DESIGN DATA				
Traffic	Average Daily			Max Hr
Current 2014	Pass: 2,465	Trucks: 115	Total: 2,580	260 (2014)
Forecast 2034	Pass: 3,675	Trucks: 175	Total: 3,850	385 (2034)
Clear Zone Distance: 18 / 26 / 32 / 42 FT		Design Speed: 45 / 65 MPH		
Minimum Sight Dist. for Stopping: 360 / 645 FT		Bridges: N/A		
Sight Dist. for No Passing Zone: 700 / 1100 FT				
Pavement Design Life 20 (years)				
Design Accumulated One-way Rigid ESALs: 332,570				

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20707	1	1

JOB # 17
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

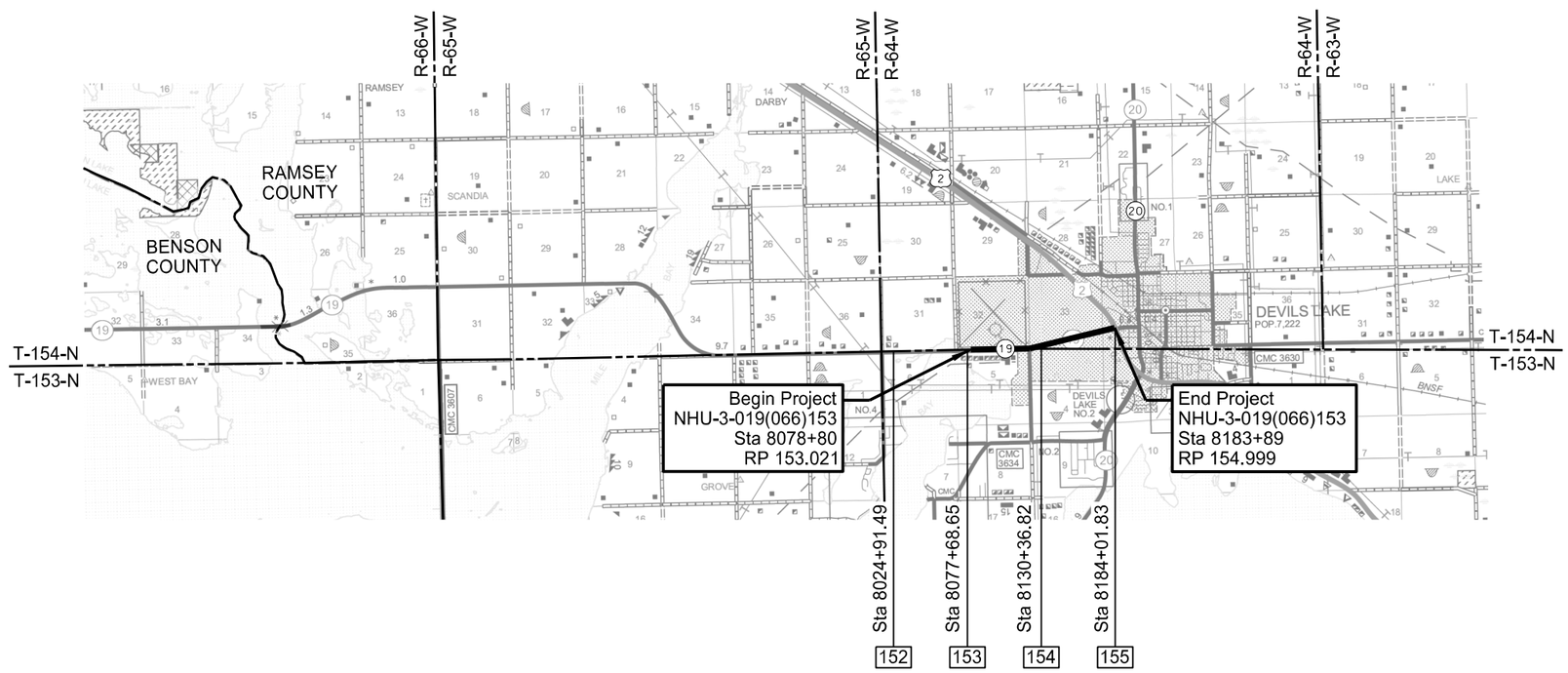
NHU-3-019(066)153
Near Airport to Jct US 2

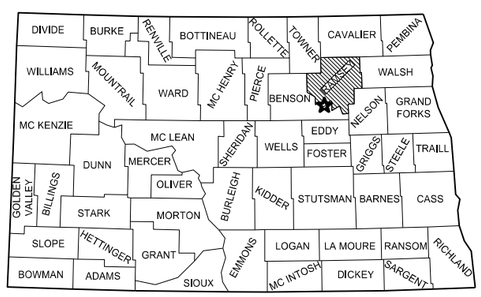
Ramsey County
ND Highway 19

HMA, Grading, Signing and Incidental Items

GOVERNING SPECIFICATIONS:
2014 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
NHU-3-019(066)153	1.978	1.978





STATE COUNTY MAP

DESIGNERS	
Jonathan Bach, PE	Dawn LS Michel, PE
Brent Muscha, PE	Jennifer Malloy, PE LSI
Derek Anderson, PE	Yang Liu
James Mickelson	Sarah Mohl
Dain Synhorst	Calvin Anderson

APPROVED DATE 02/04/2016

Roger Weigel /s/
OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 01/29/2016

Jason P. Gullicks /s/
APEX ENGINEERING GROUP, INC.

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D-203-8	Standard Rural Approaches
D-255-2	Erosion and Siltation Control - Erosion Control Blanket Installation
D-260-1	Erosion and Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
D-704-2	Traffic Control For Coring of Hot Bituminous Pavement
D-704-5	Construction Sign Detail
D-704-7	Breakaway Systems for Construction Zone Signs - Perforated Tube
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D-704-9	Construction Sign Details - Terminal and Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
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D-704-13	Barricade and Channelizing Device Details
D-704-14	Construction Sign Punching and Mounting Details
D-704-15	Road Closure Layouts
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D-704-20	Terminal and Seal Coat Sign Layouts
D-704-22	Construction Truck and Temporary Detour Layouts
D-704-24	Shoulder Closures and Bridge Painting Layouts
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D-704-27	Traffic Control Plan for Moving Operations
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D-704-50	Portable Sign Support Assembly
D-704-56	Mobile Operation - Grinding Shoulder Rumble Strips
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D-714-2	Reinforced Concrete Pipe Arch Culverts and End Sections
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D-754-26, 27,29,36	Sign Punching, Stringer and Support Location Details Regulatory, Warning, and Guide Signs
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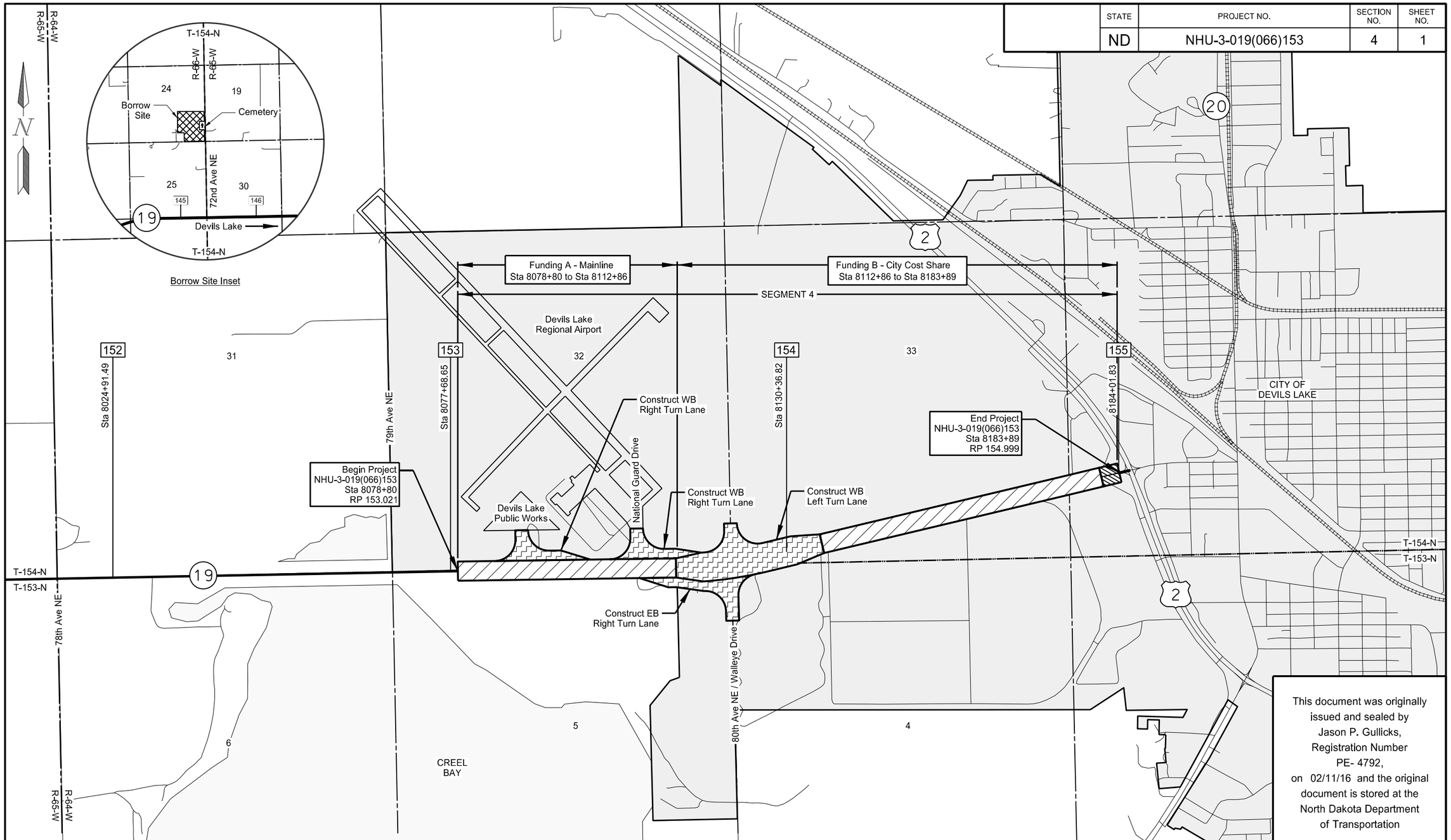
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	4	1



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Segment No.	Funding	Begin Sta	End Sta	Description
Segment 4	Funding A Mainline	8078+80	8112+86	3.5" HBP Overlay Shoulder Reconstruction WB Left Turn Lane (80th Ave NE)
	Funding B City Cost Share	8112+86	8181+00	EB Right Turn Lane (80th Ave NE) WB Right Turn Lane (Devils Lake Public Works) WB Right Turn Lane (Airport)
		8181+00	8183+89	2.0" HBP Overlay

Legend

- HBP Overlay Shoulder Reconstruction
- HBP Overlay Turn Lane Construction
- 2" HBP Overlay
- Borrow Site

Notes:

1. Segments 1-3 are contained within tied project SS-3-019(065)139, PCN 20682
2. Stationing is based on Alignment "PR19_SEG4"

ND Hwy 19

Scope of Work

RP 153.021 to RP 154.999

NOTES

100-P01 TIED PROJECT: Project NHU-3-019(066)153 PCN 20707 is tied to projects SS-3-019(067)135 PCN 21273 and SS-3-019(065)139 PCN 20682.

100-P02 WEEKLY PLANNING/REPORTING MEETING: Organize a weekly meeting to coordinate efforts between the contractor, subcontractors, and engineering staff.

Send a knowledgeable representative to conduct the weekly reporting/planning meeting. Include a discussion of problems encountered during the current week and a discussion of work planned for the next week, as well as a tentative schedule for the following week. Prepare minutes for each meeting and make the appropriate distribution of the minutes. Have the minutes approved by the Engineer before distribution.

107-700 HAUL ROADS: The Engineer will not designate paved roads off the state system as haul roads.

107-710 HAUL ROADS: Before submitting a proposal, contact the appropriate State, County, Township, or City officials to determine if there are any roadways that will be designated as "no haul routes".

107-P01 HAUL ROADS: If the Contractor obtains written permission from the applicable local entity and chooses to use a paved road off the state system for this project, the Contractor is responsible for all costs of the inspection, maintenance, restoration, and release of the haul road.

107-P02 HAUL ROADS: The entire haul cycle, loaded and empty, will be considered for haul routes.

107-P03 HAUL ROADS: 72nd Avenue NE from ND Hwy 19 to one mile north (west side of Section 30, T154N, R65W) is not an approved haul road route.

107-P04 HAUL ROAD RESTORATION: All gravel needed for haul road restoration will be CL-13 aggregate.

107-P05 NOTIFICATION TO BE FILED BY CONTRACTOR: File the ‘Federal Aviation Administration Notice of Proposed Construction or Alteration Form 7460-1’ (online at http://oeaaa.faa.gov).

202-P01 SAW BITUMINOUS SURFACING: Include the cost of the full depth vertical saw cuts adjacent to pavement removal areas, specified in Section 202.04 A "General", in the contract unit price for “Removal of Bituminous Surfacing.”

202-P02 PAVEMENT REMOVAL: The Department will not include the quantity of pavements paid for as removal in the excavation quantity.

203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.

203-385 AVERAGE HAUL: No average haul has been computed for this project.

203-P01 WETLAND EXCAVATION: The excavation for wetland mitigation shall be paid for under the bid item “Common Excavation-Type A.”

261-P01 PERMANENT FIBER ROLLS: If fiber rolls are to remain on the project, use fiber rolls that are composed of plastic or natural fiber photodegradable netting that has a life expectancy between 12 to 24 months. If the photodegradable netting is plastic, the netting color must be either clear or green. Black plastic netting will not be allowed.

261-P02 SILT FENCE SUPPORTED: Do not embed silt fence in areas of standing water.

430-P01 CONTRACTOR CORING: Before placing bituminous material into core holes, apply a tack coat on all sides of the core holes as Specified in Section 401.

430-P02 PAVING SEAMS: A hot seam must be used on all locations when the joint is in the driving lane. Hot seams can be located at any offset distance. A hot seam will be defined as a seam created when two pavers are paving at the same time, with no more than 300’ between the pavers. The seam must be rolled in a way to join and hide the seam so it is not visible to the traveling public.

704-255 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: If the shoulder and adjacent driving lane are not even at the end of the day, the following criteria will apply:

Place the following sign assembly at the locations listed below.

Sign Assembly: Sign No. W8-9a-48 "Shoulder Drop Off" and supplemental plate Sign No. W20-52-54 to identify the distance.

Locations:

- In advance of the drop off;
- Spaced at each mile from the advance sign; and
- At major intersections (CMC routes, state and US highways, and Interstate Ramps).

If the difference in elevation between the shoulder and the driving lane is 2" or greater, construct a slough on the driving lane that is 4:1 or flatter.

If the difference in elevation between the shoulder and driving lane is less than 2", no slough is required.

Sign assemblies will be measured and paid for according to Section 704 "Temporary Traffic Control.”

704-P01 TRAFFIC CONTROL: Temporarily display all route marker signs, guide signs and 911 street signs until they can be

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NOTES

permanently installed. Verify with the Engineer which signs are to remain. Include costs in the price bid for “Traffic Control Signs.”

704-P02 TRAFFIC CONTROL DEVICES LIST: The Traffic Control Devices list has been developed using the following layouts and standard drawings for traffic control:

1. Standard D-704-2: For coring hot bituminous pavement.
2. Standard D-704-15: layout A; For paving operations
3. Standard D-704-19, layout F: For paving operations and lane closures.
4. Standard D-704-20, layout G: Terminal Signing. 80th Ave NE/Walleye Dr
5. Standard D-704-22, layouts K: For trucks hauling material.
6. Standard D-704-24, layouts R: For shoulder work.
7. Standard D-704-26, layouts BB, CC, EE, FF, GG, KK: as applicable.
8. Standard D-704-27: moving operations (pavement marking)
9. Standard D-704-30: windrow marking
10. Standard D-704-56: For grinding shoulder and median rumble strips.
11. Traffic Control Drawings in Section 100 of the plans.
12. Standard Drawings D-704-5, 7, 8, 9, 10, 11, 13, 14, 15, and 50 as applicable.

The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the contract unit price for each device. Quantities for Traffic Control devices were estimated using a 40 mph work zone speed limit. Enough stackable vertical panels were quantified to provide closure of both shoulders. Provide additional devices at no additional cost to the Department.

During paving operations, provide traffic control consisting of a temporary road closure, flagging, and a pilot car. When installing layout G from Standard D-704-20 during this operation, move sign W3-5-48 and the sign assembly containing signs R2-1-48 and R2-1a-24 with the work area as it progresses through the construction zone. Place the R2-1-48 assembly a minimum of 500 feet in advance of flagging signs.

During paving operations, place flaggers and traffic control devices as shown on Standard D-704-15, layout A at the following intersections when the lane closure spans across them:

1. 80th Ave NE/Walleye Dr
2. Devils Lake Regional Airport Entrance/Exit

704-P03 TRAFFIC CONTROL DEVICES: Traffic control devices used for mobile operations including paving operations, pavement marking and rumbles strips on SS-3-019(067)135 PCN 21273, SS-3-019(065)139 PCN 20682 and NHU-3-019(066)153 PCN 20707 will be paid once under the SS-3-019(065)139 PCN 20682 project.

704-P04 TERMINAL SIGNING: If work is simultaneously being performed on this project and Segment 3 of tied project SS-3-019(065)139 PCN 20682; the following criteria will apply:

1. The reduced construction work zone speed limit shall remain between this project and the above listed segment.
2. The following signs shall be removed between this project and the above listed segments.
   a. Sign No. G20-55-96 “Speed Limit Enforced”
   b. Sign No. W3-5-48 “Speed Reduction”
   c. Sign No. R2-1-28 “Speed Limit”
   d. Sign No. G20-2a-48 “End Road Work”
   e. Sign No. G20-10-108 “Contractor Sign”

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:

1. Be completely insulated and weather tight.
2. Have a minimum floor area of 230 square feet with a minimum exterior width of 8 feet and a minimum ceiling height of 7 feet.
3. Have a dependable source of electricity for power and lights with a minimum of 6 electrical outlets spaced throughout the building and 3 light fixtures spaced to uniformly light the entire interior. The cost of the installation and monthly fee for the electricity will be included in the cost of the field office.
4. Be wired for DSL Broadband internet with wireless Wi-Fi and have the capability to allow for hard wiring the computer. Include the cost of the installation and monthly fees.
5. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F year around.
6. Have 3 desks and 3 desk chairs, 3 extra chairs, one drawer file cabinet with at least two drawers, one table minimum of 2.5 ft x 5 ft.
7. Have a photocopy machine capable of 11 x 17 photocopies and toner to last the duration of the project. The Engineer will be responsible to furnish the paper. A separate table or cabinet to support the copier.
8. Have a 15 cubic foot or larger refrigerator and a microwave.
9. The location of the field office shall be on, or as close to the project and Aggregate Laboratory as possible. Prior to installation of the Field Office, the location shall be approved by the Engineer. Any rental fees shall be paid by the Contractor.
10. Be available at the start of the project and remain available through project completion.

All requirements of the Field Office are subject to approval by the Engineer. Include all costs associated with field office in the contract unit price for “Field Office.”

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NOTES

706-P02 LABORATORY: Provide all laboratories wired for DSL Broadband internet with wireless Wi-Fi and have the capability to allow for hard wiring the computer.

Include the cost of the installation and monthly fees in the contract unit price of each laboratory.

714-P01 BROKEN BACK CULVERT INSTALLATION: Broken back culvert installations are required at some locations as shown in the plans. Invert elevations and culvert segment lengths for these culverts have been noted on the cross sections.

Station	Offset	Pipe Diameter (inches)	Number of Deflected Joints	Overall Vertical Deflection Angle
8097+00	LT	24	1	00˚30'00"
8097+00	RT	24	1	00˚30'00"

The proposed number of joints to deflect is based on a combination of 6' and 8' pipe segment lengths. The overall deflection angle shall be installed gradually over the number of proposed sections of pipe to deflect. Install sections using a maximum of one (1) degree of deflection per joint to obtain the required invert elevation. The joint openings of these deflected pipe sections shall be wrapped externally with Geotextile Fabric – Type S2 (2 foot minimum width), and mortar shall be used to fill the joints. Longer tie bars may be necessary at to tie deflected joints.

Include the cost of completing the above described work in the contract unit price for "Pipe Conc Reinf Arch __INx__IN – CL III."

714-P02 COFFERDAM: Cofferdams may be required to install centerline culverts. Install and remove cofferdams in accordance to Section 626. Include the cost of installing and removing cofferdam in the contract unit price for "Pipe Conc Reinf Arch __INx__IN – CL III."

714-P03 REMOVE & RELAY PIPE-ALL TYPES & SIZES: Wrap relay pipe joints externally with Geotextile Fabric – Type S2 (2 foot minimum width) and tie joints. Include the cost in the contract unit price for "Remove & Relay Pipe-All Types & Sizes."

714-P04 REMOVE & RELAY END SECTION-ALL TYPE & SIZES: If an existing end section is unsuitable to relay prior to removal, replace it with an end section from another location that is scheduled for removal. Wrap relay end section joints externally with Geotextile Fabric – Type S2 (2 foot minimum width) and tie joints. Include the cost in the contract unit price for "Remove & Relay End Section-All Type & Sizes."

714-P05 CONCRETE PIPE BEND: 58 inch by 36 inch 30 degree bends are required at Sta 8136+31 and Sta 8136+40. Include the cost of the pipe bends in the contract unit price for "Pipe Conc Reinf Arch __INx__IN – CL III."

720-P01 RIGHT OF WAY MARKERS: Remove all existing concrete right of way markers between Sta 8078+80 to 8181+00. Include the cost of removal and backfilling of the holes in the contract unit price for "Right of Way Markers."

754-P01 SIGNING: All signs and supports not to be reset shall become property of the Contractor.

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

990-P01 PIPE CLEANOUT: The centerline pipes have silt and/or debris along the bottom of the structure. Remove silt and/or debris from all centerline culverts and dispose of all material including sediment, rocks, and miscellaneous debris according to Section 107.17, "Removed Material."

After cleaning, inspect and record all centerline pipes using a closed-circuit television crawler. Provide DVD recording to the Engineer.

During inspection determine the following:
1. Deviations in the horizontal and vertical alignment
2. Location of any gaps in joints
3. Location of any damage

Include the cost of pipe cleaning and inspection in the contract unit price for "Pipe Cleanout."

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	6	4

ENVIRONMENTAL COMMITMENTS

ENVIRONMENTAL COMMITMENTS (EC): The North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The environmental commitments are as follows:

EC-1: Unavoidable impacts to wetlands will be mitigated onsite, adjacent to the project, or at a NDDOT approved mitigation site or bank.

ACTION REQUIRED /TAKEN: 0.05 acres of permanent impacts to USACE jurisdictional waters, 0.06 acres of permanent impacts to EO 11990 wetlands and 0.10 acres of permanent impacts to USACE jurisdictional waters and EO 11990 wetlands will require mitigation. The NDDOT proposes to mitigate by compensation: 0.05 acres at USACE Herda Bank for only USACE jurisdictional impacts, 0.06 acres at FHWA EO 11990 Mitigation Bank Vollrath 15/21 in the Devils Lake Basin Regional Service Area for only EO 11990 impacts, and 0.10 AC at USACE Herda Bank for both EO 11990 and USACE impacts. 2.00 acres of temporary wetland impacts will result from construction activities. Temporary impact areas will be graded to preconstruction contours.

Wetland Impact Table

Wetland Number	Location	Cowardin Class.	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impacts (acres)		USFWS Easement Impacts (acres)		Mitigation Required			Bank		Onsite			
							Temp.	Perm.	Temp.	Perm.	EO 11990	USACE	USFWS	Location	acres	Mitigation Location; Ratio	acres	Constructed Site #	Constructed size (acres)
#72	Sec. 32, T154N, R64W	PEMAx	Ditch	0.05	Artificial	Preamble	0.02	0.02			N	N	N						
#73	Sec. 5,T153N, R64W	PEMAx	Ditch	0.02	Artificial	Preamble	0.01	0.01			N	N	N						
#73a	Sec. 5,T153N, R64W	PEMAx	Ditch	0.24	Artificial	Preamble	0.09	0.07			N	N	N						
#73b	Sec. 5,T153N, R64W	PEMAx	Ditch	0.67	Artificial	Preamble	0.36	0.16			N	N	N						
#73c	Sec. 32,T154N, R64W	PEMAx	Ditch	0.07	Artificial	Preamble	0.03	0.04			N	N	N						
#74	Sec. 32,T154N, R64W	PEMAx	Drainage	0.56	Artificial	Yes	-	-			N	N	N						
#74a	Sec. 32,T154N, R64W	PEMAx	Drainage	0.44	Artificial	Yes	-	-			N	N	N						
#74b	Sec. 33,T154N, R64W	PEMAx	Drainage	0.19	Artificial	Yes	0.02	0.01			N	Y	N	Herda	0.01				
#74c	Sec. 33,T154N, R64W	PEMCd	Basin	2.57	Natural	Yes	0.25	0.10			Y	Y	N	Herda	0.10				
#74d	Sec. 33,T154N, R64W	PEMAx	Ditch	0.51	Artificial	Yes	0.11	0.03			N	Y	N	Herda	0.03				
#74e	Sec. 33,T154N, R64W	PEMAx	Ditch	1.32	Artificial	Yes	0.01	0.01			N	Y	N	Herda	0.01				
#75	Sec. 5,T153N, R64W	PEMAx	Ditch	0.01	Artificial	Preamble	-	0.01			N	N	N						
#76	Sec. 33,T154N, R64W	PEMAx	Ditch	0.03	Artificial	Preamble	-	-			N	N	N						
#77	Sec. 33,T154N, R64W	PEMCd	Basin	1.06	Natural	Yes	0.01	0.01			Y	N	N	Vollrath 15/21	0.01				
#77a	Sec. 33,T154N, R64W	PEMCd	Basin	10.6	Natural	Yes	0.54	0.05			Y	N	N	Vollrath 15/21	0.05				
#78	Sec. 33,T154N, R64W	PEMAx	Ditch	0.73	Artificial	Preamble	0.17	0.06			N	N	N						
#79	Sec. 33,T154N, R64W	PEMAx	Ditch	0.36	Artificial	Yes	0.16	0.04			N	N	N						
#79a	Sec. 34/34,T154N, R64W	PEMCd	Ditch	0.62	Artificial	Yes	0.16	0.04			N	N	N						
#80	Sec. 33,T154N, R64W	PEMAx	Ditch	0.08	Artificial	Preamble	-	-			N	N	N						
#81	Sec. 34,T154N, R64W	PEMAx	Ditch	0.08	Artificial	Preamble	0.05	0.02			N	N	N						
#81a	Sec. 34,T154N, R64W	PEMAx	Ditch	0.02	Artificial	Preamble	0.01	-			N	N	N						
			Total	20.23			2.00	0.68							0.21				

[1] A wetland Jurisdictional Determination was issued by the USACE on 03/18/2015; NWO-2009-3056-BIS.

[2] All impacts to natural wetlands (natural/jurisdictional and natural/non-jurisdictional), regardless of size, as well as impacts greater than 0.10 acre to artificial/jurisdictional wetlands require mitigation.

[3] All artificial/non-jurisdictional, deep water (impacts greater than 6.6 feet), Other Waters less than 300 linear feet (determined by the USACE on a case by case), and temporary impacts do not require mitigation.

ENVIRONMENTAL COMMITMENTS

Summary Impact Table			
Total Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	0.16	Temporary JD	1.26
Natural/Non-JD	0.00	Non-JD Temporary	0.74
Artificial/JD	0.13	Permanent JD > 0.10	0.15
Artificial /Non-JD	0.39	Permanent OW	0.00
Total	**0.68**	Temporary OW	0.00

EC-2: The Contractor shall prevent the introduction of ANS into North Dakota waters, or transport of aquatic vegetation to or from any waters of the state, or transport of any aquatic vegetation into the state.

ACTION TAKEN/REQUIRED: The contractor shall follow the North Dakota Game and Fish Department's (NDGFD) Administrative Rules 30-3-06 for compliance with ND Century Code Chapter 20.1-17 on Aquatic Nuisance Species (ANS). Contractor shall notify the NDGFD at least 72 hours prior to the placement IN or ON the waters of the State of North Dakota of any and all vehicles, vessels, pumps and equipment that will be used in the project, to allow the Department sufficient time to inspect any and all such equipment for ANS. The NDGFD ANS Coordinator, Fred Ryckman, shall be contacted by phone (701.770.0920) or e-mail fryckman@nd.gov for equipment inspections, or any additional information regarding ANS prevention protocol.

NOTIFICATIONS TO BE FILED BY CONTRACTOR:

- Federal Aviation Administration Notice of Proposed Construction or Alteration Form 7460-1 (online at http://oeaaa.faa.gov)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	8	1

ESTIMATE OF QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	FUNDING A - MAINLINE	FUNDING B - CITY COST SHARE	TOTAL QUANTITY
103	0100	CONTRACT BOND	L SUM	0.08	0.17	0.25
201	0330	CLEARING & GRUBBING	L SUM	0.09	0.18	0.27
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	4,476	6,779	11,255
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	324	767	1,091
203	0101	COMMON EXCAVATION-TYPE A	CY	1,060	1,689	2,749
203	0108	TOPSOIL-BORROW AREA	CY	1,851	3,594	5,445
203	0109	TOPSOIL	CY	4,380	8,948	13,328
203	0121	TOPSOIL-WETLAND	CY	651	1,499	2,150
203	0140	BORROW-EXCAVATION	CY	16,345	31,284	47,629
216	0100	WATER	M GAL	561	861	1,422
251	0200	SEEDING CLASS II	ACRE	6.83	14.01	20.84
251	1000	WETLAND SEED	ACRE	0.51	1.49	2.00
251	2000	TEMPORARY COVER CROP	ACRE	6.83	14.01	20.84
253	0101	STRAW MULCH	ACRE	13.66	28.02	41.68
255	0103	ECB TYPE 3	SY	342	598	940
255	0201	TRM TYPE 1	SY	-	9532	9532
256	0100	RIPRAP GRADE I	CY	-	40	40
260	0200	SILT FENCE SUPPORTED	LF	3,037	11,736	14773
260	0201	REMOVE SILT FENCE SUPPORTED	LF	3,037	11,736	14,773
261	0112	FIBER ROLLS 12IN	LF	4,197	13,110	17,307
261	0113	REMOVE FIBER ROLLS 12IN	LF	925	1,541	2,466
261	0120	FIBER ROLLS 20IN	LF	100	-	100
261	0121	REMOVE FIBER ROLLS 20IN	LF	100	-	100
265	0100	STABILIZED CONSTRUCTION ACCESS	EA	0.09	0.18	0.27
265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	0.09	0.18	0.27
302	0050	TRAFFIC SERVICE AGGREGATE	TON	160	340	500
302	0120	AGGREGATE BASE COURSE CL 5	TON	14,283	16,624	30,907
401	0050	TACK COAT	GAL	3,326	3,628	6,954
401	0060	PRIME COAT	GAL	3,626	4,138	7,764
411	0105	MILLING PAVEMENT SURFACE	SY	267	519	786
420	0160	BLOTTER MATERIAL CL 44	TON	91	102	193
430	0042	SUPERPAVE FAA 42	TON	6,385	7,379	13,764
430	1000	CORED SAMPLE	EA	16	24	40
430	5828	PG 58-28 ASPHALT CEMENT	TON	383	442	825
702	0100	MOBILIZATION	L SUM	0.08	0.17	0.25
704	0100	FLAGGING	MHR	352	748	1100
704	1000	TRAFFIC CONTROL SIGNS	UNIT	587	1248	1,835

ESTIMATE OF QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	FUNDING A - MAINLINE	FUNDING B - CITY COST SHARE	QUANTITY
704	1060	DELINEATOR DRUMS	EA	4	8	12
704	1067	TUBULAR MARKERS	EA	42	90	132
704	1080	STACKABLE VERTICAL PANELS	EA	84	180	264
704	1185	PILOT CAR	HR	70	150	220
706	0400	FIELD OFFICE	EA	0.08	0.17	0.25
706	0500	AGGREGATE LABORATORY	EA	0.08	0.17	0.25
706	0550	BITUMINOUS LABORATORY	EA	0.08	0.17	0.25
706	0600	CONTRACTOR'S LABORATORY	EA	0.08	0.17	0.25
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	-	79	79
714	2130	PIPE CONC REINF ARCH 44IN X 27IN CL III	LF	48	-	48
714	2161	PIPE CONC REINF ARCH 58IN X 36IN CL III	LF	-	42	42
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	-	72	72
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	464	661	1,125
714	4122	PIPE CONDUIT 42IN-APPROACH	LF	-	144	144
714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF	16	-	16
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	2	4	6
720	0110	RIGHT OF WAY MARKERS	EA	8	20	28
720	0125	ALIGNMENT MONUMENTS	EA	1	4	5
720	0130	IRON PIN R/W MONUMENTS	EA	4	14	18
720	0135	IRON PIN REFERENCE MONUMENTS	EA	4	6	10
722	6200	ADJUST MANHOLE	EA	-	2	2
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	-	85	85
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	6	102	108
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	50	620	670
754	0563	REFERENCE MARKER-TYPE C	EA	1	1	2
754	0592	RESET SIGN PANEL	EA	2	9	11
754	0805	OBJECT MARKERS - CULVERTS	EA	14	26	40
760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	1.290	1.127	2.417
760	0007	RUMBLE STRIPS - ASPHALT CENTERLINE	MILE	0.645	0.563	1.208
762	0103	PVMT MK PAINTED-MESSAGE	SF	96	96	192
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	7,650	13,656	21,306
762	0434	SHORT TERM 8IN LINE-TYPE NR	LF	2,222	2,620	4,842
762	1104	PVMT MK PAINTED 4IN LINE	LF	11,603	25,618	37,221
762	1108	PVMT MK PAINTED 8IN LINE	LF	1,111	1,310	2,421
766	0100	MAILBOX-ALL TYPES	EA	7	-	7
990	0400	PIPE CLEANOUT	EA	1	3	4

ND Hwy 19

Estimate of Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	10	1

Paving Tables: Mainline & Shoulders (1 of 3)

		ND Hwy 19 - Widening									
		Typical 1 (Section 30, Sheet 2) 40' Paved Width		Typical 2 (Section 30, Sheet 2) 48' Paved Width		Typical 3 (Section 30, Sheet 2) 48' Paved Width		Typical 4 (Section 30, Sheet 2) 52' Paved Width		Typical 5 (Section 30, Sheet 2) 52' Paved Width	
		Stations	# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta
		8078+80 to 8088+32	9.52	8089+38 to 8094+68	5.30	8115+65 to 8117+02	1.37	8122+15 to 8127+00	4.85	8127+00 to 8130+07	3.07
		8095+88 to 8106+01	10.13	8107+59 to 8112+89	5.30						
		8114+14 to 8114+69	0.55								
		8133+97 to 8141+21	7.24								
		8172+00 to 8181+00	9.00								
		Total =	36.44	Total =	10.60	Total =	1.37	Total =	4.85	Total =	3.07
Material	**Unit**	Area (SF) or Width (LF)	Quantity per Station	Area (SF) or Width (LF)	Quantity per Station	Area (SF) or Width (LF)	Quantity per Station	Area (SF) or Width (LF)	Quantity per Station	Area (SF) or Width (LF)	Quantity per Station
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	31.36	217.78	41.36	287.22	40.79	283.26	45.59	316.60	46.38	322.08
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	103.60	57.56	127.60	70.89	127.60	70.89	139.80	77.67	139.80	77.67
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	14.42	106.81	17.75	131.48	17.71	131.19	19.38	143.56	19.42	143.85
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	-	6.41	-	7.89	-	7.87	-	8.61	-	8.63
401 0060 PRIME @ 0.25 Gal/SY	Gal	19.60	54.44	27.60	76.67	27.60	76.67	31.60	87.78	31.60	87.78
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	19.60	1.63	27.60	2.30	27.60	2.30	31.60	2.63	31.60	2.63

Paving Tables: Mainline & Shoulders (2 of 3)

		ND Hwy 19 - Widening				
		Typical 6 (Section 30, Sheet 3) 40' Paved Section 6:1 Inslope		Typical 8 (Section 30, Sheet 3) 2" Overlay Section		Typical 9 (Transition Typical, not shown in plans)
		Stations	# of Sta	Stations	# of Sta	Station
		8141+21 to 8172+00	30.79	8181+00 to 8183+89	2.89	8120+92
		Total =	30.79	Total =	2.89	
Material	**Unit**	Area (SF) or Width (LF)	Quantity per Station	Area (SF) or Width (LF)	Total Quantity	Area (SF) or Width (LF)
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	33.32	231.39	-	-	56.38
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	103.40	57.44	Varies	10.59	156.00
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	14.42	106.81	Varies	141.25	22.38
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	-	6.41	-	8.48	-
401 0060 PRIME @ 0.25 Gal/SY	Gal	19.60	54.44	-	-	39.50
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	19.60	1.63	-	-	39.50

Paving Tables: Mainline & Shoulders (3 of 3)

		ND Hwy 19 - Transitions									
		Transition from Typical 1 to 2		Transition from Typical 1 to 3		Transition from Typical 3 to 9		Transition from Typical 9 to 4		Transition from Typical 5 to 1	
		Stations	# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta	Stations	# of Sta
		8088+32 to 8089+38	1.06	8114+69 to 8115+65	0.96	8117+02 to 8120+92	3.90	8120+92 to 8122+15	1.23	8130+07 to 8133+97	3.90
		8094+68 to 8095+88	1.20								
		8106+01 to 8107+59	1.58								
		8112+89 to 8114+14	1.25								
		Total =	5.09	Total =	0.96	Total =	3.90	Total =	1.23	Total =	3.90
Material	**Unit**	Area (SF) or Width (FT)	Quantity per Station	Area (SF) or Width (FT)	Quantity per Station	Area (SF) or Width (FT)	Quantity per Station	Area (SF) or Width (FT)	Quantity per Station	Area (SF) or Width (FT)	Quantity per Station
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	36.36	252.50	36.08	250.56	48.59	337.43	50.99	354.10	38.87	269.93
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	115.60	64.22	115.60	64.22	141.80	78.78	147.90	82.17	121.70	67.61
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	16.09	119.19	16.07	119.04	20.05	148.52	20.88	154.67	16.92	125.33
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	-	7.15	-	7.14	-	8.91	-	9.28	-	7.52
401 0060 PRIME @ 0.25 Gal/SY	Gal	23.60	65.56	23.60	65.56	33.55	93.19	35.55	98.75	25.60	71.11
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	23.60	1.97	23.60	1.97	33.55	2.80	35.55	2.96	25.60	2.13

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ND Hwy 19

Basis of Estimate

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	10	2

Paving Tables: Approaches (1 of 3)

Approaches													
Material	Unit	(1)	(2)										
		Gravel Private Drive	Paved Private Drive										
		Sta 8093+94	Sta 8079+22	Sta 8080+63	Sta 8084+92	Sta 8089+32	Sta 8106+80	Sta 8112+55	Sta 8115+43	Sta 8135+24	Sta 8176+39	Sta 8179+87	Sta 8179+87
		Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Rt	Lt	Lt	Rt
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	184	253	265	253	253	233	217	324	274	536	607	330
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	13	25	26	25	25	24	22	32	28	60	69	36
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	37	69	73	69	69	65	61	90	76	167	193	100
401 0060 PRIME @ 0.25 Gal/SY	Gal	33	62	66	62	62	59	55	81	69	150	173	90
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	2	4	4	4	4	4	4	5	5	10	12	6

Paving Tables: Approaches (2 of 3)

Approaches					
Material	Unit	(3)	(4)		
		Gravel Low Volume Public Road	Paved Low Volume Public Road		
		Sta 8121+53	Sta 8088+85	Sta 8106+80	Sta 8121+53
		Lt	Lt	Lt	Rt
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	243	267	417	338
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	22	28	45	35
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	61	77	125	96
401 0060 PRIME @ 0.25 Gal/SY	Gal	55	69	112	86
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	4	5	8	6

Paving Tables: Approaches (3 of 3)

Approaches							
Material	Unit	(5)					
		Gravel Field Drive Approach					
		Sta 8128+30	Sta 8128+30	Sta 8137+35	Sta 8140+85	Sta 8157+05	Sta 8172+36
		Rt	Lt	Lt	Lt	Rt	Rt
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	102	97	78	84	112	93
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	3	3	3	3	3	3
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	9	9	9	9	9	9
401 0060 PRIME @ 0.25 Gal/SY	Gal	8	8	8	8	8	8
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	1	1	1	1	1	1

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ND Hwy 19

Basis of Estimate

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	10	3

Mainline & Shoulders Paving Summary Table

Summary Table (1 of 3): Subtotals from Mainline Paving Tables 1-3		
Material	Unit	Total
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	25,347
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	6,421
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	12,280
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	737
401 0060 PRIME @ 0.25 Gal/SY	Gal	6,432
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	193

Approach Paving Summary Table

Summary Table (2 of 3): Subtotals from Approach Paving Tables 1-3		
Material	Unit	Total
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	5,560
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	533
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	1,482
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	88
401 0060 PRIME @ 0.25 Gal/SY	Gal	1,332
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	-

Cumulative Paving Summary Table

Cumulative Paving Summary Table: Summation of Summary Tables 1-6		
Material	Unit	Total
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	30,907
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	6,954
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	13,762
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	825
401 0060 PRIME @ 0.25 Gal/SY	Gal	7,764
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	193

Coring

430 1000 CORED SAMPLE								
Specification Section	Location	Begin Station	End Station	A	B	C	D	
				Distance (Ft)÷2000	Lanes	Lifts	Sublots	Quantity (EA)
							(A × B × C)	(D × 2)
430.04 I.2.b(1), "General"	Segment 1	8078+80	8183+89	5	2	2	20	40
							Total:	40 EA

Rumble Strips-Shoulder

760 0005 RUMBLE STRIPS - ASPHALT SHOULDER			
Begin Station	End Station	Basis	Quantity (Mile)
8078+80	8142+60	10,560 LF/Mile	2.417
		Total:	2.417 Mile

Rumble Strips-Centerline

760 0007 RUMBLE STRIPS - ASPHALT CENTERLINE			
Begin Station	End Station	Basis	Quantity (Mile)
8078+80	8142+60	5,280 LF/Mile	1.208
		Total:	1.208 Mile

Object Markers - Culverts

754 0805 OBJECT MARKERS - CULVERTS		
Station	Offset	Quantity (EA)
8079+22	Rt	2
8080+63	Rt	2
8084+92	Rt	2
8089+32	Rt	2
8093+94	Rt	2
8097+00	CL	2
8105+80	Rt	2
8115+43	Rt	2
8121+53	Rt	2
8121+53	Lt	2
8128+30	Lt	2
8128+30	Lt	2
8128+30	Rt	2
8135+24	Rt	2
8135+31	CL	2
8135+40	CL	2
8174+55	CL	2
8175+39	Lt	2
8179+87	Lt	2
8179+87	Rt	2
	Total:	40 EA

Note: Refer to Standard Drawing D-754-83

Mailboxes

766 0100 MAILBOX-ALL TYPES				
Station	Offset	Type	Mailboxes	Quantity (EA)
8079+41	22' Rt	Double	2	1
8080+80	23' Rt	Double	2	1
8088+63	59' Lt	Double	2	1
8089+53	23' Rt	Double	2	1
8094+13	25' Rt	Single	1	1
8107+00	25' Rt	Double	2	1
8112+72	26' Rt	Single	1	1
			Total:	7 EA

Note: Refer to Standard Drawing D-766-01

Reference Markers

754 563 REFERENCE MARKER-TYPE C		
Station	Reference Marker	Quantity (EA)
8077+69	153	1
8130+37	154	1
	Total:	2 EA

Water

216 0100 WATER			
Material	Basis	Basis Quantity	Quantity (MGAL)
Dust Palliative	25 MGal/Mile	1.990 Mile	50
Dust Palliative Haul Road	-	-	250
Embankment	10 Gal/CY	50,378 CY	504
Aggregates	20 Gal/Ton	30,907 Ton	618
		Total:	1,422 MGal

Pipe Cleanout

990 0400 PIPE CLEANOUT		
Station	Location	Quantity (EA)
8097+00	CL	1
8136+31	CL	1
8136+40	CL	1
8174+55	CL	1
	Total:	4 EA

Silt Fence

SUMMARY OF QUANTITIES					
Section	Sheets	Location	260 0200 SILT FENCE SUPPORTED (LF)	261 0112 FIBER ROLLS 12IN (LF)	261 0120 FIBER ROLLS 20IN (LF)
76	1-3	Project Limits	12,073	2,466	100
77	1-3	Project Limits		14,841	
-	-	Borrow Site	2,700		
		TOTAL:	14,773	17,307	100

Seeding & Mulching

SEEDING & MULCHING			
Locations	251 2000 TEMPORARY CROP COVER (Acres)	251 200 SEEDING-CLASS II (Acres)	253 0101 STRAW MULCH (Acres)
Project Limits	14.09	14.09	28.18
Borrow Site	6.75	6.75	13.50
Totals:	20.84	20.84	41.68

Wetland Seeding

SCHEDULE OF QUANTITIES	
Wetland Number	251 1000 WETLAND SEEDING (Acres)
#72	0.02
#73	0.01
#73a	0.09
#73b	0.36
#73c	0.03
#74b	0.02
#74c	0.25
#74d	0.11
#74e	0.01
#77	0.01
#77a	0.54
#78	0.17
#79	0.16
#79a	0.16
#81	0.05
#81a	0.01
Total:	2.00

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ND Hwy 19

Basis of Estimate

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	11	1

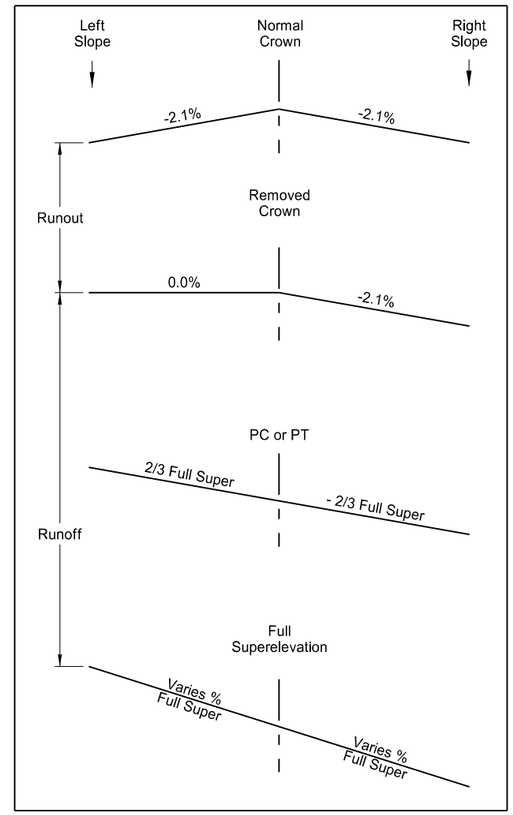
Curve PR19_SEG4-1

P.I. Station	8120+19.01 N	408,189.1200 E	2,360,116.2960
Delta =	12° 33' 50.59" (LT)		
Degree =	0° 59' 59.95"		
Tangent =	630.7400		
Length =	1,256.4210		
Radius =	5,729.6500		
External =	34.6125		
Long Chord =	1,253.9052		
Mid. Ord. =	34.4047		
P.C. Station	8113+88.27 N	408,179.9348 E	2,359,485.6229
P.T. Station	8126+44.69 N	408,335.2761 E	2,360,729.8686
C.C.	N	413,908.9772 E	2,359,402.1846

Back = N 89° 09' 56.15" E
Ahead = N 76° 36' 05.57" E
Chord Bear = N 82° 53' 00.86" E

Existing Superelevation = ~3.0%
Proposed Superelevation = Match Existing

Horizontal Curve



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ND Hwy 19

Data Tables

Superelevation Details

Earthwork Summary - Left of ND Hwy 19 Centerline

Location	203 0101 COMMON EXCAVATION-TYPE A (CY)	Embankment (CY)	203 0140 BORROW-EXCAVATION (CY)
	A	B	C = B - A
ND Highway 19 - Mainline			
Sta 8078+80 to 8183+89 Lt	786	21,150	20,364
ND Highway 19 - Approaches			
Sta 8088+85 Lt (Devils Lake Public Works)	159	101	(58)
Sta 8106+80 Lt (Devils Lake Regional Airport)	99	110	11
Sta 8121+53 Lt (80th Ave NE / Walley Dr)	111	152	41
Sta 8128+30 Lt (Gravel Field Drive Approach)	5	610	605
Sta 8137+35 Lt (Gravel Field Drive Approach)	3	82	79
Sta 8140+85 Lt (Gravel Field Drive Approach)	2	132	130
Sta 8172+36 Lt (Gravel Field Drive Approach)	0	432	432
Sta 8176+39 Lt (Frontage Road Approach)	75	285	210
Sta 8179+87 Lt (Frontage Road Approach)	105	177	72
TOTAL	**1,345**	**23,231**	**21,886**

Notes:

1. This computation report is not a balance sheet. The Contractor shall calculate their own balance of materials.
2. An additional volume of 25% to allow for shrinkage is included in all embankment volumes.

Earthwork Summary - Right of ND Hwy 19 Centerline

Location	203 0101 COMMON EXCAVATION-TYPE A (CY)	Embankment (CY)	203 0140 BORROW-EXCAVATION (CY)
	A	B	C = A - B
ND Highway 19 - Mainline			
Sta 8078+80 to 8183+89 Rt	922	22,444	21,522
ND Highway 19 - Approaches			
Sta 8079+22 Rt (Paved Private Drive)	24	358	334
Sta 8080+63 Rt (Paved Private Drive)	22	414	392
Sta 8084+92 Rt (Paved Private Drive)	19	387	368
Sta 8089+32 Rt (Paved Private Drive)	11	440	429
Sta 8093+94 Rt (Gravel Private Drive)	6	535	529
Sta 8106+80 Rt (Paved Private Drive)	21	324	303
Sta 8112+55 Rt (Paved Private Drive)	84	194	110
Sta 8115+43 Rt (Paved Private Drive)	47	456	409
Sta 8121+53 Rt (80th Ave NE / Walley Dr)	72	308	236
Sta 8128+30 Rt (Gravel Field Drive Approach)	0	946	946
Sta 8135+24 Rt (Paved Private Drive)	81	40	(41)
Sta 8157+05 Rt (Gravel Field Drive Approach)	2	284	282
Sta 8179+87 Rt (Frontage Road Approach)	93	17	(76)
TOTAL	**1,404**	**27,147**	**25,743**

Notes:

1. This computation report is not a balance sheet. The Contractor shall calculate their own balance of materials.
2. An additional volume of 25% to allow for shrinkage is included in all embankment volumes.

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ND Hwy 19

Data Tables

Earthwork Summary

Topsoil Summary - Mainline & Approaches Left

Location	Topsoil Removed	Topsoil Required	Balance
	203 109 TOPSOIL (CY)	Topsoil (CY)	Topsoil Balance (CY)
	AA	BB	CC = AA - BB
ND Highway 19 - Mainline			
Sta 8078+80 to 8183+89 Lt	6,395	6,248	147
ND Highway 19 - Approaches			
Sta 8088+85 Lt (Devils Lake Public Works)	106	159	(53)
Sta 8106+80 Lt (Devils Lake Regional Airport)	71	81	(10)
Sta 8121+53 Lt (80th Ave NE / Walley Dr)	97	95	2
Sta 8128+30 Lt (Gravel Field Drive Approach)	97	109	(12)
Sta 8137+35 Lt (Gravel Field Drive Approach)	37	32	5
Sta 8140+85 Lt (Gravel Field Drive Approach)	56	63	(7)
Sta 8172+36 Lt (Gravel Field Drive Approach)	119	115	4
Sta 8176+39 Lt (Frontage Road Approach)	65	110	(45)
Sta 8179+87 Lt (Frontage Road Approach)	42	73	(31)
TOTAL	**7,085**	**7,085**	**-**

Topsoil Summary - Mainline & Approaches Right

Location	Topsoil Removed	Topsoil Required	Balance
	203 109 TOPSOIL (CY)	Topsoil (CY)	Topsoil Balance (CY)
	AA	BB	CC = AA - BB
ND Highway 19 - Mainline			
Sta 8078+80 to 8183+89 Rt	4,995	4,879	116
ND Highway 19 - Approaches			
Sta 8079+22 Rt (Paved Private Drive)	114	109	5
Sta 8080+63 Rt (Paved Private Drive)	122	119	3
Sta 8084+92 Rt (Paved Private Drive)	127	123	4
Sta 8089+32 Rt (Paved Private Drive)	97	104	(7)
Sta 8093+94 Rt (Gravel Private Drive)	101	121	(20)
Sta 8106+80 Rt (Paved Private Drive)	92	99	(7)
Sta 8112+55 Rt (Paved Private Drive)	93	91	2
Sta 8115+43 Rt (Paved Private Drive)	106	124	(18)
Sta 8121+53 Rt (80th Ave NE / Walley Dr)	83	116	(33)
Sta 8128+30 Rt (Gravel Field Drive Approach)	122	134	(12)
Sta 8135+24 Rt (Paved Private Drive)	69	89	(20)
Sta 8157+05 Rt (Gravel Field Drive Approach)	79	77	2
Sta 8179+87 Rt (Frontage Road Approach)	43	58	(15)
TOTAL	**6,243**	**6,243**	**-**

Topsoil-Borrow Summary

Location	Topsoil Removed
	203 108 TOPSOIL-BORROW AREA (CY)
	AA
Secured Borrow Area SE 1/4 Sec. 24 T-154-N R-66-W	**5,445**
TOTAL	**5,445**

Notes:

1. Topsoil quantities are based on a 6" removal depth and 6" placement depth.
2. The "TOPSOIL-BORROW AREA" quantity is based upon 27% of a 25 acre plan view area and 6" thickness. The remaining 73% is paid for in tied project SS-3-019(065)139, PCN 20682.

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ND Hwy 19

Data Tables

Topsoil Summary

Notes:

1. Topsoil quantities are based on a 6" removal depth and 6" placement depth.

Topsoil-Wetland Summary

Location	Removed	Required		Balance
	203 0121 TOPSOIL-WETLAND (CY)	Topsoil-Wetland to be Replaced (CY)	Topsoil-Wetland to be Spread Evenly on Project (CY)	Topsoil-Wetland (CY)
	DD	EE	FF	HH=DD-EE-FF
ND Highway 19 ***(Segment 4)***				
Wetland 72	31	16	15	-
Wetland 73	13	6	7	-
Wetland 73a	130	74	56	-
Wetland 73b	422	290	132	-
Wetland 73c	55	22	33	-
Wetland 74	-	-	-	-
Wetland 74a	-	-	-	-
Wetland 74b	19	14	5	-
Wetland 74c	280	200	80	-
Wetland 74d	109	87	22	-
Wetland 74e	16	9	7	-
Wetland 75	6	-	6	-
Wetland 76	-	-	-	-
Wetland 77	17	9	8	-
Wetland 77a	479	437	42	-
Wetland 78	183	138	45	-
Wetland 79	159	128	31	-
Wetland 79a	157	125	32	-
Wetland 80	-	-	-	-
Wetland 81	62	44	18	-
Wetland 81a	12	9	3	-
TOTAL	**2,150**	**1,608**	**542**	**-**

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ND Hwy 19

Data Tables

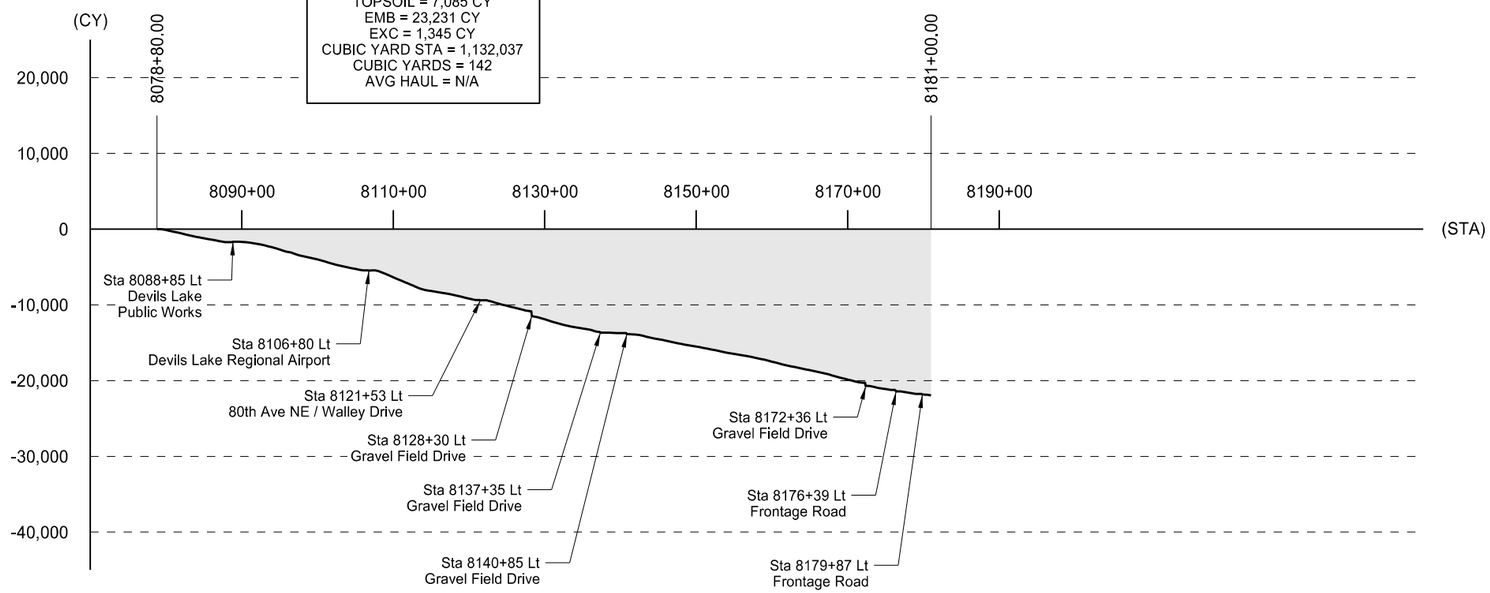
Topsoil-Wetland Summary

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	11	5

Mass Diagram - Left of ND Highway 19 Centerline

Sta 8078+80.00 to Sta 8181+00.00 Lt

TOPSOIL = 7,085 CY
EMB = 23,231 CY
EXC = 1,345 CY
CUBIC YARD STA = 1,132,037
CUBIC YARDS = 142
AVG HAUL = N/A



Left Side Totals

TOPSOIL = 7,085 CY
EMB = 23,231 CY
EXC = 1,345 CY
BORROW = 21,886 CY
CUBIC YARD STA = 1,132,037
CUBIC YARDS = 142
AVG HAUL = N/A

Project Totals

TOPSOIL = 13,328 CY
EMB = 50,378 CY
EXC = 2,749 CY
BORROW = 47,629 CY
CUBIC YARD STA = 2,625,512
CUBIC YARDS = 25,888
AVG HAUL = N/A

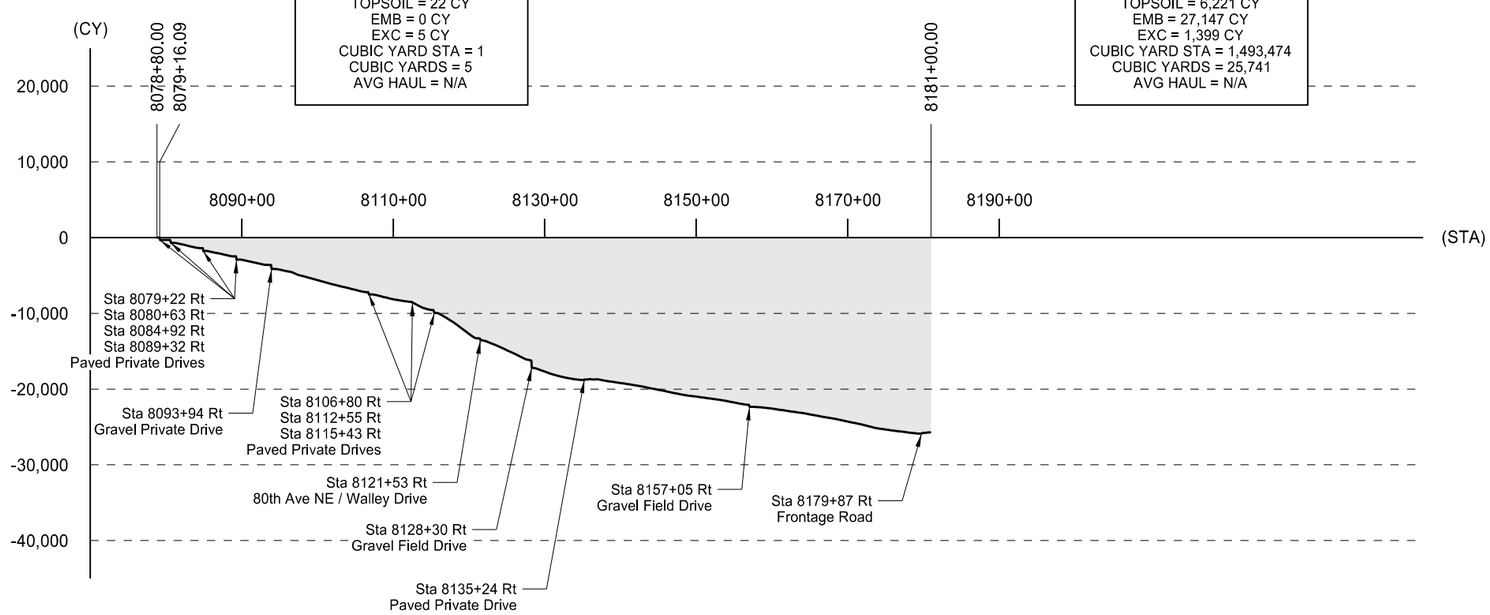
Mass Diagram - Right of ND Highway 19 Centerline

Sta 8078+80.00 to Sta 8079+16.09 Rt

TOPSOIL = 22 CY
EMB = 0 CY
EXC = 5 CY
CUBIC YARD STA = 1
CUBIC YARDS = 5
AVG HAUL = N/A

Sta 8079+16.09 to Sta 8181+00.00 Rt

TOPSOIL = 6,221 CY
EMB = 27,147 CY
EXC = 1,399 CY
CUBIC YARD STA = 1,493,474
CUBIC YARDS = 25,741
AVG HAUL = N/A



Right Side Totals

TOPSOIL = 6,243 CY
EMB = 27,147 CY
EXC = 1,404 CY
BORROW = 25,743 CY
CUBIC YARD STA = 1,493,475
CUBIC YARDS = 25,746
AVG HAUL = N/A

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ND Hwy 19

Data Tables

Mass Diagrams

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	11	6

ND Highway 19 – Left of Centerline (1 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8078+80.00		5.62			2.28				0
8079+16.00	36.00	4.57	7	7	10.57	9	11	11	-4
8079+22.00	**-**	**-**	**-**	**7**	**-**	**-**	**-**	**11**	**-4**
8079+29.00	13.00	4.09	2	9	16.52	7	9	20	-11
8079+64.00	35	3.68	5	14	36.86	35	44	64	-50
8079+80.00	16	2.80	2	16	47.28	25	31	95	-79
8080+00.00	20	2.14	2	18	54.01	38	48	143	-125
8080+21.00	21	2.05	2	20	51.89	41	51	194	-174
8080+55.00	34	1.77	2	22	46.97	62	78	272	-250
8080+63.00	**-**	**-**	**-**	**22**	**-**	**-**	**-**	**272**	**-250**
8080+71.00	16	1.70	1	23	46.13	28	35	307	-284
8081+05.00	34	1.84	2	25	45.98	58	73	380	-355
8081+50.00	45	1.79	3	28	47.18	78	98	478	-450
8082+00.00	50	1.54	3	31	51.07	91	114	592	-561
8082+50.00	50	1.10	2	33	59.25	102	128	720	-687
8083+00.00	50	1.12	2	35	51.63	103	129	849	-814
8083+50.00	50	1.14	2	37	46.51	91	114	963	-926
8084+00.00	50	1.23	2	39	43.43	83	104	1,067	-1,028
8084+50.00	50	1.54	3	42	43.14	80	100	1,167	-1,125
8084+87.00	37	1.80	2	44	40.16	57	71	1,238	-1,194
8084+92.00	**-**	**-**	**-**	**44**	**-**	**-**	**-**	**1,238**	**-1,194**
8084+96.00	9	1.75	1	45	39.51	13	16	1,254	-1,209
8085+34.00	38	1.57	2	47	37.10	54	68	1,322	-1,275
8085+50.00	16	1.62	1	48	38.63	22	28	1,350	-1,302
8086+00.00	50	1.56	3	51	40.95	74	93	1,443	-1,392
8086+50.00	50	1.66	3	54	43.10	78	98	1,541	-1,487
8087+00.00	50	1.97	3	57	38.38	75	94	1,635	-1,578
8087+50.00	50	1.87	4	61	40.14	73	91	1,726	-1,665
8087+82.00	32	1.91	2	63	38.35	47	59	1,785	-1,722
8088+00.00	18	2.06	1	64	0.00	13	16	1,801	-1,737
8088+32.00	32	2.16	2	66	0.00	0	0	1,801	-1,735
8088+73.00	41	1.88	3	69	0.00	0	0	1,801	-1,732
8088+85.00	**-**	**-**	**159**	**228**	**-**	**81**	**101**	**1,902**	**-1,674**
8088+90.00	17	5.37	2	230	0.00	0	0	1,902	-1,672
8089+25.00	35	5.99	7	237	0.00	0	0	1,902	-1,665
8089+32.00	**-**	**-**	**-**	**237**	**-**	**-**	**-**	**1,902**	**-1,665**
8089+38.00	13	5.36	3	240	0.00	0	0	1,902	-1,662
8089+74.00	36	4.61	7	247	20.46	14	18	1,920	-1,673
8090+00.00	26	4.04	4	251	21.42	20	25	1,945	-1,694
8090+50.00	50	3.33	7	258	24.33	42	53	1,998	-1,740
8091+00.00	50	3.51	6	264	28.70	49	61	2,059	-1,795
8091+50.00	50	3.58	7	271	36.44	60	75	2,134	-1,863
8092+00.00	50	3.52	7	278	40.71	71	89	2,223	-1,945
8092+50.00	50	3.24	6	284	45.07	79	99	2,322	-2,038
8093+00.00	50	2.79	6	290	51.53	89	111	2,433	-2,143
8093+52.00	52	2.28	5	295	61.55	109	136	2,569	-2,274
8093+86.00	34	1.94	3	298	61.22	77	96	2,665	-2,367
8093+94.00	**-**	**-**	**-**	**298**	**-**	**-**	**-**	**2,665**	**-2,367**
8094+00.00	14	1.80	1	299	61.24	32	40	2,705	-2,406
8094+36.00	36	2.26	3	302	62.42	82	103	2,808	-2,506
8094+50.00	14	1.83	1	303	64.92	33	41	2,849	-2,546
8094+68.00	18	2.17	1	304	67.76	44	55	2,904	-2,600
8095+00.00	32	1.79	2	306	76.09	85	106	3,010	-2,704
8095+50.00	50	1.06	3	309	65.89	131	164	3,174	-2,865
8095+88.00	38	1.13	2	311	53.67	84	105	3,279	-2,968
8096+00.00	12	1.07	0	311	52.72	24	30	3,309	-2,998

ND Highway 19 – Right of Centerline (1 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8078+80.00		4.15			0.00				0
8079+16.00	36.00	3.93	5	5	0.00	0	0	0	5
8079+22.00	**-**	**-**	**24**	**29**	**-**	**286**	**358**	**358**	**-329**
8079+29.00	13.00	3.94	2	31	0.00	0	0	358	-327
8079+64.00	35	2.52	4	35	0.00	0	0	358	-323
8079+80.00	16	2.06	1	36	0.20	0	0	358	-322
8080+00.00	20	1.71	1	37	0.44	0	0	358	-321
8080+21.00	21	1.37	1	38	0.70	0	0	358	-320
8080+55.00	34	2.37	2	40	0.00	0	0	358	-318
8080+63.00	**-**	**-**	**22**	**62**	**-**	**331**	**414**	**772**	**-710**
8080+71.00	16	2.14	1	63	0.00	0	0	772	-709
8081+05.00	34	1.42	2	65	0.13	0	0	772	-707
8081+50.00	45	1.35	2	67	51.98	43	54	826	-759
8082+00.00	50	1.46	3	70	50.16	95	119	945	-875
8082+50.00	50	1.85	3	73	52.70	95	119	1,064	-991
8083+00.00	50	1.18	3	76	54.66	99	124	1,188	-1,112
8083+50.00	50	1.24	2	78	54.12	101	126	1,314	-1,236
8084+00.00	50	1.57	3	81	49.80	96	120	1,434	-1,353
8084+50.00	50	1.23	3	84	0.61	47	59	1,493	-1,409
8084+87.00	37	2.55	3	87	0.00	0	0	1,493	-1,406
8094+32.00	**-**	**-**	**19**	**106**	**-**	**310**	**387**	**1,880**	**-1,774**
8084+96.00	9	2.42	1	107	0.00	0	0	1,880	-1,773
8085+34.00	38	1.66	3	110	0.02	0	0	1,880	-1,770
8085+50.00	16	1.56	1	111	43.95	13	16	1,896	-1,785
8086+00.00	50	1.55	3	114	48.56	86	108	2,004	-1,890
8086+50.00	50	1.63	3	117	48.00	89	111	2,115	-1,998
8087+00.00	50	1.92	3	120	45.24	86	108	2,223	-2,103
8087+50.00	50	1.63	3	123	47.67	86	108	2,331	-2,208
8087+82.00	32	1.99	2	125	48.35	57	71	2,402	-2,277
8088+00.00	18	1.62	1	126	47.23	32	40	2,442	-2,316
8088+32.00	32	1.84	2	128	49.45	57	71	2,513	-2,385
8088+73.00	41	1.65	3	131	43.82	71	89	2,602	-2,471
8088+85.00	**-**	**-**	**-**	**131**	**-**	**-**	**-**	**2,602**	**-2,471**
8088+90.00	17	1.39	1	132	0.47	14	18	2,620	-2,488
8089+25.00	35	2.93	3	135	0.00	0	0	2,620	-2,485
8089+32.00	**-**	**-**	**11**	**146**	**-**	**352**	**440**	**3,060**	**-2,914**
8089+38.00	13	2.55	1	147	0.00	0	0	3,060	-2,913
8089+74.00	36	2.39	3	150	0.03	0	0	3,060	-2,910
8090+00.00	26	1.98	2	152	46.59	22	28	3,088	-2,936
8090+50.00	50	1.73	3	155	50.85	90	113	3,201	-3,046
8091+00.00	50	1.65	3	158	49.56	93	116	3,317	-3,159
8091+50.00	50	1.52	3	161	49.39	92	115	3,432	-3,271
8092+00.00	50	1.48	3	164	49.37	91	114	3,546	-3,382
8092+50.00	50	1.63	3	167	45.36	88	110	3,656	-3,489
8093+00.00	50	1.62	3	170	39.54	79	99	3,755	-3,585
8093+52.00	52	1.85	3	173	0.25	38	48	3,803	-3,630
8093+86.00	34	2.10	2	175	0.00	0	0	3,803	-3,628
8093+94.00	**-**	**-**	**6**	**181**	**-**	**428**	**535**	**4,338**	**-4,157**
8094+00.00	14	2.10	1	182	0.00	0	0	4,338	-4,156
8094+36.00	36	1.73	3	185	0.07	0	0	4,338	-4,153
8094+50.00	14	1.78	1	186	0.28	0	0	4,338	-4,152
8094+68.00	18	8.61	3	189	50.96	17	21	4,359	-4,170
8095+00.00	32	9.87	11	200	54.68	63	79	4,438	-4,238
8095+50.00	50	13.16	21	221	58.18	105	131	4,569	-4,348
8095+88.00	38	14.88	20	241	55.84	80	100	4,669	-4,428
8096+00.00	12	15.37	7	248	54.69	25	31	4,700	-4,452

Notes:

1. Stationing is based on alignment "PR19_SEG4".
2. An additional volume of 25% to allow for shrinkage is included in all adjusted embankment volumes.
3. All existing pavements and bases to be removed are not included in the earthwork summary but rather will be paid for under their respective removal bid items.
4. Sta 8079+22.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8079+22" alignment.
5. Sta 8080+63.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8080+63" alignment.
6. Sta 8084+92.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8084+92" alignment.
7. Sta 8088+85.00 Lt consists of the cumulative earthwork summary of the Paved Low Volume Public Road along the "PRA_8080+85" alignment.
8. Sta 8089+32.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8089+32" alignment.
9. Sta 8093+94.00 Rt consists of the cumulative earthwork summary of the Gravel Private Drive along the "PRA_8093+94" alignment.

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ND Hwy 19

Data Tables

Average End Area Tables

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	11	7

ND Highway 19 – Left of Centerline (2 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8096+50.00	50	15.74	16	327	51.74	97	121	3,430	-3,103
8096+95.00	45	22.30	32	359	120.17	143	179	3,609	-3,250
8097+00.00	5	23.13	4	363	118.90	22	28	3,637	-3,274
8097+05.00	5	23.11	4	367	118.52	22	28	3,665	-3,298
8097+50.00	45	13.43	30	397	53.18	143	179	3,844	-3,447
8098+00.00	50	0.49	13	410	50.66	96	120	3,964	-3,554
8098+50.00	50	0.65	1	411	46.55	90	113	4,077	-3,666
8099+00.00	50	0.71	1	412	51.07	90	113	4,190	-3,778
8099+50.00	50	0.78	1	413	51.38	95	119	4,309	-3,896
8100+00.00	50	0.56	1	414	57.36	101	126	4,435	-4,021
8100+50.00	50	0.50	1	415	60.75	109	136	4,571	-4,156
8101+00.00	50	0.49	1	416	63.18	115	144	4,715	-4,299
8101+50.00	50	0.43	1	417	63.41	117	146	4,861	-4,444
8102+00.00	50	0.52	1	418	61.88	116	145	5,006	-4,588
8102+50.00	50	0.74	1	419	57.28	110	138	5,144	-4,725
8103+00.00	50	0.52	1	420	49.03	98	123	5,267	-4,847
8103+50.00	50	0.57	1	421	46.95	89	111	5,378	-4,957
8104+00.00	50	0.54	1	422	46.44	86	108	5,486	-5,064
8104+50.00	50	0.81	1	423	44.35	84	105	5,591	-5,168
8105+00.00	50	0.68	1	424	46.67	84	105	5,696	-5,272
8105+50.00	50	0.77	1	425	44.13	84	105	5,801	-5,376
8106+01.00	51	2.33	3	428	22.86	63	79	5,880	-5,452
8106+38.00	37	3.69	4	432	0.00	16	20	5,900	-5,468
8106+70.00	32	3.42	4	436	0.00	0	0	5,900	-5,464
8106+80.00	**-**	**-**	**99**	**535**	**-**	**88**	**110**	**6,010**	**-5,475**
8106+90.00	20	7.83	4	539	0.00	0	0	6,010	-5,471
8107+22.00	32	8.77	10	549	0.00	0	0	6,010	-5,461
8107+50.00	28	5.67	7	556	0.88	0	0	6,010	-5,454
8107+59.00	9	4.52	2	558	0.00	0	0	6,010	-5,452
8108+00.00	41	1.32	4	562	87.37	66	83	6,093	-5,531
8108+50.00	50	0.97	2	564	89.67	164	205	6,298	-5,734
8108+80.00	30	1.04	1	565	90.87	100	125	6,423	-5,858
8109+00.00	20	1.18	1	566	92.74	68	85	6,508	-5,942
8109+50.00	50	1.39	2	568	89.75	169	211	6,719	-6,151
8110+00.00	50	1.22	2	570	97.26	173	216	6,935	-6,365
8110+50.00	50	1.13	2	572	93.98	177	221	7,156	-6,584
8111+00.00	50	1.31	2	574	92.00	172	215	7,371	-6,797
8111+50.00	50	1.31	2	576	86.16	165	206	7,577	-7,001
8112+00.00	50	1.36	2	578	90.50	164	205	7,782	-7,204
8112+13.00	13	1.35	1	579	92.21	44	55	7,837	-7,258
8112+46.00	33	1.59	2	581	95.61	115	144	7,981	-7,400
8112+55.00	**-**	**-**	**-**	**581**	**-**	**-**	**-**	**7,981**	**-7,400**
8112+62.00	16	1.55	1	582	97.24	57	71	8,052	-7,470
8112+89.00	27	1.16	1	583	100.17	99	124	8,176	-7,593
8112+97.00	8	1.09	0	583	98.37	29	36	8,212	-7,629
8113+50.00	53	1.20	2	585	80.57	176	220	8,432	-7,847
8113+88.27	38.27	2.09	2	587	58.32	98	123	8,555	-7,968
8114+13.98	25.71	2.26	2	589	46.28	50	63	8,618	-8,029
8114+59.07	45.09	2.71	4	593	40.61	73	91	8,709	-8,116
8115+03.52	44.45	2.71	4	597	37.68	64	80	8,789	-8,192
8115+32.00	28.48	2.78	3	600	32.38	37	46	8,835	-8,235
8115+43.00	**-**	**-**	**-**	**600**	**-**	**-**	**-**	**8,835**	**-8,235**
8115+54.00	22	2.20	2	602	33.81	27	34	8,869	-8,267
8115+61.81	7.81	2.33	1	603	34.24	10	13	8,882	-8,279
8115+84.58	22.77	2.27	2	605	36.86	30	38	8,920	-8,315
8116+00.00	15.42	2.14	1	606	36.99	21	26	8,946	-8,340

ND Highway 19 – Right of Centerline (2 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8096+50.00	50	14.64	28	276	52.43	99	124	4,824	-4,548
8096+95.00	45	4.25	16	292	126.77	149	186	5,010	-4,718
8097+00.00	5	5.50	1	293	127.71	24	30	5,040	-4,747
8097+05.00	5	5.85	1	294	121.22	23	29	5,069	-4,775
8097+50.00	45	6.25	10	304	52.08	144	180	5,249	-4,945
8098+00.00	50	0.80	7	311	55.47	100	125	5,374	-5,063
8098+50.00	50	0.74	1	312	61.97	109	136	5,510	-5,198
8099+00.00	50	0.55	1	313	62.68	115	144	5,654	-5,341
8099+50.00	50	0.96	1	314	60.95	114	143	5,797	-5,483
8100+00.00	50	0.71	2	316	60.64	113	141	5,938	-5,622
8100+50.00	50	0.85	1	317	58.06	110	138	6,076	-5,759
8101+00.00	50	0.71	1	318	57.49	107	134	6,210	-5,892
8101+50.00	50	0.63	1	319	60.83	110	138	6,348	-6,029
8102+00.00	50	0.57	1	320	60.31	112	140	6,488	-6,168
8102+50.00	50	0.64	1	321	56.15	108	135	6,623	-6,302
8103+00.00	50	0.71	1	322	51.38	100	125	6,748	-6,426
8103+50.00	50	0.75	1	323	53.49	97	121	6,869	-6,546
8104+00.00	50	0.94	2	325	52.86	98	123	6,992	-6,667
8104+50.00	50	1.14	2	327	55.11	100	125	7,117	-6,790
8105+00.00	50	0.92	2	329	55.00	102	128	7,245	-6,916
8105+50.00	50	0.81	2	331	54.40	101	126	7,371	-7,040
8106+01.00	51	0.85	2	333	52.29	101	126	7,497	-7,164
8106+38.00	37	0.83	1	334	1.24	37	46	7,543	-7,209
8106+70.00	32	2.36	2	336	0.00	1	1	7,544	-7,208
8106+80.00	**-**	**-**	**21**	**357**	**-**	**259**	**324**	**7,868**	**-7,511**
8106+90.00	20	2.45	2	359	0.00	0	0	7,868	-7,509
8107+22.00	32	0.88	2	361	0.27	0	0	7,868	-7,507
8107+50.00	28	1.04	1	362	49.28	26	33	7,901	-7,539
8107+59.00	9	1.02	0	362	50.58	17	21	7,922	-7,560
8108+00.00	41	1.13	2	364	54.25	80	100	8,022	-7,658
8108+50.00	50	0.95	2	366	57.44	103	129	8,151	-7,785
8108+80.00	30	1.05	1	367	57.89	64	80	8,231	-7,864
8109+00.00	20	1.16	1	368	57.16	43	54	8,285	-7,917
8109+50.00	50	1.55	3	371	52.91	102	128	8,413	-8,042
8110+00.00	50	1.79	3	374	47.75	93	116	8,529	-8,155
8110+50.00	50	1.67	3	377	35.98	78	98	8,627	-8,250
8111+00.00	50	1.81	3	380	35.38	66	83	8,710	-8,330
8111+50.00	50	1.86	3	383	35.79	66	83	8,793	-8,410
8112+00.00	50	2.15	4	387	18.88	51	64	8,857	-8,470
8112+13.00	13	2.36	1	388	11.25	7	9	8,866	-8,478
8112+46.00	33	2.81	3	391	0.00	7	9	8,875	-8,484
8112+55.00	**-**	**-**	**84**	**475**	**-**	**155**	**194**	**9,069**	**-8,594**
8112+62.00	16	1.55	1	476	97.24	29	36	9,105	-8,629
8112+89.00	27	1.16	1	477	100.17	99	124	9,229	-8,752
8112+97.00	8	1.09	0	477	98.37	29	36	9,265	-8,788
8113+50.00	53	1.20	2	479	142.28	236	295	9,560	-9,081
8113+88.27	38.27	1.28	2	481	70.05	150	188	9,748	-9,267
8114+13.98	25.71	1.02	1	482	72.95	68	85	9,833	-9,351
8114+59.07	45.09	0.89	2	484	67.71	117	146	9,979	-9,495
8115+03.52	44.45	0.79	1	485	4.25	59	74	10,053	-9,568
8115+32.00	28.48	2.91	2	487	0.09	2	3	10,056	-9,569
8115+43.00	**-**	**-**	**47**	**534**	**-**	**365**	**456**	**10,512**	**-9,978**
8115+54.00	22	2.72	2	536	0.44	0	0	10,512	-9,976
8115+61.81	7.81	2.45	1	537	1.41	0	0	10,512	-9,975
8115+84.58	22.77	2.29	2	539	6.90	4	5	10,517	-9,978
8116+00.00	15.42	2.53	1	540	114.25	35	44	10,561	-10,021

Notes:

1. Stationing is based on alignment "PR19_SEG4".
2. An additional volume of 25% to allow for shrinkage is included in all adjusted embankment volumes.
3. All existing pavements and bases to be removed are not included in the earthwork summary but rather will be paid for under their respective removal bid items.
4. Sta 8106+80.00 Lt consists of the cumulative earthwork summary of the Paved Low Volume Public Road along the "PRA_8106+80" alignment.
5. Sta 8106+80.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8106+80" alignment.
6. Sta 8112+55.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8112+55" alignment.
7. Sta 8115+43.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8115+43" alignment.

This document was originally issued and sealed by Jonathan D Bach, Registration Number PE-9797, on 01/29/16 and the original document is stored at the North Dakota Department of Transportation.

ND Hwy 19

Data Tables

Average End Area Tables

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	11	8

ND Highway 19 – Left of Centerline (3 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8116+50.00	50	2.22	4	610	35.85	67	84	9,030	-8,420
8117+02.13	52.13	1.91	4	614	42.18	75	94	9,124	-8,510
8117+50.00	47.87	1.58	3	617	46.79	79	99	9,223	-8,606
8118+00.00	50	1.82	3	620	49.17	89	111	9,334	-8,714
8118+50.00	50	2.09	4	624	47.04	89	111	9,445	-8,821
8119+00.00	50	1.86	4	628	53.54	93	116	9,561	-8,933
8119+50.00	50	1.59	3	631	55.30	101	126	9,687	-9,056
8120+00.00	50	2.04	3	634	54.99	102	128	9,815	-9,181
8120+50.00	50	2.10	4	638	51.08	98	123	9,938	-9,300
8120+70.00	20	2.04	2	640	57.57	40	50	9,988	-9,348
8120+92.13	22.13	2.24	2	642	7.65	27	34	10,022	-9,380
8121+42.00	49.87	9.68	11	653	0.00	7	9	10,031	-9,378
8121+53.00	**-**	**-**	**111**	**764**	**-**		**152**	**10,183**	**-9,419**
8121+65.00	23	9.07	8	772	0.00	0	0	10,183	-9,411
8122+14.55	49.55	3.82	12	784	0.57	1	1	10,184	-9,400
8122+35.00	20.45	2.51	2	786	38.86	15	19	10,203	-9,417
8122+50.00	15	2.12	1	787	52.75	25	31	10,234	-9,447
8123+00.00	50	1.58	3	790	63.35	108	135	10,369	-9,579
8123+50.00	50	1.61	3	793	65.02	119	149	10,518	-9,725
8124+00.00	50	2.14	3	796	60.27	116	145	10,663	-9,867
8124+50.00	50	2.74	5	801	61.10	112	140	10,803	-10,002
8124+91.00	41	2.67	4	805	55.28	88	110	10,913	-10,108
8125+00.00	9	2.60	1	806	54.71	18	23	10,936	-10,130
8125+50.00	50	2.28	5	811	58.10	104	130	11,066	-10,255
8126+00.00	50	2.03	4	815	57.16	107	134	11,200	-10,385
8126+44.69	44.69	2.03	3	818	55.19	93	116	11,316	-10,498
8127+00.00	55.31	1.78	4	822	55.52	113	141	11,457	-10,635
8127+50.00	50	1.67	3	825	60.01	107	134	11,591	-10,766
8127+91.22	41.22	1.68	3	828	3.31	48	60	11,651	-10,823
8128+25.00	33.78	4.11	4	832	85.17	55	69	11,720	-10,888
8128+30.00	**-**	**-**	**5**	**837**	**-**	**488**	**610**	**12,330**	**-11,493**
8128+66.00	41	1.81	4	841	3.97	68	85	12,415	-11,574
8129+00.00	34	1.84	2	843	60.30	40	50	12,465	-11,622
8129+50.00	50	2.02	4	847	57.30	109	136	12,601	-11,754
8130+06.60	56.6	1.17	3	850	77.40	141	176	12,777	-11,927
8130+50.00	43.4	1.11	2	852	68.72	117	146	12,923	-12,071
8131+00.00	50	0.88	2	854	67.94	127	159	13,082	-12,228
8131+50.00	50	0.78	2	856	62.66	121	151	13,233	-12,377
8132+00.00	50	0.92	2	858	56.96	111	139	13,372	-12,514
8132+50.00	50	0.90	2	860	55.43	104	130	13,502	-12,642
8133+00.00	50	1.05	2	862	49.36	97	121	13,623	-12,761
8133+50.00	50	1.27	2	864	48.26	90	113	13,736	-12,872
8133+96.60	46.6	1.44	2	866	34.73	72	90	13,826	-12,960
8134+50.00	53.4	1.55	3	869	35.20	69	86	13,912	-13,043
8134+82.00	32	1.43	2	871	38.84	44	55	13,967	-13,096
8135+15.00	33	1.29	2	873	36.49	46	58	14,025	-13,152
8135+24.00	**-**	**-**	**-**	**873**	**-**	**-**	**-**	**14,025**	**-13,152**
8135+34.00	19	1.17	1	874	38.45	26	33	14,058	-13,184
8135+66.00	32	1.09	1	875	38.34	46	58	14,116	-13,241
8136+00.00	34	18.81	13	888	36.41	47	59	14,175	-13,287
8136+31.00	31	15.87	20	908	113.72	86	108	14,283	-13,375
8136+40.00	9	19.33	6	914	115.09	38	48	14,331	-13,417
8136+50.00	10	19.60	7	921	86.70	37	46	14,377	-13,456
8136+99.00	49	1.29	19	940	39.93	115	144	14,521	-13,581
8137+29.00	30	3.31	3	943	0.00	22	28	14,549	-13,606
8137+35.00	**-**	**-**	**3**	**946**	**-**	**66**	**82**	**14,631**	**-13,685**

ND Highway 19 – Right of Centerline (3 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8116+50.00	50	0.96	3	543	133.08	229	286	10,847	-10,304
8117+02.13	52.13	0.99	2	545	125.46	250	313	11,160	-10,615
8117+50.00	47.87	1.10	2	547	131.07	227	284	11,444	-10,897
8118+00.00	50	1.06	2	549	148.71	259	324	11,768	-11,219
8118+50.00	50	1.02	2	551	162.62	288	360	12,128	-11,577
8119+00.00	50	0.82	2	553	165.88	304	380	12,508	-11,955
8119+50.00	50	0.80	1	554	156.90	299	374	12,882	-12,328
8120+00.00	50	1.15	2	556	170.19	303	379	13,261	-12,705
8120+50.00	50	1.42	2	558	160.18	306	383	13,644	-13,086
8120+70.00	20	1.86	1	559	141.32	112	140	13,784	-13,225
8120+92.13	22.13	2.40	2	561	19.80	66	83	13,867	-13,306
8121+42.00	49.87	3.41	5	566	0.51	19	24	13,891	-13,325
8121+53.00	**-**	**-**	**72**	**638**	**-**	**246**	**308**	**14,199**	**-13,561**
8121+65.00	23.00	3.23	3	641	0.11	0	0	14,199	-13,558
8122+14.55	49.55	3.08	6	647	84.70	78	98	14,297	-13,650
8122+35.00	20.45	1.92	2	649	85.84	65	81	14,378	-13,729
8122+50.00	15	1.35	1	650	87.15	48	60	14,438	-13,788
8123+00.00	50	1.50	3	653	90.21	164	205	14,643	-13,990
8123+50.00	50	1.18	2	655	91.83	169	211	14,854	-14,199
8124+00.00	50	1.19	2	657	97.13	175	219	15,073	-14,416
8124+50.00	50	0.98	2	659	105.26	187	234	15,307	-14,648
8124+91.00	41	1.08	2	661	101.08	157	196	15,503	-14,842
8125+00.00	9	1.07	0	661	100.25	34	43	15,546	-14,885
8125+50.00	50	1.52	2	663	94.67	180	225	15,771	-15,108
8126+00.00	50	1.83	3	666	101.59	182	228	15,999	-15,333
8126+44.69	44.69	1.99	3	669	106.50	172	215	16,214	-15,545
8127+00.00	55.31	1.07	3	672	110.11	222	278	16,492	-15,820
8127+50.00	50	0.82	2	674	107.12	201	251	16,743	-16,069
8127+91.22	41.22	1.47	2	676	3.54	84	105	16,848	-16,172
8128+25.00	33.78	4.11	3	679	85.17	55	69	16,917	-16,238
8128+30.00	**-**	**-**	**-**	**679**	**-**	**757**	**946**	**17,863**	**-17,184**
8128+66.00	41	2.27	5	684	1.88	66	83	17,946	-17,262
8129+00.00	34	2.20	3	687	86.45	56	70	18,016	-17,329
8129+50.00	50	1.31	3	690	88.07	162	203	18,219	-17,529
8130+06.60	56.6	1.40	3	693	71.71	167	209	18,428	-17,735
8130+50.00	43.4	1.44	2	695	73.56	117	146	18,574	-17,879
8131+00.00	50	1.42	3	698	69.74	133	166	18,740	-18,042
8131+50.00	50	1.16	2	700	62.55	122	153	18,893	-18,193
8132+00.00	50	0.78	2	702	56.87	111	139	19,032	-18,330
8132+50.00	50	1.10	2	704	47.30	96	120	19,152	-18,448
8133+00.00	50	1.20	2	706	49.11	89	111	19,263	-18,557
8133+50.00	50	1.53	3	709	32.83	76	95	19,358	-18,649
8133+96.60	46.6	1.54	3	712	32.66	57	71	19,429	-18,717
8134+50.00	53.4	1.50	3	715	26.64	59	74	19,503	-18,788
8134+82.00	32	2.29	2	717	0.00	16	20	19,523	-18,806
8135+15.00	33	2.79	3	720	0.00	0	0	19,523	-18,803
8135+34.00	**-**	**-**	**81**	**801**	**-**	**32**	**40**	**19,563**	**-18,762**
8135+34.00	19	4.75	3	804	0.00	0	0	19,563	-18,759
8135+66.00	32	24.83	18	822	0.77	0	0	19,563	-18,741
8136+00.00	34	46.76	45	867	14.30	9	11	19,574	-18,707
8136+31.00	31	8.24	32	899	73.62	50	63	19,637	-18,738
8136+40.00	9	26.57	6	905	58.18	22	28	19,665	-18,760
8136+50.00	10	66.50	17	922	13.11	13	16	19,681	-18,759
8136+99.00	49	1.07	61	983	19.03	29	36	19,717	-18,734
8137+29.00	30	1.19	1	984	41.73	34	43	19,760	-18,776
8137+35.00	**-**	**-**	**-**	**984**	**-**	**-**	**-**	**19,760**	**-18,776**

Notes:

1. Stationing is based on alignment "PR19_SEG4".
2. An additional volume of 25% to allow for shrinkage is included in all adjusted embankment volumes.
3. All existing pavements and bases to be removed are not included in the earthwork summary but rather will be paid for under their respective removal bid items.
4. Sta 8121+53.00 Lt consists of the cumulative earthwork summary of the Gravel Low Volume Public Road along the "PRA_80TH" alignment.
5. Sta 8121+53.00 Rt consists of the cumulative earthwork summary of the Paved Low Volume Public Road along the "PRA_80TH" alignment.
6. Sta 8128+30.00 Rt consists of the cumulative earthwork summary of the Gravel Field Drive Approach along the "PRA_8128+30" alignment.
7. Sta 8135+24.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8135+24" alignment.
8. Sta 8137+35.00 Lt consists of the cumulative earthwork summary of the Gravel Field Drive Approach along the "PRA_8137+35" alignment.

This document was originally issued and sealed by Jonathan D Bach, Registration Number PE-9797, on 01/29/16 and the original document is stored at the North Dakota Department of Transportation.

ND Hwy 19

Data Tables

Average End Area Tables

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	11	9

ND Highway 19 – Left of Centerline (4 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8137+44.00	15.00	3.57	2	945	0.00	0	0	14,549	-13,604
8137+71.00	27.00	3.66	4	949	6.40	3	4	14,553	-13,604
8138+00.00	29	1.73	3	952	2.33	5	6	14,559	-13,607
8138+50.00	50.00	1.71	3	955	9.16	11	14	14,573	-13,618
8139+00.00	50	1.39	3	958	8.30	16	20	14,593	-13,635
8139+50.00	50	1.47	3	961	7.88	15	19	14,612	-13,651
8140+00.00	50	1.29	3	964	8.64	15	19	14,631	-13,667
8140+49.00	49	1.58	3	967	0.09	8	10	14,641	-13,674
8140+78.00	29	3.04	2	969	0.00	0	0	14,641	-13,672
8140+85.00	**-**	**-**	**2**	**971**	**-**	**106**	**132**	**14,773**	**-13,802**
8140+93.00	15	3.02	2	973	0.00	0	0	14,773	-13,800
8141+21.00	28	2.84	3	976	9.41	5	6	14,779	-13,803
8141+50.00	29	0.78	2	978	16.04	14	18	14,797	-13,819
8142+00.00	50	0.95	2	980	17.55	31	39	14,836	-13,856
8142+50.00	50	0.70	2	982	43.58	57	71	14,907	-13,925
8143+00.00	50	0.55	1	983	50.91	87	109	15,016	-14,033
8143+50.00	50	0.50	1	984	52.50	96	120	15,136	-14,152
8144+00.00	50	0.83	1	985	48.04	93	116	15,252	-14,267
8144+50.00	50	0.63	1	986	49.15	90	113	15,365	-14,379
8145+00.00	50	0.79	1	987	38.23	81	101	15,466	-14,479
8145+50.00	50	0.72	1	988	36.31	69	86	15,552	-14,564
8146+00.00	50	0.47	1	989	44.05	74	93	15,645	-14,656
8146+50.00	50	0.50	1	990	48.86	86	108	15,753	-14,763
8147+00.00	50	0.38	1	991	52.50	94	118	15,871	-14,880
8147+50.00	50	0.39	1	992	44.29	90	113	15,984	-14,992
8148+00.00	50	0.47	1	993	42.59	80	100	16,084	-15,091
8148+50.00	50	0.64	1	994	43.40	80	100	16,184	-15,190
8149+00.00	50	0.98	1	995	34.54	72	90	16,274	-15,279
8149+50.00	50	1.51	2	997	29.58	59	74	16,348	-15,351
8150+00.00	50	0.83	2	999	42.53	67	84	16,432	-15,433
8150+50.00	50	0.98	2	1,001	43.43	80	100	16,532	-15,531
8151+00.00	50	1.22	2	1,003	46.59	83	104	16,636	-15,633
8151+50.00	50	0.68	2	1,005	40.29	80	100	16,736	-15,731
8152+00.00	50	0.76	1	1,006	42.20	76	95	16,831	-15,825
8152+50.00	50	0.75	1	1,007	42.99	79	99	16,930	-15,923
8153+00.00	50	0.56	1	1,008	52.29	88	110	17,040	-16,032
8153+50.00	50	0.70	1	1,009	45.15	90	113	17,153	-16,144
8154+00.00	50	0.65	1	1,010	42.58	81	101	17,254	-16,244
8154+50.00	50	1.19	2	1,012	38.89	75	94	17,348	-16,336
8155+00.00	50	0.92	2	1,014	35.09	69	86	17,434	-16,420
8155+50.00	50	1.09	2	1,016	35.26	65	81	17,515	-16,499
8156+00.00	50	1.11	2	1,018	33.95	64	80	17,595	-16,577
8156+50.00	50	1.45	2	1,020	41.58	70	88	17,683	-16,663
8156+69.00	19	1.46	1	1,021	46.22	31	39	17,722	-16,701
8156+97.00	28	1.19	1	1,022	34.06	42	53	17,775	-16,753
8157+05.00	**-**	**-**	**-**	**1,022**	**-**	**-**	**-**	**17,775**	**-16,753**
8157+15.00	18	1.22	1	1,023	52.19	29	36	17,811	-16,788
8157+41.00	26	1.35	1	1,024	49.17	49	61	17,872	-16,848
8157+50.00	9	1.41	0	1,024	48.64	16	20	17,892	-16,868
8158+00.00	50	1.17	2	1,026	49.65	91	114	18,006	-16,980
8158+50.00	50	1.34	2	1,028	37.86	81	101	18,107	-17,079
8159+00.00	50	1.13	2	1,030	50.16	81	101	18,208	-17,178
8159+50.00	50	0.70	2	1,032	59.49	102	128	18,336	-17,304
8160+00.00	50	0.51	1	1,033	53.66	105	131	18,467	-17,434
8160+50.00	50	0.48	1	1,034	61.42	107	134	18,601	-17,567
8161+00.00	50	0.64	1	1,035	51.59	105	131	18,732	-17,697

ND Highway 19 – Right of Centerline (4 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8137+44.00	15	1.42	1	985	43.02	24	30	19,790	-18,805
8137+71.00	27	1.65	2	987	41.13	42	53	19,843	-18,856
8138+00.00	29	1.79	2	989	36.58	42	53	19,896	-18,907
8138+50.00	50	1.76	3	992	35.25	67	84	19,980	-18,988
8139+00.00	50	1.55	3	995	34.82	65	81	20,061	-19,066
8139+50.00	50	1.62	3	998	34.93	65	81	20,142	-19,144
8140+00.00	50	1.35	3	1,001	32.77	63	79	20,221	-19,220
8140+49.00	49	1.60	3	1,004	32.30	59	74	20,295	-19,291
8140+78.00	29	1.54	2	1,006	31.33	34	43	20,338	-19,332
8140+85.00	**-**	**-**	**-**	**1,006**	**-**	**-**	**-**	**20,338**	**-19,332**
8140+93.00	15	1.48	1	1,007	31.80	18	23	20,361	-19,354
8141+21.00	28	1.73	2	1,009	31.34	33	41	20,402	-19,393
8141+50.00	29	1.06	1	1,010	35.48	36	45	20,447	-19,437
8142+00.00	50	0.80	2	1,012	41.21	71	89	20,536	-19,524
8142+50.00	50	0.84	2	1,014	39.60	75	94	20,630	-19,616
8143+00.00	50	0.76	1	1,015	39.91	74	93	20,723	-19,708
8143+50.00	50	0.66	1	1,016	44.26	78	98	20,821	-19,805
8144+00.00	50	0.65	1	1,017	45.32	83	104	20,925	-19,908
8144+50.00	50	0.73	1	1,018	42.79	82	103	21,028	-20,010
8145+00.00	50	0.87	1	1,019	41.99	78	98	21,126	-20,107
8145+50.00	50	0.88	2	1,021	42.42	78	98	21,224	-20,203
8146+00.00	50	0.67	1	1,022	45.37	81	101	21,325	-20,303
8146+50.00	50	0.60	1	1,023	49.53	88	110	21,435	-20,412
8147+00.00	50	0.61	1	1,024	47.13	89	111	21,546	-20,522
8147+50.00	50	0.67	1	1,025	44.14	85	106	21,652	-20,627
8148+00.00	50	0.88	1	1,026	38.69	77	96	21,748	-20,722
8148+50.00	50	1.24	2	1,028	36.37	70	88	21,836	-20,808
8149+00.00	50	2.08	3	1,031	31.97	63	79	21,915	-20,884
8149+50.00	50	2.43	4	1,035	27.93	55	69	21,984	-20,949
8150+00.00	50	1.01	3	1,038	31.27	55	69	22,053	-21,015
8150+50.00	50	1.14	2	1,040	31.77	58	73	22,126	-21,086
8151+00.00	50	1.10	2	1,042	29.50	57	71	22,197	-21,155
8151+50.00	50	0.97	2	1,044	31.53	57	71	22,268	-21,224
8152+00.00	50	0.82	2	1,046	30.15	57	71	22,339	-21,293
8152+50.00	50	1.01	2	1,048	30.13	56	70	22,409	-21,361
8153+00.00	50	0.92	2	1,050	33.95	59	74	22,483	-21,433
8153+50.00	50	0.87	2	1,052	36.90	66	83	22,566	-21,514
8154+00.00	50	1.61	2	1,054	39.69	71	89	22,655	-21,601
8154+50.00	50	1.44	3	1,057	39.76	74	93	22,748	-21,691
8155+00.00	50	1.56	3	1,060	43.67	77	96	22,844	-21,784
8155+50.00	50	1.58	3	1,063	44.98	82	103	22,947	-21,884
8156+00.00	50	1.70	3	1,066	41.23	80	100	23,047	-21,981
8156+50.00	50	1.88	3	1,069	34.97	71	89	23,136	-22,067
8156+69.00	19	2.04	1	1,070	0.06	12	15	23,151	-22,081
8156+97.00	28	1.88	2	1,072	0.00	0	0	23,151	-22,079
8157+05.00	**-**	**-**	**2**	**1,074**	**-**	**227**	**284**	**23,435**	**-22,361**
8157+15.00	18	2.14	1	1,075	0.00	0	0	23,435	-22,360
8157+41.00	26	2.28	2	1,077	0.00	0	0	23,435	-22,358
8157+50.00	9	1.92	1	1,078	13.76	2	3	23,438	-22,360
8158+00.00	50	1.80	3	1,081	16.32	28	35	23,473	-22,392
8158+50.00	50	1.52	3	1,084	18.89	33	41	23,514	-22,430
8159+00.00	50	1.12	2	1,086	24.03	40	50	23,564	-22,478
8159+50.00	50	1.21	2	1,088	26.21	47	59	23,623	-22,535
8160+00.00	50	1.03	2	1,090	28.23	50	63	23,686	-22,596
8160+50.00	50	0.94	2	1,092	36.06	60	75	23,761	-22,669
8161+00.00	50	1.13	2	1,094	34.14	65	81	23,842	-22,748

Notes:

1. Stationing is based on alignment "PR19_SEG4".
2. An additional volume of 25% to allow for shrinkage is included in all adjusted embankment volumes.
3. All existing pavements and bases to be removed are not included in the earthwork summary but rather will be paid for under their respective removal bid items.
4. Sta 8140+85.00 Rt consists of the cumulative earthwork summary of the Gravel Field Drive Approach along the "PRA_8140+85" alignment.
5. Sta 8157+05.00 Rt consists of the cumulative earthwork summary of the Gravel Field Drive Approach along the "PRA_8157+05" alignment.

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ND Hwy 19

Data Tables

Average End Area Tables

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	11	10

ND Highway 19 – Left of Centerline (5 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8161+50.00	50	0.83	1	1,036	58.98	102	128	18,860	-17,824
8162+00.00	50	0.79	1	1,037	41.37	93	116	18,976	-17,939
8162+50.00	50	0.72	1	1,038	50.68	85	106	19,082	-18,044
8163+00.00	50	0.77	1	1,039	44.17	88	110	19,192	-18,153
8163+50.00	50	0.80	1	1,040	42.41	80	100	19,292	-18,252
8164+00.00	50	0.73	1	1,041	48.75	84	105	19,397	-18,356
8164+50.00	50	0.66	1	1,042	48.76	90	113	19,510	-18,468
8165+00.00	50	0.63	1	1,043	32.54	75	94	19,604	-18,561
8165+50.00	50	0.70	1	1,044	50.48	77	96	19,700	-18,656
8166+00.00	50	0.81	1	1,045	50.52	94	118	19,818	-18,773
8166+50.00	50	0.78	1	1,046	47.23	91	114	19,932	-18,886
8167+00.00	50	0.78	1	1,047	43.96	84	105	20,037	-18,990
8167+50.00	50	0.55	1	1,048	67.89	104	130	20,167	-19,119
8168+00.00	50	0.43	1	1,049	69.13	127	159	20,326	-19,277
8168+50.00	50	0.45	1	1,050	62.08	121	151	20,477	-19,427
8169+00.00	50	0.49	1	1,051	46.38	100	125	20,602	-19,551
8169+50.00	50	0.54	1	1,052	56.70	95	119	20,721	-19,669
8170+00.00	50	0.60	1	1,053	55.25	104	130	20,851	-19,798
8170+50.00	50	0.80	1	1,054	58.42	105	131	20,982	-19,928
8171+00.00	50	0.76	1	1,055	44.96	96	120	21,102	-20,047
8171+50.00	50	0.70	1	1,056	50.81	89	111	21,213	-20,157
8172+00.00	50	0.56	1	1,057	1.38	48	60	21,273	-20,216
8172+30.00	30	1.29	1	1,058	0.00	1	1	21,274	-20,216
8172+36.00	**-**	**-**	**-**	**1,058**	**-**	**346**	**432**	**21,706**	**-20,648**
8172+42.00	12	1.01	1	1,059	0.12	0	0	21,706	-20,647
8172+72.00	30	0.53	1	1,060	2.38	1	1	21,707	-20,647
8173+00.00	28	0.57	1	1,061	49.38	27	34	21,741	-20,680
8173+50.00	50	1.00	1	1,062	48.50	91	114	21,855	-20,793
8174+05.00	55	3.17	4	1,066	45.10	95	119	21,974	-20,908
8174+25.00	20	6.66	4	1,070	42.69	33	41	22,015	-20,945
8174+50.00	25	15.48	10	1,080	46.10	41	51	22,066	-20,986
8174+55.00	5	17.76	3	1,083	44.52	8	10	22,076	-20,993
8174+60.00	5	22.49	4	1,087	40.58	8	10	22,086	-20,999
8175+05.00	45	9.29	26	1,113	45.22	72	90	22,176	-21,063
8175+50.00	45	1.56	9	1,122	41.96	73	91	22,267	-21,145
8175+72.10	22.1	2.63	2	1,124	0.01	17	21	22,288	-21,164
8175+89.00	16.9	1.76	1	1,125	0.00	0	0	22,288	-21,163
8176+25.00	36	1.64	2	1,127	0.00	0	0	22,288	-21,161
8176+39.00	**-**	**-**	**75**	**1,202**	**-**	**228**	**285**	**22,573**	**-21,371**
8176+50.00	25	1.43	1	1,203	0.00	0	0	22,573	-21,370
8176+89.00	39	2.21	3	1,206	0.09	0	0	22,573	-21,367
8177+00.00	11	2.05	1	1,207	30.54	6	8	22,581	-21,374
8177+50.00	50	2.10	4	1,211	37.40	63	79	22,660	-21,449
8178+00.00	50	1.96	4	1,215	39.66	71	89	22,749	-21,534
8178+50.00	50	1.97	4	1,219	35.37	69	86	22,835	-21,616
8179+00.00	50	2.59	4	1,223	30.66	61	76	22,911	-21,688
8179+37.00	37	2.82	4	1,227	0.00	21	26	22,937	-21,710
8179+50.00	13	1.79	1	1,228	0.00	0	0	22,937	-21,709
8179+75.00	25	2.86	2	1,230	0.00	0	0	22,937	-21,707
8179+87.00	**-**	**-**	**105**	**1,335**	**-**	**142**	**177**	**23,114**	**-21,779**
8180+00.00	25	2.29	2	1,337	0.00	0	0	23,114	-21,777
8180+37.00	37	2.23	3	1,340	32.61	22	28	23,142	-21,802
8180+50.00	13	2.22	1	1,341	28.12	15	19	23,161	-21,820
8181+00.00	50	2.43	4	1,345	32.17	56	70	23,231	-21,886
ND Hwy 19 – Left Totals:				**1,345**				**23,231**	

ND Highway 19 – Right of Centerline (5 of 5)

STATION	DISTANCE	COMMON EXCAVATION-TYPE A			EMBANKMENT				MASS ORDINATE
		AREA (SF)	VOLUME (CY)	ACCUM. VOLUME (CY)	AREA (SF)	VOLUME (CY)	ADJUSTED VOLUME (CY)	ACCUM. ADJUSTED VOLUME (CY)	
8161+50.00	50	1.14	2	1,096	34.51	64	80	23,922	-22,826
8162+00.00	50	1.46	2	1,098	33.43	63	79	24,001	-22,903
8162+50.00	50	1.93	3	1,101	33.36	62	78	24,079	-22,978
8163+00.00	50	1.88	4	1,105	30.84	59	74	24,153	-23,048
8163+50.00	50	1.67	3	1,108	31.15	57	71	24,224	-23,116
8164+00.00	50	1.23	3	1,111	35.26	61	76	24,300	-23,189
8164+50.00	50	1.14	2	1,113	37.35	67	84	24,384	-23,271
8165+00.00	50	0.98	2	1,115	41.98	73	91	24,475	-23,360
8165+50.00	50	1.22	2	1,117	42.78	78	98	24,573	-23,456
8166+00.00	50	1.14	2	1,119	40.88	77	96	24,669	-23,550
8166+50.00	50	1.08	2	1,121	39.22	74	93	24,762	-23,641
8167+00.00	50	1.08	2	1,123	37.23	71	89	24,851	-23,728
8167+50.00	50	1.79	3	1,126	36.35	68	85	24,936	-23,810
8168+00.00	50	1.21	3	1,129	40.22	71	89	25,025	-23,896
8168+50.00	50	1.12	2	1,131	43.50	78	98	25,123	-23,992
8169+00.00	50	1.26	2	1,133	46.87	84	105	25,228	-24,095
8169+50.00	50	1.35	2	1,135	51.67	91	114	25,342	-24,207
8170+00.00	50	1.47	3	1,138	47.22	92	115	25,457	-24,319
8170+50.00	50	1.31	3	1,141	46.49	87	109	25,566	-24,425
8171+00.00	50	1.20	2	1,143	41.88	82	103	25,669	-24,526
8171+50.00	50	1.23	2	1,145	44.46	80	100	25,769	-24,624
8172+00.00	50	1.18	2	1,147	50.21	88	110	25,879	-24,732
8172+30.00	30	1.01	1	1,148	57.94	60	75	25,954	-24,806
8172+36.00	**-**	**-**	**-**	**1,148**	**-**	**-**	**-**	**25,954**	**-24,806**
8172+42.00	12	0.98	0	1,148	59.25	26	33	25,987	-24,839
8172+72.00	30	1.01	1	1,149	59.90	66	83	26,070	-24,921
8173+00.00	28	0.95	1	1,150	58.24	61	76	26,146	-24,996
8173+50.00	50	1.25	2	1,152	56.37	106	133	26,279	-25,127
8174+05.00	55	2.21	4	1,156	34.12	92	115	26,394	-25,238
8174+25.00	20	11.27	5	1,161	28.14	23	29	26,423	-25,262
8174+50.00	25	19.34	14	1,175	27.31	26	33	26,456	-25,281
8174+55.00	5	9.05	3	1,178	30.81	5	6	26,462	-25,284
8174+60.00	5	2.68	1	1,179	40.33	7	9	26,471	-25,292
8175+05.00	45	3.76	5	1,184	36.73	64	80	26,551	-25,367
8175+50.00	45	2.49	5	1,189	37.61	62	78	26,629	-25,440
8175+72.10	22.1	2.54	2	1,191	34.76	30	38	26,667	-25,476
8175+89.00	16.9	2.37	2	1,193	32.46	21	26	26,693	-25,500
8176+25.00	36	2.49	3	1,196	27.63	40	50	26,743	-25,547
8176+39.00	**-**	**-**	**-**	**1,196**	**-**	**-**	**-**	**26,743**	**-25,547**
8176+50.00	25	2.65	2	1,198	24.08	24	30	26,773	-25,575
8176+89.00	39	2.98	4	1,202	27.37	37	46	26,819	-25,617
8177+00.00	11	2.67	1	1,203	28.63	11	14	26,833	-25,630
8177+50.00	50	2.84	5	1,208	32.49	57	71	26,904	-25,696
8178+00.00	50	3.39	6	1,214	32.25	60	75	26,979	-25,765
8178+50.00	50	2.94	6	1,220	28.32	56	70	27,049	-25,829
8179+00.00	50	3.72	6	1,226	22.84	47	59	27,108	-25,882
8179+37.00	37	4.53	6	1,232	2.01	17	21	27,129	-25,897
8179+50.00	13	2.45	2	1,234	0.00	0	0	27,129	-25,895
8179+75.00	25	2.89	2	1,236	0.00	0	0	27,129	-25,893
8179+87.00	**-**	**-**	**93**	**1,329**	**-**	**14**	**17**	**27,146**	**-25,817**
8180+00.00	25	2.87	3	1,332	0.00	0	0	27,146	-25,814
8180+37.00	37	37.91	28	1,360	0.00	0	0	27,146	-25,786
8180+50.00	13	26.84	16	1,376	0.00	0	0	27,146	-25,770
8181+00.00	50	3.26	28	1,404	0.79	1	1	27,147	-25,743
ND Hwy 19 – Right Totals:				**1,404**				**27,147**	

Notes:

1. Stationing is based on alignment "PR19_SEG4".
2. An additional volume of 25% to allow for shrinkage is included in all adjusted embankment volumes.
3. All existing pavements and bases to be removed are not included in the earthwork summary but rather will be paid for under their respective removal bid items.
4. Sta 8172+36.00 Lt consists of the cumulative earthwork summary of the Gravel Field Drive Approach along the "PRA_8172+36" alignment.
5. Sta 8176+39.00 Lt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8176+39" alignment.
6. Sta 8179+87.00 Lt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8179+87" alignment.
7. Sta 8179+87.00 Rt consists of the cumulative earthwork summary of the Paved Private Drive along the "PRA_8179+87" alignment.

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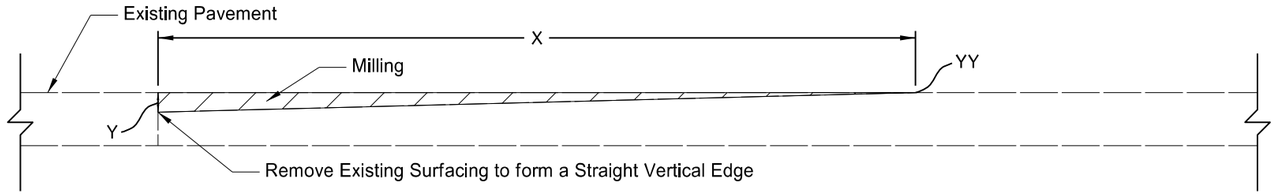
ND Hwy 19

Data Tables

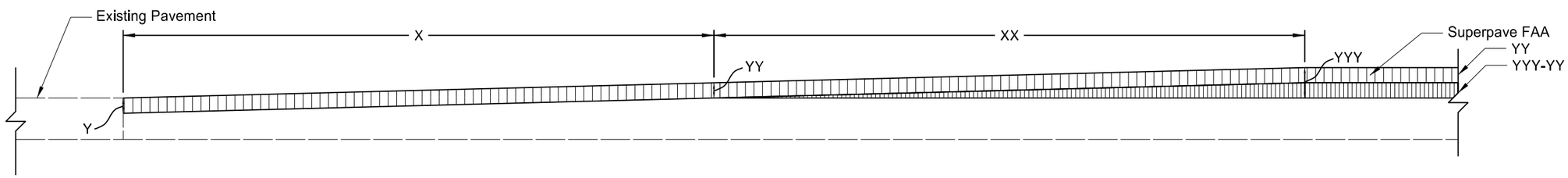
Average End Area Tables

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20	1

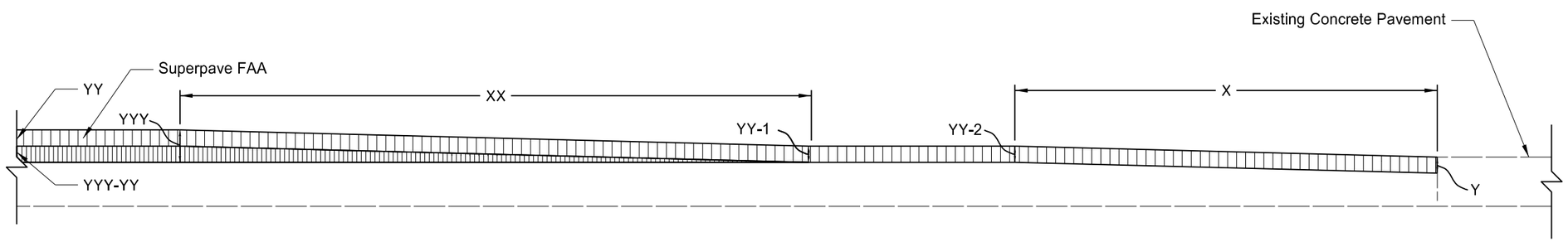


Milling Transitions											
Begin Segment Transition					End Segment Transition					Width (Ft)	
X (feet)	Begin Station	Y (inches)	End Station	YY (inches)	YY (inches)	Begin Station	Y (inches)	End Station	X (feet)	Lt of CL	Rt of CL
100	8078+80	2	8079+80	0	0	8182+89	2	8183+89	100	12	12

Note: Milling and Paving Transitions shall consist of a minimum of 50 Feet per 1 Inch of Milling or Paving



Paving Transitions								
Begin Segment Transition								
X (feet)	Begin (Y)	Y	YY Station	XX (feet)	YY	End YYY	XX (feet)	YYY
100	8078+80	2	8079+80	75	2	8080+55	75	3.5



Paving Transitions								
End Segment Transition								
YYY	Begin YYY	XX (feet)	YY-1 & YY-2	YY-1 Station	YY-2 Station	Y	End (Y)	X (feet)
3.5	8181+00	75	2	8181+75	8182+89	2	8183+89	100

Top Superpave FAA42 Lift

Intermediate Superpave FAA42 Lift

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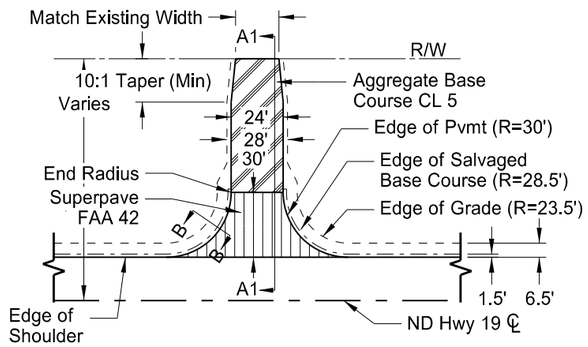
ND Hwy 19

General Details

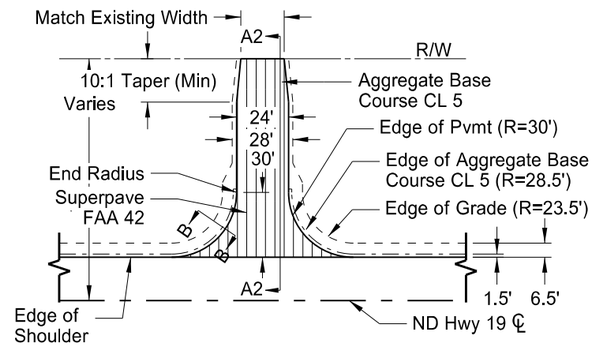
Milling and Paving Transition Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20	2



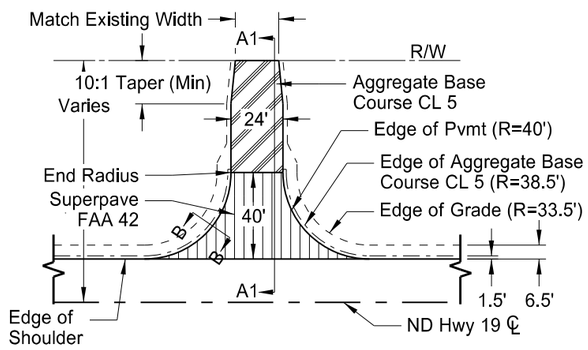
(1) Gravel Private Drive

Sta 8093+94 Rt



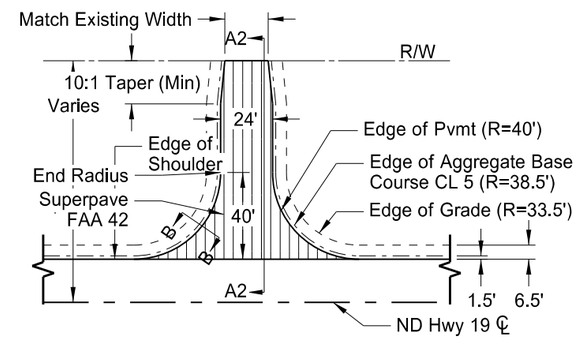
(2) Paved Private Drive

Sta 8079+22 Rt	Sta 8106+80 Rt	Sta 8176+39 Lt (5)
Sta 8080+63 Rt	Sta 8112+55 Rt	Sta 8179+87 Lt (5)
Sta 8084+92 Rt	Sta 8115+43 Rt	Sta 8179+87 Rt (5)
Sta 8089+32 Rt	Sta 8135+24 Rt	



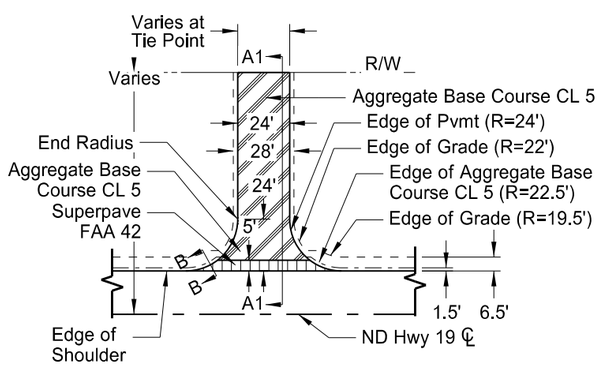
(3) Gravel Low Volume Public Road

Sta 8121+53 Lt



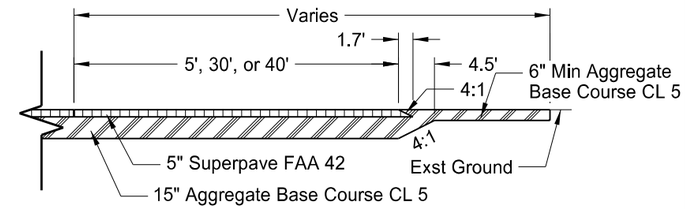
(4) Paved Low Volume Public Road

Sta 8088+85 Lt (3)
Sta 8106+80 Lt (4)
Sta 8121+53 Rt

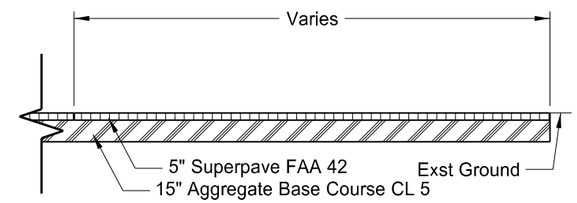


(5) Gravel Field Drive Approach

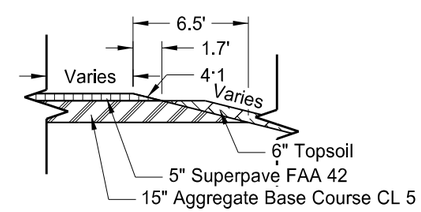
Sta 8128+30 Rt	Sta 8140+85 Rt
Sta 8128+30 Lt	Sta 8157+05 Rt
Sta 8137+35 Lt	Sta 8172+36 Lt



Section A1-A1



Section A2-A2



Section B-B

Notes:

1. Actual HBP paving and aggregate base course locations may vary in the field, as approved by the Engineer.
2. Refer to Standard Drawing D-203-8, and Section 200 Cross Sections for grading details.

(3) The paved width for the Paved Low Volume Public Road at Sta 8088+85 Lt shall be 26 ft.

(4) The paved width and radii for the Paved Low Volume Public road at Sta 8106+80 Lt shall be 28 ft and 65 ft respectively.

(5) The paved width for the Paved Private Drives at Sta 8176+39 Lt, Sta 8179+87 Lt, and Sta 8179+87 Rt shall be 40 ft.

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ND Hwy 19

General Details

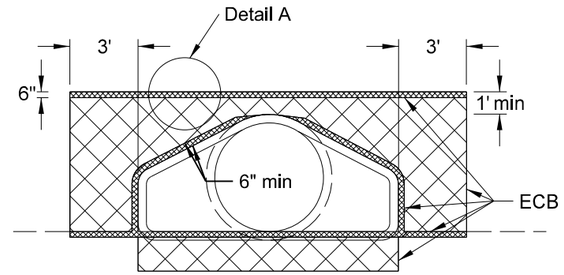
Approach Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20	3

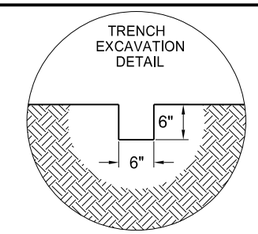
255 0103 ECB TYPE 3

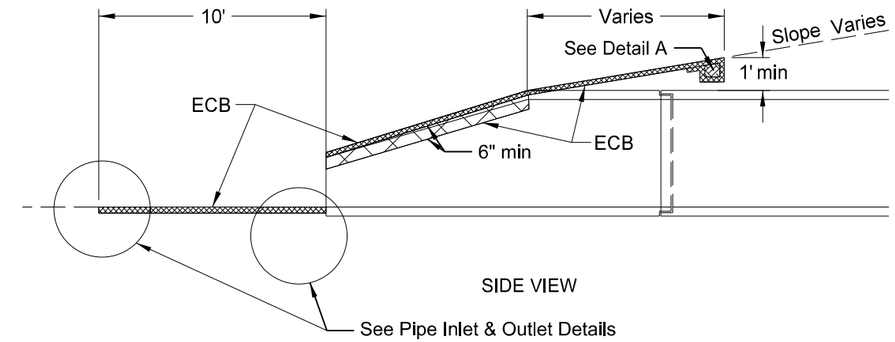
Summary of Quantities 940 SY

255 0103 ECB TYPE 3								
Location of Surface Area to be Protected				Pipe Diameter	x	y	Unit Quantity	Total Quantity
Station		Offset	No	In	ft	ft	SY	SY
8079+22	RT	AHD & BK	2	24	10.5	21.6	24	48
8080+63	RT	AHD & BK	2	24	10.5	21.6	24	48
8084+92	RT	AHD & BK	2	24	10.5	21.6	24	48
8089+32	RT	AHD & BK	2	24	10.5	21.6	24	48
8093+94	RT	AHD & BK	2	24	10.5	21.6	24	48
8097+00	CL	LT & RT	2	44X27	12.7	21.2	27	54
8106+80	RT	AHD & BK	2	24	10.5	21.6	24	48
8115+43	RT	AHD & BK	2	24	10.5	21.6	24	48
8121+53	LT	AHD & BK	2	24	10.5	21.6	24	48
8121+53	RT	AHD & BK	2	24	10.5	21.6	24	48
8128+30	LT	AHD & BK	2	42	13.3	23.3	31	62
8128+30	LT	AHD & BK	2	42	13.3	23.3	31	62
8128+30	RT	AHD & BK	2	24	10.5	21.6	24	48
8135+24	RT	AHD & BK	2	24	10.5	21.6	24	48
8136+31	CL	LT	1	58X36	13.8	20	27	27
8136+40	CL	LT	1	58X36	13.8	20	27	27
8174+55	CL	LT & RT	2	24	10.5	17.6	20	40
8176+39	LT	AHD & BK	2	24	10.5	21.6	24	48
8179+87	LT	AHD & BK	2	24	10.5	21.6	24	48
8179+87	RT	AHD & BK	2	18	9.5	20.7	22	44
							Total:	940

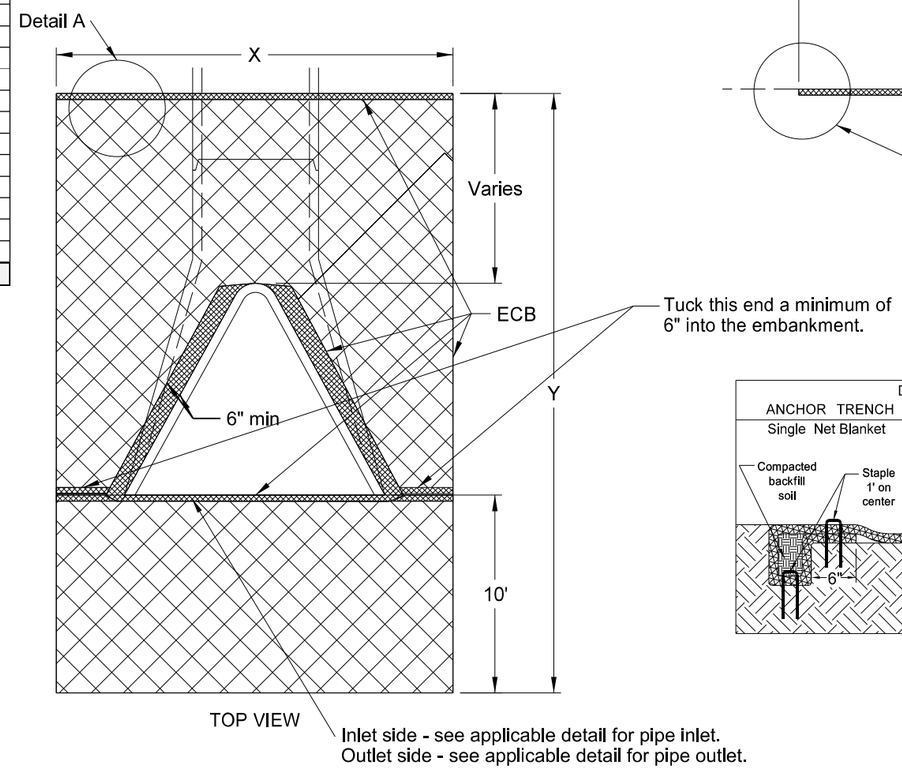


FRONT VIEW

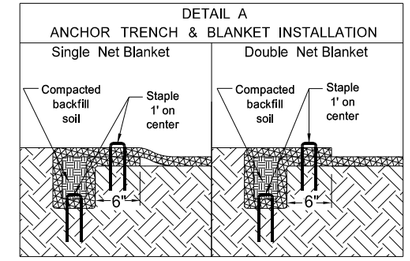


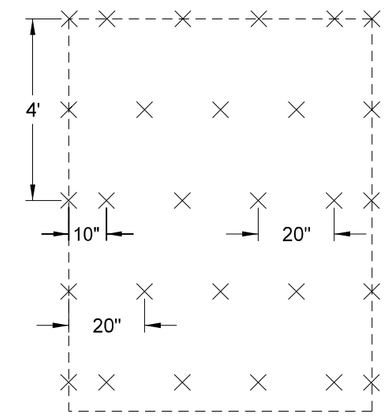


SIDE VIEW



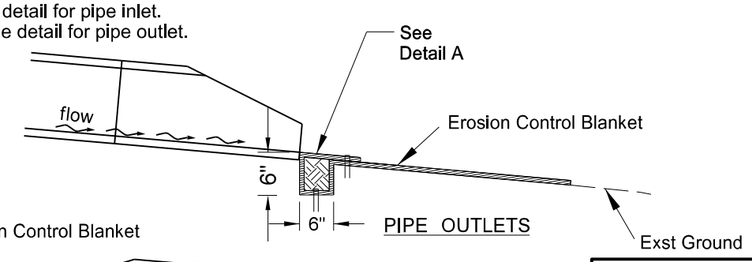
TOP VIEW



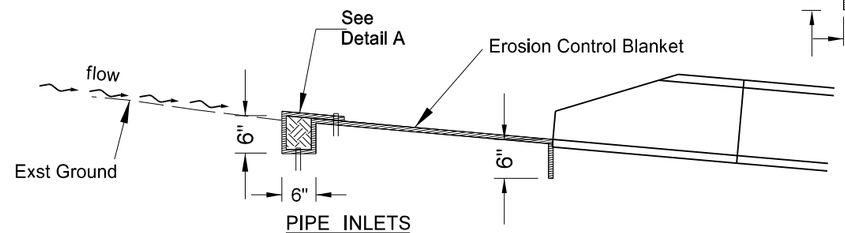


STAPLE PATTERN

NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.



PIPE OUTLETS



PIPE INLETS

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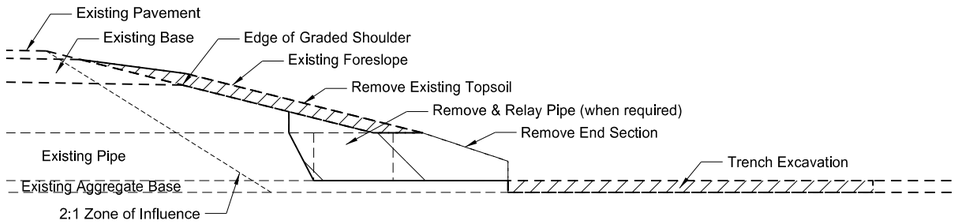
ND Hwy 19

General Details

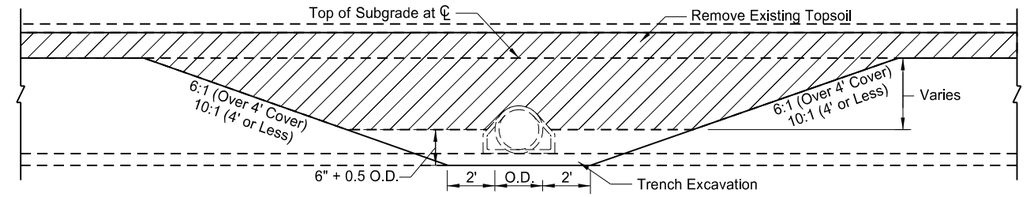
Erosion Control at Culvert Flared End Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20	4



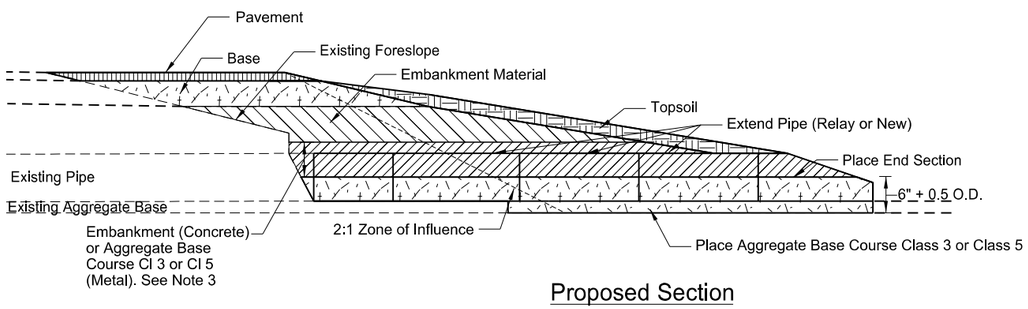
Removal Section

Cross Section View



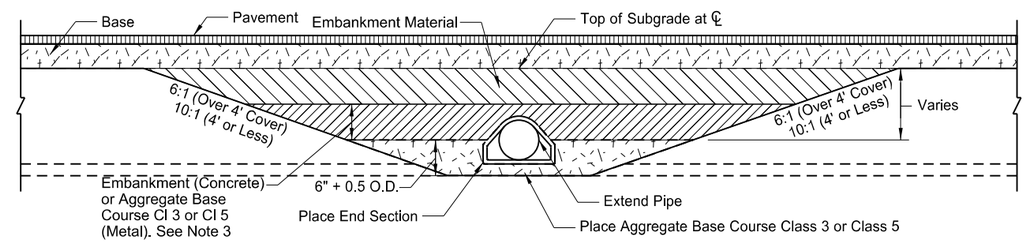
Removal Detail

Side View



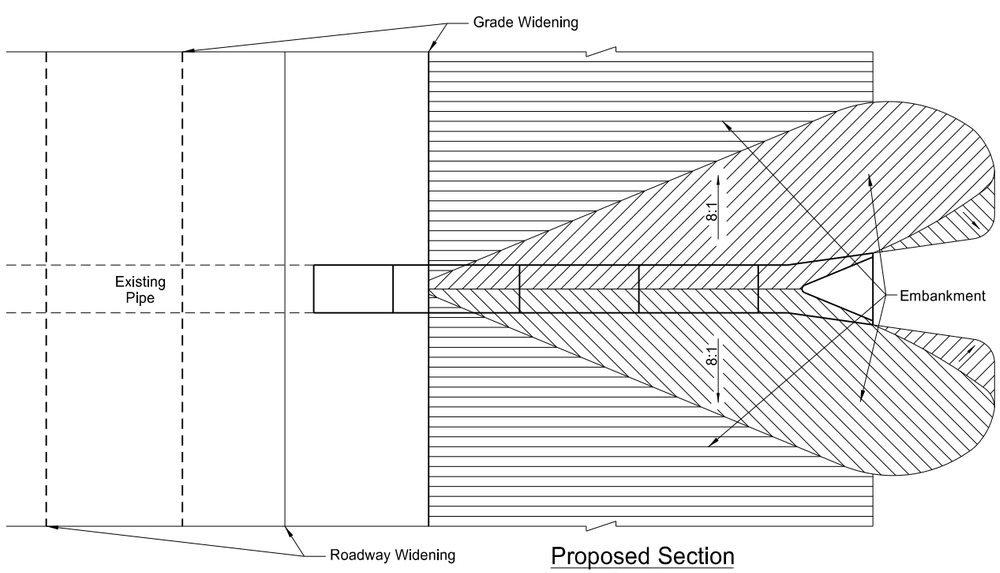
Proposed Section

Cross Section View



Backfill Detail

Side View (Topsoil not shown)



Proposed Section

Plan View

Pay Items
1) Pipe*
2) Remove & Relay Pipe - All Types & Sizes (when required)
3) Remove & Reset End Section or
Remove End Section and Place New End Section
4) Borrow Excavation (Compaction Control Type A) or
Common Excavation-Type A
5) Topsoil
6) Seeding
7) Mulching

*Included in Pipe Pay Item
1) Pipe
2) Trench excavation
3) Aggregate Base Course Class 3 or Class 5

NOTES:

1. Embankment may be either Borrow Excavation (Compaction Control - Type A) or Common Excavation - Type A

2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.

3. Place Aggregate Base Course Class 3 or Class 5 Backfill 0.5 feet above the Pipe for Metal Pipe Material.

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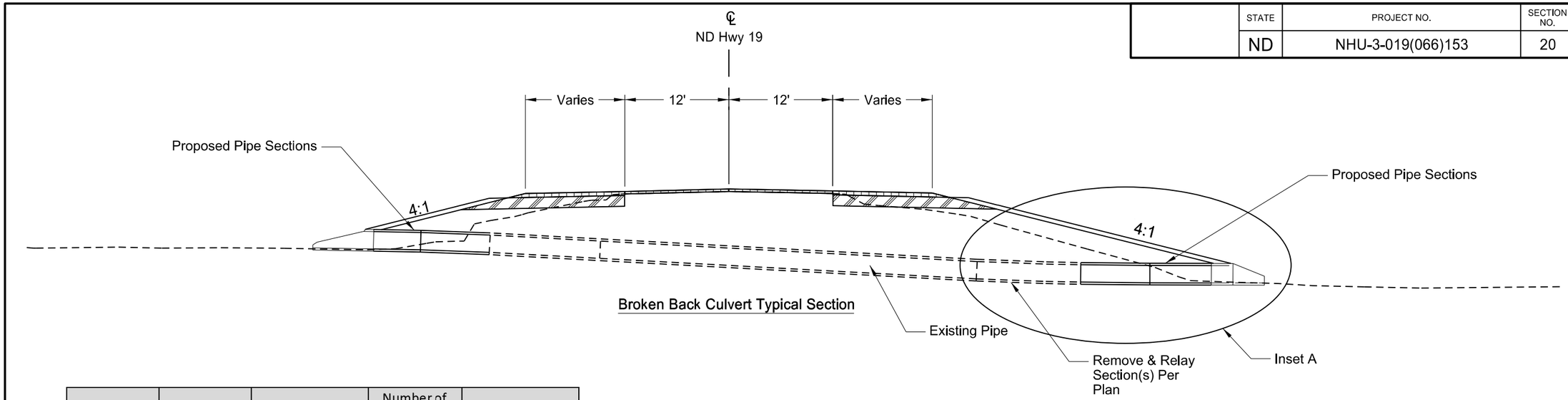
ND Hwy 19

General Details

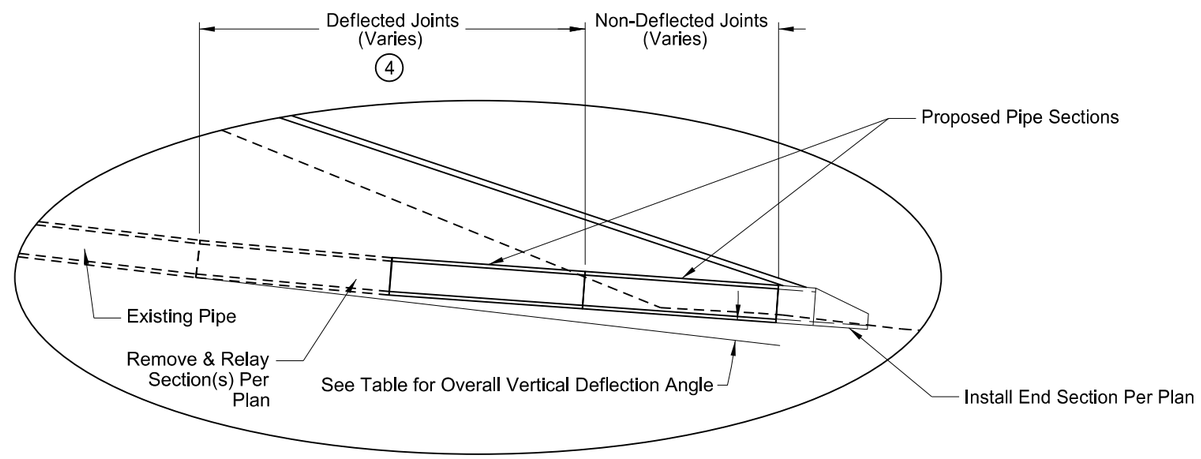
Mainline ℄ Pipe Extension Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20	5



Broken Back Culvert Typical Section

Station	Offset	Pipe Diameter (inches)	Number of Deflected Joints	Overall Vertical Deflection Angle
8097+00	LT	24	1	00˚30'00"
8097+00	RT	24	1	00˚30'00"



Inset A

Notes:

1. Remove Existing End Sections (See Section 40 for Removals).
2. Replace or Relay End Section. (See Section 60)
3. Install Pipe Sections using a Maximum of 1 Degree of Deflection per Joint to Obtain the Required Invert Elevation. (See Note in Section 6)
4. Proposed Number of Joints to Deflect is Based on a Combination of 6' and 8' Pipe Segment Lengths.
5. Drawing Not to Scale.

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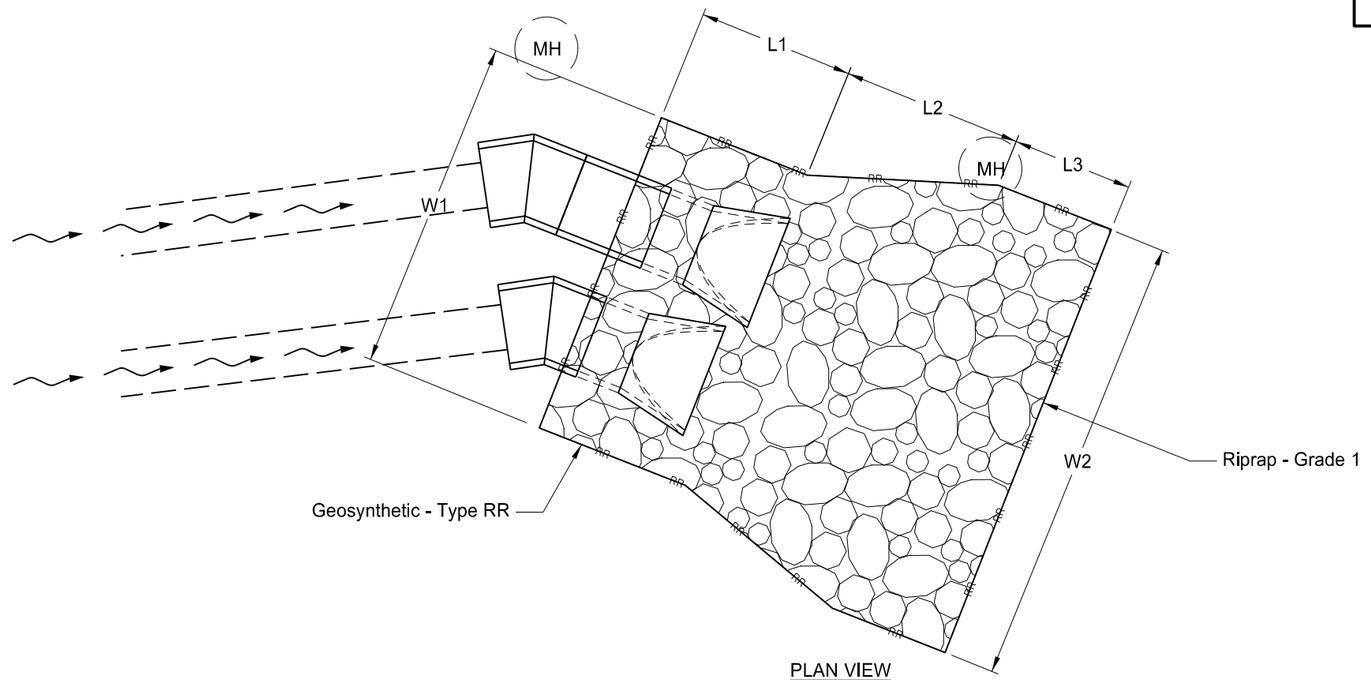
ND Hwy 19

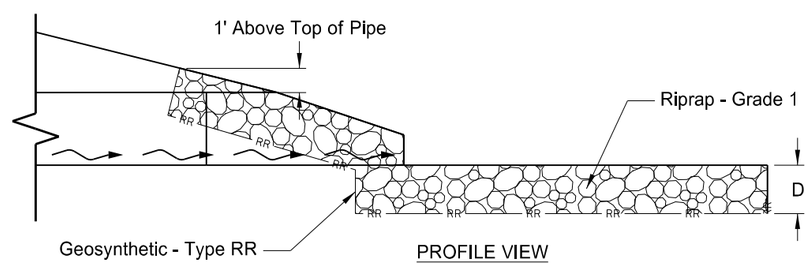
General Details

Centerline Broken Back Culvert Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20	6



PLAN VIEW



PROFILE VIEW

RIPRAP GRADE I / GEOSYNTHETIC MATERIAL TYPE RR											
Location of Surface Area to be Protected			Pipe Diameter	L1	W1	L2	W2	L3	D	256 0100 RIPRAP GRADE I (Pay Item)	709 0155 GEOSYNTHETIC MATERIAL-TYPE RR (Pay Item)
Station	Offset	Outlet	In	Ft	Ft	Ft	Ft	Ft	In	CY	SY
8136+31	CL	RT	(2) Arch 58x36	10	22	12	30	8	18	40	79

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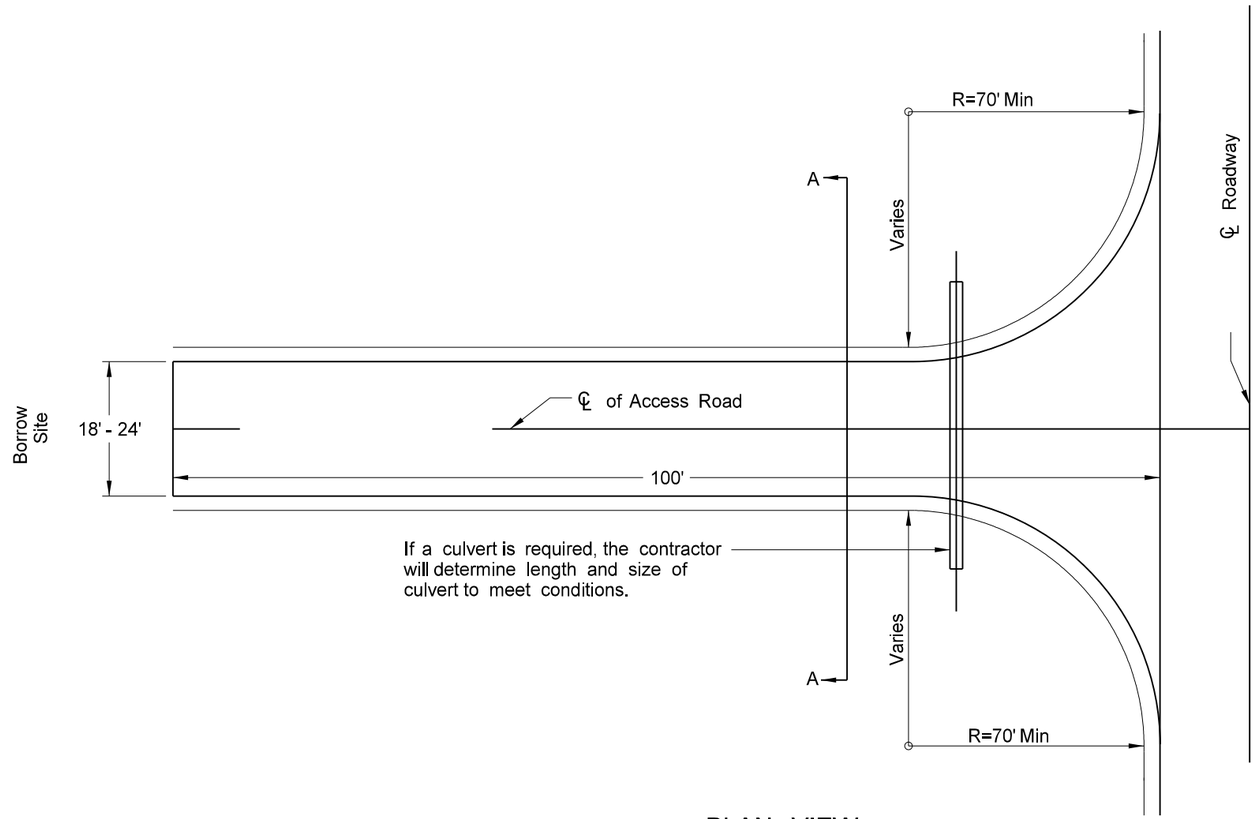
ND Hwy 19

General Details

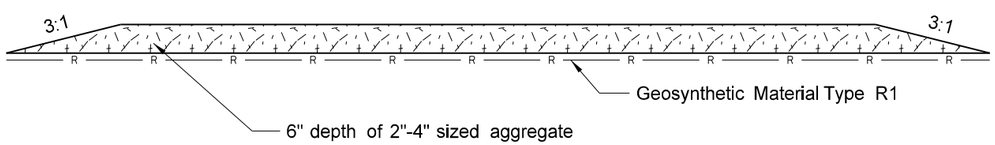
Riprap Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	20	7

265 0101 STABILIZED CONSTRUCTION ACCESS
Borrow Site 0.27 EA



PLAN VIEW



A - A Cross Section

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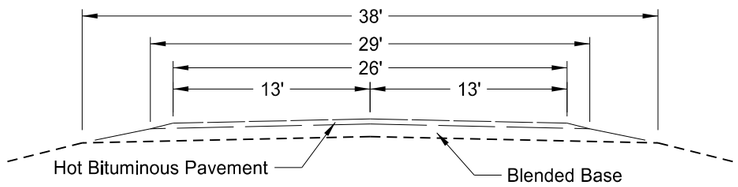
ND Hwy 19

General Details

Stabilized Construction Access Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	30	1



ND Hwy 19 Existing Typical Section
Sta 8078+80 to Sta 8183+89

Existing HBP and Base (Per Existing Plans)			
RP	Station	Aggregate Base (In)	HBP (In)
RP 153.021 – RP 154.999	8078+80 - 8183+89	10	4

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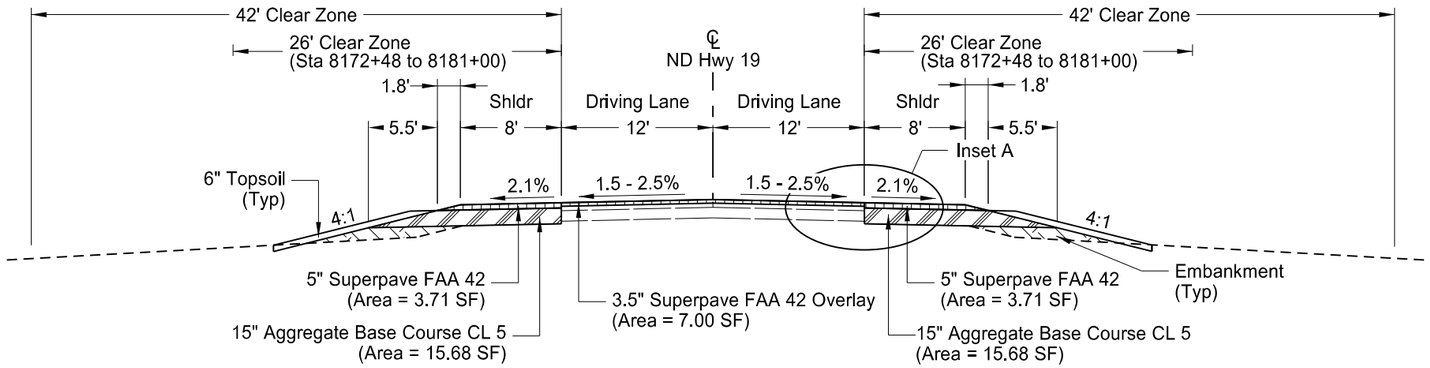
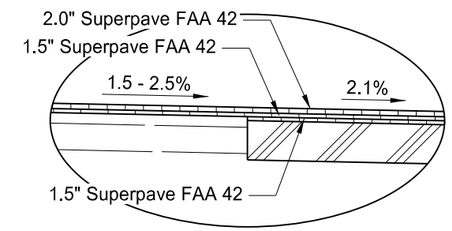
ND Hwy 19

Existing Typical Sections

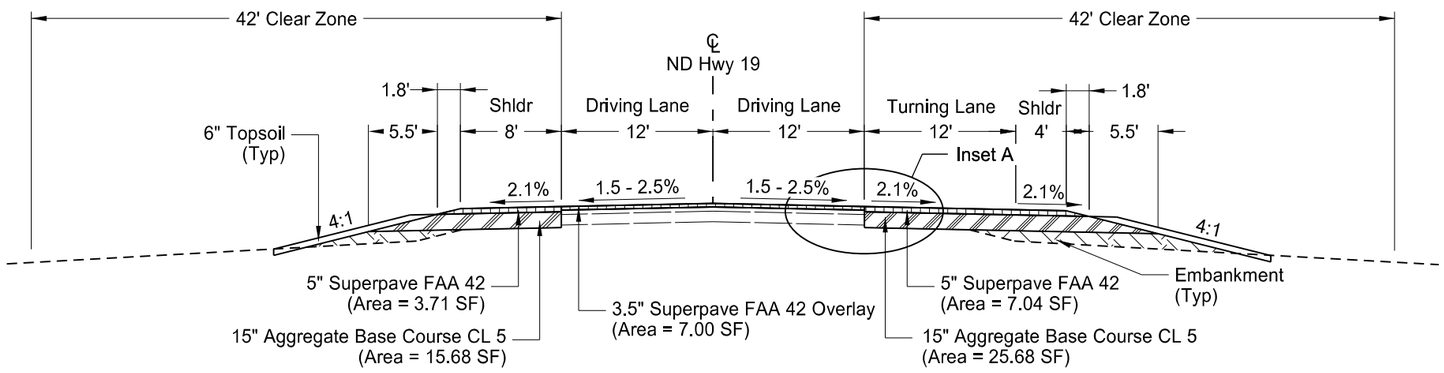
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	30	2



ND Hwy 19 Proposed Typical Section (Typical 1)
Sta 8078+80 to Sta 8088+32
Sta 8095+88 to Sta 8106+01
Sta 8114+14 to Sta 8114+69
Sta 8133+97 to Sta 8141+21
Sta 8172+00 to Sta 8181+00



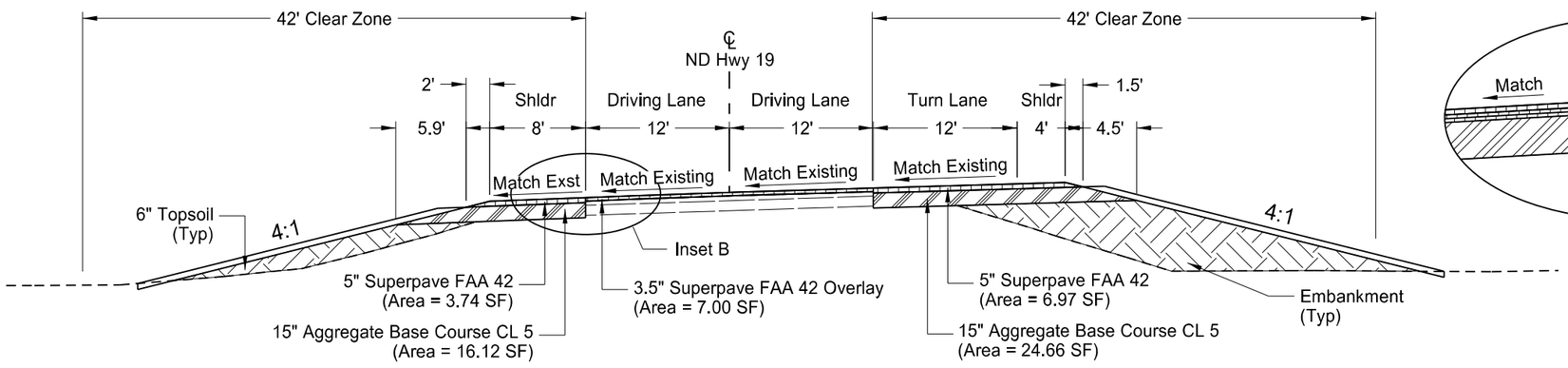
Inset A



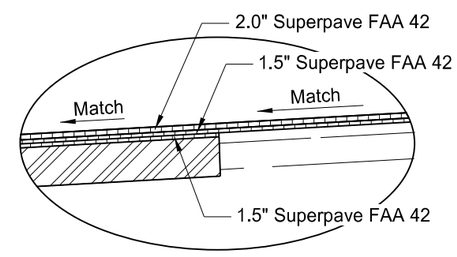
ND Hwy 19 Proposed Typical Section (Typical 2)
Sta 8089+38 to Sta 8094+68
Sta 8107+59 to Sta 8112+89

Note:
1. West Bound Turn Lane Transition
   - Sta 8088+32 to Sta 8089+38
   - Sta 8094+68 to Sta 8095+88
   - Sta 8106+01 to Sta 8107+59
   - Sta 8112+89 to Sta 8114+14
   - Sta 8114+69 to Sta 8115+65

2. East Bound Turn lane Transition Sta 8114+69 to Sta 8115+65



ND Hwy 19 Proposed Typical Section (Typical 3)
Sta 8115+65 to Sta 8117+02



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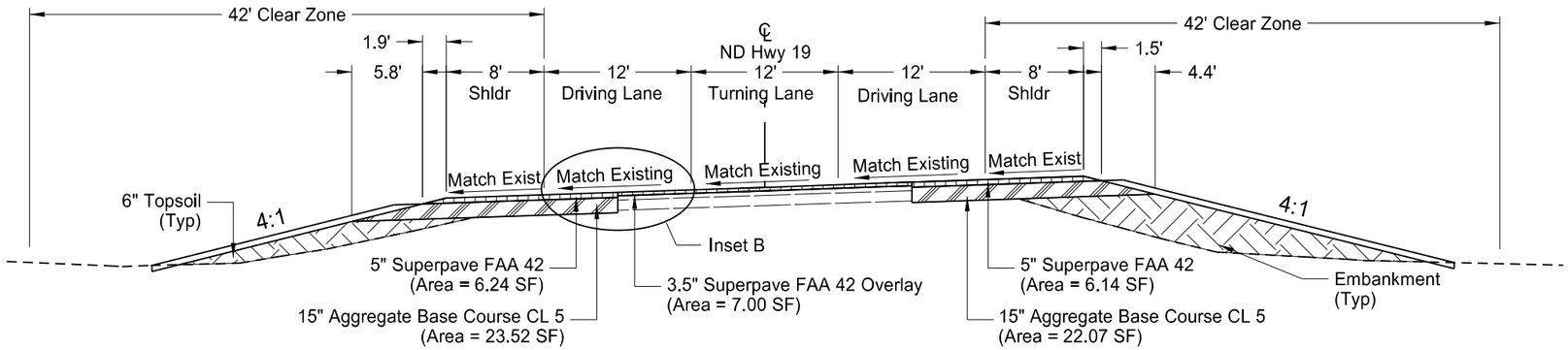
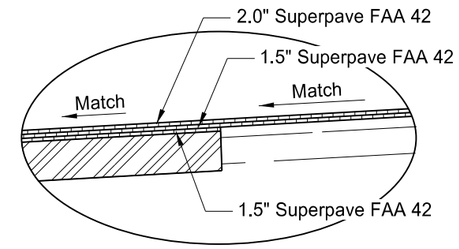
ND Hwy 19

Proposed Typical Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	30	3



ND Hwy 19 Proposed Typical Section (Typical 4)
Sta 8122+15 to Sta 8127+00



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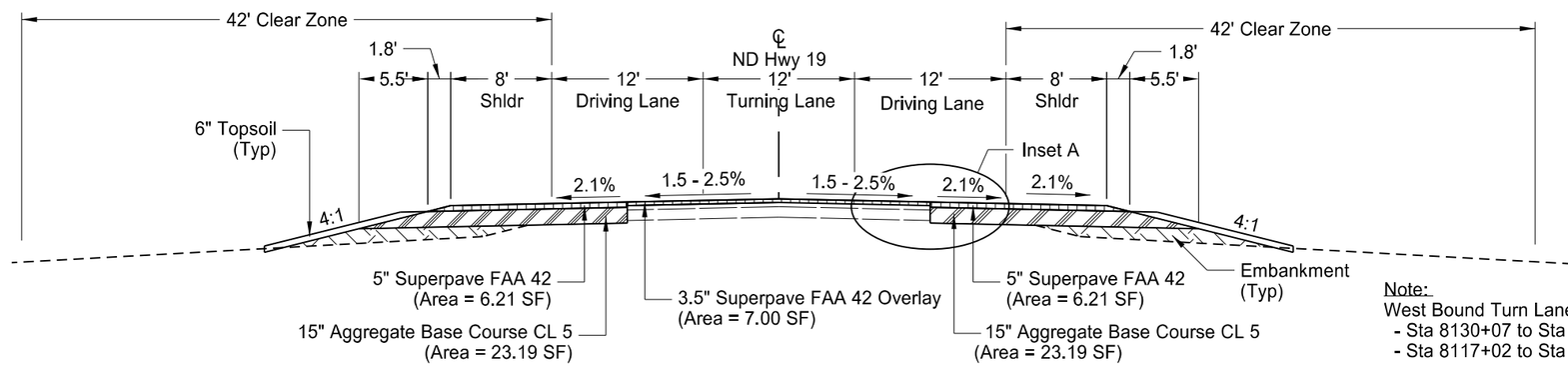
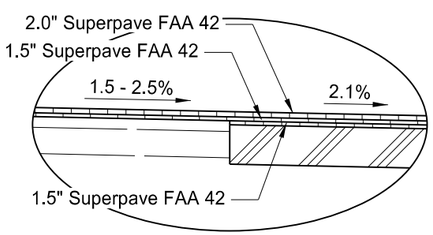


ND Hwy 19 Proposed Typical Section (Typical 5)
Sta 8127+00 to Sta 8130+07

Note:
West Bound Turn Lane Transition
- Sta 8130+07 to Sta 8133+97
- Sta 8117+02 to Sta 8122+15



Inset A

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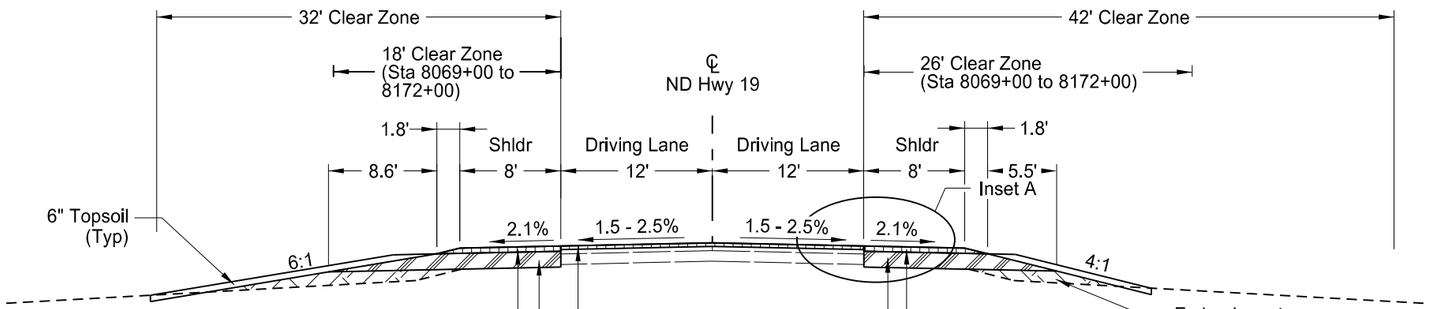
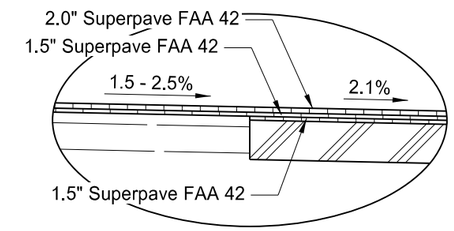
ND Hwy 19

Proposed Typical Section

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	30	4



ND Hwy 19 Proposed Typical Section (Typical 6)
Sta 8141+21 Lt to 8172+00



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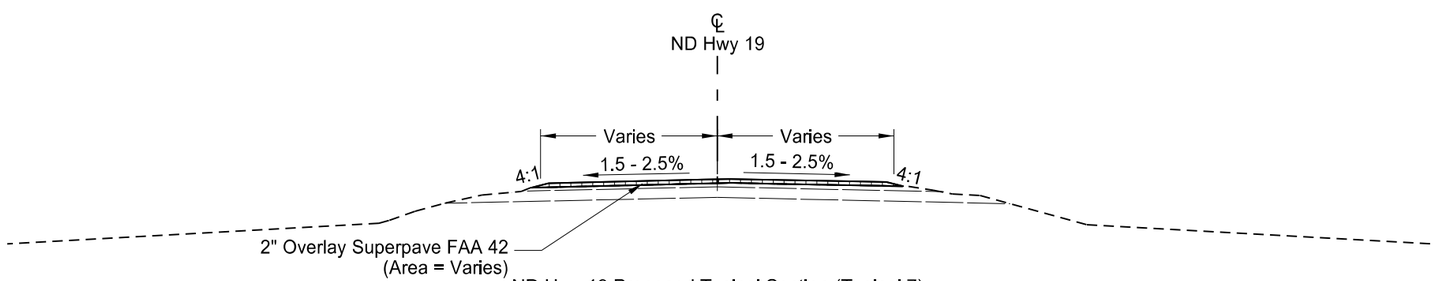

ND Hwy 19 Proposed Typical Section (Typical 7)
Sta 8181+00 to Sta 8183+89

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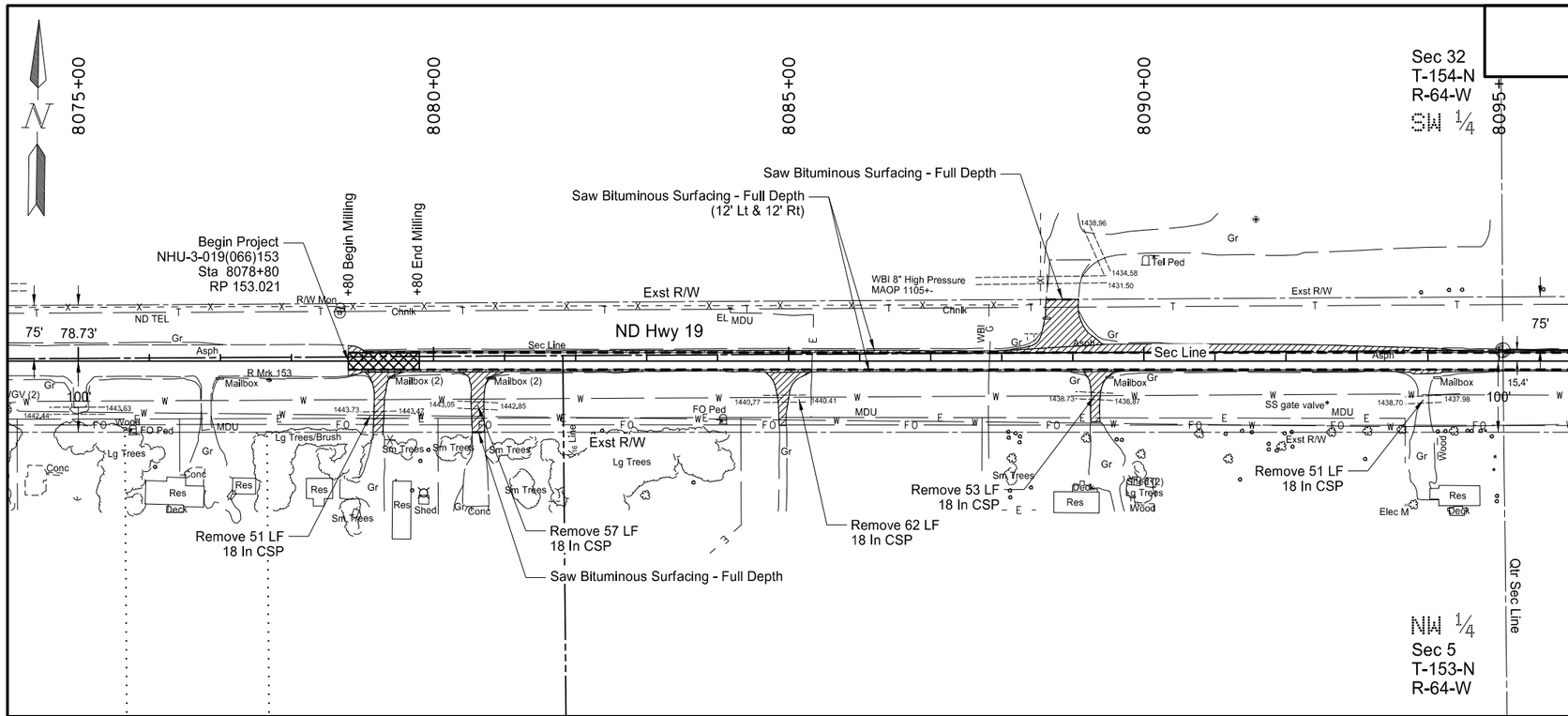
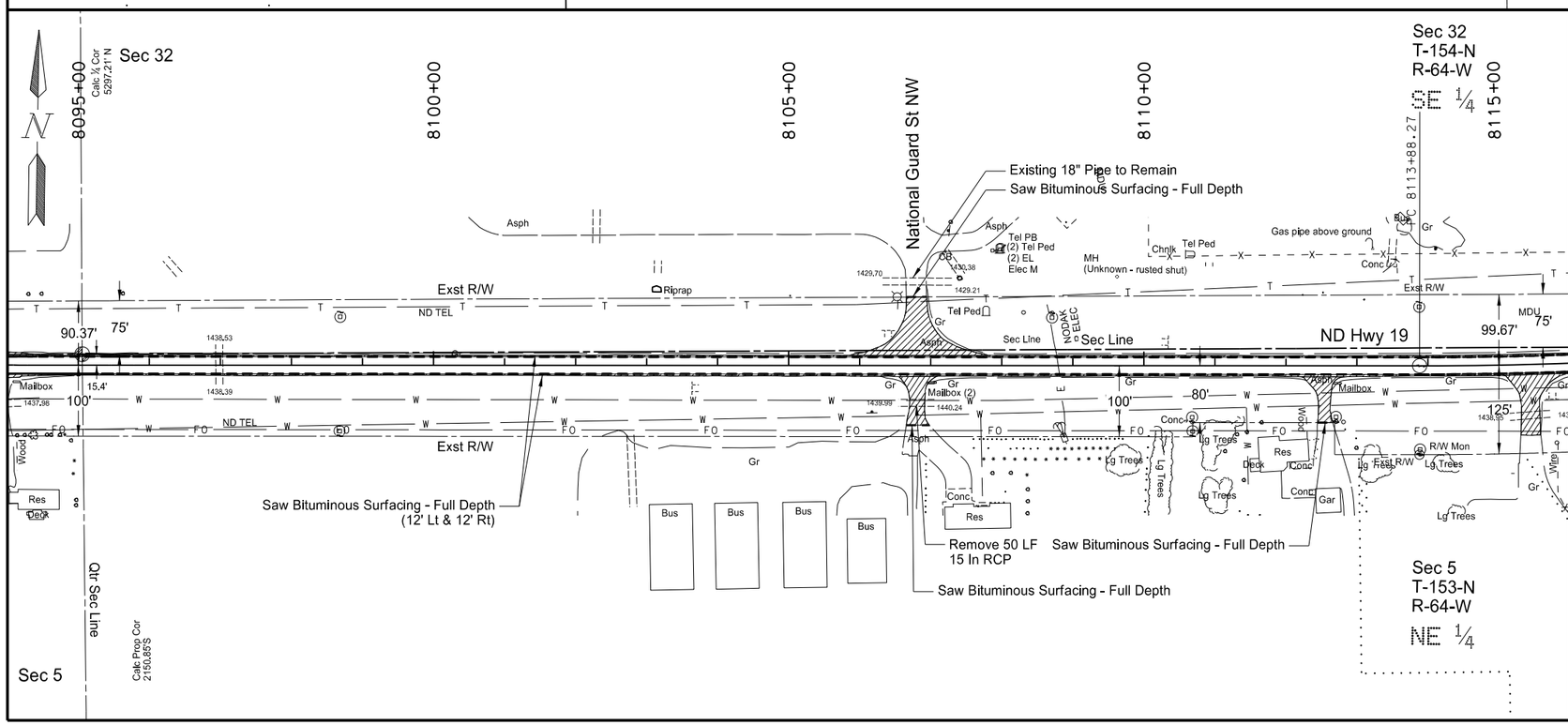
ND Hwy 19

Proposed Typical Section

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	40	1





202 0132 REMOVAL OF BITUMINOUS SURFACING

Sta 8079+80 12' Lt to Sta 8115+00 12' Lt	1463 SY
Sta 8079+80 12' Rt to Sta 8115+00 12' Rt	1056 SY
Sta 8079+22 Rt	170 SY
Sta 8080+63 Rt	198 SY
Sta 8084+92 Rt	168 SY
Sta 8088+85 Lt	453 SY
Sta 8089+32 Rt	136 SY
Sta 8106+80 Lt	580 SY
Sta 8106+80 Rt	205 SY
Sta 8112+55 Rt	167 SY
Total	4596 SY

202 0174 REMOVAL OF PIPE ALL TYPES AND SIZES

Sta 8079+23 76' Rt	51 LF
Sta 8080+62 62' Rt	57 LF
Sta 8084+93 53' Rt	62 LF
Sta 8089+30 49' Rt	53 LF
Sta 8093+94 54' Rt	51 LF
Sta 8106+80 53' Rt	50 LF
Total	324 LF

411 0105 MILLING PAVEMENT SURFACE

Sta 8078+80 to 8079+80 (12' Lt to 12' Rt)	267 SY

Legend

- Saw Bituminous Surfacing-Full Depth
- Removal of Bituminous Surfacing
- Milling Pavement Surface

Notes:

1. Stationing is based on Alignment "PR19_SEG4" unless otherwise noted.

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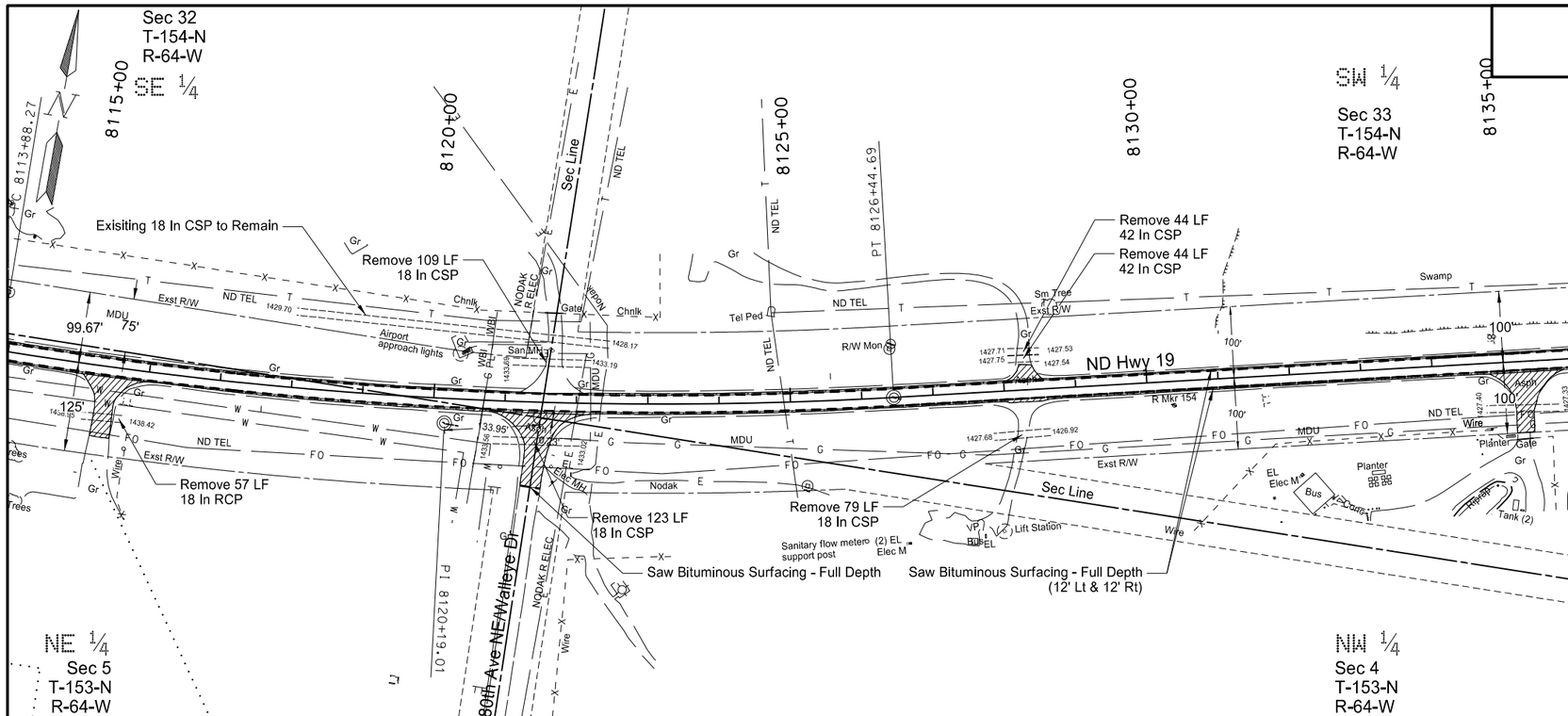
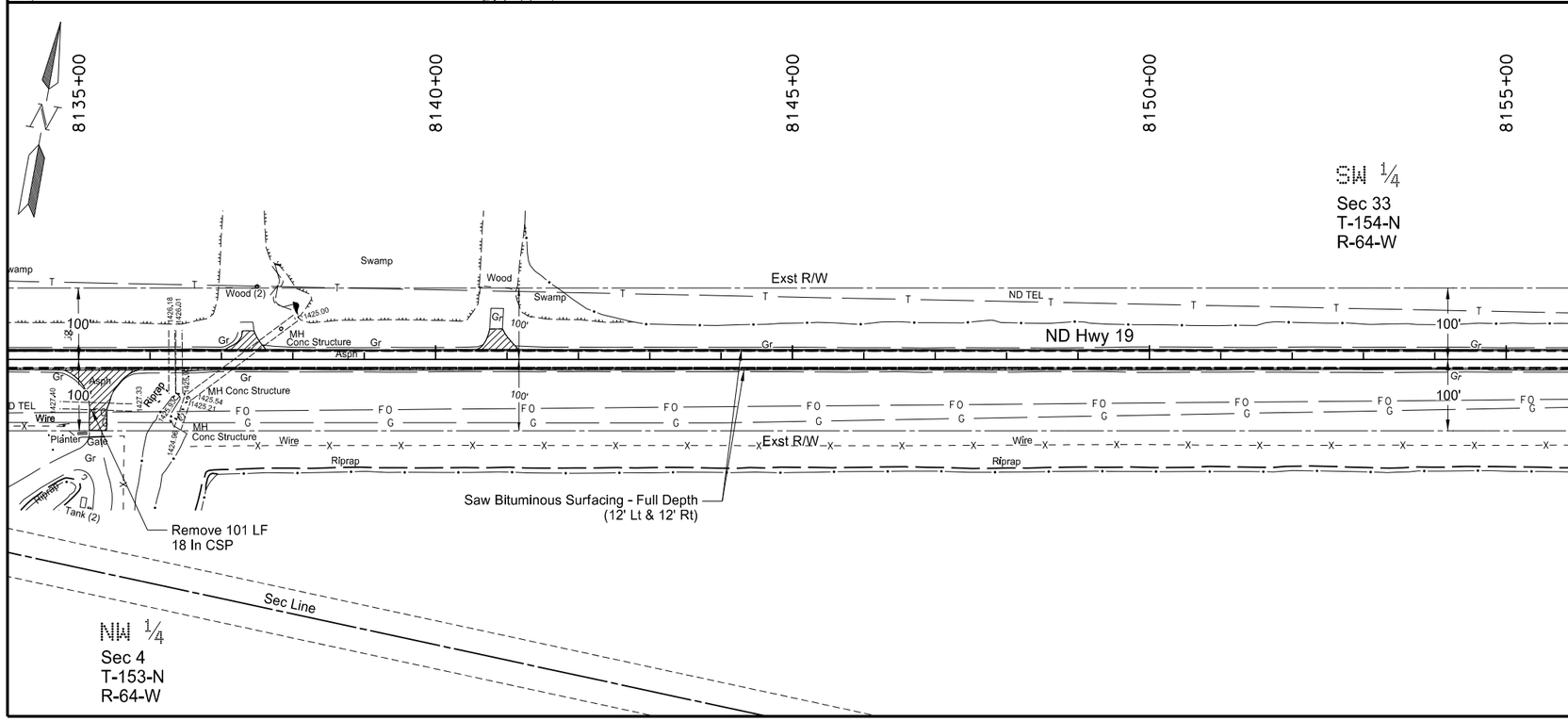
ND Hwy 19

Removals

Sta 8078+80 to 8115+00
(Mile 152 & 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	40	2





202 0132 REMOVAL OF BITUMINOUS SURFACING

Sta 8115+00 12' Lt to Sta 8155+00 12' Lt	864 SY
Sta 8115+00 12' Rt to Sta 8155+00 12' Rt	1170 SY
Sta 8115+43 Rt	334 SY
Sta 8121+38 Rt	513 SY
Sta 8128+30 Lt	69 SY
Sta 8135+24 Rt	372 SY
Sta 8137+35 Lt	90 SY
Sta 8140+85 Lt	107 SY
Total	3519 SY

202 0174 REMOVAL OF PIPE ALL TYPES AND SIZES

Sta 8115+42 72' Rt	57 LF
Sta 8121+45 55' Rt	123 LF
Sta 8121+64 56' Lt	109 LF
Sta 8128+30 53' Lt	44 LF
Sta 8128+29 44' Lt	44 LF
Sta 8128+22 62' Rt	79 LF
Sta 8135+24 66' Rt	101 LF
Total	557 LF

Legend

- Saw Bituminous Surfacing-Full Depth
- Removal of Bituminous Surfacing
- Milling Pavement Surface

Notes:

1. Stationing is based on Alignment "PR19_SEG4" unless otherwise noted.

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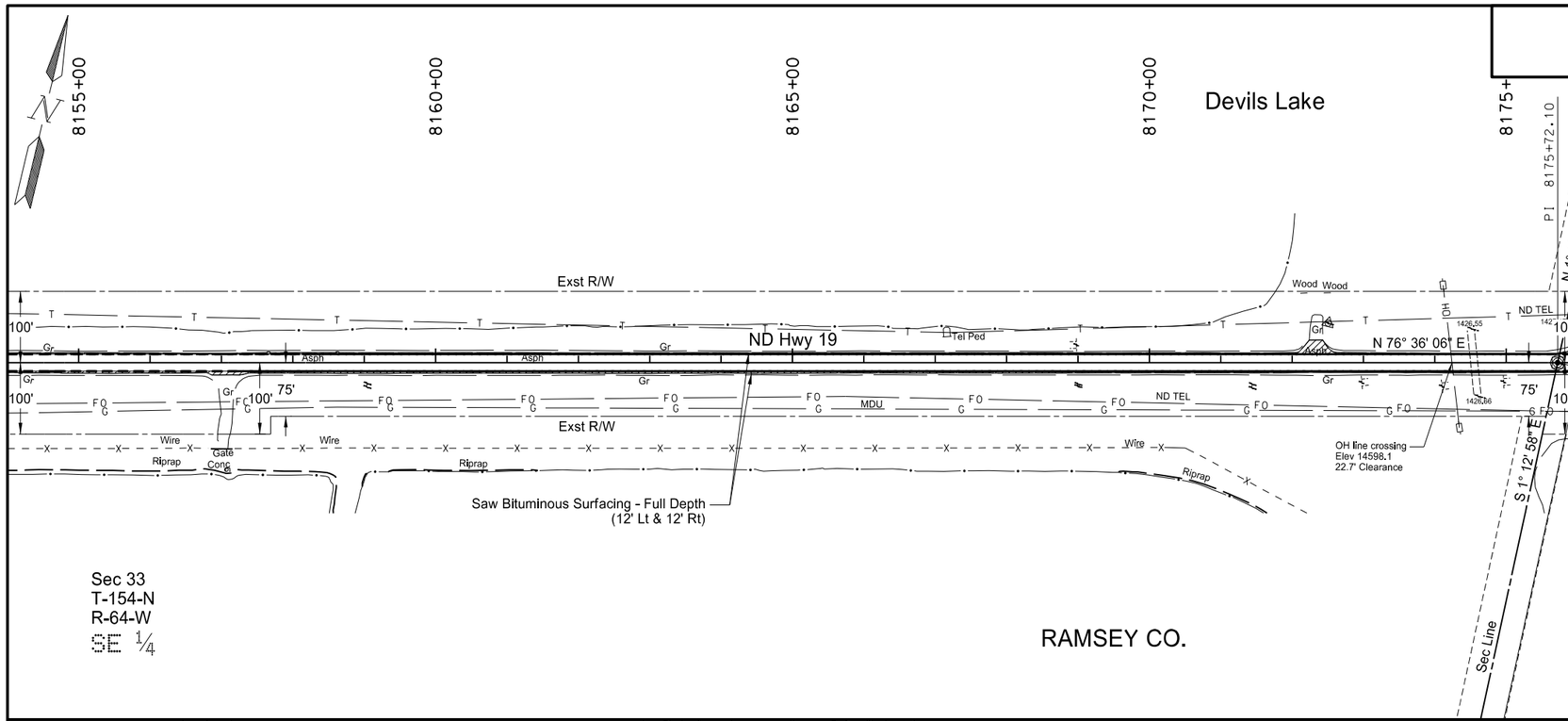
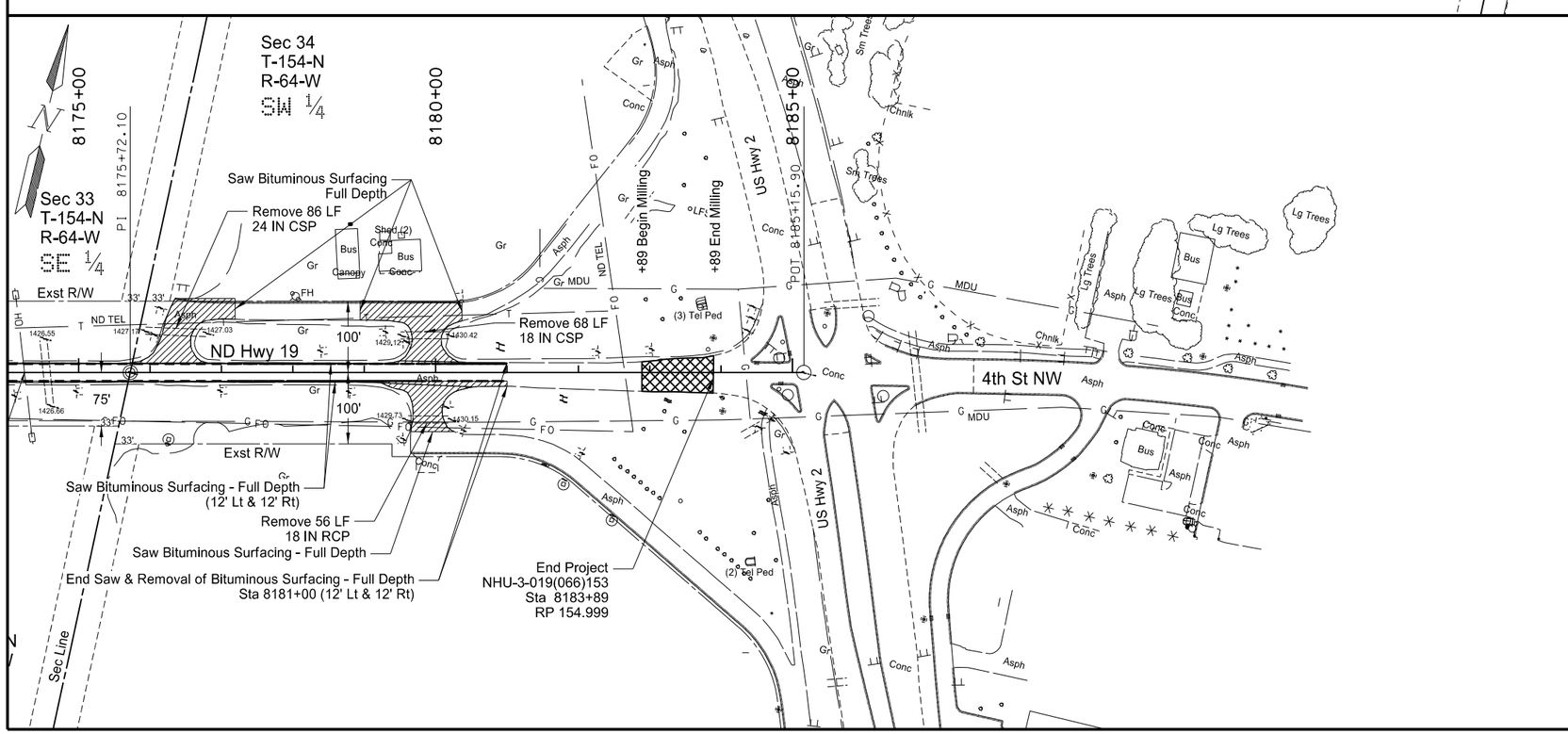
ND Hwy 19

Removals

Sta 8115+00 to 8155+00
(Mile 153 & 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	40	3





202 0132 REMOVAL OF BITUMINOUS SURFACING

Sta 8155+00 12' Lt to Sta 8181+00 12' Lt	556 SY
Sta 8155+00 12' Rt to Sta 8181+00 12' Rt	775 SY
Sta 8176+35 Lt	656 SY
Sta 8179+90 Lt	754 SY
Sta 8179+90 Rt	399 SY
Total	3140 SY

202 0174 REMOVAL OF PIPE ALL TYPES AND SIZES

Sta 8176+35 57' Lt	86 LF
Sta 8179+85 52' Lt	68 LF
Sta 8179+90 66' Rt	56 LF
Total	210 LF

411 0105 MILLING PAVEMENT SURFACE

Sta 8182+89 to 8183+89	519 SY

Legend

- Saw Bituminous Surfacing-Full Depth
- Removal of Bituminous Surfacing
- Milling Pavement Surface

Notes:

1. Stationing is based on Alignment "PR19_SEG4" unless otherwise noted.

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ND Hwy 19

Removals

Sta 8155+00 to 8183+89
Mile (154 & 155)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	51	1

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Sections		Applicable Backfill Detail
												Begin	End	
				In	Bid Item	LF		In	Type		In	EA	EA	
							Segment 4							
8078+85	60 Rt	8079+61	60 Rt	24	Pipe Conduit - Approach	76	Reinforced Concrete Pipe - Class III **(Barrel Length = 72 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8080+27	60 Lt	8081+02	60 Lt	24	Pipe Conduit - Approach	75	Reinforced Concrete Pipe - Class III **(Barrel Length = 70 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8084+56	60 Rt	8085+35	60 Rt	24	Pipe Conduit - Approach	79	Reinforced Concrete Pipe - Class III **(Barrel Length = 74 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8088+93	56 Rt	8089+72	56 Rt	24	Pipe Conduit - Approach	79	Reinforced Concrete Pipe - Class III **(Barrel Length = 74 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8093+55	56 Rt	8094+34	56 Rt	24	Pipe Conduit - Approach	79	Reinforced Concrete Pipe - Class III **(Barrel Length = 74 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8097+00	29 Lt	8097+00	21 Lt	44 x 27	Remove & Relay Pipe	8								Section 20
8097+00	53 Lt	8097+00	29 Lt	44 x 27	Pipe Conc. Reinf.CL III (Extension)	24	Reinforced Concrete Pipe - Class III **(Barrel Length = 24 LF)**	24				FES		Section 20
8097+00	19 Rt	8097+00	27 Rt	44 x 27	Remove & Relay Pipe	8								Section 20
8097+00	27 Rt	8097+00	51 Rt	44 x 27	Pipe Conc. Reinf.CL III (Extension)	24	Reinforced Concrete Pipe - Class III **(Barrel Length = 24 LF)**	24					FES	Section 20
8106+41	56 Rt	8107+17	56 Rt	24	Pipe Conduit - Approach	76	Reinforced Concrete Pipe - Class III **(Barrel Length = 72 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8115+04	72 Rt	8115+84	72 Rt	24	Pipe Conduit - Approach	80	Reinforced Concrete Pipe - Class III **(Barrel Length = 76 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8121+17	58 Lt	8122+10	58 Lt	24	Pipe Conduit - Approach	93	Reinforced Concrete Pipe - Class III **(Barrel Length = 88 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						

Coatings: **Z** = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Corrugations: **2** = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Spiral Ribs: **3/4** = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) The price bid for "Pipe Conduit" bid items includes end sections. Pipe Extensions shall pay for end sections seperately.
FES = Flared End Section
TES = Traversable End Section

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ND Hwy 19

Allowable Pipe List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	51	2

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Sections		Applicable Backfill Detail
												Begin	End	
				In	Bid Item	LF		In	Type		In	EA	EA	
8120+86	62 Rt	8122+07	62 Rt	24	Pipe Conduit - Approach	121	Reinforced Concrete Pipe - Class III **(Barrel Length = 116 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8127+94	70 Lt	8128+66	70 Lt	42	Pipe Conduit - Approach	72	Reinforced Concrete Pipe - Class III **(Barrel Length = 68 LF)**	42				FES	FES	
							Corrugated Steel Pipe	42	Z, A, P	2	0.064			
							Spiral Rib Pipe	42	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	42						
8127+94	58 Lt	8128+66	58 Lt	42	Pipe Conduit - Approach	72	Reinforced Concrete Pipe - Class III **(Barrel Length = 68 LF)**	42				FES	FES	
							Corrugated Steel Pipe	42	Z, A, P	2	0.064			
							Spiral Rib Pipe	42	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	42						
8127+89	62 Rt	8128+86	62 Rt	24	Pipe Conduit - Approach	97	Reinforced Concrete Pipe - Class III **(Barrel Length = 92 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8134+74	66 Rt	8135+72	66 Rt	24	Pipe Conduit - Approach	98	Reinforced Concrete Pipe - Class III **(Barrel Length = 94 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8136+31	53 Lt	8136+31	41 Lt	58 x 36	Pipe Conc. Reinf.CL III (Extension)	12	Reinforced Concrete Pipe - Class III **(Barrel Length = 12 LF)**	58 x 36				FES		Section 20
8136+31	48 Rt	8136+30	54 Rt	58 x 36	Pipe Conc. Reinf.CL III (Extension)	6	30 Degree Bend Reinforced Concrete Pipe - Class III **(Barrel Length = 6 LF)**	58 x 36					FES	Section 20
8136+40	53 Lt	8136+40	41 Lt	58 x 36	Pipe Conc. Reinf.CL III (Extension)	12	Reinforced Concrete Pipe - Class III **(Barrel Length = 12 LF)**	58 x 36				FES		Section 20
8136+40	48 Rt	8136+39	54 Rt	58 x 36	Pipe Conc. Reinf.CL III (Extension)	6	30 Degree Bend Reinforced Concrete Pipe - Class III **(Barrel Length = 6 LF)**	58 x 36						Section 20
8136+39	54 Rt	8136+37	59 Rt	58 x 36	Pipe Conc. Reinf.CL III (Extension)	6	Reinforced Concrete Pipe - Class III **(Barrel Length = 6 LF)**	58 x 36					FES	Section 20
8175+87	56 Lt	8176+83	56 Lt	24	Pipe Conduit - Approach	96	Reinforced Concrete Pipe - Class III **(Barrel Length = 92 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8179+48	52 Lt	8180+24	52 Lt	24	Pipe Conduit - Approach	76	Reinforced Concrete Pipe - Class III **(Barrel Length = 72 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8179+52	66 Rt	8180+24	66 Rt	18	Pipe Conduit - Approach	72	Reinforced Concrete Pipe - Class III **(Barrel Length = 68 LF)**	18				FES	FES	
							Corrugated Steel Pipe	18	Z, A, P	2	0.064			
							Spiral Rib Pipe	18	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	18						

Coatings: **Z** = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Corrugations: **2** = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Spiral Ribs: **3/4** = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) The price bid for "Pipe Conduit" bid items includes end sections. Pipe Extensions shall pay for end sections seperately.
FES = Flared End Section
TES = Traversable End Section

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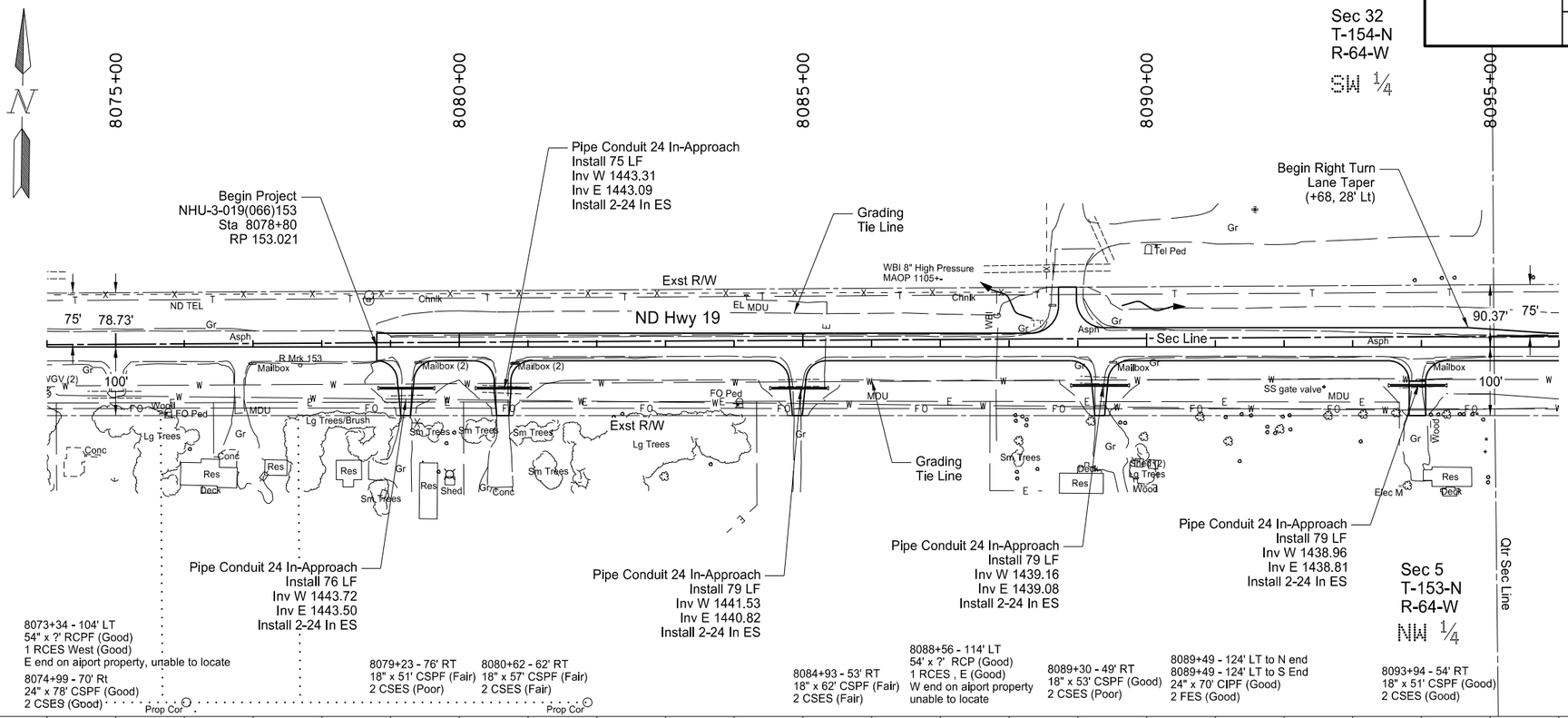
ND Hwy 19

Allowable Pipe List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	60	1



714 4106 PIPE CONDUIT 24IN-APPROACH

Sta 8078+85 - 60' Rt to Sta 8079+61 - 60' Rt	76 LF
Sta 8080+27 - 60' Rt to Sta 8081+02 - 60' Rt	75 LF
Sta 8084+56 - 60' Rt to Sta 8085+35 - 60' Rt	79 LF
Sta 8088+93 - 56' Rt to Sta 8089+72 - 56' Rt	79 LF
Sta 8093+55 - 56' Rt to Sta 8094+34 - 56' Rt	79 LF
Total	388 LF

Notes:

1. Stationing is based on Alignment "PR19_SEG4" unless otherwise noted.

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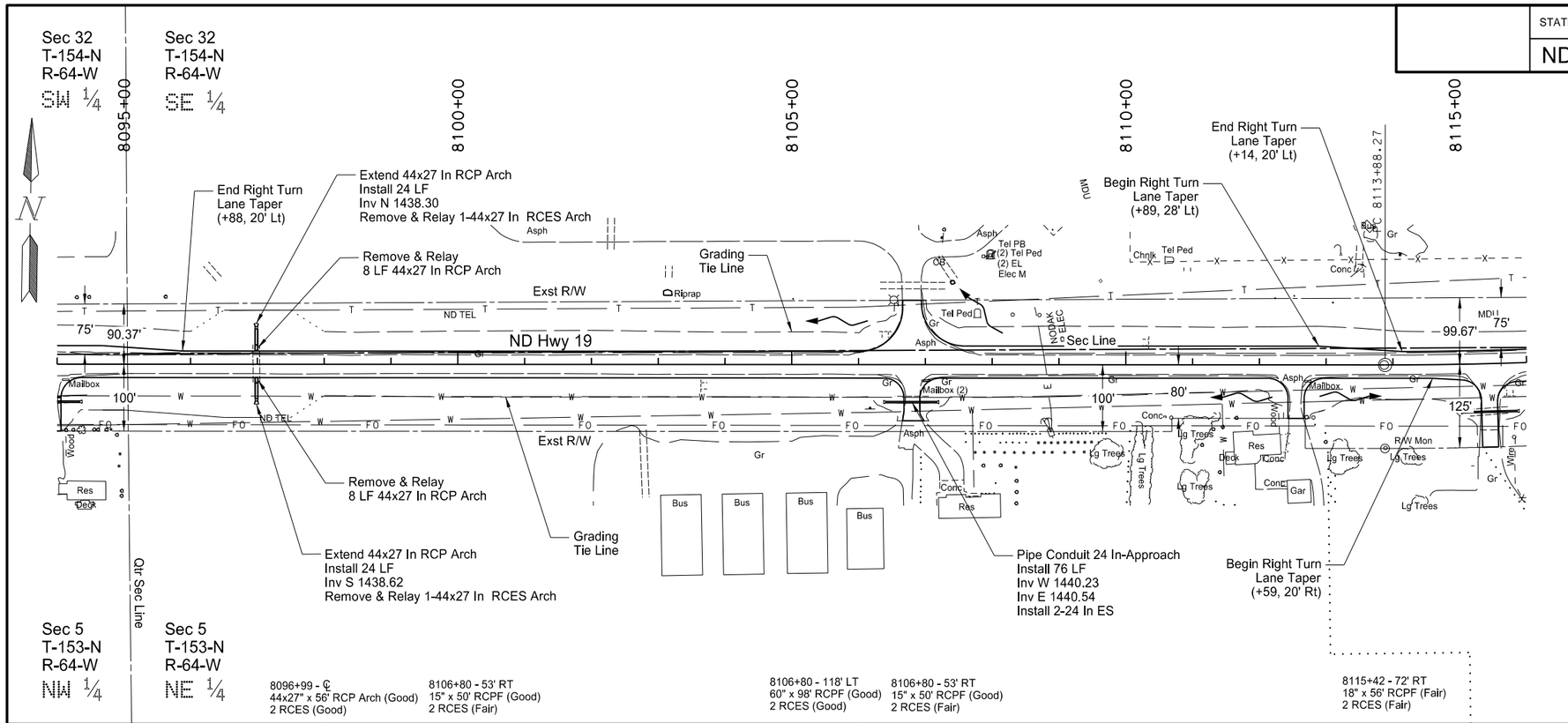
ND Hwy 19

Plan & Profile

Sta 8078+80 to 8095+00
(Mile 152 &153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	60	2



714 2130 PIPE CONC REINF ARCH 44IN X 27IN CL III

Sta 8097+00 Lt	24 LF
Sta 8097+00 Rt	24 LF
Total	48 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta 8106+41 - 56' Rt to Sta 8107+17 - 56' Rt	76 LF

714 9659 REMOVE & RELAY PIPE-ALL TYPES & SIZES

Sta 8097+00 Lt	8 LF
Sta 8097+00 Rt	8 LF
Total	16 LF

714 9660 REMOVE & RELAY END SECTION-ALL TYPES & SIZES

Sta 8097+00 Lt	1 EA
Sta 8097+00 Rt	1 EA
Total	2 EA

Notes:

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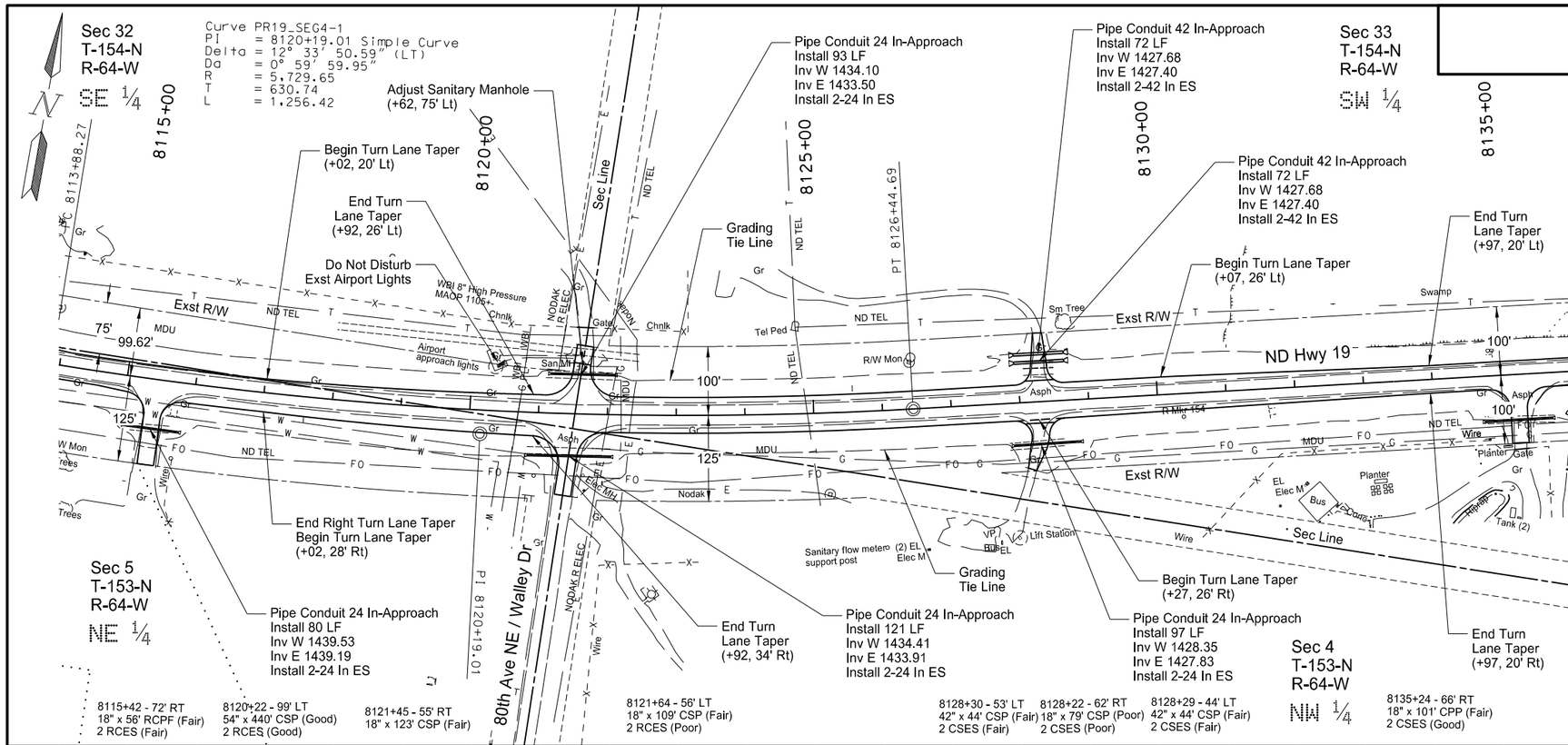
ND Hwy 19

Plan & Profile

Sta. 8095+00 to 8115+00
(Mile 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	60	3



714 4106 PIPE CONDUIT 24IN-APPROACH

Sta 8115+04 - 72' Rt to Sta 8115+84 - 72' Rt		80 LF
Sta 8121+17 - 58' Lt to Sta 8122+10 - 58' Lt		93 LF
Sta 8120+86 - 62' Rt to Sta 8122+07 - 62' Rt		121 LF
Sta 8127+89 - 62' Rt to Sta 8128+86 - 62' Rt		97 LF
	Total	391 LF

714 4122 PIPE CONDUIT 42IN-APPROACH

Sta 8127+94 - 58' Lt to Sta 8128+66 - 58' Lt		72 LF
Sta 8127+94 - 70' Lt to Sta 8128+66 - 70' Lt		72 LF
	Total	144 LF

722 6200 ADJUST MANHOLE

Sta 8121+62 - 75' Lt	1 EA

Notes:

1. Stationing is based on Alignment "PR19_SEG4" unless otherwise noted.

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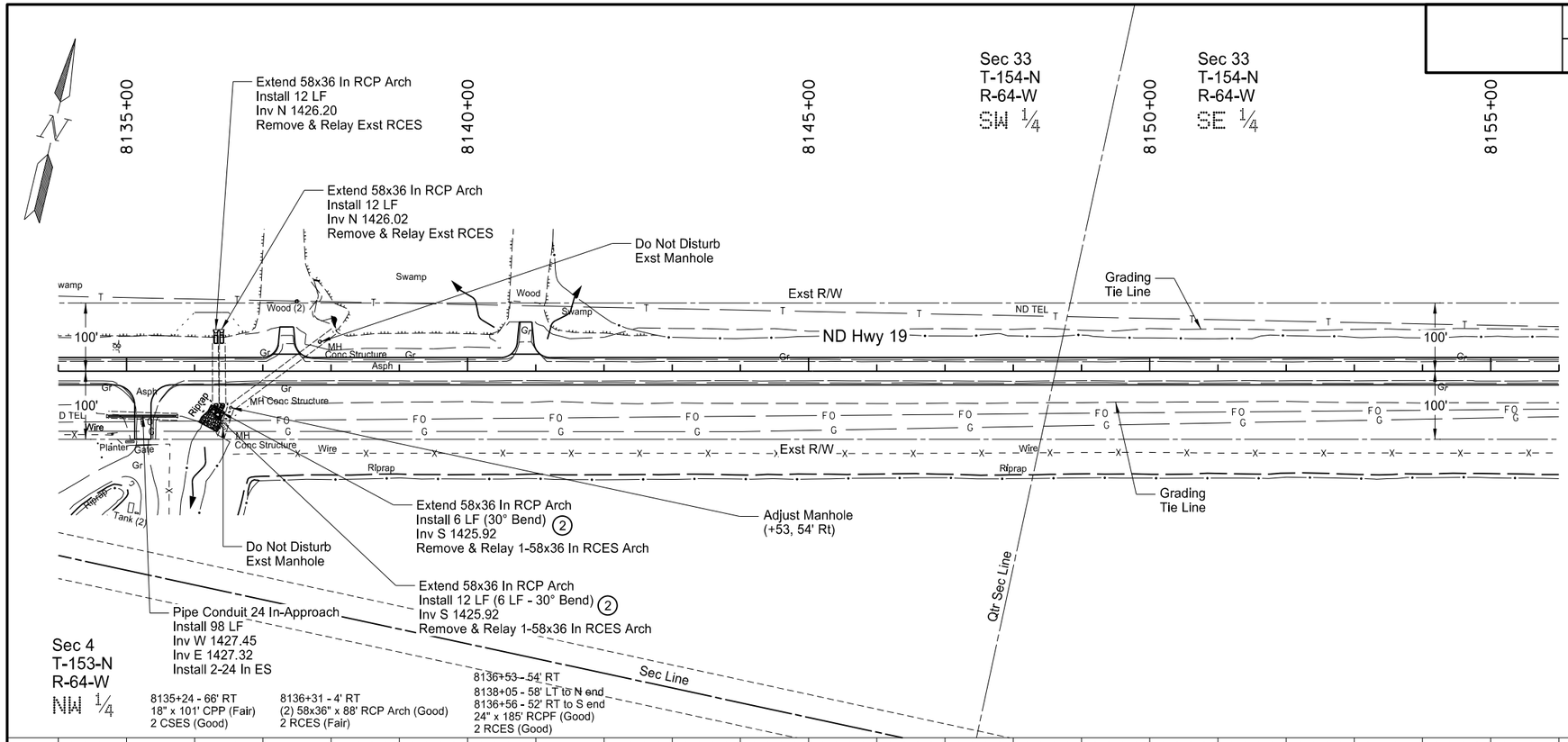
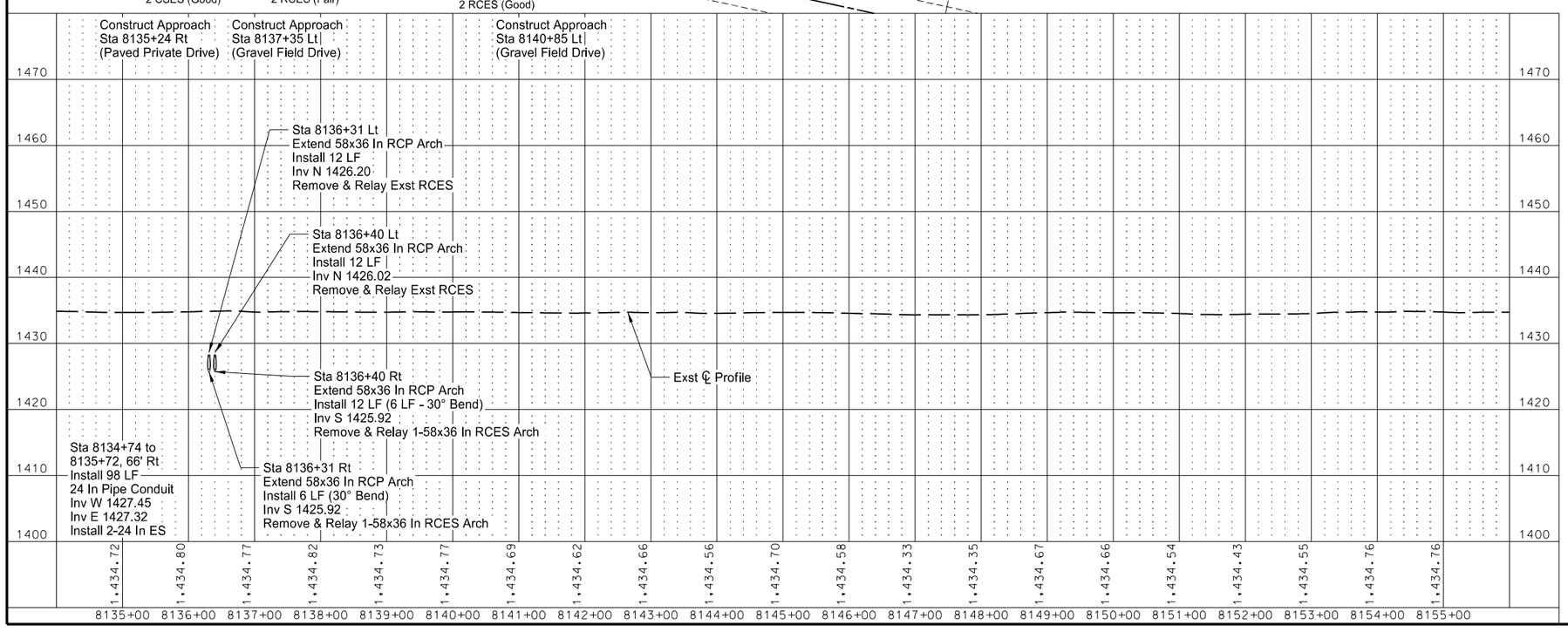
ND Hwy 19

Plan & Profile

Sta 8115+00 to 8135+00
(Mile 153 & 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	60	4





714 2161 PIPE CONC REINF ARCH 58IN X 36IN CL III

Sta 8136+31 Lt	12 LF
Sta 8136+31 Rt	6 LF
Sta 8136+40 Lt	12 LF
Sta 8136+40 Rt	12 LF
Total	42 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta 8134+74 - 66' Rt to Sta 8135+72 - 66' Rt	98 LF

714 9660 REMOVE & RELAY END SECTION-ALL TYPES & SIZES

Sta 8136+31 Lt	1 EA
Sta 8136+31 Rt	1 EA
Sta 8136+40 Lt	1 EA
Sta 8136+40 Rt	1 EA
Total	4 EA

722 6200 ADJUST MANHOLE

Sta 8136+53 - 54' Rt	1 EA

Notes:

1. Stationing is based on Alignment "PR19_SEG4" unless otherwise noted.

2. The 58x36 In 30° Bend shall be paid for as "PIPE CONC REINF ARCH 58IN X 36IN CLIII"

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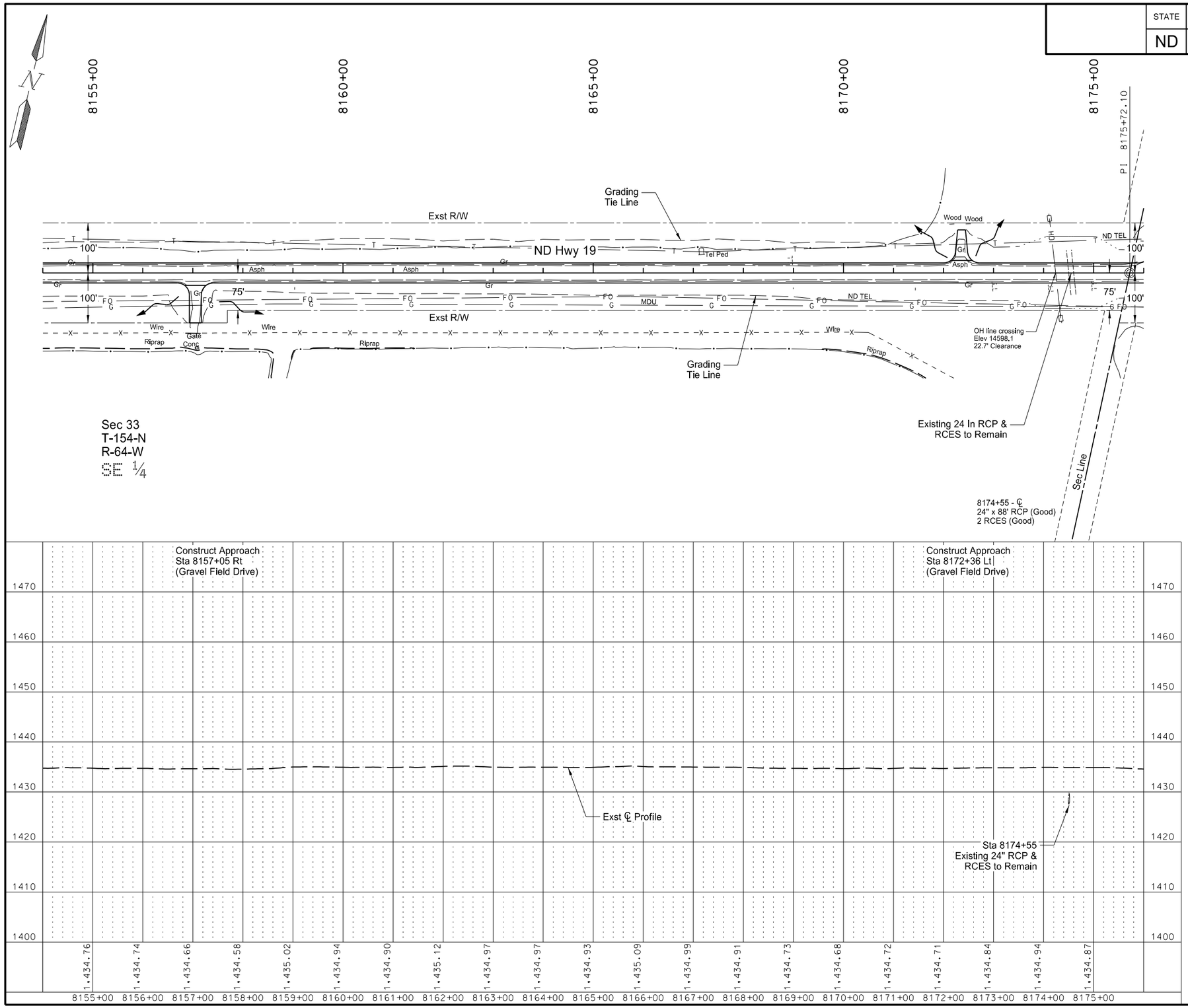
ND Hwy 19

Plan & Profile

Sta 8135+00 to 8155+00
(Mile 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	60	5



Notes:

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ND Hwy 19

Plan & Profile

Sta 8155+00 to 8175+00
(Mile 154)

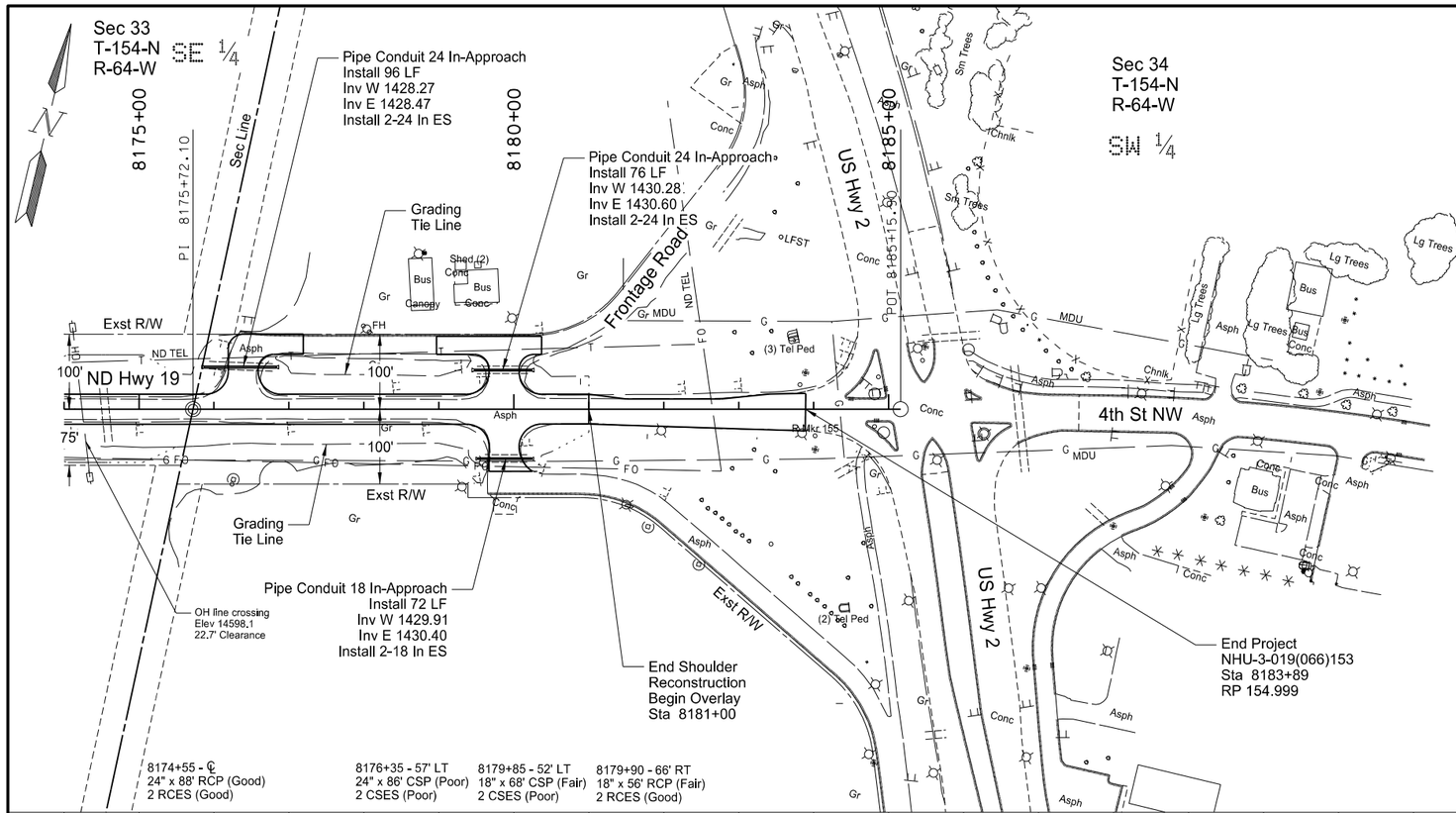
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	60	6

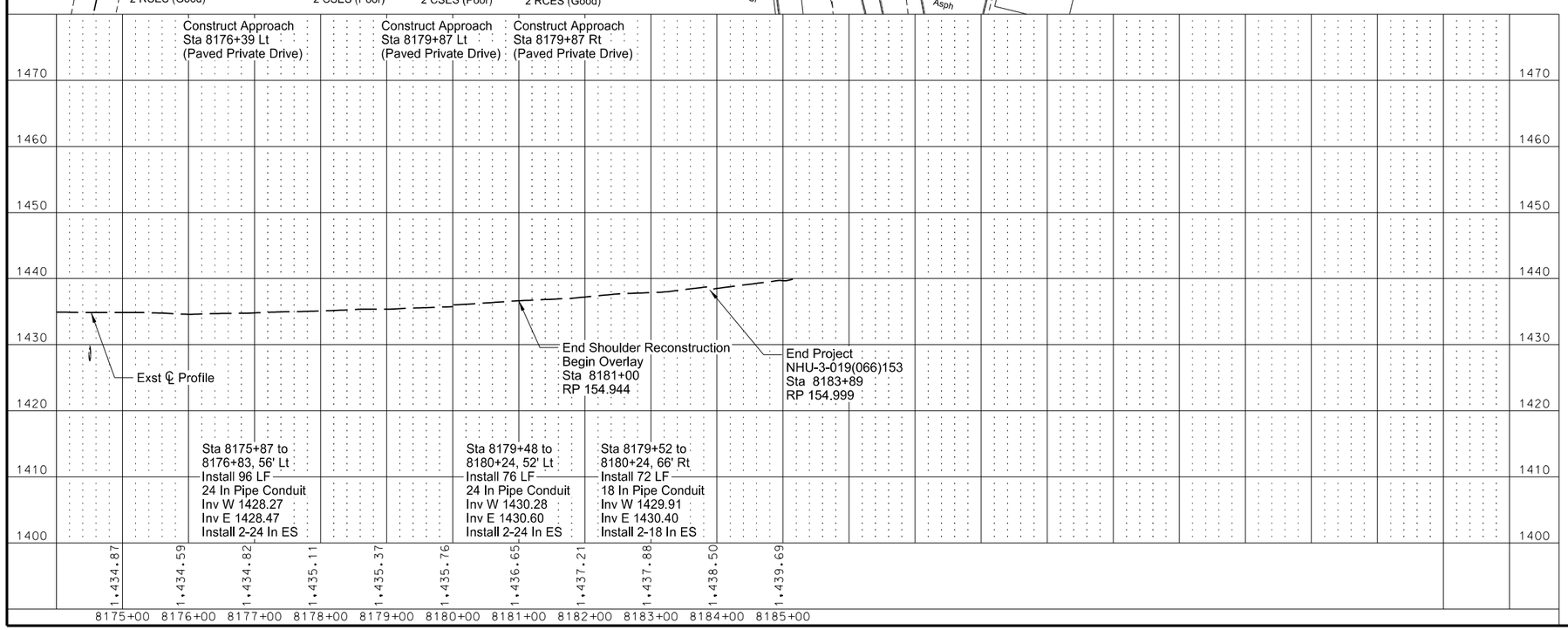
714 4099 PIPE CONDUIT 18IN-APPROACH

Sta 8179+52 - 66' Rt to Sta 8180+24 - 66' Rt	72 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta 8175+87 - 56' Lt to Sta 8176+83 - 56' Lt	96 LF
Sta 8179+48 - 52' Lt to Sta 8180+24 - 52' Lt	76 LF
Total	172 LF





Notes:

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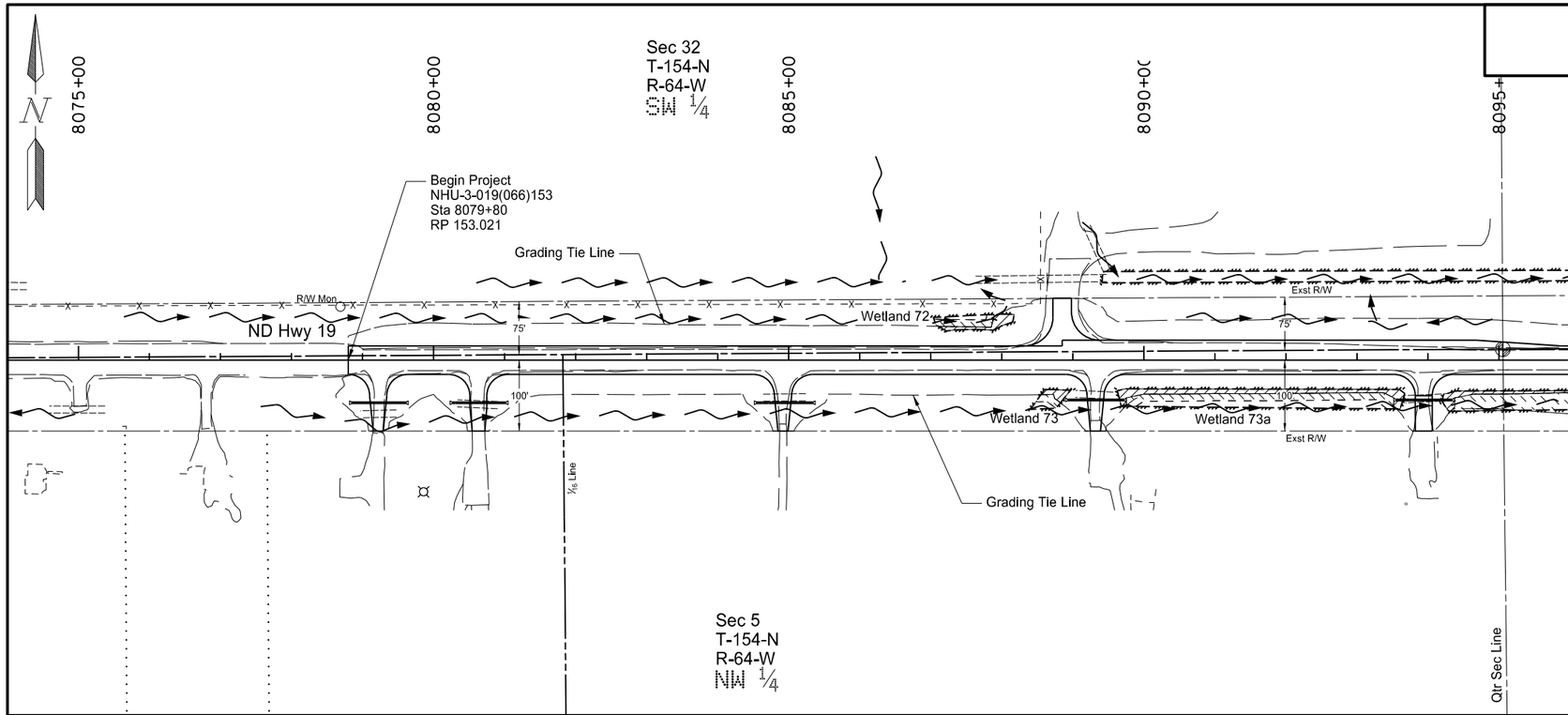
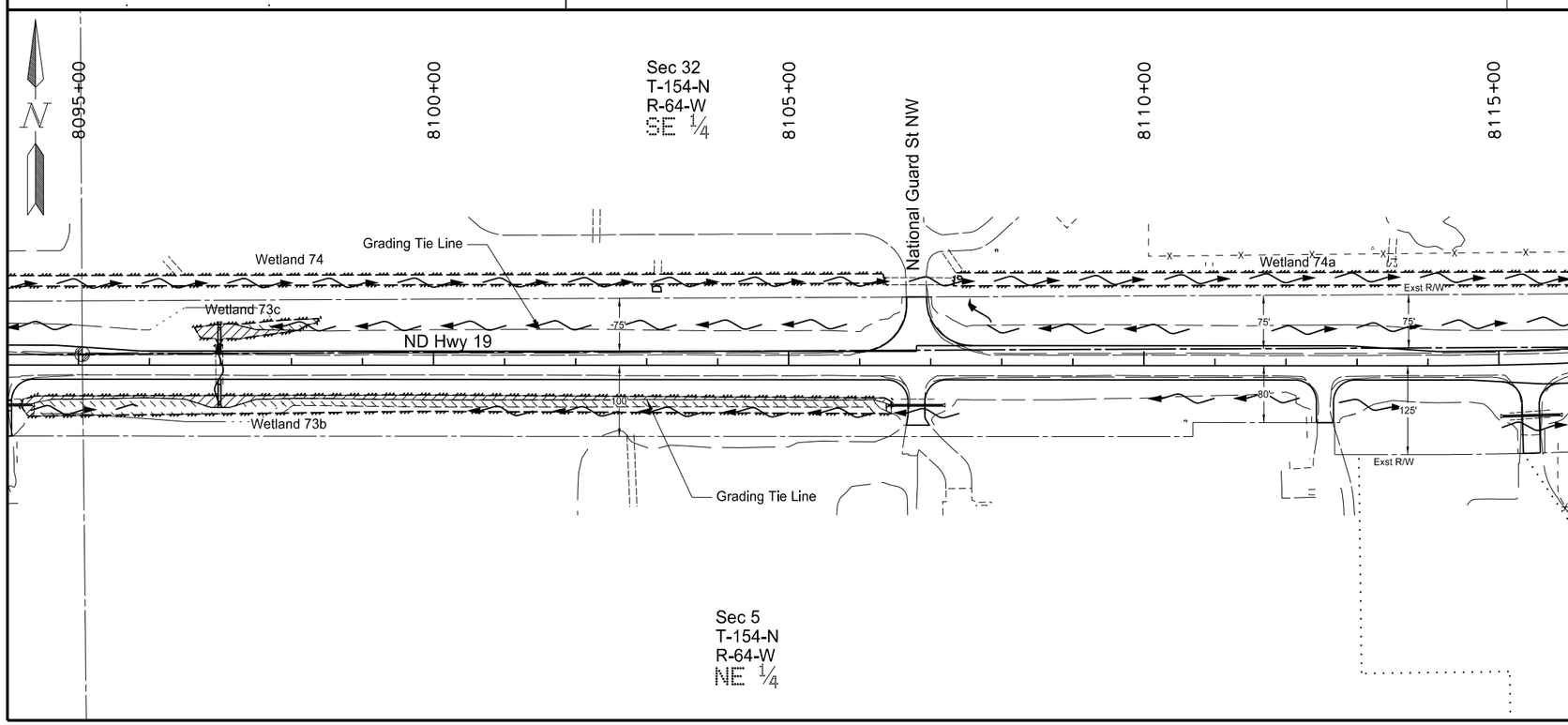
ND Hwy 19

Plan & Profile

Sta 8175+00 to 8183+89
(Mile154 & 155)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	75	1





Wetland Impacts Sta 8075+00 to 8115+00		
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact
Wetland 72	0.02 Ac	0.02 Ac
Wetland 73	0.01 Ac	0.01 Ac
Wetland 73a	0.09 Ac	0.07 Ac
Wetland 73b	0.36 Ac	0.16 Ac
Wetland 73c	0.03 Ac	0.04 Ac

Legend

- Permanent Impact
- Temporary Impact
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction

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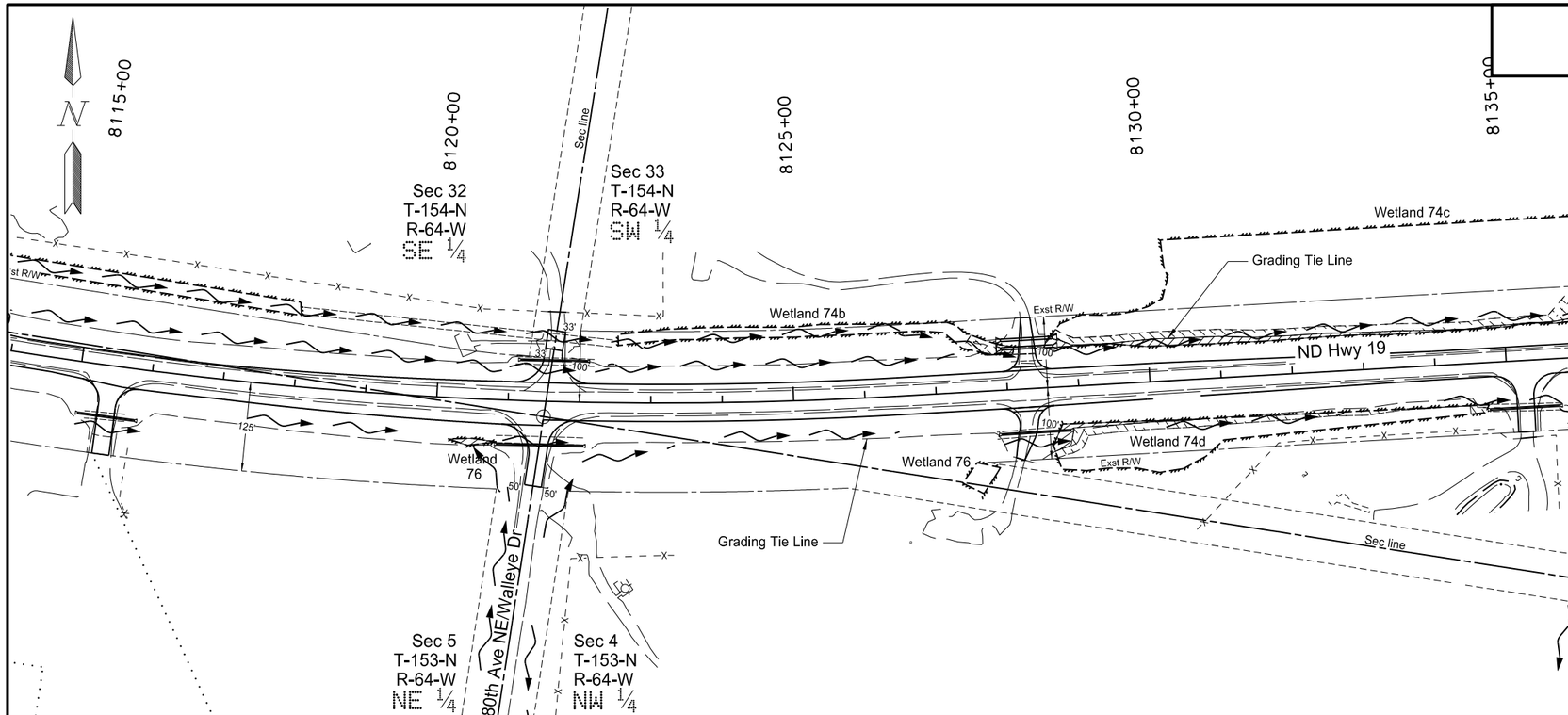
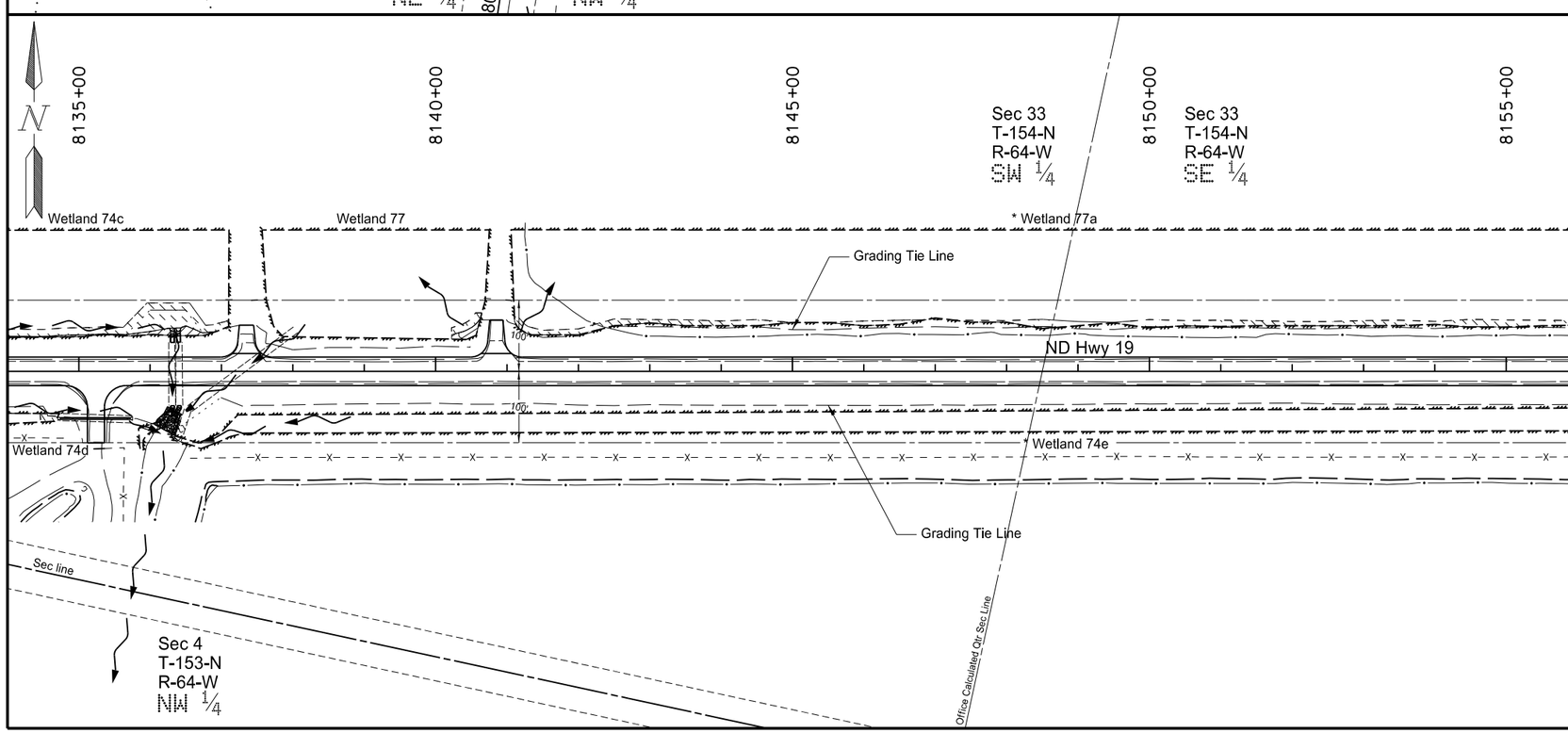
ND Hwy 19

Wetlands, Mitigation and Environmental

Sta 8075+00 to 8115+00
(Mile 152 & 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	75	2





Wetland Impacts Sta. 8115+00 to 8155+00		
Wetland #	Temporary Wetland Impact	Permanent Wetland Impact
Wetland 74b	0.02 Ac	0.01 Ac
Wetland 74c	0.25 Ac	0.10 Ac
Wetland 74d	0.11 Ac	0.03 Ac
* Wetland 74e	0.01 Ac	0.01 Ac
Wetland 75	0.00 Ac	0.01 Ac
Wetland 77	0.01 Ac	0.01 Ac
* Wetland 77a	0.54 Ac	0.05 Ac

* Wetland Impact quantity is for the entire wetland

Legend

- Permanent Impact
- Temporary Impact
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction

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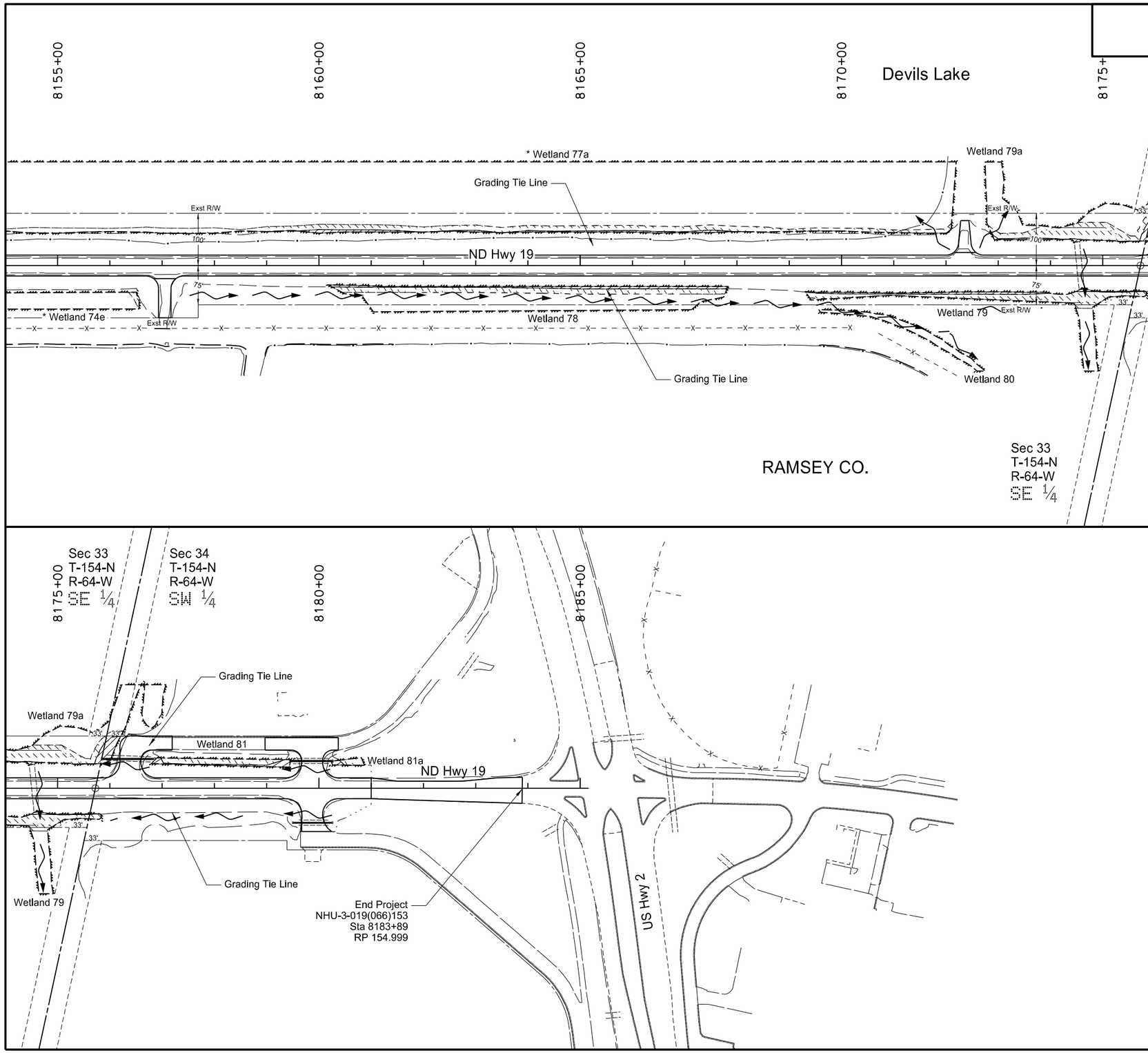
ND Hwy 19

Wetlands, Mitigation and Environmental

Sta. 8115+00 to 8155+00
(Mile 153 & 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	75	3



Wetland Impacts
Sta. 8155+00 to Sta 8179+00

Wetland #	Temporary Wetland Impact	Permanent Wetland Impact
* Wetland 74e	* Ac	* Ac
* Wetland 77a	* Ac	* Ac
Wetland 78	0.17 Ac	0.06 Ac
Wetland 79	0.16 Ac	0.04 Ac
Wetland 79a	0.16 Ac	0.04 Ac
Wetland 81	0.05 Ac	0.02 Ac
Wetland 81a	0.01 Ac	0.00 Ac

* Wetland Impact quantity is shown on sheet 2

Legend
- Permanent Impact
- Temporary Impact
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction

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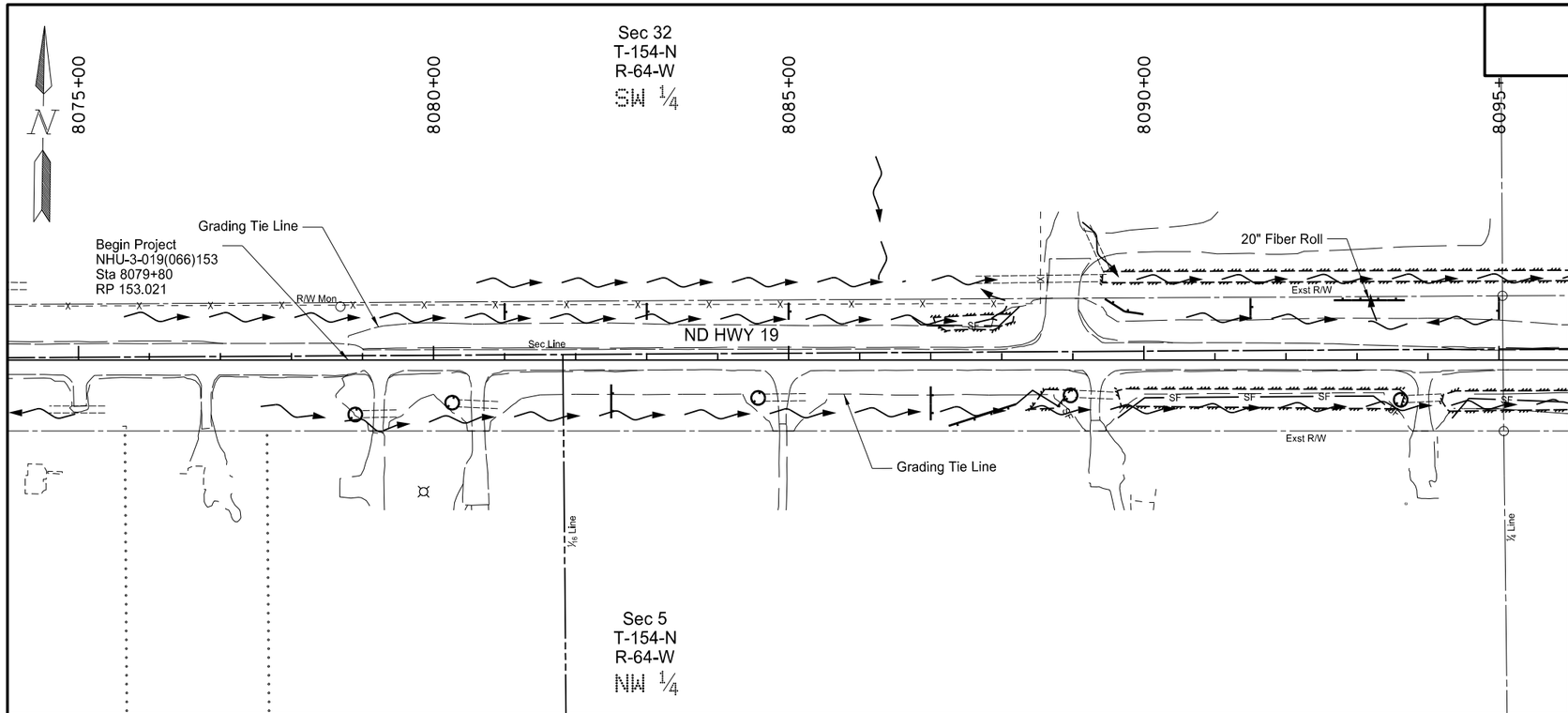
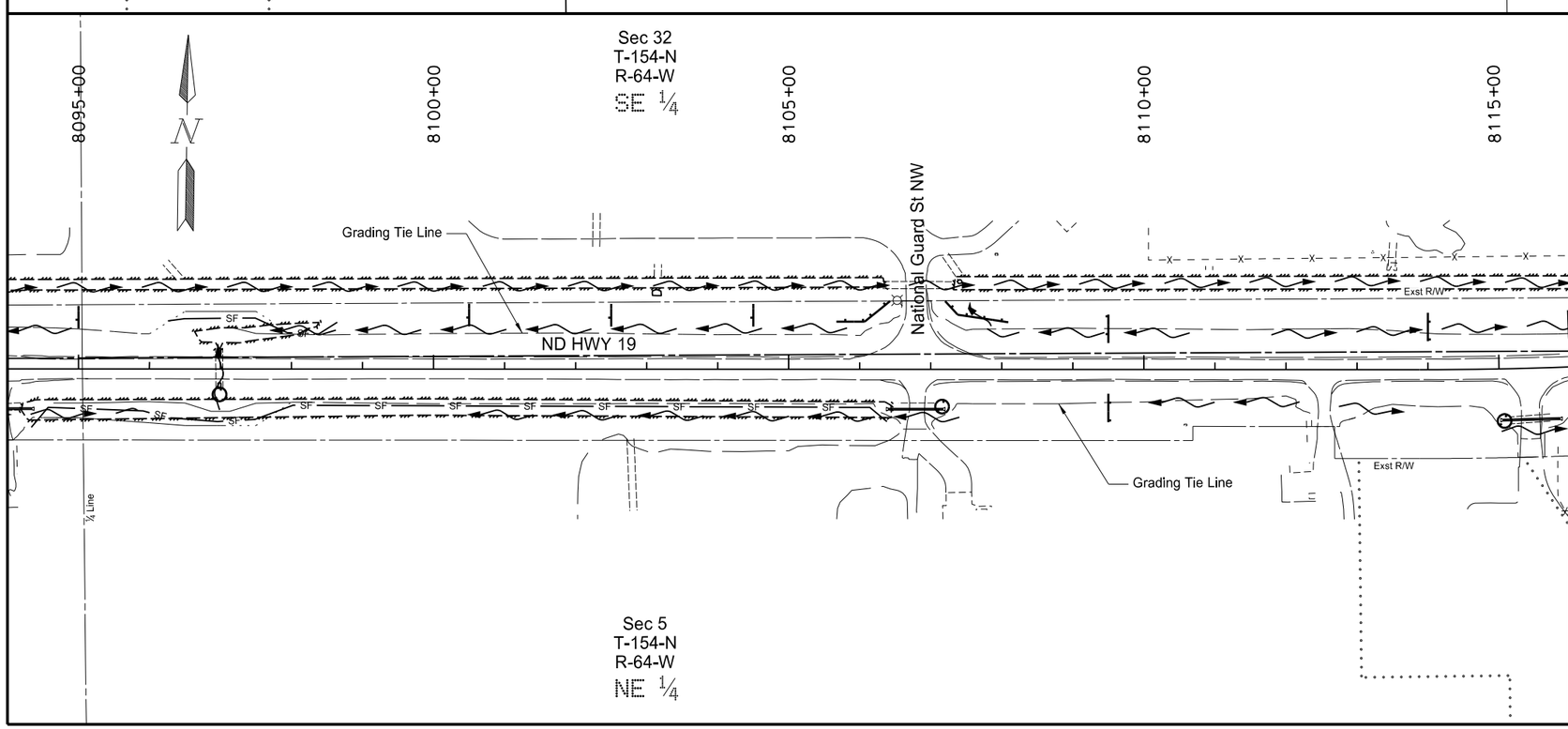
ND Hwy 19

Wetlands, Mitigation and Environmental

Sta. 8155+00 to Sta 8179+00
Mile (154 & 155)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	76	1





260 0200 SILT FENCE SUPPORTED

Sta 8086+74 to 8088+25 Lt	166 LF
Sta 8088+20 to 8088+96 Rt	103 LF
Sta 8089+63 to 8093+63 Rt	419 LF
Sta 8094+34 to 8106+45 Rt	1237 LF
Sta 8096+26 to 8098+64 Lt	248 LF
	Total: 2,173 LF

261 0112 FIBER ROLLS 12IN

Sta 8078+90 Rt	25 LF
Sta 8080+26 Rt	25 LF
Sta 8081+00 Lt	24 LF
Sta 8082+50 Rt	48 LF
Sta 8083+00 Lt	24 LF
Sta 8084+57 Rt	25 LF
Sta 8085+00 Lt	24 LF
Sta 8087+00 Rt	48 LF
Sta 8087+25 to 8088+20 Rt	100 LF
Sta 8088+97 Rt	25 LF
Sta 8089+45 to 8090+00 Lt	60 LF
Sta 8091+50 Lt	30 LF
Sta 8093+62 Rt	25 LF
Sta 8095+00 Lt	32 LF
Sta 8096+99 Rt	25 LF
Sta 8100+50 Lt	32 LF
Sta 8102+50 Lt	32 LF
Sta 8104+50 Lt	32 LF
Sta 8105+67 to 8106+42 Lt	86 LF
Sta 8107+16 Rt	25 LF
Sta 8107+20 to 8108+09 Lt	98 LF
Sta 8109+50 Lt	40 LF
Sta 8109+50 Rt	40 LF
Sta 8114+00 Lt	40 LF
Sta 8115+06 Rt	25 LF
	Total: 990 LF

261 0120 FIBER ROLLS 20IN

Sta 8092+67 to 8093+67 Lt	100 LF

Legend

- Fiber Rolls 12IN or 20 IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction

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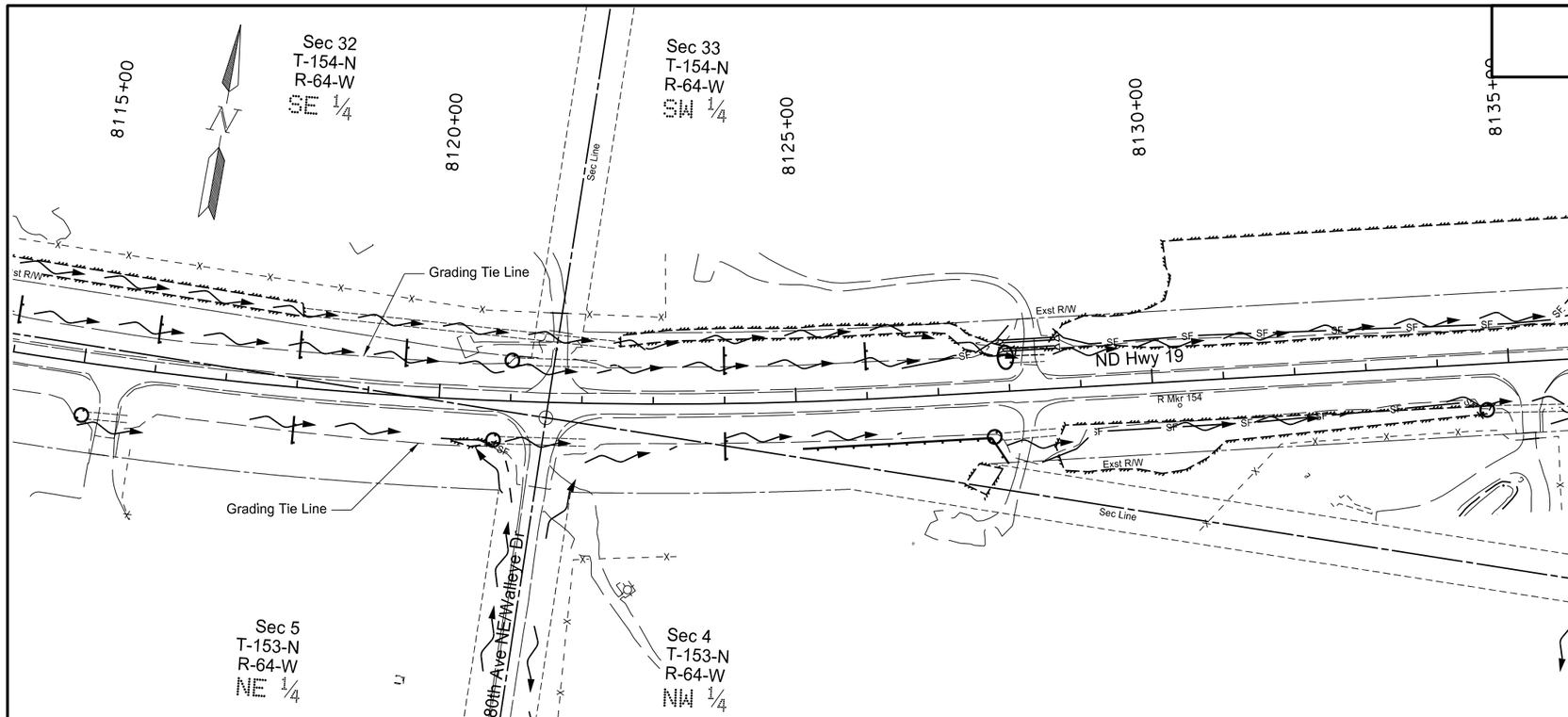
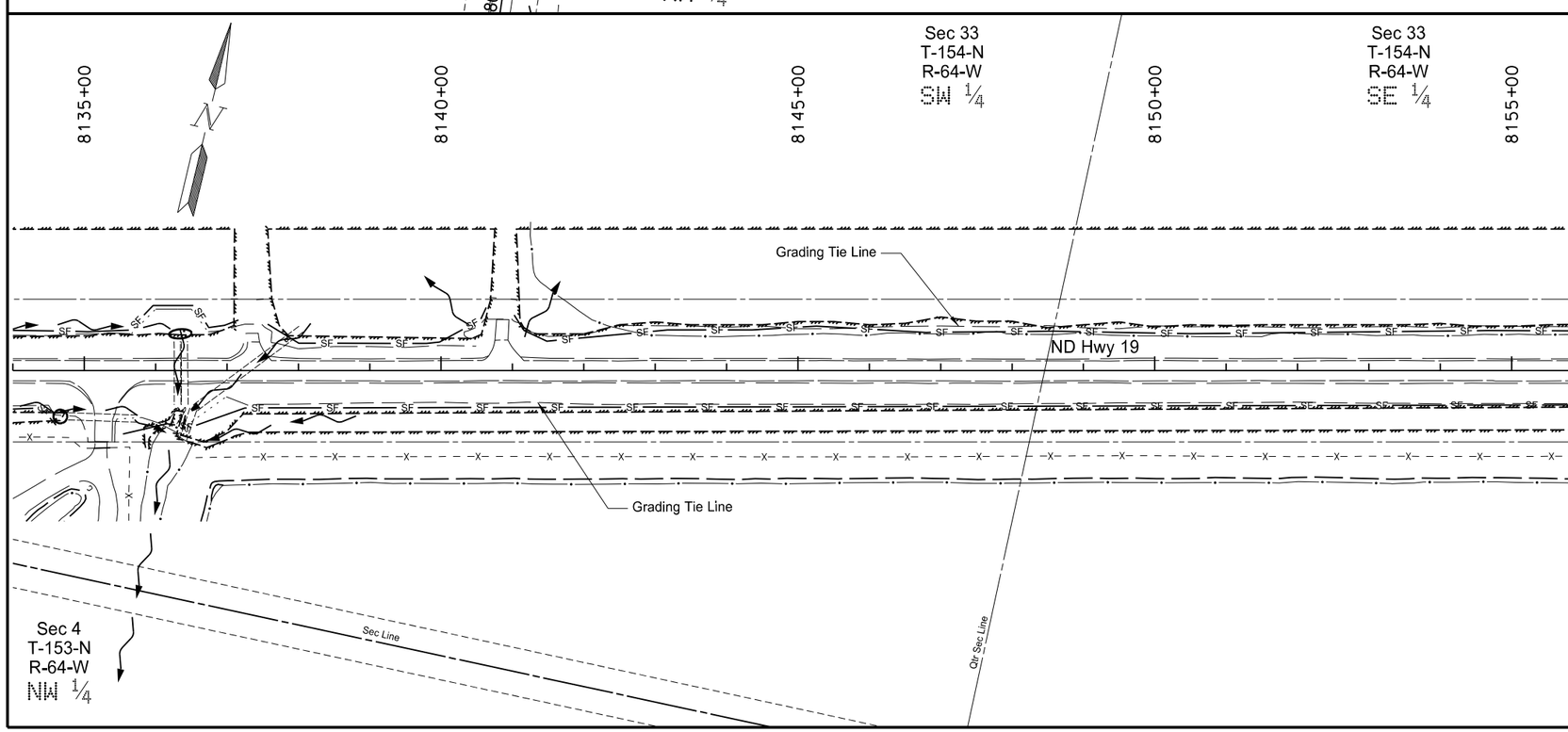
ND Hwy 19

Temporary Sediment and Erosion Control

Sta 8075+00 to 8115+00
(Mile 152 & 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	76	2





260 0200 SILT FENCE SUPPORTED

Sta 8120+05 to 8121+00 Rt	121 LF
Sta 8126+50 to 8128+03 Lt	167 LF
Sta 8128+65 to 8137+06 Lt	858 LF
Sta 8128+40 to 8134+61 Rt	643 LF
Sta 8137+57 to 8140+63 Lt	333 LF
Sta 8135+54 to 8155+00 Rt	1955 LF
Sta 8141+03 to 8155+00 Lt	1411 LF
	Total: 5,488 LF

261 0112 FIBER ROLLS 12IN

Sta 8116+00 Lt	40 LF
Sta 8118+00 Rt	40 LF
Sta 8118+00 Lt	40 LF
Sta 8119+50 Lt	40 LF
Sta 8120+78 Rt	25 LF
Sta 8121+00 Lt	25 LF
Sta 8124+00 Rt	40 LF
Sta 8124+00 Lt	40 LF
Sta 8125+08 to 8127+93 Rt	308 LF
Sta 8126+00 Lt	40 LF
Sta 8127+75 Rt	25 LF
Sta 8127+96 Lt	50 LF
Sta 8134+66 Rt	25 LF
Sta 8136+35 Lt	50 LF
	Total: 788 LF

Legend

- Fiber Rolls 12IN or 20 IN
- SF — Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction

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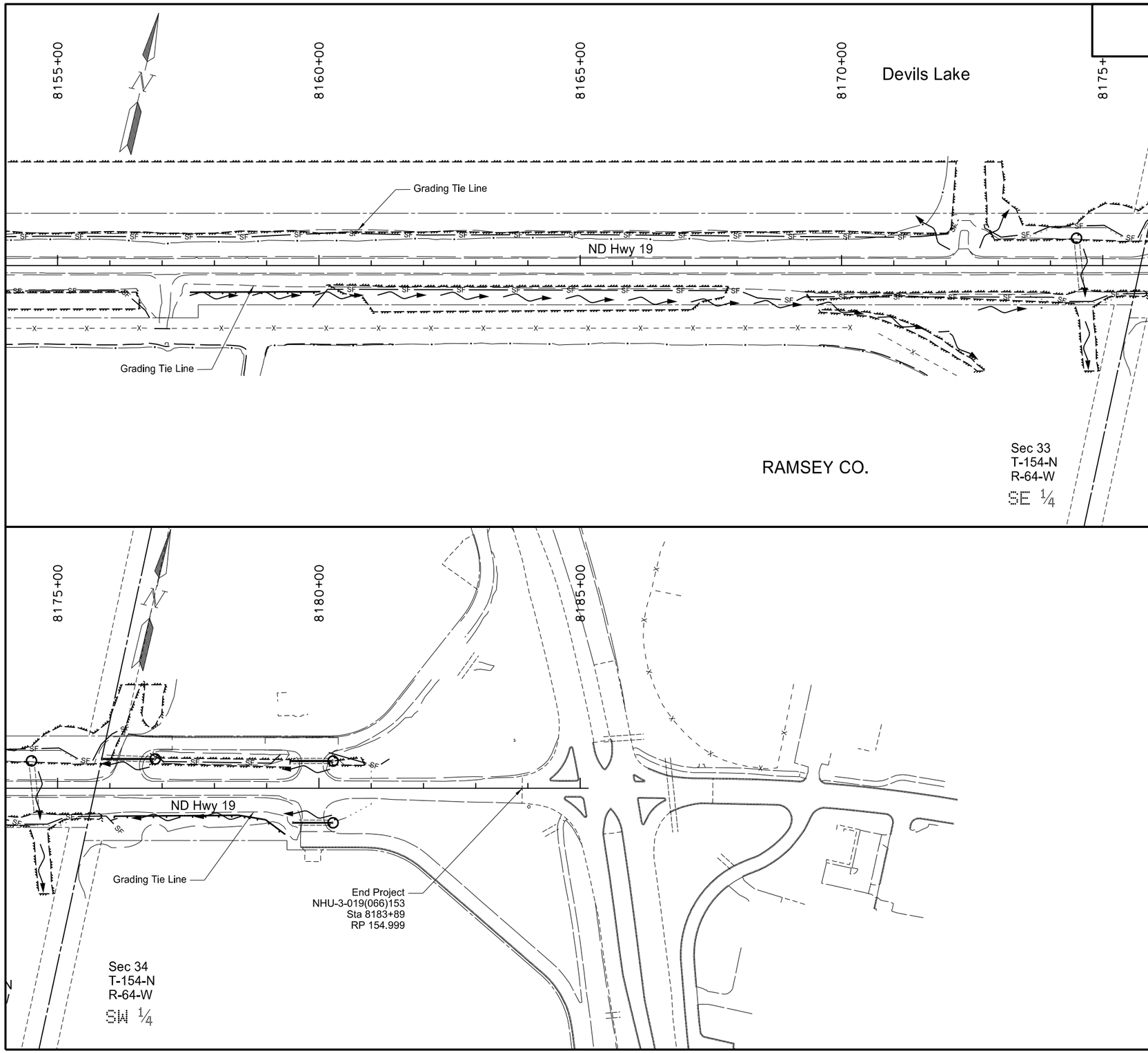
ND Hwy 19

Temporary Sediment and Erosion Control

Sta. 8115+00 to 8155+00
(Mile 153 & 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	76	3



260 0200 SILT FENCE SUPPORTED

Sta 8155+00 to 8156+77 Rt	198 LF
Sta 8155+00 to 8172+19 Lt	1735 LF
Sta 8159+88 to 8176+24 Rt	1674 LF
Sta 8172+73 to 8176+32 Lt	420 LF
Sta 8176+77 to 8179+26 Lt	261 LF
Sta 8180+19 to 8181+35 Lt	124 LF
	Total: 4,412 LF

261 0112 FIBER ROLLS 12IN

Sta 8157+53 to 8160+03 Rt	250 LF
Sta 8174+50 Lt	25 LF
Sta 8176+08 to 8179+35 Rt	338 LF
Sta 8176+87 Lt	25 LF
Sta 8180+27 Rt	25 LF
Sta 8180+27 Lt	25 LF
	Total: 688 LF

Legend

- Fiber Rolls 12IN or 20 IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction

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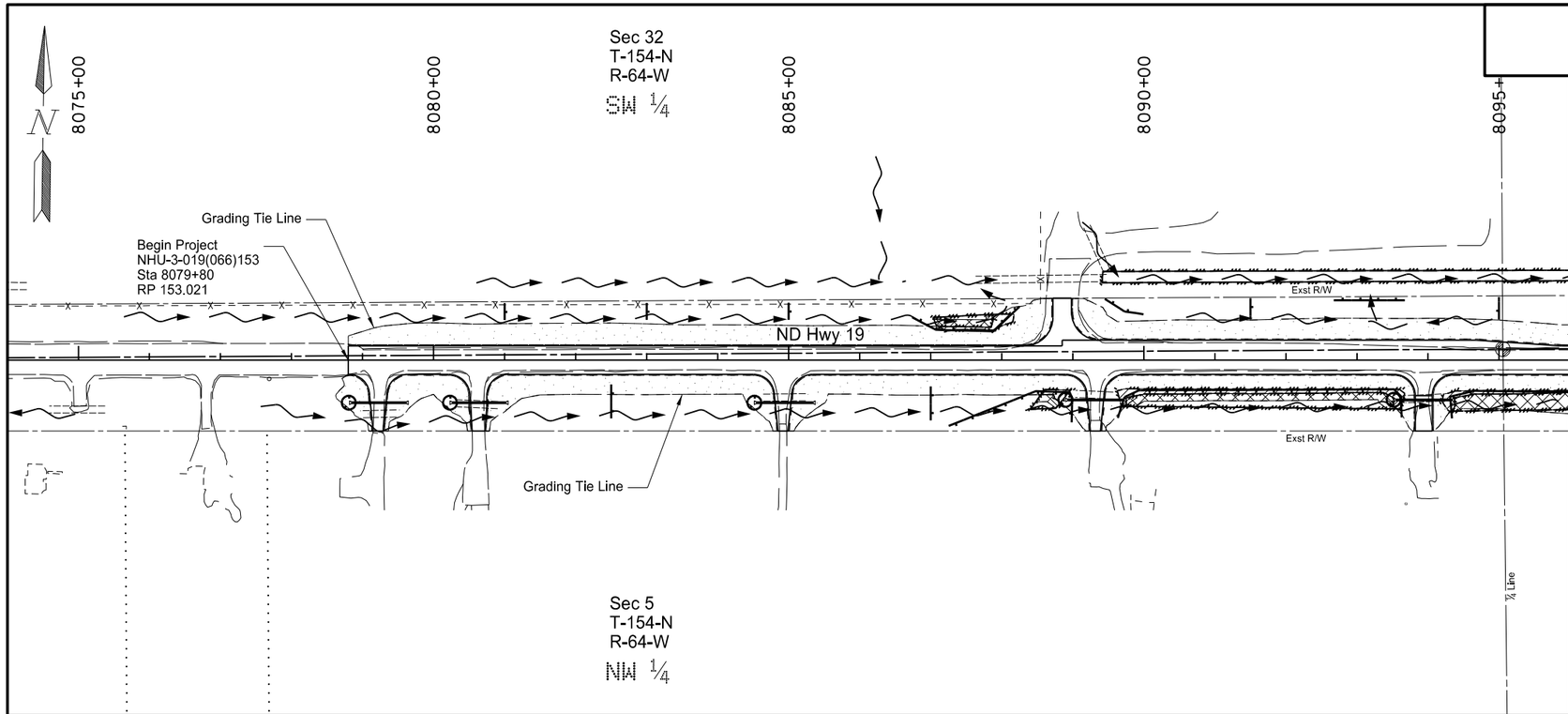
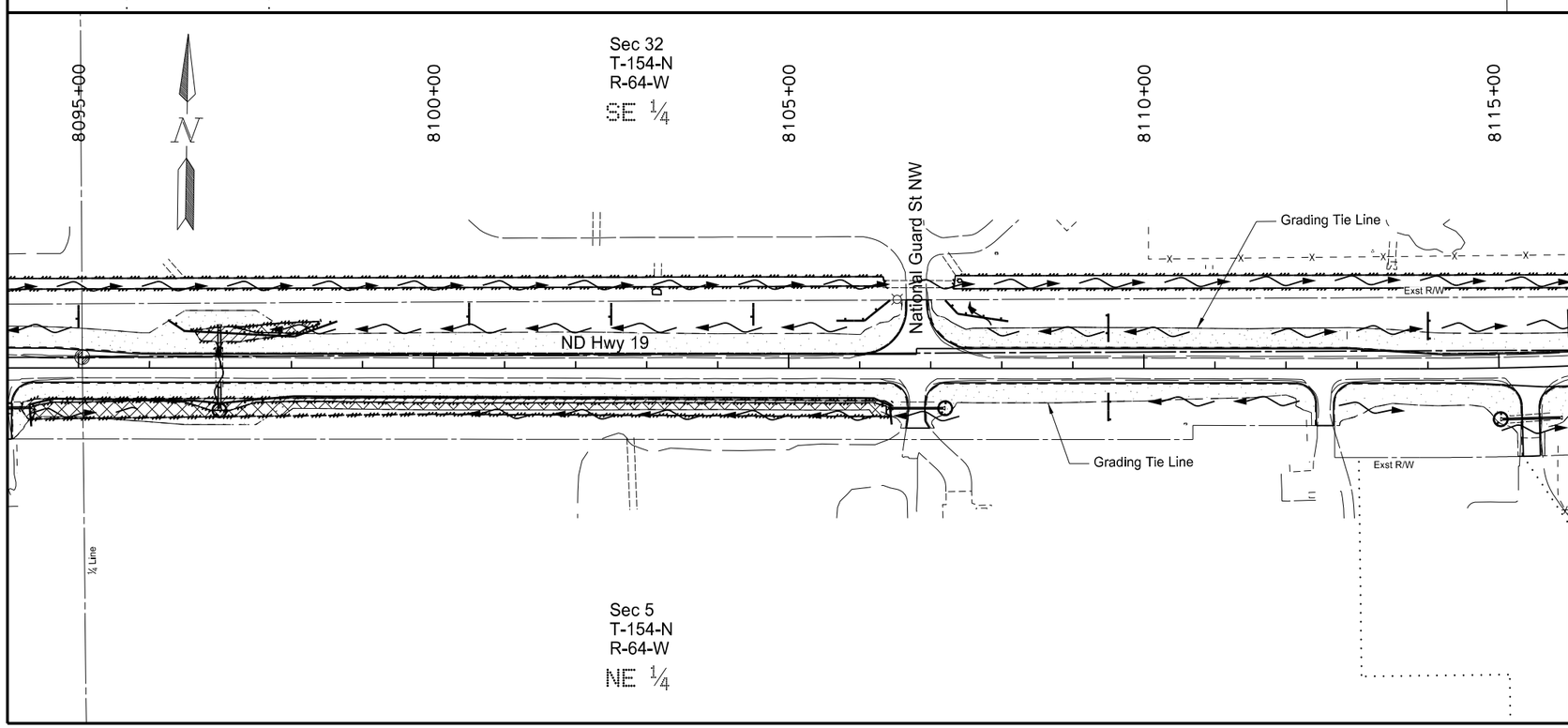
ND Hwy 19

Temporary Sediment and Erosion Control

Sta. 8155+00 to Sta 8179+00
Mile (154 & 155)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	77	1





261 0112 FIBER ROLLS 12IN

Sta 8078+80 Rt	25 LF
Sta 8080+23 Rt	25 LF
Sta 8081+00 Lt	24 LF
Sta 8082+50 Rt	48 LF
Sta 8083+00 Lt	24 LF
Sta 8084+52 Rt	25 LF
Sta 8085+00 Lt	24 LF
Sta 8086+74 to 8088+25 Lt	169 LF
Sta 8087+00 Rt	48 LF
Sta 8087+25 to 8088+98 Rt	223 LF
Sta 8088+90 Rt	25 LF
Sta 8089+45 to 8090+00 Lt	60 LF
Sta 8089+63 to 8093+63 Rt	456 LF
Sta 8091+50 Lt	30 LF
Sta 8092+67 to 8093+67 Lt	100 LF
Sta 8093+52 Rt	25 LF
Sta 8094+34 to 8106+45 Rt	1,272 LF
Sta 8095+00 Lt	32 LF
Sta 8096+26 to 8098+64 Lt	247 LF
Sta 8096+99 Rt	25 LF
Sta 8100+50 Lt	32 LF
Sta 8102+50 Lt	32 LF
Sta 8104+50 Lt	32 LF
Sta 8105+67 to 8106+43 Lt	86 LF
Sta 8107+20 to 8108+09 Lt	98 LF
Sta 8107+20 Rt	25 LF
Sta 8109+50 Rt	40 LF
Sta 8109+50 Lt	40 LF
Sta 8114+00 Lt	40 LF
Sta 8115+01 Rt	25 LF
	Total: 3,337 LF

Legend

- Fiber Rolls 12IN or 20 IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II and Mulching
- Wetland Seed

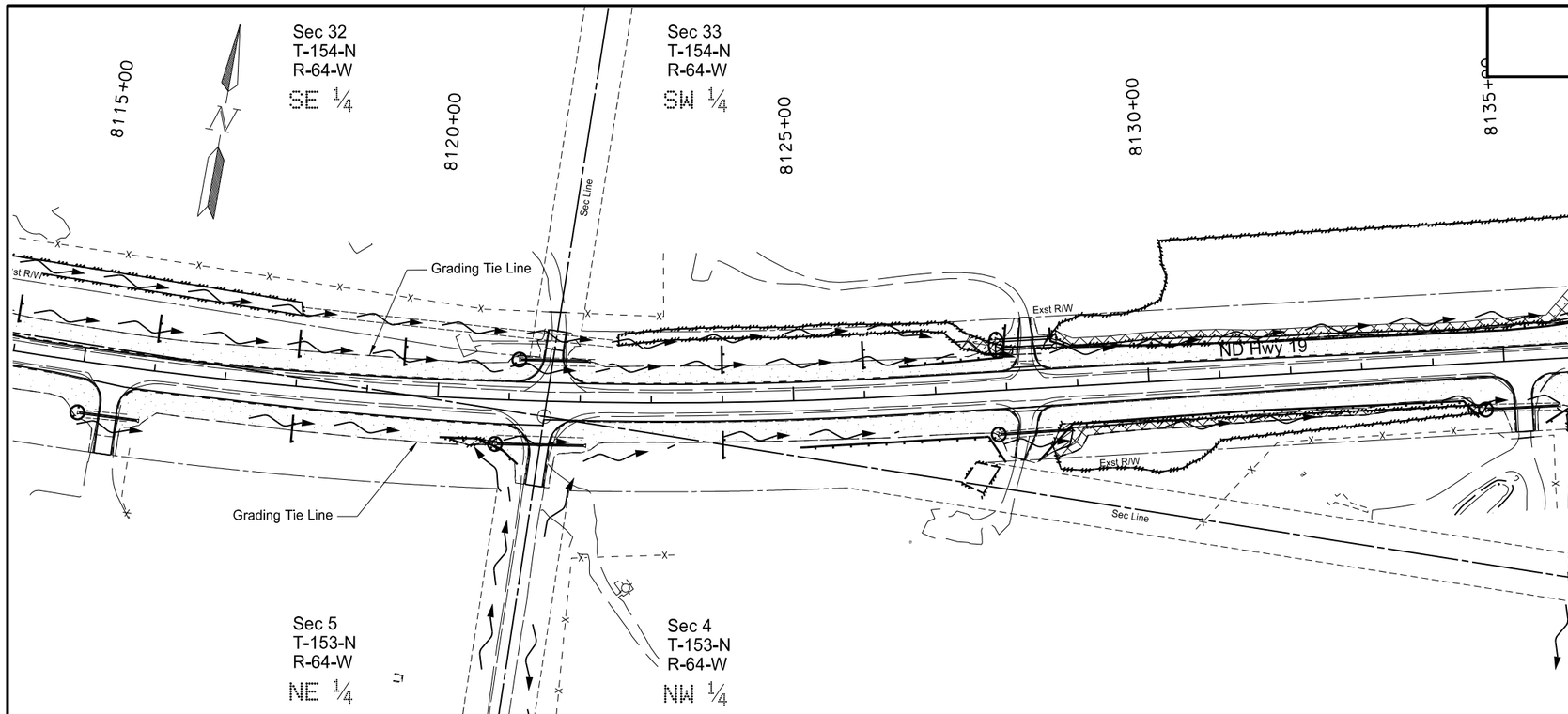
This document was originally issued and sealed by Dawn LS Michel, Registration Number PE- 8029, on 02/11/16 and the original document is stored at the North Dakota Department of Transportation

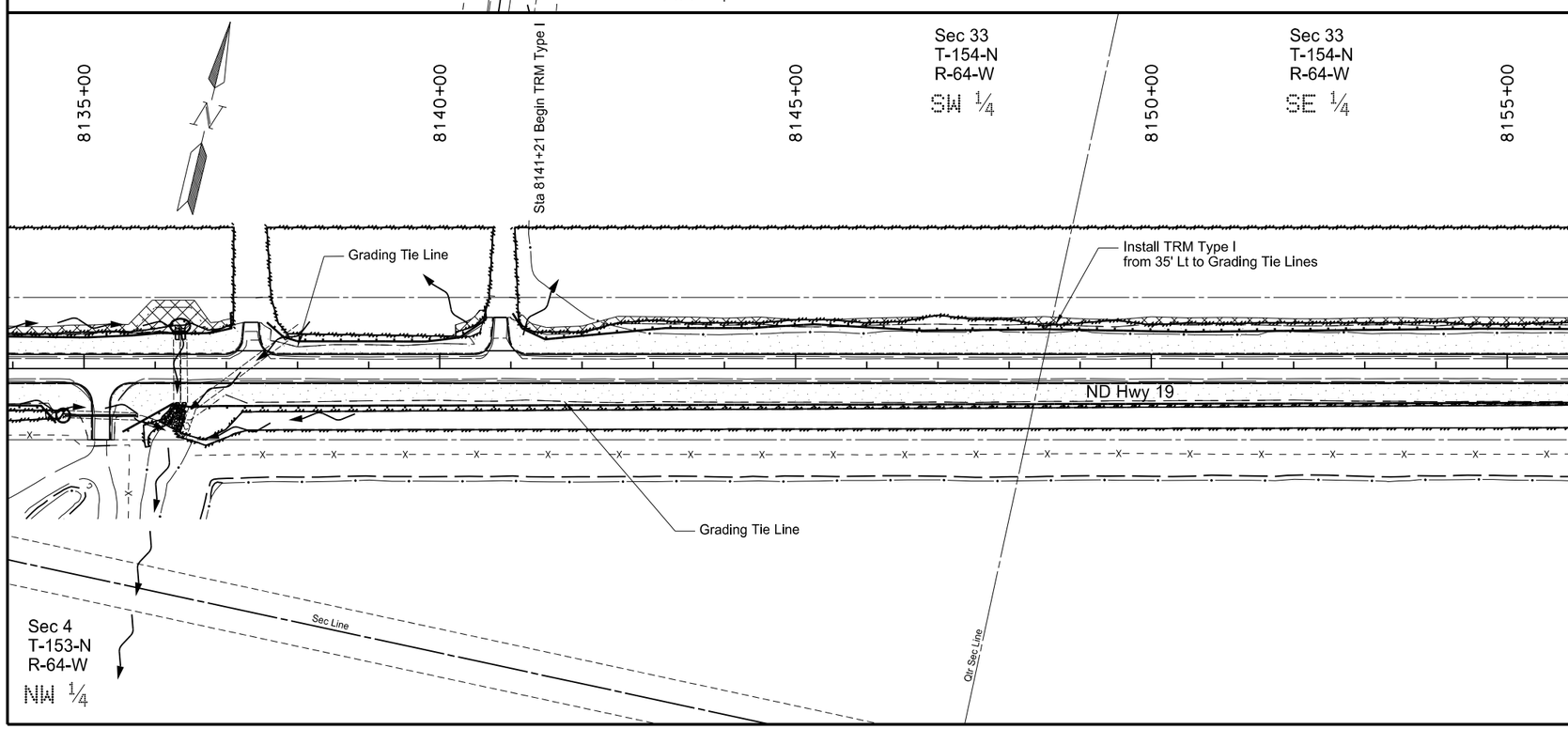
ND Hwy 19

Permanent Sediment and Erosion Control

Sta 8075+00 to 8115+00
(Mile 152 & 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	77	2





261 0112 FIBER ROLLS 12IN

Sta 8116+00 Lt	40 LF
Sta 8118+00 Rt	40 LF
Sta 8118+00 Lt	40 LF
Sta 8119+50 Lt	40 LF
Sta 8120+05 to 8121+00 Rt	121 LF
Sta 8120+83 Rt	25 LF
Sta 8121+13 Lt	25 LF
Sta 8124+00 Rt	40 LF
Sta 8124+00 Lt	40 LF
Sta 8125+08 to 8127+93 Rt	308 LF
Sta 8126+00 Lt	40 LF
Sta 8126+50 to 8128+03 Lt	193 LF
Sta 8127+85 Rt	25 LF
Sta 8127+88 Lt	50 LF
Sta 8128+40 to 8134+61 Rt	652 LF
Sta 8128+65 to 8137+06 Lt	886 LF
Sta 8134+71 Rt	25 LF
Sta 8135+54 to 8155+00 Rt	1,957 LF
Sta 8136+35 Lt	50 LF
Sta 8137+57 to 8140+63 Lt	344 LF
Sta 8141+03 to 8155+00 Lt	1,413 LF
	Total: 6,354 LF

255 0201 TRM Type I

Sta 8141+21 to 8155+00 Lt	3969 SY

Legend

- Fiber Rolls 12IN or 20 IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II and Mulching
- Wetland Seed

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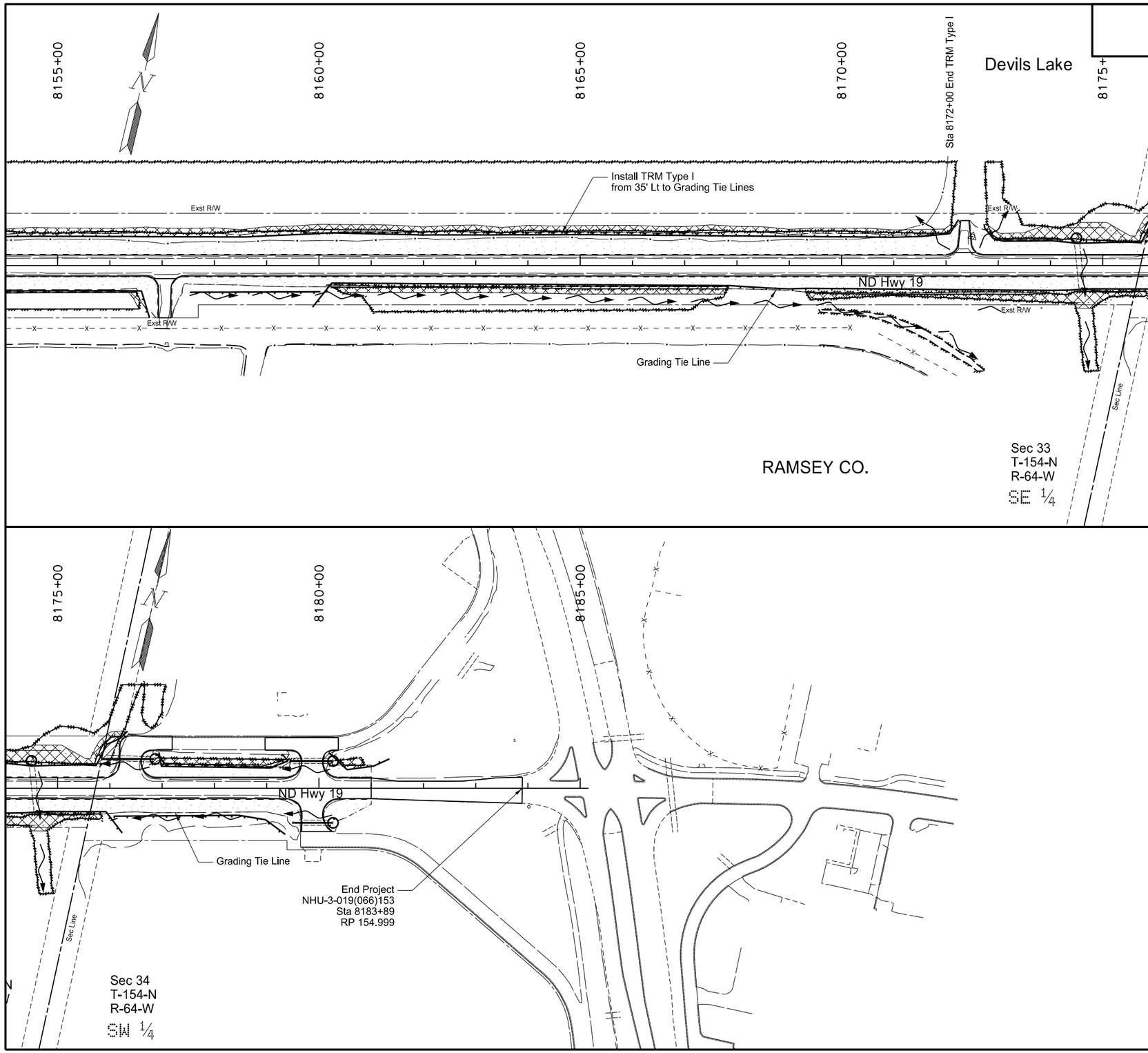
ND Hwy 19

Permanent Sediment and Erosion Control

Sta. 8115+00 to 8155+00
(Mile 153 & 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	77	3



261 0112 FIBER ROLLS 12IN

Sta 8155+00 to 8156+76 Rt	213 LF
Sta 8155+00 to 8172+24 Lt	1741 LF
Sta 8157+53 to 8160+03 Rt	250 LF
Sta 8159+88 to 8176+24 Rt	1,678 LF
Sta 8172+73 to 8176+37 Lt	409 LF
Sta 8174+50 Lt	25 LF
Sta 8176+08 to 8179+35 Rt	338 LF
Sta 8176+87 Lt	25 LF
Sta 8176+94 to 8179+30 Lt	289 LF
Sta 8180+19 to 8181+35 Lt	132 LF
Sta 8180+27 Rt	25 LF
Sta 8180+27 Lt	25 LF
	Total: 5,150 LF

255 0201 TRM Type I

Sta 8155+00 to 8172+00 Lt	5563 SY

Legend

- Fiber Rolls 12IN or 20 IN
- SF Silt Fence Supported
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Grading Tie Line (Transition)
- Existing Delineated Wetland
- Flow Direction
- Seeding Class II and Mulching
- Wetland Seed

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ND Hwy 19

Permanent Sediment and Erosion Control

Sta. 8155+00 to Sta 8179+00
Mile (154 & 155)

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - ND Highway 19, Ramsey County (RM153 to RM155)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	81	1

HORIZONTAL ALIGNMENT (PR19_SEG4)

PNT	STATION	NORTHING	EASTING
SEC LINE	8068+59.06	408113.98	2354956.89
PC	8113+88.27	408179.93	2359485.62
PI	8120+19.01	408189.12	2360116.30
PT	8126+44.69	408335.28	2360729.87
SEC LINE	8175+72.10	409477.06	2365523.16
POT	8185+15.90	409695.76	2366441.28

CURVE DATA (PR19_SEG4-1)

ARC DEFINITION

PR19_SEG4-1	
PI STA= 8120+19.01	
Delta = 12° 33' 51"	
D_a = 01° 00' 00"	
R = 5729.65'	
T = 630.74'	
L = 1256.42'	

US PUBLIC LAND SURVEY DATA

DESC.	SEC-TWP-RGE	NORTHING	EASTING
SE COR	SEC 31 T154N R64W	408113.98	2354956.90
S¼ COR	SEC 32 T154N R64W	408167.91	2357602.70
NE COR	SEC 32 T154N R64W	413514.07	2360137.79
SE COR	SEC 32 T154N R64W	408220.18	2360247.65
SE COR	SEC 5 T153N R64W	402942.71	2360380.83
Meander COR	SEC 34 T154N R64W	408386.97	2368093.50

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	CONTROL POINT DESCRIPTION
PRIMARY CONTROL						
GPS 19-6	408167.15	2351747.15	1467.15	8036+51.04	118.09 LT	Aluminum Cap Stamped LS 3047 19-6 (FOUND)
SECONDARY CONTROL						
RTK-527	409456.44	2365197.53	1431.28	8172+50.55	55.40 LT	#5 Rebar 20" Long 2" Below Ground (SET)

REFERENCE MARKERS

R Mkr#	NORTHING	EASTING	STATION	OFFSET
153	408100.70	2355866.78	8077+68.7	26.5 RT
154	408393.49	2361119.11	8130+36.8	33.6 RT
155	409634.75	2366338.55	8184+01.8	35.5 RT

All coordinates and measurements on this document derived from the International Foot definition.

☐ Assumed Coordinates

☒ All coordinates on this sheet are Ramsey County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(2011). North Zone Combination Factor (cf) = 0.9998685

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

☒ NAVD-88
☐ NGVD-29

☐ GEOID 09 ☐ _____
☒ GEOID 12A

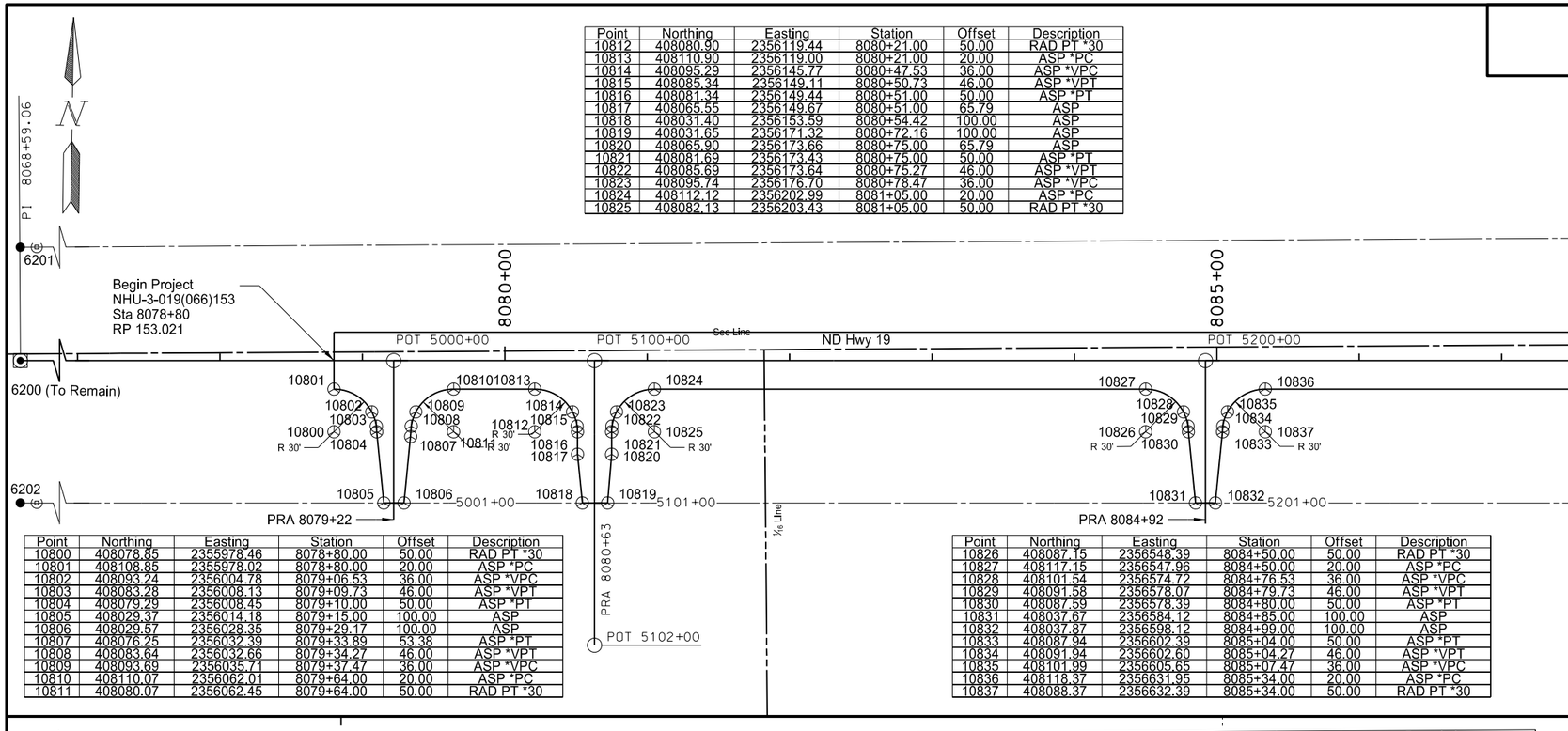
NOTES:

Date Survey Completed 8/07/2014

This document was originally issued and sealed by Micheal S. Sansom, Registration Number LS- 3141, on 01/25/16 and the original document is stored at the North Dakota Department of Transportation

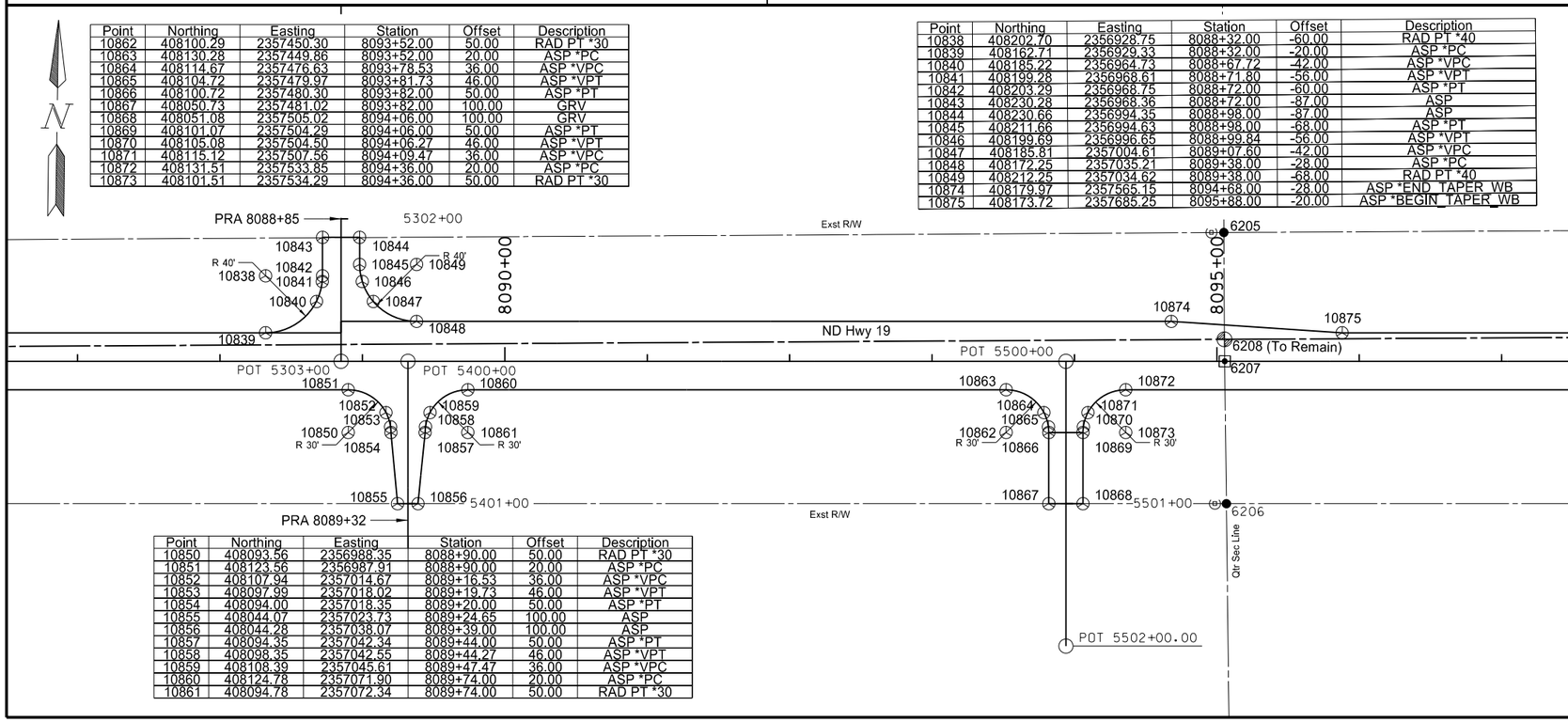
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	82	1

Point	Northing	Easting	Station	Offset	Description
10812	408080.90	2356119.44	8080+21.00	50.00	RAD PT *30
10813	408110.90	2356119.00	8080+21.00	20.00	ASP *PC
10814	408095.29	2356145.77	8080+47.53	36.00	ASP *VPC
10815	408085.34	2356149.11	8080+50.73	46.00	ASP *VPT
10816	408081.34	2356149.44	8080+51.00	50.00	ASP *PT
10817	408065.55	2356149.67	8080+51.00	65.79	ASP
10818	408031.40	2356153.59	8080+54.42	100.00	ASP
10819	408031.65	2356171.32	8080+72.16	100.00	ASP
10820	408065.90	2356173.66	8080+75.00	65.79	ASP
10821	408081.69	2356173.43	8080+75.00	50.00	ASP *PT
10822	408085.69	2356173.64	8080+75.27	46.00	ASP *VPT
10823	408095.74	2356176.70	8080+78.47	36.00	ASP *VPC
10824	408112.12	2356202.99	8081+05.00	20.00	ASP *PC
10825	408082.13	2356203.43	8081+05.00	50.00	RAD PT *30



Point	Northing	Easting	Station	Offset	Description
10800	408078.85	2355978.46	8078+80.00	50.00	RAD PT *30
10801	408108.85	2355978.02	8078+80.00	20.00	ASP *PC
10802	408093.24	2356004.78	8079+06.53	36.00	ASP *VPC
10803	408083.28	2356008.13	8079+09.73	46.00	ASP *VPT
10804	408079.29	2356008.45	8079+10.00	50.00	ASP *PT
10805	408029.37	2356014.18	8079+15.00	100.00	ASP
10806	408029.57	2356028.35	8079+29.17	100.00	ASP
10807	408076.25	2356032.39	8079+33.89	53.38	ASP *PT
10808	408083.64	2356032.66	8079+34.27	46.00	ASP *VPT
10809	408093.69	2356035.71	8079+37.47	36.00	ASP *VPC
10810	408110.07	2356062.01	8079+64.00	20.00	ASP *PC
10811	408080.07	2356062.45	8079+64.00	50.00	RAD PT *30

Point	Northing	Easting	Station	Offset	Description
10826	408087.15	2356548.39	8084+50.00	50.00	RAD PT *30
10827	408117.15	2356547.96	8084+50.00	20.00	ASP *PC
10828	408101.54	2356574.72	8084+76.53	36.00	ASP *VPC
10829	408091.58	2356578.07	8084+79.73	46.00	ASP *VPT
10830	408087.59	2356578.39	8084+80.00	50.00	ASP *PT
10831	408037.67	2356584.12	8084+85.00	100.00	ASP
10832	408037.87	2356598.12	8084+99.00	100.00	ASP
10833	408087.94	2356602.39	8085+04.00	50.00	ASP *PT
10834	408091.94	2356602.60	8085+04.27	46.00	ASP *VPT
10835	408101.99	2356605.65	8085+07.47	36.00	ASP *VPC
10836	408118.37	2356631.95	8085+34.00	20.00	ASP *PC
10837	408088.37	2356632.39	8085+34.00	50.00	RAD PT *30



Point	Northing	Easting	Station	Offset	Description
10862	408100.29	2357450.30	8093+52.00	50.00	RAD PT *30
10863	408130.28	2357449.86	8093+52.00	20.00	ASP *PC
10864	408114.67	2357476.63	8093+78.53	36.00	ASP *VPC
10865	408104.72	2357479.97	8093+81.73	46.00	ASP *VPT
10866	408100.72	2357480.30	8093+82.00	50.00	ASP *PT
10867	408050.73	2357481.02	8093+82.00	100.00	GRV
10868	408051.08	2357505.02	8094+06.00	100.00	GRV
10869	408101.07	2357504.29	8094+06.00	50.00	ASP *PT
10870	408105.08	2357504.50	8094+06.27	46.00	ASP *VPT
10871	408115.12	2357507.56	8094+09.47	36.00	ASP *VPC
10872	408131.51	2357533.85	8094+36.00	20.00	ASP *PC
10873	408101.51	2357534.29	8094+36.00	50.00	RAD PT *30

Point	Northing	Easting	Station	Offset	Description
10838	408202.70	2356928.75	8088+32.00	-60.00	RAD PT *40
10839	408162.71	2356929.33	8088+32.00	-20.00	ASP *PC
10840	408185.22	2356954.73	8088+67.72	-42.00	ASP *VPC
10841	408199.28	2356968.61	8088+71.80	-56.00	ASP *VPT
10842	408203.29	2356968.75	8088+72.00	-60.00	ASP *PT
10843	408230.28	2356968.36	8088+72.00	-87.00	ASP
10844	408230.66	2356994.35	8088+98.00	-87.00	ASP
10845	408211.66	2356994.63	8088+98.00	-68.00	ASP *PT
10846	408199.69	2356996.65	8088+99.84	-56.00	ASP *VPT
10847	408185.81	2357004.61	8089+07.60	-42.00	ASP *VPC
10848	408172.25	2357035.21	8089+38.00	-28.00	ASP *PC
10849	408212.25	2357034.62	8089+38.00	-68.00	RAD PT *40
10874	408179.97	2357565.15	8094+68.00	-28.00	ASP *END_TAPER_WB
10875	408173.72	2357685.25	8095+88.00	-20.00	ASP *BEGIN_TAPER_WB

Point	Northing	Easting	Station	Offset	Description
10850	408093.56	2356988.35	8088+90.00	50.00	RAD PT *30
10851	408123.56	2356987.91	8088+90.00	20.00	ASP *PC
10852	408107.94	2357014.67	8089+16.53	36.00	ASP *VPC
10853	408097.99	2357018.02	8089+19.73	46.00	ASP *VPT
10854	408094.00	2357018.35	8089+20.00	50.00	ASP *PT
10855	408044.07	2357023.73	8089+24.65	100.00	ASP
10856	408044.28	2357038.07	8089+39.00	100.00	ASP
10857	408094.35	2357042.34	8089+44.00	50.00	ASP *PT
10858	408098.35	2357042.55	8089+44.27	46.00	ASP *VPT
10859	408108.39	2357045.61	8089+47.47	36.00	ASP *VPC
10860	408124.78	2357071.90	8089+74.00	20.00	ASP *PC
10861	408094.78	2357072.34	8089+74.00	50.00	RAD PT *30

Beginning chain PRA 8079+22 description
Description: Ppsd Paved Private Drive @ Sta 8079+22 Rt
==========
Point 8800 N 408,129.4571 E 2,356,019.7227 Sta 5000+00.00
Course from 8800 to 8801 S 0° 50' 03.85" E Dist 300.0000
Point 8801 N 407,829.4889 E 2,356,024.0915 Sta 5003+00.00
==========
Ending chain PRA 8079+22 description

Beginning chain PRA 8080+63 description
Description: Ppsd Paved Private Drive @ Sta 8080+63 Rt
==========
Point 8802 N 408,131.5104 E 2,356,160.7078 Sta 5100+00.00
Course from 8802 to 8803 S 0° 50' 03.85" E Dist 200.0000
Point 8803 N 407,931.5316 E 2,356,163.6203 Sta 5102+00.00
==========
Ending chain PRA 8080+63 description

Beginning chain PRA 8084+92 description
Description: Ppsd Paved Private Drive @ Sta 8084+92 Rt
==========
Point 8804 N 408,137.7578 E 2,356,589.6623 Sta 5200+00.00
Course from 8804 to 8805 S 0° 50' 03.85" E Dist 300.0000
Point 8805 N 407,837.7896 E 2,356,594.0310 Sta 5203+00.00
==========
Ending chain PRA 8084+92 description

Beginning chain PRA 8088+85 description
Description: Ppsd Paved Private Drive @ Sta 8088+85 Lt
==========
Point 8806 N 408,443.4490 E 2,356,978.2518 Sta 5300+00.00
Course from 8806 to 8807 S 0° 50' 03.85" E Dist 300.0000
Point 8807 N 408,143.4809 E 2,356,982.6206 Sta 5303+00.00
==========
Ending chain PRA 8088+85 description

Beginning chain PRA 8089+32 description
Description: Ppsd Paved Private Drive @ Sta 8089+32 Rt
==========
Point 8808 N 408,144.1653 E 2,357,029.6156 Sta 5400+00.00
Course from 8808 to 8809 S 0° 50' 03.85" E Dist 200.0000
Point 8809 N 407,944.1865 E 2,357,032.5281 Sta 5402+00.00
==========
Ending chain PRA 8089+32 description

Beginning chain PRA 8093+94 description
Description: Ppsd Gravel Private Drive @ Sta 8093+94 Rt
==========
Point 8810 N 408,150.8932 E 2,357,491.5666 Sta 5500+00.00
Course from 8810 to 8811 S 0° 50' 03.85" E Dist 200.0000
Point 8811 N 407,950.9144 E 2,357,494.4791 Sta 5502+00.00
==========
Ending chain PRA 8093+94 description

Legend

- R/W Marker (Witness Post)
- Alignment Monuments
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- COGO Point

Notes:

1. Stationing is Based on Alignment "PR19_SEG4" Unless Otherwise Noted.

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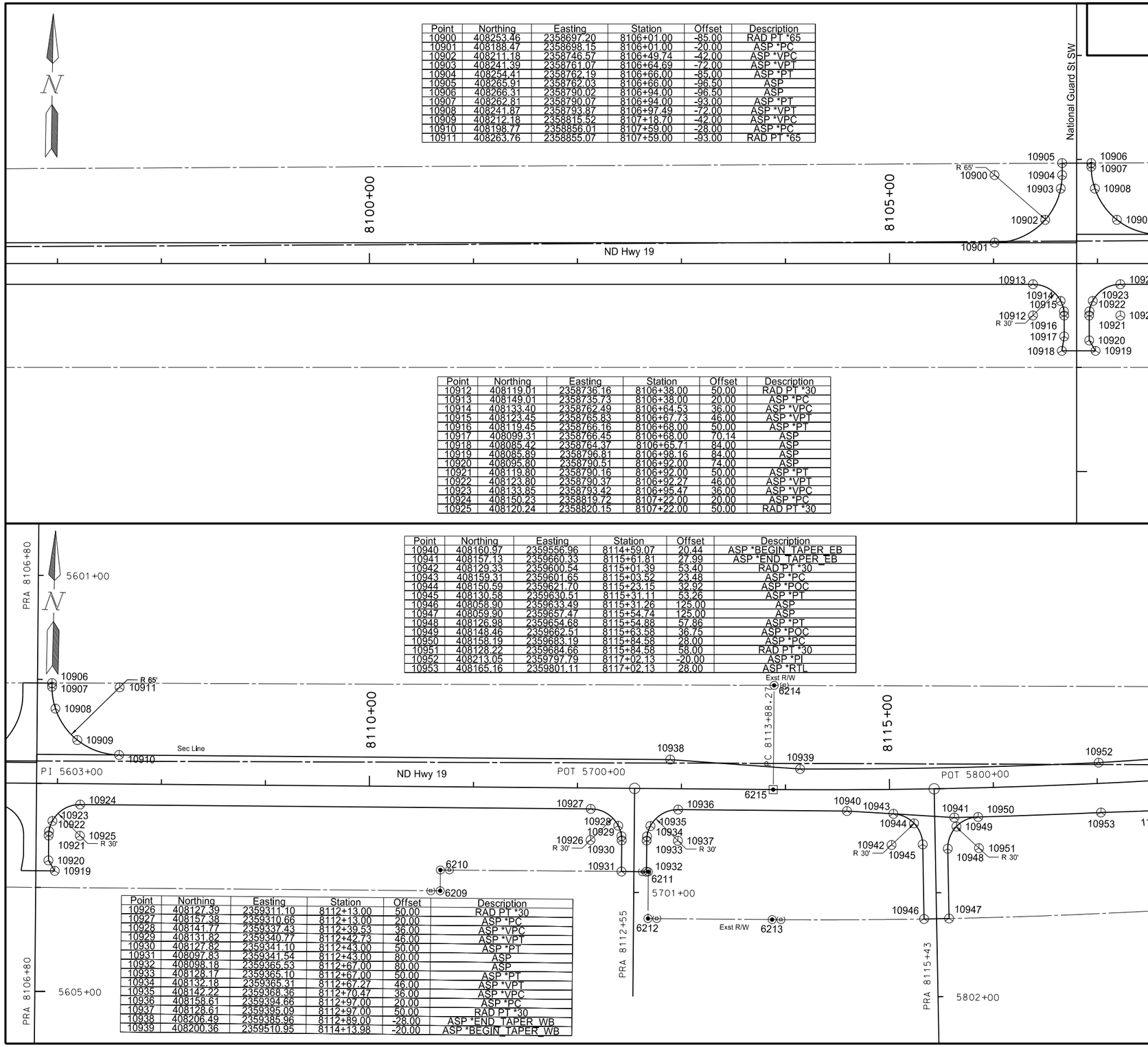
ND Hwy 19

Survey Data & Right of Way Layout

Sta 8078+80 to 8097+00
(Mile 152 & 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	82	2



Point	Northing	Easting	Station	Offset	Description
10900	408253.46	2358697.20	8106+01.00	-85.00	RAD PT *65
10901	408188.47	2358698.15	8106+01.00	-20.00	ASP *PC
10902	408211.18	2358746.57	8106+49.74	-42.00	ASP *VPC
10903	408241.39	2358761.07	8106+64.69	-72.00	ASP *VPT
10904	408254.41	2358762.19	8106+66.00	-85.00	ASP *PT
10905	408265.91	2358762.03	8106+66.00	-96.50	ASP
10906	408266.31	2358790.02	8106+94.00	-96.50	ASP
10907	408262.81	2358790.07	8106+94.00	-93.00	ASP *PT
10908	408241.87	2358793.87	8106+97.49	-72.00	ASP *VPT
10909	408212.18	2358815.52	8107+18.70	-42.00	ASP *VPC
10910	408198.77	2358856.01	8107+59.00	-28.00	ASP *PC
10911	408263.76	2358855.07	8107+59.00	-93.00	RAD PT *65

Point	Northing	Easting	Station	Offset	Description
10912	408119.01	2358736.16	8106+38.00	50.00	RAD PT *30
10913	408149.01	2358735.73	8106+38.00	20.00	ASP *PC
10914	408133.40	2358762.49	8106+64.53	36.00	ASP *VPC
10915	408123.45	2358765.83	8106+67.73	46.00	ASP *VPT
10916	408119.45	2358766.16	8106+68.00	50.00	ASP *PT
10917	408099.31	2358766.45	8106+68.00	70.14	ASP
10918	408085.42	2358764.37	8106+65.71	84.00	ASP
10919	408085.89	2358796.81	8106+98.16	84.00	ASP
10920	408095.80	2358790.51	8106+92.00	74.00	ASP
10921	408119.80	2358790.16	8106+92.00	50.00	ASP *PT
10922	408123.80	2358790.37	8106+92.27	46.00	ASP *VPT
10923	408133.85	2358793.42	8106+95.47	36.00	ASP *VPC
10924	408150.23	2358819.72	8107+22.00	20.00	ASP *PC
10925	408120.24	2358820.15	8107+22.00	50.00	RAD PT *30

Point	Northing	Easting	Station	Offset	Description
10940	408160.97	2359556.96	8114+59.07	20.44	ASP *BEGIN_TAPER_EB
10941	408157.13	2359660.33	8115+61.81	27.99	ASP *END_TAPER_EB
10942	408129.33	2359600.54	8115+01.39	53.40	RAD PT *30
10943	408159.31	2359601.65	8115+03.52	23.48	ASP *PC
10944	408150.59	2359621.70	8115+23.15	32.92	ASP *POC
10945	408130.58	2359630.51	8115+31.11	53.26	ASP *PT
10946	408058.90	2359633.49	8115+31.26	125.00	ASP
10947	408059.90	2359657.47	8115+54.74	125.00	ASP
10948	408126.98	2359654.68	8115+54.88	57.86	ASP *PT
10949	408148.46	2359662.51	8115+63.58	36.75	ASP *POC
10950	408158.19	2359683.19	8115+84.58	28.00	ASP *PC
10951	408128.22	2359684.66	8115+84.58	58.00	RAD PT *30
10952	408213.05	2359797.79	8117+02.13	-20.00	ASP *PI
10953	408165.16	2359801.11	8117+02.13	28.00	ASP *RTL

Point	Northing	Easting	Station	Offset	Description
10926	408127.39	2359311.10	8112+13.00	50.00	RAD PT *30
10927	408157.38	2359310.66	8112+13.00	20.00	ASP *PC
10928	408141.77	2359337.43	8112+39.53	36.00	ASP *VPC
10929	408131.82	2359340.77	8112+42.73	46.00	ASP *VPT
10930	408127.82	2359341.10	8112+43.00	50.00	ASP *PT
10931	408097.83	2359341.54	8112+43.00	80.00	ASP
10932	408098.18	2359365.53	8112+67.00	80.00	ASP
10933	408128.17	2359365.10	8112+67.00	50.00	ASP *PT
10934	408132.18	2359365.31	8112+67.27	46.00	ASP *VPT
10935	408142.22	2359368.36	8112+70.47	36.00	ASP *VPC
10936	408158.61	2359394.66	8112+97.00	20.00	ASP *PC
10937	408128.61	2359395.09	8112+97.00	50.00	RAD PT *30
10938	408206.49	2359385.96	8112+89.00	-28.00	ASP *END_TAPER_WB
10939	408200.36	2359510.95	8114+13.98	-20.00	ASP *BEGIN_TAPER_WB

Beginning chain PRA 8106+80 description
Description: Ppsd Paved LVPR Lt & Paved Private Drive @ Sta 8106+80
==========

Point 8812 N 408,469.5888 E 2,358,773.0615 Sta 5600+00.00

Course from 8812 to 8813 S 0° 50' 03.85" E Dist 600.0000

Point 8813 N 407,869.6524 E 2,358,781.7990 Sta 5606+00.00

==========
Ending chain PRA 8106+80 description

Beginning chain PRA 8112+55 description
Description: Ppsd Paved Private Drive @ Sta 8112+55 Rt
==========

Point 8814 N 408,177.9941 E 2,359,352.3693 Sta 5700+00.00

Course from 8814 to 8815 S 0° 50' 03.85" E Dist 200.0000

Point 8815 N 407,978.0153 E 2,359,355.2818 Sta 5702+00.00

==========
Ending chain PRA 8112+55 description

Beginning chain PRA 8115+43 description
Description: Ppsd Paved Private Drive @ Sta 8115+43 Rt
==========

Point 8816 N 408,184.2768 E 2,359,640.2895 Sta 5800+00.00

Course from 8816 to 8817 S 2° 22' 54.14" E Dist 300.0000

Point 8817 N 407,884.5360 E 2,359,652.7565 Sta 5803+00.00

==========
Ending chain PRA 8115+43 description

Legend

- R/W Marker (Witness Post)
- Alignment Monuments
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- COGO Point

Notes:

1. Stationing is Based on Alignment "PR19_SEG4" Unless Otherwise Noted.

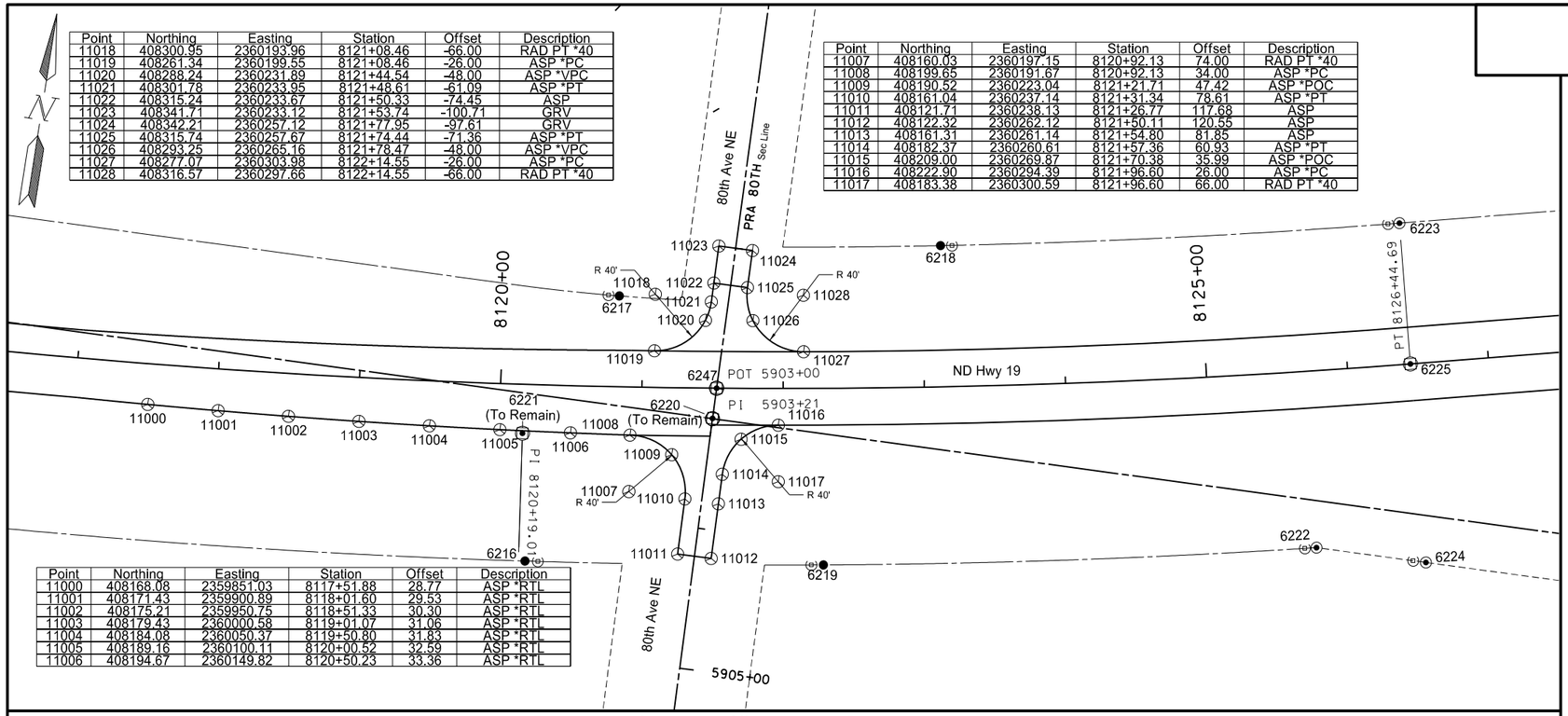
This document was originally issued and sealed by Dawn LS Michel, Registration Number PE- 8029, on 01/29/16 and the original document is stored at the North Dakota Department of Transportation

ND Hwy 19

Survey Data & Right of Way Layout

Sta 8097+00 to 8117+00
(Mile 153)

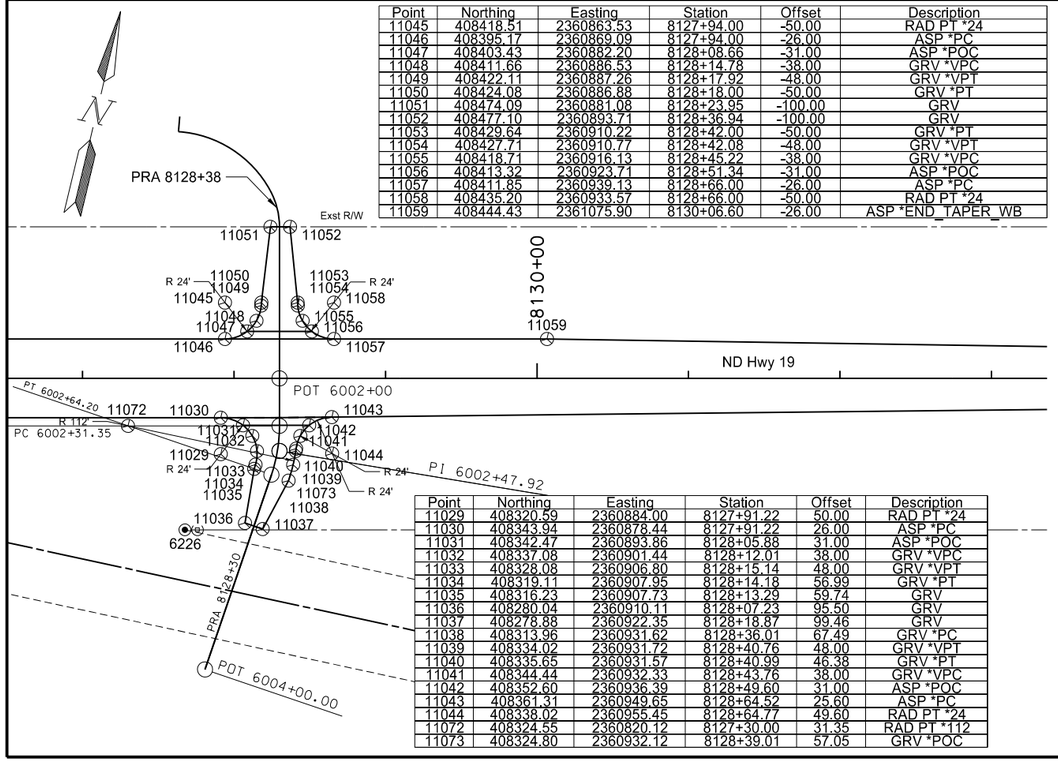
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	82	3



Point	Northing	Easting	Station	Offset	Description
11018	408300.95	2360193.96	8121+08.46	-66.00	RAD PT *40
11019	408261.34	2360199.55	8121+08.46	-26.00	ASP *PC
11020	408288.24	2360231.89	8121+44.54	-48.00	ASP *VPC
11021	408301.78	2360233.95	8121+48.61	-61.09	ASP *PT
11022	408315.24	2360233.67	8121+50.33	-74.45	ASP
11023	408341.71	2360233.12	8121+53.74	-100.71	GRV
11024	408342.21	2360257.12	8121+77.95	-97.61	GRV
11025	408315.74	2360257.67	8121+74.44	-71.36	ASP *PT
11026	408293.25	2360265.16	8121+78.47	-48.00	ASP *VPC
11027	408277.07	2360303.98	8122+14.55	-26.00	ASP *PC
11028	408316.57	2360297.66	8122+14.55	-66.00	RAD PT *40

Point	Northing	Easting	Station	Offset	Description
11007	408160.03	2360197.15	8120+92.13	74.00	RAD PT *40
11008	408199.65	2360191.67	8120+92.13	34.00	ASP *PC
11009	408190.52	2360223.04	8121+21.71	47.42	ASP *POC
11010	408161.04	2360237.14	8121+31.34	78.61	ASP *PT
11011	408121.71	2360238.13	8121+26.77	117.68	ASP
11012	408122.32	2360262.12	8121+50.11	120.55	ASP
11013	408161.31	2360261.14	8121+54.80	81.85	ASP
11014	408182.37	2360260.61	8121+57.36	60.93	ASP *PT
11015	408209.00	2360269.87	8121+70.38	35.99	ASP *POC
11016	408222.90	2360294.39	8121+96.60	26.00	ASP *PC
11017	408183.38	2360300.59	8121+96.60	66.00	RAD PT *40

Point	Northing	Easting	Station	Offset	Description
11000	408168.08	2359851.03	8117+51.88	28.77	ASP *RTL
11001	408171.43	2359900.89	8118+01.60	29.53	ASP *RTL
11002	408175.21	2359950.75	8118+51.33	30.30	ASP *RTL
11003	408179.43	2360000.58	8119+01.07	31.06	ASP *RTL
11004	408184.08	2360050.37	8119+50.80	31.83	ASP *RTL
11005	408189.16	2360100.11	8120+00.52	32.59	ASP *RTL
11006	408194.67	2360149.82	8120+50.23	33.36	ASP *RTL



Point	Northing	Easting	Station	Offset	Description
11045	408418.51	2360863.53	8127+94.00	-50.00	RAD PT *24
11046	408395.17	2360869.09	8127+94.00	-26.00	ASP *PC
11047	408403.43	2360882.20	8128+08.66	-31.00	ASP *POC
11048	408411.66	2360886.53	8128+14.78	-38.00	GRV *VPC
11049	408422.11	2360887.26	8128+17.92	-48.00	GRV *VPT
11050	408424.08	2360886.88	8128+18.00	-50.00	GRV *PT
11051	408474.09	2360881.08	8128+23.95	-100.00	GRV
11052	408477.10	2360893.71	8128+36.94	-100.00	GRV
11053	408429.64	2360910.22	8128+42.00	-50.00	GRV *PT
11054	408427.71	2360910.77	8128+42.08	-48.00	GRV *VPT
11055	408418.71	2360916.13	8128+45.22	-38.00	GRV *VPC
11056	408413.32	2360923.71	8128+51.34	-31.00	ASP *POC
11057	408411.85	2360939.13	8128+66.00	-26.00	ASP *PC
11058	408435.20	2360933.57	8128+66.00	-50.00	RAD PT *24
11059	408444.43	2361075.90	8130+06.60	-26.00	ASP *END_TAPER_WB

Point	Northing	Easting	Station	Offset	Description
11029	408320.59	2360884.00	8127+91.22	50.00	RAD PT *24
11030	408343.94	2360878.44	8127+91.22	26.00	ASP *PC
11031	408342.47	2360893.86	8128+05.88	31.00	ASP *POC
11032	408337.08	2360901.44	8128+12.01	38.00	GRV *VPC
11033	408328.08	2360906.80	8128+15.14	48.00	GRV *VPT
11034	408319.11	2360907.95	8128+14.18	56.99	GRV *PT
11035	408316.23	2360907.73	8128+13.29	59.74	GRV
11036	408280.04	2360910.11	8128+07.23	95.50	GRV
11037	408278.88	2360922.35	8128+18.87	99.46	GRV
11038	408313.96	2360931.62	8128+36.01	67.49	GRV *PC
11039	408334.02	2360931.72	8128+40.76	48.00	GRV *VPT
11040	408335.65	2360931.57	8128+40.99	46.38	GRV *PT
11041	408344.44	2360932.33	8128+43.76	38.00	GRV *VPC
11042	408352.60	2360936.39	8128+49.60	31.00	ASP *POC
11043	408361.31	2360949.65	8128+64.52	25.60	ASP *PC
11044	408338.02	2360955.45	8128+64.77	49.60	RAD PT *24
11072	408324.55	2360820.12	8127+30.00	31.35	RAD PT *112
11073	408324.80	2360932.12	8128+39.01	57.05	GRV *POC

Beginning chain PRA 80TH description
Description: Ppsd Gravel LVPR Lt & Paved LVPR Rt @ Sta 8121+52.93
==========

Point 8818 N 408,494.7883 E 2,360,134.7712 Sta 5900+00.00

Course from 8818 to PC PRA 80TH-1 S 56° 21' 45.13" E Dist 60.0000

Curve Data

Curve PRA 80TH-1
Feature: LVPR-G / LVPR-P
Description: PRA 80TH
P.I. Station 5901+30.54 N 408,422.4792 E 2,360,243.4509
Delta = 55° 10' 25.37" (RT)
Degree = 42° 26' 28.75"
Tangent = 70.5369
Length = 130.0000
Radius = 135.0000
External = 17.3169
Long Chord = 125.0350
Mid. Ord. = 15.3482
P.C. Station 5900+60.00 N 408,461.5522 E 2,360,184.7248
P.T. Station 5901+90.00 N 408,351.9576 E 2,360,244.9144
C.C. N 408,349.1567 E 2,360,109.9434
Back = S 56° 21' 45.13" E
Ahead = S 1° 11' 19.76" E
Chord Bear = S 28° 46' 32.45" E

Course from PT PRA_80TH-1 to 8819 S 1° 11' 19.76" E Dist 110.0000

Point 8819 N 408,241.9812 E 2,360,247.1966 Sta 5903+00.00

Course from 8819 to 8820 S 1° 11' 19.77" E Dist 21.8059

Point 8820 N 408,220.1800 E 2,360,247.6490 Sta 5903+21.81

Course from 8820 to 8821 S 1° 26' 44.40" E Dist 278.1941

Point 8821 N 407,942.0744 E 2,360,254.6675 Sta 5906+00.00

==========
Ending chain PRA_80TH description

Beginning chain PRA_8128+30 description
Description: Ppsd Gravel Field Drive Lt & Gravel Field Drive Rt @ Sta 8218+30
==========

Curve Data

Curve PRA_8128+30-1
Feature: FD-G / FD-G
Description: PRA_8128+30
P.I. Station 6000+40.97 N 408,527.8219 E 2,360,848.0143
Delta = 57° 17' 44.81" (RT)
Degree = 76° 23' 39.74"
Tangent = 40.9727
Length = 75.0000
Radius = 75.0000
External = 10.4620
Long Chord = 71.9138
Mid. Ord. = 9.1813
P.C. Station 6000+00.00 N 408,521.1708 E 2,360,807.5850
P.T. Station 6000+75.00 N 408,497.3954 E 2,360,875.4550
C.C. N 408,447.1656 E 2,360,819.7597
Back = N 80° 39' 28.36" E
Ahead = S 42° 02' 46.84" E
Chord Bear = S 70° 41' 39.24" E

Curve Data

Curve PRA_8128+30-2
Feature: FD-G / FD-G
Description: PRA_8128+30
P.I. Station 6000+87.77 N 408,487.9146 E 2,360,884.0055
Delta = 28° 38' 52.40" (RT)
Degree = 114° 35' 29.61"
Tangent = 12.7671
Length = 25.0000
Radius = 50.0000
External = 1.6043
Long Chord = 24.7404
Mid. Ord. = 1.5544
P.C. Station 6000+75.00 N 408,497.3954 E 2,360,875.4550
P.T. Station 6001+00.00 N 408,475.4950 E 2,360,886.9639
C.C. N 408,463.9089 E 2,360,838.3248
Back = S 42° 02' 46.84" E
Ahead = S 13° 23' 54.43" E
Chord Bear = S 27° 43' 20.64" E

Course from PT PRA_8128+30-2 to 8823 S 13° 23' 54.43" E Dist 100.0000

Point 8823 N 408,378.2167 E 2,360,910.1361 Sta 6002+00.00

Course from 8823 to PC PRA_8128+30-3 S 13° 23' 54.43" E Dist 31.3475

Curve Data

Curve PRA_8128+30-3
Feature: FD-G / FD-G
Description: PRA_8128+30
P.I. Station 6002+47.92 N 408,331.5974 E 2,360,921.2410
Delta = 18° 49' 25.59" (RT)
Degree = 57° 17' 44.81"
Tangent = 16.5762
Length = 32.8537
Radius = 100.0000
External = 1.3645
Long Chord = 32.7061
Mid. Ord. = 1.3462
P.C. Station 6002+31.35 N 408,347.7225 E 2,360,917.3999
P.T. Station 6002+64.20 N 408,315.0955 E 2,360,919.6738
C.C. N 408,324.5503 E 2,360,820.1217
Back = S 13° 23' 54.43" E
Ahead = S 5° 25' 31.16" W
Chord Bear = S 3° 59' 11.64" E

Course from PT PRA_8128+30-3 to 8824 S 5° 25' 31.16" W Dist 135.7988

Point 8824 N 408,179.9050 E 2,360,906.8342 Sta 6004+00.00

==========
Ending chain PRA_8128+30 description

Legend

- R/W Marker (Witness Post)
- Alignment Monuments
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- COGO Point

Notes:

1. Stationing is Based on Alignment "PR19_SEG4" Unless Otherwise Noted.

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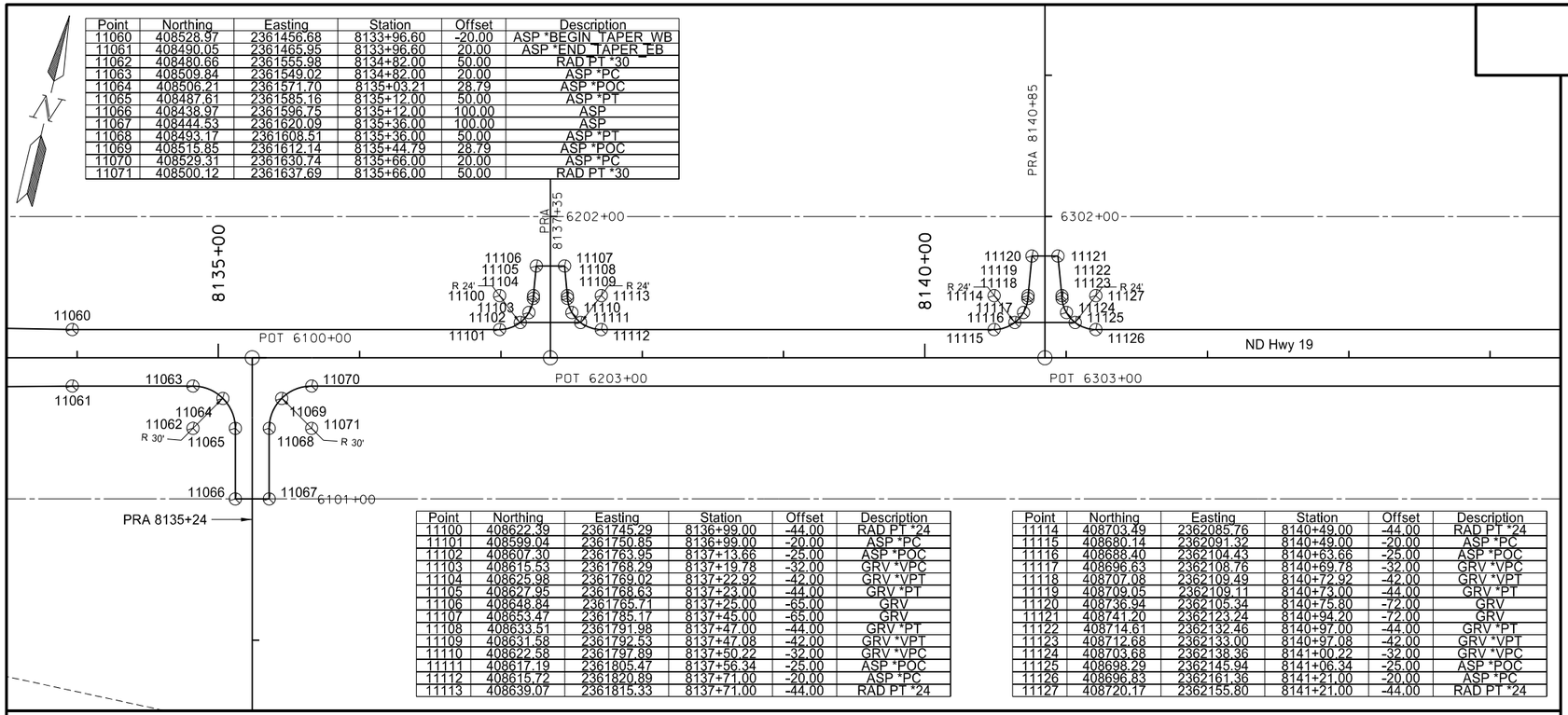
ND Hwy 19

Survey Data & Right of Way Layout

Sta 8117+00 to 8137+00
(Mile 153 & 154)

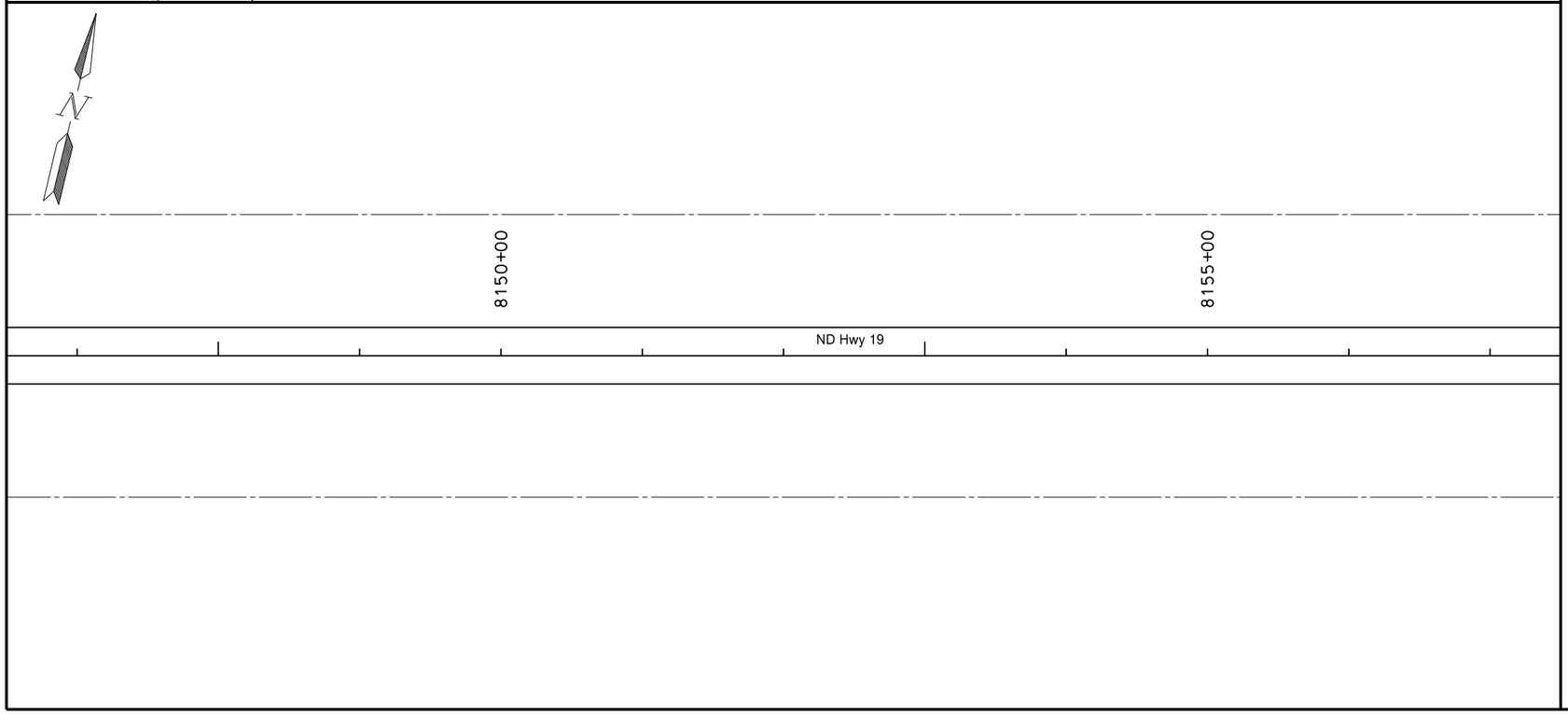
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	82	4

Point	Northing	Easting	Station	Offset	Description
11060	408528.97	2361456.68	8133+96.60	-20.00	ASP *BEGIN_TAPER_WB
11061	408490.05	2361465.95	8133+96.60	20.00	ASP *END_TAPER_EB
11062	408480.66	2361555.98	8134+82.00	50.00	RAD PT *30
11063	408509.84	2361549.02	8134+82.00	20.00	ASP *PC
11064	408506.21	2361571.70	8135+03.21	28.79	ASP *POC
11065	408487.61	2361585.16	8135+12.00	50.00	ASP *PT
11066	408438.97	2361596.75	8135+12.00	100.00	ASP
11067	408444.53	2361620.09	8135+36.00	100.00	ASP
11068	408493.17	2361608.51	8135+36.00	50.00	ASP *PT
11069	408515.85	2361612.14	8135+44.79	28.79	ASP *POC
11070	408529.31	2361630.74	8135+66.00	20.00	ASP *PC
11071	408500.12	2361637.69	8135+66.00	50.00	RAD PT *30



Point	Northing	Easting	Station	Offset	Description
11100	408622.39	2361745.29	8136+99.00	-44.00	RAD PT *24
11101	408599.04	2361750.85	8136+99.00	-20.00	ASP *PC
11102	408607.30	2361763.95	8137+13.66	-25.00	ASP *POC
11103	408615.53	2361768.29	8137+19.78	-32.00	GRV *VPC
11104	408625.98	2361769.02	8137+22.92	-42.00	GRV *VPT
11105	408627.95	2361768.63	8137+23.00	-44.00	GRV *PT
11106	408648.84	2361765.71	8137+25.00	-65.00	GRV
11107	408653.47	2361785.17	8137+45.00	-65.00	GRV
11108	408633.51	2361791.98	8137+47.00	-44.00	GRV *PT
11109	408631.58	2361792.53	8137+47.08	-42.00	GRV *VPT
11110	408622.58	2361797.89	8137+50.22	-32.00	GRV *VPC
11111	408617.19	2361805.47	8137+56.34	-25.00	ASP *POC
11112	408615.72	2361820.89	8137+71.00	-20.00	ASP *PC
11113	408639.07	2361815.33	8137+71.00	-44.00	RAD PT *24

Point	Northing	Easting	Station	Offset	Description
11114	408703.49	2362085.76	8140+49.00	-44.00	RAD PT *24
11115	408680.14	2362091.32	8140+49.00	-20.00	ASP *PC
11116	408688.40	2362104.43	8140+63.66	-25.00	ASP *POC
11117	408696.63	2362108.76	8140+69.78	-32.00	GRV *VPC
11118	408707.08	2362109.49	8140+72.92	-42.00	GRV *VPT
11119	408709.05	2362109.11	8140+73.00	-44.00	GRV *PT
11120	408736.94	2362105.34	8140+75.80	-72.00	GRV
11121	408741.20	2362123.24	8140+94.20	-72.00	GRV
11122	408714.61	2362132.46	8140+97.00	-44.00	GRV *PT
11123	408712.68	2362133.00	8140+97.08	-42.00	GRV *VPT
11124	408703.68	2362138.36	8141+00.22	-32.00	GRV *VPC
11125	408698.29	2362145.94	8141+06.34	-25.00	ASP *POC
11126	408696.83	2362161.36	8141+21.00	-20.00	ASP *PC
11127	408720.17	2362155.80	8141+21.00	-44.00	RAD PT *24



Beginning chain PRA_8135+24 description
Description: Ppsd Paved Private Drive @ Sta 8137+35 Rt
==========

Point 8825 N 408,539.0316 E 2,361,585.2469 Sta 6100+00.00

Course from 8825 to 8826 S 13° 23' 54.43" E Dist 300.0000

Point 8826 N 408,247.1969 E 2,361,654.7633 Sta 6103+00.00

==========
Ending chain PRA_8135+24 description

Beginning chain PRA 8137+35 description
Description: Ppsd Gravel Field Drive @ Sta 8137+35 Lt
==========

Point 8827 N 408,879.7595 E 2,361,720.9874 Sta 6200+00.00

Course from 8827 to 8828 S 13° 23' 54.43" E Dist 300.0000

Point 8828 N 408,587.9248 E 2,361,790.5039 Sta 6203+00.00

==========
Ending chain PRA 8137+35 description

Beginning chain PRA 8140+85 description
Description: Ppsd Gravel Field Drive @ Sta 8140+85 Lt
==========

Point 8829 N 408,960.8621 E 2,362,061.4611 Sta 6300+00.00

Course from 8829 to 8830 S 13° 23' 54.43" E Dist 300.0000

Point 8830 N 408,669.0274 E 2,362,130.9776 Sta 6303+00.00

==========
Ending chain PRA 8140+85 description

Legend

- R/W Marker (Witness Post)
- Alignment Monuments
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- COGO Point

Notes:

1. Stationing is Based on Alignment "PR19_SEG4" Unless Otherwise Noted.

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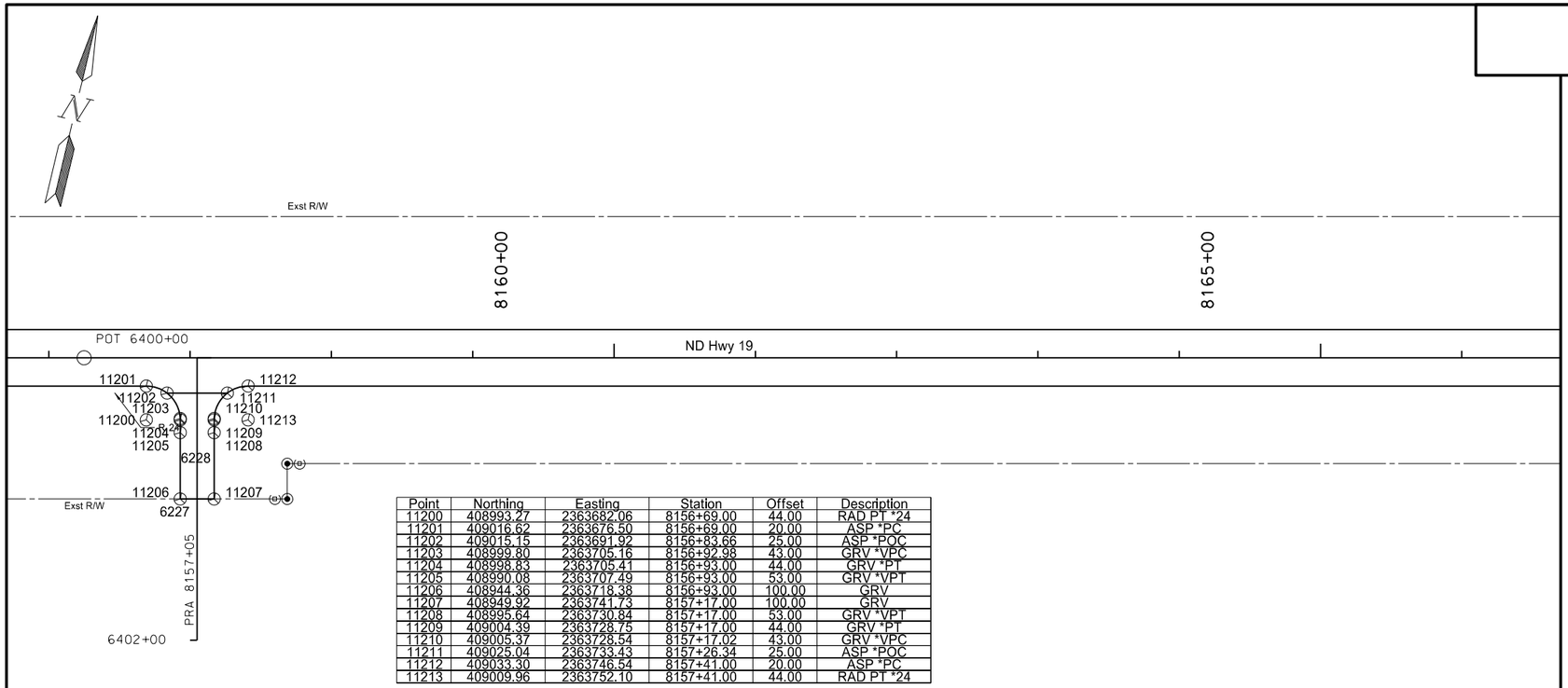
ND Hwy 19

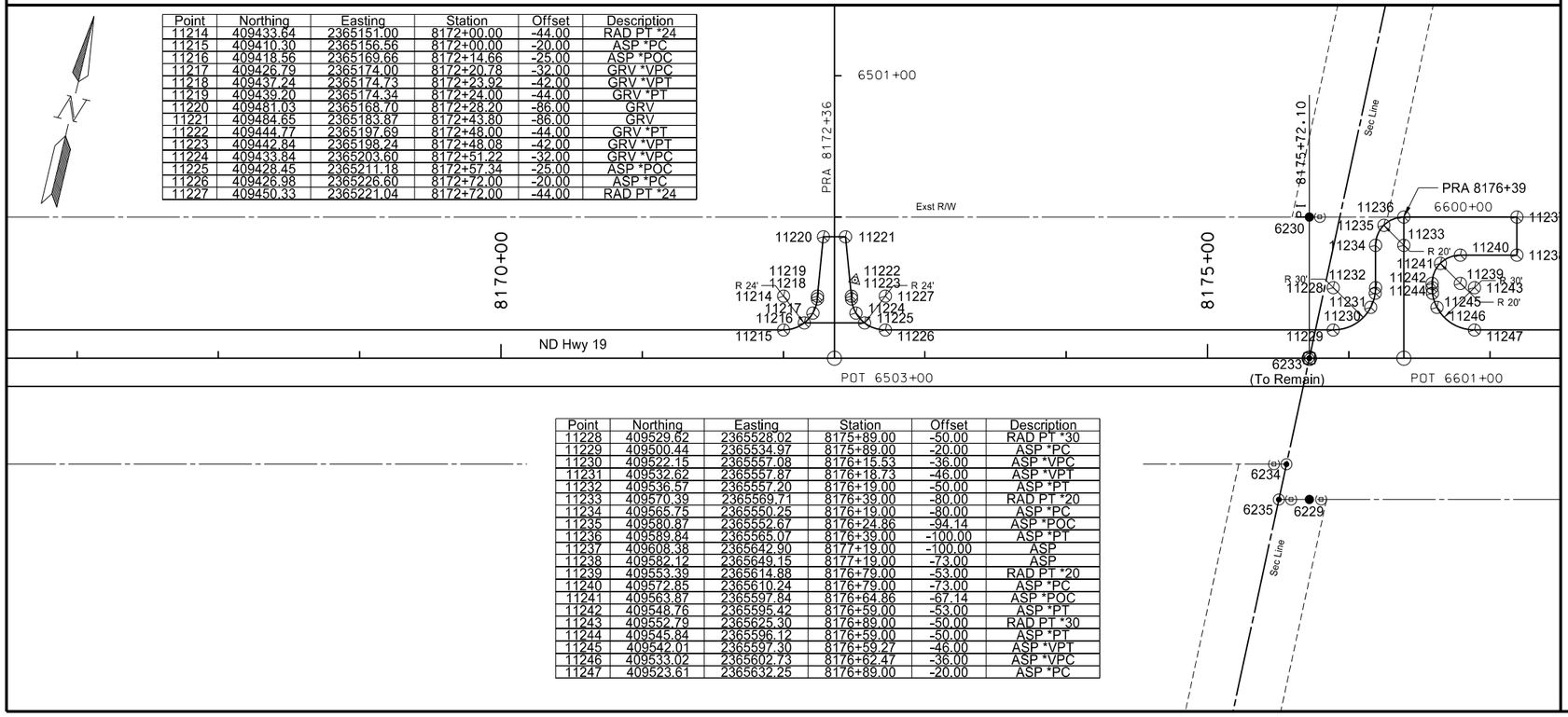
Survey Data & Right of Way Layout

Sta 8137+00 to 8157+00
(Mile 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	82	5



Point	Northing	Easting	Station	Offset	Description
11200	408993.27	2363682.06	8156+69.00	44.00	RAD PT *24
11201	409016.62	2363676.50	8156+69.00	20.00	ASP *PC
11202	409015.15	2363691.92	8156+83.66	25.00	ASP *POC
11203	408999.80	2363705.16	8156+92.98	43.00	GRV *VPC
11204	408998.83	2363705.41	8156+93.00	44.00	GRV *PT
11205	408990.08	2363707.49	8156+93.00	53.00	GRV *VPT
11206	408944.36	2363718.38	8156+93.00	100.00	GRV
11207	408949.92	2363741.73	8157+17.00	100.00	GRV
11208	408995.64	2363730.84	8157+17.00	53.00	GRV *VPT
11209	409004.39	2363728.75	8157+17.00	44.00	GRV *PT
11210	409005.37	2363728.54	8157+17.02	43.00	GRV *VPC
11211	409025.04	2363733.43	8157+26.34	25.00	ASP *POC
11212	409033.30	2363746.54	8157+41.00	20.00	ASP *PC
11213	409009.96	2363752.10	8157+41.00	44.00	RAD PT *24



Point	Northing	Easting	Station	Offset	Description
11214	409433.64	2365151.00	8172+00.00	-44.00	RAD PT *24
11215	409410.30	2365156.56	8172+00.00	-20.00	ASP *PC
11216	409418.56	2365169.66	8172+14.66	-25.00	ASP *POC
11217	409426.79	2365174.00	8172+20.78	-32.00	GRV *VPC
11218	409437.24	2365174.73	8172+23.92	-42.00	GRV *VPT
11219	409439.20	2365174.34	8172+24.00	-44.00	GRV *PT
11220	409481.03	2365168.70	8172+28.20	-86.00	GRV
11221	409484.65	2365183.87	8172+43.80	-86.00	GRV
11222	409444.77	2365197.69	8172+48.00	-44.00	GRV *PT
11223	409442.84	2365198.24	8172+48.08	-42.00	GRV *VPT
11224	409433.84	2365203.60	8172+51.22	-32.00	GRV *VPC
11225	409428.45	2365211.18	8172+57.34	-25.00	ASP *POC
11226	409426.98	2365226.60	8172+72.00	-20.00	ASP *PC
11227	409450.33	2365221.04	8172+72.00	-44.00	RAD PT *24

Point	Northing	Easting	Station	Offset	Description
11228	409529.62	2365528.02	8175+89.00	-50.00	RAD PT *30
11229	409500.44	2365534.97	8175+89.00	-20.00	ASP *PC
11230	409522.15	2365557.08	8176+15.53	-36.00	ASP *VPC
11231	409532.62	2365557.87	8176+18.73	-46.00	ASP *VPT
11232	409536.57	2365557.20	8176+19.00	-50.00	ASP *PT
11233	409570.39	2365569.71	8176+39.00	-80.00	RAD PT *20
11234	409565.75	2365550.25	8176+19.00	-80.00	ASP *PC
11235	409580.87	2365552.67	8176+24.86	-94.14	ASP *POC
11236	409589.84	2365565.07	8176+39.00	-100.00	ASP *PT
11237	409608.38	2365642.90	8177+19.00	-100.00	ASP
11238	409582.12	2365649.15	8177+19.00	-73.00	ASP
11239	409553.39	2365614.68	8176+79.00	-53.00	RAD PT *20
11240	409572.85	2365610.24	8176+79.00	-73.00	ASP *PC
11241	409563.87	2365597.84	8176+64.86	-67.14	ASP *POC
11242	409548.76	2365595.42	8176+59.00	-53.00	ASP *PT
11243	409552.79	2365625.30	8176+89.00	-50.00	RAD PT *30
11244	409545.84	2365596.12	8176+59.00	-50.00	ASP *PT
11245	409542.01	2365597.30	8176+59.27	-46.00	ASP *VPT
11246	409533.02	2365602.73	8176+62.47	-36.00	ASP *VPC
11247	409523.61	2365632.25	8176+89.00	-20.00	ASP *PC

Beginning chain PRA 8157+05 description
Description: Ppsd Gravel Field Drive @ Sta 8157+05 Rt
==========

Point 8831 N 409,044.4165 E 2,363,706.8847 Sta 6400+00.00

Course from 8831 to 8832 S 13° 23' 54.43" E Dist 200.0000

Point 8832 N 408,849.8601 E 2,363,753.2290 Sta 6402+00.00

==========
Ending chain PRA 8157+05 description

Beginning chain PRA 8172+36 description
Description: Ppsd Gravel Field Drive @ Sta 8172+36 Lt
==========

Point 8833 N 409,691.0170 E 2,365,126.6976 Sta 6500+00.00

Course from 8833 to 8834 S 13° 23' 54.43" E Dist 300.0000

Point 8834 N 409,399.1824 E 2,365,196.2141 Sta 6503+00.00

==========
Ending chain PRA 8172+36 description

Beginning chain PRA_8176+39 description
Description: Ppsd Paved Private Drive @ Sta 8176+39 Lt
==========

Point 8835 N 409,589.8442 E 2,365,565.0736 Sta 6600+00.00

Course from 8835 to 8836 S 13° 23' 53.72" E Dist 100.0000

Point 8836 N 409,492.5660 E 2,365,588.2454 Sta 6601+00.00

==========
Ending chain PRA_8176+39 description

Legend

- R/W Marker (Witness Post)
- Alignment Monuments
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- COGO Point

Notes:

1. Stationing is Based on Alignment "PR19_SEG4" Unless Otherwise Noted.

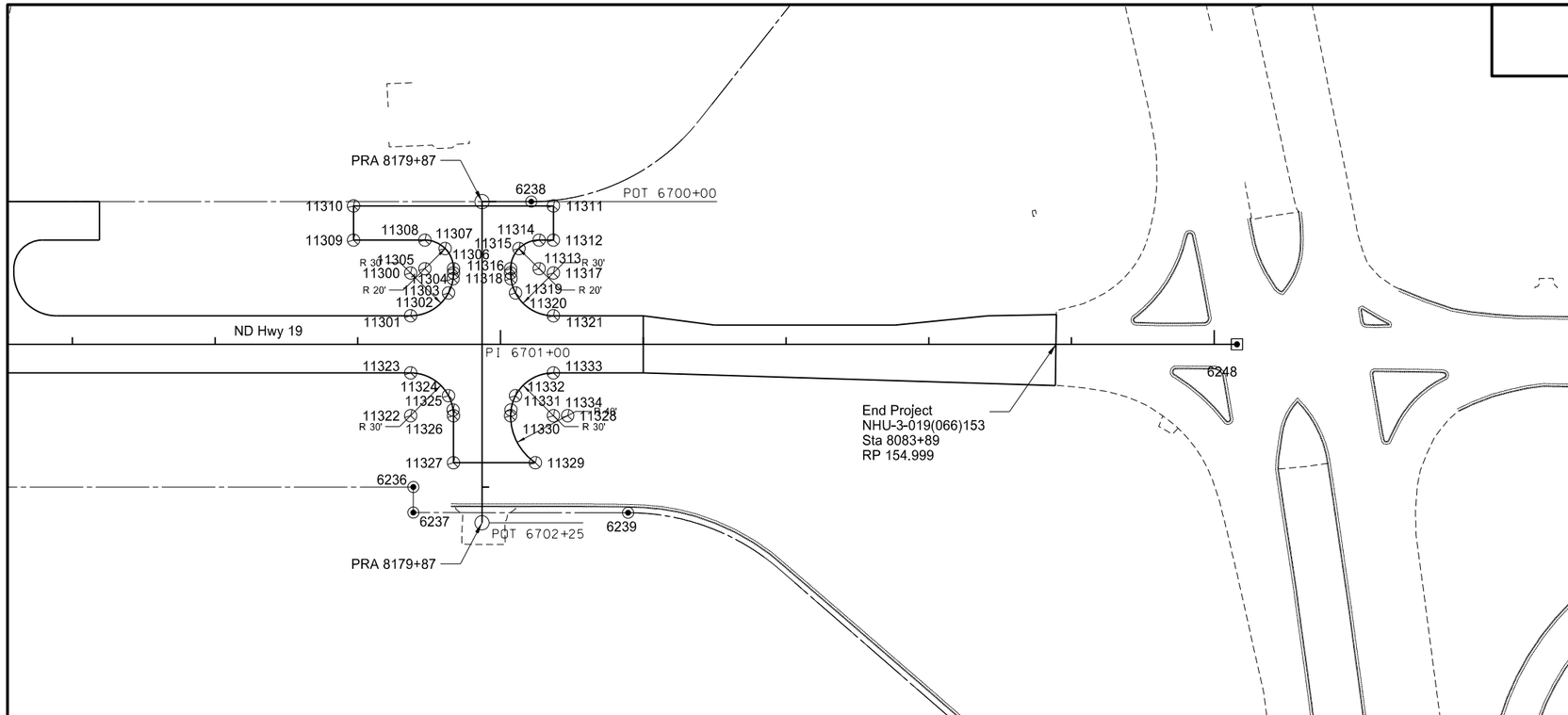
This document was originally issued and sealed by Dawn LS Michel, Registration Number PE- 8029, on 01/29/16 and the original document is stored at the North Dakota Department of Transportation

ND Hwy 19

Survey Data & Right of Way Layout

Sta 8157+00 to 8177+00
(Mile 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	82	6



Beginning chain PRA 8179+87 description
Description: Ppsd Paved Private Drive Lt & Paved Private Drive Rt @ Sta 8179+87

Point 8837 N 409,670.4822 E 2,365,903.6020 Sta 6700+00.00

Course from 8837 to 8838 S 13° 23' 53.72" E Dist 225.0000

Point 8838 N 409,451.6060 E 2,365,955.7386 Sta 6702+25.00

Ending chain PRA 8179+87 description

Point	Northing	Easting	Station	Offset	Description
11300	409610.26	2365866.55	8179+37.00	-50.00	RAD PT *30
11301	409581.07	2365873.50	8179+37.00	-20.00	ASP *PC
11302	409602.79	2365895.60	8179+63.53	-36.00	ASP *VPC
11303	409613.26	2365896.40	8179+66.73	-46.00	ASP *VPT
11304	409617.21	2365895.73	8179+67.00	-50.00	ASP *PT
11305	409615.49	2365875.58	8179+47.00	-53.00	RAD PT *20
11306	409620.13	2365895.04	8179+67.00	-53.00	ASP *PC
11307	409632.53	2365886.06	8179+61.14	-67.14	ASP *POC
11308	409634.95	2365870.95	8179+47.00	-73.00	ASP *PT
11309	409623.36	2365822.31	8178+97.00	-73.00	ASP
11310	409646.71	2365816.75	8178+97.00	-97.00	ASP
11311	409679.15	2365952.94	8180+37.00	-97.00	ASP
11312	409655.80	2365958.50	8180+37.00	-73.00	ASP
11313	409634.03	2365953.40	8180+27.00	-53.00	RAD PT *20
11314	409653.49	2365948.77	8180+27.00	-73.00	ASP *PC
11315	409644.51	2365936.37	8180+12.86	-67.14	ASP *POC
11316	409629.40	2365933.95	8180+07.00	-53.00	ASP *PT
11317	409633.43	2365963.83	8180+37.00	-50.00	RAD PT *30
11318	409626.48	2365934.64	8180+07.00	-50.00	ASP *PT
11319	409622.65	2365935.83	8180+07.27	-46.00	ASP *VPC
11320	409613.66	2365941.26	8180+10.47	-36.00	ASP *VPT
11321	409604.25	2365970.78	8180+37.00	-20.00	ASP *PC

Point	Northing	Easting	Station	Offset	Description
11322	409512.98	2365889.72	8179+37.00	50.00	RAD PT *30
11323	409542.16	2365882.77	8179+37.00	20.00	ASP *PC
11324	409532.75	2365912.29	8179+63.53	36.00	ASP *VPC
11325	409523.76	2365917.72	8179+66.73	46.00	ASP *VPT
11326	409519.93	2365918.90	8179+67.00	50.00	ASP *PT
11327	409487.83	2365926.55	8179+67.00	83.00	ASP
11328	409538.47	2365996.73	8180+47.00	50.00	RAD PT *30
11329	409501.13	2365982.39	8180+24.40	83.00	ASP *PC
11330	409529.20	2365957.82	8180+07.00	50.00	ASP *POC
11331	409533.15	2365957.15	8180+07.27	46.00	ASP *VPT
11332	409543.62	2365957.94	8180+10.47	36.00	ASP *VPC
11333	409565.34	2365980.05	8180+37.00	20.00	ASP *PC
11334	409536.15	2365987.00	8180+37.00	50.00	RAD PT *30

Legend

- R/W Marker (Witness Post)
- Alignment Monuments
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- COGO Point

Notes:

1. Stationing is Based on Alignment "PR19_SEG4" Unless Otherwise Noted.

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ND Hwy 19

Survey Data & Right of Way Layout

Sta 8177+00 to 8183+89
(Mile 154 & 155)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	82	7

720 0110 Right of Way Markers / 720 0130 Iron Pin R/W Monuments / 720 0135 Iron Pin Reference Monuments

STATION	OFFSET	NORTHING	EASTING	DESCRIPTION	POINT NUMBER	R/W MARKER (Witness Post)	IRON PIN R/W MONUMENT	IRON PIN REFERENCE MONUMENT
8069+33.62	-75.44	408190.49	2355030.35	SEC CROSSING	6201	x		x
8069+60.23	100.00	408015.46	2355059.51	SEC CROSSING	6202	x		x
8095+04.91	-90.39	408242.89	2357601.14	QTR CROSSING	6205	x		x
8095+06.71	100.00	408052.55	2357605.72	QTR CROSSING	6206	x		x
8110+68.89	100.00	408075.30	2359167.73	RW DEFLECTION	6209	x	x	
8110+68.89	80.00	408095.29	2359167.44	RW DEFLECTION	6210	x	x	
8112+68.89	80.00	408098.21	2359367.42	RW DEFLECTION	6211	x	x	
8112+68.89	125.00	408053.21	2359368.08	RW DEFLECTION	6212	x	x	
8113+88.27	125.00	408054.95	2359487.44	PC (C1)	6213	x	x	
8113+88.27	-100.18	408280.11	2359484.16	PC (C1)	6214	x	x	
8120+21.06	125.00	408100.01	2360132.14	SEC CROSSING	6216	x		x
8120+82.71	-64.35	408295.81	2360168.97	SEC CROSSING	6217	x		x
8123+13.50	-100.00	408366.34	2360388.14	SEC CROSSING	6218	x		x
8122+27.90	125.00	408130.14	2360341.32	SEC CROSSING	6219	x		x
8125+69.91	125.00	408196.46	2360684.39	RW DEFLECTION	6222	x	x	
8126+44.69	-100.00	408432.56	2360706.70	PT (C1)	6223	x	x	
8126+44.69	140.99	408198.12	2360762.54	PT (C1)	6224	x	x	
8127+67.57	100.00	408266.47	2360872.58	RW DEFLECTION	6226	x	x	
8157+68.76	100.00	408961.91	2363792.08	RW DEFLECTION	6227	x	x	
8157+68.76	75.00	408986.23	2363786.29	RW DEFLECTION	6228	x	x	
8174+97.10	75.00	409386.73	2365467.58	SEC CROSSING	6229	x		x
8174+72.10	-100.00	409551.17	2365402.71	SEC CROSSING	6230	x		x
8175+55.90	75.00	409400.35	2365524.79	RW DEFLECTION	6234	x	x	
8175+50.50	100.00	409374.78	2365525.33	RW DEFLECTION	6235	x	x	
8179+38.90	100.00	409464.78	2365903.16	RW DEFLECTION	6236	x	x	
8179+38.90	117.87	409447.40	2365907.30	RW DEFLECTION	6237	x	x	
8180+21.52	-100.00	409678.48	2365937.18	RW DEFLECTION	6238	x	x	
8180+89.33	118.00	409482.13	2366053.66	RW DEFLECTION	6239	x	x	
8181+39.24	-157.04	409761.24	2366038.48	RW DEFLECTION	6240	x	x	
					R/W MARKER TOTAL:	**28**	**-**	**-**
					IRON PIN R/W MONUMENT TOTAL:	**-**	**18**	**-**
					IRON PIN REFERENCE MONUMENT TOTAL:	**-**	**-**	**10**

720 0125 Alignment Monuments

STATION	OFFSET	NORTHING	EASTING	DESCRIPTION	POINT NUMBER	MONUMENT
8068+59.06	0.00	408113.98	2354956.90	SEC COR	6200	To Remain
8095+05.54	0.00	408152.52	2357603.10	QTR CROSSING	6207	x
8095+05.36	-15.40	408167.91	2357602.69	QTR COR	6208	To Remain
8113+88.27	0.00	408179.94	2359485.62	PC (C1)	6215	x
8120+16.48	34.61	408189.12	2360116.30	PI (C1)	6221	To Remain
8121+50.20	21.40	408220.41	2360247.64	SEC COR	6220	To Remain
8121+52.93	0.00	408241.98	2360247.20	SEC CROSSING	6247	x
8126+44.69	0.00	408335.28	2360729.87	PT (C1)	6225	x
8175+72.10	0.00	409477.06	2365523.16	SEC CROSSING	6233	To Remain
8185+15.90	0.00	409695.76	2366441.28	POT (PR19_SEG4)	6248	x
					ALIGNMENT MONUMENTS TOTAL:	**5**

720 0110 RIGHT OF WAY MARKERS
Summary of Quantities 28 EA

720 0125 ALIGNMENT MONUMENTS
Summary of Quantities 5 EA

720 0130 IRON PIN R/W MONUMENTS
Summary of Quantities 18 EA

720 0135 IRON PIN REFERENCE MONUMENTS
Summary of Quantities 10 EA

Notes:

1. Station Offsets based on Alignment "PR19_SEG4".
2. See Standard Drawing D-720-01 for additional information.

This document was originally issued and sealed by Dawn LS Michel Registration Number PE-8029, on 01/29/16 and the original document is stored at the North Dakota Department of Transportation.

ND Hwy 19

Right of Way Monuments/Markers Data Table

Ramsey County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**3**	**34**	**102**
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	**48"x24"**	**END ROAD WORK**	**2**	**19**	**38**
G20-4-36	**36"x18"**	**PILOT CAR FOLLOW ME (Mounted to back of pilot car)**	**1**	**18**	**18**
G20-10-108	**108"x48"**	**CONTRACTOR SIGN**	**2**	**64**	**128**
G20-50a-72	**72"x36"**	**ROAD WORK NEXT __ MILES RT & LT ARROWS**	**2**	**37**	**74**
G20-52a-72	**72"x24"**	**ROAD WORK NEXT __ MILES RT or LT ARROW**	**2**	**30**	**60**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	**48"x48"**	**STOP**	**2**	**32**	**64**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**2**	**5**	**10**
R1-2-60	60"x60"	YIELD		29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**4**	**39**	**156**
R2-1a-24	24"x18"	MINIMUM FEE $80 (Mounted on Speed Limit post)		10	
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	**48"x60"**	**DO NOT PASS**	**2**	**39**	**78**
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED		28	
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	48"x24"	LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**2**	**35**	**70**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**	**35**	**70**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	**48"x48"**	**ROAD NARROWS**	**1**	**35**	**35**
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	**48"x48"**	**BUMP**	**2**	**35**	**70**
W8-3-48	**48"x48"**	**PAVEMENT ENDS**	**1**	**35**	**35**
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	**48"x48"**	**UNEVEN LANES**	**2**	**35**	**70**
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	**48"x48"**	**TRUCKS ENTERING AHEAD or __ FT.**	**2**	**35**	**70**
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT.		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**6**	**35**	**210**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.		35	
W20-4-48	**48"x48"**	**ONE LANE ROAD AHEAD or __ FT.**	**2**	**35**	**70**
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**4**	**35**	**140**
W20-7k-24	**24"x18"**	**__ FEET (Mounted on warning sign post)**	**2**	**10**	**20**
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**	**2**	**12**	**24**
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	**48"x48"**	**FRESH OIL**	**1**	**35**	**35**
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT		35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5-48	**48"x48"**	**SHOULDER WORK**	**1**	**35**	**35**
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.		35	
W21-51-48	**48"x48"**	**MATERIAL ON ROADWAY**	**1**	**35**	**35**
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**1835**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**1100**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	TYPE III BARRICADES	EACH	
704-1060	**DELINEATOR DRUMS**	**EACH**	**12**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**132**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	**STACKABLE VERTICAL PANELS**	**EACH**	**264**
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1185	**PILOT CAR**	**MHR**	**220**
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	**SHORT TERM 4IN LINE - TYPE NR**	**LF**	**21306**
762-0434	**SHORT TERM 8IN LINE - TYPE NR**	**LF**	**4842**
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

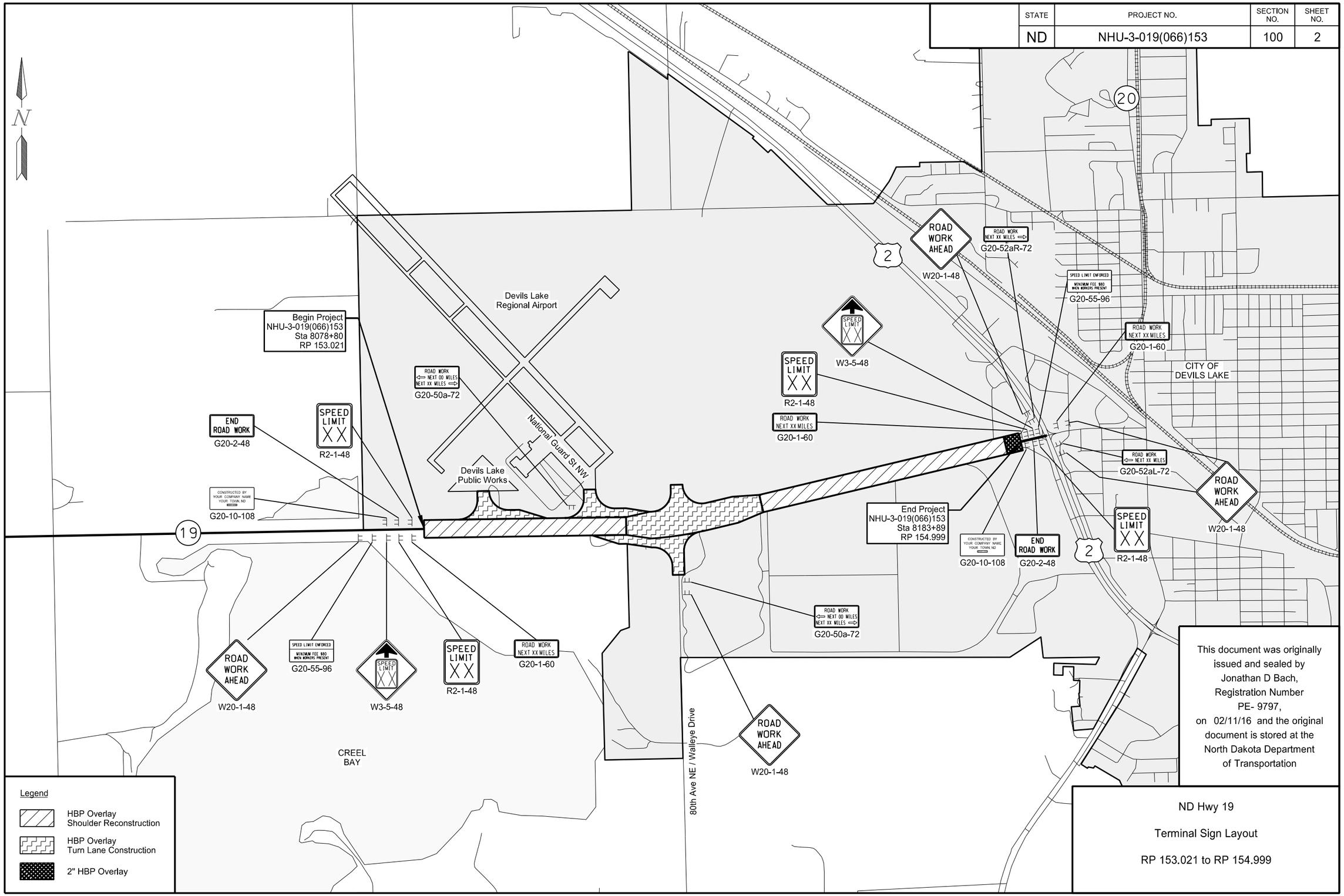
NOTE:
If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual.
http://www.dot.nd.gov/

This document was originally issued and sealed by Jonathan D Bach, Registration Number PE-9797, on 1/29/16 and the original document is stored at the North Dakota Department of Transportation.

Traffic Control Devices List

ND Hwy 19

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	100	2



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ND Hwy 19

Terminal Sign Layout

RP 153.021 to RP 154.999

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	NHU-3-019(066)153	110	1

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
ND Hwy 19																						
8088+32 Lt	R1-1	1			12.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga	1			
8098+80 Rt	I-5	399	6.2		13.3				2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
8106+39 Lt	R1-1	1			12.1				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga	1			
8113+53 Rt					12.5	13.1	13.8	14.5	2.5 x 2.5 12 ga	18.5	1.5	2.2	2.9	3.5	2.25 x 2.25 12 ga	4	4	3 x 3 7 ga	1		4	
8114+80 Lt	I-5	399	6.2		13.3				2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
8115+75 Rt	R1-1	1			12.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga	1			
8117+00 Rt	SS1		12.0		11.8				2.5 x 2.5 12 ga	12.9	4.2				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
8121+80 Rt	R1-1	3		13.3	12.4				2.5 x 2.5 10 ga	14.6	3.5				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
8131+61 Rt		7			11.4				2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga	1			
8133+97 Lt					12.6	13.2	13.9	14.6	2.5 x 2.5 12 ga	18.5	1.6	2.3	2.9	3.6	2.25 x 2.25 12 ga	4	4	3 x 3 7 ga	1		4	
8134+89 Lt		7			11.4				2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga	1			
8159+00 Rt	W3-5	21		16.0	13.5	14.0			2.25 x 2.25 12 ga	15.7	3.9	4.4			2 x 2 12 ga	2	4	3 x 3 7 ga			2	
8169+00 Lt		11			12.9				2.5 x 2.5 12 ga	14.3	4.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1	
8169+00 Rt		11			12.9				2.5 x 2.5 12 ga	14.3	4.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1	
8171+00 Rt	D9-2	399	6.2		13.3				2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
8173+00 Rt	SS2		18.0		11.1	11.9			2.25 x 2.25 12 ga	13.4	3.0	3.8			2 x 2 12 ga	2	4	3 x 3 7 ga			2	
8175+00 Rt	W3-3	19			13.2				2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga	1			
8176+04 Lt	R1-1	1			12.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga	1			
8176+15 Lt	W1-6L	34		8.0	11.8				2.5 x 2.5 10 ga	13.6						1	4	3 x 3 7 ga			1	
8177+00 Rt	M1-4	391		6.2	13.3				2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
8179+00 Rt	SS3		16.5		12.1	12.8			2.5 x 2.5 10 ga	13.3						2	4	3 x 3 7 ga			2	
8179+42 Lt	R1-1	1		5.2	12.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
8179+55 Lt	R1-1	1		5.2	12.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
8179+55 Rt	W1-6R	34		8.0	11.8				2.5 x 2.5 10 ga	13.6						1	4	3 x 3 7 ga			1	
8180+23 Rt	R1-1	1		5.2	12.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
8180+40 Rt	R1-1	1		5.2	12.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
8180+89 Lt	SS4		42.8		12.8	13.4	14.1	14.8	2.5 x 2.5 12 ga	15.2	3.6	4.2	4.9	5.6	2.25 x 2.25 12 ga	4	4	3 x 3 7 ga			4	
8181+00 Rt	M1-4	405		12.4	13.0				2.5 x 2.5 12 ga	13.5	4.7				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
Sub Total			107.9	84.7		**Total**	510.1									**Total**	160		11	0	25	
Grand Total			107.9	84.7		**Total**	510.1									**Total**	160		11	0	25	

Basis of Estimate
Sign Support Lengths

The sign support lengths have been calculated using the following vertical clearances:

Rural Roadway - 60"

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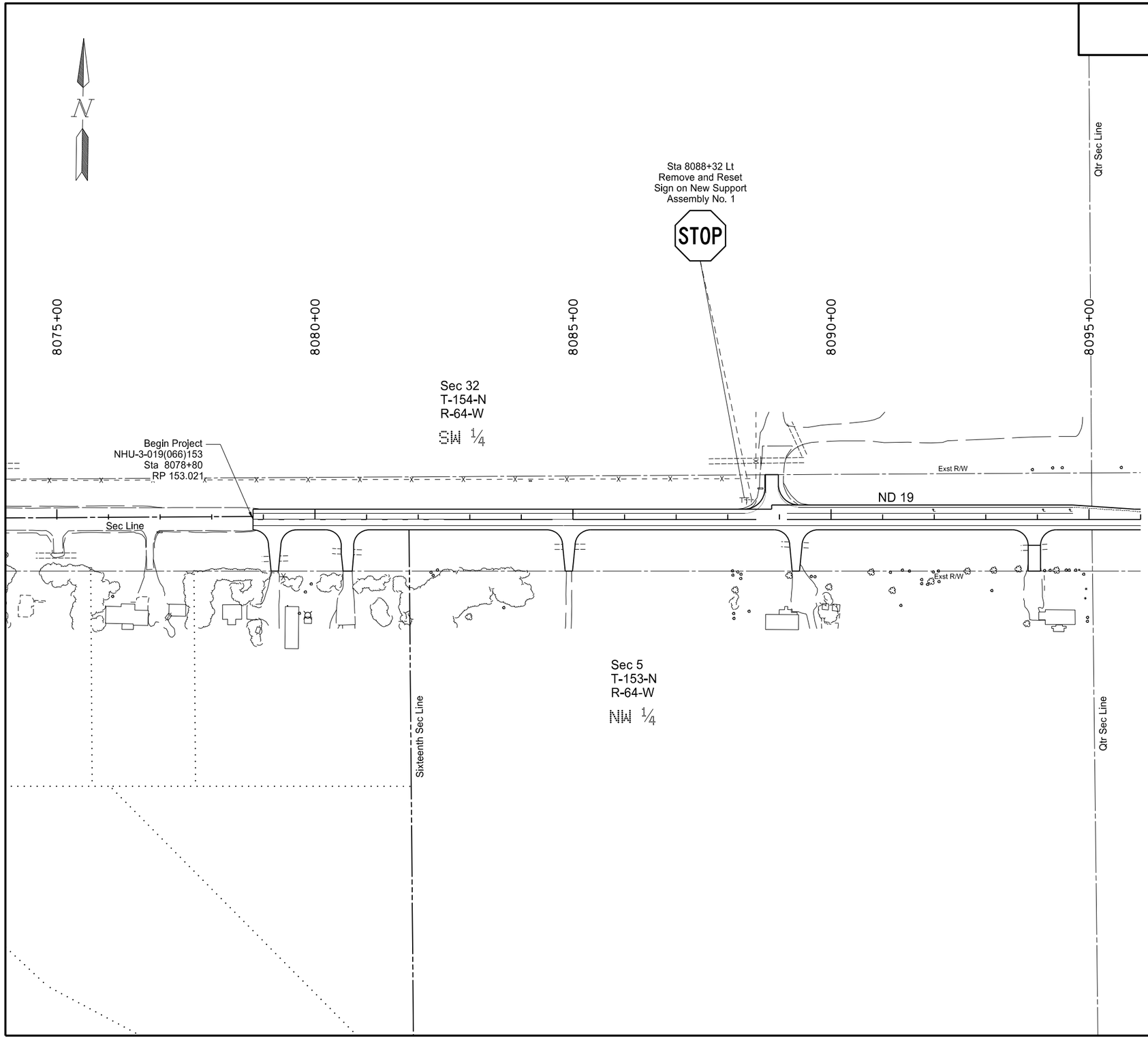
Sign Summary
Perforated Tube

ND Hwy 19

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	110	2



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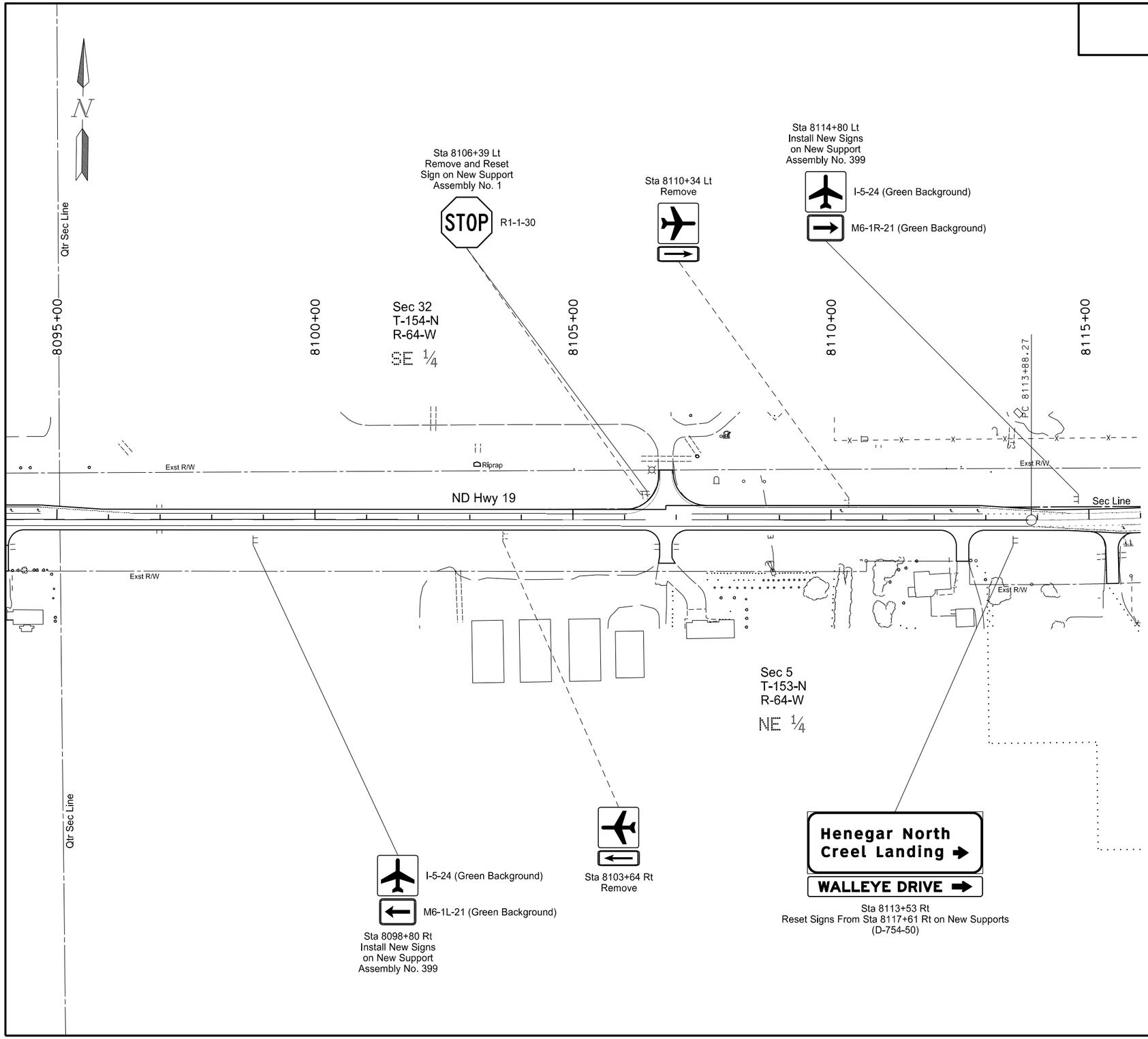
ND Hwy 19

Signing

Sta 8075+00 to 8095+00
(Mile 152 & 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	110	3



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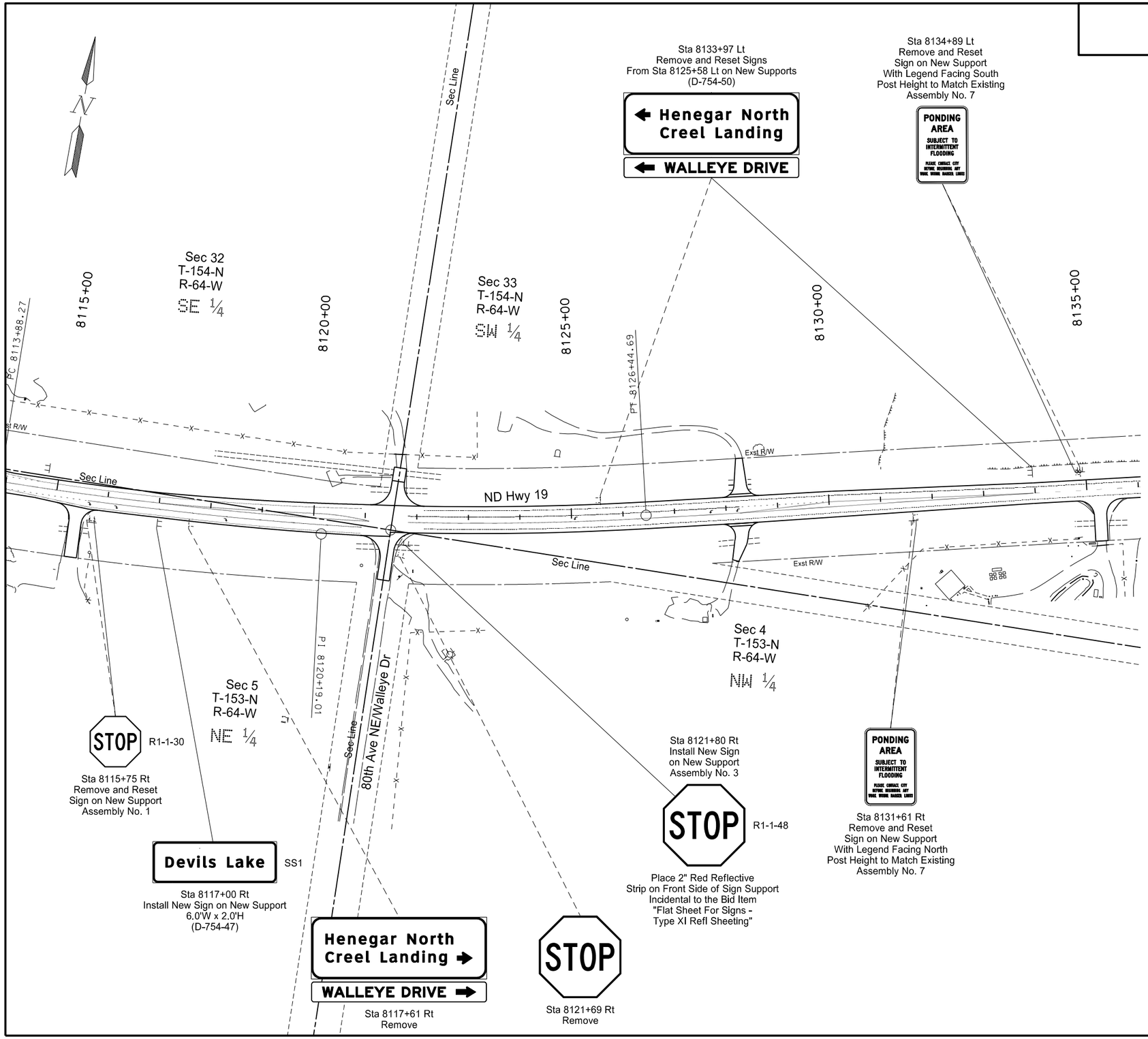
ND Hwy 19

Signing

Sta 8095+00 to 8115+00
(Mile 153)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	110	4



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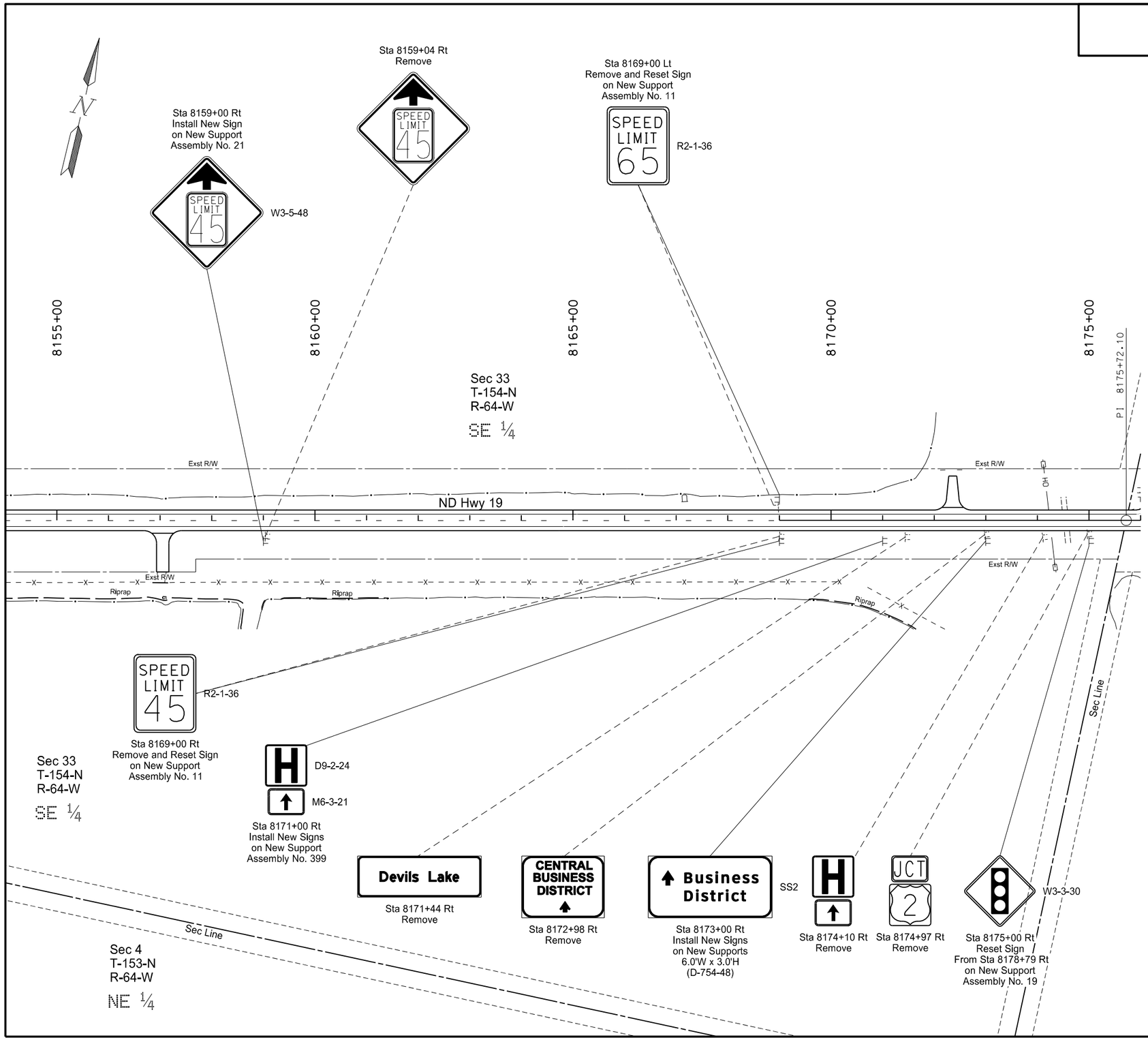
ND Hwy 19

Signing

Sta 8115+00 to 8135+00
(Mile 153 & 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	110	5



Notes:

1. There are no existing or proposed signs from Sta 8135+00 to Sta 8155+00.

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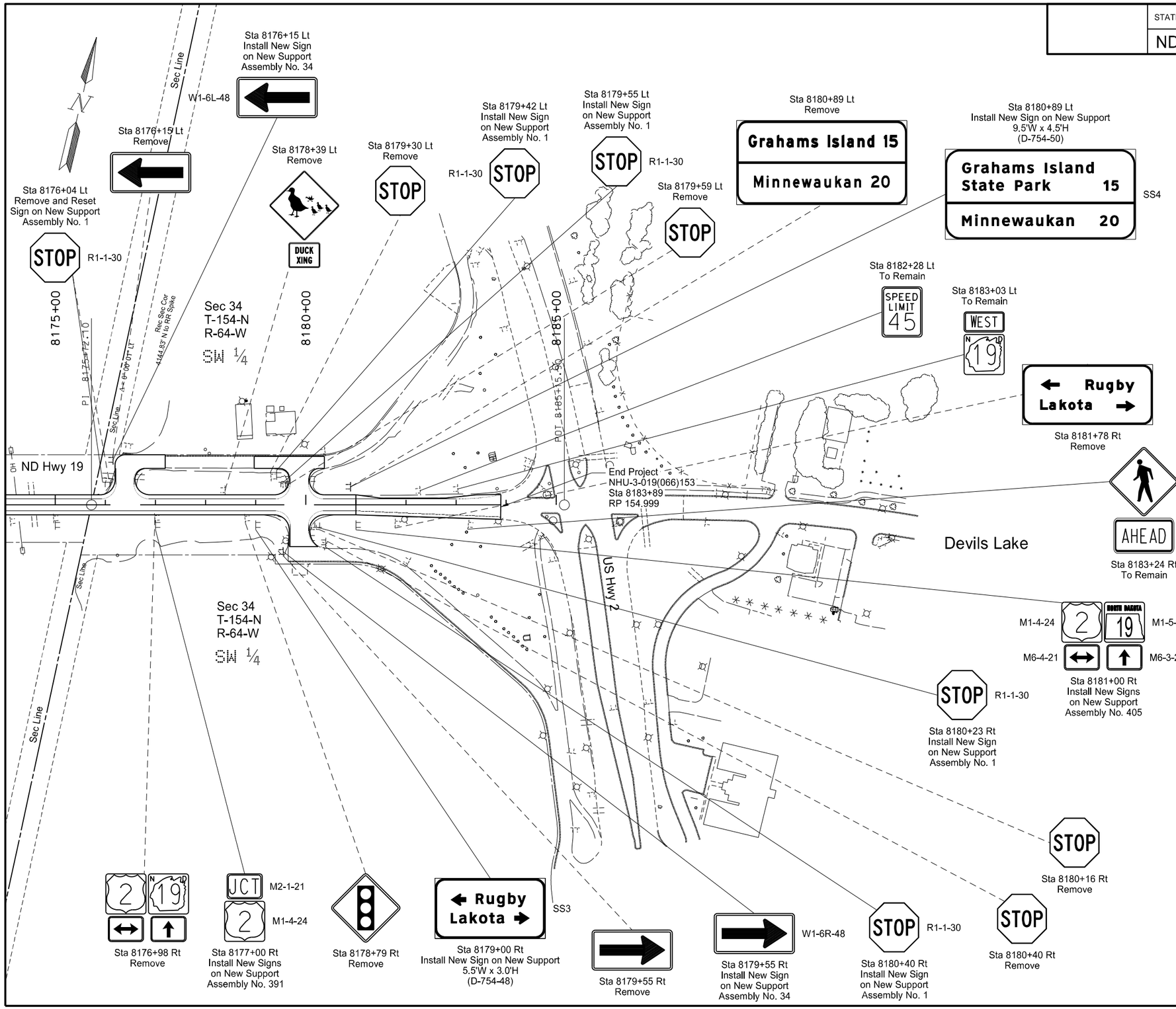
ND Hwy 19

Signing

Sta 8155+00 to 8175+00
(Mile 154)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	110	6



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ND Hwy 19

Signing

Sta 8175+00 to 8185+15.90
(Mile 154 & 155)

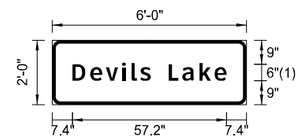
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	110	7

SIGN NUMBER	SS1
WIDTH x HEIGHT	6'-0" x 2'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
Sta 8117+00 Rt

AREA: 12.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssi

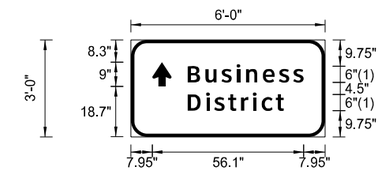
LETTER POSITION (X)											LENGTH	SIZE	SERIES
D	e	v	i	l	s		L	a	k	e	57.2	6/4.9	ClearviewHwy-5-W
7.4	14.1	19.8	25.8	29.4	32.6	36.5	43.2	48.3	54.6	60.2			

SIGN NUMBER	SS2
WIDTH x HEIGHT	6'-0" x 3'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ARDD	8	18.8	7.1	9	90

STATION(S):
Sta 8173+00 Rt

AREA: 18.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssi

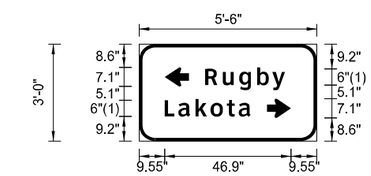
LETTER POSITION (X)											LENGTH	SIZE	SERIES
B	u	s	i	n	e	s	s				43	6/4.9	ClearviewHwy-5-W
21.1	27.7	33.6	39.2	42.8	49	54.9	60.2						
D	i	s	t	r	i	c	t				35.7	6/4.9	ClearviewHwy-5-W
21.1	27.9	30.9	36.1	40.9	45.2	48.6	53.8						

SIGN NUMBER	SS3
WIDTH x HEIGHT	5'-6" x 3'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ARDD	9.6	20.3	7.1	9	180
ARDD	47.5	8.6	7.1	9	0

STATION(S):
Sta 8179+00 Rt

AREA: 16.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssi

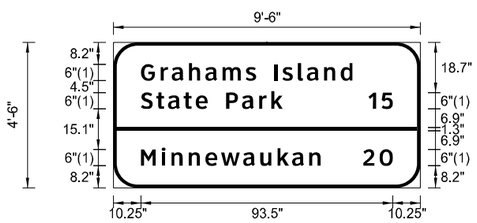
LETTER POSITION (X)											LENGTH	SIZE	SERIES
R	u	g	b	y							29.7	6/4.9	ClearviewHwy-5-W
24.5	31.1	37.2	43.9	49.5									
L	a	k	o	t	a						31.9	6/4.9	ClearviewHwy-5-W
9.6	14.6	21	26.5	32.6	37								

SIGN NUMBER	SS4
WIDTH x HEIGHT	9'-6" x 4'-6"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Top-Brown/Bot.-Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
8180+89 Lt

AREA: 42.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssi

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
G	r	a	h	a	m	s		I	s	l	a	n	d						78.6	6/4.9	ClearviewHwy-5-W
10.3	17.5	21.7	28.1	34.1	40.5	49.1	53	59.7	62.8	68.5	71.9	78.2	84.4								
S	t	a	t	e		P	a	r	k										52.6	6/4.9	ClearviewHwy-5-W
10.3	15.9	20.3	26.1	30.6	35	41.9	47.8	54.1	58.6												
1	5																		9	6	ClearviewHwy-5-W
94.8	99.6																				
M	i	n	n	e	w	a	u	k	a	n									66.7	6/4.9	ClearviewHwy-5-W
10.3	18	21.5	28	34.2	40	48.2	54.6	60.9	66.4	72.7											
2	0																		11	6	ClearviewHwy-5-W
92.8	98.9																				

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ND Hwy 19

Signing

Sign Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	120	1

(Table 1) Permanent Pavement Marking Details Summary

Sheet No.	Begin Station	End Station	PAINTED PAVEMENT MARKING								
			MESSAGE (SF) 762 103		4IN LINE (LF) 762 1104					8IN LINE (LF) 762 1108	
			RT Arrow	Lt Arrow	Yellow CL Skips	EB Yellow Barrier	WB Yellow Barrier	EB Edgeline	WB Edgeline	White Channel Line	White Dotted Ext.
-	8078+80	8082+60	-	-	100	-	380	380	380	-	-
120-2	8082+60	8114+69	96	-	-	3,058	3,058	3,122	3,366	1,111	45
120-3	8114+69	8133+97	48	48	-	2,916	2,916	1,897	1,802	1,175	90
-	8133+97	8169+00	-	-	880	-	-	3,503	3,503	-	-
-	8169+00	8176+39	-	-	-	709	709	739	769	-	-
-	8176+39	8179+87	-	-	-	288	288	388	434	-	-
-	8179+87	8183+89	-	-	-	372	372	448	444	-	-
		Total	144	48	980	7,343	7,723	10,477	10,698	2,286	135

(Table 2) Short Term Pavment Marking Details Summary

Begin Sta	End Sta	Spec	Code	Bid Item	Basis	Quantity
8078+80	8183+89	762	430	SHORT TERM 4 IN LINE - TYPE NR (LF)	Centerline Skips, 1,320 LF/Mile - Both Lifts	5,260
8078+80	8183+89	762	430	SHORT TERM 4 IN LINE - TYPE NR (LF)	Refer to Table 1 - Top Lift	16,046
-	-	762	434	SHORT TERM 8 IN LINE - TYPE NR (LF)	Refer to Table 1 - Both Lifts	4,842

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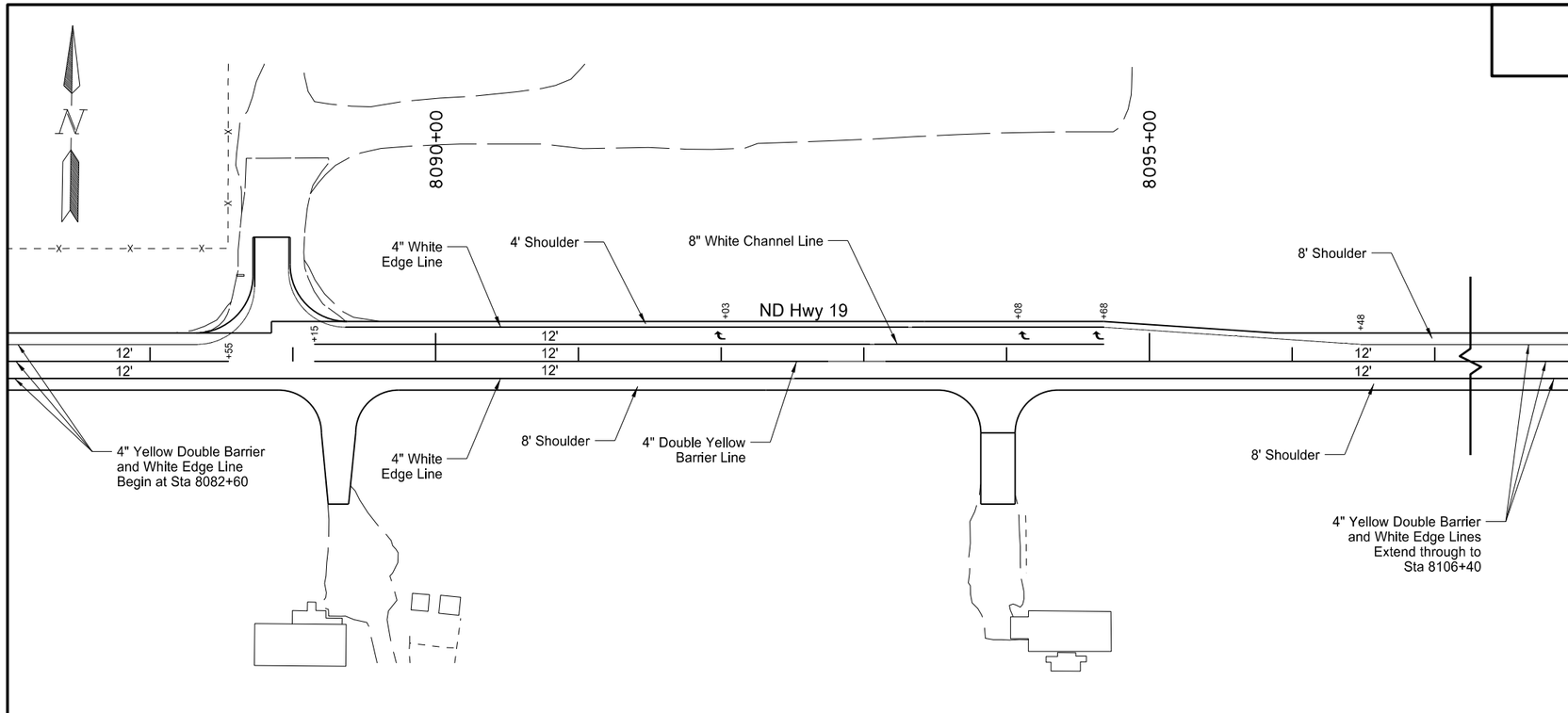
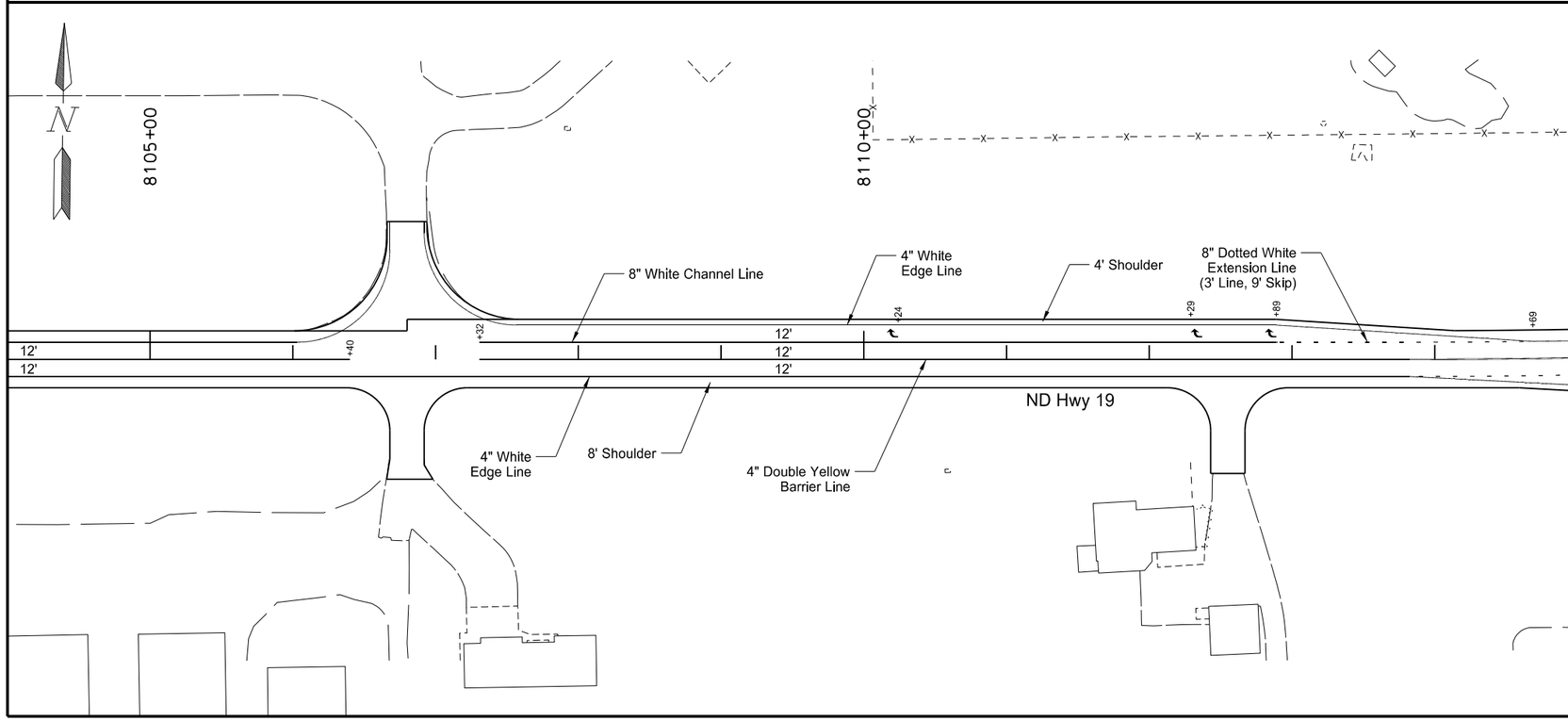
ND Hwy 19

Pavement Marking Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	120	2





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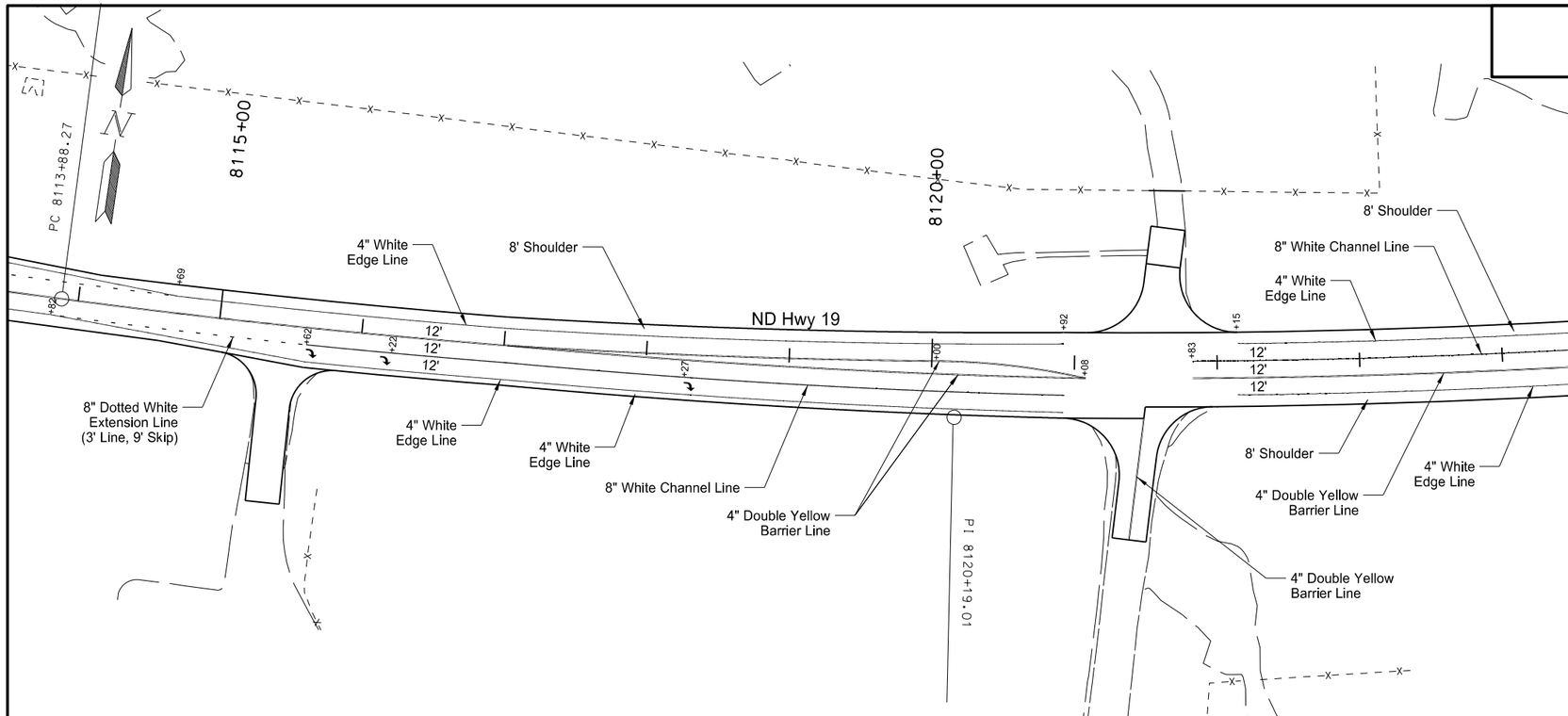
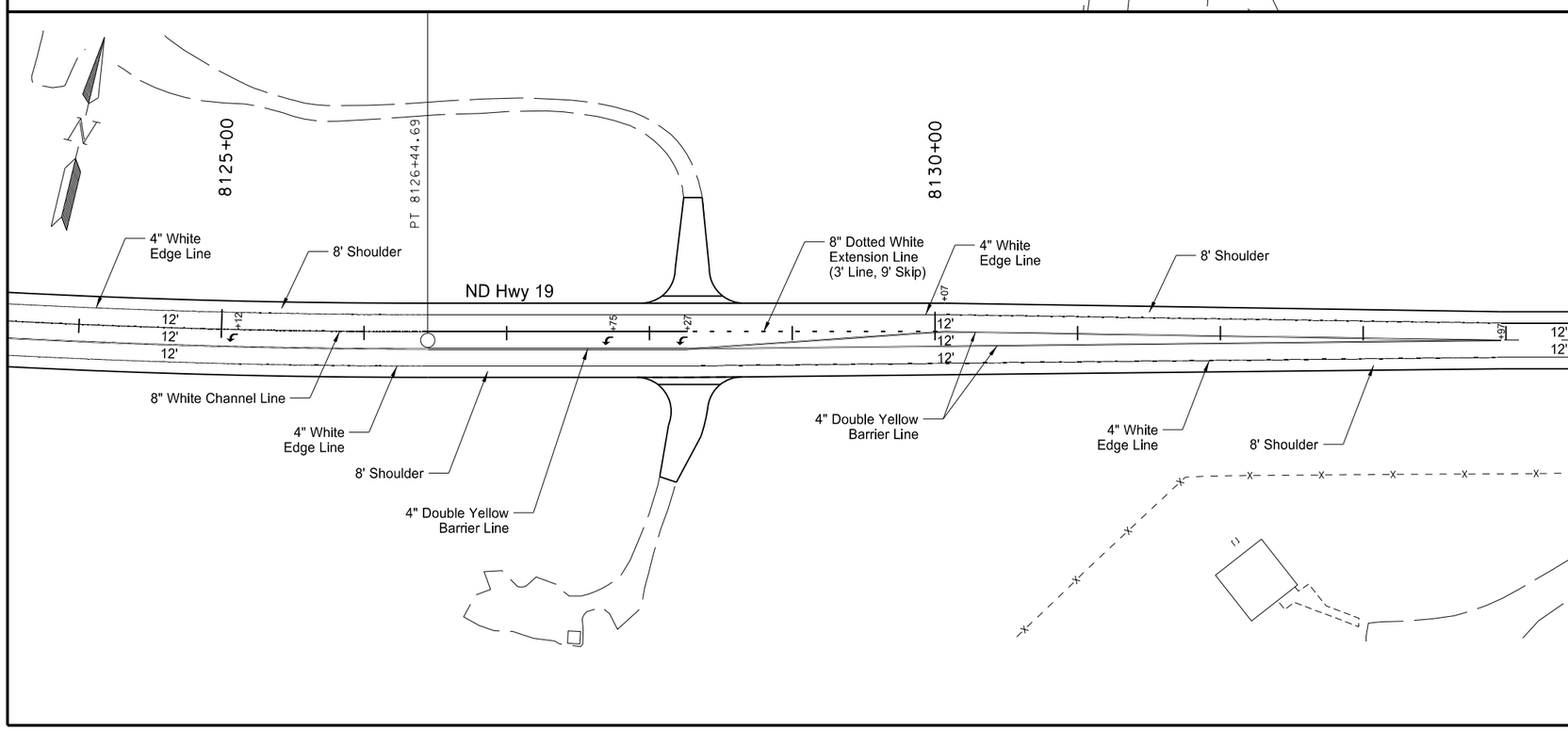
ND Hwy 19

Pavement Marking

Sta 8082+60 to 8097+00
Sta 8097+00 to 8114+69

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	120	3





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ND Hwy 19

Pavement Marking

Sta 8114+69 to 8124+00
Sta 8124+00 to 8133+97