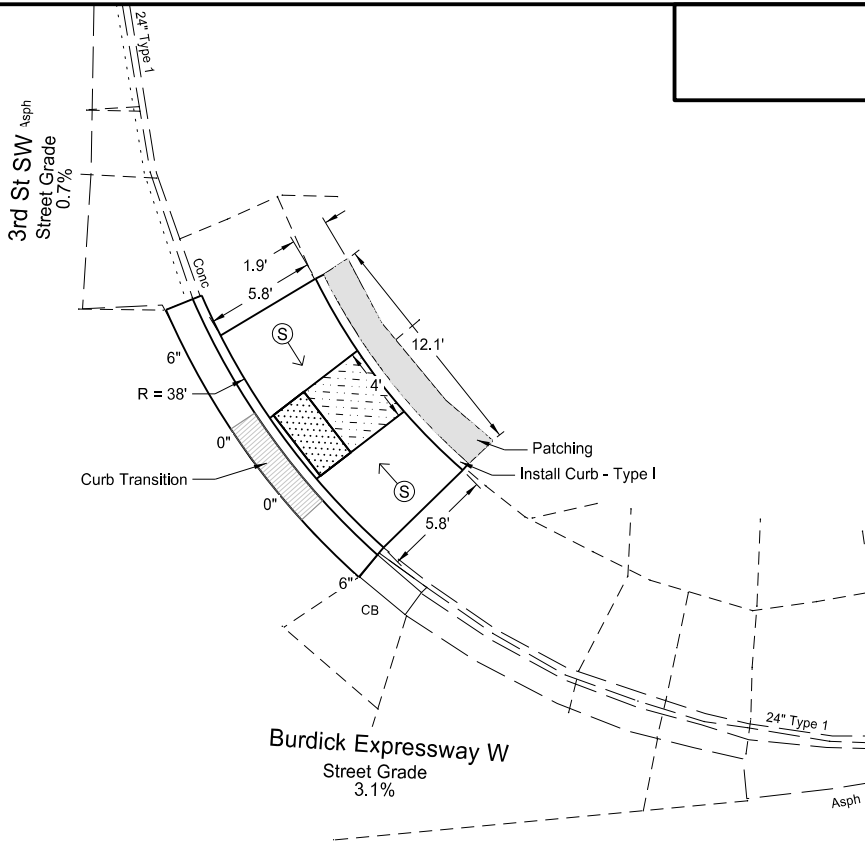
NE,SE,SW,NW ADA Quadrants

Notes:

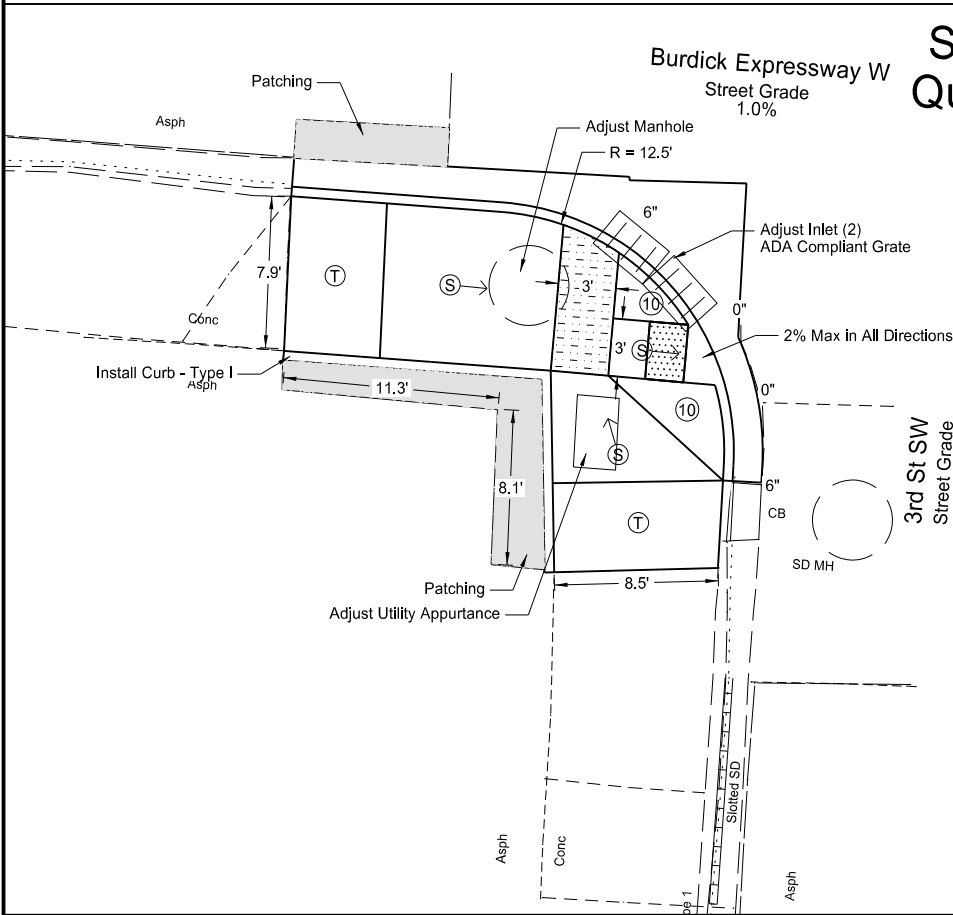
1. Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
2. See Standard Drawing D-750-2 for more details.
3. See Standard Drawing D-750-3 for more details.
4. See Curb - Type I detail in section 20.



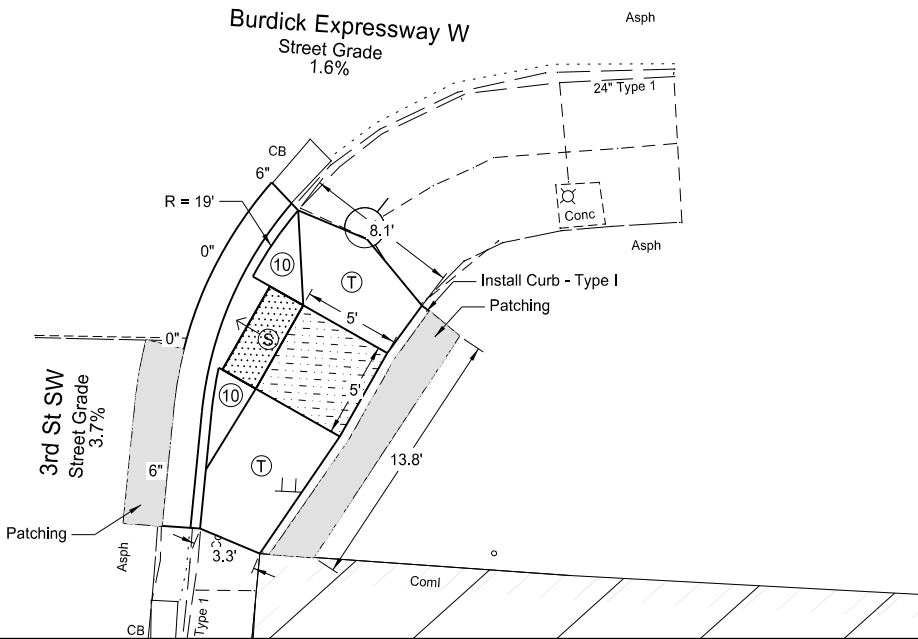
NW  
Quad



NE  
Quad



SW  
Quad



SE  
Quad

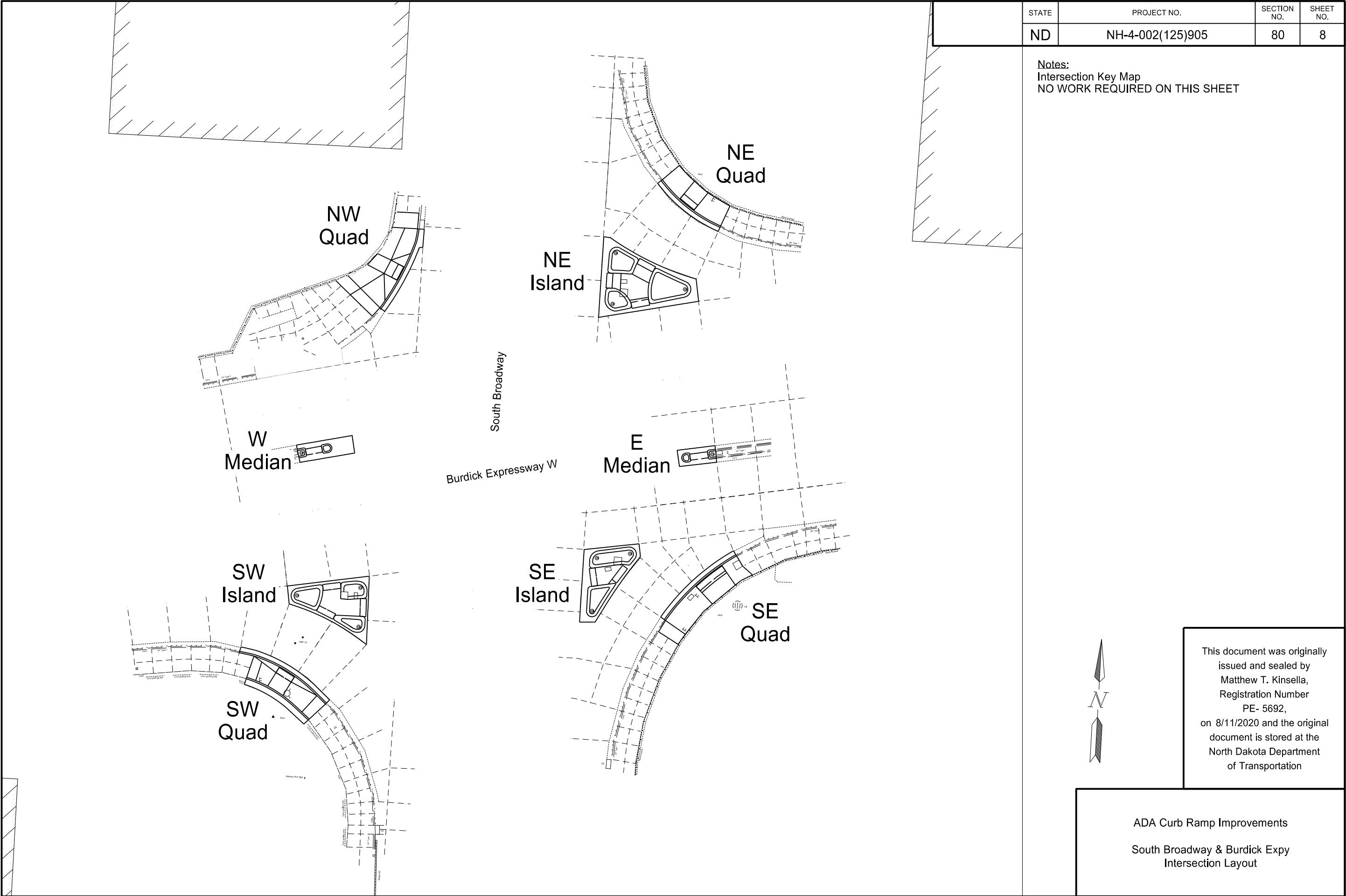
STATE	PROJECT NO.		SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905		
SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		NW Quad	1	TON
		NE Quad	1	TON
		SW Quad	3	TON
		SE Quad	2	TON
722	6160	ADJUST INLET		
		NW Quad	1	EA
		SW Quad	2	EA
722	6200	ADJUST MANHOLE		
		SW Quad	1	EA
722	6240	ADJUST UTILITY APPURTENANCE		
		SW Quad	1	EA
748	0100	CURB & GUTTER		
		NW Quad	47	LF
		NE Quad	17	LF
		SW Quad	40	LF
		SE Quad	19	LF
748	0520	CURB-TYPE I		
		NE Quad	12	LF
		SW Quad	24	LF
		SE Quad	15	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	47	SY
		NE Quad	9	SY
		SW Quad	27	SY
		SE Quad	13	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	8	SF
		NE Quad	8	SF
		SW Quad	6	SF
		SE Quad	10	SF

LEGEND

- Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail
- Transition Panel Slope, PAR width, and Cross  
Slope Will Vary
- Flare Slope Maximum of 4:1
- Flare Slope Maximum of 10:1
- Pigmented Imprinted Concrete
- Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions
- Detectable Warning Panels
- Patching

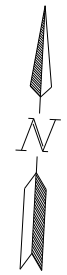
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ADA Curb Ramp Improvements  
3rd St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants



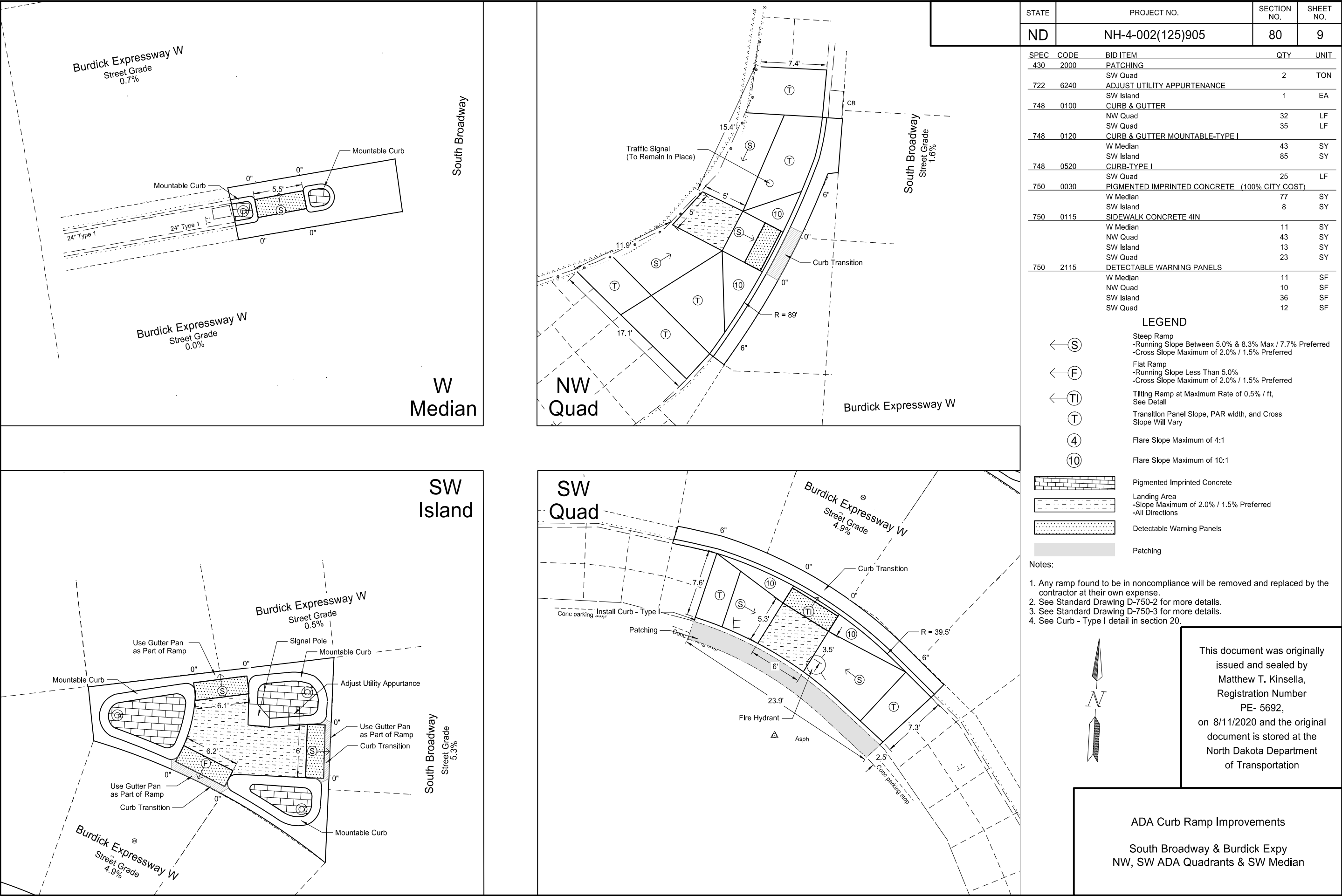
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	8

Notes:  
Intersection Key Map  
NO WORK REQUIRED ON THIS SHEET

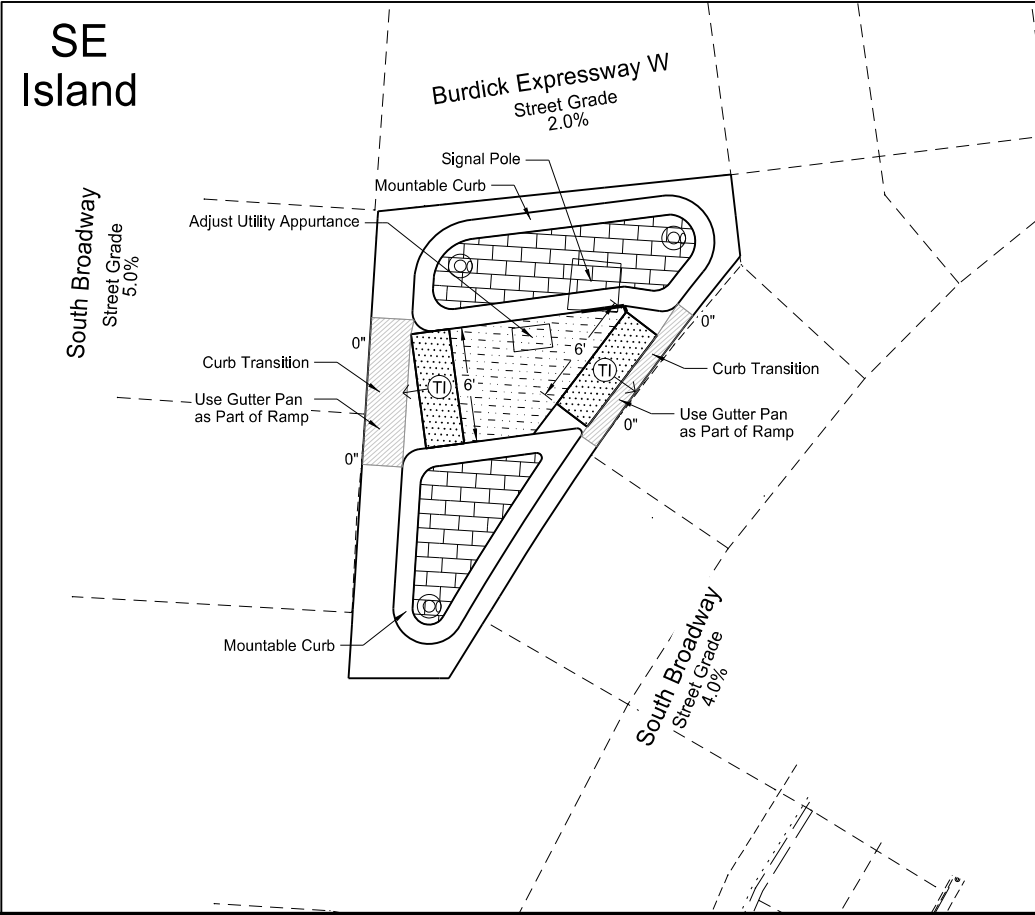
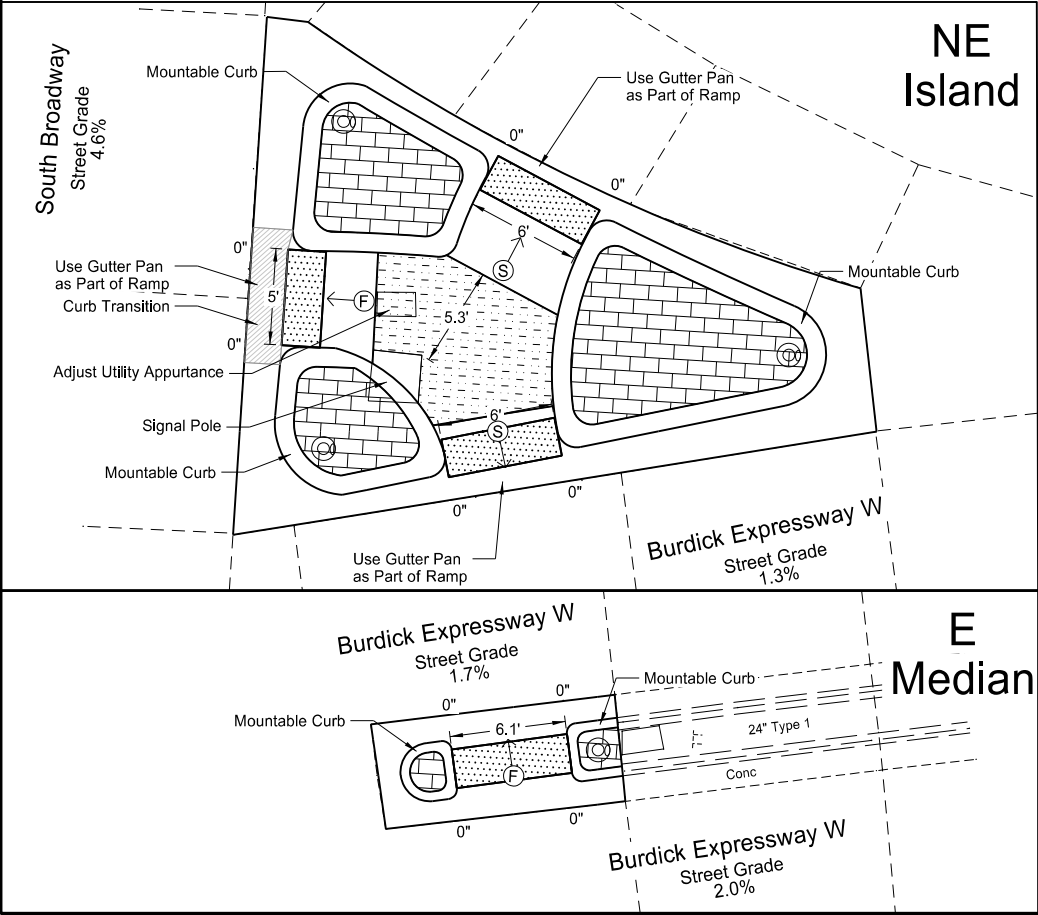
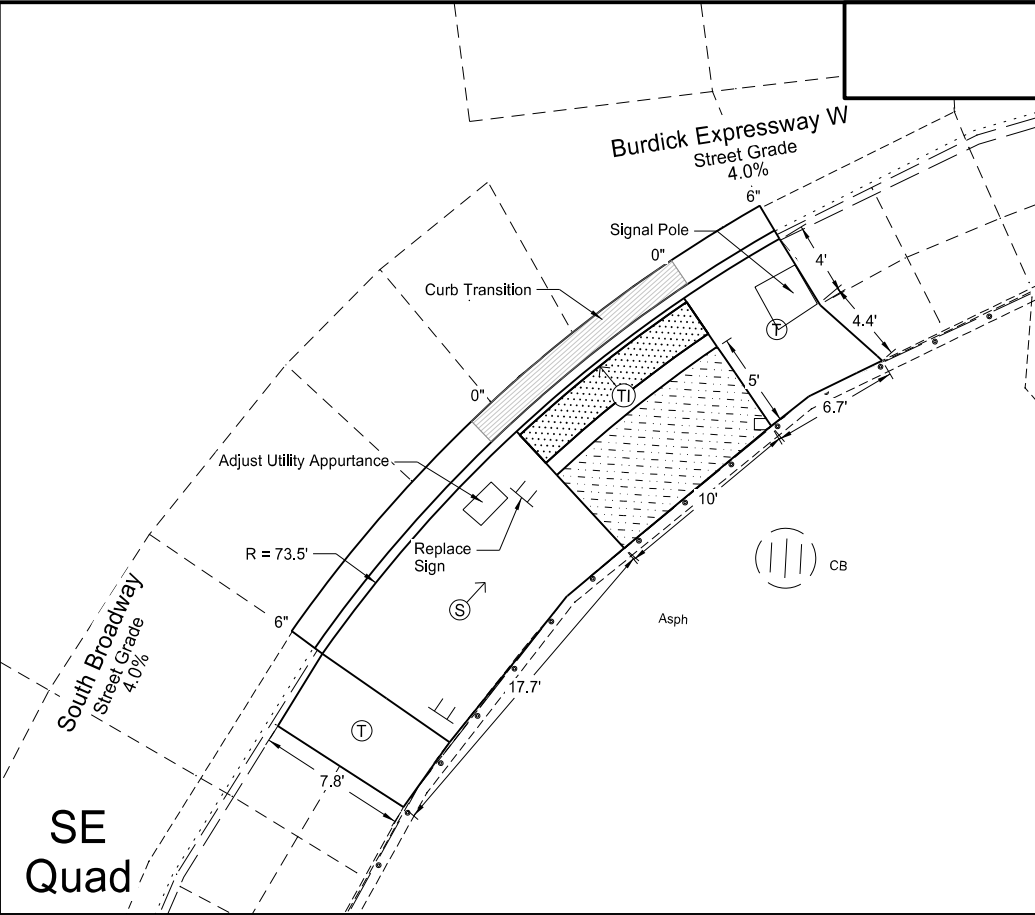
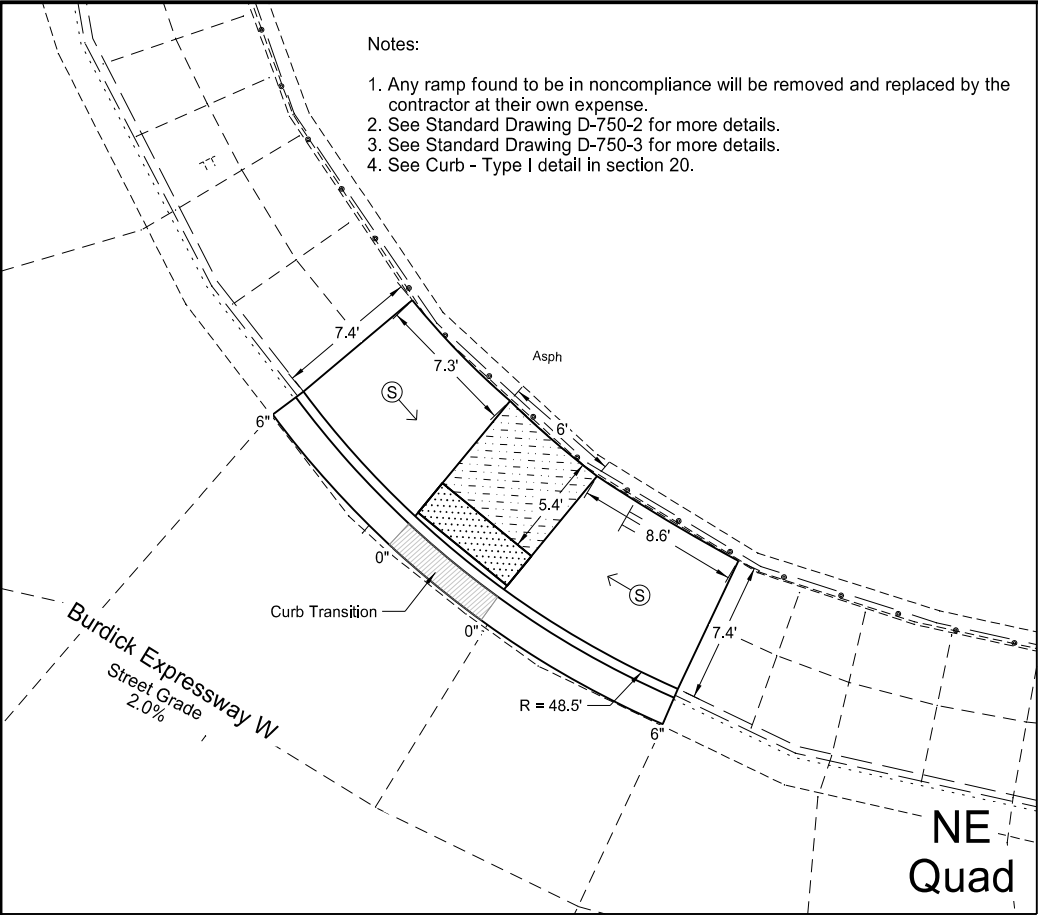


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ADA Curb Ramp Improvements  
South Broadway & Burdick Expy  
Intersection Layout



</



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	10

SPEC	CODE	BID ITEM	QTY	UNIT
722	6240	ADJUST UTILITY APPURTENANCE		
		SE Quad	1	EA
		NE Island	1	EA
		SE Island	1	EA
748	0100	CURB & GUTTER		
		NE Quad	26	LF
		SE Quad	33	LF
748	0120	CURB & GUTTER MOUNTABLE-TYPE I		
		NE Island	100	SY
		E Median	32	SY
		SE Island	73	SY
750	0030	PIGMENTED IMPRINTED CONCRETE (100% CITY COST)		
		NE Island	16	SY
		E Median	1	SY
		SE Island	9	SY
750	0115	SIDEWALK CONCRETE 4IN		
		NE Quad	20	SY
		SE Quad	32	SY
		NE Island	16	SY
		E Median	1	SY
		SE Island	8	SY
750	2115	DETECTABLE WARNING PANELS		
		NE Quad	12	SF
		SE Quad	22	SF
		NE Island	34	SF
		E Median	12	SF
		SE Island	24	SF

**LEGEND**

Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail

Transition Panel Slope, PAR width, and Cross  
Slope Will Vary

Flare Slope Maximum of 4:1

Flare Slope Maximum of 10:1

Pigmented Imprinted Concrete

Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions

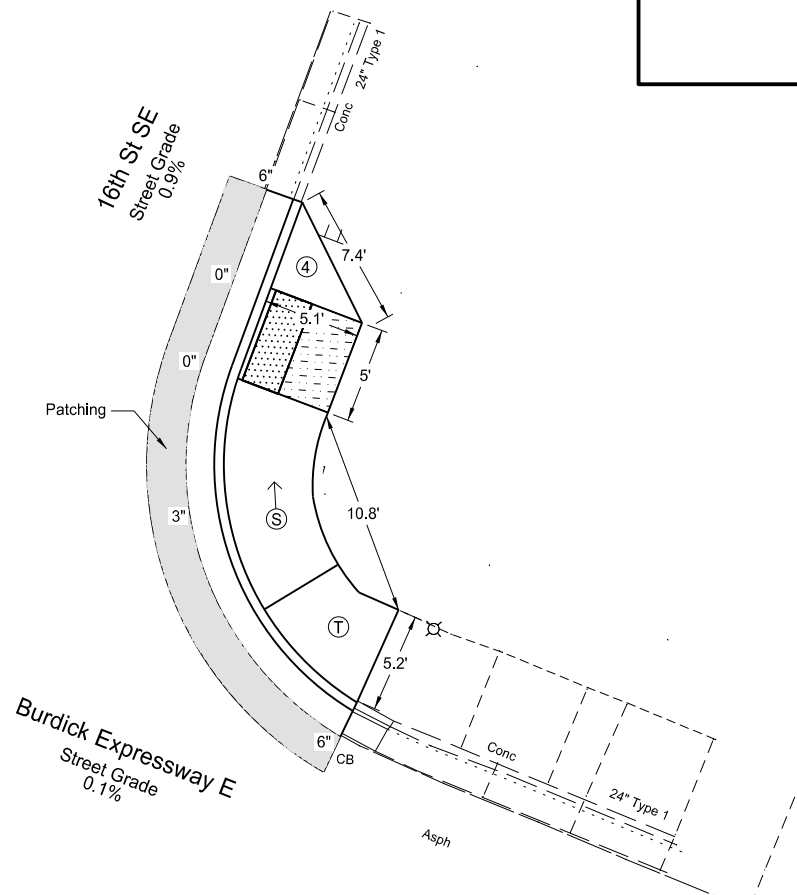
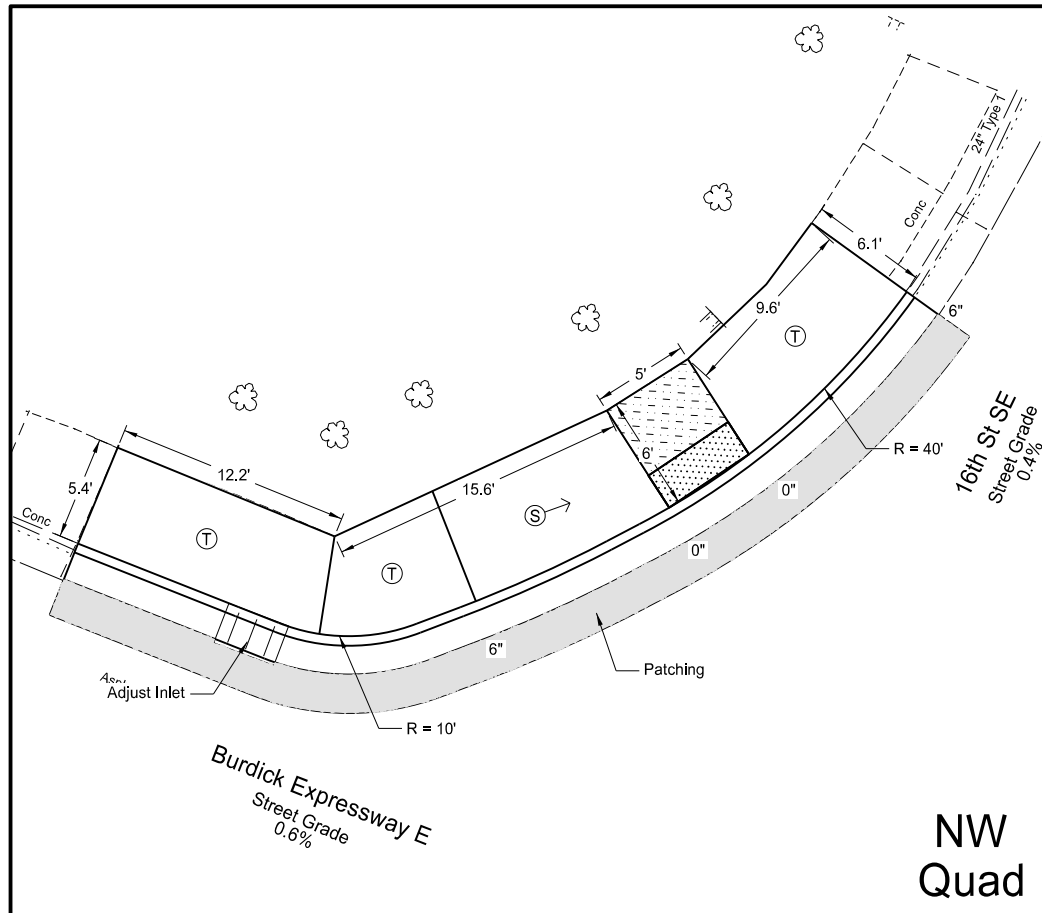
Detectable Warning Panels

Patching











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ADA Curb Ramp Improvements

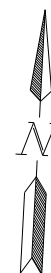
South Broadway & Burdick Expy  
NE, SE ADA Quadrants, E Median, & NE & SE Islands



STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		80	11
SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		NW Quad	5	TON
		NE Quad	3	TON
722	6160	ADJUST INLET		
		NW Quad	1	EA
748	0100	CURB & GUTTER		
		NW Quad	53	LF
		NE Quad	32	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	30	SY
		NE Quad	13	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	10	SF
		NE Quad	10	SF

- |   |  |
|---|--|
|    | <p><b>Steep Ramp</b><br/>           -Running Slope Between 5.0% &amp; 8.3% Max / 7.7% Preferred<br/>           -Cross Slope Maximum of 2.0% / 1.5% Preferred</p> |
|    | <p><b>Flat Ramp</b><br/>           -Running Slope Less Than 5.0%<br/>           -Cross Slope Maximum of 2.0% / 1.5% Preferred</p>                                |
|    | <p><b>Tilting Ramp</b> at Maximum Rate of 0.5% / ft,<br/>           See Detail</p>   |
|    | <p>Transition Panel Slope, PAR width, and Cross<br/>           Slope Will Vary</p>   |
|    | <p>Flare Slope Maximum of 4:1</p>  |
|   | <p>Flare Slope Maximum of 10:1</p>   |
|  | <p><b>Pigmented Imprinted Concrete</b></p>   |
|  | <p><b>Landing Area</b><br/>           -Slope Maximum of 2.0% / 1.5% Preferred<br/>           -All Directions</p>   |
|  | <p><b>Detectable Warning Panels</b></p>  |
|  | <p><b>Patching</b></p>   |

- Notes:
1. Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
  2. See Standard Drawing D-750-2 for more details.
  3. See Standard Drawing D-750-3 for more details.
  4. See Curb - Type I detail in section 20.



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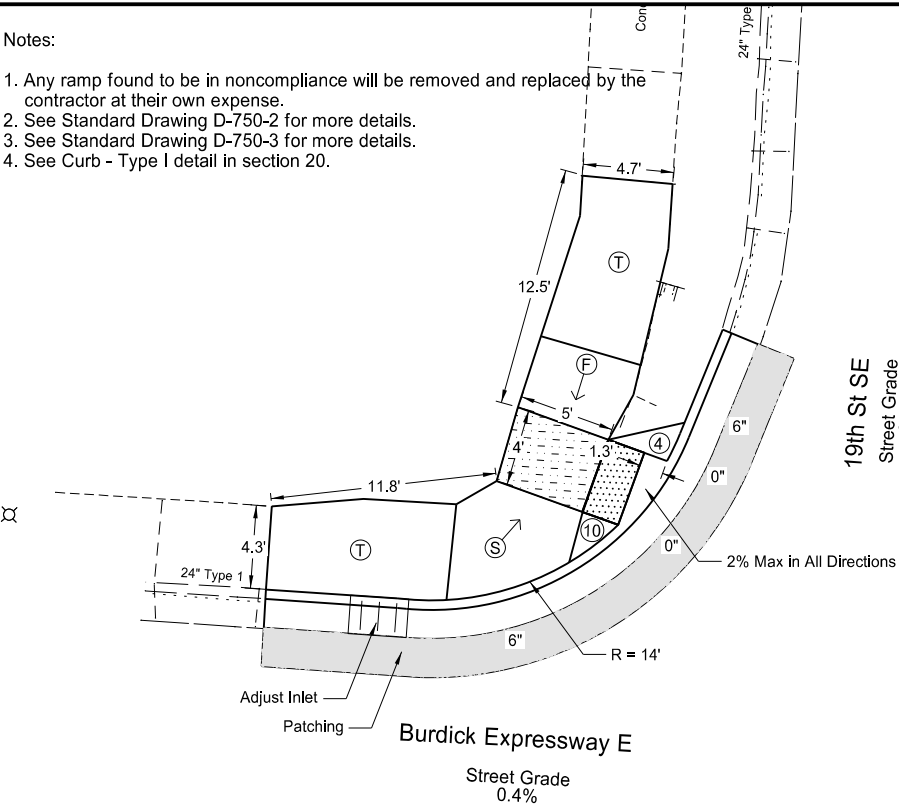
ADA Curb Ramp Improvements

16th St SE & Burdick Expy  
NW & NE ADA Quadrants

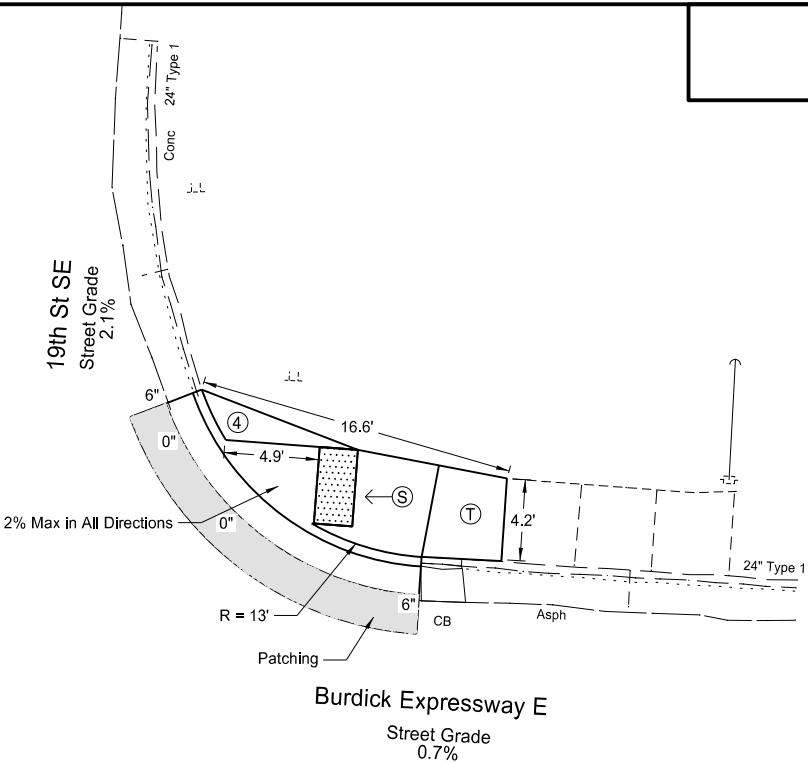


Notes:

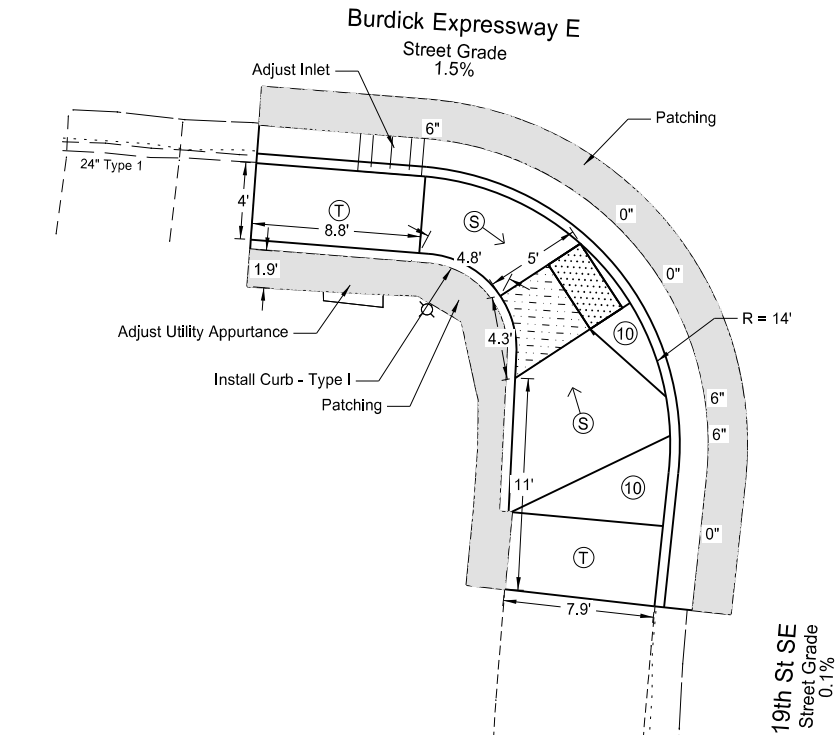
1. Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.  
2. See Standard Drawing D-750-2 for more details.  
3. See Standard Drawing D-750-3 for more details.  
4. See Curb - Type I detail in section 20.



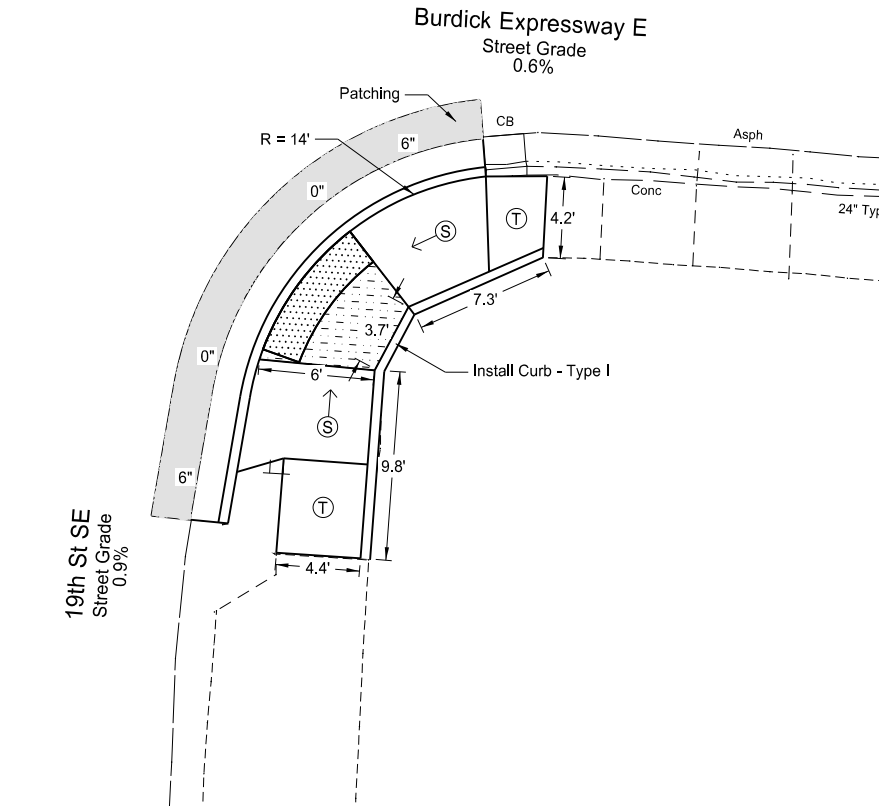
NW  
Quad



NE  
Quad



SW  
Quad



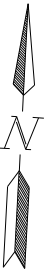
SE  
Quad

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	13

SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		NW Quad	3	TON
		NE Quad	2	TON
		SW Quad	7	TON
		SE Quad	3	TON
722	6160	ADJUST INLET	1	EA
722	6240	ADJUST UTILITY APPURTENANCE	1	EA
748	0100	CURB & GUTTER		
		NW Quad	33	LF
		NE Quad	18	LF
		SW Quad	41	LF
		SE Quad	28	LF
748	0520	CURB-TYPE I		
		SW Quad	24	LF
		SE Quad	20	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	20	SY
		NE Quad	7	SY
		SW Quad	22	SY
		SE Quad	15	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	8	SF
		NE Quad	8	SF
		SW Quad	8	SF
		SE Quad	14	SF

LEGEND

- Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail
- Transition Panel Slope, PAR width, and Cross  
Slope Will Vary
- Flare Slope Maximum of 4:1
- Flare Slope Maximum of 10:1
- Pigmented Imprinted Concrete
- Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions
- Detectable Warning Panels
- Patching



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ADA Curb Ramp Improvements  
19th St SE & Burdick Expy  
Intersection Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	14

SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		W Quad	6	TON
		NE Quad	3	TON
		SE Quad	2	TON
748	0100	CURB & GUTTER		
		W Quad	4	LF
		NE Quad	32	LF
		SE Quad	18	LF
748	0520	CURB-TYPE I		
		W Quad	20	LF
750	0115	SIDEWALK CONCRETE 4IN		
		W Quad	17	SY
		NE Quad	7	SY
		SE Quad	10	SY
750	2115	DETECTABLE WARNING PANELS		
		W Quad	35	SF
		NE Quad	20	SF
		SE Quad	19	SF

LEGEND

- ←Ⓢ

Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- ←Ⓣ

Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- ←ⓉⓂ

Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail
- Ⓣ

Transition Panel Slope, PAR width, and Cross  
Slope Will Vary
- ④

Flare Slope Maximum of 4:1
- ⑩

Flare Slope Maximum of 10:1

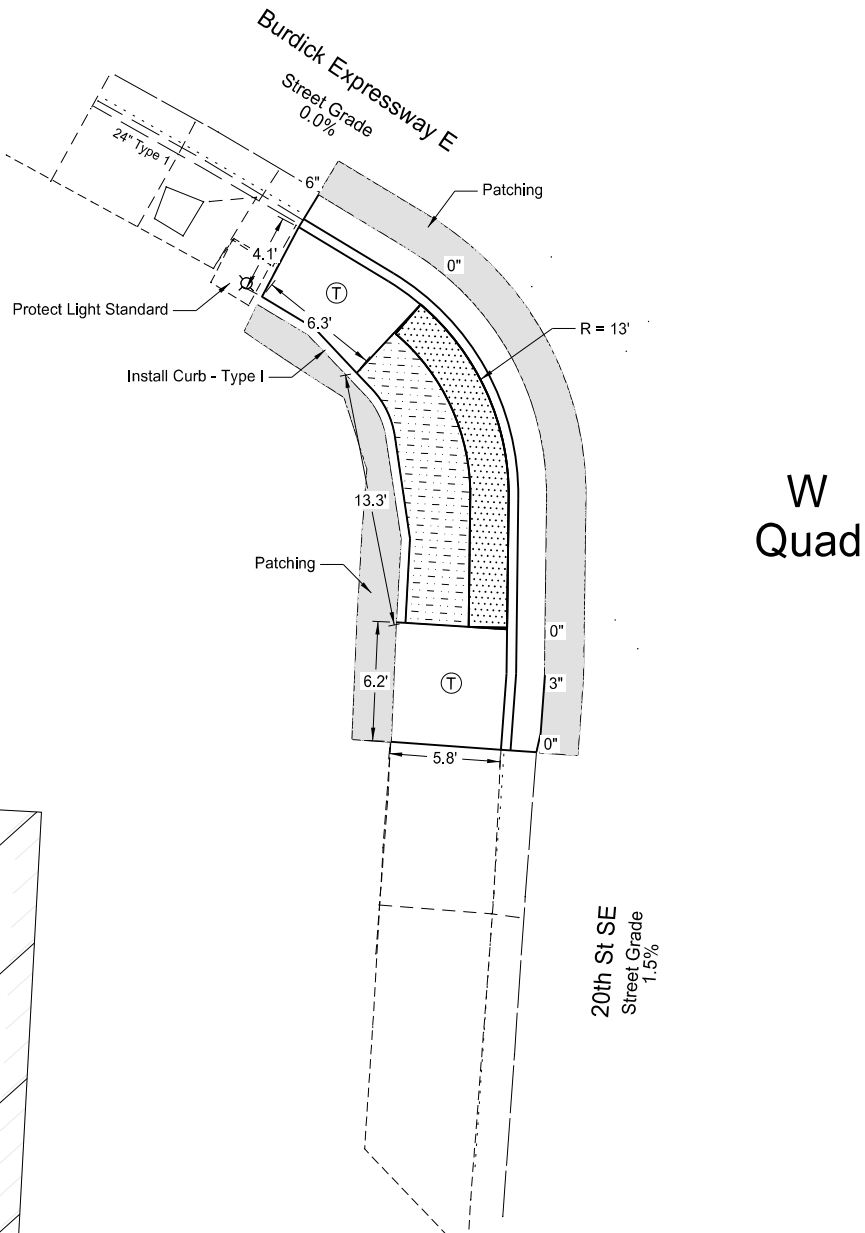
- Pigmented Imprinted Concrete
- Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions
- Detectable Warning Panels
- Patching

- Notes:
- Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
  - See Standard Drawing D-750-2 for more details.
  - See Standard Drawing D-750-3 for more details.
  - See Curb - Type I detail in section 20.

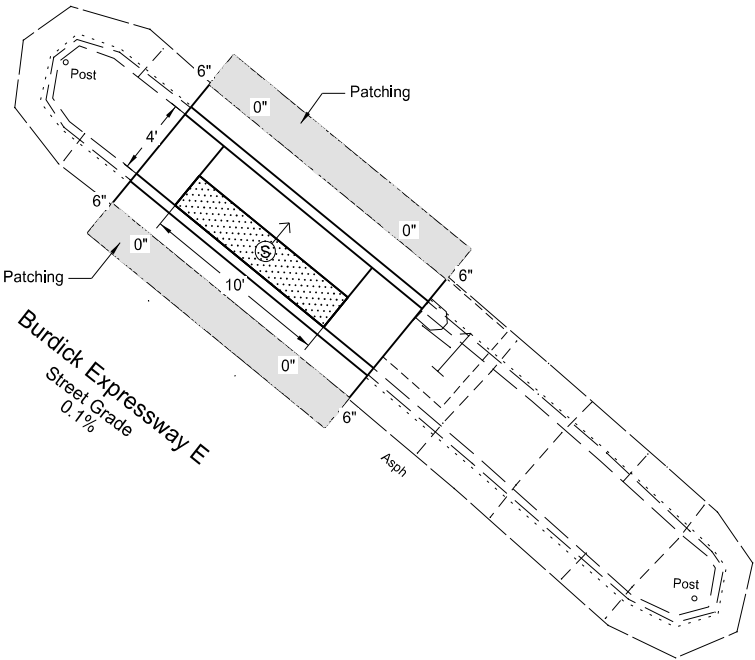


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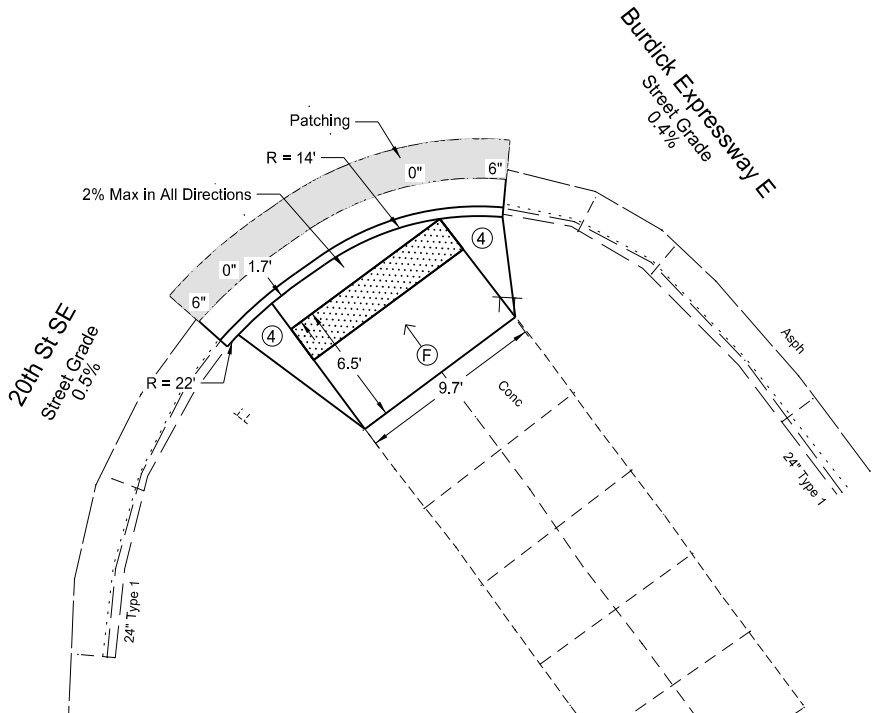
ADA Curb Ramp Improvements  
  
20th St SE & Burdick Expy  
SW, NE & SE ADA Quadrants



NE  
Quad

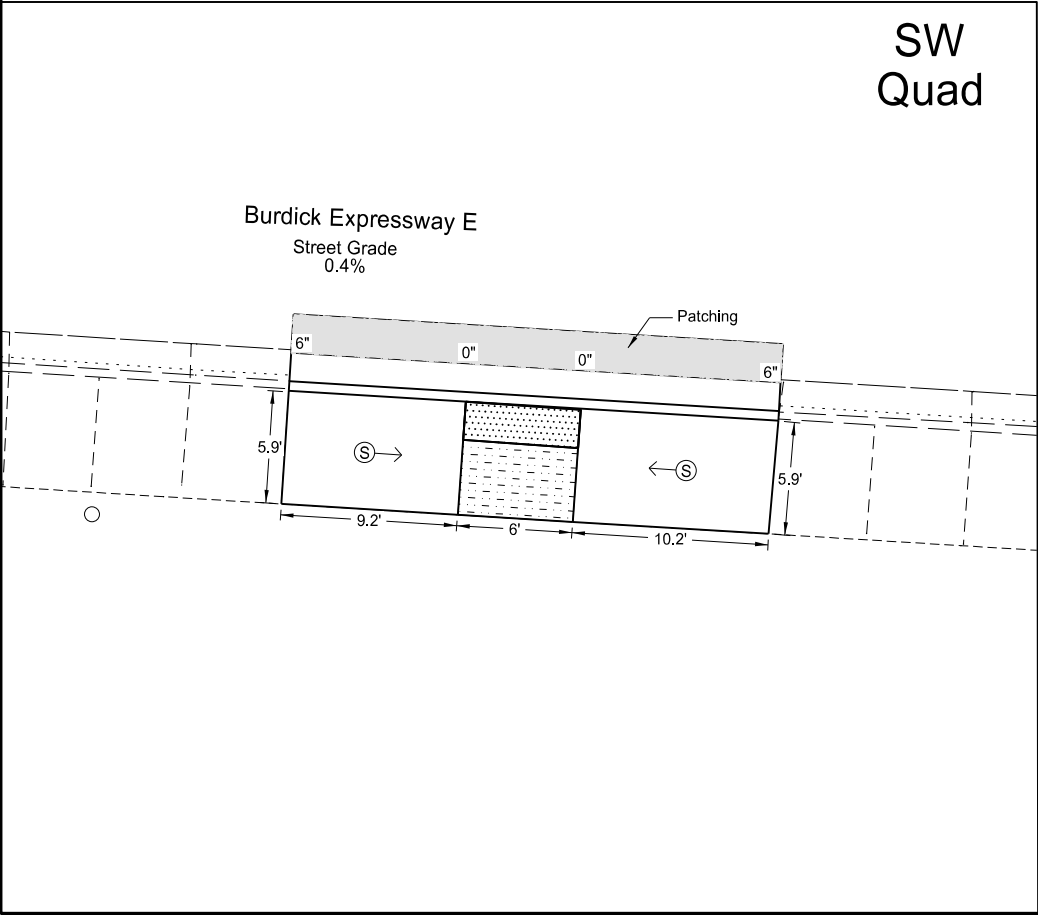
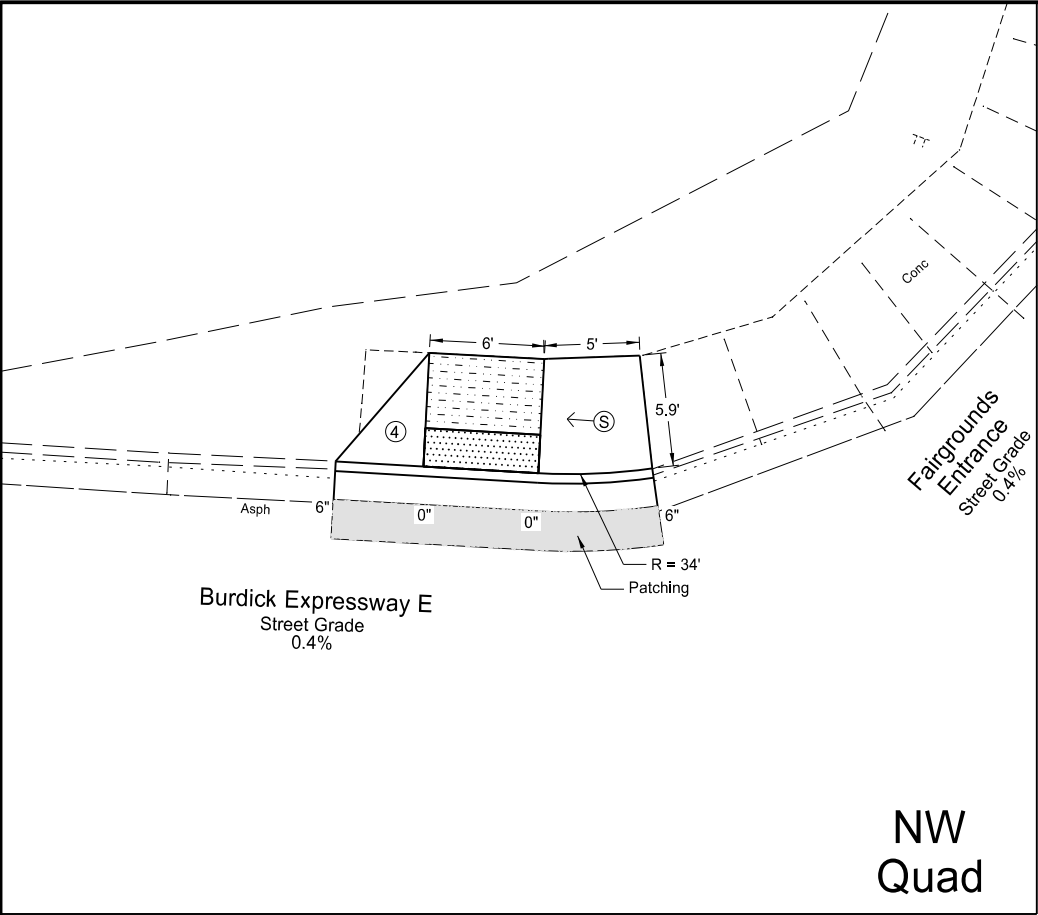


SE  
Quad









STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	17

SPEC	CODE	BID ITEM	QTY	UNIT
430	2000	PATCHING		
		NW Quad	2	TON
		SW Quad	3	TON
748	0100	CURB & GUTTER		
		NW Quad	17	LF
		SW Quad	26	LF
750	0115	SIDEWALK CONCRETE 4IN		
		NW Quad	9	SY
		SW Quad	17	SY
750	2115	DETECTABLE WARNING PANELS		
		NW Quad	12	SF
		SW Quad	12	SF

**LEGEND**

Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred

Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail

Transition Panel Slope, PAR width, and Cross  
Slope Will Vary

Flare Slope Maximum of 4:1

Flare Slope Maximum of 10:1

Pigmented Imprinted Concrete

Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions

Detectable Warning Panels

Patching

**Notes:**

- Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
- See Standard Drawing D-750-2 for more details.
- See Standard Drawing D-750-3 for more details.
- See Curb - Type I detail in section 20.

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ADA Curb Ramp Improvements  
Fairground Entrance & Burdick Expy  
NW & SW ADA Quadrants

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	80	18

SPEC	CODE	BID ITEM	QTY	UNIT
430	0500	PATCHING		
		SW Quad	4	TON
		SE Quad	5	TON
722	6240	ADJUST UTILITY APPURTANCE		
		SE Quad	1	EA
748	0100	CURB & GUTTER		
		SW Quad	41	LF
		SE Quad	50	LF
750	0115	SIDEWALK CONCRETE 4IN		
		SW Quad	34	SY
		SE Quad	20	SY
750	2115	DETECTABLE WARNING PANELS		
		SW Quad	16	SF
		SE Quad	32	SF

LEGEND

- ⬅️Ⓢ

Steep Ramp  
-Running Slope Between 5.0% & 8.3% Max / 7.7% Preferred  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- ⬅️ⓕ

Flat Ramp  
-Running Slope Less Than 5.0%  
-Cross Slope Maximum of 2.0% / 1.5% Preferred
- ⬅️ⓉⓂ

Tilting Ramp at Maximum Rate of 0.5% / ft,  
See Detail
- Ⓣ

Transition Panel Slope, PAR width, and Cross  
Slope Will Vary
- ④

Flare Slope Maximum of 4:1
- ⑩

Flare Slope Maximum of 10:1

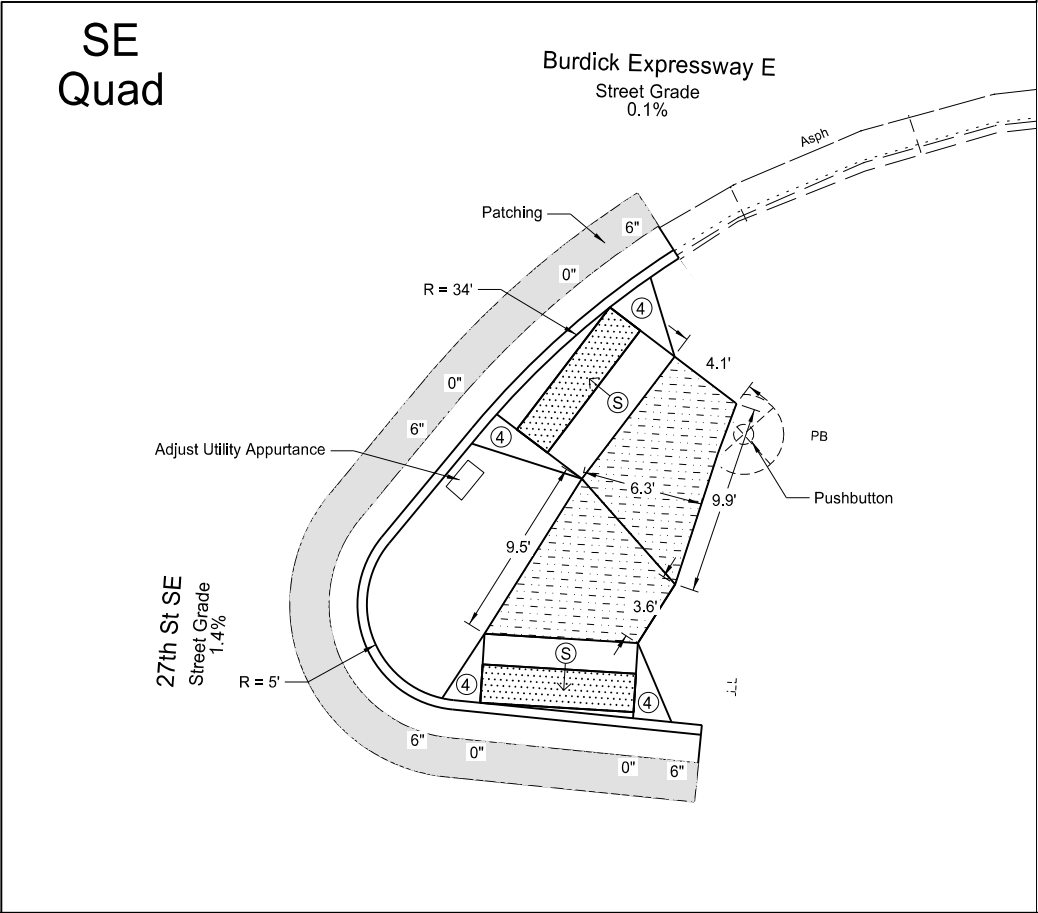
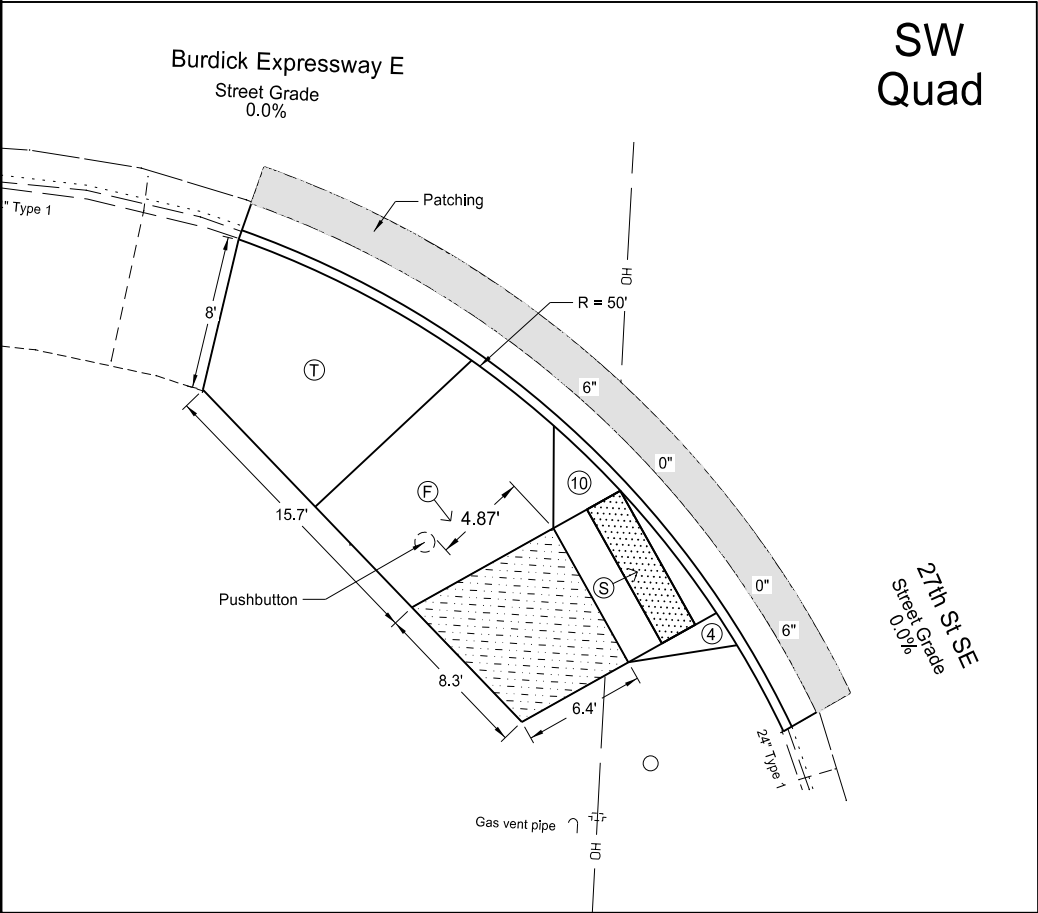
- Pigmented Imprinted Concrete
- Landing Area  
-Slope Maximum of 2.0% / 1.5% Preferred  
-All Directions
- Detectable Warning Panels
- Patching

- Notes:
- Any ramp found to be in noncompliance will be removed and replaced by the contractor at their own expense.
  - See Standard Drawing D-750-2 for more details.
  - See Standard Drawing D-750-3 for more details.
  - See Curb - Type I detail in section 20.

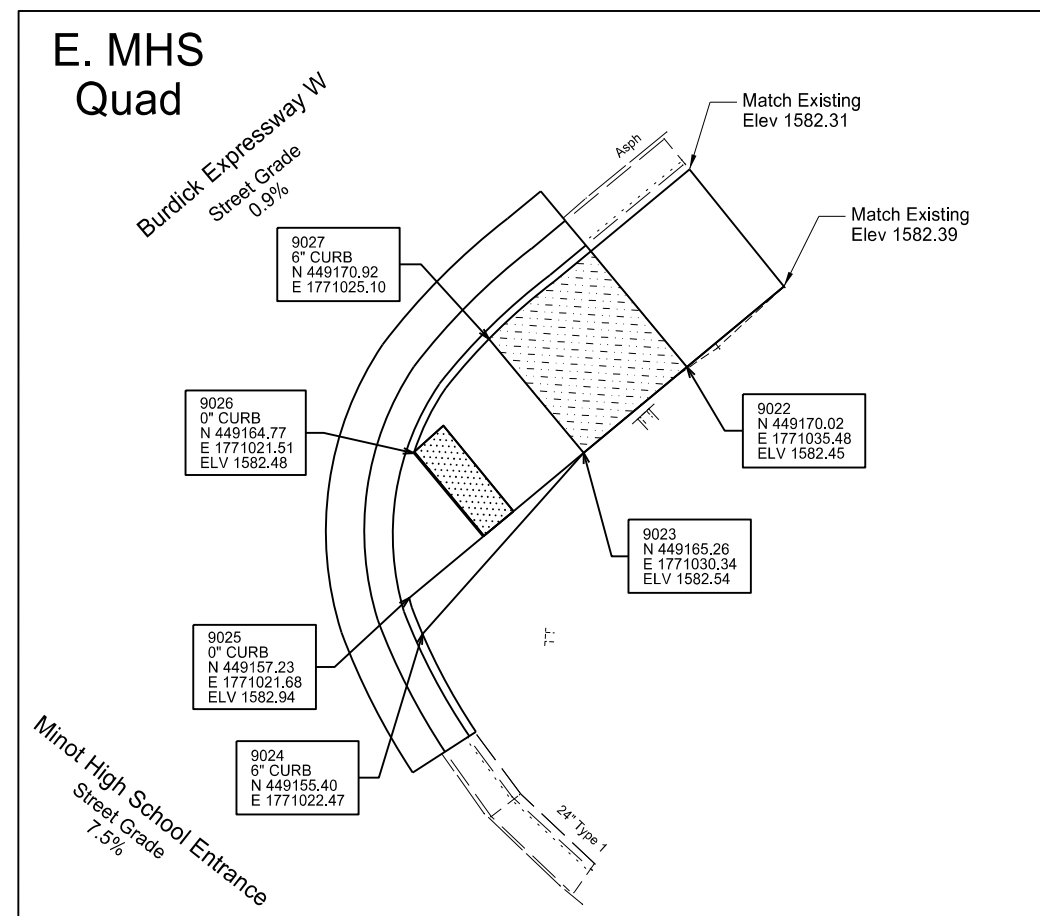
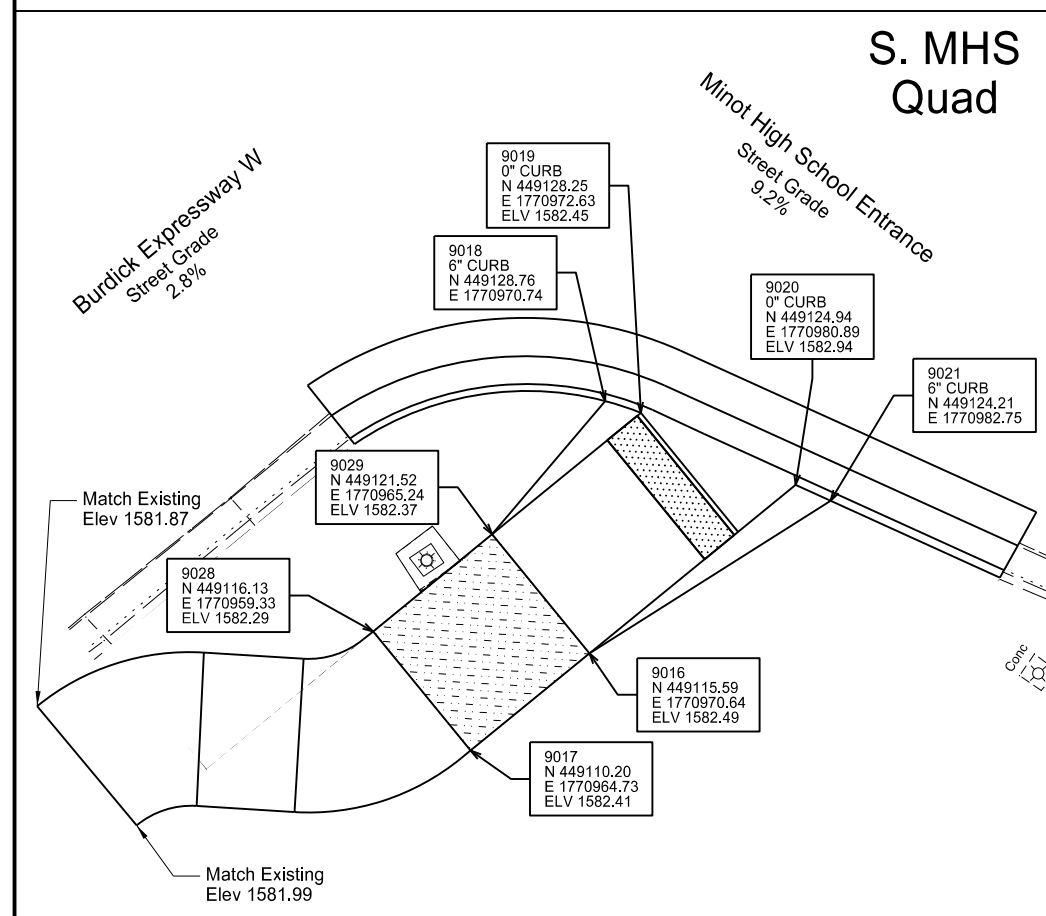
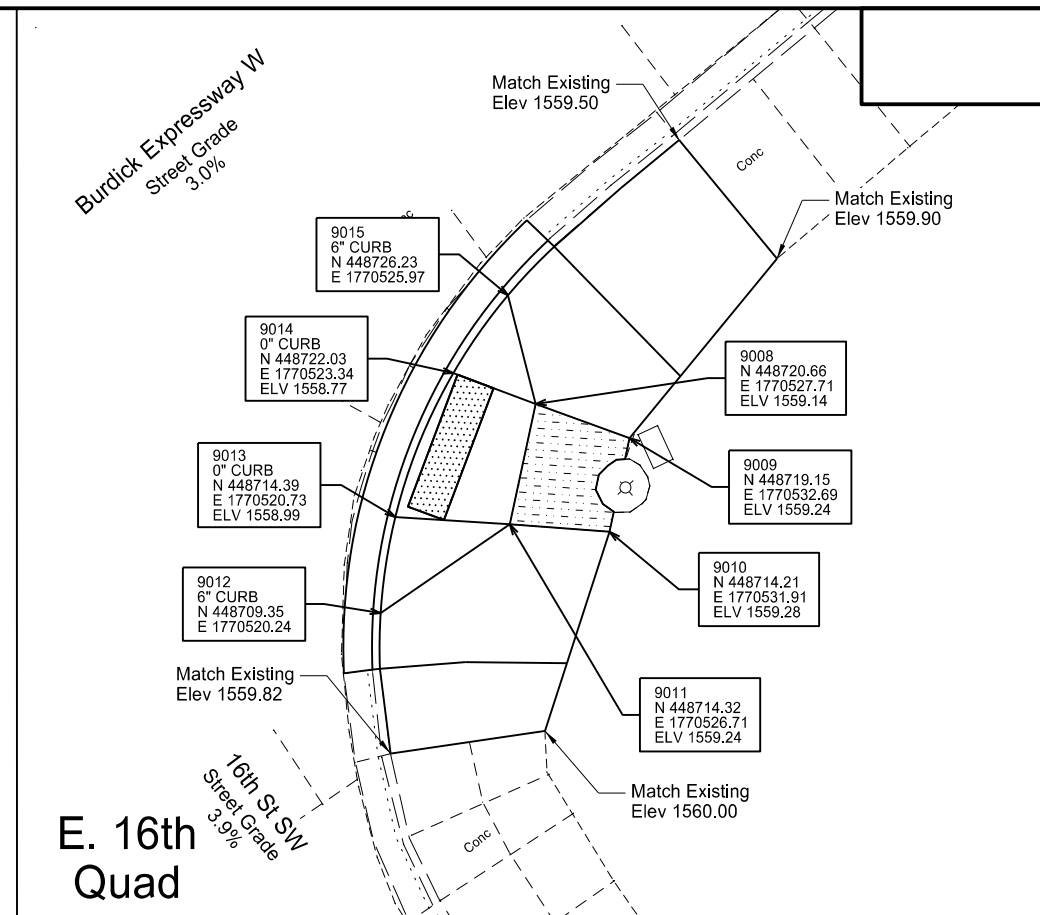
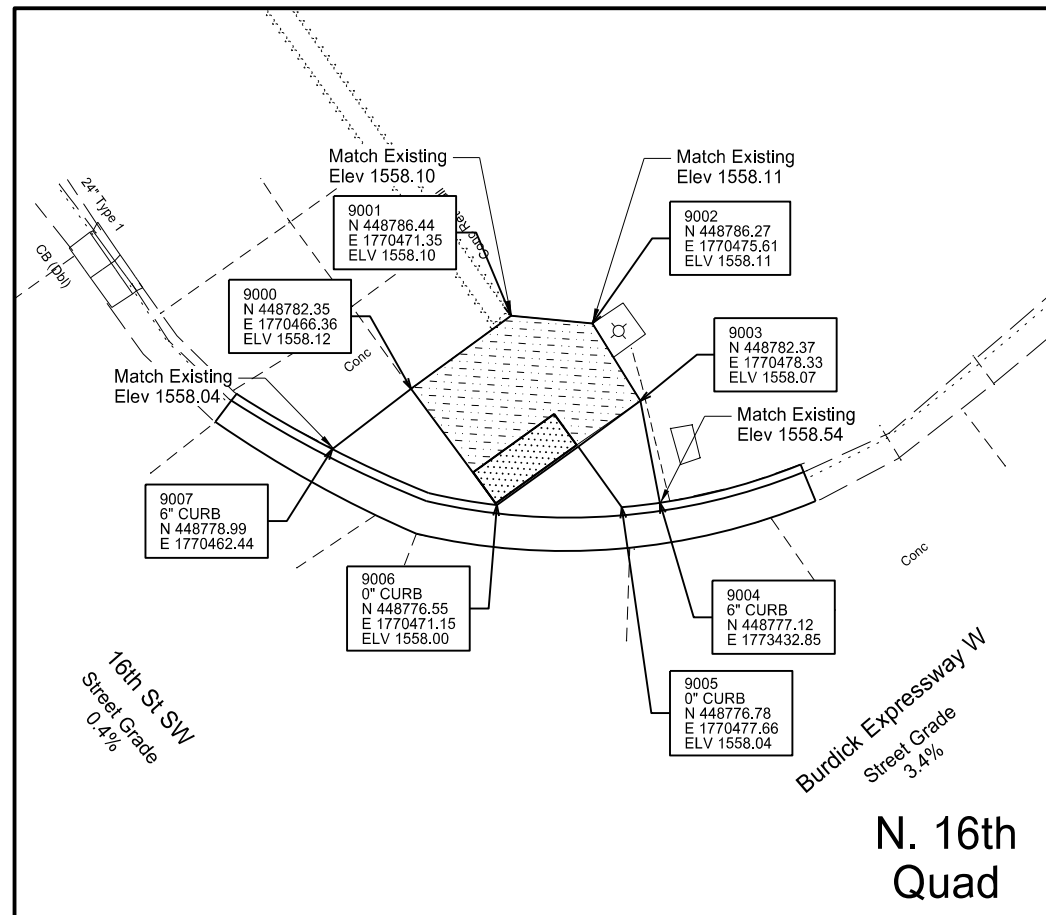


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ADA Curb Ramp Improvements  
  
27th St SE & Burdick Expy  
SW & SE ADA Quadrants



PRELIMINARY SURVEY COORDINATE AND CURVE DATA - 16TH St SW to US 83; 16TH St SE to 27TH St SE											STATE	PROJECT NO.		SECTION NO.	SHEET NO.		
										ND		NHU-4-002(125)905		81	1		
HORIZONTAL ALIGNMENT				CURVE DATA		SURVEY CONTROL POINTS					SURVEY CONTROL POINTS						
PNT	STATION	NORTHING	EASTING	ARC DEFINITION		PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
						SECONDARY CONTROL					PRIMARY CONTROL						
						RTK 100	448802.69	1770502.13	1560.81	GPS 6469117.131770455.821737.32							
						RTK 101	448634.90	1770480.36	1561.47	#5 Rebar with plastic cap stamped - Control Point							
						RTK 102	449281.16	1771183.49	1581.02	(From NDDOT - Minot - US 83 Bypass Project No SOIB-4-083(143)921)							
						RTK 103	449110.30	1770982.83	1585.27	GPS 7469037.241774805.401734.02							
						RTK 104	450317.87	1772357.98	1578.41	#5 Rebar with plastic cap stamped - Control Point							
						RTK 105	450452.18	1772462.47	1575.47	(From NDDOT - Minot - US 83 Bypass Project No SOIB-4-083(143)921)							
						RTK 106	450487.23	1772618.05	1583.98								
						RTK 107	450550.21	1772693.74	1581.84								
						RTK 108	450507.18	1773409.92	1617.59								
						RTK 109	450643.54	1773489.31	1613.32								
						RTK 110	450510.66	1773665.62	1618.41								
						RTK 111	450652.00	1773715.83	1611.80								
						RTK 112	450642.84	1773980.09	1612.85								
						RTK 113	450646.47	1774189.61	1614.44								
						RTK 114	450638.01	1774451.46	1608.81								
						RTK 115	450549.08	1774697.79	1619.01								
						RTK 116	450704.15	1778544.02	1553.63								
						RTK 117	450472.09	1781093.19	1548.52								
						RTK 118	450673.53	1780813.38	1552.41								
						RTK 119	450194.49	1781964.72	1550.32								
						RTK 120	450284.56	1781836.66	1550.21								
						RTK 121	450272.16	1782310.58	1549.38								
						RTK 122	450158.94	1782300.21	1548.26								
						RTK 125	450099.00	1782665.72	1549.01								
						RTK 126	450243.76	1782628.95	1550.46								
						RTK 127	449592.42	1783242.63	1549.72								
						RTK 128	449515.40	1783361.00	1549.76								
						RTK 129	449249.21	1783842.12	1549.76								
						RTK 130	449260.72	1784093.45	1550.41	All coordinates and measurements on this document derived from the International Foot definition.							
						RTK 131	449260.19	1785215.46	1553.32								
						RTK 132	449246.75	1785349.14	1551.90								
						<input type="checkbox"/> Assumed Coordinates					INITIALIZING BENCH MARK NDGPS Station (OPUS)						
						<input checked="" type="checkbox"/> All coordinates on this sheet are Ward County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9998530					<input checked="" type="checkbox"/> NAVD-88 <input type="checkbox"/> _____						
											<input checked="" type="checkbox"/> GEOID 12A <input type="checkbox"/> GEOID 12B						
NOTES: Sheet 1 of 1				Date Survey Completed 04/12/2019							This document was originally issued and sealed by Dain K Erickson, Registration Number LS- 5582 , on 09/25/19 and the original document is stored at the North Dakota Department of Transportation						



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	82	1

Note : Unless otherwise noted,  
all elevations are to top of sidewalk  
or top back of curb.

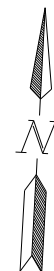
### LEGEND

X" CURB

### Curb Height

Landing Area

### Detectable Warning Panels



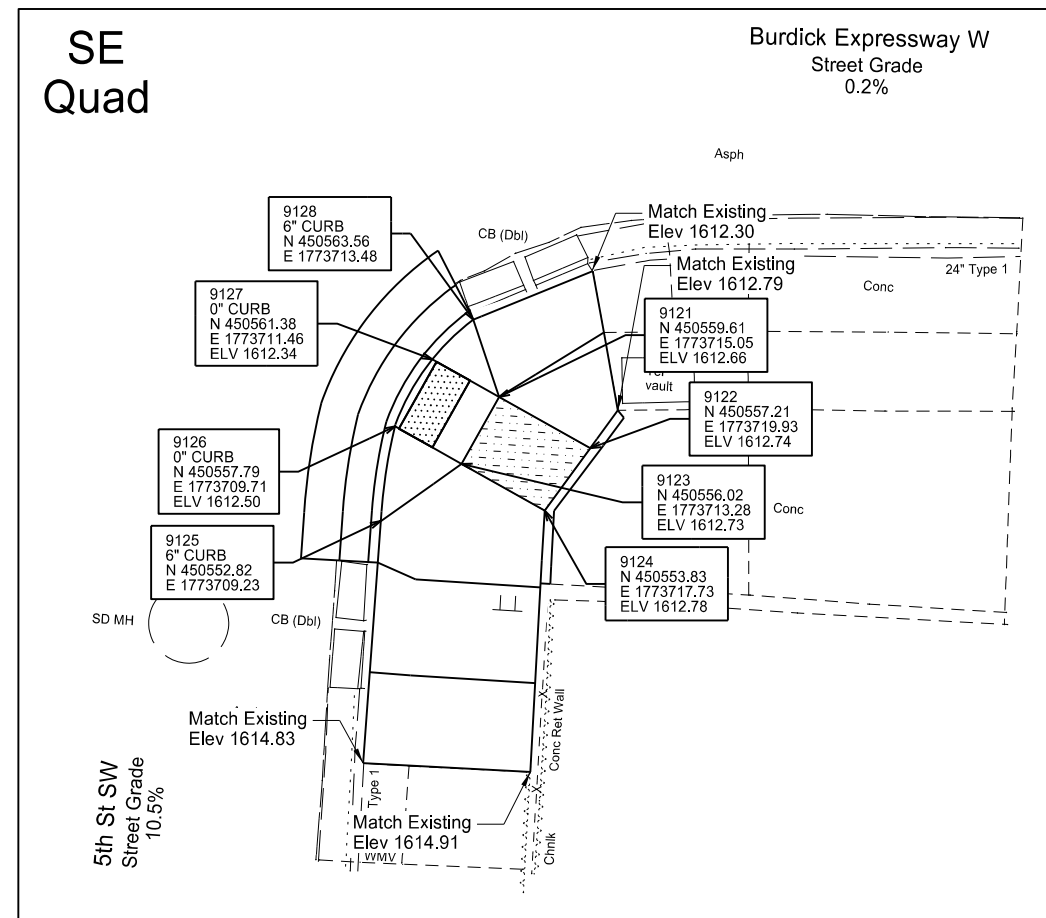
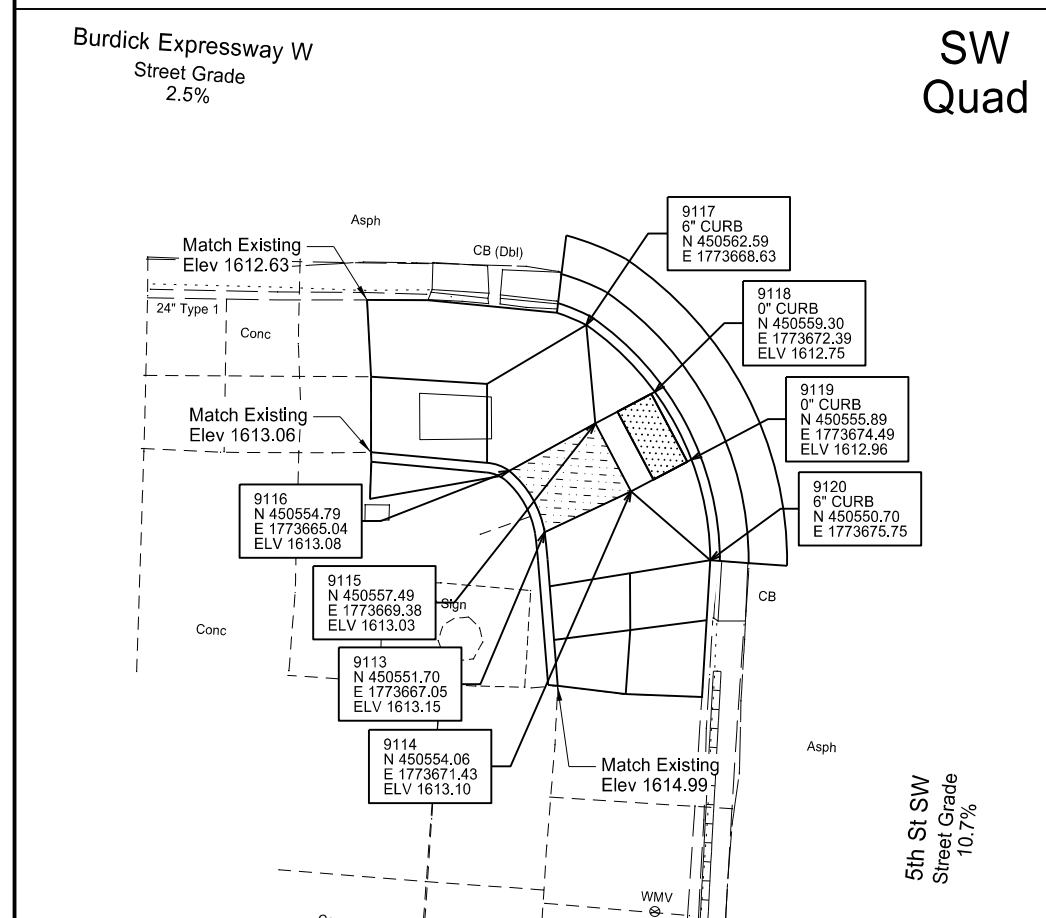
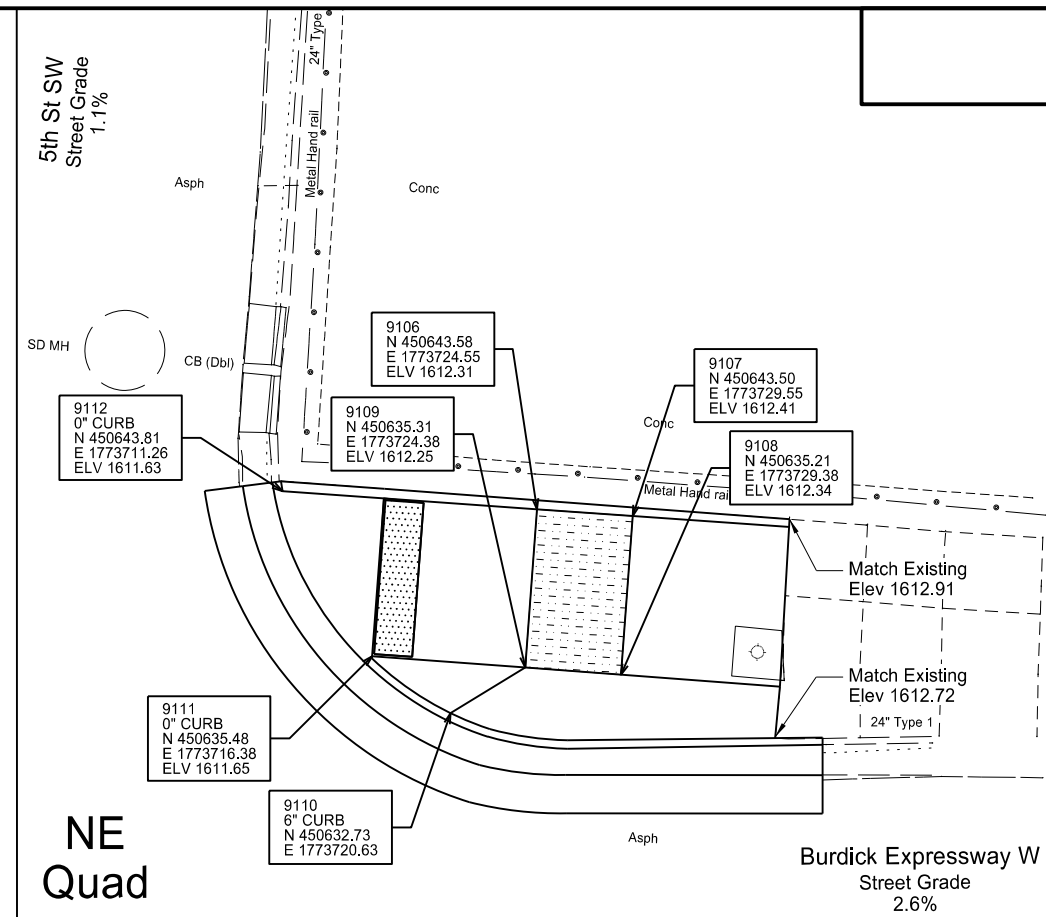
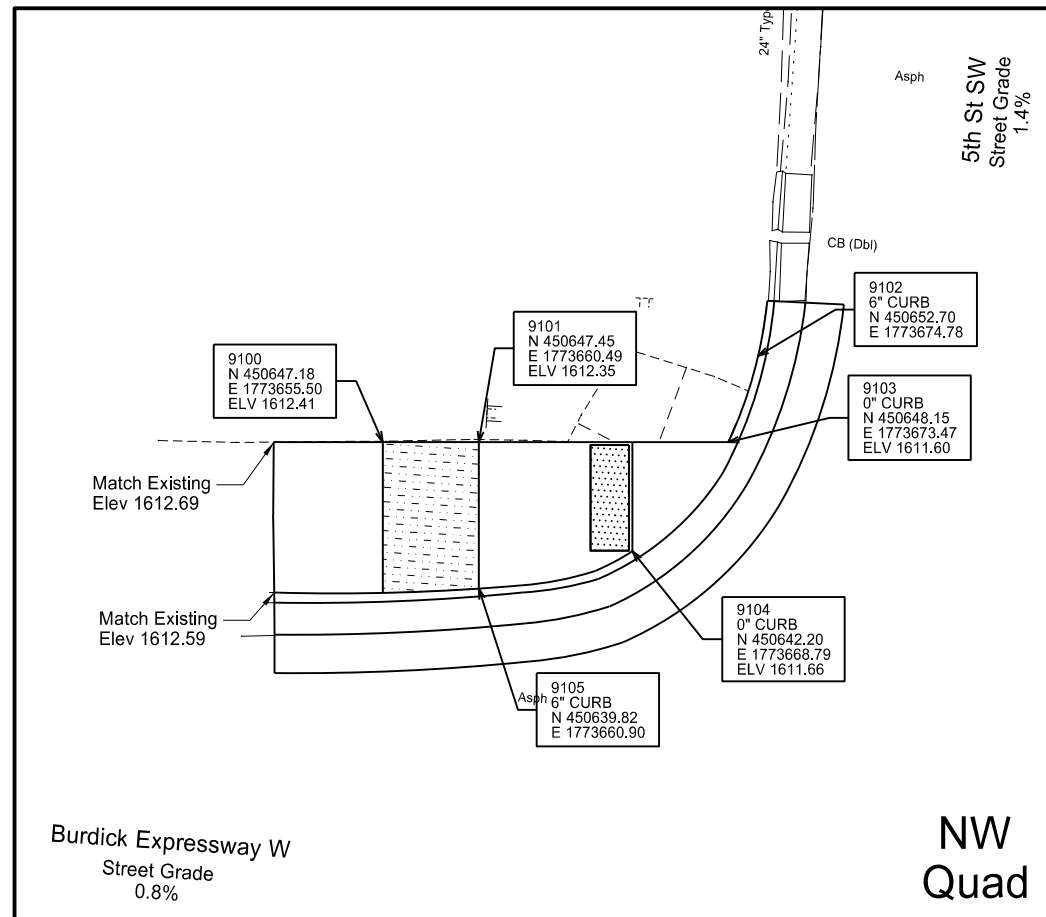
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## Survey Data Layouts

16th St SW & Burdick Expy, MHS & Burdick Expy  
N & E 16th, S & E MHS







STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	82	4

Note : Unless otherwise noted,  
all elevations are to top of sidewalk  
or top back of curb.

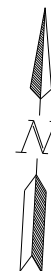
### LEGEND

X" CURB

Curb Height

Landing Area

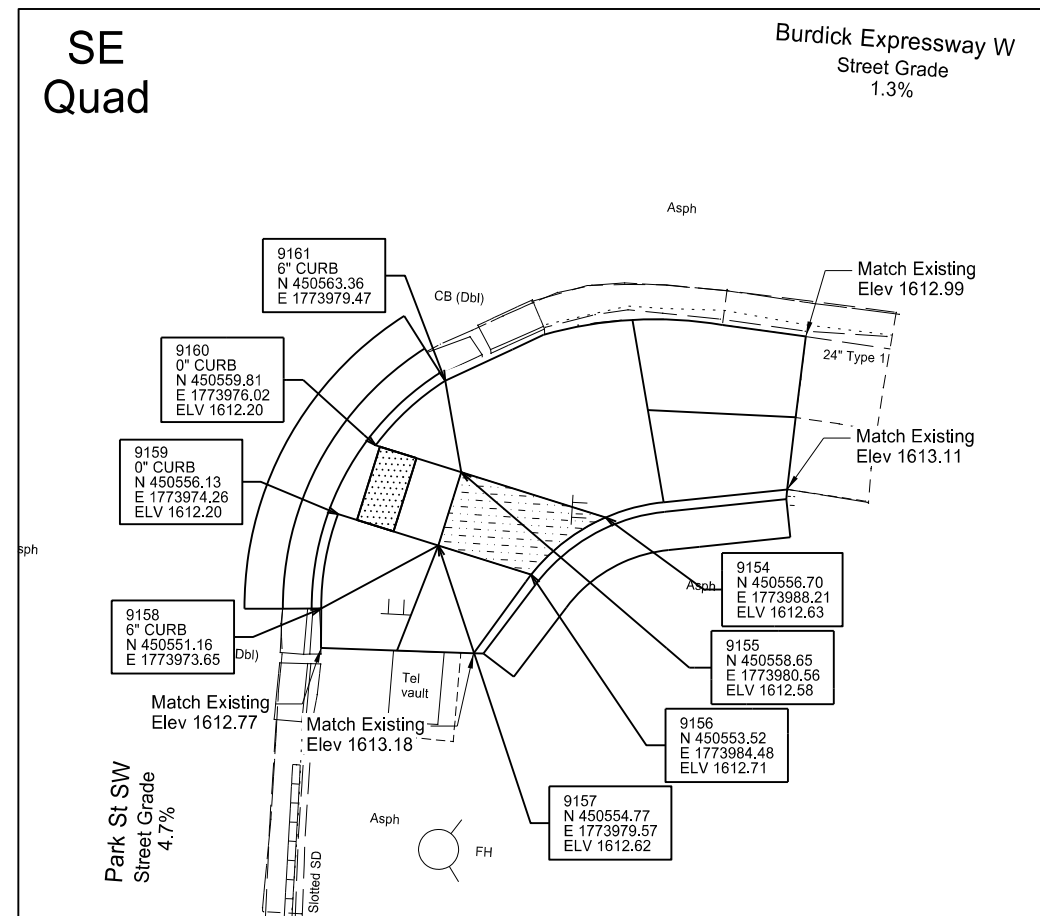
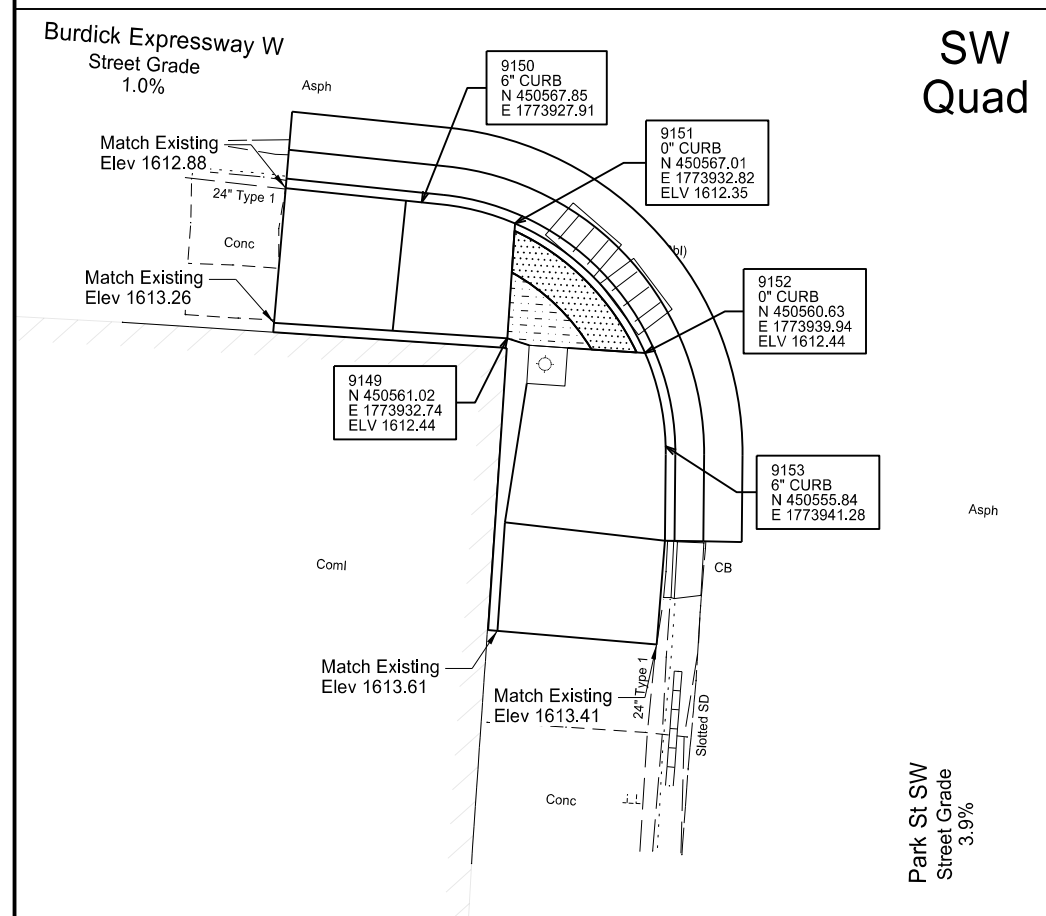
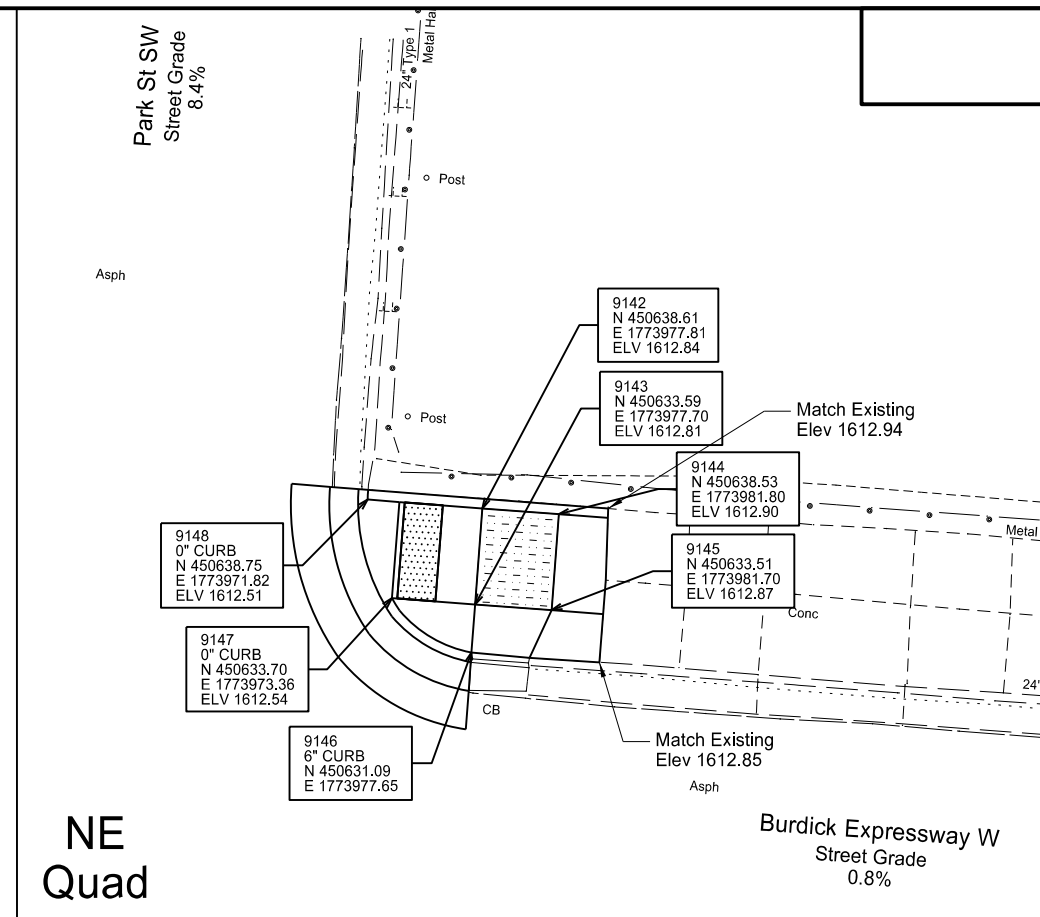
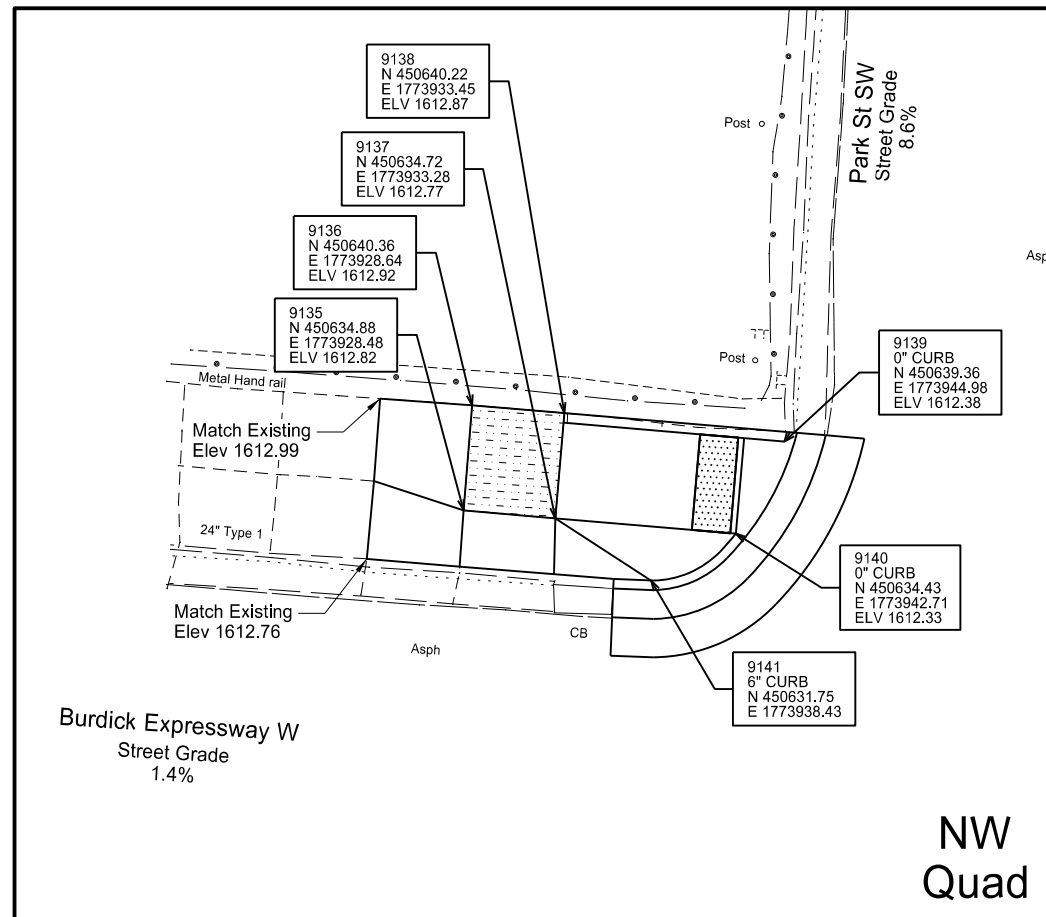
### Detectable Warning Panels



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## Survey Data Layouts

5th St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	82	5

Note : Unless otherwise noted,  
all elevations are to top of sidewalk  
or top back of curb.

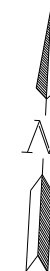
### LEGEND

X" CURB

### Curb Height

Landing Area

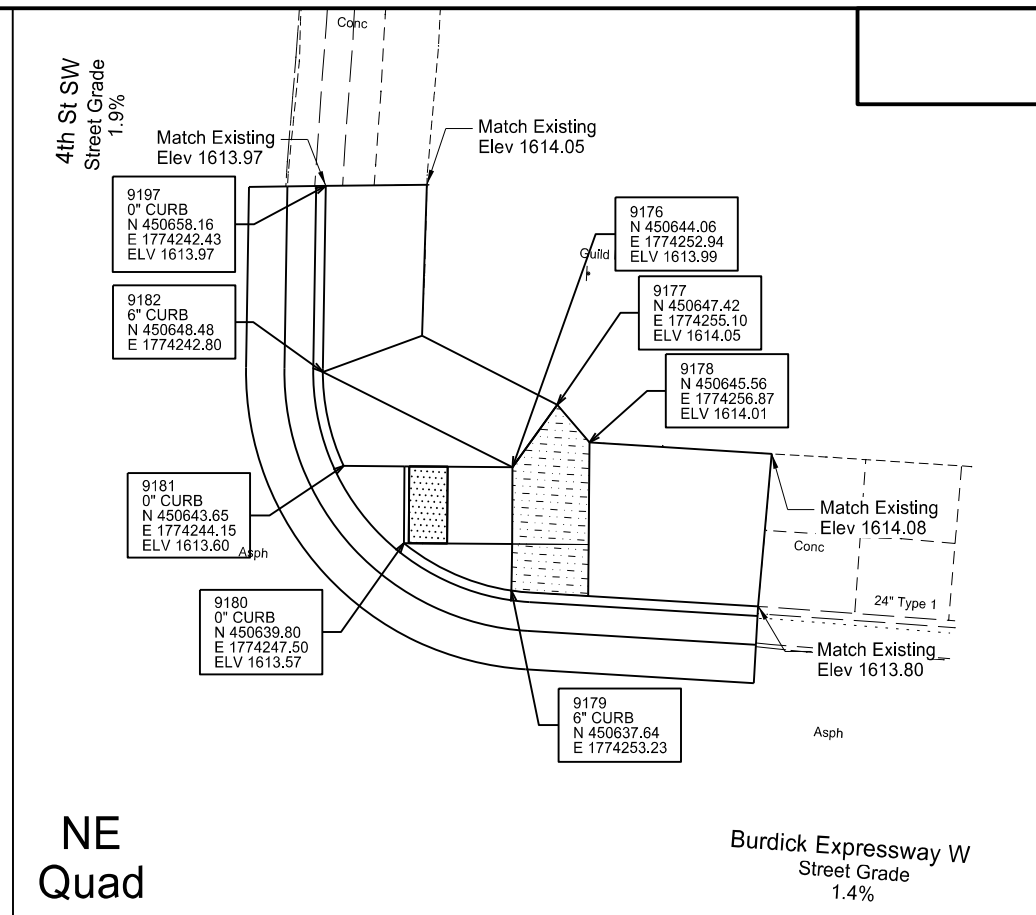
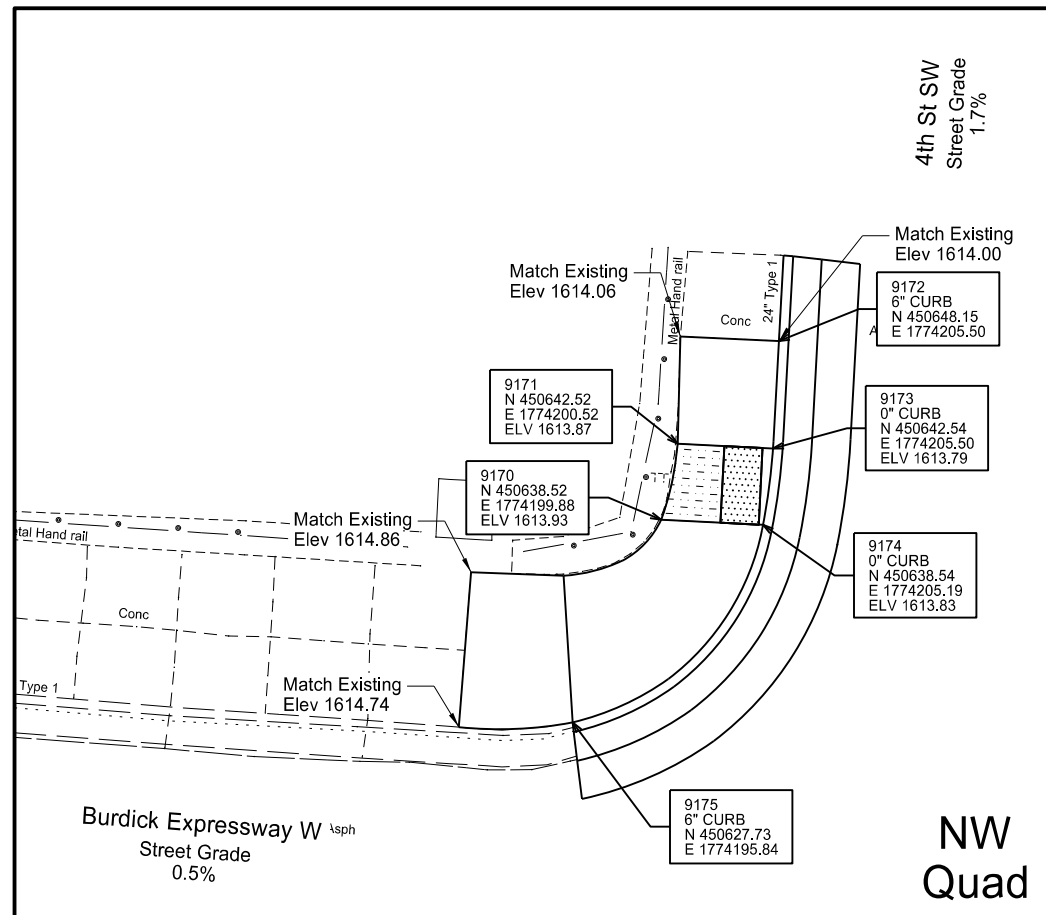
### Detectable Warning Panels



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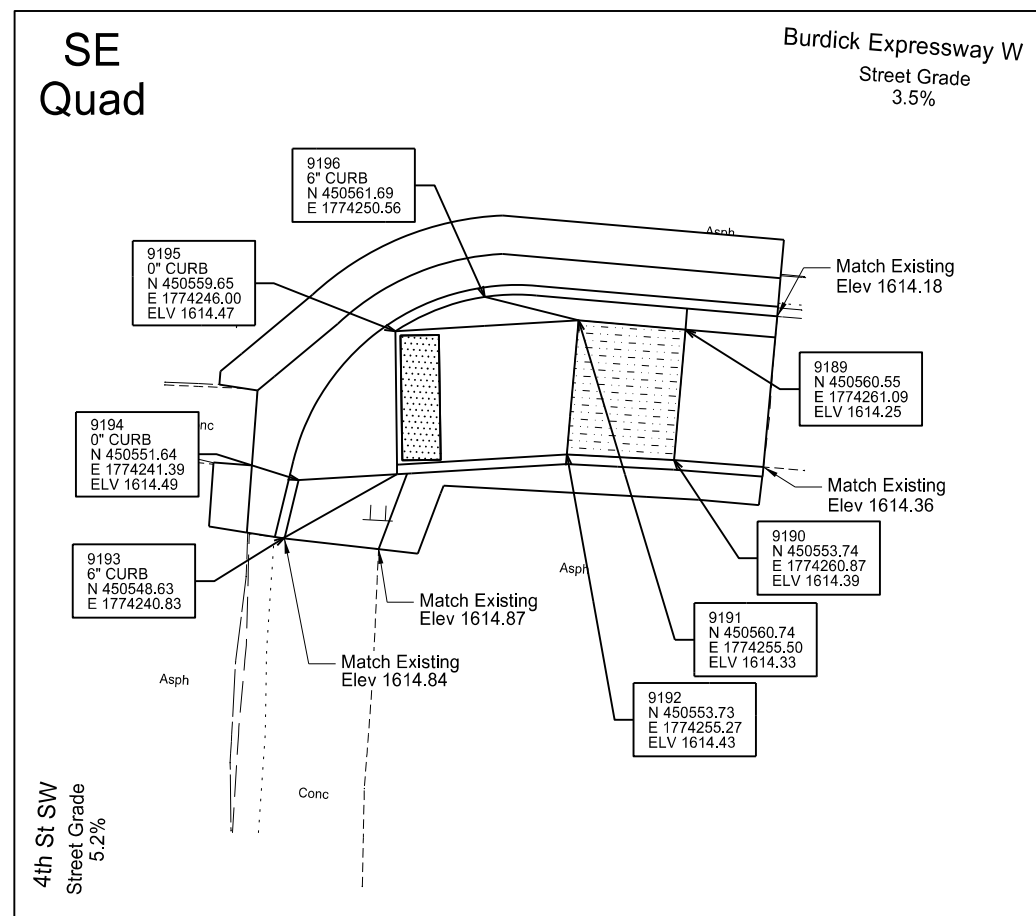
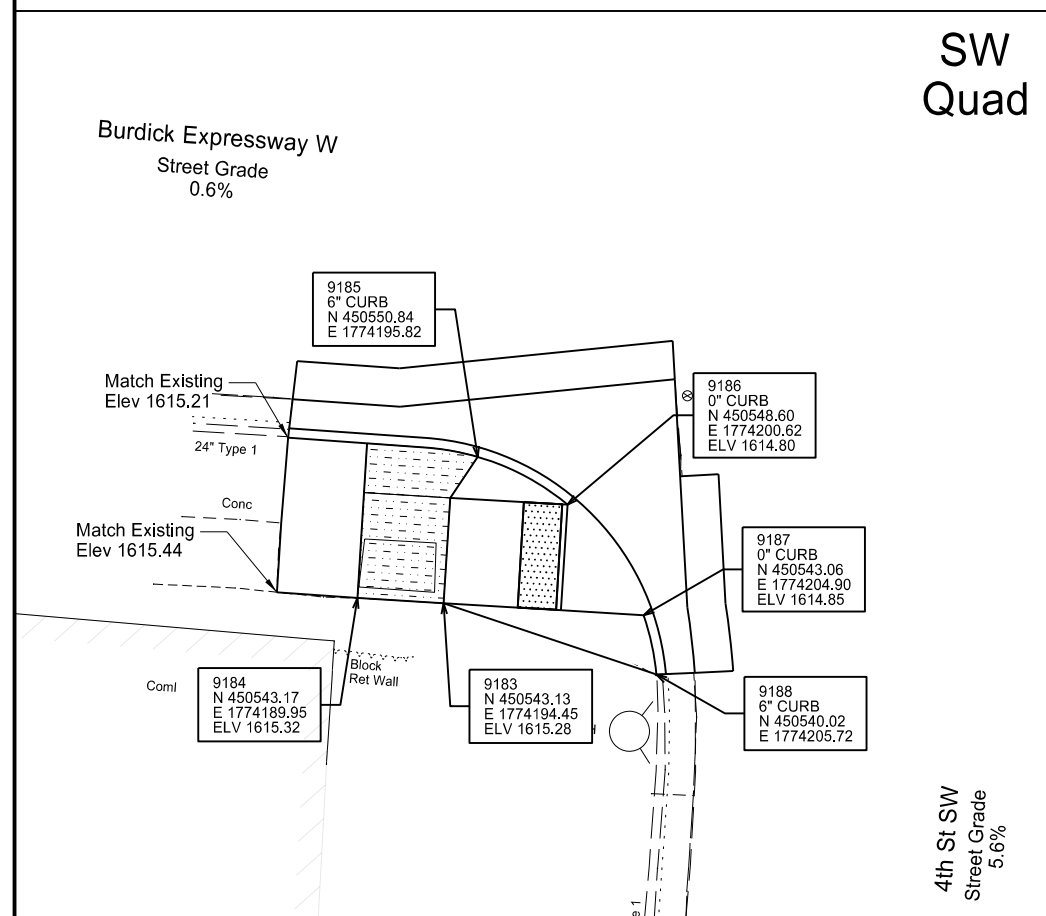
## Survey Data Layouts

Park St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	82	6

Note : Unless otherwise noted,  
all elevations are to top of sidewalk  
or top back of curb.



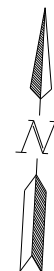
### LEGEND

X" CURB

Curb Height

Landing Area

### Detectable Warning Panels



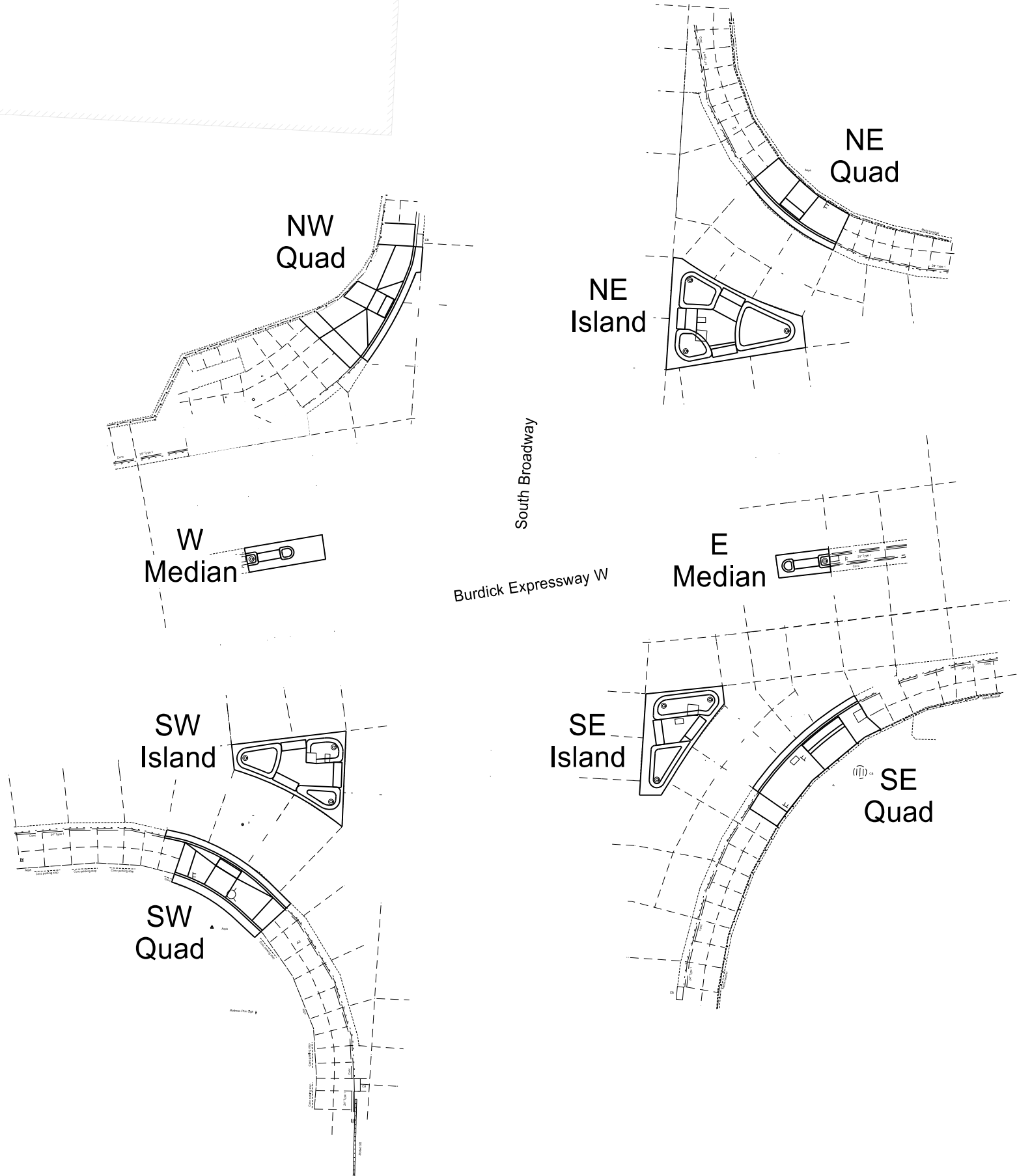
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## Survey Data Layouts

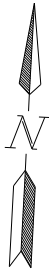
4th St SW & Burdick Expy  
NE,SE,SW,NW ADA Quadrants



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	82	8



Note : Intersection Key Map  
No Work This Sheet



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Survey Data Layouts  
South Broadway & Burdick Expy  
Intersection Layout







STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	82	12

Note : Unless otherwise noted,  
all elevations are to top of sidewalk  
or top back of curb.

LEGEND

X" CURB	Curb Height
Landing Area	Landing Area
Detectable Warning Panels	Detectable Warning Panels

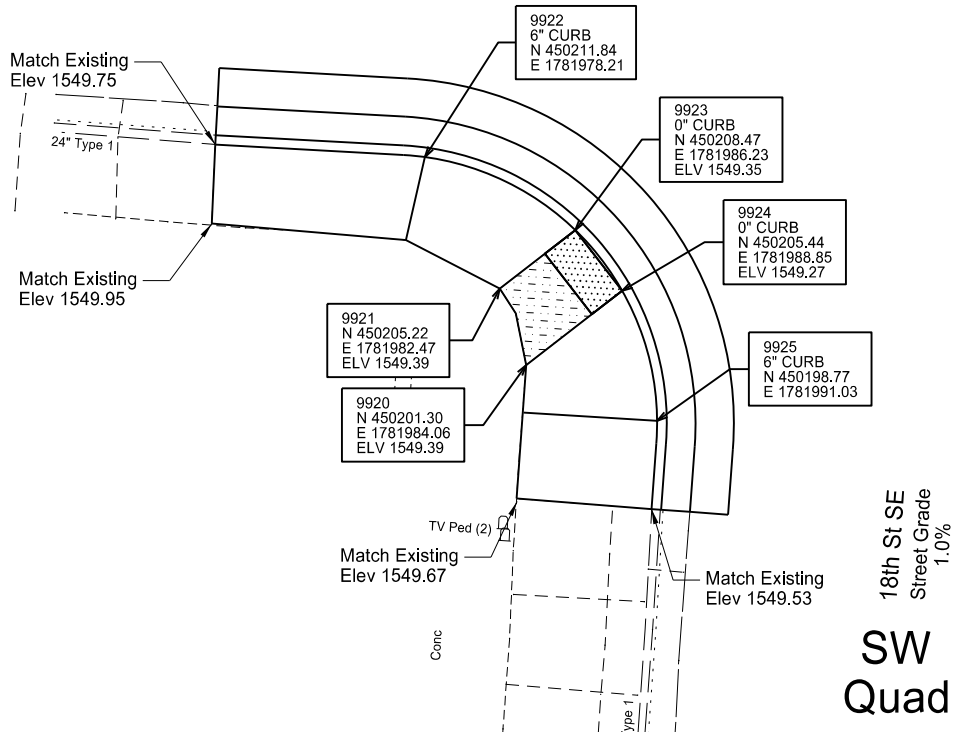


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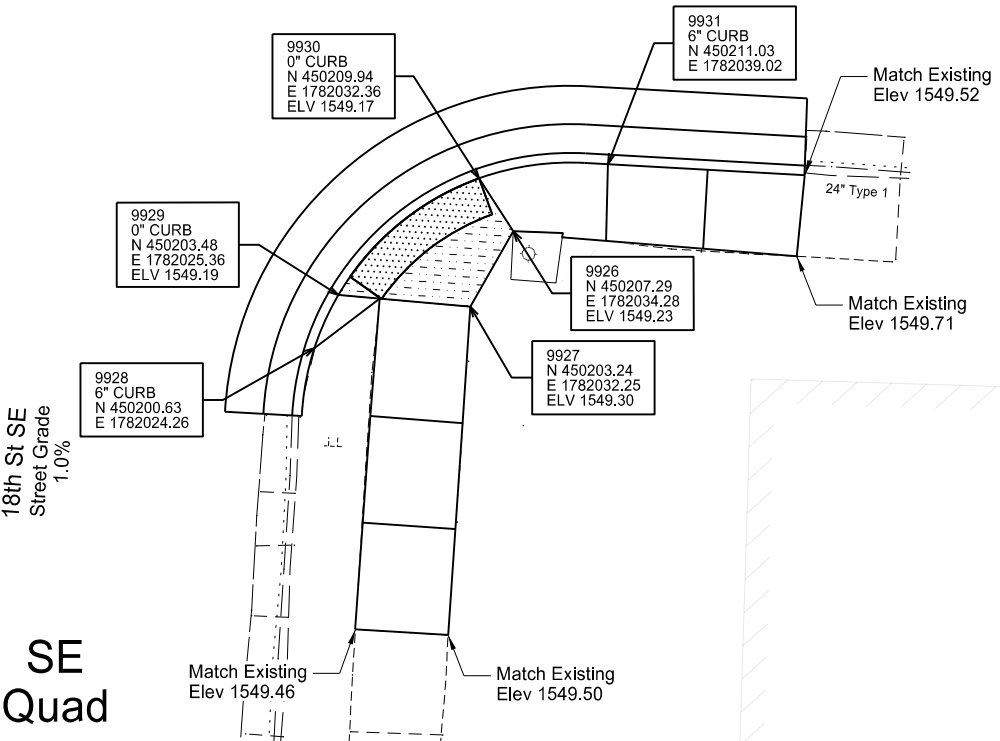
Survey Data Layouts

18th St SE & Burdick Expy  
SW & SE ADA Quadrants

Burdick Expressway E  
Street Grade  
0.1%

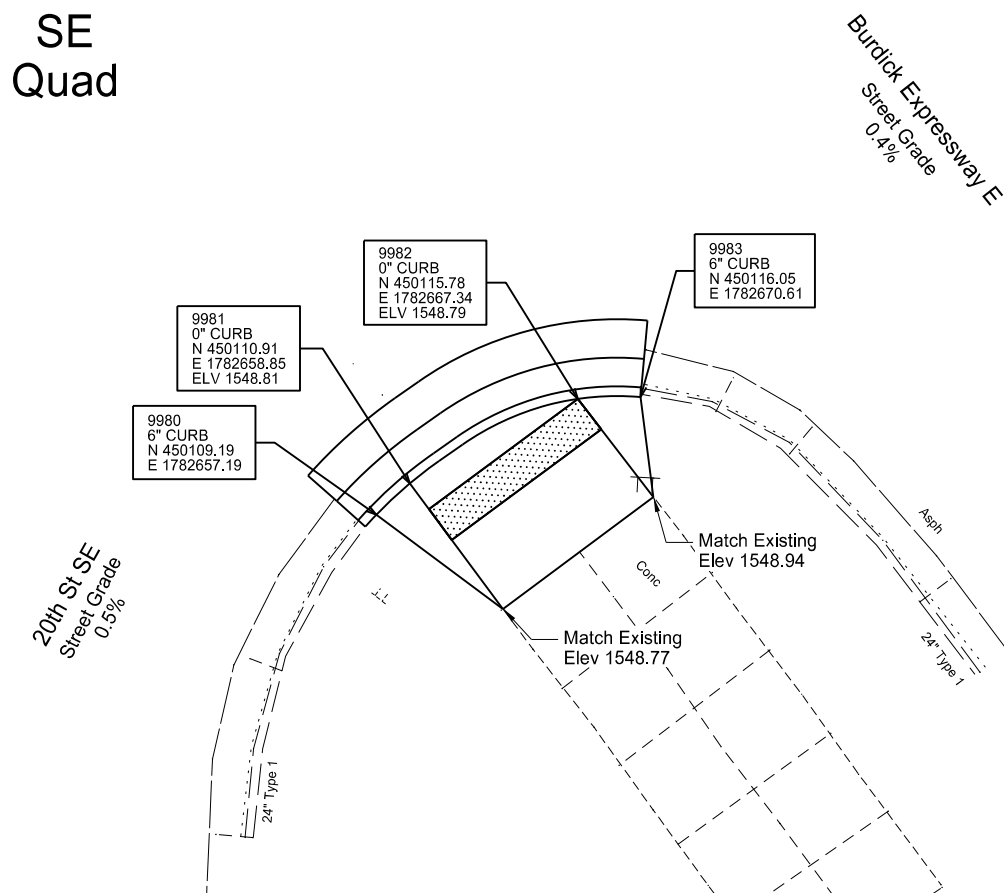
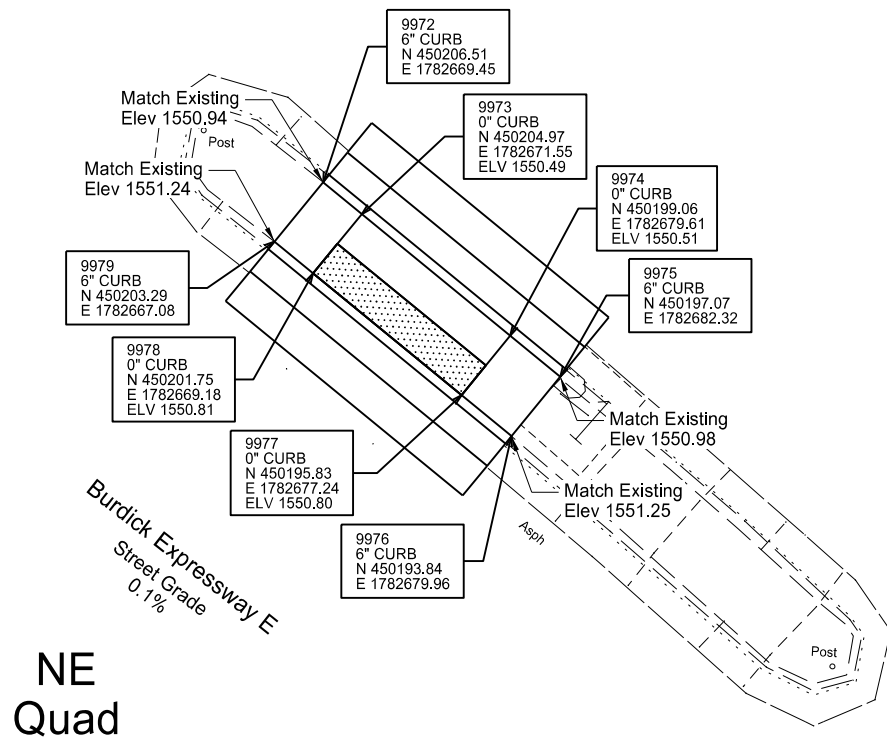
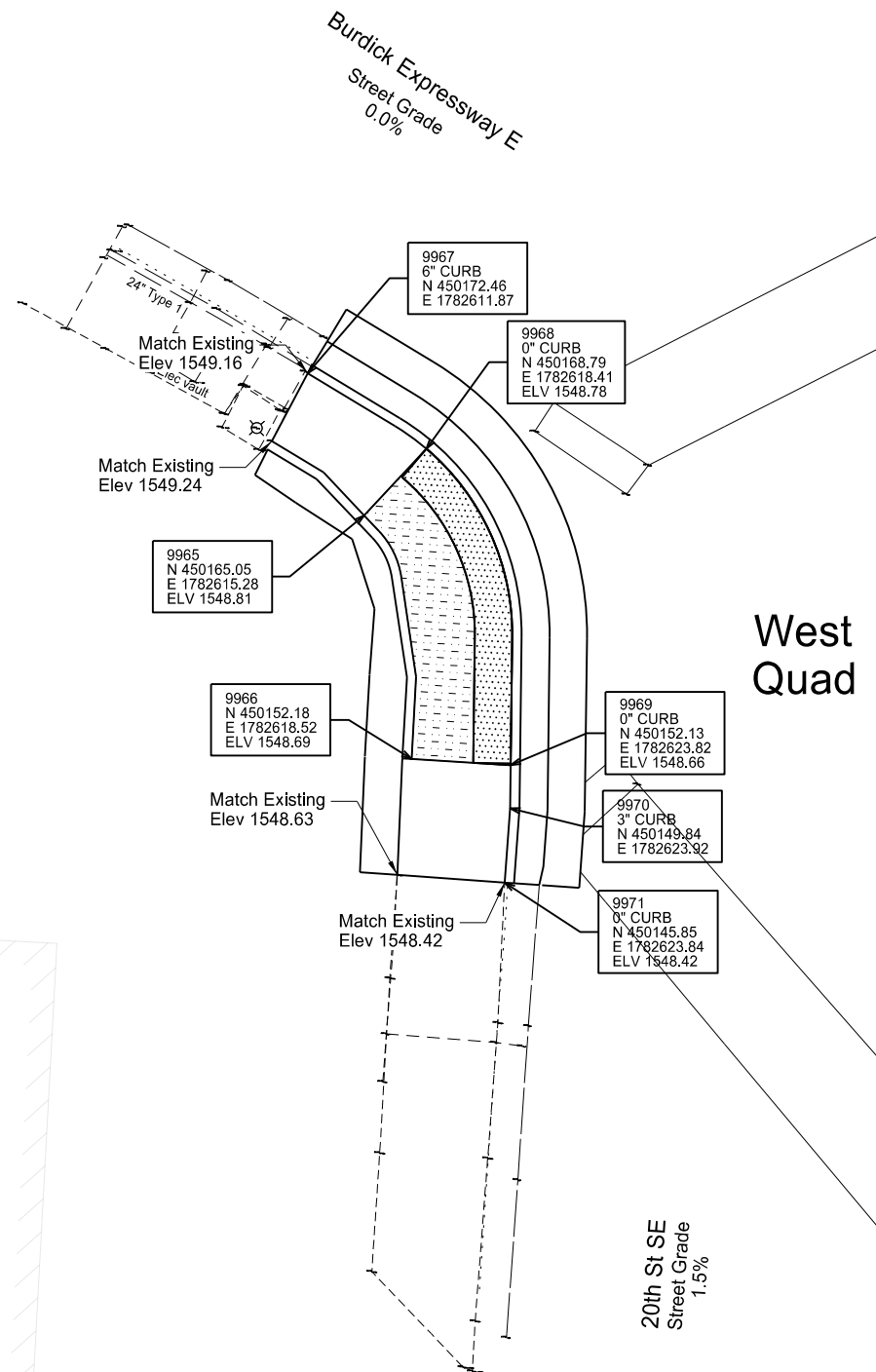


Burdick Expressway E  
Street Grade  
0.8%



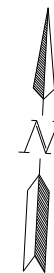


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	82	14



Note : Unless otherwise noted,  
all elevations are to top of sidewalk  
or top back of curb.

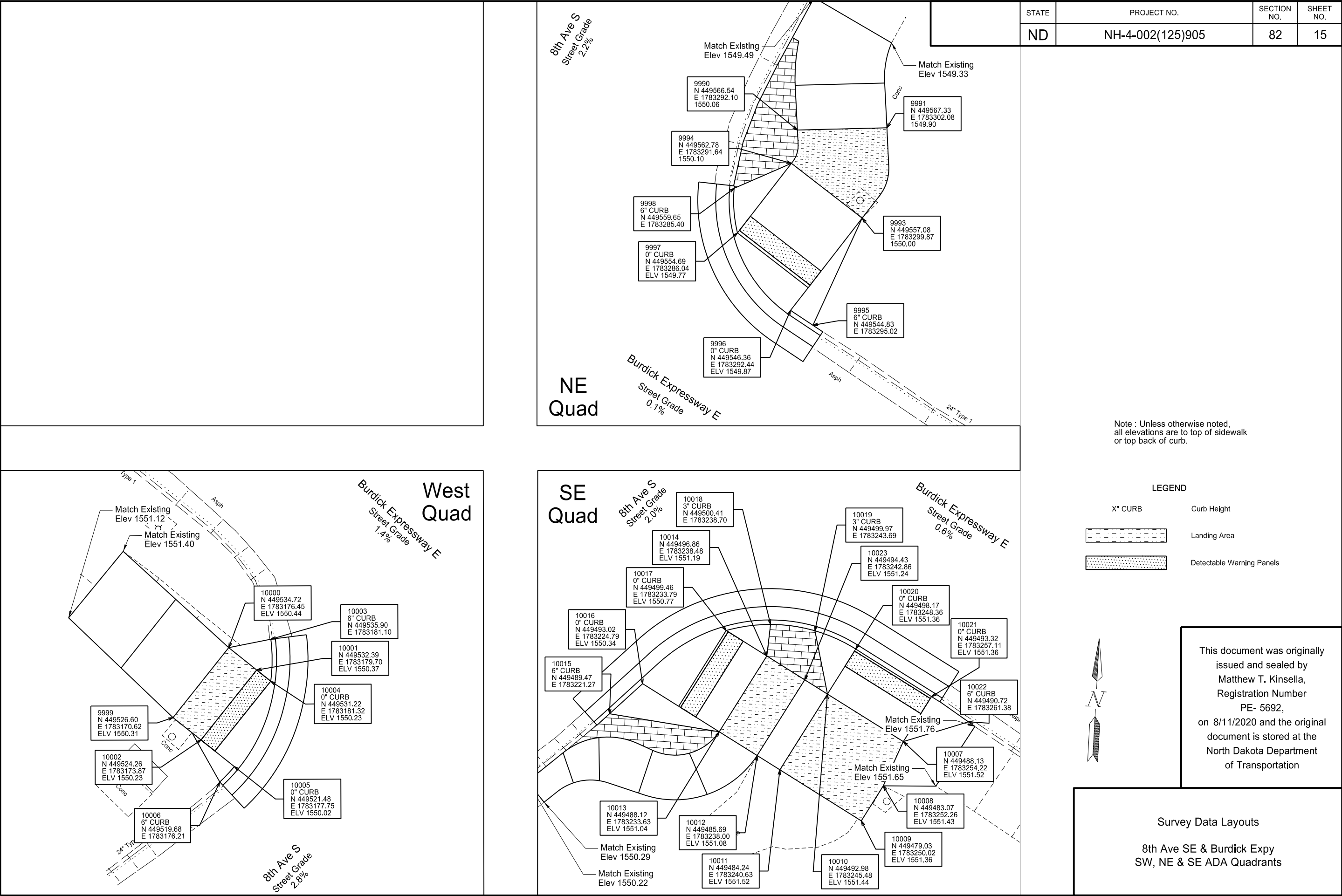
LEGEND	
X" CURB	Curb Height
24' Type 1	Landing Area
6' Vault	Detectable Warning Panels

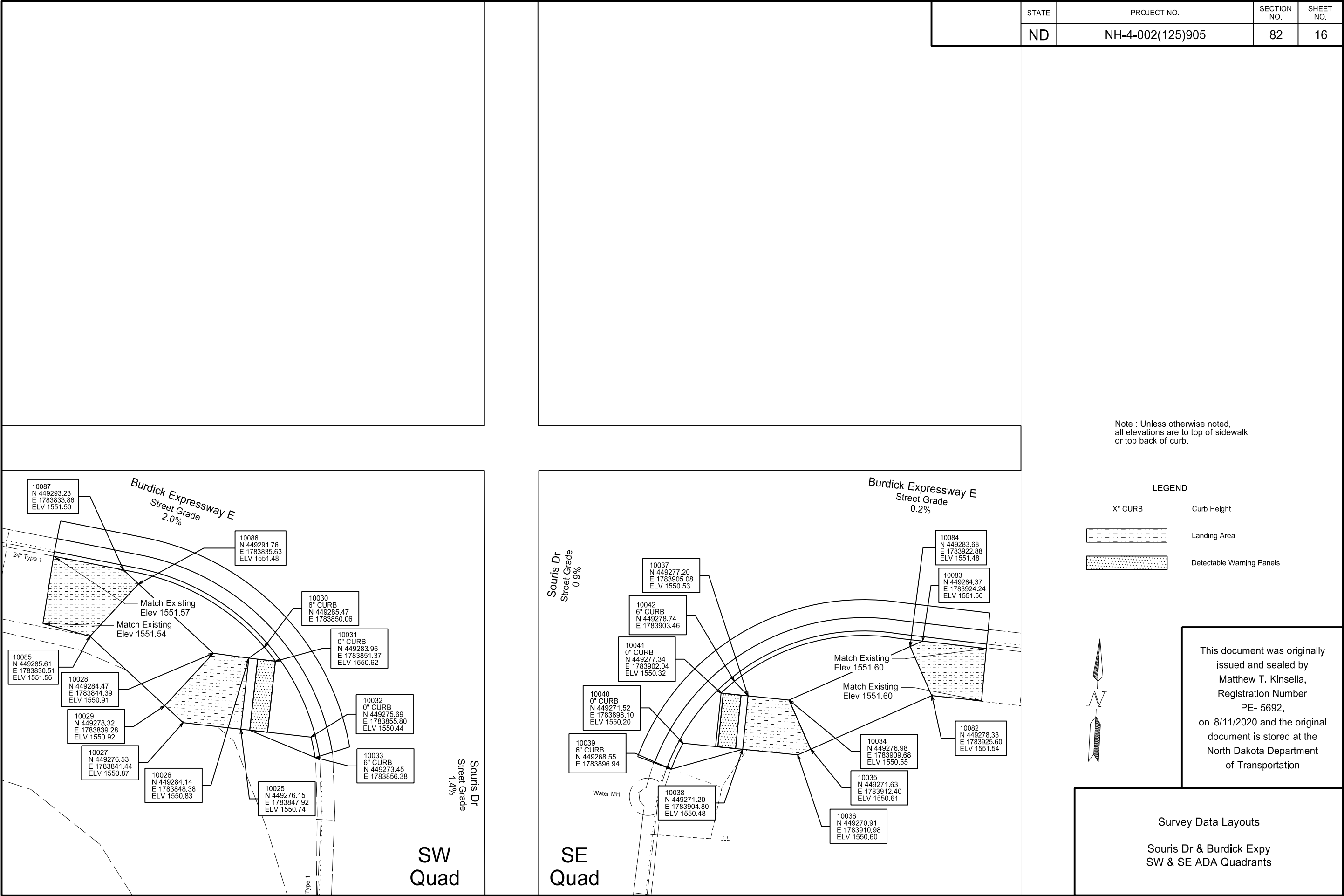


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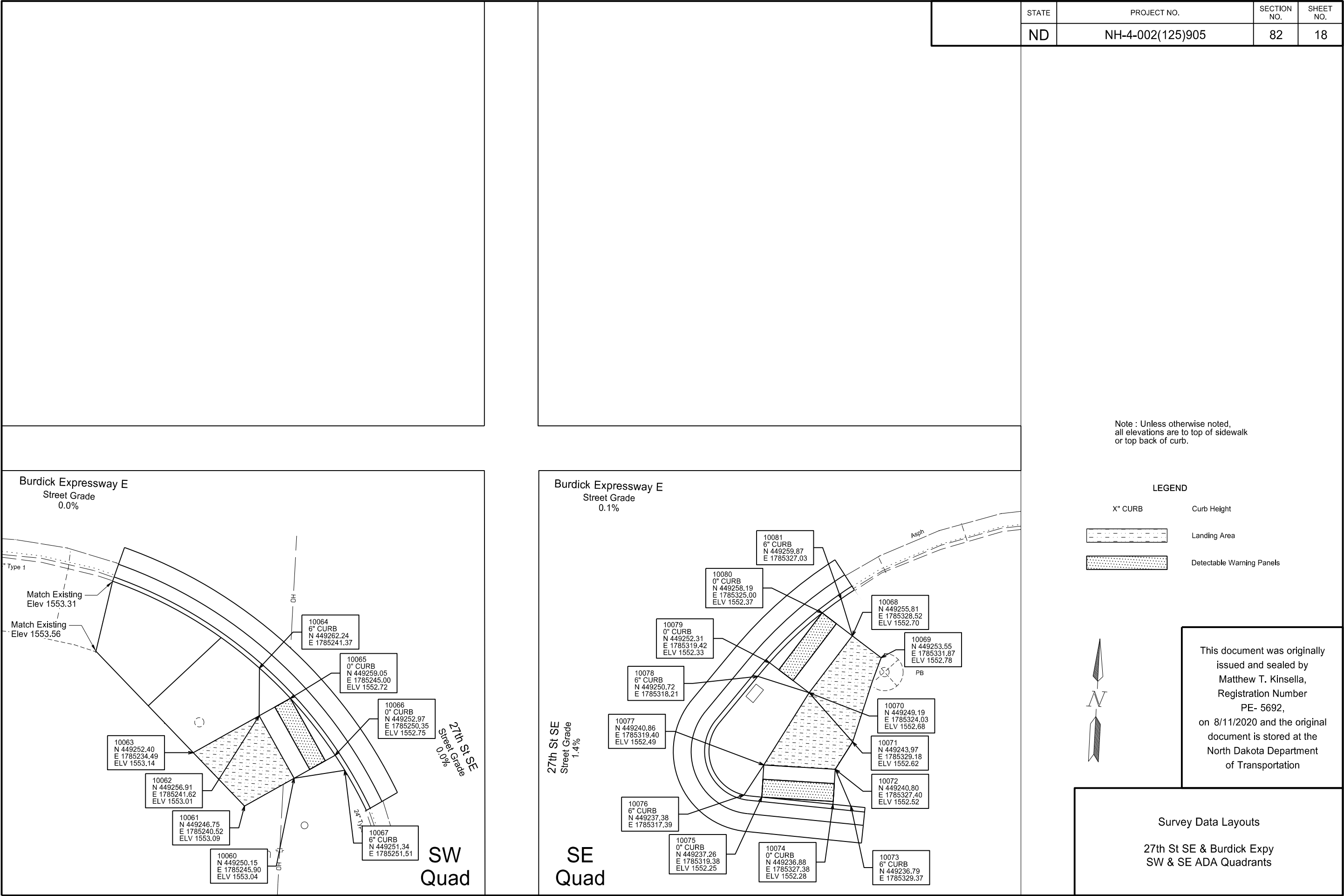
Survey Data Layouts

20th St SE & Burdick Expy  
SW, NE & SE ADA Quadrants









STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED				TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
			BY PHASE NO.						
			1	2	3	4			
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	2	4	2	4	26	104
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)						30	
R2-1-48	48"x60"	SPEED LIMIT ___	6	6	12	6	12	39	468
R2-1aP-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	2	2	4	2	4	10	40
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	
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						26	
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						35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD	2	2	4	2	4	35	140
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT	2	2	4	2	4	35	140
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	
W20-1-48	48"x48"	ROAD WORK AHEAD or _ FT or _ MILE	2	2	4	2	4	35	140
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	2	2	4	2	4	35	140
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						35	
W21-2-48	48"x48"	FRESH OIL						35	
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	

[illegible]

## SPECIAL SIGNS

[illegible]

## SPEC &amp; CODE

704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	1172
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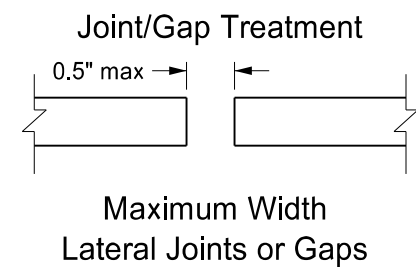
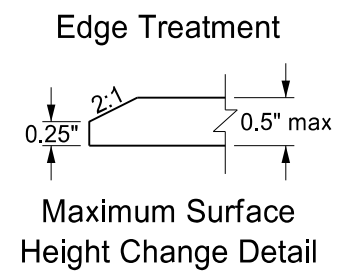
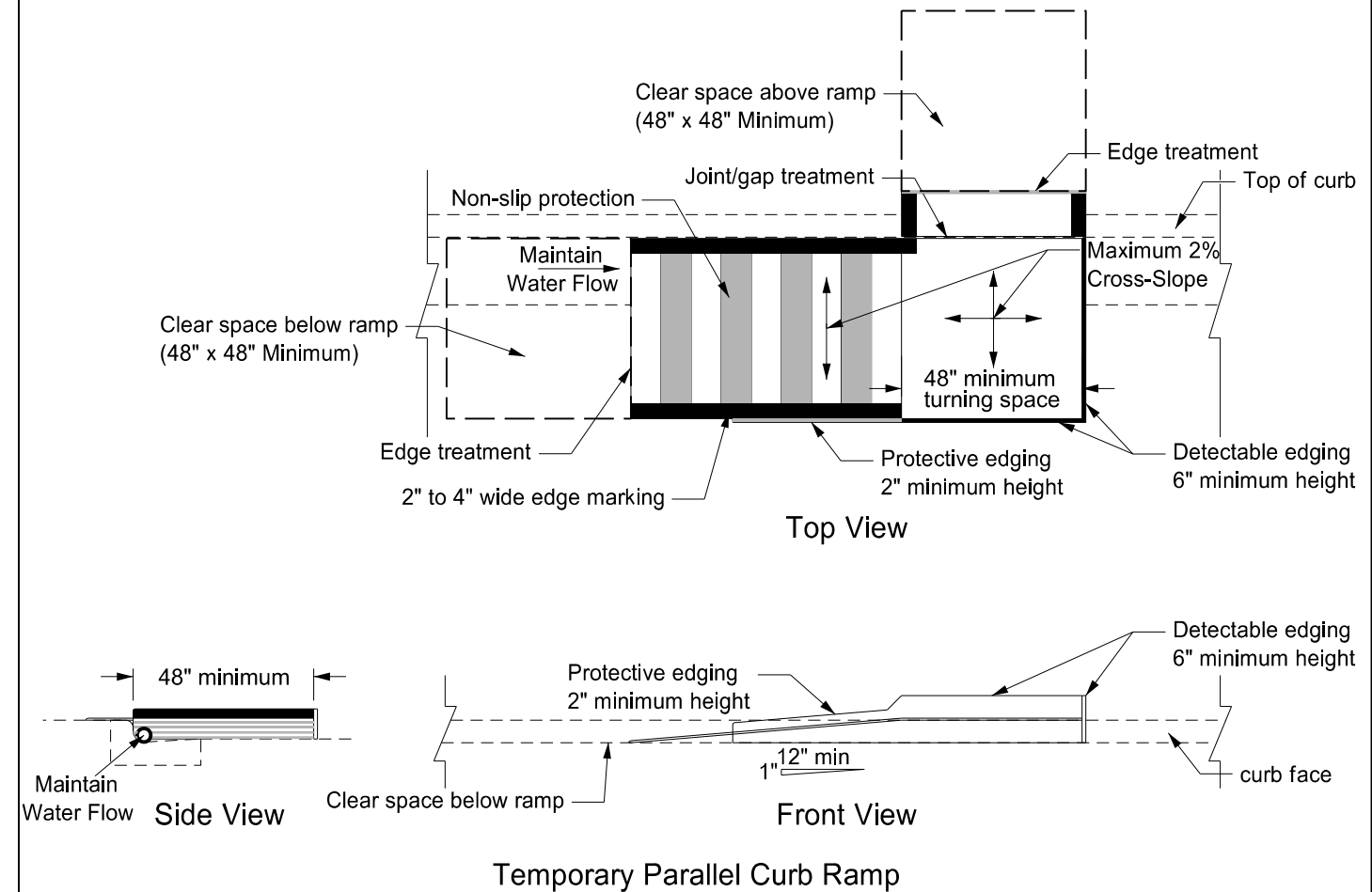
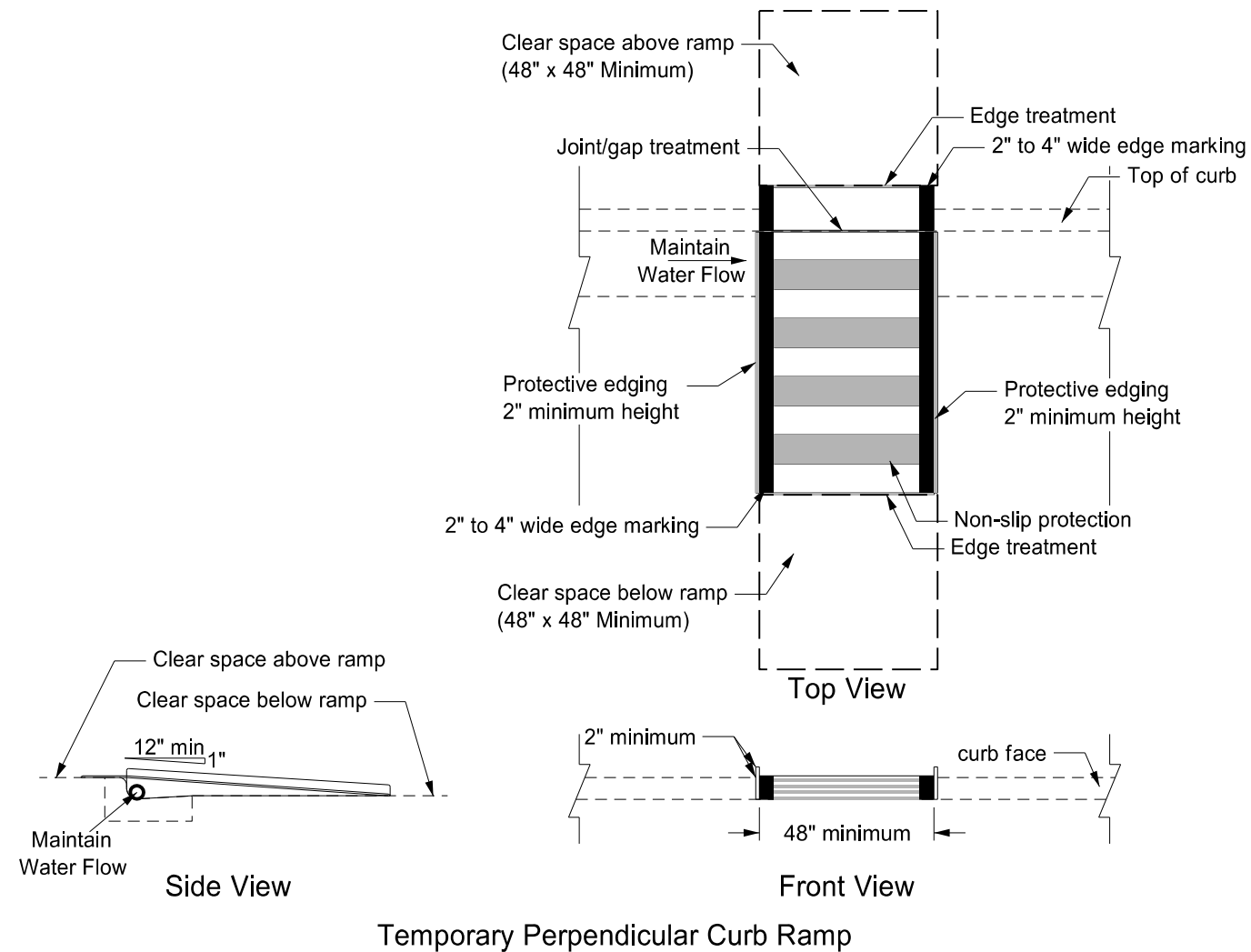
[illegible]

**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	NH-4-002(125)905	100	2

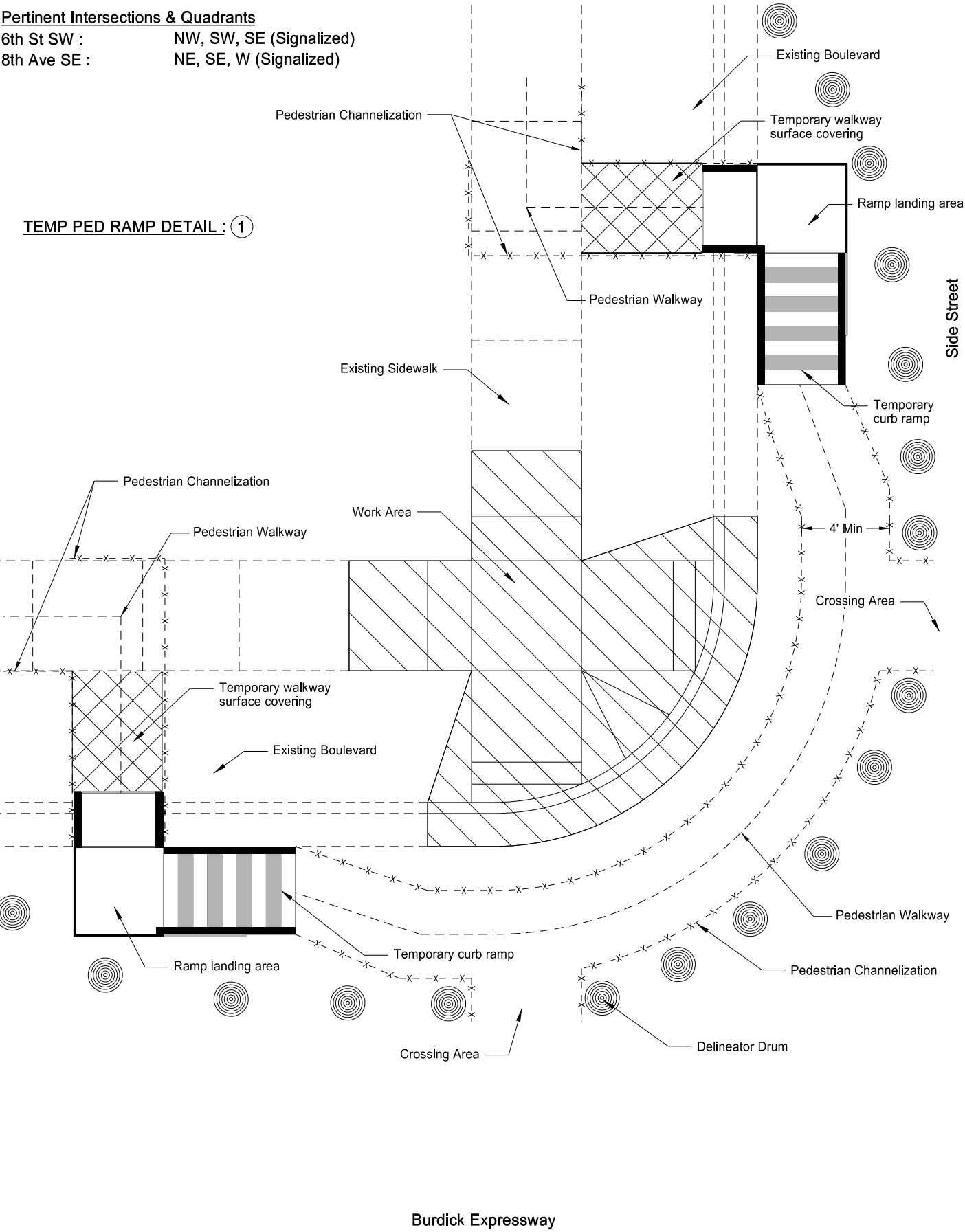


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Temporary Pedestrian Curb Ramp Details  
US 2 Business / Burdick Expy

**Pertinent Intersections & Quadrants**  
6th St SW : NW, SW, SE (Signalized)  
8th Ave SE : NE, SE, W (Signalized)

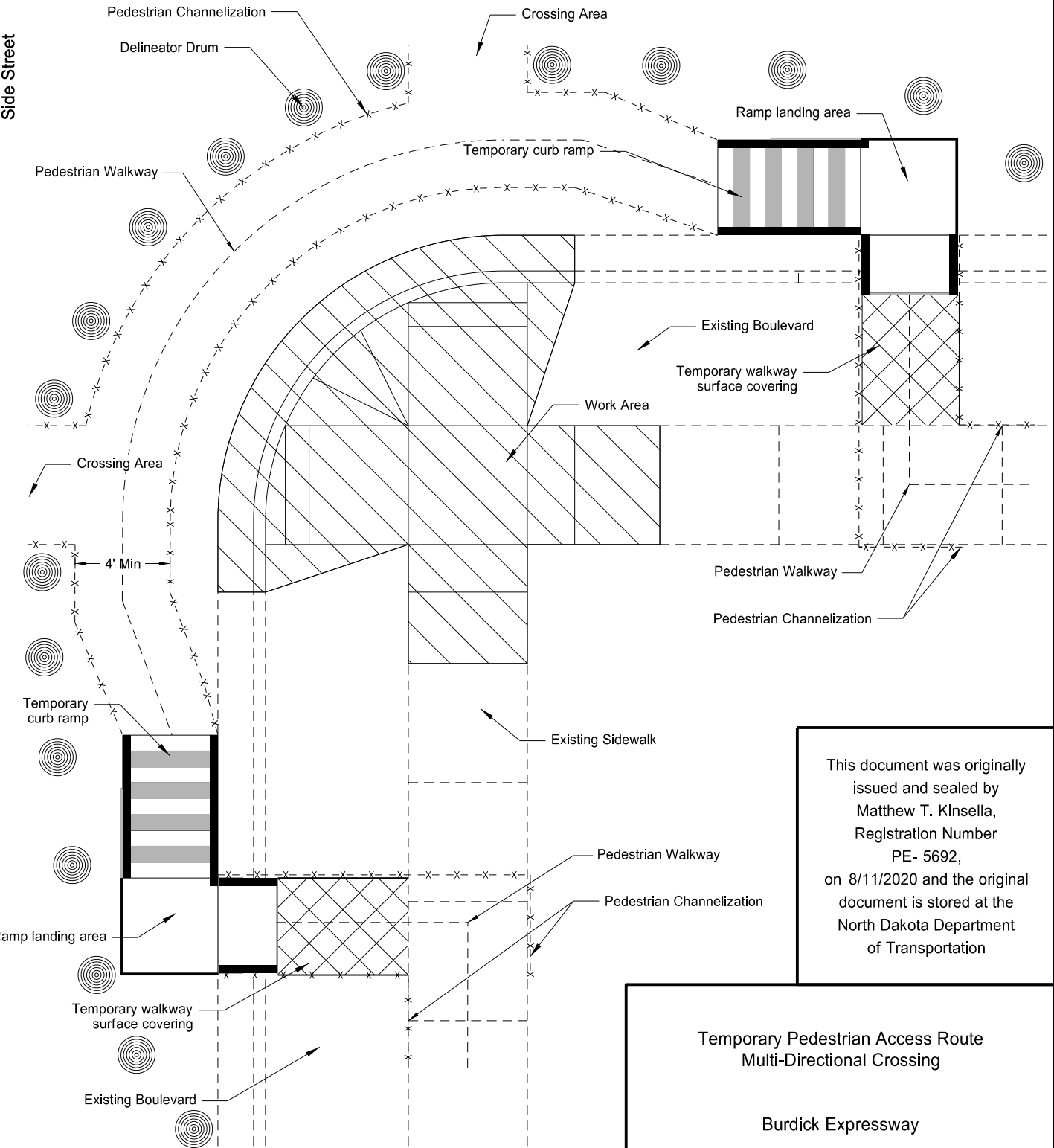
TEMP PED RAMP DETAIL : ①



**Notes:**  
1. Close North crossing at Fairgrounds  
Entrance at 20th St SE during construction

**Traffic Control Devices (Quantities per Quadrant)**  
704-2108 Temporary Curb Ramps : 2 EA  
704-1060 Delineator Drums : 20 EA  
704-1058 Pedestrian Walkway\*: 75 LF  
\*Includes Pedestrian Channelization (Both Sides)

TEMP PED RAMP DETAIL : ②



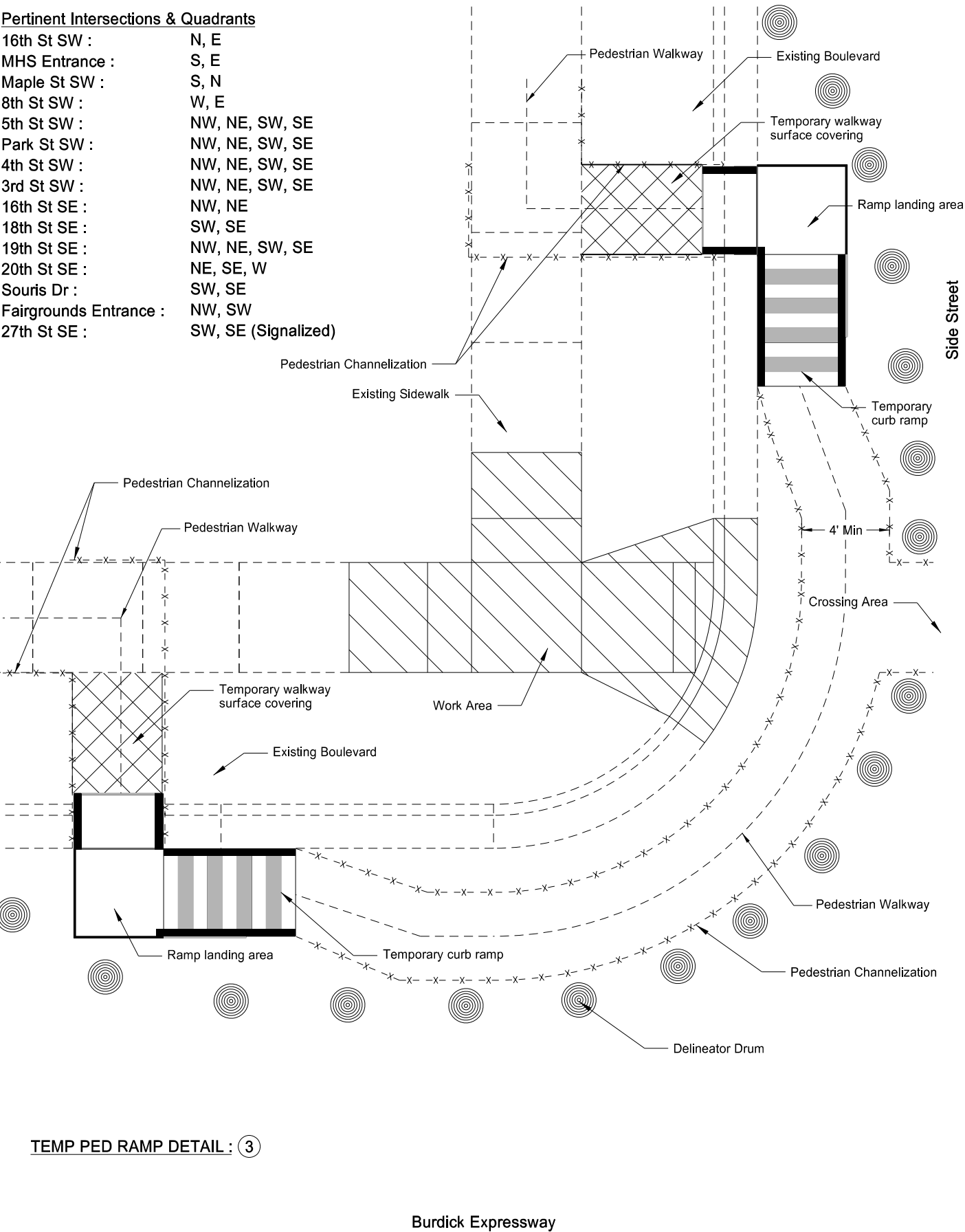
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Temporary Pedestrian Access Route  
Multi-Directional Crossing

Burdick Expressway

Pertinent Intersections & Quadrants

16th St SW : N, E  
MHS Entrance : S, E  
Maple St SW : S, N  
8th St SW : W, E  
5th St SW : NW, NE, SW, SE  
Park St SW : NW, NE, SW, SE  
4th St SW : NW, NE, SW, SE  
3rd St SW : NW, NE, SW, SE  
16th St SE : NW, NE  
18th St SE : SW, SE  
19th St SE : NW, NE, SW, SE  
20th St SE : NE, SE, W  
Souris Dr : SW, SE  
Fairgrounds Entrance : NW, SW  
27th St SE : SW, SE (Signalized)

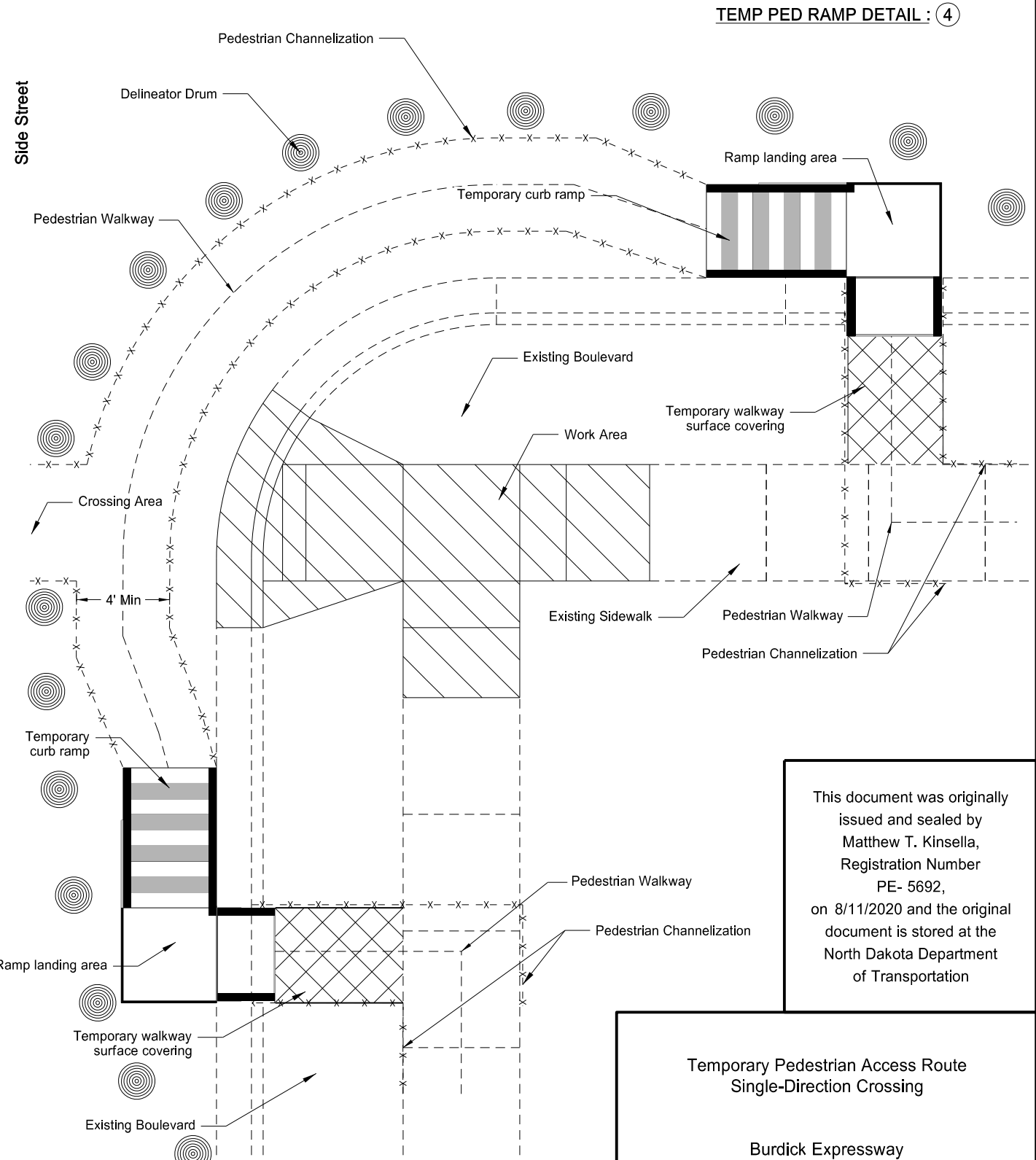


Notes:

1. Close North crossing at Fairgrounds  
Entrance at 20th St SE during construction

Traffic Control Devices (Quantities per Quadrant)

704-2108 Temporary Curb Ramps : 2 EA  
704-1060 Delineator Drums : 20 EA  
704-1058 Pedestrian Walkway\*: 75 LF  
\*Includes Pedestrian Channelization (Both Sides)



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Temporary Pedestrian Access Route  
Single-Direction Crossing

Burdick Expressway

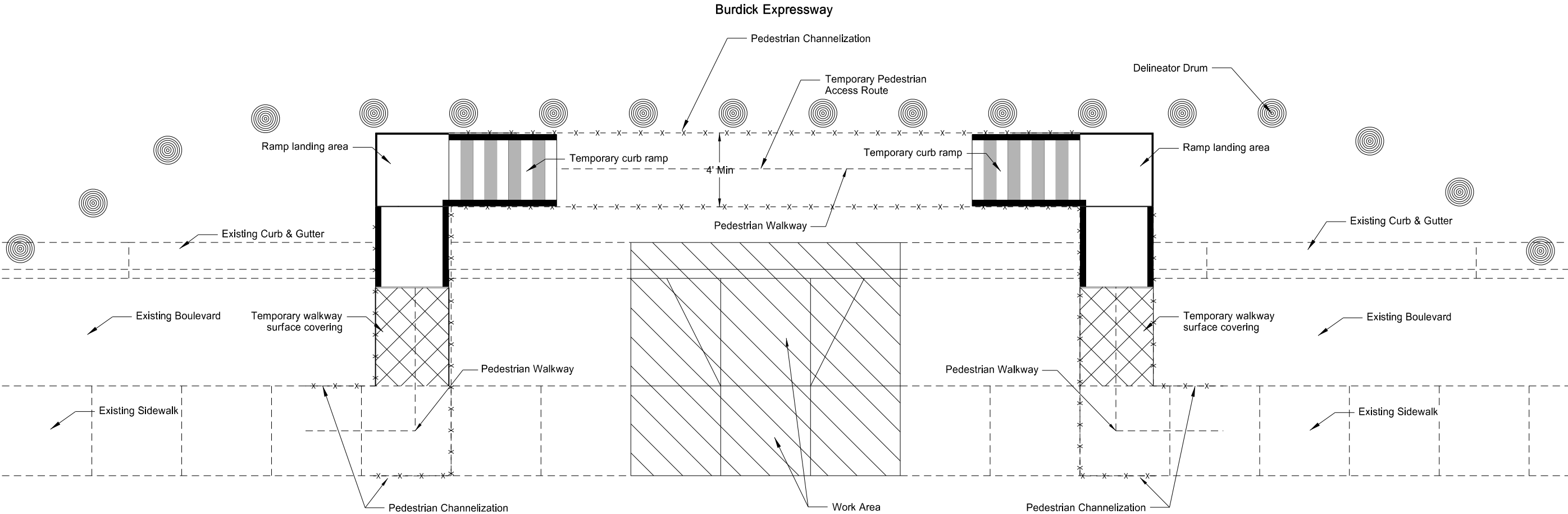
Pertinent Intersections & Quadrants  
Fairgrounds Entrance : N, S

Notes:  
1. Close crossing at Fairgrounds Entrance during construction

Traffic Control Devices (Quantities per Quadrant)  
704-2108 Temporary Curb Ramps : 2 EA  
704-1060 Delineator Drums : 18 EA  
704-1058 Pedestrian Walkway\*: 75 LF  
\*Includes Pedestrian Channelization (Both Sides)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	5

TEMP PED RAMP DETAIL : ⑤

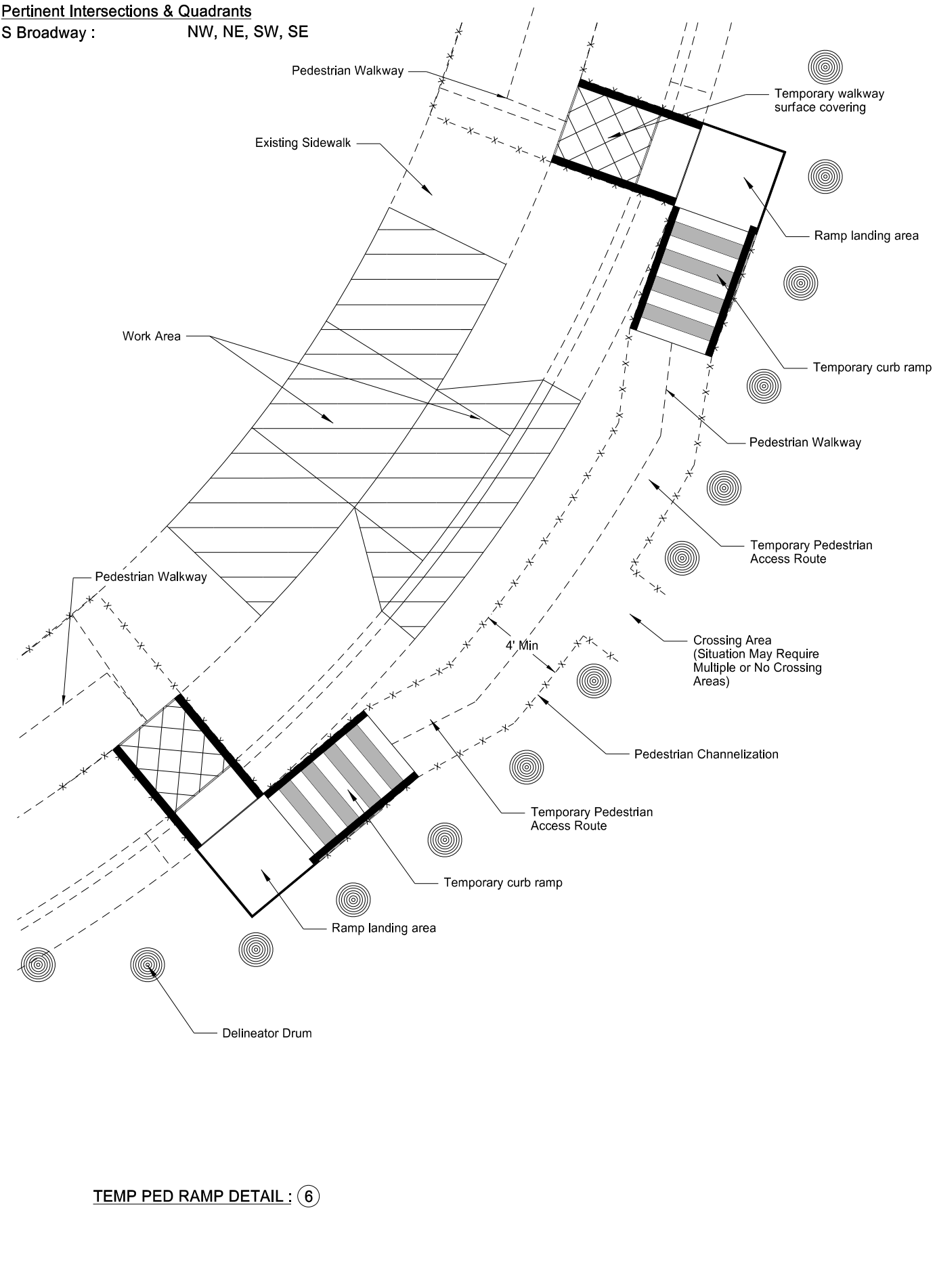


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Temporary Pedestrian Access Route  
Mid-Block Crossing

Burdick Expressway

Pertinent Intersections & Quadrants  
S Broadway : NW, NE, SW, SE

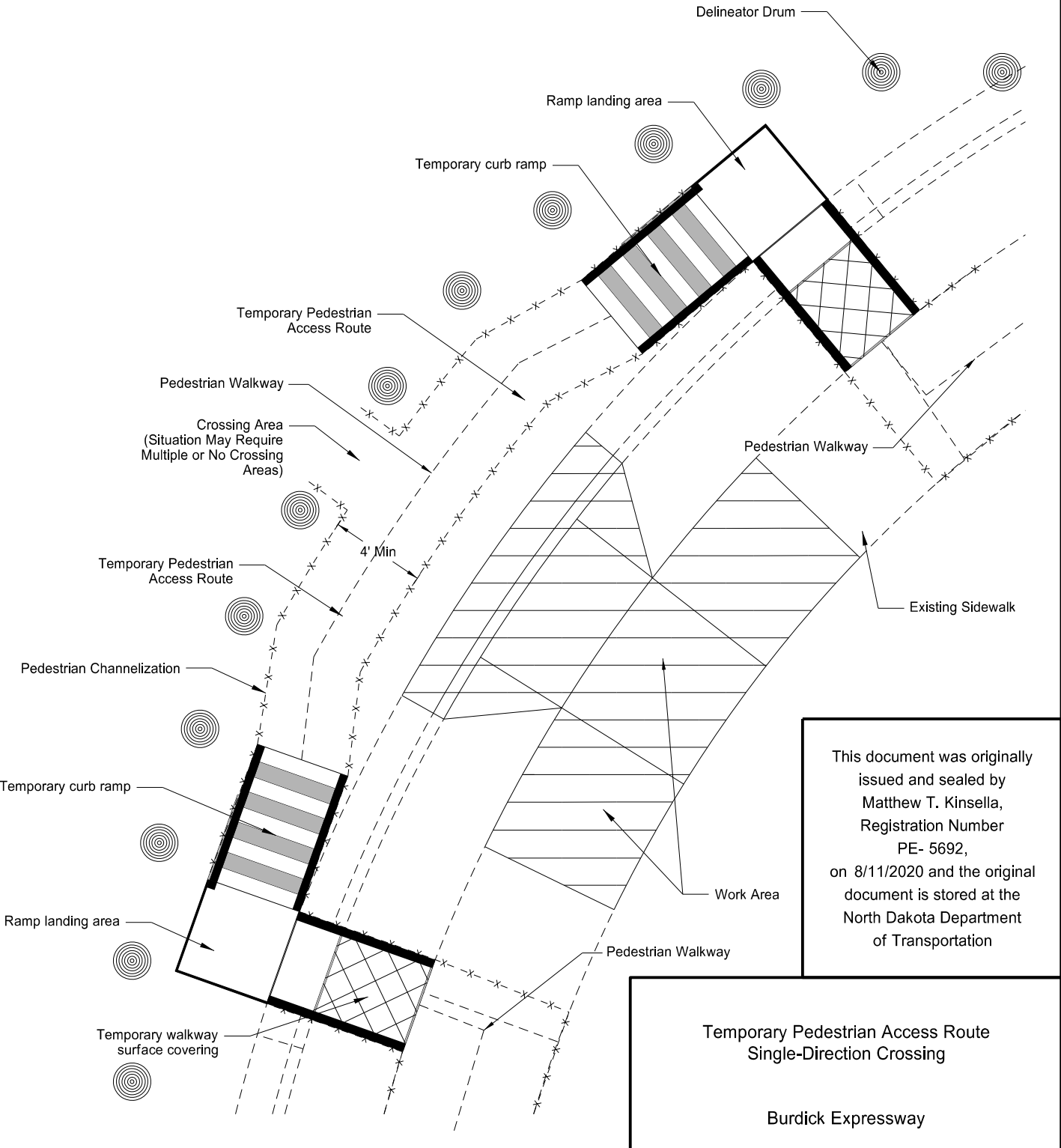


Notes:  
1. Number of crossing areas will be designated on phasing sheets

Traffic Control Devices (Quantities per Quadrant)  
704-2108 Temporary Curb Ramps : 2 EA  
704-1060 Delineator Drums : 15 EA  
704-1058 Pedestrian Walkway\*: 57.5 LF  
\*Includes Pedestrian Channelization (Both Sides)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	6

TEMP PED RAMP DETAIL : 7



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Temporary Pedestrian Access Route  
Single-Direction Crossing

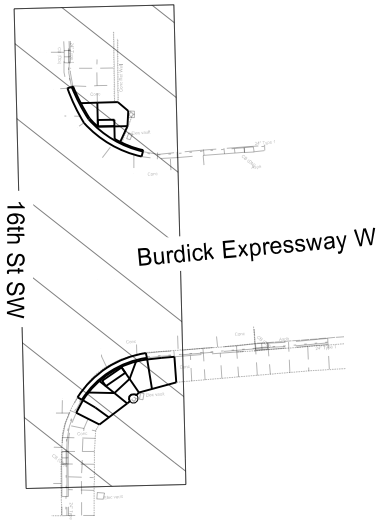
Burdick Expressway

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	7



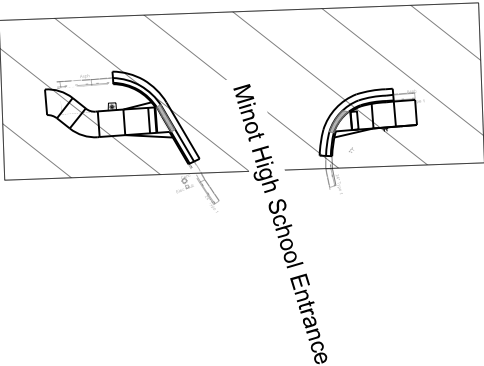
Phase 1 - All Pertinent Ramps  
16th St SW, MHS Entrance, Maple St SW, 8th St SW

TEMP PED RAMP  
DETAIL (2) : ③



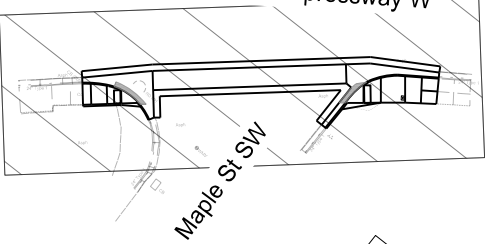
TEMP PED RAMP  
DETAIL (2) : ④

Burdick Expressway W



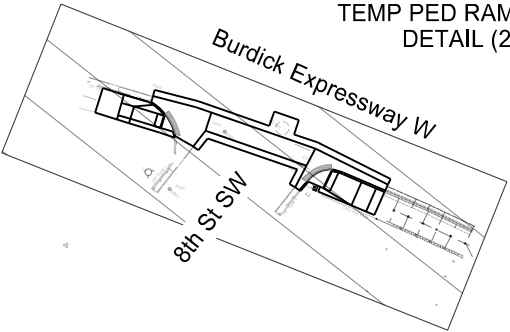
TEMP PED RAMP  
DETAIL (2) : ④

Burdick Expressway W



TEMP PED RAMP  
DETAIL (2) : ④

Burdick Expressway W



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Traffic Control Phasing  
Phase 1

Burdick Expressway



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	9

TEMP PED RAMP DETAIL: ⑥  
1 Crossing Area

TEMP PED RAMP DETAIL: ⑥  
0 Crossing Areas

NO TEMP PED RAMPS

Burdick Expressway W  
NO TEMP PED RAMPS

TEMP PED RAMP DETAIL: ⑦  
2 Crossing Areas

TEMP PED RAMP DETAIL: ⑦  
1 Crossing Area

South Broadway

Phase 3a - South Broadway  
NE Quad, SW Quad, SE Quad

Phase 3b - South Broadway  
NW Quad, NE Island, E Median

Phase 3c - South Broadway  
SE Island, SW Island

Phase 3d - South Broadway  
W Median



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Traffic Control Phasing  
Phase 3

Burdick Expressway

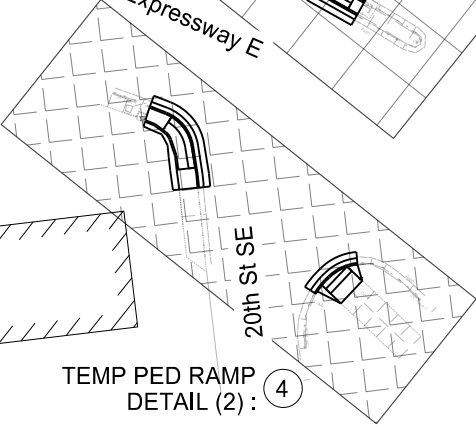
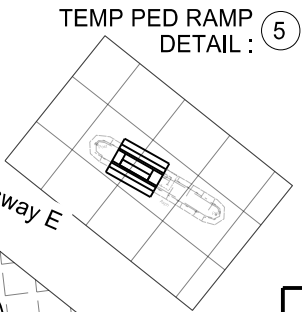
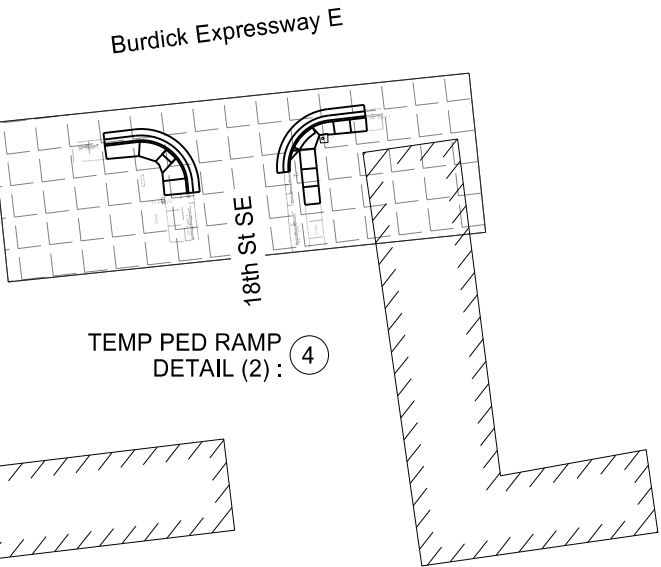
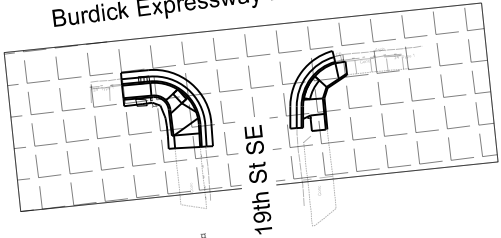
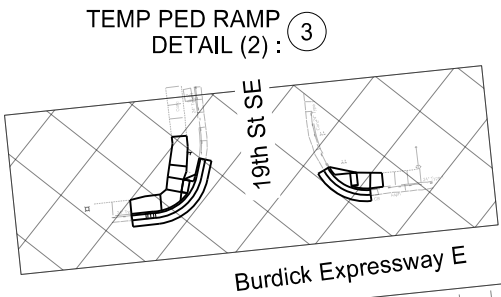
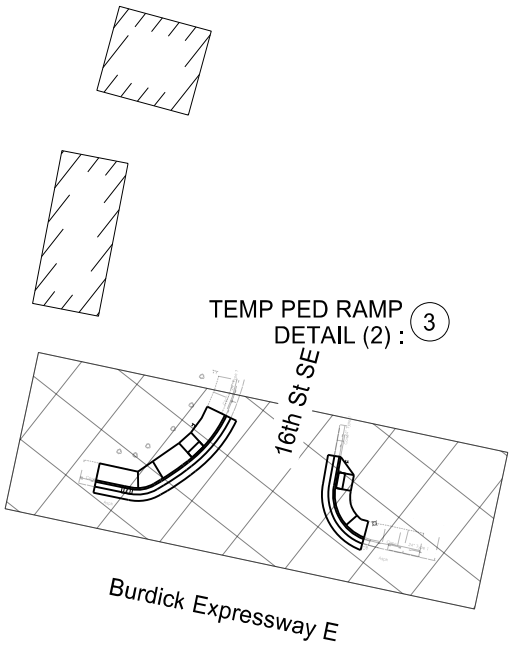
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	10



Phase 4a - North Side Ramps  
16th St SE, 19th St SE, 20th St SW, 8th Ave SE,  
Fairgrounds Entrance



Phase 4b - South Side Ramps  
18th St SE, 19th St SE, 20th St SE, 8th Ave SE,  
Souris Dr, Fairgrounds Entrance, 27th St SE

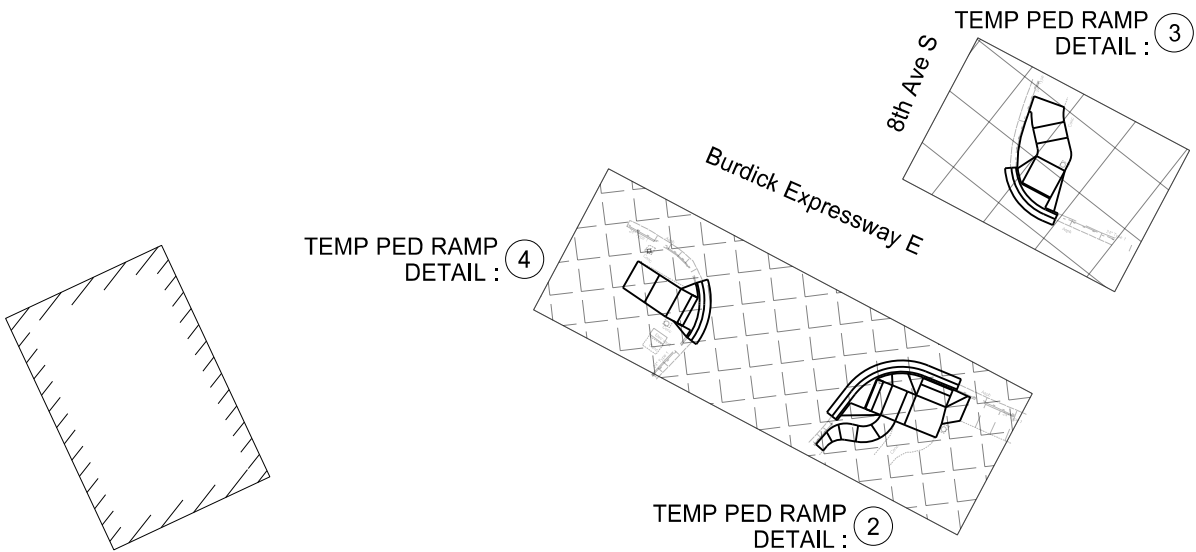


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Traffic Control Phasing  
Phase 4

Burdick Expressway

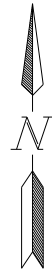
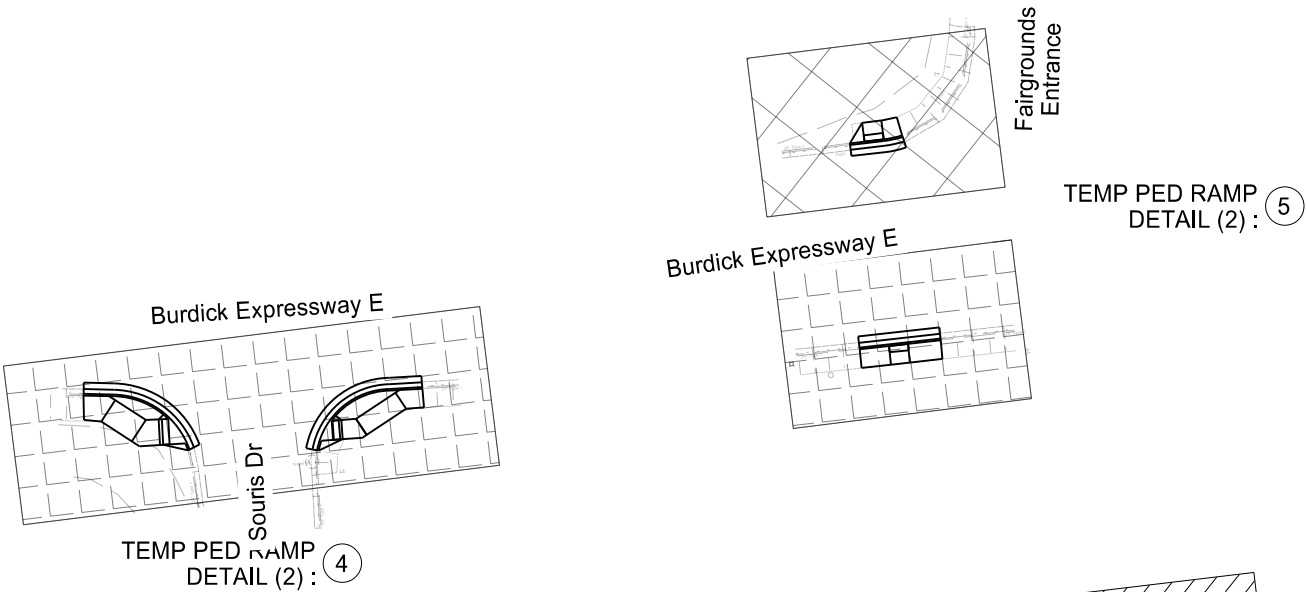
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	11



Phase 4a - North Side Ramps  
16th St SE, 19th St SE, 20th St SW, 8th Ave SE,  
Fairgrounds Entrance



Phase 4b - South Side Ramps  
18th St SE, 19th St SE, 20th St SE, 8th Ave SE,  
Souris Dr, Fairgrounds Entrance, 27th St SE



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Traffic Control Phasing  
Phase 4

Burdick Expressway

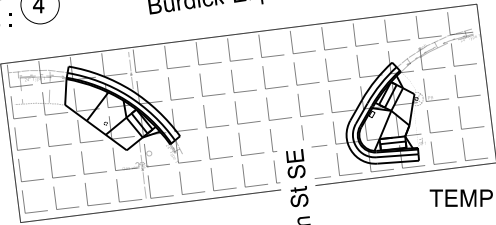


Phase 4b - South Side Ramps  
18th St SE, 19th St SE, 20th St SE, 8th Ave SE,  
Souris Dr, Fairgrounds Entrance, 27th St SE

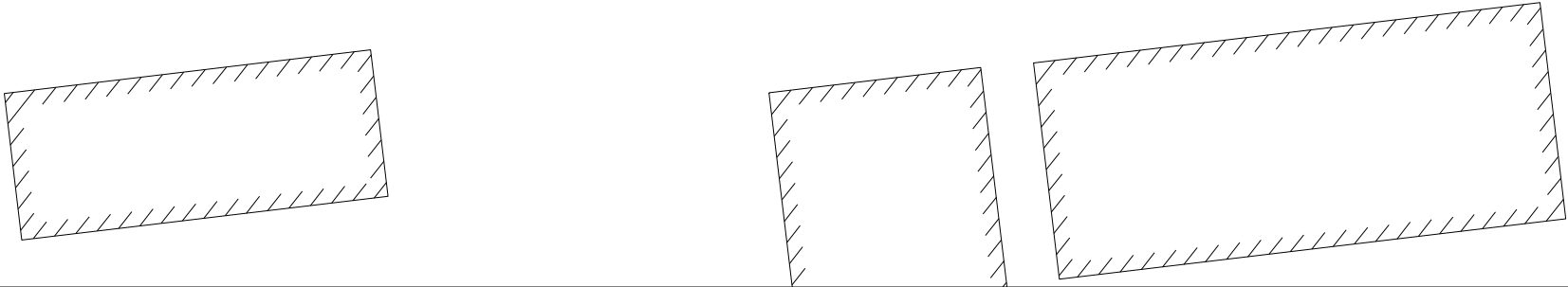
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	12

TEMP PED RAMP  
DETAIL : ④

Burdick Expressway E



TEMP PED RAMP  
DETAIL : ②



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Traffic Control Phasing  
Phase 4

Burdick Expressway

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	13

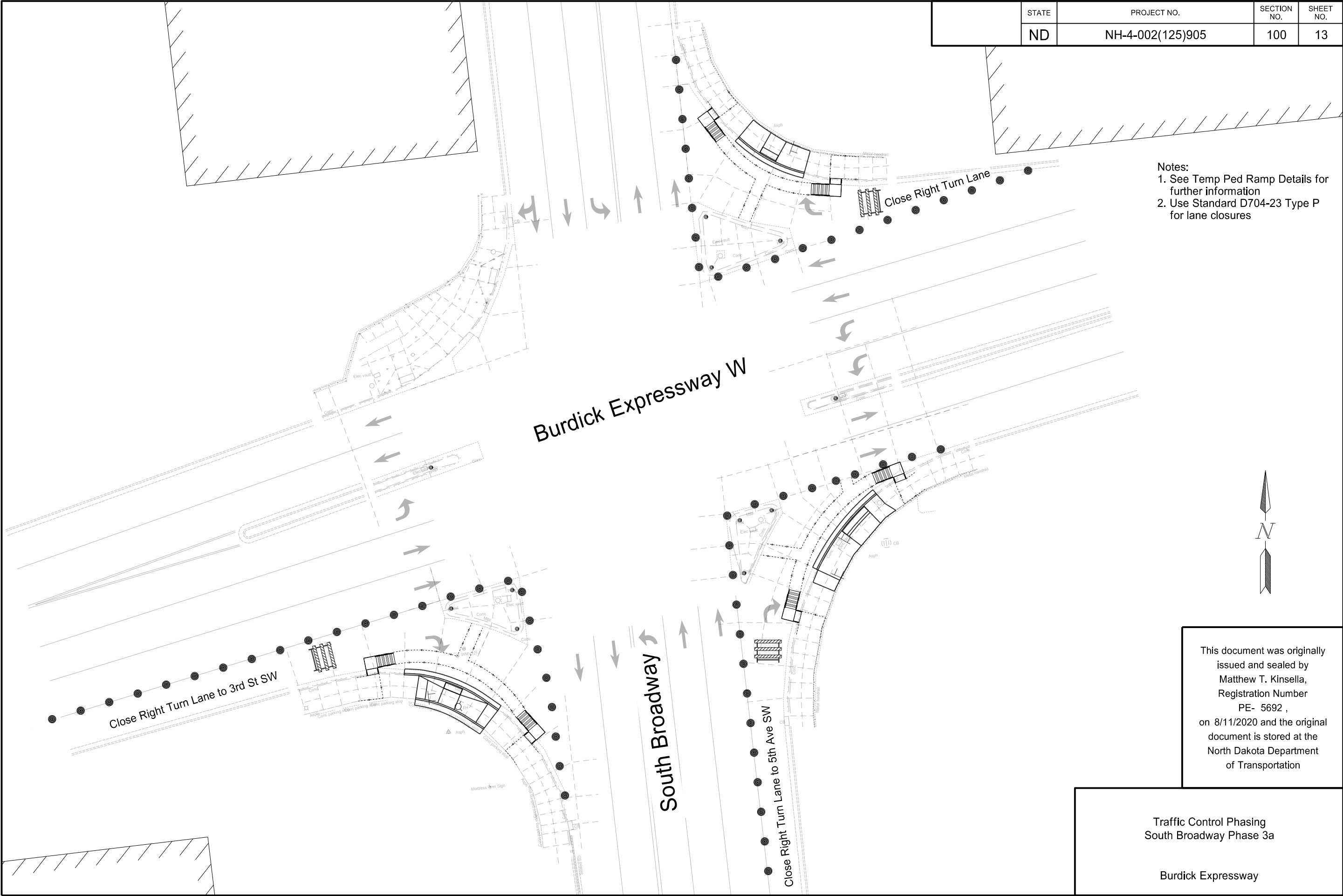
- Notes:
- 1. See Temp Ped Ramp Details for further information
  - 2. Use Standard D704-23 Type P for lane closures



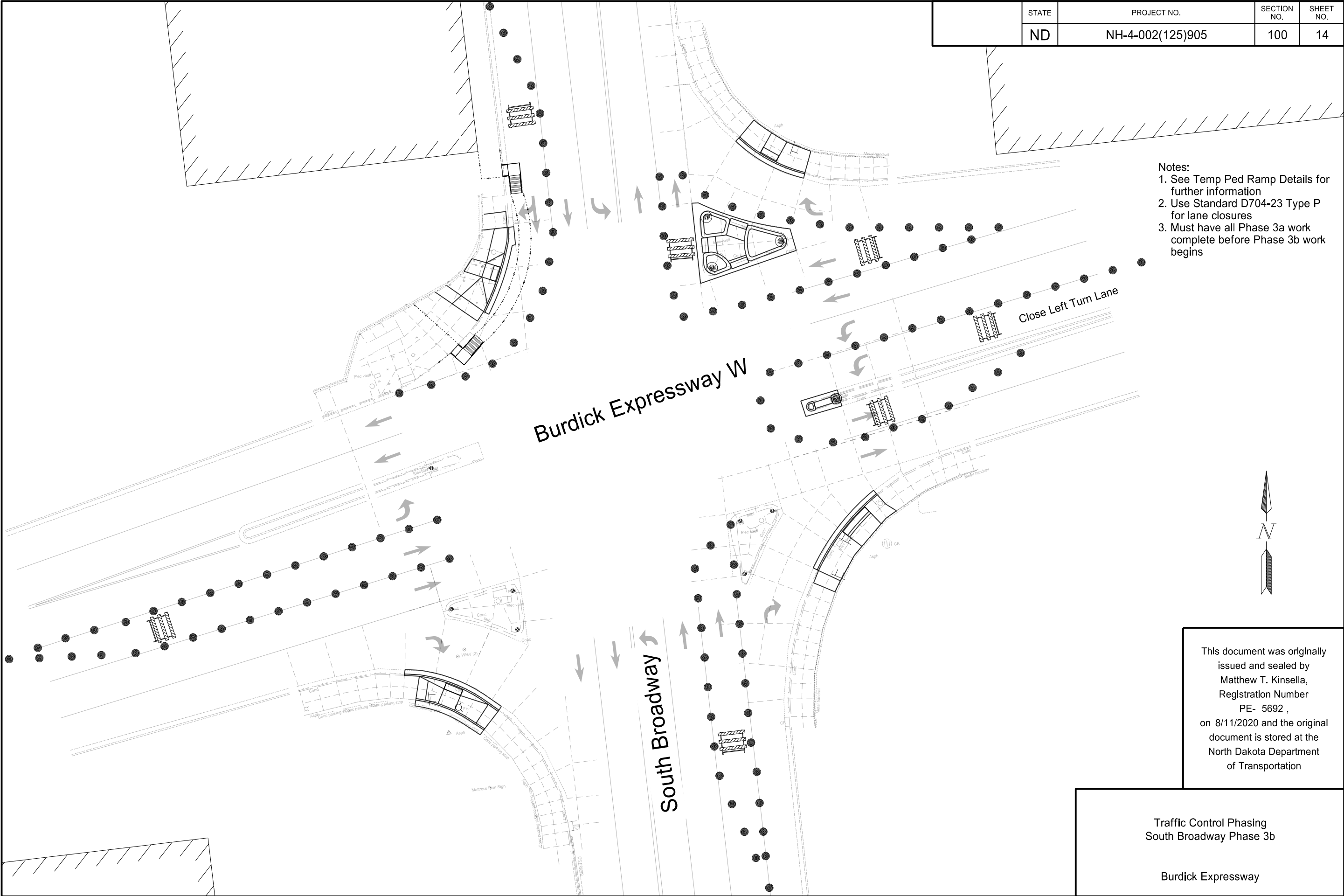
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Traffic Control Phasing  
South Broadway Phase 3a

Burdick Expressway



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	14



- Notes:
- 1. See Temp Ped Ramp Details for further information
  - 2. Use Standard D704-23 Type P for lane closures
  - 3. Must have all Phase 3a work complete before Phase 3b work begins

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Traffic Control Phasing  
South Broadway Phase 3b

Burdick Expressway

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	15

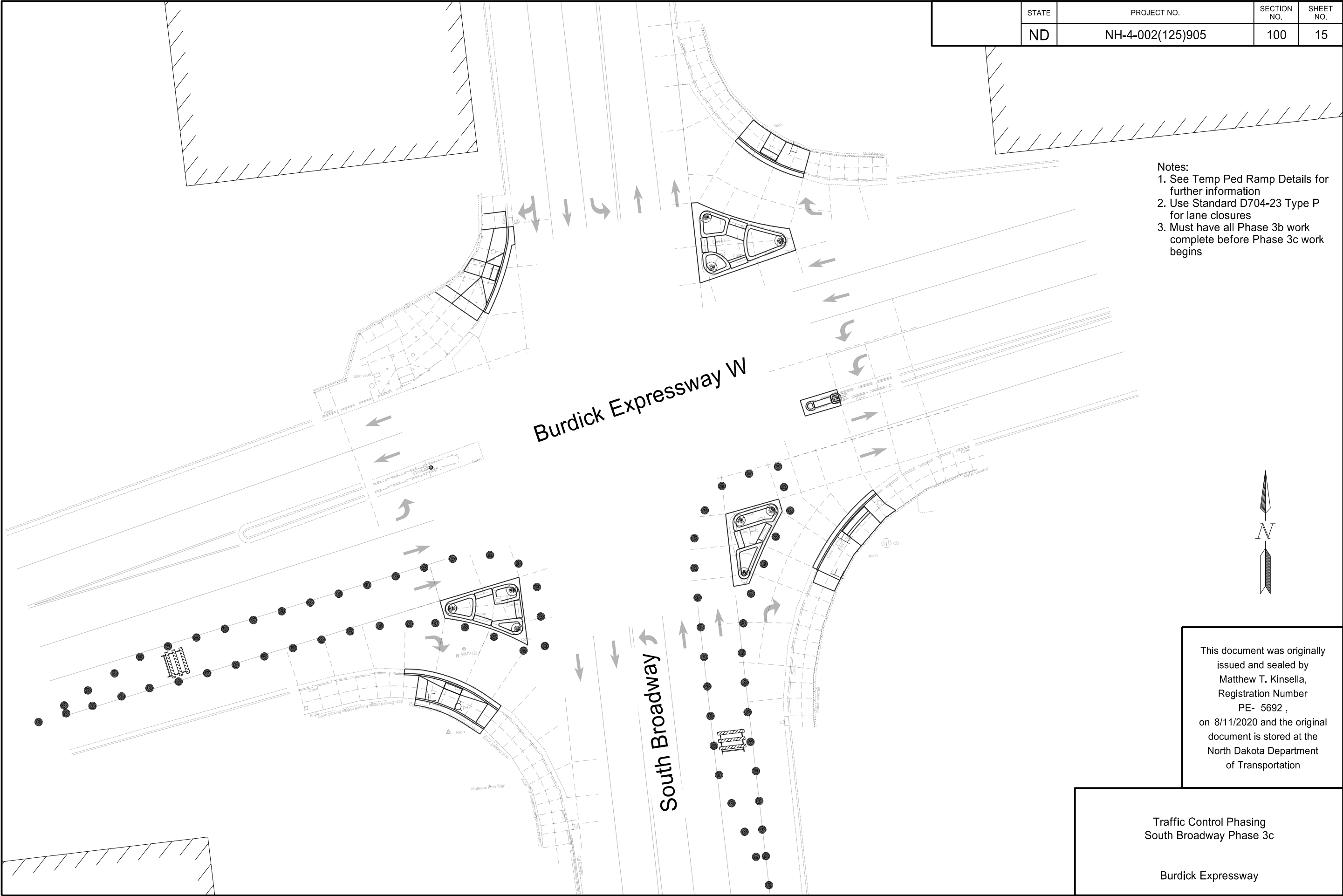
- Notes:
- 1. See Temp Ped Ramp Details for further information
  - 2. Use Standard D704-23 Type P for lane closures
  - 3. Must have all Phase 3b work complete before Phase 3c work begins



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Traffic Control Phasing  
South Broadway Phase 3c

Burdick Expressway



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	100	16

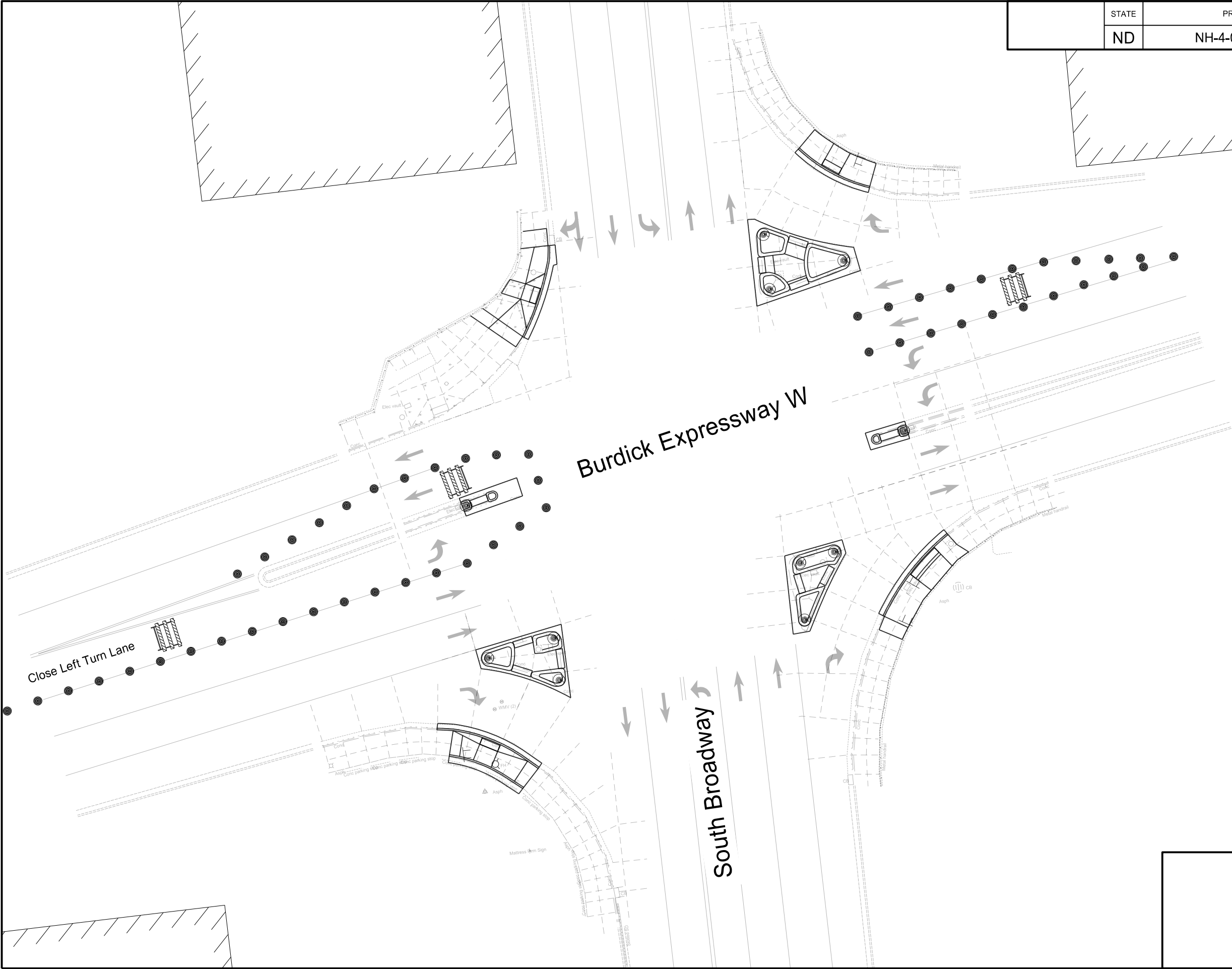
- Notes:
- 1. See Temp Ped Ramp Details for further information
  - 2. Use Standard D704-23 Type P for lane closures
  - 3. Must have all Phase 3c work complete before Phase 3d work begins



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Traffic Control Phasing  
South Broadway Phase 3d

Burdick Expressway

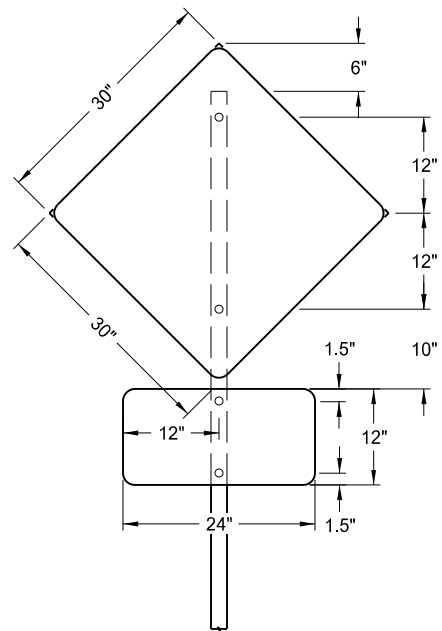


																				STATE	PROJECT NO.			SECTION NO.	SHEET NO.	
																				N.D.	NH-4-002(125)905			110	1	
Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Vert Clearance FT	Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments			
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF				1st LF	2nd LF	3rd LF	4th LF											
57+19 Rt	R7-1	7			8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga	1						
89+02 Lt	SA 1E				8.7				7.0	2 x 2 12 ga	17.7						1	4	2.25 x 2.25 12 ga	1						
89+52 Rt	SA 2E				11.2				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga	1						
92+17 Rt	R1-1	1			9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1						
92+26 Rt	SA 1E				8.7				7.0	2 x 2 12 ga	17.7						1	4	2.25 x 2.25 12 ga	1						
94+85 Rt	SA 2E				11.2				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga	1						
96+99 Lt	SA 2E				11.2				7.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga	1						
97+40 Rt	R1-1	1			9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1						
99+23 Rt	SA A				11.7				7.0	2.5 x 2.5 12 ga	12.9						1	4	3 x 3 7 ga	1						
100+66 Rt	SA A				11.7				7.0	2.5 x 2.5 12 ga	12.9						1	4	3 x 3 7 ga	1						
100+72 Rt	R1-2	4			9.8				7.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga	1						
100+94 Lt	SA A				11.7				7.0	2.5 x 2.5 12 ga	12.9						1	4	3 x 3 7 ga	1						
164+02 Lt	R1-1	1			9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1						
164+51 Lt	R7-1	7			8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga	1						
175+86 Lt	R1-1	1			9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1						
176+23 Rt	SA B				11.2				7.0	2.25 x 2.25 12 ga	11.7						1	4	2.5 x 2.5 12 ga	1						
176+72 Rt	R1-1	1			9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1						
180+59 Rt	SA 1E				8.7				7.0	2 x 2 12 ga	17.7						1	4	2.25 x 2.25 12 ga	1						
Sub Total			0.0	0.0	Total	181.7											Total	72.0			18	0	0			
Grand Total			0.0	0.0	Total	181.7											Total	72	0		18	0	0			
																							This document was originally issued and sealed by Matthew T. Kinsella, Registration Number 5692, on 8/11/20 and is stored at the North Dakota Department of Transportation.		Sign Summary Perforated Tube  Burdick Expressway	

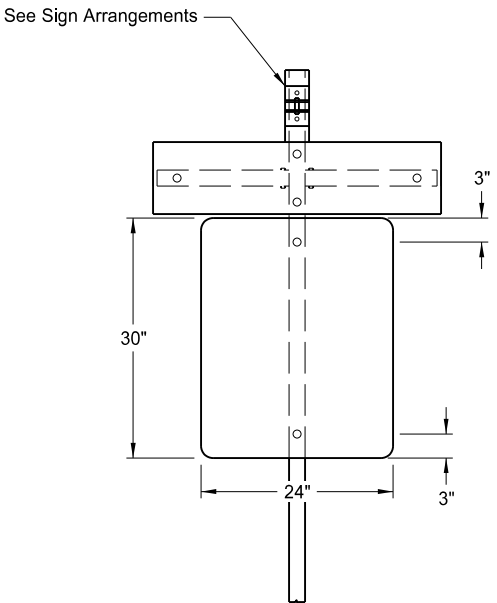
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Page 1 of 1

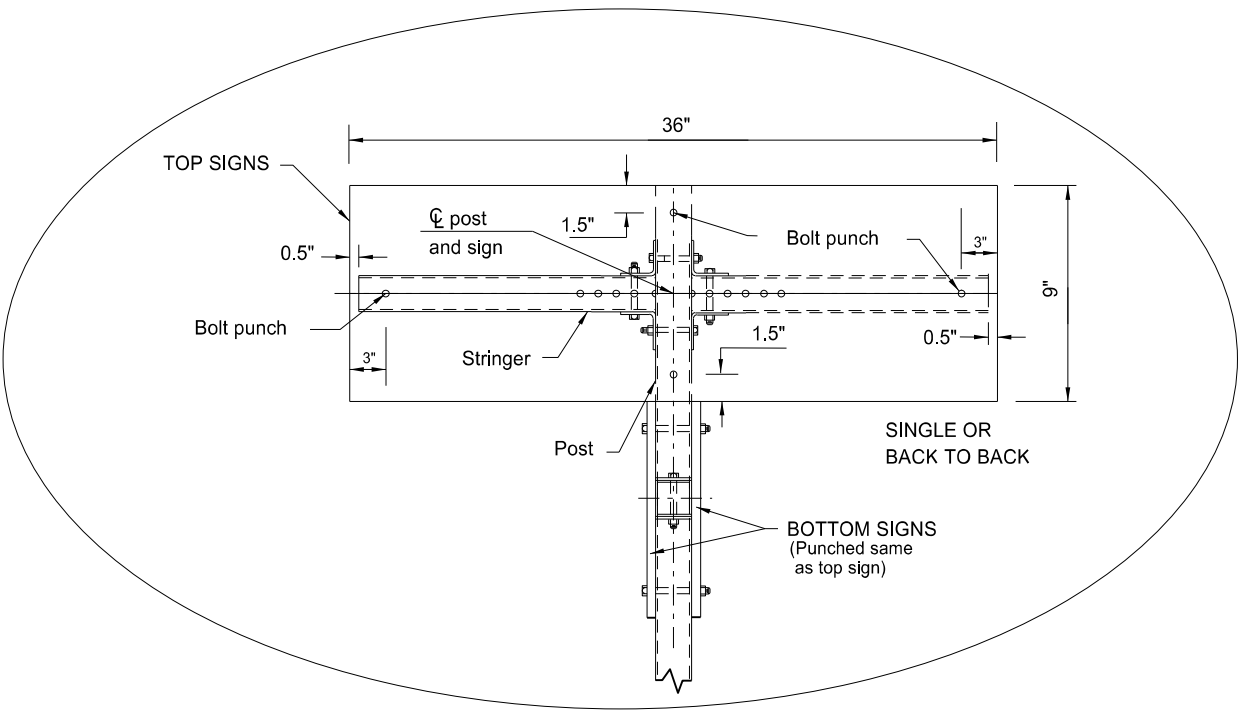
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	110	2



Special Assembly A  
(Perforated Tube)  
Area = 8.25 SF



Special Assembly B  
(Perforated Tube)  
Area = 3.75 SF



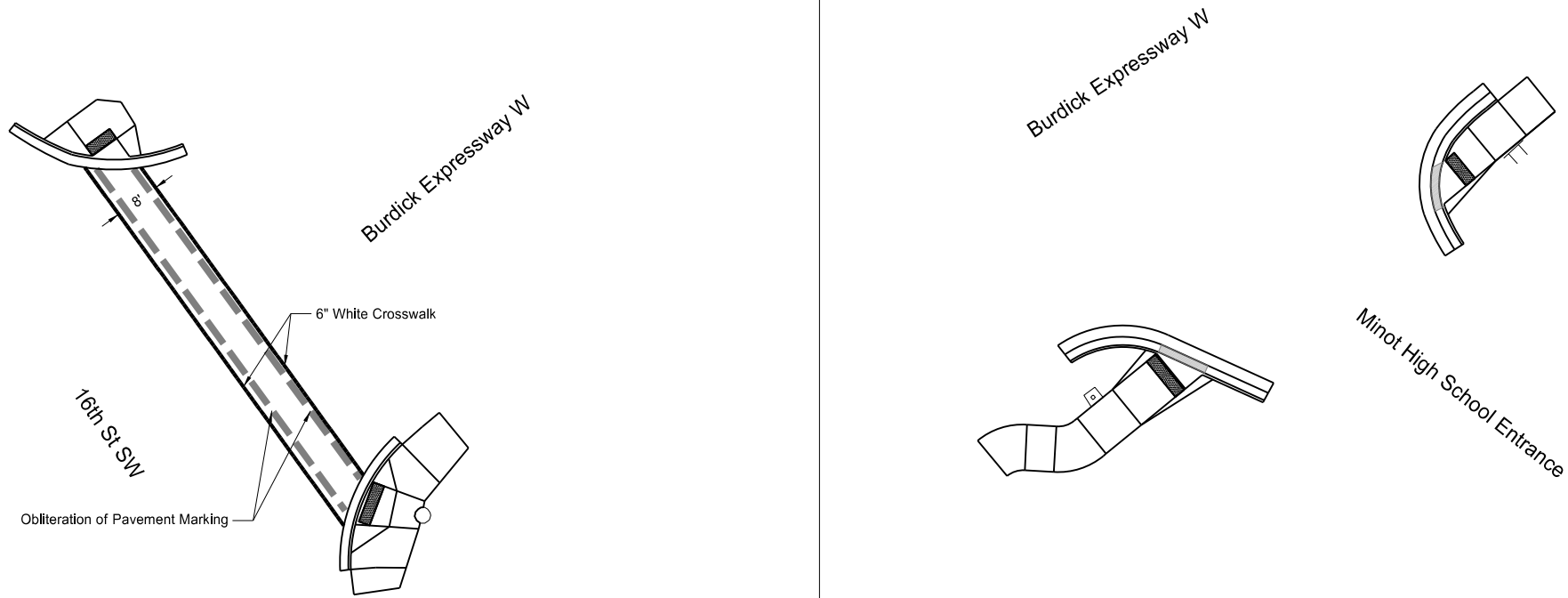
Sign Arrangements (Not to Scale)

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Signing Special Assemblies  
Burdick Expressway

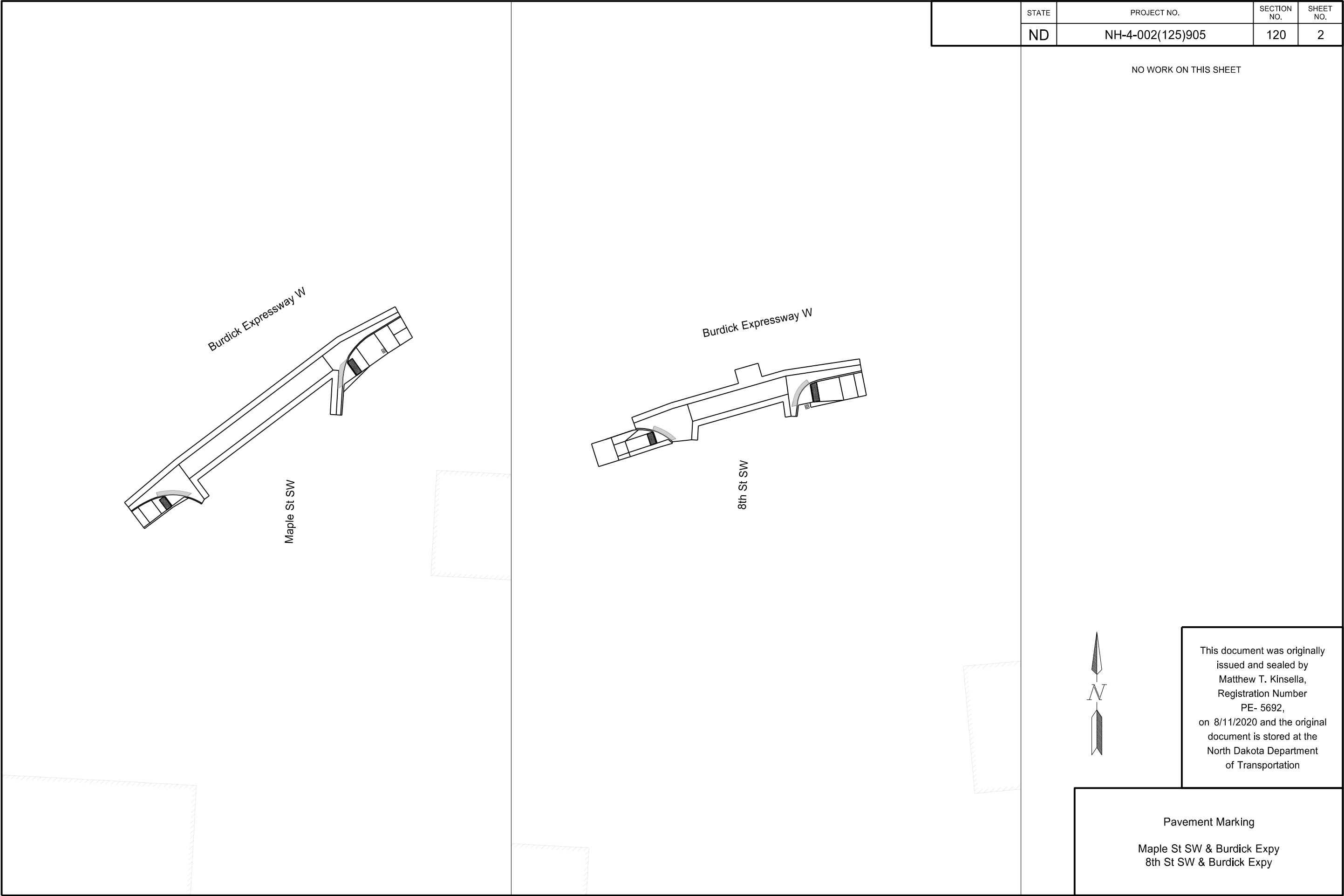
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	120	1

SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
		16th St SW	73	SF
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE - GROOVED		
		16th St SW	145	LF

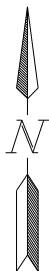
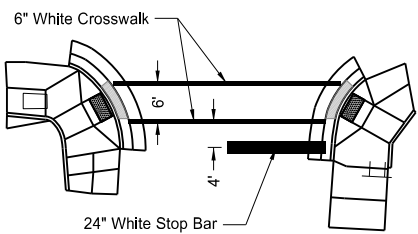
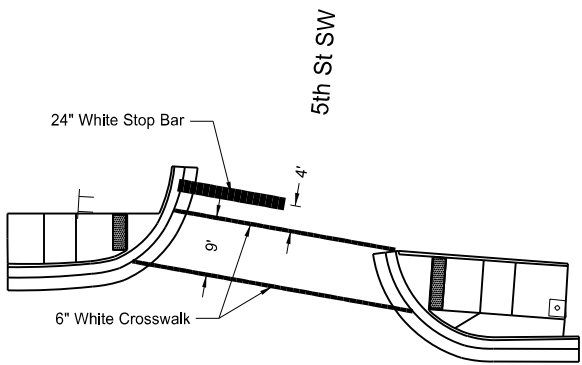
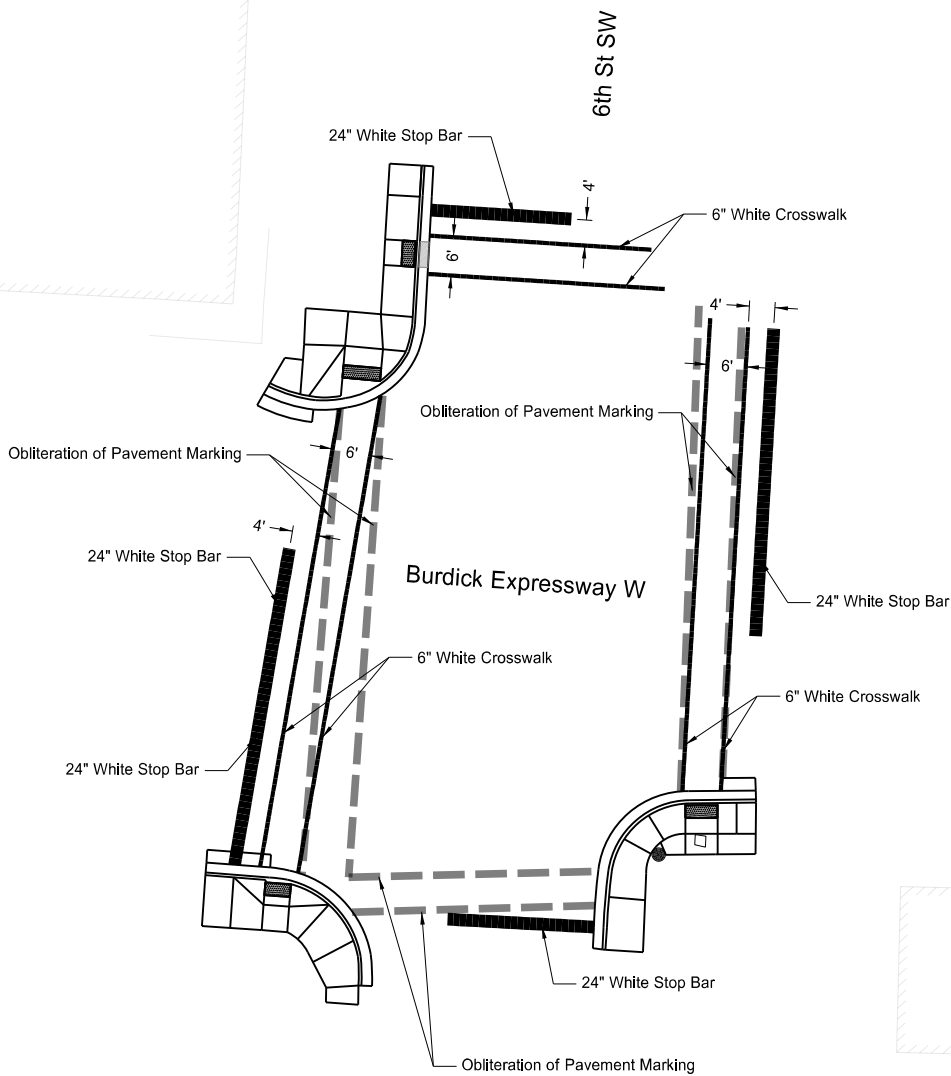


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Pavement Marking  
16th St SW & Burdick Expy  
MHS Entrance & Burdick Expy



STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		120	3
SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
		6th St SW	479	SF
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE - GROOVED		
		6th St SW	368	LF
		5th St SW	147	LF
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE - GROOVED		
		6th St SW	143	LF
		5th St SW	31	LF



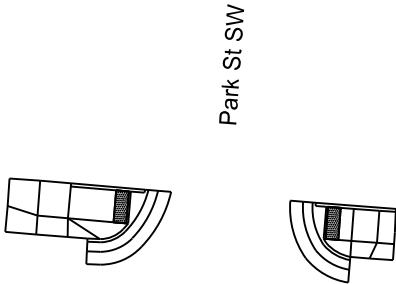
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Pavement Marking

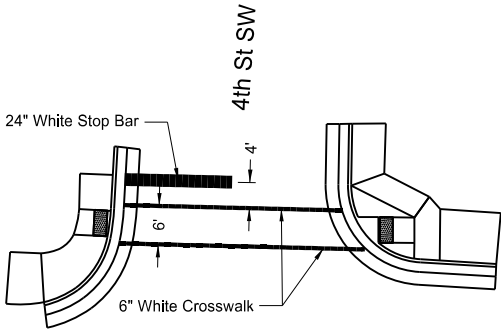
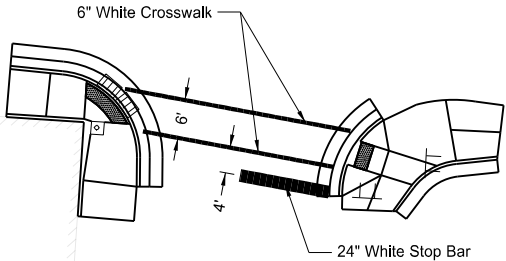
6th St SW & Burdick Expy  
5th St SW & Burdick Expy

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	120	4

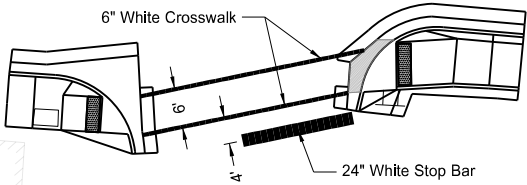
SPEC	CODE	BID ITEM	QTY	UNIT
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE - GROOVED		
		Park St SW	66	LF
		4th St SW	141	LF
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE - GROOVED		
		Park St SW	14	LF
		4th St SW	33	LF



Burdick Expressway W



Burdick Expressway W



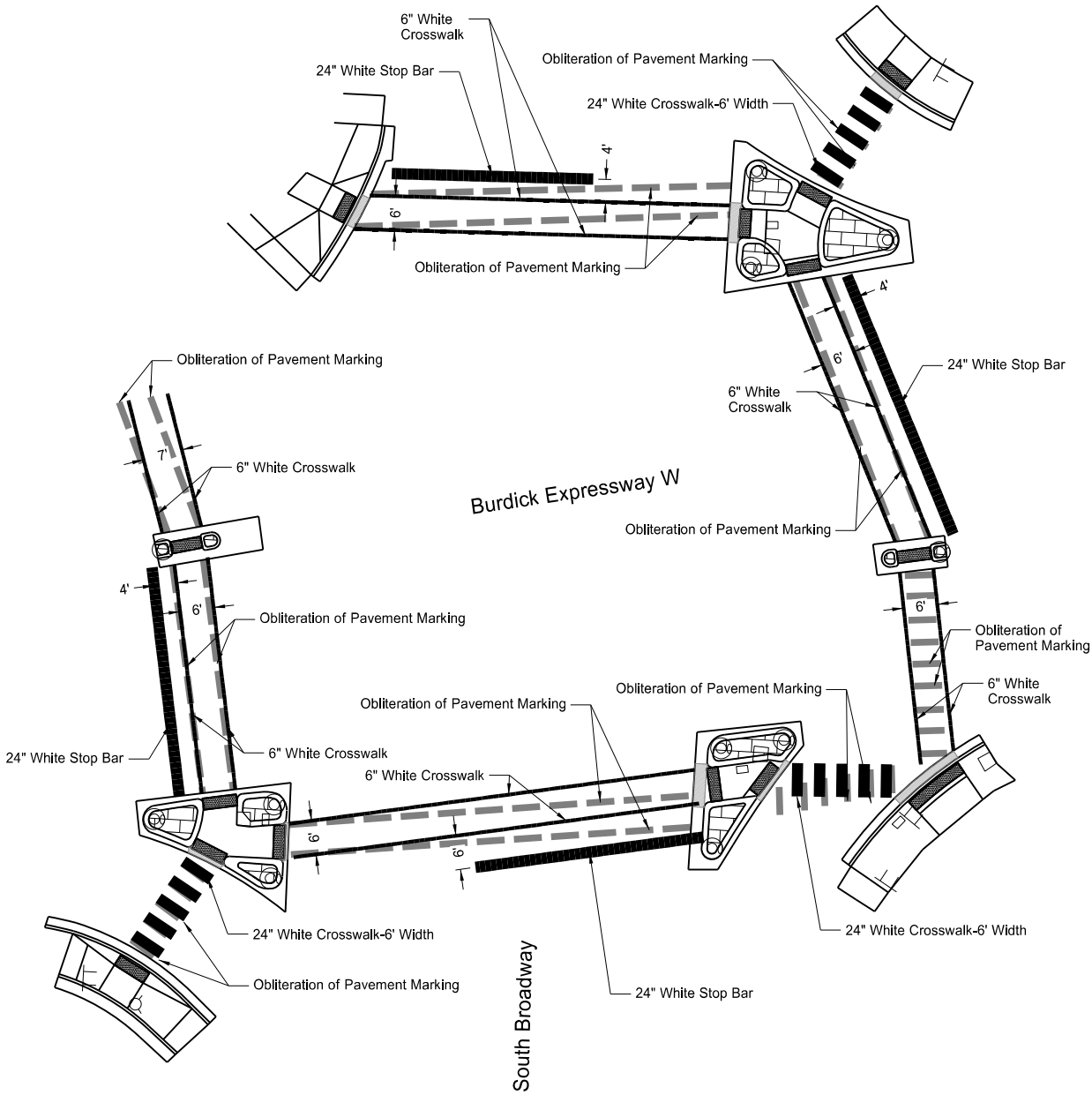
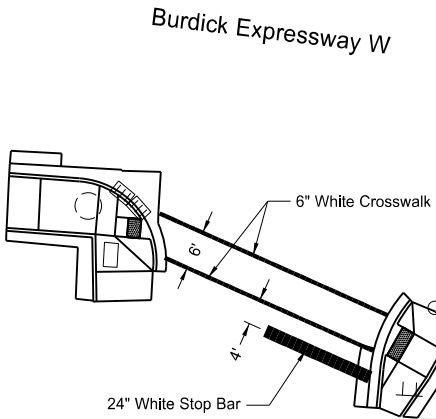
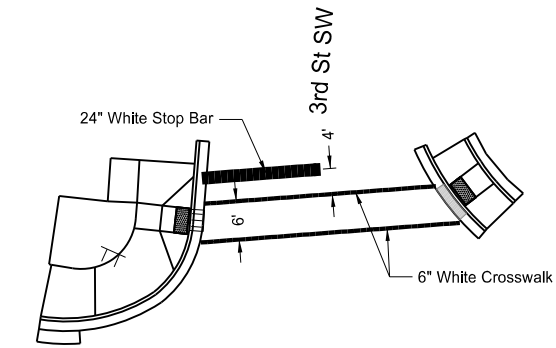
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Pavement Marking

Park St SW & Burdick Expy  
4th St SW & Burdick Expy

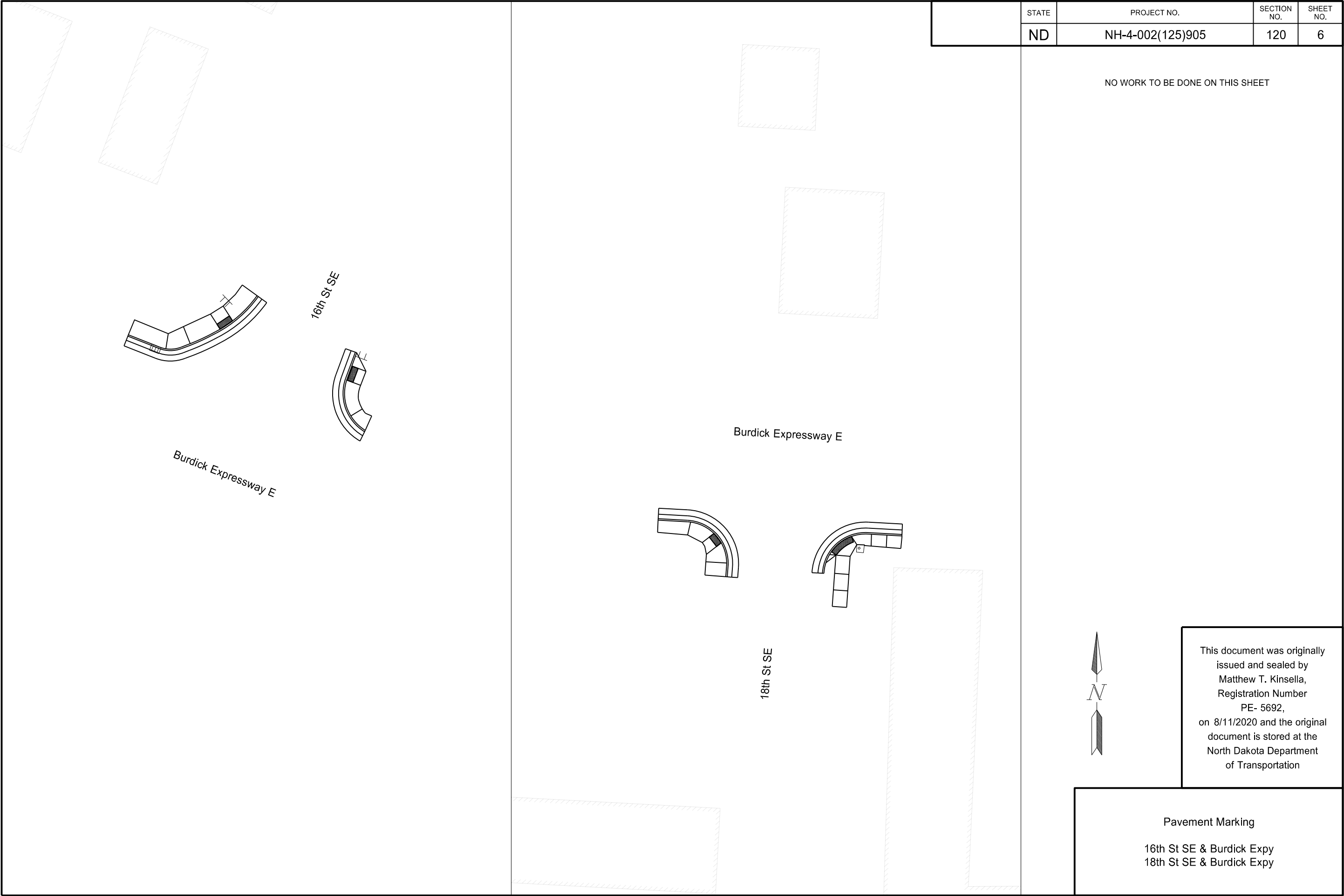
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	120	5

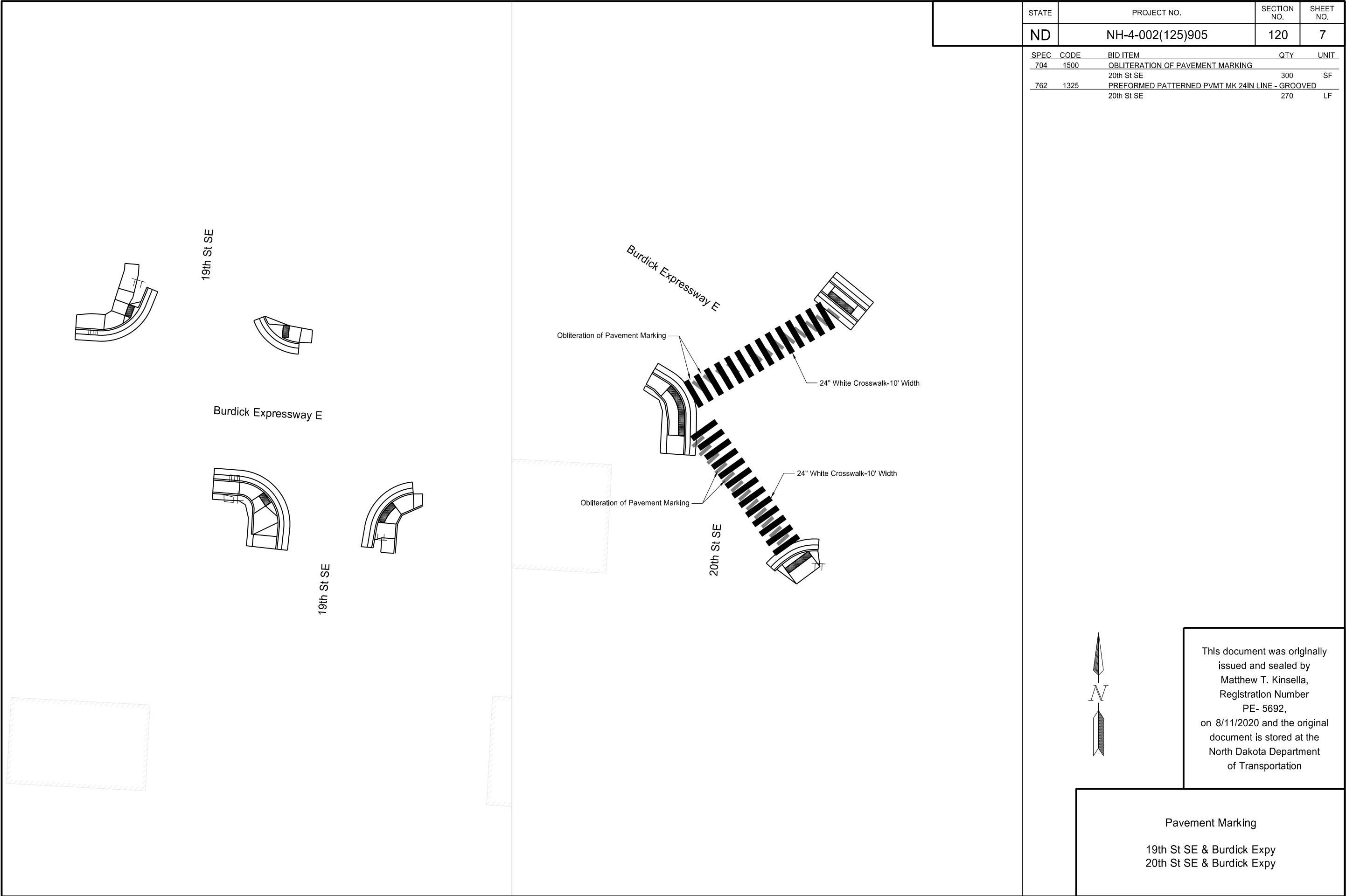
SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
		S Broadway	877	SF
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE - GROOVED		
		3rd St SW	152	LF
		S Broadway	570	LF
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE - GROOVED		
		3rd St SW	34	LF
		S Broadway	239	LF



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Pavement Marking  
3rd St SW & Burdick Expy  
S Broadway & Burdick Expy





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-4-002(125)905	120	7

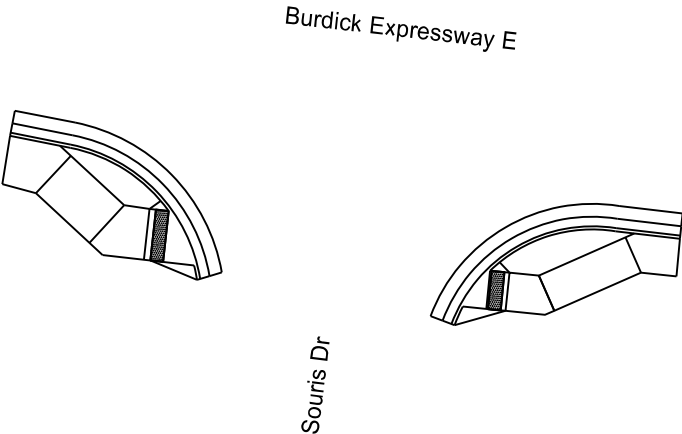
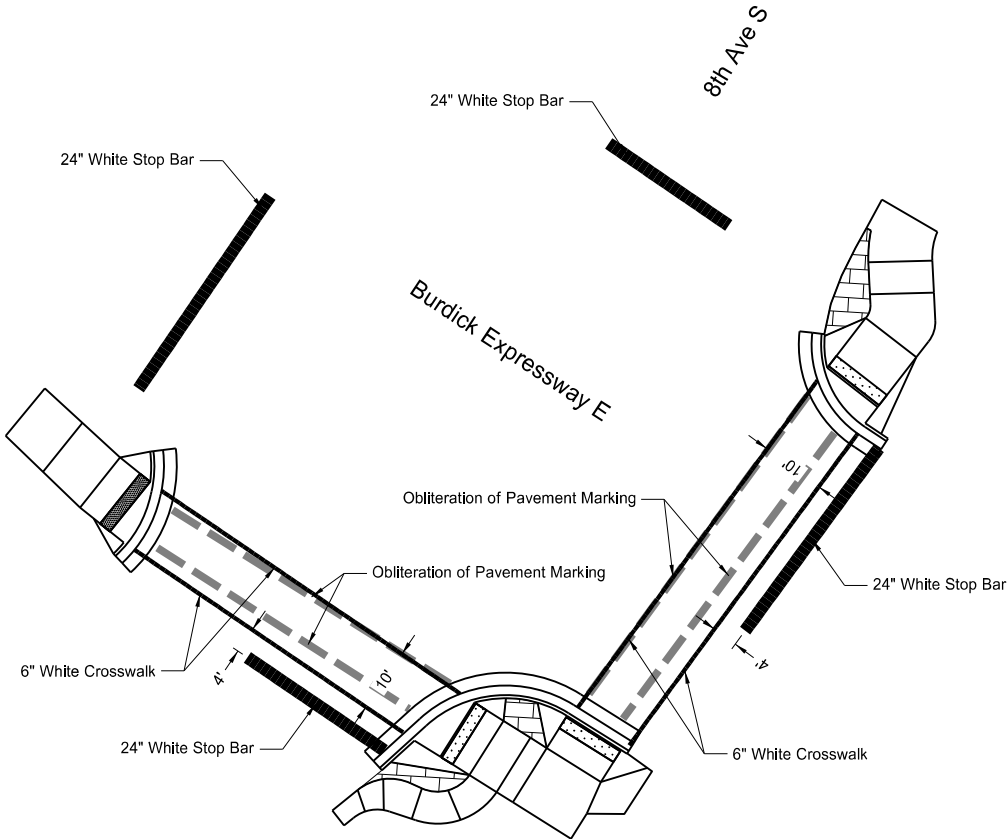
SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
		20th St SE	300	SF
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE - GROOVED		
		20th St SE	270	LF



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Pavement Marking  
19th St SE & Burdick Expy  
20th St SE & Burdick Expy

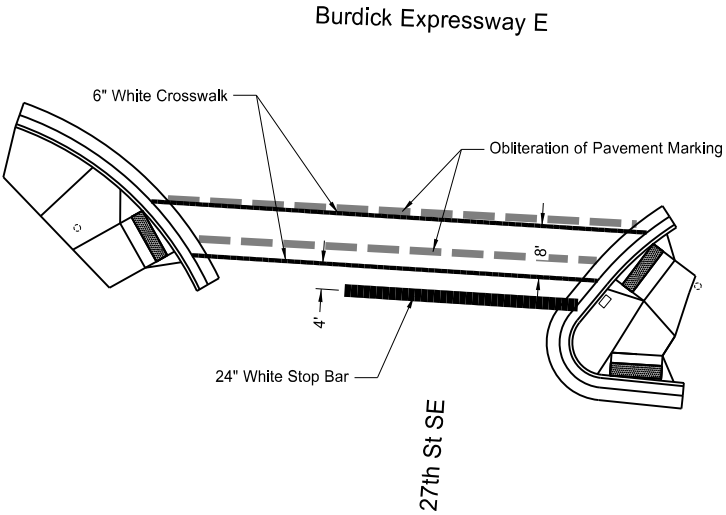
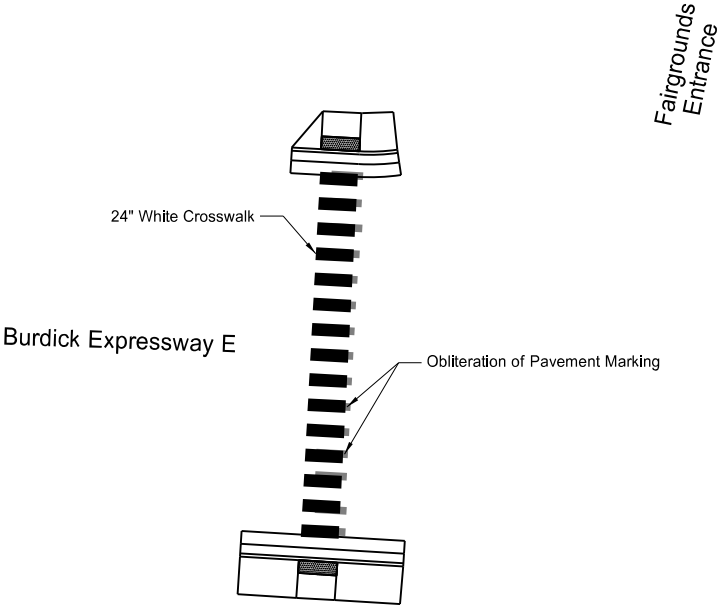
STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		120	8
SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE - GROOVED 8th Ave SE	240 230	SF LF
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE - GROOVED 8th Ave SE	120	LF



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Pavement Marking  
8th Ave SE & Burdick Expy  
Souris Dr & Burdick Expy

STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-4-002(125)905		120	9
SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
			271	SF
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE - GROOVED		
		27th St SE	142	LF
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE - GROOVED		
		Fairgrounds Entrance	90	LF
		27th St SE	36	LF

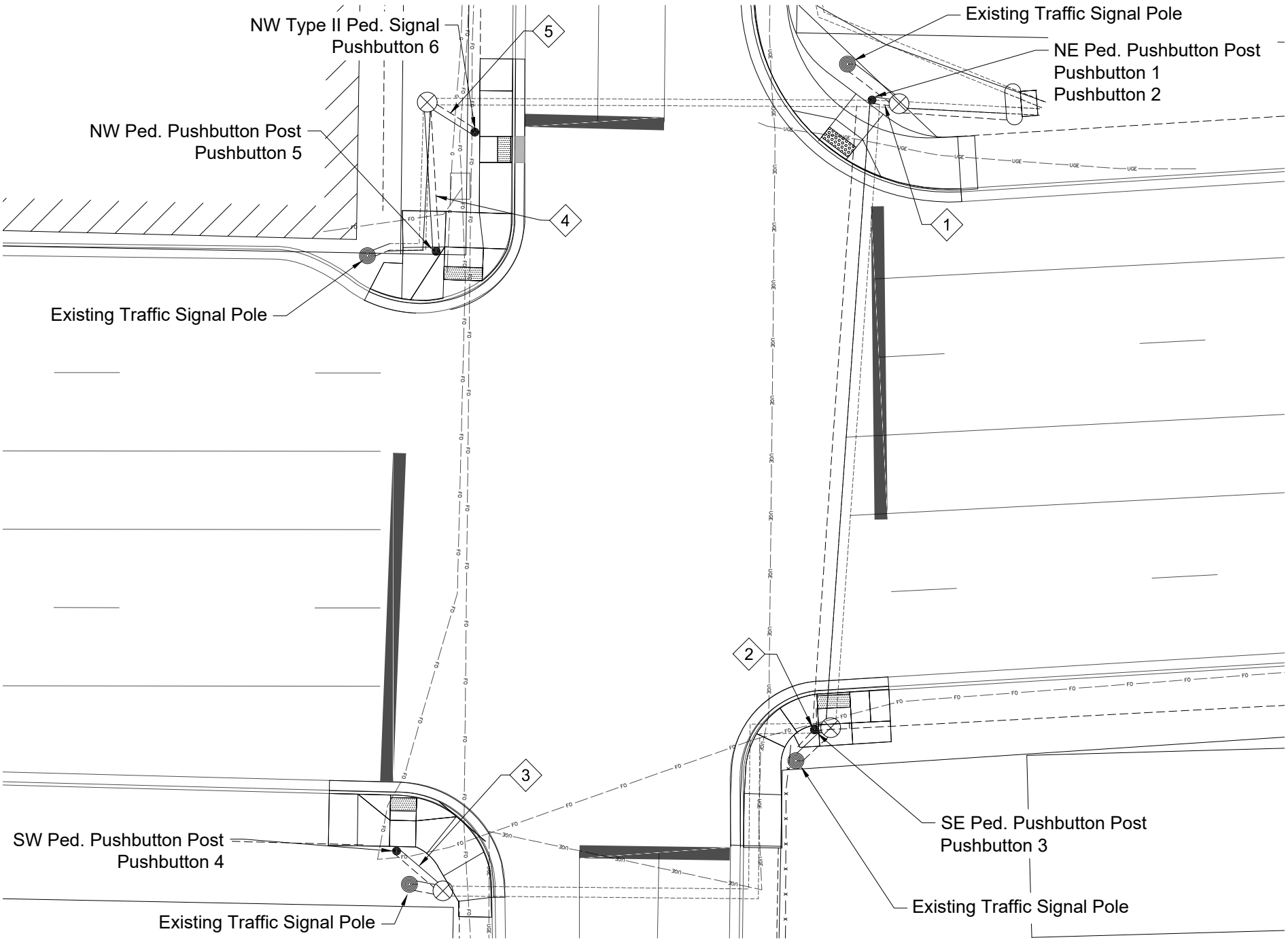


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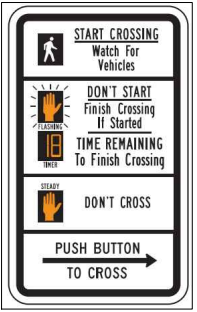
Pavement Marking  
Fairgrounds Entrance & Burdick Expy  
27th St SE & Burdick Expy

P:\PROJECTS\4394 - Burdick Expressway Major Rehabilitation Valley St To 1st St SW\Design\Plans\6th St SW Pushbuttons.dwg  
8/11/2020

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	150	1



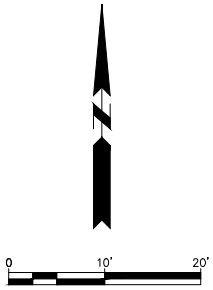
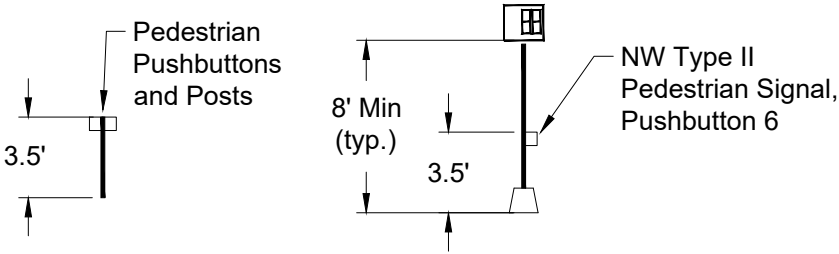
Sign R10-3e



Pedestrian Pushbutton Schedule		
Location	Pushbutton & Sign Location on Pole	Direction of Arrow on Sign
Pushbutton 1	West	Right
Pushbutton 2	South	Left
Pushbutton 3	East	Right
Pushbutton 4	East	Right
Pushbutton 5	East	Left
Pushbutton 6	South	Right

Note: Pushbutton Post locations are to be field marked by engineer.

LEGEND	
	Signal Pole/Foundation
	Signal Controller
	Signal Head
	Pedestrian Signal Head



**City of Minot**  
Engineering Dept

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BURDICK EXPY ADA RAMPS  
  
SITE 4  
BURDICK EXPY & 6TH ST SW  
  
TRAFFIC SIGNAL LAYOUT

P:\PROJECTS\4394 - Burdick Expressway Major Rehabilitation Valley St To 1st St SW\Design\Plans\6th St SW Pushbuttons.dwg  
8/11/2020

SIGNAL COMPONENT COLOR: Paint all traffic signal system components black.

CABLE QUANTITY: Excess cable has been left in the pull boxes, from the City of Minot Project 4429, that the contractor will use to connect each pushbutton as well as the northwest pedestrian signal.

CONDUIT: Install one spare 2” conduit sweep in the northwest Type II pedestrian signal. Cap the spare conduit with an oil-tight plug with wing nut and label as to which direct it faces. Duct seal all conduit openings.

ACCESSIBLE PEDESTRIAN SIGNALS (APS) PUSHBUTTON AND SIGN: Shall include the features, installation procedures, and be compliant with the following:

- A. Features:
  1. Rapid tick WALK indication, no more than 2-5dBA above ambient sound
  2. Vibrotactile WALK indication
  3. Speaker and vibrotactile indication located at pushbutton
  4. Pushbutton locator tone
  5. Tactile arrow on each device aligned in direction of travel on the crosswalk
- B. Installation Procedures
  1. APS should be reachable from the level landing of the curb ramp for the crossing or from a level surface with an accessible path to the ramp (MUTCD Section 4E.08 and Proposed and Draft PROWAG).
  2. APS should be within 5 feet of the crosswalk line furthest from the center of the intersection and within 10 feet of the curb (MUTCD Section 4E.08).
  3. Tactile arrow shall be aligned with parallel to the direction of travel on the crosswalk (MUTCD Section 4E.12, P1).
  4. Pushbutton required to be located within reach range for wheelchair users (Proposed PROWAG, R406).
- C. Code Compliance:
  1. Functionality: MUTCD 2009 - 4E
  2. Temperature and Humidity: NEMA TS 2
  3. Transient Voltage Protection: NEMA TS 2
  4. Transient Suppression: IEC 61000-4-4, IEC 61000-4-5
  5. Electronic Noise: FCC Title 47, Part 15, Class A
  6. Mechanical Shock and Vibration: NEMA TS 2
  7. EN4 PBS Enclosure: NEMA 250 - Type 4X
  8. Electrical Reliability: NEMA TS 4

SIGNAL CABLE & CONDUIT SCHEDULE

RUN			CONDUIT		CABLE				
#	ITEM		SIZE (IN)	LF	Origin	Destination	# of Cables	SIZE/TYPE	TITLE
1	Origin	Pull Box 1	2	22	Pull Box 1	Pushbutton 1	1	16 AWG 2 CONDUCTOR CABLE	PB1
	Destination	Northeast Pushbutton Post				Pushbutton 2	1	16 AWG 2 CONDUCTOR CABLE	PB2
2	Origin	Pull Box 2	2	22	Pull Box 2	Pushbutton 3	1	16 AWG 2 CONDUCTOR CABLE	PB3
	Destination	Southeast Pushbutton Post							
3	Origin	Pull Box 3	2	22	Pull Box 3	Pushbutton 4	1	16 AWG 2 CONDUCTOR CABLE	PB4
	Destination	Southwest Pushbutton Post							
4	Origin	Pull Box 4	2	22	Pull Box 4	Pushbutton 5	1	16 AWG 2 CONDUCTOR CABLE	PB5
	Destination	Northwest Pushbutton Post							
5	Origin	Pull Box 4	2	22	Pull Box 4	Pushbutton 6	1	16 AWG 2 CONDUCTOR CABLE	PB6
	Destination	Northwest Type II Signal			Pull Box 4	Northwest Type II Signal Std Transformer Base	1	14 AWG 5 CONDUCTOR CABLE	NWP

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-4-002(125)905	150	2

772 9814 TRAFFIC SIGNAL SYSTEM-SITE 4

1 EA

ITEM DESCRIPTION	UNIT	SITE 4
TYPE II SIGNAL STD	EA	1
PEDESTRIAN PUSHBUTTON POST	EA	4
PEDESTRIAN PUSHBUTTON & SIGN	EA	6

Items shown above are for informational purposes, contractor shall provide all labor and equipment necessary for the signal system to be fully operational as shown in the plans.

Items shall be included in the corresponding price bid "TRAFFIC SIGNAL SYSTEM - SITE 4"



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BURDICK EXPY ADA RAMPS

SITE 4  
BURDICK EXPY & 6TH ST SW

NOTES

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

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

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NDDOT ABBREVIATIONS

D-101-2

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

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NDDOT ABBREVIATIONS

D-101-3

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

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NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

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

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Line Styles

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

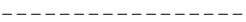
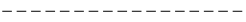




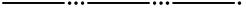






	Existing Overhead Sign Structure
	Existing Overhead Sign Structure Cantilever
	Overhead Sign Structure Cantilever

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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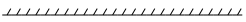








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Line Styles

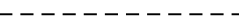
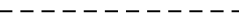
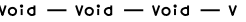
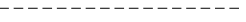




Right Of Way

	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


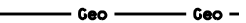




Boundary Control

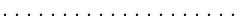

	Existing City Corporate Limits or Reservation Boundary
	Existing State or International Line
	Existing Township
	Existing County
	Existing Section Line
	Existing Quarter Section Line
	Existing Sixteenth Section Line
	Existing Centerline
	Tangent Line

Cross Sections and Typicals



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

Geotechnical

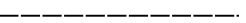
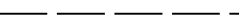
	D	Geotextile Fabric Type D
	Geo	Geogrid
	R	Geotextile Fabric Type R
	R	Geotextile Fabric Type R1
	RR	Geotextile Fabric Type RR
	S	Geotextile Fabric Type S

	Subgrade Reinforcement
	Failure Line


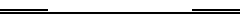

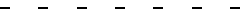


Countours

	Depression Contours
	Supplemental Contour



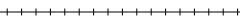
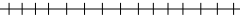
Profile

	Subgrade, Subcut or Ditch Grade
	Topsoil Profile



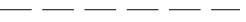


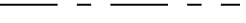
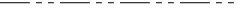


Striping

	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

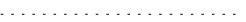



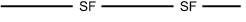

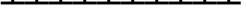
Pavement Joints

	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



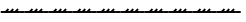
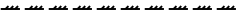
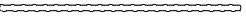
Bridge Details

	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
	S Floating Silt Curtain
	SF Silt Fence
	Excavation Limits
	Fiber Rolls

Environmental

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
09-23-16	Added and Revised Items, Organized by Functional Groups

























































































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Symbols

	North Arrow (Half Scale)		Attenuation Device		Existing Railroad Battery Box		Existing Delineator Type E										
	Truck Mounted Attenuator		Diamond Grade Delineator Type A		Existing Bush or Shrub		Existing EFB Misc										
	Type I Barricade		Diamond Grade Delineator Type B		Existing Gas Cap or Stub		Existing Flashing Beacon										
	Type II Barricade		Diamond Grade Delineator Type C		Existing Sanitary Cap or Stub		Existing Pipe Mounted Flasher										
	Type III Barricade		Diamond Grade Delineator Type D		Existing Storm Drain Cap or Stub		Existing Pad Mounted Feed Point										
	Catch Basin		Diamond Grade Delineator Type E		Existing Water Cap or Stub		Existing Pipe Mounted Feed Point with Pad										
	Caim or Stone Circle		Flexible Delineator		Existing Sanitary Cleanout		Existing Pole Mounted Feed Point										
	Video Detection Camera		Flexible Delineator Type A		Existing Concrete Foundation		Existing Railroad Frog										
	Storm Drain Cap or Stub		Flexible Delineator Type B		Existing Traffic Signal Controller		Existing Snow Gate 18										
	Corrugated Metal End Section 18 Inch		Flexible Delineator Type C		Existing Pad Mounted Signal Controller		Existing Snow Gate 28										
	Corrugated Metal End Section 24 Inch		Flexible Delineator Type D		Existing Sixteenth Section Corner		Existing Snow Gate 40										
	Corrugated Metal End Section 30 Inch		Flexible Delineator Type E		Existing Quarter Section Corner		Existing Headwall										
	Corrugated Metal End Section 36 Inch		Delineator Type A		Existing Section Corner		Existing Pedestrian Head with Number										
	Corrugated Metal End Section 42 Inch		Delineator Type A Reset		Existing Railroad Crossbuck		Existing Signal Head										
	Corrugated Metal End Section 48 Inch		Delineator Type B		Existing Satellite Dish		Existing Sprinkler Head										
	Concrete Foundation		Delineator Type B Reset		Existing Fuel Dispensers		Existing Fire Hydrant										
	Ground Connection Conductor		Delineator Type C		Existing Flexible Delineator Type A		Existing Catch Basin Drop Inlet										
	Neutral Connection Conductor		Delineator Type D		Existing Flexible Delineator Type B		Existing Curb Inlet										
	Phase 1 Connection Conductor		Delineator Type E		Existing Flexible Delineator Type C		Existing Manhole Inlet										
	Phase 2 Connection Conductor		Delineator Drums		Existing Flexible Delineator Type D		Existing Junction Box										
	Traffic Cone		Spot Elevation		Existing Flexible Delineator Type E	<table><tr><th colspan="2">NORTH DAKOTA DEPARTMENT OF TRANSPORTATION</th></tr><tr><th colspan="2">07-01-14</th></tr><tr><th colspan="2">REVISIONS</th></tr><tr><th>DATE</th><th>CHANGE</th></tr><tr><td></td><td></td></tr></table>		NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		07-01-14		REVISIONS		DATE	CHANGE		
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION																	
07-01-14																	
REVISIONS																	
DATE	CHANGE																
	Signal Controller		Existing Access Control Arrow		Existing Delineator Type A												
	Pad Mounted Signal Controller		Existing Artifact		Existing Delineator Type B												
	Alignment Data Point		Existing Flashing Beacon		Existing Delineator Type C												
	Emergency Vehicle Detector		Existing Benchmark		Existing Delineator Type D												

Symbols

D-101-31

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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REVISIONS	
DATE	CHANGE

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Symbols



Pad Mounted Feed Point



Pipe Mounted Feed Point with Pad



Pole Mounted Feed Point



Headwall



Double Headwall with Vegetation Barrier



Single Headwall with Vegetation 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



Flight Auger Sample



Split Barrel Sample



Thinwall Tube Sample



Highway Sign



SNOW GATE 18 FT



SNOW GATE 28 FT



SNOW GATE 40 FT



Standard Penetration Test



Transformer



Inclinometer Tube



Underdrain Cleanout



Excavation Unit



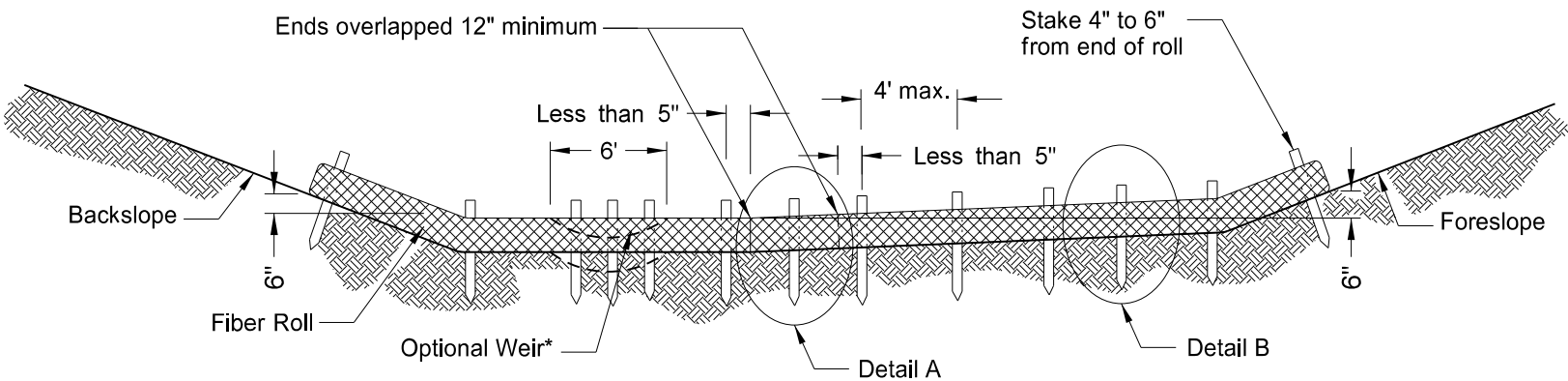
Water Valve

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE

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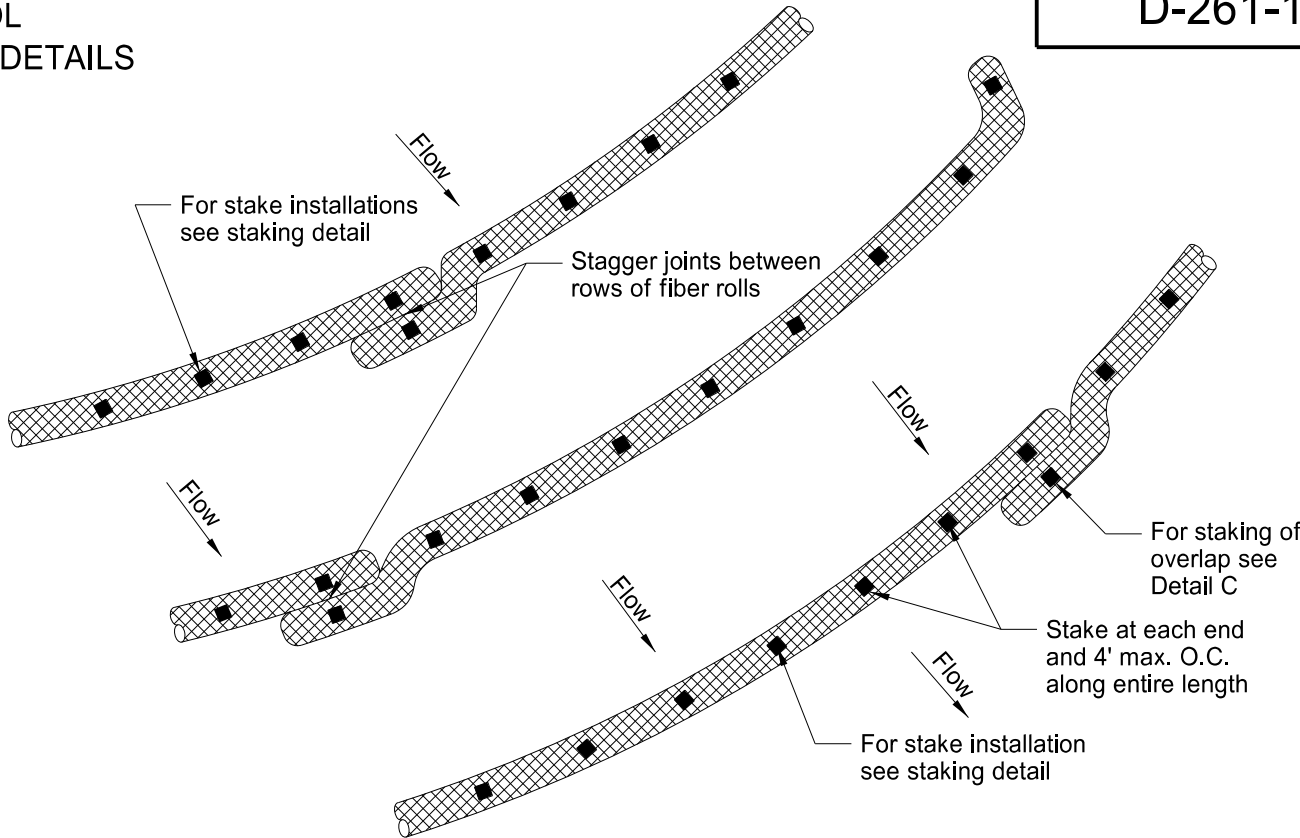
EROSION CONTROL  
FIBER ROLL PLACEMENT DETAILS

D-261-1

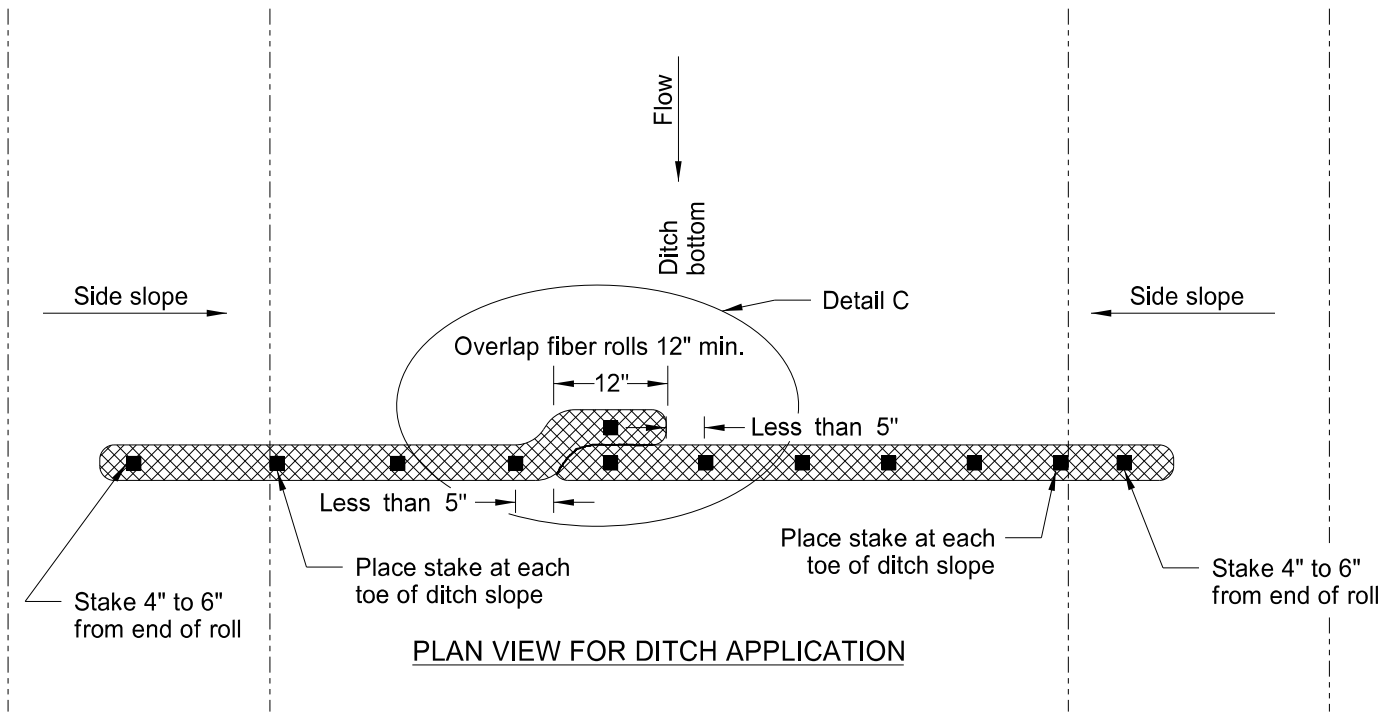


\*Optional Weir. Use in flat areas, such as the Red River Valley, where there is potential for water to back up on adjacent property. Lower fiber roll enough to prevent water from backing up on adjacent property. Do not use 20-inch fiber rolls in flat areas where there is potential for water to back up on adjacent property.

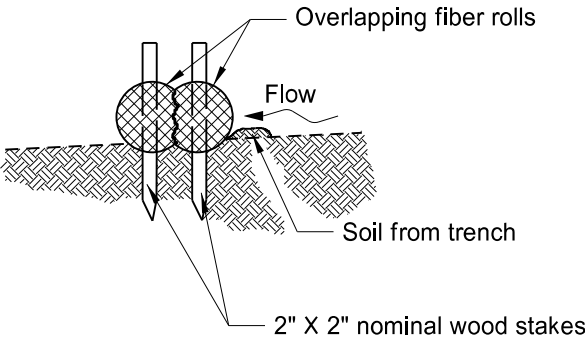
12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



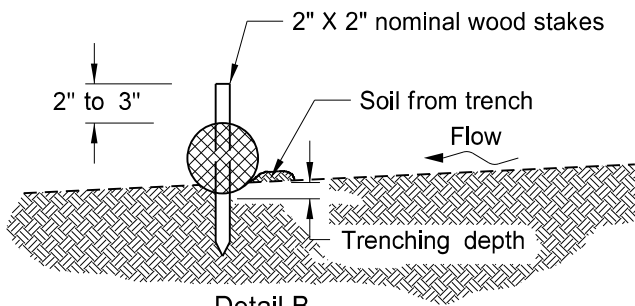
PLAN VIEW FOR SLOPE APPLICATION



PLAN VIEW FOR DITCH APPLICATION



Detail A  
Fiber Roll Overlapping Staking Detail



Detail B  
Fiber Roll Staking Detail

FIBER ROLL DIAMETER	NOMINAL STAKE SIZE	MINIMUM STAKE LENGTH	MINIMUM TRENCH DEPTH	MAXIMUM TRENCH DEPTH
6"	2" x 2"	18"	2"	2"
12"	2" x 2"	24"	2"	3"
20"	2" x 2"	36"	3"	5"

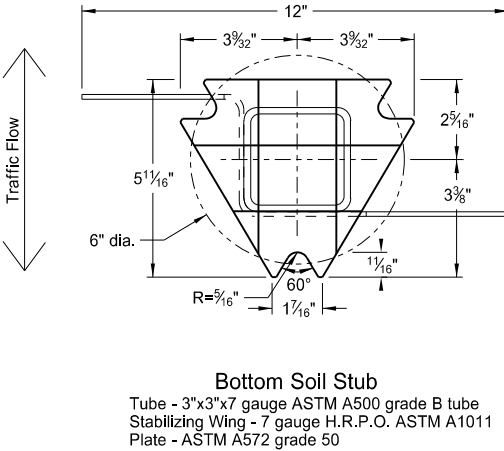
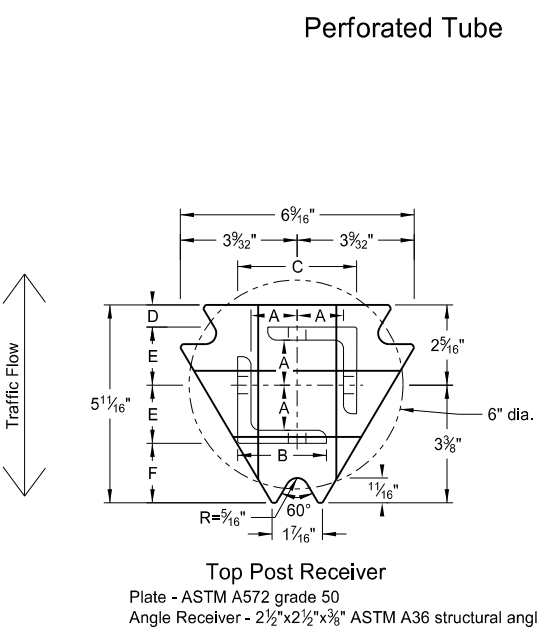
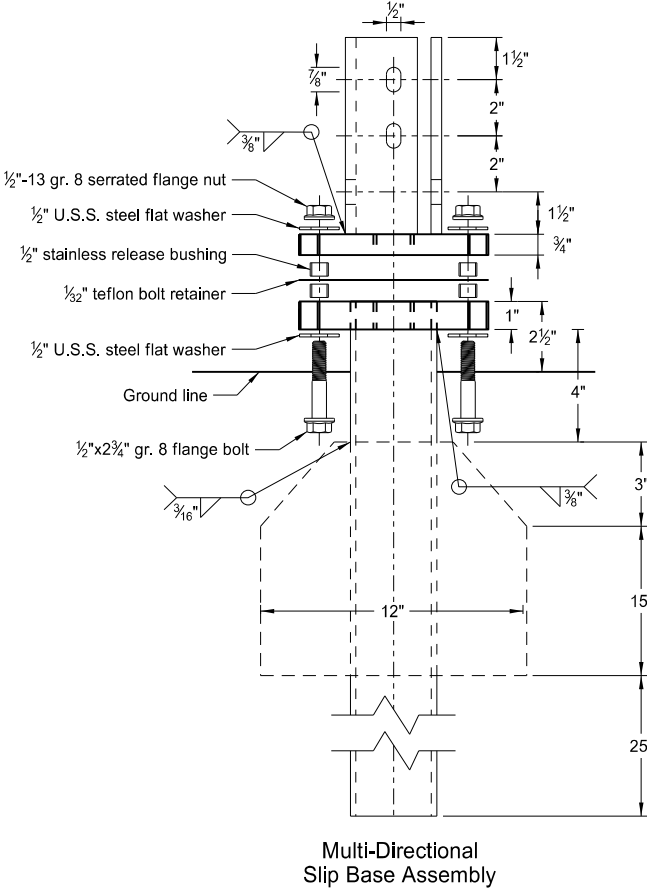
NOTE: Runoff must not be allowed to run under or around roll.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-18-10	
REVISIONS	
DATE	CHANGE
06-10-13	Added plan view for ditch and slope application. Added table with values for stake and trench dimensions.
10-04-13	Revised fiber roll overlap detail.
06-26-14	Changed standard drawing number from D-708-7 to D-261-1.
08-27-19	New Design Engineer PE Stamp

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Perforated Tube

- 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.

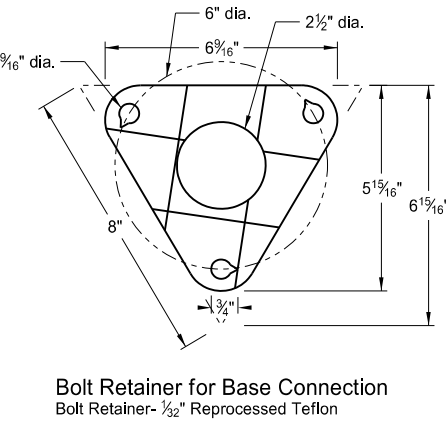
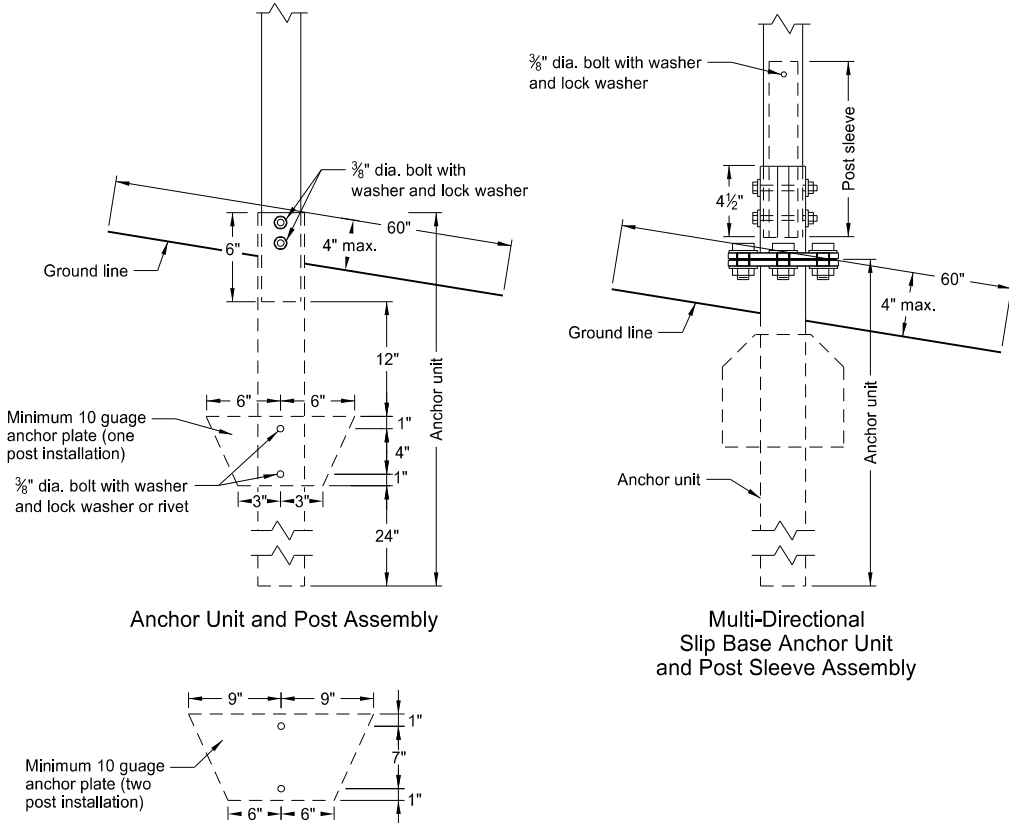


Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thick-ness Gauge	Sleeve Size in.	Wall Thick-ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2 1/4
1	2 1/4	12			No	2 1/2
1	2 1/2	12			(A)	3
1	2 1/2	10			Yes	
1	2 1/4	12	2	12	Yes	
1	2 1/2	12	2 1/4	12	Yes	
2	2	12			No	2 1/4
2	2 1/4	12			No	2 1/2
2	2 1/2	12			Yes	
2	2 1/2	12			Yes	
2	2 1/4	10	2	12	Yes	
2	2 1/2	12	2 1/4	12	Yes	
3 & 4	2 1/2	12			Yes	
3 & 4	2 1/2	10			Yes	
3 & 4	2 1/2	12	2 1/4	12	Yes	
3 & 4	2 1/4	12	2	12	Yes	
3 & 4	2 1/2	10	2 3/16	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. <sup>4</sup>	Cross Sec. Area in. <sup>2</sup>	Section Modulus in. <sup>3</sup>
1 1/2 x 1 1/2	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
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	0.499
2 3/8 x 2 3/8	0.135	10	3.432	0.605	0.841	0.590
2 1/2 x 2 1/2	0.105	12	3.141	0.804	0.803	0.643
2 1/2 x 2 1/2	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
2 3/16"x10 ga.	1 5/16"	2 1/2"	3 1/2"	2 5/32"	1 33/64"	1 7/8"
2 1/2"x10 ga.	1 3/32"	2 1/2"	3 5/16"	5/8"	1 21/32"	1 3/4"

- (A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.
- (B) For additional wind load, insert the 2 3/8"x10 ga. into 2 1/2"x10 ga.



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

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See Alt. A Note 4

Sign post

Grade 8 bolt, nut, and lock washer (see Alt. A Note 3)

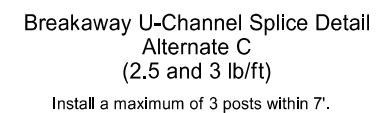
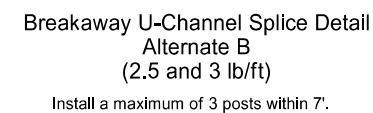
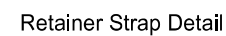
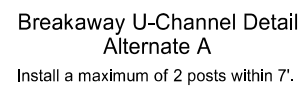
Anchor unit

Grade 8 bolt, nut, and lock washer (see Alt. A Note 3)

See Alt. A Note 1c

Retainer strap (see Alt. A Note 1b)

Detail A



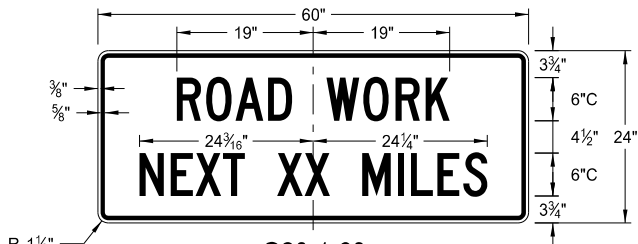
1.
  - a) Drive anchor unit to within 12" of ground level.
  - b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
  - c) Assemble strap to back of anchor unit using  $\frac{5}{16}$ "x2" bolt, lock washer and nut.
  - d) Rotate strap 90° to left.
2.
  - a) Drive anchor unit to 4" above ground.
  - b) Rotate strap to vertical position.
3.
  - a) Place  $\frac{5}{16}$ "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  $\frac{5}{16}$ "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 10-03-19	Updated to active voice New Design Engr PE Stamp

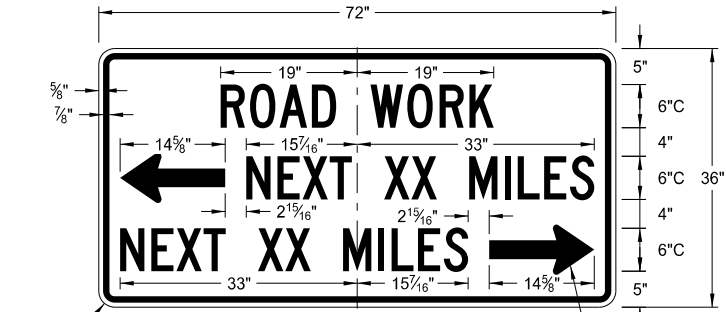
This document was originally  
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Kirk J Hoff,  
Registration Number  
PE-4683,  
on 10/03/19 and the original  
document is stored at the  
North Dakota Department  
of Transportation

CONSTRUCTION SIGN DETAILS  
TERMINAL AND GUIDE SIGNS

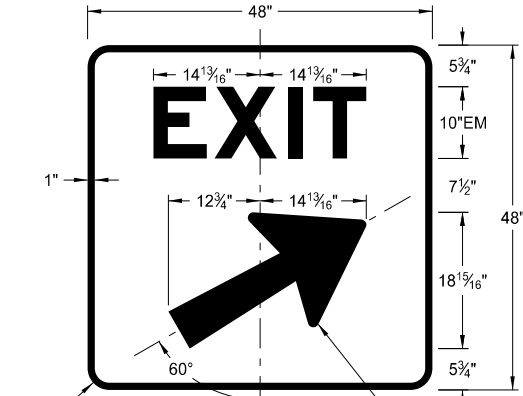
D-704-9



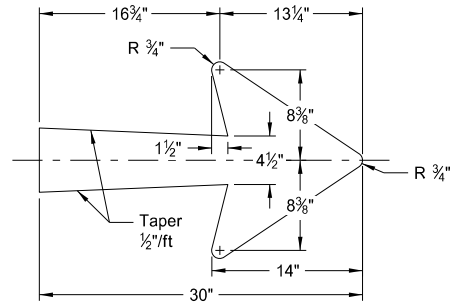
G20-1-60  
Legend: black (non-refl)  
Background: orange



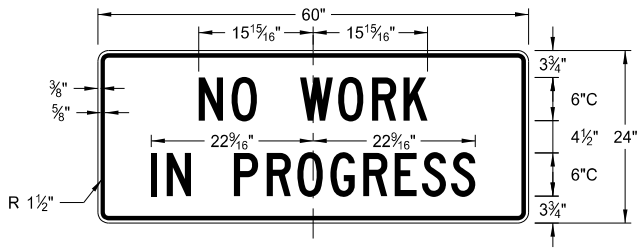
G20-50a-72  
Legend: black (non-refl)  
Background: orange



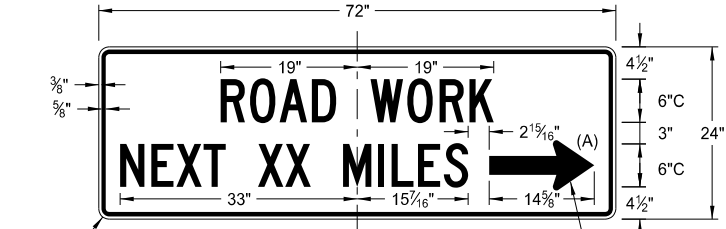
E5-1(L or R)-48  
Legend: white  
Background: green (orange optional)



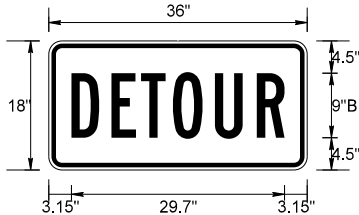
E5-1-48



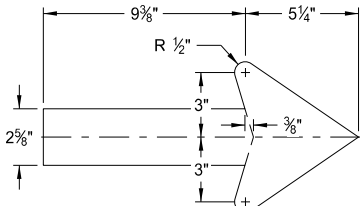
G20-1b-60  
Legend: black (non-refl)  
Background: orange



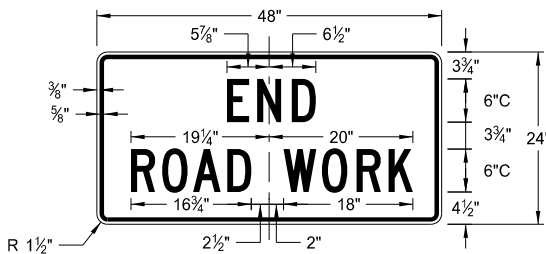
G20-52a-72  
Legend: black (non-refl)  
Background: orange



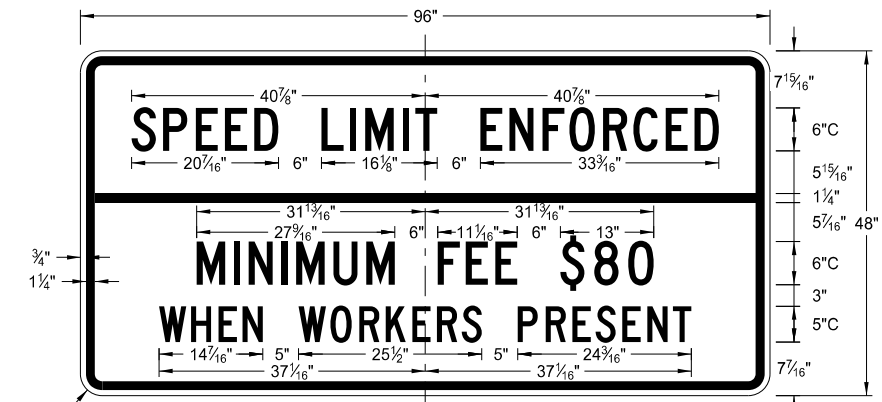
M4-8-36  
Legend: black (non-refl)  
Background: orange



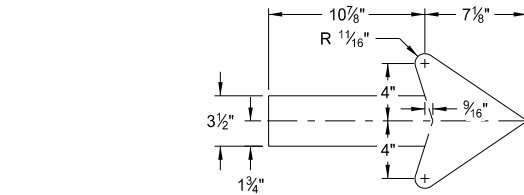
G20-50a-72  
G20-52a-72



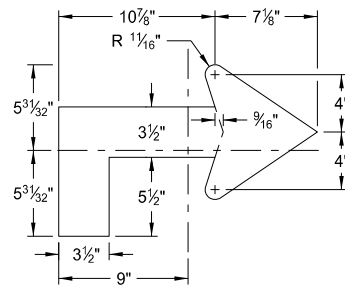
G20-2-48  
Legend: black (non-refl)  
Background: orange



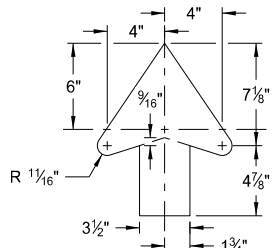
G20-55-96  
Legend: black (non-refl)  
Background: orange



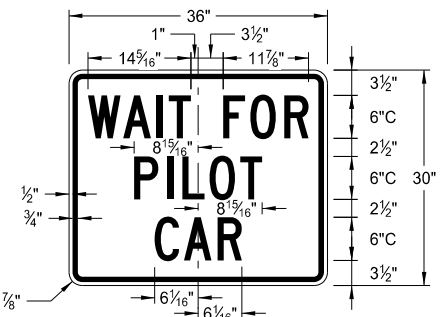
M4-9(L or R)-30  
Right or Left



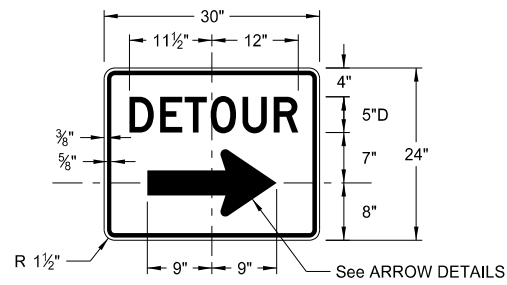
M4-9(L or R)-30  
Advanced Right or Left



M4-9-30  
Straight



G20-4b-36  
Legend: black (non-refl)  
Background: orange



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

ARROW DETAILS

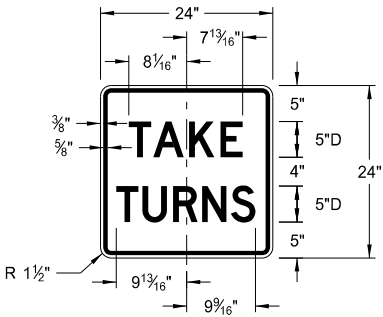
NOTES:  
(A) Arrow may be right or left of the legend to indicate construction to the right or left.

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

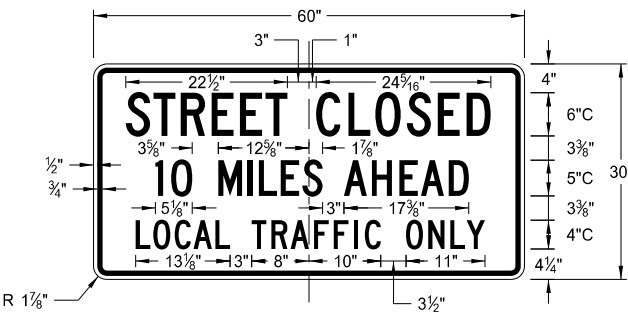
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of Transportation

CONSTRUCTION SIGN DETAILS  
REGULATORY SIGNS

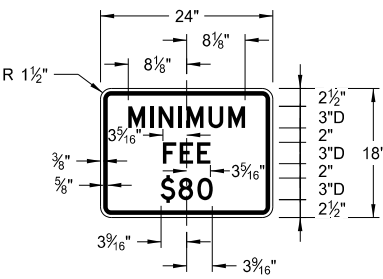
D-704-10



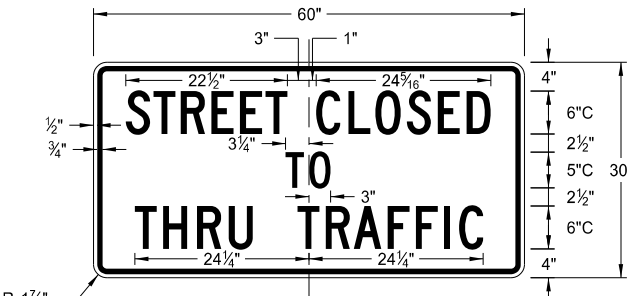
R1-50P-24  
Legend: black (non-refl)  
Background: white



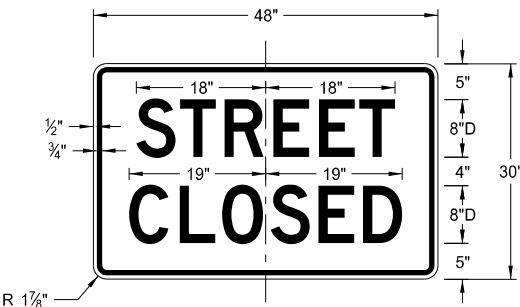
R11-3c-60  
Legend: black (non-refl)  
Background: white



R2-1aP-24  
Legend: black (non-refl)  
Background: white



R11-4a-60  
Legend: black (non-refl)  
Background: white

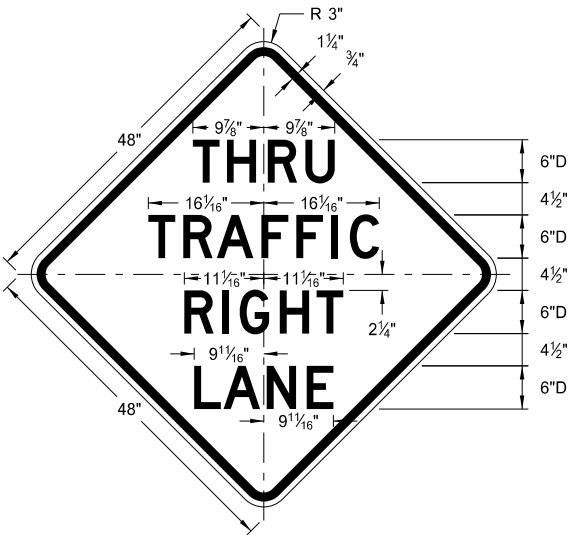


R11-2a-48  
Legend: black (non-refl)  
Background: white

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8-13-13		
REVISIONS		
DATE	CHANGE	
8-17-17 10-03-19	Revised sign number New Design Engineer PE Stamp	

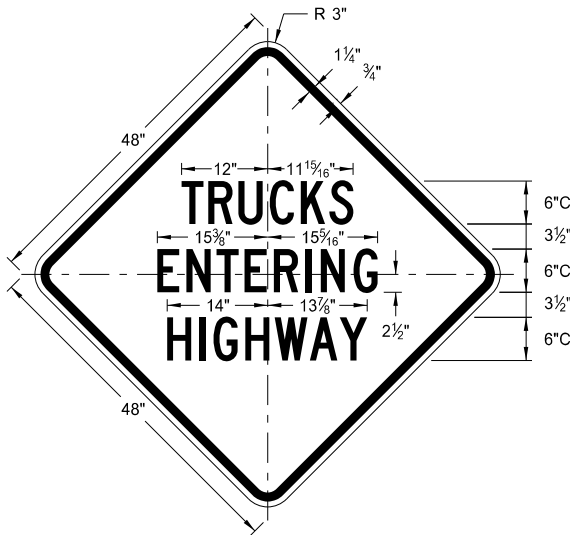
CONSTRUCTION SIGN DETAILS  
WARNING SIGNS

D-704-11



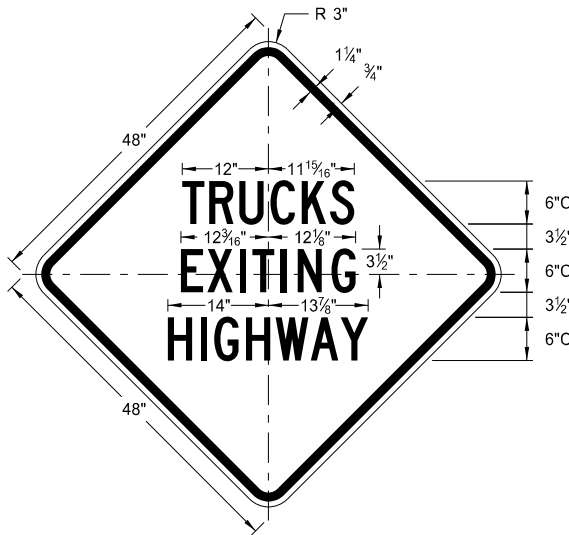
W5-8-48

Legend: black (non-refl)  
Background: orange



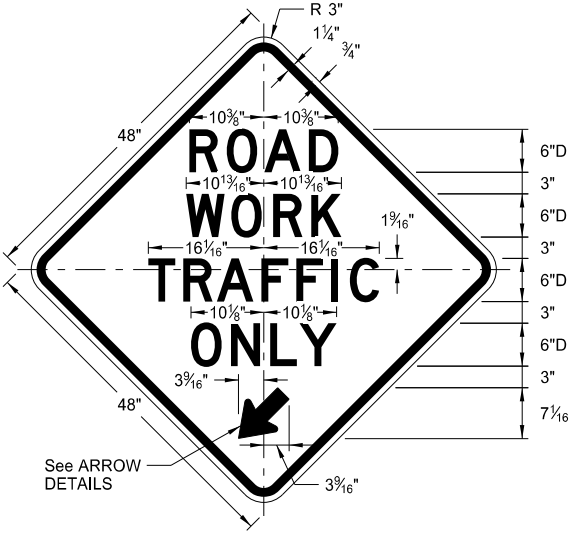
W8-53-48

Legend: black (non-refl)  
Background: orange



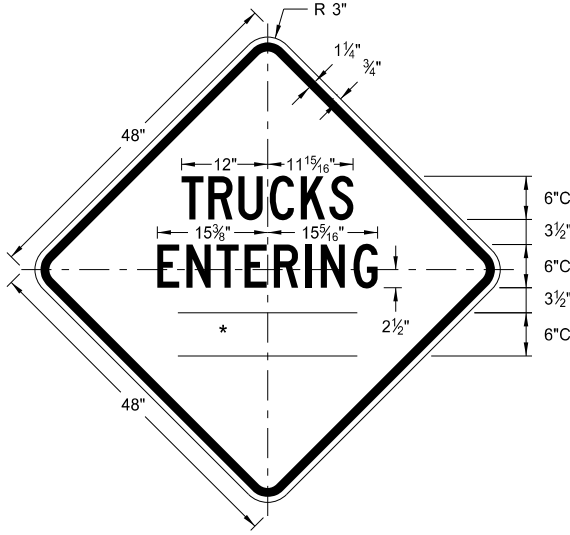
W8-56-48

Legend: black (non-refl)  
Background: orange



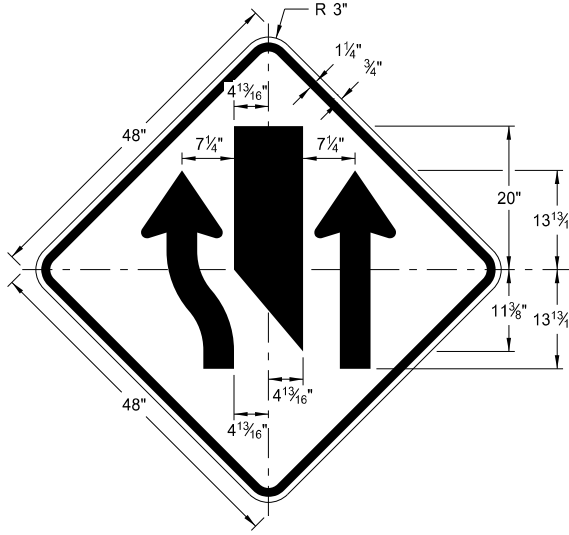
W5-9-48

Legend: black (non-refl)  
Background: orange



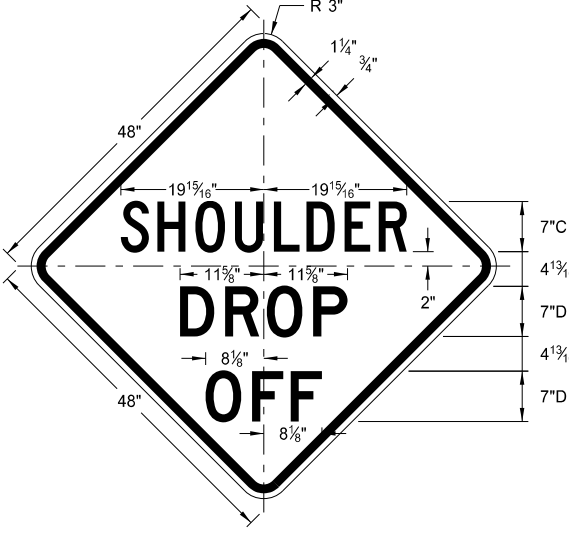
W8-54-48

Legend: black (non-refl)  
Background: orange



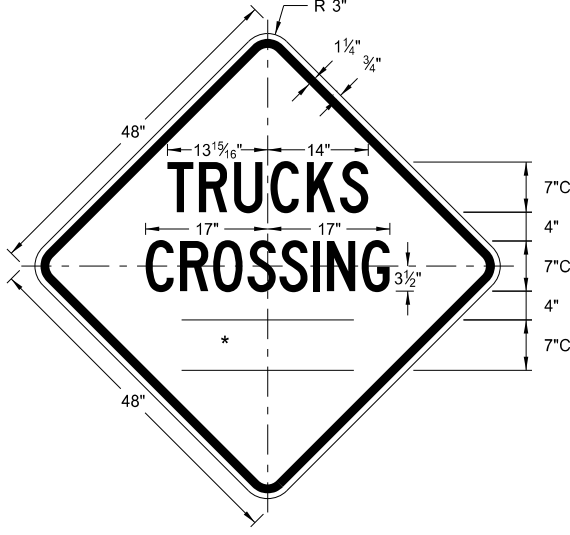
W9-3a-48

Legend: black (non-refl)  
Background: orange



W8-9a-48

Legend: black (non-refl)  
Background: orange

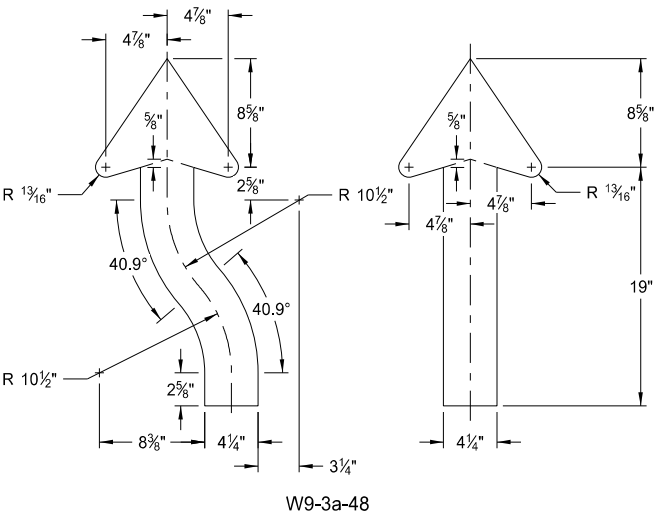
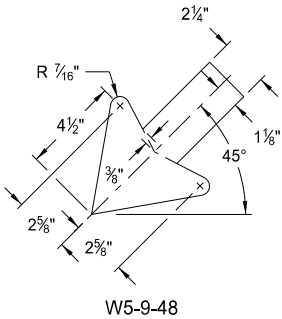


W8-55-48

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



ARROW DETAILS

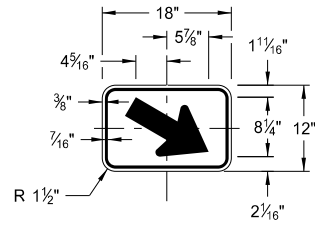
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp

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of Transportation

CONSTRUCTION SIGN DETAILS  
WARNING SIGNS

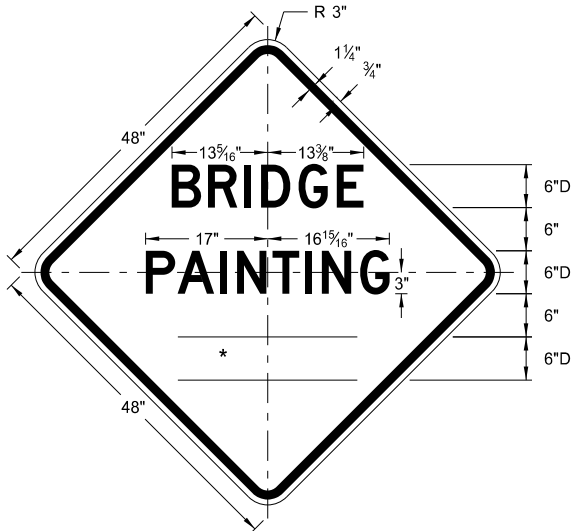
WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

\* DISTANCE MESSAGES



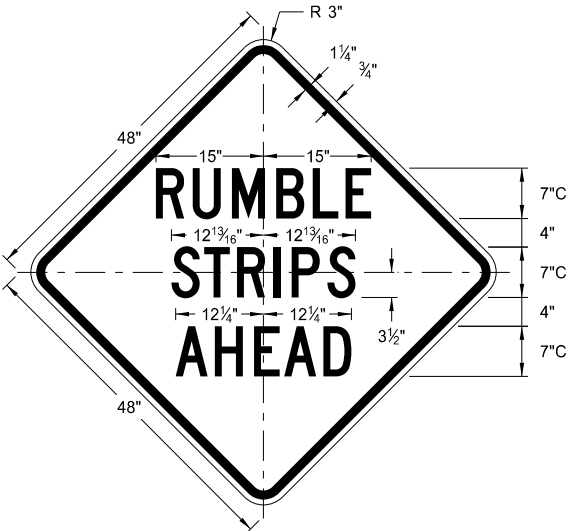
W16-7aP-18

Legend: black (non-refl)  
Background: orange



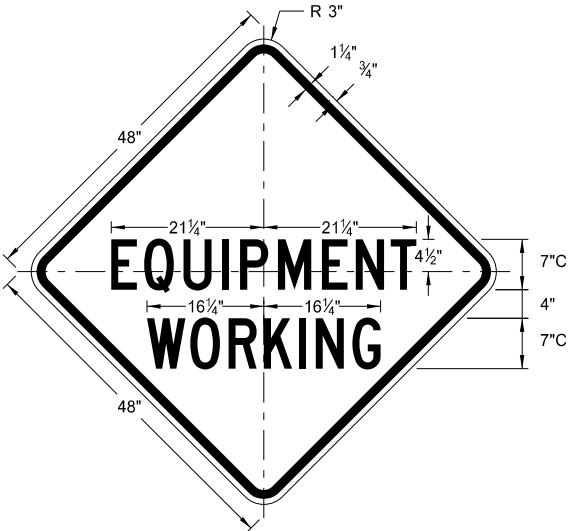
W21-50-48

Legend: black (non-refl)  
Background: orange



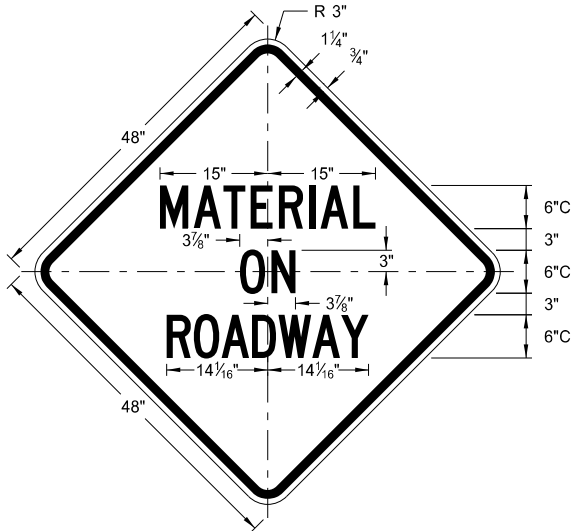
W21-53-48

Legend: black (non-refl)  
Background: orange



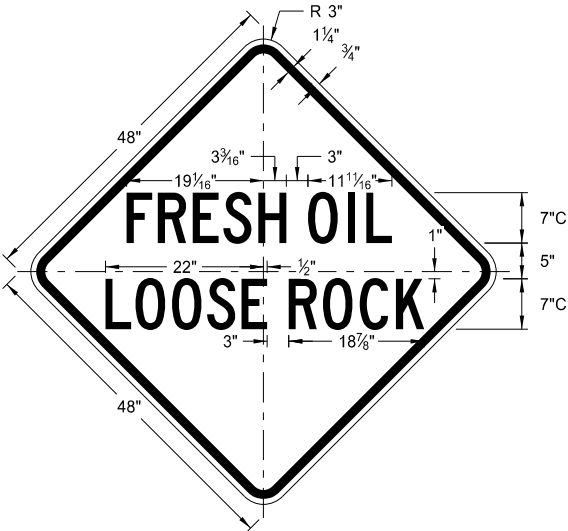
W20-51-48

Legend: black (non-refl)  
Background: orange



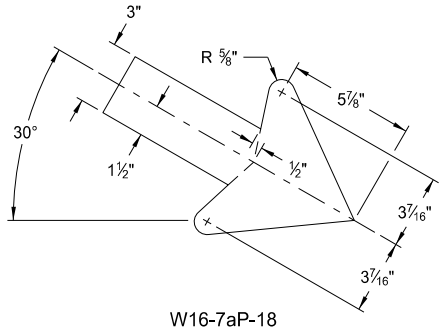
W21-51-48

Legend: black (non-refl)  
Background: orange

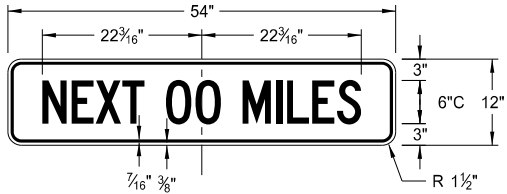


W22-8-48

Legend: black (non-refl)  
Background: orange

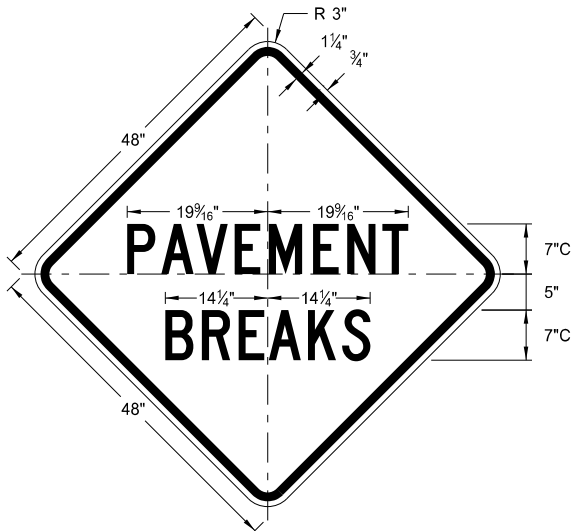


W16-7aP-18



W20-52P-54

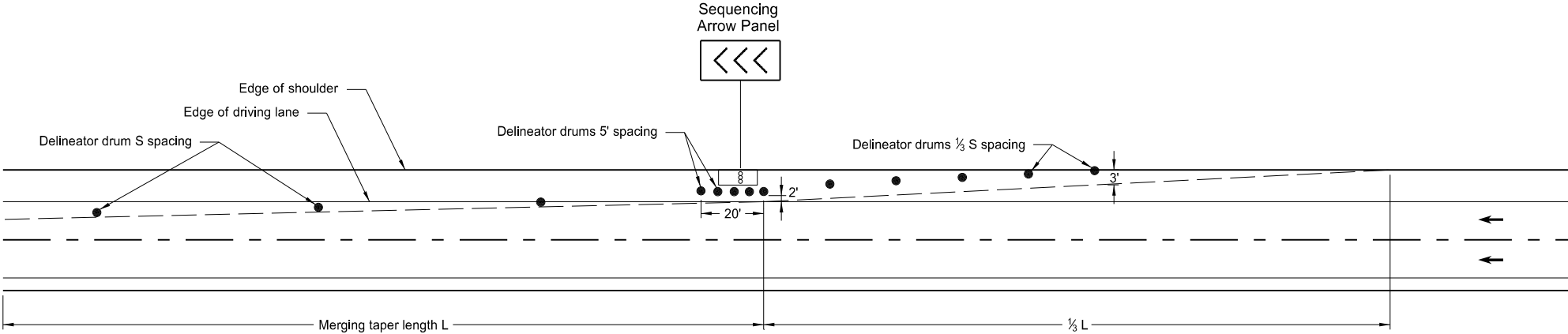
Legend: black (non-refl)  
Background: orange



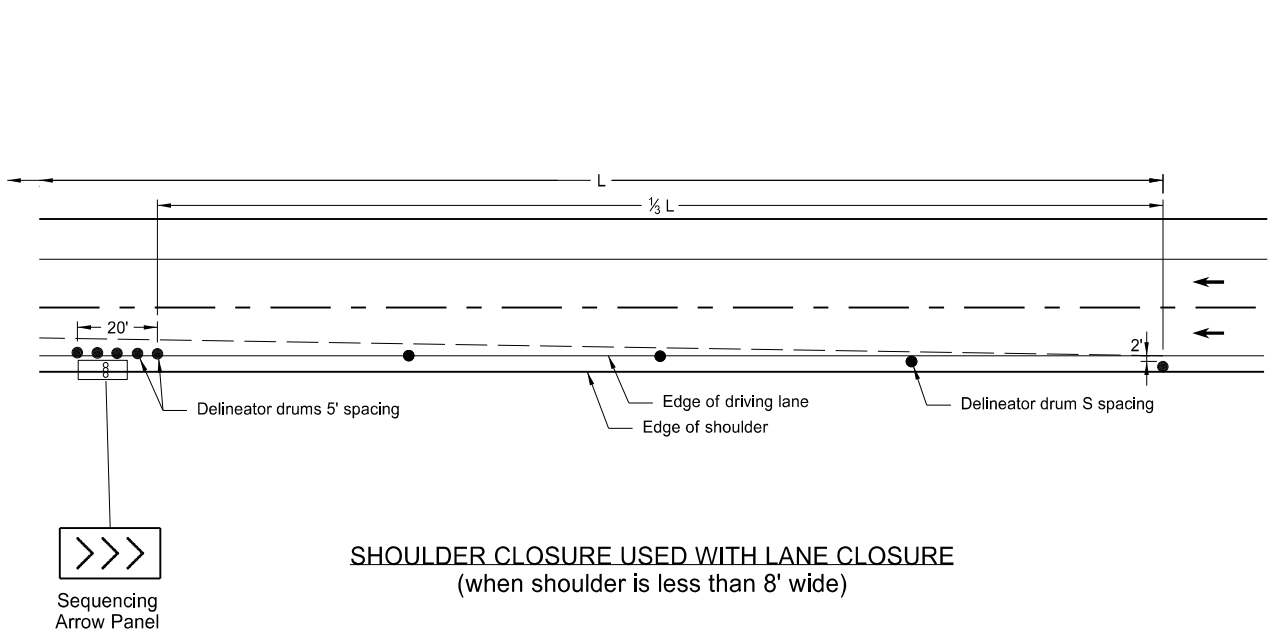
W21-52-48

Legend: black (non-refl)  
Background: orange

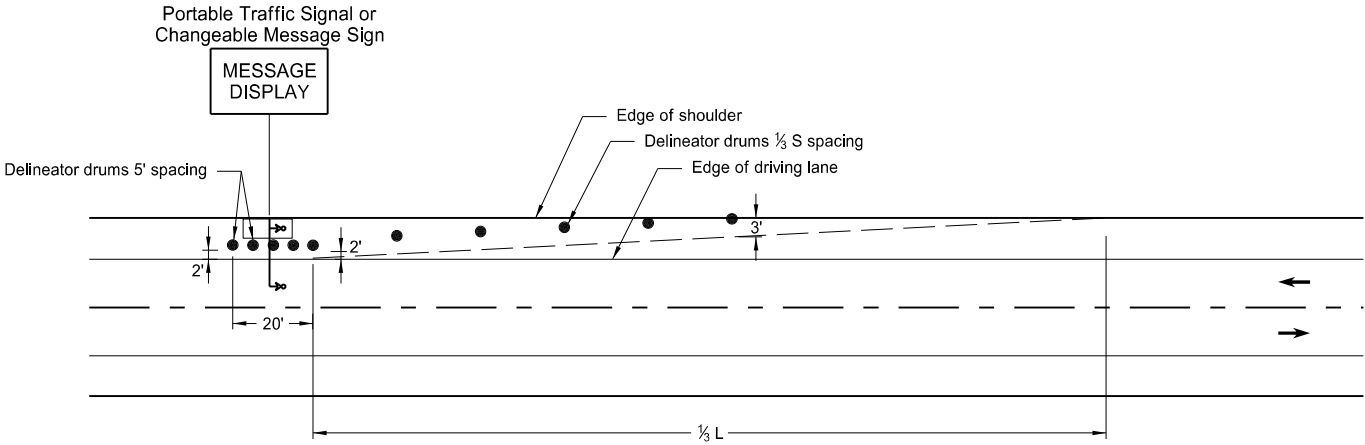
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		This document was originally issued and sealed by  Kirk J Hoff,  Registration Number PE- 4683,  on 11/1/19 and the original document is stored at the North Dakota Department of Transportation
5-31-18		
REVISIONS		
DATE	CHANGE	
11-01-19	Added details for sign W16-7aP-18.	



SHOULDER CLOSURE WITH LANE CLOSURE  
(when shoulder is 8' or wider)



SHOULDER CLOSURE USED WITH LANE CLOSURE  
(when shoulder is less than 8' wide)



PORTABLE TRAFFIC SIGNAL OR CHANGEABLE MESSAGE SIGN ON SHOULDER

KEY			
●	Delineator Drum	∞	Sequencing Arrow Panel
•	Message Display	⌋	Portable Traffic Signal

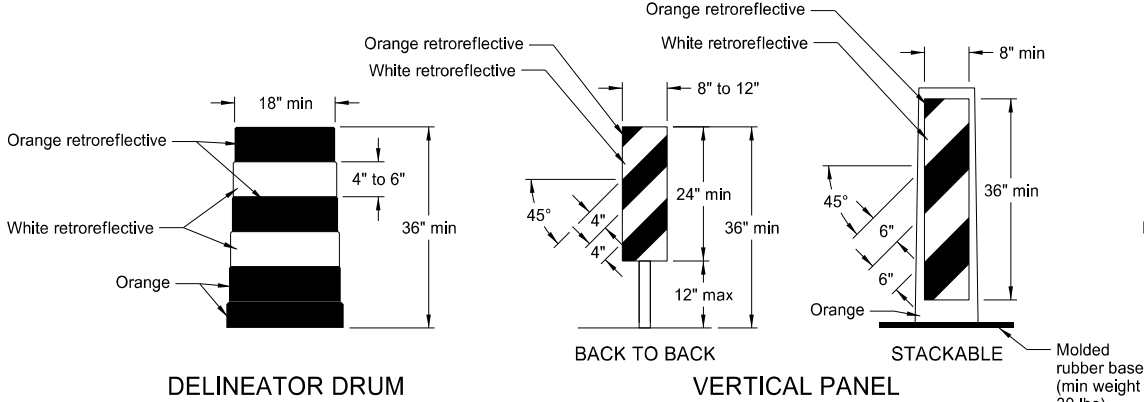
Notes:

- S = Posted Speed Limit in mph  
W = Width of offset in feet  
L = Taper length in feet  
L =  $WS^2/60$  (40mph or less)  
L = WS (45mph or more)
- If a shoulder taper is used, use a length of approximately 1/3L. If a shoulder is used as a travel lane, use a normal merging or shifting taper.
- When paved shoulders of 8 foot width or more are closed, use channelizing devices to close shoulder in advance, to delineate beginning of work space, and to direct vehicular traffic to remain within the traveled way.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-25-19	Added L dimension to detail

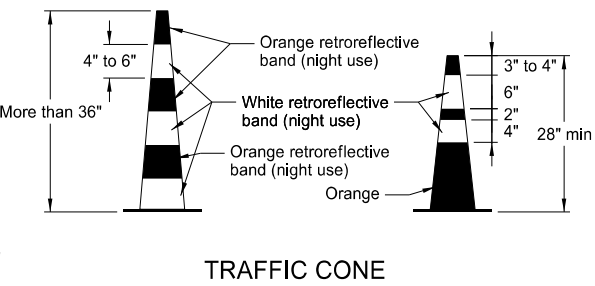
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BARRICADE AND CHANNELIZING DEVICE DETAILS

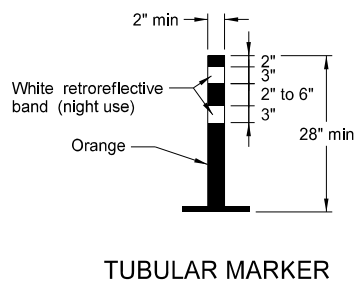


Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectORIZED spaces between the horizontal orange and 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.

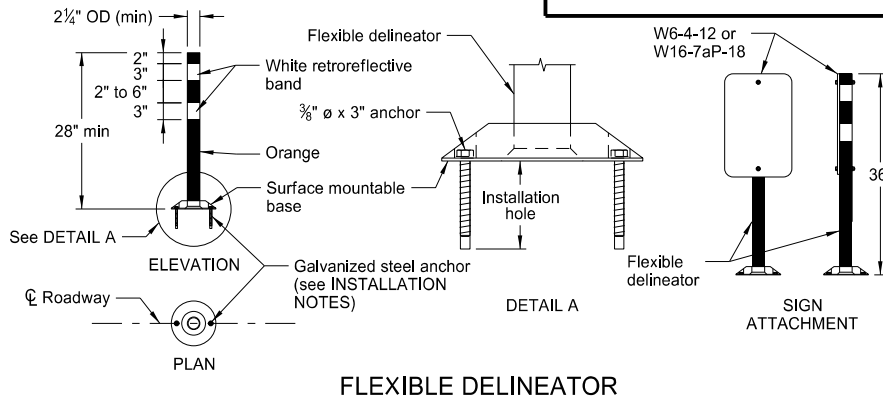
Provide alternating orange and white retroreflective stripes, sloping downward in direction vehicular traffic is to pass. Place retroreflective sheeting on both sides of panel with a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective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



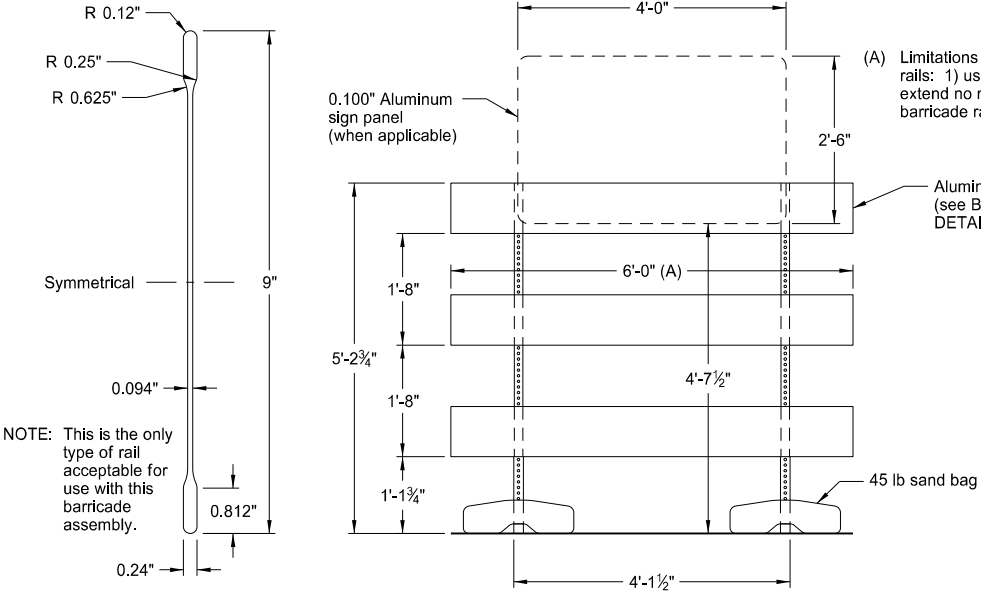
Provide retroreflectORIZATION of cones more than 36" in height by alternating orange and white retroreflective stripes. Use a minimum of two orange and two white stripes for each cone with the top stripe being orange. Use maximum 3" nonretroreflectORIZED space between the orange and white stripes.



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.



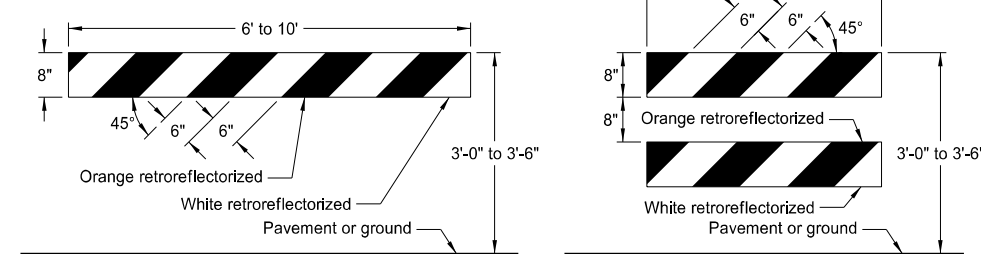
- INSTALLATION NOTES:
1. Drill installation holes to diameter and depth required by manufacturer's specifications.
  2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
  3. In lieu of bolted down base, use an 8" x 8" butyl pad or hot melt butyl.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



BARRICADE BLADE DETAIL

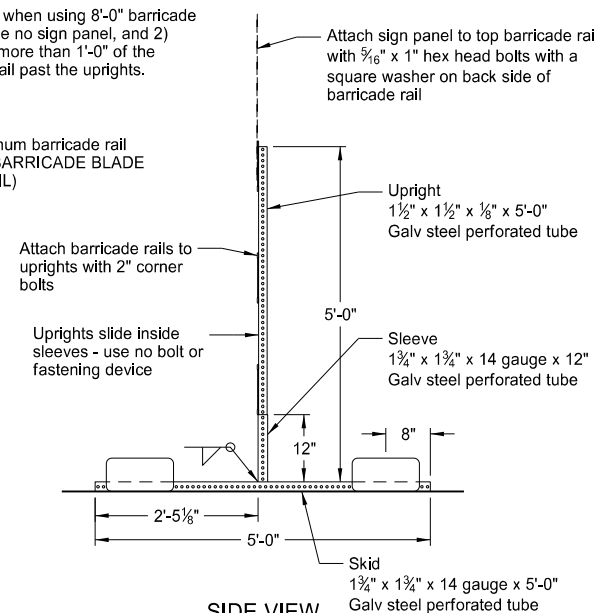
BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

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".

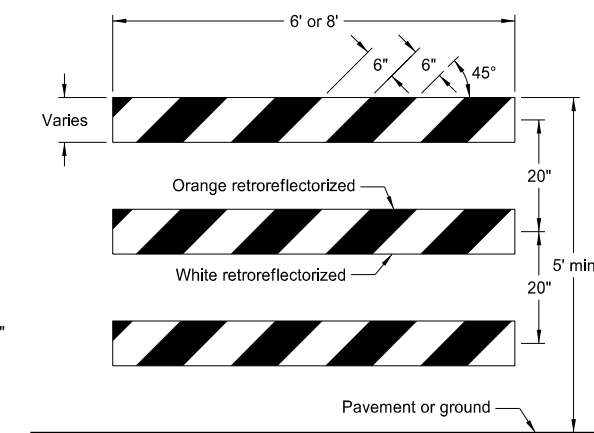


TYPE I BARRICADE

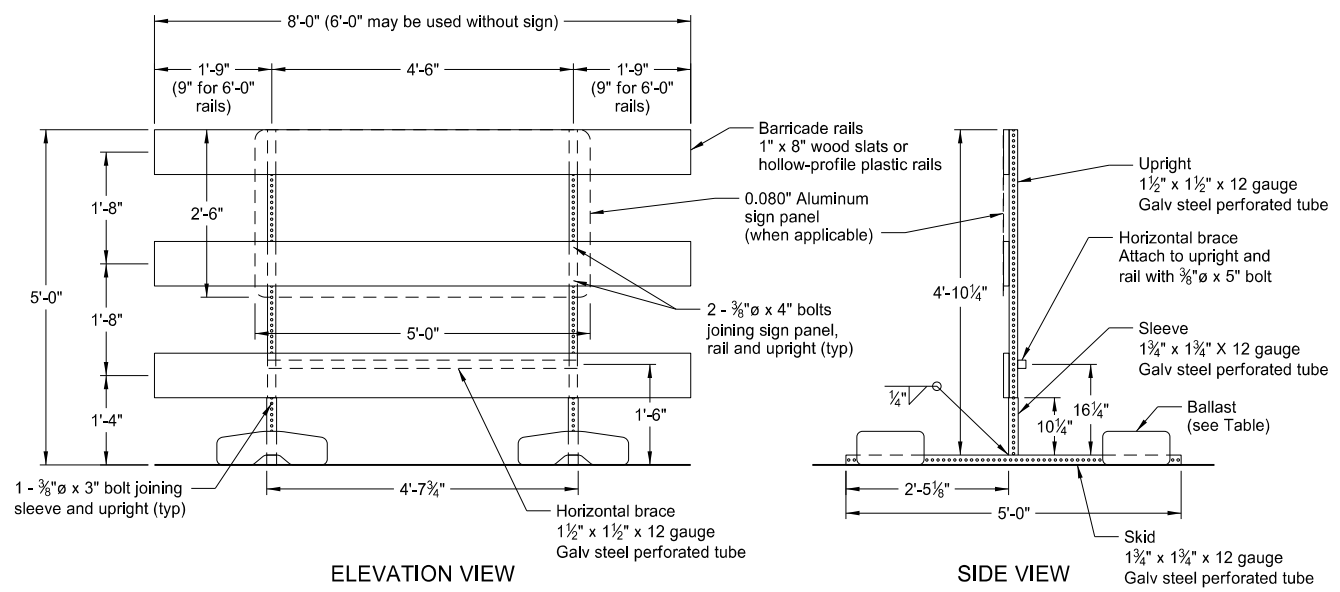
TYPE II BARRICADE  
BARRICADE RAIL DETAILS



SIDE VIEW



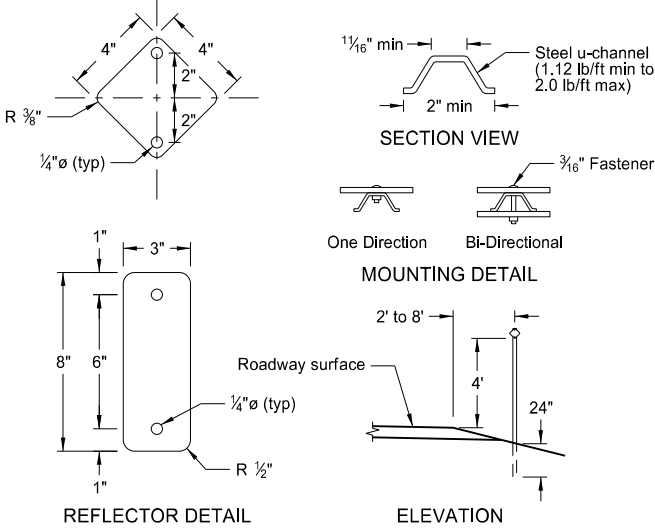
TYPE III BARRICADE



ELEVATION VIEW

BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

SIDE VIEW



REFLECTOR DETAIL

ELEVATION

DELINEATORS

MINIMUM BALLAST (For each side of barricade support)

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

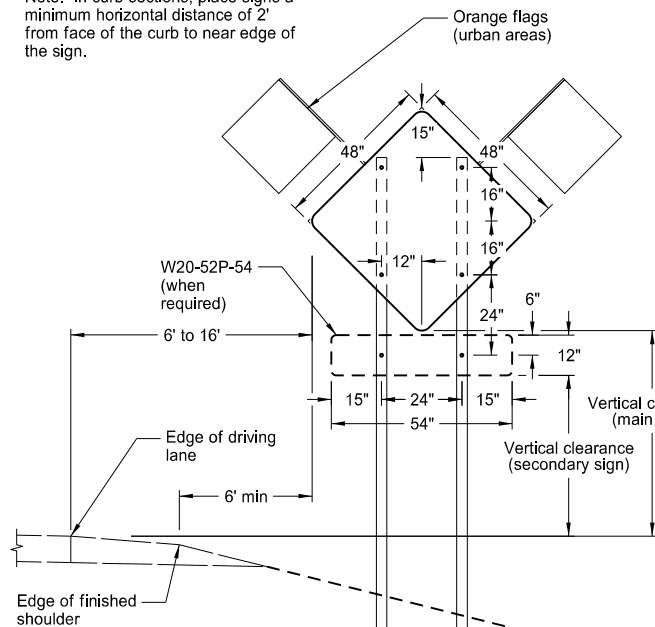
Note: Number of sandbags based on a wind speed of 55 MPH. Sandbags assumed to be placed at or near the ends of the skids.

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

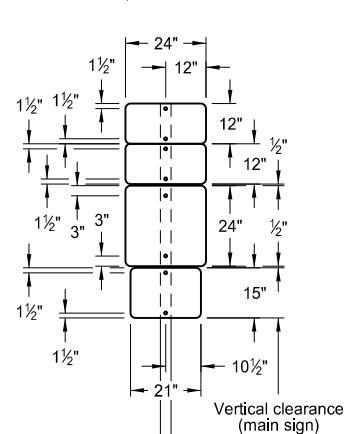
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Registration Number  
PE- 4683,  
on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

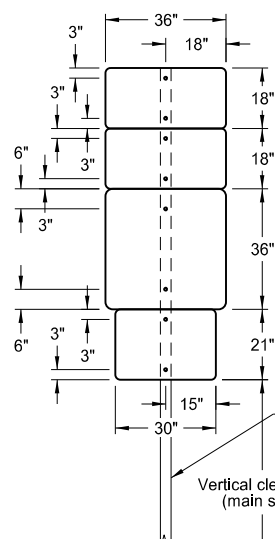
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



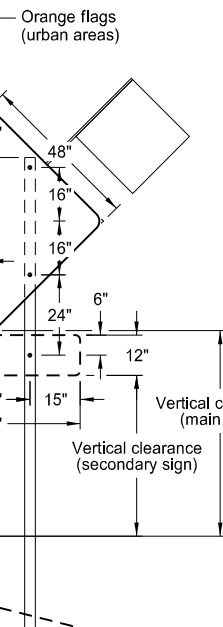
TYPICAL SECTION  
(48" x 48" diamond warning sign shown)



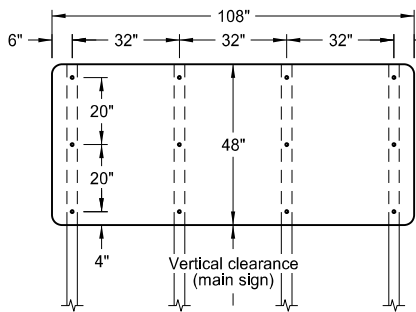
24" x 24"  
ROUTE MARKER  
ASSEMBLY



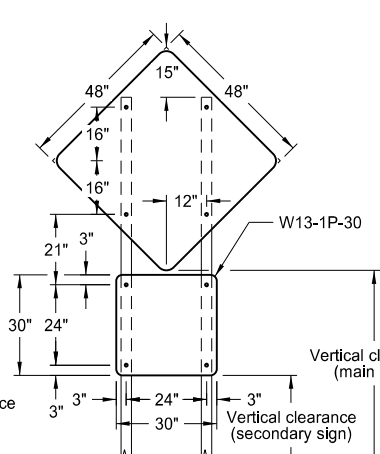
36" x 36"  
ROUTE MARKER  
ASSEMBLY



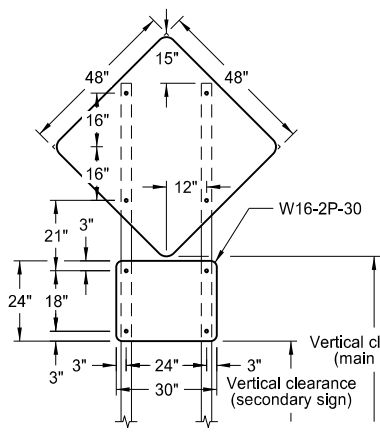
18" x 18"  
DIAMOND SIGN



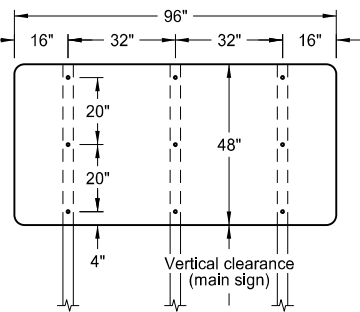
108" x 48" SIGN



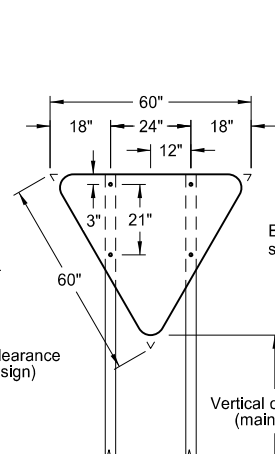
48" x 48" DIAMOND SIGN  
(with 30" x 30" secondary sign)



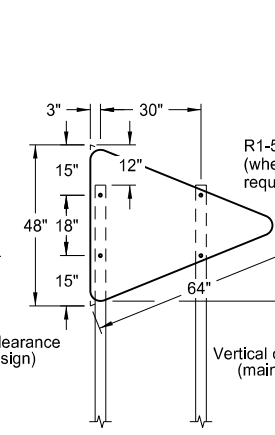
48" x 48" DIAMOND SIGN  
(with 30" x 24" secondary sign)



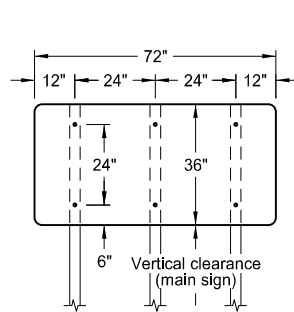
96" x 48" SIGN



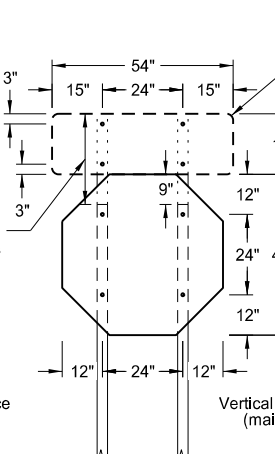
R1-2-60 - YIELD SIGN



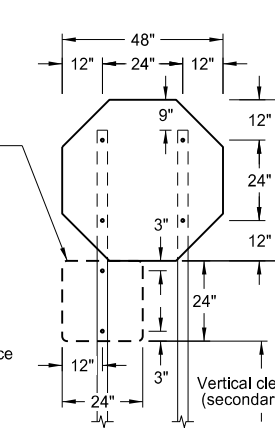
W14-3-64 - PENNANT SIGN



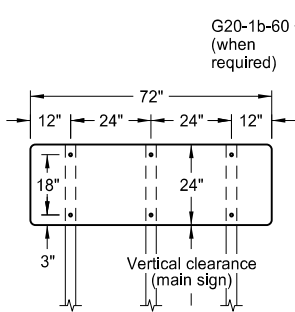
72" x 36" SIGN



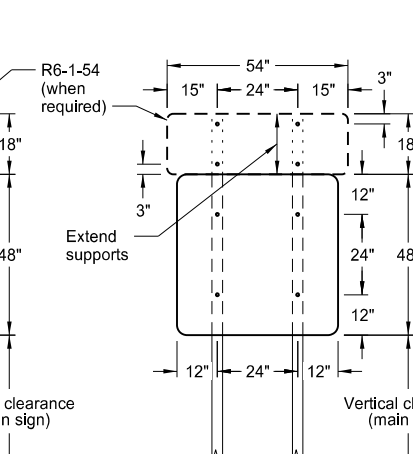
R1-1-48 - STOP SIGN  
(with R6-1-54 sign as required)



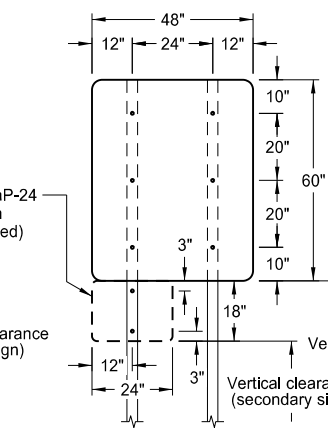
R1-1-48 - STOP SIGN  
(with R1-50P-24 sign as required)



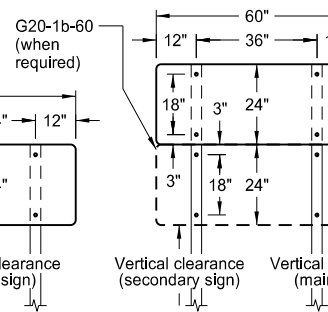
72" x 24" SIGN



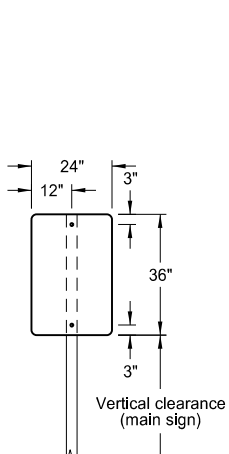
48" x 48" SIGN  
(with R6-1-54 sign as required)



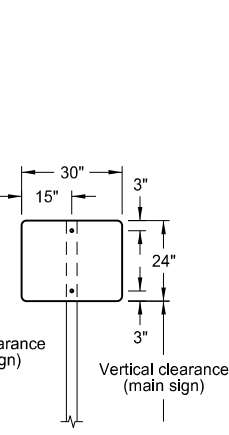
48" x 48" SIGN  
(with R2-1aP-24 sign as required)



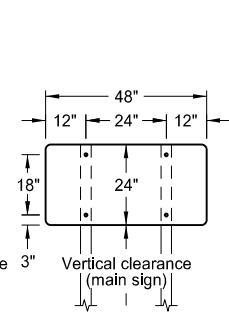
60" x 24" SIGN



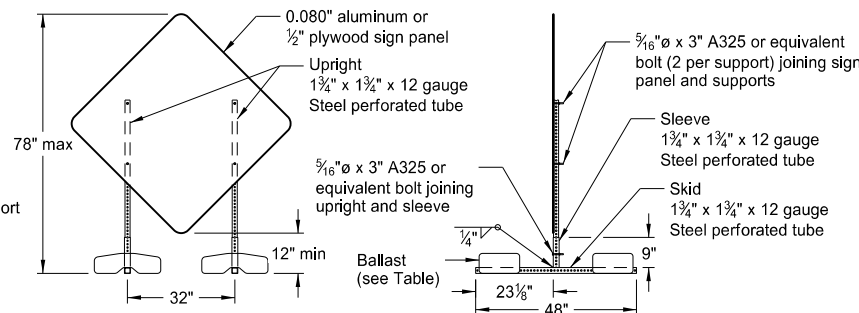
24" x 36" SIGN



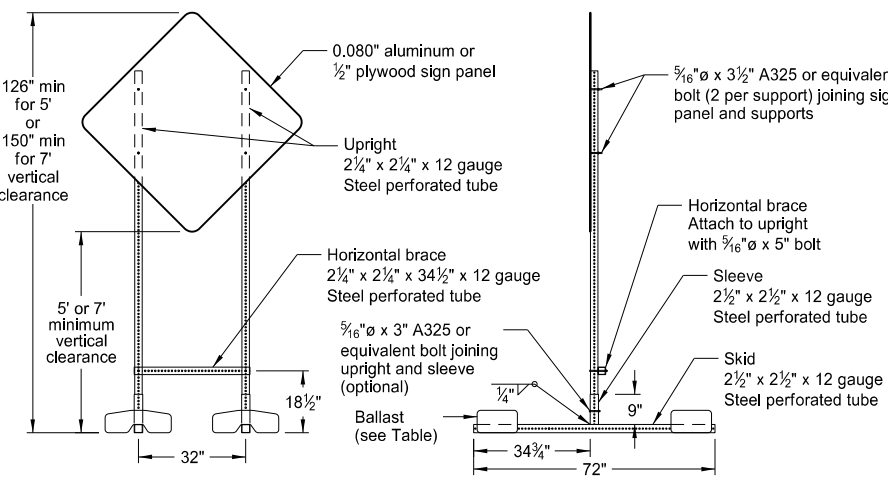
30" x 24" SIGN



48" x 24" SIGN



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 ⅝" 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 unforeseen 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.

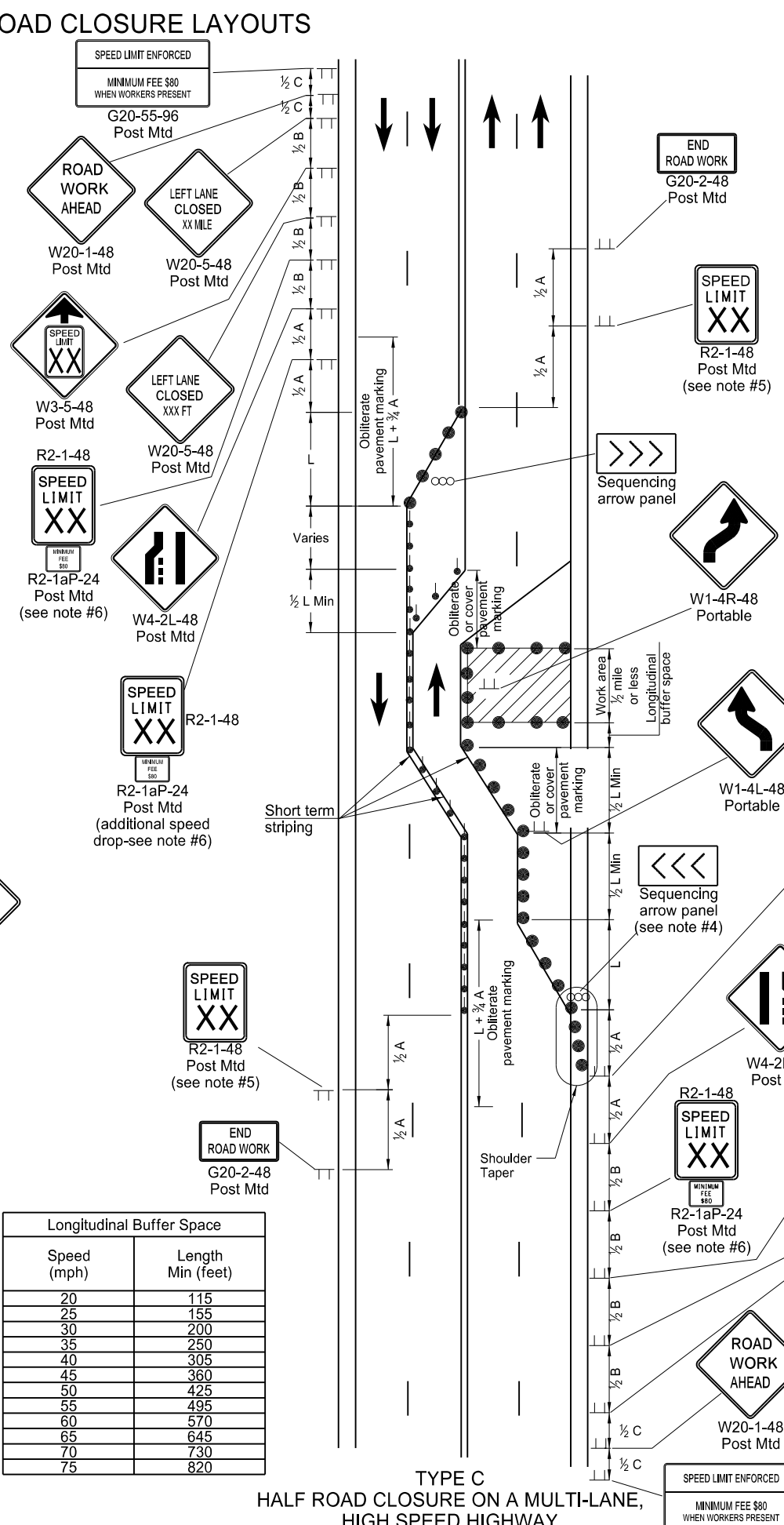
MINIMUM BALLAST  
(For each side of sign support base)

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

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



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	
 Type III barricade	 Work area
 Sign	 Flagger
 Delineator drum	 Sequencing arrow panel
 Tubular markers	 Vertical panels back to back

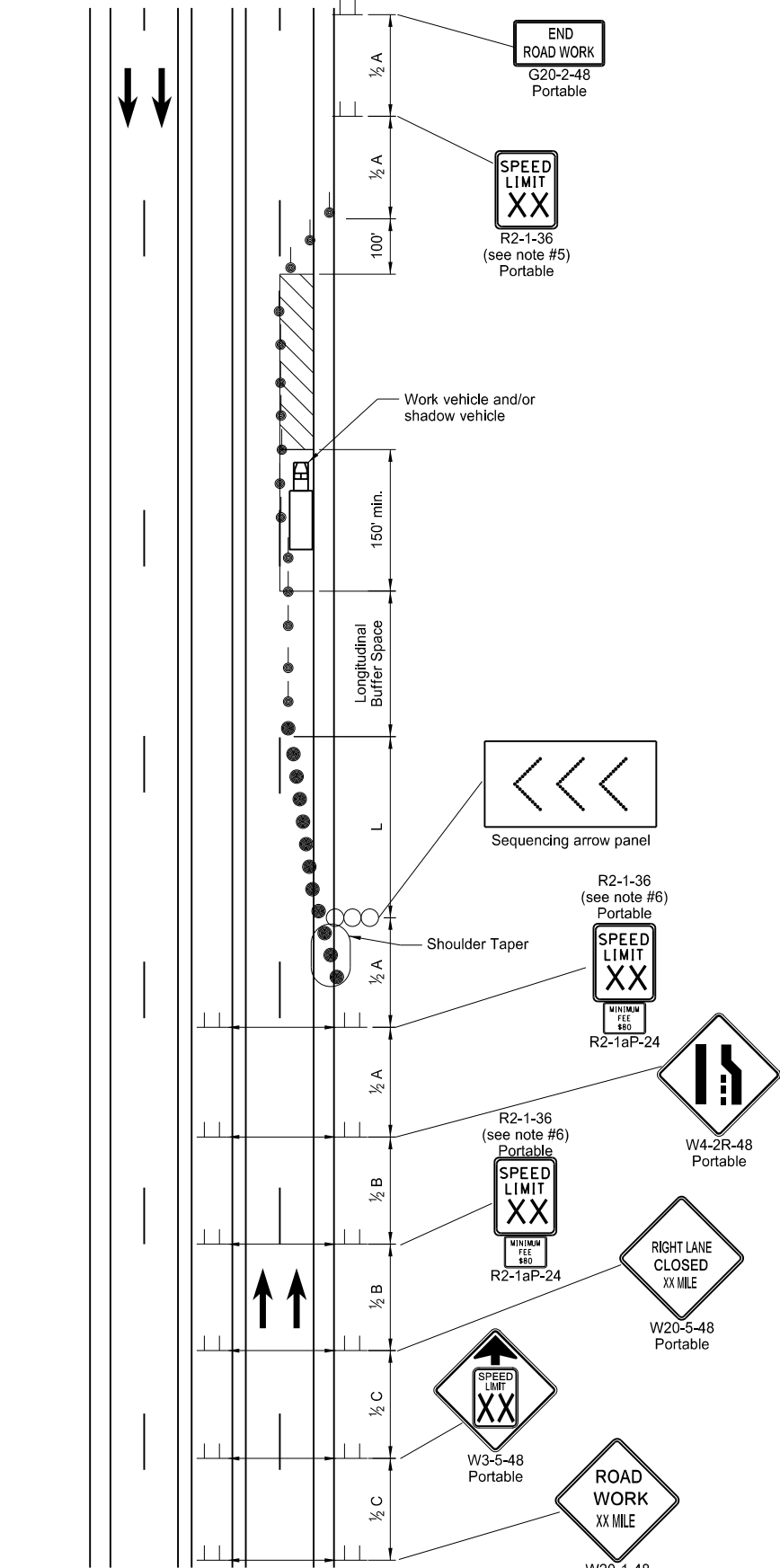
Longitudinal Buffer Space	
Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated notes & Speed Limit signs
11-01-19	Sign, Notes, and Pvmnt Mkg updates

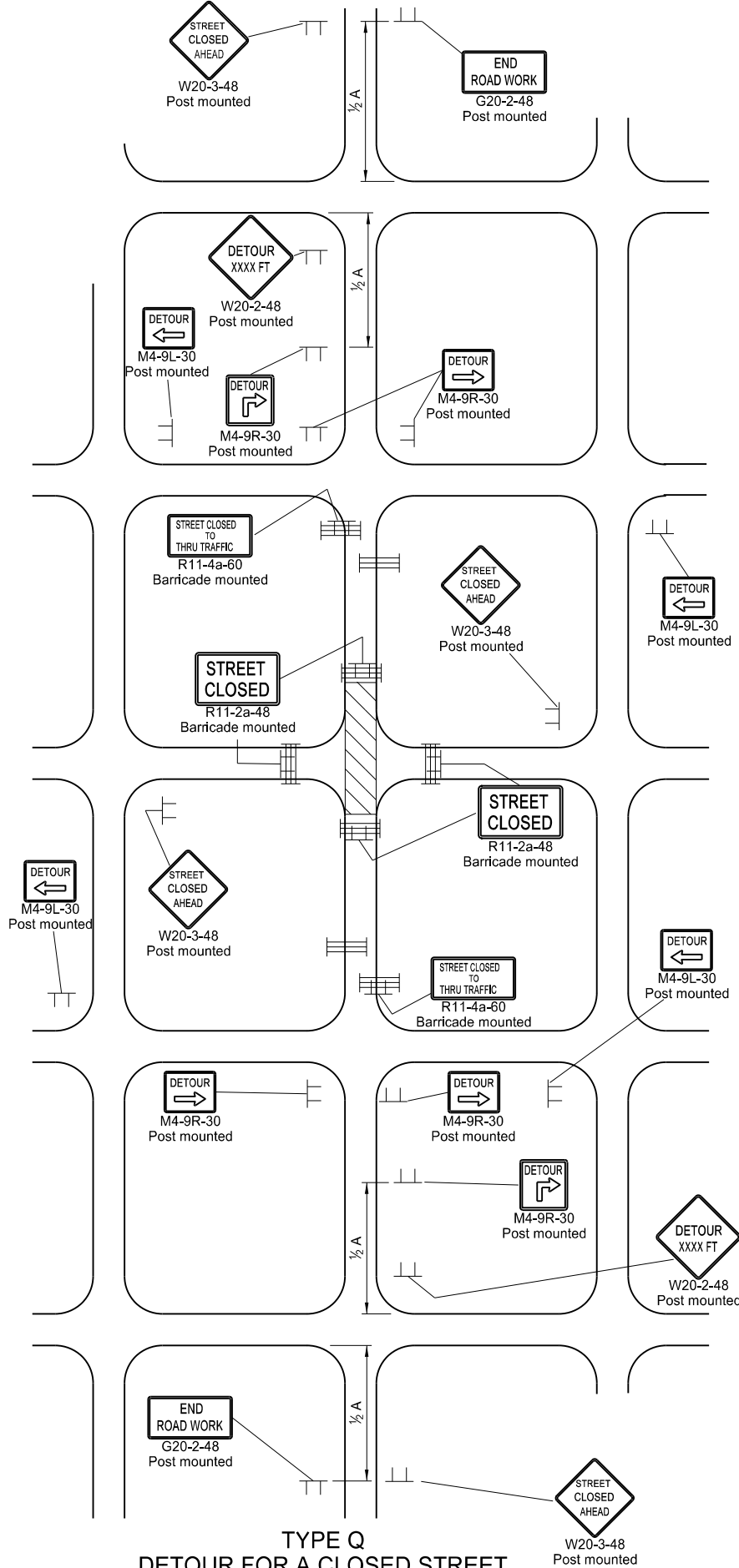
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SHORT TERM URBAN DETOUR AND LANE CLOSURE ON A DIVIDED HIGHWAY LAYOUTS

D-704-23



**TYPE P**  
**STATIONARY LANE CLOSURE ON A DIVIDED HIGHWAY**  
4 lane divided roadway where 1/2 of roadway is closed.  
Short-term (more than 1 hour within a single daylight period.)



**TYPE Q**  
**DETOUR FOR A CLOSED STREET**  
Where city streets are used for detouring traffic.  
Urban projects do not require the G20-55-96 and R2-1aP-24 signs.

Notes

- Variables
  - S = Numerical value of speed limit or 85th percentile.
  - W = The width of taper in feet
  - L = Minimum length of taper, S x W for freeways, expressways, and all other roads with speeds of 45 mph or greater, or W x S<sup>2</sup> /60 for urban, residential, and other streets with speeds of 40 mph or less.
- Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
- Space delineator drums for tapering traffic at dimension "S". Space delineator drums or tubular markers for tangents at 2 times "S".
- Place Sequencing Arrow Panels at the beginning of taper. Where shoulder width does not provide sufficient room, move panel closer to the work area and place on roadway surface.
  - Use Type A on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).
  - Use Type B on roadways with moderate traffic speeds and volumes (40 mph or less and 5000 ADT or less).
  - Use Type C on roadways with high traffic speeds and volumes (over 40 mph or over 5000 ADT).
- Re-established speed limit. Determine exact speed limit in the field, dependent on location and conditions.
- 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 1/2 B.
- Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch 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.
- Cover existing speed limit signs within a reduced speed zone.
- Covered (when approved by engineer) or obliterated payment marking measured as as Obliteration of Pavement Marking.
- Change intersection control on detour for Type Q when determined necessary by the engineer.
- Engineer to determine safe speed where necessary. 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.
- As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
- Recommend using 40 mph speed limit in vicinity of workers for Layout Type P, unless location and conditions dictate otherwise.

KEY	
	Type III barricade
	Sign
	Delineator Drum
	Work area
	Sequencing arrow panel
	Tubular Markers

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

Longitudinal Buffer Space	
Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Removed Speed limit signs, & updated notes & sign numbers.
11-01-19	Revised sign numbers & note.

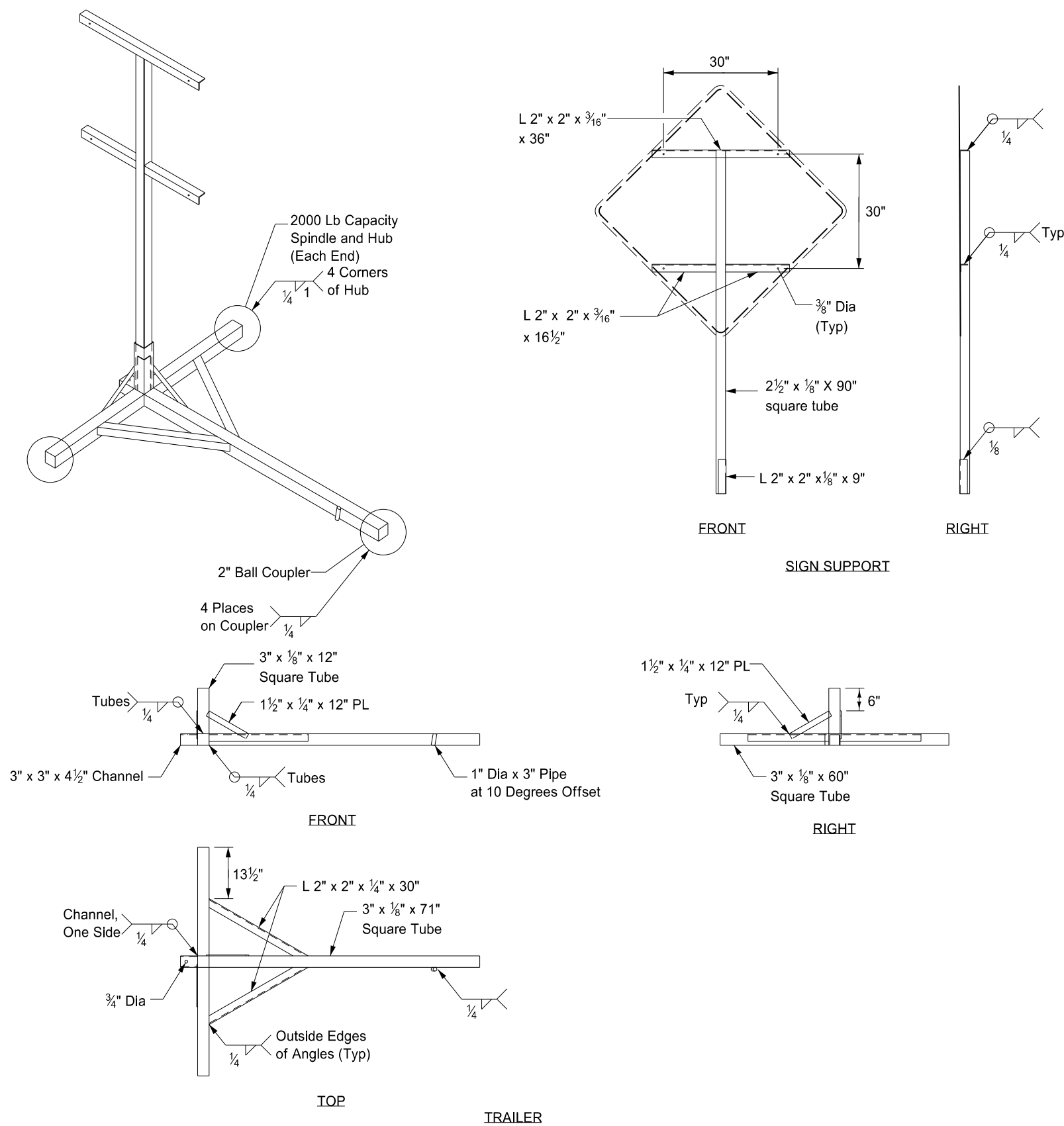
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D-704-34

NORTH DAKOTA		<p>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</p>
DEPARTMENT OF TRANSPORTATION		
9-26-2012		
REVISIONS		
DATE	CHANGE	
3-15-16	Removed Do Not Pass signs and updated notes.	
8-17-17	Updated notes & sign nos. & moved Speed Limit signs.	
11-01-19	Removed shldr taper details & revised tubular mkr symbol	

PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50

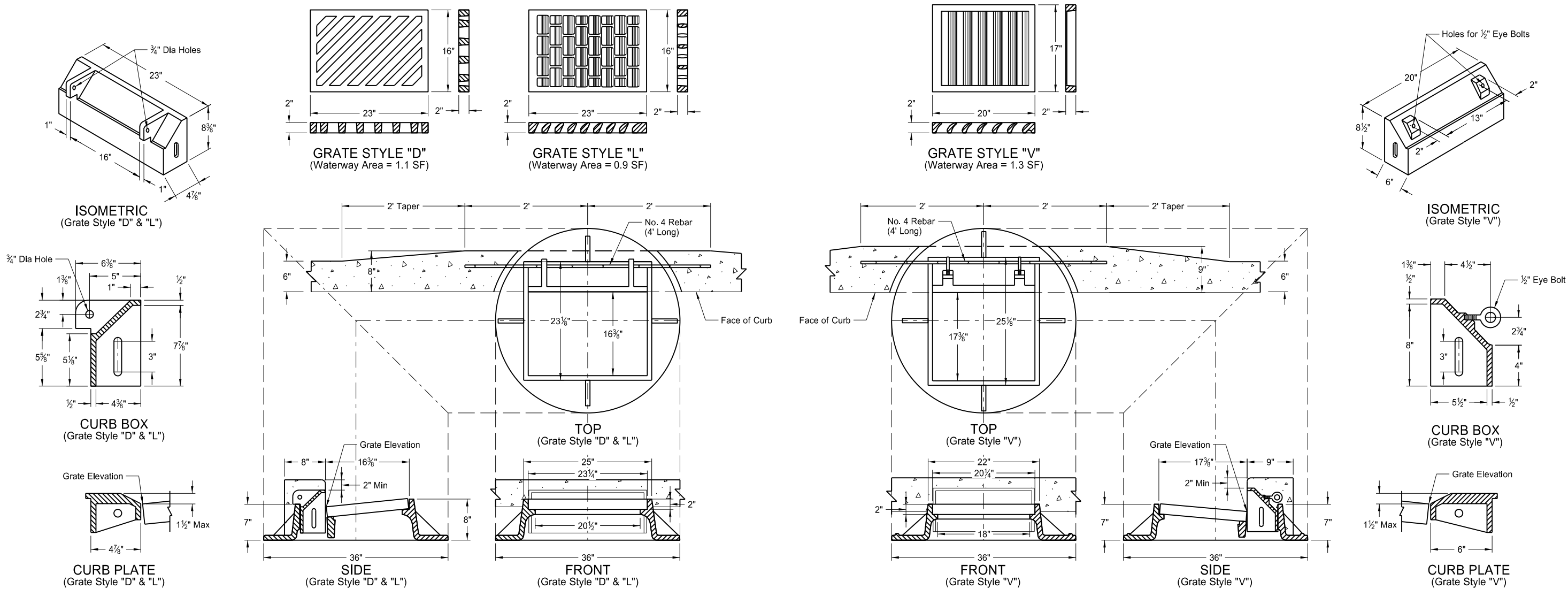


Notes:

- ① The maximum weight of the assembly is 250 pounds.
- ② Use a 14" wheel and tire.
- ③ Automotive and equipment axle assemblies may not be used for trailer-mounted sign supports.
- ④ Other NCHRP 350 crash tested assemblies are acceptable.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE

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Registration Number  
PE- 2930 ,  
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- NOTES:
1. Use of other castings, similar in dimension, is allowed if the casting conforms to the riser section and has a grate style specified in the plans, meeting or exceeding the waterway area listed. Modifications to the inlet to facilitate similar castings are only allowed with written approval from the Engineer.
  2. Use castings manufactured in accordance with AASHTO M306-09. Use metal conforming to AASHTO M105 Class 35 B in the manufacture of castings.
  3. Use class AE-3 concrete precast or cast-in-place bases constructed in accordance with NDDOT Standard Specifications.
  4. Construct precast concrete risers in accordance with AASHTO M199.
  5. On projects with PCC pavement, construct inlet risers 4 to 5 inches below final elevation and adjust to final grade with adjusting rings or cast-in-place concrete after paving. Include all costs for this adjustment in the price bid for the inlet.
  6. Use Grade 60 reinforcing steel.
  7. Use curb plates in lieu of curb boxes when curb height at inlet is 4" or less.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
05-14-13	
REVISIONS	
DATE	CHANGE
11-27-13	Revised drawing title, notes & curb plate subtitle.
6-24-14	Revised Note 3.
10-17-17	Updated to active voice.

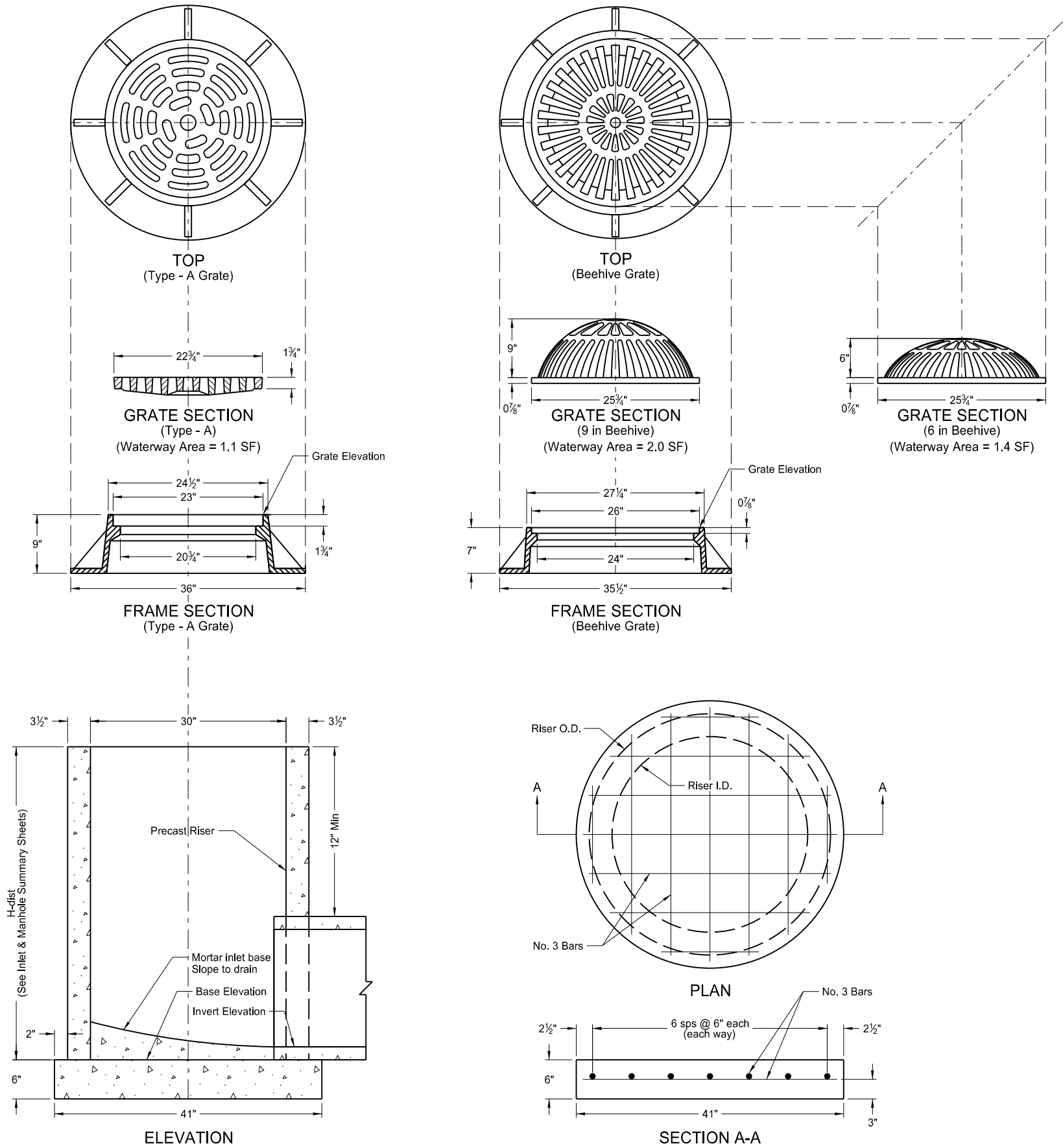
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INLET - CATCH BASIN

D-722-1A

NOTES:

1. Use of other castings, similar in dimension, is allowed if the casting conforms to the riser section and has a grate style specified in the plans, meeting or exceeds the waterway area listed. Modifications to the inlet to facilitate similar castings are only allowed with written approval from the Engineer.
2. Use castings manufactured in accordance with AASHTO M306-09. Use metal conforming to AASHTO M105 Class 35B in the manufacture of castings.
3. Use class AE concrete precast or cast-in-place bases constructed in accordance with NDDOT Standard Specifications. Use aggregate size approved by the Engineer.
4. Construct precast concrete risers in accordance with AASHTO M199.
5. On projects with PCC pavement, construct inlet risers 4 to 5 inches below final elevation and adjust to final grade with adjusting rings, masonry or cast-in-place concrete after paving. Include all costs for this adjustment in the price bid for the inlet.
6. Use Grade 60 reinforcing steel.

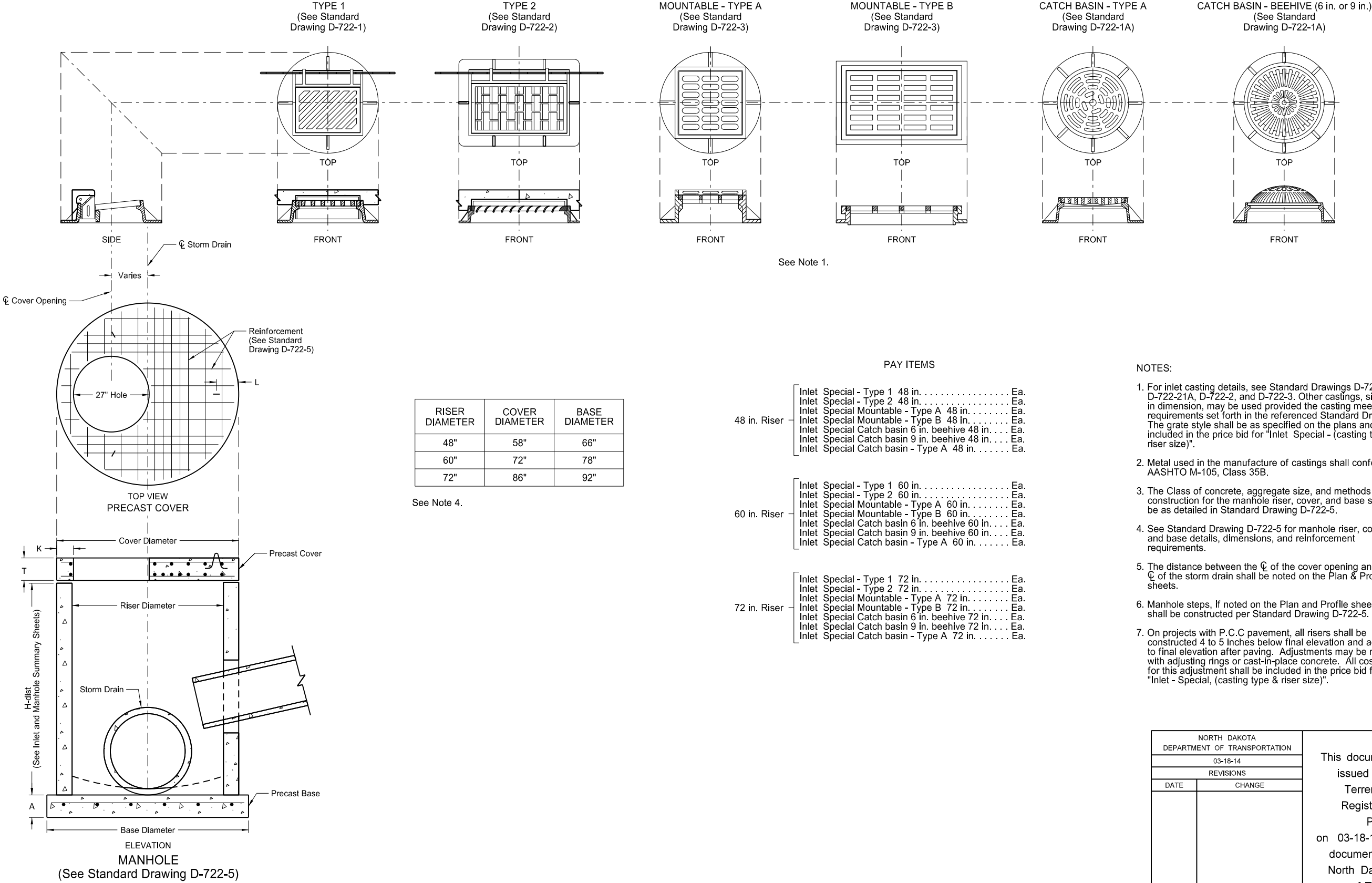


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
05-14-13	
REVISIONS	
DATE	CHANGE
6-24-14 10-17-17	Revised Note 3. Updated to active voice.

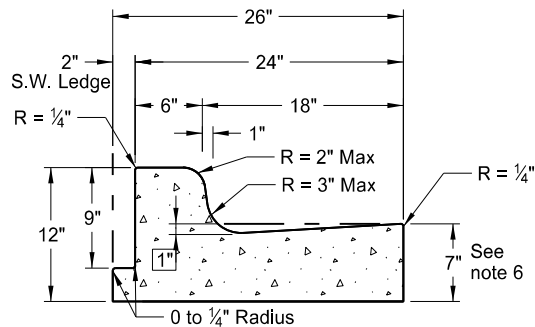
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INLET - SPECIAL

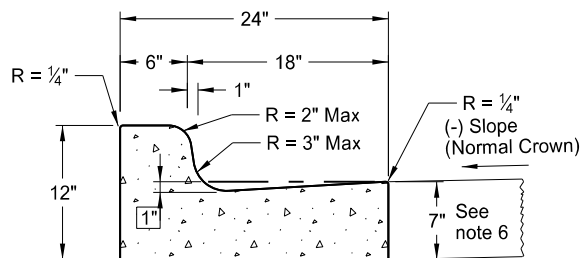
D-722-1B



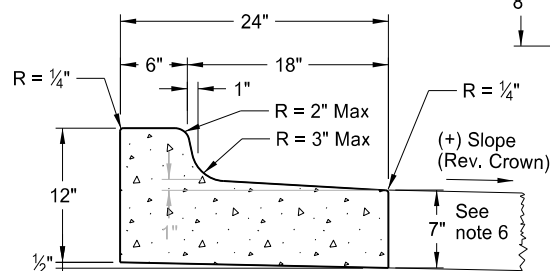
# Curb & Gutter and Valley Gutter



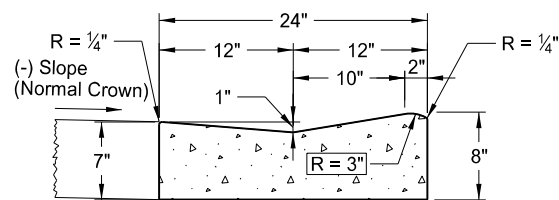
**Curb & Gutter Type 1 (Sec. A & B)**  
Adjacent to Concrete Sidewalk,  
Median, or Parking Lot.  
(Sec. A shown. See Sec B for  
additional details.)



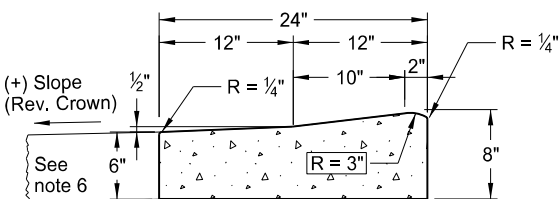
**Curb & Gutter Type 1 (Sec. A)**



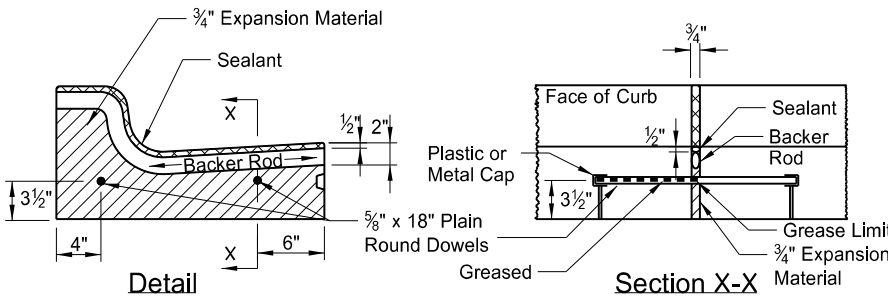
**Curb & Gutter Type 1 (Sec. B)**



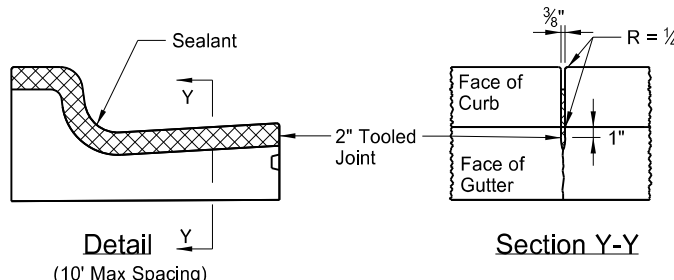
**Mountable Curb & Gutter Type 1 (Sec. A)**



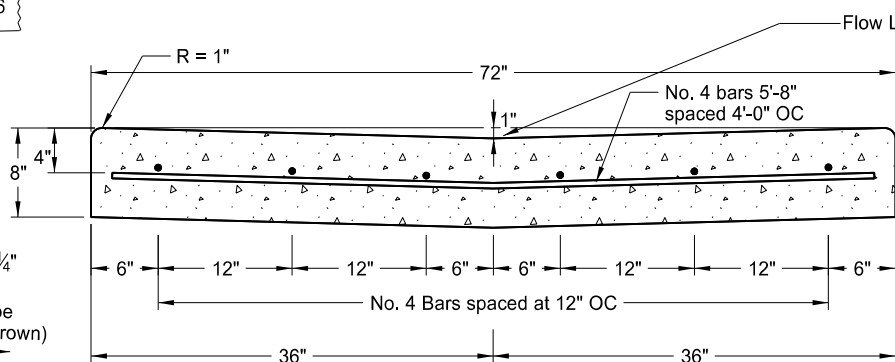
**Mountable Curb & Gutter Type 1 (Sec. B)**



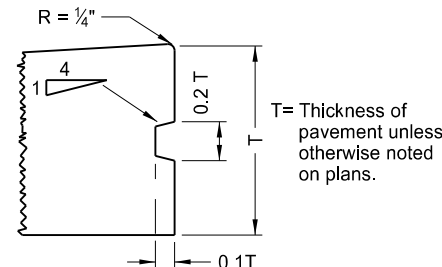
**Isolation Joint**



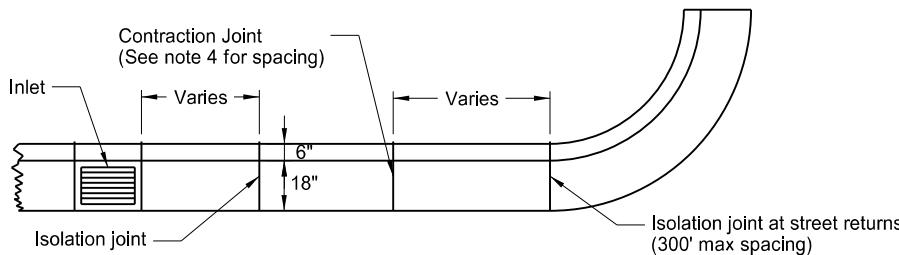
**Contraction Joint**



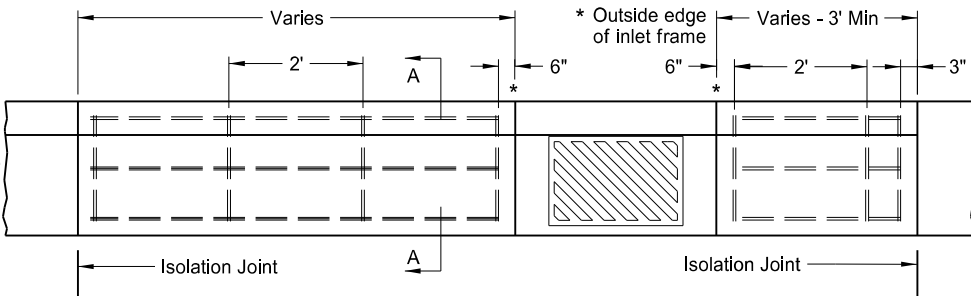
**72" Concrete Valley Gutter Detail**



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

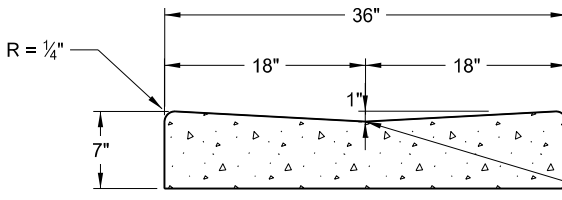


**Joint Location Detail**

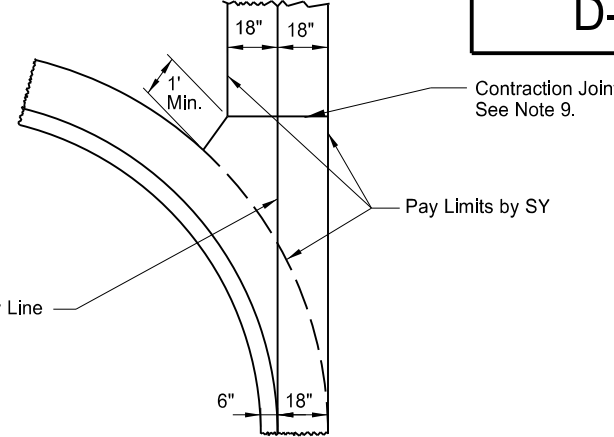


**Curb & Gutter Reinforcing at Inlets**

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.



**36" Concrete Valley Gutter Detail**



**36" Concrete Valley Gutter Plan**

## 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 3/4" 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 1/8" min. to 3/8" 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.

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.

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Kirk J Hoff,  
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on 8-27-19 and the original  
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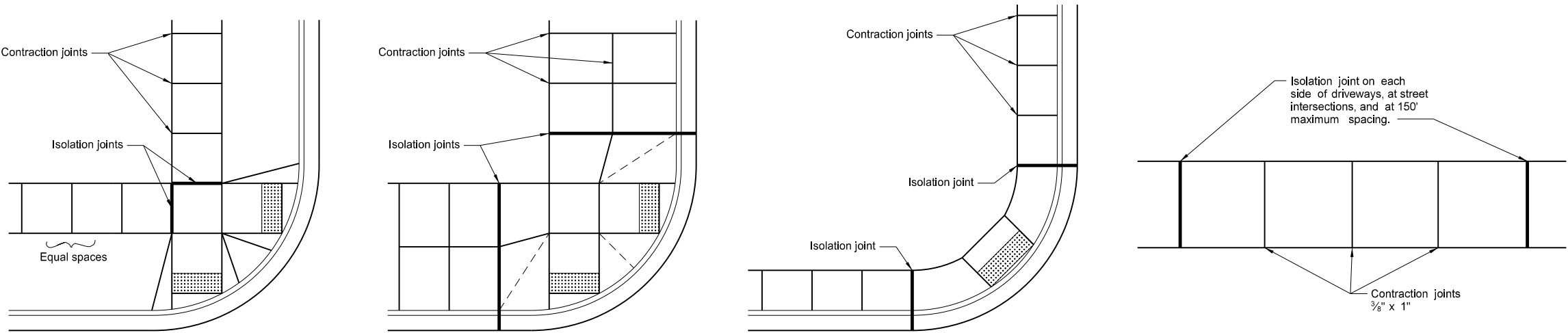
SIDEWALK

D-750-2

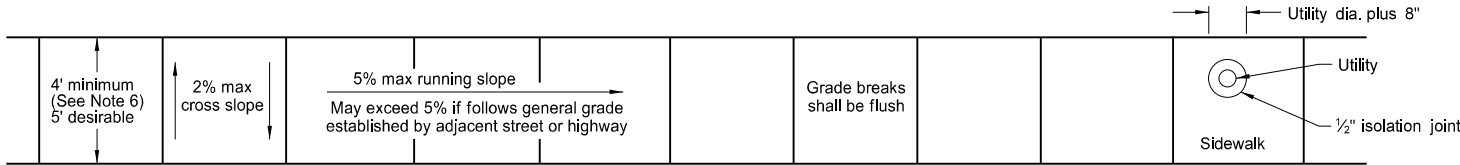
NOTES:

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'.

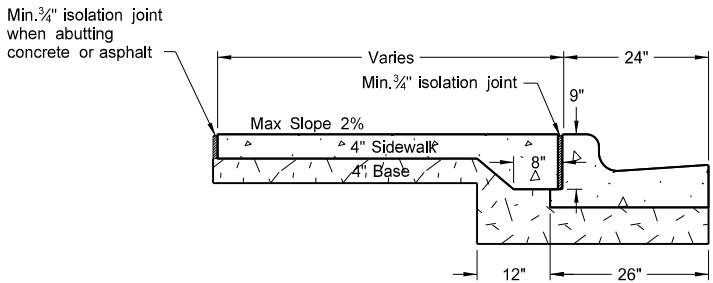


Typical Joint Layouts

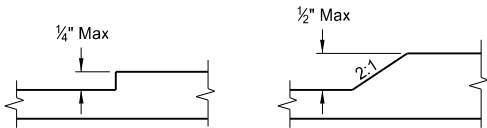


Sidewalk Width and Grade

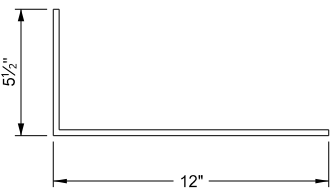
Utility Blockout



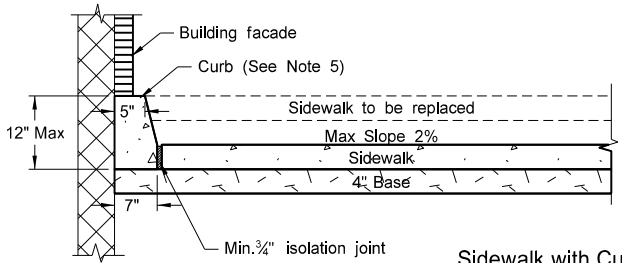
Sidewalk Detail  
(Installed adjacent to curb and gutter)



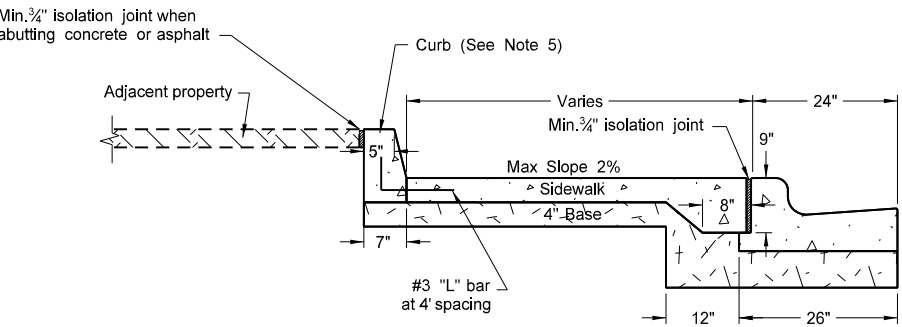
Vertical Discontinuities  
(As needed for utility covers, vaults, grating, etc..)



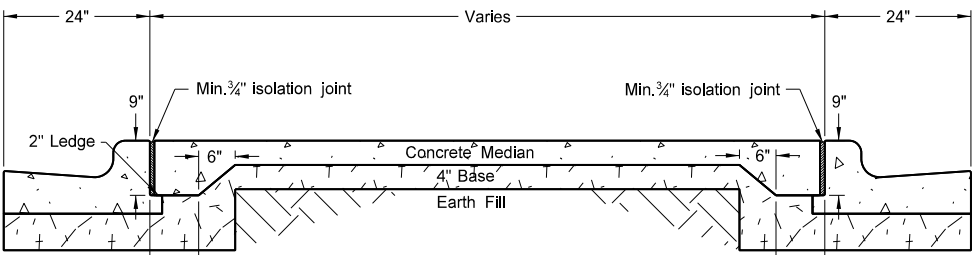
"L" Bar Detail  
#3 Bar



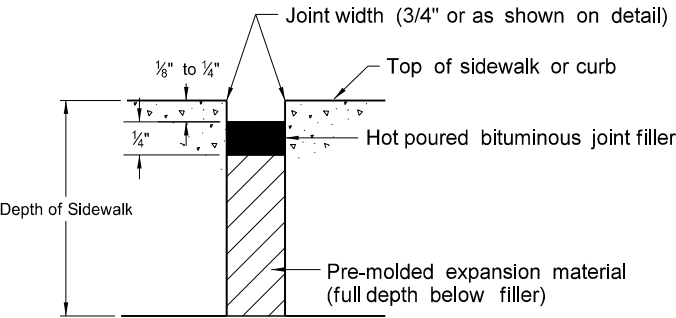
Sidewalk with Curb Detail  
(Building face application)



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.

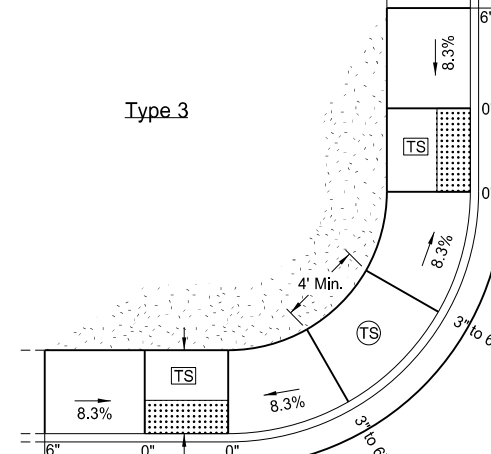
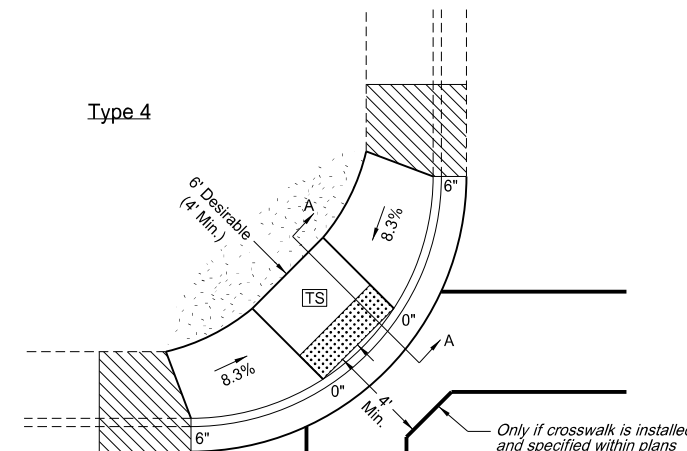
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Kirk J Hoff,  
Registration Number  
PE- 4683,  
on 08/27/19 and the original document is stored at the North Dakota Department of Transportation

D-750-3

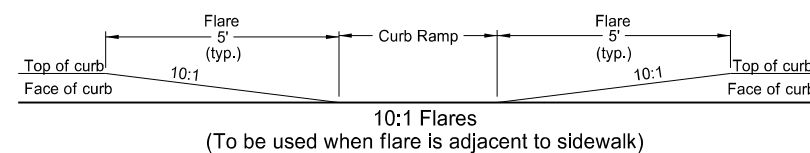
### Less Right of Way-

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 1" 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.

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



Concrete Apron for Shared Use Paths without Curb and Gutter



The diagram illustrates two types of bridge deck cross-sections, Type A and Type B, with their respective dimensions and material specifications.

**Type A:** This cross-section shows a central concrete deck with a width of 5' Min. The deck is flanked by 4:1 Min. slopes. The top and bottom layers of the deck are indicated by a pattern of dots, representing a specific material or reinforcement. The total width of the deck is 13' Min. (5' Min. + 4' Min. + 4' Min.). The deck is supported by a central pier and two side piers. The top and bottom layers of the deck are indicated by a pattern of dots, representing a specific material or reinforcement. The total width of the deck is 13' Min. (5' Min. + 4' Min. + 4' Min.).

**Type B:** This cross-section shows a central concrete deck with a width of 5' Min. The deck is flanked by 4:1 Min. slopes. The top and bottom layers of the deck are indicated by a pattern of dots, representing a specific material or reinforcement. The total width of the deck is 13' Min. (5' Min. + 4' Min. + 4' Min.). The deck is supported by a central pier and two side piers. The top and bottom layers of the deck are indicated by a pattern of dots, representing a specific material or reinforcement. The total width of the deck is 13' Min. (5' Min. + 4' Min. + 4' Min.).

The image contains two technical cross-section drawings of a curb and gutter assembly, labeled Section A-A and Section B-B.

**Section A-A:** This drawing shows a curb and gutter profile. On the left, a circular inset shows a top-down view of a curb corner. The main profile features a "Curb Type I (if needed, see Note 5)" with a "2% Max" slope. Below the curb is a "4\" Sidewalk Concrete" layer. The gutter has a "4\" Base" and a "5% Max Counter Slope". A "Detectable Warning Panel" is shown in the gutter, with a "12\" width. Above the gutter, a "3 x 12\" Bar (18\" spacing)" is indicated. An "L Bar (48\" spacing)" is shown on the sidewalk. A "4\" Sidewalk Concrete" layer is also shown below the gutter.

**Section B-B:** This drawing shows a similar curb and gutter profile. It features a "2% Max" slope on the left, a "Base" layer, and a "4\" Sidewalk Concrete" layer. The gutter has an "8.3% Max" slope and a "5% Max Counter Slope". A "Detectable Warning Panel" is shown in the gutter, with a "12\" width. Above the gutter, a "3 x 12\" Bar (18\" spacing)" is indicated.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-26-13	
REVISONS	
DATE	CHANGE
10-17-17	Updated to active voice.
09-05-18	Revised Notes, Revision f Turning Space, Added Passing Space Requirements, Turned Detectable Warning Panel

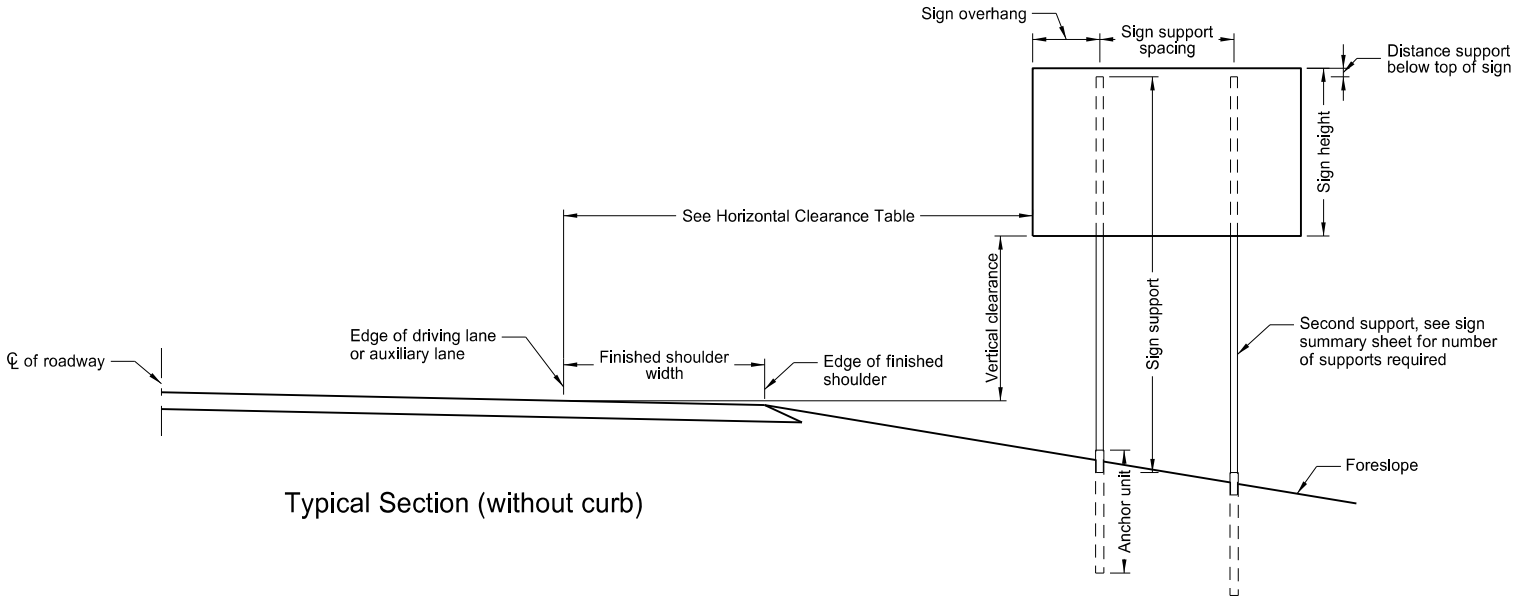
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Roger Weigel,  
Registration Number  
PE-2930,  
on 09-05-2018 and the original  
document is stored at the  
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of Transportation

PERFORATED TUBE ASSEMBLY DETAILS

D-754-23

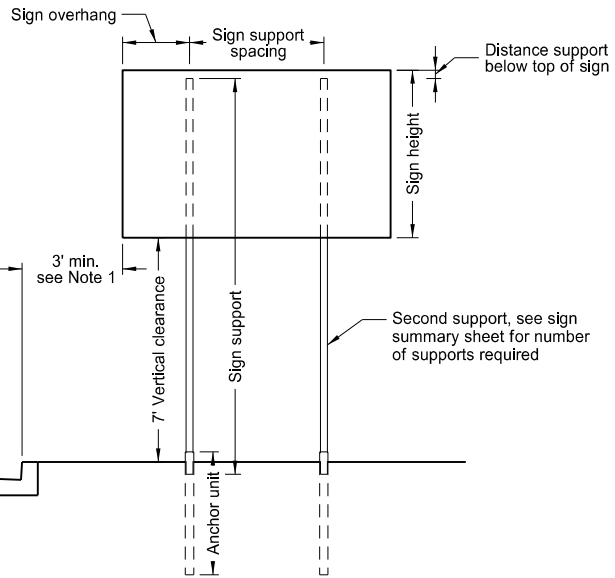
Notes:

1. Curbed Roadways: Use a 3' clearance from face of the curb except where right of way or sidewalk width is limited; Use a minimum 2' clearance. Increase the horizontal clearance if required to maintain a minimum sidewalk clear width of 4' from the sign support, not including any attached curb.
2. Minimum vertical clearance: Provide at least 5' measured from the bottom of the sign to the edge of the driving lane or auxiliary lane at the side of the road in rural districts. Provide at least 7' clearance to the bottom of the sign, where parking or pedestrian movements occur.
- Install signs on expressways a minimum height of 7'.
- Install adopt-a-highway signs on Freeways at least 7' above the edge of the driving lane.
- Maximum vertical clearance is 6" greater than the minimum vertical clearance.
3. Offset signs: Use a vertical clearance of 5' above the edge of the driving lane for signs placed 30 feet or more from the edge of the traveled way.
4. Provide a horizontal clearance from edge of shared use path to edge of sign of 3', except where width is limited. Provide a minimum clearance of 2'.

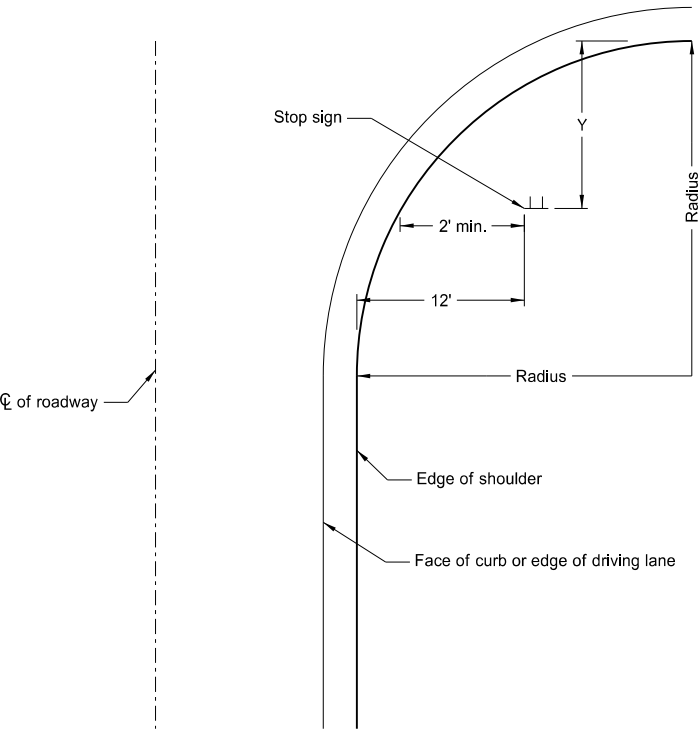


Typical Section (without curb)

Horizontal Clearance Table	
Shoulder Width ft	Offset ft
0 to 2	16
>2 to 4	18
>4 to 6	20
>6 to 8	22
>8 to 10	24

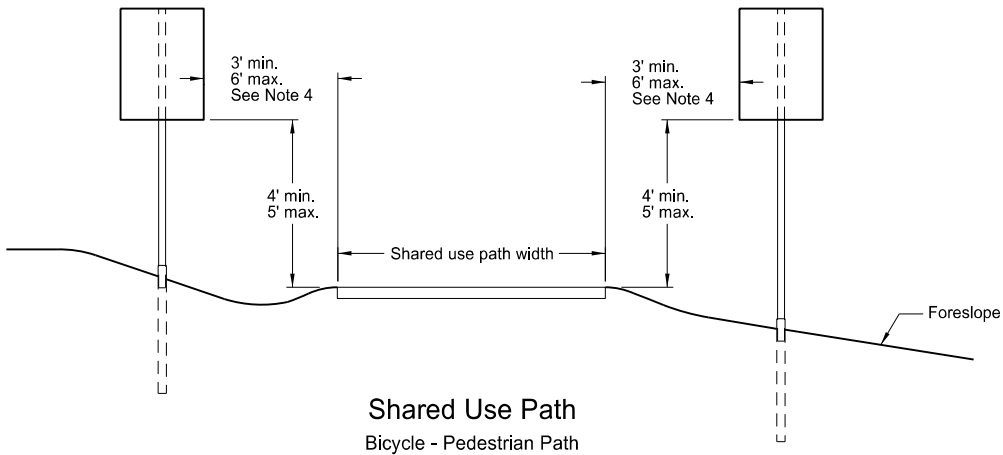


Typical Section (with curb)  
Residential or Business District



Stop Sign Location  
Wide Throat Intersection  
Use layout for the placement of "Stop" signs.

Radius ft.	Y-max. ft.	Y-min. ft.
40	50	15
45	50	18
50	50	21
55	50	25
60	50	28
65	50	32
70	50	35
75	50	39
80	50	43



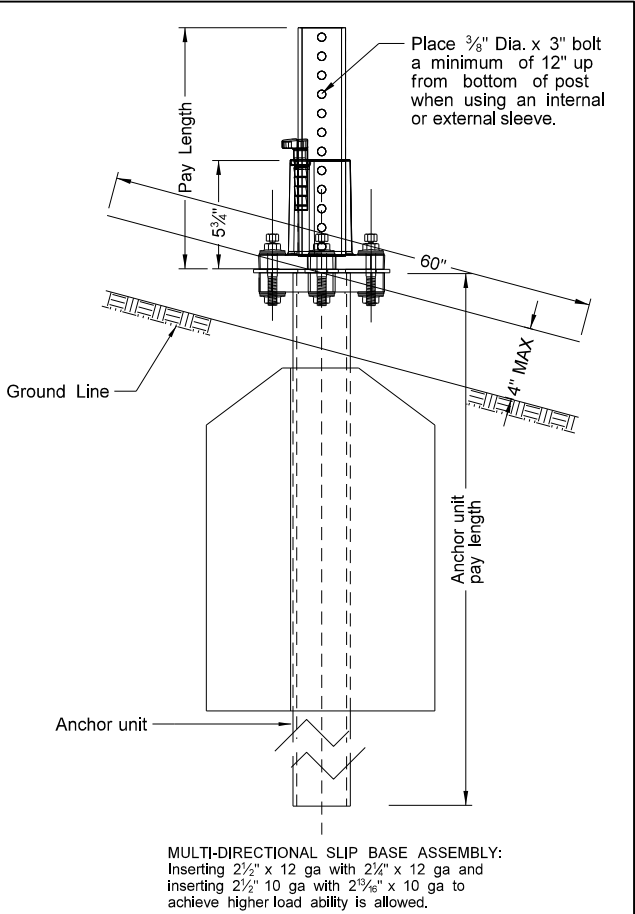
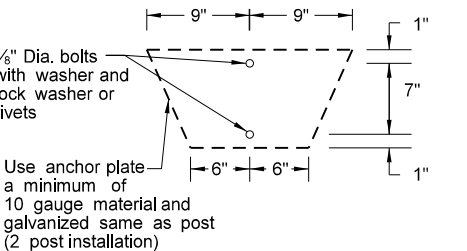
Shared Use Path  
Bicycle - Pedestrian Path

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
7-8-14	Revised note 2, added note 4.
8-30-18	Updated notes to active voice.
8-29-19	New Design Engineer PE Stamp.

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**Kirk J Hoff,**  
Registration Number  
**PE- 4683,**  
on **8/29/19** and the original document is stored at the North Dakota Department of Transportation

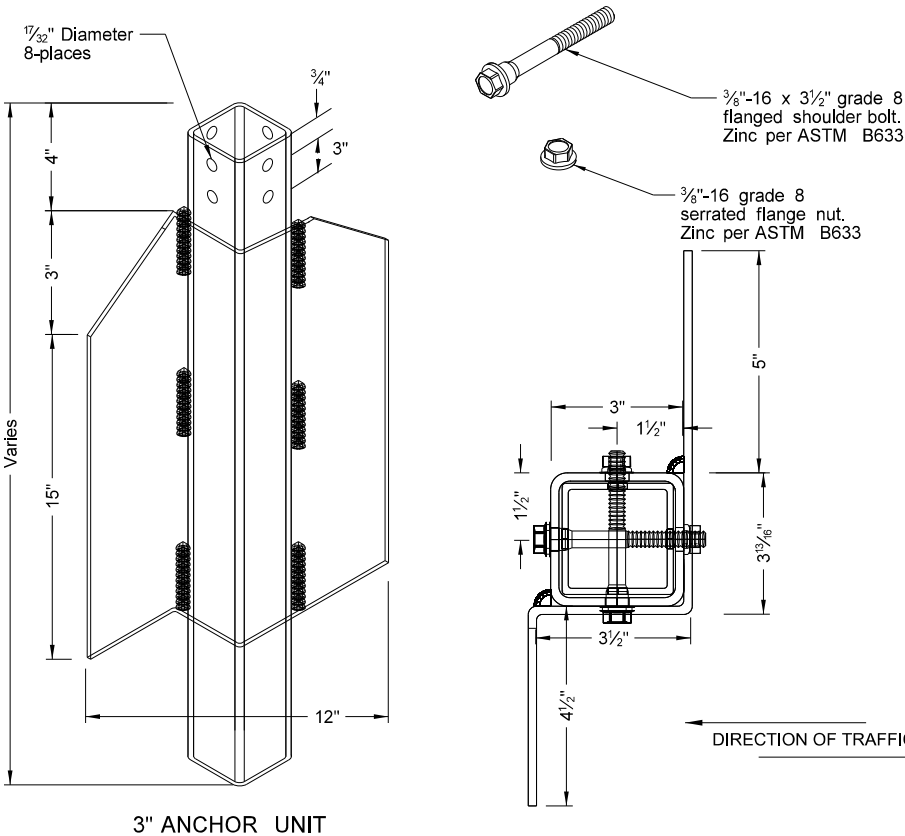
Telescoping Perforated Tube							
Number of Posts	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thick-ness Gauge
1	2	12			No	2 1/2	12
1	2 1/4	12			No	2 1/2	12
1	2 1/2	12			(B)	3(C)	7
1	2 1/2	10			Yes		7
1	2 1/4	12	2 1/2(D)	12	Yes		7
1	2 1/2	12	2 1/4	12	Yes		7
2	2 1/2	10			Yes		7
2	2 1/4	12	2 1/2(D)	12	Yes		7
2	2 1/2	12	2 1/4	12	Yes		7
3 & 4	2 1/2	12			Yes		7
3 & 4	2 1/2	10			Yes		7
3 & 4	2 1/2	12	2 1/4	12	Yes		7
3 & 4	2 1/4	12	2 1/2(D)	12	Yes		7
3 & 4	2 1/2	10	2 3/16	10	Yes		7

(B) - Provide a shim as specified by the manufacturer when placing 2 1/2", 12 gauge posts in standard soils without breakaway bases. Provide breakaway base when placing the support in weak soils. The Engineer will determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.  
(C) - 3" anchor unit  
(D) - 2 1/2" x 12 ga. x 18" minimum length external sleeve required.

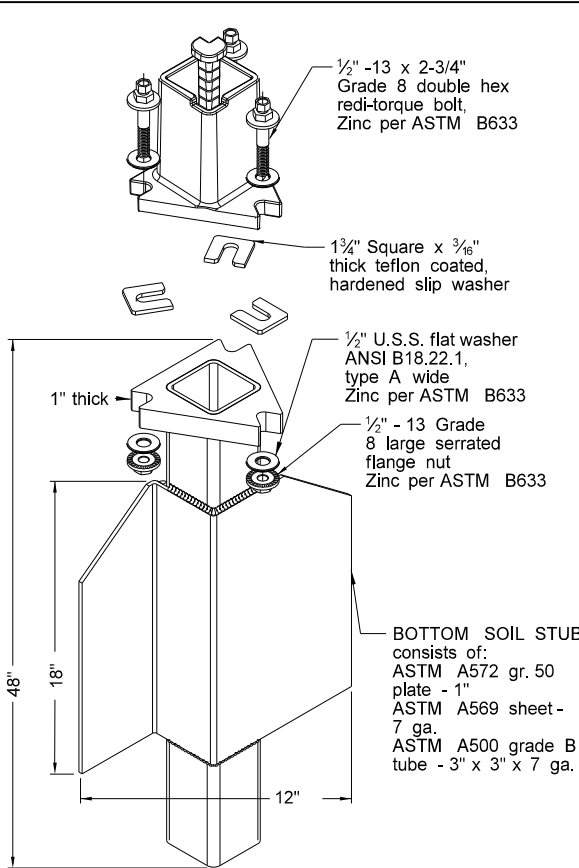


SHOULDER BOLT

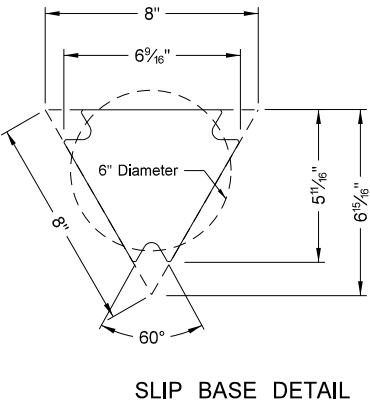
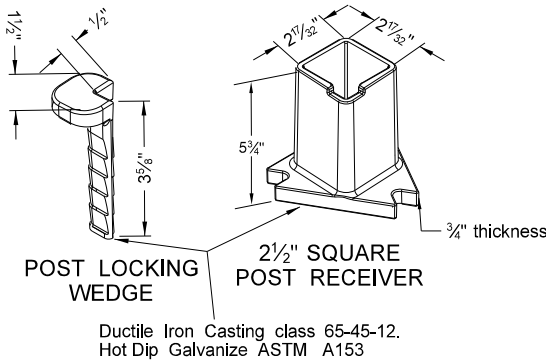
Shimming agent to reduce tolerance between 3" anchor unit and 2 1/2" post.  
(use standard 3/8" diameter grade 8 bolt with proper shim)



Mounting Details Perforated Tube

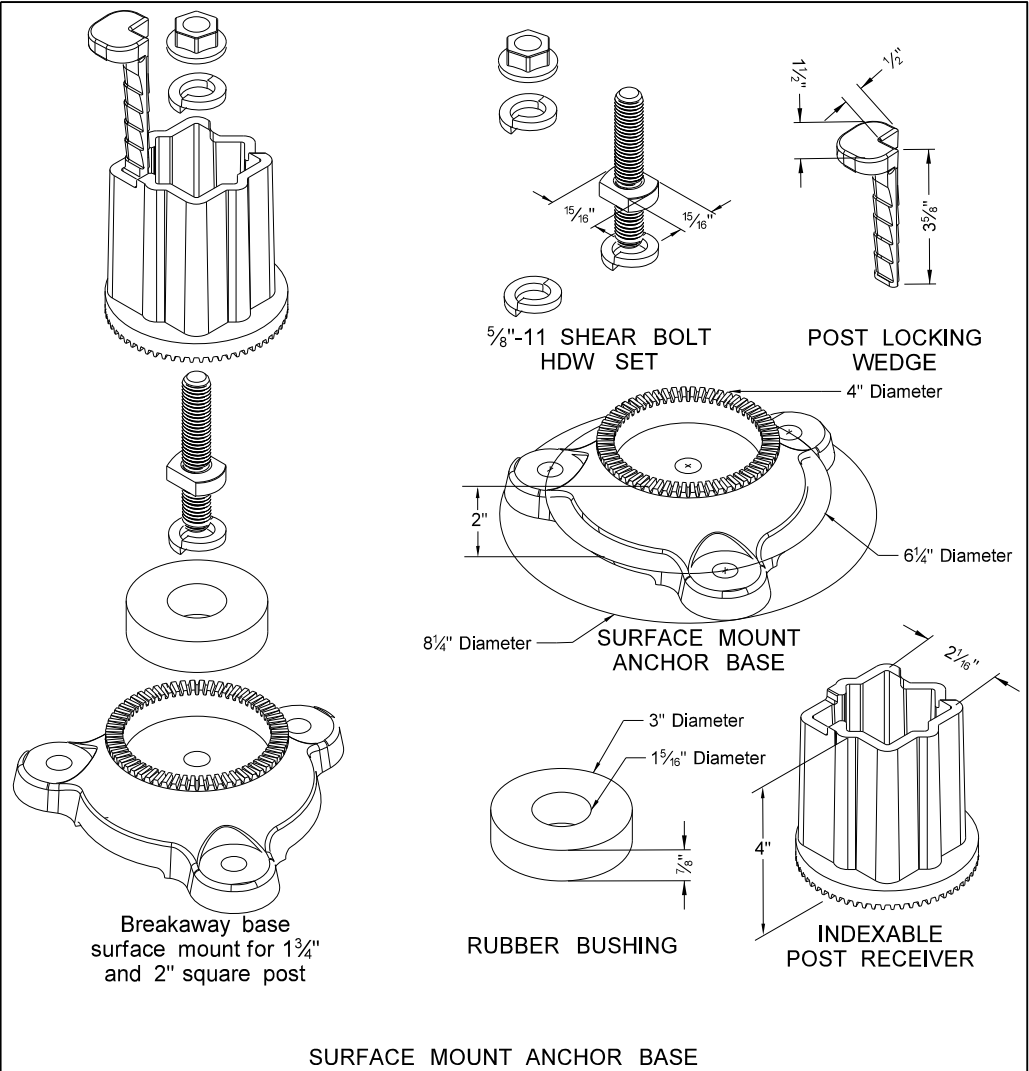


SLIP BASE FOR 2 1/2" POST



Properties of Telescoping Perforated Tubes							
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In. <sup>4</sup>	Cross Sect. Area In. <sup>2</sup>	Section Modulus In. <sup>3</sup>	
1 1/2 x 1 1/2	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	
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	0.499	
2 3/8 x 2 3/8	0.135	10	3.432	0.605	0.841	0.590	
2 1/2 x 2 1/2	0.105	12	3.141	0.804	0.803	0.643	
2 1/2 x 2 1/2	0.135	10	4.006	0.979	1.010	0.783	

The 2 3/8" size 10 gauge is shown as 2.19" size on the plans;  
The 2 1/2" size is shown as 2.51" size on the plans.



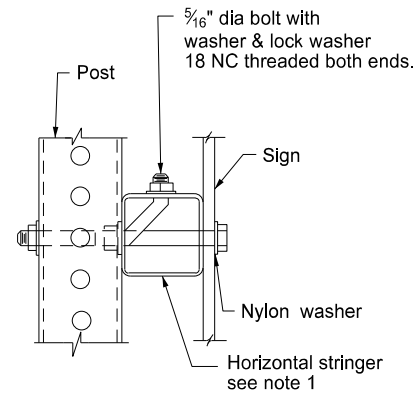
NOTE:

- 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
- Provide 7 gauge HRPO commercial quality ASTM A569 and 3" x 3" x 7" gauge ASTM A500 grade B anchor material with 43.9 KSI yield strength and 59.3 KSI tensile strength. Hot dip galvanize anchor per ASTM A123/153. Tolerances on anchor unit and slip base bottom assembly are +/- 0.005" unless otherwise noted.
- Eliminate wings when anchor is used in concrete sidewalk.
- Provide a minimum 8" distance between the first and fourth post on four post signs.
- Install in accordance with manufacturers recommendation.
- Use a minimum 1/2" diameter x 4" grade 8 concrete fastener for surface mount breakaway base.

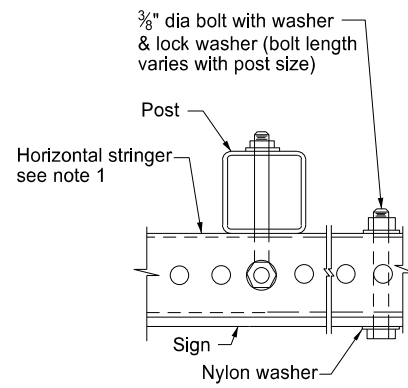
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice & corrected max height of base.
8-29-19	New Design Engineer PE Stamp.

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PE- 4683  
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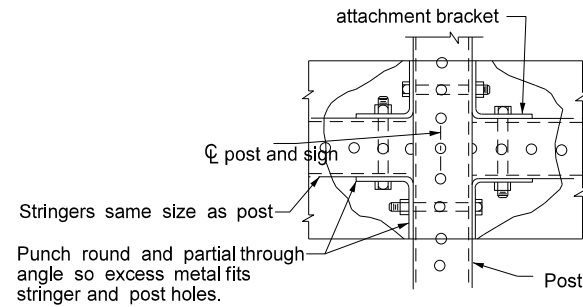
## Mounting Details Perforated Tube



Side View



Top View



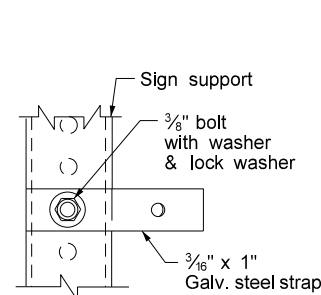
Punch round and partial through angle so excess metal fits stringer and post holes.

STREET NAME SIGNS AND ONE WAY SIGNS  
SINGLE POST ASSEMBLY  
ONE STRINGER OR BACK TO BACK MOUNTING

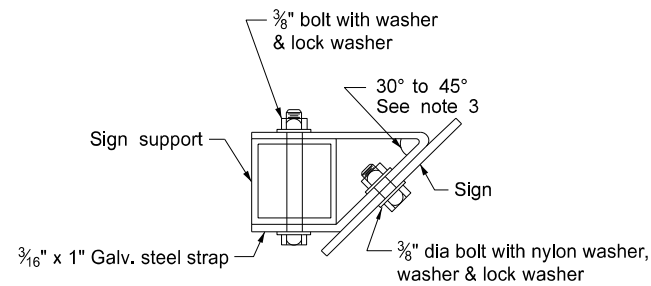
Note:

1. Horizontal stringers - Use perforated tubes or  $1\frac{3}{4}$ " x  $\frac{3}{16}$ " thick, 1.08 lbs./ft aluminum or 3.16 lbs./ft steel z bar stringers.
2. Use minimum outside diameter  $\frac{15}{16}$ "  $\pm \frac{1}{16}$ " and 10 gauge thick metal washers on sign face.
3. Place No Parking signs with directional arrows at a 30 to 45 degree angle with the line of traffic flow. Turning the support to the correct angle for No Parking signs requiring the above angles is allowed. If the No Parking sign is placed with another sign that requires placement at a 90 degree angle with the line of traffic flow, use the detailed angle strap to mount the No Parking sign. Use flat washers and lock washers with all nylon washers.
4. Punching the sign backing and placing the bolt through the sign, the stringer and the post is allowed in lieu of using the bent bolt to attach the post to the stringer.
5. 4" vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.

### STRINGER MOUNTING (WITH STRINGER IN FRONT OF POST)

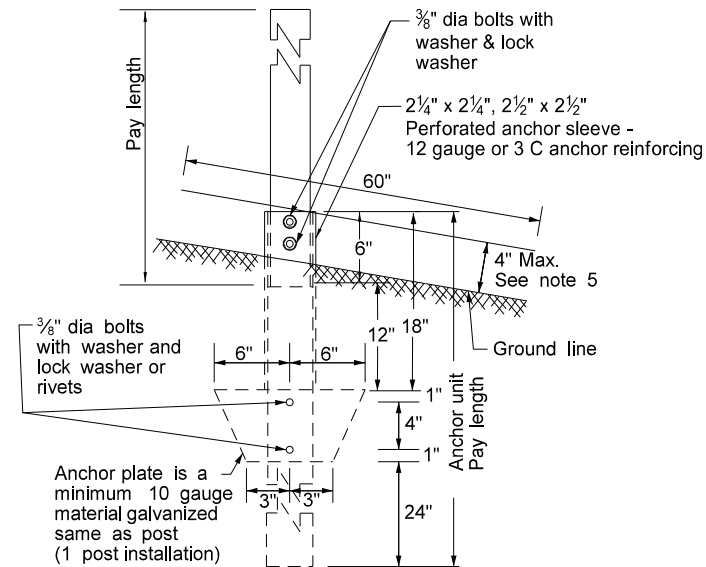


Side View

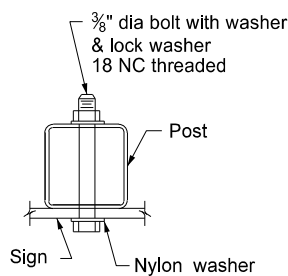


Top View

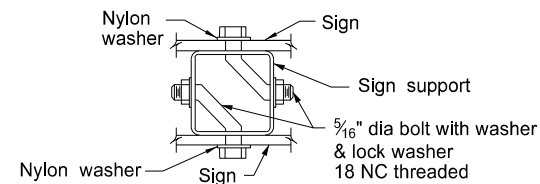
## STRAP DETAIL



## ANCHOR UNIT AND POST ASSEMBLY

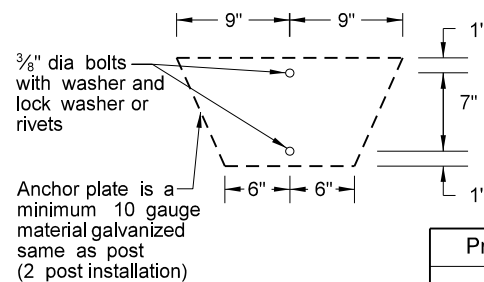


## BOLT MOUNTING



Top View

## BACK TO BACK MOUNTING



Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In. <sup>4</sup>	Cross Sect. area In. <sup>2</sup>	Section Modulus In. <sup>3</sup>
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
2⅜ x 2⅜	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	0.783

The  $2\frac{3}{16}$ " size 10 gauge is shown as 2.19" size on the plans.  
The  $2\frac{1}{2}$ " size is shown as 2.51" size on the plans.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE
7-8-14	Revised Note 3.
8-30-18	Updated notes to active voice.
8-30-19	New Design Engr PE Stamp.

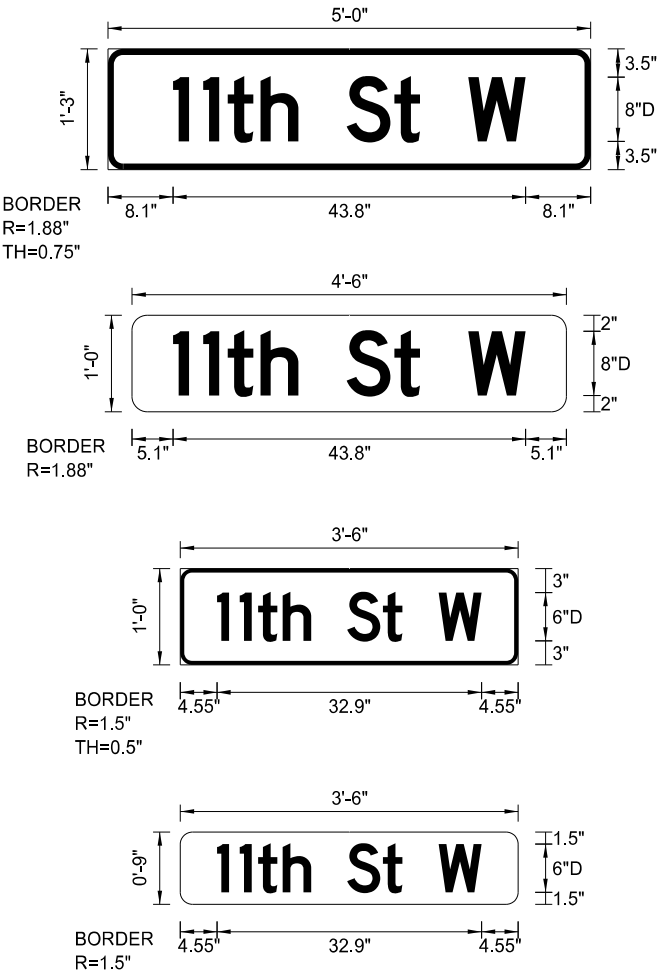
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 of Transportation

911 SIGN SUPPORT INFORMATION AND SIGN DETAILS

D-754-86

POST INFORMATION FOR VARIOUS SIGN CONFIGURATIONS													
ASSEMBLY NUMBER	STREET NAME SIGN SIZE	VERTICAL CLEARANCE	MAXIMUM POST LENGTH	NUMBER OF POSTS	SUPPORT SIZE	SLEEVE LENGTH (A)			SLEEVE SIZE	ANCHOR			BREAKAWAY
						1st	2nd	3rd		NUMBER	LENGTH	SIZE	
						LF	LF	LF					
Special Assembly 1	48"x15"	7	14.5	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	54"x15"	7	16.1	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	60"x15"	7	18.9	1	2.25 x 2.25 12 ga	2.6			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	66"x15"	7	15.8	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	72"x15"	7	14.6	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	78"x15"	7	17.6	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	84"x15"	7	15.8	2	2.25 x 2.25 12 ga					2	4.0	2.5 x 2.5 12 ga	
	90"x15"	7	15.3	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	96"x15"	7	17.4	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	48"x12"	7	17.5	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	54"x12"	7	15.2	1	2.25 x 2.25 12 ga					1	4.0	2.5 x 2.5 12 ga	
	60"x12"	7	14.2	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	66"x12"	7	15.9	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	72"x12"	7	14.7	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	78"x12"	7	15.7	2	2 x 2 12 ga					2	4.0	2.25 x 2.25 12 ga	
	84"x12"	7	15.6	2	2.25 x 2.25 12 ga					2	4.0	2.5 x 2.5 12 ga	
	90"x12"	7	18.6	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	96"x12"	7	17.5	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	24"x12"	5	20.3	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	30"x12"	5	16.4	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	36"x12"	5	13.8	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	42"x12"	5	14.7	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	48"x12"	5	12.9	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	54"x12"	5	15.2	1	2.25 x 2.25 12 ga					1	4.0	2.5 x 2.5 12 ga	
	60"x12"	5	13.8	1	2.25 x 2.25 12 ga					1	4.0	2.5 x 2.5 12 ga	
	24"x9"	5	24.1	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	30"x9"	5	21	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	36"x9"	5	17.3	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	42"x9"	5	15.4	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	48"x9"	5	13.5	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	54"x9"	5	14.8	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	60"x9"	5	13.3	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
Special Assembly 2	24"x12"	5	17.2	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	30"x12"	5	16.3	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	36"x12"	5	15.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	42"x12"	5	14.6	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	48"x12"	5	15.2	1	2.25 x 2.25 12 ga	4.5			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	54"x12"	5	20.6	1	2.5 x 2.5 10 ga	1.5			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
	60"x12"	5	16.7	1	2.5 x 2.5 12 ga	3.9			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	24"x9"	5	15.2	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	30"x9"	5	14.4	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	36"x9"	5	16.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	42"x9"	5	15.8	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	48"x9"	5	14.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	54"x9"	5	15.1	1	2.25 x 2.25 12 ga	4.2			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	60"x9"	5	14.5	1	2.25 x 2.25 12 ga	4.7			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1

(A) The sleeve length shown is for the maximum post length. The required sleeve length is the "sleeve length" minus the difference between the "maximum post length" and the post length required in the field.



Notes:  
Use 6 Inch legend except on multi-lane divided roads with speeds of 45 mph or greater.  
On divided multi-lane roadways, do not place 911 signs on top of stop sign.

When installing signs on existing supports, check support and sleeve size to determine if they meet table requirements. Measure maximum post length from ground to top of street name sign. If calculated support length is greater than maximum post length shown, recalculate support size.

See Standard Drawing D-754-87 for sign punching, stringer and support location details.

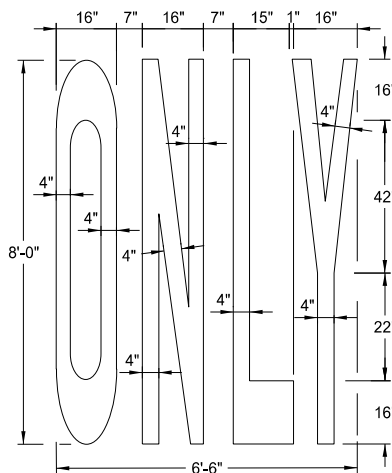
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
7-18-14 8-30-18	Revised street name sign layouts. Revised tables, lettering, & signs and updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.

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Kirk J Hoff,  
Registration Number  
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on 9/05/19 and the original document is stored at the  
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of Transportation

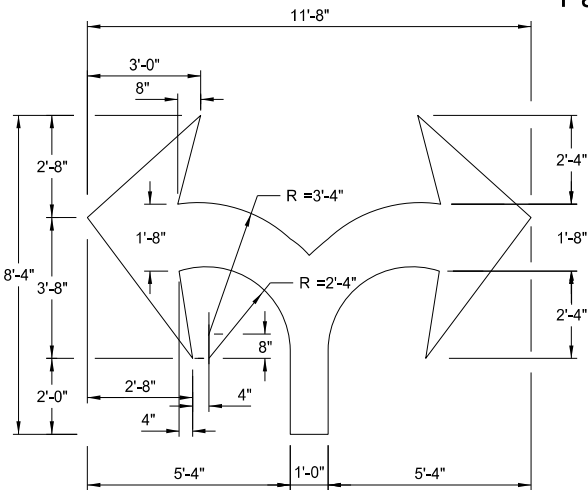


Pavement Marking Message Details

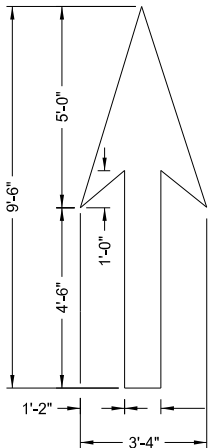
D-762-1



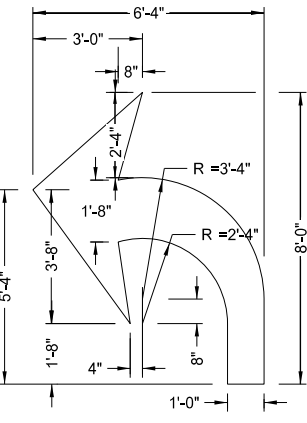
22 S. F.



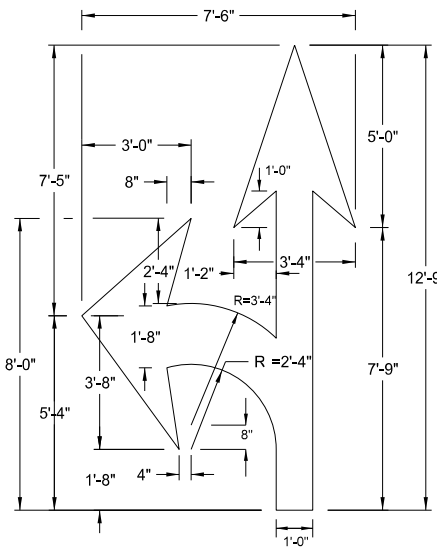
29 S. F.



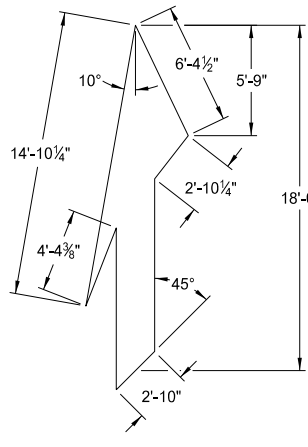
12 S. F.



16 S. F.

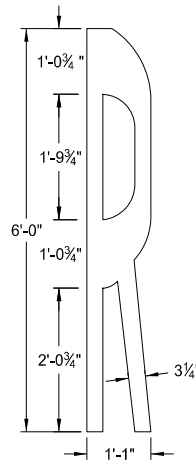


27 S. F.

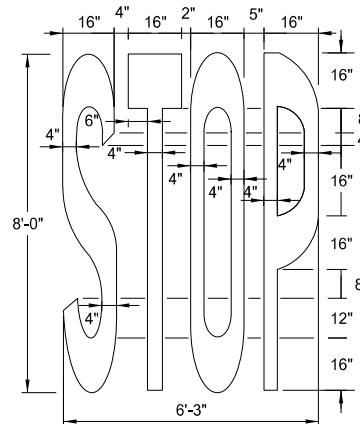


41 S. F.

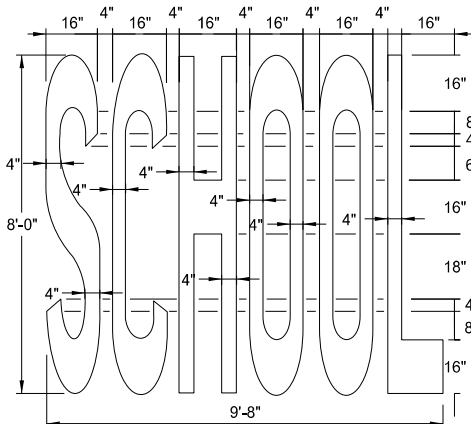
Note: Rotate merge arrow 20° from edge of roadway.



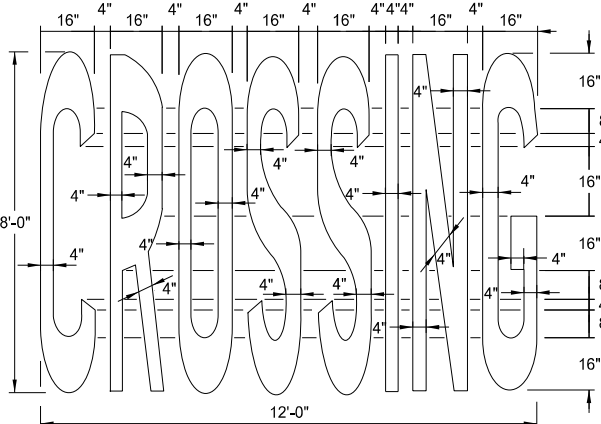
4 S. F.



22 S. F.



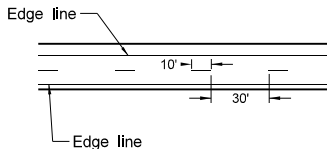
34.5 S. F.



46 S. F.

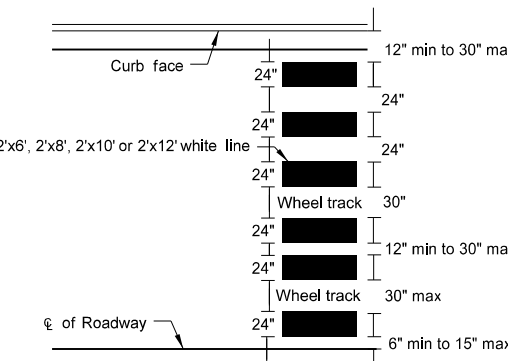
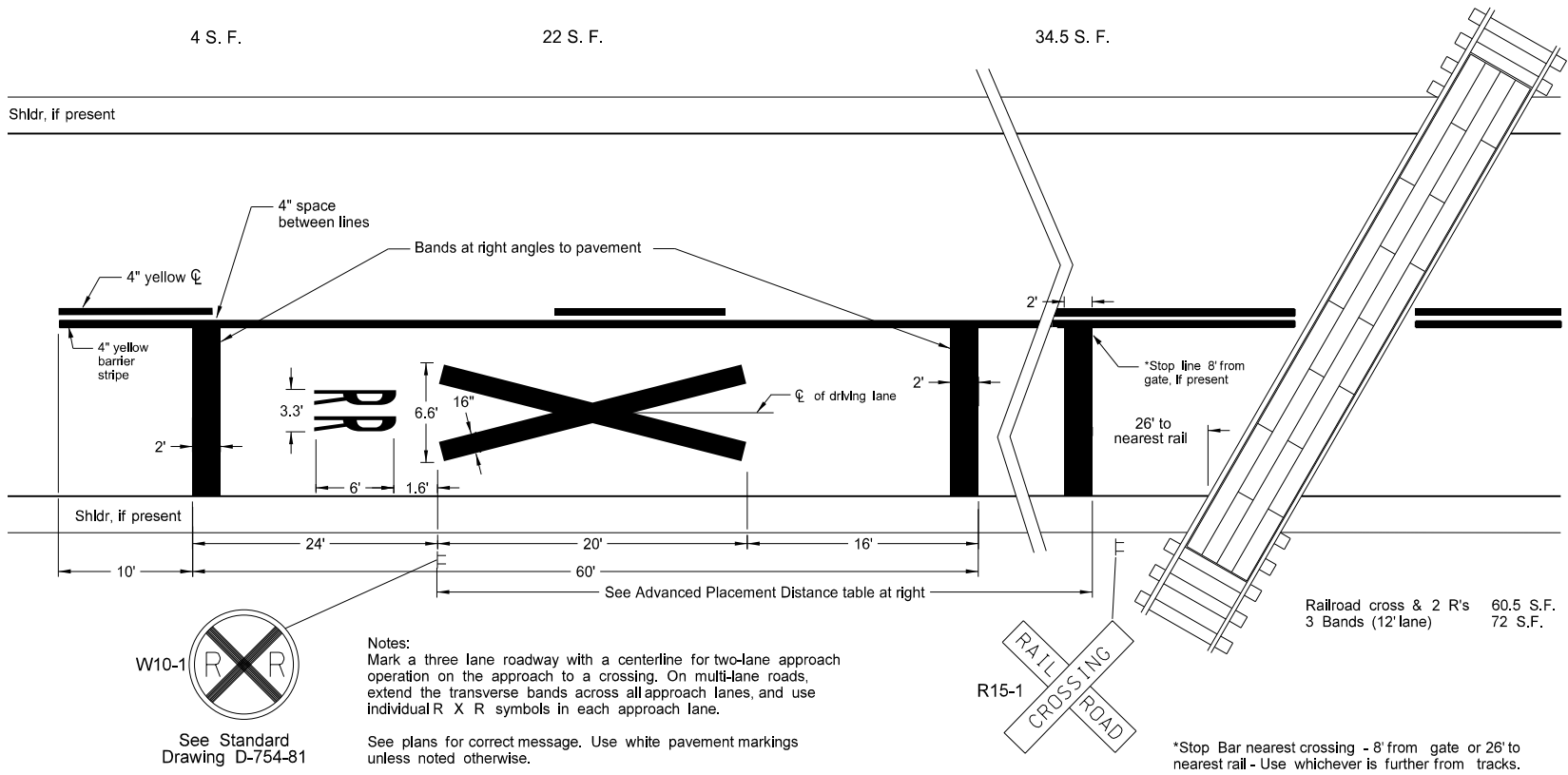
Speed Limit	Chevron Width	Chevron Spacing 45° to Traffic
0-25 mph	8"	5'
30-40 mph	8"	15'
45 mph and above	12"	25'

Chevron Crosshatching Table



Centerline Pavement Marking Skip Spacing Detail

Advance Placement Distance for Railroad Warning Signs	
Posted or 85th Percentile Speed	Advance Distance
20 mph	min. 100 ft
25 mph	min. 100 ft
30 mph	min. 100 ft
35 mph	min. 100 ft
40 mph	125 ft
45 mph	175 ft
50 mph	250 ft
55 mph	325 ft
60 mph	400 ft
65 mph	475 ft
70 mph	550 ft



Continental Crosswalk Detail

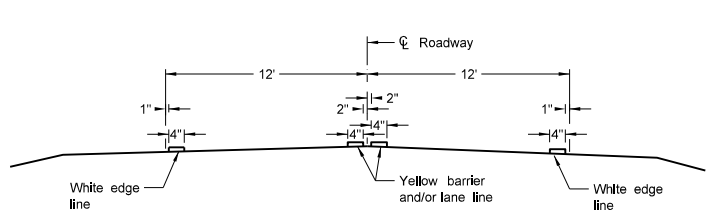
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-6-11	
REVISIONS	
DATE	CHANGE
10-17-17 08-27-19 01-28-2020	Updated to active voice. New Design Engineer PE Stamp. Revised min Stop Bar distance to rail.

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Kirk J Hoff,  
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PE-4683,  
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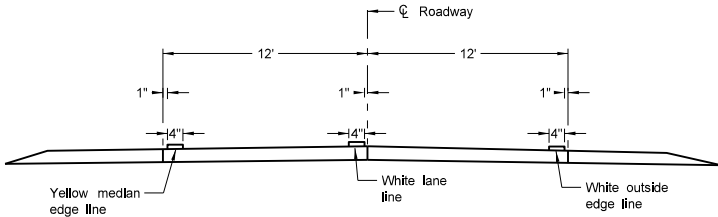
PAVEMENT MARKING

D-762-4

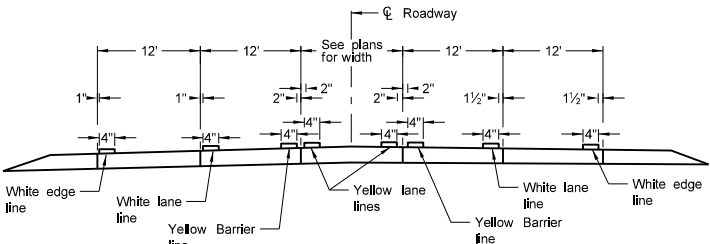
- NOTES:
1. Continue edge lines through private drives and field drives. Break edge lines for intersections.



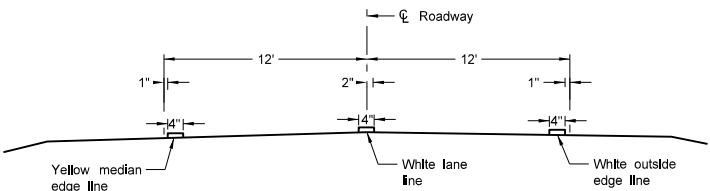
Two Lane Two Way  
RURAL ROADWAY



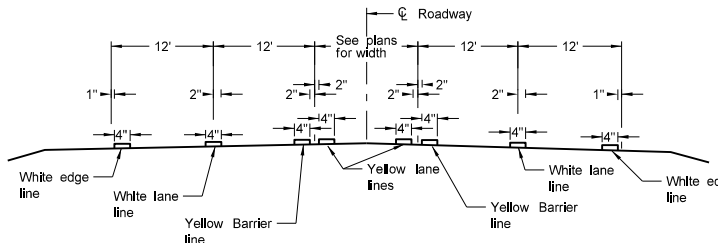
Two Lane Roadway  
INTERSTATE HIGHWAY  
Concrete Section



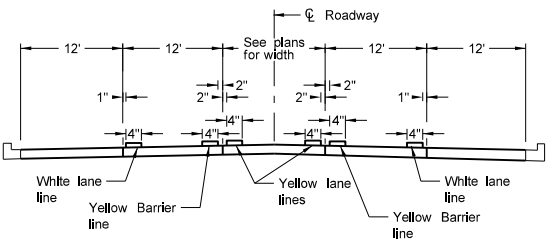
RURAL FIVE LANE ROADWAY  
Concrete Section



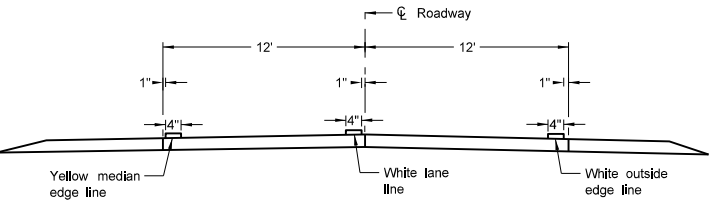
Two Lane Divided  
Rural Roadway  
PRIMARY HIGHWAY  
Asphalt Section



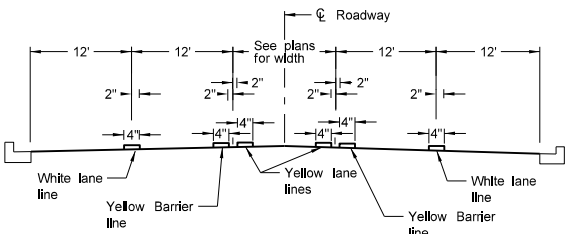
RURAL FIVE LANE ROADWAY  
Asphalt Section



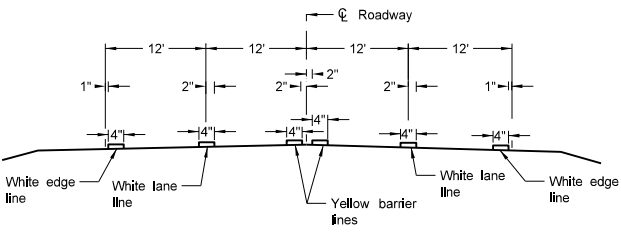
URBAN FIVE LANE SECTION  
Concrete Section



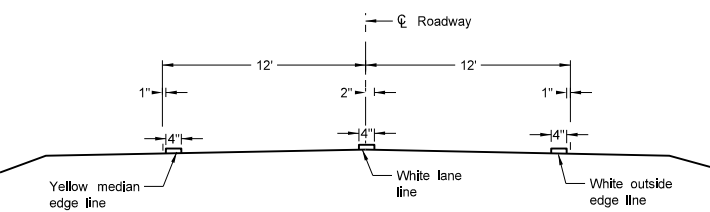
Two Lane Roadway  
PRIMARY HIGHWAY  
Concrete Section



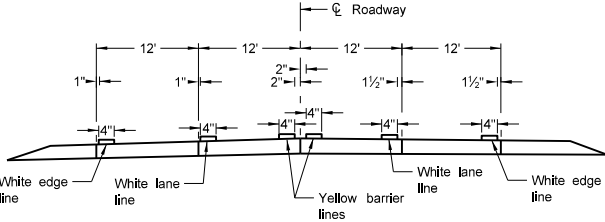
URBAN FIVE LANE SECTION  
Asphalt Section



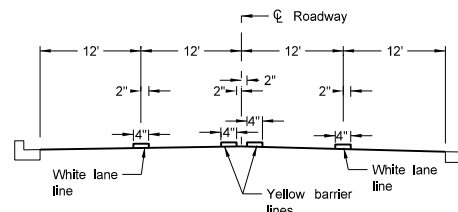
RURAL FOUR LANE ROADWAY  
Asphalt Section



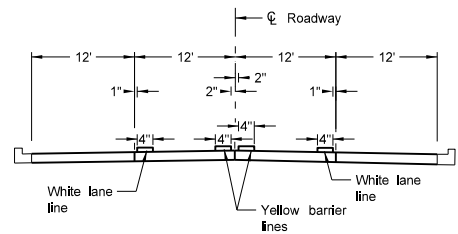
Two Lane Roadway  
INTERSTATE HIGHWAY  
Asphalt Section



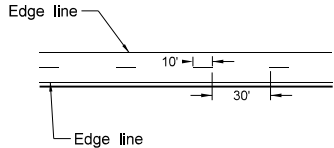
RURAL FOUR LANE ROADWAY  
Concrete Section



URBAN FOUR LANE SECTION  
Asphalt Section



URBAN FOUR LANE SECTION  
Concrete Section



CENTERLINE PAVEMENT MARKING SKIP SPACING DETAIL

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
10-17-17 08-27-19	Updated to active voice. New Design Engineer PE Stamp.

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