

DESIGN DATA			
Traffic	Average Daily		
Current 2018	Pass: 3,430	Trucks: 255	Total: 3,685
Forecast 2038	Pass: 4,185	Trucks: 315	Total: 4,500
Clear Zone Distance:	Design Speed:		
Minimum Sight Dist. for Stopping:	Bridges:		
Sight Dist. for No Passing Zone:			
Pavement Design Life (years)			
Design Accumulated One-way	ESALs:		

JOB # 14 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	22251	1	1

NH-5-012(047)073

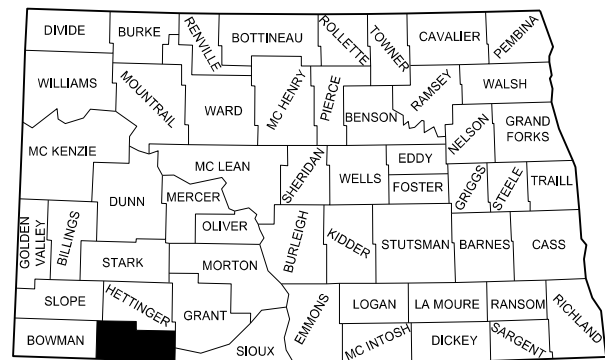
Adams County
City of Hettinger

Sidewalk / ADA Ramps

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-5-012(047)073	0.631	0.631



STATE COUNTY MAP

DESIGNER Austin Becker
DESIGNER Jay Forthun
DESIGNER

ND DEPARTMENT OF TRANSPORTATION OFFICE OF PROJECT DEVELOPMENT
Chad M Orn /s/
08/20/2020

WSB

This document was originally issued and sealed by
Nathan Wingerter
Registration Number
PE- 10792,
on 8-19-20 and the original document is stored at the North Dakota Department of Transportation

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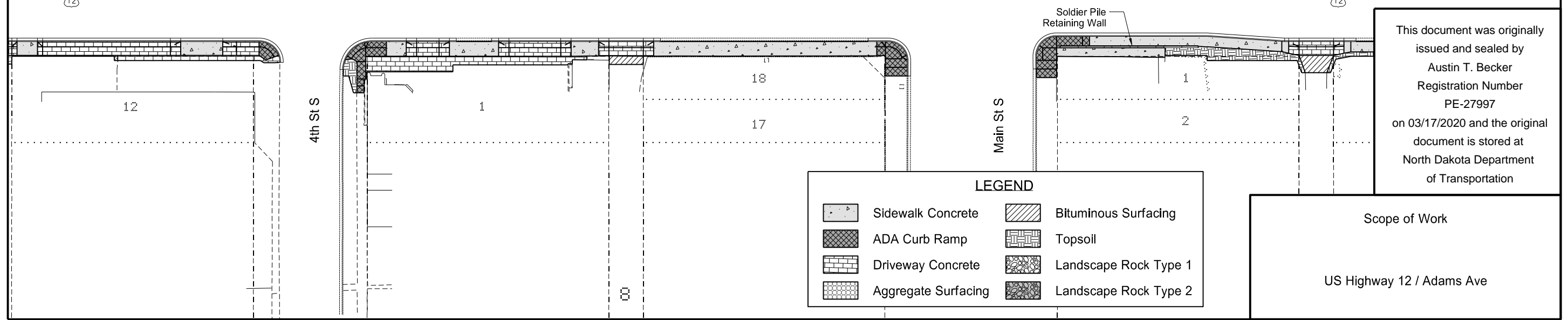
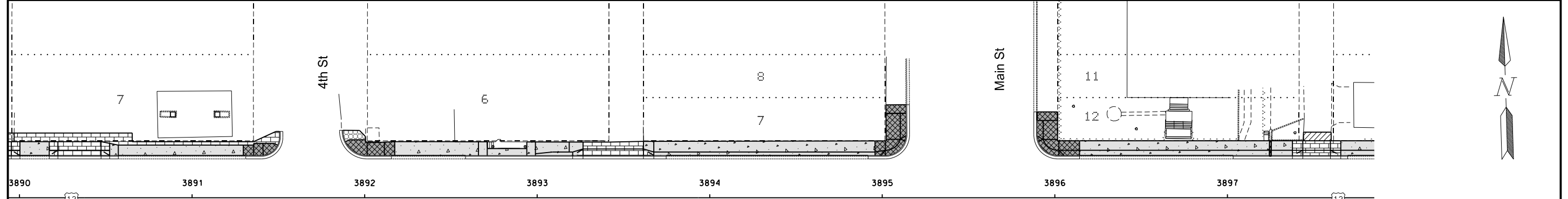
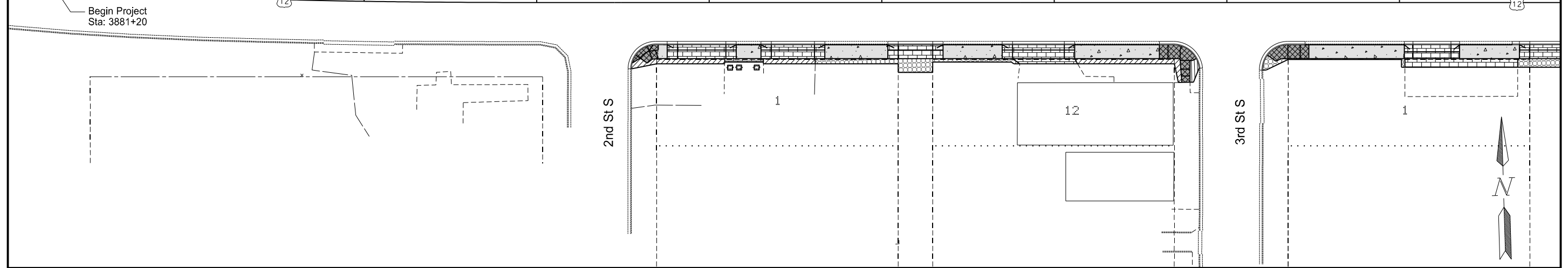
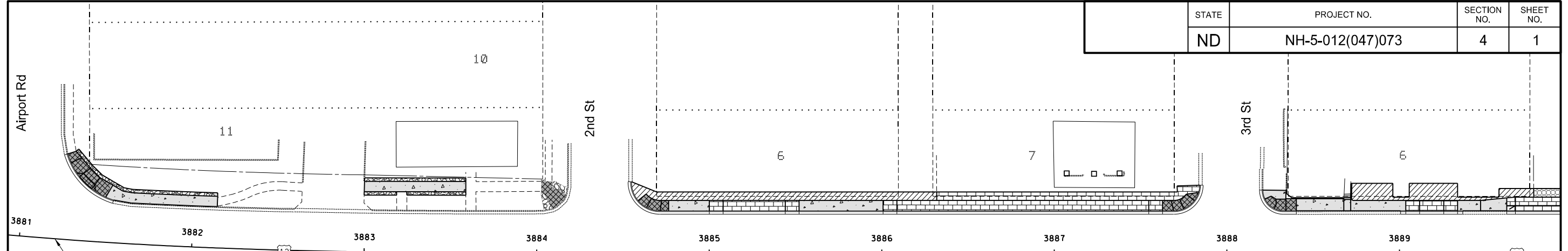
LIST OF STANDARD DRAWINGS

Number	Description
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D-754-9	Letter and Arrow Details
D-754-19	(Conventional Use) Reference Markers
D-754-23	Perforated Tube Assembly Details
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D-754-26, 27, 29, 38, 41, & 42	Sign Punching, Stringer, and Support Location Details Regulatory, Warning and Guide Signs
D-754-86	911 Sign Support Information And Sign Details
D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-762-1	Pavement Marking Message Details
D-766-1	Mailbox Location Details
D-772-7	Flashing Beacon

SPECIAL PROVISIONS

Number	Description
SP 88(20)	Commercial Grade Asphalt
SP 89(20)	Soldier Pile Wall
SSP 1	Temporary Erosion and Sediment Best Management Practices

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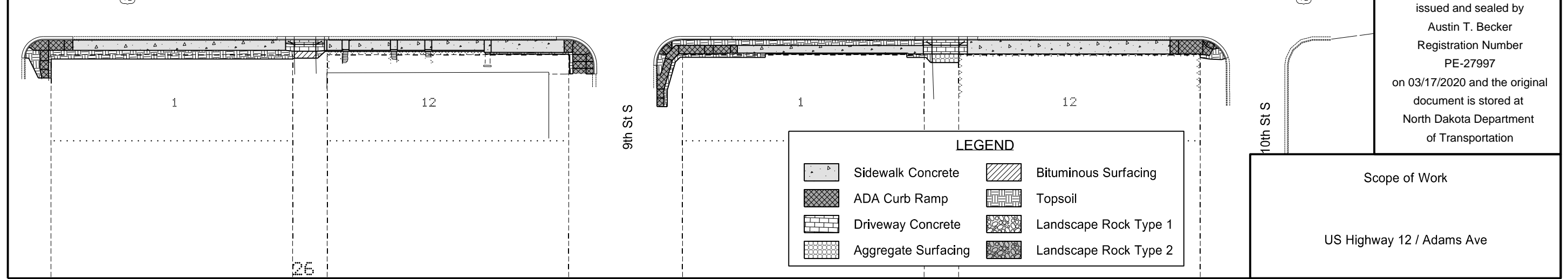
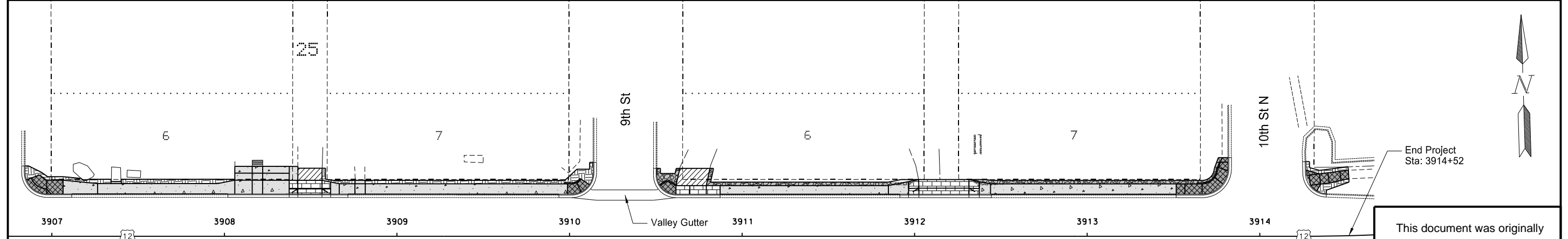
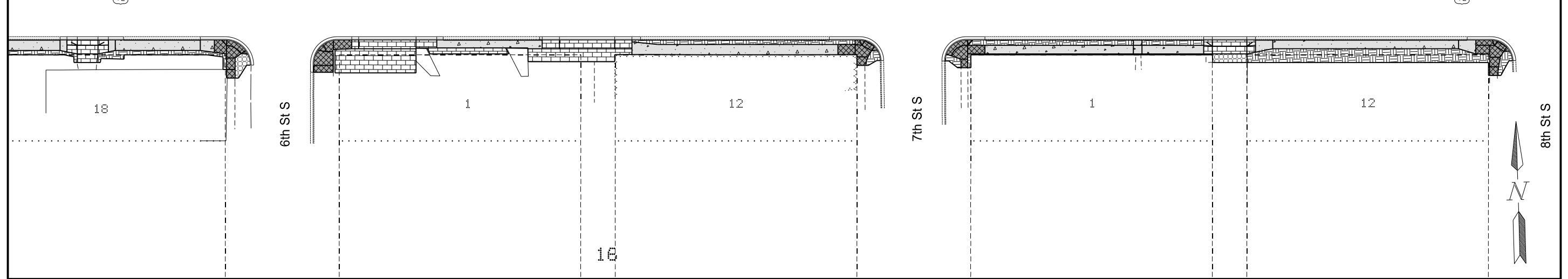
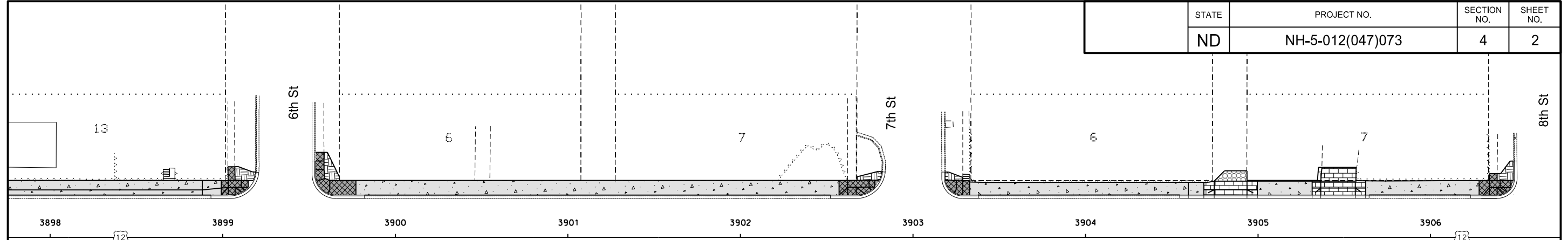
LEGEND

	Sidewalk Concrete		Bituminous Surfacing
	ADA Curb Ramp		Topsill
	Driveway Concrete		Landscape Rock Type 1
	Aggregate Surfacing		Landscape Rock Type 2

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Scope of Work
US Highway 12 / Adams Ave

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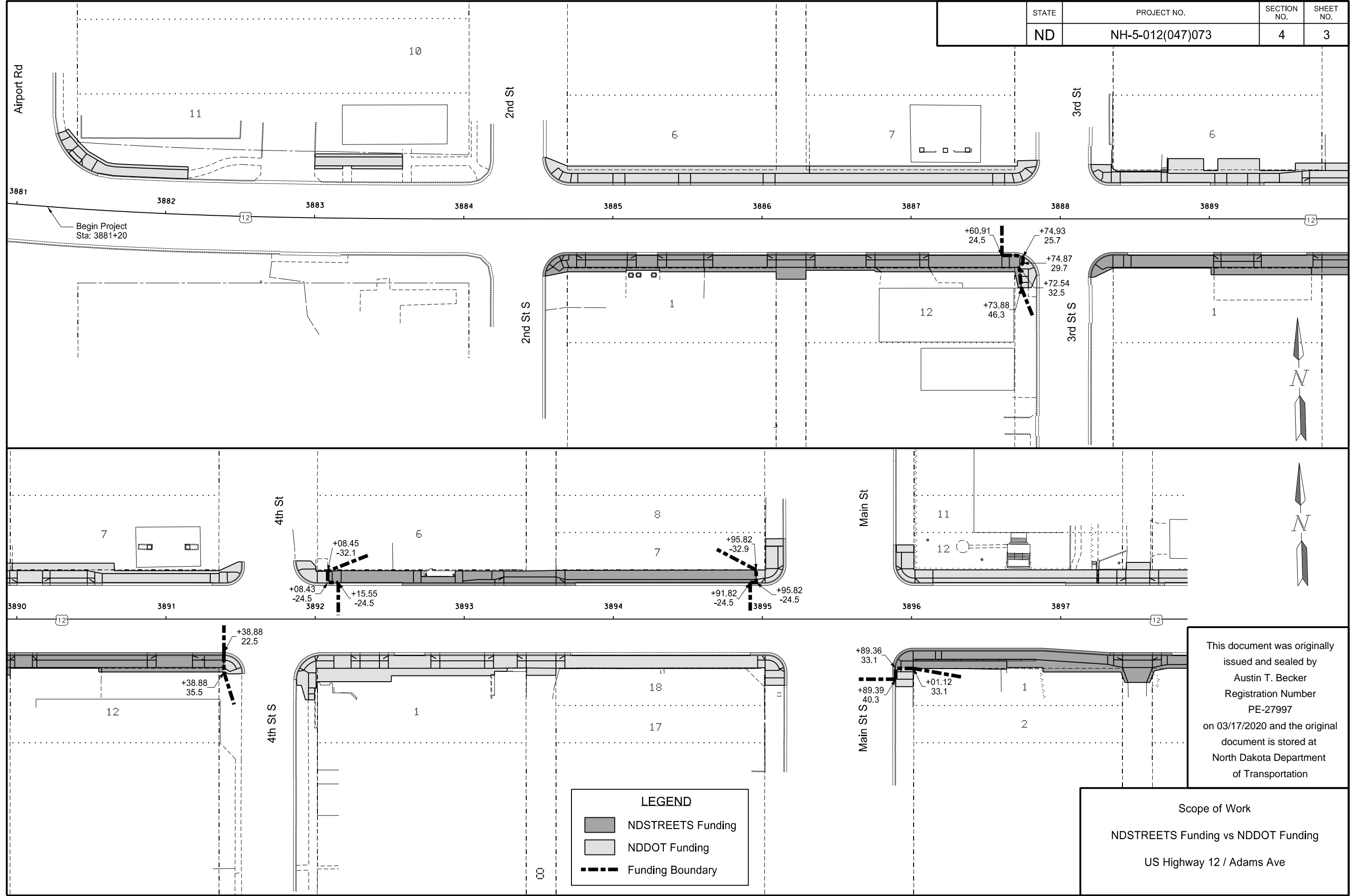
LEGEND

	Sidewalk Concrete		Bituminous Surfacing
	ADA Curb Ramp		Topsoil
	Driveway Concrete		Landscape Rock Type 1
	Aggregate Surfacing		Landscape Rock Type 2

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Scope of Work
 US Highway 12 / Adams Ave

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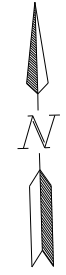
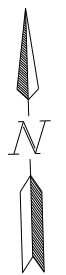
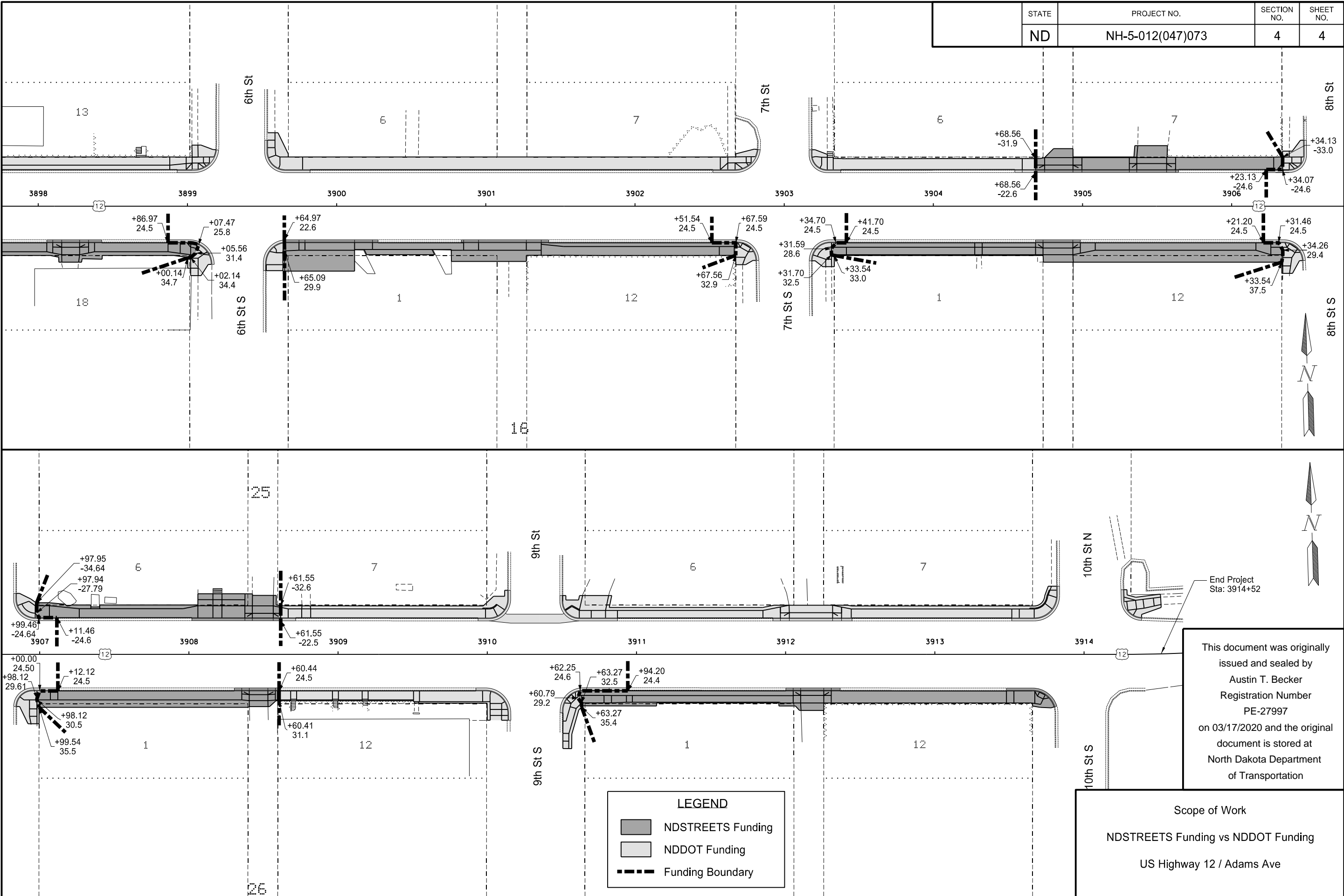
LEGEND

- NDSTREETS Funding
- NDDOT Funding
- Funding Boundary

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Scope of Work
 NDSTREETS Funding vs NDDOT Funding
 US Highway 12 / Adams Ave

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LEGEND

- NDSTREETS Funding
- NDDOT Funding
- Funding Boundary

Scope of Work

NDSTREETS Funding vs NDDOT Funding

US Highway 12 / Adams Ave

End Project Sta: 3914+52

NOTES

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GENERAL NOTES

- 100-P01 PROTECTION OF EXISTING FACILITIES: Exercise care during construction operations to ensure no disruption to trees, shrubs, grasses, sod, signs, underground sprinklers, and other site improvements located in the construction zone and outside of construction limits. Repair any and all damages caused by the contractor at the contractor's expense.
- 100-P02 CLEANING: Remove all debris from the existing roadway and sidewalk adjacent to the construction area at the end of each construction day before traffic returns to normal.
- 100-P03 LANDOWNER COORDINATION: Landowner of Lot 12 Block 2 to remove existing surface aggregate within construction limits. Notify landowner 14 days in advance of construction activities adjacent to Lot 12 Block 2.
- 105-200 UTILITY COORDINATION: A utility coordination meeting is required prior to the start of construction.
- 105-P01 UTILITY COORDINATION: Coordinate work activities with utility companies to allow sufficient time to address utility conflicts. Prioritize utility coordination to accommodate project phasing.
- 105-P02 UTILITIES: Coordinate with (Mike Perez) Montana Dakota Utilities (701-580-9040) to ensure electric service pole at approximate Sta 3896+37 Rt is relocated prior to start of construction.
- 105-P03 UTILITIES: Utility facilities are identified in the Utility Coordination Table. Adjust operations adjacent to these utility facilities to protect them as described in the Utility Coordination Table (See Comments column). Repair the damaged utilities, identified to remain in place, at the Contractor's expense. In addition to the Utility Coordination Table, utilities in conflict with the proposed work are identified in the Utility Conflict Summary Sheets. (Utility Conflict Summary Sheets do include utilities listed in the Utility Coordination Table that are identified to remain in place, as well.)

Station	Offset	Approx Qty	Comments	Utility Company	Type of Facility
3889+72 to 3908+59	Rt	2018'	Contractor to protect in existing location	Midcontinent Cable	Fiber Optic Line
3889+72	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3889+87 to 3889+87	Crossing	75'	Contractor to protect in existing location	MDU	Gas Line
3890+03	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3891+29	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3893+44 to 3893+46	Crossing	71'	Contractor to protect in existing location	Consolidated Telep	Fiber Optic Line
3893+56 to 3893+56	Crossing	71'	Contractor to protect in existing location	MDU	Gas Line
3894+06 to 3894+06	Crossing	60'	Contractor to protect in existing location	Municipal	Electric Line
3894+06	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3895+93 to 3895+97	Lt	17'	Contractor to protect in existing location	Municipal	Electric Line
3895+93	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3896+37	Rt	1	Electric power pole located within sidewalk improvements and near proposed retaining wall. Prior to construction start date contractor to coordinate with MDU regarding requirements and timeline to relocate pole.	MDU	OH Power Pole
3896+54	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3897+51 to 3897+53	Crossing	80'	Contractor to protect in existing location	MDU	Gas Line
3897+60	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3899+00	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3899+00	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3901+17 to 3901+17	Crossing	70'	Contractor to protect in existing location	MDU	Gas Line
3901+66	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3904+31	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3904+71 to 3906+29	Rt	159'	Contractor to protect in existing location	Municipal	Electric Line
3904+71	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3904+81 to 3904+82	Crossing	76'	Contractor to protect in existing location	MDU	Gas Line
3906+29 to 3906+40	Crossing	57'	Contractor to protect in existing location	Municipal	Electric Line
3906+40 to 3914+42	Lt	805'	Contractor to protect in existing location	Municipal	Electric Line
3907+06	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3907+19 to 3912+03	Lt	500'	Contractor to protect in existing location	MDU	Gas Line
3907+48	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3907+84 to 3909+18	Lt	146'	Contractor to protect in existing location	Consolidated Telep	Fiber Optic Line
3907+84	Lt	1	Contractor to protect in existing location	MDU	OH Power Pole
3908+50 to 3908+50	Crossing	75'	Contractor to protect in existing location	MDU	Gas Line
3908+59	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3909+60	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3910+01	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3911+14	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3912+05	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3912+16 to 3912+17	Crossing	71'	Contractor to protect in existing location	MDU	Gas Line
3912+45	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3913+77	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole

Station	Offset	Approx Qty	Comments	Utility Company	Type of Facility
3881+32 to 3881+37	Crossing	23'	Contractor to protect in existing location	Consolidated Telep	Fiber Optic Line
3881+34 to 3881+38	Crossing	21'	Contractor to protect in existing location	MDU	Gas Line
3881+38 to 3901+66	Lt	2026'	Contractor to protect in existing location	Municipal	Electric Line
3881+73	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3883+18 to 3883+59	Lt	42'	Contractor to protect in existing location	Consolidated Telep	Fiber Optic Line
3884+68	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3885+95	Lt	1	Contractor to protect in existing location	Municipal	Light Pole
3886+06	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3886+23 to 3886+23	Crossing	76'	Contractor to protect in existing location	MDU	Gas Line
3887+14	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3888+38	Rt	1	Contractor to protect in existing location	MDU	OH Power Pole
3888+98	Lt	1	Contractor to protect in existing location	Municipal	Light Pole

- 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.
- 108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.
- 201-P01 REMOVAL OF TREES: Do not remove trees unless marked by the Engineer. Provide 48-hour advance notice to Engineer for tree marking. Trees identified for removal in the plans or by the Engineer in the field will be paid for under the bid price "Removal of Trees 18in" regardless of size.

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NOTES

201-P02 CLEARING & GRUBBING: Remove or trim existing shrubs, bushes, wood mulch, landscaping rock, landscaping boulders, edging, landscaping fabric, and concrete edging located within the limits of construction. Coordinate with Engineer prior to removal. Include all costs for removals in the price bid for "Clearing & Grubbing". The following locations have been identified for clearing and grubbing:

1. Shrubs/Hedge row located:
 - Sta. 3903+40 Rt to 3903+98 Rt.
 - Sta. 3906+99 Rt to 3907+14 Rt.
 - Sta. 3907+33 Rt to 3907+73 Rt.
 - Sta. 3907+55 Lt to 3907+98 Lt.
 - Sta. 3908+29 Rt to 3908+36 Rt.
 - Sta. 3911+95 Rt to 3912+04 Rt.

202-P01 REMOVAL OF OBSTRUCTIONS: Remove existing features (located within the limits of construction) shown below. Include all costs for removals in the price bid for "Removal of Obstructions". The following locations and features have been identified for removal:

1. (1) Bollard in the SE Quadrant of US 12 & 2nd St.
2. Wood Decking in the SE Quadrant of US 12 & 2nd St.
3. Gas Station Sign in the SE Quadrant of US 12 & 2nd St. Coordinate removal with Engineer and place removed sign within adjacent property.
4. Wood Fence located between Main St and 6th St on South side of US 12. Remove to Temporary Easement Boundary.
5. Trench Drain located between Main St and 6th St on North side of US 12.

202-P02 REMOVAL OF CONCRETE PAVEMENT: Existing aggregate base course beneath concrete pavement to be removed to the depth of the proposed subgrade. All cost of labor, equipment and materials to perform work shall be included in the price bid for "Removal of Concrete Pavement".

202-P03 REMOVAL OF BITUMINOUS SURFACING: Existing aggregate base course beneath bituminous surfacing to be removed to the depth of the proposed subgrade. All cost of labor, equipment and materials to perform work shall be included in the price bid for "Removal of Bituminous Surfacing".

203-P01 EXCAVATION AND EMBANKMENT: All excavation and embankment needed to establish design grades are subject to Compaction Control, Type C. Embankment shall be aggregate base course or embankment material. All imported material shall be non-organic. No excavation or embankment to occur outside right-of-way except as shown in the temporary construction easements. All cost of labor, equipment and materials to perform work shall be included in the price bid for "Sidewalk Concrete 4in".

251-P01 SEEDING CLASS III: Seed disturbed ground. Apply hydraulic-mulch or bonded fiber matrix after the seed is broadcasted into the topsoil. Use a seed mixture as follows:

Species	Pounds Pure Live Seed/Acre
Kentucky Blue Grass	25
Red Fescue	15
Perennial Ryegrass	10
Total	50

302-P01 SALVAGE & RELAY SURFACE AGGREGATE COURSE: Landscape rock within project limits to be salvaged and relayed. All cost of labor, equipment and materials to perform work shall be included in the price bid for "Salvage & Relay Aggregate Surface Course". The following locations of landscape rock have been identified:

1. Between Airport Rd & 2nd St on North side.
2. Between 9th St & 10th St on North side.

624-P01 PEDESTRIAN RAILING: Handrail gripping surfaces shall be continuous along their length and shall not be obstructed along their tops and sides. Handrail gripping surfaces and any surfaces adjacent to them shall be free of sharp or abrasive elements and shall have rounded edges. Handrail gripping surfaces with a circular cross section shall have an outside diameter of 1.25 inches minimum and 2 inches maximum. Handrail to be designed according to the current edition of the International Building Code and certified by a Structural Engineer licensed in the State of North Dakota.

Provide galvanizing on all hardware and components according to AASHTO M 111 & M 232. Submit shop drawings of the pedestrian railing for review to the Engineer before fabrication. Include all costs for labor, materials, and equipment to furnish & install the pedestrian railing in the unit price bid for "Pedestrian Railing".

704-P01 TRAFFIC CONTROL: Work will be limited to two blocks one side unless otherwise approved by the Engineer. No additional payment beyond the estimated two set ups per situation will be made. The cost of any additional devices required to accommodate the Contractor's operations be included in the unit price bid for "Traffic Control Signs".

The traffic control layout (shown in Section 100) is for the visual representation of the traffic control set up for the entire project. The entire set up will not be installed at once.

Adjust location of shoulder closure taper to correspond with the work area.

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NOTES

704-P02 **TRAFFIC CONTROL DEVICES:** The traffic control devices list has been developed using the traffic control sign layout (shown in Section 100) based on two blocks one side set up per situation and Standard Drawings as listed below:

D-704-24: Type U for Shoulder Closure

704-P03 **PEDESTRIAN FACILITIES AND ACCESS:** Provide temporary nonskid, hard surface, ADA compliant transitions for all temporary sidewalk routes. Include costs for the installation and maintenance of temporary transitions or surfaces in the unit price bid for "Sidewalk Concrete 4in". Do not remove sidewalk on both the east and west sides at the same time. Maintain a pedestrian path until pedestrian traffic can return to normal existing routes. Include all cost for installation, removal, labor, materials, and maintenance of the temporary pedestrian facilities in the unit prices bid for "Sidewalk Barricade" and "Temporary Cub Ramp".

704-P04 **MAINTAINING ACCESS:** Maintain a traversable driving surface and pedestrian access at all times throughout the project. Submit a pedestrian detour plan for every change in work location to the Engineer. Coordinate and alert residents or businesses regarding changes to access points, shifting traffic control, and temporary access restrictions along the construction zone a minimum of 24 hours in advance.

708-P01 **INLET PROTECTION:** Include all costs for installing, cleaning, removing sediment, maintaining, and replacing damaged inlet protection devices in the unit price bid for "Inlet Protection - Special". Keep all devices in place until all material is placed or upon approval from the Engineer.

722-P01 **ADJUST MANHOLE:** All existing manholes and utility manholes frames and covers shall remain in place and be reused. The Contractor shall free the existing manhole frames and covers of material and adjust them to final grades. All cost of labor, materials and equipment to perform the work shall be included in the price bid for "Sidewalk Concrete 4in."

722-P02 **ADJUST GATE VALVE BOX:** Adjust top of existing gate valve boxes to final grade by adjusting existing risers. A maximum adjustment of 6" was assumed attainable using existing risers. Include all labor, materials, and equipment necessary to complete the adjustments to the existing gate valve boxes in the price bid for "Adjust Gate Valve Box".

724-P01 **ADJUST CURB STOP:** The Contractor shall adjust existing curb stops to final grade elevations. The cost of labor, equipment and materials to perform the above work shall be included in the price bid for "Sidewalk Concrete 4in".

750-P01 **SIDEWALK CONCRETE:** Turning Spaces are to be constructed in advance of all other sidewalk work to maintain cross slopes needed for ADA compliance.

750-P02 **PIGMENTED IMPRINTED CONCRETE:** 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.

Number 366 Natural Red, produced by Soloman Colors, Inc.

<http://www.solomoncolors.com/>;

Brick Red pigment Number 160, produced by Davis Colors

<http://www.daviscolors.com/>; or

Pigment R/M – Brick Red, produced by Southern Color Company

<http://www.southerncolor.com/>.

Use the same supplier for all colored concrete placed under the contract.

Add pigment at the ratio recommended by the manufacturer directly into the mixer along with the aggregate, cement, and water. Add pigment while the mixer is operating at mixing speed. Continue mixing for 5 to 10 minutes or between 50 and 100 revolutions.

Form a pattern in the concrete using a roller to create a 4 inch x 8-inch brick pattern.

Cure concrete using curing compound that meets the requirements of ASTM C 309, Type 1.

766-P01 **RESET MAILBOX:** Remove existing mailboxes, supports and anchors. Store mailboxes for the duration of construction. Notify the affected landowners and the US Postal Service when mailboxes are to be removed. Contact Hettinger Post Office at 701-567-2428. During construction, temporary mailboxes must be provided. Coordinate temporary mailbox locations with the post office. Coordinate final location of mailboxes with the US Postal Service. Include all labor, materials, and equipment to remove mailboxes, store mailboxes, provide temporary mailboxes, and reset existing mailboxes on new supports and anchors per standard drawing D-766-1 as described above in the price bid for "Reset Mailbox".

SECTION 110

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

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Estimated Quantities

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SPEC	CODE	ITEM DESCRIPTION	UNIT	NDSTREETS: Funding A	100 % NDDOT: Funding B	TOTAL
103	100	CONTRACT BOND	L SUM	0.4	0.6	1
201	330	CLEARING & GRUBBING	L SUM	1		1
201	380	REMOVAL OF TREES 18IN	EA	3		3
201	395	STUMP REMOVAL	EA	3		3
202	114	REMOVAL OF CONCRETE PAVEMENT	SY	1251	2533	3784
202	129	REMOVAL OF CURB	LF		63	63
202	130	REMOVAL OF CURB & GUTTER	LF	1181	1748	2929
202	132	REMOVAL OF BITUMINOUS SURFACING	SY	248	258	506
202	295	REMOVAL OF OBSTRUCTIONS	L SUM	0.4	0.6	1
202	312	REMOVE EXISTING FENCE	LF	140		140
203	109	TOPSOIL	CY	80	27	107
216	100	WATER	M GAL	26	29	55
251	300	SEEDING CLASS III	ACRE	0.13	0.07	0.2
253	201	HYDRAULIC MULCH	ACRE	0.26	0.14	0.4
261	112	FIBER ROLLS 12IN	LF	1368	222	1590
261	200	WEIGHTED FIBER ROLLS	LF	40	130	170
261	201	REMOVE WEIGHTED FIBER ROLLS	LF	40	130	170
302	120	AGGREGATE BASE COURSE CL 5	TON	633	806	1439
302	320	AGGREGATE SURFACE COURSE CL 5	TON	22	6	28
302	405	SALVAGE & RELAY AGGREGATE SURFACE COURSE	CY		23	23
430	500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	29	73	102
624	123	PEDESTRIAN RAILING	LF	80		80
702	100	MOBILIZATION	L SUM	0.4	0.6	1
704	100	FLAGGING	MHR	16	24	40
704	1000	TRAFFIC CONTROL SIGNS	UNIT	370	556	926
704	1052	TYPE III BARRICADE	EA	3	5	8
704	1054	SIDEWALK BARRICADE	EA	6	9	15
704	1060	DELINEATOR DRUMS	EA	60	90	150
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	152	2338	2490
704	2108	TEMPORARY CURB RAMP	EA	2	8	10
708	1540	INLET PROTECTION-SPECIAL	EA	10	24	34
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	10	24	34
722	6140	ADJUST GATE VALVE BOX	EA	3	4	7
748	140	CURB & GUTTER-TYPE I	LF	1183	1761	2944
748	520	CURB-TYPE I	LF		184	184
748	1030	VALLEY GUTTER 72IN	SY		31	31
750	110	SIDEWALK BRICK PATTERN	SY	33	100	133
750	115	SIDEWALK CONCRETE 4IN	SY	1476	1838	3314
750	150	SIDEWALK TRENCH DRAIN	EA		1	1
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	SY	805	651	1456
750	2115	DETECTABLE WARNING PANELS	SF	70	584	654
754	110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	3.5	6	9.5
754	206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	382	450	832
754	562	REFERENCE MARKER-TYPE B	EA	1		1
754	592	RESET SIGN PANEL	EA	20	24	44
762	1106	PVMT MK PAINTED 6IN LINE	LF	118	1678	1796
762	1124	PVMT MK PAINTED 24IN LINE	LF	57	683	740

Estimated Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	8	2

SPEC	CODE	ITEM DESCRIPTION	UNIT	NDSTREETS: Funding A	100 % NDDOT: Funding B	TOTAL
766	120	RESET MAILBOX	EA	21		21
772	3070	RELOCATE FLASHING BEACON-POST MOUNTED	EA	1		1
930	9543	RETAINING WALL	SF	187		187

BASIS OF ESTIMATE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	10	1

Material Unit Weights - Proposed

Aggregate Base/Surface Course: 1.875 TON/CY
Commercial Grade Hot Mix Asphalt: 2.0 TON/CY

Water

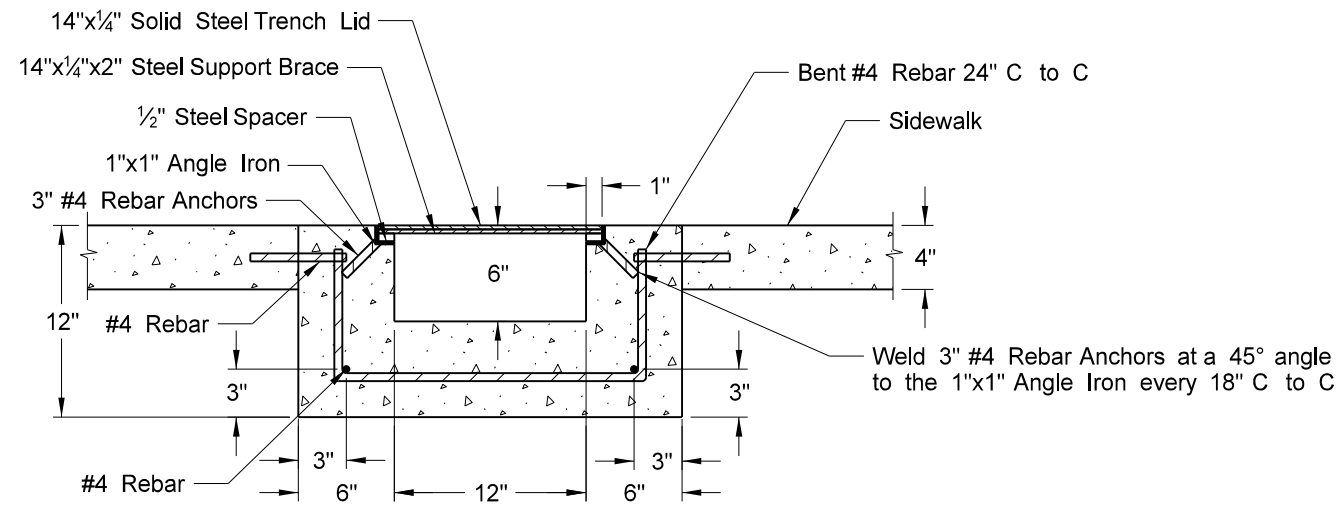
Dust Palliative: 25 MGal/Mile
Aggregate: 20 Gal/Ton

Mailboxes

<u>Station</u>	<u>Type</u>	<u>Work</u>
3902+59 – RT	Single	Reset
3904+35 – RT	Single	Reset
3904+36 – RT	Single	Reset
3904+37 – RT	Single	Reset
3907+56 – RT	Single	Reset
3907+59 – RT	Single	Reset
3907+60 – RT	Single	Reset
3907+61 – RT	Single	Reset
3907+63 – RT	Single	Reset
3908+22 – RT	Multiple (5)	Reset
3908+27 – RT	Multiple (5)	Reset
3911+96 – RT	Multiple (2)	Reset

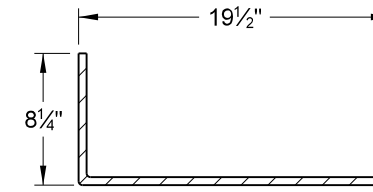
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	20	1



Sidewalk Trench Drain Detail

Note: Weld 1/4"x2" Steel Support Braces and 1/2" Steel Spacers to the 1"x1" Angle Iron



Bent Rebar Detail

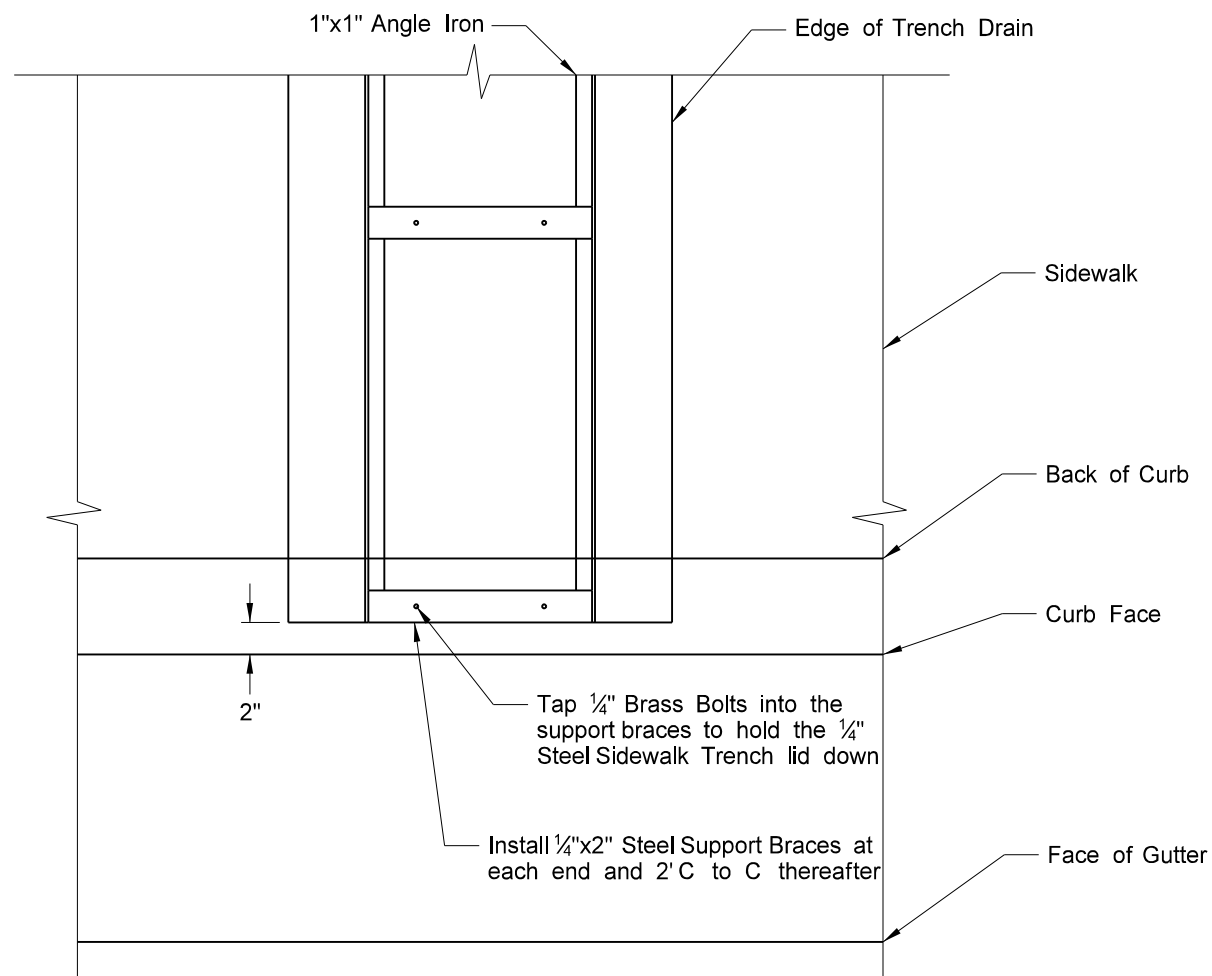
NOTES

One location: STA 3897+25 It
(See Section 60 Sheet 5)

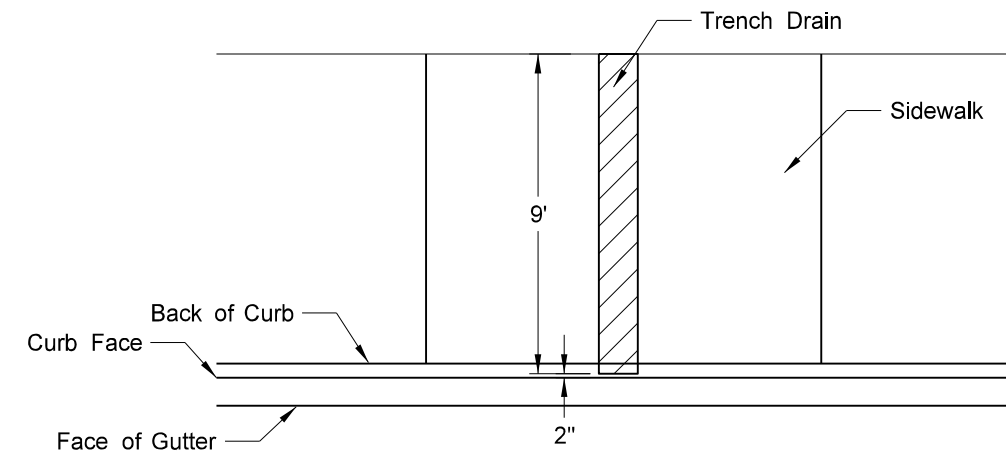
Approximate lengths:
1 trench drain approximately 9' length

*Verify exact length required in the field prior to fabrication.

*Sidewalk Trench Drain as shown, or approved equal



Steel Support Brace Detail



Trench Drain Layout

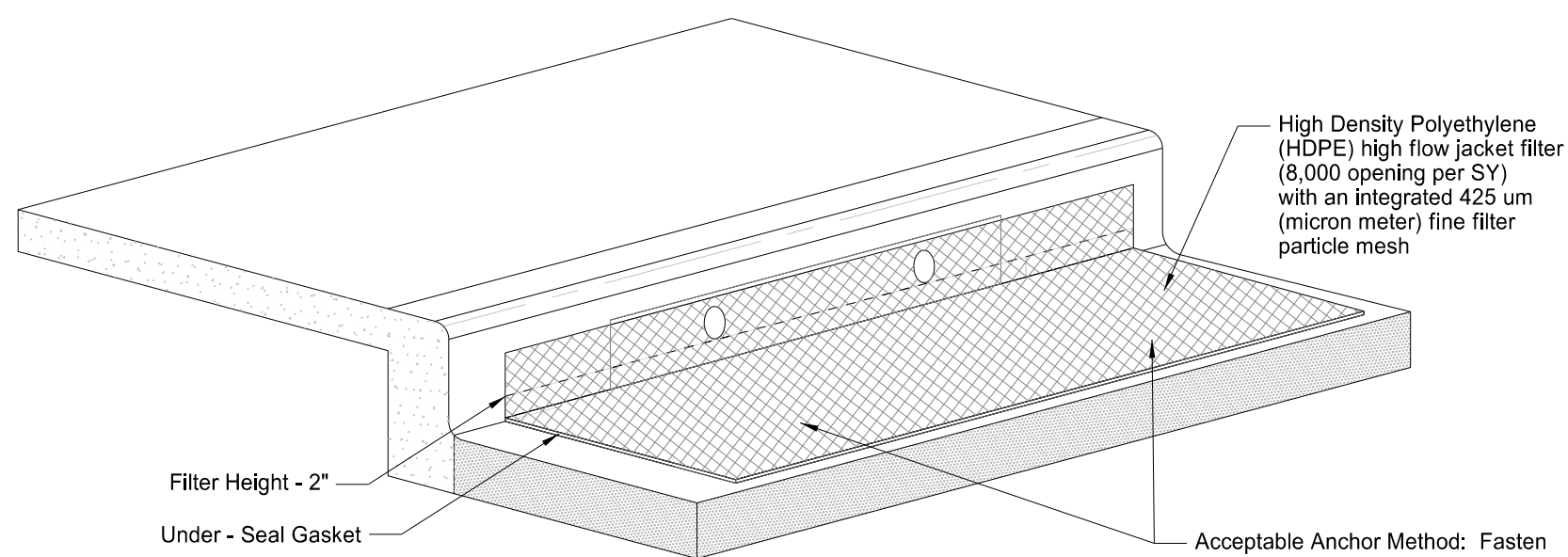
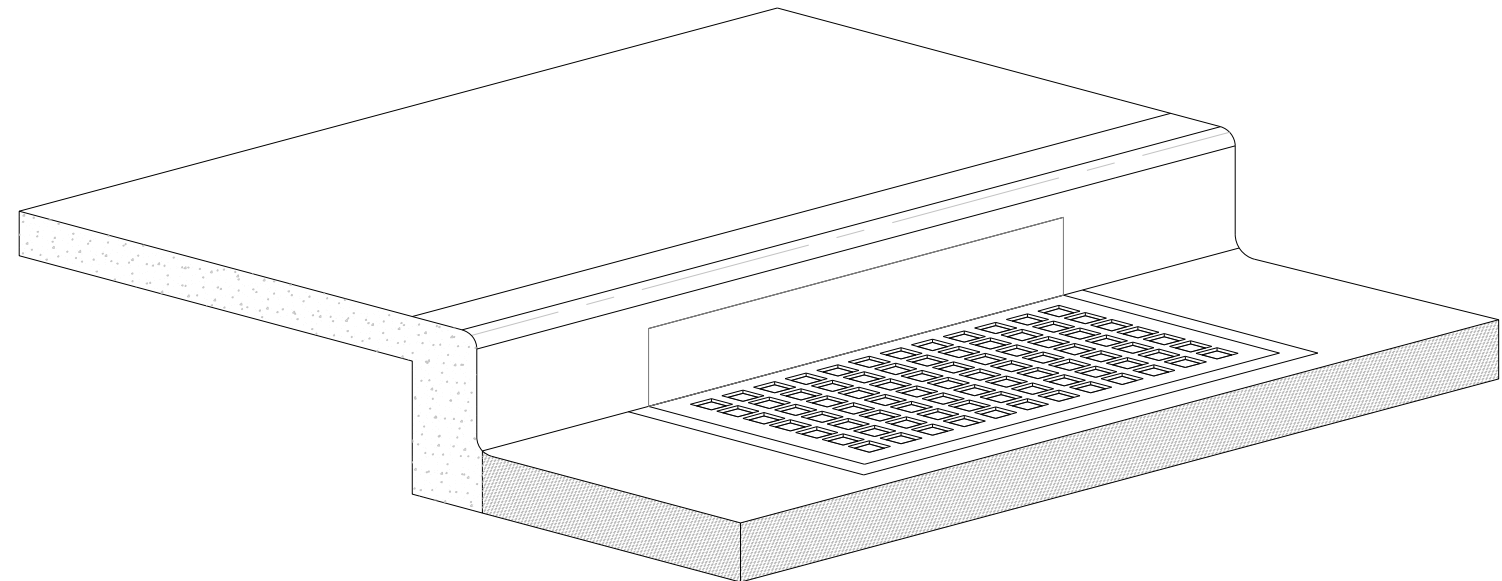
Note: Begin Trench Drains at property line or building facade and extend to 2" from the face of the curb.

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Trench Drain Installation (or approved equal)

US Highway 12 / Adams Ave

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-5-012(047)073	20	2



Inlet Protection Device

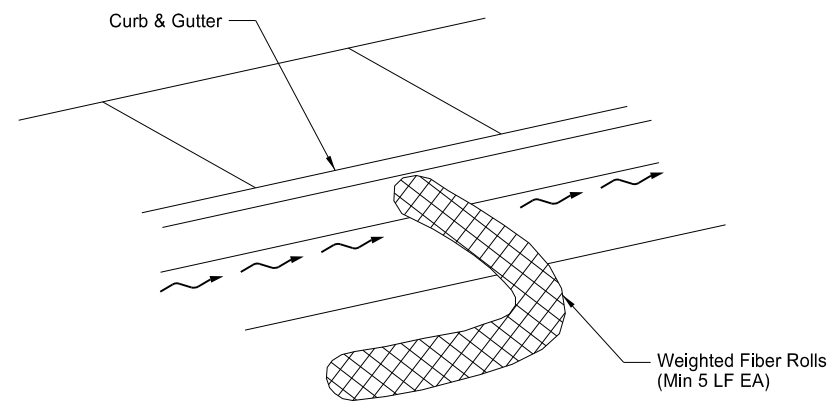
Installation Notes:

1. Place device tightly against drain opening and cover entire grate. Extend the device at least 2 inches past the grate toward the street.
2. Overlap the segments at longer openings.
3. Anchor the device so that water cannot flow behind it.

General Notes:

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

Acceptable Anchor Method: Fasten to inlet casting grate with a UV/Weather Resistant Plastic Cable Zip Ties - 16 to 24 in. Install zip ties at each corner of the inlet near the perimeter and two additional zip ties near the middle of the casting. Punch hole through filter and run cable tie downward around grate and back up to fasten.



Water Leaving Site Detail

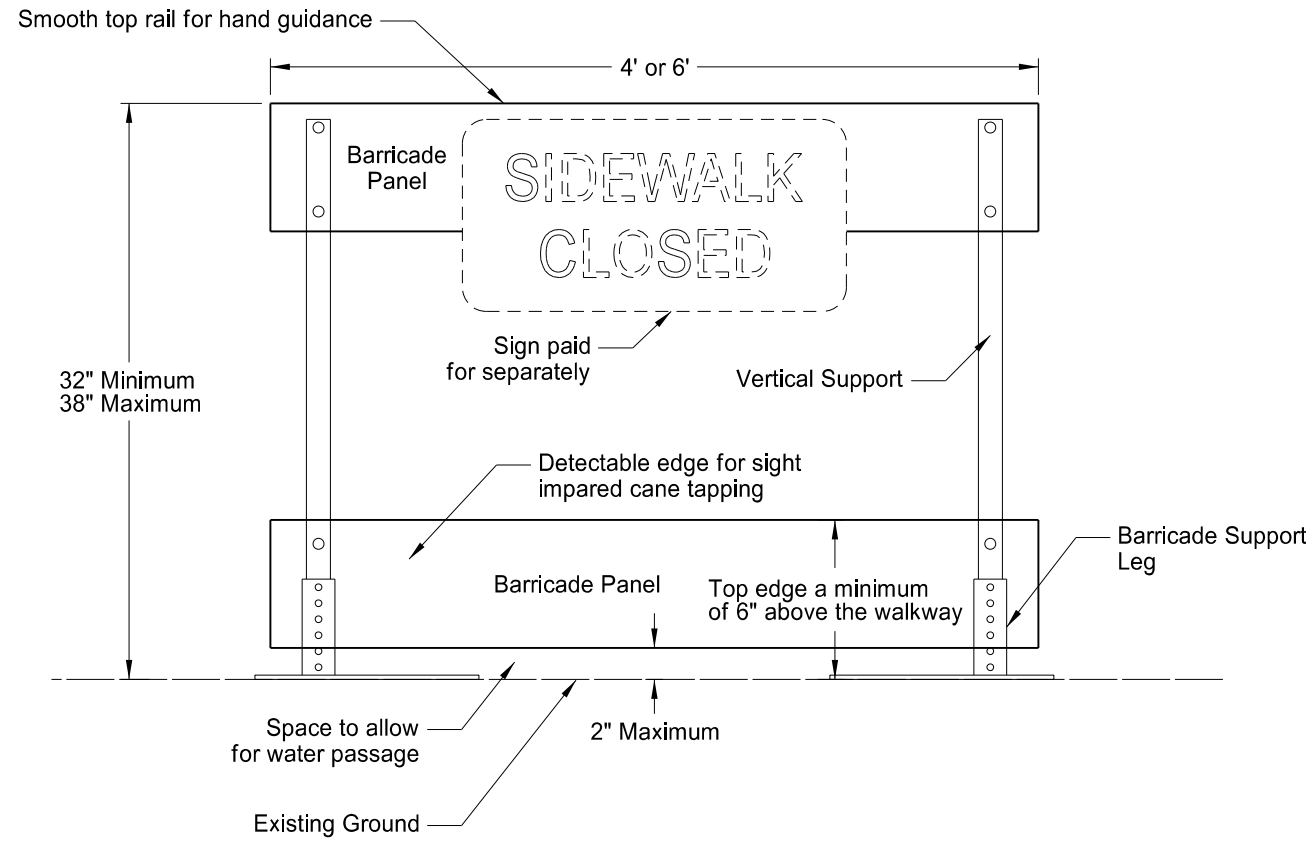
General Notes:

1. Place an adequate number of weighted fiber rolls down slope from unprotected downstream areas, tight against and along the curb and gutters, to provide complete protection. Overlap ends approximately 12 inches.
2. 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.
3. Provide materials that meet the following specifications:
A photo degradable extruded netting tube filled with wood curled excelsior and weighted inner core.
Roll Diameter: 6 Inches
Weight: 8.33 Pounds per Lineal Foot
4. Remove weighted fiber rolls after teh up gradient surfaces are stabilized and surrounding streets and gutters are clean of debris. Costs related to this work to be included in the price bid for "Remove Weighted Fiber Rolls".
5. See Section 76 & 77 of the plans for locations.

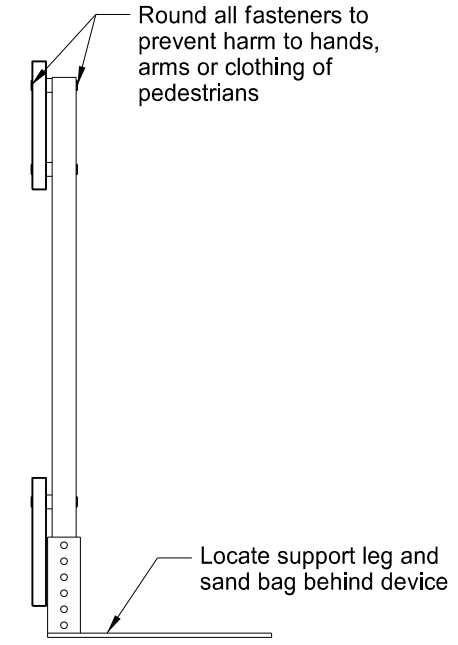
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Erosion Control Details
Inlet Protection Device / Water Leaving Site Detail
US Highway 12 / Adams Ave

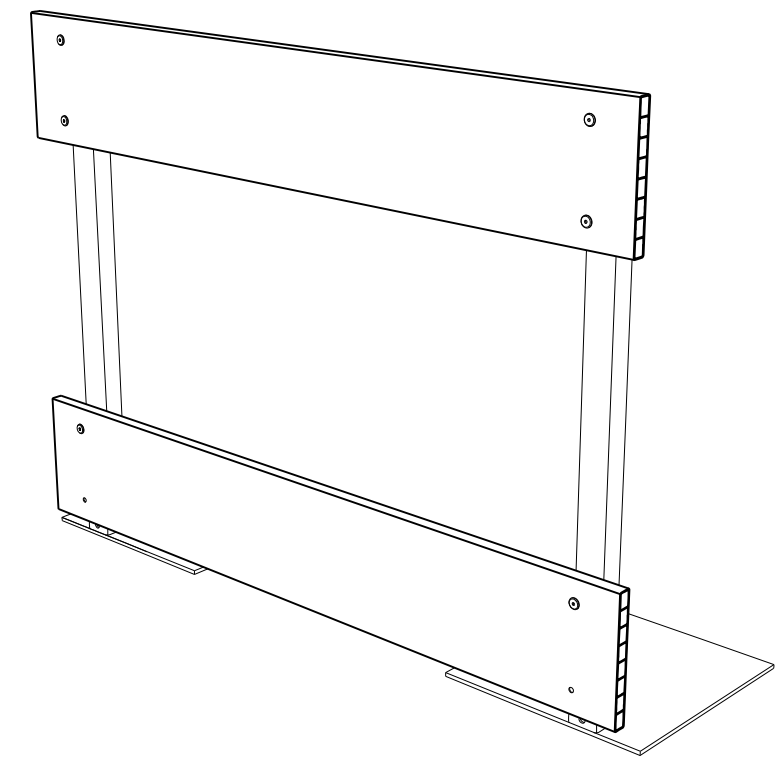
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	20	3



Front View



End View



Perspective View

NOTES:

Sidewalk Barricades

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



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Sidewalk Barricade
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	20	4

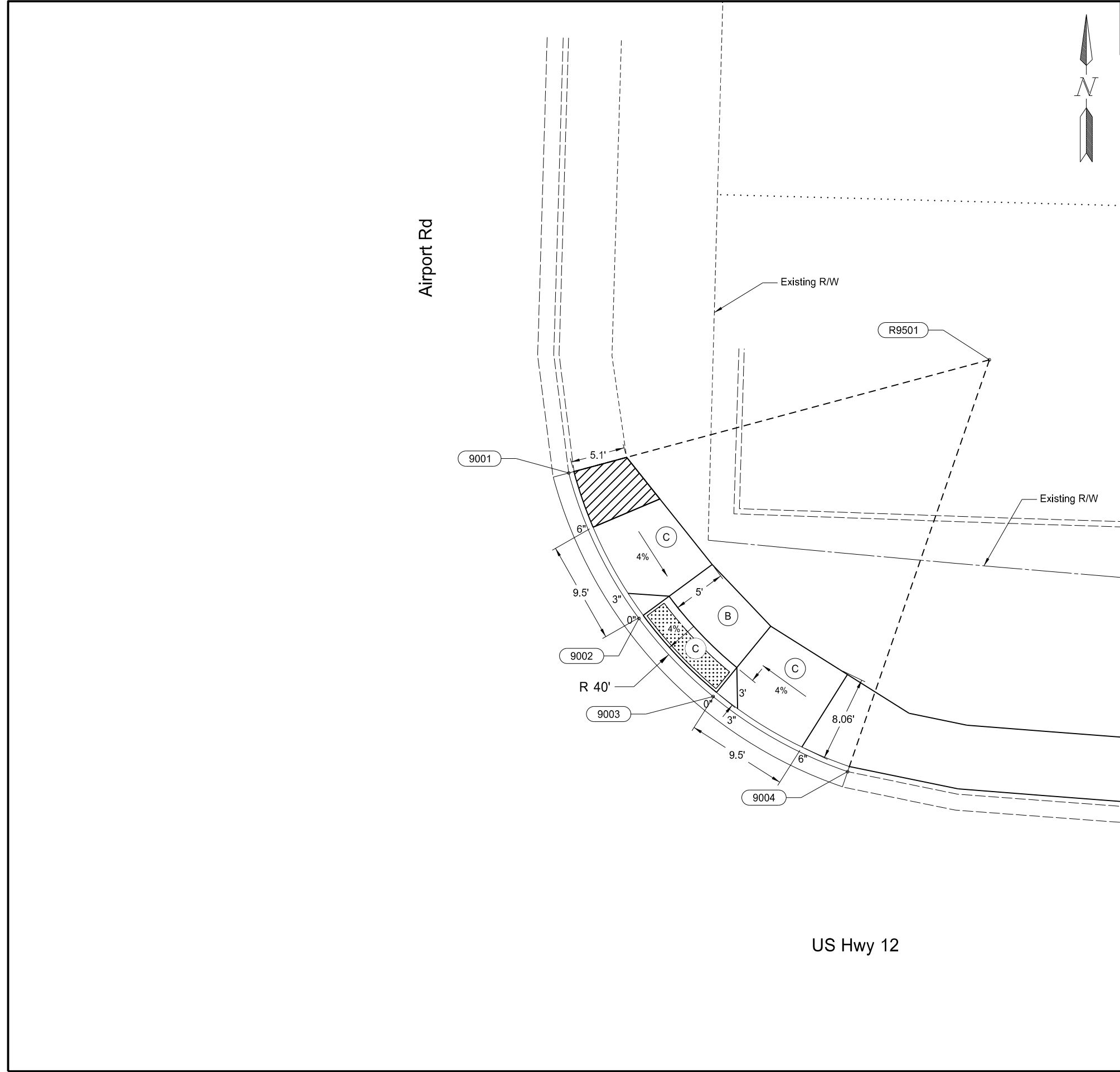
Point	North (Y)	East (X)	Station	Offset	Elevation
9001	129498.8046	1424229.572	3881+23.89	49.55	2673.89
9002	129485.2047	1424236.131	3881+31.96	36.69	2674.27
9003	129477.9141	1424243.056	3881+39.68	30.13	2674.08
9004	129471.6409	1424253.625	3881+53.03	24.32	2674.2
R9501	129509.3787	1424268.879	3881+62.96	63.84	

Notes:
1. Stationing is based on US Hwy 12 CL alignment.
2. Back of Walk points are not shown.
Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND	
	Transition Grades to Match Existing Sidewalk
	Detectable Warning Panels 2' x 2'
(A)	Ramp (5% - 8.3%)
(B)	Turning Space (Less than 2%)
(C)	Blend (Less than 5%)
0"	Back of Curb Height

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US Highway 12 / Adams Ave
ADA Curb Ramps Layouts
US Hwy 12 and Airport Rd









STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	20	5

Point	North (Y)	East (X)	Station	Offset	Elevation
9009	129472.7143	1424555.665	3884+54.49	41.02	2675.13
9010	129461.6921	1424559.289	3884+58.44	30.11	2675.41
9011	129457.4224	1424564.244	3884+63.52	25.99	2675.52
9012	129455.2011	1424572.189	3884+71.46	24.00	2675.91
9013	129393.3039	1424553.279	3884+54.46	38.43	2675.11
9014	129401.4383	1424556.122	3884+57.06	30.21	2675.43
9015	129406.5939	1424563.288	3884+64.07	24.85	2675.59
9016	129407.2977	1424568.2	3884+68.96	24.00	2675.81
R9503	129472.1946	1424572.657	3884+71.49	41.00	
R9504	129392.8041	1424567.771	3884+68.96	38.50	

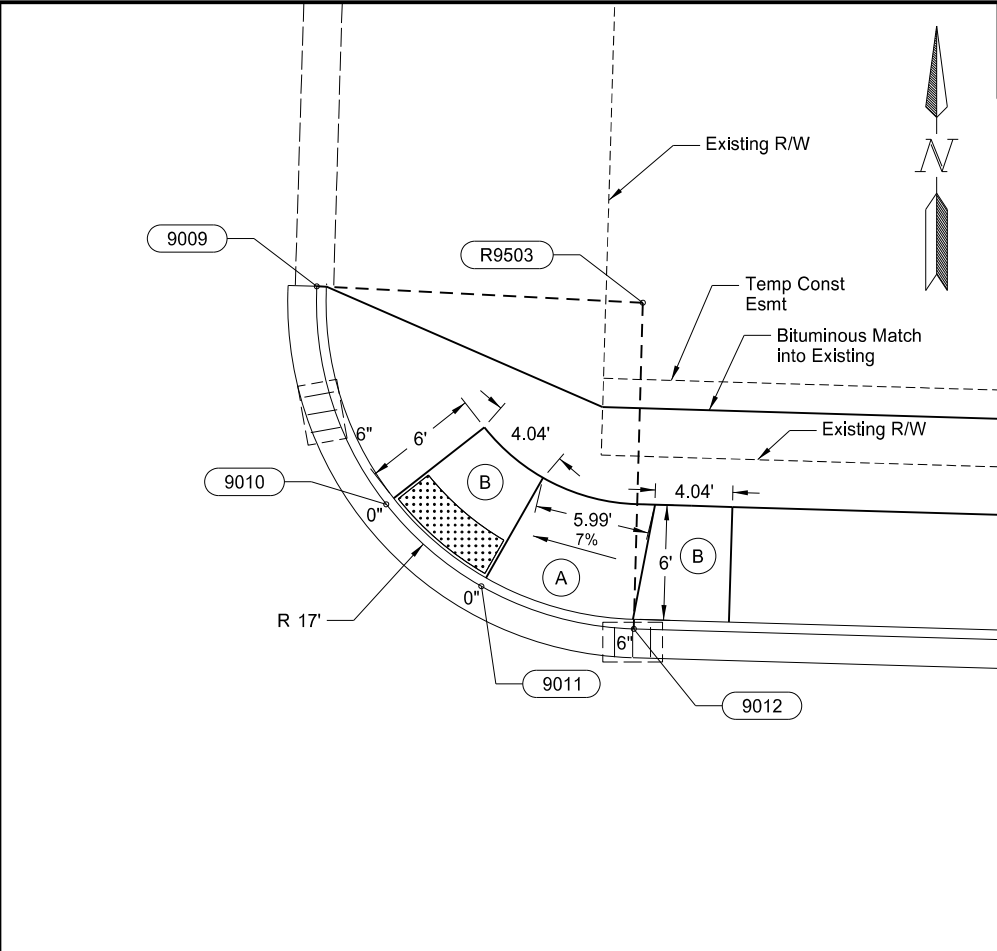
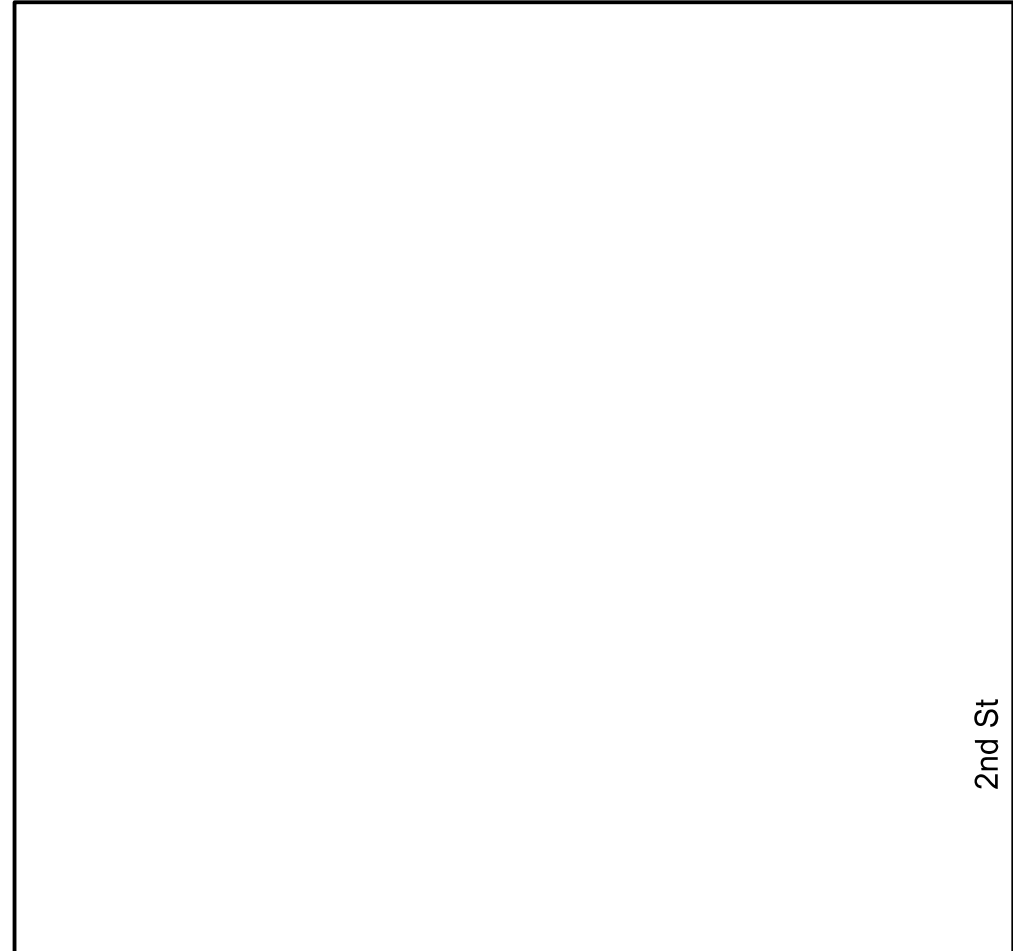
Notes:
1. Stationing is based on US Hwy 12 CL alignment.
2. Back of Walk points are not shown.
Contractor to adjust ramps and sidewalk per design slopes shown.

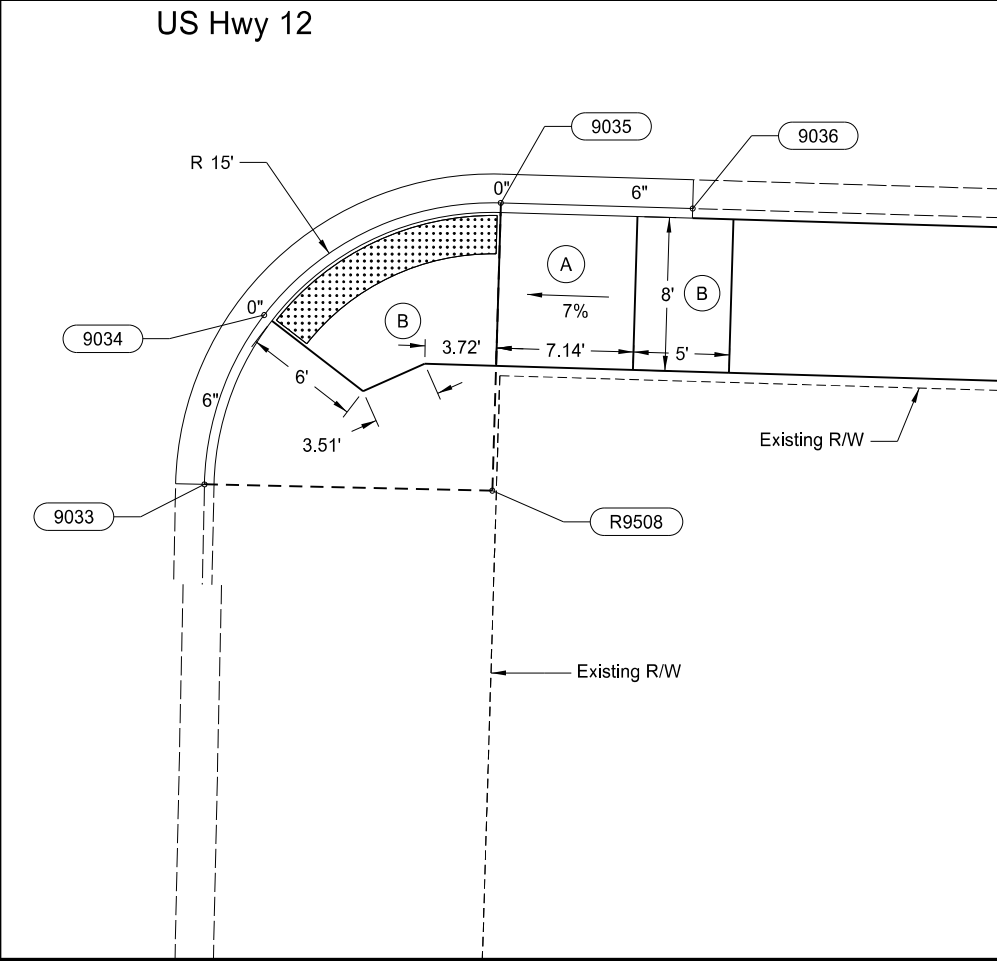
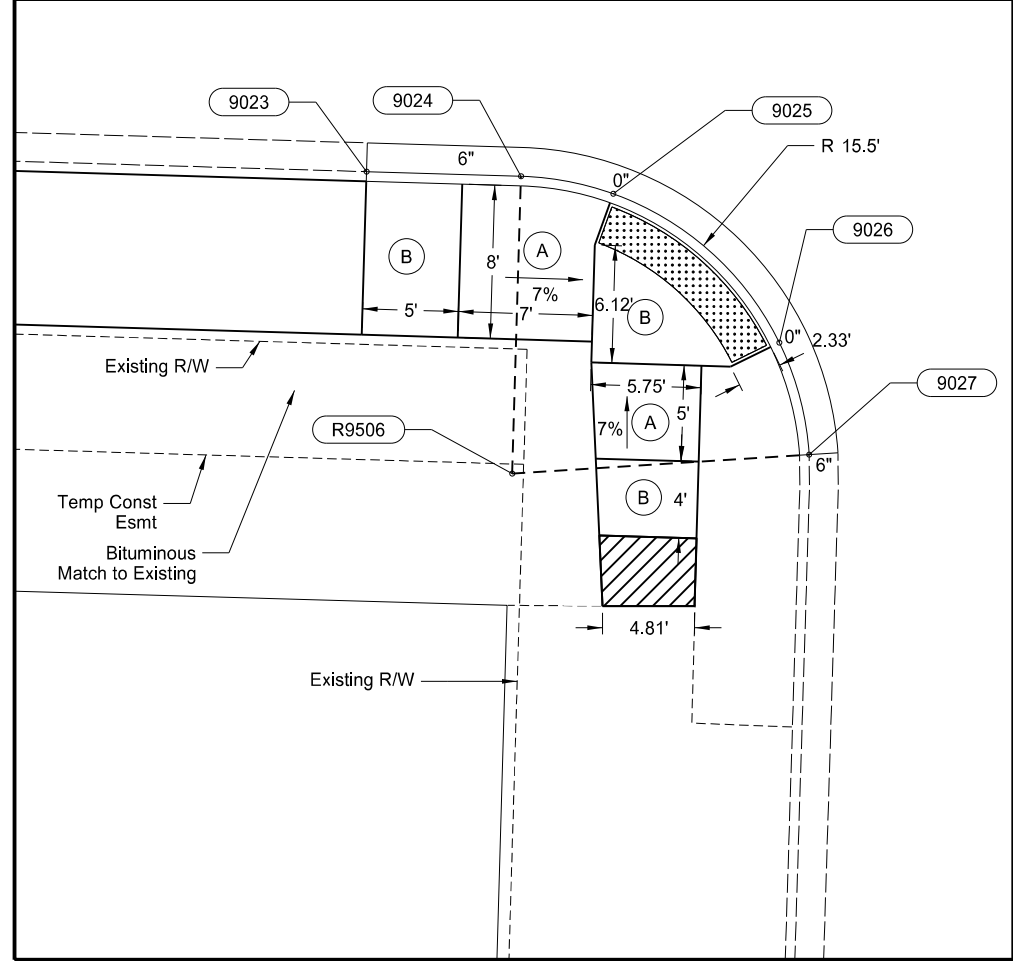
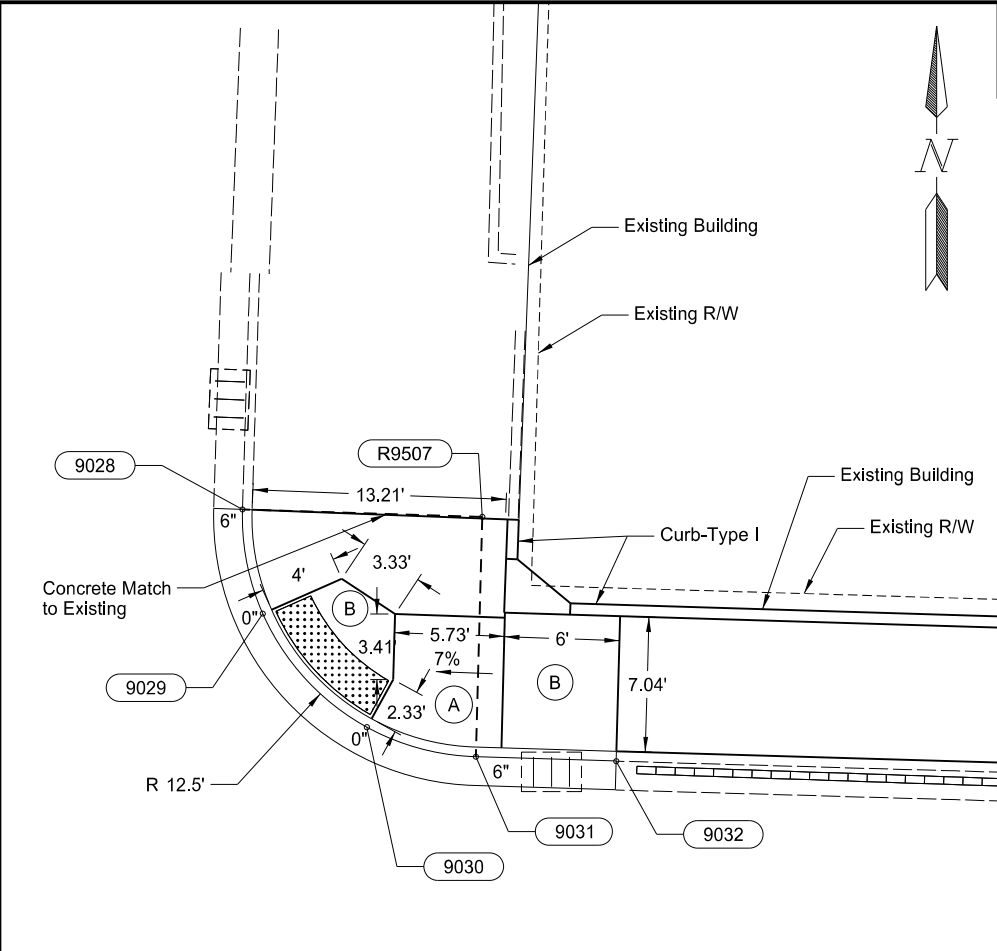
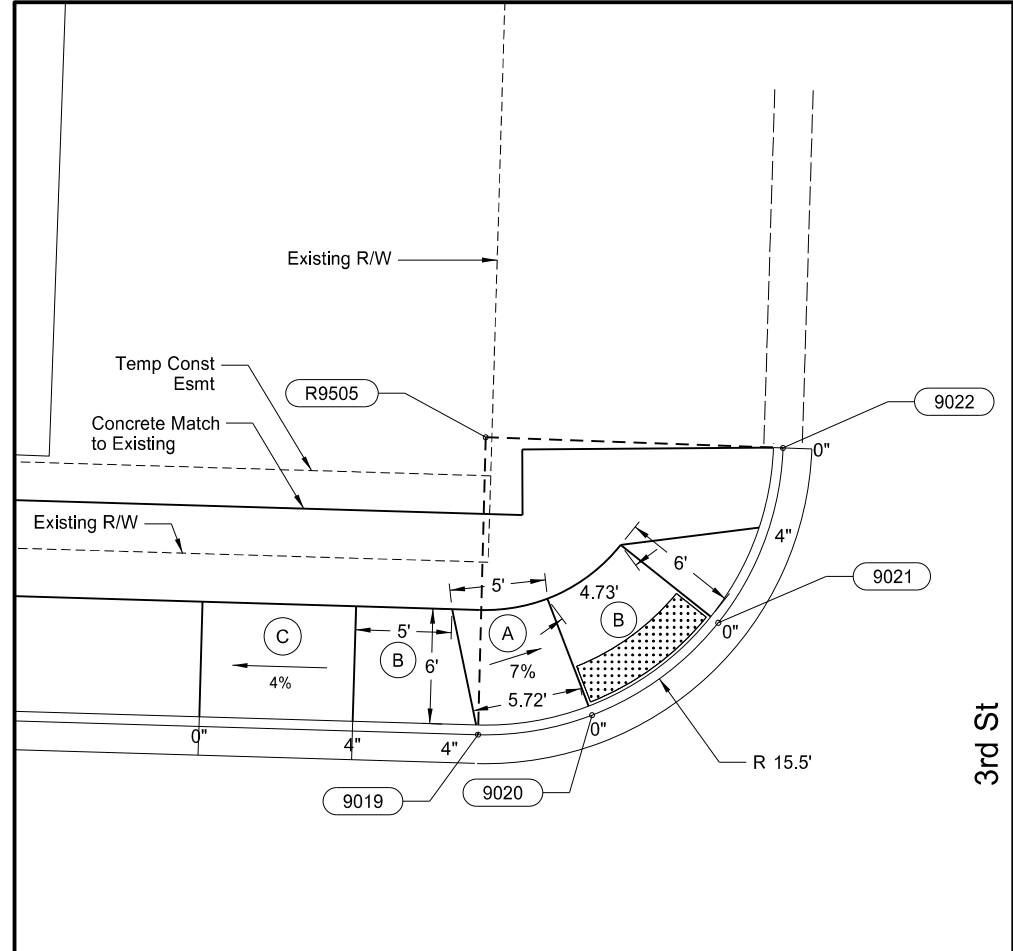
LEGEND

-  Transition Grades to Match Existing Sidewalk
-  Detectable Warning Panels 2' x 2'
-  Ramp (5% - 8.3%)
-  Turning Space (Less than 2%)
-  Blend (Less than 5%)
-  Back of Curb Height

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US Highway 12 / Adams Ave
ADA Curb Ramps Layouts
US Hwy 12 and 2nd St





Point	North (Y)	East (X)	Station	Offset	Elevation
9019	129446.39	1424869.831	3887+69.18	24.00	2676.57
9020	129447.4092	1424875.771	3887+75.21	25.19	2676.66
9021	129452.2222	1424882.349	3887+81.64	30.20	2676.81
9022	129457.0176	1424884.945	3887+84.09	35.07	2676.95
9023	129398.659	1424860.021	3887+60.91	24.00	2676.05
9024	129398.4208	1424868.069	3887+68.96	24.00	2676.01
9025	129397.5057	1424872.876	3887+73.79	24.77	2675.91
9026	129389.7521	1424881.527	3887+82.67	32.27	2676.10
9027	129383.9168	1424883.079	3887+84.39	38.05	2676.12
9028	129457.3906	1424921.278	3888+20.40	36.52	2677.53
9029	129451.9624	1424922.333	3888+21.62	31.12	2677.40
9030	129446.0433	1424927.76	3888+27.21	25.37	2677.37
9031	129444.5067	1424933.438	3888+32.94	24.00	2677.59
9032	129444.2902	1424940.749	3888+40.25	24.00	2677.83
9033	129381.7895	1424918.969	3888+20.33	39.12	2676.52
9034	129390.6123	1424922.079	3888+23.18	30.21	2677.25
9035	129396.4569	1424934.409	3888+35.33	24.00	2677.52
9036	129396.161	1424944.405	3888+45.33	24.00	2677.91
R9505	129461.8849	1424870.229	3887+69.24	39.50	
R9506	129382.9275	1424867.61	3887+68.96	39.50	
R9507	129457.0022	1424933.772	3888+32.90	36.50	
R9508	129381.4634	1424933.966	3888+35.33	39.00	

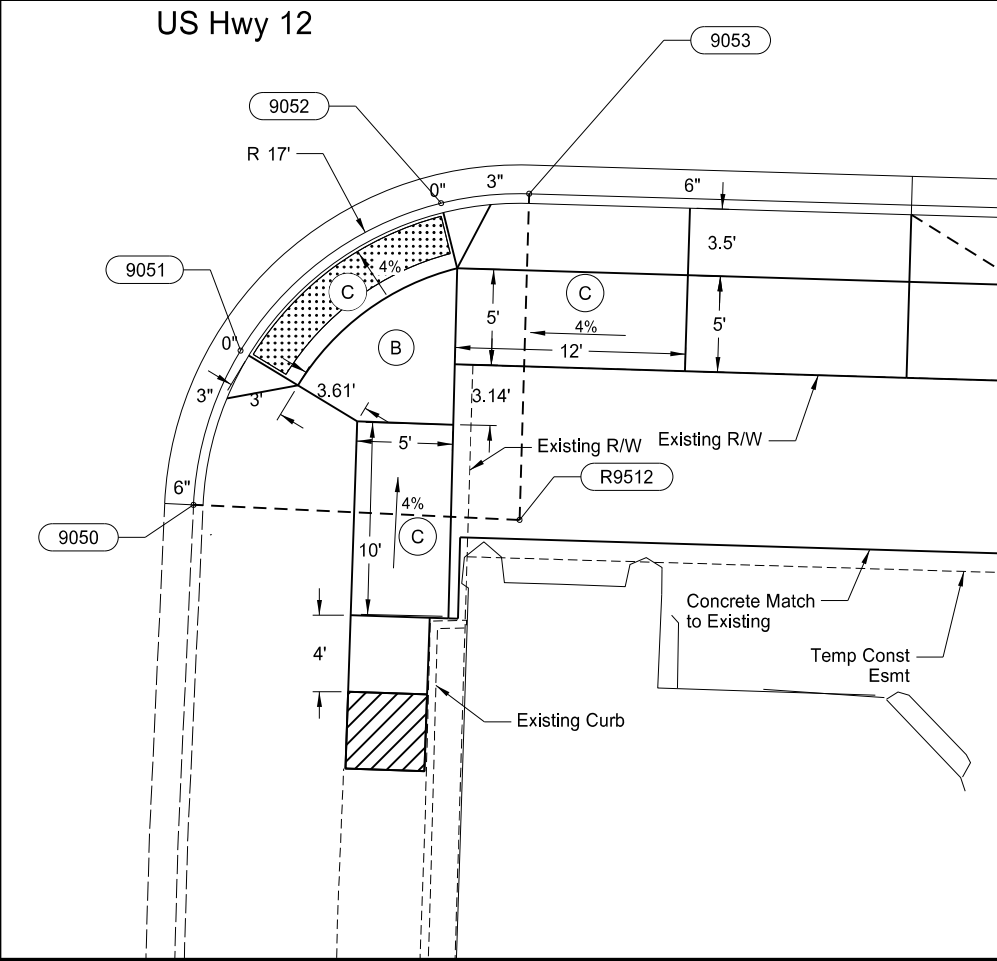
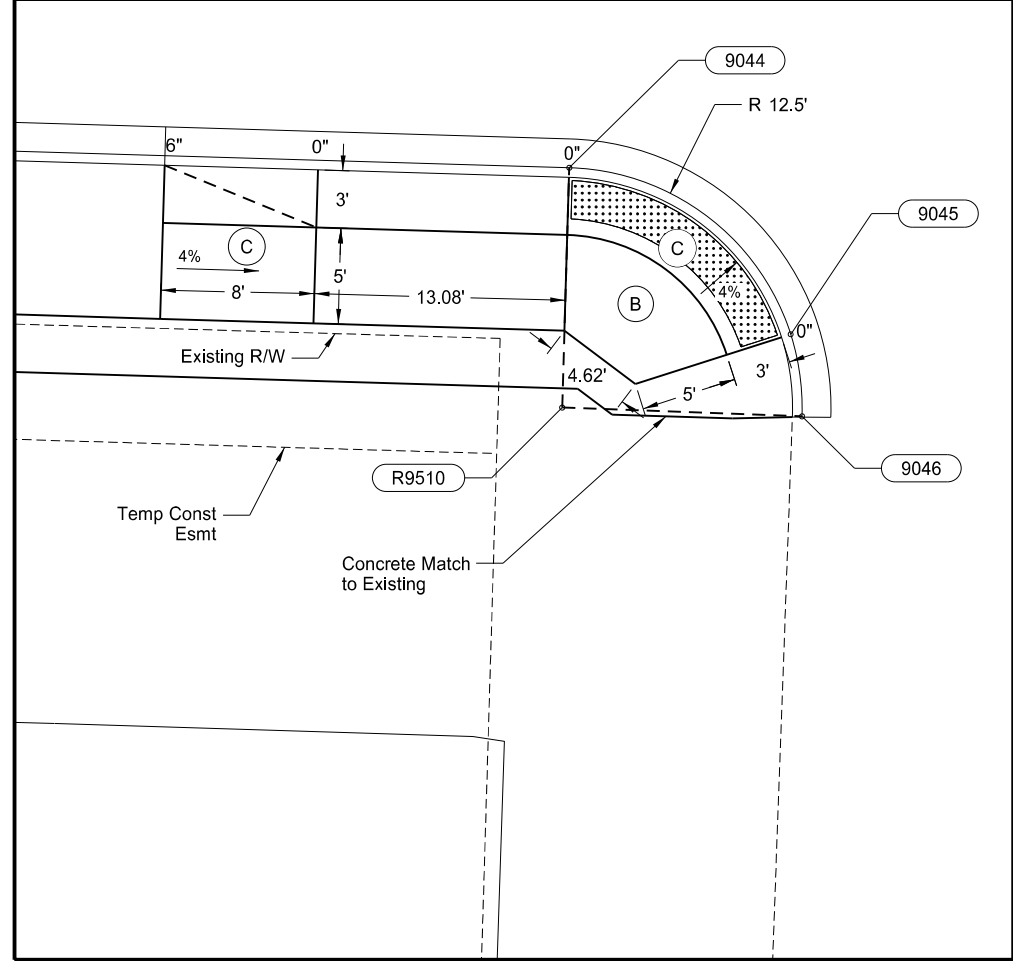
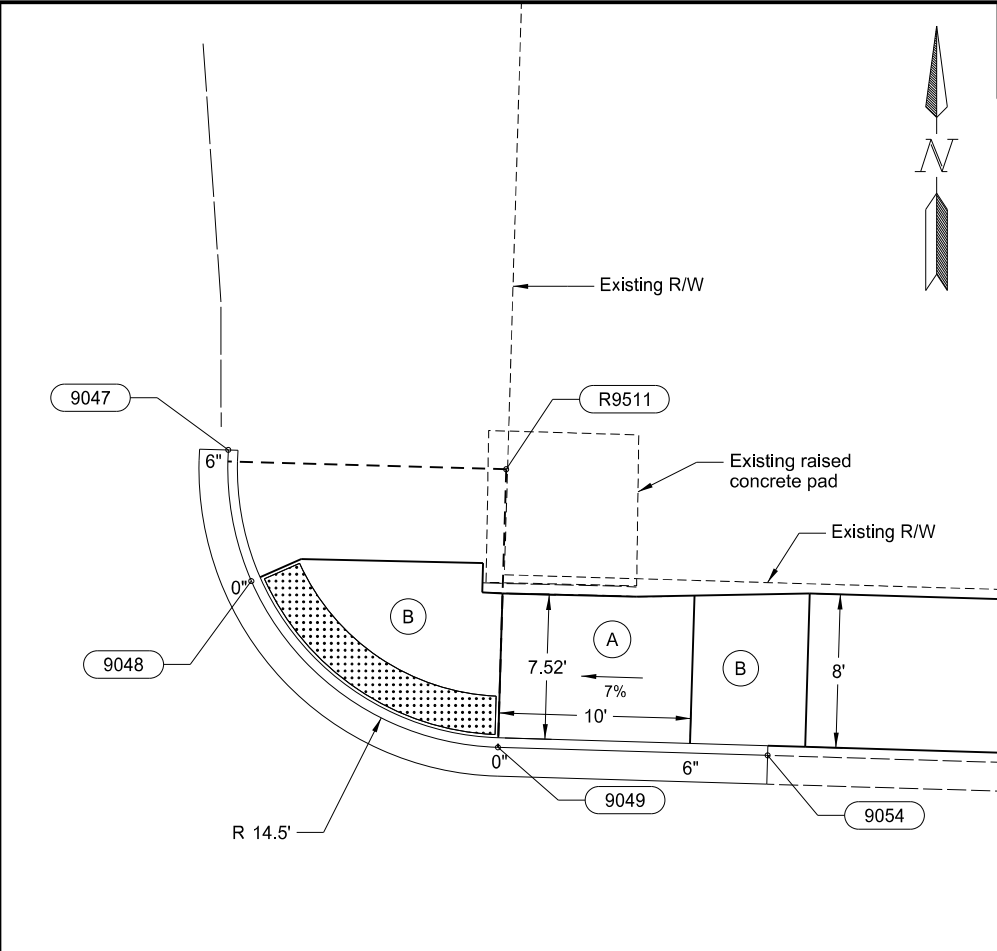
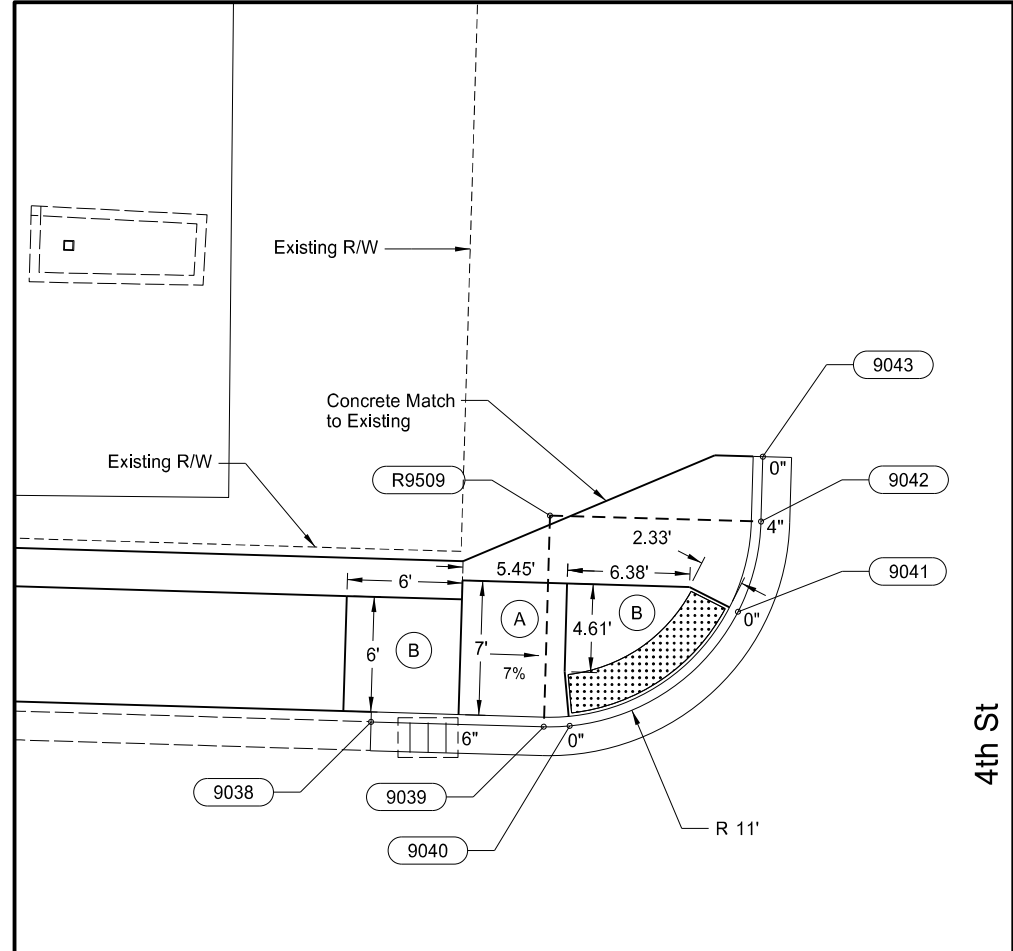
Notes:
 1. Stationing is based on US Hwy 12 CL alignment.
 2. Back of Walk points are not shown.
 Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

- Transition Grades to Match Existing Sidewalk
- Detectable Warning Panels 2' x 2'
- Ramp (5% - 8.3%)
- Turning Space (Less than 2%)
- Blend (Less than 5%)
- Back of Curb Height

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US Highway 12 / Adams Ave
 ADA Curb Ramps Layouts
 US Hwy 12 and 3rd St



Point	North (Y)	East (X)	Station	Offset	Elevation
9038	129435.6667	1425231.504	3891+31.13	23.98	2683.28
9039	129435.4167	1425240.501	3891+40.13	24.00	2683.25
9040	129435.4596	1425241.85	3891+41.48	24.08	2683.28
9041	129441.4056	1425250.621	3891+50.07	30.29	2683.45
9042	129446.107	1425251.822	3891+51.13	35.02	2683.61
9043	129449.483	1425251.916	3891+51.13	38.40	2683.75
9044	129387.4748	1425237.83	3891+38.88	24.00	2682.74
9045	129378.7964	1425249.364	3891+50.67	32.33	2683.02
9046	129374.5226	1425249.952	3891+51.38	36.59	2683.09
9047	129448.4968	1425287.767	3891+86.99	38.47	2685.15
9048	129442.2709	1425288.982	3891+88.39	32.29	2684.75
9049	129433.6012	1425301.832	3892+01.49	24.00	2684.89
9050	129369.3325	1425285.645	3891+87.21	40.72	2683.87
9051	129377.3701	1425288.095	3891+89.42	32.61	2684.20
9052	129385.0515	1425298.544	3891+99.64	24.63	2684.43
9053	129385.5417	1425303.13	3892+04.21	24.00	2684.85
9054	129433.1852	1425315.885	3892+15.55	24.00	2685.50
R9509	129446.4119	1425240.826	3891+40.13	35.00	
R9510	129374.9802	1425237.46	3891+38.88	36.50	
R9511	129448.0948	1425302.261	3892+01.49	38.50	
R9512	129368.5492	1425302.627	3892+04.21	41.00	

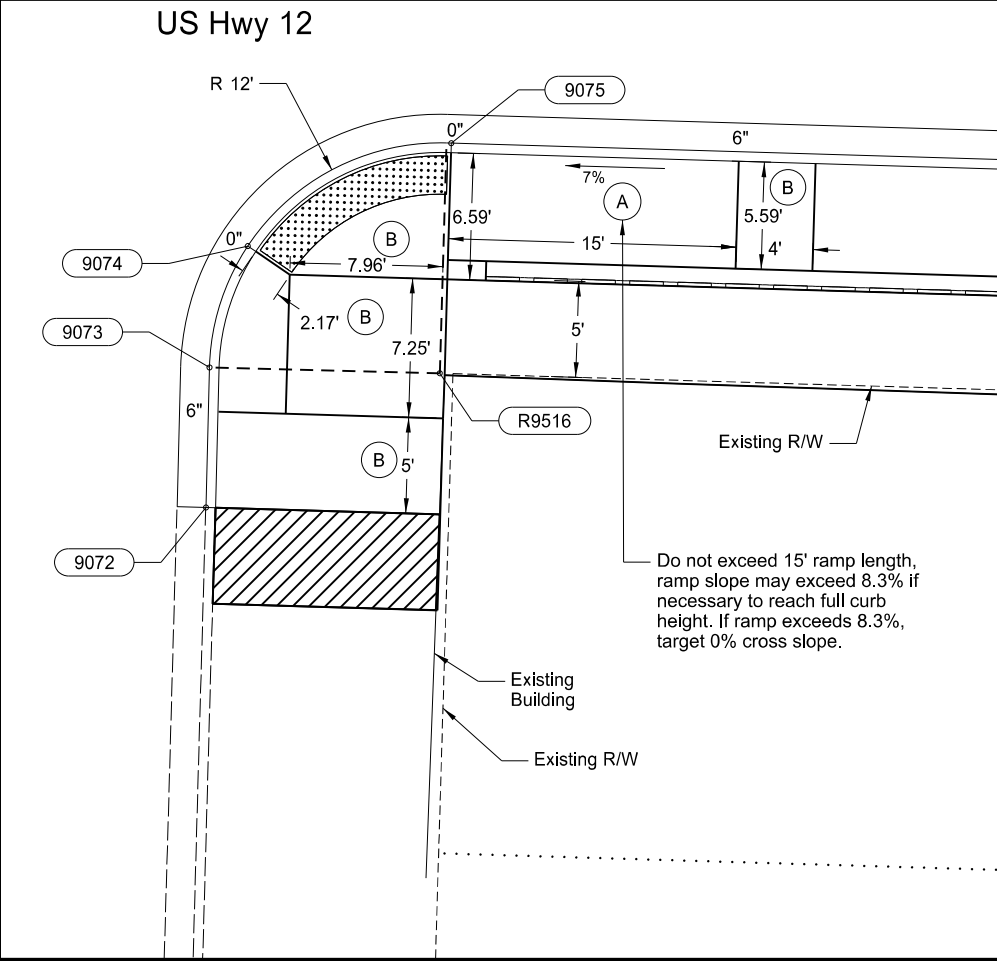
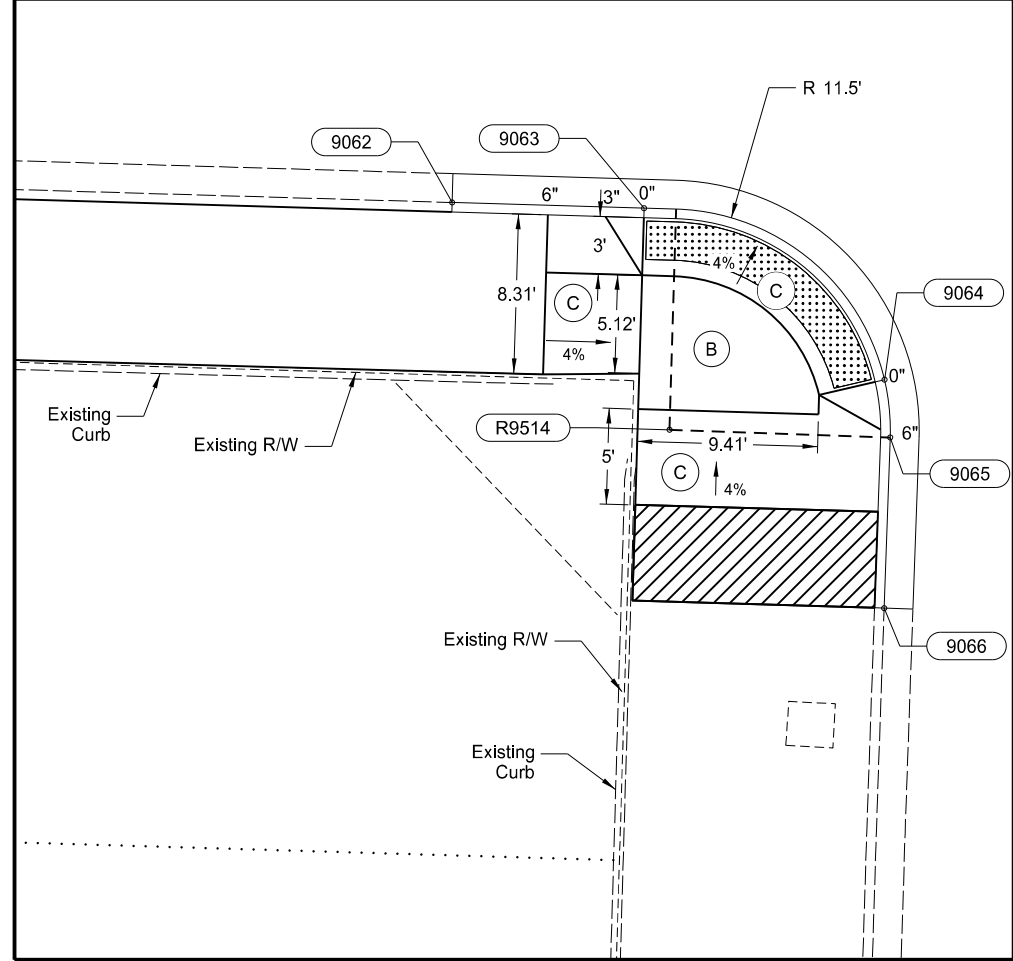
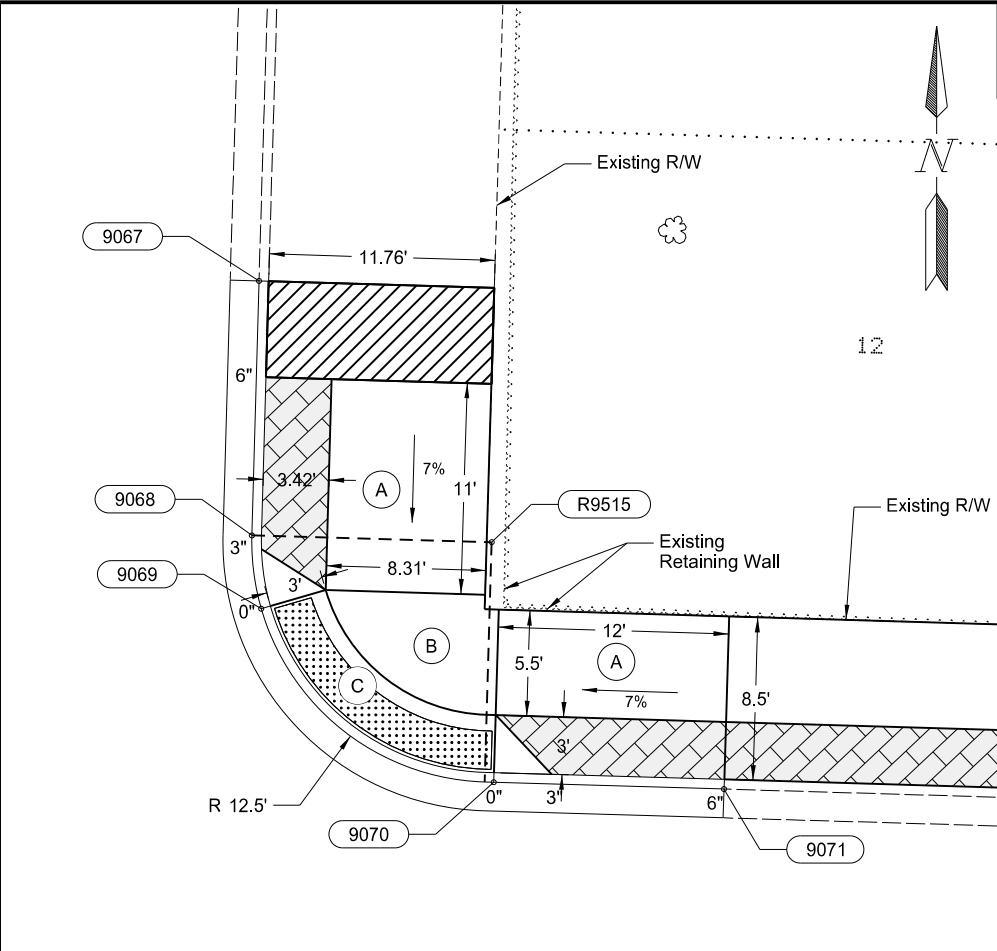
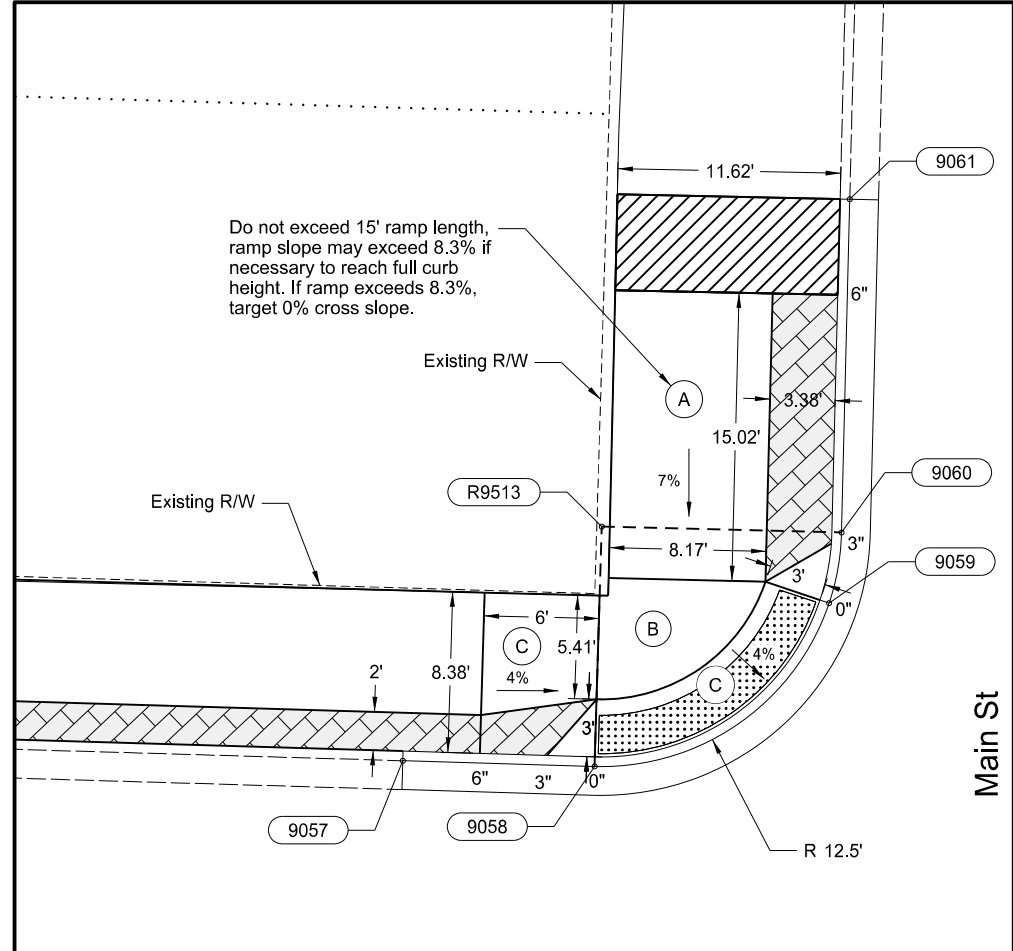
Notes:
 1. Stationing is based on US Hwy 12 CL alignment.
 2. Back of Walk points are not shown.
 Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

- Transition Grades to Match Existing Sidewalk
- Detectable Warning Panels 2' x 2'
- Ramp (5% - 8.3%)
- Turning Space (Less than 2%)
- Blend (Less than 5%)
- Back of Curb Height

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US Highway 12 / Adams Ave
 ADA Curb Ramps Layouts
 US Hwy 12 and 4th St



Point	North (Y)	East (X)	Station	Offset	Elevation
9057	129425.0104	1425592.034	3894+91.82	24.00	2693.23
9058	129424.7145	1425602.03	3895+01.82	24.00	2693.02
9059	129433.2191	1425614.246	3895+13.78	32.86	2693.26
9060	129436.9014	1425614.896	3895+14.32	36.56	2693.24
9061	129454.2673	1425615.323	3895+14.23	53.93	2694.47
9062	129377.0317	1425590.605	3894+91.81	24.00	2692.68
9063	129376.7358	1425600.6	3895+01.81	24.00	2692.56
9064	129367.8006	1425613.131	3895+14.60	32.56	2692.59
9065	129364.7878	1425613.424	3895+14.98	35.56	2692.54
9066	129355.8985	1425613.112	3895+14.93	44.46	2692.48
9067	129447.8611	1425690.235	3895+89.30	49.75	2695.98
9068	129434.6007	1425689.862	3895+89.32	36.48	2694.92
9069	129430.7795	1425690.349	3895+89.92	32.68	2694.76
9070	129421.7554	1425701.988	3896+01.82	24.00	2694.99
9071	129421.3862	1425714.459	3896+14.30	24.00	2695.98
9072	129357.821	1425687.136	3895+88.87	40.35	2693.80
9073	129365.1125	1425687.339	3895+88.86	33.05	2693.90
9074	129371.4377	1425689.332	3895+90.66	26.67	2694.09
9075	129376.8037	1425699.69	3896+00.86	21.00	2694.26
R9513	129437.209	1425602.399	3895+01.82	36.50	
R9514	129365.1913	1425601.931	3895+03.48	35.50	
R9515	129434.25	1425702.358	3896+01.82	36.50	
R9516	129364.809	1425699.335	3896+00.86	33.00	

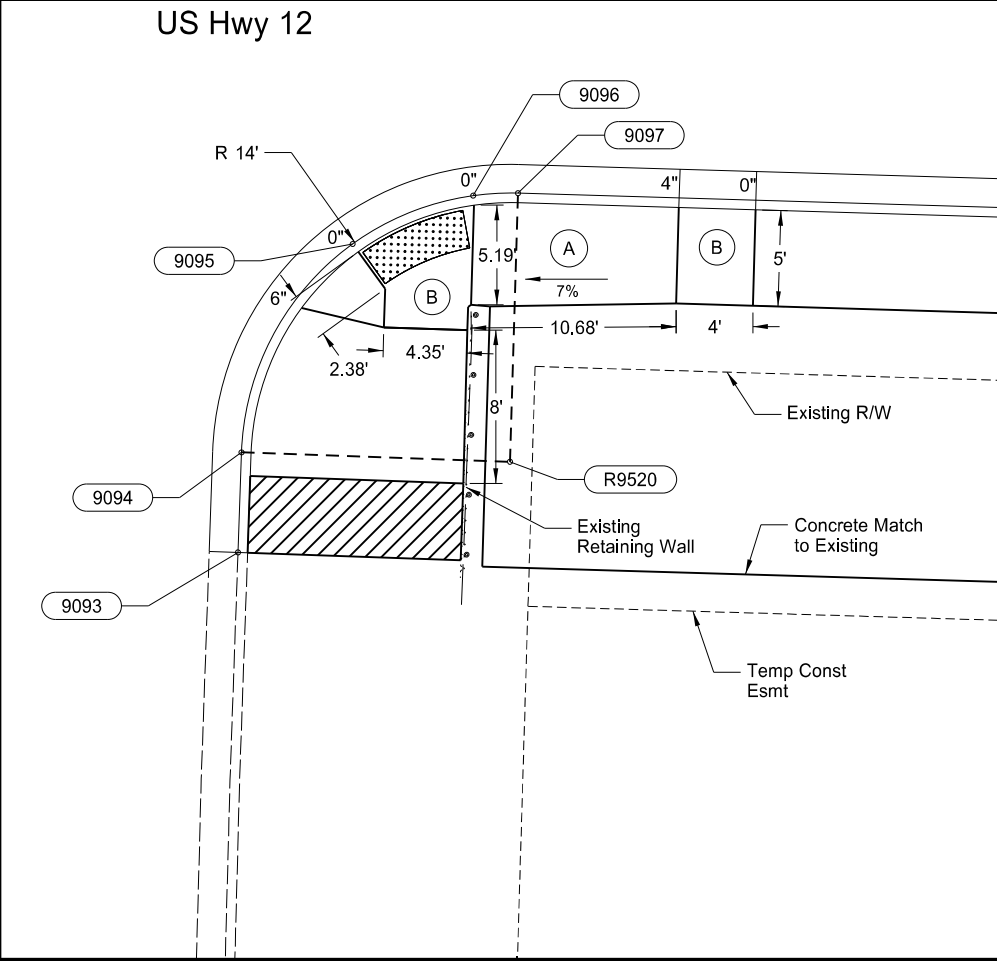
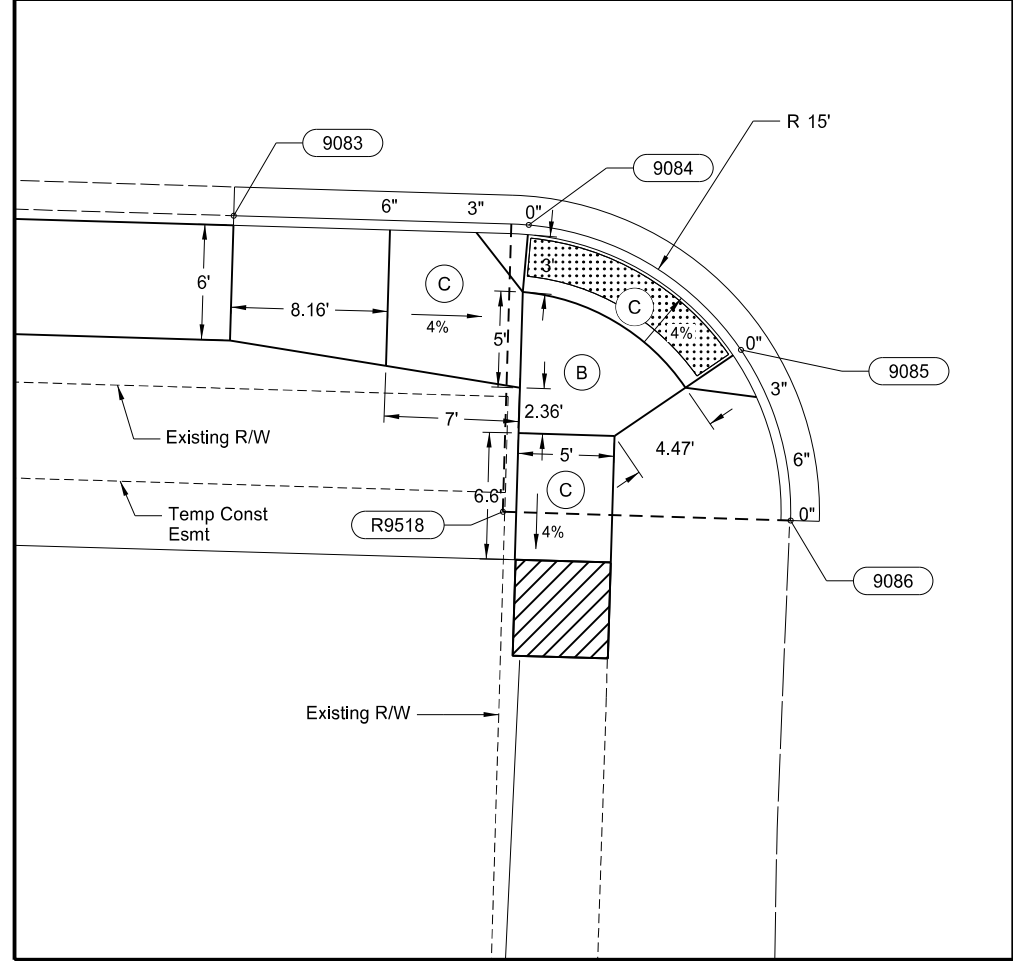
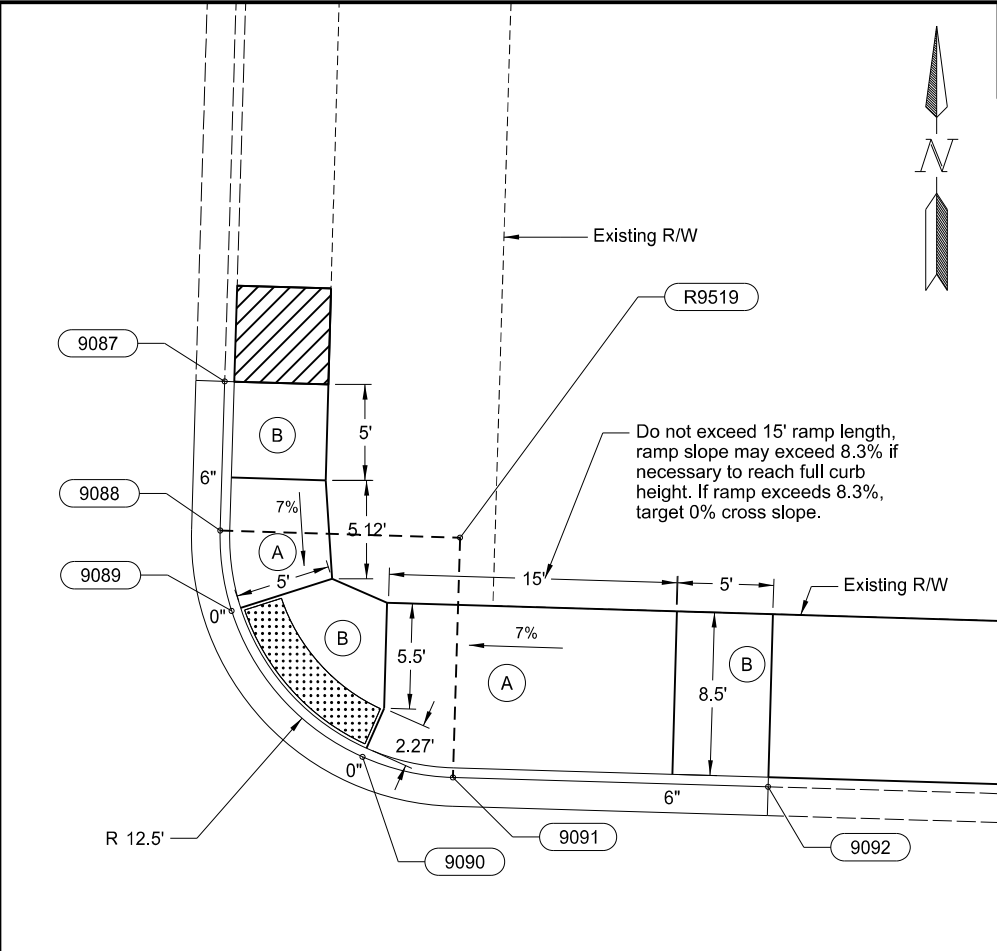
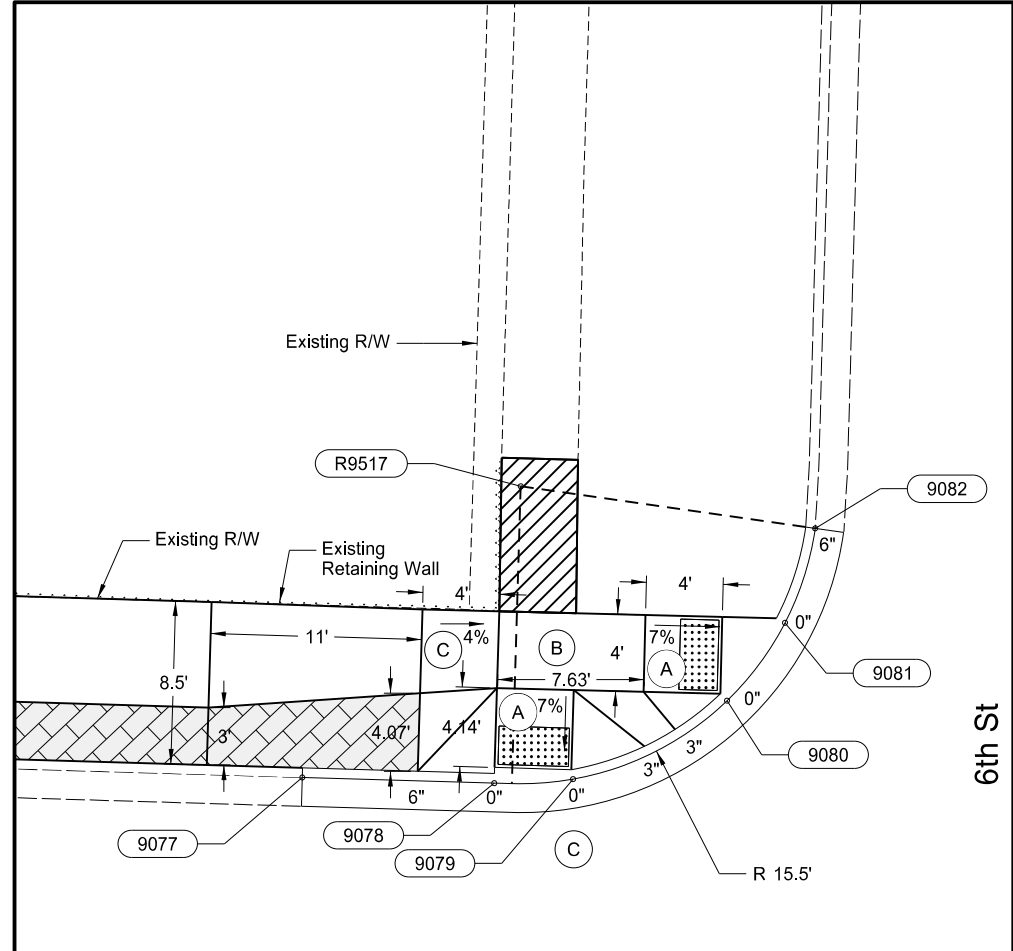
Notes:
 1. Stationing is based on US Hwy 12 CL alignment.
 2. Back of Walk points are not shown.
 Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

- Transition Grades to Match Existing Sidewalk
- Detectable Warning Panels 2' x 2'
- Concrete Brick Pattern Variable Slope
- Ramp (5% - 8.3%)
- Turning Space (Less than 2%)
- Blend (Less than 5%)
- Back of Curb Height

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US Highway 12 / Adams Ave
 ADA Curb Ramps Layouts
 US Hwy 12 and Main St



Point	North (Y)	East (X)	Station	Offset	Elevation
9077	129413.1357	1425993.167	3898+93.13	24.00	2711.63
9078	129412.8398	1426003.163	3899+03.13	24.00	2712.05
9079	129413.0479	1426007.274	3899+07.23	24.33	2712.13
9080	129417.1379	1426015.292	3899+15.13	28.66	2712.60
9081	129421.1959	1426018.317	3899+18.03	32.80	2712.70
9082	129426.1178	1426019.889	3899+19.45	37.77	2713.04
9083	129365.3389	1425985.593	3898+86.97	24.00	2711.48
9084	129364.8566	1426000.96	3899+02.35	24.03	2712.27
9085	129358.347	1426012.019	3899+13.59	30.21	2712.02
9086	129349.459	1426014.605	3899+16.44	39.01	2711.60
9087	129431.6248	1426053.859	3899+53.25	44.28	2715.16
9088	129423.8548	1426053.627	3899+53.25	36.50	2714.59
9089	129419.6654	1426054.218	3899+53.96	32.33	2714.73
9090	129412.0612	1426061.04	3899+61.00	24.93	2714.92
9091	129410.987	1426065.752	3899+65.75	24.00	2715.10
9092	129410.5011	1426082.167	3899+82.17	24.00	2716.03
9093	129344.2725	1426050.38	3899+52.35	43.14	2713.18
9094	129349.4857	1426050.563	3899+52.38	37.92	2713.63
9095	129360.3409	1426056.352	3899+57.85	26.90	2714.69
9096	129393.3319	1426054.798	3899+62.61	24.52	2714.79
9097	129362.9891	1426064.969	3899+66.38	24.00	2715.09
R9517	129428.3057	1426004.544	3899+04.05	39.50	
R9518	129349.9173	1425999.612	3899+01.44	39.00	
R9519	129423.4815	1426066.122	3899+65.75	36.50	
R9520	129348.9953	1426064.555	3899+66.38	38.00	

Notes:
1. Stationing is based on US Hwy 12 CL alignment.
2. Back of Walk points are not shown.
Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

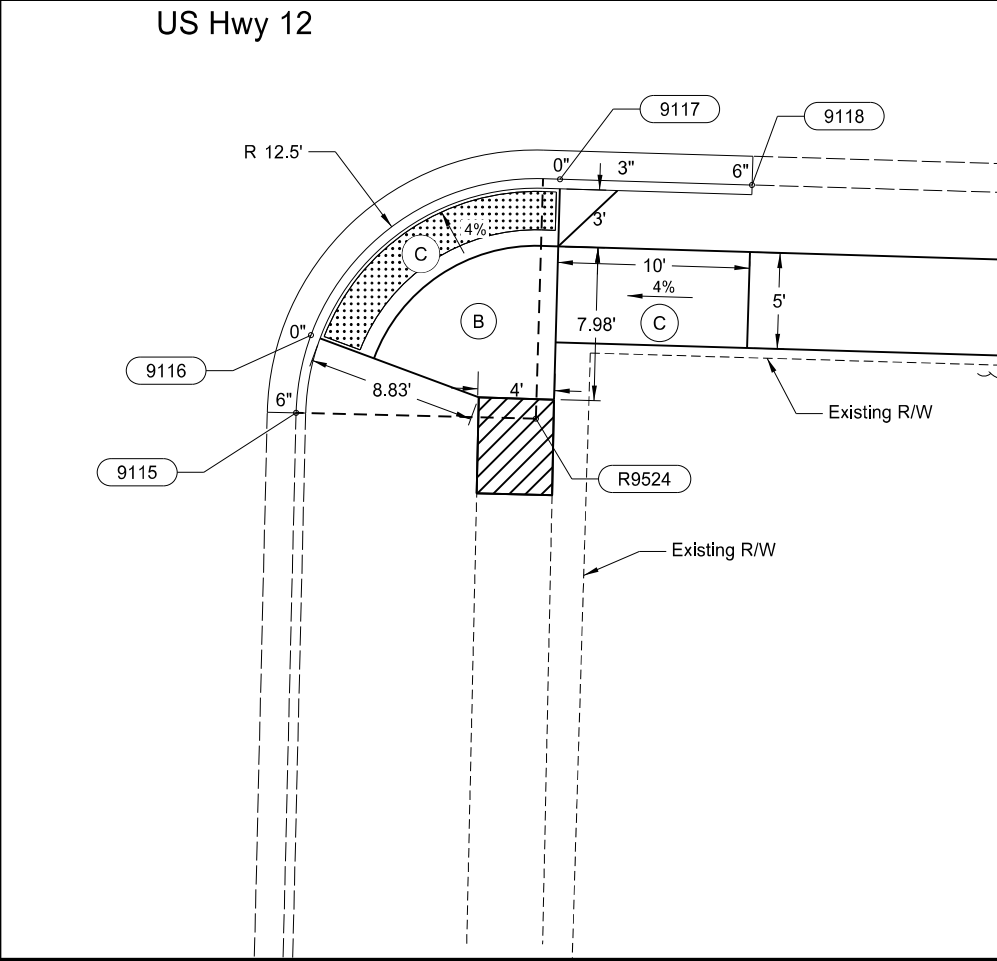
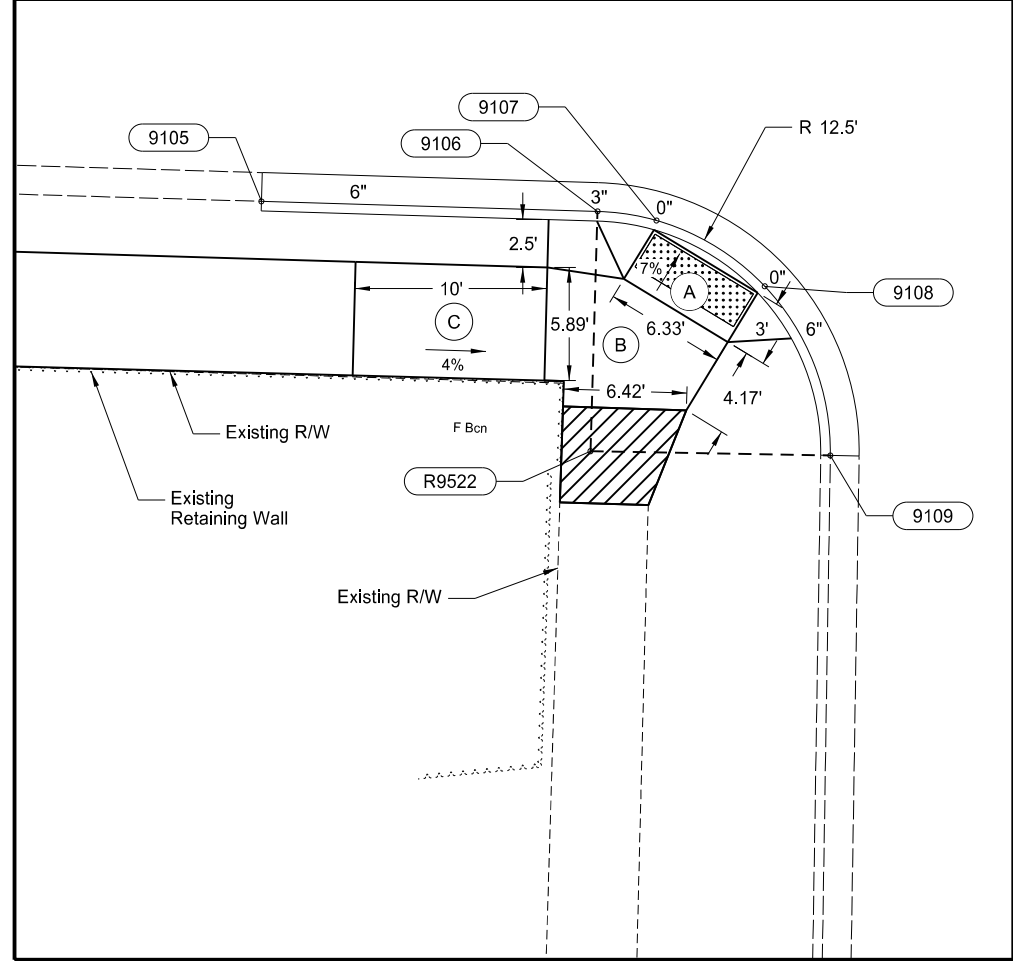
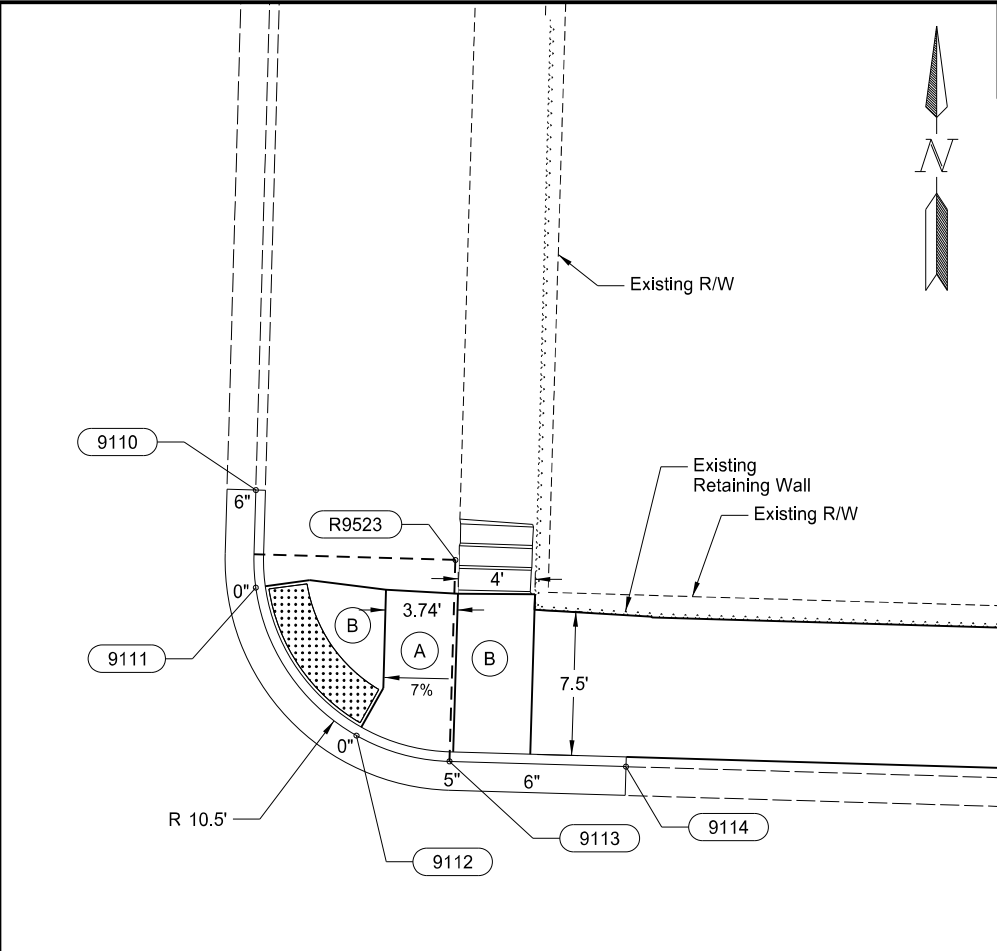
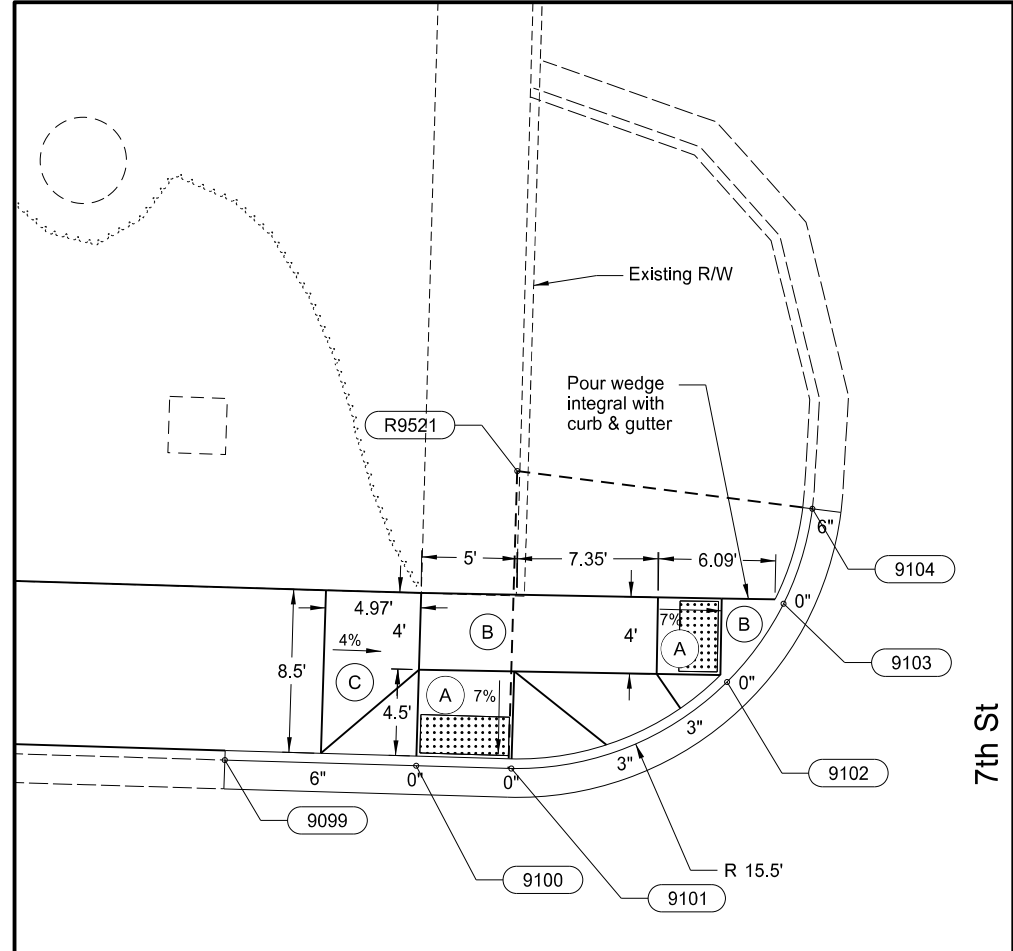
- Transition Grades to Match Existing Sidewalk
- Detectable Warning Panels 2' x 2'
- Concrete Brick Pattern Variable Slope
- Ramp (5% - 8.3%)
- Turning Space (Less than 2%)
- Blend (Less than 5%)
- Back of Curb Height

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US Highway 12 / Adams Ave
ADA Curb Ramps Layouts
US Hwy 12 and 6th St

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	20	10

Point	North (Y)	East (X)	Station	Offset	Elevation
9099	129402.5105	1426352.094	3902+52.21	24.00	2725.45
9100	129402.2153	1426362.064	3902+62.19	24.00	2725.40
9101	129402.0693	1426367.022	3902+67.15	24.00	2725.31
9102	129406.5779	1426378.26	3902+78.25	28.84	2725.50
9103	129410.6585	1426381.204	3902+81.07	33.01	2725.60
9104	129415.6028	1426382.704	3902+82.42	37.99	2725.91
9105	129354.5515	1426349.996	3902+51.54	24.00	2725.47
9106	129354.0331	1426367.51	3902+69.06	24.00	2724.94
9107	129353.5555	1426370.582	3902+72.14	24.39	2724.78
9108	129350.1658	1426376.186	3902+77.88	27.64	2724.67
9109	129341.3171	1426379.639	3902+81.56	36.35	2724.24
9110	129414.4278	1426418.444	3903+18.18	37.88	2725.57
9111	129409.345	1426418.444	3903+18.33	32.79	2725.27
9112	129401.637	1426423.691	3903+23.80	25.25	2725.10
9113	129400.2896	1426428.536	3903+28.69	24.04	2724.80
9114	129400.019	1426437.733	3903+37.89	24.04	2725.03
9115	129340.0113	1426416.37	3903+18.31	36.57	2723.86
9116	129344.0599	1426417.147	3903+18.97	32.50	2723.85
9117	129352.1795	1426430.124	3903+31.70	24.00	2724.15
9118	129351.8835	1426440.124	3903+41.70	24.00	2724.36
R9521	129417.5663	1426367.328	3902+67.00	39.50	
R9522	129341.5385	1426367.141	3902+69.06	36.50	
R9523	129410.7851	1426428.845	3903+28.69	34.54	
R9524	129339.7113	1426428.866	3903+30.81	36.50	



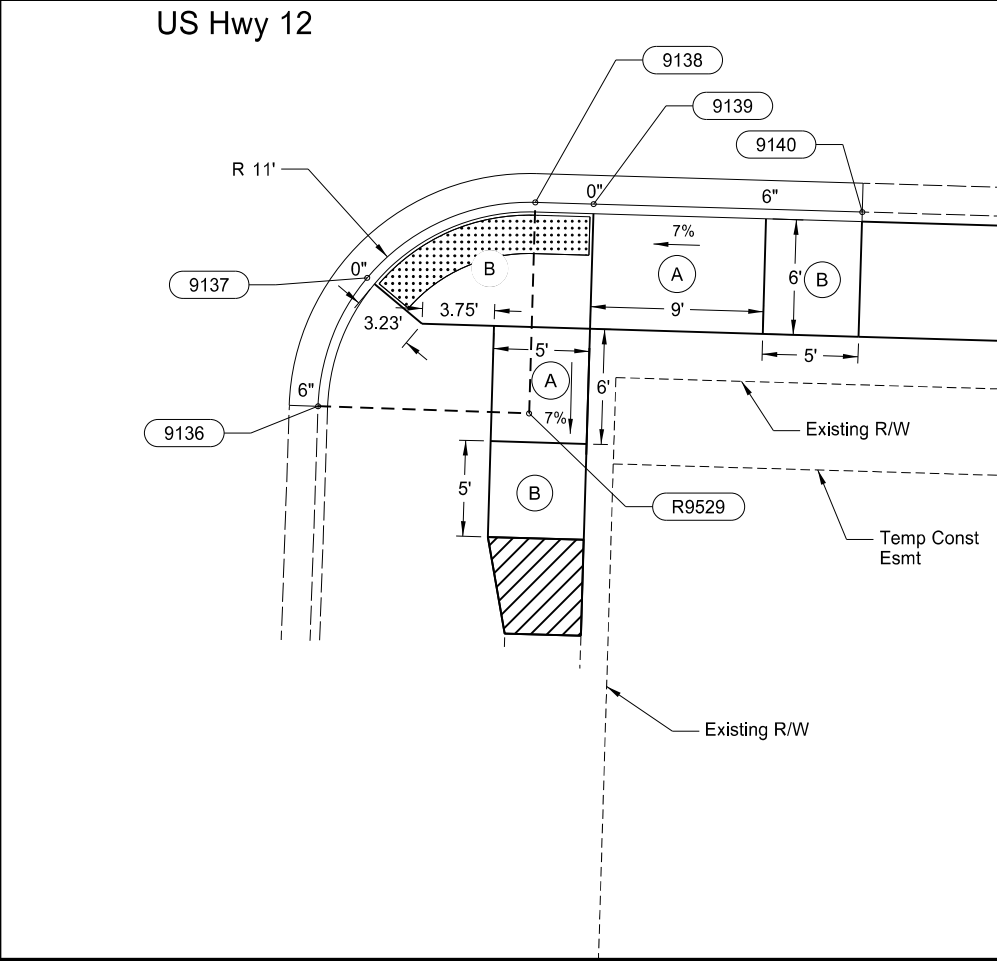
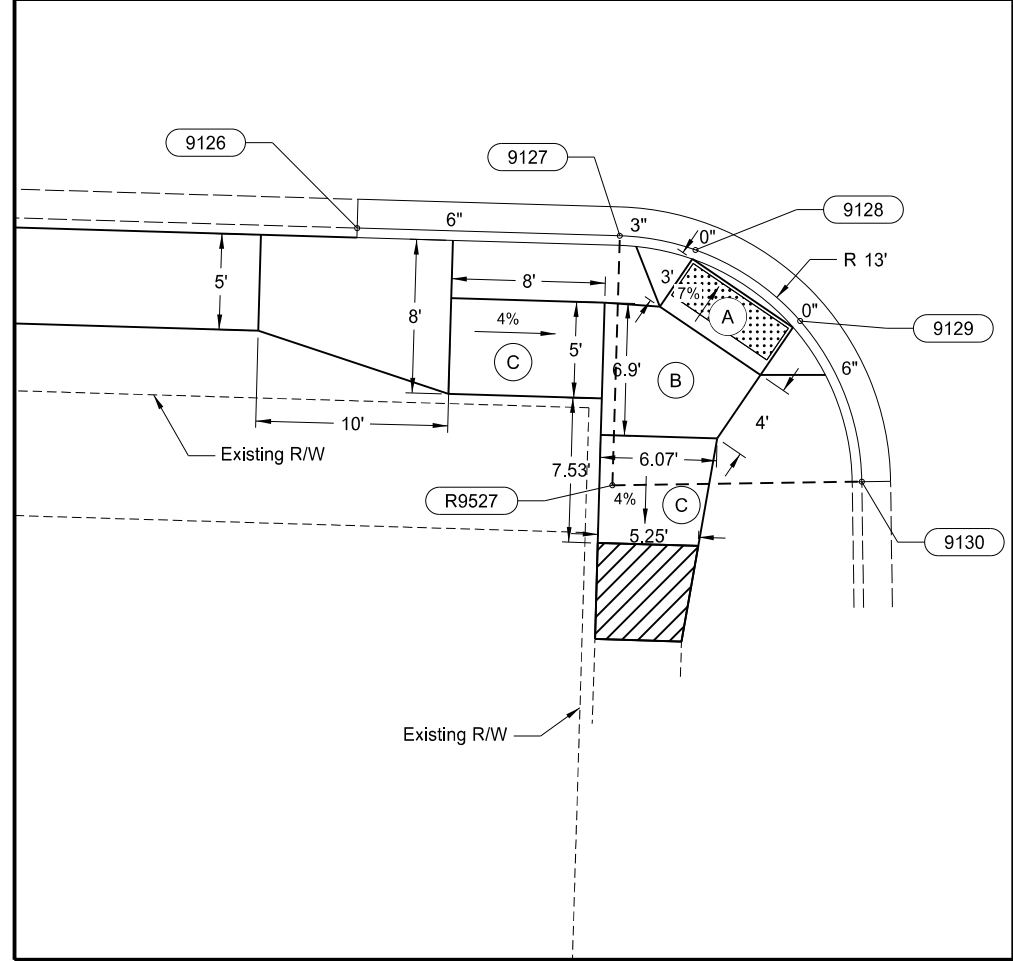
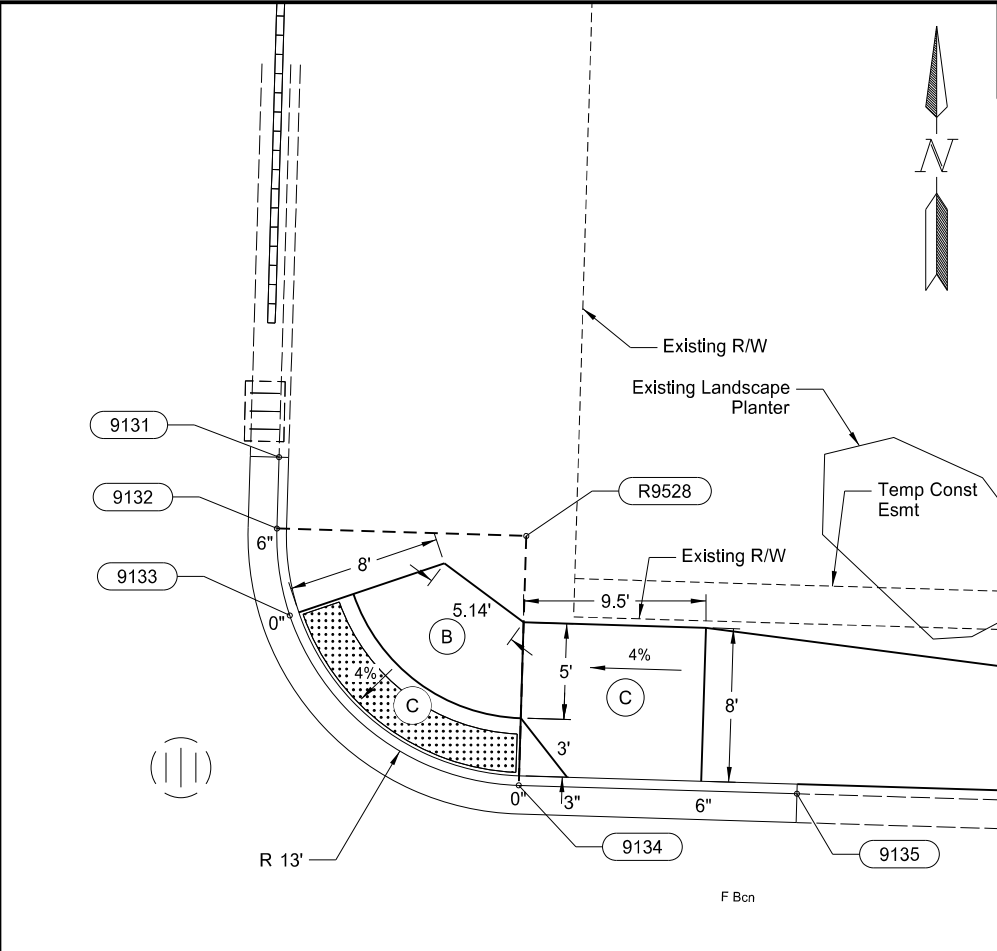
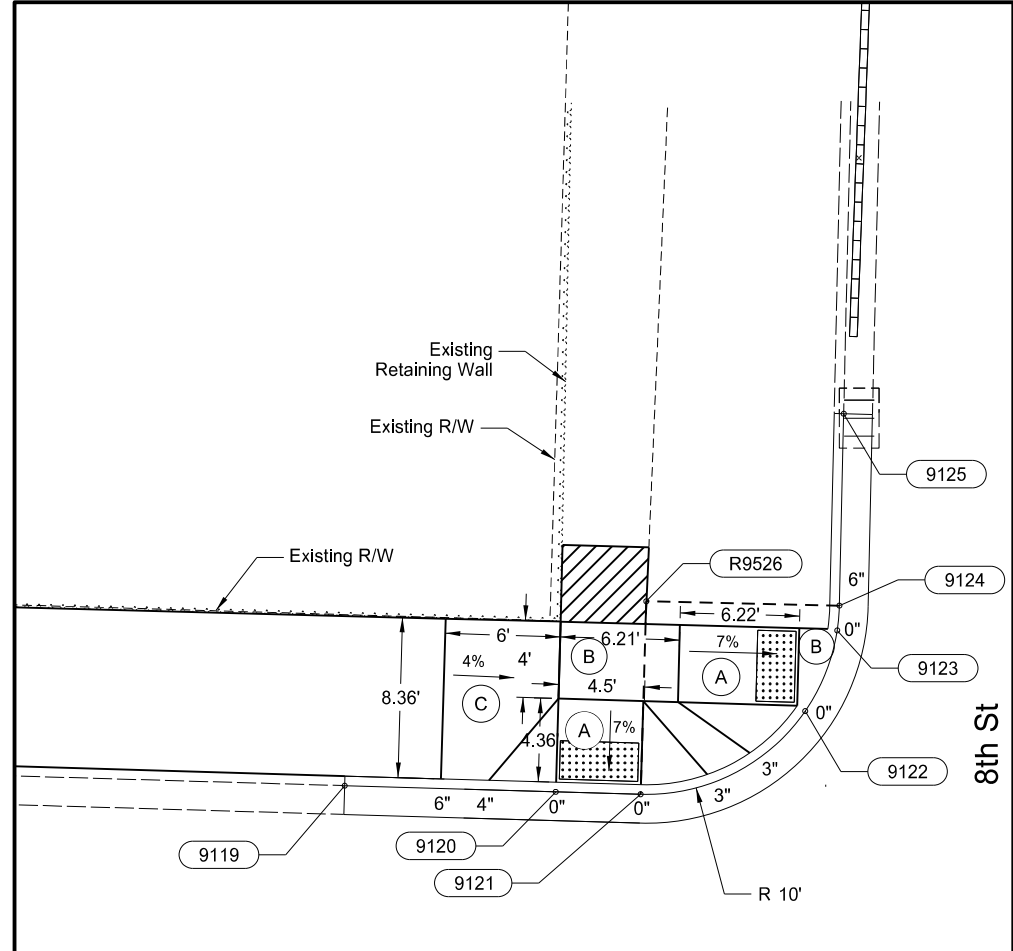
- Notes:
1. Stationing is based on US Hwy 12 CL alignment.
 2. Back of Walk points are not shown.
Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

- Transition Grades to Match Existing Sidewalk
- Detectable Warning Panels 2' x 2'
- Ramp (5% - 8.3%)
- Turning Space (Less than 2%)
- Blend (Less than 5%)
- Back of Curb Height

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
US Highway 12 / Adams Ave
 ADA Curb Ramps Layouts
 US Hwy 12 and 7th St



Point	North (Y)	East (X)	Station	Offset	Elevation
9119	129391.6279	1426722.849	3906+23.13	24.09	2715.91
9120	129391.3043	1426733.844	3906+34.13	24.09	2715.54
9121	129391.1742	1426738.265	3906+38.55	24.10	2715.46
9122	129395.5133	1426746.841	3906+46.99	28.69	2715.24
9123	129399.7159	1426748.51	3906+48.54	32.94	2715.27
9124	129401.0066	1426748.623	3906+48.61	34.23	2715.28
9125	129411.004	1426748.849	3906+48.54	44.23	2716.08
9126	129343.6132	1426719.499	3906+21.20	24.00	2715.16
9127	129343.2083	1426733.176	3906+34.88	24.00	2714.39
9128	129342.4717	1426737.121	3906+38.85	24.62	2714.30
9129	129338.7744	1426742.575	3906+44.41	28.15	2714.19
9130	129330.3982	1426745.79	3906+47.87	36.43	2713.86
9131	129406.5937	1426784.164	3906+83.97	40.87	2715.65
9132	129402.8757	1426784.053	3906+83.97	37.15	2715.46
9133	129398.3488	1426784.725	3906+84.78	32.64	2715.01
9134	129389.4951	1426796.654	3906+96.96	24.14	2714.96
9135	129389.056	1426811.147	3907+11.46	24.13	2715.46
9136	129330.8073	1426782.025	3906+84.08	34.95	2713.78
9137	129337.4941	1426784.585	3906+86.44	28.19	2713.85
9138	129341.4272	1426793.345	3906+95.08	24.00	2714.03
9139	129341.3371	1426796.386	3906+98.12	24.00	2714.09
9140	129340.9229	1426810.38	3907+12.12	24.00	2714.72
R9526	129401.2342	1426738.561	3906+38.55	34.16	
R9527	129330.214	1426732.791	3906+34.88	37.00	
R9528	129402.4891	1426797.048	3906+96.97	37.14	
R9529	129330.432	1426793.019	3906+95.08	35.00	

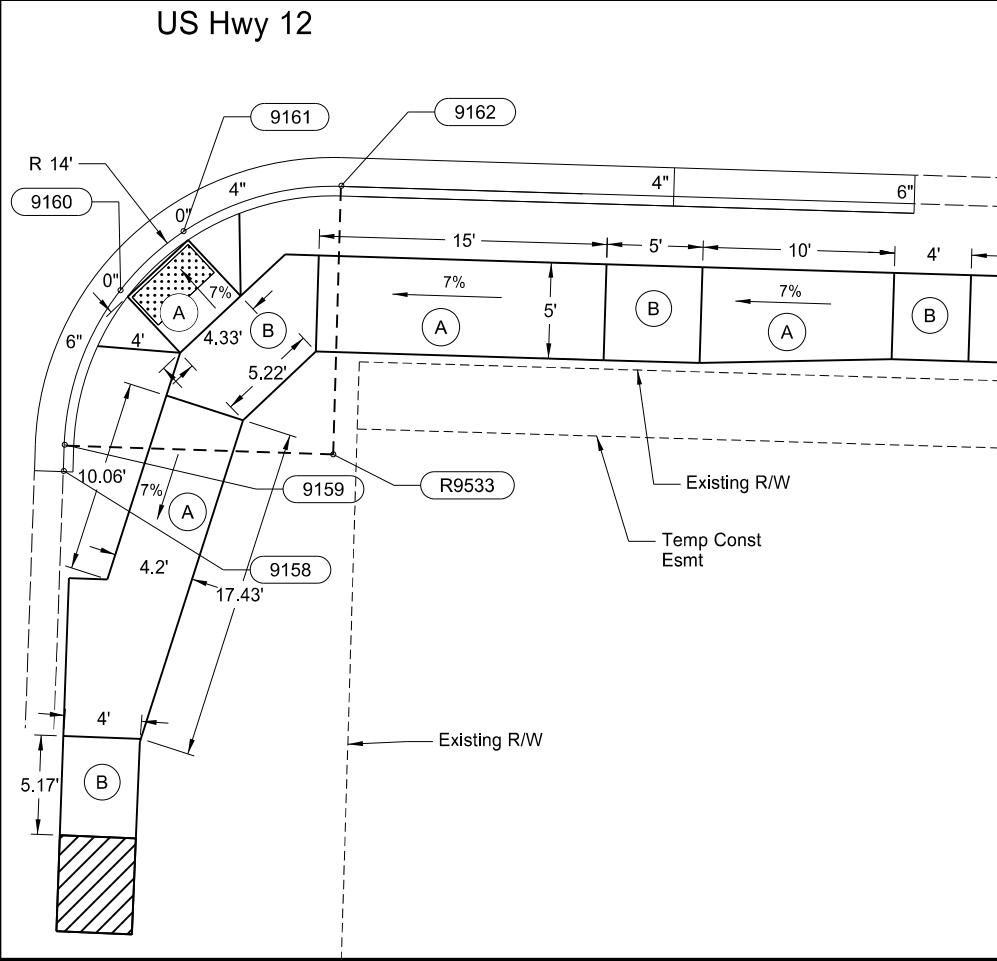
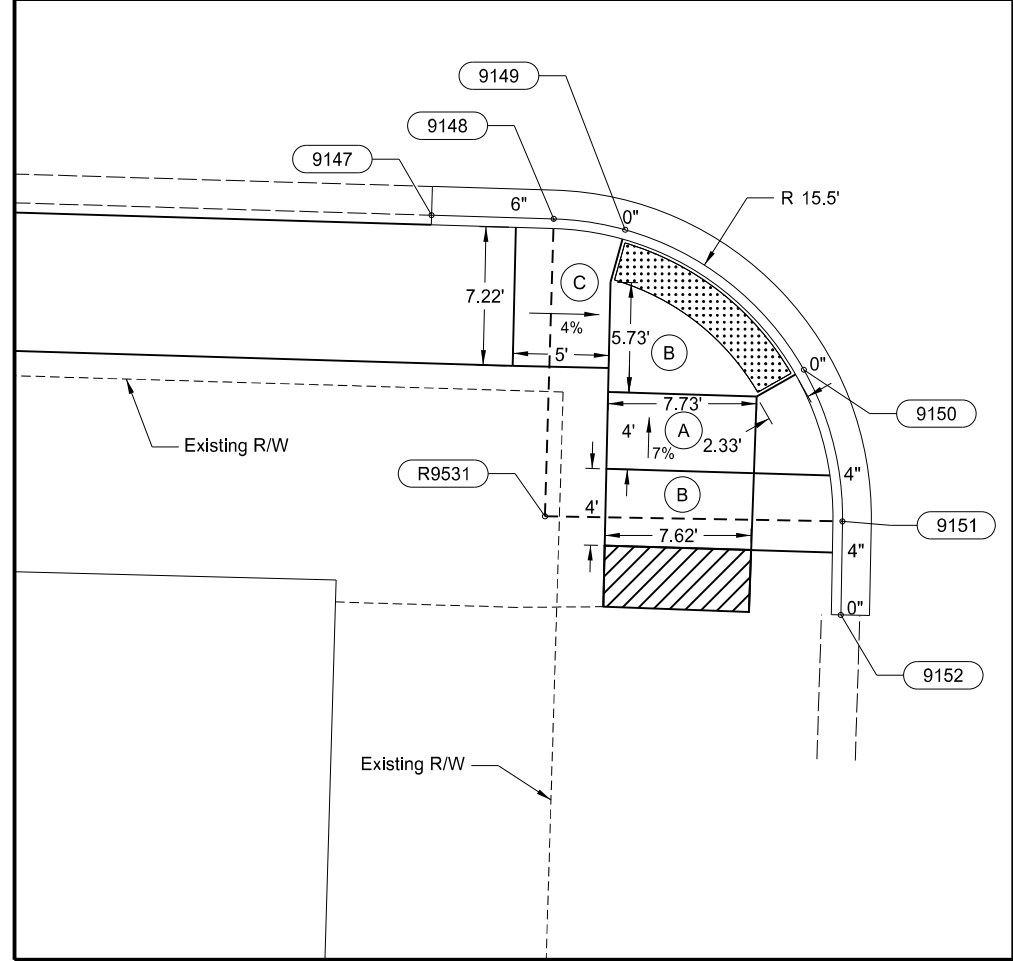
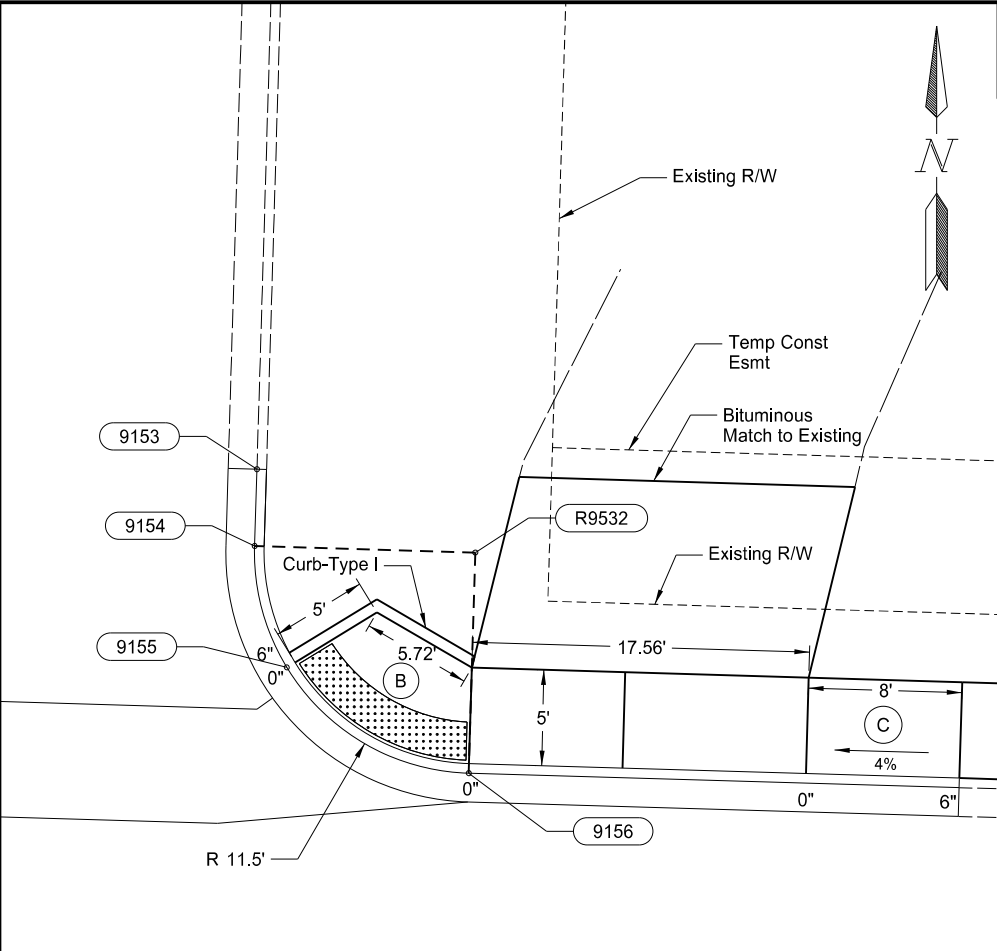
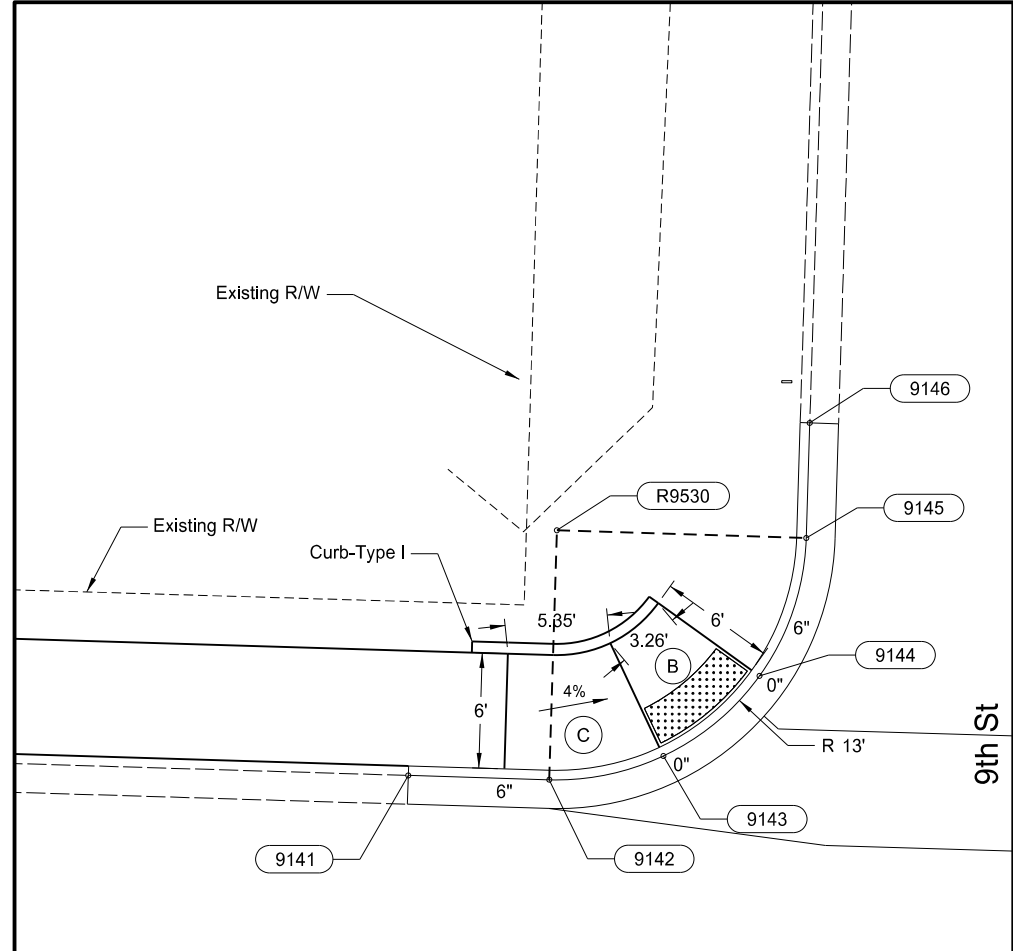
- Notes:
1. Stationing is based on US Hwy 12 CL alignment.
 2. Back of Walk points are not shown.
Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

-  Transition Grades to Match Existing Sidewalk
-  Detectable Warning Panels 2' x 2'
-  Ramp (5% - 8.3%)
-  Turning Space (Less than 2%)
-  Blend (Less than 5%)
-  Back of Curb Height

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
US Highway 12 / Adams Ave
 ADA Curb Ramps Layouts
 US Hwy 12 and 8th St



Point	North (Y)	East (X)	Station	Offset	Elevation
9141	129380.5069	1427093.344	3909+93.79	23.94	2725.76
9142	129380.2844	1427100.69	3910+01.14	23.93	2726.10
9143	129381.5237	1427106.636	3910+07.05	25.35	2726.40
9144	129385.6948	1427111.643	3910+11.93	29.67	2726.68
9145	129392.8774	1427114.078	3910+14.15	36.92	2727.40
9146	129398.8746	1427114.263	3910+14.16	42.92	2727.82
9147	129332.629	1427090.551	3909+92.41	24.00	2725.43
9148	129332.4405	1427096.92	3909+98.79	24.00	2725.60
9149	129331.8724	1427100.643	3910+02.52	24.46	2725.79
9150	129324.5799	1427109.952	3910+12.04	31.47	2725.87
9151	129316.6796	1427111.959	3910+14.28	39.31	2726.14
9152	129311.8086	1427111.875	3910+14.34	44.18	2725.78
9153	129394.3138	1427150.195	3910+50.21	39.42	2728.70
9154	129390.3156	1427150.075	3910+50.21	35.42	2728.24
9155	129383.9872	1427151.75	3910+52.07	29.15	2728.35
9156	129378.4771	1427161.23	3910+61.71	23.85	2728.72
9158	129315.745	1427147.958	3910+50.30	39.18	2726.95
9159	129317.1077	1427148.007	3910+50.30	37.81	2726.85
9160	129325.162	1427150.913	3910+52.97	29.68	2727.46
9161	129328.2334	1427154.194	3910+56.16	26.51	2727.81
9162	129330.6041	1427162.422	3910+64.31	23.90	2728.99
R9530	129393.2784	1427101.084	3910+01.15	36.93	
R9531	129316.9473	1427096.461	3909+98.79	39.50	
R9532	129389.9721	1427161.57	3910+61.71	35.42	
R9533	129316.6105	1427161.998	3910+64.30	37.90	

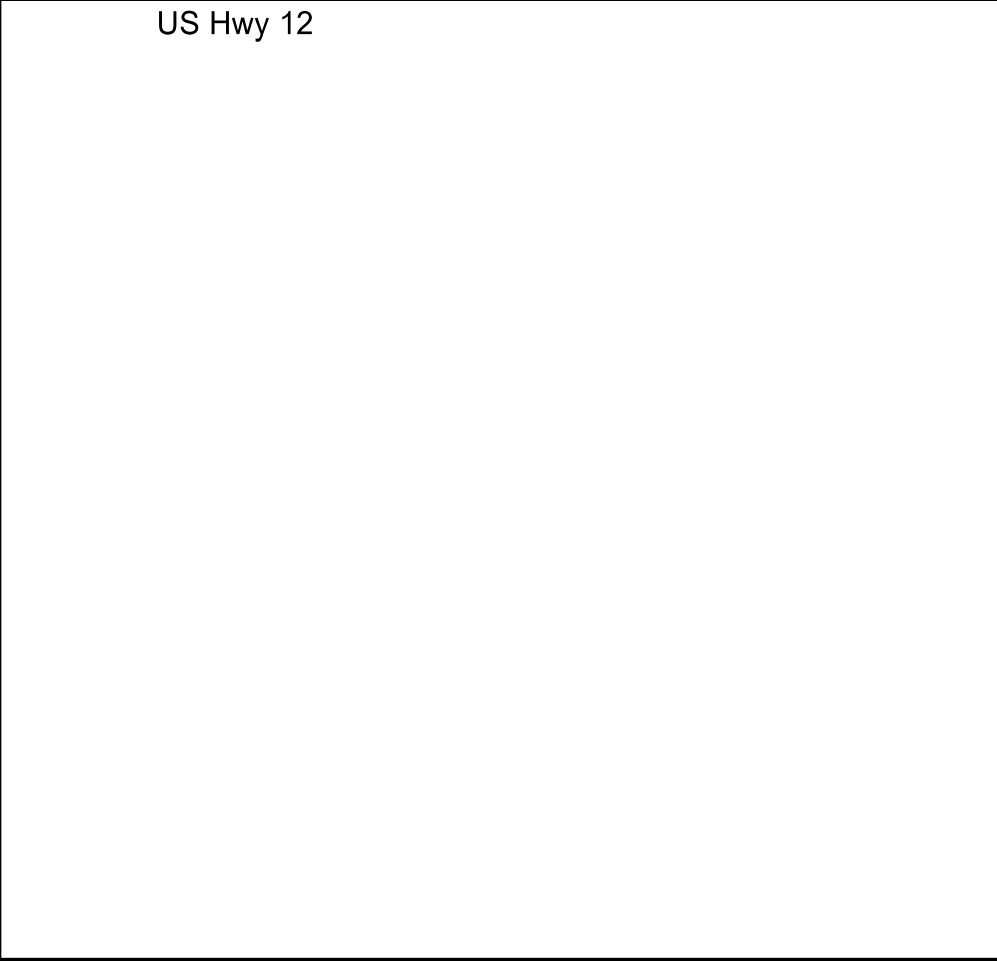
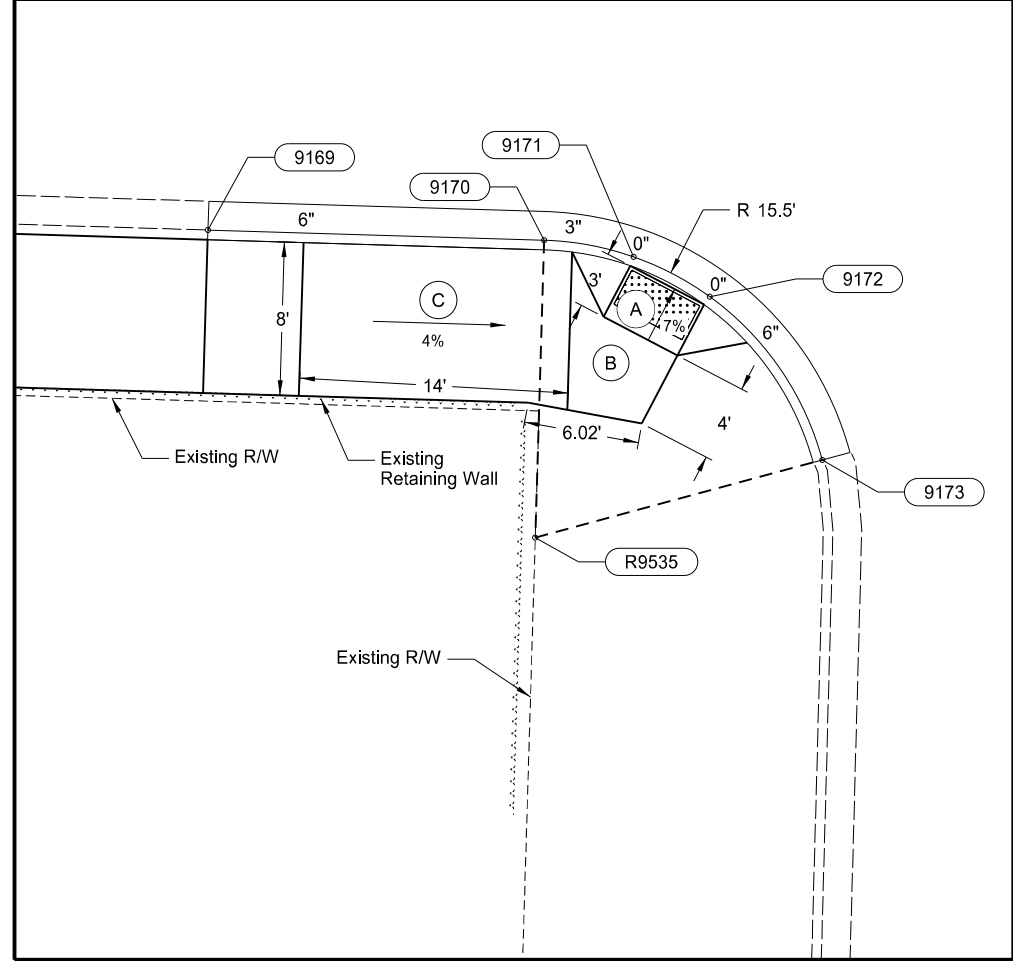
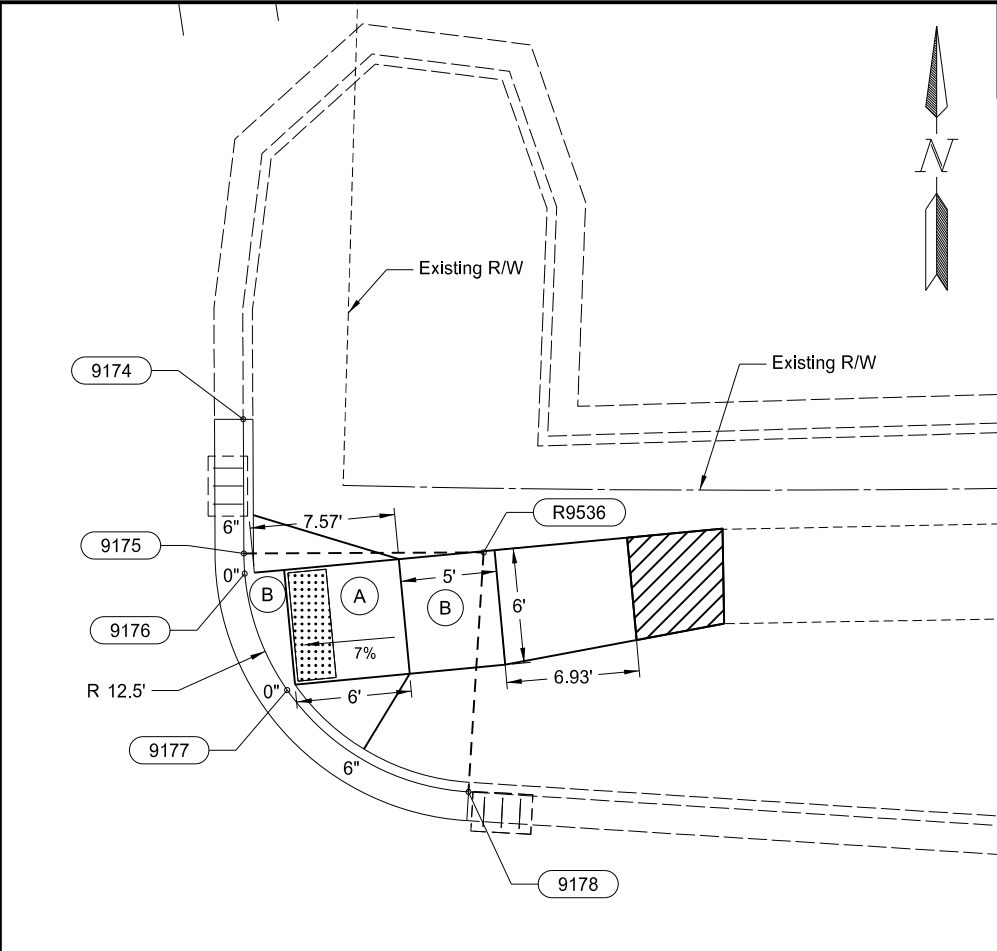
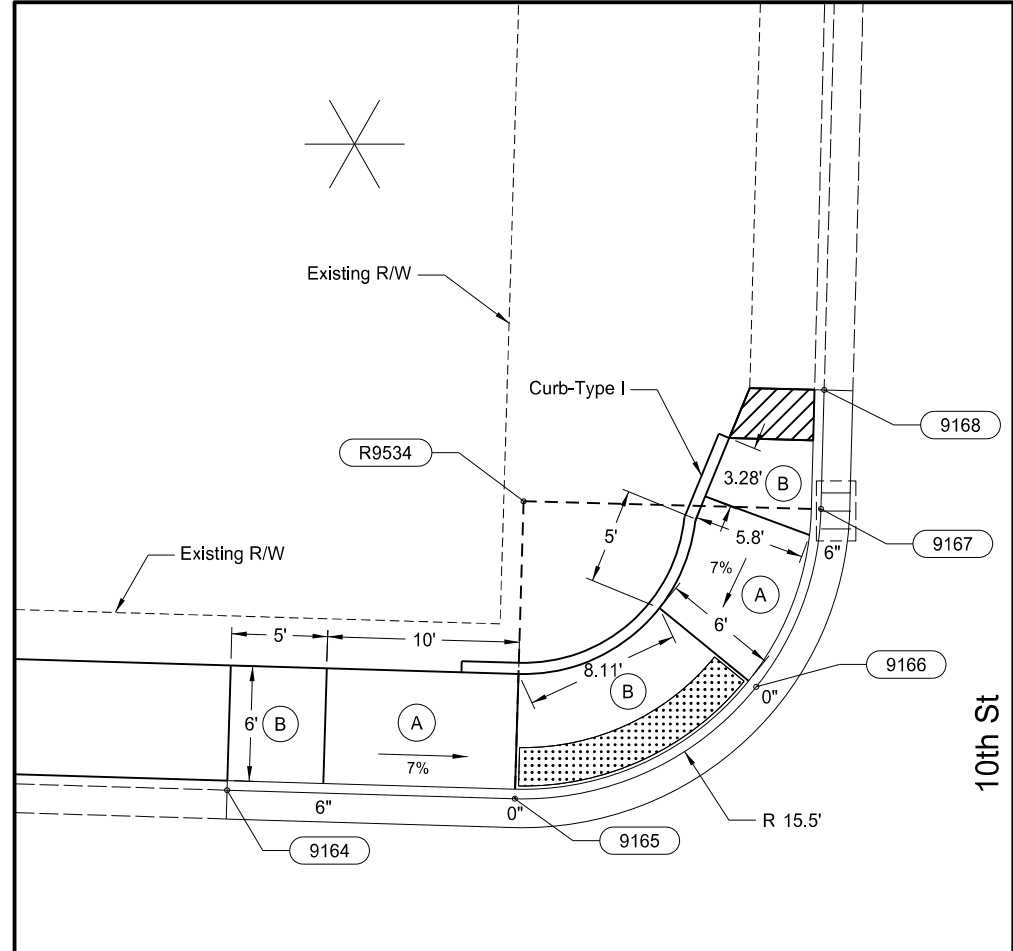
Notes:
 1. Stationing is based on US Hwy 12 CL alignment.
 2. Back of Walk points are not shown.
 Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

-  Transition Grades to Match Existing Sidewalk
-  Detectable Warning Panels 2' x 2'
-  Ramp (5% - 8.3%)
-  Turning Space (Less than 2%)
-  Blend (Less than 5%)
-  Back of Curb Height

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
US Highway 12 / Adams Ave
 ADA Curb Ramps Layouts
 US Hwy 12 and 9th St



Point	North (Y)	East (X)	Station	Offset	Elevation
9164	129369.8672	1427451.036	3913+51.64	23.89	2733.17
9165	129369.4619	1427466.03	3913+66.64	23.93	2732.46
9166	129375.2882	1427478.564	3913+79.00	30.12	2732.53
9167	129384.5527	1427481.944	3913+82.10	39.48	2733.06
9168	129390.75	1427482.105	3913+82.08	45.68	2733.37
9169	129322.0183	1427445.997	3913+48.02	24.09	2733.13
9170	129321.4879	1427463.513	3913+65.54	24.10	2732.82
9171	129320.6222	1427468.172	3913+70.23	24.83	2732.32
9172	129318.546	1427472.14	3913+74.25	26.79	2732.15
9173	129310.0401	1427478.007	3913+80.37	35.11	2731.32
9174	129387.0748	1427526.197	3914+26.29	43.31	2733.25
9175	129380.0817	1427526.227	3914+26.53	36.32	2732.64
9176	129379.0334	1427526.276	3914+26.61	35.28	2732.47
9177	129372.9642	1427528.489	3914+29.07	29.27	2732.20
9178	129367.6604	1427537.934	3914+38.90	24.17	2732.05
R9534	129384.9563	1427466.449	3913+66.60	39.43	
R9535	129305.995	1427463.044	3913+65.53	39.60	
R9536	129380.1352	1427538.727	3914+39.52	36.65	

Notes:
 1. Stationing is based on US Hwy 12 CL alignment.
 2. Back of Walk points are not shown.
 Contractor to adjust ramps and sidewalk per design slopes shown.

LEGEND

-  Transition Grades to Match Existing Sidewalk
-  Detectable Warning Panels 2' x X'
-  Ramp (5% - 8.3%)
-  Turning Space (Less than 2%)
-  Blend (Less than 5%)
-  Back of Curb Height

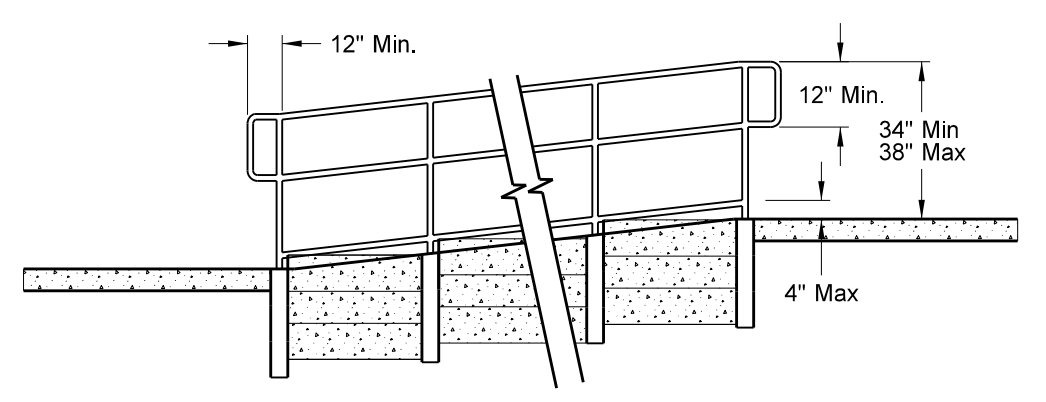
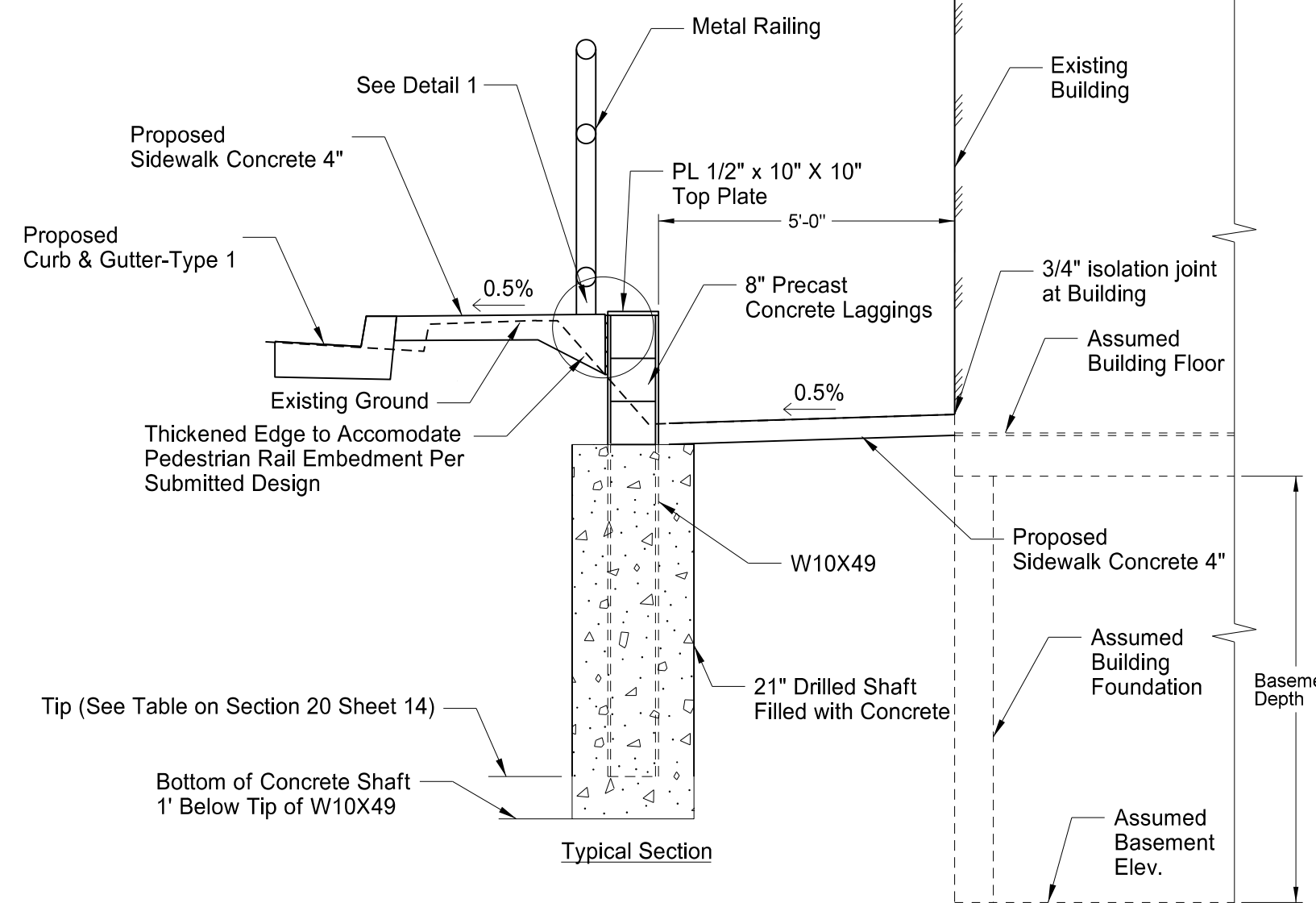
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US Highway 12 / Adams Ave
 ADA Curb Ramps Layouts
 US Hwy 12 and 10th St

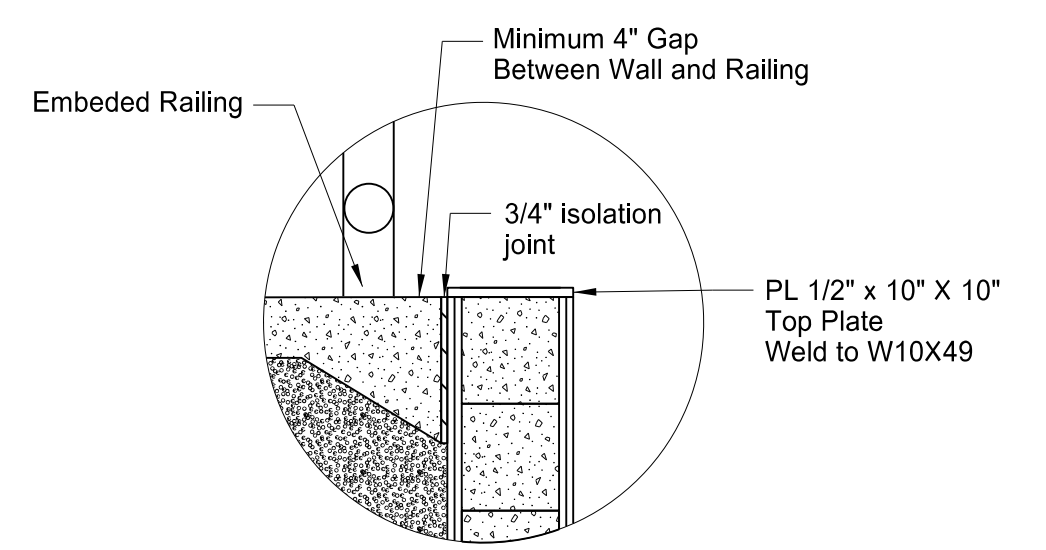
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-5-012(047)073	20	14

NOTES

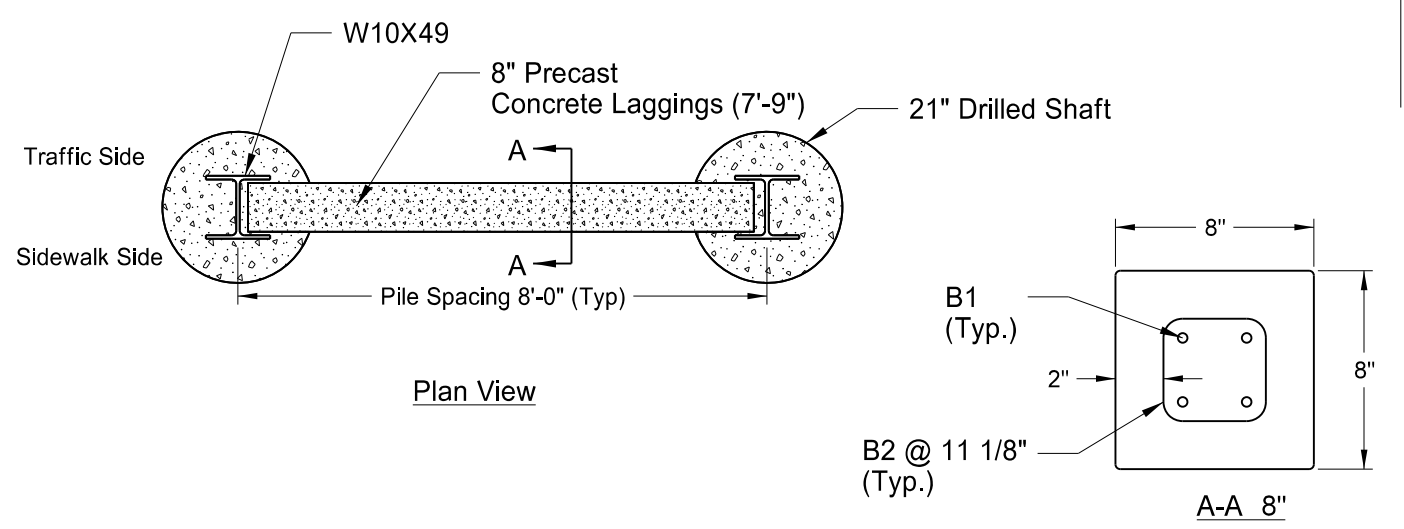
Refer to SP 1113(14) Soldier Pile Wall for Construction Details.



Railing Detail



Detail 1



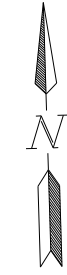
Bar List - One Plank				
Mark	Size	No.	Length	Shape
B1	4	4	7'-5"	STR
B2	3	9	2'-2"	Bent

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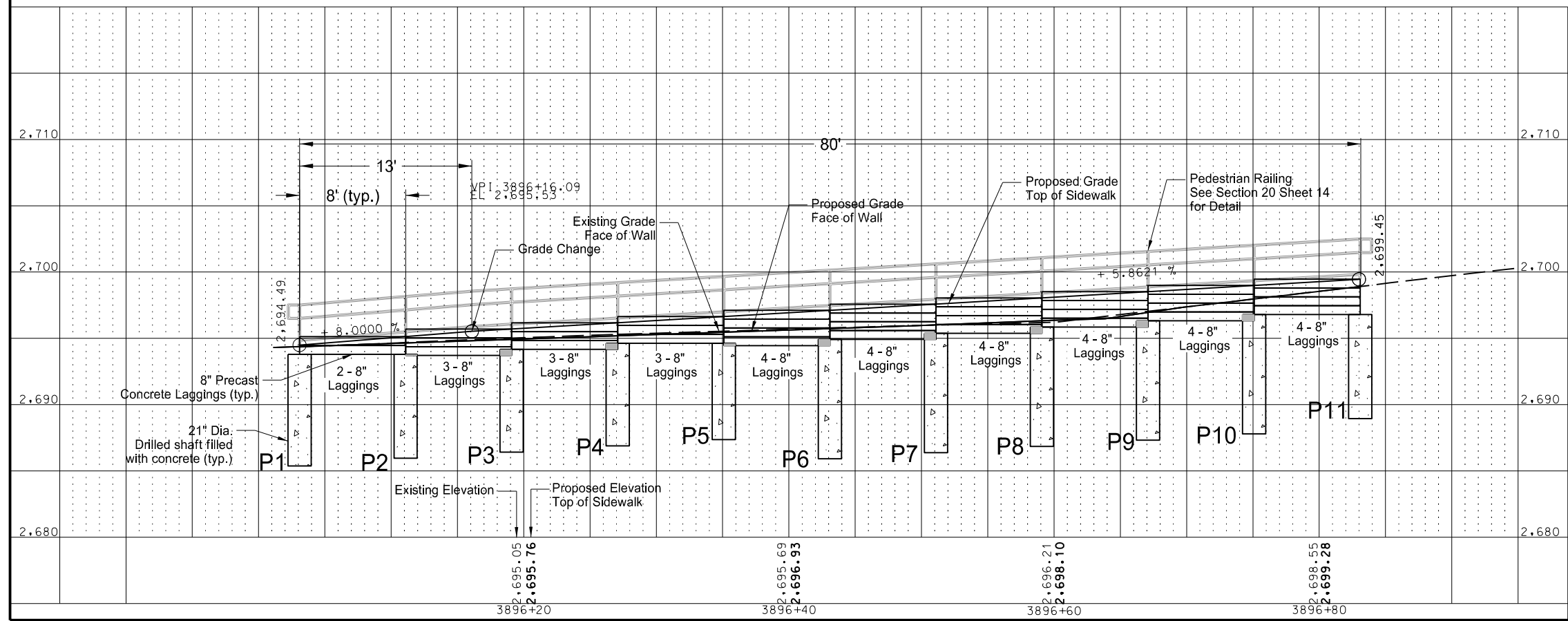
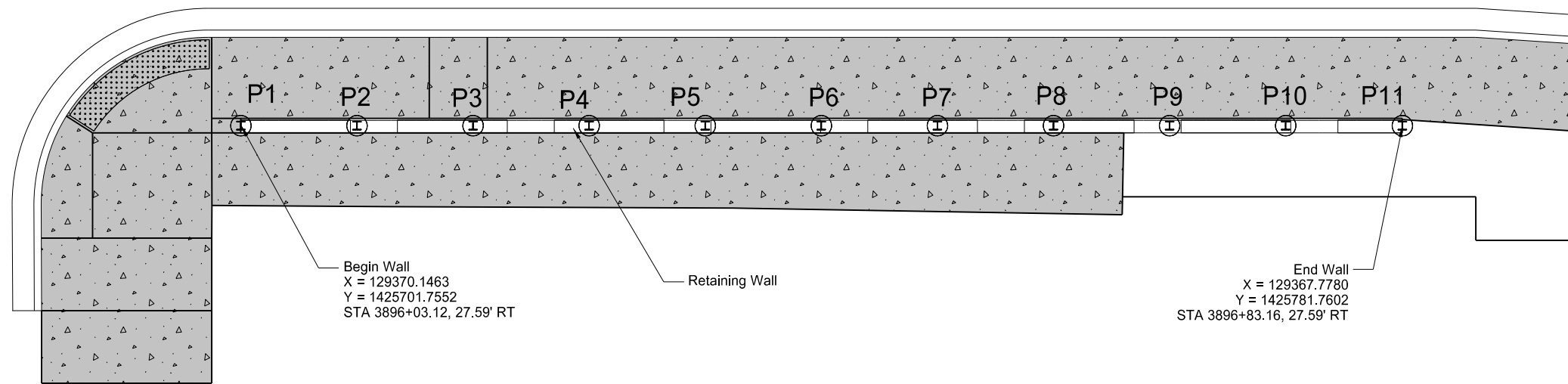
Soldier Pile Retaining Wall
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	20	15

Pile	Soilder Pile Section	Coordinates		Station	CL Station Offset	Top of Pile Elevation	Top of Concrete	Top of Proposed	Wall Height	Pile Tip Elevation	Pile Length
		X	Y								
P1	W10X49	129370.1463	1425701.7552	3896+03.12	27.59	2695.13	2693.80	2694.49	1.33	2686.38	8.75
P2	W10X49	129369.9096	1425709.7517	3896+11.12	27.59	2695.71	2693.80	2695.13	2.00	2686.96	8.75
P3	W10X49	129369.6729	1425717.7482	3896+19.12	27.59	2696.17	2694.17	2695.71	2.00	2687.42	8.75
P4	W10X49	129369.4362	1425725.7447	3896+27.12	27.59	2696.64	2694.64	2696.17	2.00	2687.89	8.75
P5	W10X49	129369.1991	1425733.7408	3896+35.12	27.59	2697.11	2695.11	2696.64	2.00	2688.36	8.75
P6	W10X49	129368.9627	1425741.7377	3896+43.12	27.59	2697.58	2695.10	2697.11	2.67	2686.91	10.67
P7	W10X49	129368.7260	1425749.7342	3896+51.12	27.59	2698.05	2695.38	2697.58	2.67	2687.38	10.67
P8	W10X49	129368.4893	1425757.7307	3896+59.12	27.59	2698.52	2695.85	2698.05	2.67	2687.85	10.67
P9	W10X49	129368.2526	1425765.7272	3896+67.12	27.59	2698.99	2696.32	2698.52	2.67	2688.32	10.67
P10	W10X49	129368.0159	1425773.7237	3896+75.12	27.59	2699.46	2696.79	2699.03	2.67	2688.79	10.67
P11	W10X49	129367.7780	1425781.7602	3896+83.16	27.59	2699.46	2696.79	2699.46	2.67	2690.71	8.75



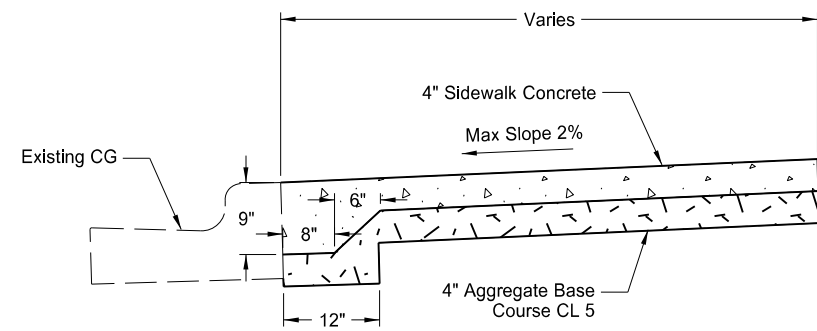
SPEC CODE	BID ITEM	QTY	UNIT
930 9543	RETAINING WALL	187	SF



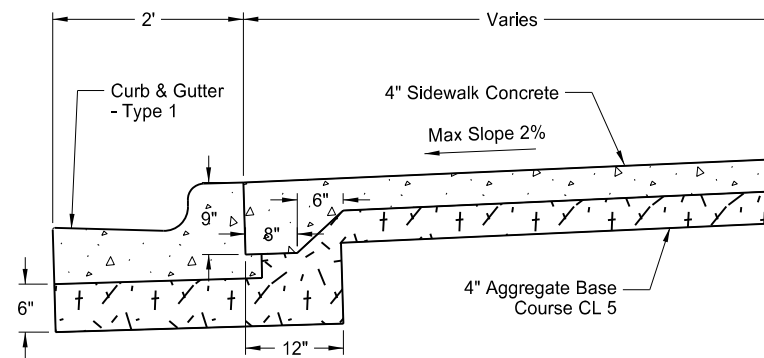
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Retaining Wall Plan & Profile
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	30	1

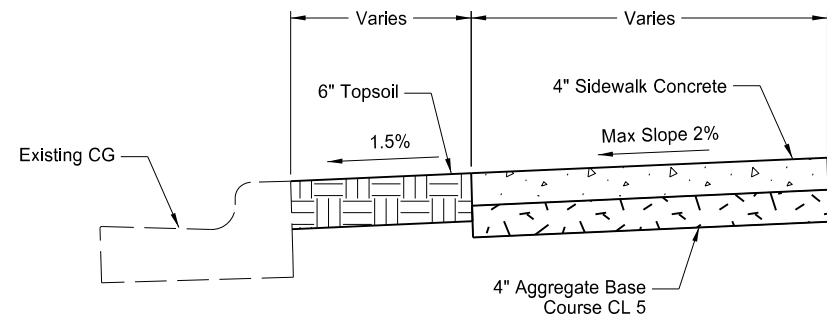


Sidewalk Section Adjacent to Existing CG LT & RT
See Section 60 & 82 for Locations, Slopes, Widths and Tie in

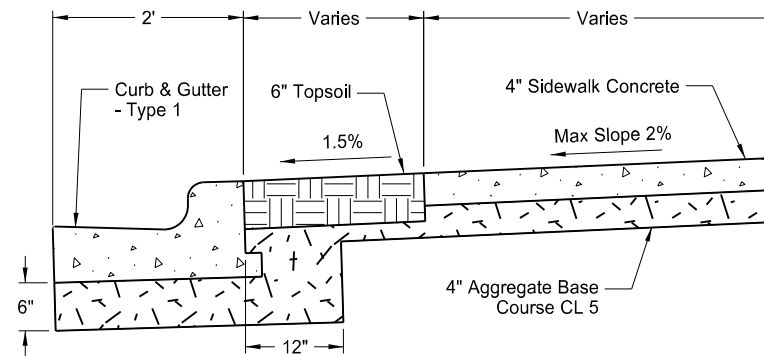


Sidewalk Section Adjacent to New CG LT & RT
See Section 60 & 82 for Locations, Slopes & Widths

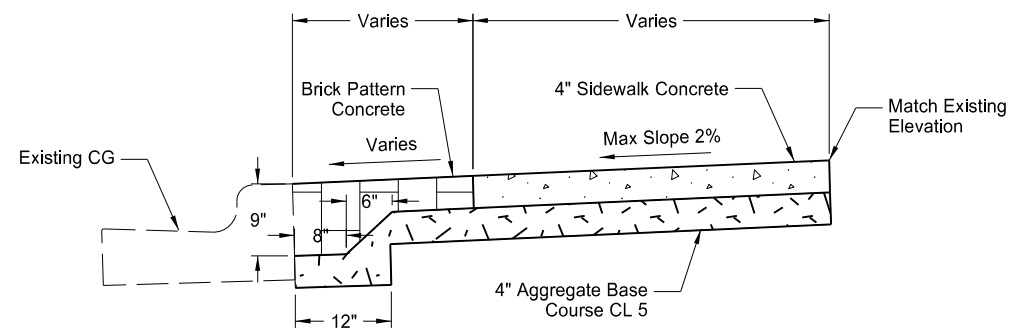
Notes:
1. See Standard Drawing D-750-2 for requirements for isolation joints.



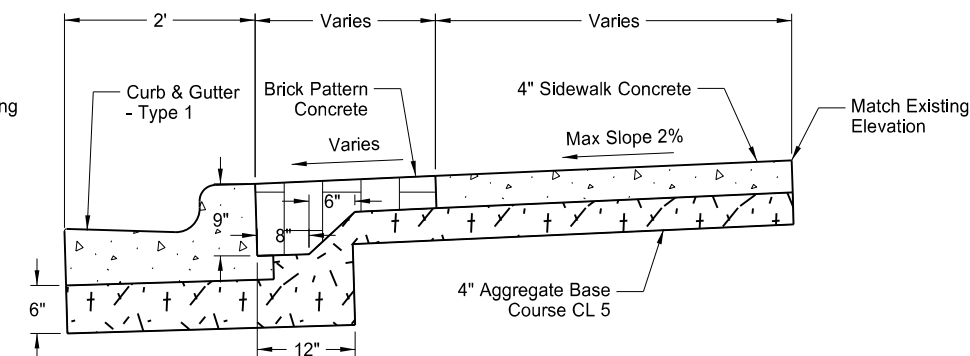
Sidewalk Section w/ Blvd Existing CG LT & RT
See Section 60 & 82 for Locations, Slopes & Widths



Sidewalk Section w/ Blvd New CG LT & RT
See Section 60 & 82 for Locations, Slopes & Widths



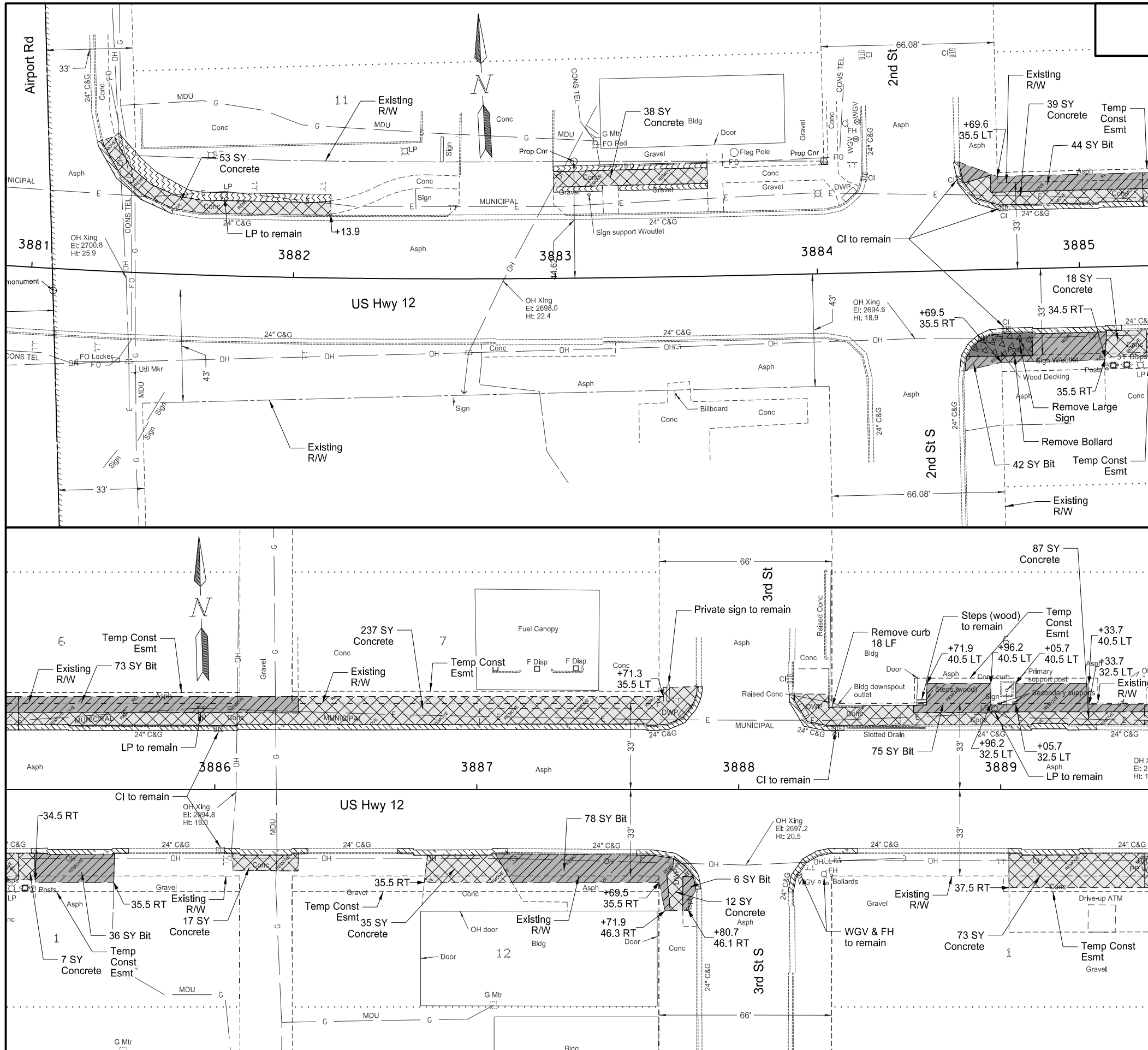
Sidewalk Section w/ Brick Pattern Blvd Existing CG LT & RT
See Section 60 & 82 for Locations, Slopes & Widths



Sidewalk Section w/ Brick Pattern Blvd New CG LT & RT
See Section 60 & 82 for Locations, Slopes & Widths

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Proposed Typical Section
US Highway 12 / Adams Ave



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	40	1

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	3881+00 to 3885+25 Lt	130	SY
	3881+00 to 3885+25 Rt	18	SY
	3885+25 to 3889+55 Lt	324	SY
	3885+25 to 3889+55 Rt	144	SY
202 0129	REMOVAL OF CURB		
	3888+34 to 3888+47 Lt	18	LF
202 0130	REMOVAL OF CURB & GUTTER		
	3881+24 49.6' Lt to 3881+53 24.5' Lt	40	LF
	3884+55 41.4' Lt to 3885+25 23.7' Lt	80	LF
	3884+55 38.4' Rt to 3885+16 23.9' Rt	69	LF
	3885+25 23.7' Lt to 3887+85 39.4' Lt	269	LF
	3888+21 36.5' Lt to 3888+40 24' Lt	27	LF
	3889+01 24.2' Lt to 3889+37 24.3' Lt	36	LF
	3885+30 24' Rt to 3885+67 24' Rt	37	LF
	3886+04 24' Rt to 3886+36 24' Rt	32	LF
	3886+70 24' Rt to 3887+12 24' Rt	42	LF
	3887+61 24.5' Rt to 3887+84 38.1' Rt	31	LF
	3888+20 39.1' Rt to 3888+45 24' Rt	34	LF
	3889+03 24' Rt to 3889+35 24' Rt	32	LF
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	3881+00 to 3885+25 Lt	44	SY
	3881+00 to 3885+25 Rt	42	SY
	3885+25 to 3889+55 Lt	148	SY
	3885+25 to 3889+55 Rt	120	SY
202 0295	REMOVAL OF OBSTRUCTIONS	1	LSUM
	BOLLARD - 1 EA		
	3884+75 32.7' RT		
	WOOD DECKING - 21 SY		
	SE Quadrant US 12 & 2nd St		
	GAS STATION SIGN		
	3884+77 27.5' RT		
302 0405	SALVAGE & RELAY AGGREGATE SURFACE COURSE		
	LANDSCAPE ROCK TYPE 1	10	CY
	3881+00 to 3885+25 Lt		

LEGEND

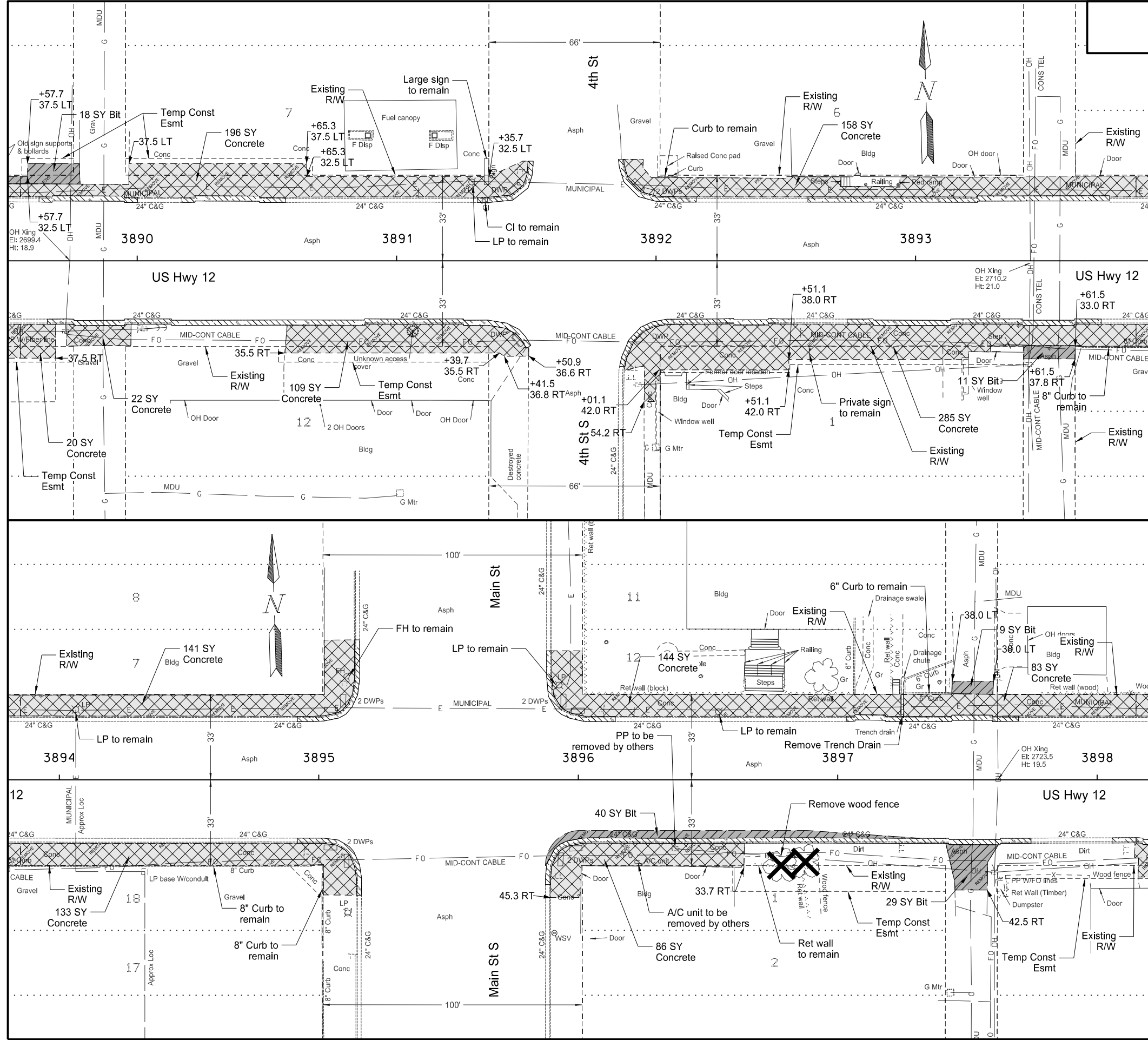
	Concrete Removal
	Bituminous Removal
	Removal of Curb & Gutter
	Wood Decking Removal
	Salvage & Relay Surface Aggregate

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Removals
Sta 3881+00 to 3889+55
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	40	2

SPEC CODE	BID ITEM	QTY	UNIT
201 0380	REMOVAL OF TREES 18IN 3896+78 33' Rt 3896+88 31.7' Rt	1 1	EA EA
201 0395	STUMP REMOVAL 3896+78 33' Rt 3896+88 31.7' Rt	1 1	EA EA
202 0114	REMOVAL OF CONCRETE PAVEMENT 3889+55 to 3893+85 Lt 3889+55 to 3893+85 Rt 3893+85 to 3898+15 Lt 3893+85 to 3898+15 Rt	354 436 368 219	SY SY SY SY
202 0130	REMOVAL OF CURB & GUTTER 3889+62 24.1' Lt to 3890+00 24' Lt 3890+17 24' Lt to 3890+57 24' Lt 3891+31 24' Lt to 3891+51 38.4' Lt 3891+87 39.1' Lt to 3892+16 24.1' Lt 3892+58 24.1' Lt to 3893+75 24.1' Lt 3894+92 24' Lt to 3895+14 54' Lt 3895+89 49.7' Lt to 3896+14 23.9' Lt 3897+03 24' Lt to 3897+69 24.1' Lt 3889+65 24' Rt to 3891+51 33.15' Rt 3891+87 40.7' Rt to 3892+53 23.9' Rt 3892+74 23.4' Rt to 3893+72 24' Rt 3894+92 24' Rt to 3895+15 44.5' Rt 3895+89 40.3' Rt to 3897+75 24' Rt 3898+06 23.8' Rt to 3898+15 23.8' Rt	38 40 29 37 116 47 45 66 190 75 98 38 197 9	LF LF LF LF LF LF LF LF LF LF LF LF LF LF
202 0132	REMOVAL OF BITUMINOUS SURFACING 3889+55 to 3893+85 Lt 3889+55 to 3893+85 Rt 3893+85 to 3898+15 Lt 3893+85 to 3898+15 Rt	18 11 9 69	SY SY SY SY
202 0295	REMOVAL OF OBSTRUCTIONS TRENCH DRAIN - 1 EA 3897+25 Lt WOOD FENCE - 43 LF 3896+64 30' Rt to 3896+93 43' Rt	1	LSUM



LEGEND

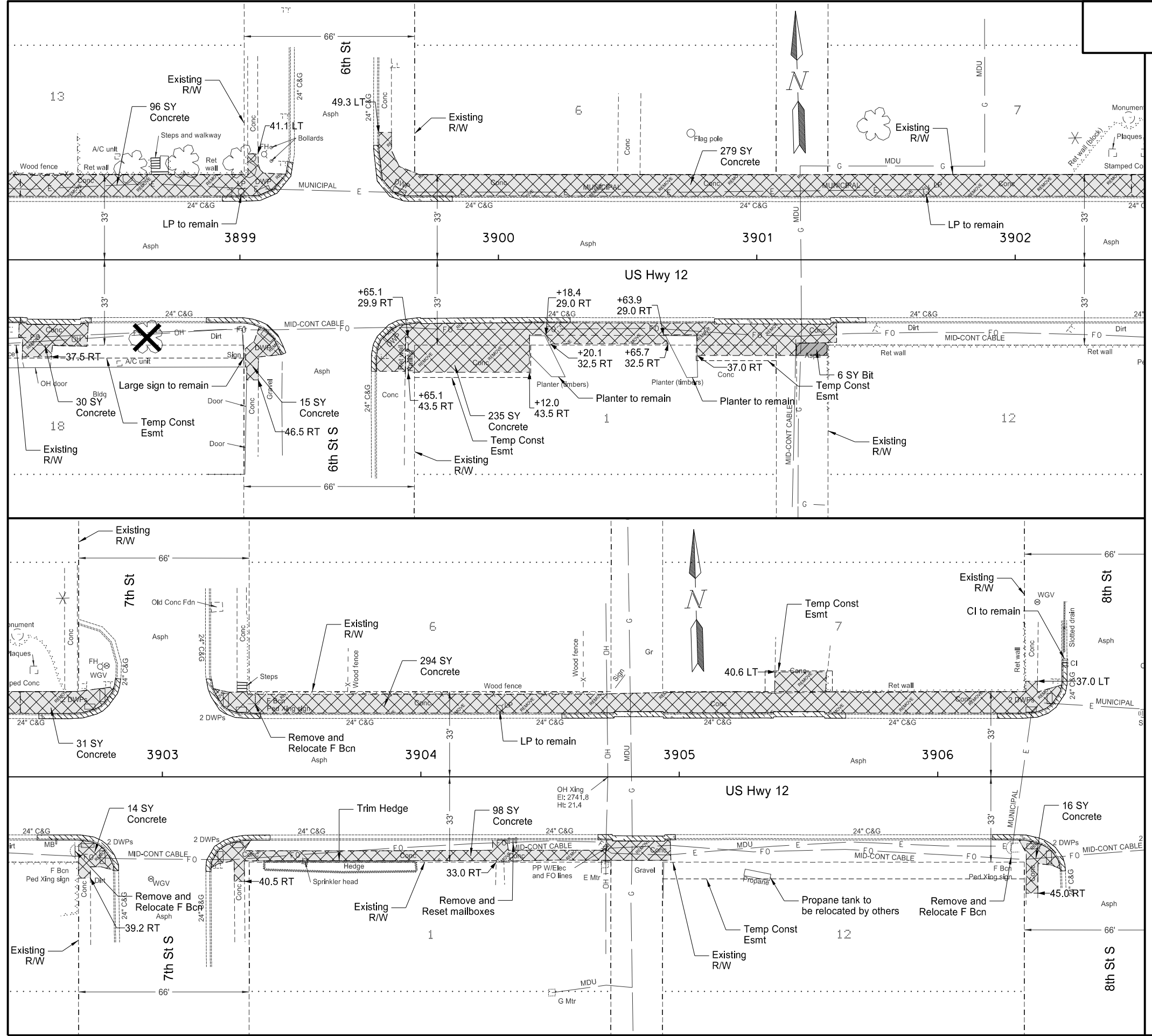
	Concrete Removal
	Bituminous Removal
	Removal of Curb & Gutter
	Tree Removal

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Removals
Sta 3889+55 to 3898+15
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	40	3

SPEC CODE	BID ITEM	QTY	UNIT
201 0380	REMOVAL OF TREES 18IN 3898+64 30.1' Rt	1	EA
201 0395	STUMP REMOVAL 3898+64 30.1' Rt	1	EA
202 0114	REMOVAL OF CONCRETE PAVEMENT 3898+15 to 3902+45 Lt 3898+15 to 3902+45 Rt 3902+45 to 3906+75 Lt 3902+45 to 3906+75 Rt	375 280 325 128	SY SY SY SY
202 0130	REMOVAL OF CURB & GUTTER 3898+93 24.1' Lt to 3899+19 37.8' Lt 3899+53 44.3' Lt to 3899+82 24.1' Lt 3902+52 24' Lt to 3902+82 38' Lt 3903+18 37.9' Lt to 3903+38 24' Lt 3904+55 24.2' Lt to 3905+64 24.1' Lt 3906+23 24.1' Lt to 3906+49 44.2' Lt 3898+15 23.8' Rt to 3898+42 23.9' Rt 3898+87 23.9' Rt to 3899+15 36.6' Rt 3899+52 43.1' Rt to 3900+28 23.9' Rt 3900+84 23.8' Rt to 3901+42 23.9' Rt 3902+52 24' Rt to 3902+82 36.4' Rt 3903+18 36.6' Rt to 3903+42 24' Rt 3904+69 23.8' Rt to 3904+99 23.9' Rt 3906+21 23.9' Rt to 3906+48 36.4' Rt	34 44 38 27 110 40 28 36 89 59 37 31 30 33	LF LF LF LF LF LF LF LF LF LF LF LF LF LF LF
202 0132	REMOVAL OF BITUMINOUS SURFACING 3898+15 to 3902+45 Rt	6	SY



LEGEND

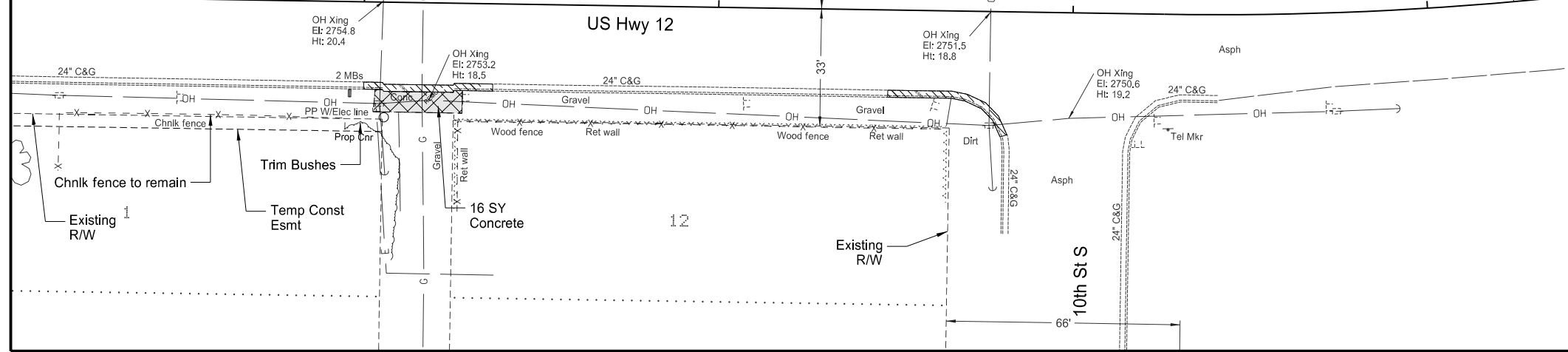
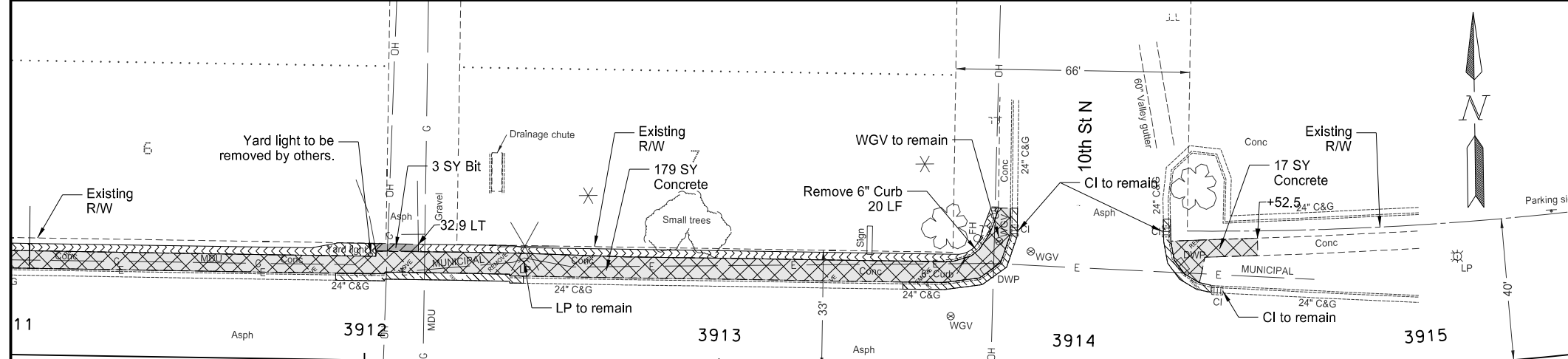
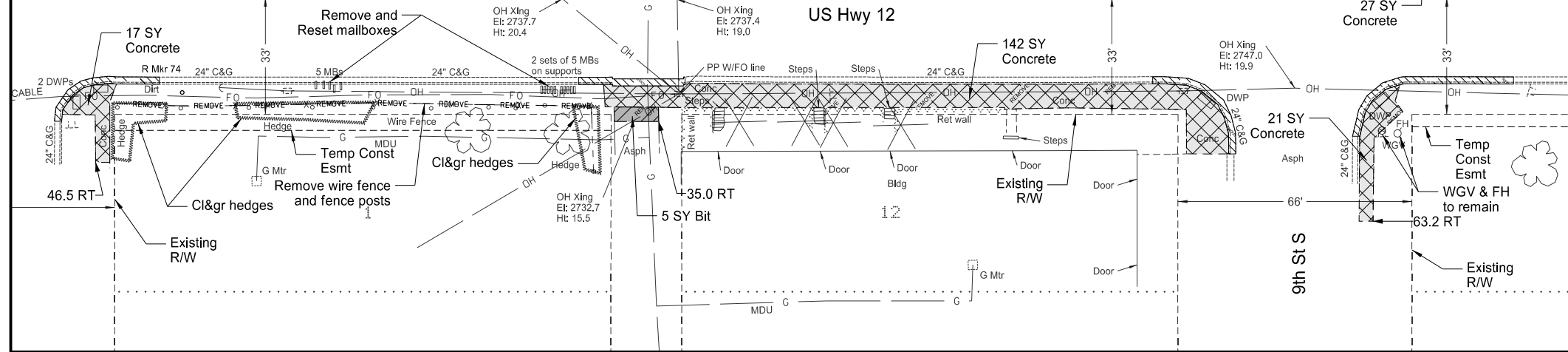
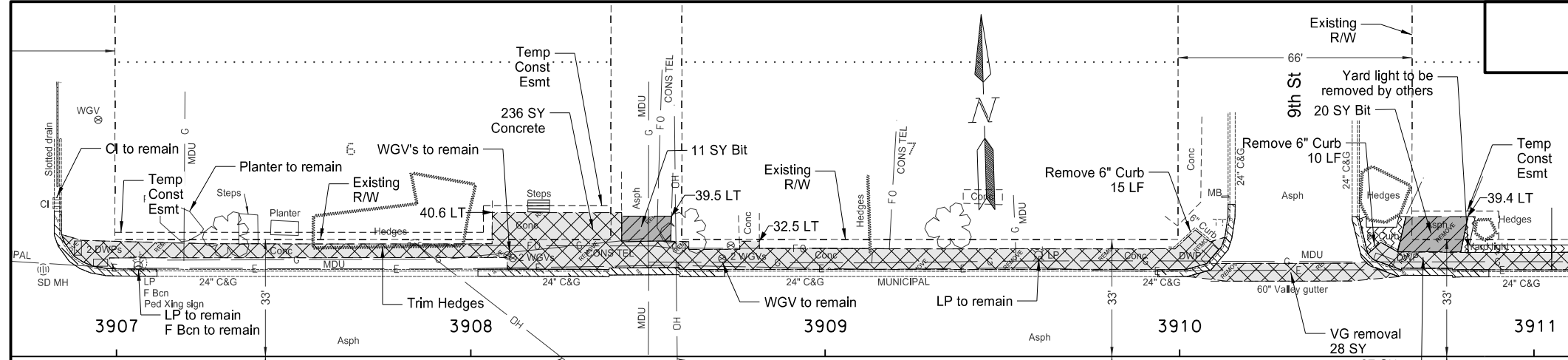
- Concrete Removal
- Bituminous Removal
- Removal of Curb & Gutter
- Tree Removal

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Removals
Sta 3898+15 to 3906+75
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	40	4

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	3906+75 to 3911+05 Lt	291	SY
	3906+75 to 3911+05 Rt	180	SY
	3911+05 to 3915+00 Lt	196	SY
	3911+05 to 3915+00 Rt	16	SY
202 0129	REMOVAL OF CURB		
	3909+97 to 3910+09 Lt	15	LF
	3910+53 to 3910+61 Lt	10	LF
	3913+64 to 3913+77 Lt	20	LF
202 0130	REMOVAL OF CURB & GUTTER		
	3906+84 40.9' Lt to 3907+11 24.1' Lt	39	LF
	3908+02 24.1' Lt to 3908+72 24' Lt	70	LF
	3909+94 24' Lt to 3910+14 42.9' Lt	33	LF
	3910+50 39.4' Lt to 3910+87 23.9' Lt	47	LF
	3911+91 23.9' Lt to 3912+44 23.9' Lt	53	LF
	3913+52 23.9' Lt to 3913+82 45.7' Lt	46	LF
	3914+26 43.3' Lt to 3914+39 24.2' Lt	26	LF
	3906+84 35' Rt to 3907+15 23.8' Rt	34	LF
	3908+30 24.1' Rt to 3908+60 24' Rt	30	LF
	3909+92 23.9' Rt to 3910+14 44.2' Rt	35	LF
	3910+50 39.2' Rt to 3910+94 24' Rt	53	LF
	3912+00 24.1' Rt to 3912+37 24.1' Rt	36	LF
	3913+48 24.1' Rt to 3913+80 35.1' Rt	37	LF
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	3906+75 to 3911+05 Lt	31	SY
	3906+75 to 3911+05 Rt	5	SY
	3911+05 to 3915+00 Lt	3	SY
202 0312	REMOVE EXISTING FENCE	140	LF
302 0405	SALVAGE & RELAY AGGREGATE SURFACE COURSE		
	LANDSCAPE ROCK TYPE 2		
	3906+75 to 3911+05 Lt	3	CY
	3911+05 to 3915+00 Lt	10	CY



LEGEND

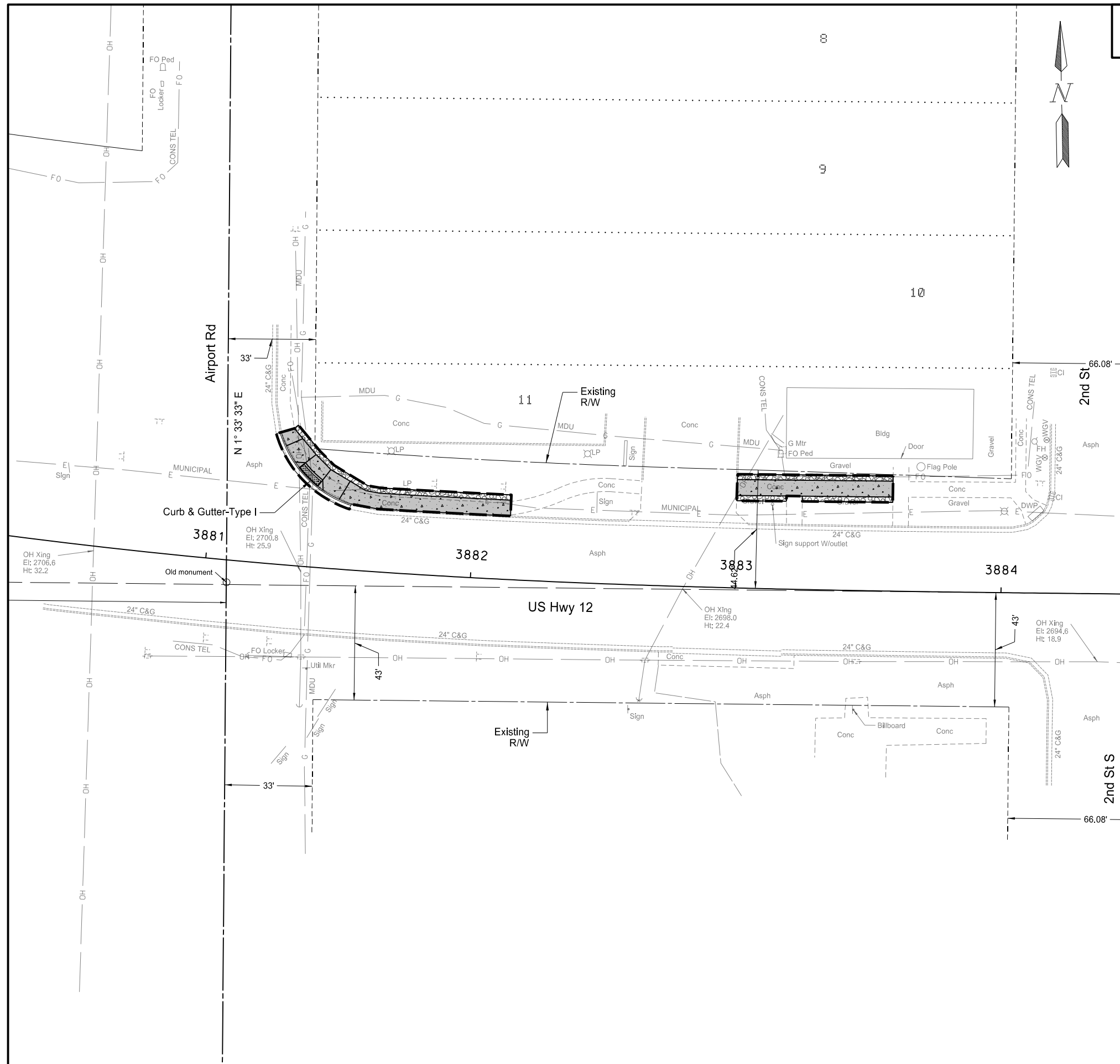
	Concrete Removal
	Bituminous Removal
	Removal of Curb & Gutter
	Salvage & Relay Surface Aggregate
	REMOVE Fence Remove

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Removals
Sta 3906+75 to 3915+00
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	1

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 3884+35 to 3880+25 Sidewalk (4in)	4 23	TON TON
748 0140	CURB & GUTTER-TYPE I 3880+25 to 3884+35	40	LF
750 0115	SIDEWALK CONCRETE 4IN 3880+25 to 3884+35	109	SY
750 2115	DETECTABLE WARNING PANELS 3880+25 to 3884+35	18	SF



LEGEND

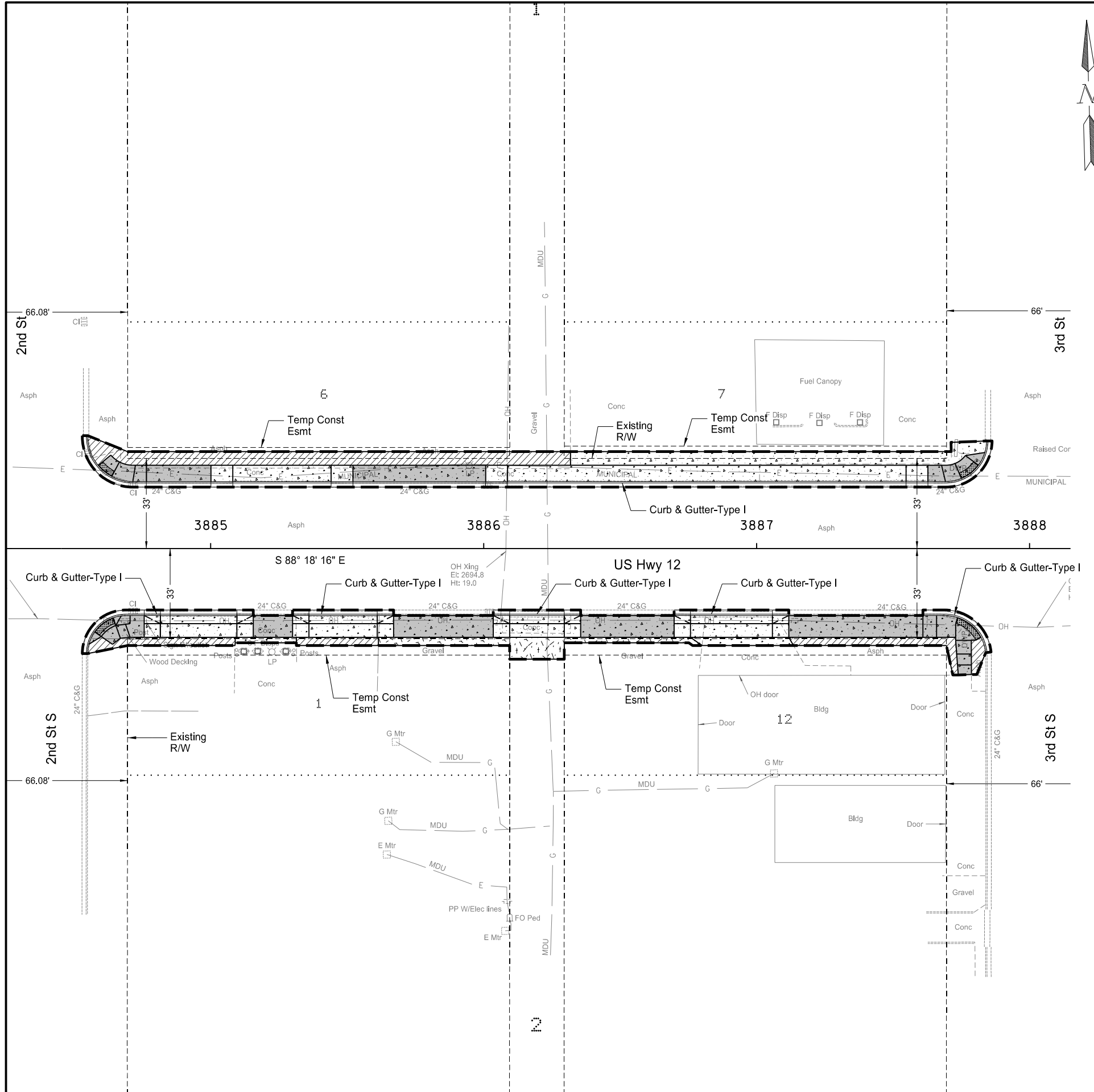
	Sidewalk Concrete 4IN
	Landscape Rock Type I
	Construction Limits / Grading Tie

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

Plan
Sta 3880+25 to 3884+35
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	2

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 3884+35 to 3888+00	108	TON
	Sidewalk (4in)	48	TON
	Driveway (4in)	79	TON
302 0320	AGGREGATE SURFACE COURSE CL 5 3884+35 to 3888+00	9	TON
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT 3884+35 to 3888+00	52	TON
748 0140	CURB & GUTTER-TYPE I 3884+35 to 3888+00	560	LF
750 0115	SIDEWALK CONCRETE 4IN 3884+35 to 3888+00	232	SY
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED 3884+35 to 3888+00	379	SY
750 2115	DETECTABLE WARNING PANELS 3884+35 to 3888+00	64	SF



LEGEND

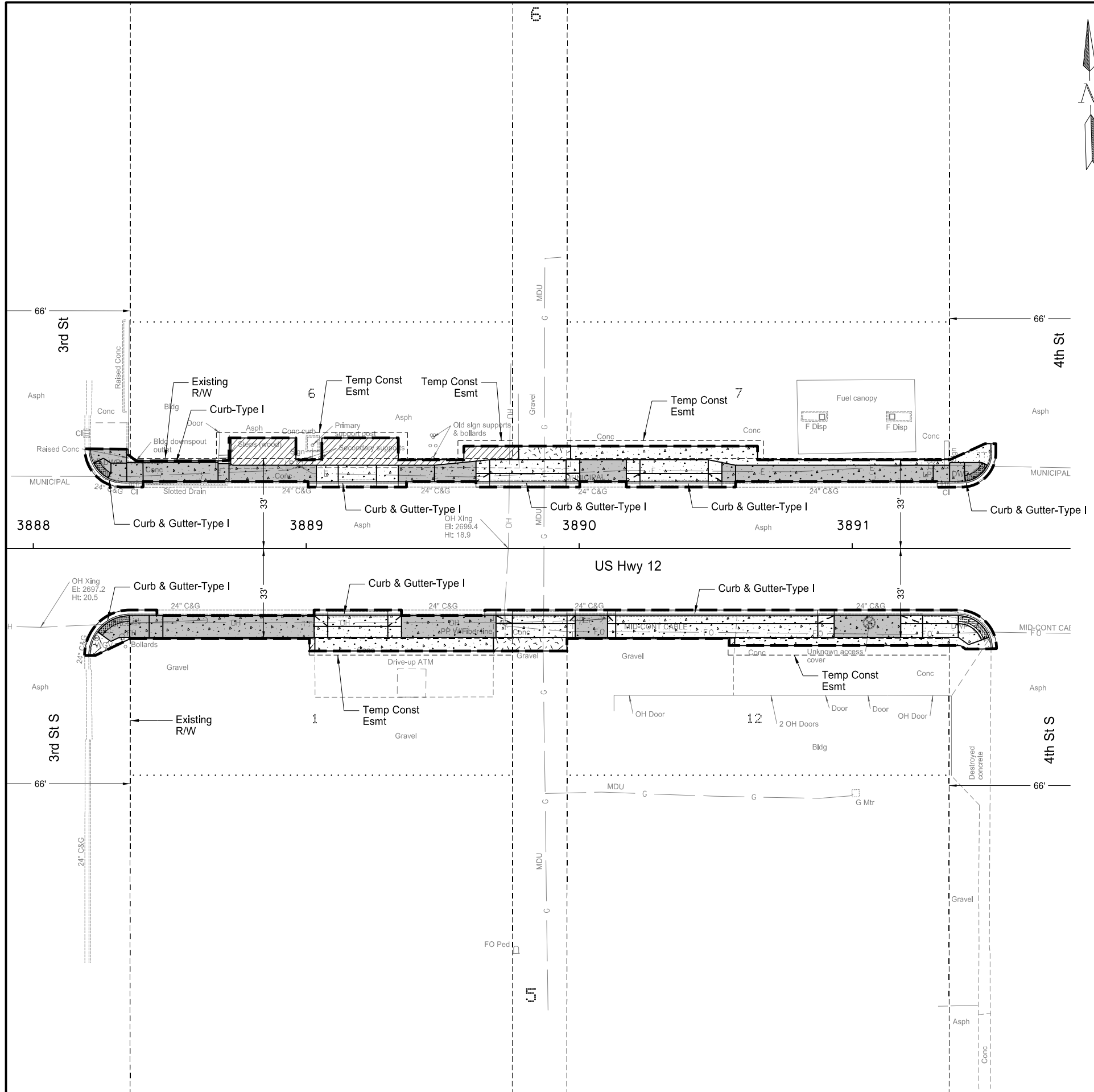
-  Sidewalk Concrete 4IN
-  Driveway Concrete 6IN Reinforced
- Commercial Grade Hot Mix Asphalt: 6"
- Aggregate Surface Course CL 5: 6"
-  Construction Limits / Grading Tie

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



Plan
Sta 3884+35 to 3888+00
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	3

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 3888+00 to 3891+70	70	TON
	Sidewalk (4in)	62	TON
	Driveway (4in)	77	TON
302 0320	AGGREGATE SURFACE COURSE CL 5 3888+00 to 3891+70	8	TON
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT 3888+00 to 3891+70	26	TON
722 6140	ADJUST GATE VALVE BOX 3888+23 32.7' Rt	1	EA
748 0140	CURB & GUTTER-TYPE I 3888+00 to 3891+70	430	LF
748 0520	CURB-TYPE I 3888+34 to 3888+72 Lt	51	LF
750 0115	SIDEWALK CONCRETE 4IN 3888+00 to 3891+70	296	SY
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED 3888+00 to 3891+70	371	SY
750 2115	DETECTABLE WARNING PANELS 3888+00 to 3891+70	84	SF



LEGEND

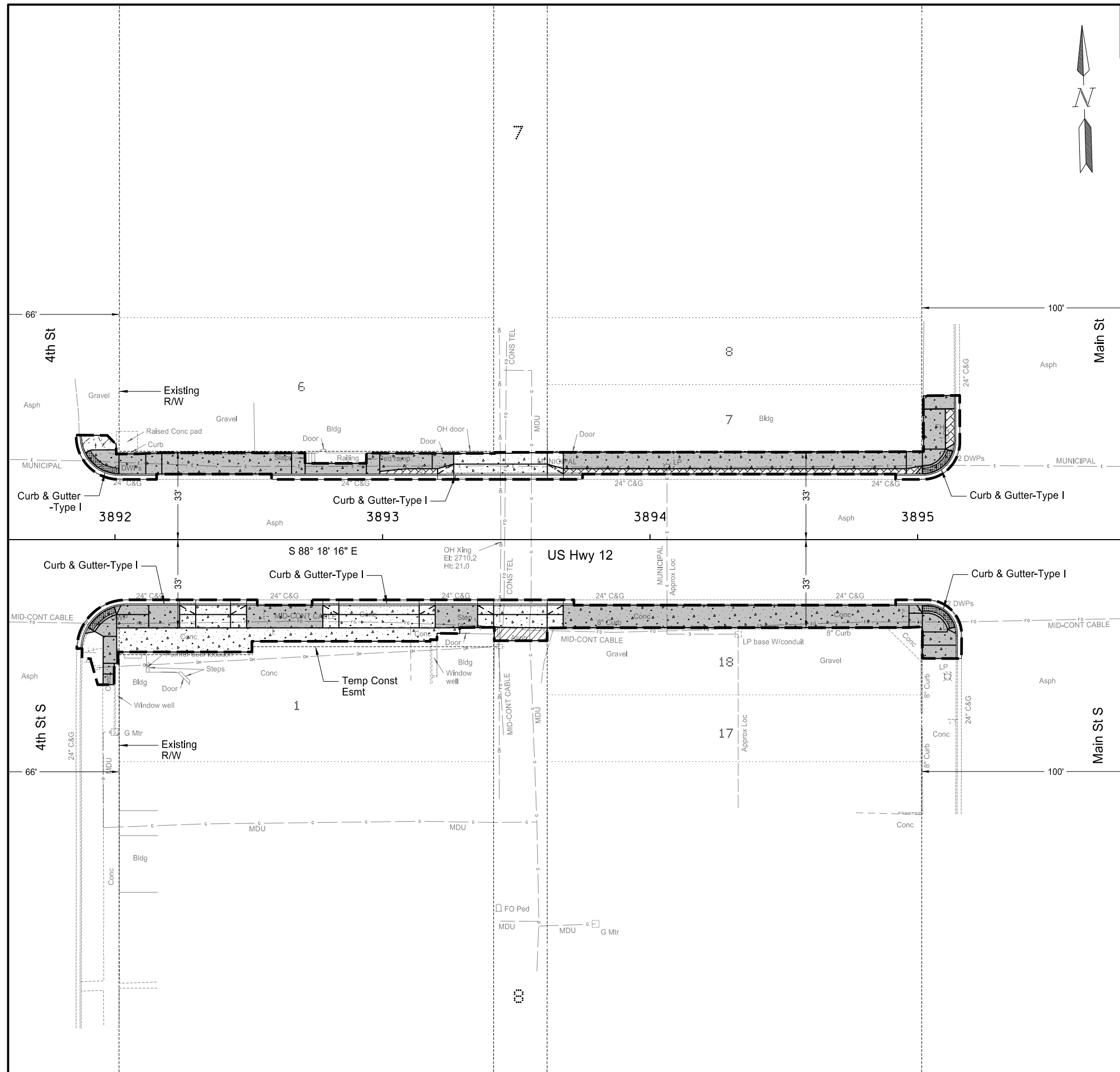
-  Sidewalk Concrete 4IN
-  Driveway Concrete 6IN Reinforced
-  Commercial Grade Hot Mix Asphalt: 6"
-  Aggregate Surface Course CL 5: 6"
-  Construction Limits / Grading Tie

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Plan
Sta 3888+00 to 3891+70
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	4

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 3891+70 to 3895+60	46	TON
	Sidewalk (4in)	104	TON
	Driveway (4in)	46	TON
302 0320	AGGREGATE SURFACE COURSE CL 5 3891+70 to 3895+60	2	TON
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT 3891+70 to 3895+60	4	TON
748 0140	CURB & GUTTER-TYPE I 3891+70 to 3895+60	413	LF
750 0110	SIDEWALK BRICK PATTERN 3891+70 to 3895+60	39	SY
750 0115	SIDEWALK CONCRETE 4IN 3891+70 to 3895+60	458	SY
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED 3891+70 to 3895+60	222	SY
750 2115	DETECTABLE WARNING PANELS 3891+70 to 3895+60	110	SF



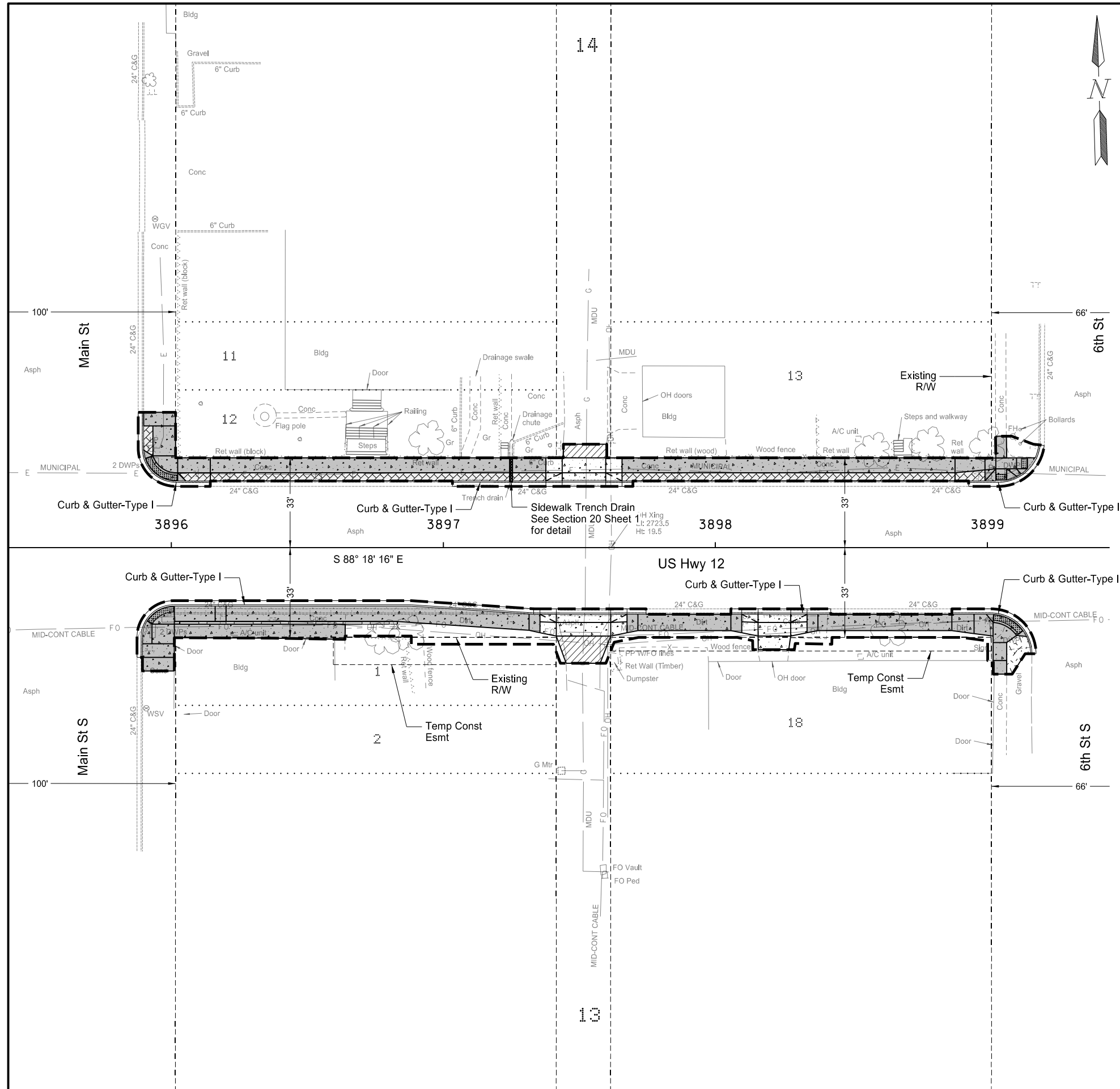
LEGEND	
	Sidewalk Concrete 4IN
	Sidewalk Brick Pattern
	Driveway Concrete 6IN Reinforced
	Commercial Grade Hot Mix Asphalt: 6"
	Aggregate Surface Course CL 5: 6"
	Construction Limits / Grading Tie

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Plan
Sta 3891+70 to 3895+60
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	5

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 3895+60 to 3899+40	52	TON
	Sidewalk (4in)	113	TON
	Driveway (4in)	17	TON
302 0320	AGGREGATE SURFACE COURSE CL 5 3895+60 to 3899+40	2	TON
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT 3895+60 to 3899+40	9	TON
748 0140	CURB & GUTTER-TYPE I 3895+60 to 3899+40	420	LF
750 0110	SIDEWALK BRICK PATTERN 3895+60 to 3899+40	94	SY
750 0115	SIDEWALK CONCRETE 4IN 3895+60 to 3899+40	449	SY
750 0150	SIDEWALK TRENCH DRAIN 3897+25 Lt	1	EA
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED 3895+60 to 3899+40	81	SY
750 2115	DETECTABLE WARNING PANELS 3895+60 to 3899+40	88	SF



LEGEND

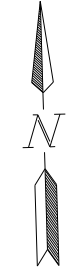
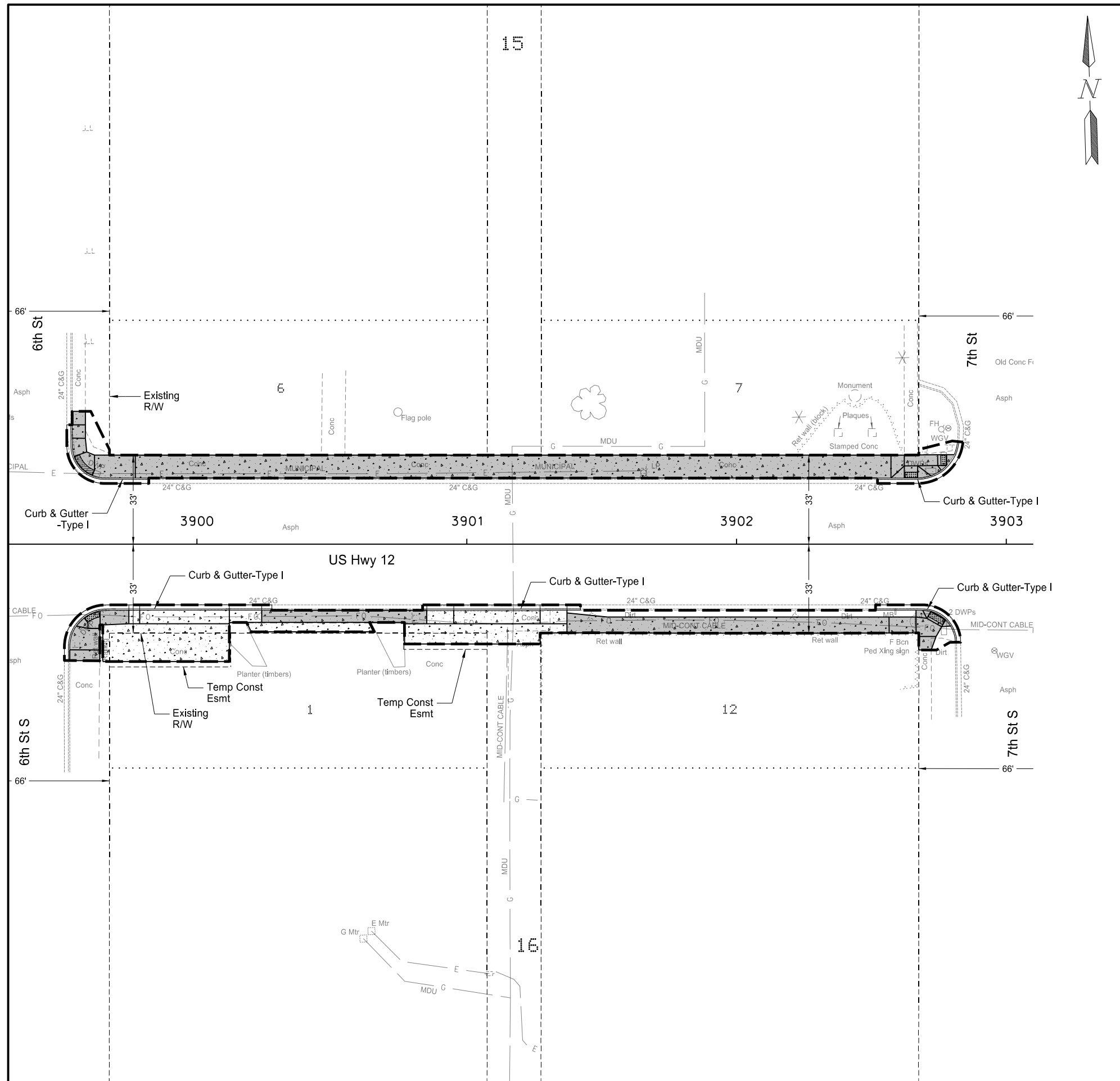
	Sidewalk Concrete 4IN
	Sidewalk Brick Pattern
	Driveway Concrete 6IN Reinforced
	Commercial Grade Hot Mix Asphalt: 6"
	Aggregate Surface Course CL 5: 6"
	Construction Limits / Grading Tie

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Plan
Sta 3895+60 to 3899+40
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	6

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5		
	3899+40 to 3903+00	28	TON
	Sidewalk (4in)	97	TON
	Driveway (4in)	40	TON
748 0140	CURB & GUTTER-TYPE I		
	3899+40 to 3903+00	266	LF
750 0115	SIDEWALK CONCRETE 4IN		
	3899+40 to 3903+00	467	SY
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED		
	3899+40 to 3903+00	192	SY
750 2115	DETECTABLE WARNING PANELS		
	3899+40 to 3903+00	60	SF



LEGEND

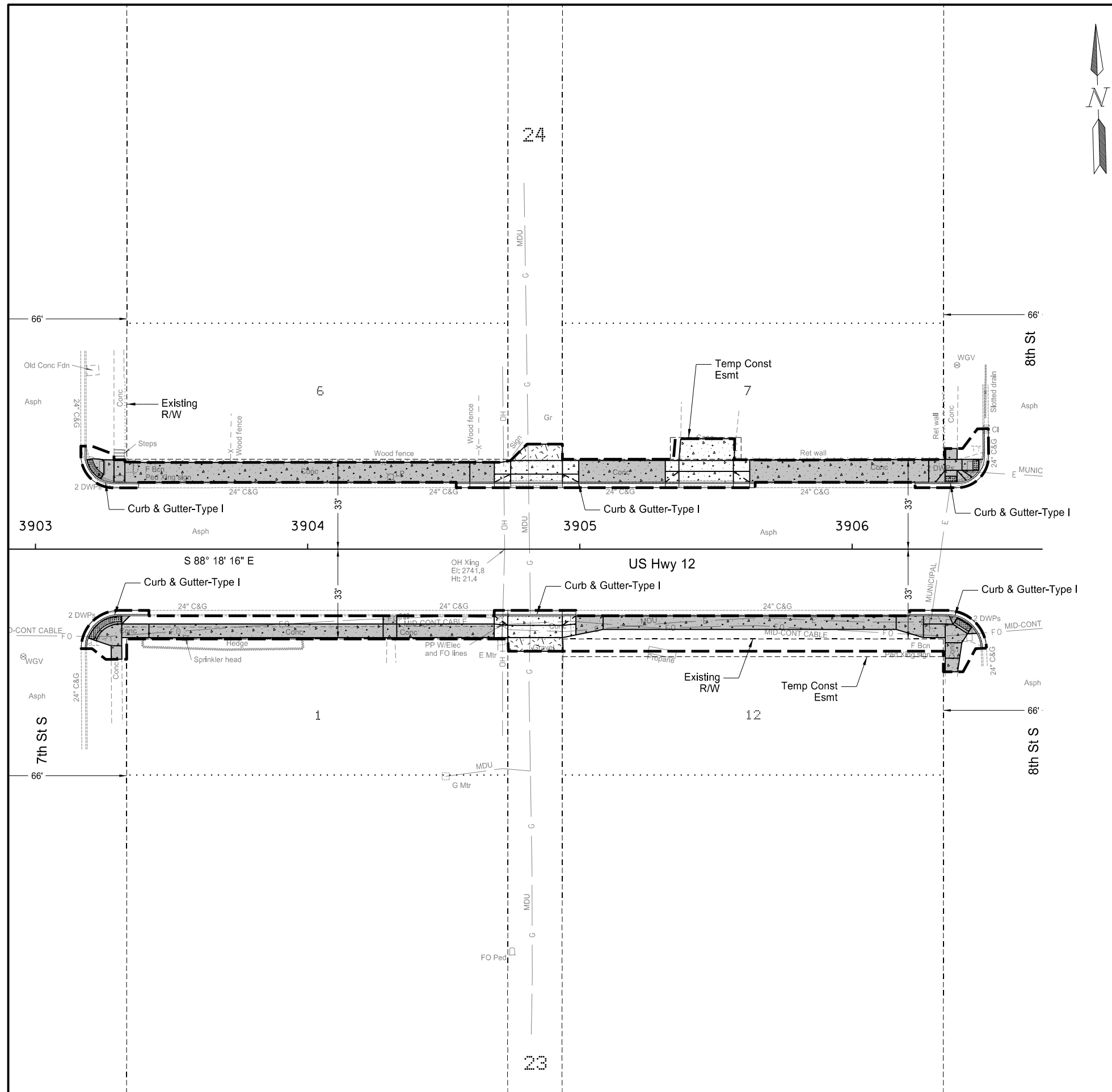
- Sidewalk Concrete 4IN
- Driveway Concrete 6IN Reinforced
- Construction Limits / Grading Tie

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Plan
Sta 3899+40 to 3903+00
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	7

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 3903+00 to 3906+65	29	TON
	Sidewalk (4in)	87	TON
	Driveway (4in)	21	TON
302 0320	AGGREGATE SURFACE COURSE CL 5 3903+00 to 3906+65	5	TON
748 0140	CURB & GUTTER-TYPE I 3903+00 to 3906+65	274	LF
750 0115	SIDEWALK CONCRETE 4IN 3903+00 to 3906+65	416	SY
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED 3903+00 to 3906+65	99	SY
750 2115	DETECTABLE WARNING PANELS 3903+00 to 3906+65	72	SF



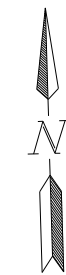
LEGEND

	Sidewalk Concrete 4IN
	Driveway Concrete 6IN Reinforced
	Aggregate Surface Course CL 5: 6"
	Construction Limits / Grading Tie

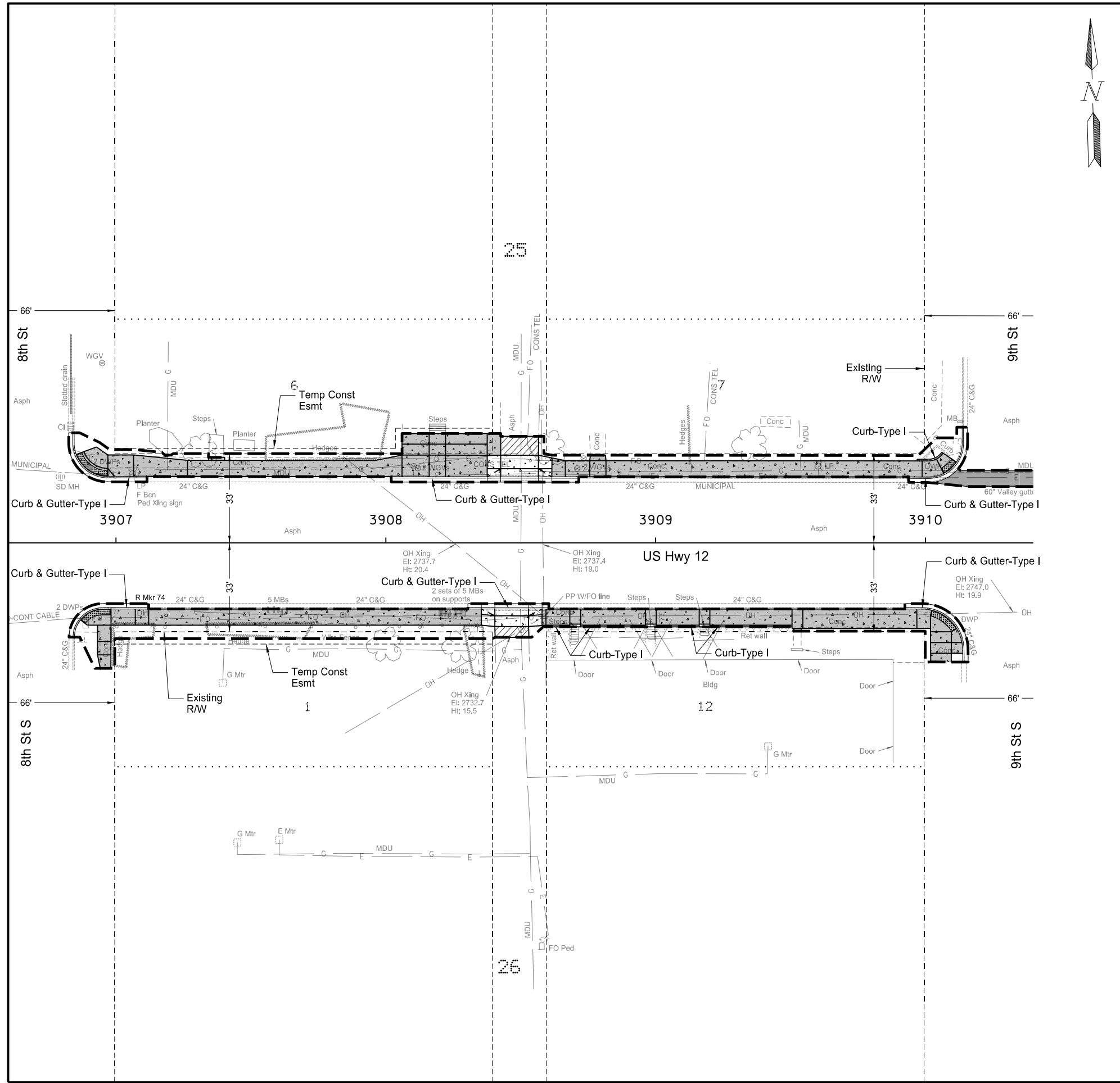
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Plan
Sta 3903+00 to 3906+65
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	8



SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5		
	3906+65 to 3910+35	34	TON
	Sidewalk (4in)	100	TON
	Driveway (4in)	8	TON
	Valley Gutter (4in)	4	TON
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	3906+65 to 3910+35	5	TON
722 6140	ADJUST GATE VALVE BOX		
	3908+10 28.5' Lt	1	EA
	3908+11 27.8' Lt	1	EA
	3908+71 27.6' Lt	1	EA
	3908+73 31.3' Lt	1	EA
748 0140	CURB & GUTTER-TYPE I		
	3906+65 to 3910+35	242	LF
748 0520	CURB-TYPE I		
	3908+59 to 3909+51 Rt	91	LF
	3909+97 to 3910+07 Lt	10	LF
748 1030	VALLEY GUTTER 72IN		
	3906+65 to 3910+35	18	SY
750 0115	SIDEWALK CONCRETE 4IN		
	3906+65 to 3910+35	478	SY
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED		
	3906+65 to 3910+35	37	SY
750 2115	DETECTABLE WARNING PANELS		
	3906+65 to 3910+35	84	SF



LEGEND

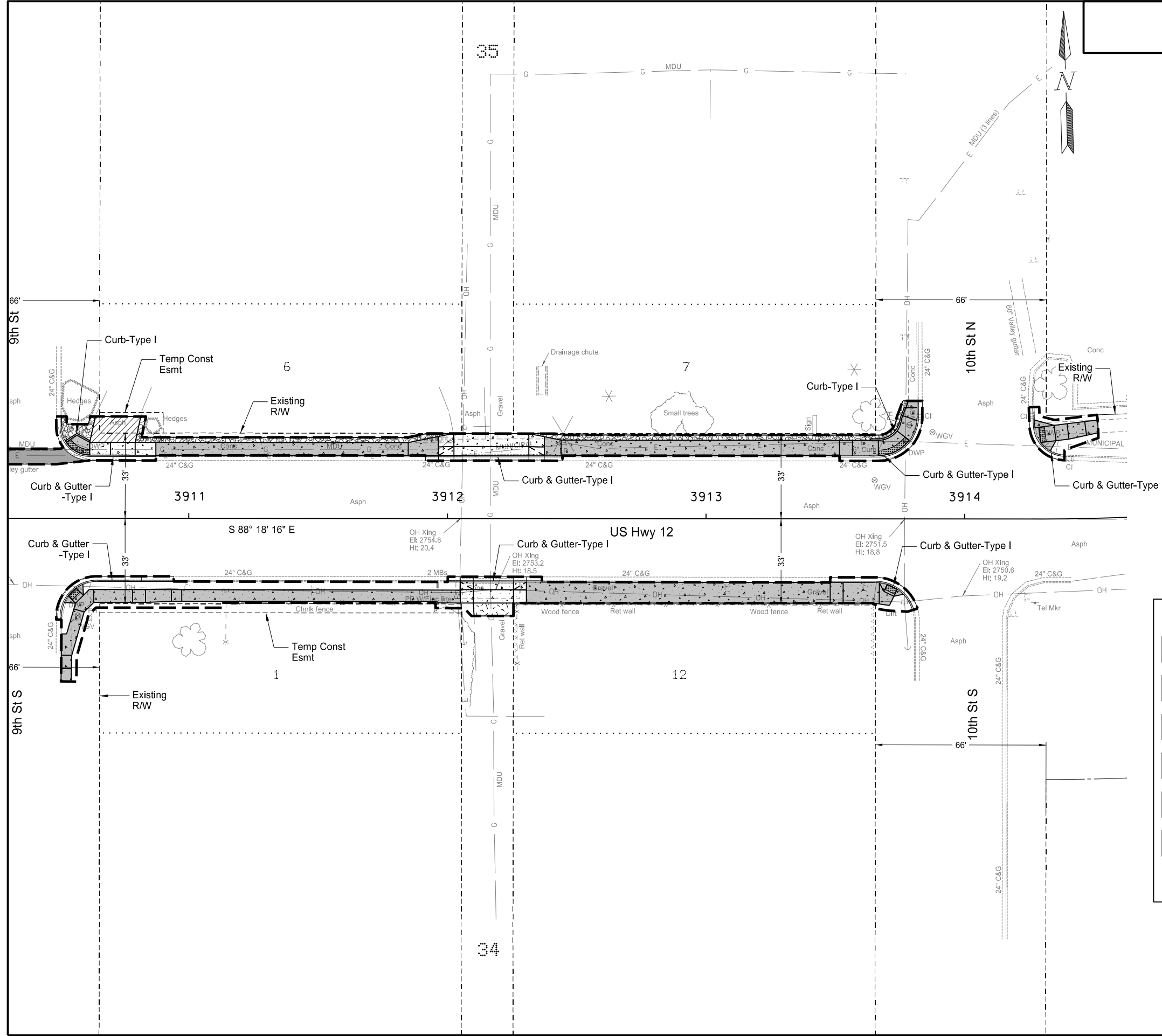
	Sidewalk Concrete 4IN
	Driveway Concrete 6IN Reinforced
	Valley Gutter - Type I
	Commercial Grade Hot Mix Asphalt: 6"
	Construction Limits / Grading Tie

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Plan
Sta 3906+65 to 3910+35
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	60	9

SPEC CODE	BID ITEM	QTY	UNIT
302 0120	AGGREGATE BASE COURSE CL 5 3910+35 to 3914+55	38	TON
	Sidewalk (4in)	85	TON
	Driveway (4in)	16	TON
	Valley Gutter (4in)	3	TON
302 0320	AGGREGATE SURFACE COURSE CL 5 3910+35 to 3914+55	2	TON
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT 3910+35 to 3914+55	6	TON
722 6140	ADJUST GATE VALVE BOX 3910+57 37.6' Rt 3913+79 36.3' Lt	1 1	EA EA
748 0140	CURB & GUTTER-TYPE I 3910+35 to 3914+55	299	LF
748 0520	CURB-TYPE I 3910+52 to 3910+62 lt 3913+64 to 3913+77 lt	11 21	LF LF
748 1030	VALLEY GUTTER 72IN 3910+35 to 3914+55	13	SY
750 0115	SIDEWALK CONCRETE 4IN 3910+35 to 3914+55	409	SY
750 1016	DRIVEWAY CONCRETE 6IN REINFORCED 3910+35 to 3914+55	75	SY
750 2115	DETECTABLE WARNING PANELS 3910+35 to 3914+55	74	SF



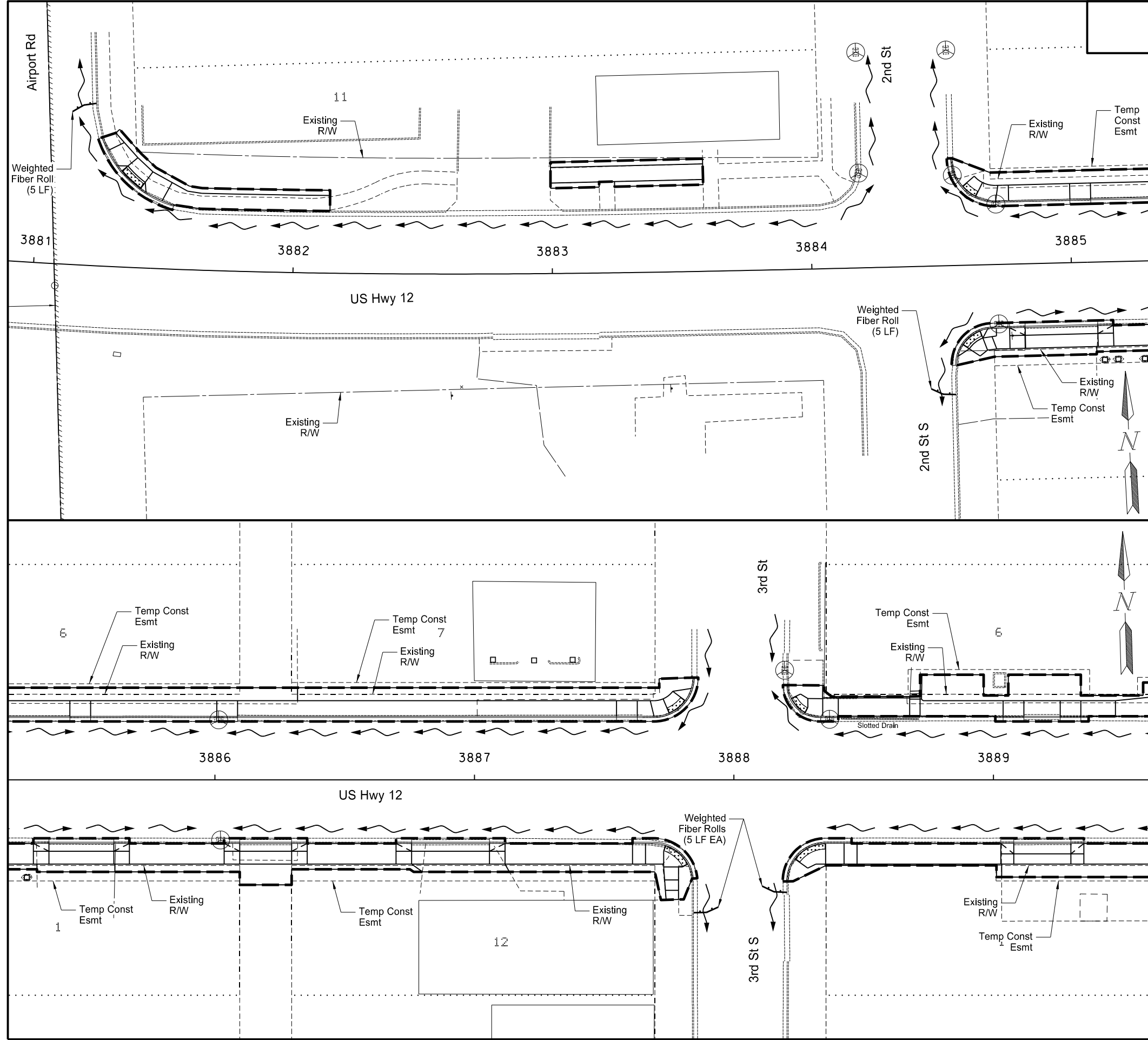
LEGEND

	Sidewalk Concrete 4IN
	Driveway Concrete 6IN Reinforced
	Valley Gutter - Type I
	Commercial Grade Hot Mix Asphalt: 6"
	Aggregate Surface Course CL 5: 6"
	Landscape Rock Type II
	Construction Limits / Grading Tie

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Plan
Sta 3910+35 to 3914+55
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	76	1



SPEC CODE	BID ITEM	QTY	UNIT
261 0200	WEIGHTED FIBER ROLLS		
	3881+00 to 3885+25 Lt	5	LF
	3881+00 to 3885+25 RT	5	LF
	3885+25 to 3889+55 RT	10	LF
261 0201	REMOVE WEIGHTED FIBER ROLLS		
	3881+00 to 3885+25 Lt	5	LF
	3881+00 to 3885+25 RT	5	LF
	3885+25 to 3889+55 RT	10	LF
708 1540	INLET PROTECTION-SPECIAL		
	3884+19 36.6' Lt	1	EA
	3884+19 83.1' Lt	1	EA
	3884+54 83.1' Lt	1	EA
	3884+55 34.8' Lt	1	EA
	3884+71 23.3' Lt	1	EA
	3884+72 22.9' Rt	1	EA
	3886+01 23.1' Lt	1	EA
	3886+02 23.2' Rt	1	EA
	3888+18 41.5' Lt	1	EA
	3888+37 23.3' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	3884+19 36.6' Lt	1	EA
	3884+19 83.1' Lt	1	EA
	3884+54 83.1' Lt	1	EA
	3884+55 34.8' Lt	1	EA
	3884+71 23.3' Lt	1	EA
	3884+72 22.9' Rt	1	EA
	3886+01 23.1' Lt	1	EA
	3886+02 23.2' Rt	1	EA
	3888+18 41.5' Lt	1	EA
	3888+37 23.3' Lt	1	EA

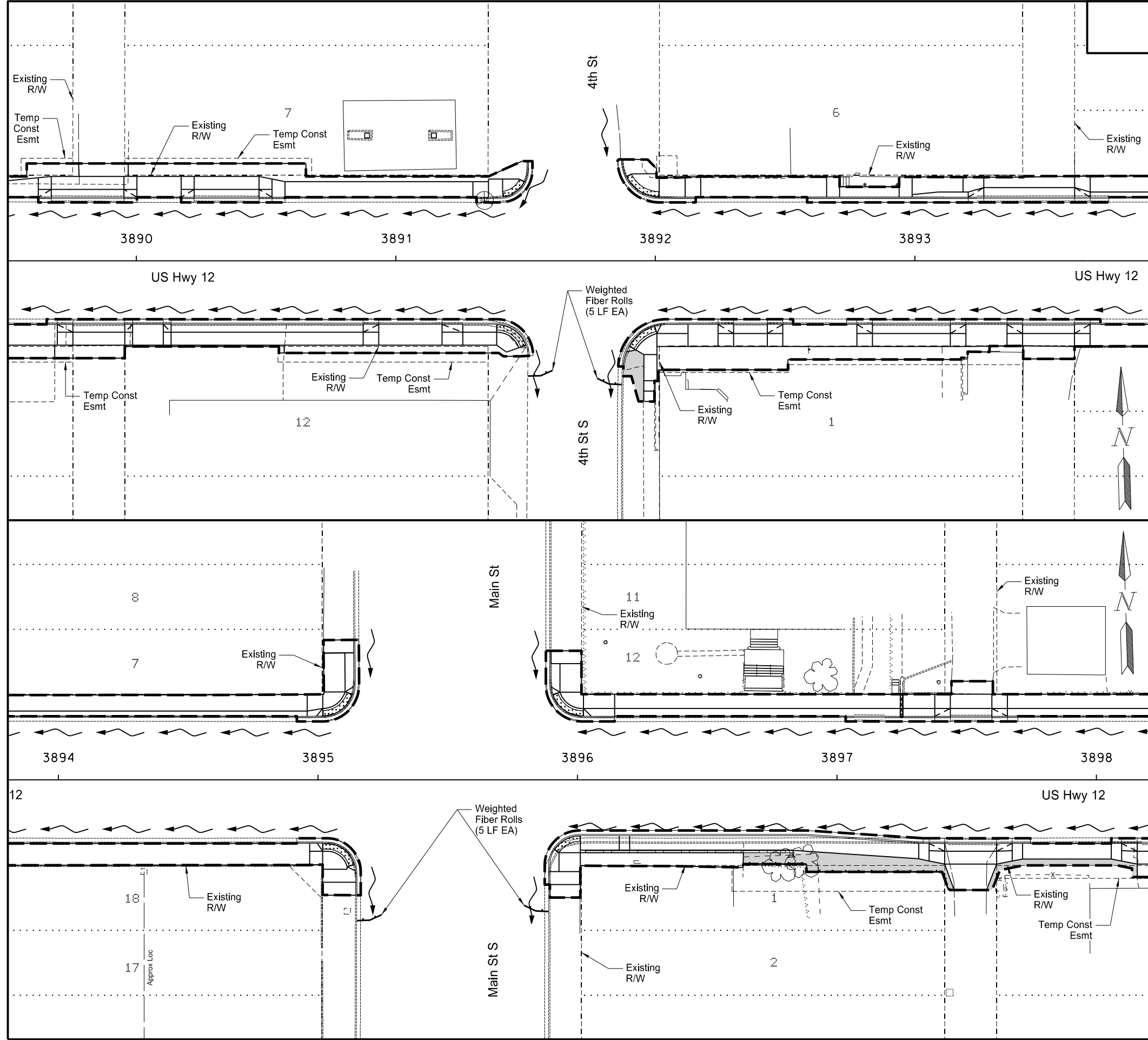
LEGEND

- Flow Direction
- Construction Limits Grading Tie
- Inlet Protection - Special

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Temporary Erosion Control
Sta 3881+00 to 3889+55
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	76	2



SPEC CODE	BID ITEM	QTY	UNIT
253 0201	HYDRAULIC MULCH 3889+55 to 3893+85 Rt 3893+85 to 3898+15 Rt	0.01 0.02	ACRE ACRE
261 0112	FIBER ROLLS 12IN 3896+64 to 3897+45 Rt	90	LF
261 0200	WEIGHTED FIBER ROLLS 3889+55 to 3893+85 RT 3893+85 to 3898+15 RT	10 10	LF LF
261 0201	REMOVE WEIGHTED FIBER ROLLS 3889+55 to 3893+85 RT 3893+85 to 3898+15 RT	10 10	LF LF
708 1540	INLET PROTECTION-SPECIAL 3891+34 23.3' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL 3891+34 23.3' Lt	1	EA

LEGEND

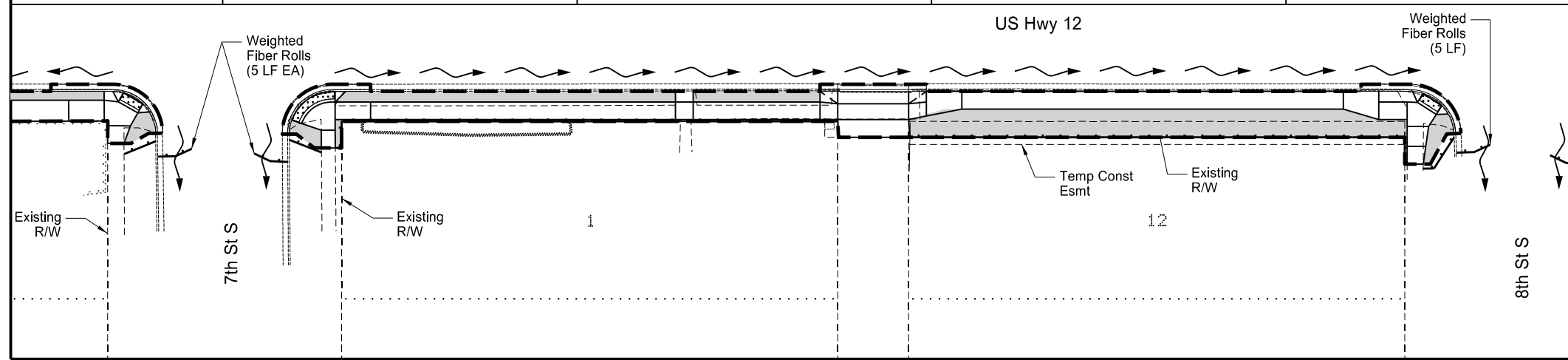
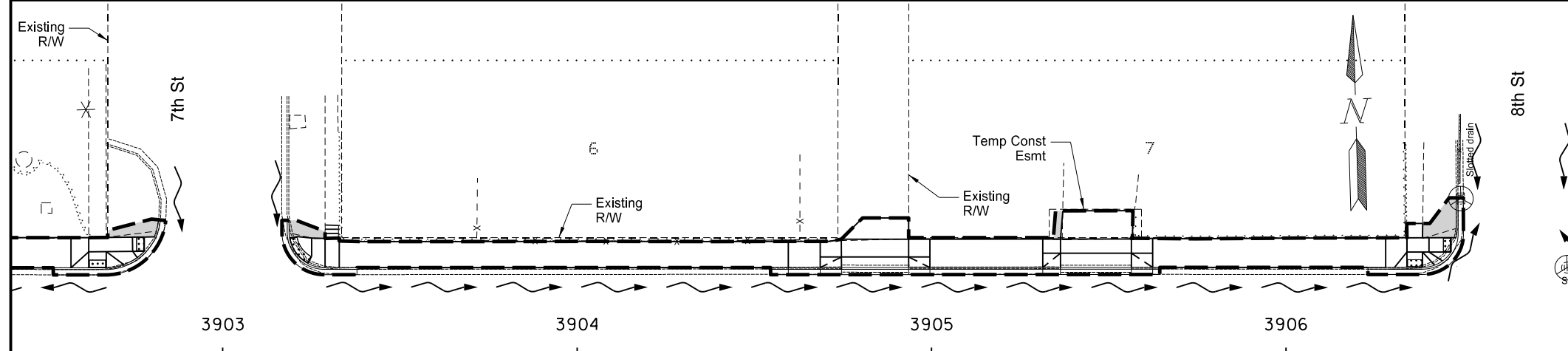
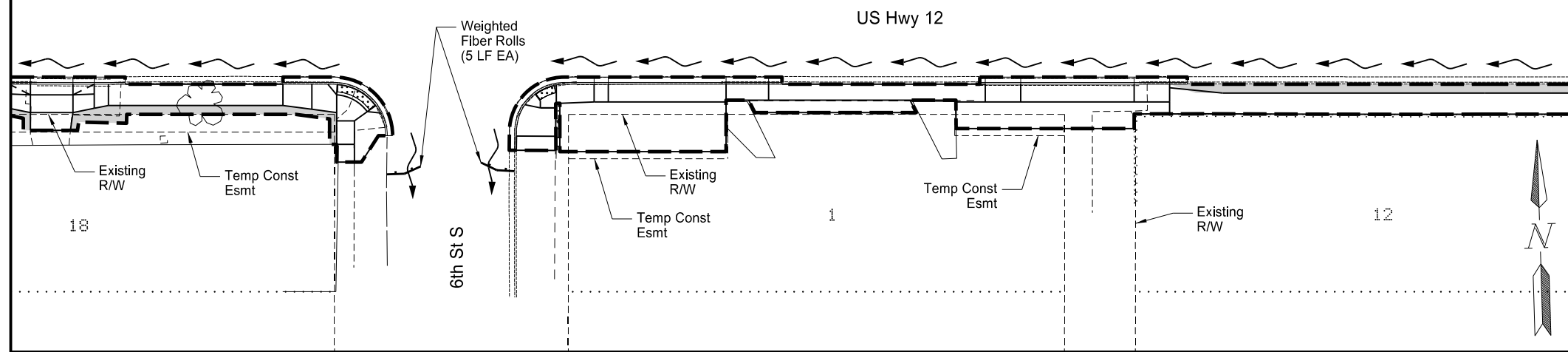
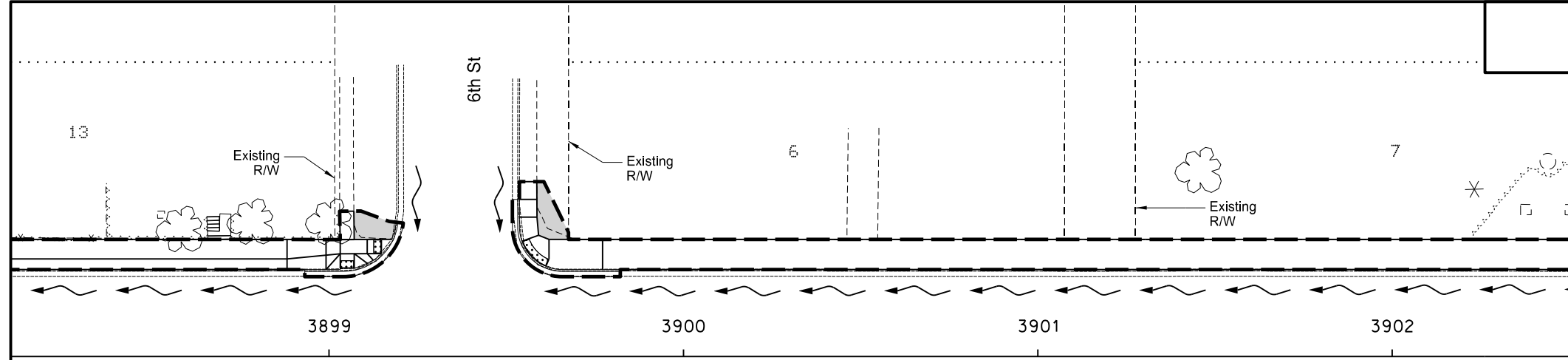
	Flow Direction
	Construction Limits Grading Tie
	Fiber Rolls 12in
	Inlet Protection - Special
	Hydraulic Mulch

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Temporary Erosion Control
Sta 3889+55 to 3898+15
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	76	3

SPEC CODE	BID ITEM	QTY	UNIT
253 0201	HYDRAULIC MULCH		
	3898+15 to 3902+45 Lt	0.01	ACRE
	3898+15 to 3902+45 Rt	0.02	ACRE
	3902+45 to 3906+75 Lt	0.01	ACRE
	3902+45 to 3906+75 Rt	0.05	ACRE
261 0112	FIBER ROLLS 12IN		
	3902+72 to 3902+81 Rt	10	LF
	3903+19 to 3903+28 Rt	10	LF
	3903+32 to 3904+29 Rt	105	LF
	3904+32 to 3904+74 Rt	42	LF
	3904+94 to 3906+34 Rt	148	LF
	3906+39 to 3906+47 Rt	14	LF
261 0200	WEIGHTED FIBER ROLLS		
	3898+15 to 3902+45 Rt	10	LF
	3902+45 to 3906+75 Rt	15	LF
261 0201	REMOVE WEIGHTED FIBER ROLLS		
	3898+15 to 3902+45 Rt	10	LF
	3902+45 to 3906+75 Rt	15	LF
708 1540	INLET PROTECTION-SPECIAL		
	3906+49 44' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	3906+49 44' Lt	1	EA



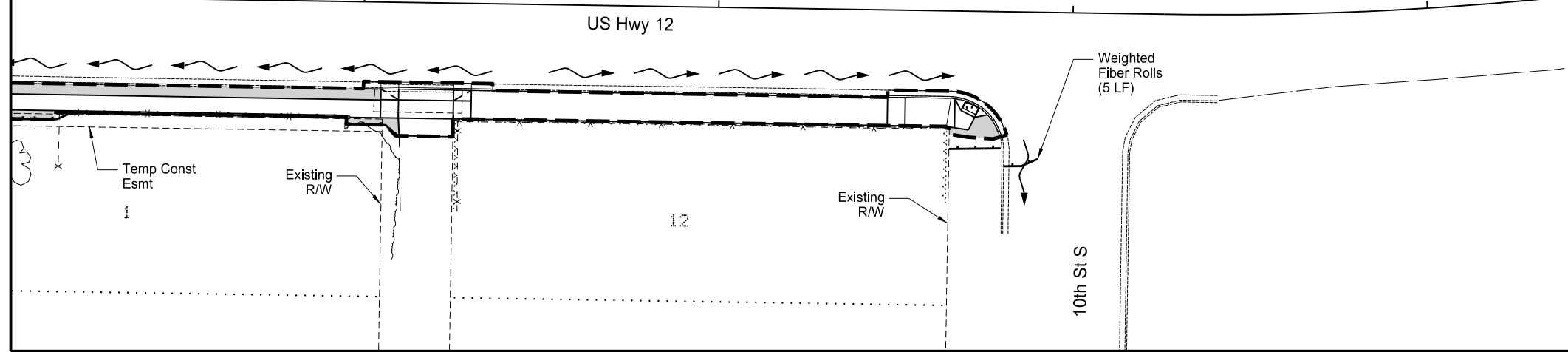
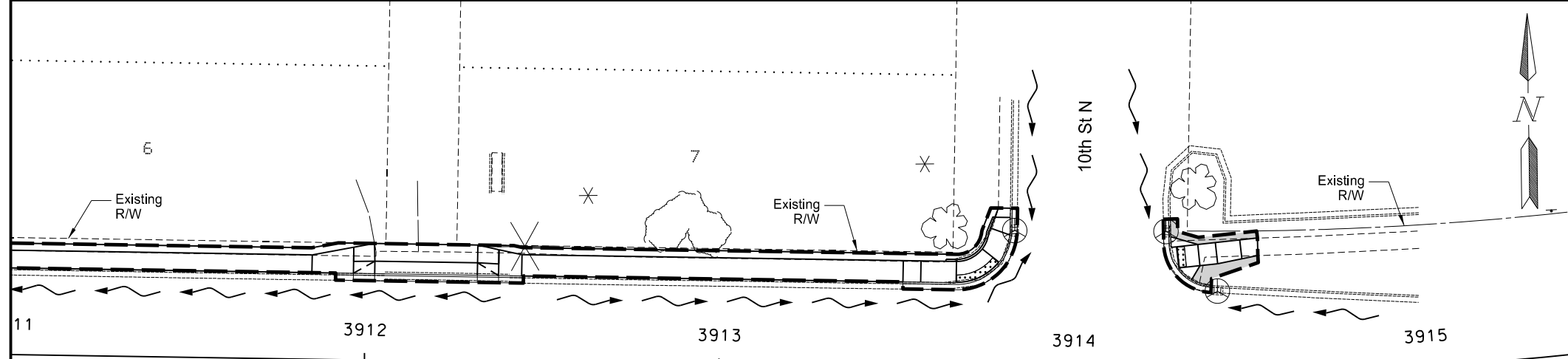
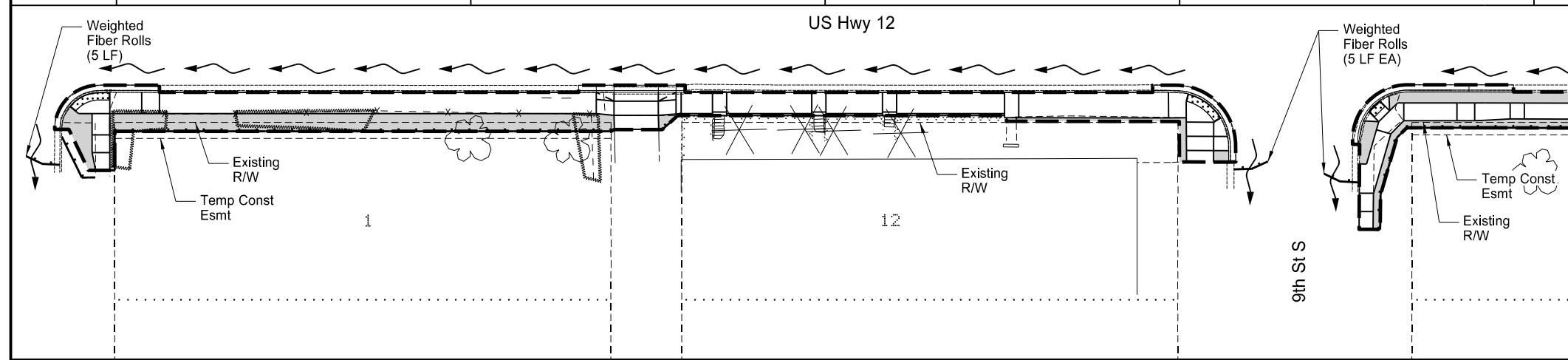
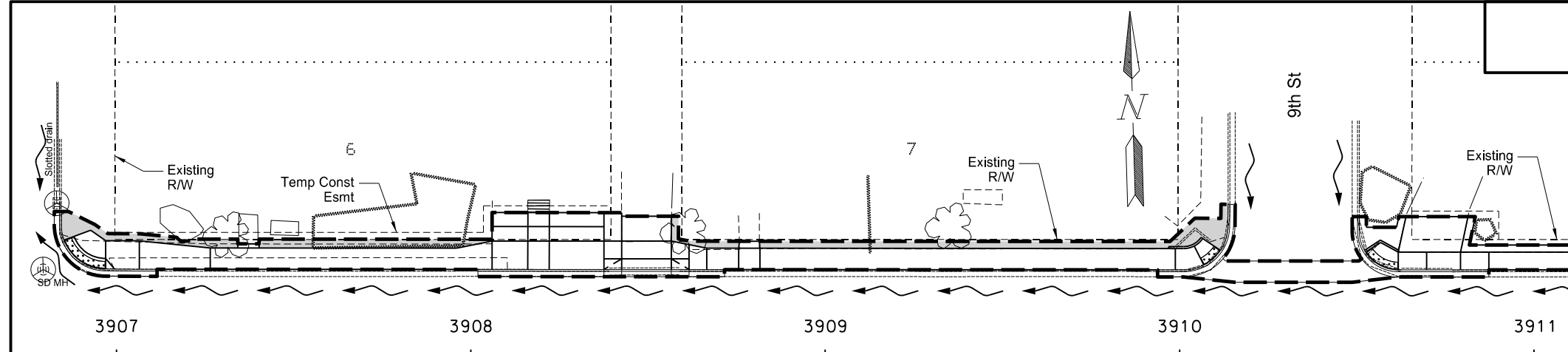
LEGEND

- Flow Direction
- Construction Limits Grading Tie
- Fiber Rolls 12in
- Inlet Protection - Special
- Hydraulic Mulch

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Temporary Erosion Control
Sta 3898+15 to 3906+75
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	76	4



SPEC CODE	BID ITEM	QTY	UNIT
253 0201	HYDRAULIC MULCH		
	3906+75 to 3911+05 Lt	0.02	ACRE
	3906+75 to 3911+05 Rt	0.03	ACRE
	3911+05 to 3915+00 Lt	0.01	ACRE
	3911+05 to 3915+00 Rt	0.02	ACRE
261 0112	FIBER ROLLS 12IN		
	3906+85 to 3906+94 Rt	17	LF
	3906+98 to 3908+41 Rt	154	LF
	3908+53 to 3908+59 Rt	8	LF
	3910+55 to 3911+05 Rt	73	LF
	3911+05 to 3912+10 Rt	109	LF
	3913+66 to 3913+80 Rt	15	LF
261 0200	WEIGHTED FIBER ROLLS		
	3906+75 to 3911+05 Rt	15	LF
	3911+05 to 3915+00 Rt	5	LF
261 0201	REMOVE WEIGHTED FIBER ROLLS		
	3906+75 to 3911+05 Rt	15	LF
	3911+05 to 3915+00 Rt	5	LF
708 1540	INLET PROTECTION-SPECIAL		
	3906+79 24.5' Lt	1	EA
	3906+83 43.2' Lt	1	EA
	3913+83 39.4' Lt	1	EA
	3914+26 39.8' Lt	1	EA
	3914+41 23.1' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	3906+79 24.5' Lt	1	EA
	3906+83 43.2' Lt	1	EA
	3913+83 39.4' Lt	1	EA
	3914+26 39.8' Lt	1	EA
	3914+41 23.1' Lt	1	EA

LEGEND

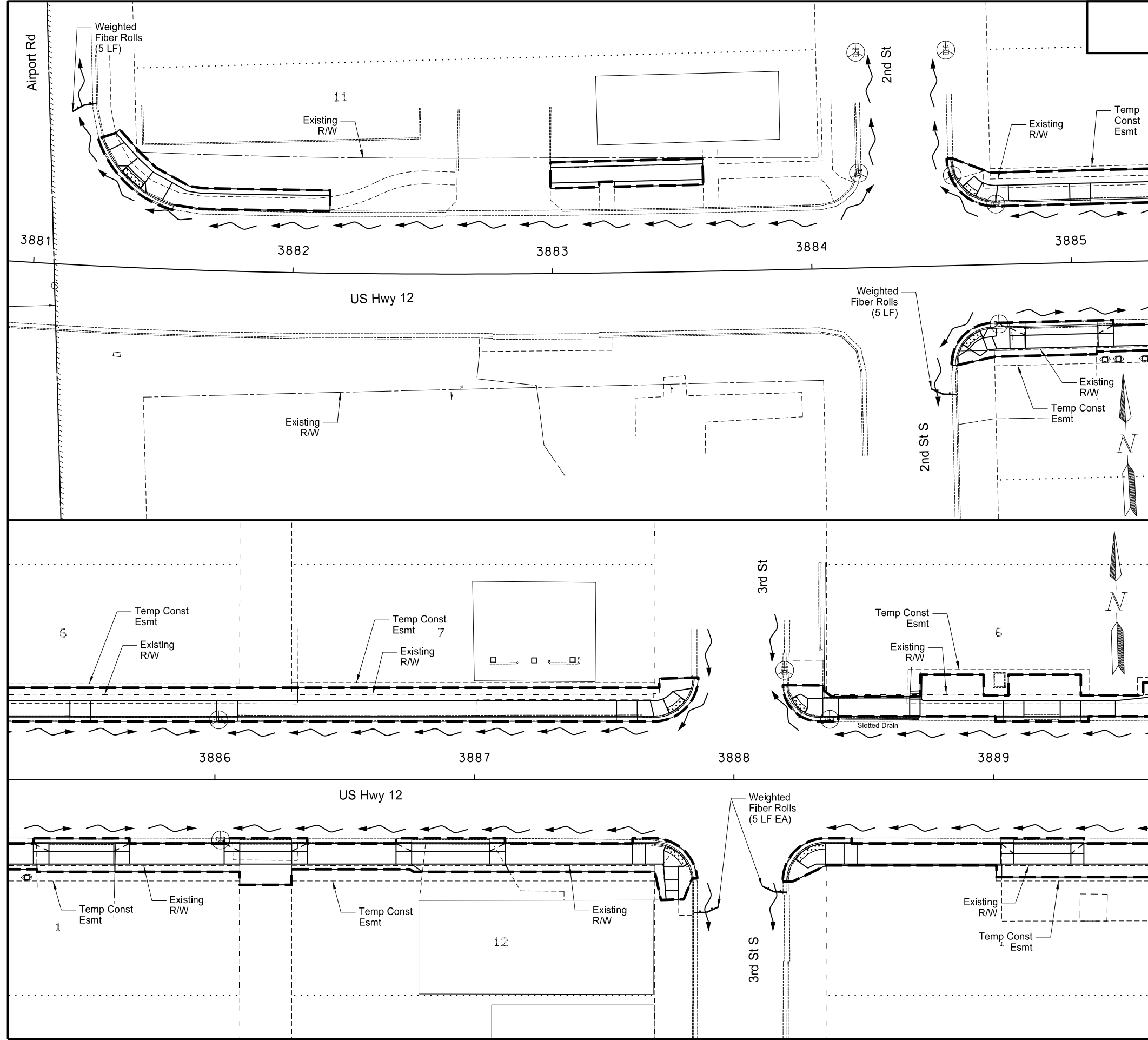
- Flow Direction
- Construction Limits Grading Tie
- Fiber Rolls 12in
- Inlet Protection - Special
- Hydraulic Mulch

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Temporary Erosion Control
Sta 3906+75 to 3915+00
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	77	1

SPEC CODE	BID ITEM	QTY	UNIT
261 0200	WEIGHTED FIBER ROLLS		
	3881+00 to 3885+25 LT	5	LF
	3881+00 to 3885+25 RT	5	LF
	3885+25 to 3889+55 RT	10	LF
261 0201	REMOVE WEIGHTED FIBER ROLLS		
	3881+00 to 3885+25 LT	5	LF
	3881+00 to 3885+25 RT	5	LF
	3881+00 to 3885+25 RT	10	LF
708 1540	INLET PROTECTION-SPECIAL		
	3884+19 36.6' Lt	1	EA
	3884+19 83.1' Lt	1	EA
	3884+54 83.1' Lt	1	EA
	3884+55 34.8' Lt	1	EA
	3884+71 23.3' Lt	1	EA
	3884+72 22.9' Rt	1	EA
	3886+01 23.1' Lt	1	EA
	3886+02 23.2' Rt	1	EA
	3888+18 41.5' Lt	1	EA
	3888+37 23.3' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	3884+19 36.6' Lt	1	EA
	3884+19 83.1' Lt	1	EA
	3884+54 83.1' Lt	1	EA
	3884+55 34.8' Lt	1	EA
	3884+71 23.3' Lt	1	EA
	3884+72 22.9' Rt	1	EA
	3886+01 23.1' Lt	1	EA
	3886+02 23.2' Rt	1	EA
	3888+18 41.5' Lt	1	EA
	3888+37 23.3' Lt	1	EA



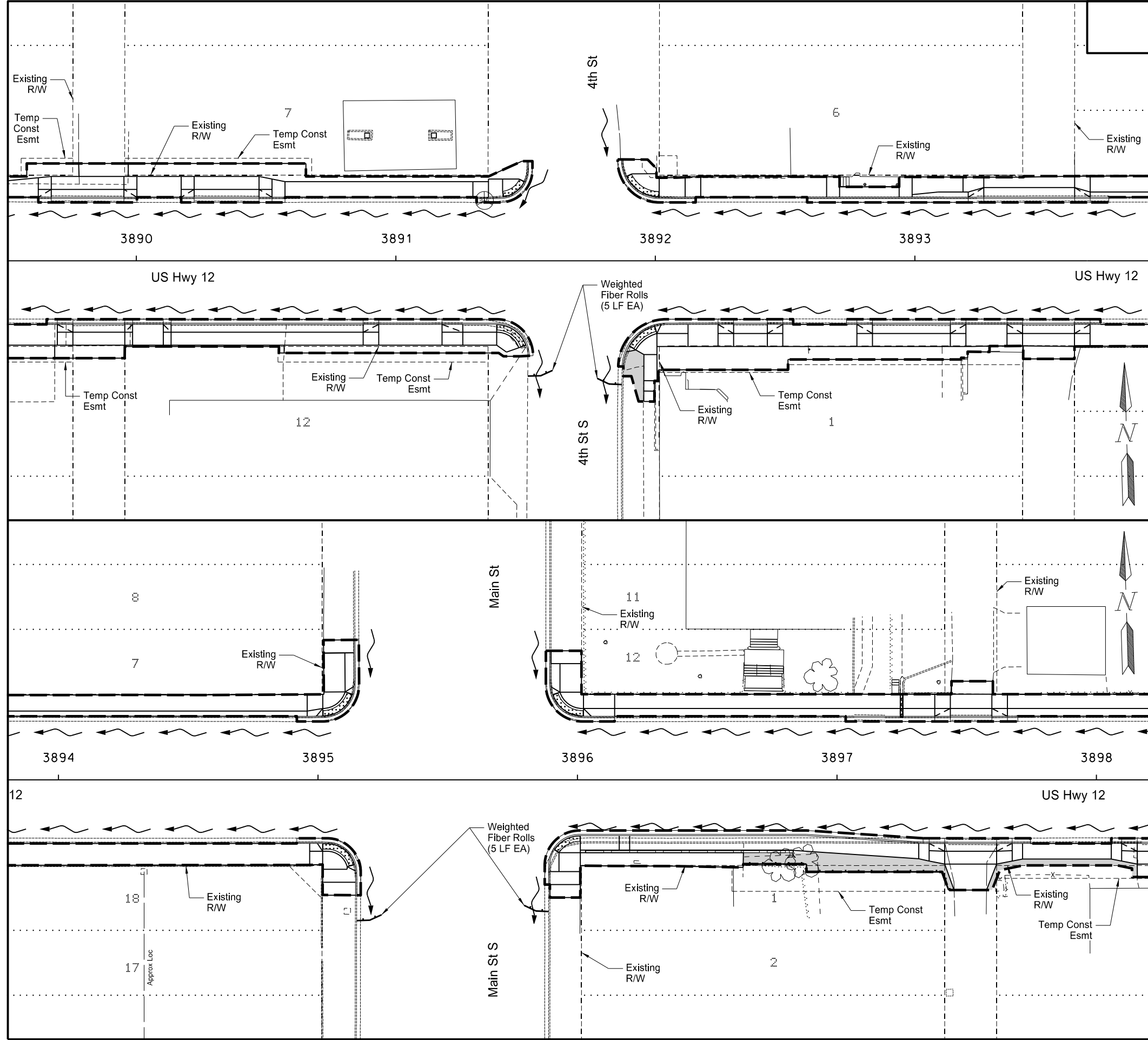
LEGEND

- Flow Direction
- Construction Limits Grading Tie
- Inlet Protection - Special

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Permanent Erosion Control
Sta 3881+00 to 3889+55
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	77	2



SPEC CODE	BID ITEM	QTY	UNIT
203 0109	TOPSOIL		
	3889+55 to 3893+85 Rt	2	CY
	3893+85 to 3898+15 Rt	10	CY
251 0300	SEEDING CLASS III		
	3889+55 to 3893+85 Rt	0.01	ACRE
	3893+85 to 3898+15 Rt	0.02	ACRE
253 0201	HYDRAULIC MULCH		
	3889+55 to 3893+85 Rt	0.01	ACRE
	3893+85 to 3898+15 Rt	0.02	ACRE
261 0112	FIBER ROLLS 12IN		
	3896+64 to 3897+45 Rt	90	LF
261 0200	WEIGHTED FIBER ROLLS		
	3889+55 to 3893+85 RT	10	LF
	3893+85 to 3898+15 RT	10	LF
261 0201	REMOVE WEIGHTED FIBER ROLLS		
	3889+55 to 3893+85 RT	10	LF
	3893+85 to 3898+15 RT	10	LF
708 1540	INLET PROTECTION-SPECIAL		
	3891+34 23.3' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	3891+34 23.3' Lt	1	EA

LEGEND

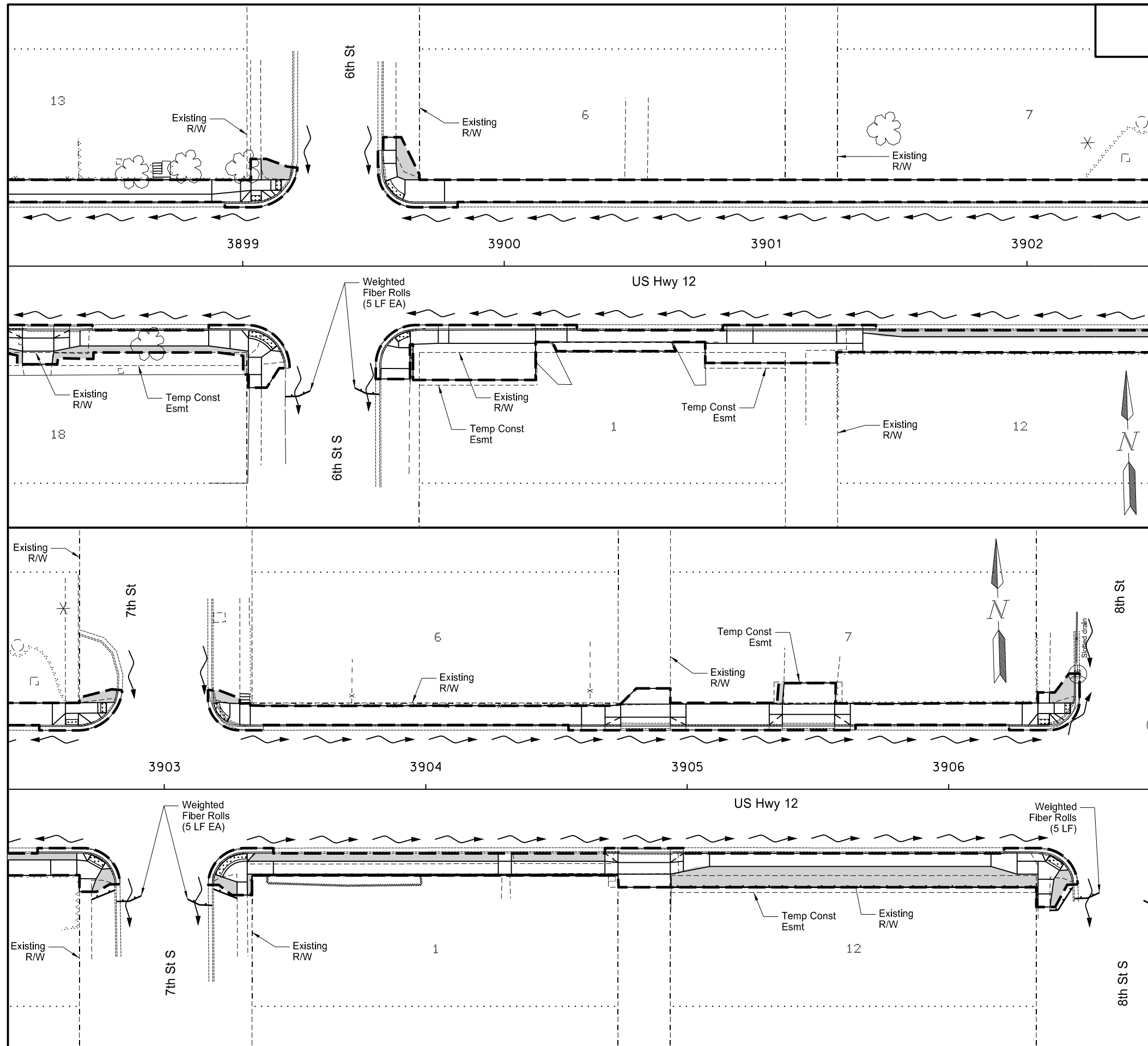
- Flow Direction
- Construction Limits Grading Tie
- Inlet Protection - Special
- 6" Topsoil, Seeding, and Hydraulic Mulch

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Permanent Erosion Control
Sta 3889+55 to 3898+15
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	77	3

SPEC CODE	BID ITEM	QTY	UNIT
203 0109	TOPSOIL		
	3898+15 to 3902+45 Lt	3	CY
	3898+15 to 3902+45 Rt	9	CY
	3902+45 to 3906+75 Lt	4	CY
	3902+45 to 3906+75 Rt	32	CY
251 0300	SEEDING CLASS III		
	3898+15 to 3902+45 Lt	0.01	ACRE
	3898+15 to 3902+45 Rt	0.02	ACRE
	3902+45 to 3906+75 Lt	0.01	ACRE
	3902+45 to 3906+75 Rt	0.05	ACRE
253 0201	HYDRAULIC MULCH		
	3898+15 to 3902+45 Lt	0.01	ACRE
	3898+15 to 3902+45 Rt	0.02	ACRE
	3902+45 to 3906+75 Lt	0.01	ACRE
	3902+45 to 3906+75 Rt	0.05	ACRE
261 0112	FIBER ROLLS 12IN		
	3902+72 to 3902+81 Rt	10	LF
	3903+19 to 3903+28 Rt	10	LF
	3903+32 to 3904+29 Rt	105	LF
	3904+32 to 3904+74 Rt	42	LF
	3904+94 to 3906+34 Rt	148	LF
	3906+39 to 3906+47 Rt	14	LF
261 0200	WEIGHTED FIBER ROLLS		
	3898+15 to 3902+45 Rt	10	LF
	3902+45 to 3906+75 Rt	15	LF
708 1540	INLET PROTECTION-SPECIAL		
	3906+49 44' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	3906+49 44' Lt	1	EA



LEGEND

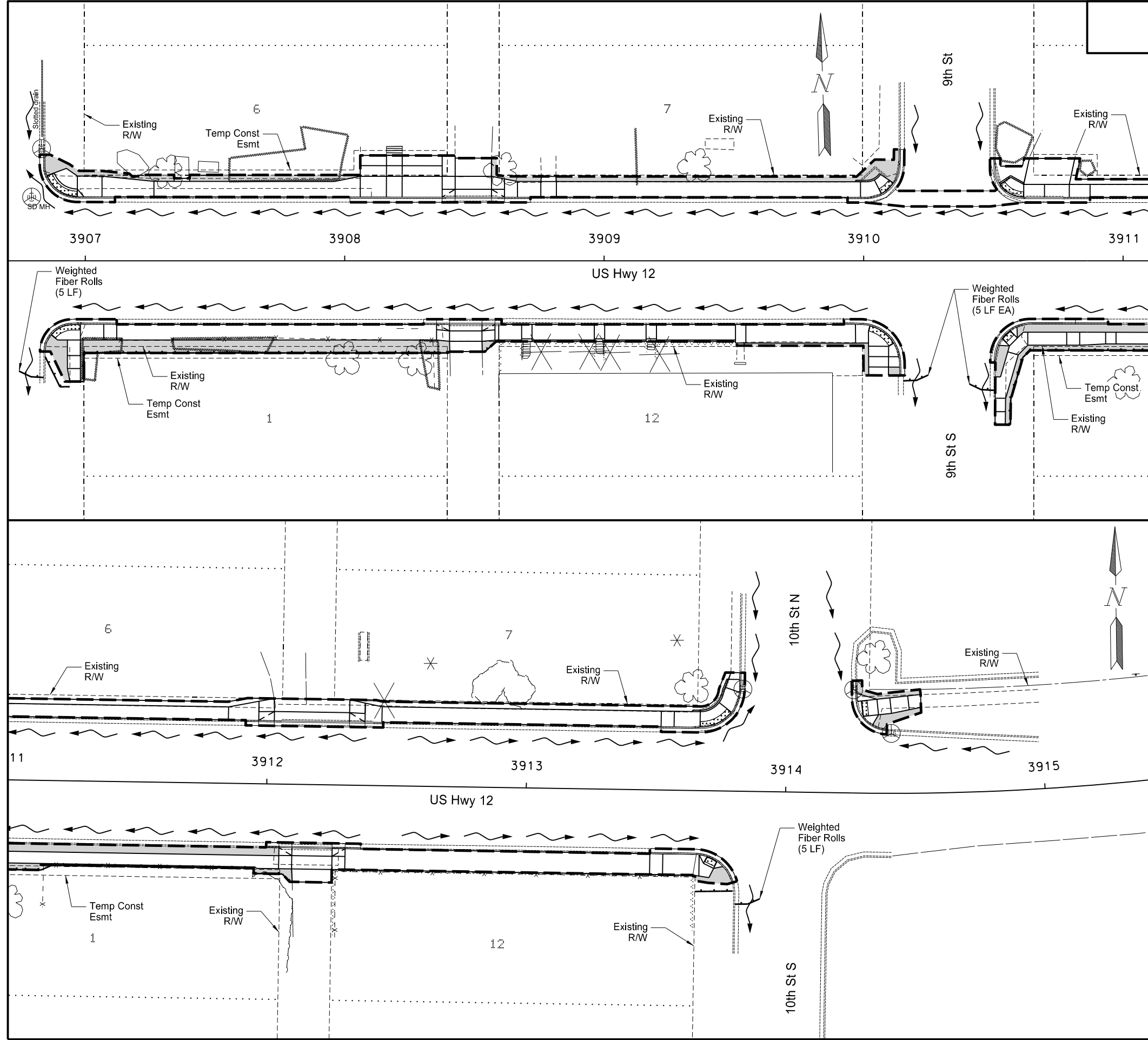
- Flow Direction
- Construction Limits Grading Tie
- Inlet Protection - Special
- 6" Topsoil, Seeding, and Hydraulic Mulch

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Permanent Erosion Control
 Sta 3898+15 to 3906+75
 US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	77	4

SPEC CODE	BID ITEM	QTY	UNIT
203 0109	TOPSOIL		
	3906+75 to 3911+05 Lt	12	CY
	3906+75 to 3911+05 Rt	24	CY
	3911+05 to 3915+00 Lt	2	CY
	3911+05 to 3915+00 Rt	9	CY
251 0300	SEEDING CLASS III		
	3906+75 to 3911+05 Lt	0.02	ACRE
	3906+75 to 3911+05 Rt	0.03	ACRE
	3911+05 to 3915+00 Lt	0.01	ACRE
	3911+05 to 3915+00 Rt	0.02	ACRE
253 0201	HYDRAULIC MULCH		
	3906+75 to 3911+05 Lt	0.02	ACRE
	3906+75 to 3911+05 Rt	0.03	ACRE
	3911+05 to 3915+00 Lt	0.01	ACRE
	3911+05 to 3915+00 Rt	0.02	ACRE
261 0112	FIBER ROLLS 12IN		
	3906+85 to 3906+94 Rt	17	LF
	3906+98 to 3908+41 Rt	154	LF
	3908+53 to 3908+59 Rt	8	LF
	3910+55 to 3911+05 Rt	73	LF
	3911+05 to 3912+10 Rt	109	LF
	3913+66 to 3913+80 Rt	15	LF
261 0200	WEIGHTED FIBER ROLLS		
	3906+75 to 3911+05 Rt	15	LF
	3906+75 to 3911+05 Rt	5	LF
261 0201	REMOVE WEIGHTED FIBER ROLLS		
	3906+75 to 3911+05 Rt	15	LF
	3911+05 to 3915+00 Rt	5	LF
708 1540	INLET PROTECTION-SPECIAL		
	3906+79 24.5' Lt	1	EA
	3906+83 43.2' Lt	1	EA
	3913+83 39.4' Lt	1	EA
	3914+26 39.8' Lt	1	EA
	3914+41 23.1' Lt	1	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	3906+79 24.5' Lt	1	EA
	3906+83 43.2' Lt	1	EA
	3913+83 39.4' Lt	1	EA
	3914+26 39.8' Lt	1	EA
	3914+41 23.1' Lt	1	EA



LEGEND

- Flow Direction
- Construction Limits Grading Tie
- Inlet Protection - Special
- 6" Topsoil, Seeding, and Hydraulic Mulch

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Permanent Erosion Control
Sta 3906+75 to 3915+00
US Highway 12 / Adams Ave

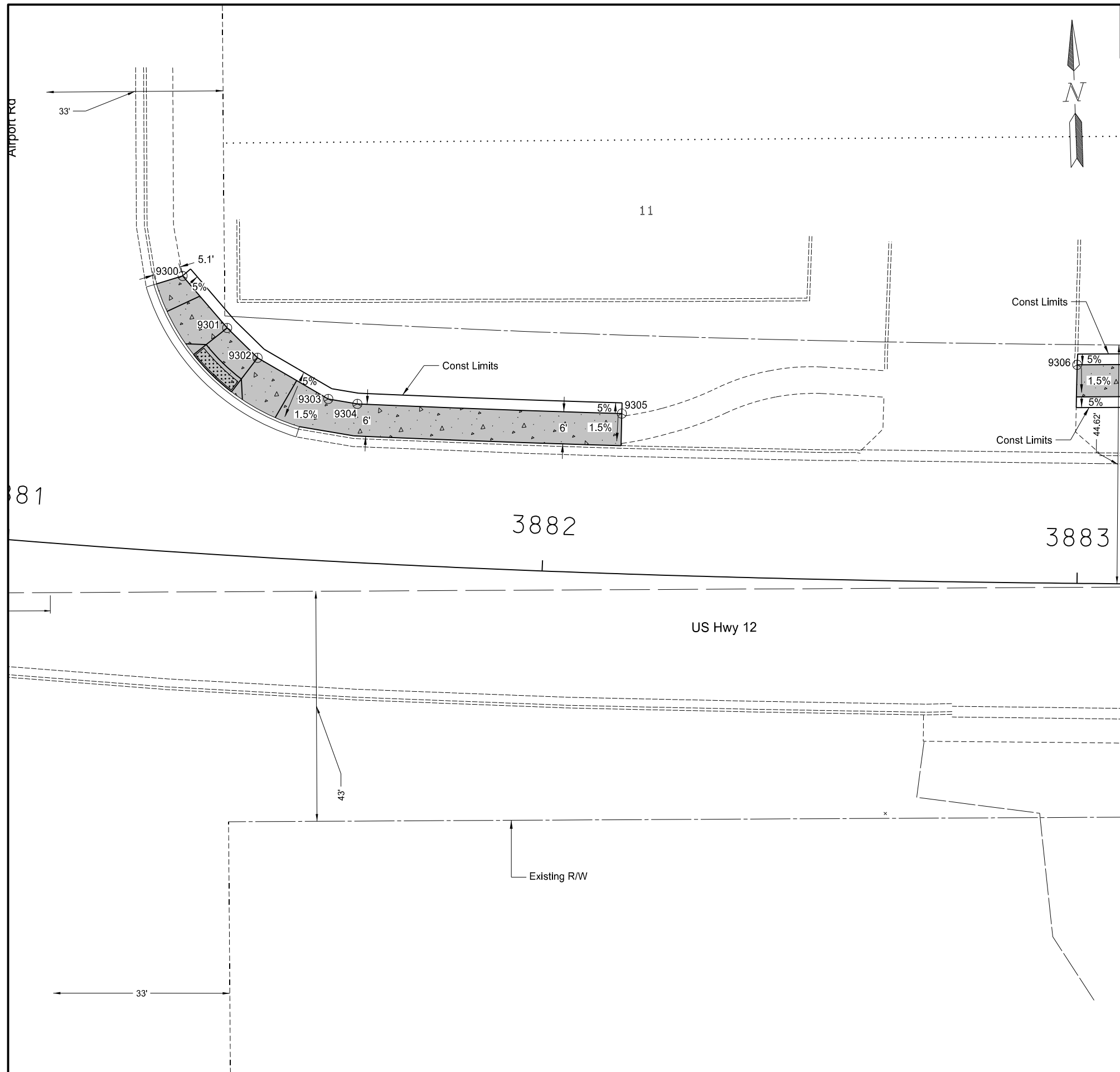
PRELIMINARY SURVEY COORDINATE AND CURVE DATA - HETTINGER, US 12, AIRPORT RD TO 10TH ST

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	81	1

HORIZONTAL ALIGNMENT				CURVE DATA		US PUBLIC LAND SURVEY DATA				SURVEY CONTROL POINTS					
PNT	STATION	NORTHING	EASTING	ARC DEFINITION		CORNER	IRN	NORTHING	EASTING	PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
										MONUMENT DESCRIPTION					
US 12 (Chain: EX12)				SCS1		N ¼ Cor 14 129-96 10-E 130167.94 1421589.53									
BEG Sec Xing	3862+88.04	130147.45	1422510.71	PI STA = 3877+84.89		NE Cor 14 129-96 11-E 130111.13 1424226.42				GPS 11 129994.67 1428403.50 2753.36 3925+61 171' Lt					
TS	3871+05.69	129767.61	1423264.78	Delta = 25° 59' 07" LT		NE Cor 23 129-96 11-G 124826.71 1424082.58				#5 Rebar					
SC	3874+05.69	129634.10	1423533.37	Da = 2° 30' 00"		NE Cor 13 129-96 13-E 129951.26 1429502.82				GPS 12 130151.84 1422652.83 2671.49 3863+85 56' Lt					
PI SCS1	3877+84.89	129452.09	1423866.25	R = 2292.01'		E ¼ Cor 13 129-96 13-F 127311.48 1429429.78				#5 Rebar					
Station equation US 12(EX12) at ND 8				L = 739.49'											
US 12 BK	3878+42.40	129495.93	1423946.95	Ls = 300.00'											
US 12 Ahd	3878+42.40	129495.93	1423946.95	Sc = 3° 44' 59"											
ND 8	213+04.80	129495.93	1423946.95	Ts = 679.20'											
Sec Xing	342.11 (Ahd Tan)	129441.97	1424208.21												
CS	3881+45.18	129447.40	1424245.60	CUR 1											
ST	3884+45.18	129431.99	1424545.15	PI STA = 3918+12.81											
PC	3914+25.69	129343.80	1427524.35	Delta = 44° 06' 59" LT											
PI CUR1	3915+12.81	129332.34	1427911.30	Da = 5° 59' 50"											
PT	3921+61.30	129593.49	1428197.08	R = 955.37'						REFERENCE MARKERS					
TS	3922+81.61	129674.64	1428285.89	T = 387.12'						R MRK # NORTHING EASTING STATION O/S ALIGNMENT					
SC	3925+81.61	129864.95	1428517.38	L = 735.61'						74 129337.88 1426816.73 3907+19 27' Rt US 12					
Sec Xing	3927+31.42 (Bk Tan)	129978.07	1428617.95												
PI SCS2	3928+44.83	130074.50	1428723.47	SCS 2											
CS	3929+31.98	130000.63	1428838.29	PI STA = 3928+74.37											
ST	3935+31.98	130004.93	1429435.65	Delta = 48° 00' 00" RT											
END Twp Xing	3936+00.78	129998.24	1429504.12	Da = 5° 59' 50"											
				R = 955.37'											
				L = 350.37'											
				Ls in = 300.00'											
				Sc in = 8° 59' 45"											
				Ts in = 592.76'											
				Ls out = 600.00'											
				Sc out = 17° 59' 30"											
				Ts out = 715.56'											
NOTES: Sheet 1 of 1				Date Survey Completed 4/26/19		<input type="checkbox"/> Assumed Coordinates <input checked="" type="checkbox"/> All coordinates on this sheet are ADAMS County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998875				All coordinates and measurements on this document derived from the International Foot definition. INITIALIZING BENCH MARK NDGPS Stations (OPUS) <input checked="" type="checkbox"/> NAVD-88 <input type="checkbox"/> _____ <input checked="" type="checkbox"/> GEOID12B <input type="checkbox"/> _____ <input type="checkbox"/> GEOID18					
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	1

Point	North (Y)	East (X)	Station	Offset
9300	129500.2596	1424234.9807	3881+29.24	-51.56
9301	129490.2528	1424242.9692	3881+38.37	-42.40
9302	129484.4847	1424248.4486	3881+44.49	-37.18
9303	129476.3405	1424261.3911	3881+58.33	-30.27
9304	129475.2333	1424266.7937	3881+63.88	-29.64
9305	129471.7098	1424316.1366	3882+13.90	-29.95
9306	129477.8562	1424401.5161	3882+99.63	-40.85

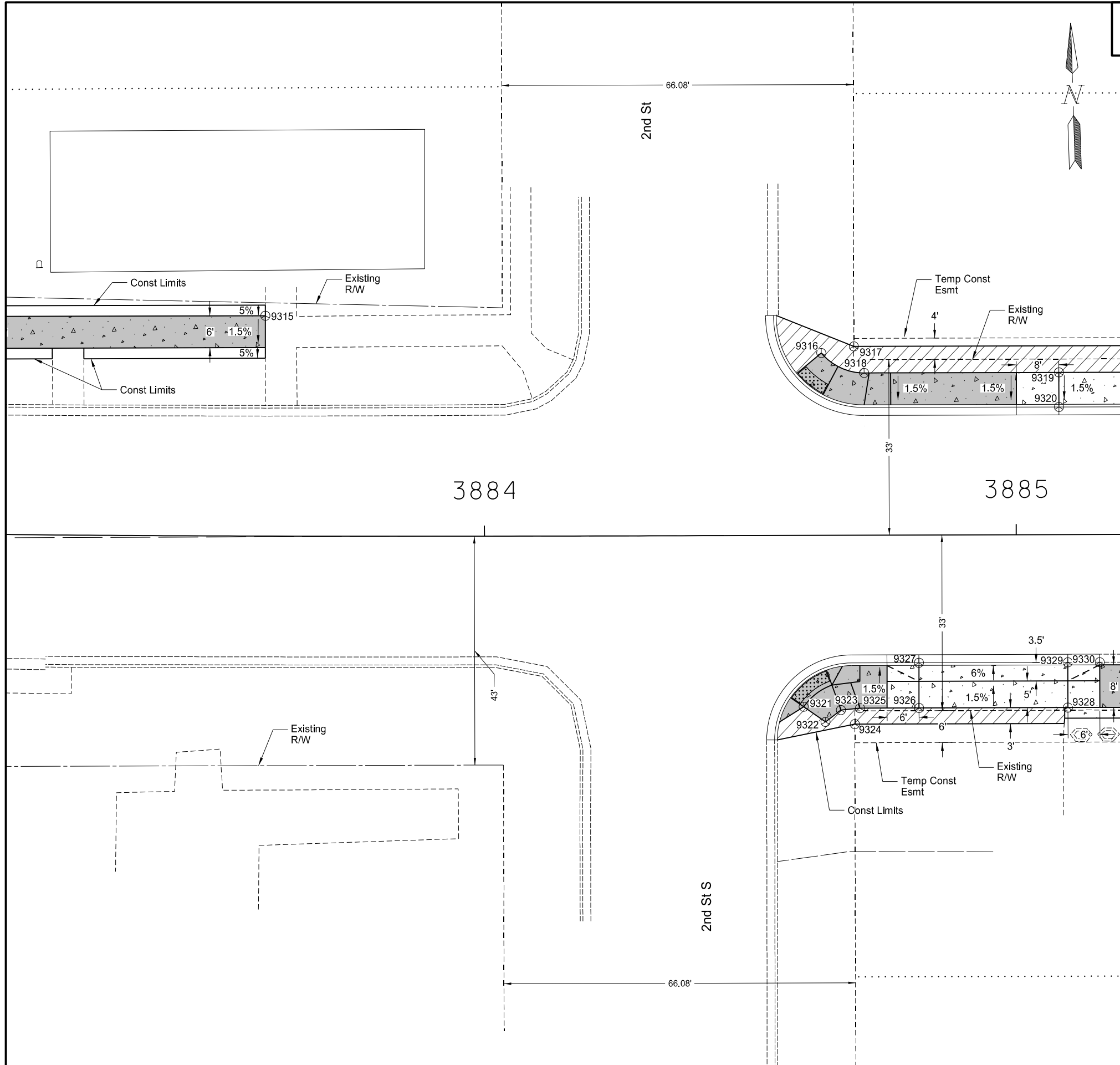


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Survey Data Point Layout
 Sta 3881+00 to 3883+10
 US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	2

Point	North (Y)	East (X)	Station	Offset
9315	129476.1008	1424460.1506	3883+58.69	-41.42
9316	129465.7079	1424564.4003	3884+63.43	-34.27
9317	129466.7542	1424570.5639	3884+69.56	-35.50
9318	129461.7003	1424572.3237	3884+71.47	-30.50
9319	129460.6163	1424608.9282	3885+08.09	-30.50
9320	129454.1192	1424608.7359	3885+08.09	-24.00
9321	129399.3541	1424558.9334	3884+59.93	32.21
9322	129396.3768	1424562.9503	3884+64.03	35.07
9323	129398.5102	1424565.9159	3884+66.94	32.85
9324	129395.7855	1424568.4426	3884+69.54	35.50
9325	129398.7556	1424569.4979	3884+70.51	32.50
9326	129398.4267	1424580.6068	3884+81.62	32.50
9327	129406.9230	1424580.8583	3884+81.62	24.00
9328	129397.5982	1424608.5945	3885+09.62	32.50
9329	129406.0945	1424608.8460	3885+09.62	24.00
9330	129405.9169	1424614.8434	3885+15.62	24.00

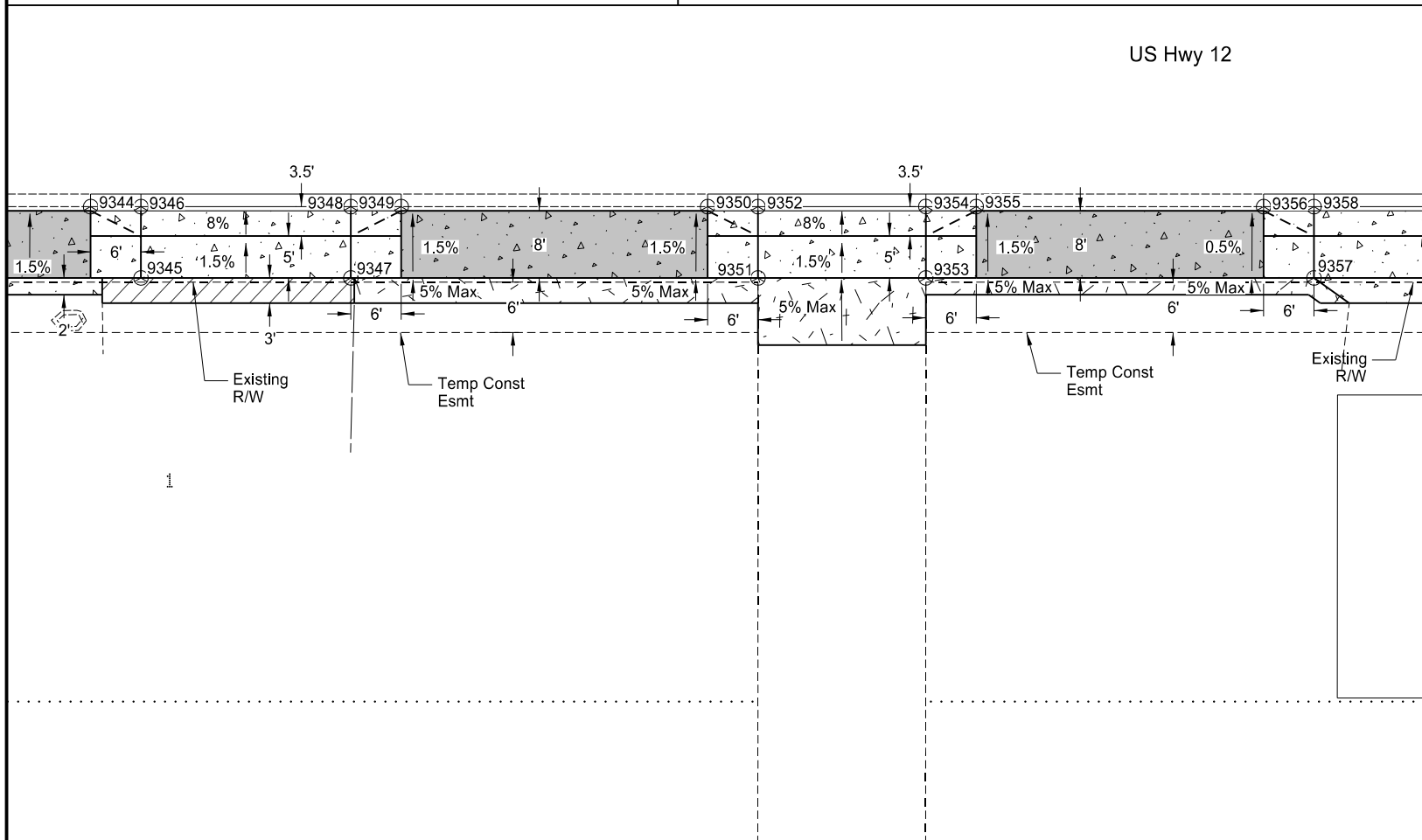
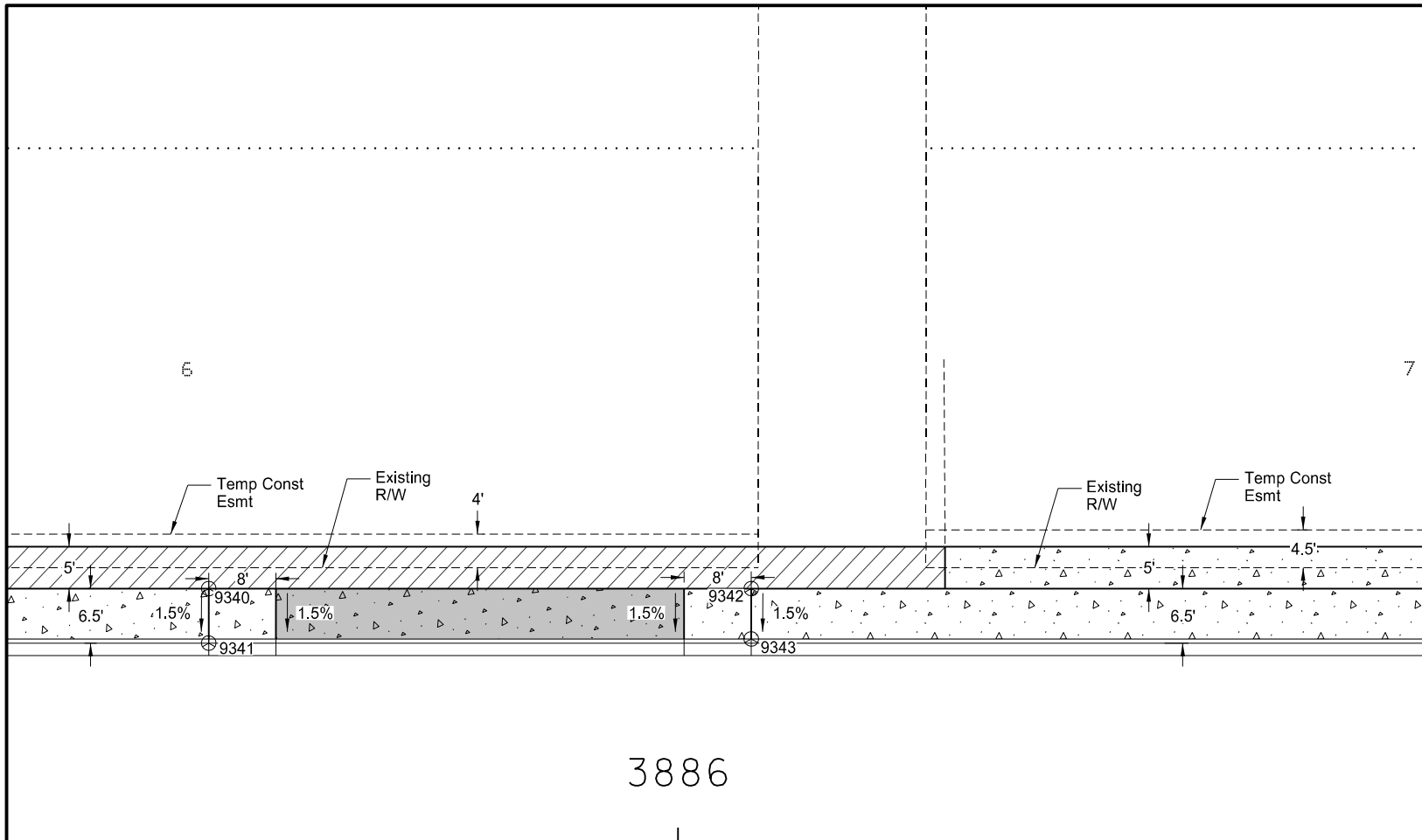


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Survey Data Point Layout
 Sta 3883+10 to 3885+20
 US Highway 12 / Adams Ave

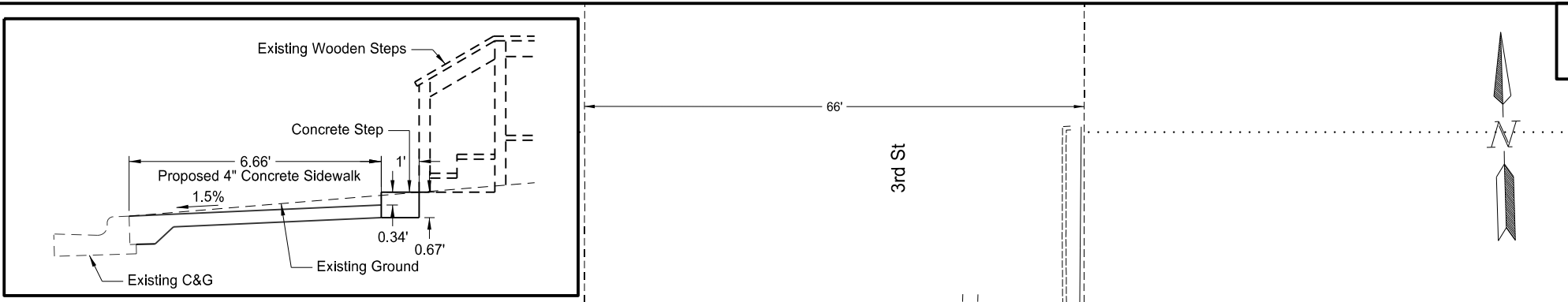
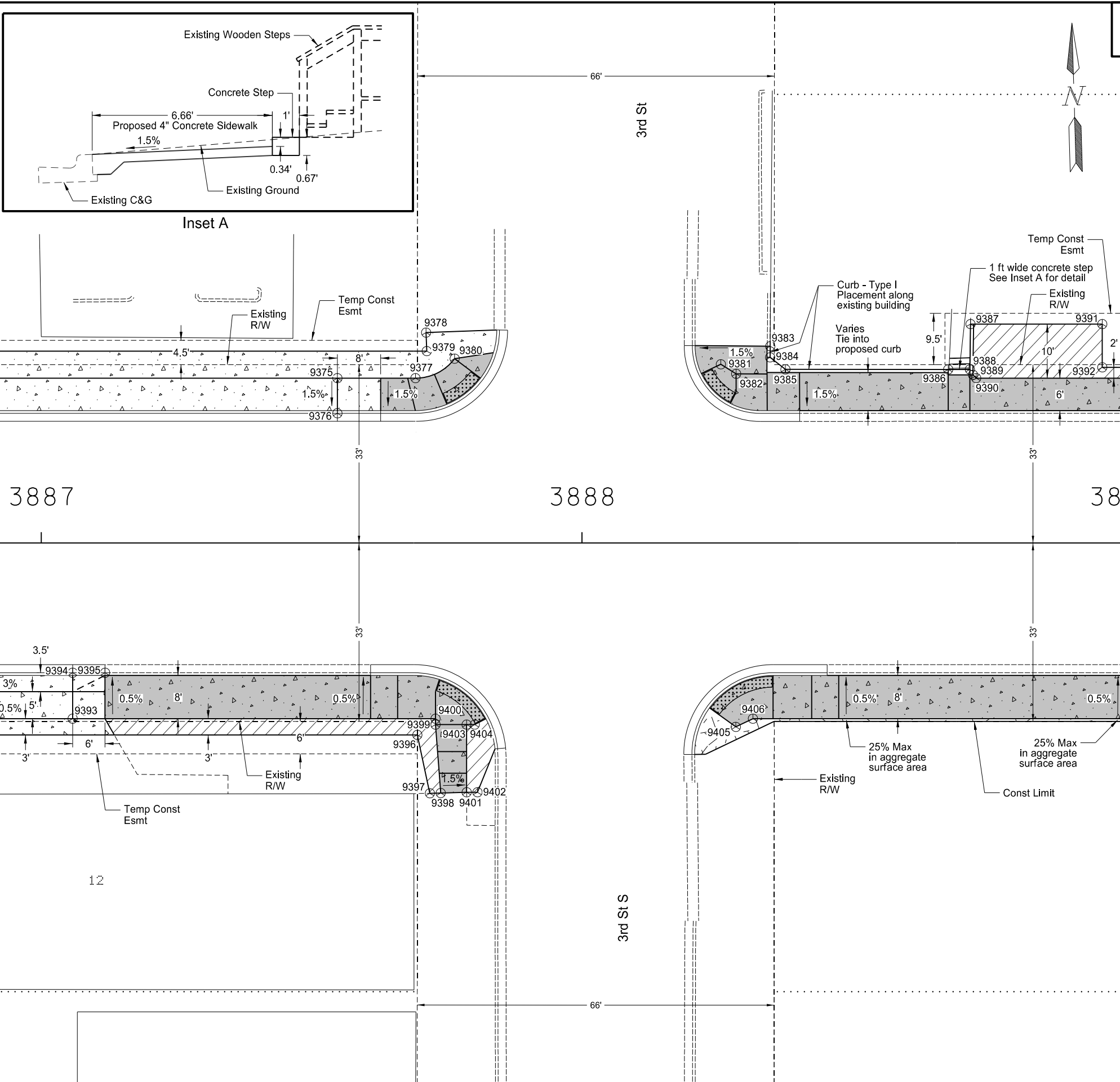
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	3

Point	North (Y)	East (X)	Station	Offset
9340	129459.5511	1424644.9124	3885+44.09	-30.50
9341	129453.0539	1424644.7201	3885+44.09	-24.00
9342	129457.6383	1424709.5277	3886+08.73	-30.50
9343	129451.6410	1424709.3465	3886+08.73	-24.50
9344	129405.4907	1424629.2405	3885+30.03	24.00
9345	129396.8169	1424634.9864	3885+36.03	32.50
9346	129405.3132	1424635.2379	3885+36.03	24.00
9347	129396.0772	1424659.9754	3885+61.03	32.50
9348	129404.5735	1424660.2269	3885+61.03	24.00
9349	129404.3959	1424666.2243	3885+67.03	24.00
9350	129403.3155	1424702.7214	3886+03.54	24.00
9351	129394.6417	1424708.4672	3886+09.54	32.50
9352	129403.1380	1424708.7187	3886+09.54	24.00
9353	129394.0499	1424728.4584	3886+29.54	32.50
9354	129402.5602	1424728.7104	3886+29.54	23.99
9355	129402.3686	1424734.7073	3886+35.54	24.00
9356	129401.3554	1424768.9354	3886+69.78	24.00
9357	129392.6816	1424774.6813	3886+75.78	32.50
9358	129401.1778	1424774.9328	3886+75.78	24.00



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Survey Data Point Layout
Sta 3885+20 to 3886+90
US Highway 12 / Adams Ave

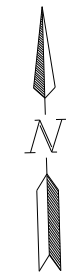


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	4

Point	North (Y)	East (X)	Station	Offset
9375	129453.3176	1424855.4825	3887+54.75	-30.50
9376	129446.8205	1424855.2902	3887+54.75	-24.00
9377	129452.8903	1424869.9183	3887+69.20	-30.50
9378	129461.2530	1424872.1320	3887+71.16	-38.93
9379	129457.8263	1424872.1518	3887+71.28	-35.50
9380	129456.2743	1424877.2665	3887+76.44	-34.10
9381	129453.7767	1424926.4512	3888+25.68	-33.06
9382	129451.9401	1424929.2234	3888+28.50	-31.31
9383	129456.8482	1424935.6770	3888+34.81	-36.40
9384	129454.7890	1424935.5990	3888+34.79	-34.34
9385	129452.4910	1424938.3620	3888+37.62	-32.13
9386	129451.5852	1424968.4496	3888+67.72	-32.11
9387	129459.8479	1424972.8271	3888+71.85	-40.50
9388	129451.4645	1424972.4603	3888+71.73	-32.11
9389	129450.4478	1424972.9998	3888+72.30	-31.11
9390	129449.8214	1424973.5737	3888+72.90	-30.50
9391	129459.1268	1424997.1854	3888+96.22	-40.50
9392	129451.1303	1424996.9486	3888+96.22	-32.50
9393	129391.7939	1424804.6681	3887+05.78	32.50
9394	129400.2901	1424804.9197	3887+05.78	24.00
9395	129400.1126	1424810.9170	3887+11.78	24.00
9396	129386.9085	1424868.3113	3887+69.54	35.50
9397	129376.0443	1424870.3054	3887+71.86	46.30
9398	129376.0301	1424872.3081	3887+73.86	46.26
9399	129388.7192	1424871.7320	3887+72.91	33.59
9400	129389.8076	1424871.7642	3887+72.91	32.50
9401	129376.0300	1424877.1135	3887+78.66	46.11
9402	129375.9714	1424879.1122	3887+80.66	46.11
9403	129388.5492	1424877.4743	3887+78.65	33.59
9404	129388.5046	1424878.9829	3887+80.16	33.59
9405	129386.6478	1424927.2297	3888+28.44	34.02
9406	129388.0707	1424930.4372	3888+31.61	32.50

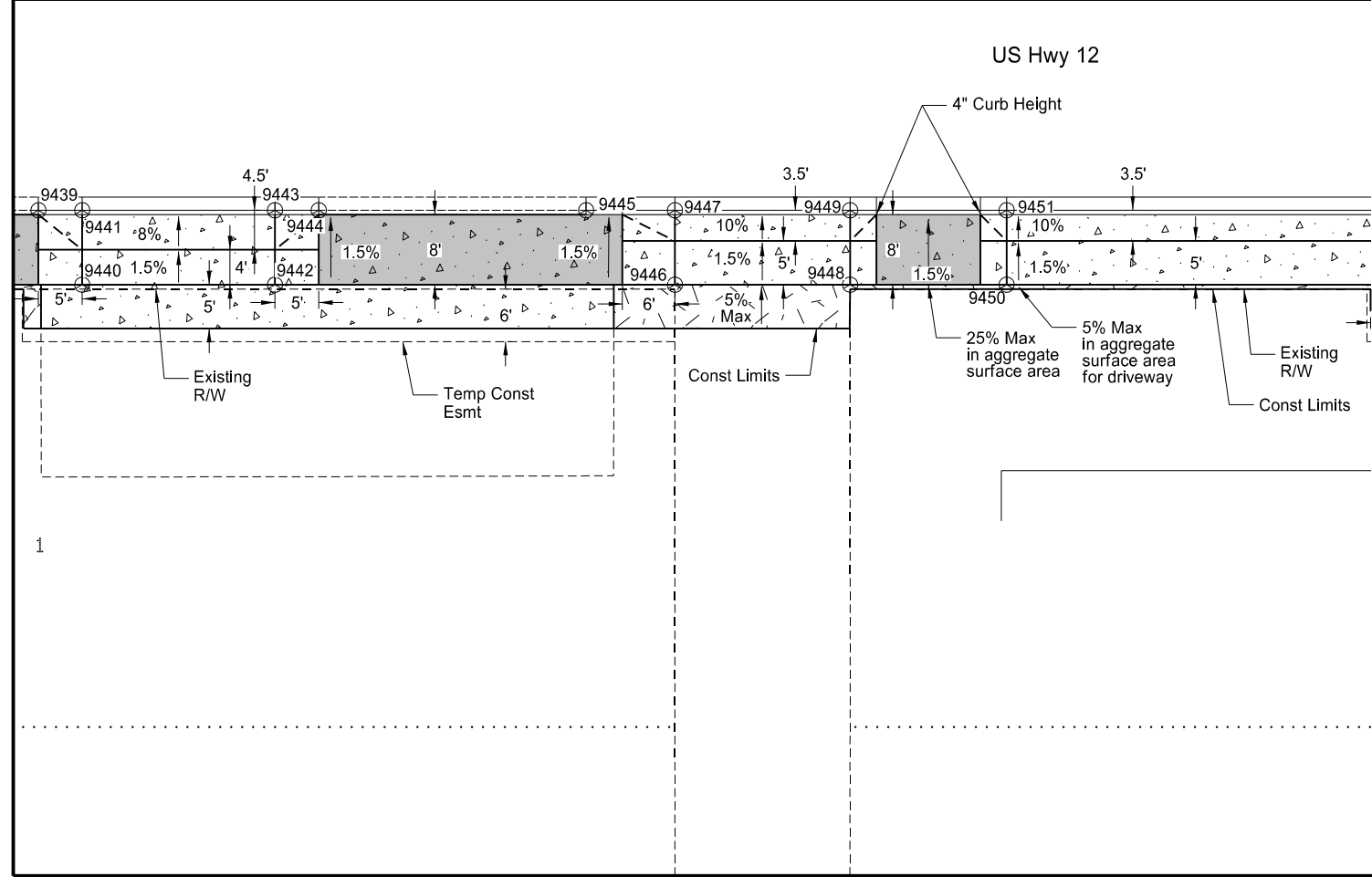
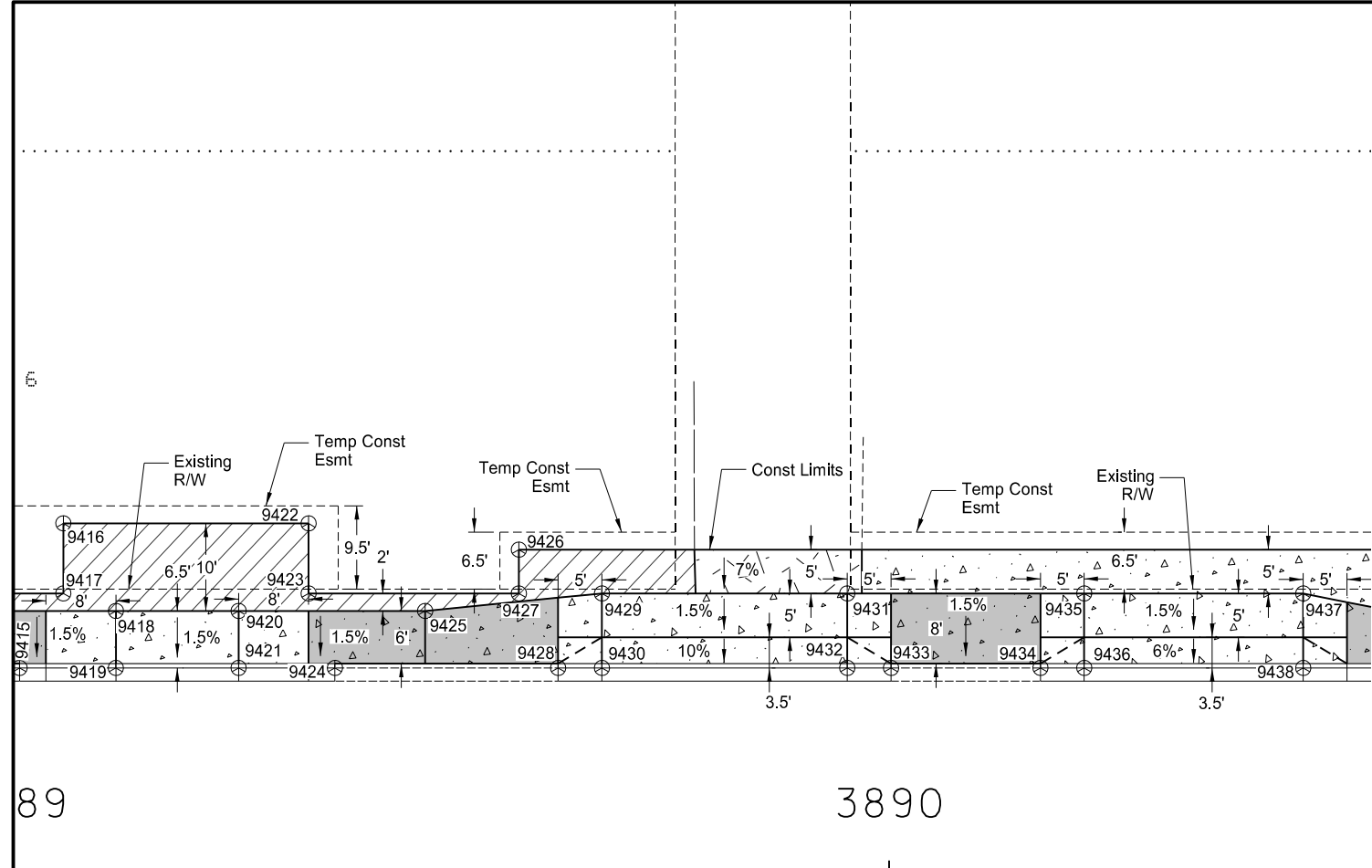
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Survey Data Point Layout
Sta 3886+90 to 3889+00
US Highway 12 / Adams Ave



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-5-012(047)073	82	5

Point	North (Y)	East (X)	Station	Offset
9415	129442.5007	1425001.2006	3889+00.73	-24.00
9416	129458.8457	1425006.6812	3889+05.72	-40.50
9417	129450.8492	1425006.4445	3889+05.72	-32.50
9418	129448.6724	1425012.3881	3889+11.73	-30.50
9419	129442.1755	1425012.1861	3889+11.72	-24.00
9420	129448.2581	1425026.3820	3889+25.73	-30.50
9421	129441.7609	1425026.1905	3889+25.73	-24.00
9422	129458.0172	1425034.6689	3889+33.72	-40.50
9423	129450.0207	1425034.4322	3889+33.72	-32.50
9424	129441.4355	1425037.1849	3889+36.73	-24.00
9425	129447.6280	1425047.6689	3889+47.02	-30.50
9426	129454.3083	1425058.5711	3889+57.72	-37.50
9427	129449.3105	1425058.4217	3889+57.72	-32.50
9428	129440.6815	1425062.6531	3889+62.21	-24.00
9429	129449.0299	1425067.9024	3889+67.21	-32.50
9430	129440.5336	1425067.6517	3889+67.21	-24.00
9431	129448.2013	1425095.8901	3889+95.21	-32.50
9432	129439.7050	1425095.6394	3889+95.21	-24.00
9433	129439.5571	1425100.6364	3890+00.21	-24.00
9434	129439.0526	1425117.6789	3890+17.26	-24.00
9435	129447.4009	1425122.9282	3890+22.26	-32.50
9436	129438.9046	1425122.6775	3890+22.26	-24.00
9437	129446.6612	1425147.9173	3890+47.26	-32.50
9438	129438.1649	1425147.6658	3890+47.26	-24.00
9439	129394.4580	1425001.9324	3889+02.88	24.00
9440	129385.8138	1425006.6787	3889+07.88	32.50
9441	129394.3101	1425006.9302	3889+07.88	24.00
9442	129385.1628	1425028.6691	3889+29.88	32.50
9443	129393.6591	1425028.9206	3889+29.88	24.00
9444	129393.5111	1425033.9184	3889+34.88	24.00
9445	129392.6082	1425064.4205	3889+65.40	24.00
9446	129383.8118	1425074.3069	3889+75.54	32.50
9447	129392.3081	1425074.5584	3889+75.54	24.00
9448	129383.2200	1425094.2981	3889+95.54	32.50
9449	129391.7163	1425094.5497	3889+95.54	24.00
9450	129382.6916	1425112.1479	3890+13.40	32.50
9451	129391.1879	1425112.3994	3890+13.40	24.00

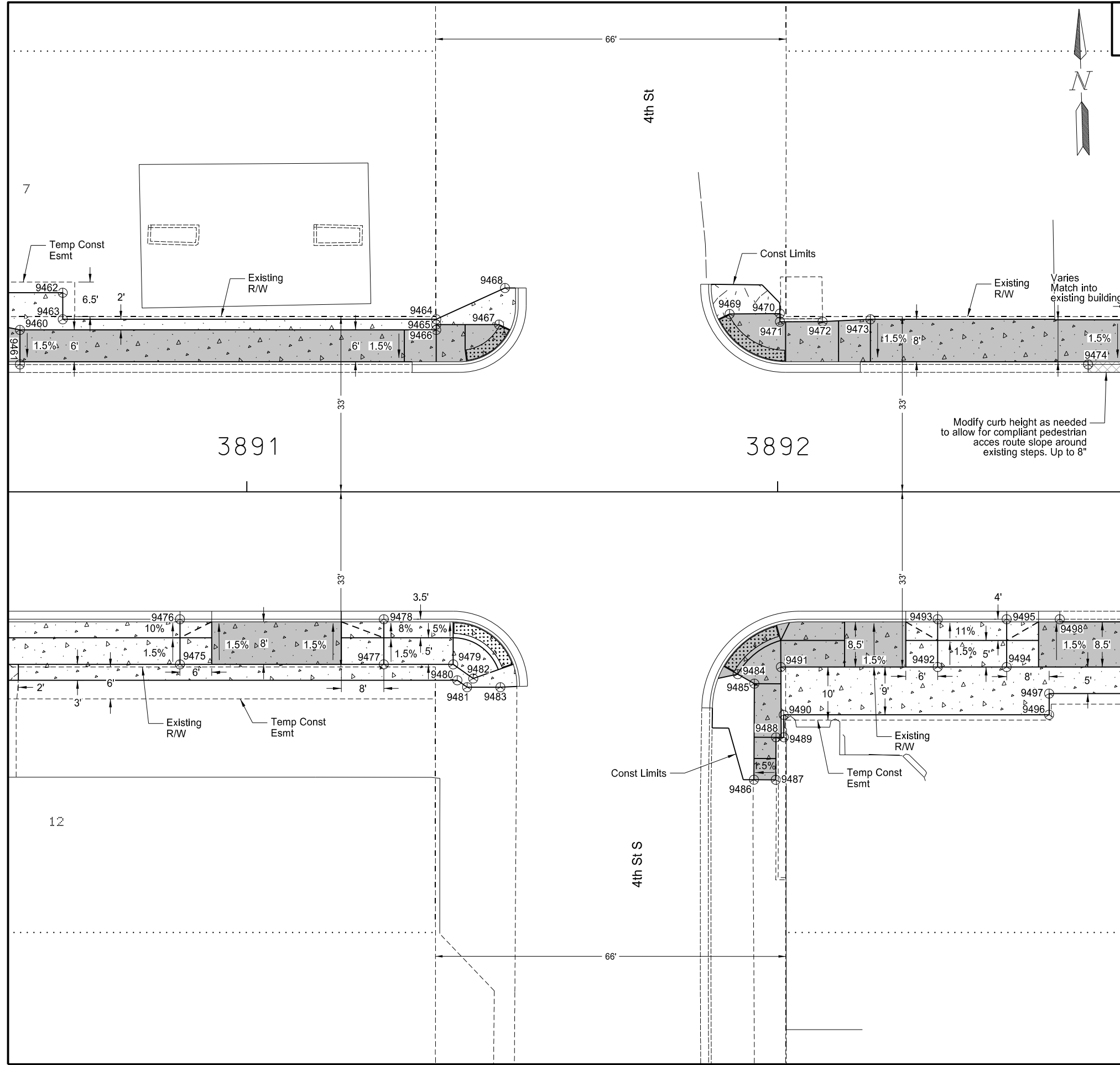


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Survey Data Point Layout
Sta 3889+00 to 3890+55
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	6

Point	North (Y)	East (X)	Station	Offset
9460	129444.3662	1425157.8537	3890+57.26	-30.50
9461	129437.8690	1425157.6614	3890+57.26	-24.00
9462	129451.1247	1425166.1149	3890+65.31	-37.50
9463	129446.1269	1425165.9669	3890+65.31	-32.50
9464	129444.0448	1425236.2994	3891+35.68	-32.50
9465	129443.0453	1425236.2698	3891+35.68	-31.50
9466	129442.0457	1425236.2402	3891+35.68	-30.50
9467	129442.6951	1425248.0981	3891+47.51	-31.50
9468	129449.5524	1425249.4167	3891+48.63	-38.39
9469	129443.4089	1425291.5771	3891+90.95	-33.50
9470	129443.1997	1425301.0518	3892+00.43	-33.57
9471	129441.6710	1425301.0180	3892+00.44	-32.04
9472	129441.4600	1425309.0280	3892+08.45	-32.07
9473	129441.6240	1425318.0768	3892+17.49	-32.50
9474	129431.9145	1425358.8078	3892+58.49	-24.00
9475	129380.5020	1425186.1144	3890+87.40	32.50
9476	129388.9982	1425186.3670	3890+87.40	24.00
9477	129379.3656	1425224.5015	3891+25.80	32.50
9478	129387.8619	1425224.7530	3891+25.80	24.00
9479	129378.9785	1425237.5787	3891+38.88	32.50
9480	129375.9568	1425238.2681	3891+39.66	35.50
9481	129374.6033	1425240.0669	3891+41.50	36.80
9482	129376.2014	1425241.2694	3891+42.65	35.17
9483	129374.4176	1425246.3379	3891+47.77	36.80
9484	129375.5540	1425291.0868	3891+92.47	34.34
9485	129373.6793	1425294.1753	3891+95.61	36.12
9486	129355.5959	1425293.5615	3891+95.53	54.22
9487	129355.4562	1425297.6761	3891+99.65	54.23
9488	129363.4516	1425297.9475	3891+99.68	46.23
9489	129363.4058	1425299.4273	3892+01.16	46.24
9490	129367.6403	1425299.5335	3892+01.15	42.00
9491	129376.6524	1425299.2593	3892+00.60	33.00
9492	129375.7782	1425328.7889	3892+30.15	33.00
9493	129384.7743	1425329.0553	3892+30.15	24.00
9494	129375.3935	1425341.7833	3892+43.15	33.00
9495	129384.3896	1425342.0496	3892+43.15	24.00
9496	129366.1607	1425349.5134	3892+51.15	42.00
9497	129370.1590	1425349.6318	3892+51.15	38.00
9498	129384.0937	1425352.0452	3892+53.15	24.00

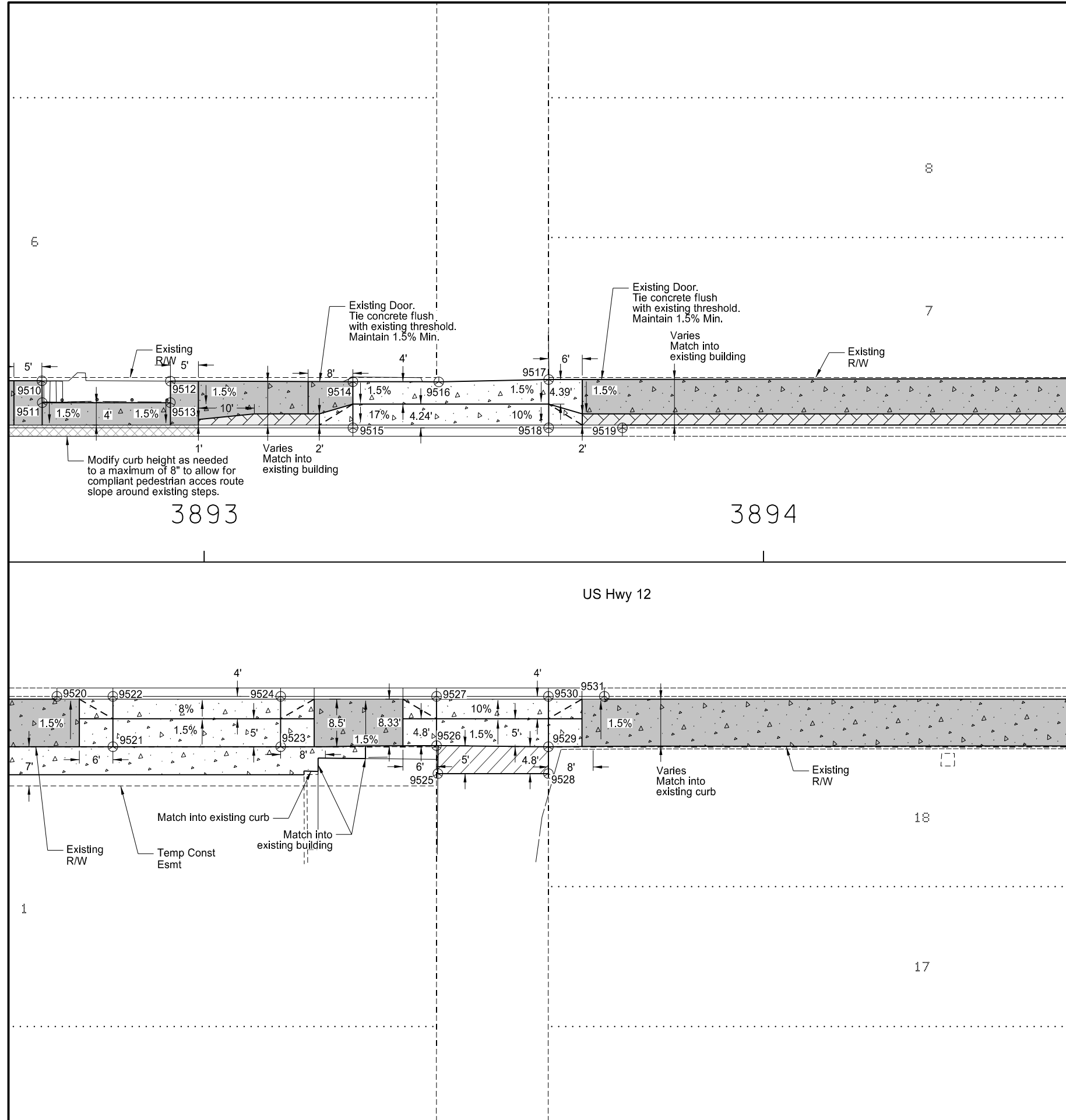


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Survey Data Point Layout
Sta 3890+55 to 3892+65
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	7

Point	North (Y)	East (X)	Station	Offset
9510	129439.9427	1425371.5510	3892+70.99	-32.40
9511	129436.0425	1425371.4865	3892+71.04	-28.50
9512	129439.2008	1425394.5031	3892+93.96	-32.34
9513	129435.3632	1425394.3895	3892+93.96	-28.50
9514	129438.1349	1425427.1170	3893+26.59	-32.24
9515	129429.8996	1425426.8732	3893+26.59	-24.00
9516	129437.6410	1425442.4640	3893+41.94	-32.20
9517	129437.4891	1425462.1132	3893+61.59	-32.63
9518	129428.8639	1425461.8579	3893+61.59	-24.00
9519	129428.4738	1425475.0367	3893+74.77	-24.00
9520	129383.4862	1425372.5677	3892+73.68	24.00
9521	129374.1942	1425382.2971	3892+83.68	33.00
9522	129383.1903	1425382.5634	3892+83.68	24.00
9523	129373.3065	1425412.2839	3893+13.68	33.00
9524	129382.3026	1425412.5502	3893+13.68	24.00
9525	129367.6788	1425440.2217	3893+41.77	37.80
9526	129372.6834	1425440.1415	3893+41.54	32.80
9527	129381.4781	1425440.4018	3893+41.54	24.00
9528	129367.0938	1425459.9848	3893+61.54	37.80
9529	129371.8902	1425460.1268	3893+61.54	33.00
9530	129380.8863	1425460.3931	3893+61.54	24.00
9531	129380.5904	1425470.3887	3893+71.54	24.00

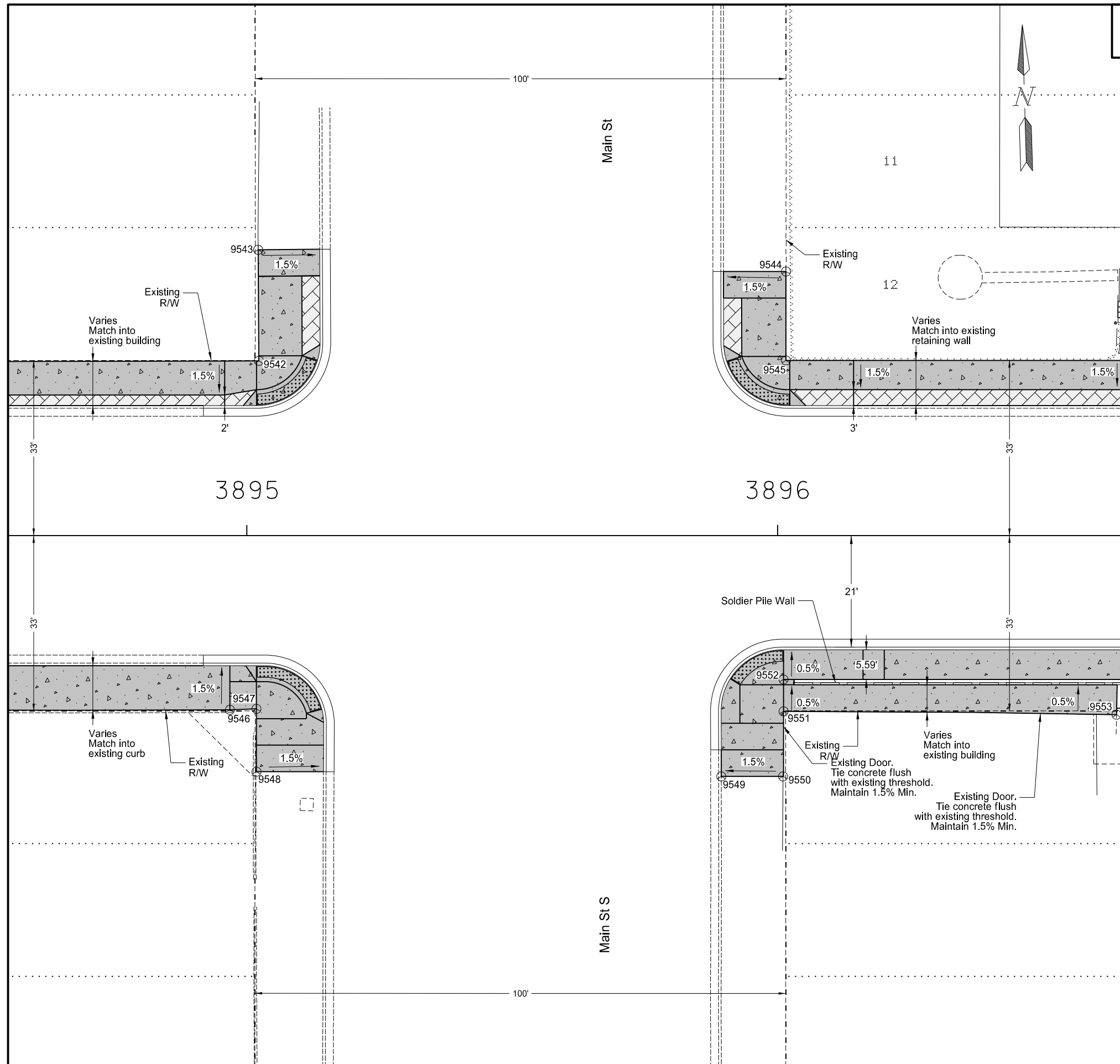


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Survey Data Point Layout
Sta 3892+65 to 3894+55
US Highway 12 / Adams Ave

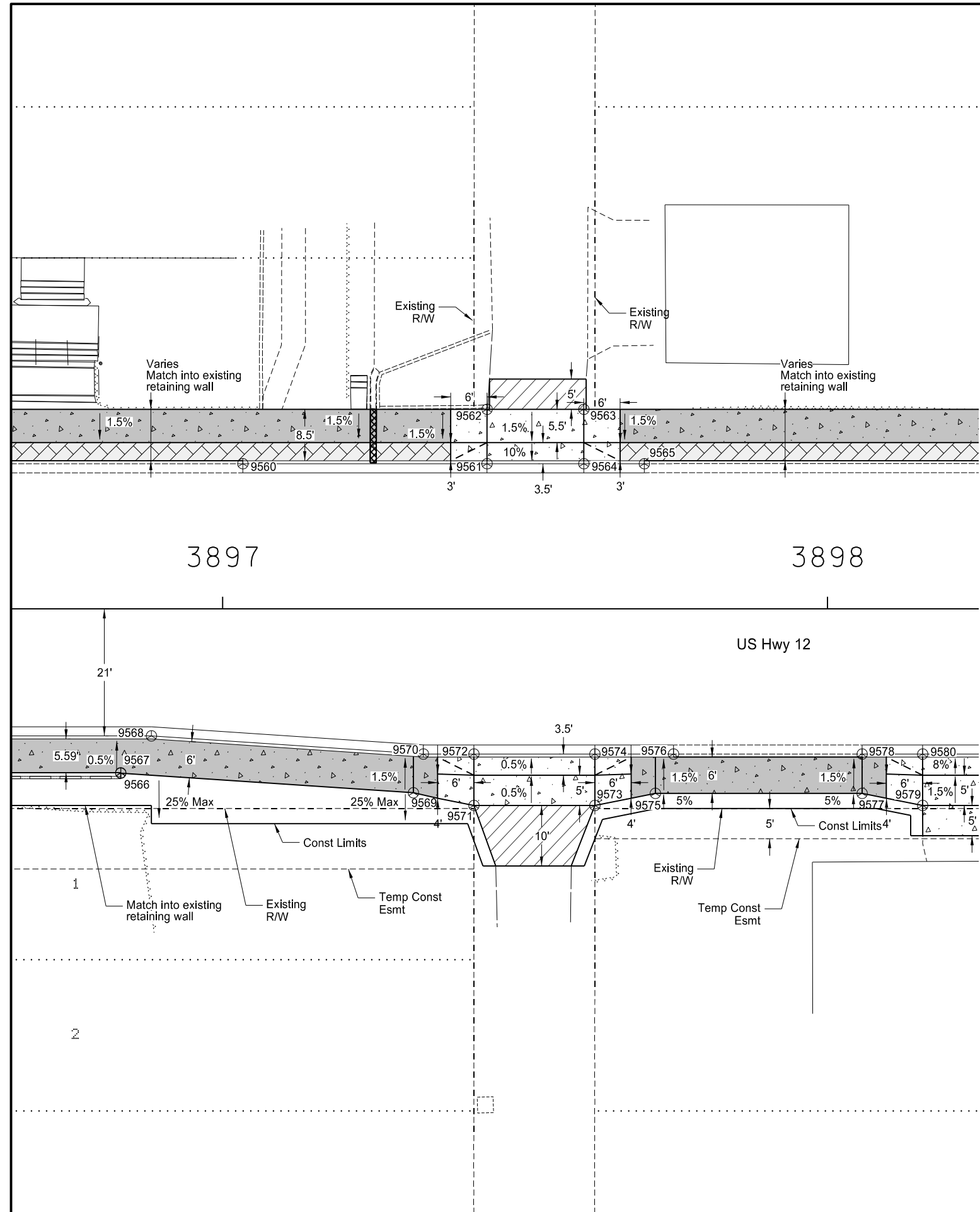
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	8

Point	North (Y)	East (X)	Station	Offset
9542	129433.6100	1425602.7340	3895+02.26	-32.91
9543	129454.5199	1425603.2195	3895+02.13	-53.83
9544	129447.4982	1425702.4939	3896+01.57	-49.75
9545	129430.7592	1425701.9936	3896+01.56	-33.00
9546	129368.0766	1425595.3416	3894+96.81	32.81
9547	129368.1190	1425600.3450	3895+01.81	32.62
9548	129356.2896	1425599.9948	3895+01.81	44.46
9549	129352.8078	1425687.5061	3895+89.39	45.35
9550	129352.4635	1425699.1371	3896+01.02	45.35
9551	129364.7080	1425699.5940	3896+01.12	33.09
9552	129370.7058	1425699.7542	3896+01.10	27.09
9553	129362.2184	1425762.2798	3896+63.85	33.73



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Survey Data Point Layout
Sta 3894+55 to 3896+65
US Highway 12 / Adams Ave



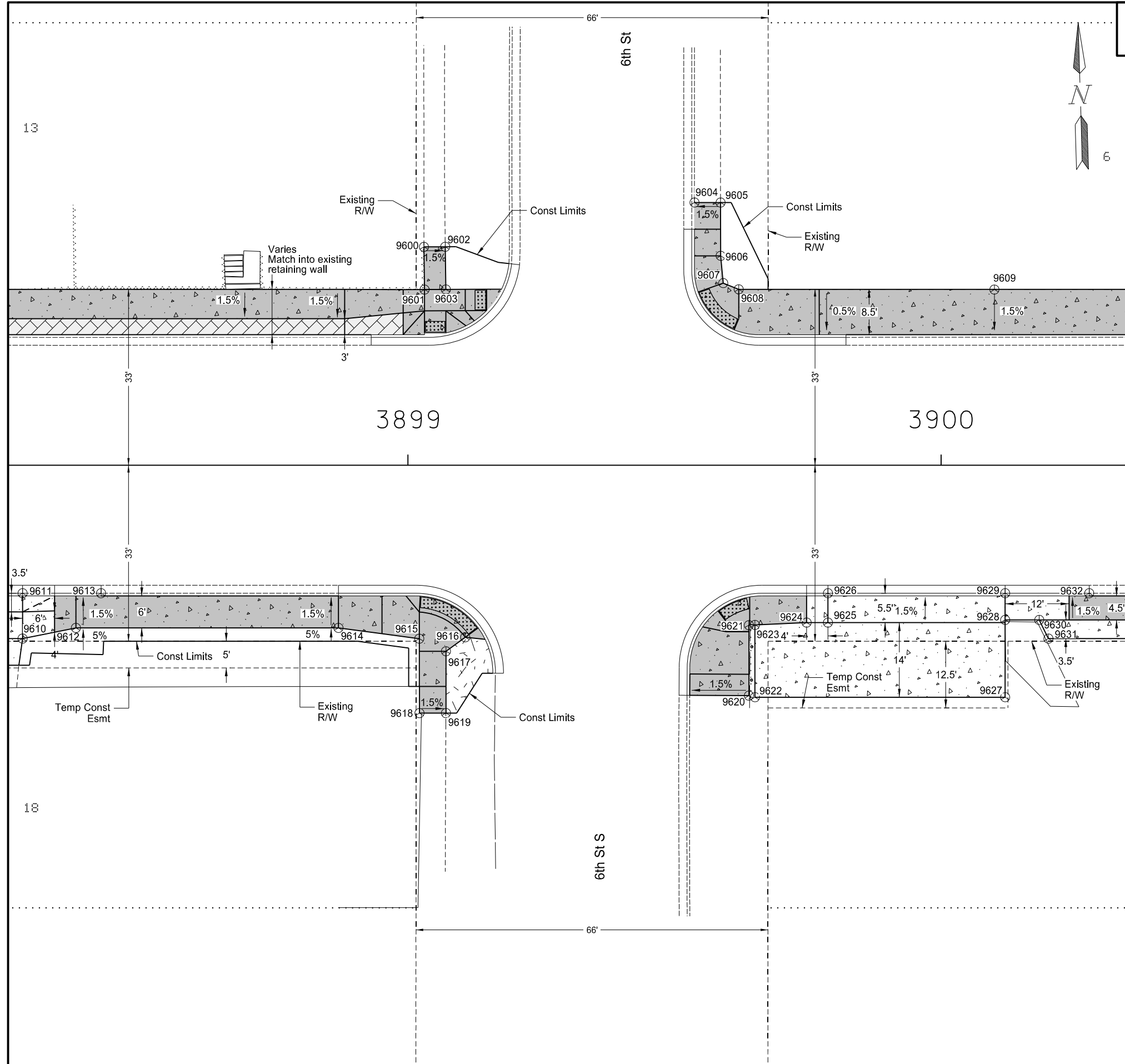
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	9

Point	North (Y)	East (X)	Station	Offset
9560	129418.7516	1425803.4595	3897+03.34	-24.00
9561	129417.5569	1425843.8180	3897+43.71	-24.00
9562	129426.5529	1425844.0844	3897+43.71	-33.00
9563	129426.0795	1425860.0773	3897+59.71	-33.00
9564	129417.0834	1425859.8110	3897+59.71	-24.00
9565	129416.7875	1425869.8067	3897+69.71	-24.00
9566	129368.1954	1425781.7583	3896+83.14	27.18
9567	129368.2782	1425781.7608	3896+83.14	27.09
9568	129374.2187	1425787.0124	3896+88.22	21.00
9569	129363.5380	1425830.0416	3897+31.54	30.40
9570	129369.8895	1425831.8706	3897+33.18	24.00
9571	129361.1459	1425839.9752	3897+41.54	32.50
9572	129369.6421	1425840.2267	3897+41.54	24.00
9573	129360.5541	1425859.9664	3897+61.54	32.50
9574	129369.0503	1425860.2179	3897+61.54	24.00
9575	129362.2573	1425870.0212	3897+71.54	30.50
9576	129368.6657	1425873.2123	3897+74.54	24.00
9577	129361.2456	1425904.1965	3898+05.73	30.50
9578	129367.7428	1425904.3888	3898+05.73	24.00
9579	129358.9506	1425914.1329	3898+15.73	32.50
9580	129367.4469	1425914.3844	3898+15.73	24.00

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Survey Data Point Layout
 Sta 3896+65 to 3898+25
 US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	10



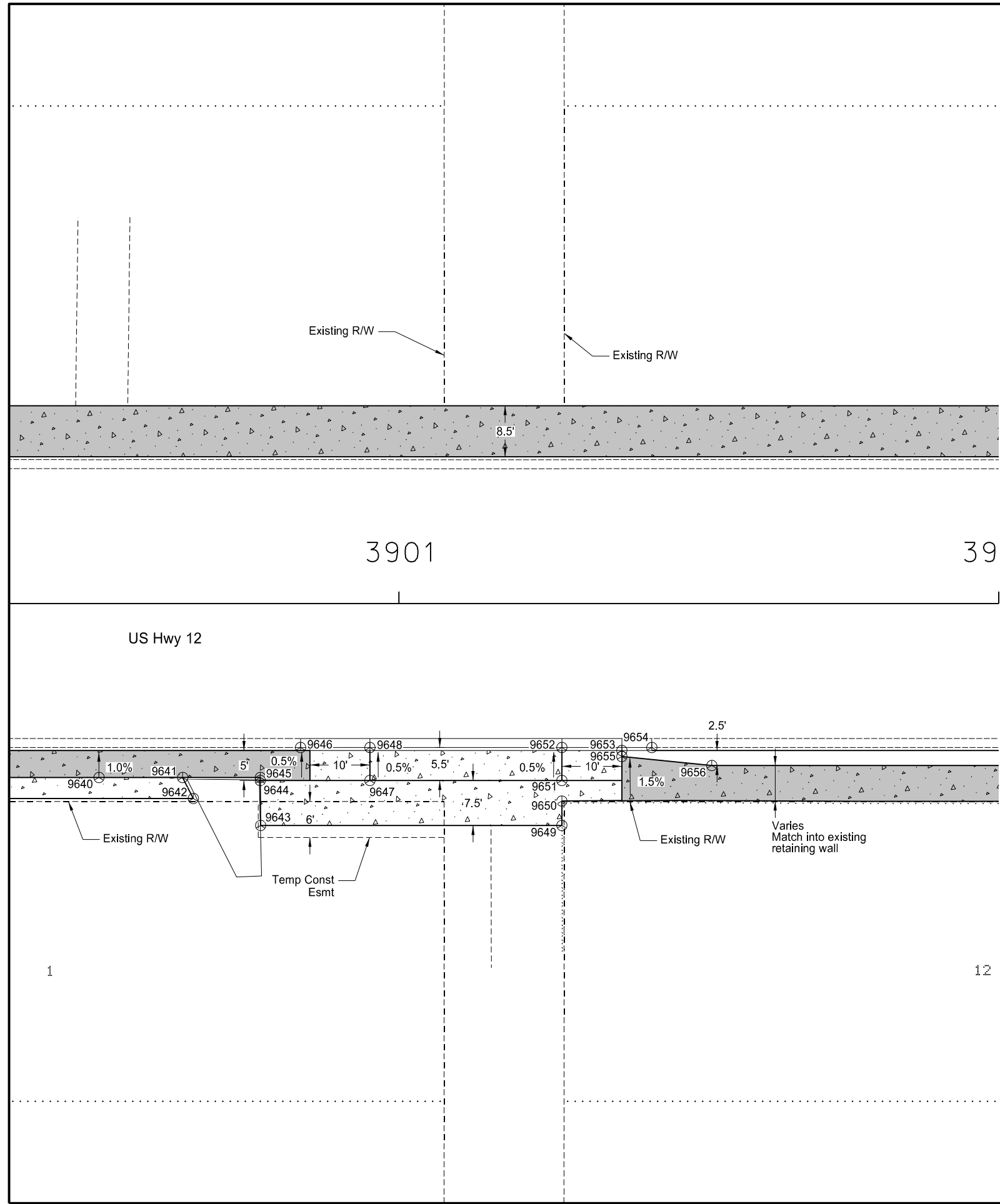
Point	North (Y)	East (X)	Station	Offset
9600	129429.7905	1426003.5506	3899+03.02	-40.95
9601	129421.7910	1426003.4280	3899+03.13	-32.96
9602	129429.6896	1426007.5345	3899+07.00	-40.97
9603	129421.6898	1426007.4267	3899+07.13	-32.97
9604	129436.6077	1426054.5084	3899+53.75	-49.28
9605	129436.4614	1426059.4030	3899+58.65	-49.28
9606	129426.4653	1426059.1244	3899+58.66	-39.28
9607	129421.3445	1426059.4557	3899+59.15	-34.17
9608	129420.0891	1426062.3186	3899+62.04	-33.00
9609	129418.6496	1426110.2569	3900+10.00	-32.98
9610	129358.5955	1425926.1277	3898+27.73	32.50
9611	129367.0918	1425926.3792	3898+27.73	24.00
9612	129360.2987	1425936.1825	3898+37.73	30.50
9613	129366.6564	1425941.0877	3898+42.45	24.00
9614	129358.8417	1425985.4010	3898+86.97	30.50
9615	129356.3730	1426000.4976	3899+02.14	32.52
9616	129356.3801	1426009.1244	3899+10.76	32.26
9617	129353.8670	1426005.4256	3899+07.14	34.88
9618	129342.4202	1426000.1211	3899+02.17	46.48
9619	129342.2733	1426005.0824	3899+07.14	46.48
9620	129343.8659	1426061.9767	3899+63.96	43.20
9621	129357.0650	1426062.3660	3899+63.96	30.00
9622	129343.5358	1426063.1036	3899+65.09	43.50
9623	129357.0950	1426063.4990	3899+65.09	29.94
9624	129357.2430	1426073.2036	3899+74.78	29.50
9625	129357.1246	1426077.2019	3899+78.78	29.50
9626	129362.6222	1426077.3646	3899+78.78	24.00
9627	129342.1473	1426110.0076	3900+12.02	43.50
9628	129356.6410	1426110.4367	3900+12.02	29.00
9629	129361.6388	1426110.5847	3900+12.02	24.00
9630	129356.4518	1426116.8268	3900+18.41	29.00
9631	129352.9024	1426118.4429	3900+20.13	32.50
9632	129361.1724	1426126.3434	3900+27.78	24.00
9633	129361.1723	1426126.3432	3900+27.78	24.00

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Survey Data Point Layout
Sta 3898+25 to 3900+35
US Highway 12 / Adams Ave

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-5-012(047)073	82	11

Point	North (Y)	East (X)	Station	Offset
9640	129355.5171	1426148.4027	3900+50.00	29.00
9641	129355.1044	1426162.3426	3900+63.95	29.00
9642	129351.5533	1426164.0176	3900+65.73	32.50
9643	129346.7232	1426175.1006	3900+76.95	37.00
9644	129354.2215	1426175.2706	3900+76.90	29.50
9645	129354.7213	1426175.2854	3900+76.90	29.00
9646	129359.5205	1426182.1415	3900+83.61	24.00
9647	129353.6808	1426193.5354	3900+95.17	29.50
9648	129359.1784	1426193.6981	3900+95.17	24.00
9649	129345.2372	1426225.2994	3901+27.17	37.00
9650	129349.3100	1426225.4200	3901+27.17	32.93
9651	129352.7339	1426225.5214	3901+27.17	29.50
9652	129358.2315	1426225.6841	3901+27.17	24.00
9653	129357.4358	1426235.6649	3901+37.17	24.50
9654	129357.7877	1426240.6775	3901+42.17	24.00
9655	129356.4363	1426235.6353	3901+37.17	25.50

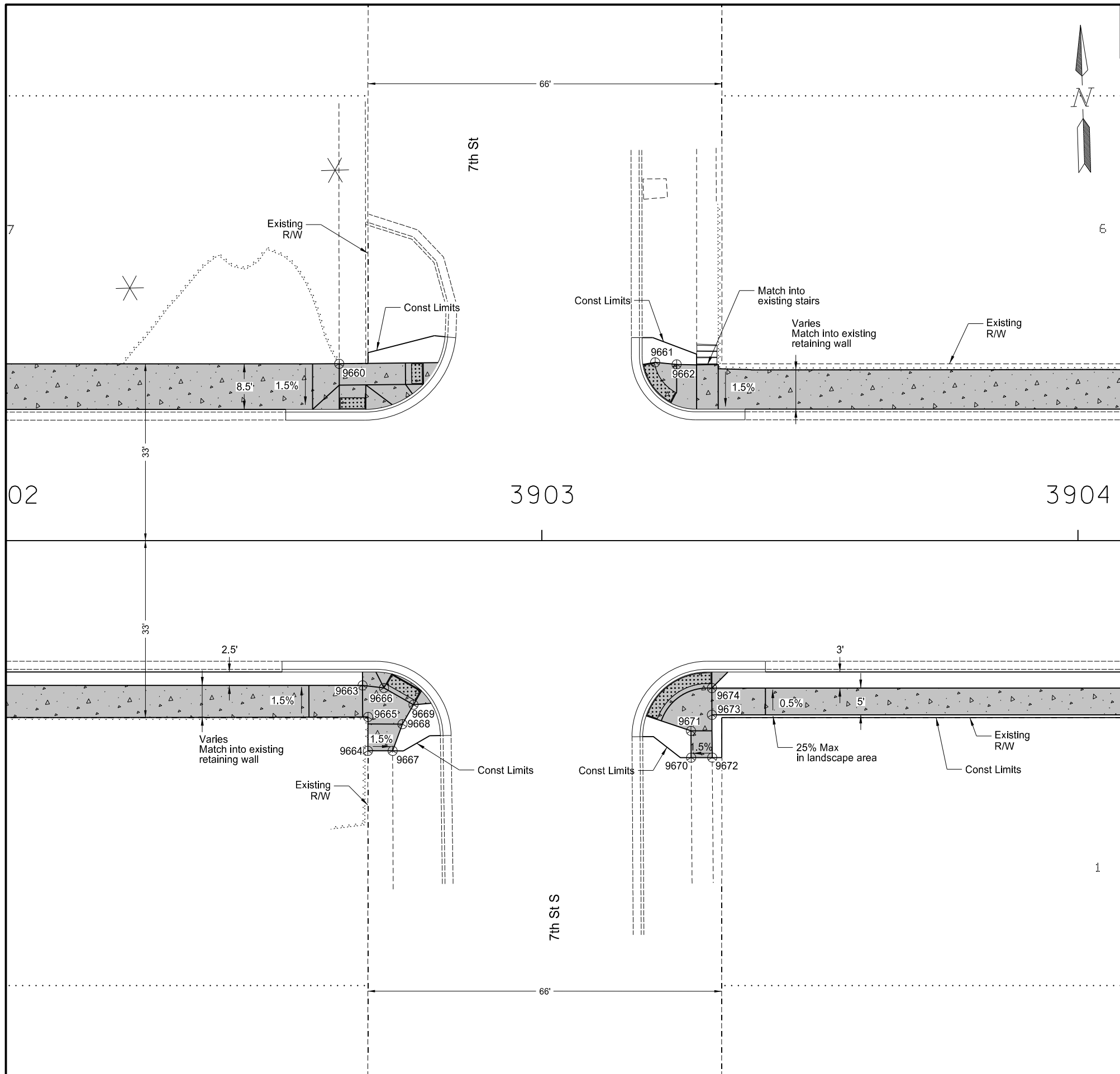


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Survey Data Point Layout
 Sta 3900+35 to 3902+00
 US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	12

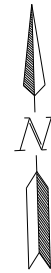
Point	North (Y)	East (X)	Station	Offset
9660	129411.2114	1426362.3299	3902+62.19	-33.00
9661	129409.7336	1426421.2503	3903+21.13	-33.27
9662	129409.2284	1426425.2322	3903+25.12	-32.88
9663	129351.1090	1426364.9008	3902+66.54	27.00
9664	129338.8725	1426365.5463	3902+67.54	39.21
9665	129345.1930	1426365.7540	3902+67.56	32.89
9666	129350.5109	1426368.8863	3902+70.54	27.48
9667	129338.7348	1426370.1528	3902+72.15	39.21
9668	129343.6587	1426372.1338	3902+73.99	34.23
9669	129347.2225	1426374.2990	3902+76.04	30.61
9670	129335.8164	1426425.7806	3903+27.84	40.48
9671	129340.8152	1426425.8916	3903+27.80	35.48
9672	129335.7147	1426429.7050	3903+31.77	40.47
9673	129343.6827	1426429.8910	3903+31.72	32.50
9674	129348.6808	1426430.0273	3903+31.71	27.50



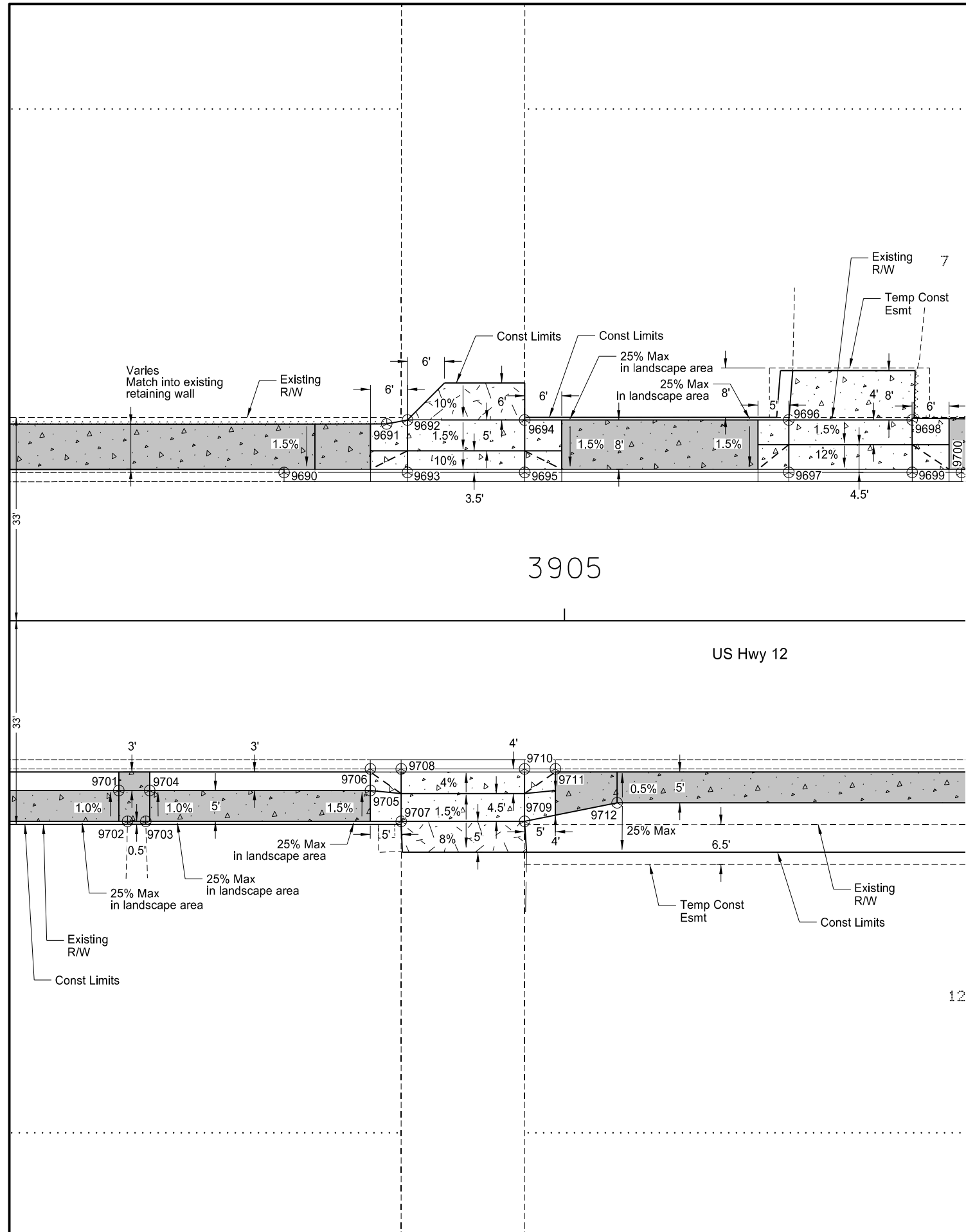
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Survey Data Point Layout
Sta 3902+00 to 3904+10
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	13



Point	North (Y)	East (X)	Station	Offset
9690	129396.5867	1426554.3572	3904+54.56	-24.06
9691	129403.9540	1426571.2060	3904+71.19	-31.93
9692	129404.4946	1426574.5986	3904+74.56	-32.57
9693	129395.9983	1426574.3486	3904+74.56	-24.07
9694	129403.9356	1426593.5930	3904+93.56	-32.57
9695	129395.4400	1426593.3404	3904+93.56	-24.07
9696	129402.6762	1426636.3868	3905+36.38	-32.58
9697	129394.1802	1426636.1368	3905+36.38	-24.08
9698	129402.0879	1426656.3782	3905+56.38	-32.58
9699	129393.5915	1426656.1281	3905+56.38	-24.08
9700	129393.3562	1426664.1247	3905+64.38	-24.08
9701	129345.8387	1426526.0366	3904+27.76	27.50
9702	129340.7989	1426527.3062	3904+29.17	32.50
9703	129340.7115	1426530.2598	3904+32.13	32.50
9704	129345.6908	1426531.0344	3904+32.76	27.50
9705	129344.6318	1426566.8048	3904+68.54	27.50
9706	129348.1303	1426566.9084	3904+68.54	24.00
9707	129339.4861	1426571.6534	3904+73.54	32.50
9708	129347.9824	1426571.9062	3904+73.54	24.00
9709	129338.8943	1426591.6459	3904+93.54	32.50
9710	129347.3906	1426591.8975	3904+93.54	24.00
9711	129347.2426	1426596.8953	3904+98.54	24.00
9712	129341.4491	1426606.7281	3905+08.54	29.50

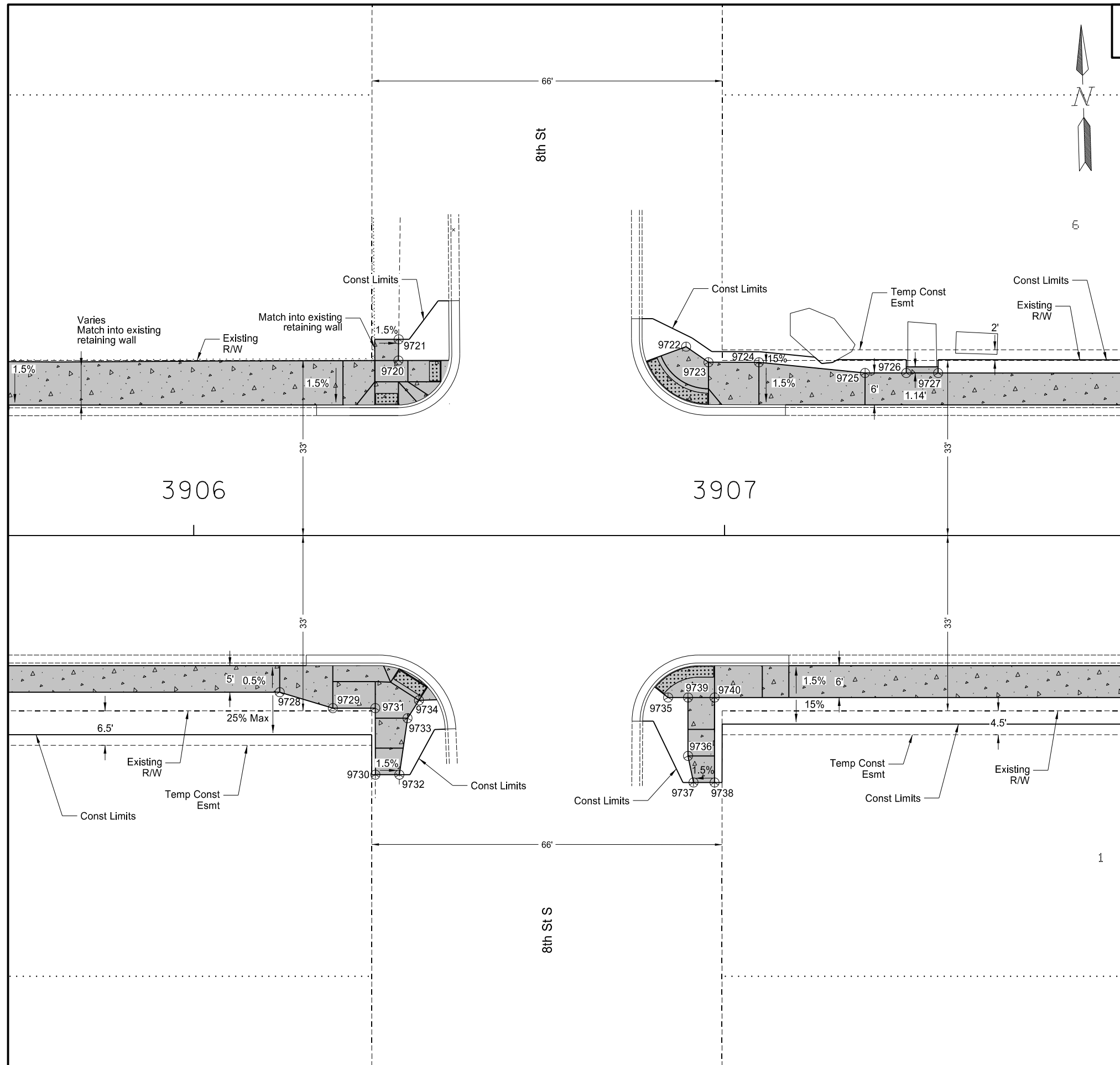


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Survey Data Point Layout
 Sta 3904+10 to 3905+65
 US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	14

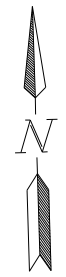
Point	North (Y)	East (X)	Station	Offset
9720	129400.0442	1426738.5257	3906+38.55	-32.97
9721	129404.0405	1426738.6975	3906+38.60	-36.97
9722	129401.0559	1426792.7820	3906+92.75	-35.59
9723	129397.9912	1426796.9114	3906+96.97	-32.64
9724	129397.7035	1426806.4071	3907+06.47	-32.64
9725	129395.0988	1426826.3373	3907+26.47	-30.62
9726	129394.8633	1426834.1095	3907+34.24	-30.62
9727	129394.6817	1426840.1065	3907+40.24	-30.61
9728	129338.2636	1426714.3380	3906+16.20	29.50
9729	129334.9690	1426724.2449	3906+26.20	32.50
9730	129322.2077	1426731.8851	3906+34.21	45.03
9731	129334.7323	1426732.2414	3906+34.20	32.50
9732	129322.0741	1426736.3959	3906+38.73	45.03
9733	129332.6506	1426738.2566	3906+40.27	34.40
9734	129335.9585	1426740.5055	3906+42.42	31.03
9735	129335.0989	1426787.4457	3906+89.37	30.50
9736	129323.9928	1426790.8681	3906+93.12	41.50
9737	129318.9644	1426791.7535	3906+94.15	46.50
9738	129318.8471	1426795.7169	3906+98.12	46.50
9739	129334.9879	1426791.1959	3906+93.12	30.50
9740	129334.8400	1426796.1935	3906+98.12	30.50



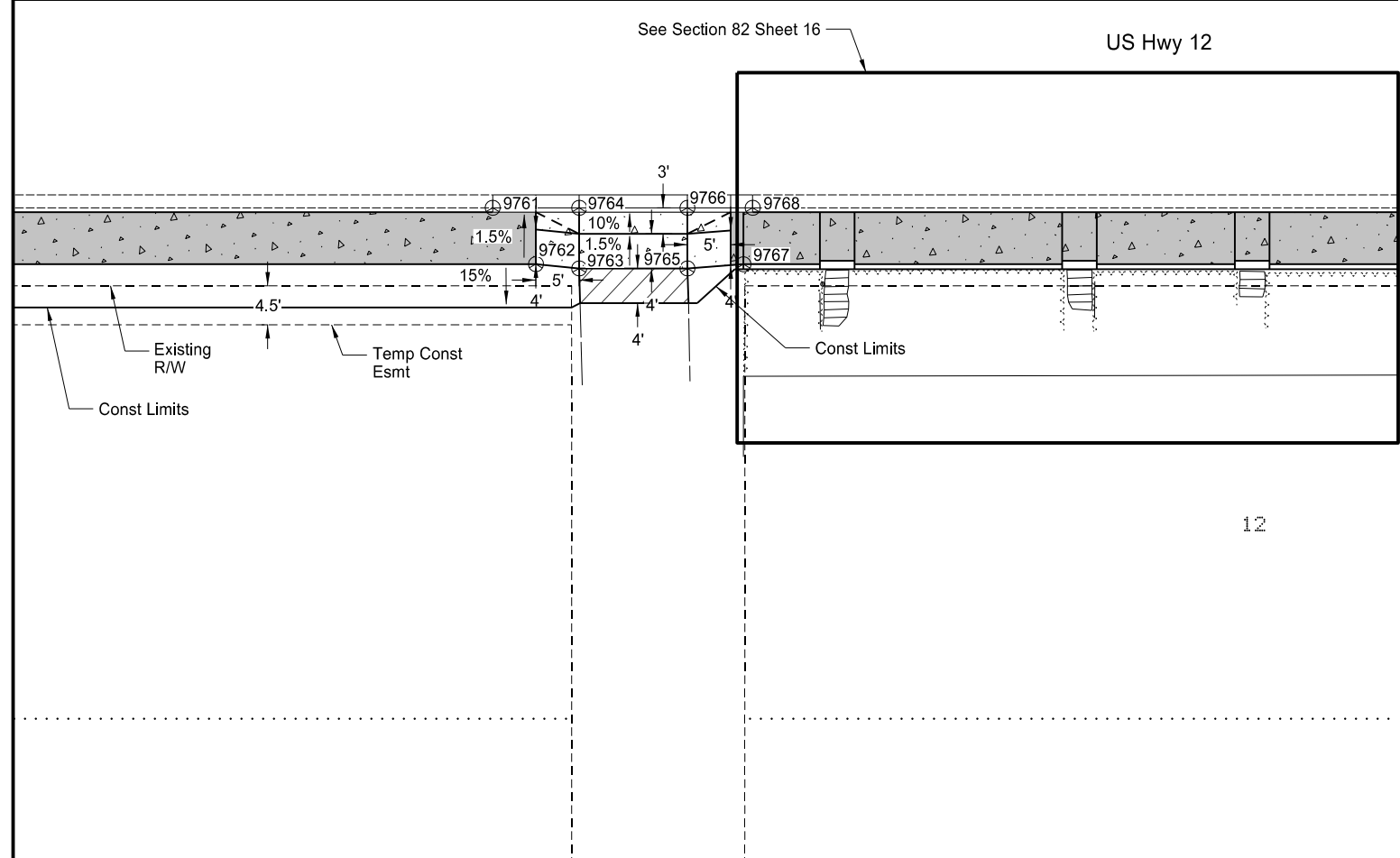
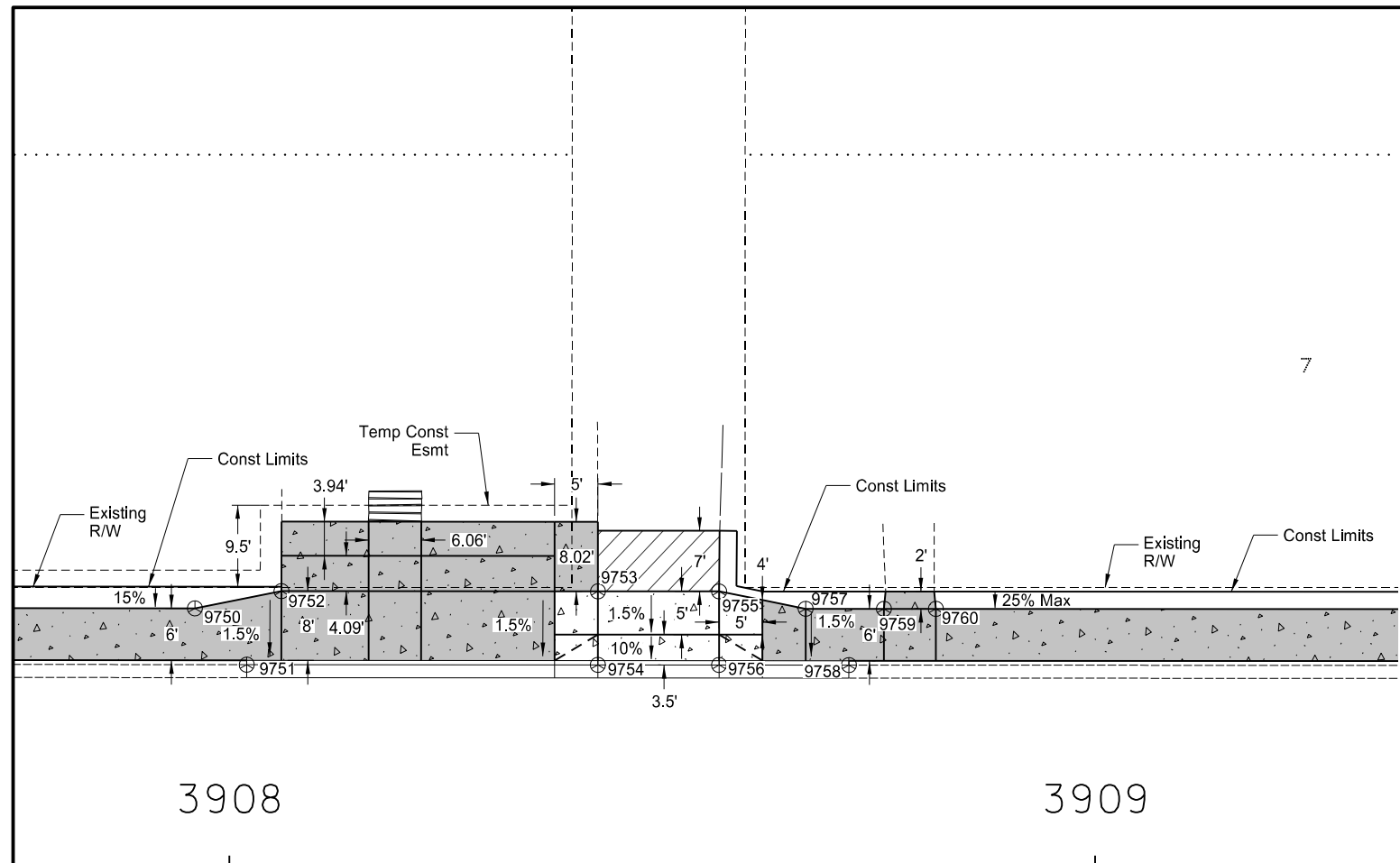
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Survey Data Point Layout
Sta 3905+65 to 3907+75
US Highway 12 / Adams Ave

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-5-012(047)073	82	15



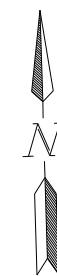
Point	North (Y)	East (X)	Station	Offset
9750	129392.9931	1426895.8454	3907+96.01	-30.58
9751	129386.3145	1426901.6429	3908+02.00	-24.07
9752	129394.6893	1426905.9013	3908+06.01	-32.57
9753	129393.5824	1426942.4412	3908+42.57	-32.54
9754	129385.0885	1426942.1791	3908+42.56	-24.05
9755	129393.1586	1426956.4300	3908+56.56	-32.53
9756	129384.6609	1426956.1726	3908+56.56	-24.03
9757	129390.8567	1426966.3649	3908+66.56	-30.53
9758	129384.2083	1426971.1658	3908+71.56	-24.02
9759	129390.5829	1426975.4017	3908+75.60	-30.52
9760	129390.4012	1426981.3989	3908+81.60	-30.52
9761	129337.4296	1426928.6120	3908+30.40	23.99
9762	129330.7778	1426933.4172	3908+35.40	30.50
9763	129330.1367	1426938.4004	3908+40.40	30.99
9764	129337.1337	1426938.6076	3908+40.40	23.99
9765	129329.7670	1426950.8948	3908+52.90	30.99
9766	129336.7638	1426951.1021	3908+52.90	23.99
9767	129330.0516	1426957.3818	3908+59.38	30.52
9768	129336.5409	1426958.6329	3908+60.44	23.99



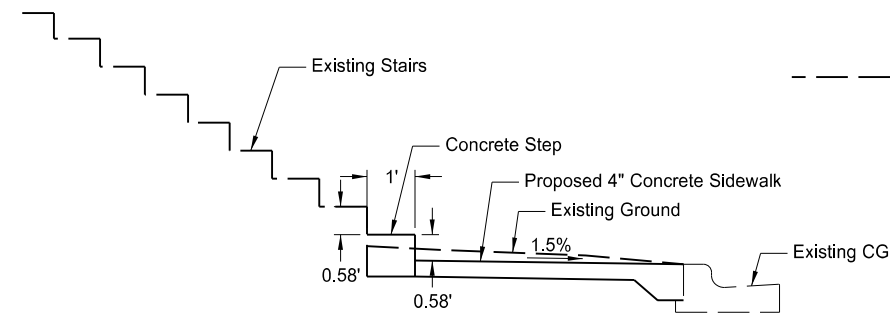
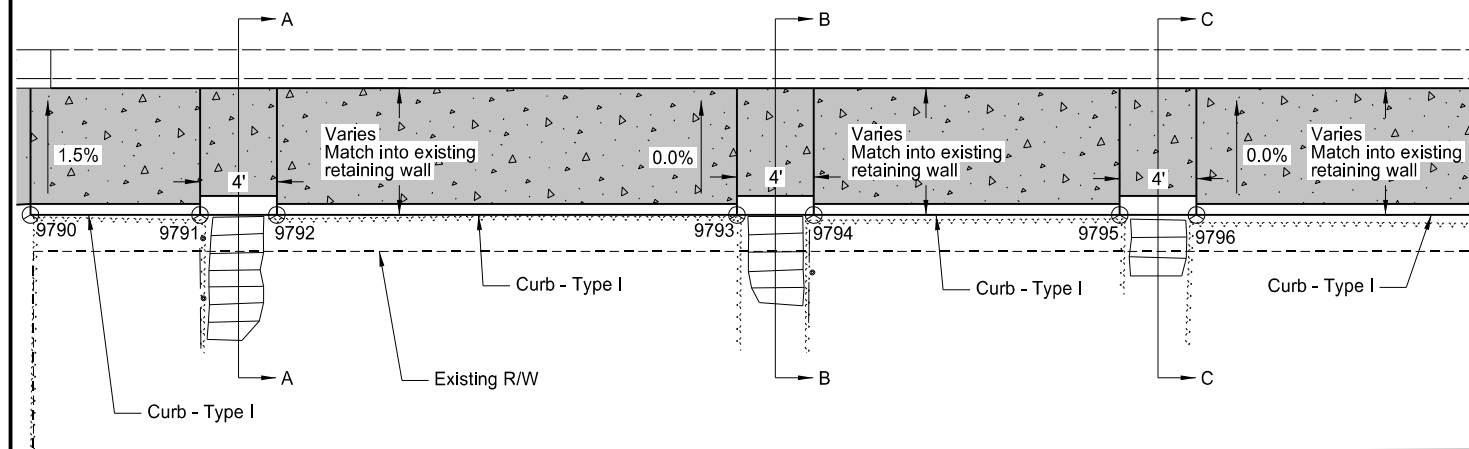
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Survey Data Point Layout
Sta 3907+75 to 3909+35
US Highway 12 / Adams Ave

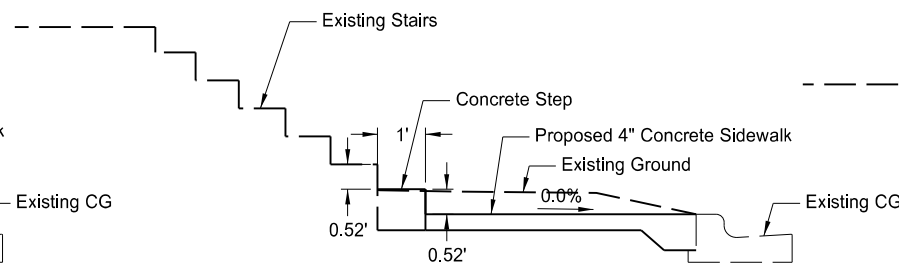
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	16



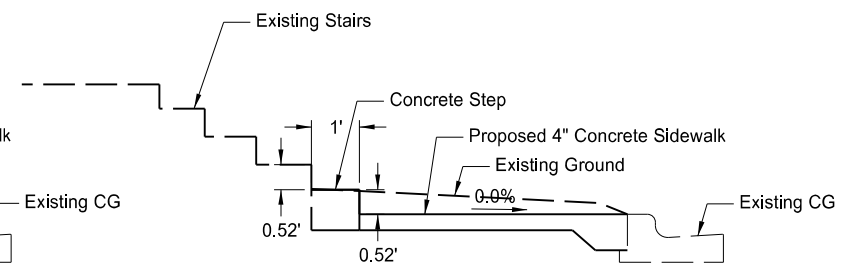
Point	North (Y)	East (X)	Station	Offset
9790	129329.4686	1426957.3646	3908+59.38	31.10
9791	129329.2071	1426966.1977	3908+68.22	31.10
9792	129329.0888	1426970.1959	3908+72.22	31.10
9793	129328.3794	1426994.1576	3908+96.19	31.10
9794	129328.2611	1426998.1559	3909+00.19	31.10
9795	129327.7893	1427014.0920	3909+16.13	31.10
9796	129327.6710	1427018.0903	3909+20.13	31.10



Section A-A



Section B-B

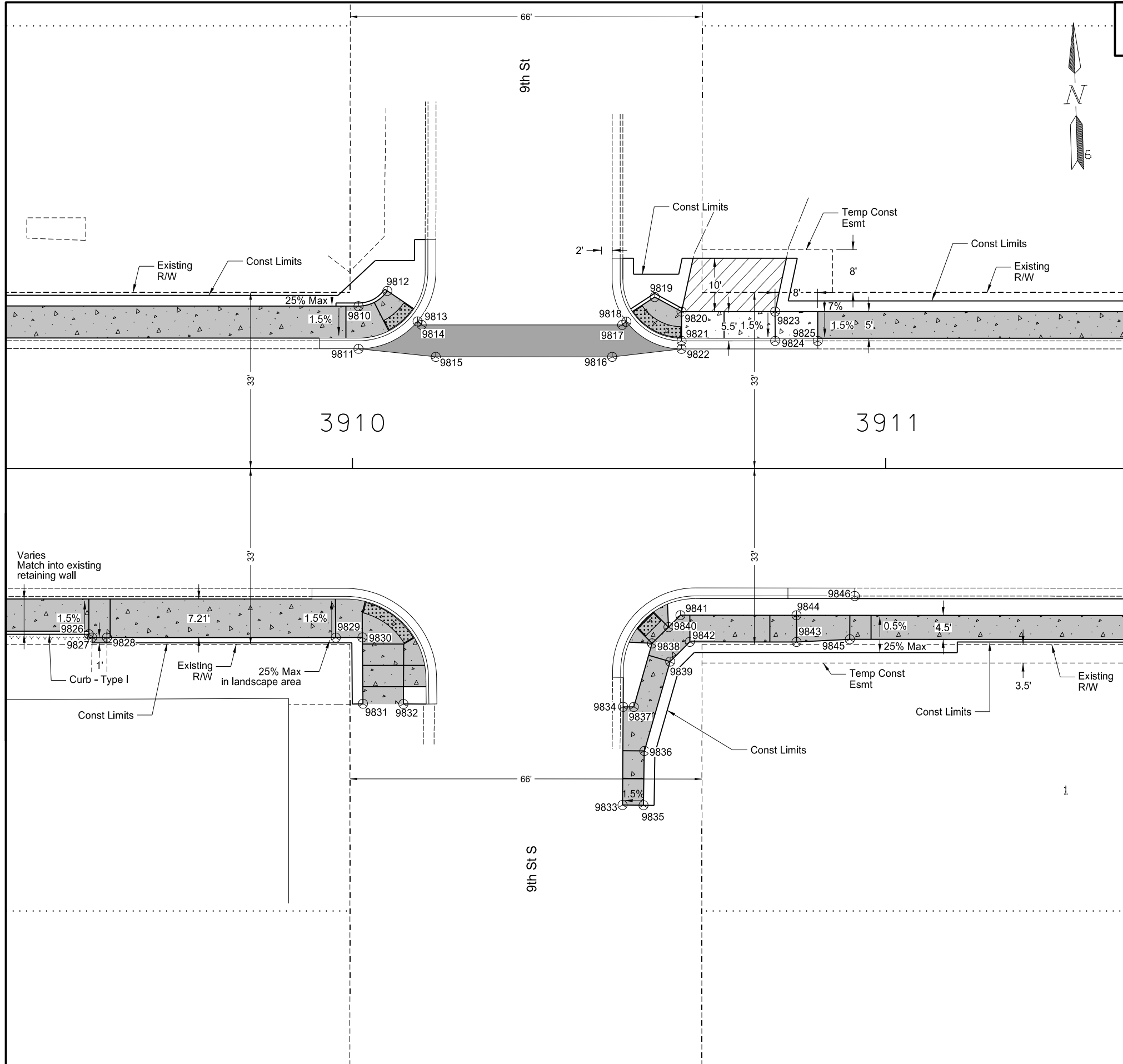


Section C-C

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Survey Data Point Layout
Sta 3908+59 to 3909+54
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	17



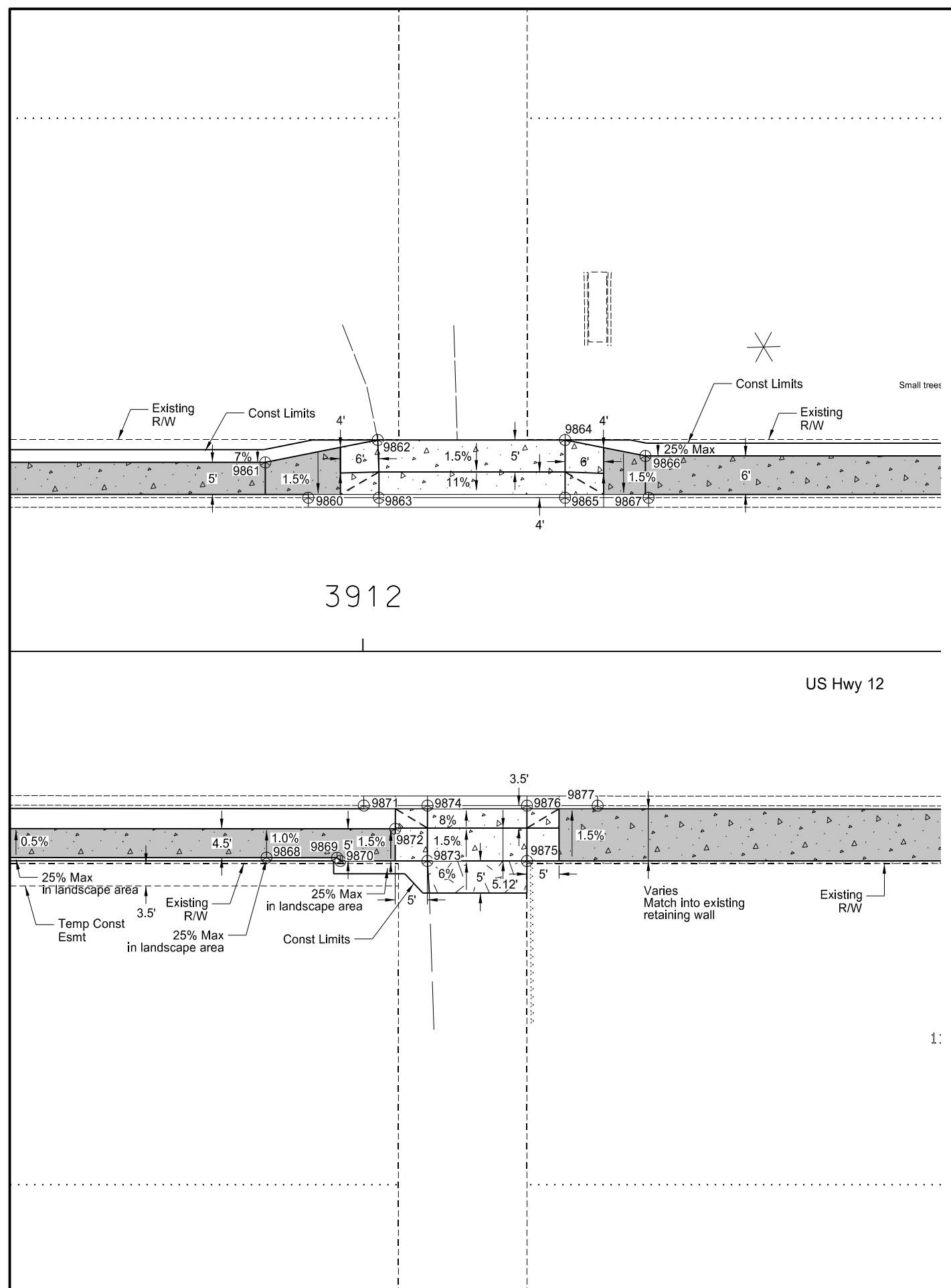
Point	North (Y)	East (X)	Station	Offset
9810	129386.7814	1427100.8871	3910+01.14	-30.43
9811	129378.7851	1427100.6448	3910+01.14	-22.43
9812	129389.4866	1427106.3633	3910+06.54	-33.30
9813	129383.5972	1427111.8785	3910+12.22	-27.58
9814	129382.9295	1427112.6230	3910+12.99	-26.93
9815	129376.8533	1427115.0854	3910+15.63	-20.93
9816	129375.8665	1427148.1427	3910+48.70	-20.92
9817	129381.8078	1427150.1970	3910+50.58	-26.92
9818	129382.3910	1427151.0093	3910+51.37	-27.53
9819	129386.8495	1427156.4465	3910+56.68	-32.15
9820	129383.9748	1427161.3910	3910+61.70	-29.42
9821	129378.4766	1427161.2482	3910+61.72	-23.92
9822	129376.9778	1427161.1854	3910+61.71	-22.42
9823	129383.4551	1427178.9442	3910+79.27	-29.42
9824	129377.9575	1427178.7816	3910+79.27	-23.92
9825	129377.7208	1427186.7794	3910+87.27	-23.92
9826	129326.7700	1427048.5249	3909+50.58	31.10
9827	129326.1525	1427049.1091	3909+51.18	31.70
9828	129326.0689	1427051.8867	3909+53.96	31.70
9829	129324.7776	1427094.7821	3909+96.88	31.72
9830	129324.6683	1427099.7809	3910+01.88	31.68
9831	129312.2330	1427099.5090	3910+01.97	44.12
9832	129311.9654	1427107.0896	3910+09.56	44.17
9833	129291.8077	1427147.6078	3910+50.65	63.12
9834	129310.2038	1427148.2616	3910+50.76	44.71
9835	129291.6432	1427151.5363	3910+54.59	63.16
9836	129301.8273	1427152.0076	3910+54.76	52.97
9837	129310.1328	1427150.2603	3910+52.76	44.72
9838	129321.9367	1427154.0429	3910+56.19	32.81
9839	129318.4286	1427157.3275	3910+59.58	36.22
9840	129324.8984	1427157.2061	3910+59.27	29.75
9841	129327.0616	1427159.5166	3910+61.51	27.52
9842	129322.0108	1427161.1205	3910+63.27	32.53
9843	129321.4055	1427181.1114	3910+83.27	32.54
9844	129326.4033	1427181.2611	3910+83.27	27.54
9845	129321.6026	1427191.1219	3910+93.27	32.05
9846	129329.6997	1427192.2926	3910+94.20	23.92
9847	129329.6997	1427192.2926	3910+94.20	23.92

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Survey Data Point Layout
Sta 3909+35 to 3911+45
US Highway 12 / Adams Ave

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-5-012(047)073	82	18

Point	North (Y)	East (X)	Station	Offset
9860	129374.6367	1427290.9611	3911+91.49	-23.92
9861	129380.3322	1427284.4394	3911+84.81	-29.42
9862	129383.3128	1427302.0353	3912+02.31	-32.92
9863	129374.3112	1427301.9564	3912+02.49	-23.92
9864	129382.4497	1427331.1938	3912+31.48	-32.92
9865	129373.4536	1427330.9275	3912+31.48	-23.92
9866	129379.5809	1427343.6144	3912+43.98	-30.42
9867	129373.0689	1427343.9228	3912+44.48	-23.92
9868	129318.8269	1427282.8005	3911+84.99	32.11
9869	129318.4942	1427293.7877	3911+95.98	32.11
9870	129317.9734	1427294.2780	3911+96.49	32.62
9871	129326.4937	1427298.1817	3912+00.14	23.99
9872	129322.7179	1427302.9824	3912+05.05	27.62
9873	129317.5750	1427307.8290	3912+10.04	32.62
9874	129326.1937	1427308.0900	3912+10.05	24.00
9875	129317.1195	1427323.3223	3912+25.54	32.62
9876	129325.7246	1427323.5828	3912+25.55	24.01
9877	129325.3917	1427334.5778	3912+36.55	24.01

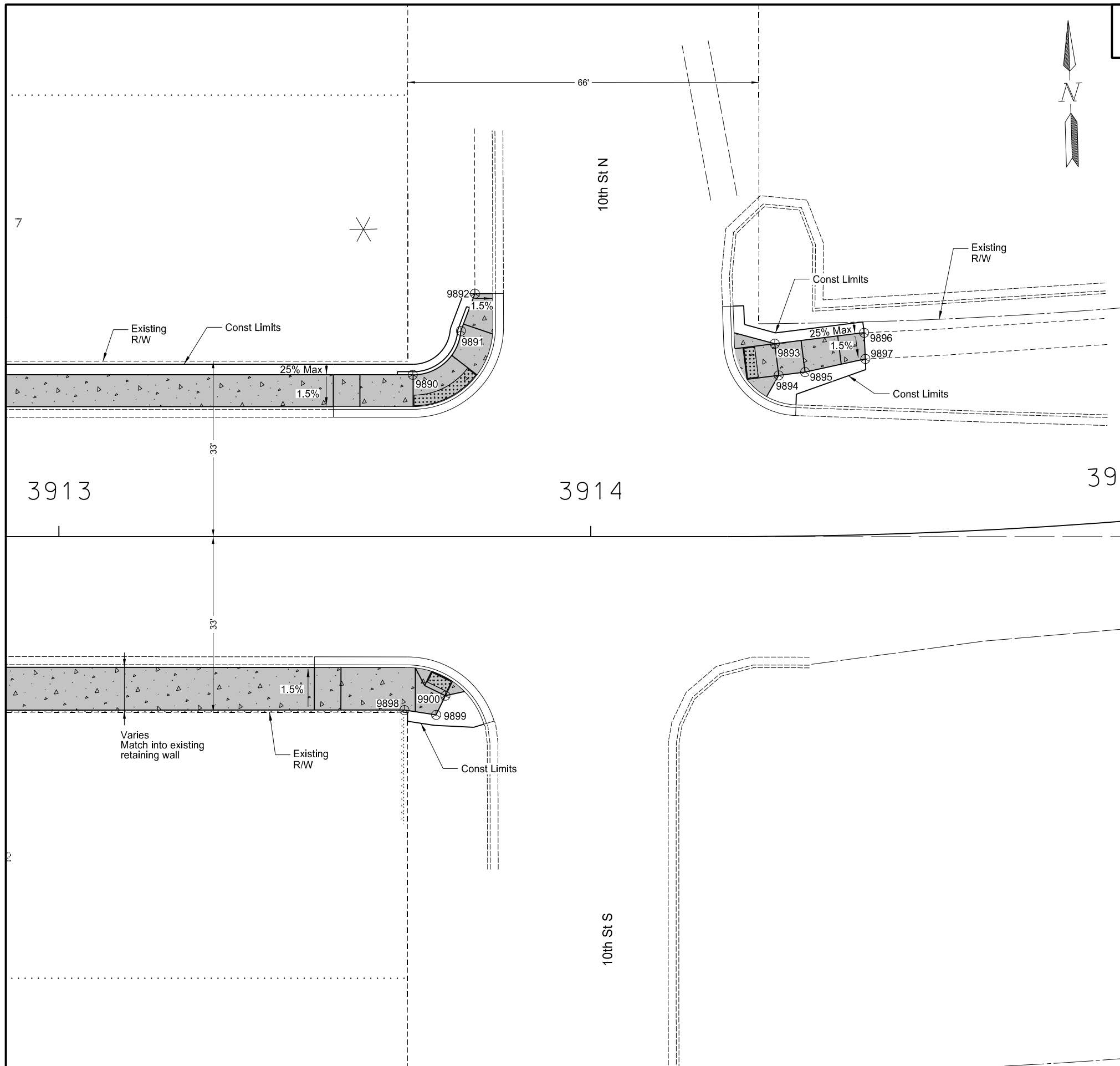


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Survey Data Point Layout
Sta 3911+45 to 3912+90
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	82	19

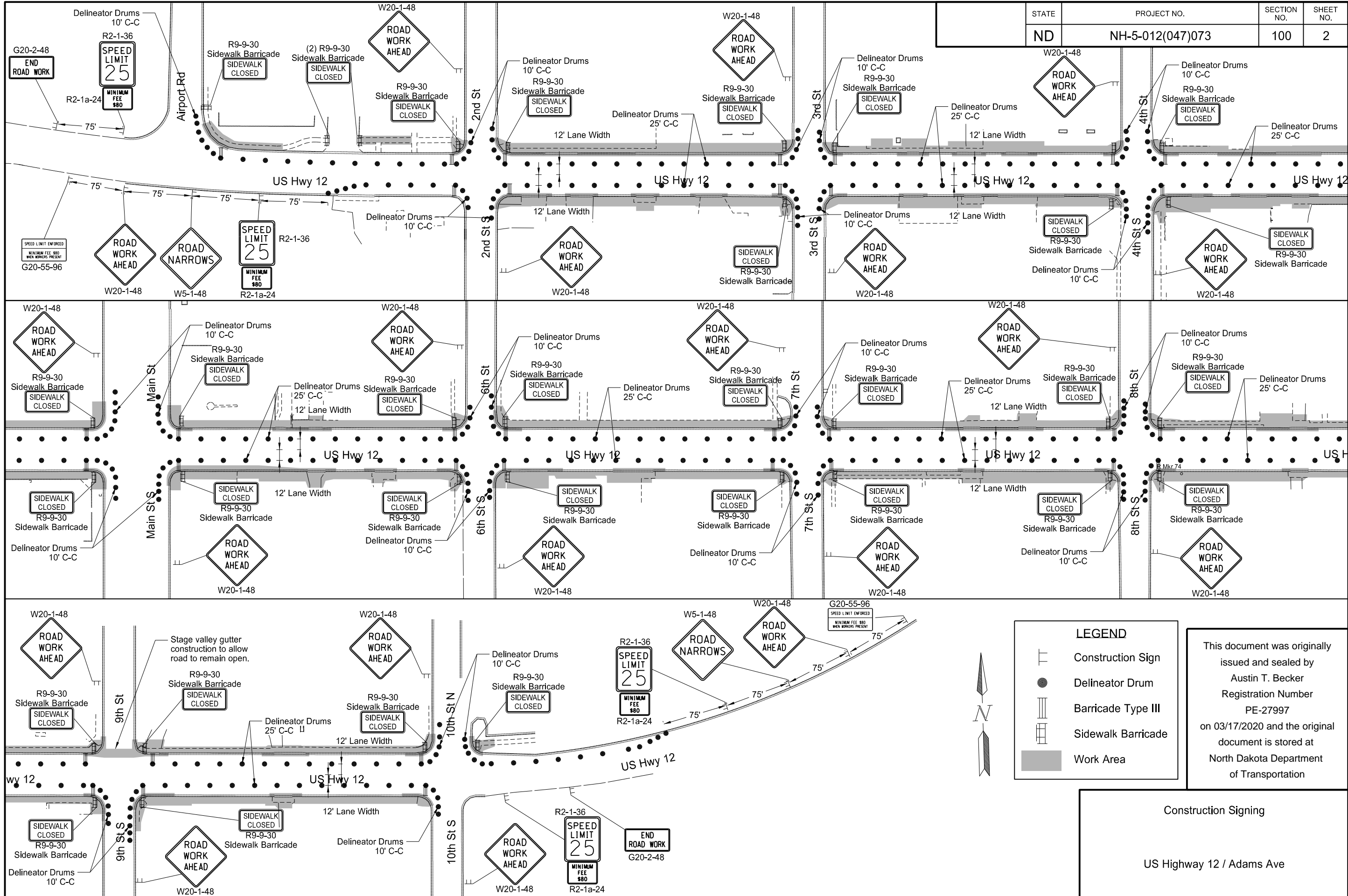
Point	North (Y)	East (X)	Station	Offset
9890	129375.9547	1427466.1090	3913+66.53	-30.42
9891	129383.9581	1427475.3944	3913+75.57	-38.69
9892	129390.8510	1427478.2280	3913+78.20	-45.67
9893	129379.7874	1427534.3090	3914+34.93	-36.23
9894	129373.8139	1427534.8718	3914+35.64	-30.26
9895	129374.2829	1427539.8498	3914+40.77	-30.82
9896	129381.3387	1427551.1700	3914+52.46	-37.96
9897	129376.4227	1427551.2529	3914+52.55	-33.04
9898	129313.0179	1427462.6803	3913+64.96	32.59
9899	129311.9390	1427468.6004	3913+70.91	33.49
9900	129315.4831	1427470.4551	3913+72.66	29.90



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Survey Data Point Layout
 Sta 3912+90 to 3915+00
 US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	100	2



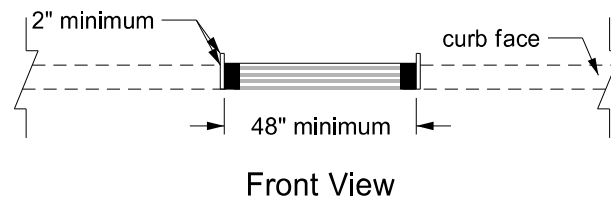
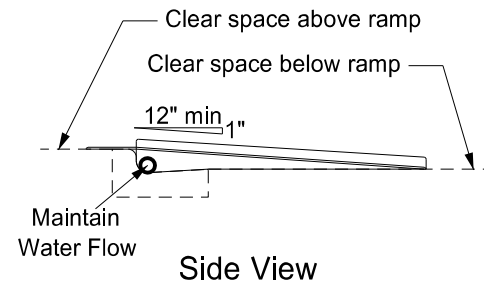
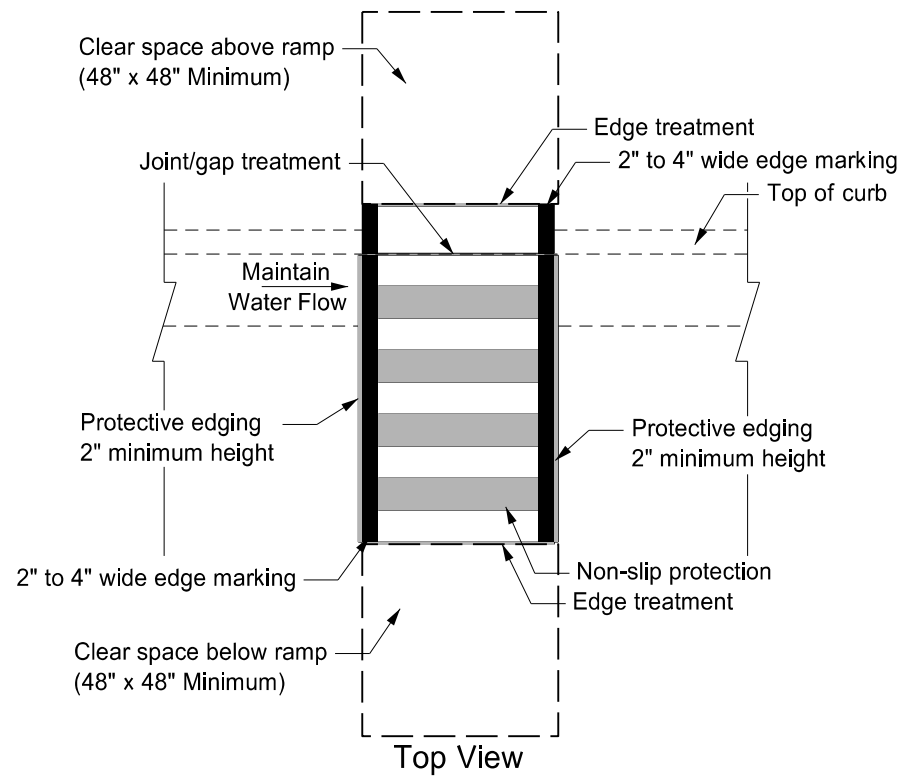
LEGEND

	Construction Sign
	Delineator Drum
	Barricade Type III
	Sidewalk Barricade
	Work Area

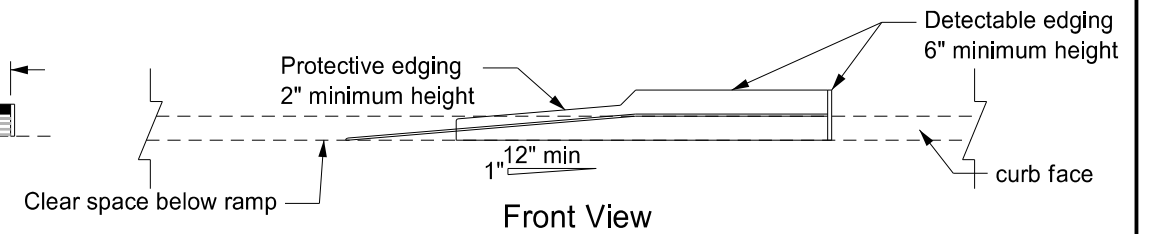
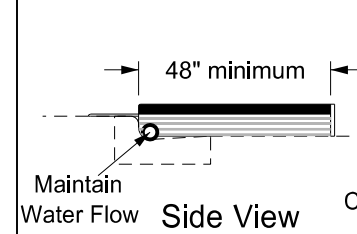
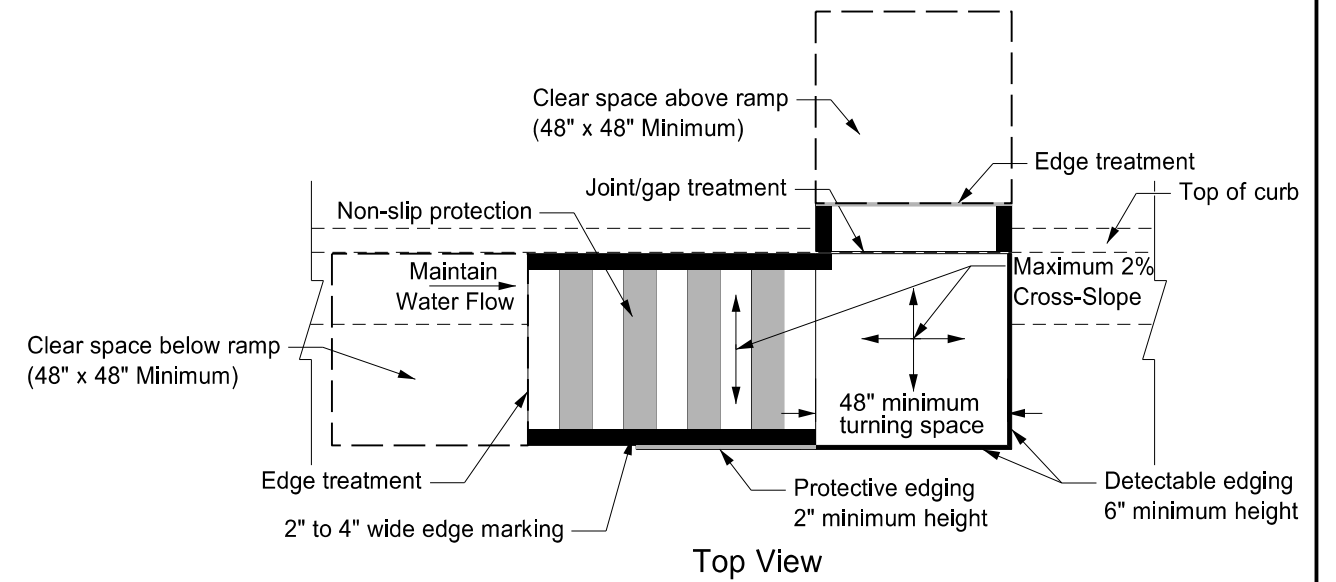
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Construction Signing
US Highway 12 / Adams Ave

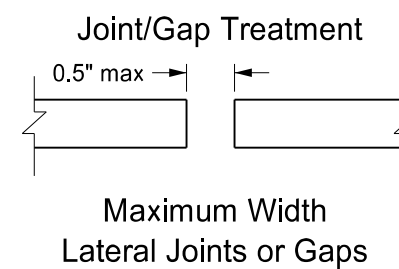
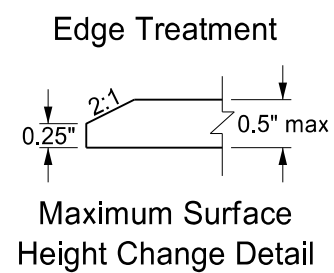
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	100	3



Temporary Perpendicular Curb Ramp



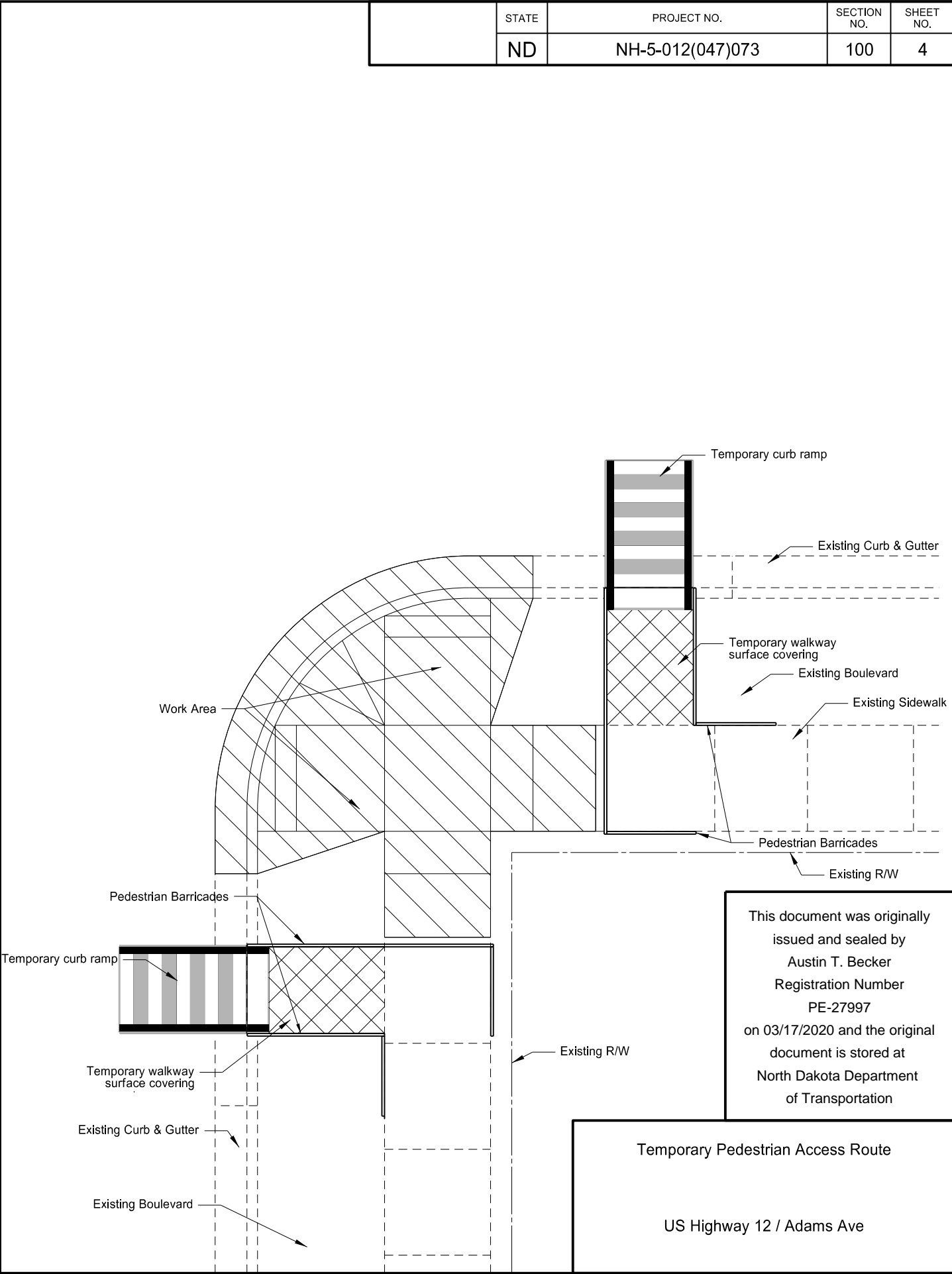
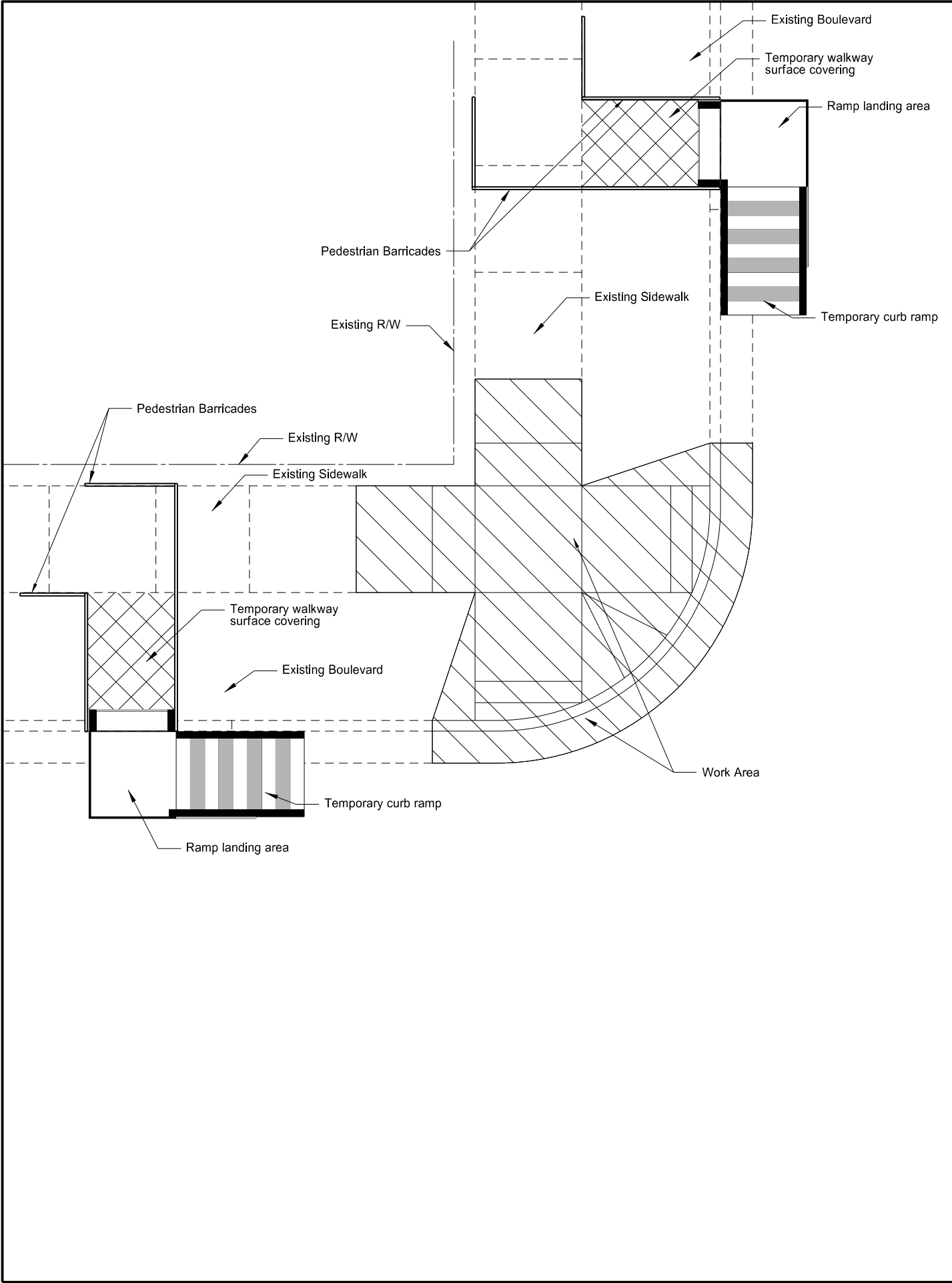
Temporary Parallel Curb Ramp



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Temporary Pedestrian Curb Ramp Details
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	100	4



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Temporary Pedestrian Access Route
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	NH-5-012(047)073	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								
US Hwy 12 NDSTREET																							
3884+58 Rt	SA 2E				15.5				7.0	2.5 x 2.5 12 ga	17.0	4.8			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3886+03 Rt		9			13.4				7.0	2.25 x 2.25 12 ga	15.0					1	4	2.5 x 2.5 12 ga	1				
3887+62 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3888+25 Rt	SA 2E				15.5				7.0	2.5 x 2.5 12 ga	17.0	4.8			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3889+00 Rt	SA A				14.4				7.0	2.5 x 2.5 12 ga	17.5					1	4	3 x 3 7 ga	1				
3890+00 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3893+15 Lt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3894+84 Lt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3897+24 Rt		7		1.5	12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3898+10 Rt		67			13.5				7.0	2.25 x 2.25 12 ga	15.0					1	4	2.5 x 2.5 12 ga	1				
3898+68 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3900+23 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3900+80 Rt	SA D			2.0	13.6				7.0	2.25 x 2.25 12 ga	14.3	4.7			2 x 2 12 ga	1	4	3 x 3 7 ga	1		1		
3901+46 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3902+21 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3902+66 Rt	SA D				15.4	15.8			7.0	2.5 x 2.5 12 ga	17.2					2	4	3 x 3 7 ga	1		2		
3910+99 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3911+48 Rt		19			14.2				7.0	2.5 x 2.5 12 ga	14.6					1	4	3 x 3 7 ga	1				
3912+32 Rt	SA C				13.8				7.0	2 x 2 12 ga	15.1					1	4	2.25 x 2.25 12 ga	1				
3913+07 Rt		67			13.5				7.0	2.25 x 2.25 12 ga	15.0					1	4	2.5 x 2.5 12 ga	1				
3913+61 Rt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
Sub Total			0.0	3.5	Total 293.9											Total 88.0			20	0	5		

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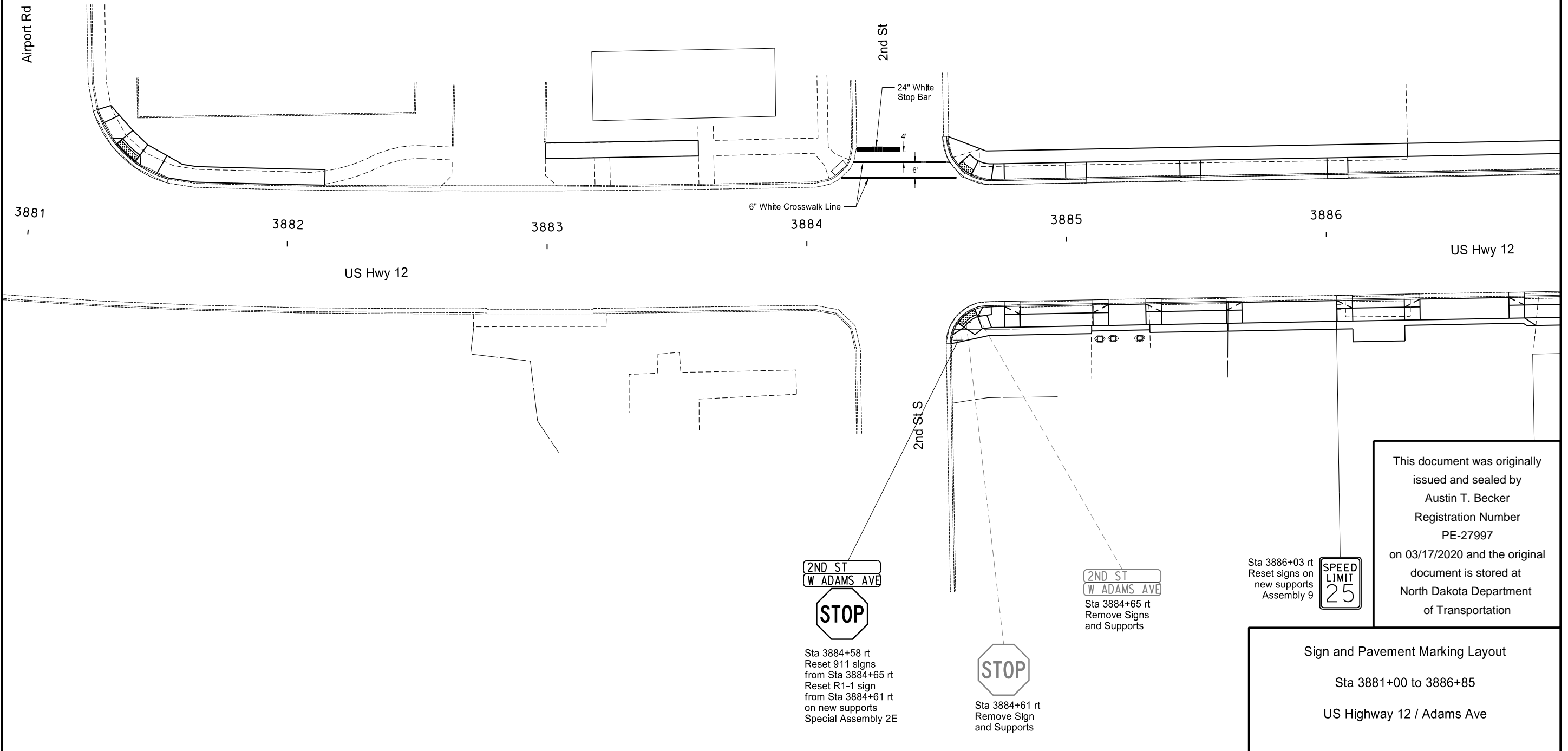
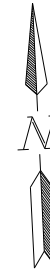
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	NH-5-012(047)073	110	2

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								
US HWY 12 NDDOT																							
3887+76 Lt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3888+62 Lt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3891+08 Lt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3891+48 Lt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3891+90 Rt	SA 2E				15.5				7.0	2.5 x 2.5 12 ga	17.0	4.8			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3892+56 Rt	SA B		2.0		15.2				7.0	2.25 x 2.25 12 ga	16.7	4.6			2 x 2 12 ga	1	4	3 x 3 7 ga	1		1		
3894+94 Rt	SA B				15.2				7.0	2.25 x 2.25 12 ga	16.7	4.6			2 x 2 12 ga	1	4	3 x 3 7 ga	1		1		
3895+10 Lt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3895+92 Rt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3896+10 Lt	SA B				15.2				7.0	2.25 x 2.25 12 ga	16.7	4.6			2 x 2 12 ga	1	4	3 x 3 7 ga	1		1		
3896+22 Lt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3897+86 Lt	SA C				13.8				7.0	2 x 2 12 ga	15.1					1	4	2.25 x 2.25 12 ga	1				
3898+38 Lt	SA B		2.0		15.2				7.0	2.25 x 2.25 12 ga	16.7	4.6			2 x 2 12 ga	1	4	3 x 3 7 ga	1		1		
3898+97 Lt		7			12.3				7.0	2 x 2 12 ga	25.5					1	4	2.25 x 2.25 12 ga	1				
3899+17 Lt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3899+56 Rt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3902+79 Lt	SA 2E				15.5				7.0	2.5 x 2.5 12 ga	17.0	4.8			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3903+22 Rt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3906+46 Lt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3906+87 Rt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3909+01 Rt		56			15.2				7.0	2.5 x 2.5 12 ga	15.6	5.5			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3909+61 Lt			2.0						7.0													Mount on Light Standard	
3910+11 Lt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3910+52 Rt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
3913+75 Lt	SA 2E				15.3				7.0	2.5 x 2.5 12 ga	16.7	4.9			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
Sub Total			0.0	6.0		Total	353.6								Total	96.0			24	0	19		
Grand Total			0.0	9.5		Total	647.5								Total	184	0		44	0	24		

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	110	3

SPEC CODE	BID ITEM	QTY	UNIT
704 1500	OBLITERATION OF PAVEMENT MARKING		
	Stop Bars	34	SF
	Cross Walks	41	SF
762 1106	PVMT MK PAINTED 6IN LINE		
	White Cross Walk	81	LF
762 1124	PVMT MK PAINTED 24IN LINE		
	White Stop Bar	17	LF



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Sta 3886+03 rt
Reset signs on new supports
Assembly 9

2ND ST
W ADAMS AVE
Sta 3884+65 rt
Remove Signs and Supports

2ND ST
W ADAMS AVE
STOP
Sta 3884+58 rt
Reset 911 signs from Sta 3884+65 rt
Reset R1-1 sign from Sta 3884+61 rt on new supports
Special Assembly 2E

STOP
Sta 3884+61 rt
Remove Sign and Supports

Sign and Pavement Marking Layout
Sta 3881+00 to 3886+85
US Highway 12 / Adams Ave

3rd St
W Adams Ave
Sta 3887+76 It
Reset signs on
new support
Special Assembly 2E



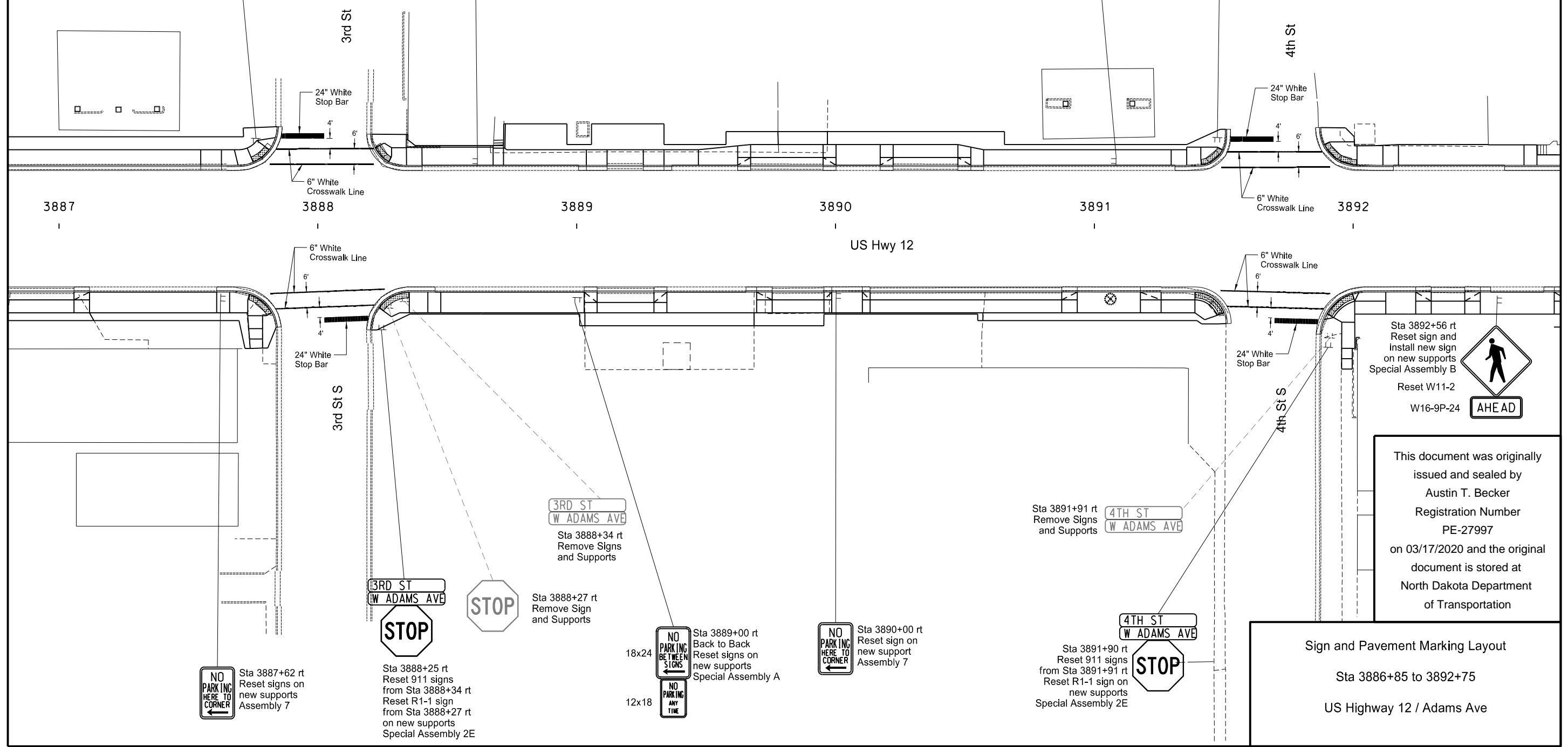
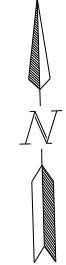
NO PARKING
HERE TO
CORNER
Sta 3888+62 It
Reset sign on
new support
Assembly 7

SPEC CODE	BID ITEM	QTY	UNIT
704 1500	OBLITERATION OF PAVEMENT MARKING		
	Stop Bars	136	SF
	Cross Walks	79	SF
762 1106	PVMT MK PAINTED 6IN LINE		
	White Cross Walk	318	LF
762 1124	PVMT MK PAINTED 24IN LINE		
	White Stop Bar	68	LF

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	110	4

NO PARKING
HERE TO
CORNER
Sta 3891+08 It
Reset sign on
new support
Assembly 7

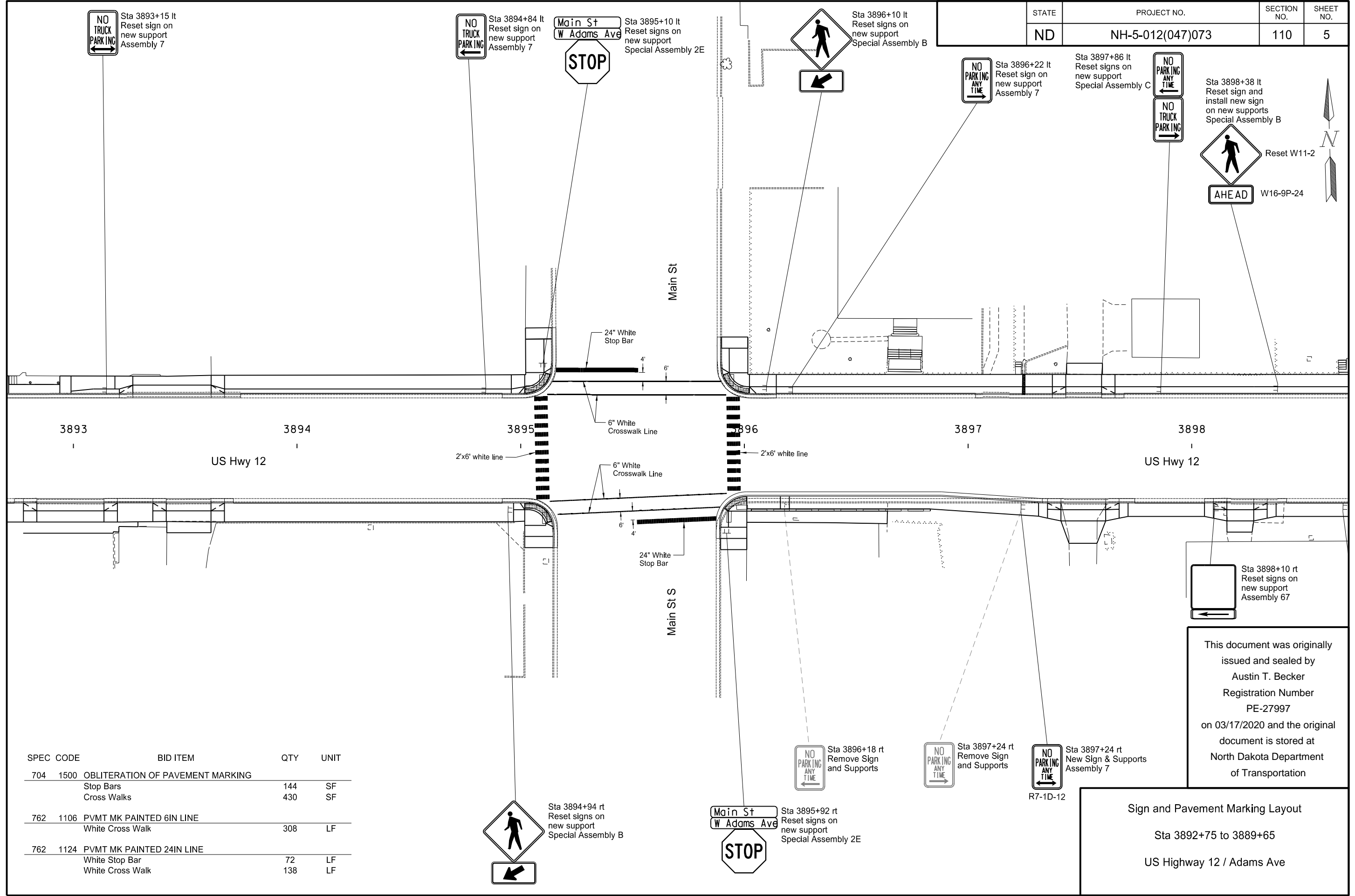
4th St
W Adams Ave
Sta 3891+48 It
Reset signs on
new support
Special Assembly 2E



Sta 3892+56 rt
Reset sign and
install new sign
on new supports
Special Assembly B
Reset W11-2
W16-9P-24
 AHEAD

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Sign and Pavement Marking Layout
Sta 3886+85 to 3892+75
US Highway 12 / Adams Ave



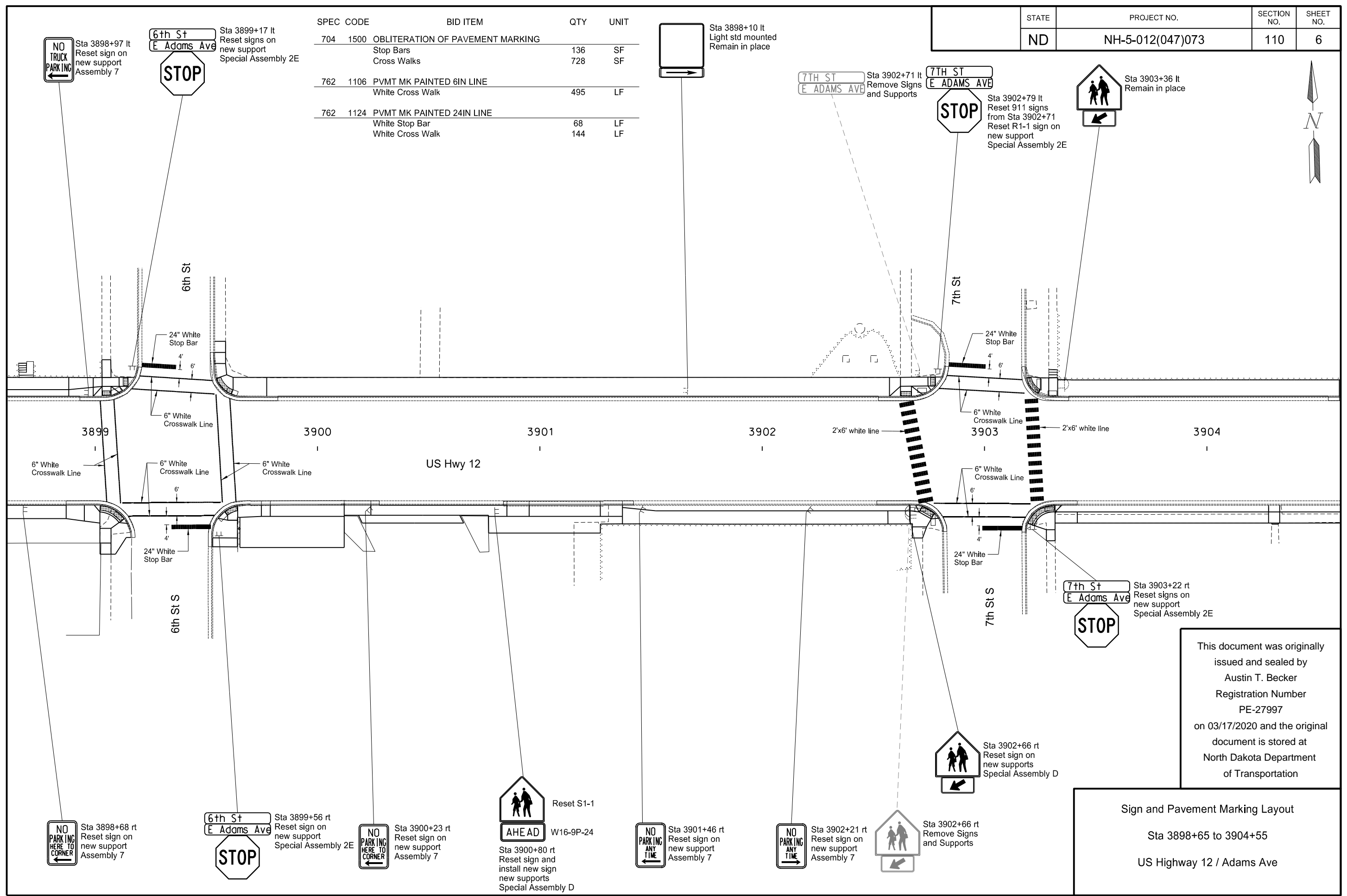
SPEC CODE	BID ITEM	QTY	UNIT
704 1500	OBLITERATION OF PAVEMENT MARKING		
	Stop Bars	144	SF
	Cross Walks	430	SF
762 1106	PVMT MK PAINTED 6IN LINE		
	White Cross Walk	308	LF
762 1124	PVMT MK PAINTED 24IN LINE		
	White Stop Bar	72	LF
	White Cross Walk	138	LF

Sta 3898+10 rt
Reset signs on
new support
Assembly 67

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Sign and Pavement Marking Layout
Sta 3892+75 to 3889+65
US Highway 12 / Adams Ave

SPEC CODE	BID ITEM	QTY	UNIT
704 1500	OBLITERATION OF PAVEMENT MARKING		
	Stop Bars	136	SF
	Cross Walks	728	SF
762 1106	PVMT MK PAINTED 6IN LINE		
	White Cross Walk	495	LF
762 1124	PVMT MK PAINTED 24IN LINE		
	White Stop Bar	68	LF
	White Cross Walk	144	LF

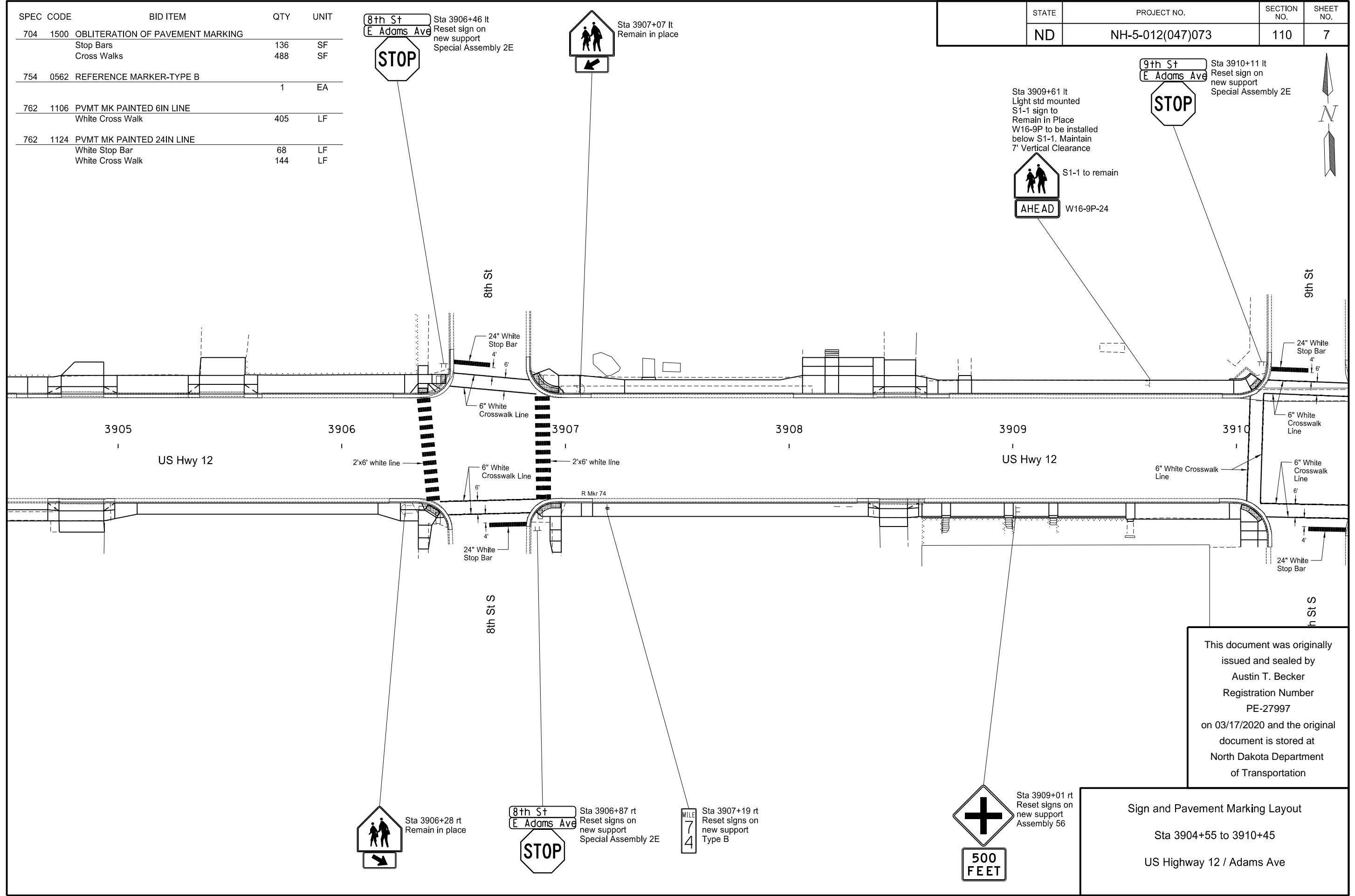


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Sign and Pavement Marking Layout
 Sta 3898+65 to 3904+55
 US Highway 12 / Adams Ave

SPEC CODE	BID ITEM	QTY	UNIT
704 1500	OBLITERATION OF PAVEMENT MARKING		
	Stop Bars	136	SF
	Cross Walks	488	SF
754 0562	REFERENCE MARKER-TYPE B	1	EA
762 1106	PVMT MK PAINTED 6IN LINE		
	White Cross Walk	405	LF
762 1124	PVMT MK PAINTED 24IN LINE		
	White Stop Bar	68	LF
	White Cross Walk	144	LF

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	110	7

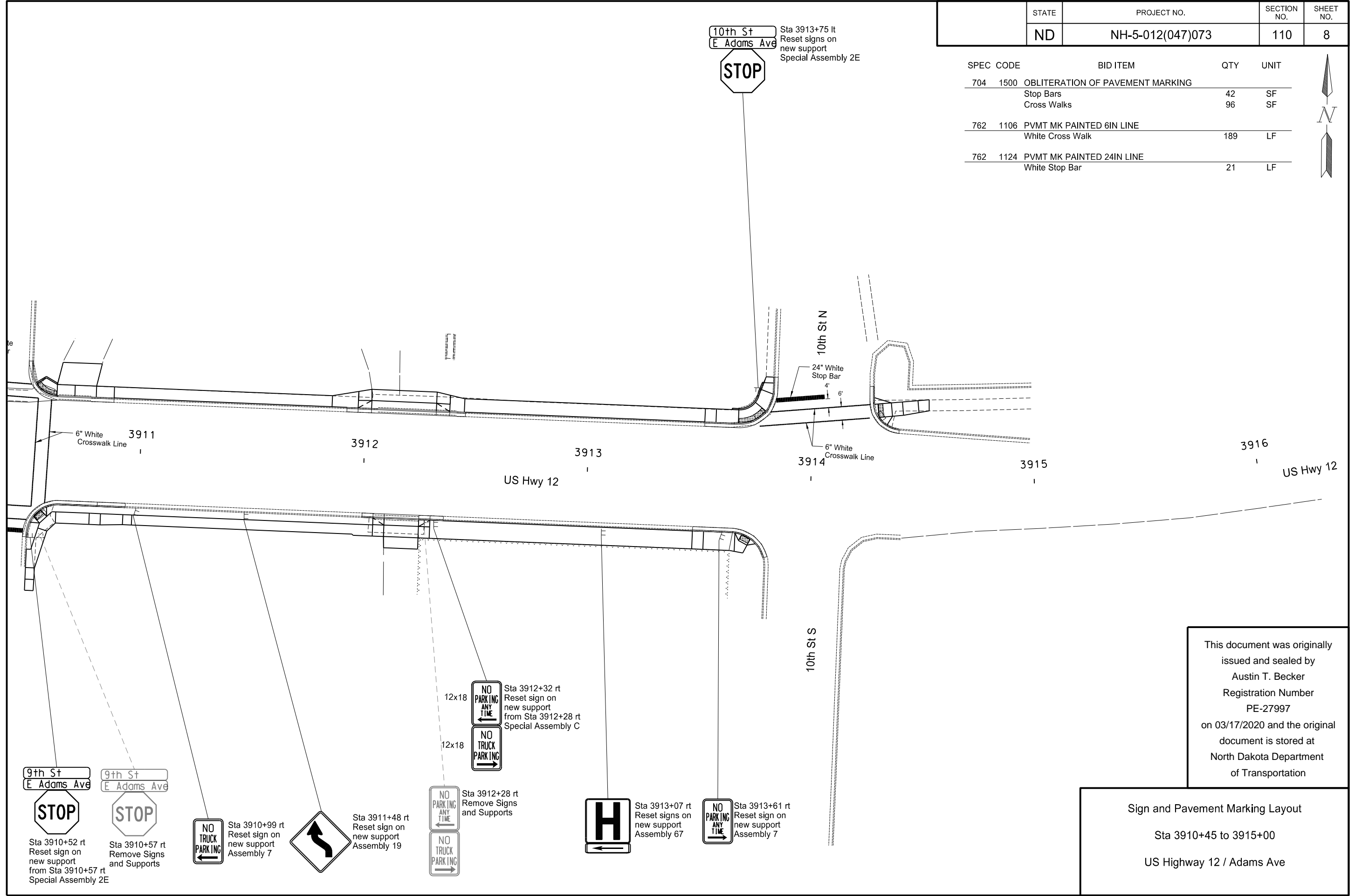
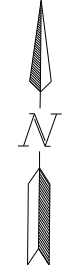


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Sign and Pavement Marking Layout
Sta 3904+55 to 3910+45
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	110	8

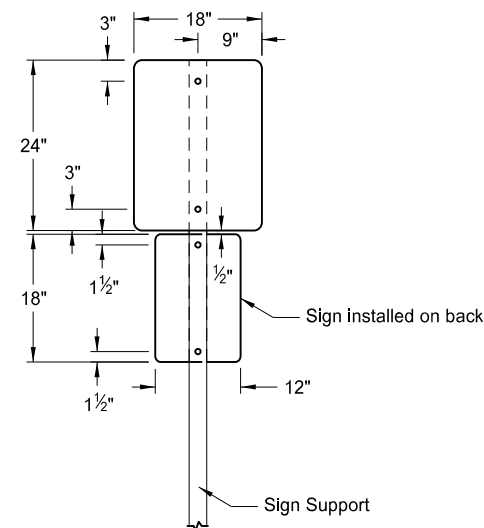
SPEC CODE	BID ITEM	QTY	UNIT
704 1500	OBLITERATION OF PAVEMENT MARKING		
	Stop Bars	42	SF
	Cross Walks	96	SF
762 1106	PVMT MK PAINTED 6IN LINE		
	White Cross Walk	189	LF
762 1124	PVMT MK PAINTED 24IN LINE		
	White Stop Bar	21	LF



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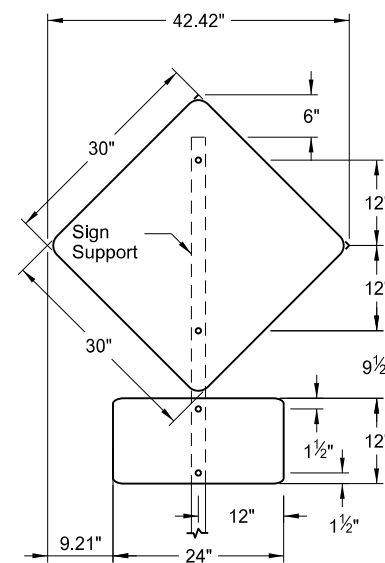
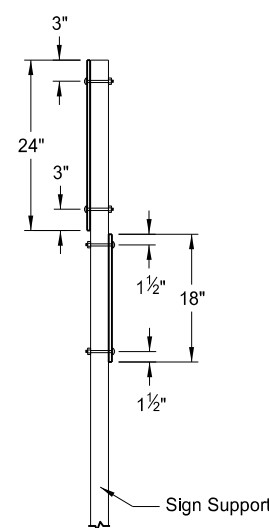
Sign and Pavement Marking Layout
Sta 3910+45 to 3915+00
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	110	9



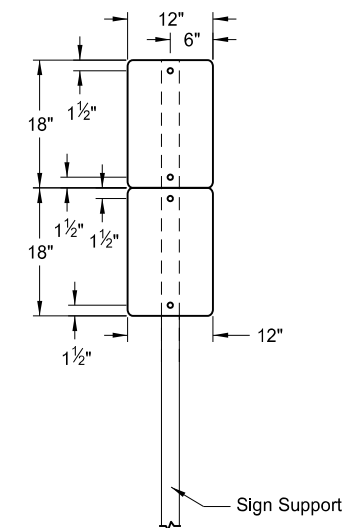
1 Post

Special Assembly A



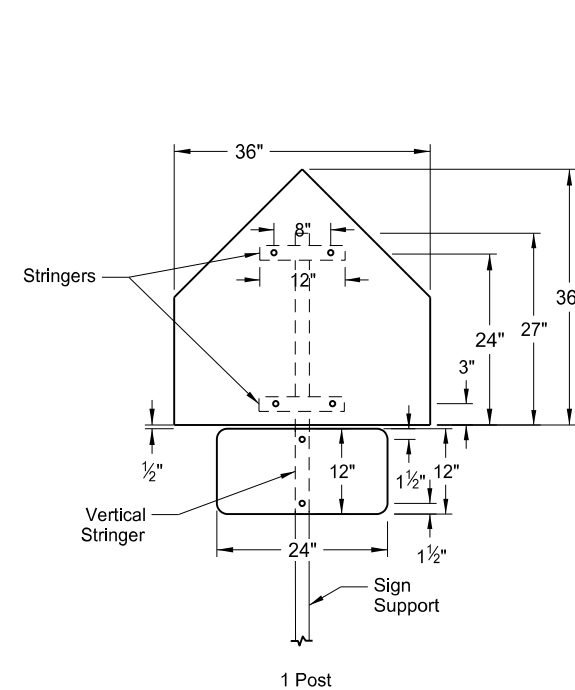
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Special Assembly B

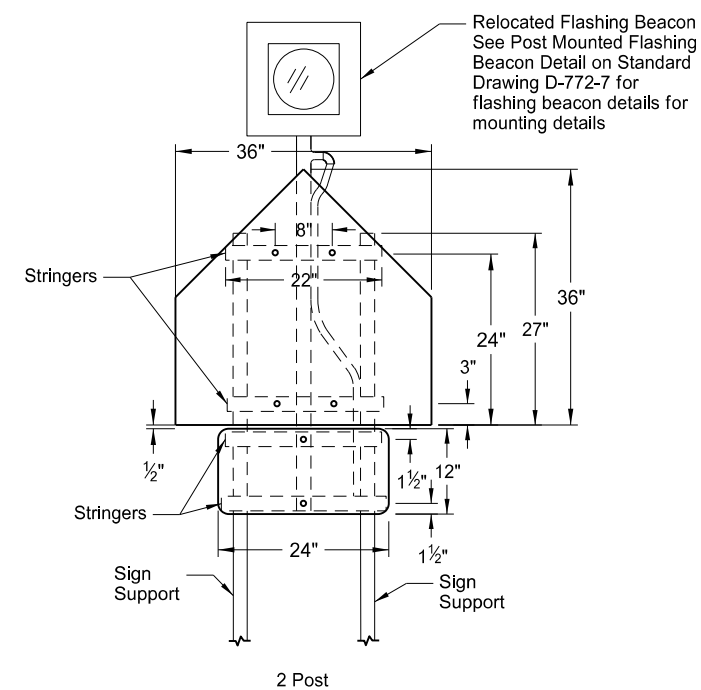


1 Post

Special Assembly C



1 Post



2 Post

Special Assembly D

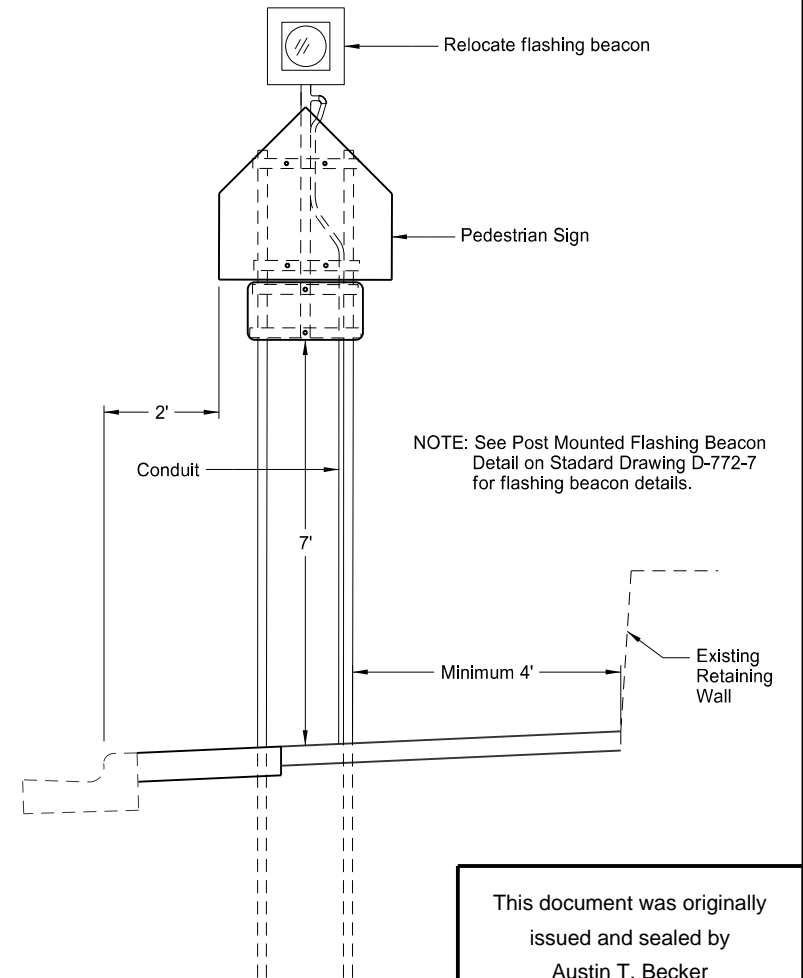
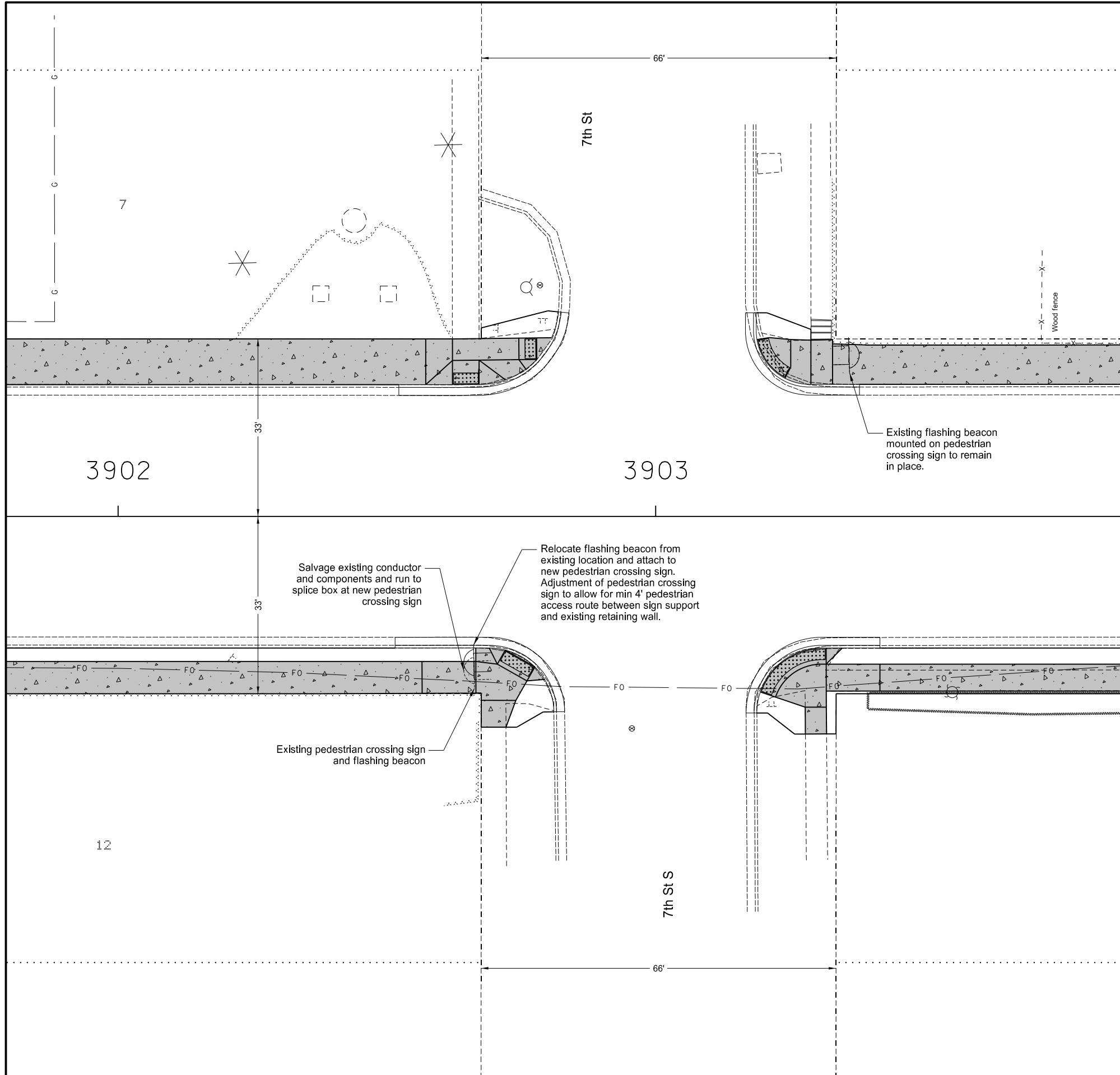
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Sign Special Assemblies
US Highway 12 / Adams Ave

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-5-012(047)073	150	1

SPEC CODE	BID ITEM	QTY	UNIT
772 3070	RELOCATE FLASHING BEACON-POST MOUNTED		
	3902+66 Rt	1	EA

All cost associated with the relocating the flashing beacon and flashing beacon components to be paid under "Relocate Flashing Beacon-Post Mounted"



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Pedestrian Flashing Beacon
US Highway 12 / Adams Ave

NDDOT ABBREVIATIONS

D-101-1

? This is a special text character used in the labeling of existing features. It indicates a feature that has an unknown characteristic, potentially based on: lack of description, location accuracy or purpose.

Abn abandoned
 Abut abutment
 Ac acres
 Adj adjusted
 Aggr aggregate
 Ahd ahead
 ARV air release valve
 Align alignment
 Al alley
 Alt alternate
 Alum aluminum
 ADA Americans with Disabilities Act
 A ampere
 & and
 Appr approach
 Approx approximate
 ACP asbestos cement pipe
 Asph asphalt
 AC asphalt cement
 Assmd assumed
 @ at
 Atten attenuation
 ATR automatic traffic recorder
 Ave Avenue
 Avg average
 ADT average daily traffic
 Az azimuth
 Bk back
 BF back face
 Bs backsight
 Balc balcony
 B Wire barbed wire
 Barr barricade
 Btry battery
 Brg bearing
 BI beehive inlet
 Beg begin
 BG below grade
 BM bench mark
 Bkwy bikeway
 Bit bituminous
 Blk block
 Bd Ft board feet
 BH bore hole
 BS both sides
 Bot bottom
 Blvd Boulevard
 Bndry boundary
 BC brass cap
 Brkwy breakaway
 Br bridge

Bldg building
 BV butterfly valve
 Byp bypass
 C Gdrl cable guardrail
 Calc calculate
 Cd candela
 CIP cast iron pipe
 CB catch basin
 CRS cationic rapid setting
 C Gd cattle guard
 C To C center to center
 Cl or C centerline
 Cm centimeter
 Ch chain
 Chnlk chain-link
 Ch Blk channel block
 Ch Ch channel change
 Chk check
 Chsld chiseled
 Cir circle
 Cl class
 Cl clay
 Cl F clay fill
 Cl Hvy clay heavy
 Cl Lm clay loam
 Clnt clean-out
 Clr clear
 Cl&gr clearing & grubbing
 Co S coal slack
 C Gr coarse gravel
 CS coarse sand
 Comb. combination
 Coml commercial
 Compr compression
 CADD computer aided drafting & design
 Conc concrete
 CECB concrete erosion control blanket
 Cond conductor
 Const construction
 Cont continuous
 CSB continuous split barrel sample
 Contr contraction
 Contr contractor
 CP control point
 Coord coordinate
 Cor corner
 Corr corrected
 CAES corrugated aluminum end section
 CAP corrugated aluminum pipe
 CMES corrugated metal end section
 CMP corrugated metal pipe
 CPVCP corrugated poly-vinyl chloride pipe
 CSES corrugated steel end section
 CSFES corrugated steel flared end section

CSP corrugated steel pipe
 CSTES corrugated steel traversable end section
 C coulomb
 Co County
 Crse course
 Ct Court
 Xarm cross arm
 Xbuck cross buck
 Xsec cross sections
 Xing crossing
 Xrd Crossroad
 Crn crown
 CF cubic feet
 M3 cubic meter
 M3/s cubic meters per second
 CY cubic yard
 Cy/mi cubic yards per mile
 Culv culvert
 C&G curb & gutter
 CI curb inlet
 CR curb ramp
 CS curve to spiral
 C cut
 Dd Ld dead load
 Defl deflection
 Defm deformed
 Deg or D degree
 DInt delineate
 DIntr delineator
 Depr depression
 Desc description
 Det detail
 DWP detectable warning panel
 Dtr detour
 Dia or \emptyset diameter
 Dir direction
 Dist distance
 DM disturbed material
 DB ditch block
 DG ditch grade
 Dbl double
 Dn down
 Dwg drawing
 Dr drive
 Drwy driveway
 DI drop inlet
 D dry density
 DSDS dynamic speed display sign
 Ea each
 Esmt easement
 E East
 EB Eastbound
 Elast elastomeric
 EL electric locker
 E Mtr electric meter
 Elec electric/al

EDM electronic distance meter
 Elev or El elevation
 Ellipt elliptical
 Emb embankment
 Emuls emulsion/emulsified
 ES end section
 Engr engineer
 ESS environmental sensor station
 Eq equal
 Eq equation
 Evgr evergreen
 Exc excavation
 Exst existing
 Exp expansion
 Expy Expressway
 E external of curve
 Extru extruded
 FOS factor of safety
 F Fahrenheit
 FS far side
 F farad
 Fed Federal
 FP feed point
 Ft feet/foot
 Fn fence
 Fn P fence post
 FO fiber optic
 FB field book
 FD field drive
 F fill
 FAA fine aggregate angularity
 FS fine sand
 FH fire hydrant
 Fl flange
 Flrd flared
 FES flared end section
 F Bcn flashing beacon
 FA flight auger sample
 FL flow line
 Ftg footing
 FM force main
 Fs foresight

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
04-23-18 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	preparation
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				

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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08-03-15 04-23-18	General Revisions General Revisions

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NDDOT ABBREVIATIONS

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 preparation	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		

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

702COM 702 Communications
 ACCENT Accent Communications
 AGASSIZ WU Agassiz Water Users Incorporated
 AGC Associated General Contractors of America
 All PI Alliance Pipeline
 ALL SEAS WU All Seasons Water Users Association
 AMOCO PI Amoco Pipeline Company
 AMRDA HESS Amerada Hess Corporation
 AT&T AT&T Corporation
 B PAW Bear Paw Energy Incorporated
 BAKER ELEC Baker Electric
 BASIN ELEC Basin Electric Cooperative Incorporated
 BEK TEL Bek Communications Cooperative
 BELLE PL Belle Fourche Pipeline Company
 BLM Bureau of Land Management
 BNSF Burlington Northern Santa Fe Railway
 BOEING Boeing
 BRNS RWD Barnes Rural Water District
 BURK-DIV ELEC Burke-Divide Electric Cooperative
 BURL WU Burleigh Water Users
 Cable One Cable One
 CABLE SERV Cable Services
 CAP ELEC Capital Electric Cooperative Incorporat
 CASS CO ELEC Cass County Electric Cooperative
 CASS RWU Cass Rural Water Users Incorporated
 CAV ELEC Cavalier Rural Electric Cooperative
 CBLCOM Cablecom Of Fargo
 CENEX PL Cenex Pipeline
 CENT PL WATER DIST Central Pipe Line Water District
 CENT PWR ELEC Central Power Electric Cooperative
 COE Corps of Engineers
 CONS TEL Consolidated Telephone
 CONT RES Continental Resource Inc
 CPR Canadian Pacific Railway
 D O E Department Of Energy
 DAK CARR Dakota Carrier Network
 DAK CENT TEL Dakota Central Telephone
 DAK RWD Dakota Rural Water District
 DGC Dakota Gasification Company
 DICKEY R NET Dickey Rural Networks
 DICKEY RWU Dickey Rural Water Users Association
 DICKEY TEL Dickey Telephone
 DNRR Dakota Northern Railroad
 DOME PL Dome Pipeline Company
 DVELEC Dakota Valley Electric Cooperative
 DVMW Dakota, Missouri Valley & Western
 ENBRDG Enbridge Pipelines Incorporated
 ENVENTIS Enventis Telephone
 FALK MNG Falkirk Mining Company
 FHWA Federal Highway Administration
 G FKS-TRL WD Grand Forks-traill Water District
 GETTY TRD & TRAN Getty Trading & Transportation
 GLDN W ELEC Golden West Electric Cooperative
 GRGS CO TEL Griggs County Telephone
 GTR RAMSEY WD Greater Ramsey Water District

GT PLNS NAT GAS Great Plains Natural Gas Company
 HALS TEL Halstad Telephone Company
 IDEA1 Idea1
 INT-COMM TEL Inter-Community Telephone Company
 KANEB PL Kaneb Pipeline Company
 KEM ELEC Kem Electric Cooperative Incorporated
 KOCH GATH SYS Koch Gathering Systems Incorporated
 LKHD PL Lakehead Pipeline Company
 LNGDN RWU Langdon Rural Water Users Incorporated
 LWR YELL R ELEC Lower Yellowstone Rural Electric
 MCKNZ CON McKenzie Consolidated Telcom
 MCKENZIE ELEC McKenzie Electric Cooperative
 MCKNZ WRD McKenzie County Water Resource District
 MCLEOD McLeod USA
 MCLN ELEC McLean Electric Cooperative
 MCLN-SHRDN R WAT McLean-Sheridan Rural Water
 MDU Montana-dakota Utilities
 MID-CONT CABLE Mid-Continent Cable
 MIDSTATE TEL Midstate Telephone Company
 MINOT CABLE Minot Cable Television
 MINOT TEL Minot Telephone Company
 MISS VALL COMM Missouri Valley Communications
 MISS W W S Missouri West Water System
 MNKOTA PWR Minnkota Power
 MOR-GRAN-SOU ELEC Mor-gran-sou Electric Cooperative
 MOUNT-WILLI ELEC Mountrail-williams Electric Cooperative
 MRE LBTY TEL Moore & Liberty Telephone
 MUNICIPAL City Water And Sewer
 MUNICIPAL City Of '.....'
 N CENT ELEC North Central Electric Cooperative
 N VALL W DIST North Valley Water District
 ND PKS & REC North Dakota Parks And Recreation
 ND TEL North Dakota Telephone Company
 NDDOT North Dakota Department of Transportation
 NDSU SOIL SCI DEPT NDSU Soil Science Department
 NEMONT TEL Nemont Telephone
 NODAK R ELEC Nodak Rural Electric Cooperative
 NOON FRMS TEL Noonan Farmers Telephone Company
 NPR Northern Plains Railroad
 NSP Northern States Power
 NTH PRAIR RW Northern Prairie Rural Water Association
 NTHN BRDR PL Northern Border Pipeline
 NTHN PLNS ELEC Northern Plains Electric Cooperative Incorporated
 NTHWSTRN REF Northwestern Refinery Company
 NW COMM Northwest Communication Cooperation
 NWRWD Northwest Rural Water District
 ONEOK Oneok gas
 OSHA Occupational Safety and Health Administration
 OTTR TL PWR Otter Tail Power Company
 P L E M Prairielands Energy Marketing
 POLAR COM Polar Communications
 PVT ELEC Private Electric
 QWEST Qwest Communications
 R&T W SUPPLY R & T Water Supply Association

RED RIV TEL Red River Rural Telephone
 RESVTN TEL Reservation Telephone
 ROBRTS TEL Roberts Company Telephone
 R-RIDER ELEC Roughrider Electric Cooperative
 RRVW Red River Valley & Western Railroad
 S CENT REG WD South Central Regional Water District
 S E W U South East Water Users Incorporated
 SCOTT CABLE Scott Cable Television Dickinson
 SHERDN ELEC Sheridan Electric Cooperative
 SHEYN VLY ELEC Sheyenne Valley Electric Cooperative
 SKYTECH Skyland Technologies Incorporated
 SLOPE ELEC Slope Electric Cooperative Incorporated
 SOURIS RIV TELCOM Souris River Telecommunications
 ST WAT COMM State Water Commission
 STATE LN WATER State Line Water Cooperative
 STER ENG Sterling Energy
 STUT RWU Stutsman Rural Water Users
 SW PL PRJ Southwest Pipeline Project
 T M C Turtle Mountain Communications
 TCI TCI of North Dakota
 TESORO GHG PLNS PL Tesoro High Plains Pipeline
 TRI-CNTY WU Tri-County Water Users Incorporated
 TRL CO RWU Traill County Rural Water Users
 UNTD TEL United Telephone
 UPPR SOUR WUA Upper Souris Water Users Association
 US SPRINT U.S. Sprint
 USAF MSL CABLE U.S.A.F. Missile Cable
 USFWS US Fish and Wildlife Service
 USW COMM U.S. West Communications
 VRNDRY ELEC Verendrye Electric Cooperative
 W RIV TEL West River Telephone Incorporated
 WEB W. E. B. Water Development Association
 WILLI RWA Williams Rural Water Association
 WILSTN BAS PL Williston Basin Interstate Pipeline Company
 WLSH RWD Walsh Water Rural Water District
 WOLVRTN TEL Wolverton Telephone
 XLENER Xcel Energy
 YSVR Yellowstone Valley Railroad

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04-23-18 09-20-18	General Revisions General Revisions

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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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09-23-16	Added and Revised Items, Organized by Functional Groups

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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 Typical

- 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

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

Countours

- Depression Contours
- Supplemental Contour

Profile

- Subgrade, Subcut or Ditch Grade
- Topsoil Profile

Striping

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

Pavement Joints

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

Bridge Details

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

Erosion Control

- Limits of Const Transition Line
- Bale Check
- Rock Check
- Floating Silt Curtain
- 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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 Registration Number
PE-2930,
 on **09/23/16** and the original document is stored at the
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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
	Cairn 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		
	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		

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

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Symbols






























































































	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	
07-01-14	
REVISIONS	
DATE	CHANGE

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Symbols

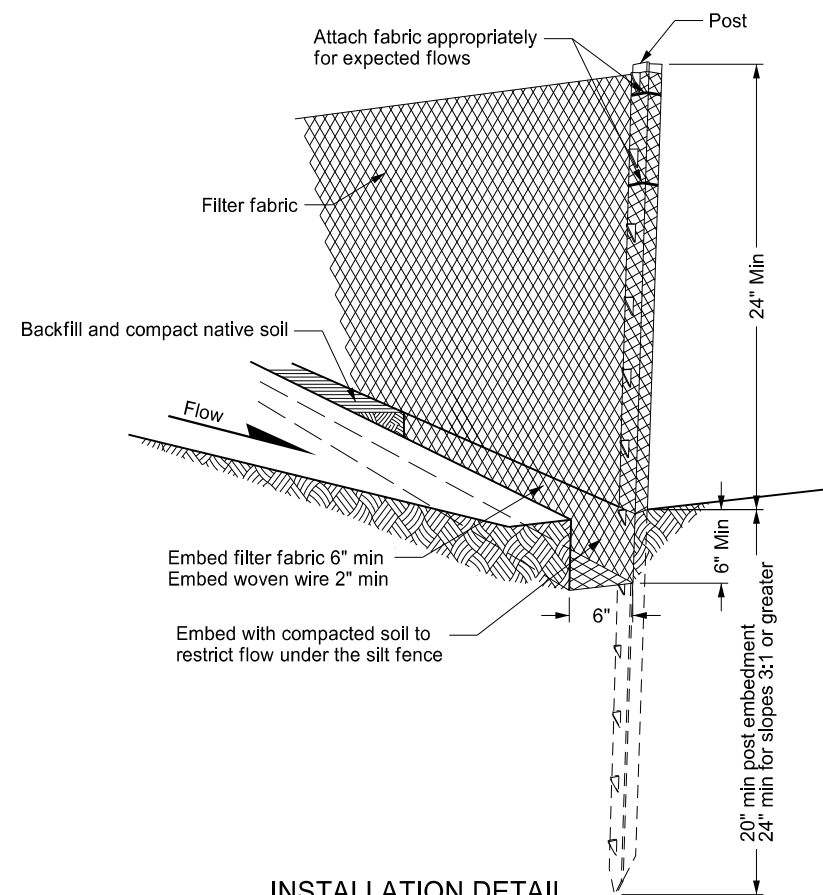
D-101-32

 Pad Mounted Feed Point  Pipe Mounted Feed Point with Pad  Pole Mounted Feed Point  Headwall  Double Headwall with 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 Gate 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
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NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE

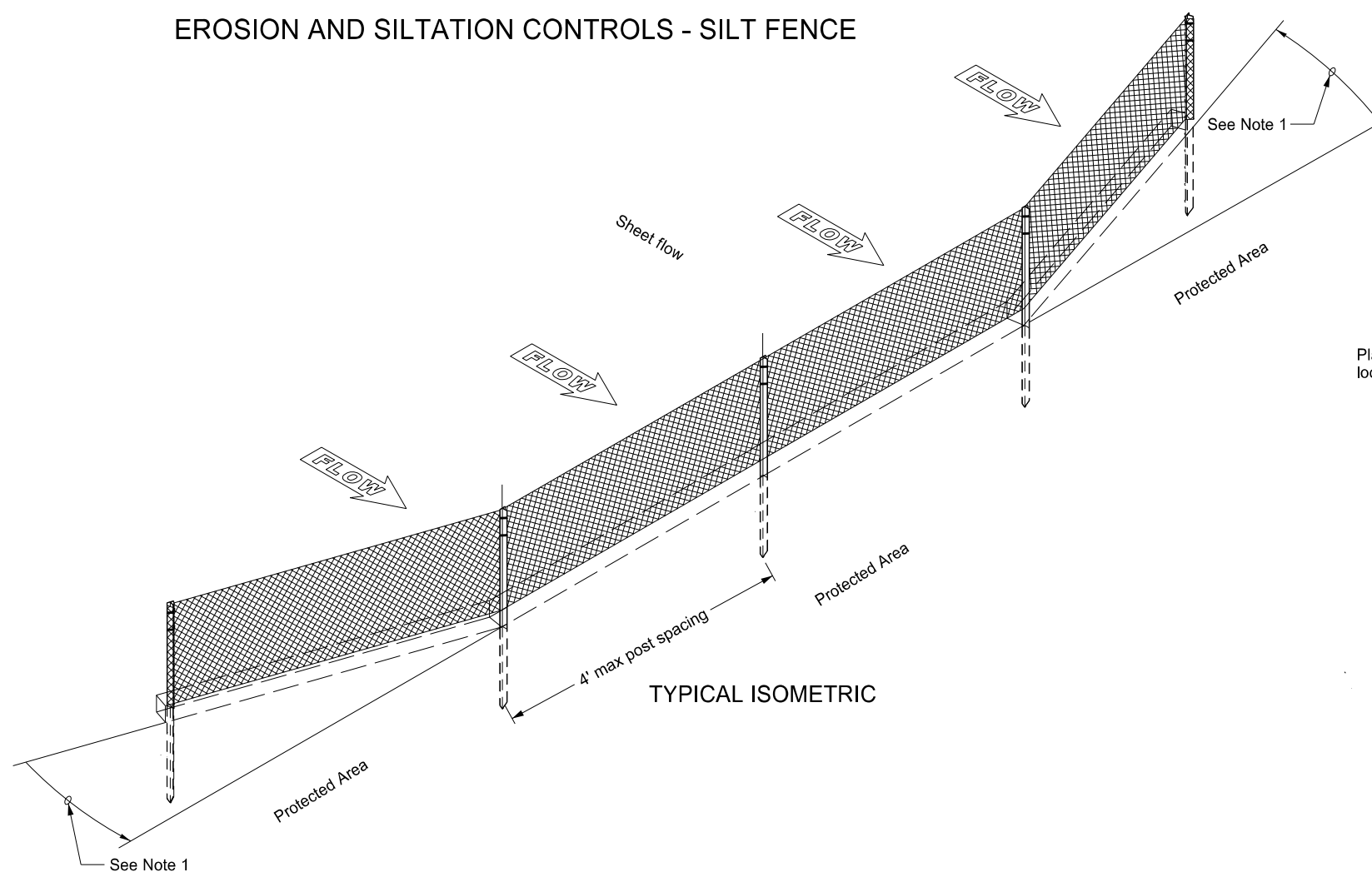
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EROSION AND SILTATION CONTROLS - SILT FENCE

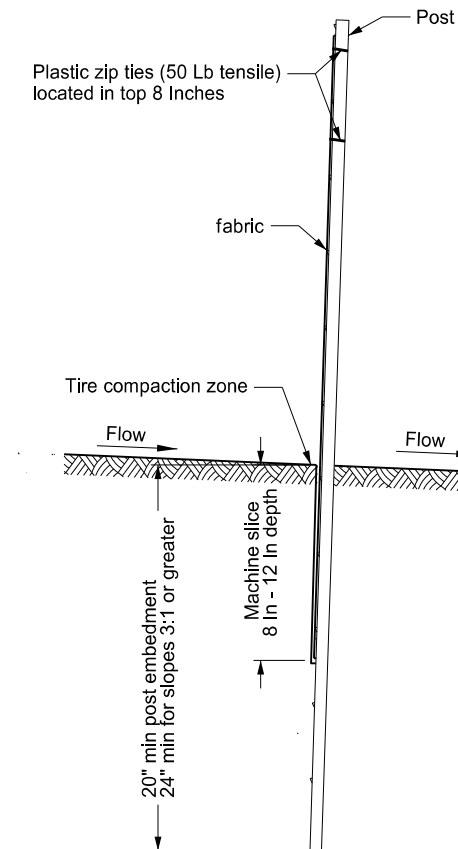


INSTALLATION DETAIL

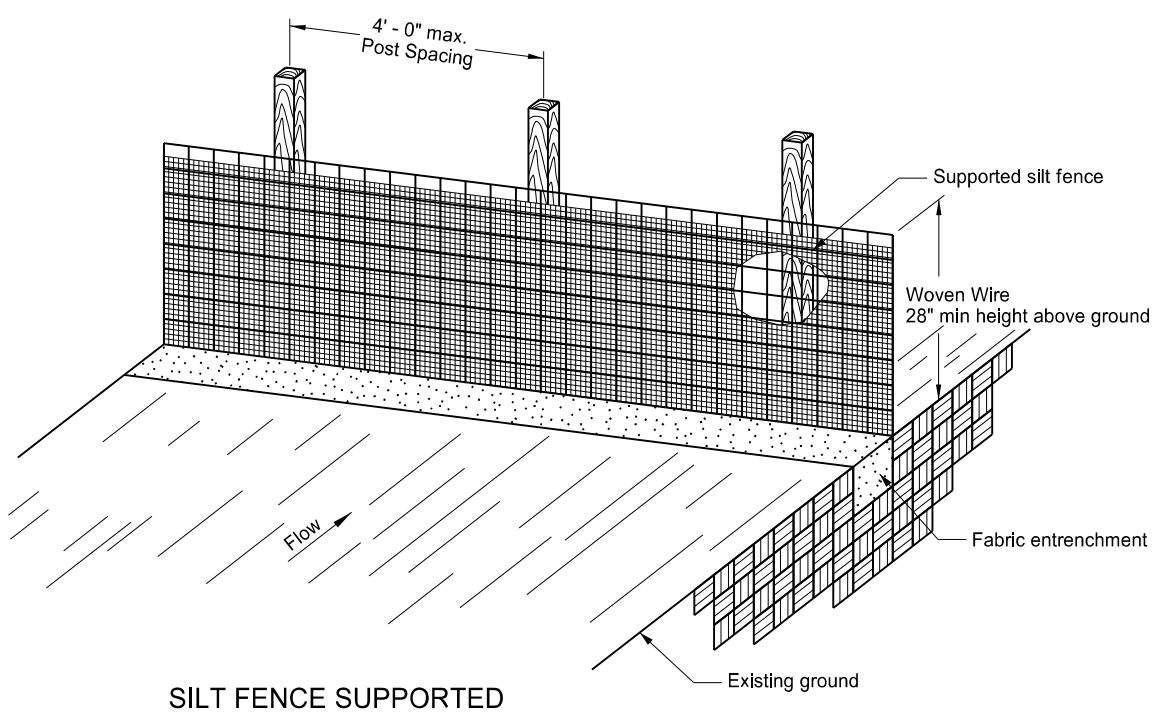
Minimize disturbance of ground around trench and smooth surface after excavation to avoid concentrating flows. Compact to prevent undercutting flows.



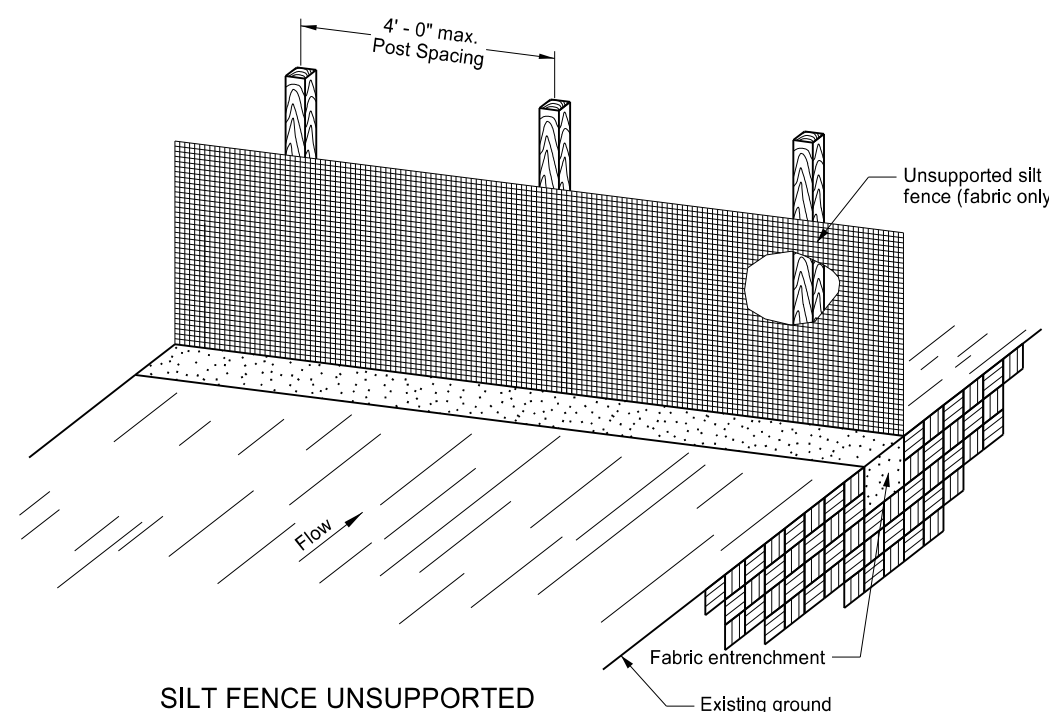
TYPICAL ISOMETRIC



MACHINE SLICED SILT FENCE



SILT FENCE SUPPORTED



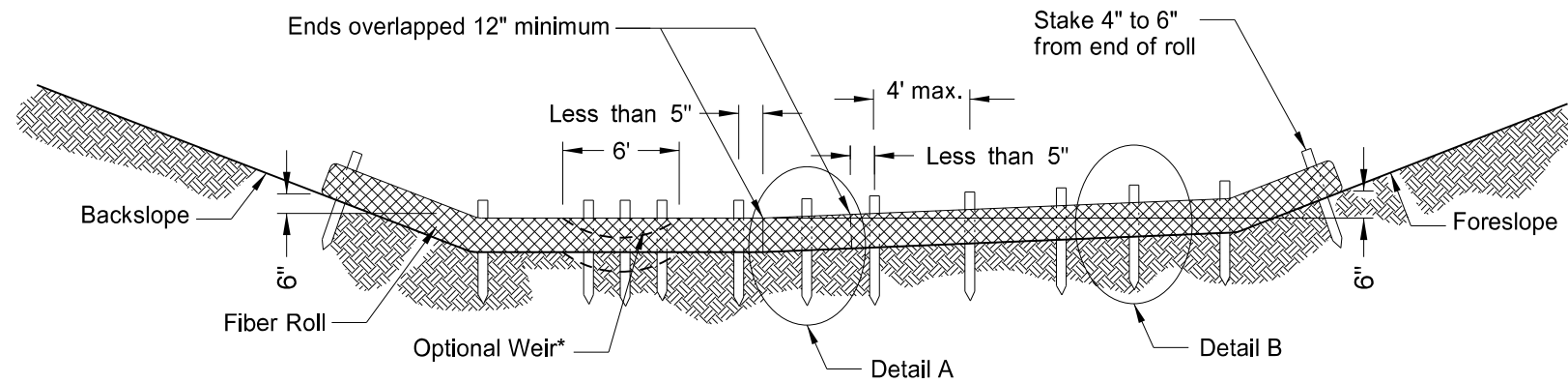
SILT FENCE UNSUPPORTED

- NOTES:
1. Install the ends of the silt fence to point slightly upslope to prevent sediment from flowing around the ends of the fence.
 2. Place splices outside low spots.
 3. Install silt fencing parallel to contour lines.
 4. Do not embed silt fence when placed in standing water.
 5. Silt fence material does not need to reach the top of woven wire support.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Standard drawing resulted from splitting standard D-708-2.
06-27-16 08-27-19	Revised details & added new ones. New Design Engineer PE Stamp.

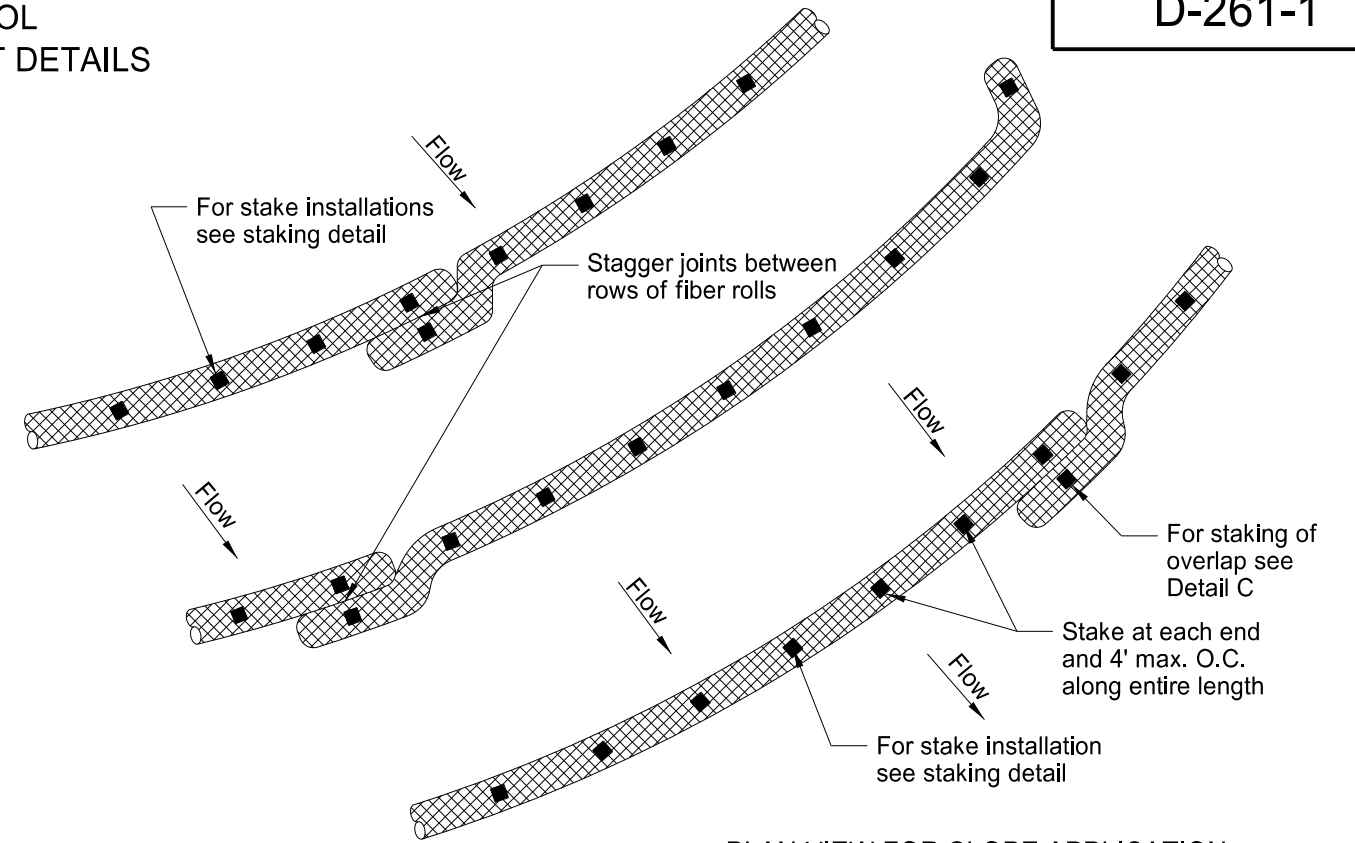
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EROSION CONTROL
FIBER ROLL PLACEMENT DETAILS

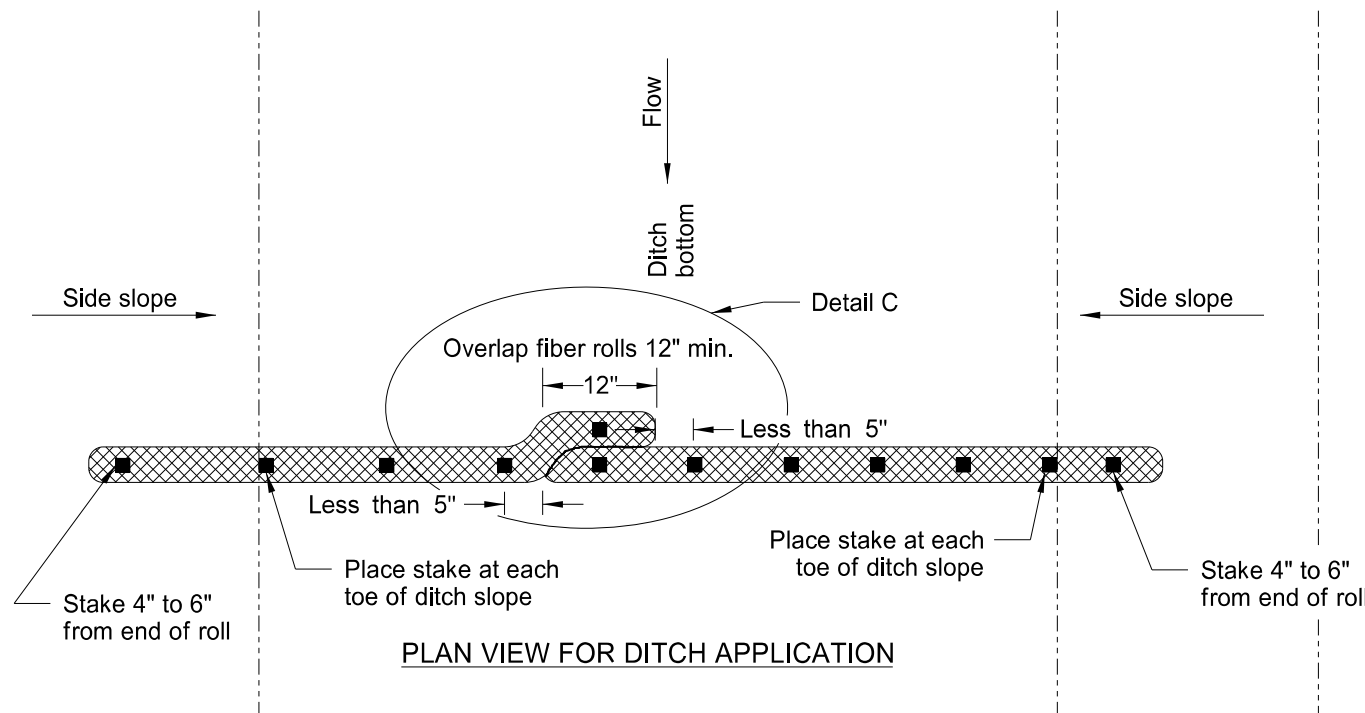


*Optional Weir. Use in flat areas, such as the Red River Valley, where there is potential for water to back up on adjacent property. Lower fiber roll enough to prevent water from backing up on adjacent property. Do not use 20-inch fiber rolls in flat areas where there is potential for water to back up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

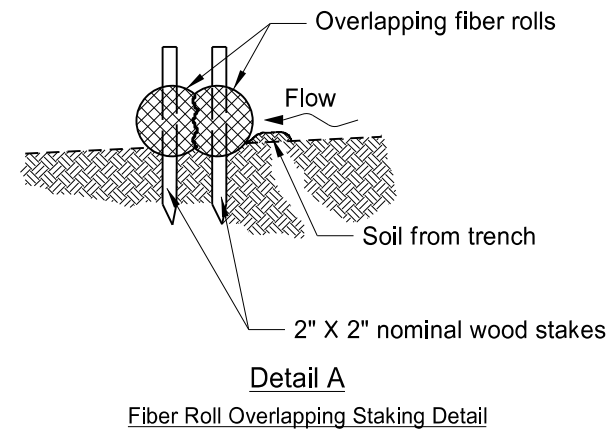
12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



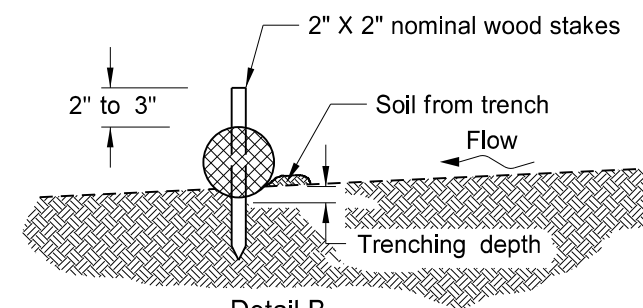
PLAN VIEW FOR SLOPE APPLICATION



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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CONSTRUCTION SIGN DETAIL

D-704-5

SIGN NUMBER	G20-10-108				
WIDTH x HEIGHT	9'-0" x 4'-0"				
BORDER WIDTH	1.25" (inset 0.75")				
CORNER RADIUS	3"				
MOUNTING	Ground				
BACKGROUND	TYPE: IV Reflective				
	COLOR: Fluorescent Orange				
LEGEND/BORDER	TYPE: Non-Refl				
	COLOR: Black				
SYMBOL	X	Y	WID	HT	ANGLE
	42.1	6.2	24	4	0

STATION(S):

AREA: 36.0 Sq.Ft.

Dimensions are in inches.tenths Letter locations are panel edge to lower left corner

LETTER POSITION (X)																LENGTH	SIZE	SERIES		
C	O	N	S	T	R	U	C	T	E	D	B	Y				69.7	6	D 2000		
19.2	24.5	30	35.1	39.7	44.3	49.4	54.8	59.7	64.3	69	73.1	79.1	83.7							
Y	O	U	R		C	O	M	P	A	N	Y		N	A	M	E		91.5	6	D 2000
8.3	14.2	19.8	25.3	29.4	35.4	40.7	46.2	52.4	56.8	62.8	67.8	72.9	78.9	83.9	89.9	96				
Y	O	U	R		T	O	W	N				N	D					64.6	6	D 2000
21.7	27.6	33.2	38.7	42.8	48.8	53.3	58.4	64.6	69.6	70.7	76.7	82.2								

Notes:

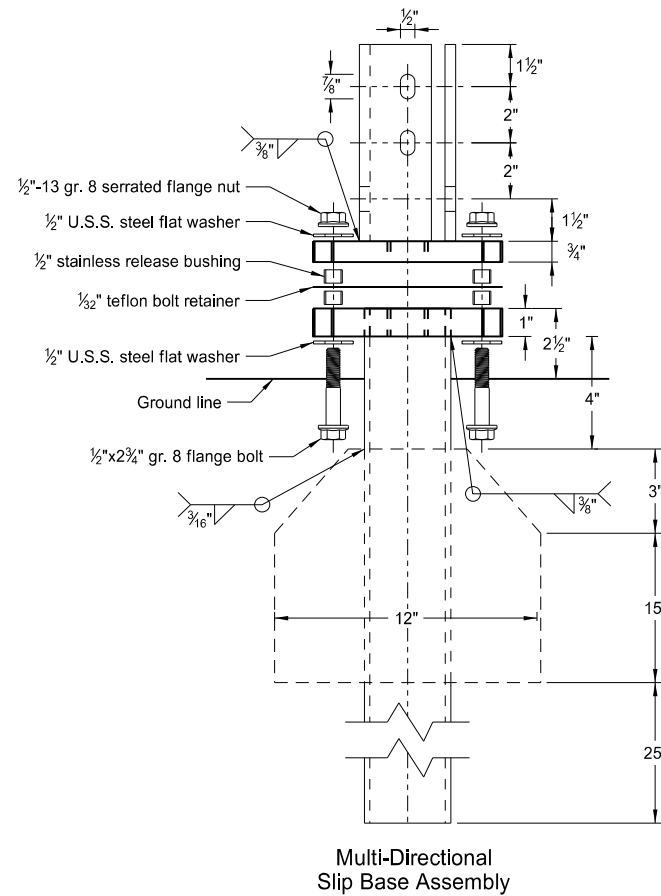
1. Post mount sign a distance of 1/2A following the End Road Work (G20-2-48) sign (maximum 2 signs per project.)
2. Use sign on rural projects with a 30 day or longer duration (not required on seal coats or other short duration projects.)
3. Do not place sign in urban areas or within city limits.

Advance Warning Sign Spacing (A)			
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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683, on 10/03/19 and the original document is stored at the North Dakota Department of Transportation
8-22-12		
REVISIONS		
DATE	CHANGE	
7-18-14 9-27-17 8-30-18 10-03-19	Revise sheeting to type IV. Updated to active voice. Updated sign number in note 1. New Design Engineer PE Stamp.	

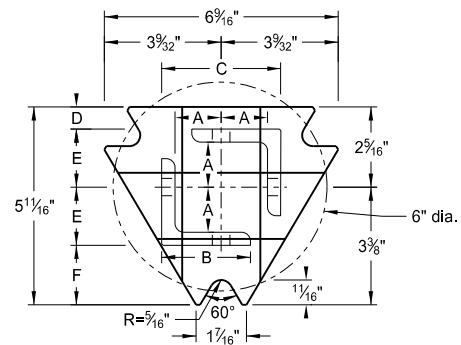
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

Perforated Tube



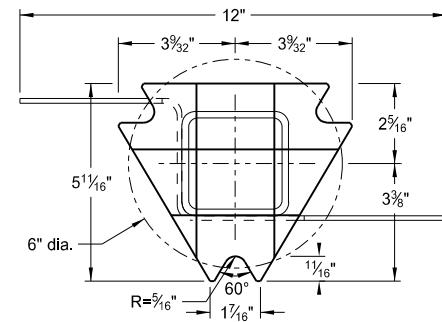
Multi-Directional Slip Base Assembly

Traffic Flow

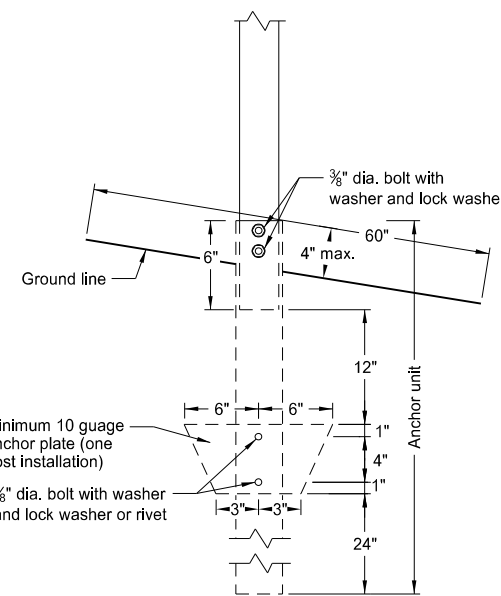


Top Post Receiver
Plate - ASTM A572 grade 50
Angle Receiver - 2 1/2" x 2 1/2" x 3/8" ASTM A36 structural angle

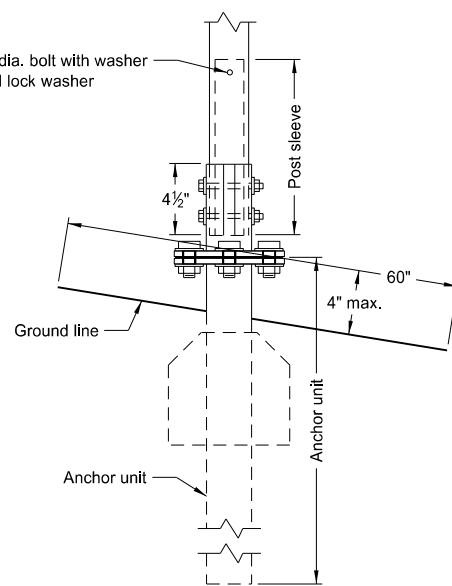
Traffic Flow



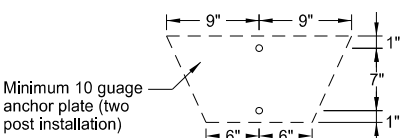
Bottom Soil Stub
Tube - 3"x3"x7 gauge ASTM A500 grade B tube
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011
Plate - ASTM A572 grade 50



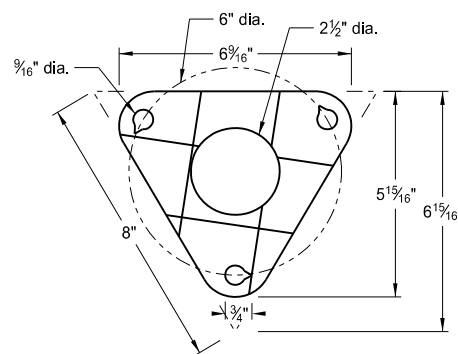
Anchor Unit and Post Assembly



Multi-Directional Slip Base Anchor Unit and Post Sleeve Assembly



Minimum 10 gauge anchor plate (two post installation)



Bolt Retainer for Base Connection
Bolt Retainer- 1/2" Reprocessed Teflon

Notes:

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

Telescoping Perforated Tube

Number of Posts	Post Size in.	Wall Thickness Gauge	Sleeve Size in.	Wall Thickness 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 1/2	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 1/2	12	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. ⁴	Cross Sec. Area in. ²	Section Modulus in. ³
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 3/16 x 2 3/16	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" x 10 ga.	1 5/16"	2 1/2"	3 1/2"	2 5/32"	1 33/64"	1 7/8"
2 1/2" x 10 ga.	1 3/32"	2 1/2"	3 5/16"	5/8"	1 21/32"	1 3/4"

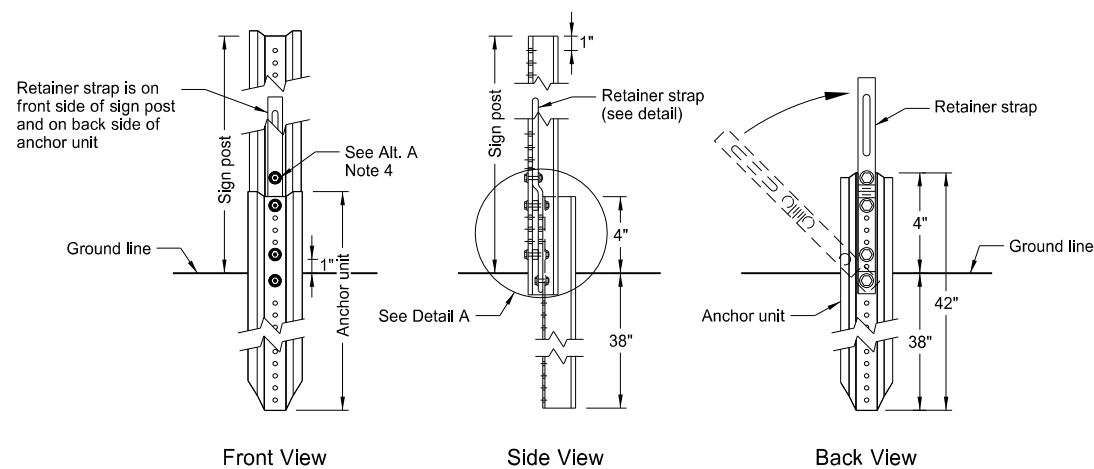
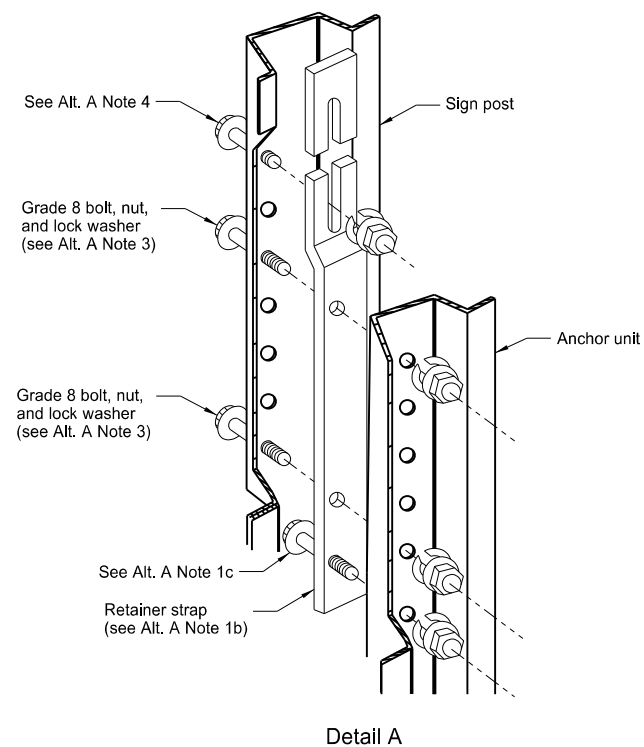
(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.

(B) For additional wind load, insert the 2 3/16" x 10 ga. into 2 1/2" x 10 ga.

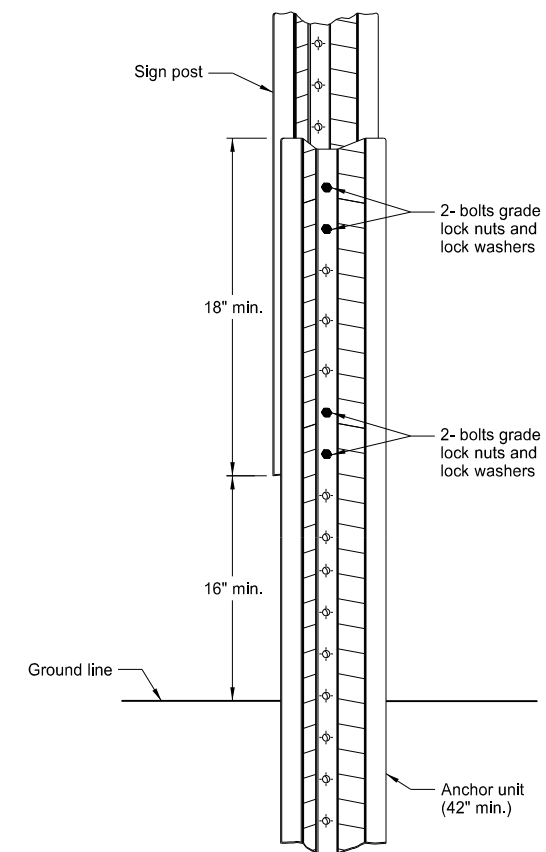
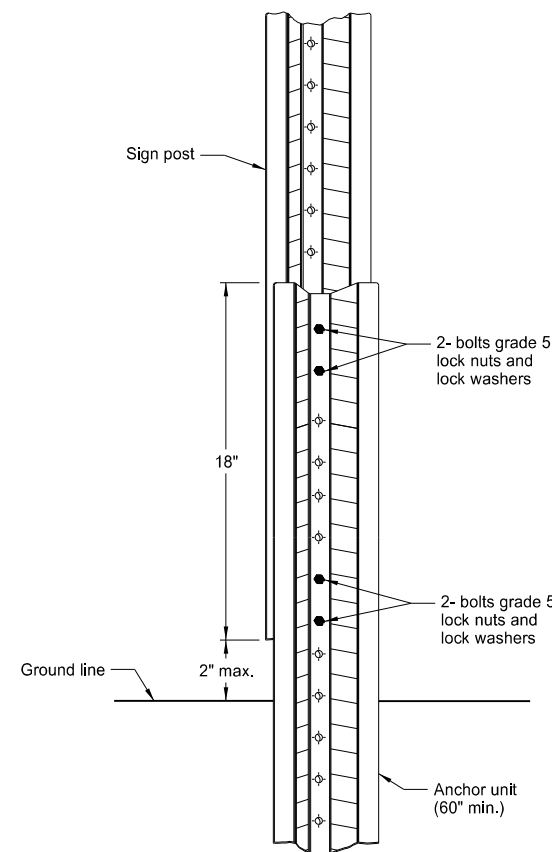
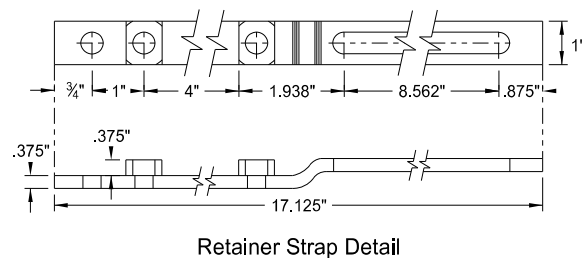
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp

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U-Channel Post



Breakaway U-Channel Detail
Alternate A
Install a maximum of 2 posts within 7'.



Alternate A Steps of Installation:

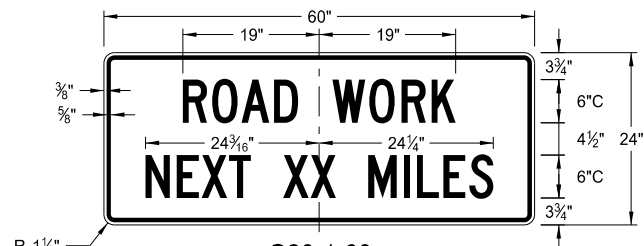
1. a) Drive anchor unit to within 12" of ground level.
b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
d) Rotate strap 90° to left.
2. a) Drive anchor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

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

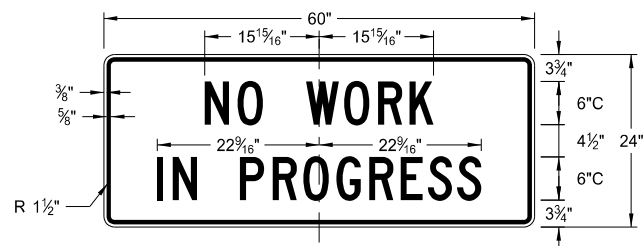
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CONSTRUCTION SIGN DETAILS
 TERMINAL AND GUIDE SIGNS

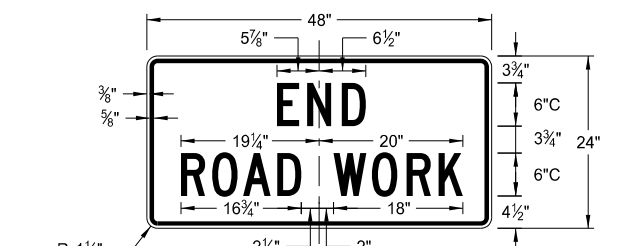
D-704-9



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



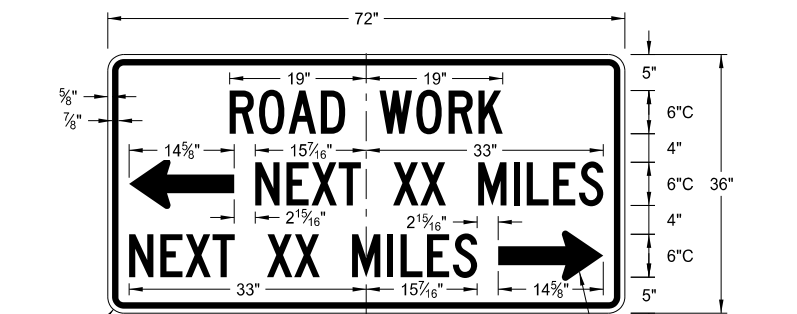
G20-1b-60
 Legend: black (non-refl)
 Background: orange



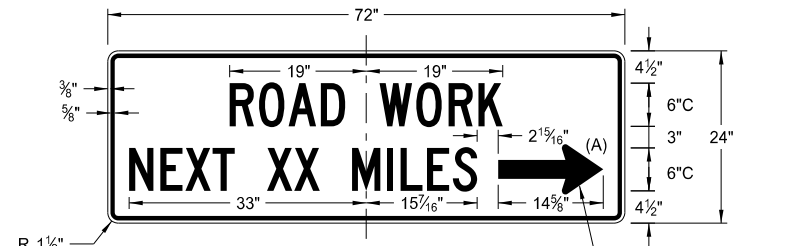
G20-2-48
 Legend: black (non-refl)
 Background: orange



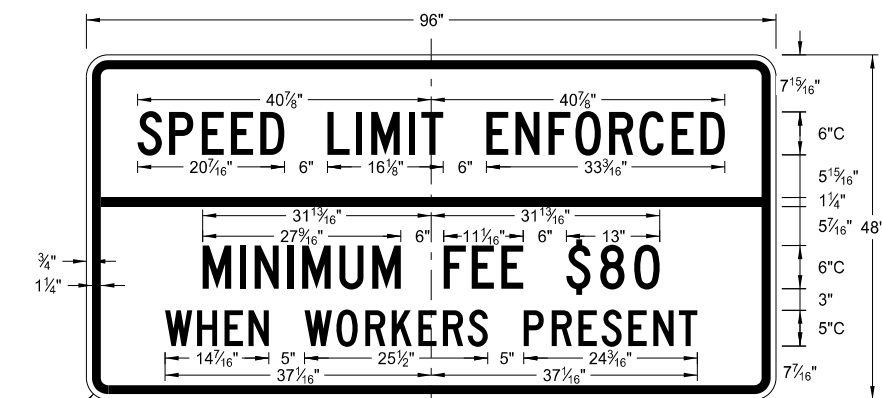
G20-4b-36
 Legend: black (non-refl)
 Background: orange



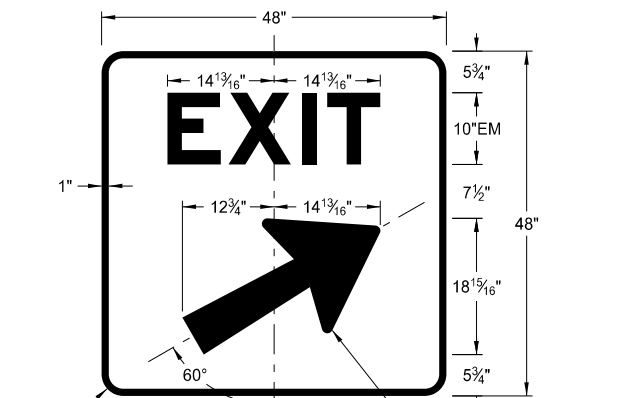
G20-50a-72
 Legend: black (non-refl)
 Background: orange



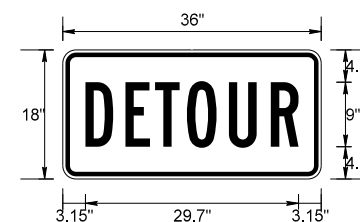
G20-52a-72
 Legend: black (non-refl)
 Background: orange



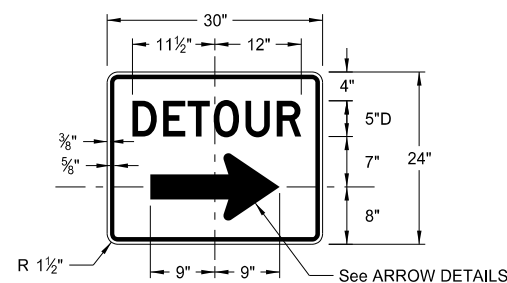
G20-55-96
 Legend: black (non-refl)
 Background: orange



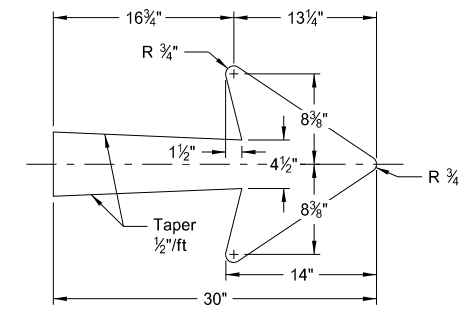
E5-1(L or R)-48
 Legend: white
 Background: green (orange optional)



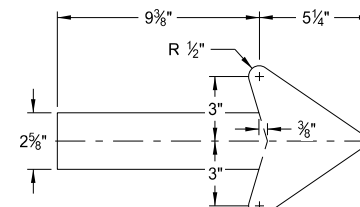
M4-8-36
 Legend: black (non-refl)
 Background: orange



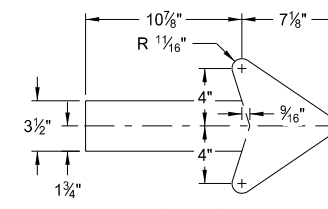
M4-9(L or R)-30 &
 M4-9-30
 Legend: black (non-refl)
 Background: orange



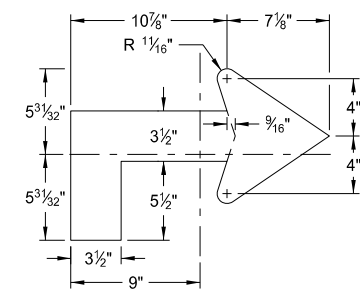
E5-1-48



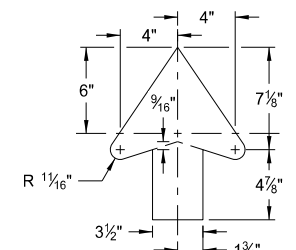
G20-50a-72
 G20-52a-72



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



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



M4-9-30
 Straight

ARROW DETAILS

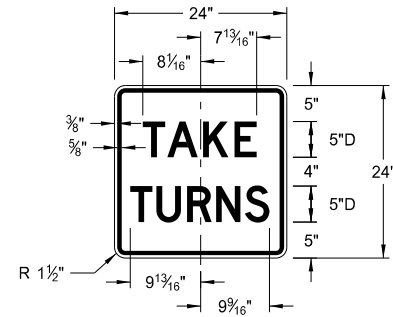
NOTES:

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

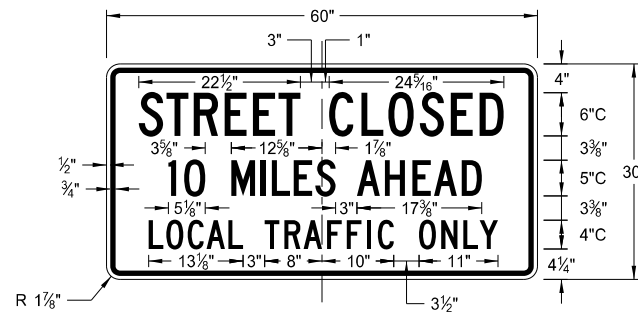
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17 10-03-19	Added sign & background color New Design Engineer PE Stamp

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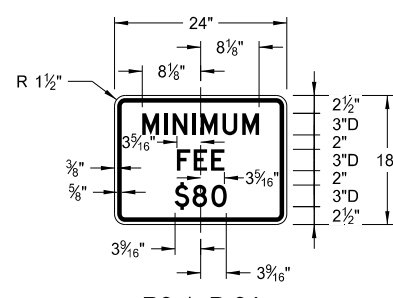
CONSTRUCTION SIGN DETAILS
REGULATORY SIGNS



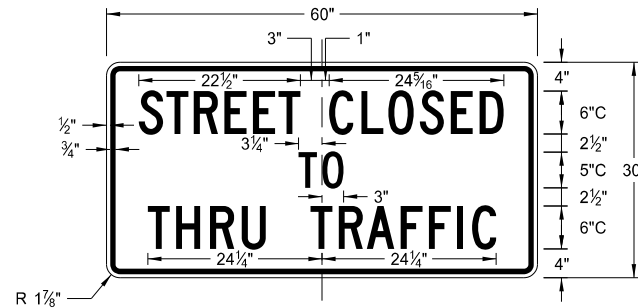
R1-50P-24
Legend: black (non-refl)
Background: white



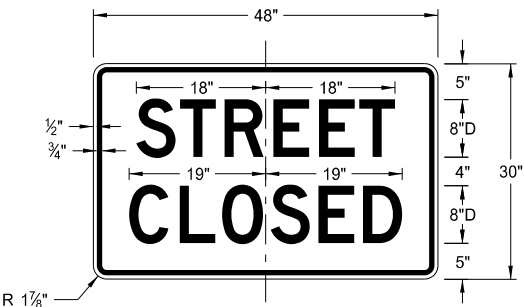
R11-3c-60
Legend: black (non-refl)
Background: white



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



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

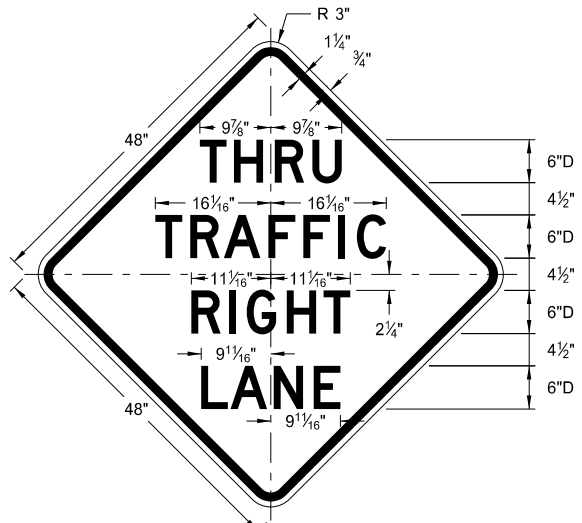


R11-2a-48
Legend: black (non-refl)
Background: white

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

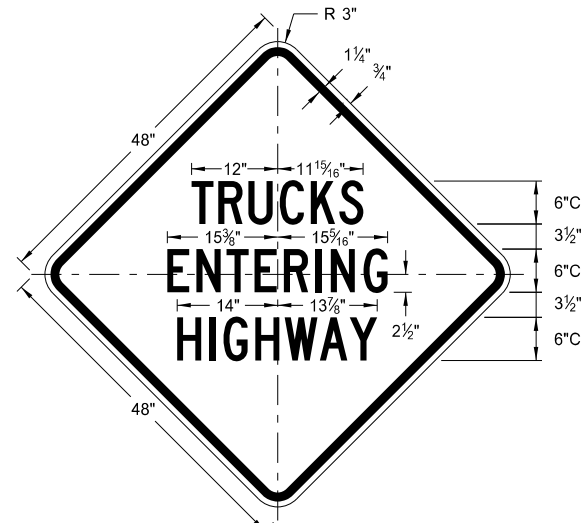
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CONSTRUCTION SIGN DETAILS
WARNING SIGNS



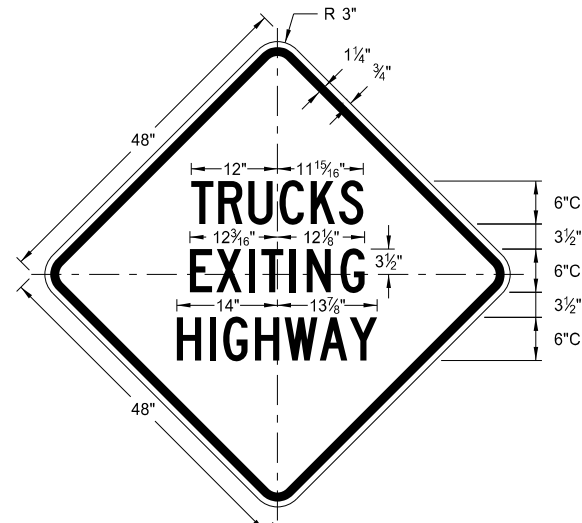
W5-8-48

Legend: black (non-refl)
Background: orange



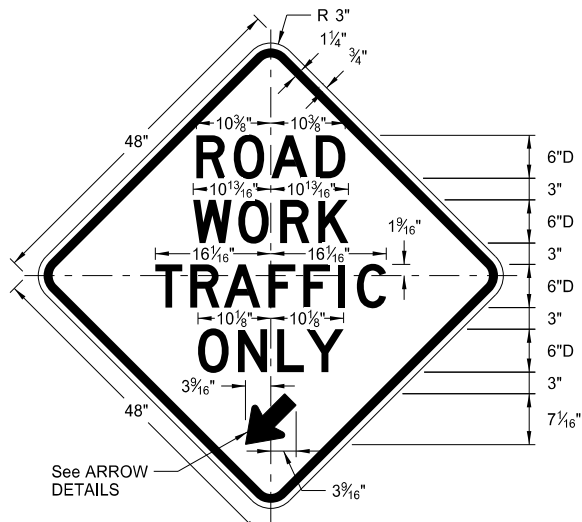
W8-53-48

Legend: black (non-refl)
Background: orange



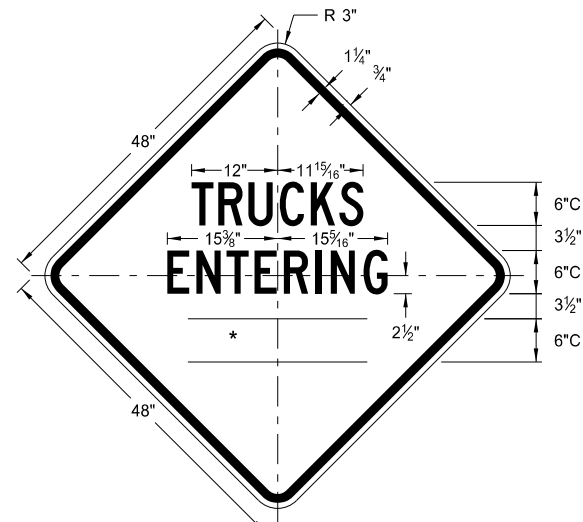
W8-56-48

Legend: black (non-refl)
Background: orange



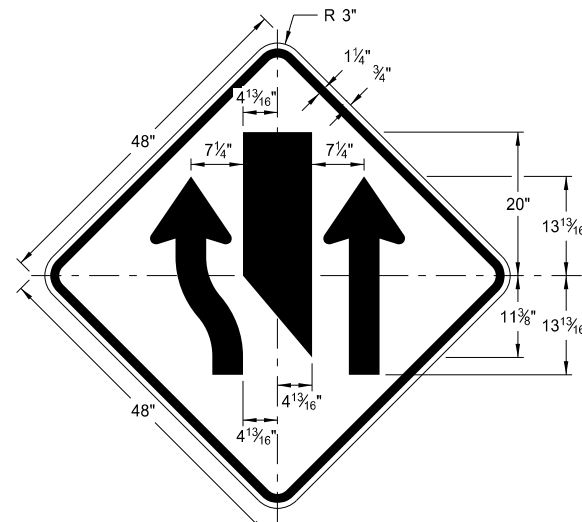
W5-9-48

Legend: black (non-refl)
Background: orange



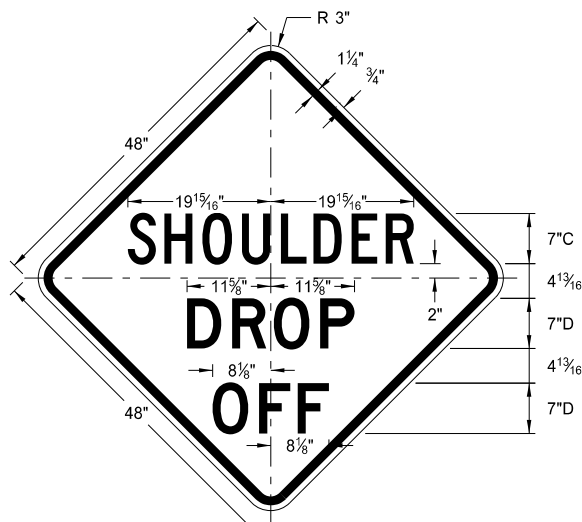
W8-54-48

Legend: black (non-refl)
Background: orange



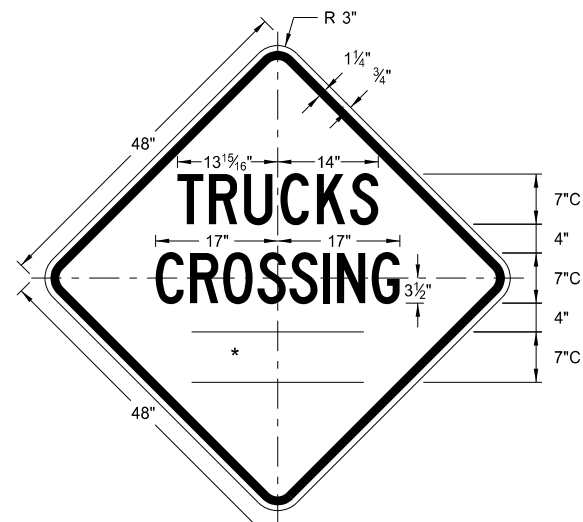
W9-3a-48

Legend: black (non-refl)
Background: orange



W8-9a-48

Legend: black (non-refl)
Background: orange

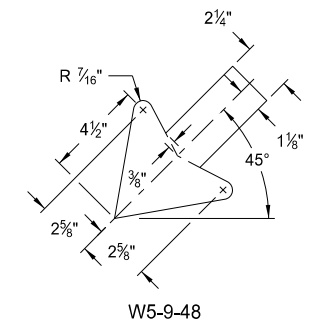


W8-55-48

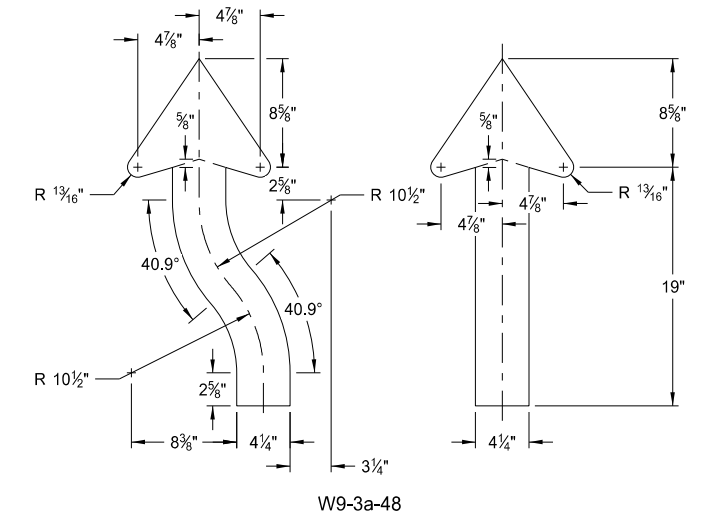
Legend: black (non-refl)
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
1/2 MILE	Reduce 50%
1 MILE	Standard

* DISTANCE MESSAGES



W5-9-48



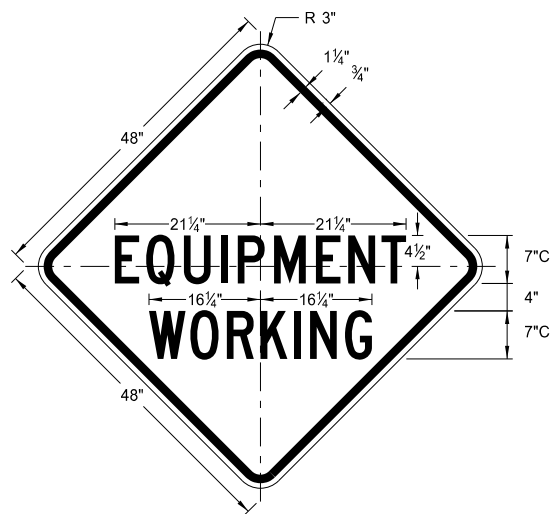
W9-3a-48

ARROW DETAILS

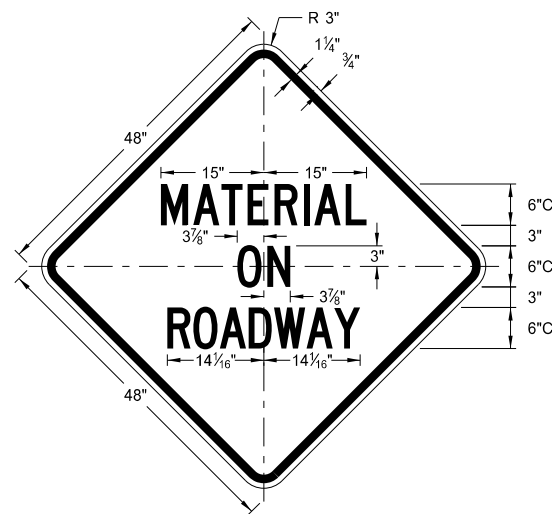
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp

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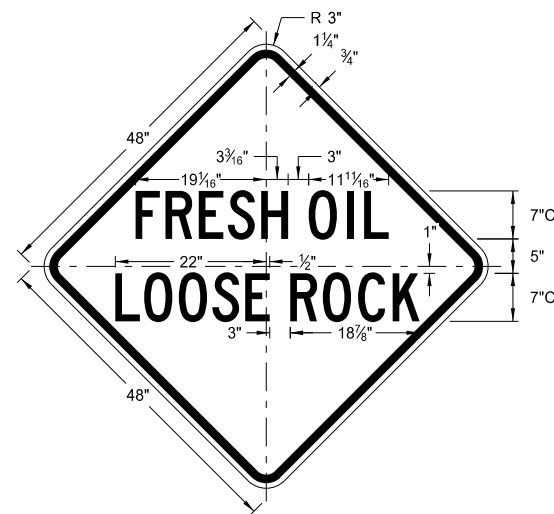
CONSTRUCTION SIGN DETAILS
WARNING SIGNS



W20-51-48
Legend: black (non-refl)
Background: orange



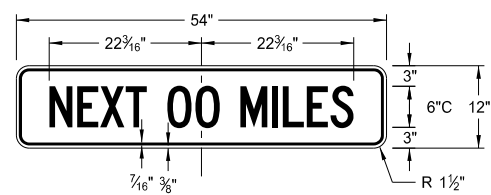
W21-51-48
Legend: black (non-refl)
Background: orange



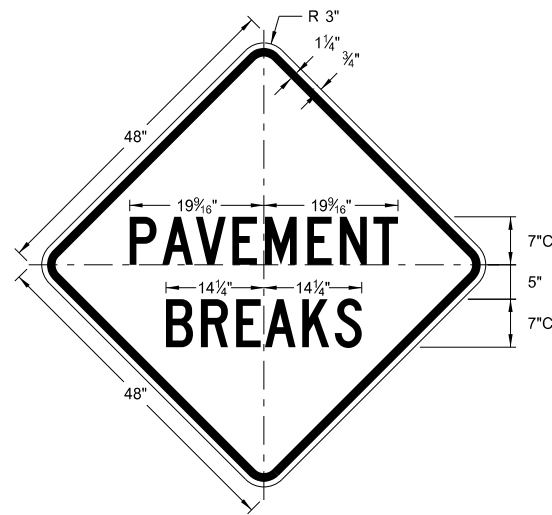
W22-8-48
Legend: black (non-refl)
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
1/2 MILE	Reduce 50%
1 MILE	Standard

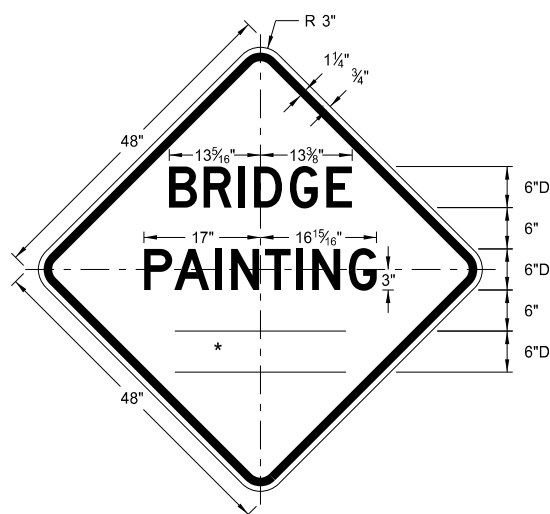
* DISTANCE MESSAGES



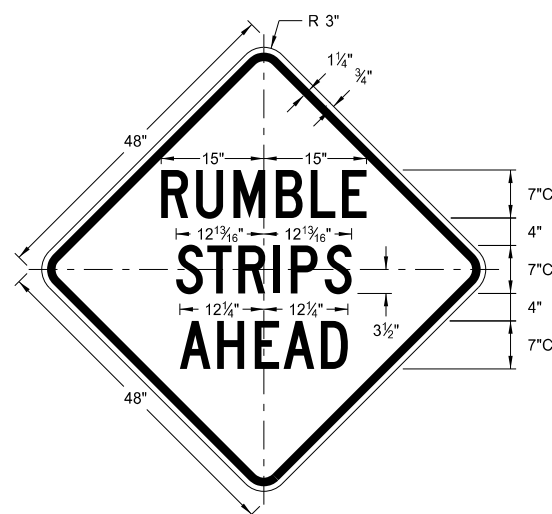
W20-52P-54
Legend: black (non-refl)
Background: orange



W21-52-48
Legend: black (non-refl)
Background: orange



W21-50-48
Legend: black (non-refl)
Background: orange



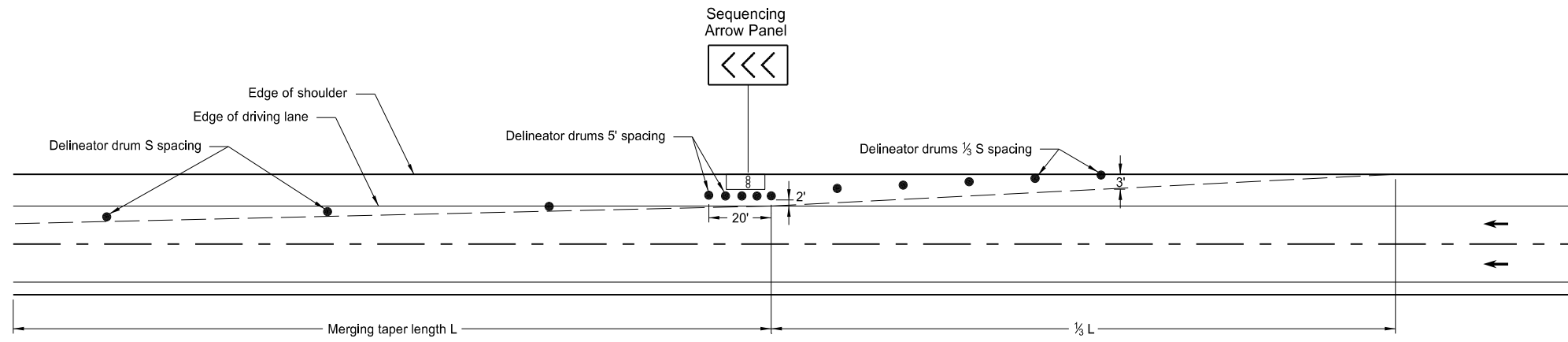
W21-53-48
Legend: black (non-refl)
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
5-31-18	
REVISIONS	
DATE	CHANGE

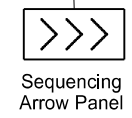
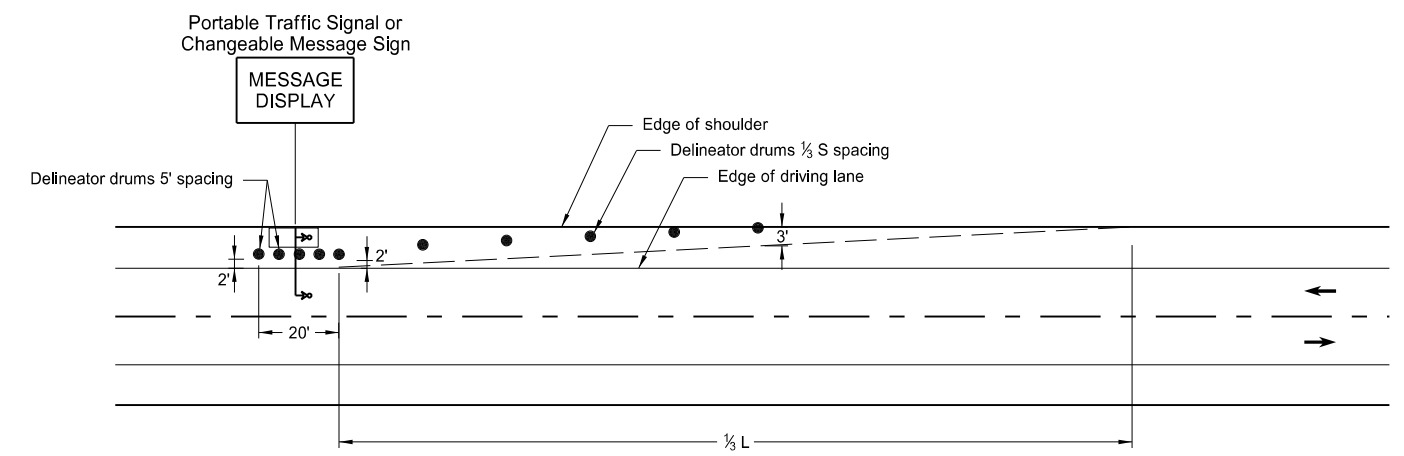
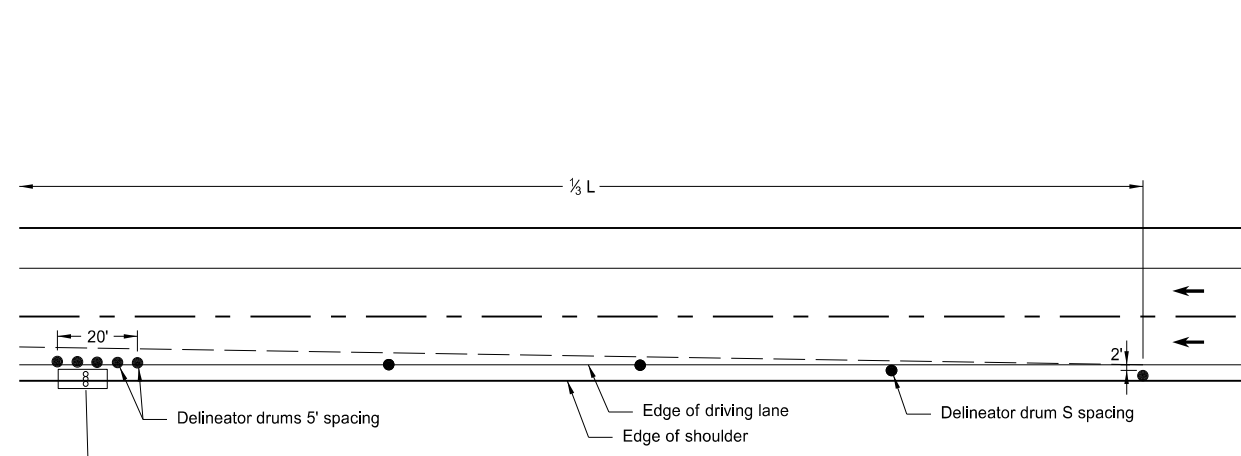
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SHOULDER CLOSURE TAPERS

D-704-12



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

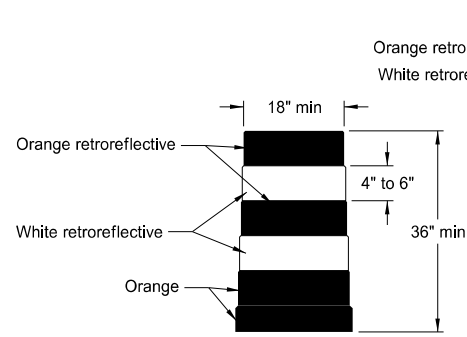
Notes:

- 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

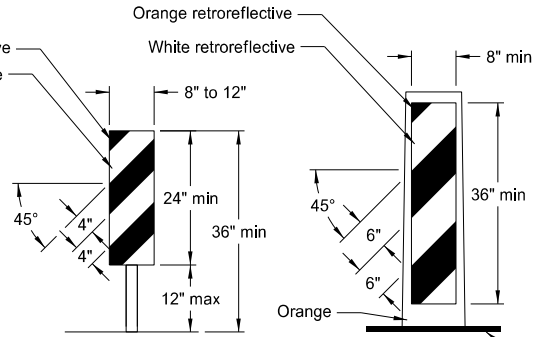
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BARRICADE AND CHANNELIZING DEVICE DETAILS



DELINEATOR DRUM

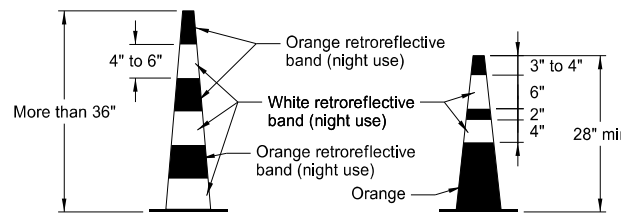
Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectORIZED spaces between the horizontal orange and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



BACK TO BACK VERTICAL PANEL STACKABLE

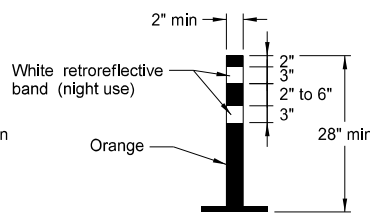
Provide alternating orange and white retroreflective stripes, sloping downward in direction vehicular traffic is to pass. Place retroreflective sheeting on both sides of panel with a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective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

Molded rubber base (min weight 30 lbs)



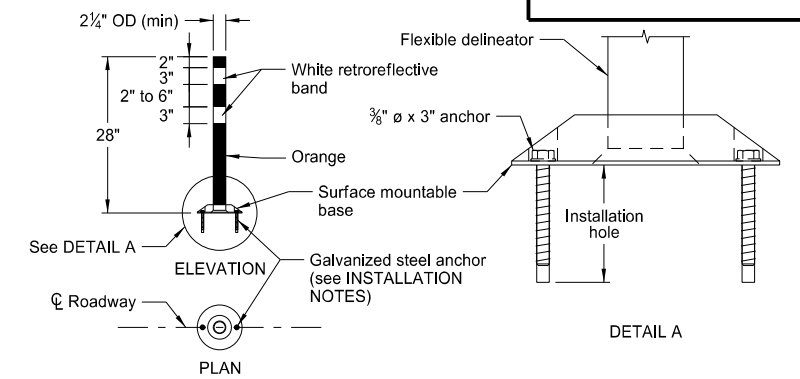
TRAFFIC CONE

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



TUBULAR MARKER

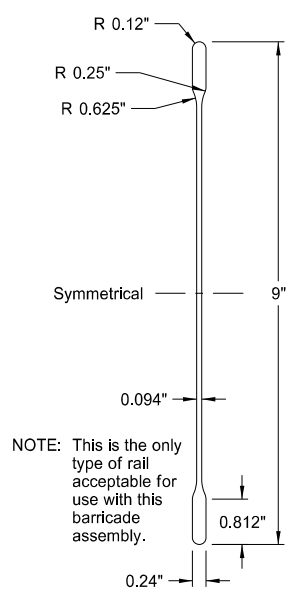
Provide retroreflectORIZATION of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



FLEXIBLE DELINEATOR

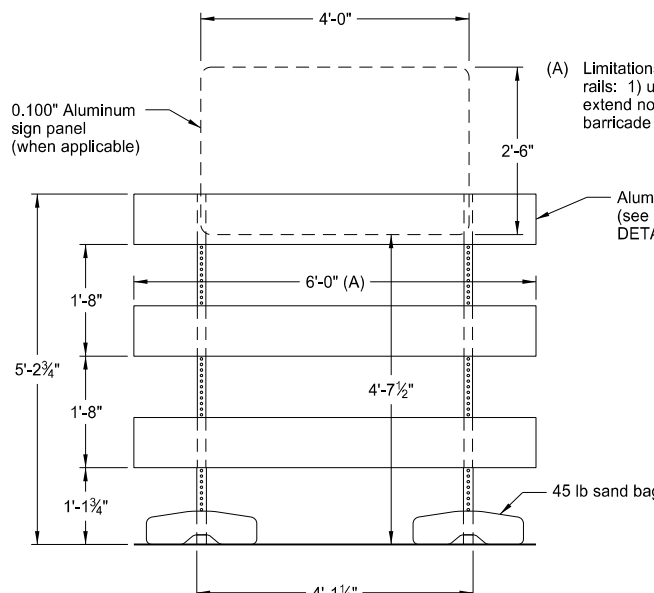
INSTALLATION NOTES:

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

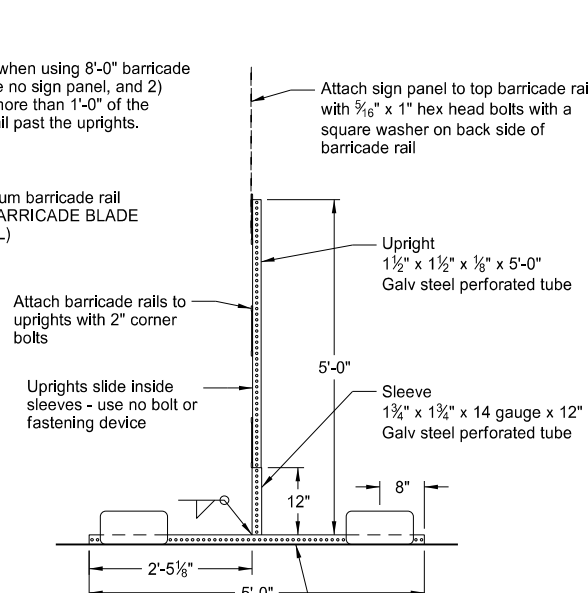


BARRICADE BLADE DETAIL

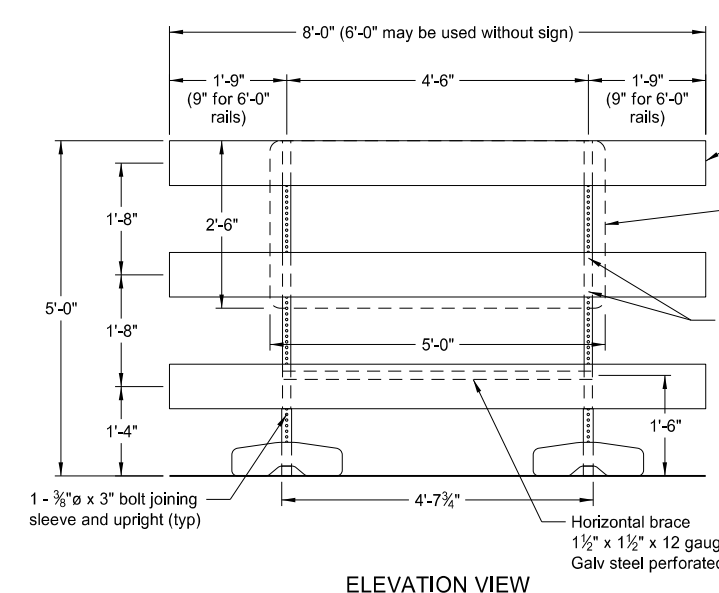
NOTE: This is the only type of rail acceptable for use with this barricade assembly.



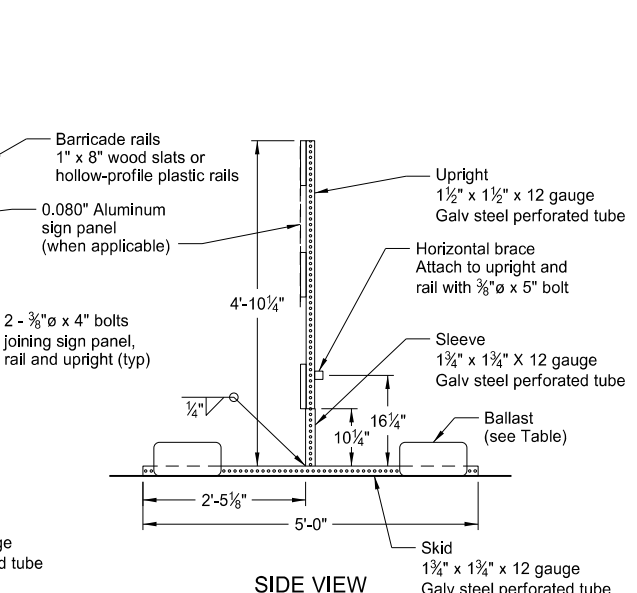
ELEVATION VIEW BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)



SIDE VIEW BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)



ELEVATION VIEW BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

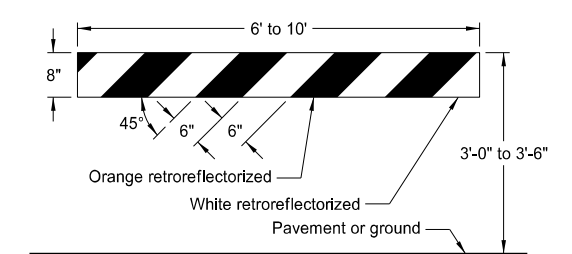


SIDE VIEW BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

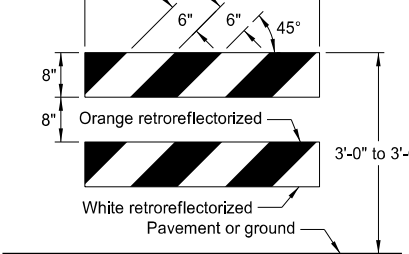
MINIMUM BALLAST (For each side of barricade support)

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

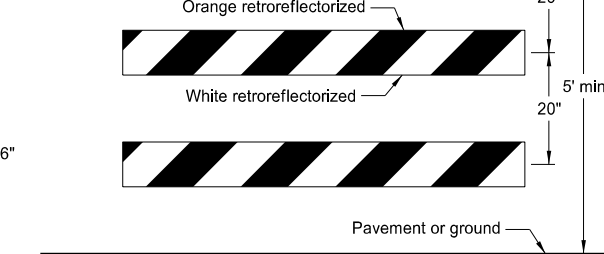
Note: Number of sandbags based on a wind speed of 55 MPH. Sandbags assumed to be placed at or near the ends of the skids.



TYPE I BARRICADE

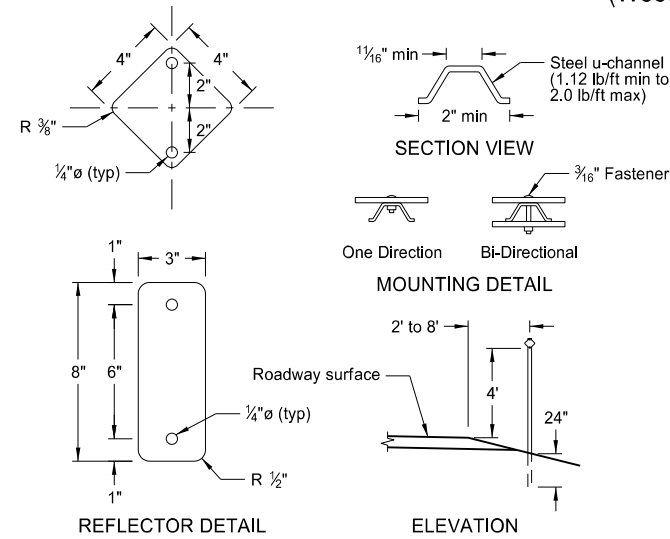


TYPE II BARRICADE



TYPE III BARRICADE

BARRICADE RAIL DETAILS



REFLECTOR DETAIL

ELEVATION

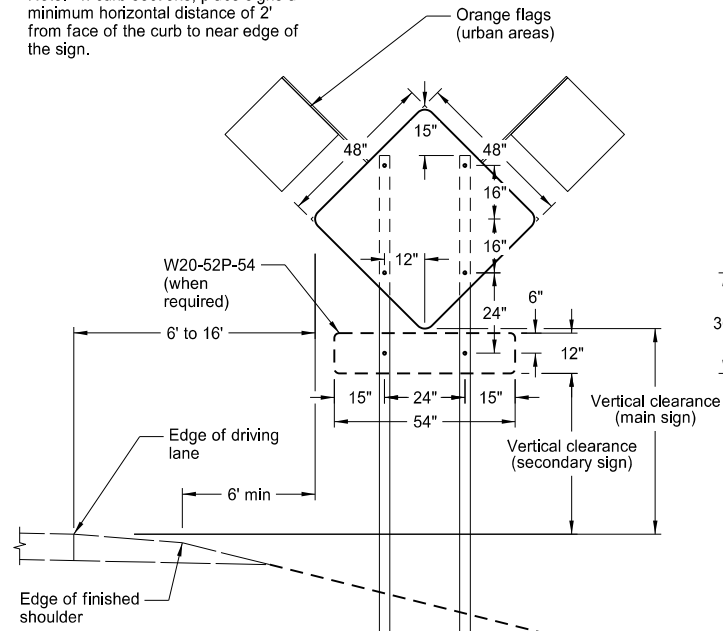
DELINEATORS

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice

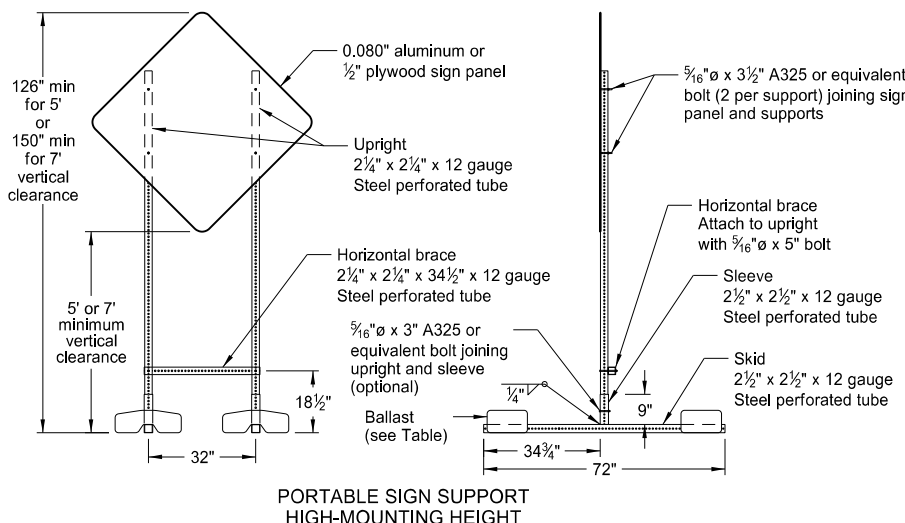
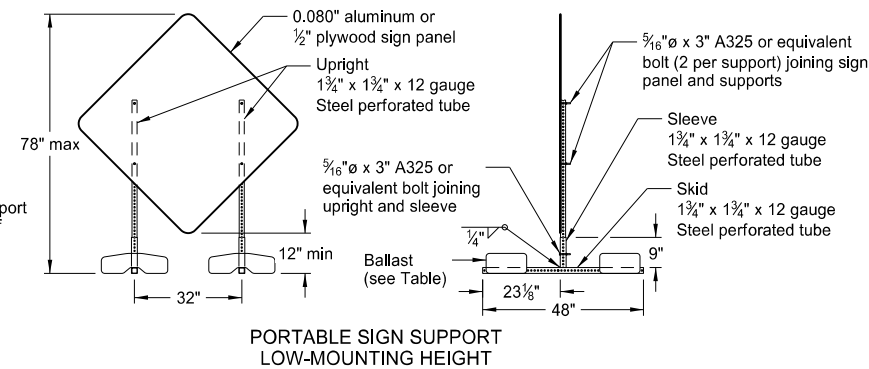
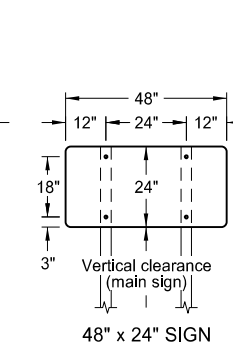
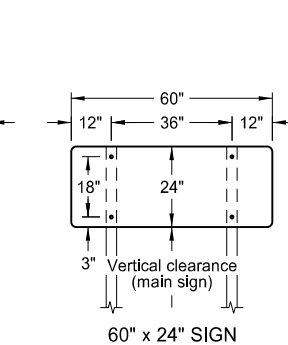
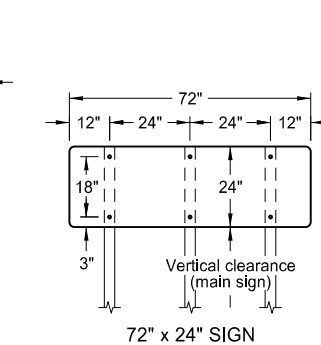
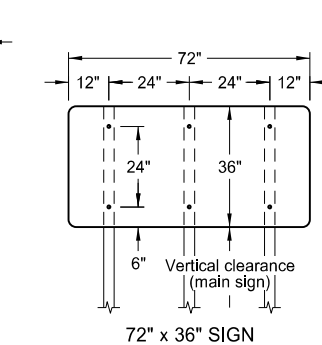
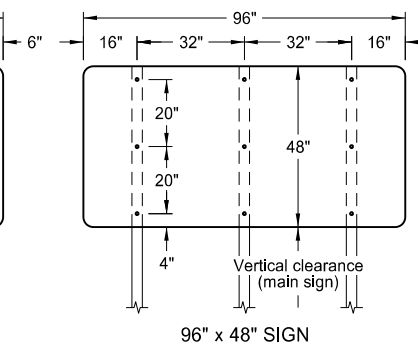
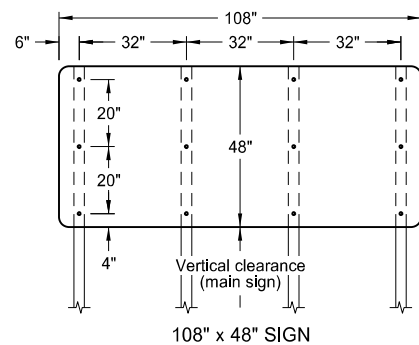
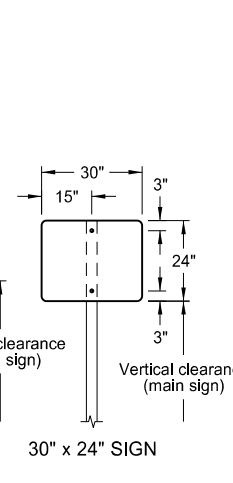
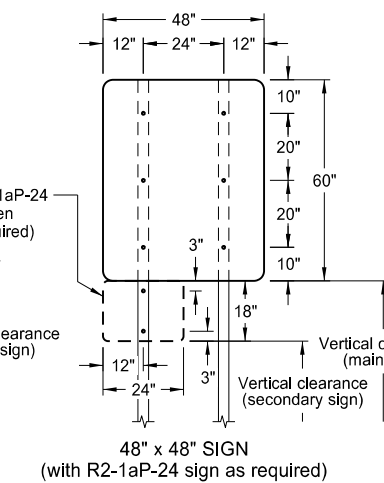
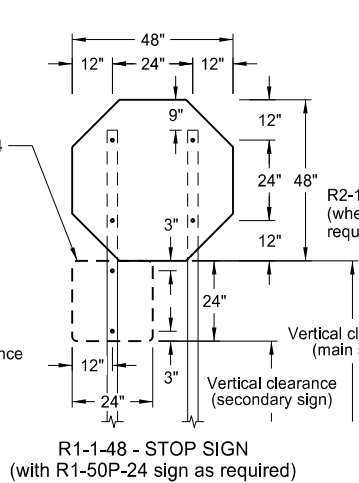
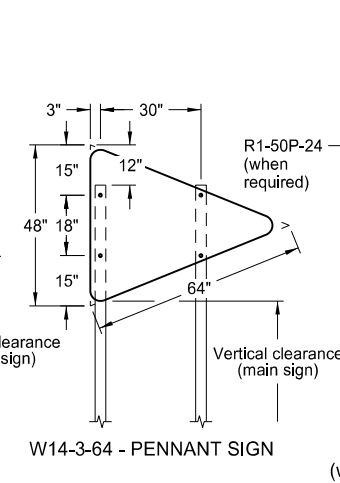
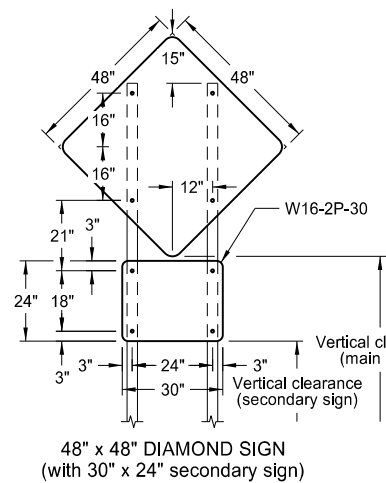
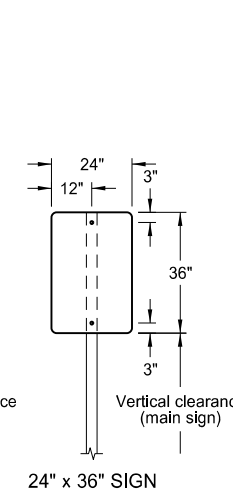
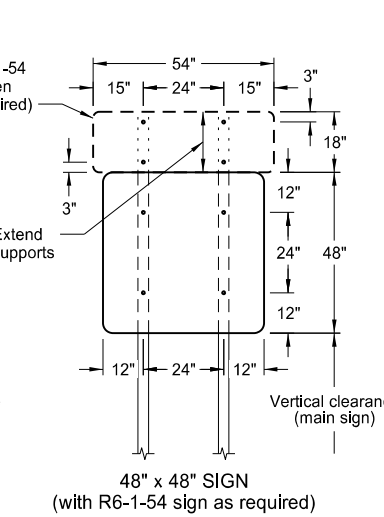
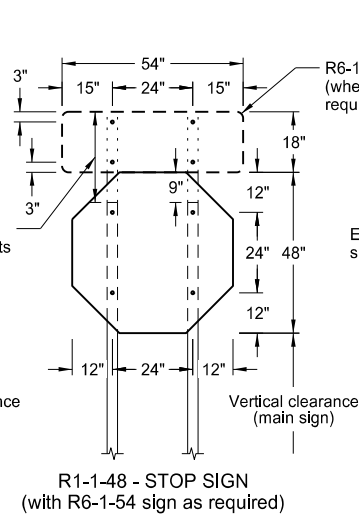
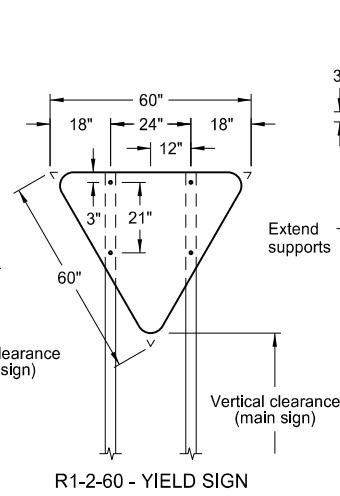
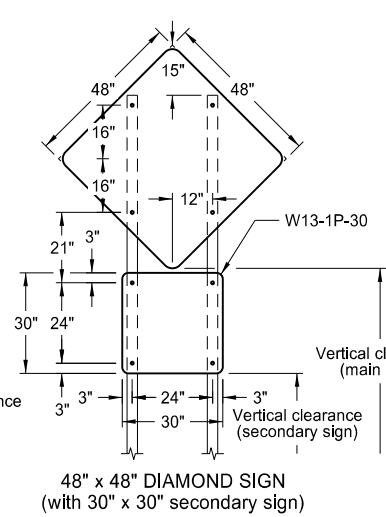
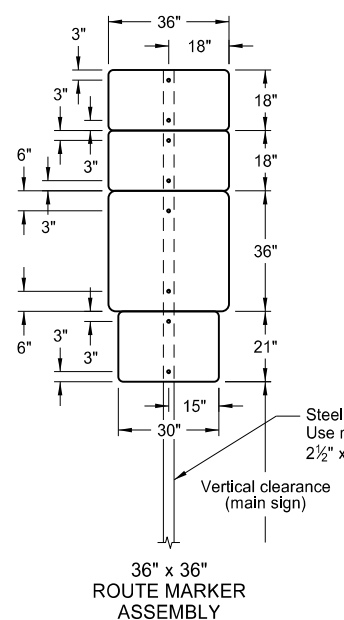
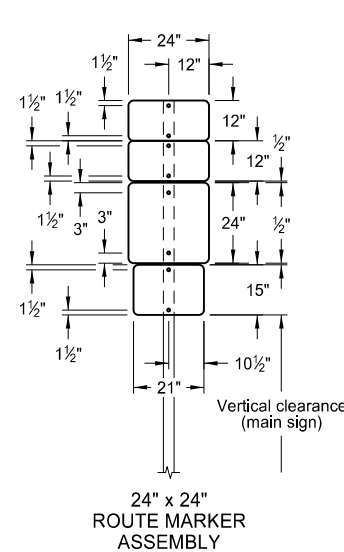
This document was originally issued and sealed by Roger Weigel, Registration Number PE-2930, on 9/27/2017 and the original document is stored at the North Dakota Department of Transportation

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)



NOTES:

- 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 2 1/2" x 2 1/2" 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.
- Sign Panels: Provide sign panels made of 0.100" aluminum, 1/2" plywood, or other approved material, except where noted. Punch all holes round for 5/16" bolts.
- 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)
- 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

- 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.

- 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 breakdowns, 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)

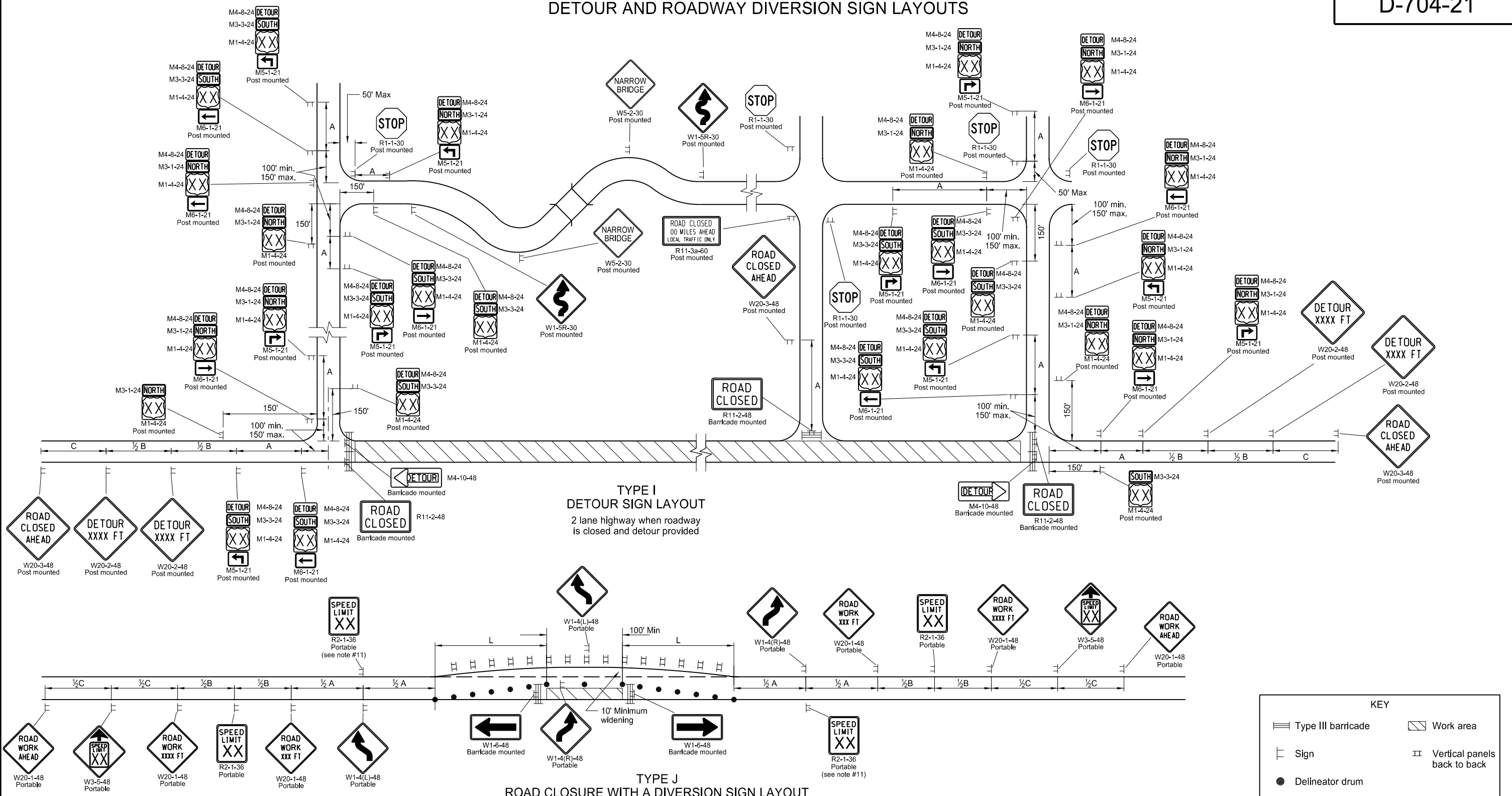
Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

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 9-27-17	Revised Note 6, Updated to active voice

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DETOUR AND ROADWAY DIVERSION SIGN LAYOUTS



KEY

- Type III barricade
- Work area
- Sign
- Vertical panels back to back
- Delineator drum

- Notes**
- Variables
 S=Numerical value of speed limit or 85th percentile. W=The width of taper.
 L=Minimum length of taper, or $S \times W$ for freeways, expressways, and all other roads with speeds of 45 mph or greater, or $W \times S^2 / 60$ for urban, residential, and other streets with speeds of 40 mph or less.
 - Place barricades on moveable assemblies and signs on portable assemblies when on roadway.
 - Space delineator drums and vertical panels at dimension "S" for tapering traffic. Space delineator drums, tubular markers and vertical panels at 2 times "S" for tangents.
 - Determine the reduced speed limit based on the in place speed limit before construction. Where speed limits 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 $\frac{1}{2} B$.
 - Install flags on warning signs in urban areas when signs are not portable. Mount 24 inches square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
 - Cover existing speed limit signs within a reduced speed limit zone.
 - Covered (when approved by engineer) or obliterated pavement marking measured as Obliteration of Pavement Marking.
 - As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
 - If the tangent between tapers is less than 600', as an option, use sign W24-1-48 in place of double reverse curve signs.
 - Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
 - Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.

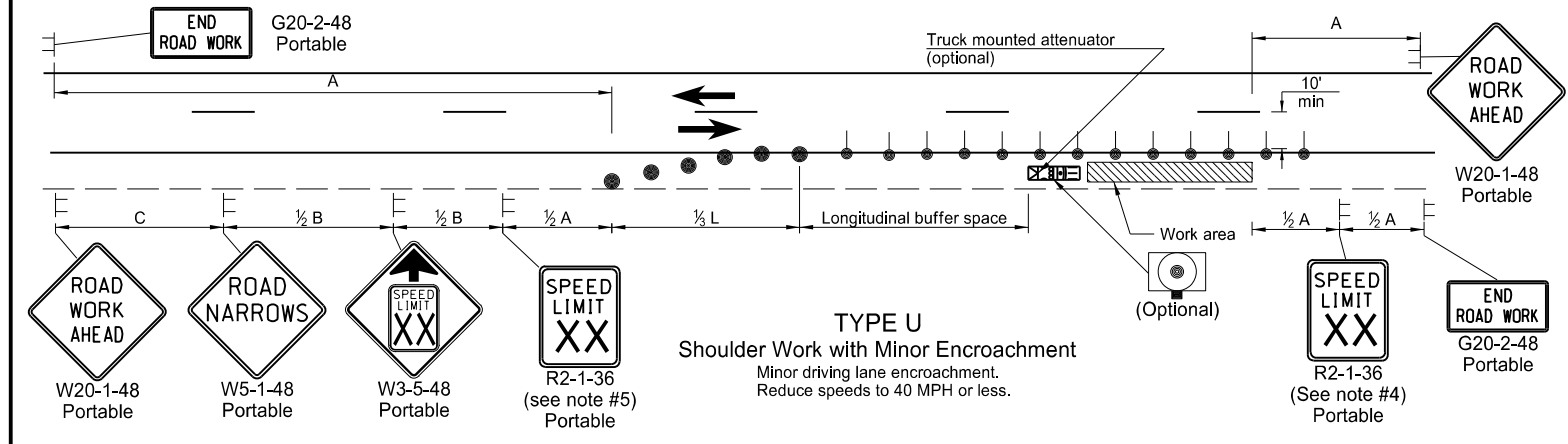
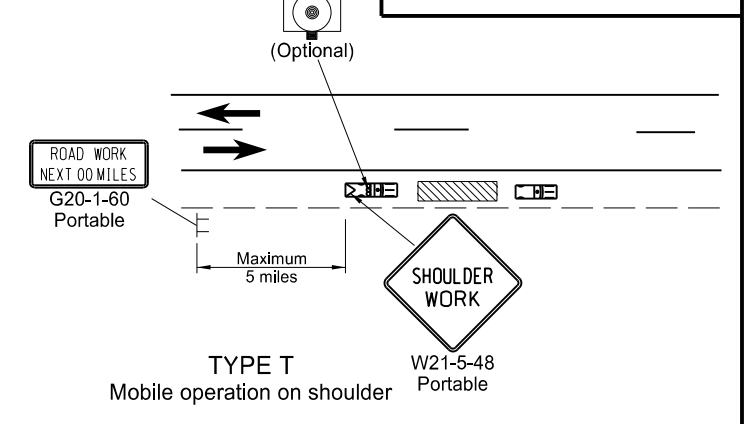
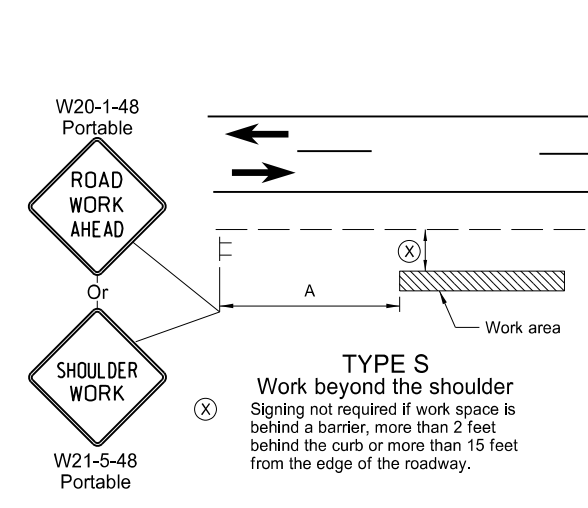
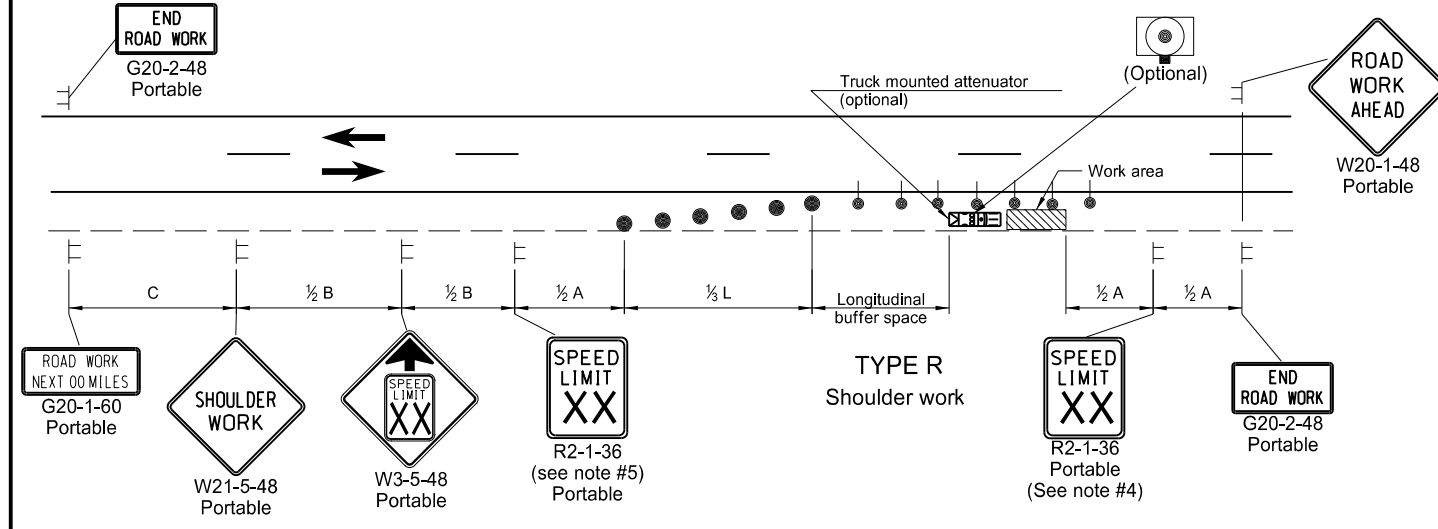
TYPE J
 ROAD CLOSURE WITH A DIVERSION SIGN LAYOUT
 2 lane highway with widened section,
 traffic maintained in both directions.
 Use layout when work is less than 5 days or is within a project.

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

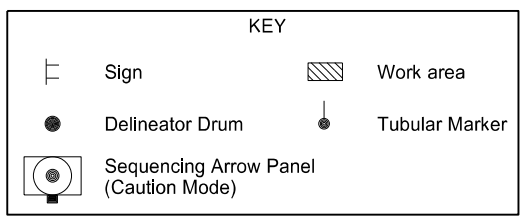
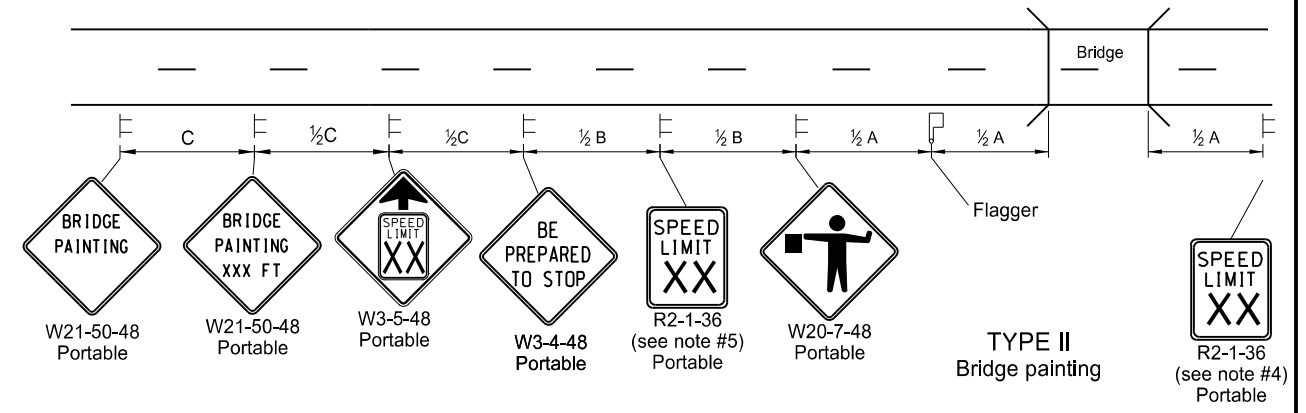
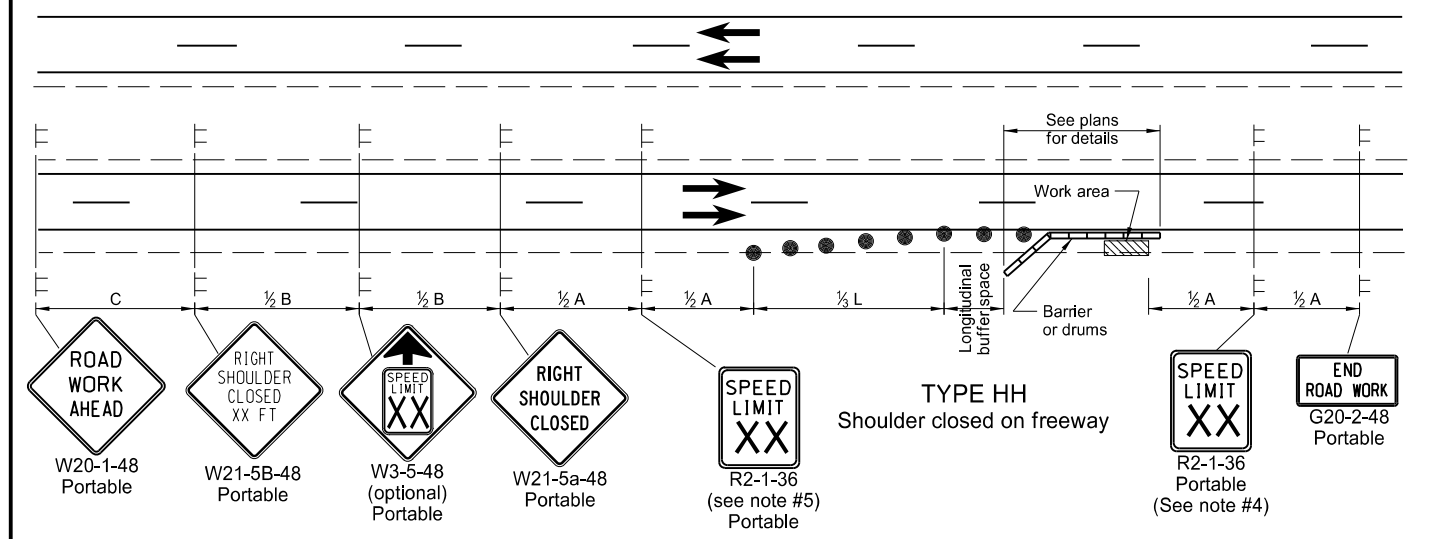
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated notes. Added speed limit.

This document was originally issued and sealed by Roger Weigel Registration Number PE-2930, on 08/17/17 and the original document is stored at the North Dakota Department of Transportation

SHOULDER CLOSURES AND BRIDGE PAINTING LAYOUTS



- Notes
- Variables
 - S = Numerical value of speed limit or 85th percentile.
 - W = The width of the taper in feet.
 - L = Minimum length of taper, $S \times W$ for freeways, expressways, and all other roads with speeds of 45 mph or greater, or $W \times S^2 / 60$ for urban, residential, and other streets with speeds of 40 mph or less.
 - Space delineator drums for tapering traffic at dimension "S". Space delineator drums or tubular markers for tangents at 2 times "S".
 - Sequencing Arrow Panels
 - 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-establish 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.
 - As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
 - Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.



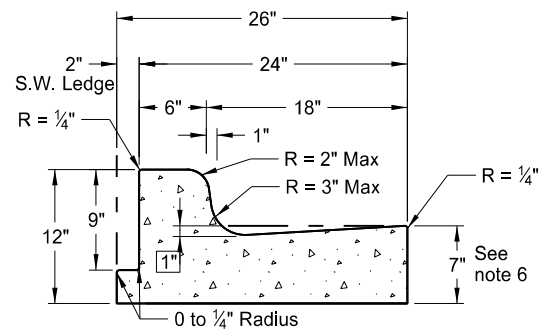
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
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Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway 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

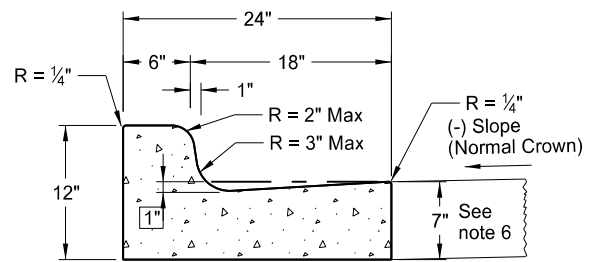
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated notes & revised signs

This document was originally issued and sealed by Roger Weigel Registration Number PE-2930, on 08/17/17 and the original document is stored at the North Dakota Department of Transportation

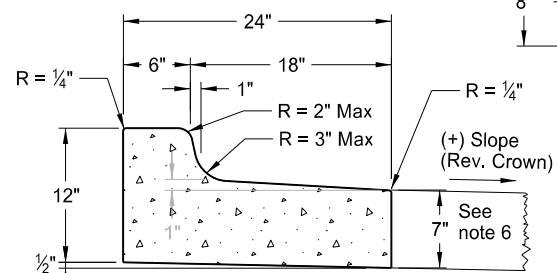
Curb & Gutter and Valley Gutter



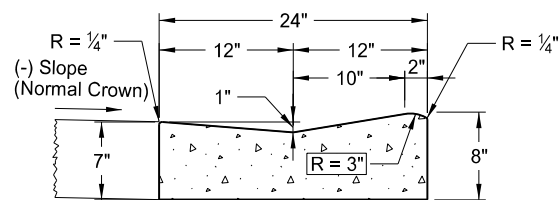
Curb & Gutter Type 1 (Sec. A & B)
Adjacent to Concrete Sidewalk,
Median, or Parking Lot.
(Sec. A shown. See Sec B for
additional details.)



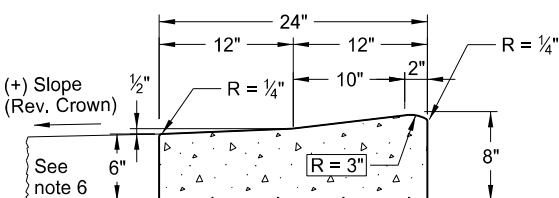
Curb & Gutter Type 1 (Sec. A)



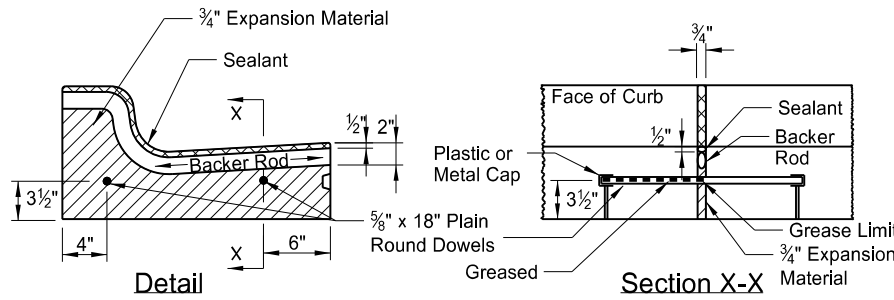
Curb & Gutter Type 1 (Sec. B)



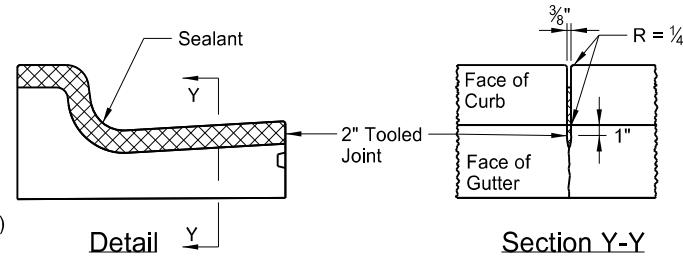
Mountable Curb & Gutter Type 1 (Sec. A)



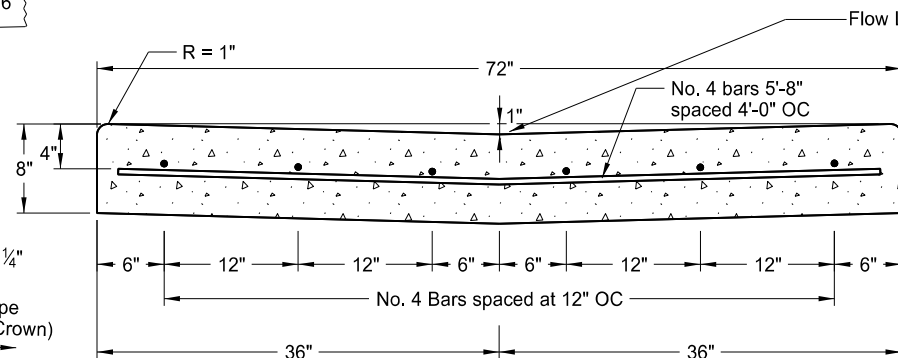
Mountable Curb & Gutter Type 1 (Sec. B)



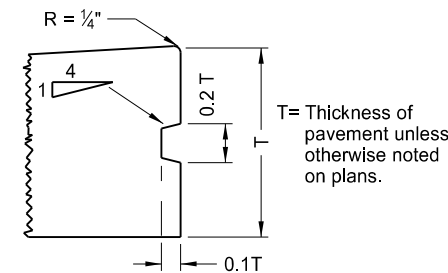
Isolation Joint



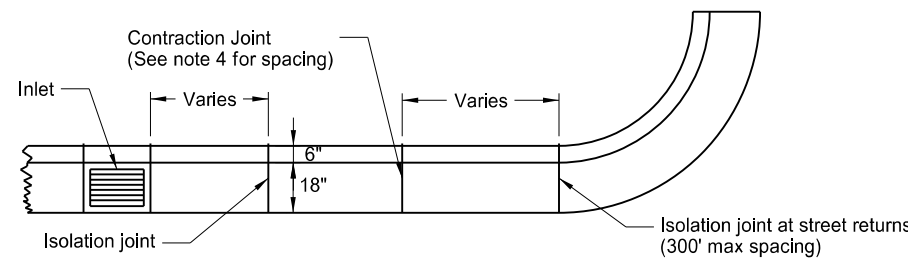
Contraction Joint
(10' Max Spacing)



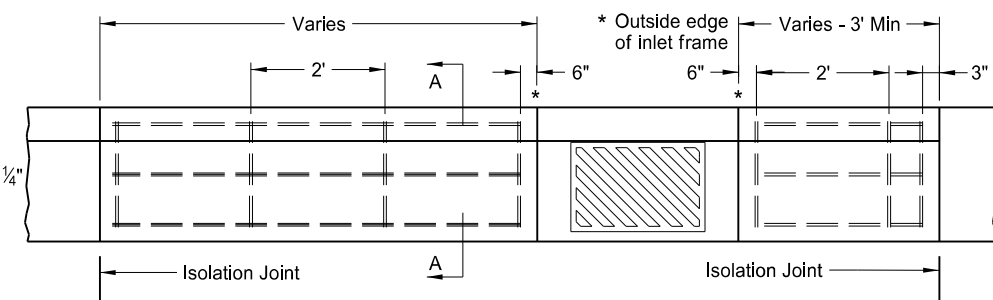
72" Concrete Valley Gutter Detail



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

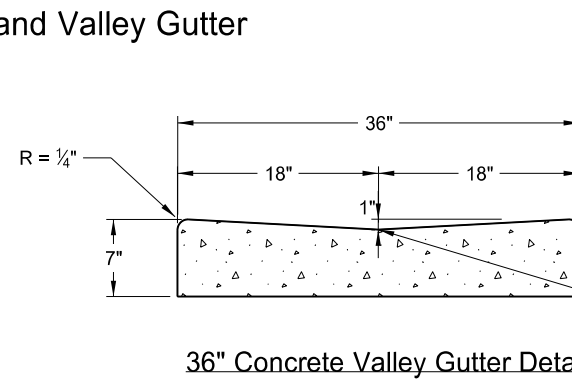


Joint Location Detail

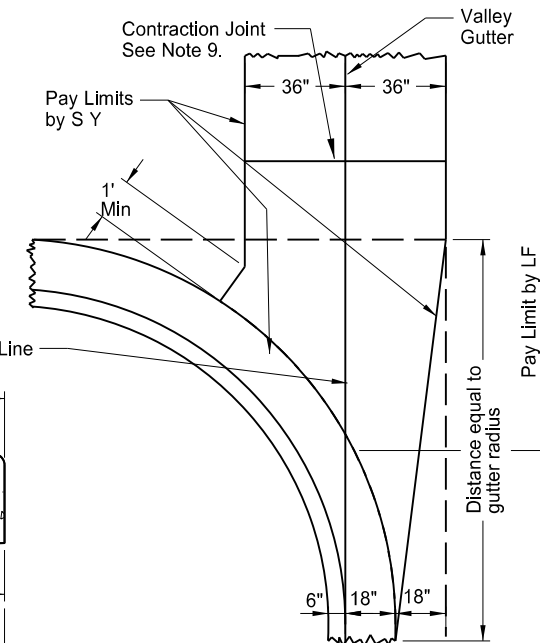


Curb & Gutter Reinforcing at Inlets

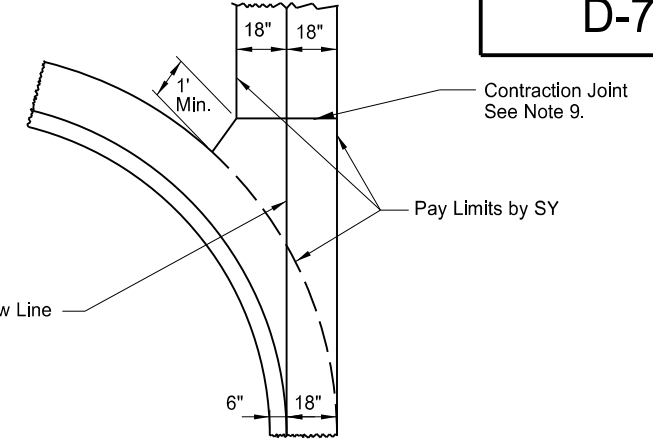
NOTE: Use #4 deformed reinforcing bars without splices. Include all costs for reinforcing bars at inlet locations (even inlets located on radii) in the price bid for "Curb and Gutter - Type 1." Extend reinforcement to the second joint (rebar placed through the first joint) in cases where the 3' min.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



36" Concrete Valley Gutter Detail



72" Concrete Valley Gutter Plan



36" Concrete Valley Gutter Plan

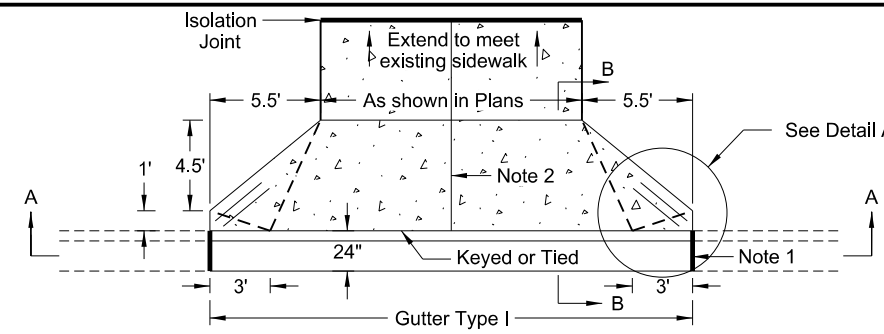
NOTES:

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.

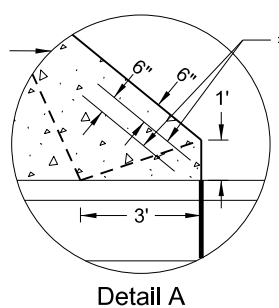
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-7-2013	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engr PE Stamp.

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

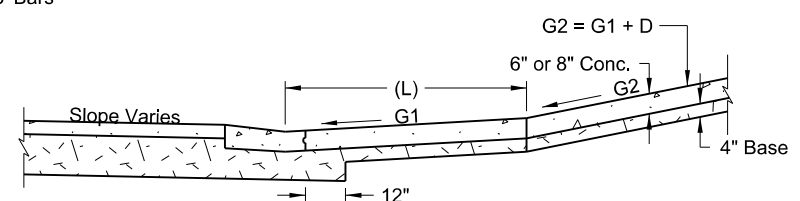
CONCRETE DRIVEWAY - URBAN



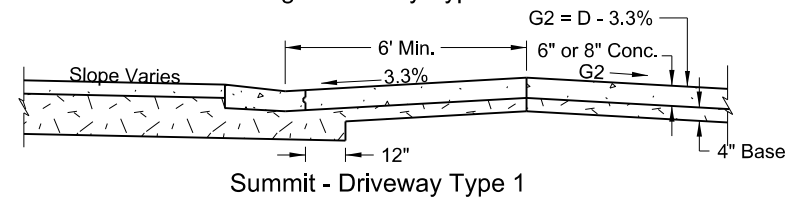
Driveway Type 1



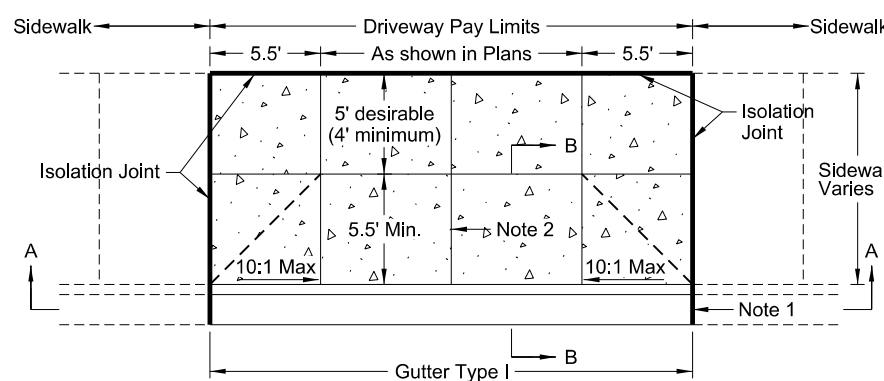
Detail A



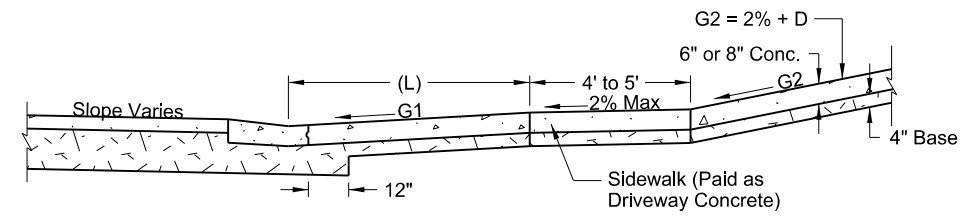
Sag - Driveway Type 1



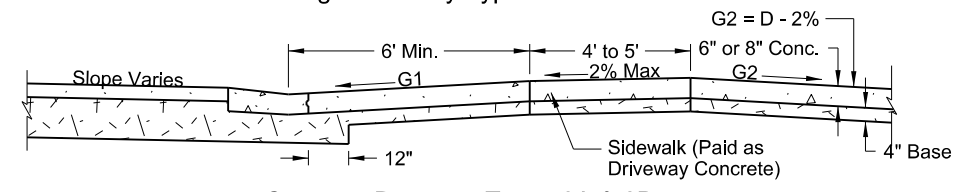
Summit - Driveway Type 1



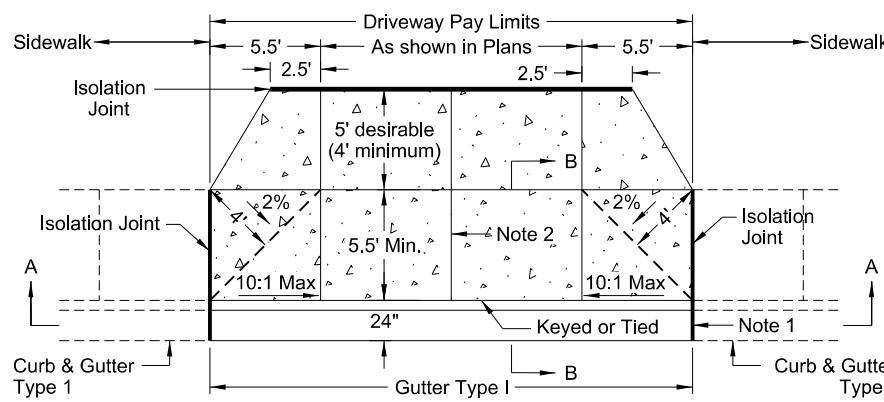
Driveway Type 2A



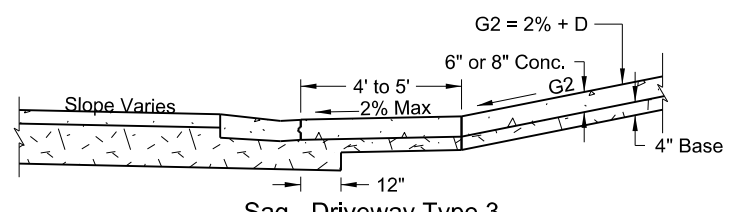
Sag - Driveway Types 2A & 2B



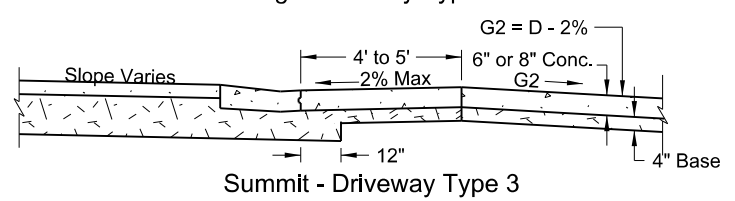
Summit - Driveway Types 2A & 2B



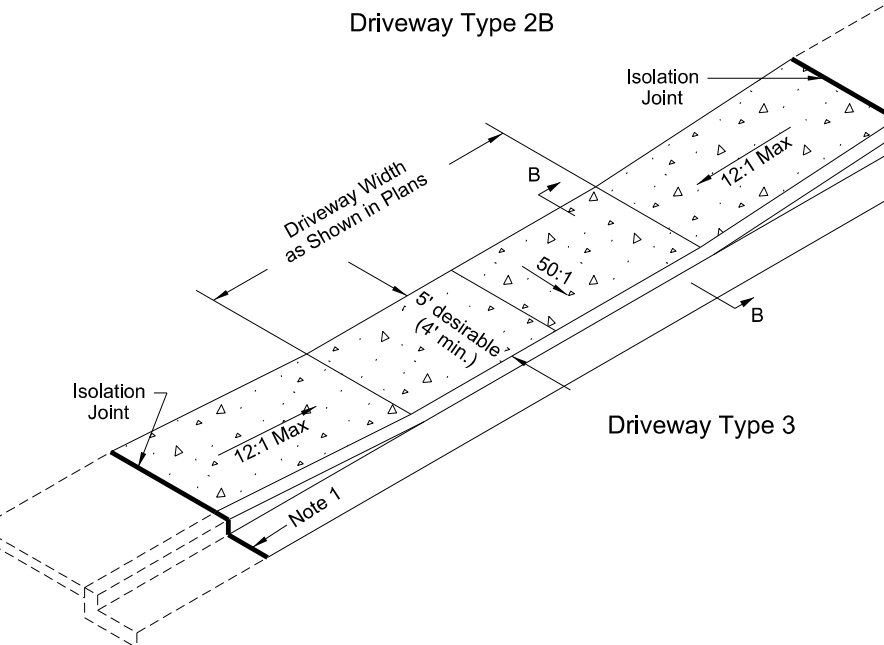
Driveway Type 2B



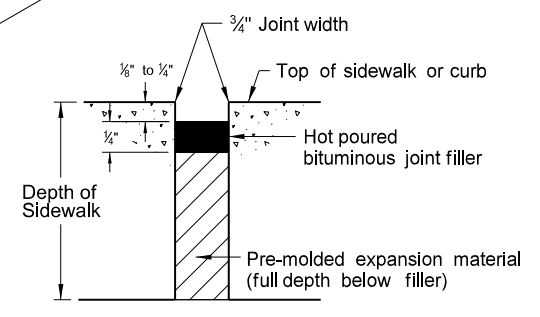
Sag - Driveway Type 3



Summit - Driveway Type 3



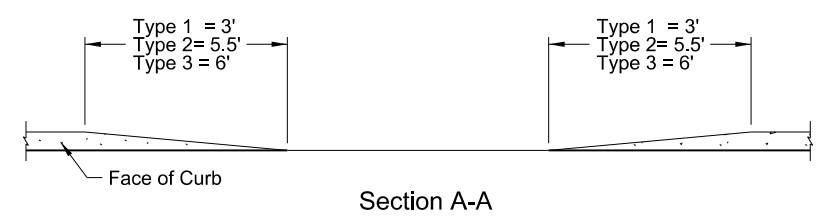
Driveway Type 3



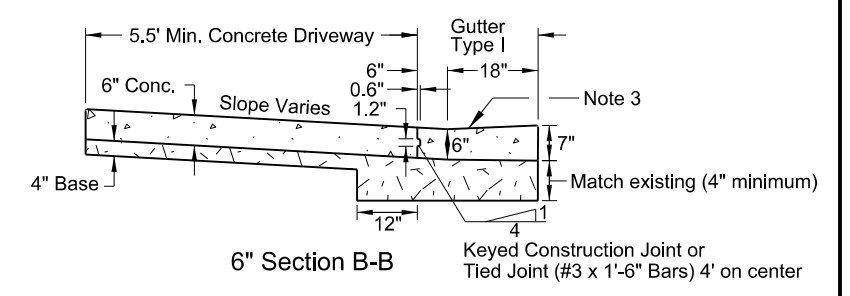
Typical Isolation Joint Seal (longitudinal and transverse)

NOTES:

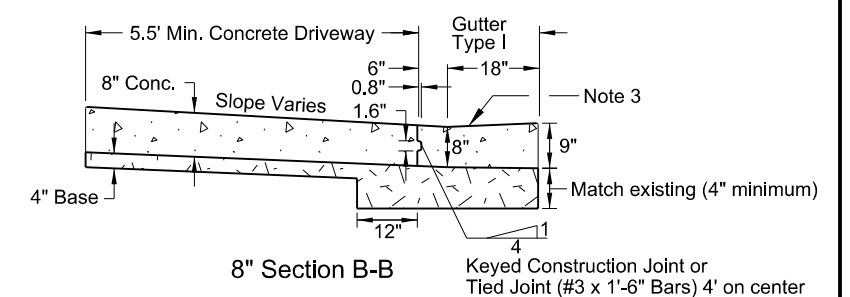
- See Standard D-748-1 for curb and gutter isolation joint detail. On PCC roadways, match curb and gutter joints with pavement joints, as much as practical.
- Joint Spacing: Use 1 center contraction joint on driveways 20' width or less, 2 center contraction joints for driveways 20' to 30' width, and 3 center contraction joints for driveways greater than 30' width. Saw or groove contraction joints a minimum depth of 1/3 the depth of the concrete. Use isolation joints between separately poured concretes, or between old and new concrete. Seal joints with hot pour bituminous filler or low modulus silicone. Install and tool sealant according to manufacturer's recommendations. Include all costs for labor, equipment, and material to construct and seal joints in the price bid for the driveway.
- Include all costs for gutter-Type 1 in the unit price bid for "Curb and Gutter-Type 1".
- Use 6" driveway unless otherwise specified.
- Place 4" base material under concrete driveway. 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.
- Construct sidewalk behind a driveway to the same thickness as the driveway. The Engineer will measure it as driveway concrete.



Section A-A



6" Section B-B



8" Section B-B

Driveway ADT	Grade G1		Dimension (L) ft.		Grade Changes (D)	
	Desirable	Maximum	Desirable	Maximum	Desirable	Maximum
(0-500)	5%	12% or controlled by vehicle clearance	12	6	6%	15% or controlled by vehicle clearance
(500-1500)	3%	8%	20	20	3%	6%
(> 1500)	2%	5%	40	40	0%	3%

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-13-2014	
REVISIONS	
DATE	CHANGE
10-17-17 08-27-19	Updated to active voice. New Design Engineer PE Stamp.

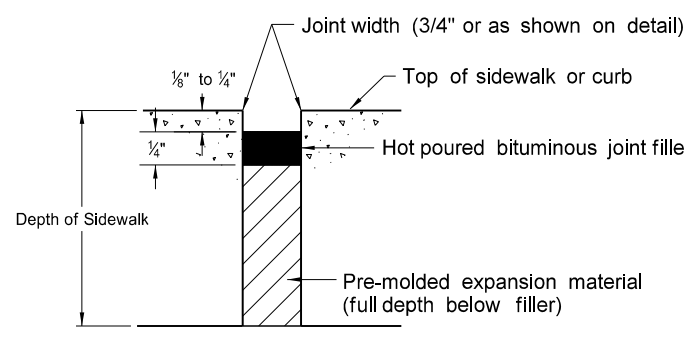
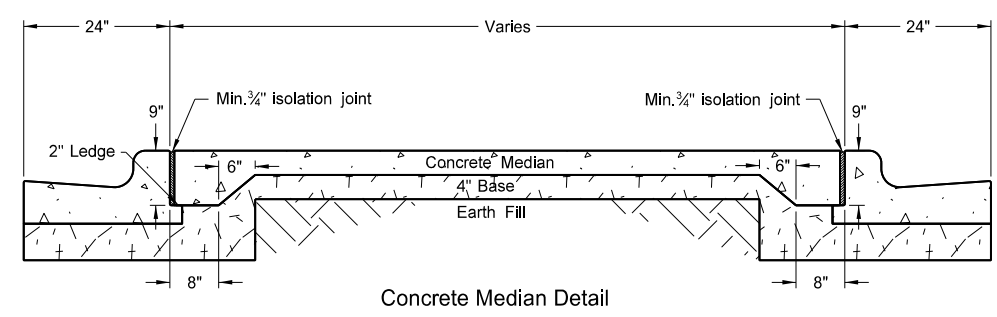
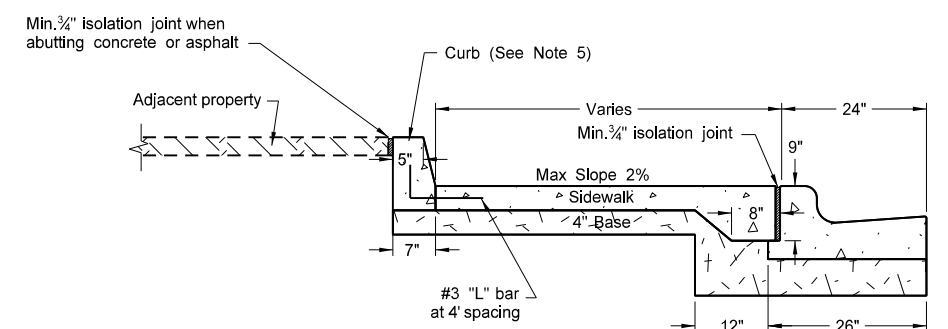
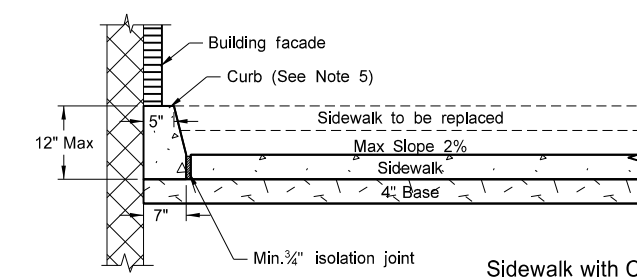
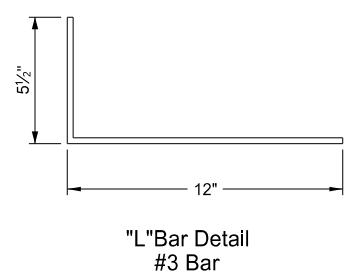
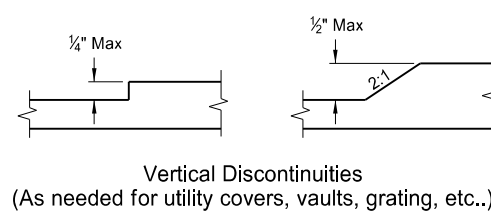
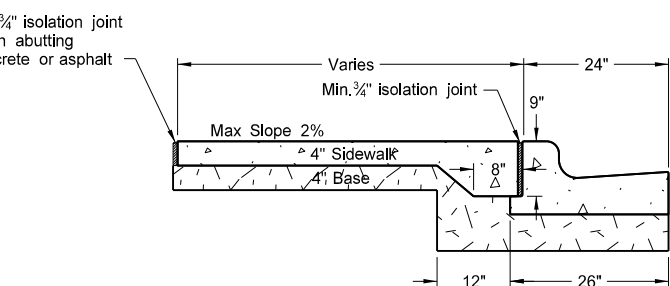
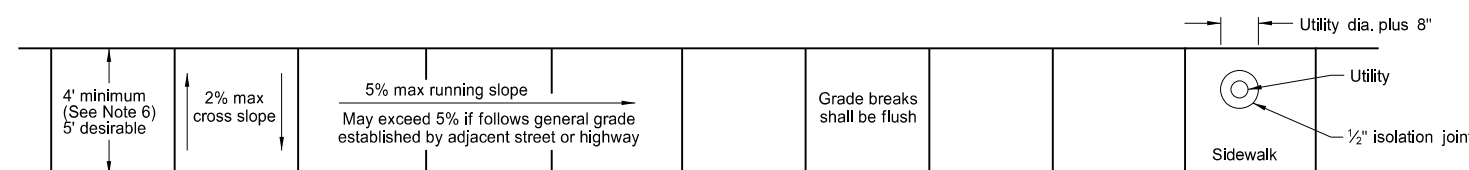
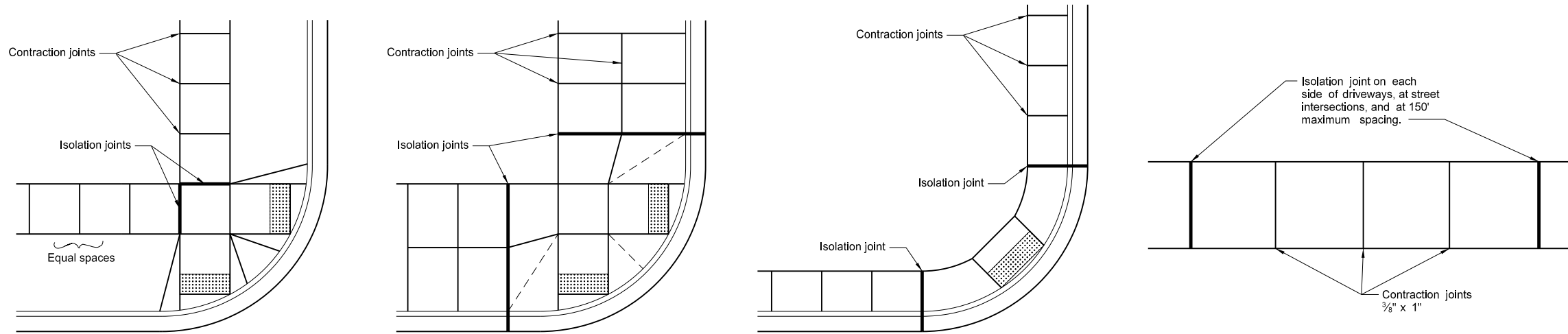
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 08/27/19 and the original document is stored at the North Dakota Department of Transportation

SIDEWALK

D-750-2

NOTES:

- 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.
- 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.
- Include all costs for labor, equipment, and material necessary to construct contraction and isolation joints in the price bid for sidewalk concrete.
- Use 4" sidewalk concrete thickness unless otherwise specified.
- 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.
- 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'.



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

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

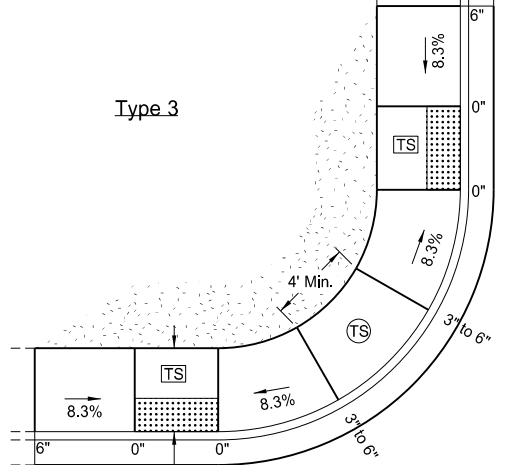
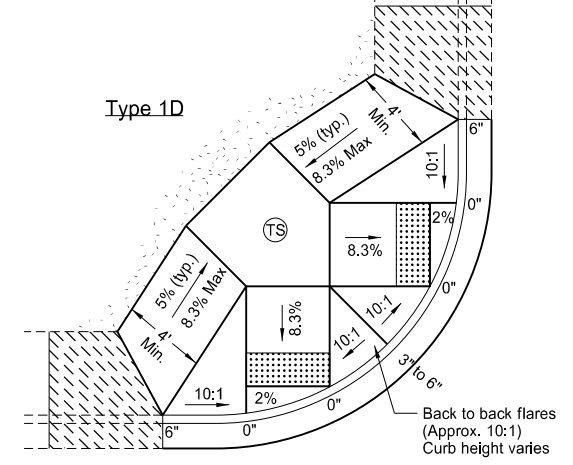
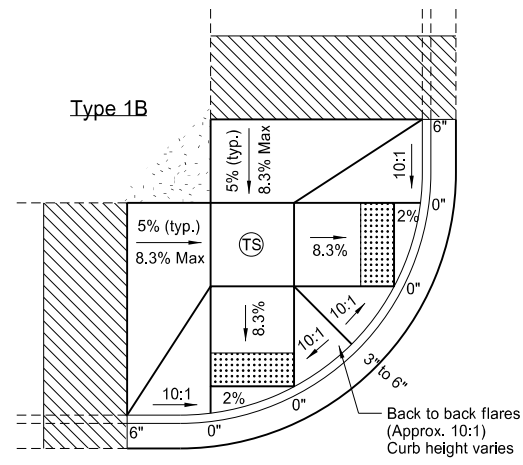
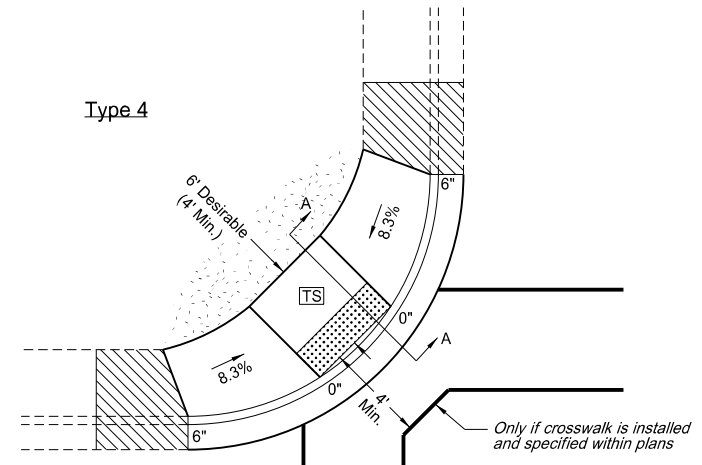
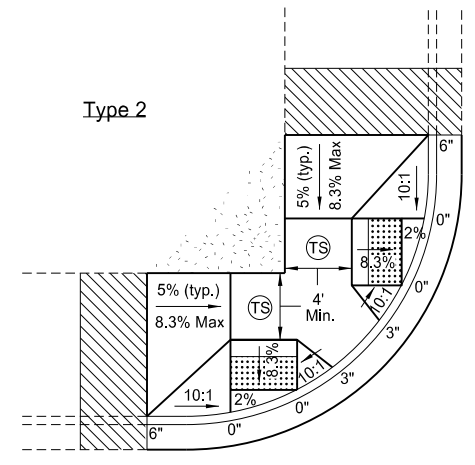
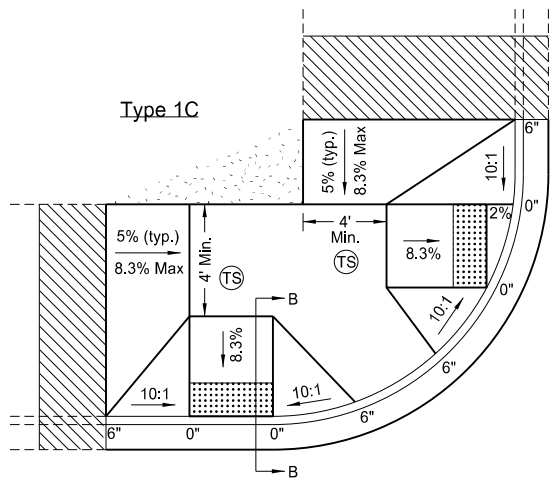
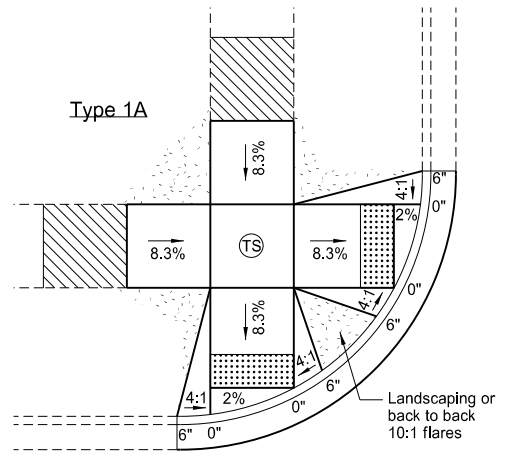
CURB RAMP DETAILS

D-750-3

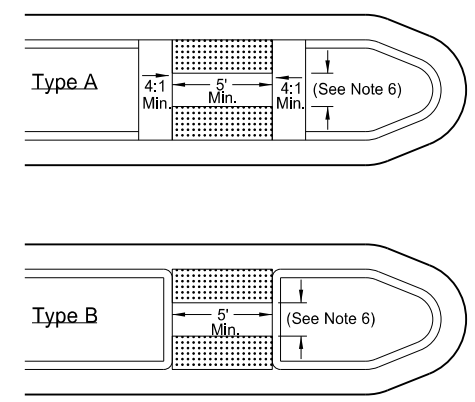
NOTES:

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

← +More Right of Way Less Right of Way →

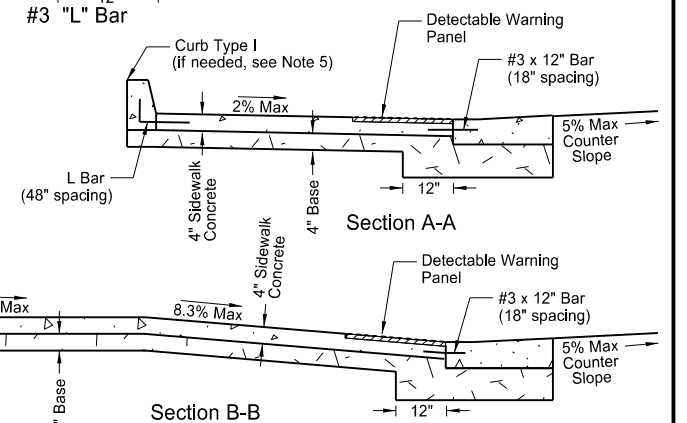


Median Refuge Islands (Cut-Through)

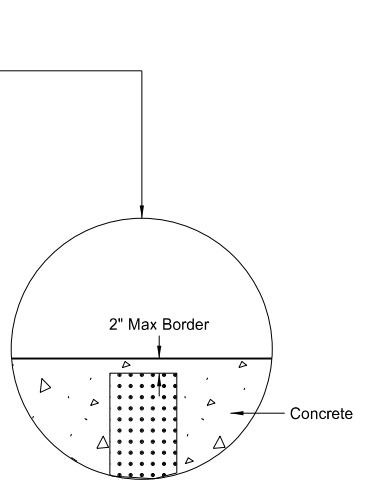
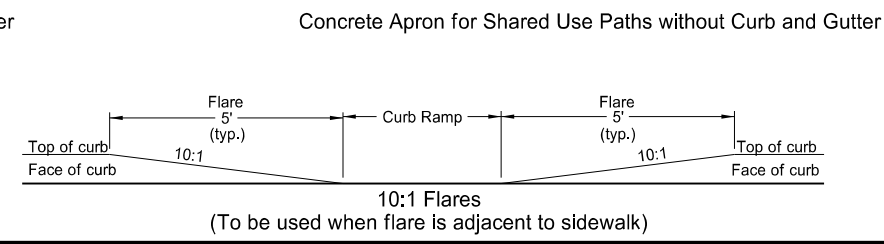
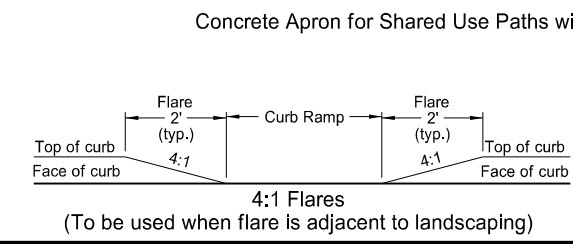
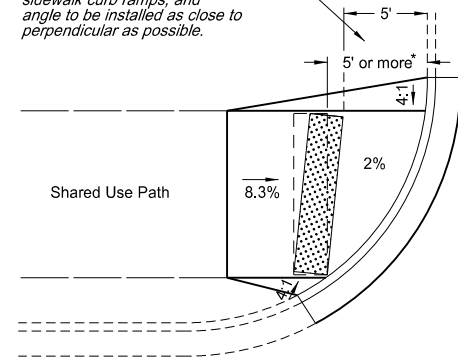
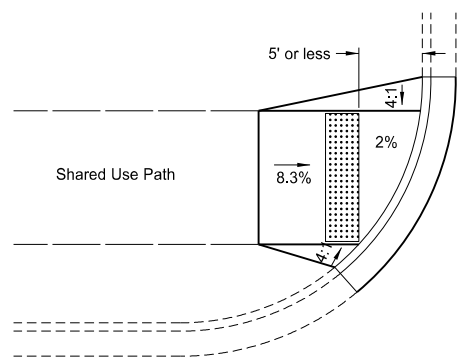


LEGEND:

- : 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.



* Detectable warning panel setback requirement also applies to sidewalk curb ramps, and angle to be installed as close to perpendicular as possible.

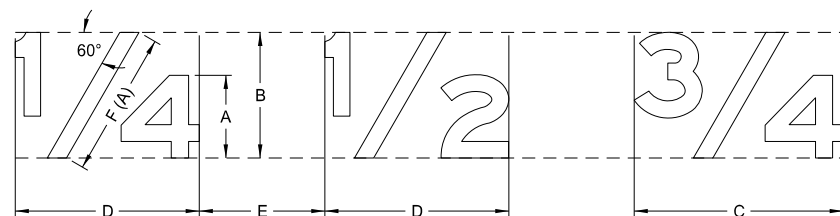


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-26-13	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice.
09-05-18	Revised Notes, Revision for Turning Space, Added Passing Space Requirements, Turned Detectable Warning Panel

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

LETTER AND ARROW DETAILS

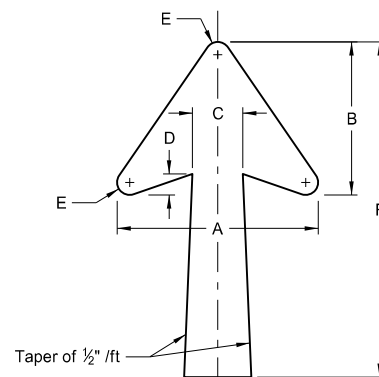
NOTE: Measure rotation angle of arrows counterclockwise from positions shown in details.



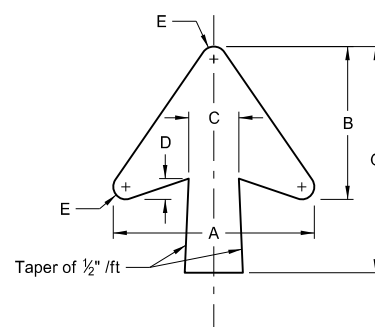
DETERMINE SIZE OF THE FRACTION AS FOLLOWS:

SYMBOL	TITLE	RATIO TO HEIGHT OF CAPITAL OR UPPER CASE
A	Letter height	1.0 of capital or upper case
B	Fraction height	1.5 X A
C	Fraction width	2.5 X A
D	Fraction width	2 X A
E	Space to next character	1 to 1.5 X A
F(A)	Length of diagonal	1.75 X A

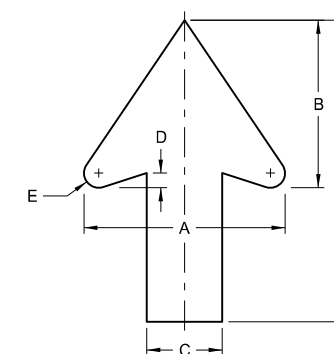
(A) Center diagonal stroke of fraction optically.



TYPE A



TYPE B

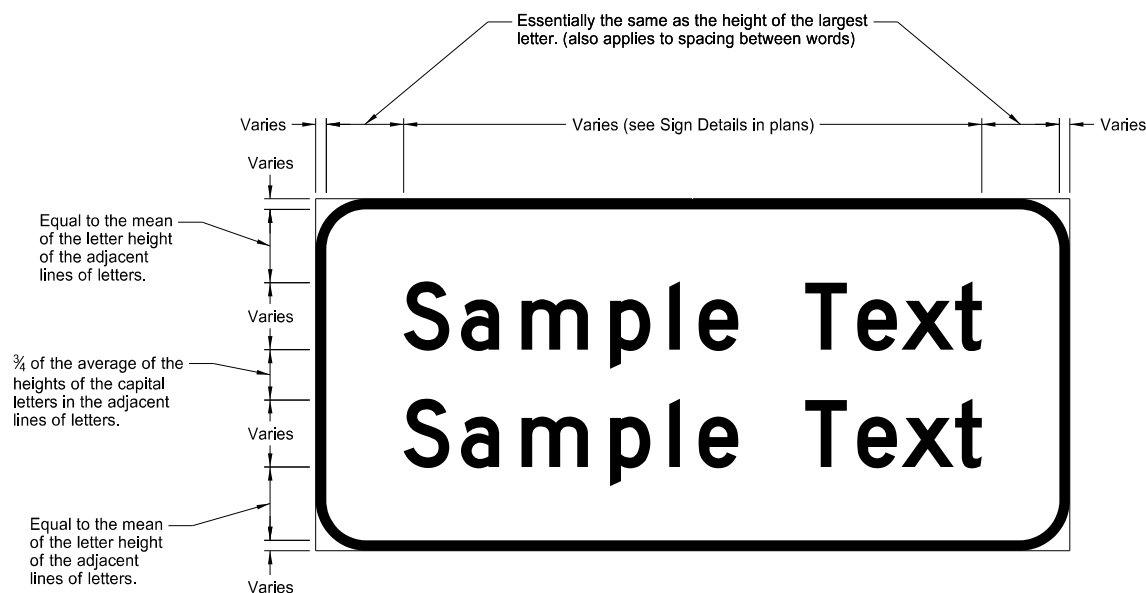


TYPE D

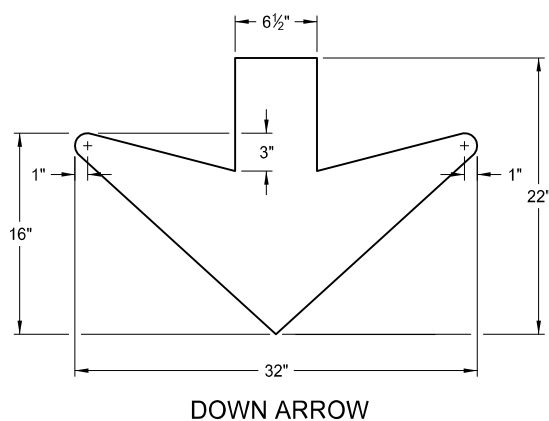
DESIGNATION	LETTER SIZE (Upper Case)	A	B	C	D	E	F	G
ND_6IN	6"	12"	9.125"	3"	1"	0.625"	20"	13.5"
ND_8IN	8"	15.125"	11.563"	3.75"	1.313"	0.813"	25"	17"
ND_10IN	10"	18.25"	14"	4.5"	1.5"	0.75"	30"	20"
ND_12IN	12"							
ND_13IN	13.3"	22.25"	17"	5.375"	1.75"	1"	35"	25"
ND_16IN	16"							
ND_20IN	20"							

NOTE: Arrow size on gore signs is based on the letter size of "EXIT".

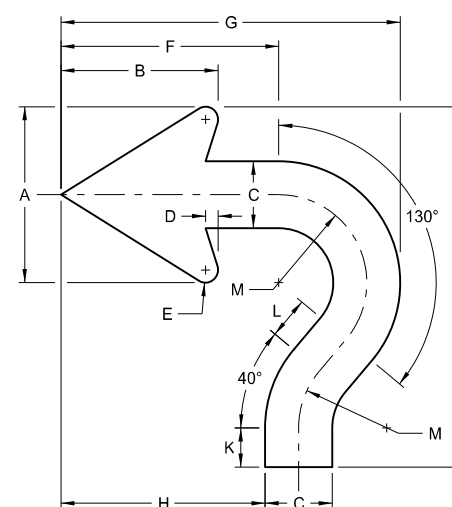
DESIGNATION	LETTER SIZE (Upper Case)	A	B	C	D	E	F
ND_2IN	2"	2"	1.625"	0.75"	0.125"	0.125"	3"
ND_4IN	4"	4"	3.313"	1.5"	0.25"	0.25"	6"
ND_6IN	6"	6"	4.875"	2.25"	0.375"	0.375"	9"
ND_8IN	8"	8"	6.625"	3"	0.5"	0.5"	12"
ND_10IN	10"	10"	8.375"	3.75"	0.75"	0.75"	15"
ND_12IN	12"	12"	10"	4.5"	0.875"	0.875"	18"



TYPICAL SPACING

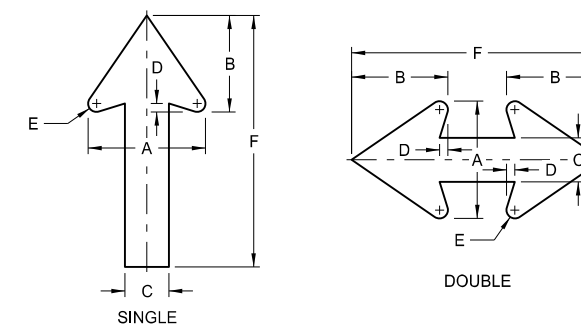


DOWN ARROW



ROUNDOABOUT

DESIGNATION	LETTER SIZE (Upper Case)	A	B	C	D	E	F	G	H	J	K	L	M
ND_6IN	6"	5.25"	4.688"	2"	0.375"	0.375"	6.5"	10.125"	6.094"	10.75"	1.168"	1.25"	2.625"
ND_8IN	8"	7"	5.75"	2.625"	0.5"	0.5"	8.688"	13.5"	8.166"	14.333"	1.557"	1.667"	3.5"



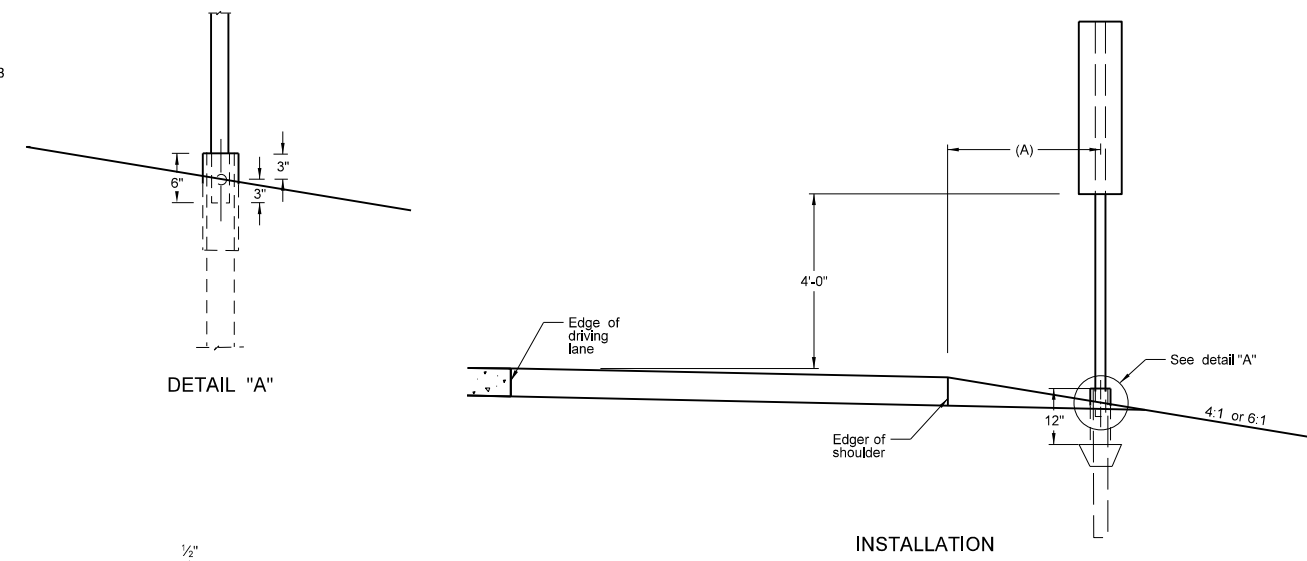
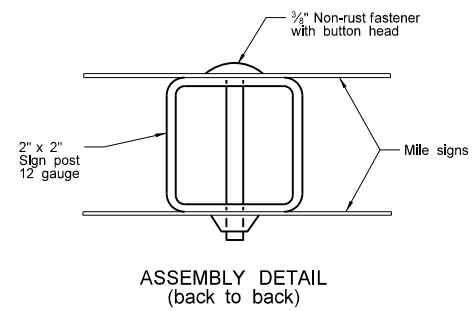
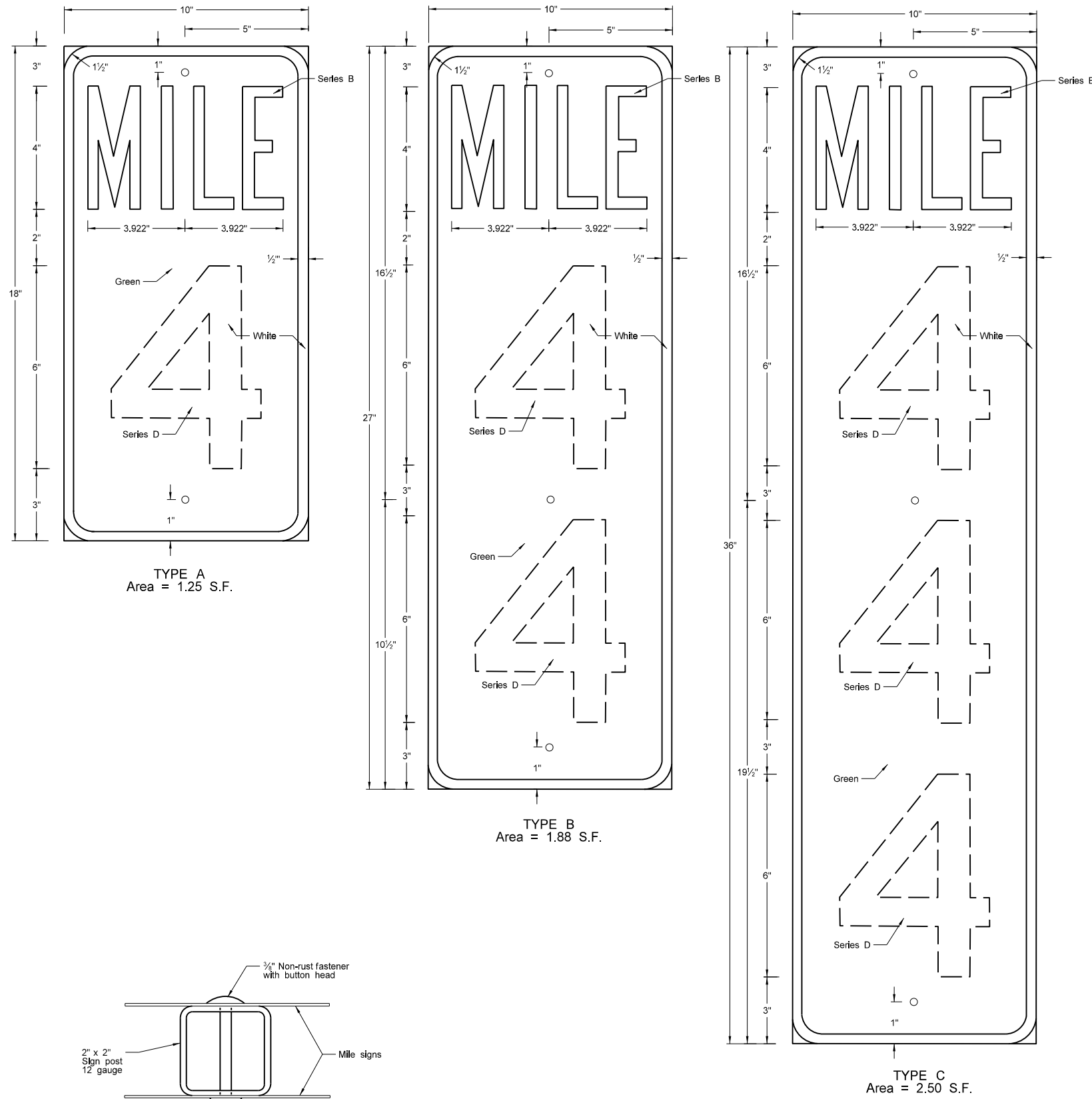
SPECIAL

DESIGNATION	A	B	C	D	E	F	USES
ND_0.75IN	2"	1.625"	0.75"	0.125"	0.125"	7.75"	Parking Signs (Regulatory)
ND_2.625IN	7"	5.75"	2.625"	0.5"	0.5"	15"	Frontage Road Signs

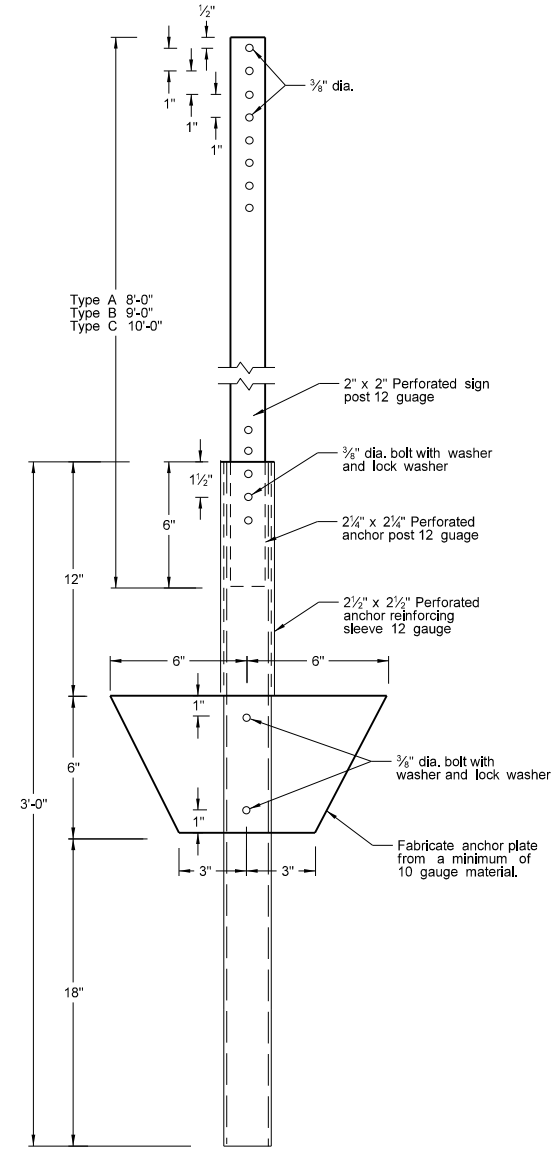
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-3-11	
REVISIONS	
DATE	CHANGE
7-8-14	Revised gore sign and added 4" D & D arrow
5-4-16	Revised Distance & Destination and Typical Spacing details
4-23-18	Revised arrow details
8-30-18	Updated notes to active voice.
8-29-19	New Design Engr PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/29/19 and the original document is stored at the North Dakota Department of Transportation

(CONVENTIONAL USE) REFERENCE MARKERS



(A) 8' Clearance to finished shoulder or in line with existing delineator posts.



- NOTES:**
 Installation: Install posts along right shoulder.
 Sign: Fabricate backing of 0,080 aluminum.
 Fasteners: Attach signs to post with tension pin type fastener or other suitable vandal resistant non-rust fastener.
 Reflective Sheeting: Use Type IV sheeting.
 Numbers: Use screened or applied copy numbers of the series shown.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
7-8-14	Revised post and reflective sheeting notes
8-30-18	Updated to active voice.
8-29-19	New Design Engineer PE Stamp.

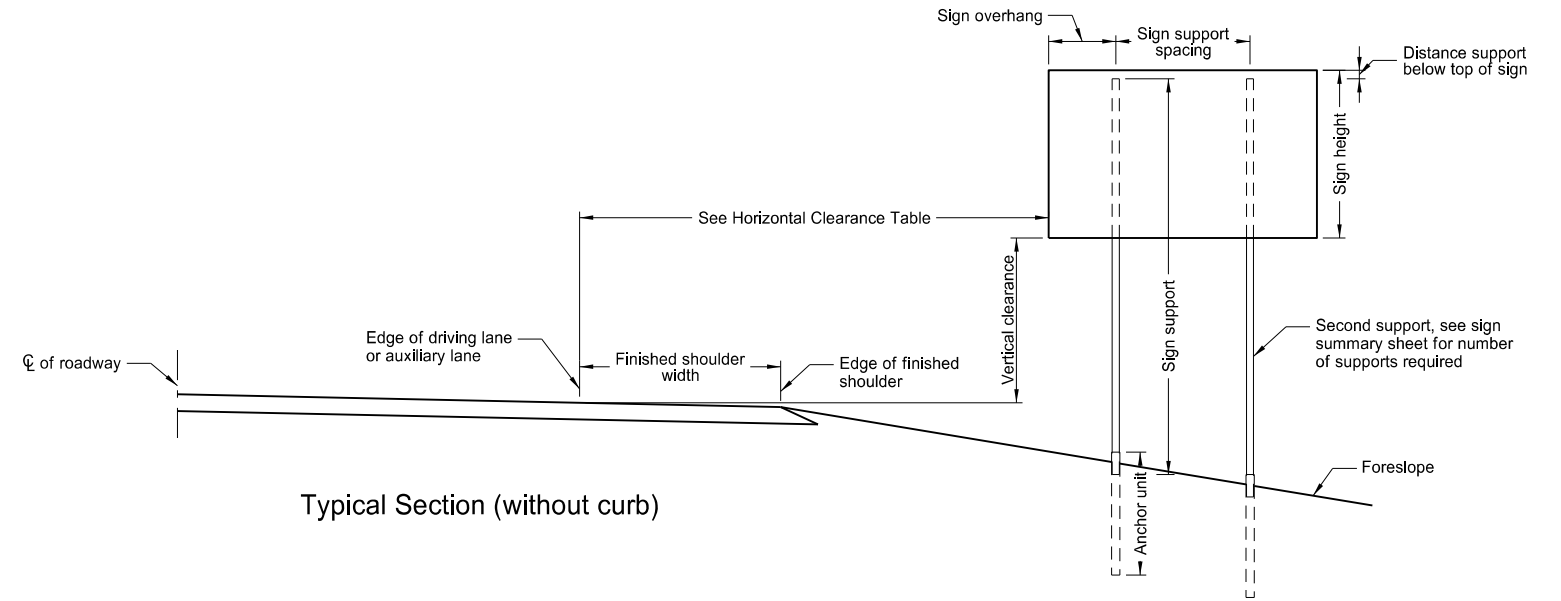
This document was originally issued and sealed by
 Kirk J Hoff,
 Registration Number
 PE-4683,
 on 8/29/19 and the original document is stored at the
 North Dakota Department
 of Transportation

PERFORATED TUBE ASSEMBLY DETAILS

D-754-23

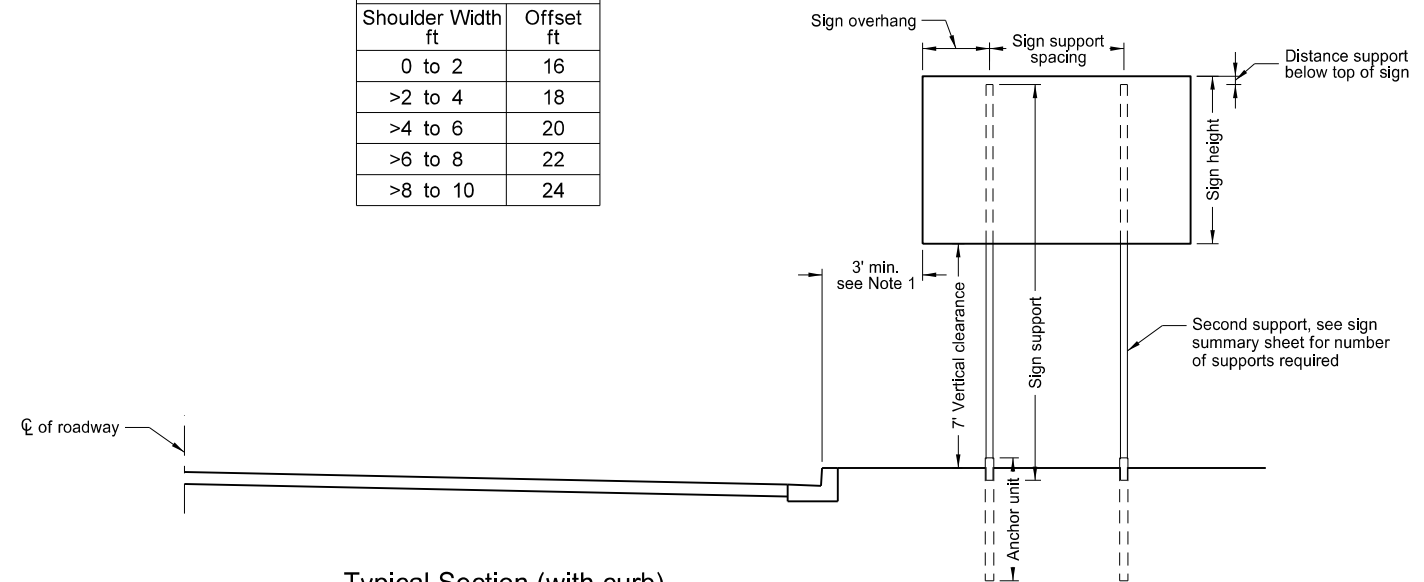
Notes:

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'.

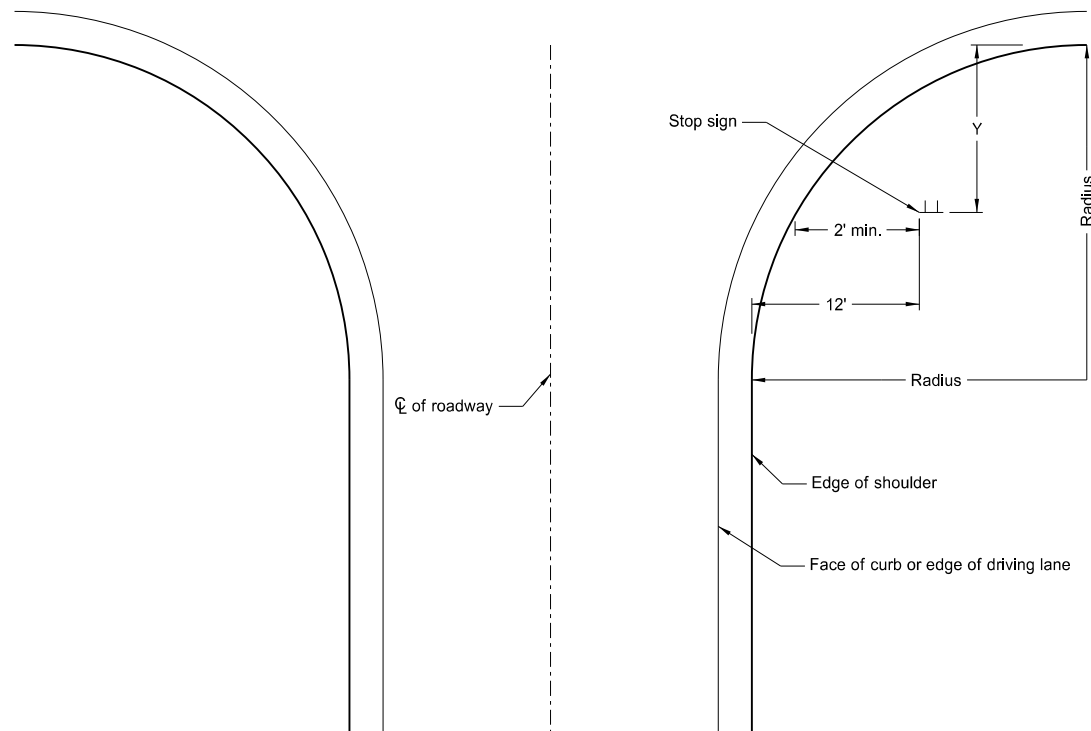


Typical Section (without curb)

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



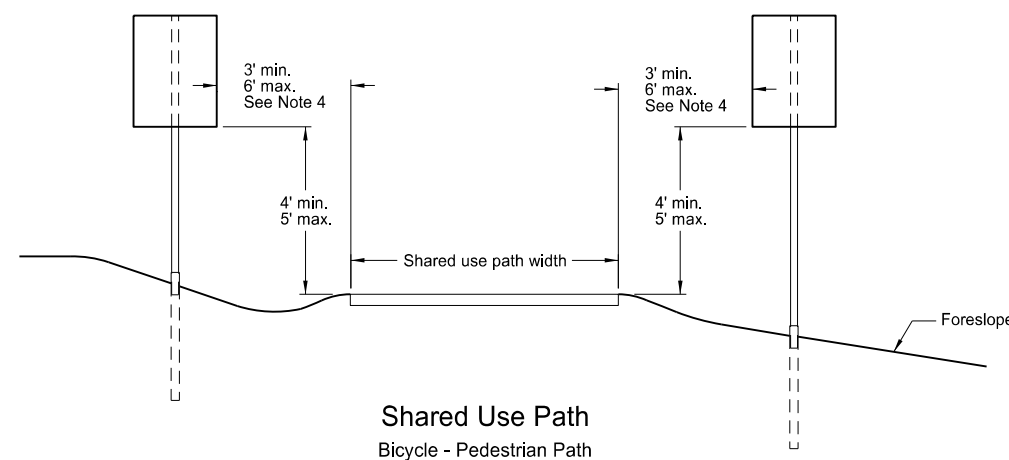
Typical Section (with curb)
Residential or Business District



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



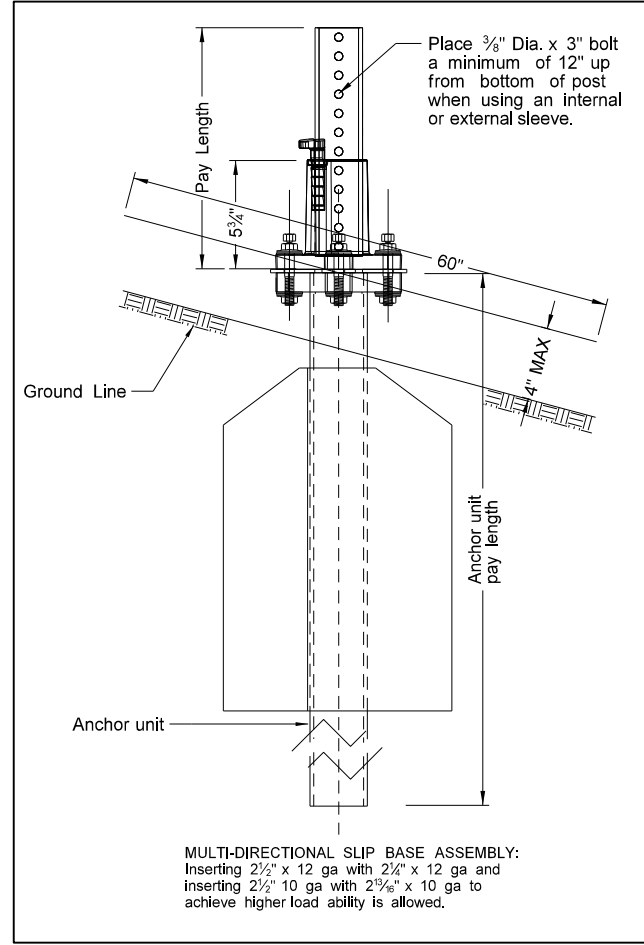
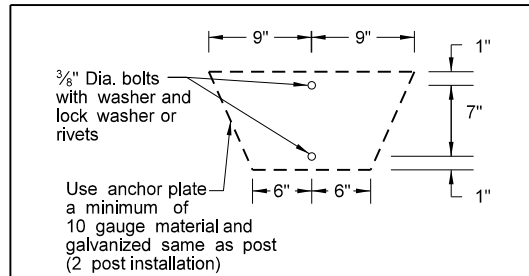
Shared Use Path
Bicycle - Pedestrian Path

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 volcs.
8-29-19	New Design Engineer PE Stamp.

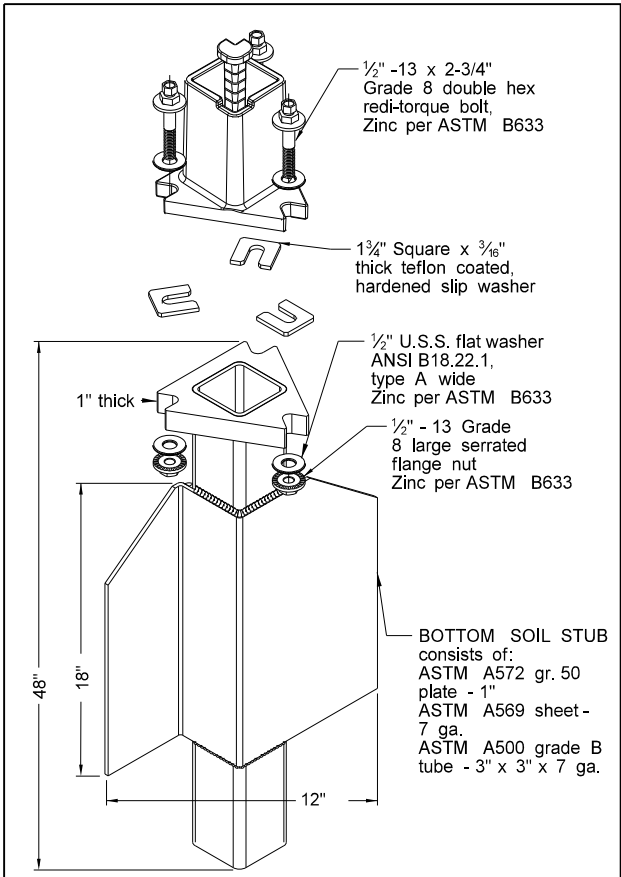
This document was originally issued and sealed by
Kirk J Hoff,
Registration Number
PE- 4683,
on 8/29/19 and the original document is stored at the North Dakota Department of Transportation

Telescoping Perforated Tube							
Number of Posts	Post Size In.	Wall Thickness Gauge	Sleeve Size In.	Wall Thickness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2 1/4	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 1/2	12	2 1/2(D)	12	Yes		7
3 & 4	2 1/2	10	2 3/8	10	Yes		7

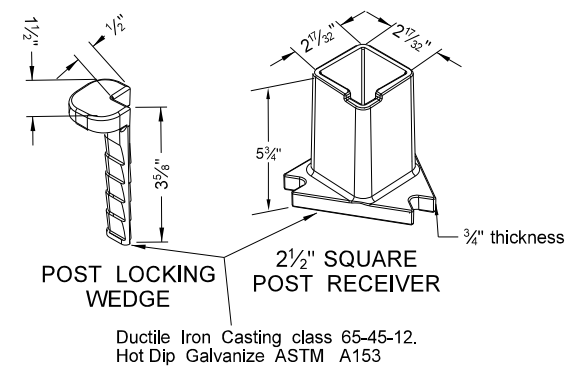
(B) - Provide a shim as specified by the manufacturer when placing 2 1/2", 12 gauge posts in standard soils without breakaway bases. Provide breakaway base when placing the support in weak soils. The Engineer will determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil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



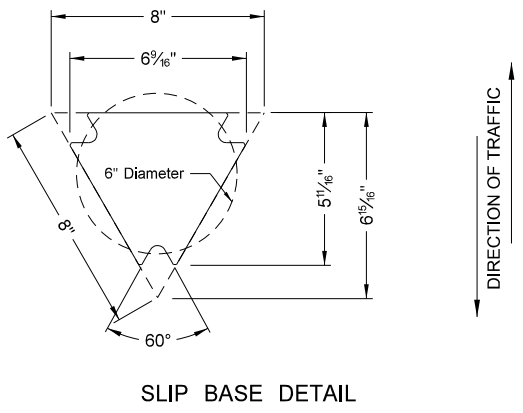
Mounting Details Perforated Tube



SLIP BASE FOR 2 1/2" POST



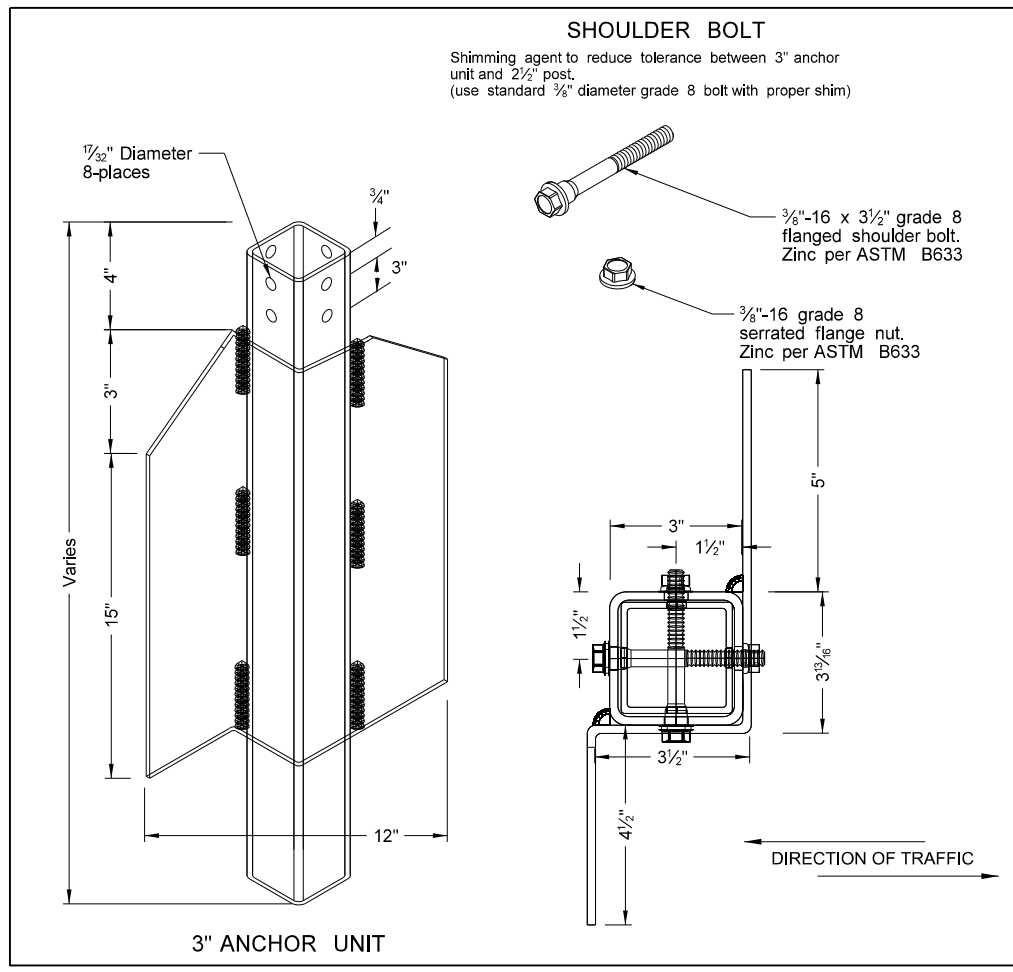
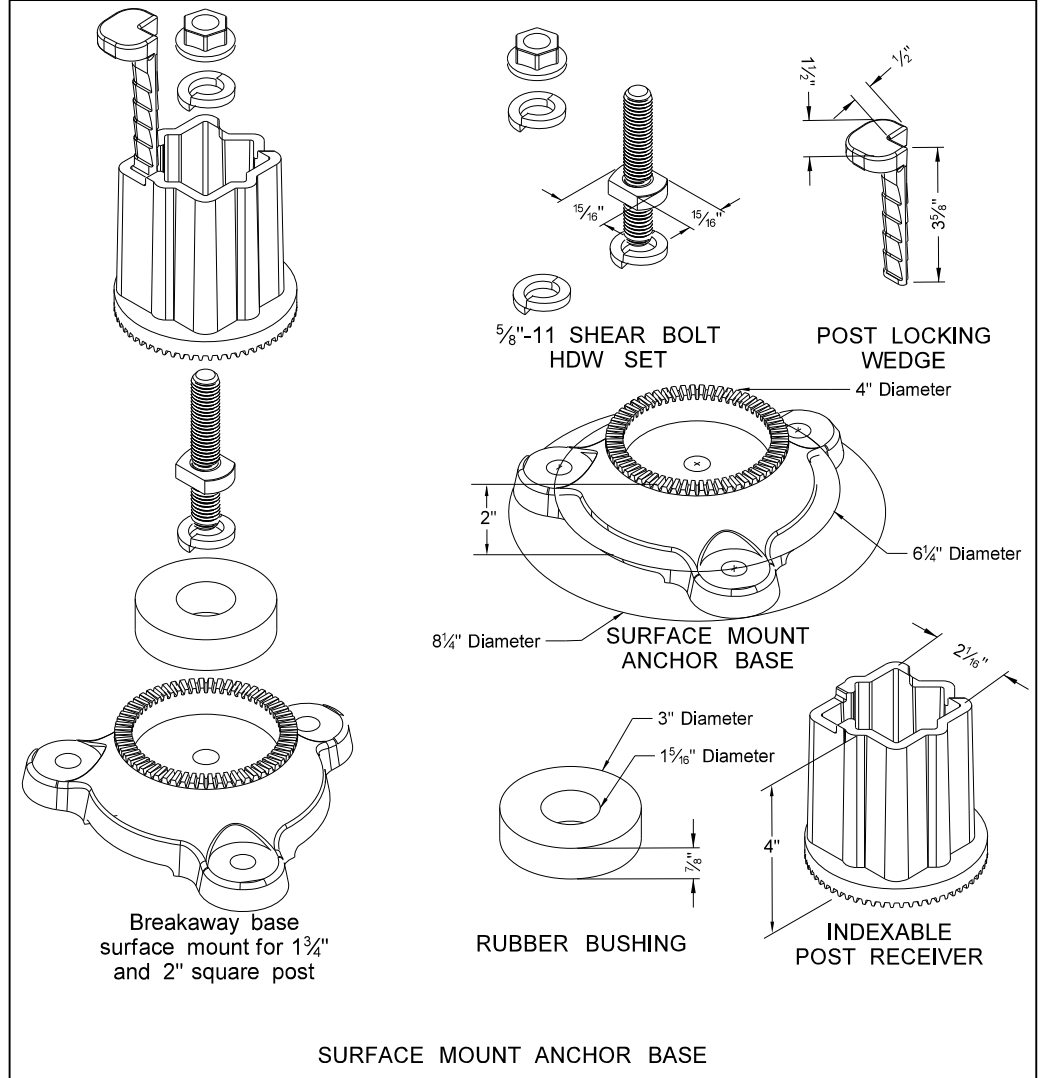
SLIP BASE DETAIL



Properties of Telescoping Perforated Tubes							
Tube Size In.	Wall Thickness in.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In. ⁴	Cross Sect. Area In. ²	Section Modulus In. ³	
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.

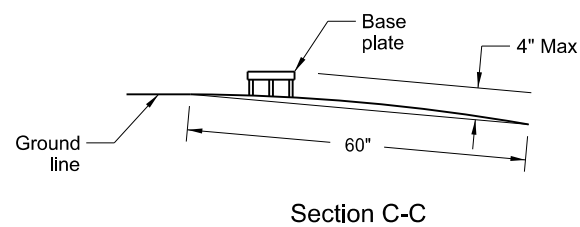
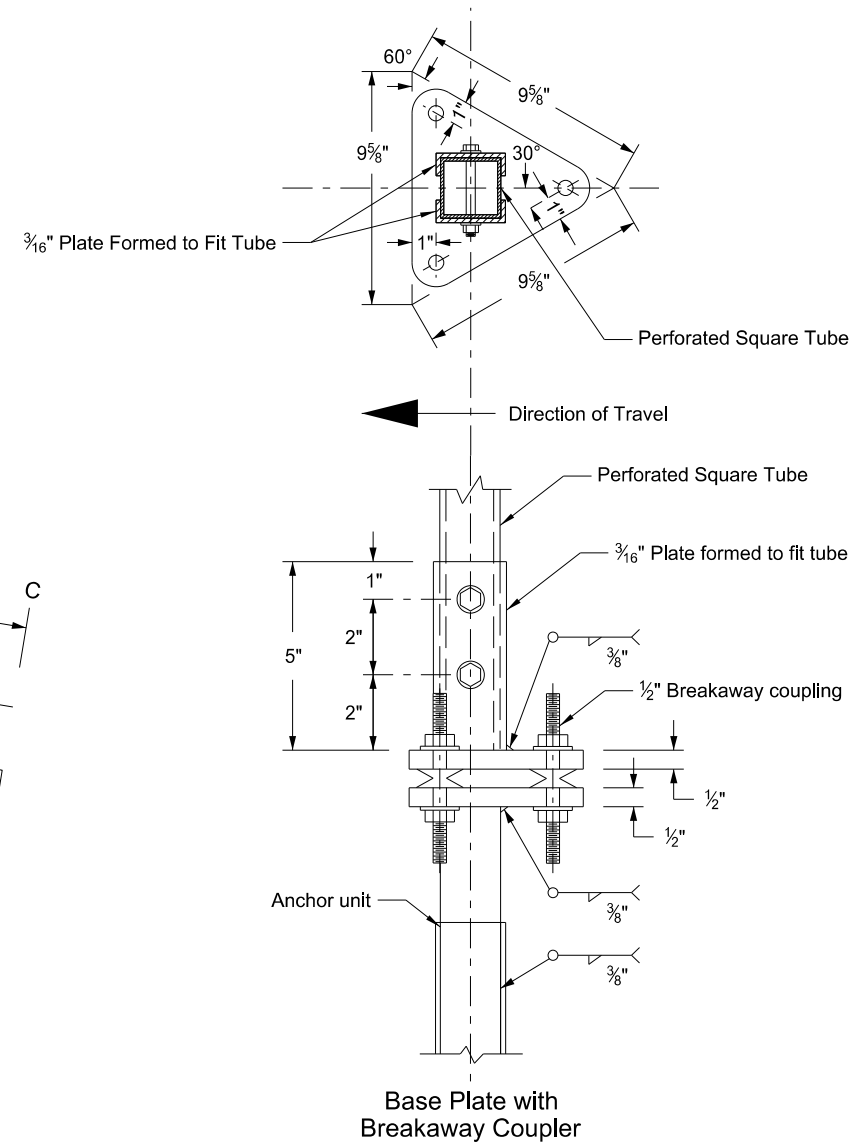
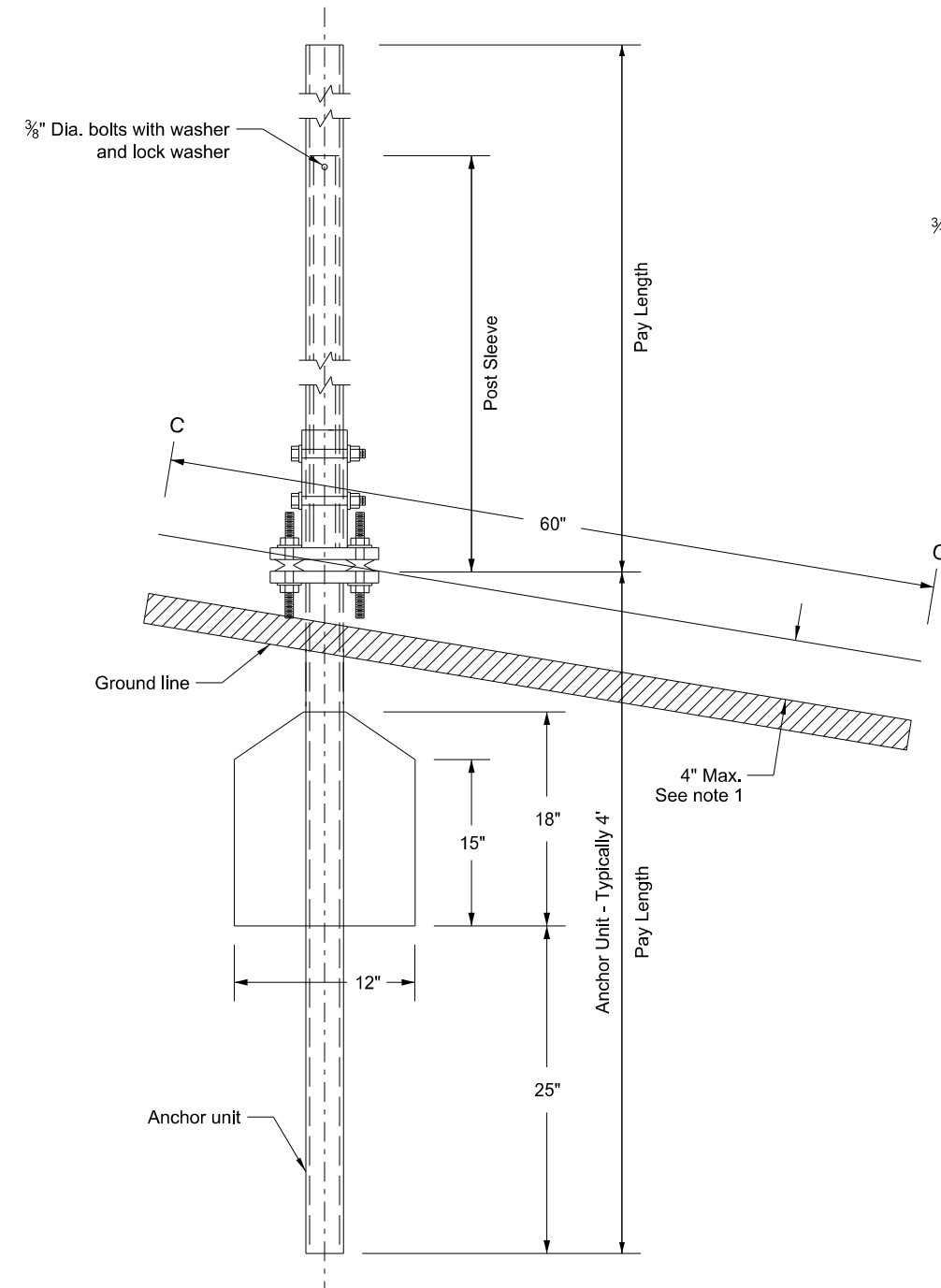
- NOTE:
- 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
 - Provide 7 gauge HRPO commercial quality ASTM A569 and 3" x 3" x 7" gauge ASTM A500 grade B anchor material with 43.9 KSI yield strength and 59.3 KSI 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.



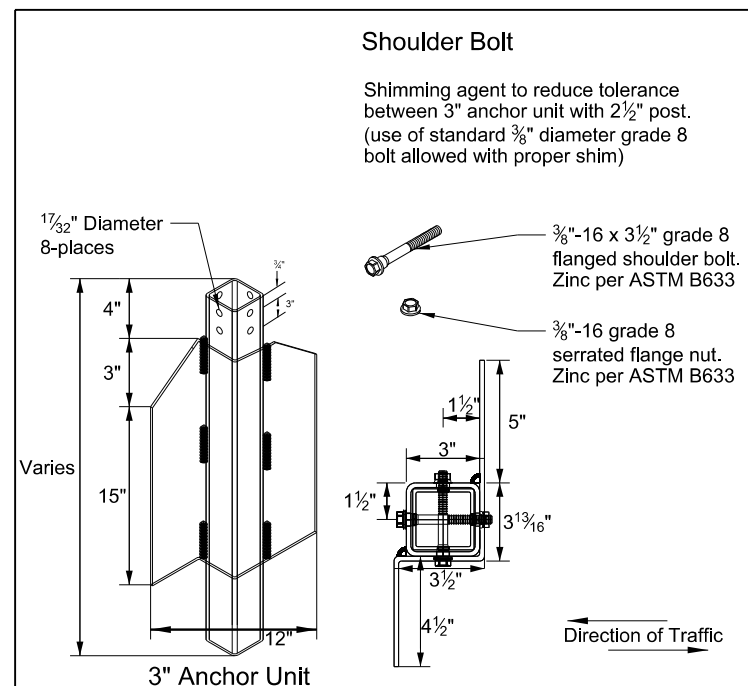
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice & corrected max height of base.
8-29-19	New Design Engineer PE Stamp.

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Breakaway Coupler System for Perforated Tubes



Max protection of the stub post is 4" above a 60" chord aligned radially to the center line of the highway and connecting any point, within the length of the chord, on the ground surface on one side of the support to a point in the ground surface on the other side.



Notes:

1. 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.
2. Use anchor unit of the same size and specification as the post.
3. Provide a minimum 8' distance between the first and fourth post on four post signs.
4. Use the breakaway base system on standard D-754-24 or the breakaway coupling system manufactured from material meeting the requirements of ASTM A325 fasteners with the special requirements specified by DENT BREAKAWAY IND., INC. which meets the test requirements of NCHRP Report 350.

Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thickness Gauge	Sleeve Size In.	Wall Thickness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2 1/4	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	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	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	12	Yes		7
3 & 4	2 1/2	10	2 3/16	10	Yes		7

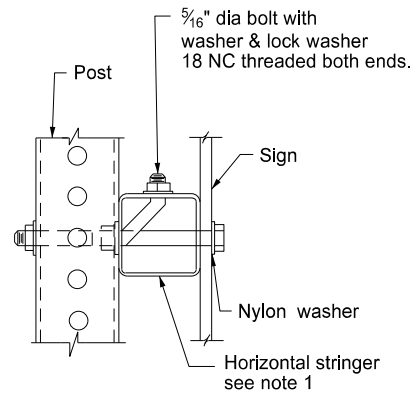
(B) - 2 1/2" 12 gauge posts do not need breakaway bases unless support is placed in boggy, wet, or loose soil areas.

(C) - 3" anchor unit

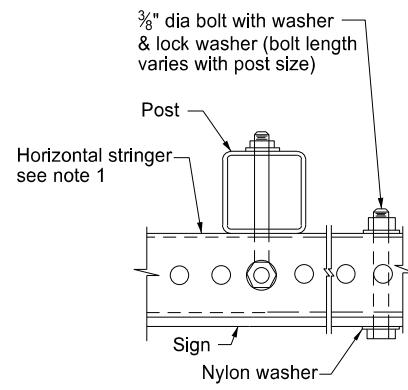
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-2013	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engr PE Stamp.

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Mounting Details Perforated Tube

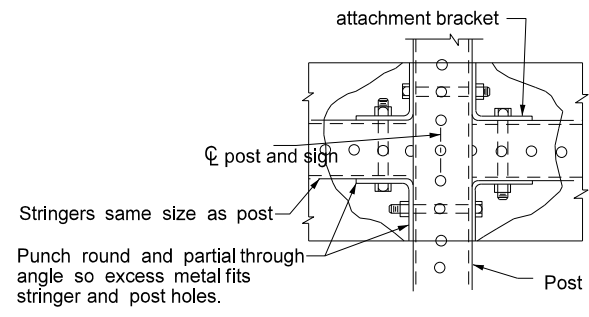


Side View



Top View

STRINGER MOUNTING
(WITH STRINGER IN FRONT OF POST)

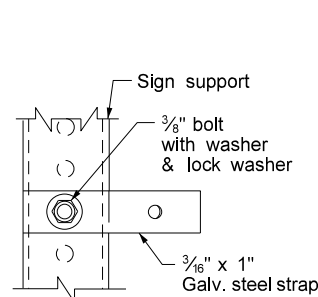


Punch round and partial through angle so excess metal fits stringer and post holes.

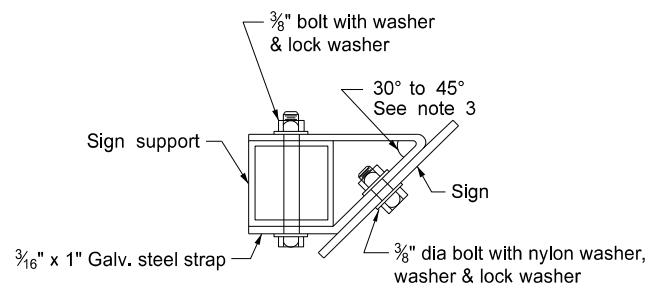
STREET NAME SIGNS AND ONE WAY SIGNS
SINGLE POST ASSEMBLY
ONE STRINGER OR BACK TO BACK MOUNTING

Note:

- Horizontal stringers - Use perforated tubes or 1 3/4" x 3/16" thick, 1.08 lbs./ft aluminum or 3.16 lbs./ft steel z bar stringers.
- Use minimum outside diameter 1 5/16" ± 1/16" and 10 gauge thick metal washers on sign face.
- 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.
- 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.
- 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.

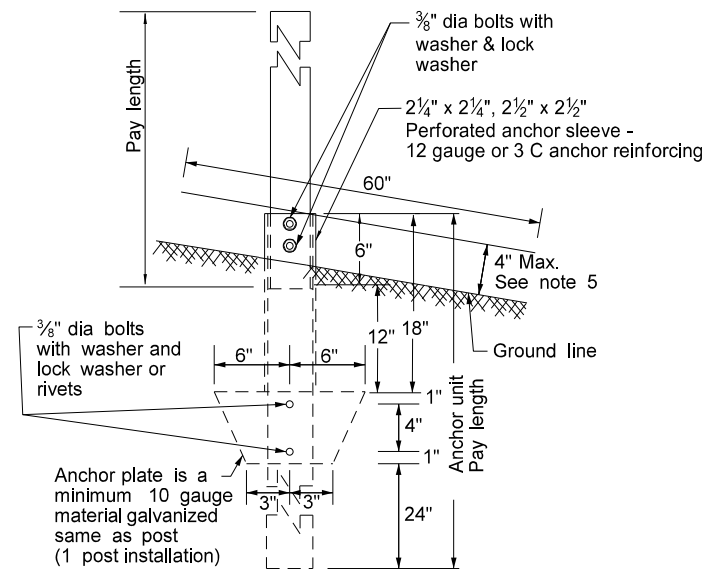


Side View



Top View

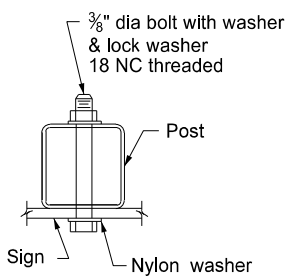
STRAP DETAIL



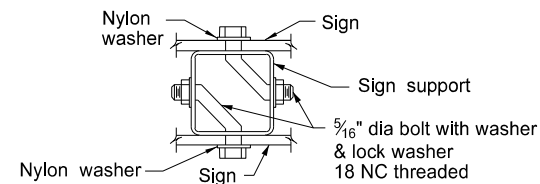
ANCHOR UNIT AND POST ASSEMBLY

Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thickness Gauge	Sleeve Size In.	Wall Thickness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2 1/4	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) - When placing 2 1/2", 12 gauge posts in standard soils without breakaway bases, provide a shim as specified by the manufacturer. Provide breakaway base when placing the support in weak soils. Engineer will determine if 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.

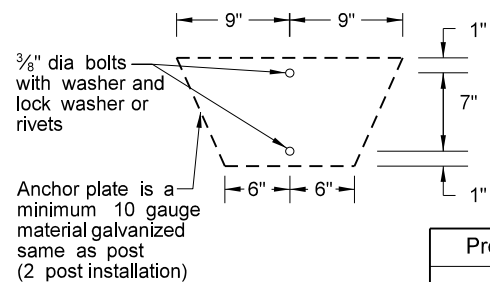


BOLT MOUNTING



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. ⁴	Cross Sect. area In. ²	Section Modulus In. ³
1 1/2 x 1 1/2	0.105	12	1.702	0.129	0.380	0.172
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2 1/2 x 2 1/2	0.135	10	4.006	0.979	1.010	0.783

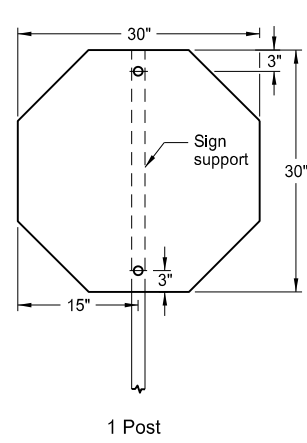
The 2 3/16" size 10 gauge is shown as 2.19" size on the plans.
The 2 1/2" size is shown as 2.51" size on the plans.

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.

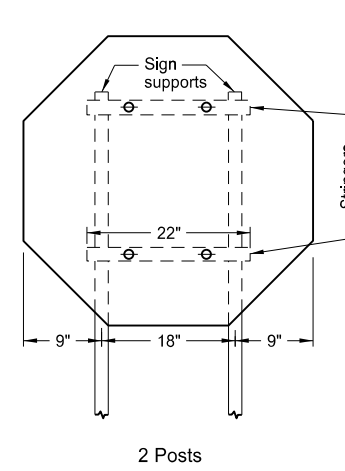
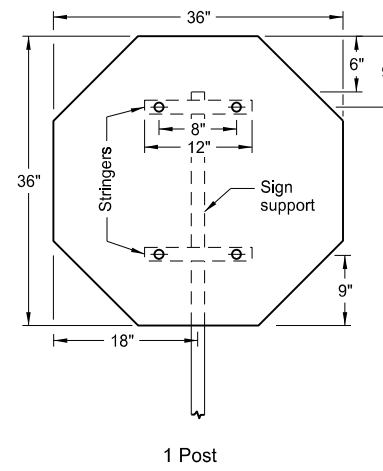
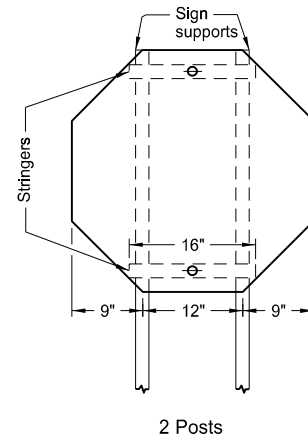
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Registration Number
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SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS

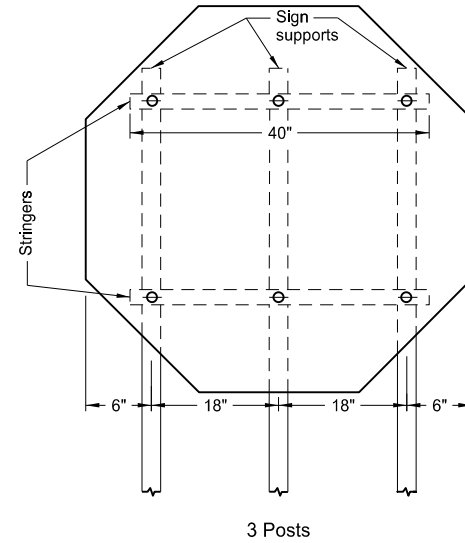
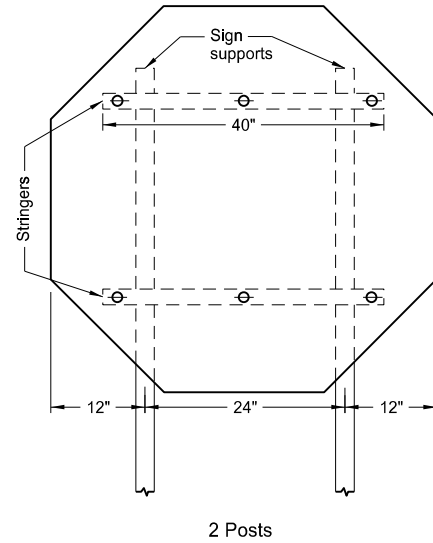
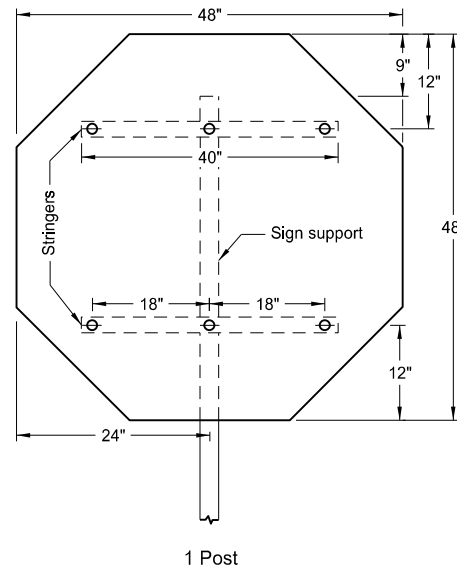
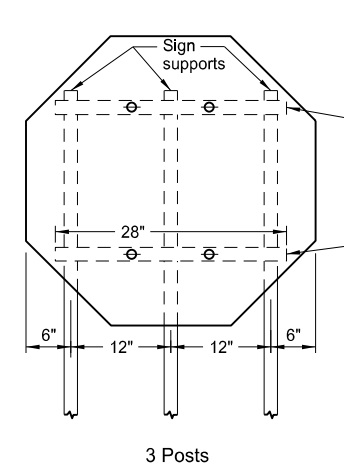
- Notes:
1. Use 0.100 inch minimum thickness sign backing material.
 2. Use 1½" x 1½" perforated square tube stringers.
 3. Punch holes round for ⅜" bolt.



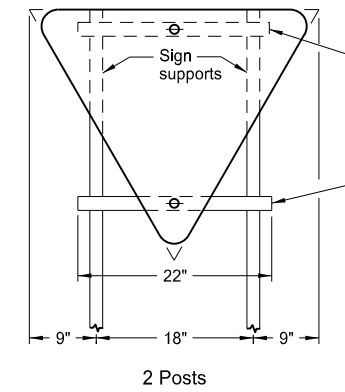
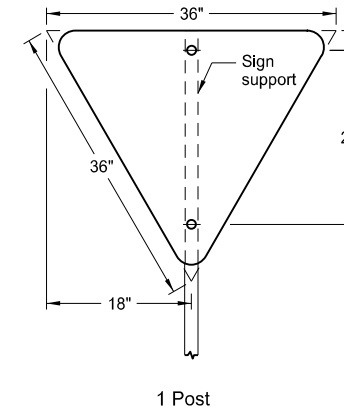
Assembly No. 1



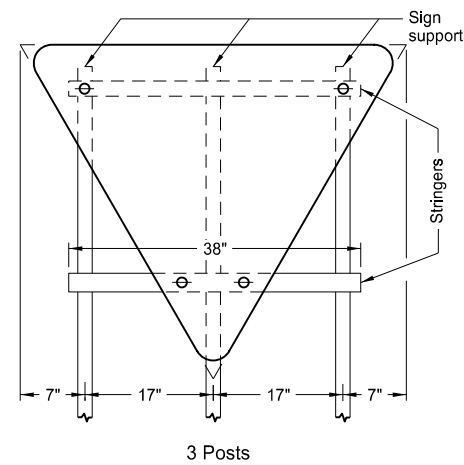
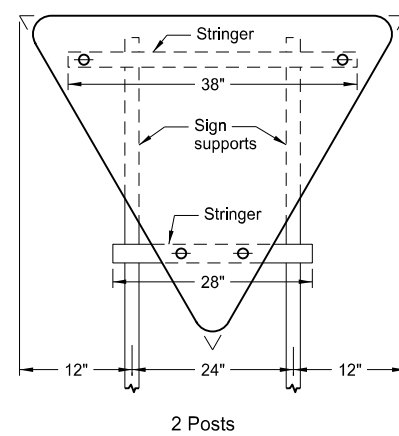
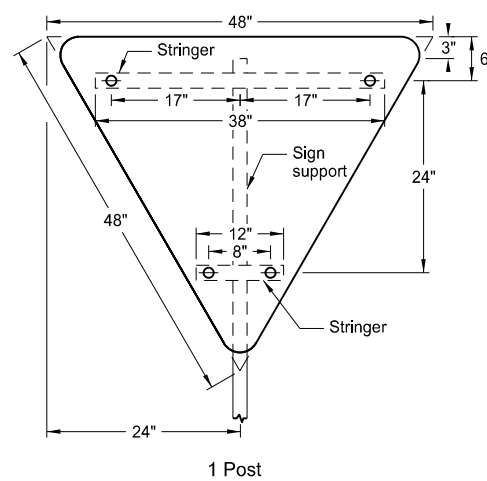
Assembly No. 2



Assembly No. 3



Assembly No. 4

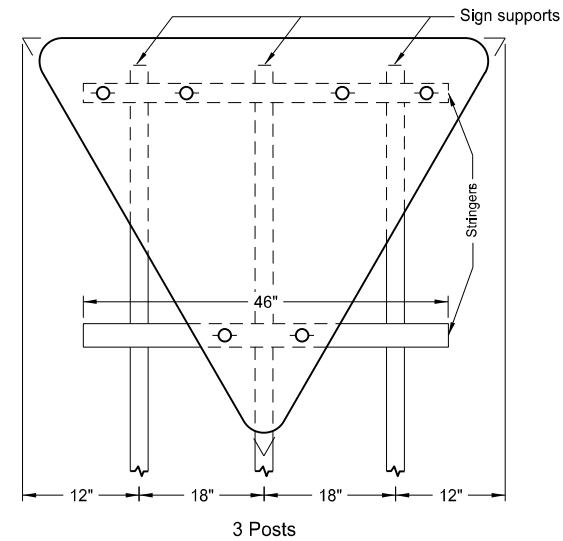
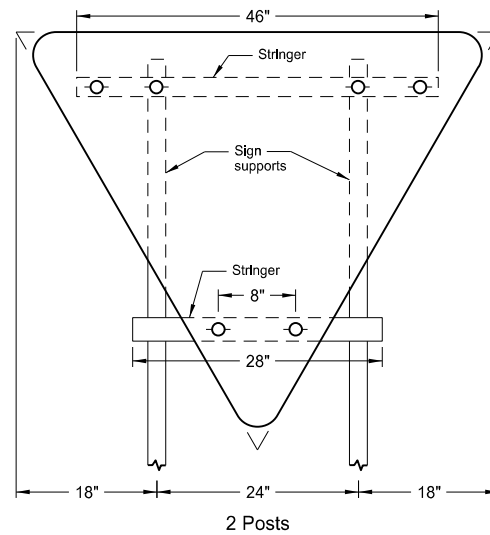
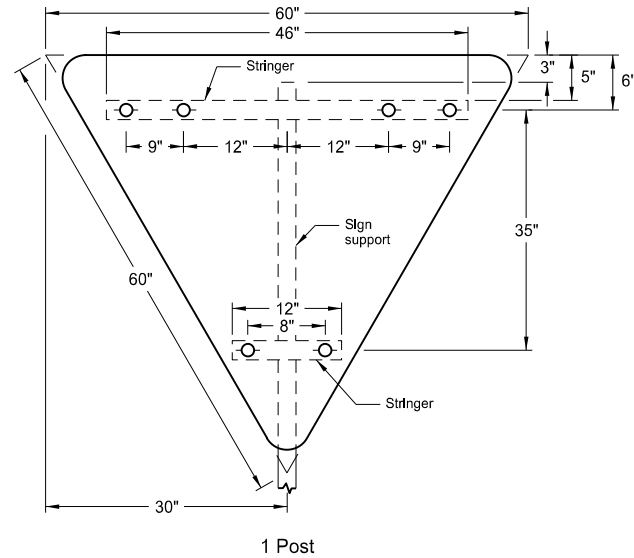


Assembly No. 5

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.

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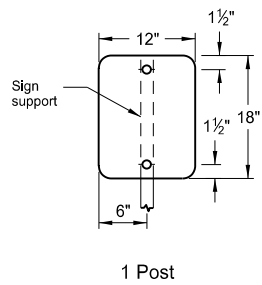
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS



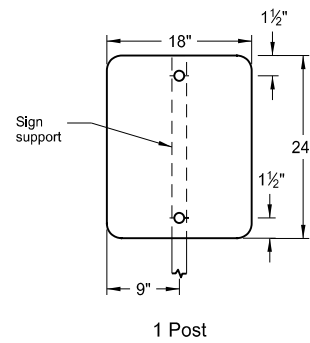
Assembly No. 6

Notes:

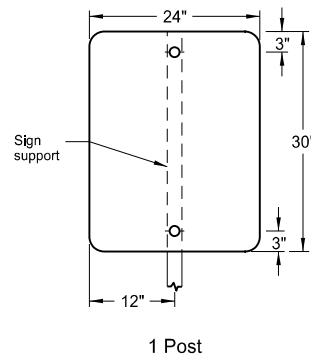
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.



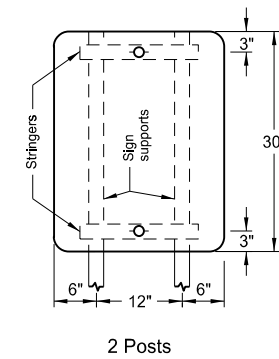
Assembly No. 7



Assembly No. 8

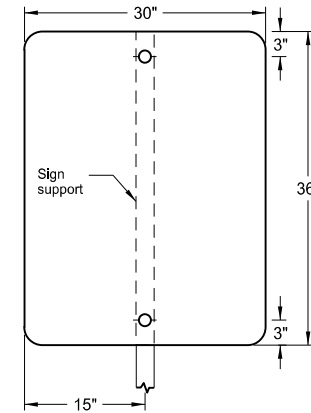


1 Post

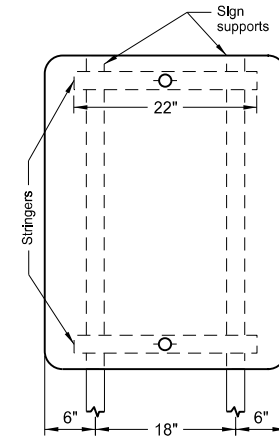


2 Posts

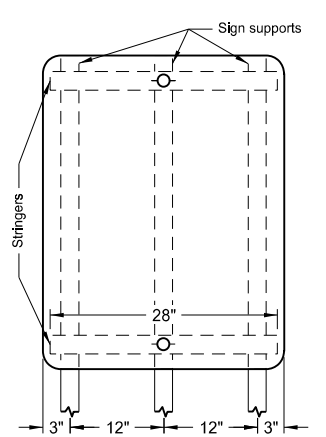
Assembly No. 9



1 Post

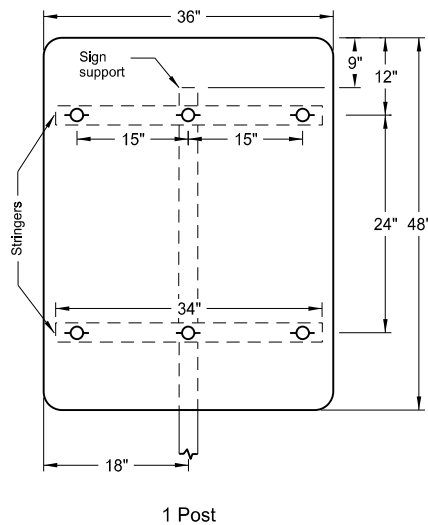


2 Posts

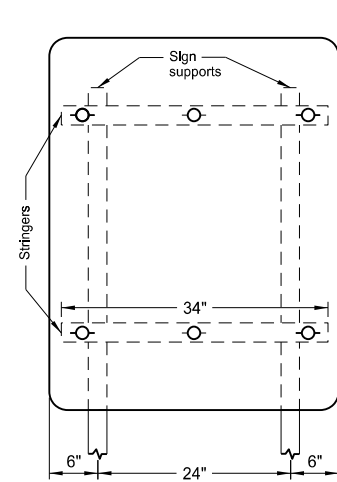


3 Posts

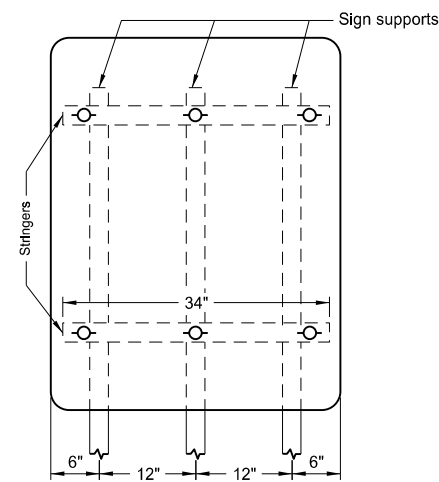
Assembly No. 10



1 Post



2 Posts



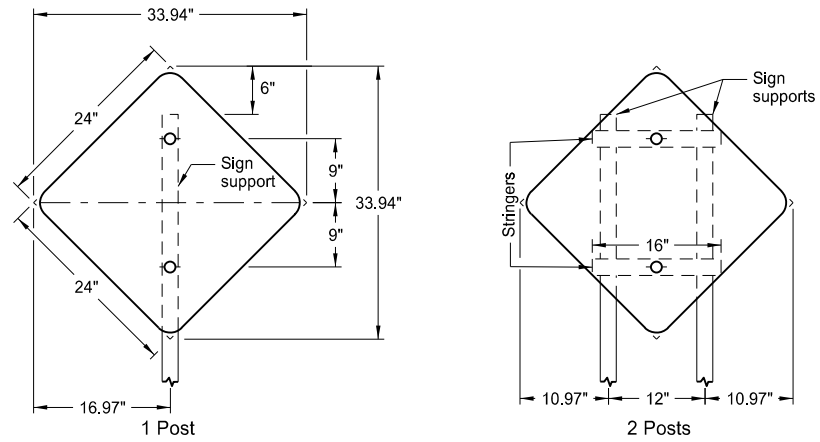
3 Posts

Assembly No. 11

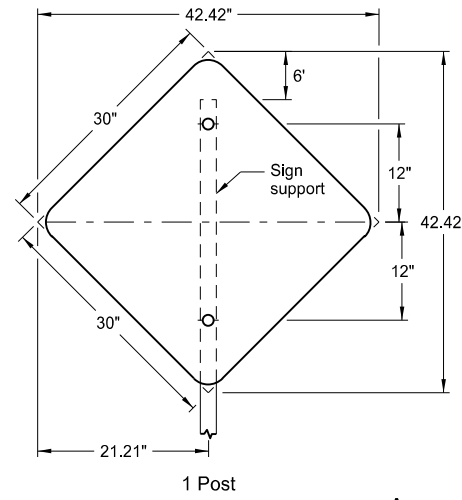
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.

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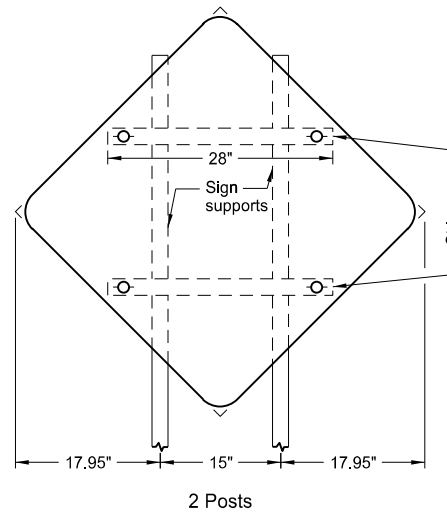
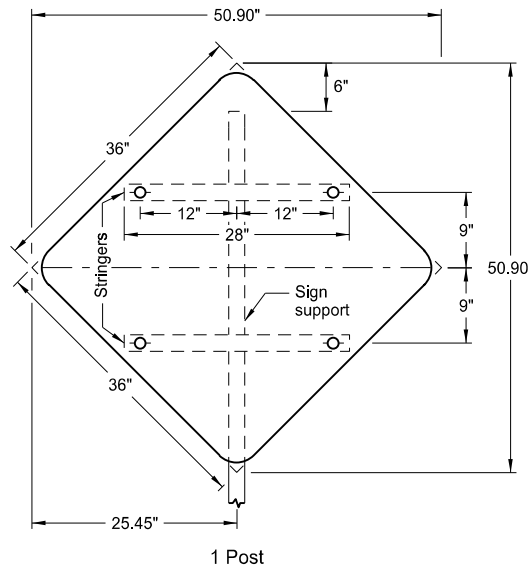
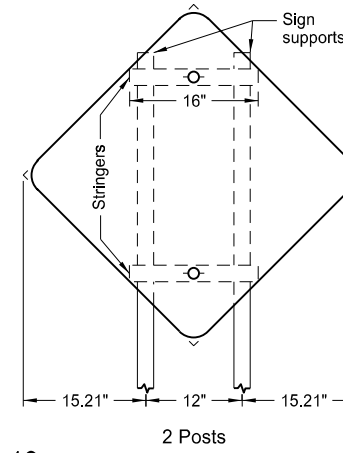
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS



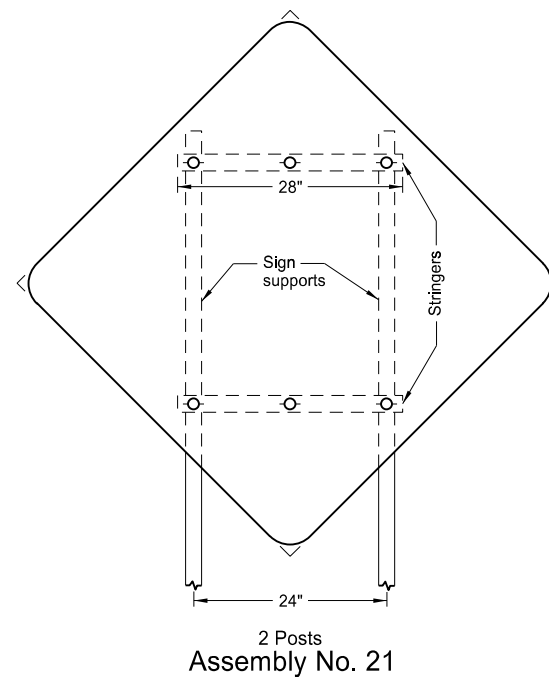
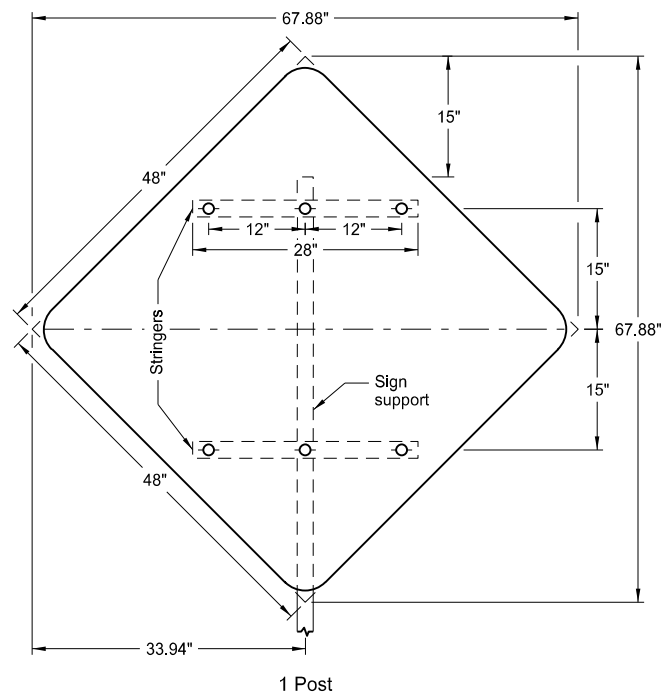
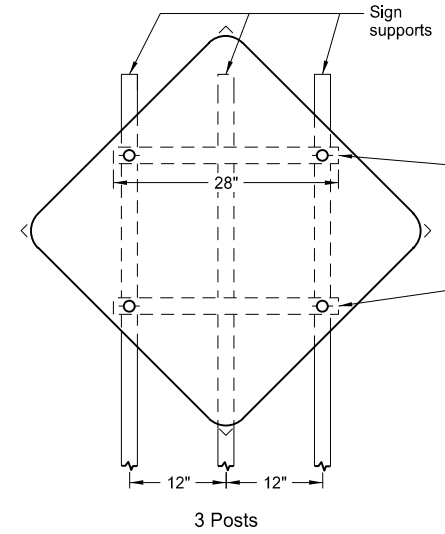
Assembly No. 18



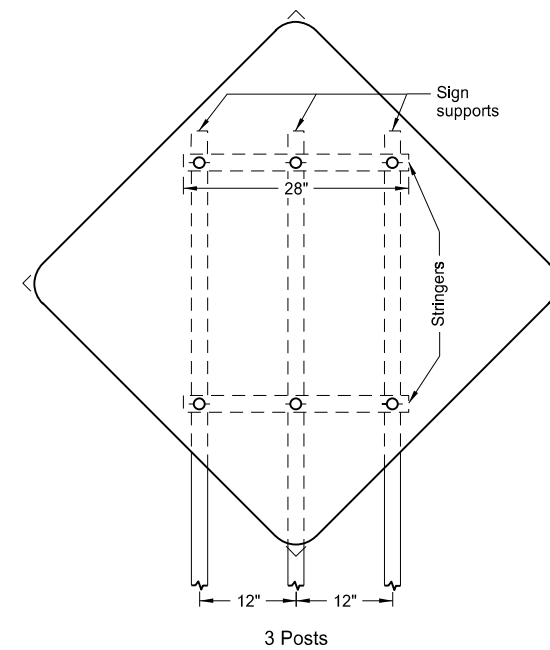
Assembly No. 19



Assembly No. 20



Assembly No. 21



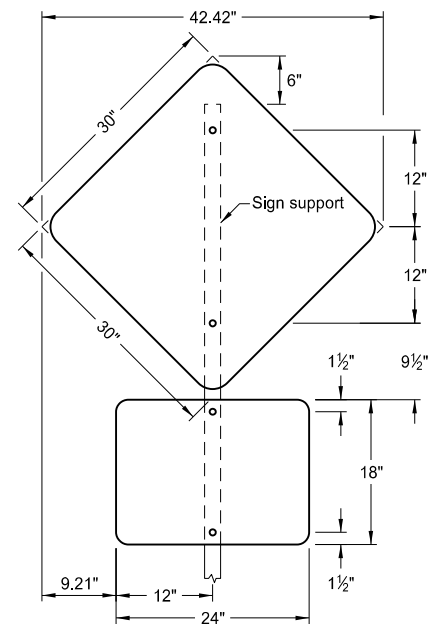
Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

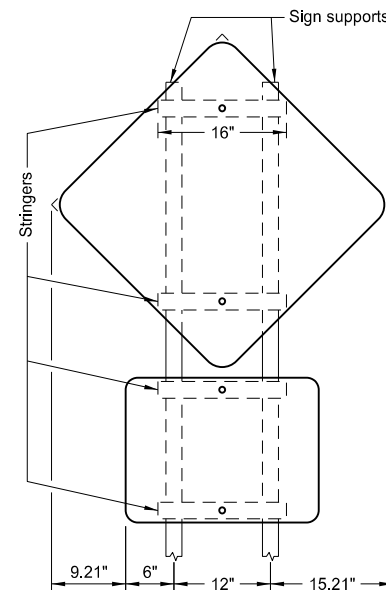
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.

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Registration Number
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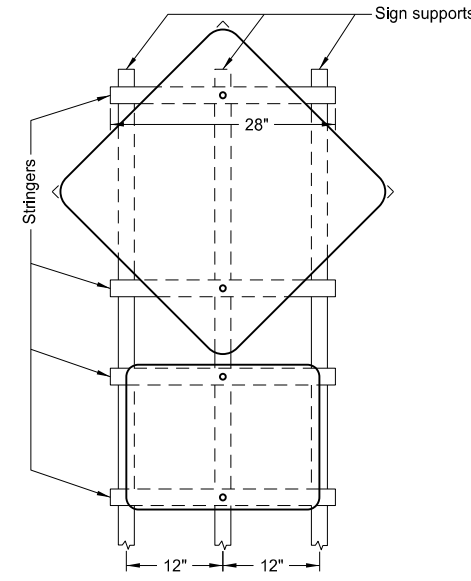
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS
REGULATORY, WARNING AND GUIDE SIGNS



1 Post

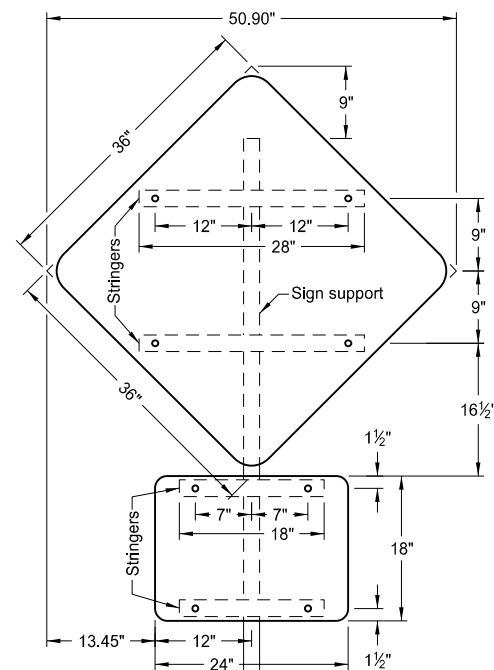


2 Posts

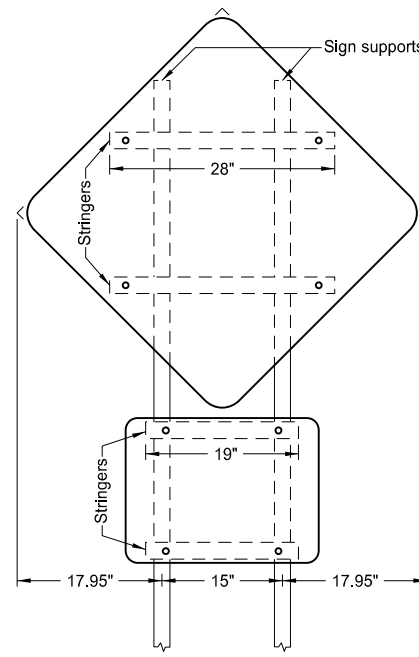


3 Posts

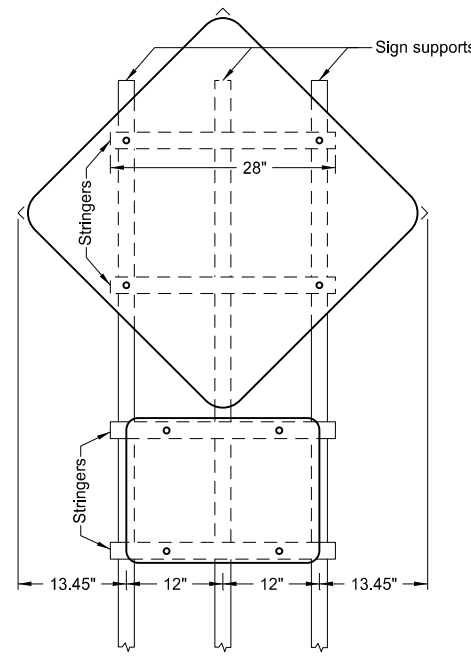
ASSEMBLY NO. 56



1 Post



2 Posts



3 Posts

ASSEMBLY NO. 57

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1 1/2"x1 1/2" perforated square tube stringers.
3. Punch holes round for 3/8" bolt.

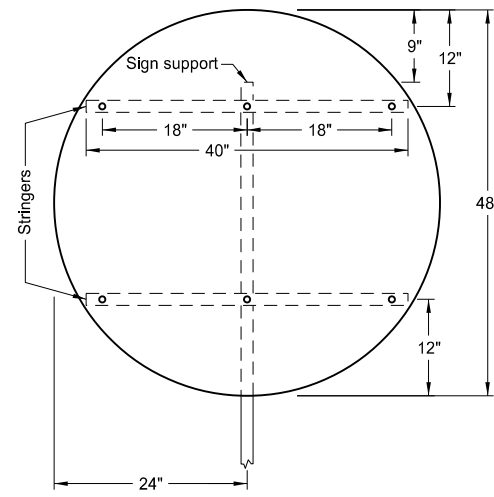
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated to active voice & added Assembly dimensions.
8-30-19	New Design Engineer PE Stamp.

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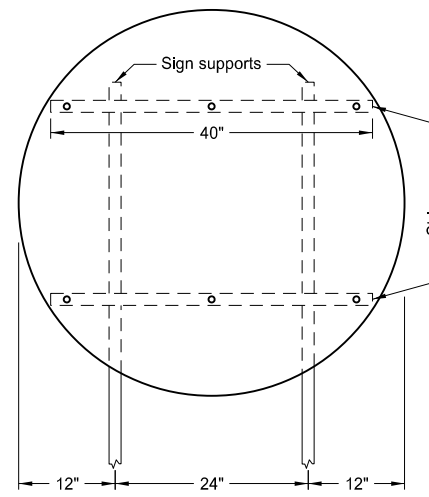
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS
REGULATORY, WARNING AND GUIDE SIGNS

Notes:

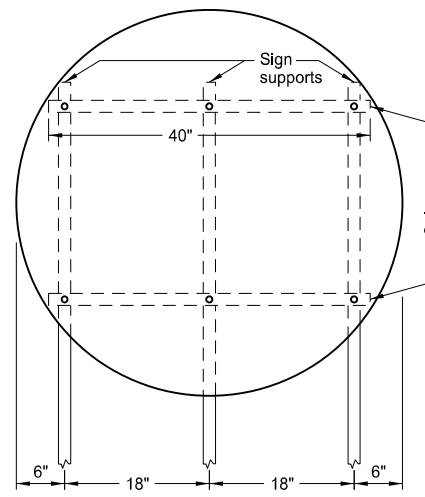
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.



1 Post

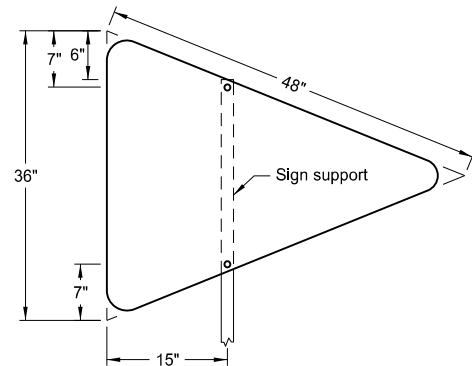


2 Posts

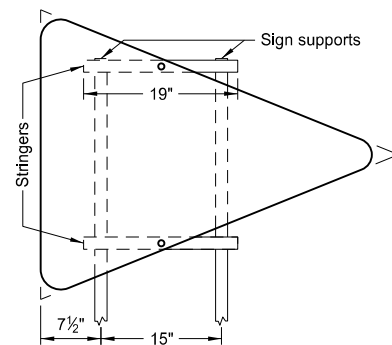


3 Posts

ASSEMBLY NO. 64

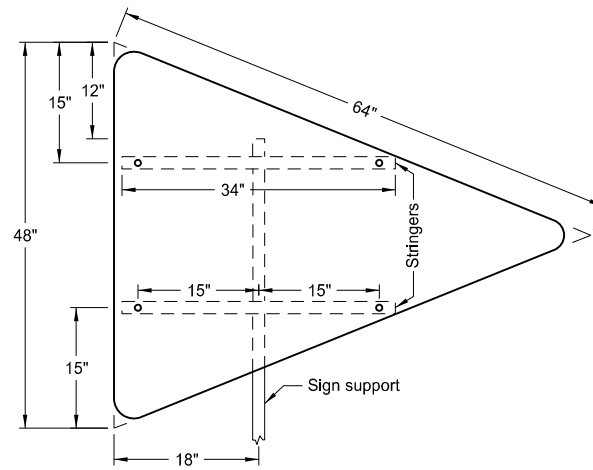


1 Post

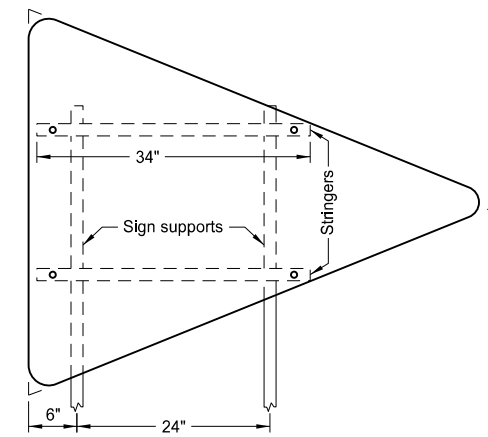


2 Posts

ASSEMBLY NO. 65

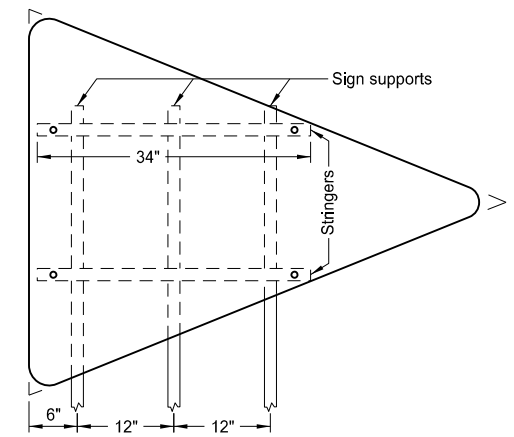


1 Post

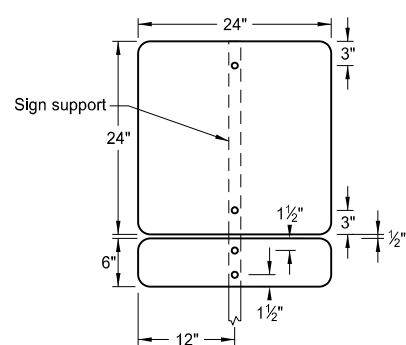


2 Posts

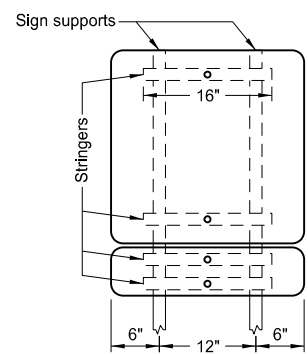
ASSEMBLY NO. 66



3 Posts



1 Post



2 Posts

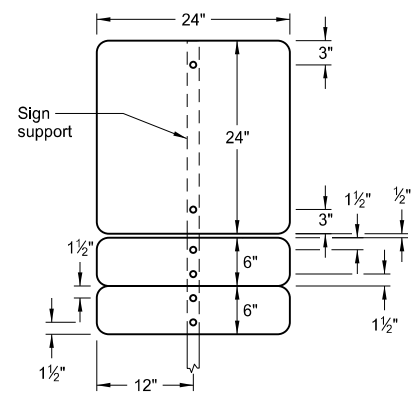
ASSEMBLY NO. 67

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.

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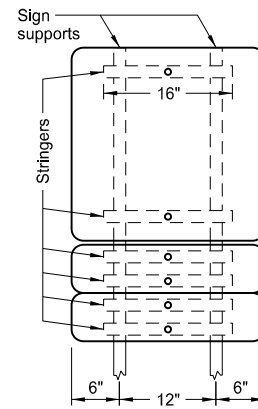
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS
REGULATORY, WARNING, AND GUIDE SIGNS

- Notes:
1. Use 0.100 inch minimum thickness sign backing material.
 2. Use 1½"x1½" perforated square tube stringers.
 3. Punch holes round for ⅜" bolt.

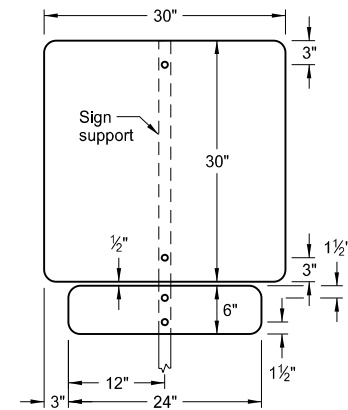


1 Post

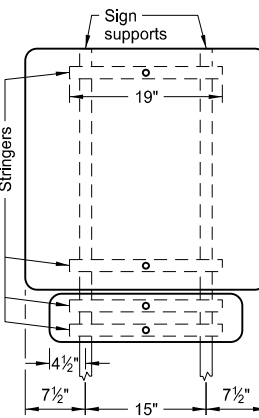
ASSEMBLY NO. 68



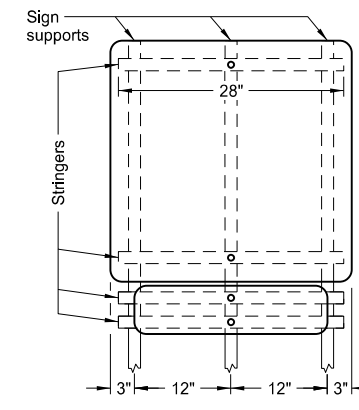
2 Posts



1 Post

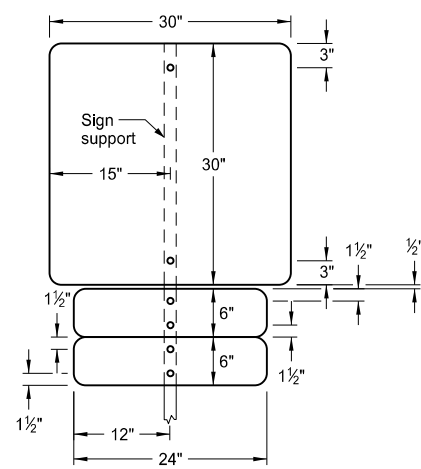


2 Posts

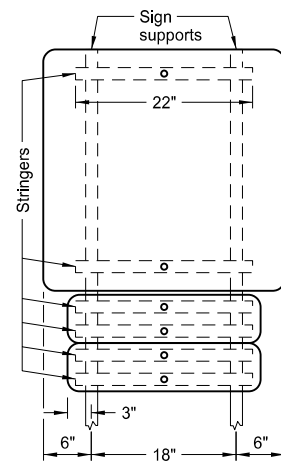


3 Posts

ASSEMBLY NO. 69

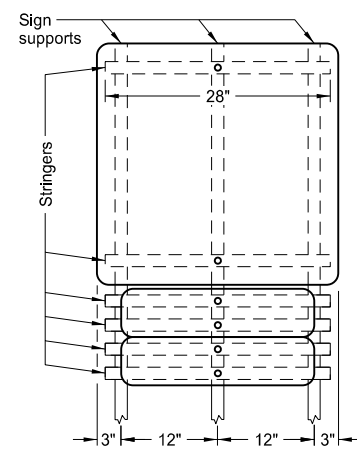


1 Post

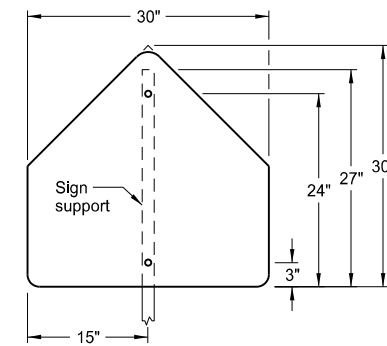


2 Posts

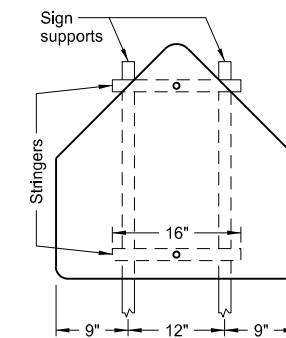
ASSEMBLY NO. 70



3 Posts

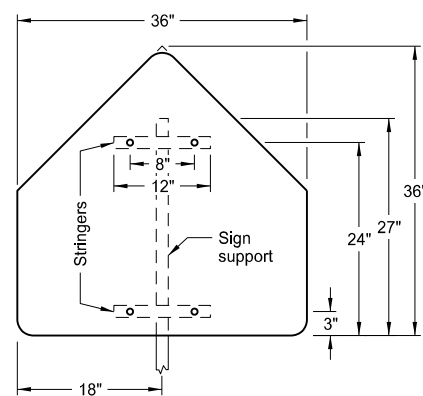


1 Post

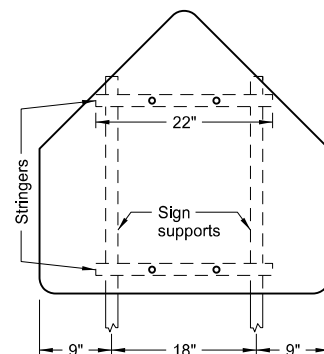


2 Posts

ASSEMBLY NO. 71

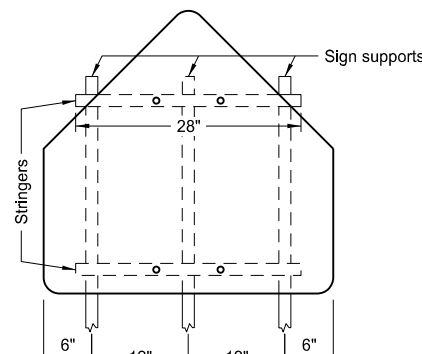


1 Post



2 Posts

ASSEMBLY NO. 72



3 Posts

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.

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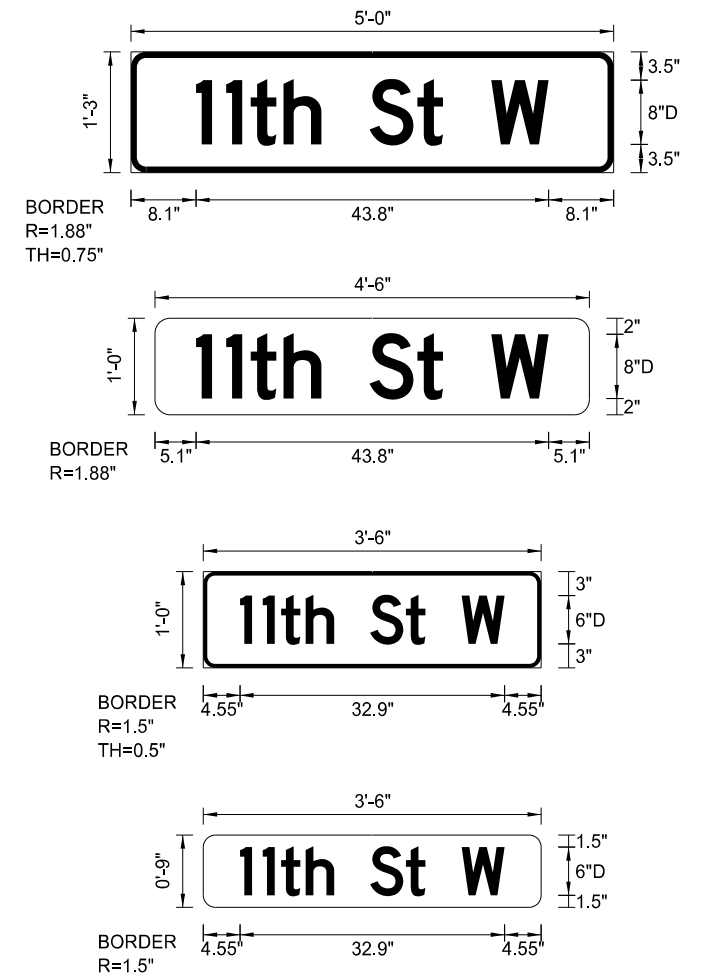
911 SIGN SUPPORT INFORMATION AND SIGN DETAILS

D-754-86

ASSEMBLY NUMBER	POST INFORMATION FOR VARIOUS SIGN CONFIGURATIONS											BREAKAWAY	
	STREET NAME SIGN SIZE	VERTICAL CLEARANCE	MAXIMUM POST LENGTH	NUMBER OF POSTS	SUPPORT SIZE	SLEEVE LENGTH (A)			SLEEVE SIZE	ANCHOR			
						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

ASSEMBLY NUMBER	POST INFORMATION FOR VARIOUS SIGN CONFIGURATIONS											BREAKAWAY	
	STREET NAME SIGN SIZE	VERTICAL CLEARANCE	MAXIMUM POST LENGTH	NUMBER OF POSTS	SUPPORT SIZE	SLEEVE LENGTH (A)			SLEEVE SIZE	ANCHOR			
						1st	2nd	3rd		NUMBER	LENGTH		SIZE
						LF	LF	LF					
Special Assembly 3	24"x12"	5	16.2	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	30"x12"	5	15.3	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	36"x12"	5	15.9	1	2.25 x 2.25 12 ga	4.3			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	42"x12"	5	15.2	1	2.25 x 2.25 12 ga	4.8			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	48"x12"	5	15.2	1	2.5 x 2.5 12 ga	5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	54"x12"	5	20.6	1	2.5 x 2.5 10 ga	1.9			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
	60"x12"	5	16	1	2.5 x 2.5 12 ga	4.7			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	24"x9"	5	16.8	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	30"x9"	5	16.1	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	36"x9"	5	15.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	42"x9"	5	14.9	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	48"x9"	5	15.7	1	2.25 x 2.25 12 ga	4.2			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
Special Assembly 4	54"x9"	5	14.9	1	2.5 x 2.5 12 ga	4.8			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	60"x9"	5	20.5	1	2.5 x 2.5 10 ga	1.6			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
	24"x12"	5	15.1	1	2.25 x 2.25 12 ga	4.8			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	30"x12"	5	15.1	1	2.5 x 2.5 12 ga	5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	36"x12"	5	17.4	1	2.5 x 2.5 12 ga	3.6			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	42"x12"	5	16.8	1	2.5 x 2.5 12 ga	4.1			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	48"x12"	5	16.1	1	2.5 x 2.5 12 ga	4.5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	54"x12"	5	15.5	1	2.5 x 2.5 12 ga	4.9			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	60"x12"	5	16.7	1	2.5 x 2.5 10 ga	4.2			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
	24"x9"	5	15.5	1	2.25 x 2.25 12 ga	4.2			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	30"x9"	5	15	1	2.25 x 2.25 12 ga	4.5			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	36"x9"	5	14.5	1	2.25 x 2.25 12 ga	4.8			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
Special Assembly 5	42"x9"	5	14.7	1	2.5 x 2.5 12 ga	4.9			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	48"x9"	5	17.2	1	2.5 x 2.5 12 ga	3.5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	54"x9"	5	15.8	1	2.5 x 2.5 12 ga	4.4			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	60"x9"	5	15.3	1	2.5 x 2.5 12 ga	4.7			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	24"x12"	5	17.1	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	30"x12"	5	16.7	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	36"x12"	5	17.7	2	2.25 x 2.25 12 ga	4	4.5		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	42"x12"	5	17.3	2	2.25 x 2.25 12 ga	4.3	4.8		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	48"x12"	5	16.8	2	2.25 x 2.25 12 ga	4.5	5		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	54"x12"	5	16.5	2	2.25 x 2.25 12 ga	4.8	5.3		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	60"x12"	5	17.5	3	2.5 x 2.5 12 ga					3	4.0	3 x 3 7 ga	3
	24"x9"	5	17.3	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
30"x9"	5	17	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2	
36"x9"	5	16.6	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2	
42"x9"	5	16.3	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2	
48"x9"	5	16	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2	
54"x9"	5	17.1	2	2.25 x 2.25 12 ga	4	4.6		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2	
60"x9"	5	16.8	2	2.25 x 2.25 12 ga	4.2	4.8		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2	

(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.

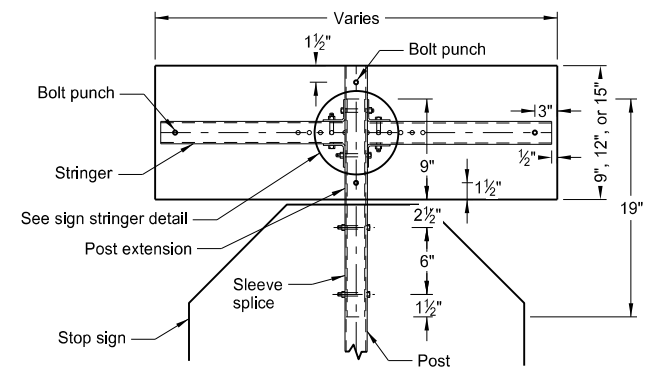
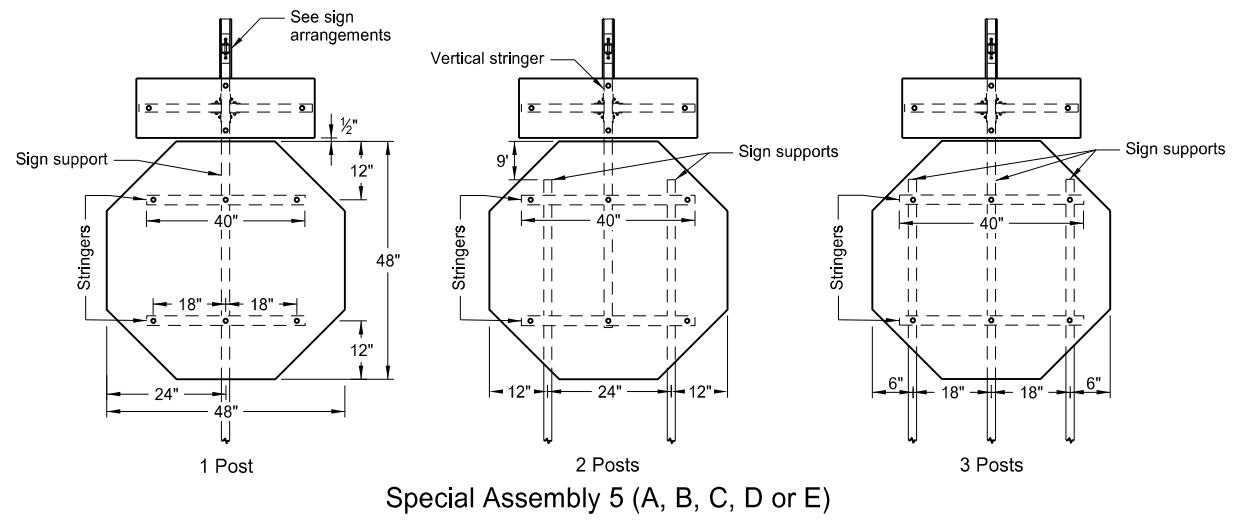
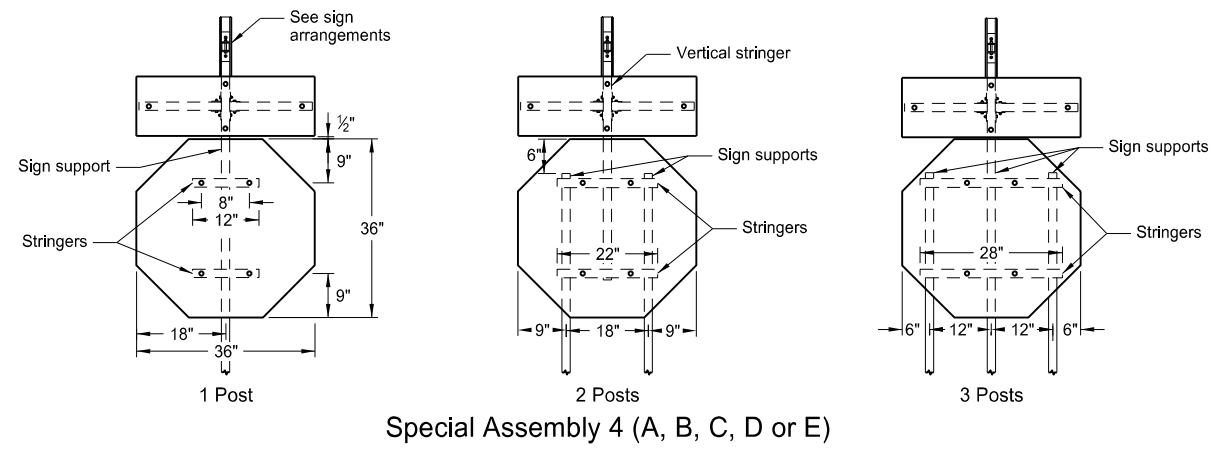
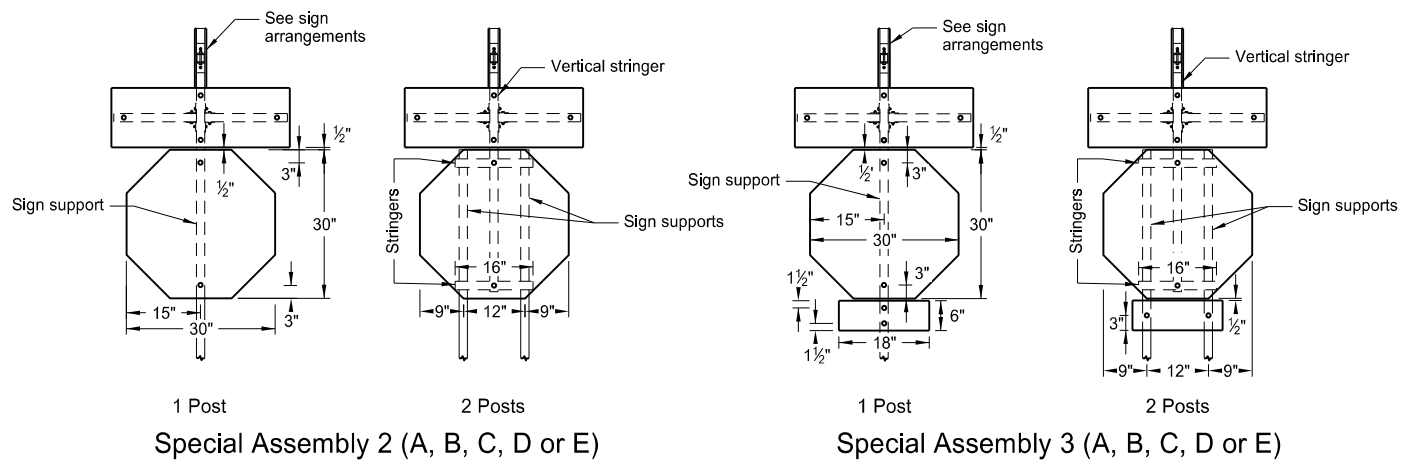
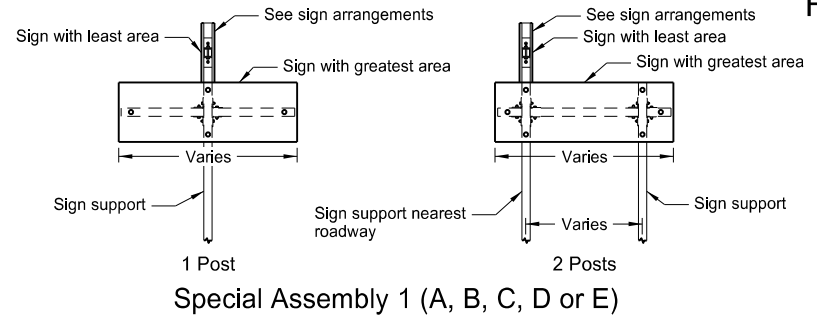
When installing signs on existing supports, check support and sleeve size to determine if they meet table requirements. Measure maximum post length from ground to top of street name sign. If calculated support length is greater than maximum post length shown, recalculate support size.

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

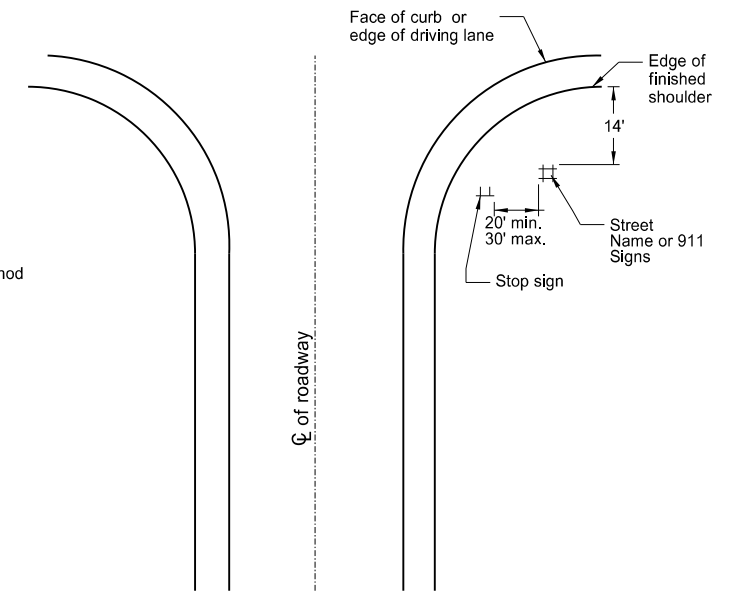
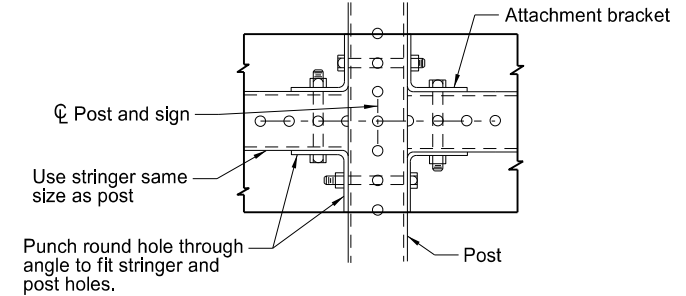
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683, on 9/05/19 and the original document is stored at the North Dakota Department of Transportation
10-3-13		
REVISIONS		
DATE	CHANGE	
7-18-14	Revised street name sign layouts.	
8-30-18	Revised tables, lettering, & signs and updated notes to active voice.	
9-05-19	New Design Engineer PE Stamp.	

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR STREET NAME SIGNS AND 911 SIGNS

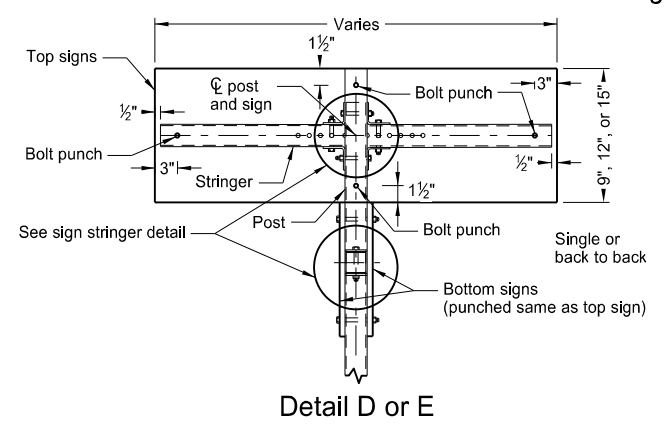
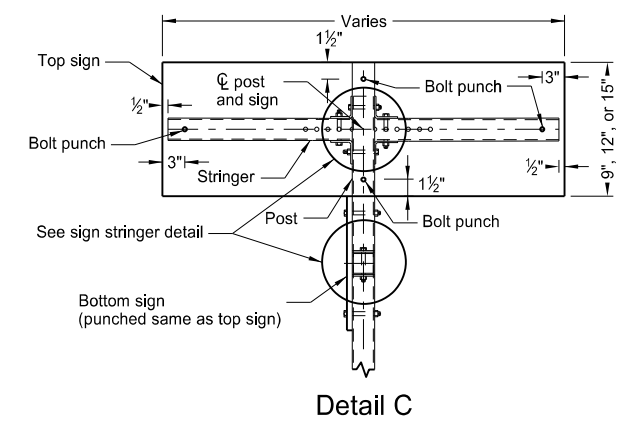
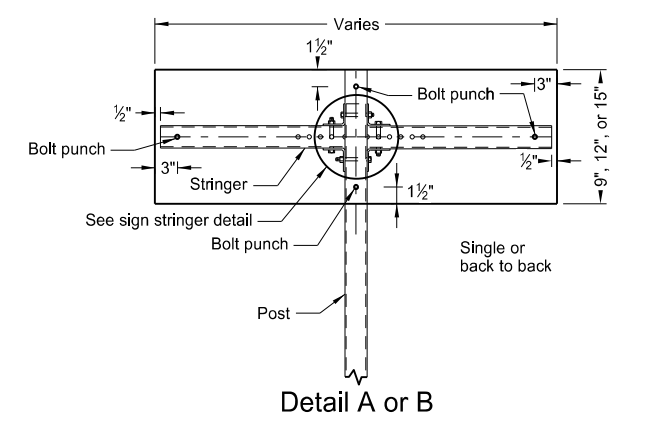
- A - Single sign
- B - Single sign back to back
- C - Single sign each direction
- D - Single sign one direction, back to back other direction
- E - Back to back both directions



Note: Only use splice method with approval of engineer.



Note: Use layout for street name signs or 911 signs with Special Assembly 1.



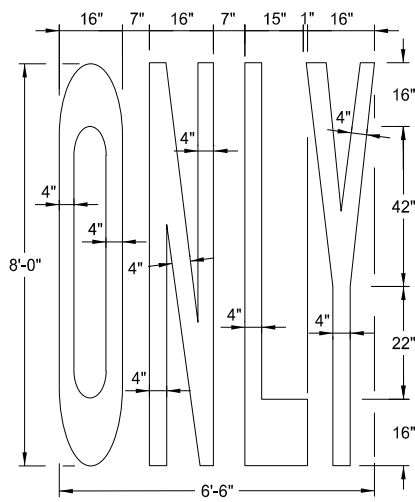
Sign Arrangements

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
8-30-18	Added 2 post layout for SA1 and Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.

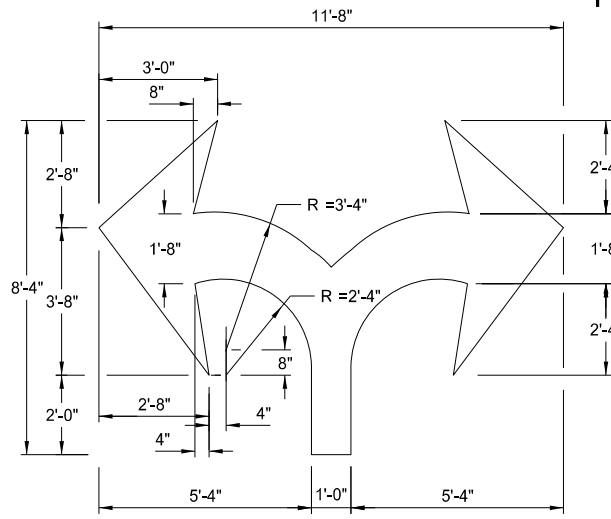
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Pavement Marking Message Details

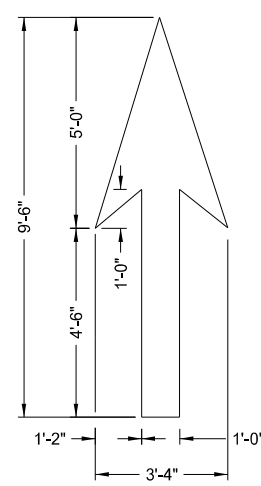
D-762-1



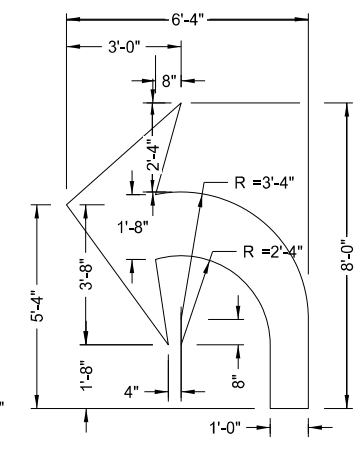
22 S. F.



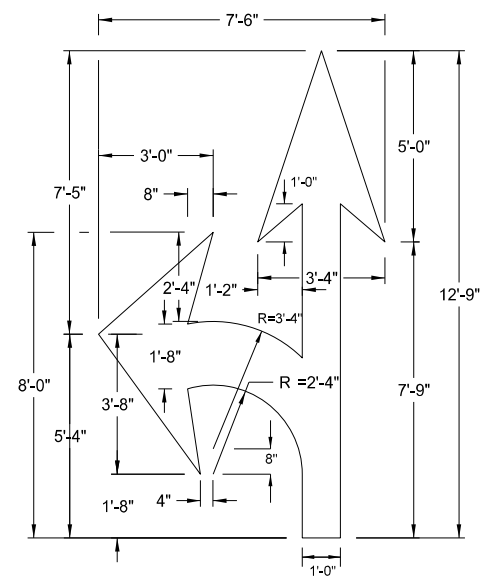
29 S. F.



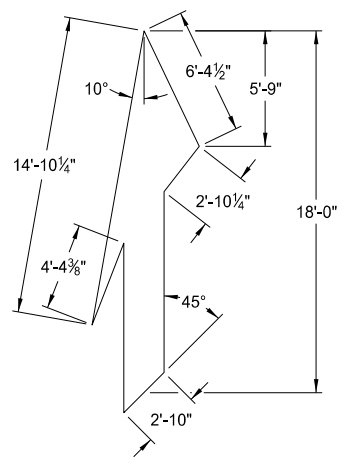
12 S. F.



16 S. F.

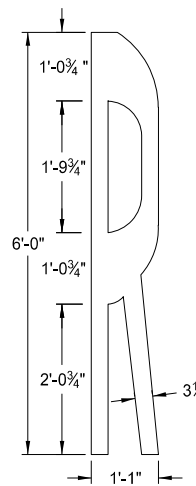


27 S. F.

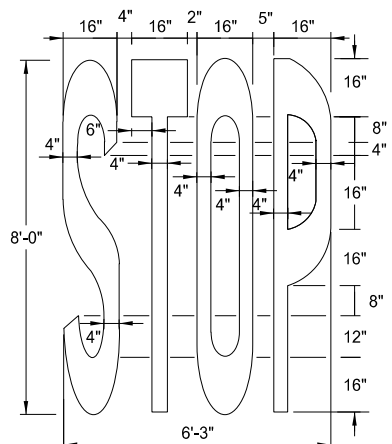


41 S. F.

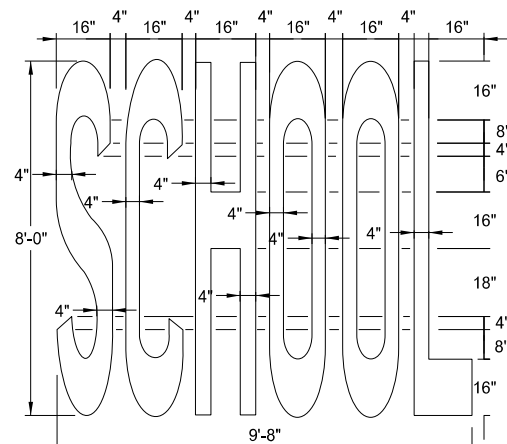
Note: Rotate merge arrow 20° from edge of roadway.



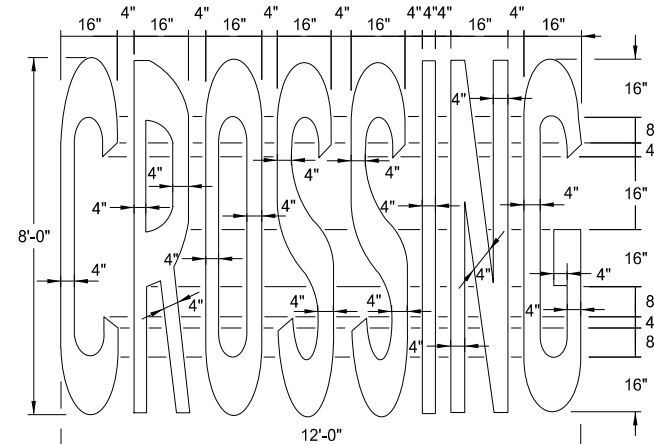
4 S. F.



22 S. F.



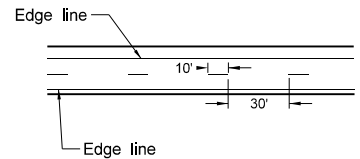
34.5 S. F.



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'

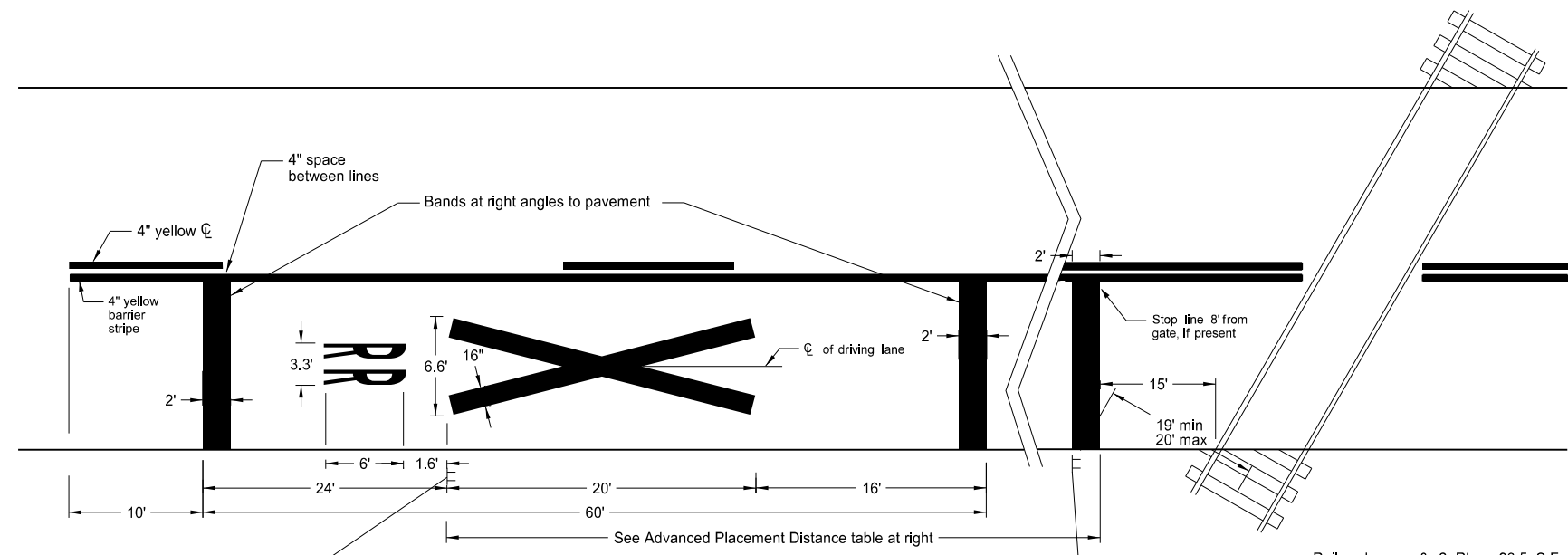
Chevron Crosshatching Table



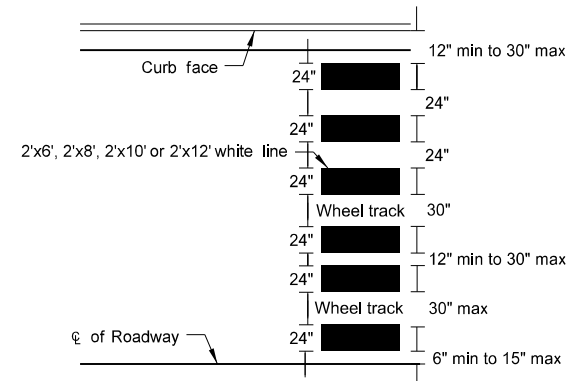
Centerline Pavement Marking Skip Spacing Detail

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

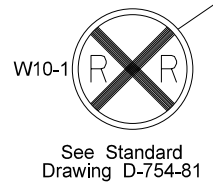
Advance Placement Distance for Railroad Warning Signs



Railroad cross & 2 R's 60.5 S.F.
3 Bands (12' lane) 72 S.F.

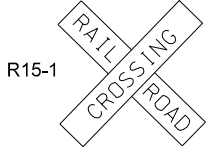


Continental Crosswalk Detail



See Standard Drawing D-754-81

Notes:
Mark a three lane roadway with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads, extend the transverse bands across all approach lanes, and use individual R X R symbols in each approach lane.
See plans for correct message. Use white pavement markings unless noted otherwise.

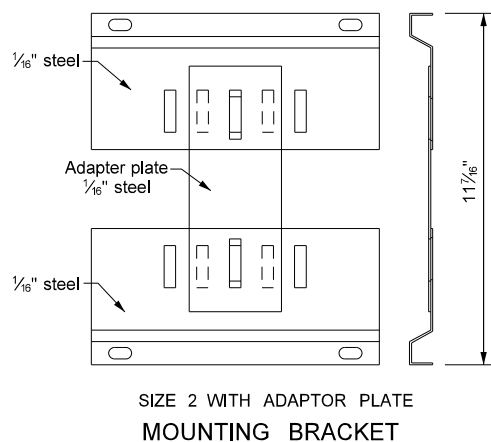
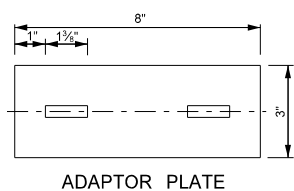
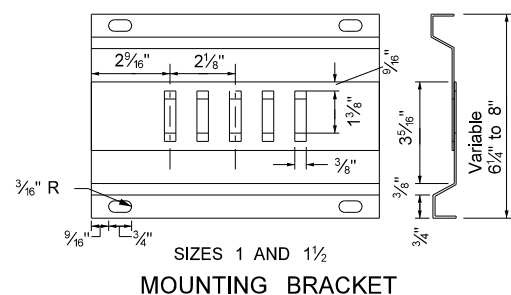
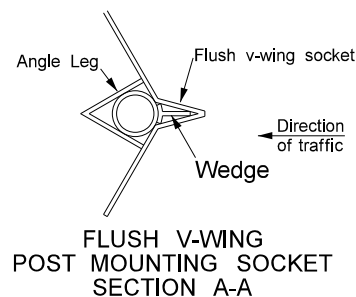
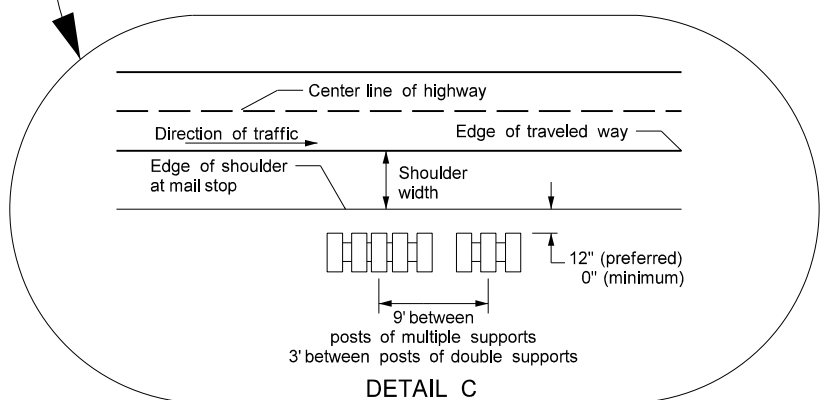
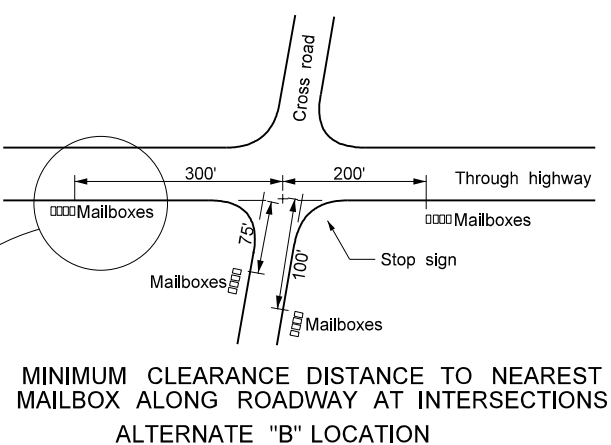
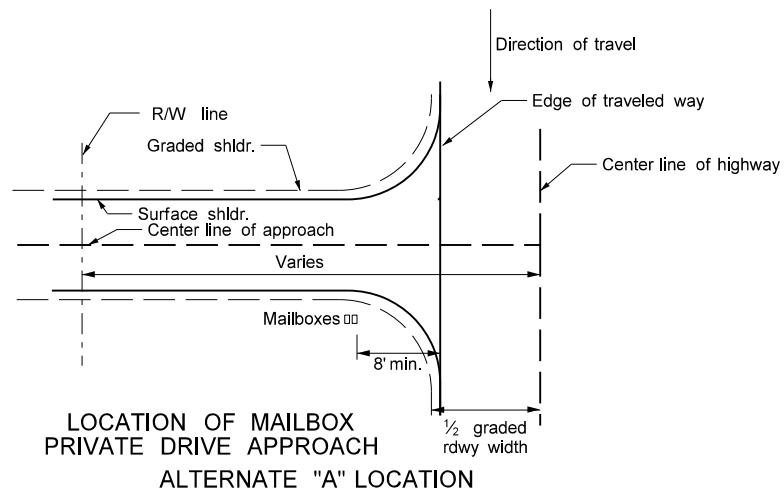


R15-1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-6-11	
REVISIONS	
DATE	CHANGE
10-17-17 08-27-19	Updated to active voice. New Design Engineer PE Stamp.

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

MAILBOX LOCATION DETAILS



Notes:

- The mailbox support and hardware details shall consist of the "V-Loc Mailbox Support System" manufactured by: Tapco Traffic & Parking Control Co. Inc. Any other equal support system meeting the requirements of NCHRP Report 350, which has been crash tested, and approved by the Federal Highway Administration may be used. Approved alternate mailbox assemblies shall be installed in the manner and arrangement crash tested.
- The preferred location for all mailboxes is the Alternate "A" location. However, the Engineer may approve the Alternate "B" location if warranted by existing field conditions.
- Postal regulations require that mailboxes must be located on the right-hand side of the road in the direction traveled by the carrier. Therefore, the Engineer shall contact the local carrier or postmaster before installing new mailboxes to verify the direction of travel.
- Mailboxes installed on private drive approaches must always be located on the downstream side of the approach.
- Install angle connection parallel to traffic flow for size 2 mailbox mounted on single posts.
- Size 2 mailbox mounted on multiple support requires 2 each, 3/8" by 3/4" bolts with lock washers and nuts to attach the adaptor plate to mounting bracket. The unit will then require 4 angle connections to attach to the formed tube support frame. See Detail A.
- Space multiple support frames a minimum of 4 feet apart. Space single support frames a minimum of 3 ft apart. Do not place more than five No. 1 mailboxes, three No. 2 mailboxes, or any combination of four No. 1-A and No. 2 mailboxes on multiple support frames.

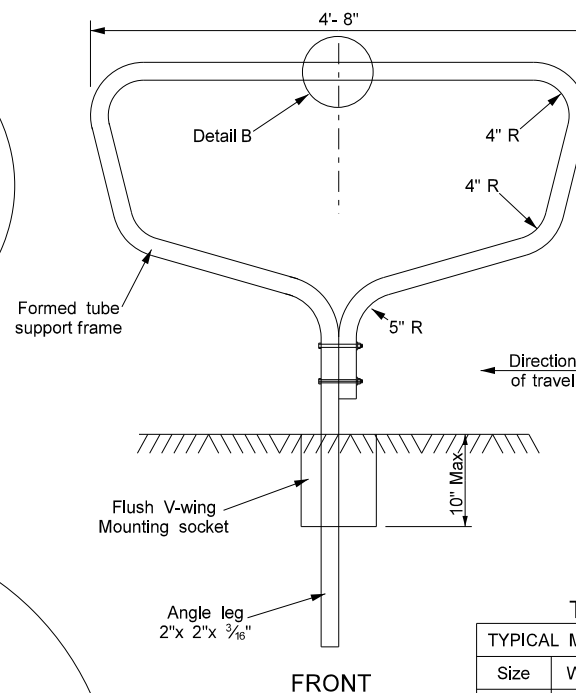
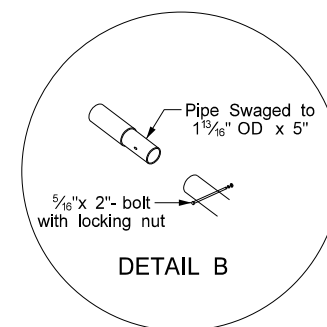
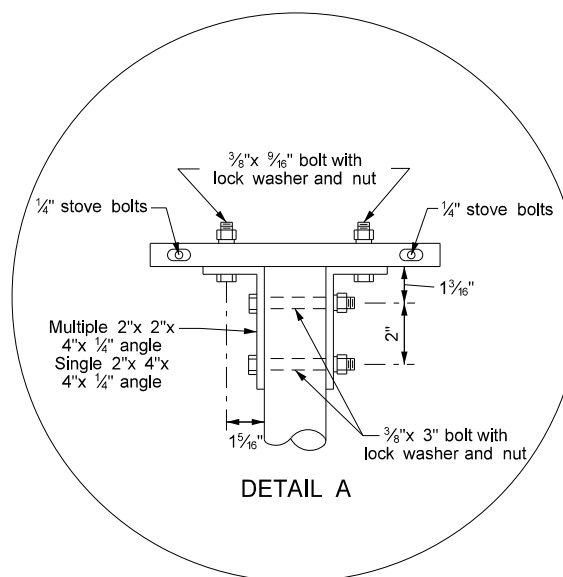
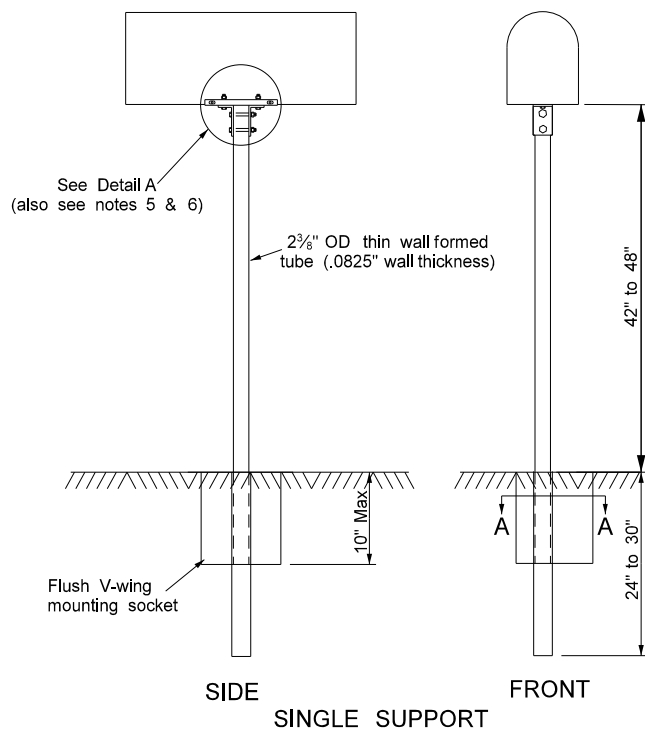


TABLE A
TYPICAL MAILBOX DIMENSIONS

Size	Width	Height	Length
1	6.5"	8.5"	19"
1A	8"	10.5"	21"
2	11.5"	13.5"	23.5"

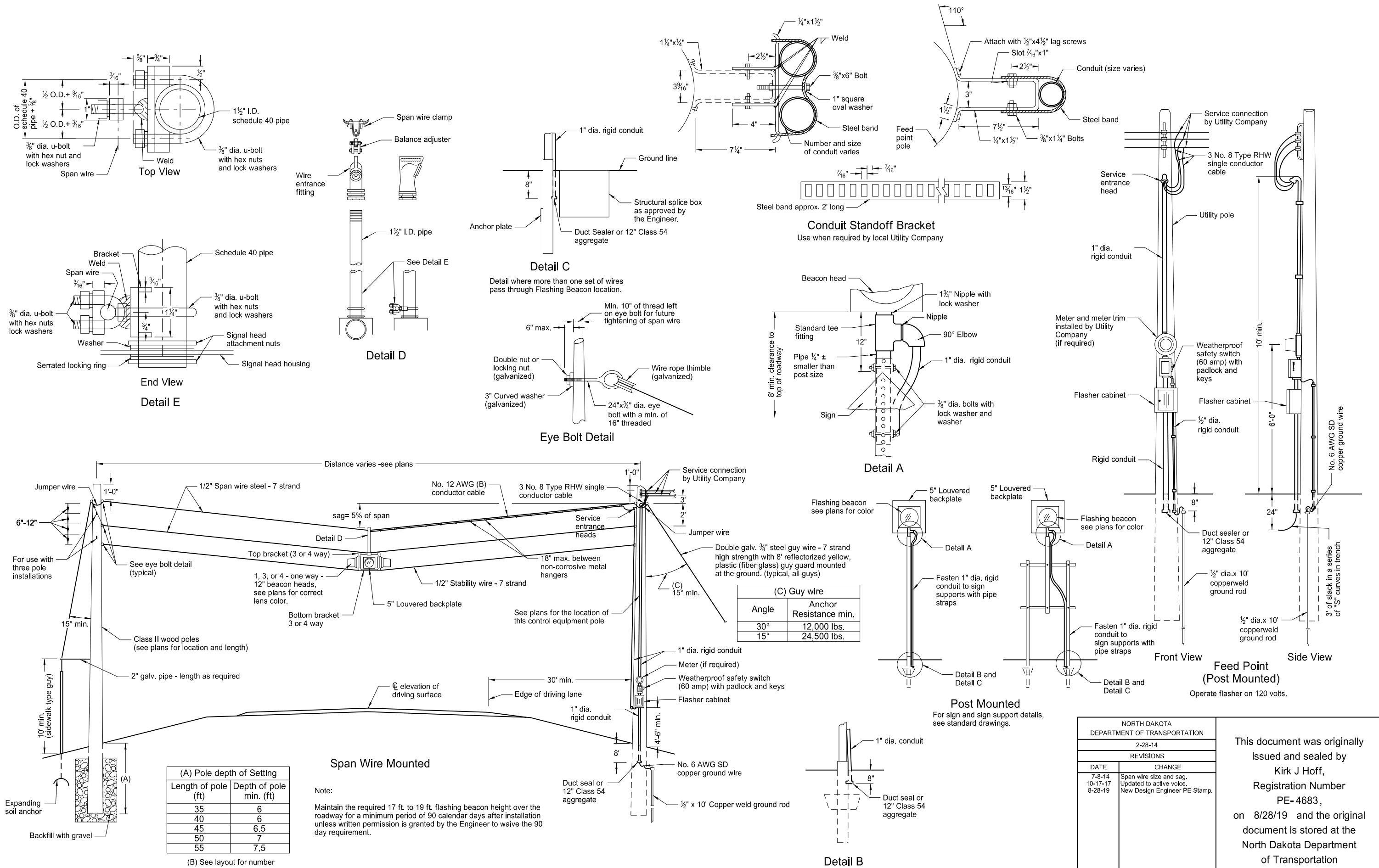


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
9-15-2010

REVISIONS	
DATE	CHANGE

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FLASHING BEACON



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
7-8-14	Span wire size and sag. Updated to active voice. New Design Engineer PE Stamp.
10-17-17	
8-28-19	

This document was originally issued and sealed by
 Kirk J Hoff,
 Registration Number
 PE-4683,
 on 8/28/19 and the original document is stored at the North Dakota Department of Transportation