

DESIGN DATA - R.P. 149.740 to R.P. 149.924				
Traffic	Average Daily			
Current	Pass: 10,630	Trucks: 1,170	Total: 11,800	
Forecast	Pass: 33,335	Trucks: 3,665	Total: 37,000	
Clear Zone Distance: 24'		Design Speed: 55 mph		
Minimum Sight Dist. for Stopping: 495'		Bridges: N/A		
Limited Access Control				
Pavement Design Life 20 (years)				
Design Accumulated One-way Flexible ESALs: 3,576,437				
DESIGN DATA - R.P. 149.924 to R.P. 150.083				
Traffic	Average Daily			
Current	Pass: 7,800	Trucks: 1,125	Total: 8,925	
Forecast	Pass: 19,230	Trucks: 2,770	Total: 22,000	
Clear Zone Distance: 24'		Design Speed: 55 mph		
Minimum Sight Dist. for Stopping: 495'		Bridges: N/A		
Limited Access Control				
Pavement Design Life 20 (years)				
Design Accumulated One-way Flexible ESALs: 3,576,437				

JOB # 28

NORTH DAKOTA

DEPARTMENT OF TRANSPORTATION

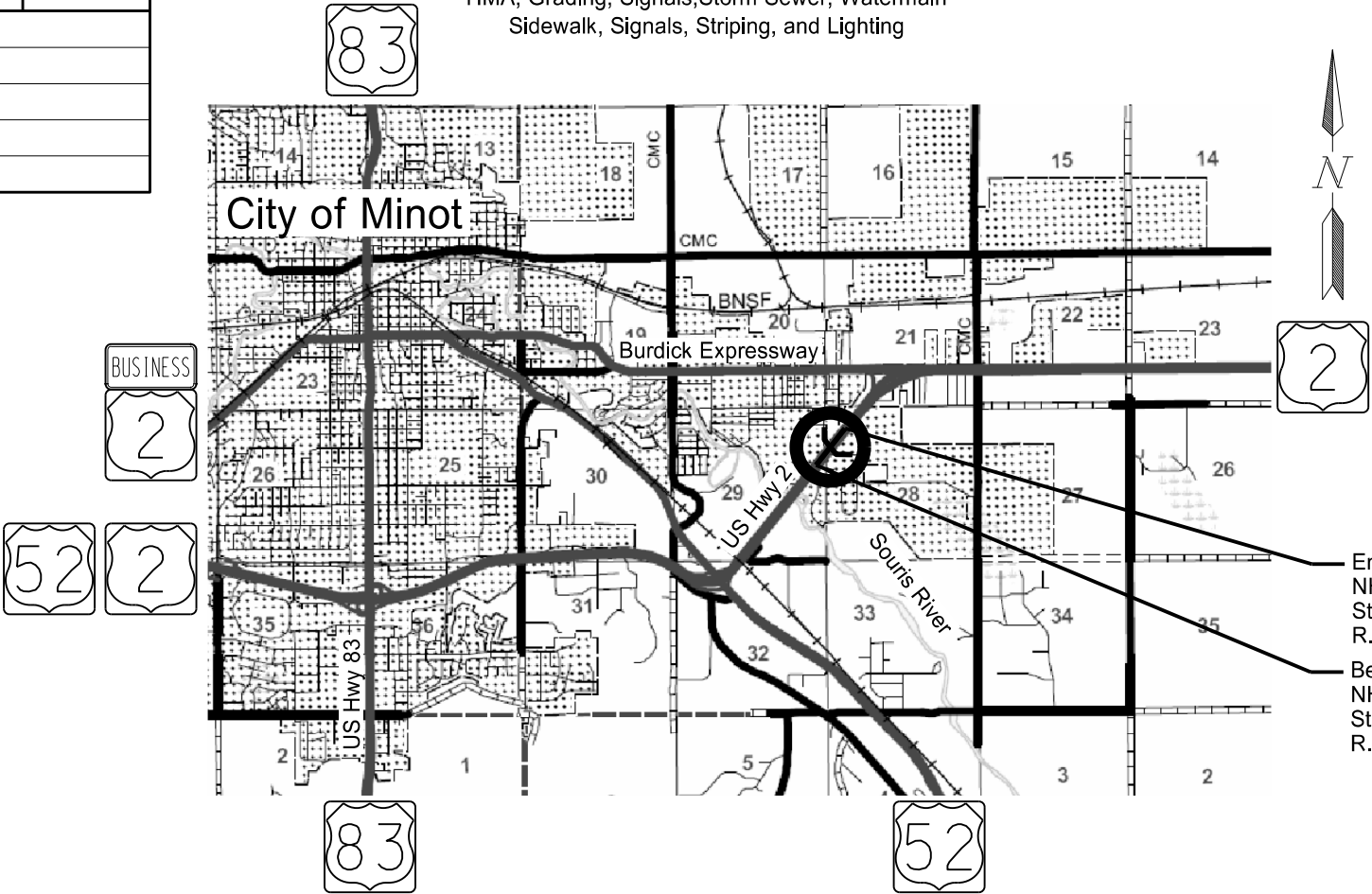
NHU-4-002(116)149

	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
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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.

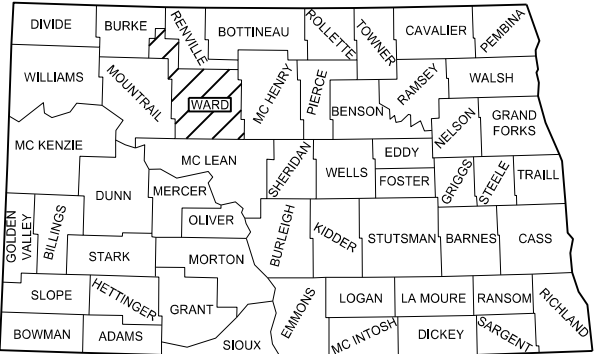
PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
NHU-4-002(116)149	0.464	0.464

Ward County
US Hwy 2 & 42nd St Intersection Improvements
Minot, ND
HMA, Grading, Signals, Storm Sewer, Watermain
Sidewalk, Signals, Striping, and Lighting



Legal Descriptions
Sec 28 T155 R82W
Sec 29 T155 R82W

DESIGNERS
Steve McHenry /s/
Samuel Noah Westlund /s/
Nick Erpelding /s/



STATE COUNTY MAP

APPROVED DATE 08/28/2017

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 08/21/17

Jonathan P. Morgenroth /s/

SRF CONSULTING GROUP, INC.

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D-203-6	Standard 90 Degree Flared Intersections-(Center Left Turn Lane on Major Road)
D-203-8	Standard Rural Approaches
D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation
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D-704-5	Contractor Sign Detail
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
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- 100-P01 NOISE RESTRICTION: No construction activities or moving of equipment between the hours of 11:00 pm and 7:00 am.
- 105-110 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic.

Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection.

Use a vacuum or pick-up type sweeper to perform this work
- 105-200 UTILITY COORDINATION: A utility coordination meeting is required.
- 108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.
- 202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removal of bituminous pavement and the underlying aggregate base. The tonnage is based on the existing typical sections shown in section 30.
- 203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.
- 260-P01 SILT FENCE: 200 LF of Silt Fence is included in the estimate to be used at the Engineers discretion.
- 302-110 BASE COURSE: Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type B."
- 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 PORTABLE CHANGEABLE MESSAGE SIGN: Install Portable Changeable Message Signs (PCMS) before work begins on the project. The Engineer will determine the locations for PCMS installation. Relocate the PCMS as directed by the Engineer.

Provide an operator trained in the use of the PCMS.

The Engineer will determine the message to be displayed. The operator shall program the message within one hour of the Engineer's request to change the message.
- 704-P02 TRAFFIC CONTROL: The traffic control devices shall comply with the following Standard Drawings:
 - 1. Standard D-704-12
 - 2. Standard D-704-19, Type E & F
 - 3. Standard D-704-20, Type G
 - 4. Standard D-704-21, Type I
 - 5. Standard D-704-24, Type R
 - 6. Standard D-704-26, Type BB, CC, Z, GG, EE, & FF
 - 7. Standard D-704-27
 - 8. Standard D-704-32
 - 9. Standard D-704-34
 - 10. Standard D-704-35A
- 704-P03 TRAFFIC CONTROL PHASING: Phase 1 must be completed prior to starting any work on any remaining phases. The traffic control phases are as follows:

Phase 1
 - Build temporary access on US Highway 2 for industrial traffic
 - Build temporary access to Gooseneck property on west Frontage Road
 - Build temporary access to Gooseneck property on east Frontage Road
Phase 2
 - Close existing intersection and frontage roads and provide local roads detour
 - Close inside lanes on US Highway 2
 - Build median subgrade and bottom 8" of aggregate base
 - Start work on 14th Avenue SE
 - Start work on southeast portion of 42nd Street SE
 - Start work on all Frontage Roads

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Phase 3

- Existing intersection to remain closed – local road detour
- Move US Highway 2 traffic to inside aggregate base built in Phase 2
- Build outside subgrade and aggregate base on US Highway 2
- Build new connection for 42nd Street SE/14th Avenue SE to US Highway 2
- Continue work on 14th Avenue SE
- Continue work on southeast portion of 42nd Street SE
- Continue work on frontage roads

Stage 4

- Move traffic to outside lane aggregate base on US Highway 2
- Complete median and inside aggregate base
- Continue work on 14th Avenue SE
- Continue work on southeast portion of 42nd Street SE
- Continue work on frontage roads

Stage 5

- Pave US Highway 2 under traffic utilizing lane closures.
- Complete work on 14th Avenue SE
- Complete work on southeast portion of 42nd Street SE
- Complete work on frontage roads

Stage 6

- Open intersection to traffic
- Start and complete work on north portion of 42nd Street SE
- Remove temporary accesses

704-P04 TRAFFIC CONTROL: At various times throughout the construction, missile convoys to or from the MAFB will occur. The timing of the convoys may be announced with extremely short or no notification. Cease all operations and remove equipment and personnel from the roadway during this operation. Do not impede the missile convoys. No additional compensation shall be made to the contractor for delays caused by missile convoys.

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

1. Be completely insulated and weather tight.
2. Minimum total area of 650 square feet.
3. Indoor bathroom facilities, sewer and potable water. Include the cost of the installation and monthly fees.
4. Have a dependable source of electricity for power and lights with a minimum of 6 electrical outlets spaced throughout the building and light fixtures spaced to uniformly light the entire interior (lumens required 110 foot-candles). Include the cost of the installation and monthly fees.
5. 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.

6. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F year around.
7. A minimum of 3 desks and 3 desk chairs, 3 extra chairs, one drawer file cabinet with at least four drawers, one table minimum of 2.5 ft x 6 ft.
8. Photocopy machine/Printer capable of 11x17 photocopies/prints and toner to last the duration of the project. Engineer will provide paper. Other features to include digital coping & scanning. (Fax capabilities can be included but not necessary).
9. The location of the field office will be on, or as close to the project as possible and approved by the Engineer. Any rental fees will be paid by the Contractor.
10. Make the field office available for occupancy one week before the start of the project and remain through project completion.

All requirements of the Field Office are subject to approval by the Engineer.

Include the costs for the field office in the bid item "Field Office" and the Schedule for

Payment is as follows:

- 25% when set up on site.
- 50% when 30% of the work is complete.
- 75% when 60% of the work is complete.
- 100% when project is complete

714-P01 STORM DRAIN: All “PIPE CONDUIT (size) IN – STORM DRAIN” or “PIPE CONC REINF (size) IN CL (class) – STORM DRAIN” inverts are located at the edge of structures or at the end of the closed conduit within the end section. Pipe lengths are measured at the edge of structures or at the end of the closed conduit within the end section.

Provide gaskets for all joints capable of remaining watertight and that meet the following requirements:

- ASTM C443 for concrete pipe
- ASTM D1056 for spiral ribbed steel pipe

714-P02 PLUG PIPE: Plug and abandon existing storm drain lateral pipes at 11+54 on the East Frontage Road. The pipes, from 11’ RT to 16’ LT and 11’ RT to 20’ RT, can be seen on sheet 55-13.

Use a blend of cement, water, pozzolanic materials, and fillers for the backfill. The material will be fluid on placement to flow through and fill the pipes. The material needs to be able to support normal loads after six hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. The material must be such that it lends itself to easy removal with a tractor backhoe. If one of the following mix designs shown is used, no further testing will be required. The mix designs yield approximately one cubic yard of controlled density backfill.

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MIX DESIGN 2	
Water	50 gals
Cement	165 lbs
Fine Aggregate	2600 lbs

MIX DESIGN 1	
Fly Ash	300 lbs
Water	70 gals
Cement	100 lbs
Fine Aggregate	2600 lbs

Furnish and install end plugs at the manhole-side of both pipes prior to placing backfill in the pipe itself. The end plugs must be watertight and be constructed of a minimum of 9 inches thick concrete or of materials recommended by the pipe supplier. Allow the end plugs to set for 24 hours before placing controlled density backfill.

Place controlled density backfill starting at the end plug, filling the cavity progressively away from the manhole until the entire pipe is filled. Controlled density backfill must continue to be pumped until refusal (when no more backfill can be pumped).

The functionality, invert, and structural stability of the existing manhole (East Frontage Road 11+54 – 11' RT) must not be negatively impacted or changed in any way during this described work.

Include labor, materials, and equipment necessary to perform this described work in the price bid for "Plug Pipe - All Types and Sizes".

714-P03 SILTED PIPES: Clean the silt from all pipes to be extended or reused. Include the cost of removing and disposing of the silt in the price bid for centerline pipe installation. Handle removed material appropriately, and spread and stabilized onsite.

714-P04 PIPE CONDUIT-STORM DRAIN CONNECTIONS: No field cutting of spiral rib pipe is allowed. Attach metal end sections to the ends of spiral rib pipe by standard metal bands or as approved by the Engineer. Furnish and install toe plates on the metal end sections as indicated on the plans.

714-P05 PIPE CONDUIT (size) IN-APPROACH: Pipe conduit has been provided in the plans to convey the flow of storm water through the temporary access points near US Highway 2 station 7901+25 RT and LT. Provide pipe conduit with a minimum waterway opening as shown on Section 51 Sheet 2. The Contractor may provide pipes with a larger waterway opening in lieu of the pipes shown subject to the following criteria and approval by the engineer. Pipe end sections are not required.

- Minimum cover requirements over the drainage pipes will be maintained without altering the vertical profile of the temporary roadway. Minimum cover is defined by the greater of the manufacturer recommendation or one foot to the top of gravel surfacing for unpaved surfaces, to the top of base for asphalt surfaces, or to the top of pavement for concrete surfaces.

- Any drainage pipes or structures proposed for use by the Contractor shall be free of any structural defects and will have sufficient structural capacity for use as a highway drainage structure.

The Contractor may provide used pipe conduit in lieu of new pipe conduit if the above criteria are met.

Include all costs for furnishing and installing the drainage system to convey the flow of storm water through the temporary roadways in the price for as "Pipe Conduit (size) IN-Approach".

Remove the drainage system used to convey the flow of storm water through the temporary roadways concurrent with removal of the temporary roadways. Include all costs for removing the drainage system in the price for "Removal of Pipe All Types and Sizes".

722-P01 ADJUST MANHOLE: Remove and replace the existing sanitary manhole casting at the below locations with a floating manhole casting as per Standard Drawing D-722-5A. Include all costs for labor, materials, and equipment required to perform this work in the unit price bid for "Adjust Manhole".

722-P02 ADJUST MANHOLE: Include all costs for labor, materials, and equipment needed to make adjustments to the riser length including removing, replacing, supplying, and adding additional riser in the unit bid for "Adjust Manhole".

Adjust Manhole		
Alignment	Station	Offset
PR14	6+80.61	139.0' LT
PR14	11+25.77	27.8' RT
PRFRONT_E	9+87.94	7.4' LT
PRFRONT_E	10+48.15	75.4' LT
PRFRONT_E	12+78.37	1.2' RT

722-100 INLETS AND MANHOLES: Inlets and manholes were designed with a minimum 4 foot riser height. Fill the bottom of each drainage structure with concrete, up to the lowest invert elevation.

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

764-P01 ATTENUATING CRASH CUSHION TL-3: Install attenuating crash cushion TL-3 units at the signal standards on US Hwy 2 at Sta 7914+63 and 7916+93 that are 6 inches wider than the signal standard. Install the crash cushions with 1 inch of clearance between the back of the rail and the face of the signal standard on the back side of the crash cushion, and 5 inches of clearance on the approach side of the crash

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cushion. Anchor the steel post type backups on concrete slabs in accordance with the manufacturer's recommendations.

Include all costs to furnish and install the crash cushions complete with steel post backups, and concrete slabs, in the contract unit price bid for "Attenuating crash cushion TL-3."

Submit work drawings for attenuating crash cushion TL-3 installations to the engineer for review.

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- 770-P01 BREAKAWAY LIGHT STANDARD: The breakaway light standards shall be of the davit type and designed for 10' mast arms and shall be galvanized. The bases shall be of the breakaway type and transformer style mounted on T-bases. The shaft length shall be 42' from the top of the foundation to the bottom of the luminaire as shown in the plans. Duct seal all conduit stubs in concrete foundations.
- 770-P02 STREET LIGHT STANDARD: The street light standards shall be of the davit type and designed for 6' mast arms and shall be galvanized. The shaft length shall be 40' from the top of the foundation to the bottom of the luminaire as shown in the plans. Duct seal all conduit stubs in concrete foundations.
- 770-P03 LED LUMINAIRE: Provide LED luminaires along US 2 at the beginning of the turn lanes and at the intersection of 42nd St. SE and 14th Ave SE according to the plans. The luminaires shall be American Electric Autobahn, type ATB2, part number ATB2-80BLED85-MVOLT-R4-3K-NR.

The lighting system was designed using these values:

Roadway Classification	Principal Arterial – Residential
Average Maintained Illuminance – City Streets	0.7 foot-candles
Average Maintained Illuminance – US 2 Roadway	0.8 foot-candles
Average Maintained Illuminance - Intersection	1.2 foot-candles
Illuminance Uniformity Ratio – US 2 Roadway & Intersection	3.0:1
Illuminance Uniformity Ratio – City Streets	4.0:1
Minimum Illuminance	0.2 foot-candles
Light Loss Factor	0.69

Include all cost associated with the LED lighting system in the contract unit price for “LED Luminaire”.

- 770-P04 LED LUMINAIRE – 150 Watt: Provide LED luminaires along US 2 and on 42nd St. SE and 14th Ave SE prior to the turn lanes and the intersection according to the plans. The luminaires shall be American Electric Autobahn, type ATB2, part number ATB2-60BLED70-MVOLT-R3-3K-NR.

Include all cost associated with the LED lighting system in the contract unit price for “LED Luminaire – 150 Watt”.

- 770-P05 CONCRETE FOUNDATION HIGHWAY LIGHTING: The foundation for the Light Standard 42' tall and 40' tall with a single mast arm shall be 24” in diameter and 6' deep or 36” in diameter and 5' deep, and according to D-770-1.
- 770-P06 REMOVE LIGHTING SYSTEM: The salvaged light poles and luminaires shall be delivered to the City of Minot. Contact City Traffic Department to schedule delivery time and location with a minimum 24-hour notice. Remove all underground conductors and cable, removed material shall become property of the Contractor not to be re-used on this project. Remove all conduit as needed for grading purposes, remaining conduit may be abandoned. All labor, materials, and equipment necessary to perform this described work shall be included in the price bid for “Remove Lighting System”.

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Steve McHenry,
Registration Number
PE-8671,
on 08/29/17 and the original document is stored at the
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NOTES

- 772-P01 TRAFFIC SIGNAL SYSTEM: Include in the price bid for “Traffic Signal System – Site 1” all labor and equipment necessary for the signal system to be fully operational as shown in the plans upon construction completion. This includes but is not limited to, the installation of the following features: traffic signal standards and foundations, mast arms, vehicular heads, video detection system, street light extensions, traffic signal controller and all ancillary hardware (conflict monitor, load switch, flasher, etc.), controller battery back-up, Wi-Fi based interconnect system, cabinet, foundations, feed point installation, removal or revisions, emergency vehicle pre-emption system, and all cable, conduit, junctions boxes and appurtenances to install the traffic signal system completely.

772-P02 PADLOCKS: Provide padlocks to be used to secure feed point until project acceptance. After project acceptance, the City of Minot will provide padlocks to secure the feed points.

772-P03 FIELD VERIFICATION: Verify the location of all proposed signal and lighting features including all proposed conduit to avoid conflict with any utilities or any other features potentially encountered in the field.

772-P04 TRAFFIC SIGNAL CONTROLLER: Provide an Econolite Cobalt controller with graphics display. The controller will be a TS2 Type 1. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all labor, materials and equipment required to install the new controller, Wi-Fi based interconnect system, including but not limited to the emergency vehicle pre-emption unit, Super P44 NEMA TS2 cabinet with Alpha Technologies battery backup system, new detector amplifiers (furnished and installed), other ancillary signal components (such as load switches, malfunction management unit, etc.) and controller cabinet components connected as required to make the new controller equipment operational with the proposed signal equipment.

772-P05 MALFUNCTION MANAGEMENT UNIT (MMU) TESTING: Complete an MMU test within one week after traffic signal system is operational.

772-P06 BATTERY BACKUP SYSTEM: Provide a battery backup system for the traffic signal system. The price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for furnishing and installing the battery backup system. See Special Provision 483(14).

772-P07 EMERGENCY VEHICLE PRE-EMPTION: Provide Opticom EVP equipment that is fully compatible with the current City of Minot system. Notify the City of Minot Fire Chief Kelli Flermoen (701-857-4740) when the proposed signalized intersection EVP system is tested and operable. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for furnishing and installing the EVP system.

772-P08 WORK DRAWINGS: Furnish work drawings and a complete listing of materials proposed for installation. Provide two copies to the City of Minot Traffic Engineer, plus any additional sets that need approval and that are to be returned for the Contractor’s use. Provide the Engineer with proof of purchase, and delivery and
- manufacturing schedules for traffic signal materials indicating that acquisition of these materials is consistent with progress and completion requirements of this contract.

772-P09 VEHICULAR TRAFFIC SIGNAL HEADS: Use 12 inch vehicular signal heads with aluminum housings for each section. Equip all sections with LED illuminating elements conforming to the Institute of Transportation Engineers Equipment and Materials Standards and Specifications. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for furnishing and installing the vehicular traffic signal heads.

772-P10 TRAFFIC SIGNAL HEAD MOUNTINGS: Furnish piping to mount the vehicle and pedestrian signal heads to the side of the poles. Do not mount heads directly to the pole or on the face of the pole directly adjacent to the street. No banding permitted. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for installing traffic signal heads.

772-P11 TRAFFIC SIGNAL HEAD BACK PLATES: Furnish traffic signal head back plates with a yellow retroreflective border. Install the one inch wide yellow border around the perimeter of the face of the back plate. Furnish the back plate with sheeting consisting of prismatic lenses formed in a transparent synthetic resin, sealed, and backed with and aggressive pressures sensitive adhesive protected by a removable liner. Use sheeting with a smooth surface, a distinctive interlocking diamond seal pattern and orientation marks visible on the face. Use Type XI reflective sheeting.

Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for furnishing and installing the traffic signal head back plates.

772-P12 COMBINATION LIGHT AND SIGNAL STANDARD: Use luminaire extensions of the Davit type with 10’ mast arm.

772-P13 TRAFFIC SIGNAL STANDARDS - TRANSFORMER BASES: Use “T” transformer base type standards. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for furnishing and installing the “T” transformer bases.

772-P14 SIGNAL STANDARD PAINT COLOR: Paint all traffic signal system components, except for the luminaire extensions, in accordance with the following:

 - Transformer base – yellow
 - Mast arm – yellow
 - Signal head mounting hardware on pole – yellow
 - Pole shaft – yellow
 - Signal housing – yellow
 - Visors/tunnels – black

Use #13538 of Federal Standard No. 595 for the color yellow.
Use #27038 of Federal Standard No. 595B for the color black.

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NOTES

- 772-P15 PULL BOXES: Follow the specification outlined in the NDDOT standard drawing D770-3 and be precast concrete. Clearly mark the cover as “Traffic Signal”. Duct seal all conduits entering and exiting pull boxes. Provide dividers as per NEC for pull boxes that share power conductors for lighting and low voltage conductors for signals.
- 772-P16 CONDUIT: Install conduit at the locations shown on the plans. Bore conduit when crossing under existing pavement. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes furnishing and installing conduit, pushing and boring conduit, digging potholes and restoring the potholes with new material that ties into the existing surround material. Seal all conduits with duct seal at the controller cabinet and at the traffic signal standard foundations.
- 772-P17 ADDITIONAL CONDUIT: Install one additional 2-inch diameter conduit in each traffic signal standard foundation and the controller cabinet/feed point foundation. The direction of the conduit will be determined in the field by the Engineer and labeled in the cabinet by the Contractor. Plug each spare conduit with a 2” expandable pipe plug. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs to supply and install the additional conduit.
- 772-P18 EXCAVATION AND RESTORATION: Any excavation required to install conduit, connect conduit to existing conduit sweeps, install pull boxes, foundations or any other feature proposed in the plans is included in the prices bid “TRAFFIC SIGNAL SYSTEM – SITE 1”. This includes restoring the excavated area with the appropriate fill material. The fill material shall match the surrounding surface material. At locations where the surrounding material is earth, include earth fill with 6” of topsoil and seed. At locations where the surround material is concrete, tie into the existing concrete. All removed material whether concrete or earth is the property of the Contractor and be disposed of accordingly. Compaction and density controls are in accordance with Section 203.04 E.2 of the Standard Specifications AASHTO T-180.
- 772-P19 CONDUCTOR COLOR CONTINUITY: Maintain conductor color continuity where any 12AWG 12 conductor cables are connected to 12 AWG 5 and/or 12 AWG 3 conductor cables within the terminal block of a traffic signal standard.
- 772-P20 WIRE SPLICING: No splicing will be allowed in pull boxes. Splicing may only take place in the signal base.

- 772-P21 LABEL ALL FIELD CABLES: All labeling materials must be approved by the City. Labels must be readable without moving the cables. When installing cable bundles in conduit, bundles will not be taped. Label all field cables with the cable designations:

TYPE	LABEL	LABEL LOCATION
Communication Cable	Comm./Address of Other End	Within 12” of Conduit
Pedestrian Push Button	Phase/Location (i.e. NW, SW, etc.)	Within 6” of Terminals
Coaxial Cables	Cameras Detection Zone (i.e. D2-1, D2-2, etc.)	Within 6” of Terminals
Control Cable	Cable Number & Location (i.e. NW, SW, etc.)	Within 12” of Conduit
Opticom Cable	Pre-Empt Number/Location (i.e. NW, SW, etc.)	Within 6” of Terminal

- Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for labeling field cables.
- 772-P22 FEED POINT-COMBO LIGHTING & SIGNAL-PAD MOUNT: Install a pad mounted Combination Lighting and Signal Feed Point Type IV according to the plans and per NDDOT standard detail. Coordinate with the Utility for the incoming electrical service. Connect the traffic signal controller to the feed point. Install a 50 amp breaker Type BR at the feed point for traffic control signal purposes.
- Verendrye Electric will provide direct buried cable from the transformer near Gooseneck Implement; contact Brian Johnson (701-852-0406). Coordinate with the Utility to establish the service connection to ensure a fully operational traffic signal controller feed point at this location.
- Pay for all utility company costs for the feed point. Furnish and install conduit from the controller cabinet to the feed point. Furnish and install #6 U.S.E. cable between the new controller and the new feed point. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment required for feed point connections.
- 772-P23 WIRELESS INTERCONNECT, WI-FI PANEL AND ETHERNET SWITCH: Furnish and install an ethernet switch and a 5 GHz Wi-Fi panel as shown in the plans. Coordinate with the City of Minot to receive required configuration parameters. Input the parameters to connect the device to the City’s network. Install Wi-Fi Panel on the outside of the traffic signal cabinet at the intersection of US Highway 2 and 42nd Street SE. Connect the 16 amp breaker on the inside of the traffic signal cabinet to the Wi-Fi Panel. Enclose the Wi-Fi Panel in a Nema-Type 3 NR weather enclosure. Price bid for “TRAFFIC SIGNAL SYSTEM – SITE 1” includes all costs, labor, materials and equipment necessary for furnishing and installing wireless interconnect, Wi-Fi Panel, and ethernet switch.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	6	8

NOTES

- 772-P24 SIGNAL EQUIPMENT:

 - A. Provide steel signal and pedestal adapters/collars.
 - B. Provide polycarbonate vehicle heads and ensure level installation on all sides. Provide stainless steel fasteners with anti-seize lubricant used.
 - C. Provide two-point mounting system such as Astro Brackets, Sky Brackets or approved equal for all mast arm mounted signals. Indicate the type of mounting in the work drawings for signal heads.
- 772-P25 UTILITY COORDINATION: Coordinate with the electric utility for the incoming electrical service to the signal control cabinet. All conductors, conduit and connections from the transformer to the meter will be supplied by the electric utility. All cable, conduit, meter socket and service disconnect from the meter to the signal control cabinet will be provided by the Contractor.
- 772-P26 VIDEO DETECTION SYSTEM AND SPARE EQUIPMENT: Furnish and install a video detection system manufactured by Autoscope. The manufacturer's representative will provide all cable connections, camera aiming system setup, programming detection zones, and verification of reliable operation. Video detection camera locations in the plans are for guidance only; mount the cameras as needed to enable proper operation. Furnish and install a video monitor in the controller cabinet for video detection configuration. Meet LCDI-104-CCTV-LCD specifications for the video monitor. Provide the City of Minot Traffic Department with the following spare equipment (1 each) for future routine programming, maintenance, and operation: laptop equipped with programming software compatible with the cabinet equipment, camera, BIU, MMU, and EVP card. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for making the video detection system fully operational.
- 772-P27 FLASHING BEACON AND ADVANCE WARNING SIGN: Supply and install four W3-4-48 "Be Prepared To Stop" and a W16-13P24 "When Flashing" supplemental signs as shown in the plans. Include 12 inch yellow LED flashing beacons with 5 inch louvered back plated mounted on each side of the sign assembly. Signs, supports, anchors and bracing are paid for as part of section 110. Price bid for "Traffic Signals System- Site 1" includes all cost, materials, labor, and equipment necessary for furnishing and installing the flashers and advance warning sign assemblies.
- 772-P28 CONCRETE FOUNDATION – TRAFFIC SIGNALS: The Signal Standard Foundation Table in the plans show the requirements for traffic signal foundations dependent on the traffic signal mast arm length for both traffic signal and the combination signal and light standard. The manufacturer's bolt circle recommendation may require a larger foundation. Provide a minimum of 3" of concrete cover from the anchor bolts for the foundations. Increase the diameter at the top of the foundations to accommodate a larger bolt circle. Continue the depth of the increased diameter to 3" below the end of the anchor bolts. The signal manufacturer must provide the bolt circle requirements to the Contractor prior to the pouring of the foundations. Do not change the depth of the foundations. Price bid for "Traffic Signal System – Site 1" includes all costs, labor, materials, and equipment necessary for installing the foundations.
- 772-P29 FUTURE PEDESTRIAN PUSHBUTTON: Extend conduit 6 inches above ground level and cap for future pedestrian pushbutton number 1 located in the median (station 7914+91.28, offset 17.64 feet LT).

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-022(116)149	6	9

ENVIRONMENTAL NOTES

ENVIRONMENTAL NOTES (EN): The North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The following environmental notes are requirements to comply with these commitments:

EN-1 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

EN-2 WETLAND MITIGATION: Wetland mitigation is required for unavoidable permanent wetland impacts. The wetland mitigation plan is incorporated into the plans for this project. After completion of the mitigation area, the Engineer will complete the Onsite Mitigation Certification Form SFN 61042. Any sedimentation occurring within the mitigation area will be removed.

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	8	1

Spec	Code	Item Description	Unit	Quantity				
				US Hwy 2	Urban Roads	Frontage Roads	100% Local	Total
103	0100	Contract Bond	L SUM	1				1
103	0200	Escrow of Bid Documentation	L SUM	1				1
201	0330	Clearing & Grubbing	L SUM	1				1
201	0380	Removal of Trees 18 IN	EA		6	4		10
201	0390	Removal of Trees 30 IN	EA			7		7
202	0130	Removal of Curb & Gutter	LF		1943	171		2114
202	0136	Removal of Pavement	TON	12991	3737	2904		19632
202	0174	Removal of Pipe All Types and Sizes	LF	901	30	58		989
202	0230	Removal of Inlets	EA			2		2
203	0101	Common Excavation-Type A	CY	27948	8104	10535		46587
203	0109	Topsoil	CY	7010	3007	3568		13585
203	0121	Topsoil - Wetland	CY	790		31		821
216	0100	Water	MGAL	1392				1392
230	0300	Subgrade Preparation-Type A	STA	36				36
251	0200	Seeding Class II	ACRE	10.8	2.7	3.4		16.9
251	1000	Wetland Seed	ACRE	1.1				1.1
251	2000	Temporary Cover Crop	ACRE	11.3	2.7	3.4		17.4
253	0101	Straw Mulch	ACRE	11.3	2.7	3.4		17.4
253	0201	Hydraulic Mulch	ACRE	10.8	2.7	3.4		16.9
255	0101	ECB - Type 1	SY	1270	110	974		2354
255	0104	ECB - Type 4	SY		108	655		763
260	0200	Silt Fence Supported	LF	200				200
260	0201	Remove Silt Fence Supported	LF	200				200
261	0112	Fiber Rolls 12 IN	LF	94	333	316		743
261	0113	Remove Fiber Rolls 12 IN	LF	74	117	213		404
261	0120	Fiber Rolls 20 IN	LF	5385	2087	2596		10068
261	0121	Remove Fiber Rolls 20 IN	LF	2190	916	908		4014
302	0100	Salvaged Base Course	TON	32277	8938	6265		47480
401	0050	Tack Coat	GAL	2645	409	501		3555
401	0060	Prime Coat	GAL	7039	1989	2456		11484
401	0160	Blotter Material CL 44	TON	213	61	74		348
430	0045	Superpave FAA 45	TON	9363	1989	2102		13454
430	1000	Cored Sample	EA	25	16	8		49
430	5828	PG 58-28 Asphalt Cement	TON	371	64	63		498
430	6428	PG 64-28 Asphalt Cement	TON	176	52	63		291
702	0100	Mobilization	L SUM	1				1
704	0100	Flagging	MHR	1200				1200
704	1000	Traffic Control Signs	UNIT	4489				4489
704	1052	Type III Barricades	EA	70				70
704	1060	Delineator Drums	EA	161				161
704	1081	Vertical Panels - Back to Back	EA	228				228
704	1087	Sequencing Arrow Panel - Type C	EA	2				2
704	4011	Portable Changeable Message Sign	EA	5				5
706	0400	Field Office	EA	1				1
706	0500	Aggregate Laboratory	EA	1				1
706	0550	Bituminous Laboratory	EA	1				1
706	0600	Contractor's Laboratory	EA	1				1
708	1540	Inlet Protection-Special	EA	6	22	6		34
708	1541	Remove Inlet Protection-Special	EA	6	22	6		34
709	0151	Geosynthetic Material Type R1	SY	3366	1858	2343		7567
714	0825	Pipe Conc Reinf 30IN CL III-Storm Drain	LF			8		8
714	4097	Pipe Conduit 15IN-Storm Drain	LF	45				45
714	4099	Pipe Conduit 18IN-Approach	LF		49	68		117
714	4101	Pipe Conduit 18IN-Storm Drain	LF	199				199
714	4106	Pipe Conduit 24IN-Approach	LF	396		85		481
714	4110	Pipe Conduit 30IN-Storm Drain	LF	180				180
714	4115	Pipe Conduit 36IN	LF	185				185
714	4117	Pipe Conduit 36IN-Storm Drain	LF	68				68
714	4121	Pipe Conduit 42IN-Storm Drain	LF	82				82
714	9660	Remove & Relay End Section-All Types and Sizes	EA			1		1

Spec	Code	Item Description	Unit	Quantity				
				US Hwy 2	Urban Roads	Frontage Roads	100% Local	Total
714	9680	Plug Pipe-All Types and Sizes	EA			2		2
720	0110	Right of Way Markers	EA	2	18	15		35
720	0125	Alignment Monuments	EA	2	10	19		31
720	0130	Iron Pin R/W Monuments	EA		16	14		30
720	0135	Iron Pin Reference Monuments	EA	2	2	2		6
722	0100	Manhole 48IN	EA		1	1		2
722	1100	Manhole Riser 48IN	LF		5.7	8.3		14
722	3510	Inlet - Type 2	EA		6	4		10
722	3520	Inlet-Type 2-Double	EA		1	2		3
722	3701	Inlet Special -Type 2 48IN	EA		1			1
722	3713	Inlet Special Mountable-Type B 48IN	EA	1	1			2
722	3761	Inlet Special-Type 2 60IN	EA			1		1
722	3766	Inlet Special-Type 2 72IN	EA	1				1
722	4060	Inlet Mountable Curb-Type B	EA	3	1			4
722	4565	Median Drain Precast Concrete-TypeA	EA	1				1
722	6140	Adjust Gate Valve Box	EA				5	5
722	6200	Adjust Manhole	EA		3	4		7
724	0270	Remove Gate Valve & Box	EA				3	3
724	0300	Gate Valve & Box 6IN	EA				3	3
724	0310	Gate Valve & Box 8IN	EA				1	1
724	0314	Gate Valve & Box 12IN	EA				1	1
724	0411	6IN Hydrant	EA				1	1
724	0427	Adjust Hydrant	EA				1	1
724	0430	Remove Hydrant	EA				2	2
724	0810	Watermain 6IN PVC	LF				43	43
724	0830	Watermain 8IN PVC	LF				794	794
724	0850	Watermain 12IN PVC	LF				684	684
724	0944	Connection to Existing Main	EA				5	5
724	6820	8IN 11.25Deg Bend	EA				2	2
724	6840	12IN 11.25Deg Bend	EA				2	2
724	6842	12IN 22.5Deg Bend	EA				2	2
724	6844	12IN 45Deg Bend	EA				1	1
724	7010	8IN x 6IN Reducer	EA				2	2
724	8097	12IN X 8IN Reducer	EA				1	1
744	0100	Polystyrene Insulation Board	BD FT				12800	12800
748	0120	Curb & Gutter Mountable-Type I	LF	502				502
748	0140	Curb & Gutter-Type I	LF	715	2723	2282		5720
750	0100	Sidewalk Concrete	SY		860			860
750	0200	Concrete Median Paving	SY	466	164			630
750	0210	Concrete Median Nose Paving	SY	40	10			50
750	1000	Driveway Concrete	SY		78			78
750	1020	Driveway Concrete 8IN	SY		175	77		252
750	2115	Detectable Warning Panels	SF	40	25.8			65.8
754	0110	Flat Sheet For Signs-Type XI Refl Sheeting	SF	238	48	66		352
754	0112	Flat Sheet For Signs-Type IV Refl Sheeting	SF	202	37			239
754	0206	Steel Glav Posts-Telescoping Perforated Tube	LF	582.6	175.8	243.3		1001.7
754	0214	Glav Steel Posts-W-Shape Posts(Two or More)	LF	48.8				48.8
754	0563	Reference Marker-Type C	EA	2				2
754	0592	Reset Sign Panel	EA	1	1	1		3
754	0805	Object Marker - Culvert	EA	8	5	9		22
762	0110	Epoxy Pvmt Mk 4IN Line-Grooved	LF	1376	3136			4512
762	0113	Epoxy Pvmt Mk 4IN Line	LF	7070		1382		8452

Quantities

US Hwy 2 & 42nd St SE
Intersection Improvements

Spec	Code	Item Description	Unit	Quantity				
				US Hwy 2	Urban Roads	Frontage Roads	100% Local	Total
762	0122	Preformed Patterned Pvmnt Mk-Messaged-Grooved	SF	320	128			448
762	0132	Epoxy Pvmnt Mk 8IN Line-Grooved	LF	5706	1283			6989
762	0134	Epoxy Pvmnt Mk 12IN Line-Grooved	LF	1013				1013
762	0430	Short Term 4IN Line - Type NR	LF	9958				9958
762	1307	Preformed Patterned Pvmnt Mk 6IN Line-Grooved	LF		187			187
762	1325	Preformed Patterned Pvmnt Mk 24IN Line-Grooved	LF	289		101		390
764	9011	Attenuating Crash Cushion TL-3	EA	2				2
766	0100	Mailbox-All Types	EA		1			1
770	0020	Concrete Foundation-Highway Lighting	EA	13	9			22
770	0220	Cable Trench-Type II	LF	2650	1575			4225
770	0330	2IN Diameter Rigid Conduit	LF	995	741			1736
770	0504	Underground Conductor NO4-Type RHW	LF	5890	3418			9308
770	0604	Underground Conductor NO4-Type THW	Lf	2945	1709			4654
770	1676	LT Std 6FT MA 40FT MT HT Breakaway	EA		8			8
770	1778	LT Std 10FT MA 42FT MT HT Breakaway	EA	13	1			14
770	4210	LED Luminaire	EA	10	5			15
770	4220	LED Luminaire - 150 Watt	EA	7	4			11
770	4567	Remove Lighting System	EA		1			1
772	9811	Traffic Signal System - Site 1	EA	1				1
990	0230	Temporary Access	LSUM	1				1

Alternative 1: Pipe Conduit Storm Sewer (See Section 51 for Allowable Materials)

Spec	Code	Item Description	Unit	Quantity				
				US Hwy 2	Urban Roads	Frontage Roads	100% Local	Total
714	4097	Pipe Conduit 15IN-Storm Drain	LF		653	268		921
714	4101	Pipe Conduit 18IN-Storm Drain	LF		367	94		461
714	4107	Pipe Conduit 24IN-Storm Drain	LF			75		75

Alternative 2: Reinforced Concrete Pipe Storm Sewer

Spec	Code	Item Description	Unit	Quantity				
				US Hwy 2	Urban Roads	Frontage Roads	100% Local	Total
714	0210	Pipe Conc Reinf 15IN CL III - Storm Drain	LF		653	268		921
714	0315	Pipe Conc Reinf 18IN CL III - Storm Drain	LF		367	94		461
714	0620	Pipe Conc Reinf 24IN CL III - Storm Drain	LF			75		75

Quantities

US Hwy 2 & 42nd St SE
Intersection Improvements

BASIS OF ESTIMATE

Conversions/Rates

Salvaged Base Course @ 1.875 Ton/CY
Prime Coat @ 0.25 Gal/SY
Blotter Material CI 44 @ 15 lbs/SY
Tack Coat @ 0.05 Gal/SY
Superpave FAA 45 @ 2 Ton/CY
PG 58-28 Asphalt Cement @ 5.8%
PG 64-28 Asphalt Cement @ 5.8%

Water

25 MGal/Mile for Subgrade Preparation
25 MGal/Mile for Dust Palliative
20 Gal/Ton for Aggregates
10 Gal/CY for Embankment

Mailboxes

Station	Type	Work
(PR14) 12+85 – RT	Single (5)	Remove & Reset Assembly and Boxes

Coring

HBP Cored Samples							
	A	B	C	D			
Spec 430.04	Distance (Ft)÷2000	Lanes	Lifts	Sublots (A × B × C)	Quantity (D × 2)	Quantity (1 per mile)	Unit
US Hwy 2	1	4	3	12	24	N/A	EA
US Hwy 2 430.04 I.2.b(2), "Pavement Thickness Determination Cores"	N/A	N/A	N/A	N/A	N/A	1	EA
42 nd St SE	1	2	2	4	8	N/A	EA
14 th Ave SE	1	2	2	4	8	N/A	EA
Frontage Roads	1	2	2	4	8	N/A	EA
				Total	48	1	EA

Subgrade Preparation

US Hwy 2		Station
EB 7906+27.50 to 7924+36.29		18.1
WB 7906+27.50 to 7924+17.50		17.9
Total		36

Salvaged Base Course Summary

Location	Salvage Quantities	
	Pavement TON	Aggregate TON
US 2 EB	3,783	3,547
US 2 WB	3,035	2,626
West Frontage Road	146	239
East Frontage Road	954	1,566
42nd St SE	930	436
14th Ave SE	647	1,516
Concrete Sidewalk & Driveway	141	66
Total	9,636	9,996

Note: Quantity assumes that 2" of aggregate base is staying in place

Removal of Pavement (Ton)	Salvaged Base Course Created (Ton)	Aggregate Required to Create Salvaged Base Course (Ton)	Existing Aggregate (Ton)	Virgin Aggregate Required (Ton)	Produced Material (Ton)
A	B = (A)/0.3	C = B-A	D	E = C-D	F
9,637	32,123	22,486	9,996	12,490	32,123

Note: Assumed minimum 30% bituminous or concrete material see Spec Book section 817

Salvaged Base Course from Removals (Ton)	Salvaged Base Course Required (Ton)	Import (Ton)
G	H	I = H-G
32,120	47,480	15,360

Striping

Short Term 4IN Line - Type NR		
Location	Basis	Quantity
US 2 - Top of 1st Lift	Centerline Skips 1,320 LF/mile	906 LF
US 2 - Top of 2nd Lift	Centerline Skips 1,320 LF/mile Edge lines 10,560 LF/mile	906 LF
US 2 - Top of 3rd Lift	Centerline Skips 1,320 LF/mile Edge lines 10,560 LF/mile	8,146 LF

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Location	Common Excavation Type - A	Embankment		Balance	
		Roadway	Adjusted	Waste	Additional Material Needed
		CY	CY	CY	CY
	A	B	C = B * 1.25	D = A - C	D = C - A
US Hwy 2	20576	9002	11252	9324	
42nd St SE	2484	8515	10644		8160
14th Ave SE	5577	1271	1589	3988	
West Frontage Road	3824	3834	4792		968
13th Ave SE	43	78	98		55
East Frontage Road S	5306	586	733	4573	
East Frontage Road N	1271	1643	2054		783
Private Drive @ 17+50	60	226	283		223
Private Drive @ 18+55	74	131	164		90
Temporary Access	81	5620	7025		6944
Temporary Private Drive	242	19	24	218	
Remove Temporary Access	7025	65	81	6944	
Remove Temporary Private Drive	24	194	242		218
Totals	46587	31184	38981	25047	17441

Location	Topsoil Excavation	Topsoil Embankment	Balance
	CY	CY	CY
	E	F	H = E - F
US Hwy 2	5552	5143	409
42nd St SE	1691	1007	684
14th Ave SE	1282	420	862
West Frontage Road	1433	1078	355
13th Ave SE	34	45	-11
East Frontage Road S	965	1186	-221
East Frontage Road N	997	708	289
Private Drive @ 17+50	64	51	13
Private Drive @ 18+55	109	77	32
Temporary Access	925	425	500
Temporary Private Drive	78	30	48
Remove Temporary Access	425	925	-500
Remove Temporary Private Drive	30	78	-48
Totals	13585	11173	2412

Pay Items

Common Excavation Type-A 46587

Borrow Excavation
Adjusted Embankment 38981

- Common Excavation 46587
-7606

Topsoil 12772

Topsoil - Wetland 813

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Earthwork & Topsoil Summary

US Hwy 2 & 42nd St SE
Intersection Improvements

Note: Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland".

US Hwy 2										
Station	End Area (SF)				Volume (CY)				Mass OrdNate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
7906+27.50	74.2	68.5	99.8	116.1						
7906+50.00	74.5	69.1	99.9	109.2	62	57	83	118	5	-35
7906+75.00	73.6	70.1	93.9	101.0	69	64	90	122	10	-67
7906+87.32	73.7	70.6	93.3	98.5	34	32	43	58	12	-82
7907+00.00	72.9	70.0	91.3	92.6	34	33	43	57	13	-96
7907+25.00	73.7	70.9	89.0	90.5	68	65	83	107	16	-120
7907+50.00	73.9	71.4	89.1	85.1	68	66	82	102	18	-140
7907+75.00	73.4	71.0	89.5	85.0	68	66	83	99	20	-156
7908+00.00	73.3	70.6	94.5	79.3	68	66	85	95	22	-166
7908+07.50	72.9	70.2	96.6	74.1	20	20	27	27	22	-166
7908+12.50	72.6	70.0	98.1	70.8	13	13	18	17	22	-165
7908+25.00	73.2	69.9	100.7	69.8	34	32	46	42	24	-161
7908+50.00	73.4	68.9	107.7	64.2	68	64	97	78	28	-142
7908+75.00	72.7	66.9	116.8	49.3	68	63	104	67	33	-105
7909+00.00	64.3	57.0	128.9	33.5	63	57	114	48	39	-39
7909+25.00	71.9	63.6	143.9	32.7	63	56	126	39	46	48
7909+32.50	72.1	63.5	147.3	30.9	20	18	40	12	48	76
7909+50.00	62.5	53.8	156.8	20.2	44	38	99	22	54	153
7909+75.00	62.5	53.1	160.6	21.0	58	49	147	24	63	276
7910+00.00	71.5	61.3	166.9	29.0	62	53	152	29	72	399
7910+25.00	69.3	58.1	167.8	32.5	65	55	155	35	82	519
7910+50.00	66.8	55.3	165.0	38.6	63	52	154	42	93	631
7910+75.00	90.5	78.6	173.0	50.7	73	62	156	52	104	735
7911+00.00	86.9	74.5	181.6	51.4	82	71	164	59	115	840
7911+25.00	82.8	70.7	184.4	54.3	79	67	169	62	127	947
7911+48.75	83.2	59.8	206.1	47.7	73	57	172	57	143	1062
7911+50.00	83.2	59.8	206.4	46.7	4	3	10	3	144	1069
7911+65.00	83.6	60.6	223.1	46.1	46	33	119	33	157	1155
7911+75.00	82.6	61.5	250.3	42.4	31	23	88	20	165	1223
7912+00.00	72.5	65.1	384.3	0.0	72	59	294	25	178	1492
7912+25.00	0.0	72.1	597.1	0.0	34	64	454	0	148	1946
7912+50.00	3.8	82.8	883.4	0.0	2	72	685	0	78	2631
7912+75.00	0.0	100.5	1156.3	0.0	2	85	944	0	-5	3575
7913+00.00	32.6	108.2	1099.1	0.1	15	97	1044	0	-87	4619
7913+25.00	116.4	119.7	930.4	59.4	69	106	940	35	-124	5524
7913+50.00	130.1	134.4	1031.9	100.4	114	118	908	93	-128	6339
7913+75.00	146.0	154.1	1236.1	115.6	128	134	1050	125	-134	7264
7913+92.50	162.6	170.7	1371.1	118.0	100	105	845	95	-139	8014
7914+00.00	170.0	180.9	1449.8	124.0	46	49	392	43	-142	8363
7914+25.00	191.3	202.0	1570.7	151.1	167	177	1398	159	-152	9602
7914+26.19	192.1	202.8	1574.5	152.7	8	9	69	9	-153	9662
7914+32.50	195.9	206.5	1594.8	161.1	45	48	370	47	-156	9985
7914+46.52	203.1	213.2	1653.5	180.6	104	109	843	112	-161	10716
7914+50.00	204.8	214.6	1669.5	185.4	26	28	214	30	-163	10900
7914+64.91	211.5	220.1	1753.5	218.2	115	120	945	139	-168	11706
7914+74.11	215.4	223.2	1820.9	243.9	73	76	609	99	-171	12216
7914+75.00	97.2	86.2	504.2	170.0	5	5	38	9	-171	12245
7914+92.50	25.0	2.8	22.4	32.6	40	29	171	83	-160	12333
7915+00.00	24.5	2.3	19.5	33.3	7	1	6	12	-154	12327
7915+25.00	22.1	0.0	9.0	38.0	22	1	13	42	-133	12298
7915+27.59	22.1	0.0	8.3	39.0	2	0	1	5	-131	12294
7915+50.00	22.1	0.0	4.4	53.3	18	0	5	48	-113	12251
7915+75.00	22.1	0.0	2.8	69.2	20	0	3	72	-93	12182
7916+00.00	22.1	0.4	1.6	85.2	20	0	2	89	-73	12095
7916+25.00	21.9	0.0	0.7	101.7	20	0	1	109	-53	11987

US Hwy 2										
Station	End Area (SF)				Volume (CY)				Mass OrdNate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
7916+50.00	21.9	0.0	0.2	114.9	20	0	0	125	-33	11862
7916+62.43	21.9	0.0	0.1	119.0	10	0	0	68	-23	11794
7916+74.00	55.4	33.2	0.2	265.4	17	7	0	103	-13	11691
7916+75.00	56.6	34.4	0.2	268.0	2	1	0	13	-12	11678
7916+80.82	78.9	55.7	1.7	385.6	15	10	0	88	-7	11590
7916+90.02	213.8	202.1	672.5	390.2	50	44	115	165	-1	11540
7917+00.00	213.1	201.0	666.4	400.3	79	74	247	183	4	11604
7917+08.41	230.7	218.5	686.8	406.8	69	65	211	158	8	11657
7917+16.87	227.2	215.5	656.4	412.6	72	68	210	160	12	11707
7917+23.74	224.8	213.6	617.9	419.4	58	55	162	133	15	11736
7917+25.00	223.9	212.8	631.2	420.0	10	10	29	25	15	11740
7917+50.00	210.3	201.4	551.7	430.0	201	192	548	493	24	11795
7917+57.50	205.3	196.5	556.2	434.4	58	55	154	150	27	11799
7917+75.00	188.6	179.6	595.0	429.2	128	122	373	350	33	11822
7917+97.50	151.4	142.1	608.2	430.5	142	134	501	448	41	11875
7918+00.00	148.0	138.7	601.0	430.3	14	13	56	50	42	11881
7918+25.00	124.6	115.0	466.7	435.4	126	117	494	502	51	11873
7918+50.00	118.8	104.6	422.3	427.8	113	102	412	500	62	11785
7918+75.00	114.6	96.6	324.1	374.0	108	93	346	464	77	11667
7919+00.00	97.9	79.1	245.5	322.3	98	81	264	403	94	11528
7919+25.00	96.8	71.8	204.4	286.1	90	70	208	353	114	11383
7919+50.00	83.3	54.8	46.6	240.6	83	59	116	305	138	11194
7919+74.00	79.9	51.0	21.9	212.9	73	47	30	253	164	10971
7919+75.00	79.8	50.9	21.5	211.9	3	2	1	10	165	10962
7919+80.77	79.3	50.2	20.5	206.2	17	11	4	57	171	10909
7920+00.00	77.0	57.6	21.4	190.6	56	38	15	177	189	10747
7920+25.00	75.0	55.9	30.1	180.6	70	53	24	215	206	10556
7920+50.00	74.4	55.4	42.6	173.1	69	52	34	205	223	10385
7920+75.00	75.0	56.6	53.1	174.3	69	52	44	202	240	10227
7921+00.00	70.7	53.4	55.5	167.9	67	51	50	198	256	10079
7921+25.00	70.4	53.7	61.9	157.1	65	50	54	188	271	9945
7921+50.00	69.7	53.5	65.1	147.8	65	50	59	177	286	9827
7921+75.00	69.6	54.1	67.1	144.9	64	50	61	170	300	9718
7922+00.00	69.5	54.6	70.9	137.7	64	50	64	164	314	9618
7922+25.00	68.9	54.8	76.3	134.3	64	51	68	158	327	9528
7922+32.50	68.8	54.9	77.7	133.0	19	15	21	47	331	9502
7922+37.50	68.6	55.1	78.4	130.8	13	10	14	30	334	9486
7922+50.00	68.2	30.7	81.7	120.0	32	20	37	73	346	9450
7922+75.00	67.9	56.9	83.7	105.2	63	41	77	130	368	9397
7923+00.00	66.7	57.4	84.0	94.8	62	53	78	117	377	9358
7923+22.50	66.2	58.3	85.7	86.3	55	48	71	94	384	9335
7923+25.00	66.2	58.4	85.8	86.2	6	5	8	10	385	9333
7923+50.00	66.7	58.9	88.4	86.1	62	54	81	100	393	9314
7923+75.00	66.7	59.7	87.9	84.9	62	55	82	99	400	9297
7924+00.00	58.6	53.6	90.2	63.0	58	52	82	85	406	9294
7924+08.49	56.2	51.7	89.5	59.4	18	17	28	24	407	9298
7924+17.50	55.2	51.8	207.9	54.2	19	17	50	24	409	9324
Totals					5552	5143	20576	11252		

Note: End Areas and Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland".

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Earthwork Values
US Hwy 2 & 42nd St SE
Intersection Improvements
US Hwy 2

* An additional 25% has been added for shrinkage

42nd St SE										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
10+70.00	95.7	1.6	11.5	29.9						
10+75.00	82.1	4.6	0.0	118.0	16	1	1	18	15	-17
11+00.00	96.1	41.6	0.0	889.8	82	21	0	584	76	-601
11+25.00	101.3	56.5	0.0	1768.5	91	45	0	1539	122	-2140
11+33.00	0.0	58.9	0.0	1657.9	15	17	0	635	120	-2775
11+50.00	116.3	74.8	27.3	1665.7	37	42	9	1308	115	-4074
11+51.82	116.1	74.8	30.5	1645.8	8	5	2	140	118	-4212
11+55.90	115.8	74.9	38.7	1592.4	18	11	5	307	125	-4514
11+62.73	114.0	73.6	47.6	1488.3	29	19	11	488	135	-4991
11+65.56	113.3	73.2	51.2	1439.9	12	8	5	192	139	-5178
11+68.18	112.8	72.8	53.5	1394.4	11	7	5	173	143	-5346
11+75.00	111.2	71.7	58.4	1261.1	28	18	14	419	153	-5751
12+00.00	106.5	68.0	234.8	554.4	101	65	136	1050	189	-6665
12+25.00	103.2	65.5	287.6	179.4	97	62	242	425	224	-6848
12+33.00	102.1	64.4	332.5	111.6	30	19	92	54	235	-6810
12+50.00	99.8	62.1	374.9	18.1	64	40	223	52	259	-6639
12+75.00	96.6	58.9	457.3	4.7	91	56	385	14	294	-6268
12+83.00	83.7	31.1	304.5	11.7	27	13	113	3	308	-6158
13+00.00	83.3	30.8	229.1	6.1	53	19	168	8	342	-5998
13+25.00	69.8	33.1	237.0	100.9	71	30	216	63	383	-5845
13+26.16	69.9	33.3	235.3	115.5	3	1	10	7	385	-5842
13+29.00	68.8	33.6	227.4	154.0	7	4	24	18	388	-5836
13+33.05	73.6	36.4	224.9	133.5	11	5	34	28	394	-5830
13+39.03	79.2	50.3	206.1	245.0	17	10	48	53	401	-5835
13+43.00	63.8	35.8	199.8	273.8	11	6	30	48	406	-5853
13+50.00	61.6	36.7	196.5	307.3	16	9	51	94	413	-5896
13+75.00	55.8	31.9	85.2	327.4	54	32	130	368	435	-6134
13+96.49	49.5	27.2	28.3	299.3	42	24	45	312	453	-6401
14+00.00	48.5	26.3	24.0	295.4	6	3	3	49	456	-6447
14+25.00	41.9	10.8	11.1	249.8	42	17	16	315	481	-6746
14+50.00	50.1	0.0	19.7	206.7	43	5	14	264	519	-6996
14+75.00	38.8	20.3	38.5	125.7	41	9	27	193	551	-7162
15+00.00	57.2	39.6	58.4	135.1	44	28	45	152	567	-7269
15+05.00	57.3	39.8	71.7	126.2	11	7	12	30	571	-7287
15+25.00	57.0	40.1	79.4	139.2	42	30	56	123	583	-7354
15+50.00	56.8	40.4	30.8	189.5	53	37	51	190	599	-7493
15+75.00	56.5	40.8	24.0	192.7	52	38	25	222	613	-7690
16+00.00	54.9	40.5	23.5	168.0	52	38	22	209	627	-7877
16+25.00	49.1	36.6	22.5	120.1	48	36	21	167	639	-8023
16+50.00	41.8	31.8	32.5	54.7	42	32	25	102	649	-8100
16+75.00	41.6	33.0	28.5	57.0	39	30	28	65	658	-8137
17+00.00	41.3	32.9	29.5	51.0	38	31	27	63	665	-8173
17+25.00	13.4	0.0	23.3	0.1	25	15	24	30	675	-8179
17+50.00	9.9	9.8	19.3	4.6	11	5	20	3	681	-8162
17+75.00	17.5	16.8	25.6	12.5	13	12	21	10	682	-8151
18+00.00	24.8	23.6	23.3	22.9	20	19	23	20	683	-8148
18+25.00	24.1	24.2	22.7	29.3	23	22	21	30	684	-8157
18+30.00	23.9	24.2	22.7	28.2	4	4	4	7	684	-8160
Totals					1691	1007	2484	10644		

14th Ave SE										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
5+70.00	93.8	1.6	0.0	252.2						
5+75.00	88.4	12.9	0.0	448.9	17	1	0	82	16	-82
6+00.00	96.9	45.5	0.0	943.5	86	27	0	807	75	-889
6+25.00	106.3	61.5	619.0	3.0	94	50	287	548	119	-1150
6+33.00	102.6	58.9	988.9	3.1	31	18	238	2	132	-914
6+40.32	92.8	50.1	1008.6	3.2	26	15	271	2	143	-645
6+41.00	91.7	49.1	992.3	3.2	2	1	25	0	144	-620
6+50.00	76.3	34.8	770.4	3.4	28	14	294	2	158	-328
6+73.42	53.3	13.7	186.3	3.7	56	21	415	4	193	83
6+75.00	52.9	12.7	137.6	3.7	3	1	9	0	195	92
7+00.00	50.0	11.5	354.3	4.0	48	11	228	5	232	315
7+10.00	52.7	14.9	360.2	5.3	19	5	132	3	246	444
7+25.00	53.4	15.6	364.2	5.3	29	8	201	4	267	641
7+33.00	53.8	16.0	375.2	5.3	16	5	110	3	278	748
7+50.00	53.7	17.0	360.4	5.3	34	10	232	4	302	976
7+75.00	53.5	18.4	277.6	5.3	50	16	295	7	336	1264
7+93.00	52.9	18.9	222.3	5.3	35	12	167	5	359	1426
8+00.00	52.9	19.0	208.1	5.3	14	5	56	2	368	1480
8+25.00	53.1	19.2	184.9	5.3	49	18	182	7	399	1655
8+29.00	53.2	19.3	185.6	5.3	8	3	27	2	404	1680
8+50.00	54.4	20.5	213.0	5.3	42	15	155	5	431	1830
8+75.00	55.3	21.4	246.7	5.3	51	19	213	7	463	2036
8+87.42	55.1	21.2	245.8	5.3	25	10	113	3	478	2146
9+00.00	53.9	19.9	238.8	5.3	25	10	113	3	493	2256
9+25.00	36.6	1.5	156.1	0.7	42	10	183	4	525	2435
9+35.83	38.1	3.3	157.9	3.5	15	1	63	2	539	2496
9+50.00	40.0	5.6	164.6	5.3	20	2	85	3	557	2578
9+75.00	43.9	9.9	179.4	5.3	39	7	159	7	589	2730
10+00.00	49.3	11.5	148.1	5.8	43	10	152	7	622	2875
10+01.19	49.2	11.4	146.5	5.8	2	1	6	0	623	2881
10+25.00	45.9	13.6	130.1	7.7	42	11	122	8	654	2995
10+50.00	38.9	13.7	137.2	7.6	39	13	124	9	680	3110
10+67.97	33.6	12.0	137.6	7.5	24	9	91	7	695	3194
10+75.00	52.9	3.8	207.9	0.0	11	2	45	2	704	3237
11+00.00	50.9	3.3	176.6	0.0	48	3	178	0	749	3415
11+25.00	44.2	3.0	156.0	0.0	44	3	154	0	790	3569
11+50.00	20.8	8.9	89.3	6.5	30	6	114	4	814	3679
11+67.97	18.5	6.9	73.5	5.5	13	5	54	5	822	3728
11+75.00	18.3	8.4	70.6	5.7	5	2	19	2	825	3745
12+00.00	15.3	6.1	62.5	5.5	16	7	62	7	834	3800
12+25.00	16.5	3.1	56.8	7.4	15	4	55	8	845	3847
12+50.00	8.6	2.7	40.2	0.0	12	3	45	4	854	3888
12+63.97	8.6	3.4	32.3	0.4	4	2	19	0	856	3907
12+75.00	8.2	3.8	29.8	0.0	3	1	13	0	858	3920
12+97.97	11.3	8.9	29.9	4.6	8	5	25	3	861	3942
13+00.00	6.8	4.3	19.3	0.0	1	0	2	0	862	3944
13+25.00	6.0	4.8	15.7	0.0	6	4	16	0	864	3960
13+49.72	5.9	5.8	12.1	0.0	5	5	13	0	864	3973
13+50.00	5.9	5.8	12.3	0.0	0	0	0	0	864	3973
13+75.00	5.4	6.6	9.1	0.2	5	6	10	0	863	3983
13+88.97	3.9	5.7	9.3	0.0	2	3	5	0	862	3988
Totals					1282	420	5577	1589		

Note: End Areas and Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland".

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Earthwork Values

US Hwy 2 & 42nd St SE Intersection Improvements

42nd St SE
14th Ave SE

* An additional 25% has been added for shrinkage

West Frontage Road										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
11+75.42	18.8	16.9	12.4	3.8						
11+83.00	24.7	21.7	13.4	6.5	6	5	4	2	1	2
12+00.00	27.1	21.9	15.2	10.9	16	14	9	7	3	4
12+23.41	30.3	22.2	17.1	17.4	25	19	14	15	9	3
12+25.00	30.3	22.2	17.2	16.9	2	1	1	2	10	2
12+29.00	30.4	22.3	17.8	14.9	4	3	3	3	11	2
12+50.00	30.8	24.0	22.4	9.2	24	18	16	12	17	6
12+75.00	33.7	27.0	48.1	2.5	30	24	33	7	23	32
13+00.00	38.2	29.7	116.1	0.2	33	26	76	2	30	106
13+25.00	39.2	32.2	137.5	0.0	36	29	117	0	37	223
13+50.00	36.9	38.9	294.8	0.0	35	33	200	0	39	423
13+75.00	50.0	41.0	309.8	21.8	40	37	280	13	42	690
14+00.00	55.0	44.0	239.6	106.7	49	39	254	75	52	869
14+25.00	63.4	46.4	191.1	160.5	55	42	199	155	65	913
14+50.00	67.0	47.9	135.1	196.4	60	44	151	207	81	857
14+75.00	68.1	49.1	118.2	206.0	63	45	117	233	99	741
15+00.00	69.2	50.1	103.0	228.7	64	46	102	252	117	591
15+25.00	70.6	51.5	100.9	251.9	65	47	94	279	135	406
15+50.00	72.1	53.1	99.4	289.9	66	48	93	314	153	185
15+75.00	73.8	54.7	95.1	345.3	68	50	90	368	171	-93
16+00.00	75.2	56.2	95.3	365.1	69	51	88	412	189	-417
16+25.00	74.1	55.0	102.3	352.9	69	51	92	415	207	-740
16+50.00	73.4	54.4	154.6	200.2	68	51	119	320	224	-941
16+75.00	73.6	54.6	243.9	215.4	68	50	184	240	242	-997
17+00.00	73.3	54.3	262.5	187.8	68	50	234	234	260	-997
17+25.00	73.7	54.6	283.2	172.5	68	50	253	209	278	-953
17+50.00	74.2	56.0	316.8	158.1	68	51	278	192	295	-867
17+75.00	64.8	57.8	353.8	199.6	64	53	310	208	306	-765
17+99.21	59.9	50.7	221.4	222.4	56	49	258	237	313	-744
18+00.00	60.0	50.3	215.3	222.6	2	1	6	9	314	-747
18+04.86	58.7	48.3	178.8	223.9	11	9	35	50	316	-762
18+25.00	47.9	38.8	46.9	193.4	40	32	84	195	324	-873
18+30.07	37.3	25.8	20.7	148.1	8	6	6	40	326	-907
18+50.00	12.4	2.8	10.6	25.2	18	11	12	80	333	-975
18+57.85	3.4	0.0	5.2	3.3	2	0	2	5	335	-978
Totals					1420	1085	3814	4792		

East Frontage Road S										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
8+16.84	17.0	15.7	18.1	3.4						
8+25.00	18.1	15.7	11.9	3.6	5	5	5	2	0	3
8+50.00	21.1	15.5	6.4	18.2	18	14	9	13	4	-1
8+64.83	21.7	13.2	6.5	32.0	12	8	4	18	8	-15
8+72.00	37.6	31.1	6.8	89.2	8	6	2	20	10	-33
8+75.00	37.5	31.0	6.6	88.9	4	3	1	13	11	-45
9+00.00	35.8	29.4	4.6	75.5	34	28	5	95	17	-135
9+25.00	32.5	27.9	79.4	30.4	32	27	39	62	22	-158
9+50.00	31.4	38.2	166.4	31.1	30	31	114	35	21	-79
9+75.00	43.0	44.0	355.2	25.8	34	38	241	33	17	129
10+00.00	38.3	41.3	243.5	37.9	38	39	277	37	16	369
10+25.00	49.9	52.9	208.0	72.0	41	44	209	64	13	514
10+50.00	65.0	75.8	134.3	123.0	53	60	158	113	6	559
10+75.00	69.5	71.4	55.6	76.6	62	68	88	115	0	532
11+00.00	0.0	67.8	64.1	18.8	32	64	55	55	-32	532
11+25.00	20.8	70.9	224.9	7.7	10	64	134	15	-86	651
11+50.00	90.7	75.2	346.6	2.3	52	68	265	7	-102	909
11+75.00	78.0	79.7	383.7	1.6	78	72	338	3	-96	1244
12+00.00	79.1	80.8	403.2	1.6	73	74	364	3	-97	1605
12+25.00	78.5	80.2	376.7	2.2	73	75	361	3	-99	1963
12+50.00	75.9	77.6	366.8	1.8	71	73	344	3	-101	2304
12+75.00	67.5	69.2	365.8	1.6	66	68	339	3	-103	2640
13+00.00	60.3	62.3	374.4	1.7	59	61	343	3	-105	2980
13+25.00	56.0	57.1	414.5	1.7	54	55	365	3	-106	3342
13+50.00	0.0	49.6	413.9	1.7	26	49	384	3	-129	3723
13+75.00	0.0	41.9	364.6	3.6	0	42	360	3	-171	4080
13+80.10	0.0	41.9	351.1	3.3	0	8	68	2	-179	4146
14+00.00	0.0	32.3	294.4	4.1	0	27	238	4	-206	4380
14+23.42	0.0	0.0	135.9	0.0	0	14	187	3	-220	4564
14+25.00	0.0	29.8	159.5	6.5	0	1	9	0	-221	4573
Totals					965	1186	5306	733		

13th Ave SE										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1+50.00	4.0	7.0	14.4	0.0						
1+75.00	4.9	8.0	9.2	4.9	4	7	11	3	-3	8
2+00.00	6.8	9.9	8.1	15.7	5	8	8	13	-6	3
2+18.98	7.9	11.0	6.0	22.1	5	7	5	17	-8	-9
2+25.00	8.7	11.8	4.8	24.7	2	3	1	7	-9	-15
2+50.00	9.4	12.6	5.9	28.6	8	11	5	32	-12	-42
2+58.87	9.3	10.2	5.5	23.2	3	4	2	12	-13	-52
2+74.30	15.1	4.6	28.5	8.9	7	4	10	12	-10	-54
2+75.00	4.0	5.6	6.0	8.4	0	0	0	0	-10	-54
2+77.62	5.3	6.5	7.4	6.6	0	1	1	2	-11	-55
Totals					34	45	43	98		

* An additional 25% has been added for shrinkage

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Earthwork Values

US Hwy 2 & 42nd St SE Intersection Improvements

West Frontage Road, 13th Ave SE East Frontage Road

East Frontage Road N										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
15+15.43	16.9	0.0	15.9	0.0						
15+16.92	36.5	0.0	40.2	0.0	1	0	2	0	1	2
15+25.00	62.6	25.6	73.9	0.0	15	4	17	0	12	19
15+35.44	75.2	48.6	94.3	0.1	27	14	33	0	25	52
15+50.00	71.5	51.3	88.3	10.2	40	27	49	4	38	97
15+75.00	70.7	54.7	90.9	42.5	66	49	83	30	55	150
15+80.46	71.1	55.2	89.4	49.7	14	11	18	12	58	156
15+84.35	71.4	55.6	87.4	55.5	10	8	13	10	60	159
16+00.00	69.8	49.7	94.8	70.9	41	31	53	47	70	165
16+25.00	68.9	48.8	106.5	93.4	64	46	93	95	88	163
16+50.00	67.1	46.9	112.0	99.4	63	44	101	112	107	152
16+75.00	65.2	47.6	95.9	133.0	61	44	96	135	124	113
17+00.00	63.6	43.4	87.5	119.1	60	42	85	147	142	51
17+25.00	42.1	21.9	12.9	78.9	49	30	46	115	161	-18
17+50.00	37.7	18.1	17.5	69.3	37	19	14	87	179	-91
17+75.00	37.0	17.8	14.6	121.6	35	17	15	110	197	-186
18+00.00	42.9	41.5	74.5	161.1	37	27	41	164	207	-309
18+25.00	19.9	20.1	1.1	128.6	29	29	35	168	207	-442
18+50.00	11.1	19.0	3.5	100.8	14	18	2	133	203	-573
18+75.00	10.8	17.8	16.1	65.5	10	17	9	97	196	-661
19+00.00	37.3	17.9	0.2	113.2	22	17	8	104	201	-757
19+25.00	29.5	10.7	0.7	121.3	31	13	0	137	219	-894
19+50.00	31.2	11.9	16.0	103.8	28	10	8	130	237	-1016
19+75.00	28.2	14.1	30.0	54.7	27	12	21	92	252	-1087
20+00.00	44.5	37.0	150.8	31.9	34	24	84	50	262	-1053
20+25.00	46.9	39.4	128.1	14.4	42	35	129	27	269	-951
20+37.85	47.1	40.3	104.3	9.2	22	19	55	8	272	-904
20+50.00	47.0	40.2	78.9	8.3	21	18	41	5	275	-868
20+75.00	46.9	40.0	49.1	13.3	43	37	59	13	281	-822
21+00.00	22.1	17.5	19.7	7.9	32	27	32	13	286	-803
21+25.00	18.8	17.5	31.2	3.8	19	16	24	7	289	-786
21+29.36	18.5	17.6	35.2	3.6	3	3	5	2	289	-783
Totals					997	708	1271	2054		

Prive Drive @ 17+50										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1+18.00	12.9	2.3	0.0	83.6						
1+25.00	27.3	15.0	12.1	119.4	5	2	2	33	3	-31
1+50.00	26.2	26.7	49.8	77.8	25	19	29	114	9	-116
1+74.95	14.2	13.4	0.0	54.6	19	18	23	77	10	-170
2+00.00	5.1	3.6	0.8	17.5	9	8	0	42	11	-212
2+25.00	4.6	3.6	5.8	6.2	4	3	3	14	12	-223
2+35.00	4.2	3.1	8.0	2.3	2	1	3	3	13	-223
Totals					64	51	60	283		

Private Drive @ 18+55										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1+25.00	21.9	12.9	14.5	46.5						
1+50.00	23.4	9.5	8.0	52.4	21	10	10	58	11	-48
1+71.95	46.2	38.6	54.9	32.0	28	20	26	43	19	-65
1+75.00	22.1	9.8	1.4	41.2	4	3	3	5	20	-67
2+00.00	23.1	21.3	26.0	12.5	21	14	13	32	27	-86
2+25.00	13.0	11.0	4.7	9.8	17	15	14	13	29	-85
2+50.00	17.3	14.9	8.0	7.8	14	12	6	10	31	-89
2+55.87	17.7	15.4	8.8	7.4	4	3	2	3	32	-90
Totals					109	77	74	164		

Temporary Access										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
21+33.90	41.2	4.8	73.8	0.0						
21+50.00	27.5	2.9	38.0	0.0	20	2	33	0	18	33
21+75.00	61.1	44.7	0.0	433.8	41	22	18	252	37	-201
22+00.00	85.4	67.4	0.0	806.5	68	52	0	718	53	-919
22+10.00	87.3	67.5	0.0	806.0	32	25	0	374	60	-1293
22+25.00	87.1	63.2	0.0	788.5	48	36	0	554	72	-1847
22+50.00	81.9	47.9	0.0	647.9	78	51	0	832	99	-2679
22+75.00	67.4	9.8	0.0	53.8	69	27	0	407	141	-3086
23+14.75	34.3	2.4	29.4	0.0	75	9	22	50	207	-3114
23+25.00	68.2	17.0	0.0	181.7	19	4	6	43	222	-3151
23+50.00	63.6	23.2	0.0	244.7	61	19	0	247	264	-3398
24+25.00	101.5	46.5	0.0	878.7	229	97	0	1950	396	-5348
24+33.00	110.0	58.7	0.0	1072.1	31	16	0	362	411	-5710
24+50.00	100.7	51.4	0.0	805.2	66	35	0	739	442	-6449
24+75.00	70.0	10.7	0.0	45.0	79	29	0	493	492	-6942
24+79.00	56.3	4.9	28.3	1.4	9	1	2	4	500	-6944
Totals					925	425	81	7025		

Temporary Prive Drive										
Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
20+75.00	23.1	8.2	99.6	7.2						
21+00.00	24.6	10.4	99.8	6.2	22	9	92	8	13	84
21+25.00	19.6	6.6	55.6	3.6	20	8	72	7	25	149
21+50.00	20.3	7.2	42.6	3.6	18	6	45	4	37	190
21+73.66	21.2	8.2	32.4	5.4	18	7	33	5	48	218
Totals					78	30	242	24		

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Earthwork Values

US Hwy 2 & 42nd St SE Intersection Improvements

East Frontage Road Private Drives Temporary Access

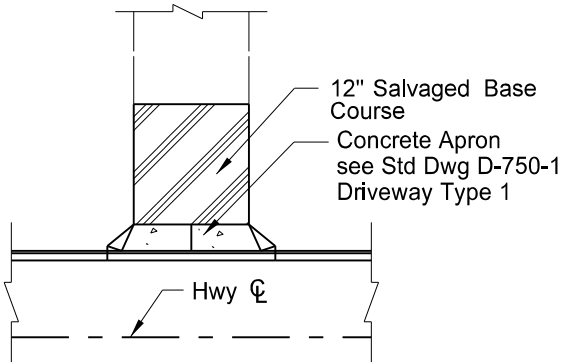
* An additional 25% has been added for shrinkage

Note: End Areas and Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland".

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	20	1

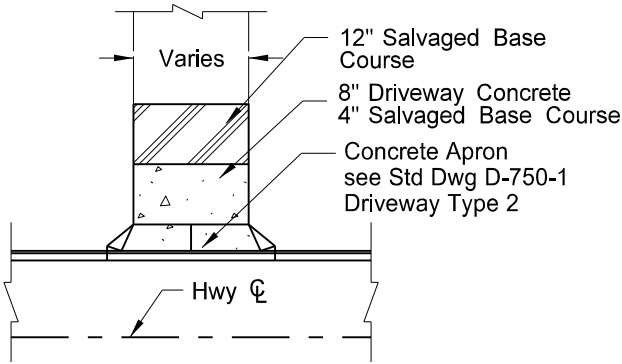
Notes:

1. Actual HMA paving and Salvaged Base Course locations may vary in the field, as approved by the Engineer.
2. Quantities are located in Sections 60 & 100 and the totals have been included in the bid items of the "Estimate of Quantities" of the plans.
3. See Sections 82 & 100 for design details



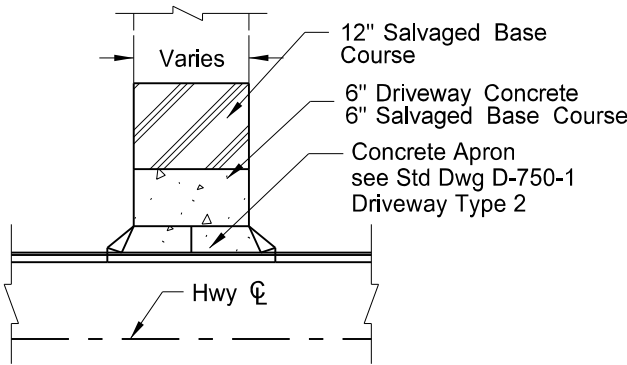
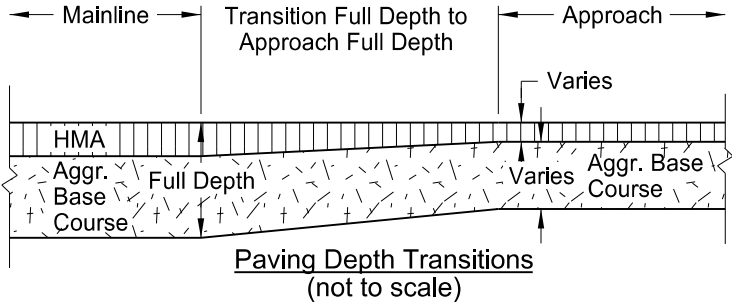
(1) Gravel Private Drive Approach

Private Drive @ 13+00 RT (PR42)
Private Drive @ 14+50 RT (PR42)
Private Drive @ 17+30 RT (PR42)
Private Drive @ 12+30 LT (PR14)
Private Drive @ 13+35 LT (PRFRONT_W)
Private Drive @ 11+30 RT (PRFRONT_E)



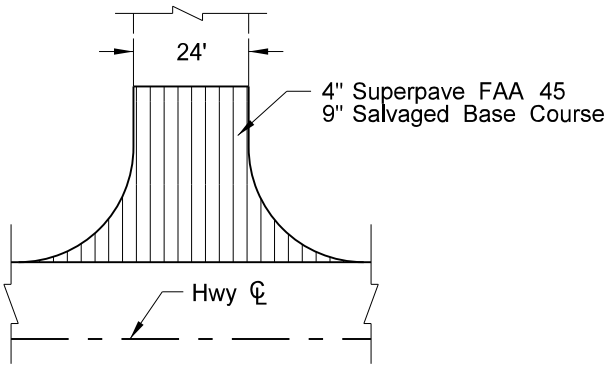
(2) Concrete Private Drive Approach

Private Drive @ 11+00 RT (PR14)



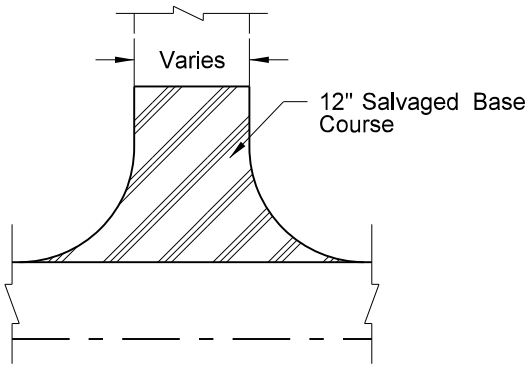
(3) Concrete Private Drive Approach

Private Drive @ 12+70 RT (PR14)



(4) Asphalt Approach

Private Drive @ 17+50 RT (PRFRONT_E)
Private Drive @ 18+55 RT (PRFRONT_E)



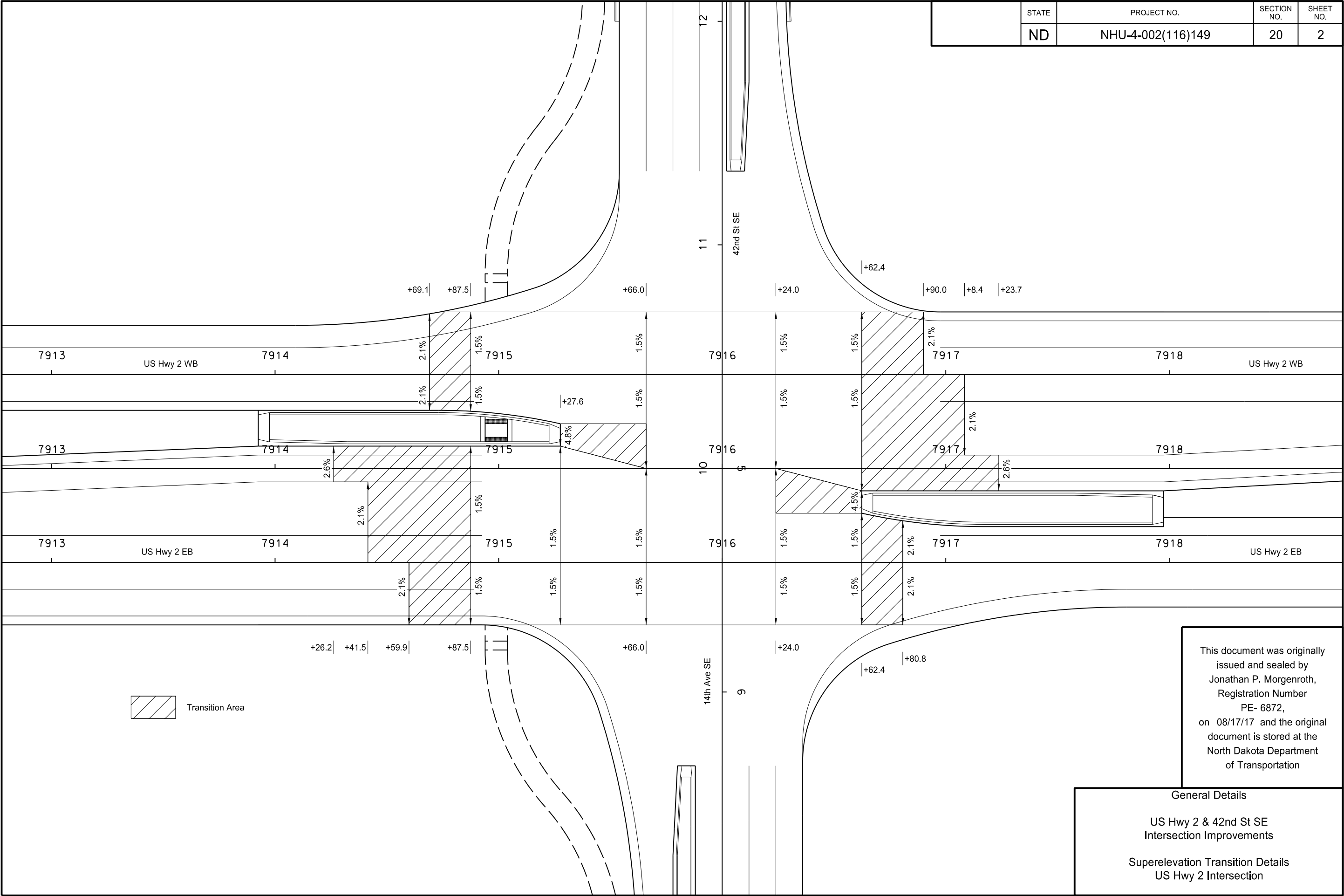
(5) Temporary Gravel Approach

Temporary Access Road @ 7901+25 (SCL2CL)
Temporary Private Drive @ 6+63.63 RT (PRFRONT_E)

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General Details

US Hwy 2 & 42nd St SE
Intersection Improvements
Approach Paving Details



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	20	2

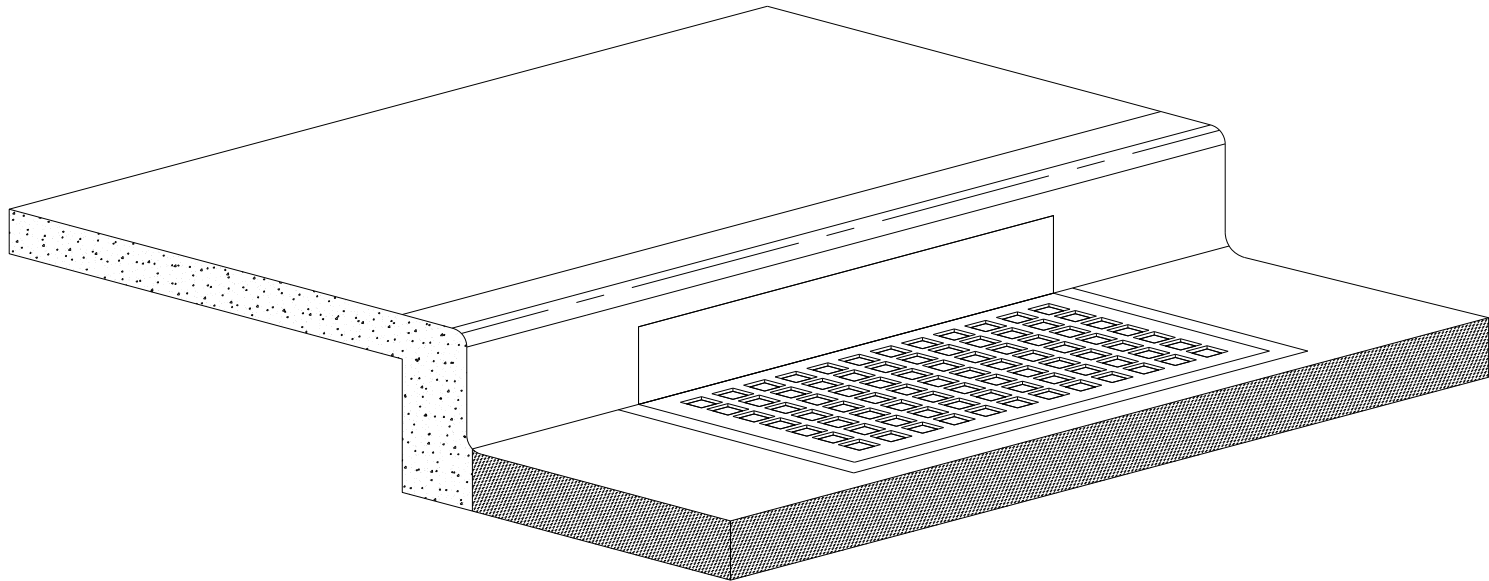
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General Details

US Hwy 2 & 42nd St SE
Intersection Improvements

Superelevation Transition Details
US Hwy 2 Intersection

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	20	3



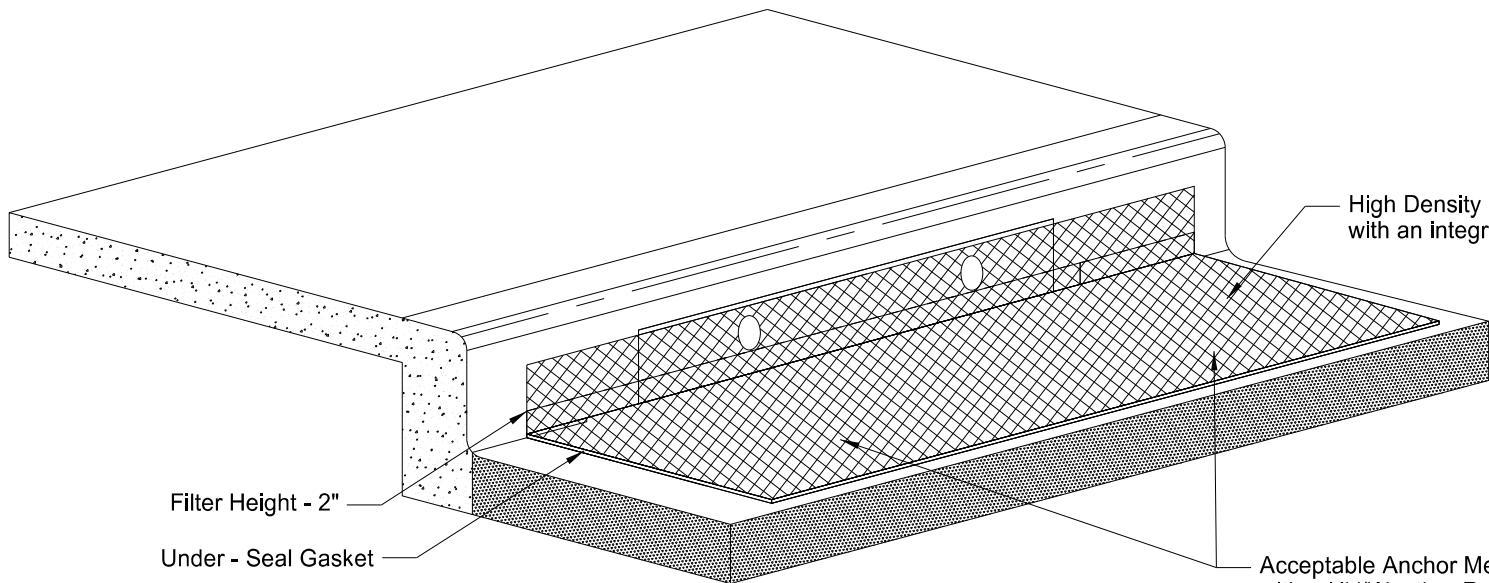
Inlet Protection Device

Installation Notes:

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

General Notes:

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



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General Details

US Hwy 2 & 42nd St SE
Intersection Improvements

Inlet Protection Device

Erosion Control Blanket (ECB)				
Location of Surface Area to be Protected	Pipe Diam (Inch)	No.	Unit Quantity (SY)	Total Quantity Type 1 (SY)
Station	Alignment			
7917+17.39 RT	US Hwy 2 (SCL2CL)	18	1 22	22
7924+08.49 LT	US Hwy 2 (SCL2CL)	18	1 22	22
11+55.90	42nd St (PR42)	30	2 22	44
11+65.56	42nd St (PR42)	36	2 24	48
12+39.10 to 14+88.56 RT	42nd St (PR42)	18	2 22	44
13+26.00 LT	42nd St (PR42)	18	1 22	22
17+04.67 to 17+53.55 RT	42nd St (PR42)	18	2 22	44
6+41.00 RT	14th Ave SE (PR14)	42	1 25	25
6+41.00 LT	14th Ave SE (PR14)	36	1 24	24
12+29.00 RT	West Frontage Road (PRFRONT_W)	18	1 22	22
8+72.00 LT	East Frontage Road (PRFRONT_E)	18	1 22	22
8+95.02 LT	East Frontage Road (PRFRONT_E)	30	1 22	22
17+25.94 to 17+82.66 RT	East Frontage Road (PRFRONT_E)	18	2 22	44
18+46.34 to 19+64.19 RT	East Frontage Road (PRFRONT_E)	24	2 24	48
20+37.85	East Frontage Road (PRFRONT_E)	24	2 20	40
Total (SY)				493

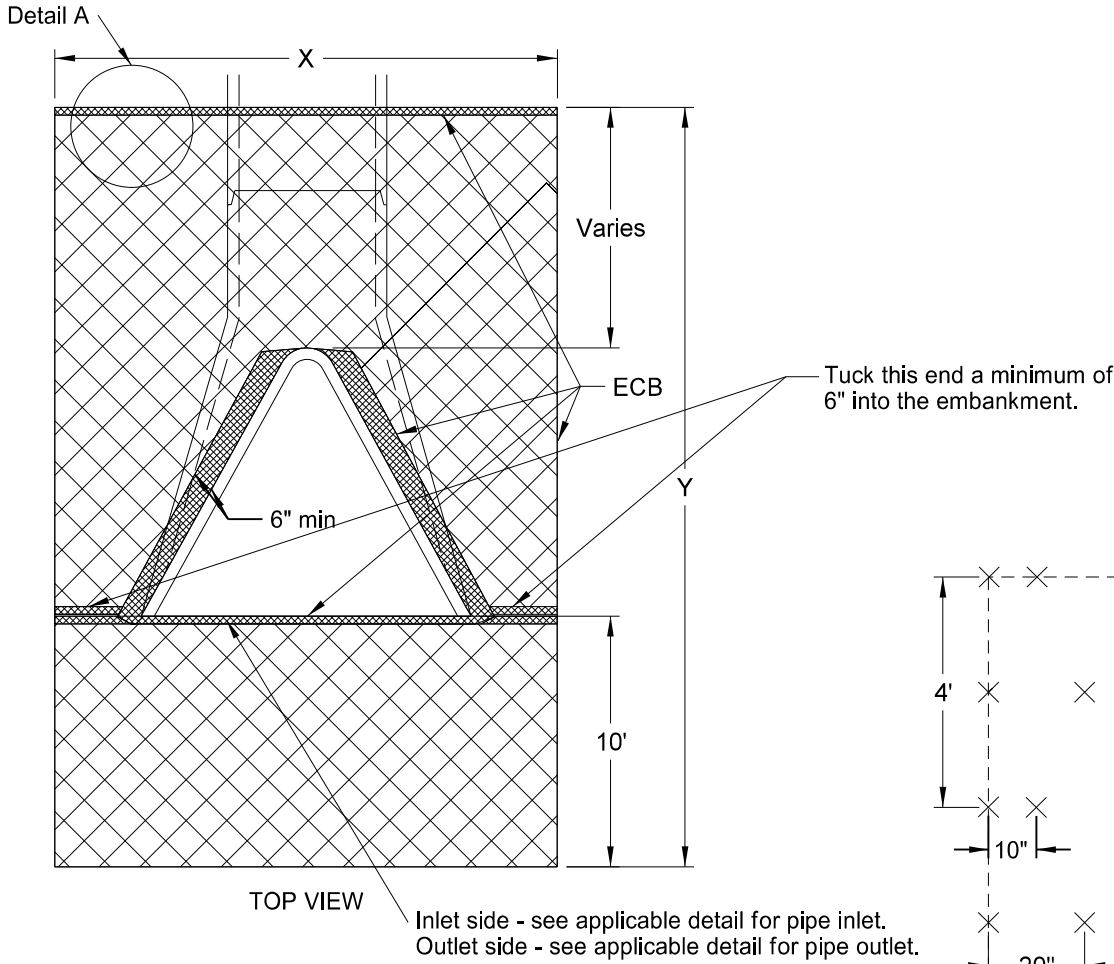
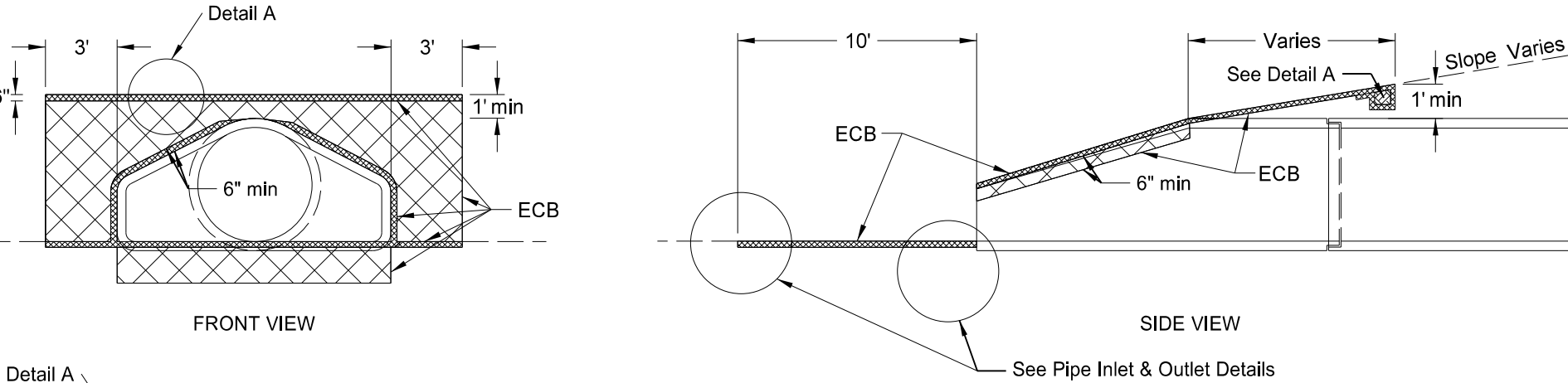
APPROACH CULVERTS				
DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
15	9.0	20.0	176.0	20
18	9.5	20.7	190.7	22
21	9.5	21.0	190.9	22
24	10.5	21.6	214.1	24
27	11.0	22.0	226.3	25
30	11.6	22.5	241.5	27
36	12.7	23.3	268.8	30
42	13.3	23.3	279.7	31
48	13.8	24.0	293.2	33
54	14.5	23.4	300.6	34
60	15.0	23.0	307.5	35
66	15.6	24.0	325.6	37
72	16.2	24.5	340.6	38
Note: Quantities based on 8:1 slope.				

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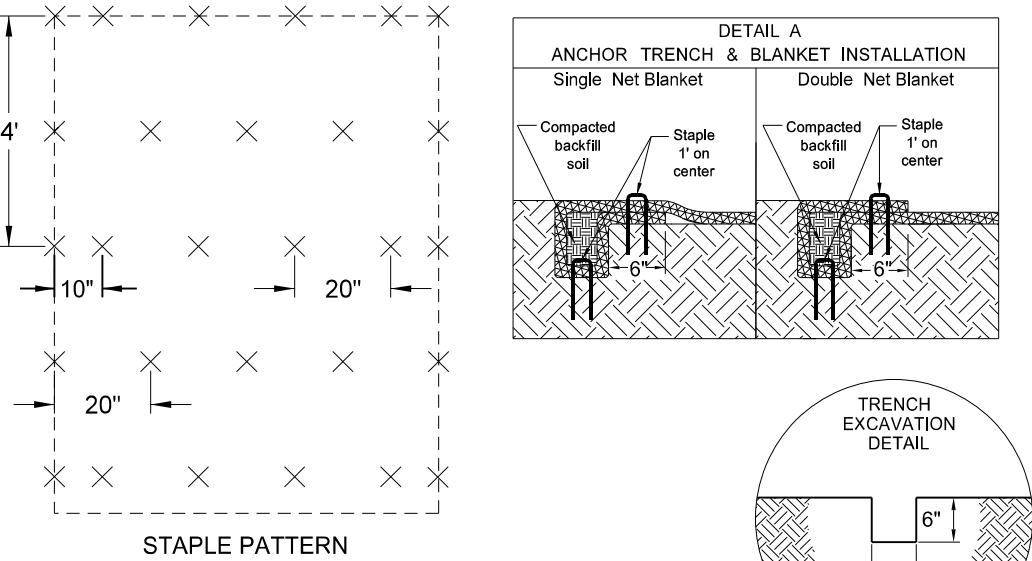
General Details

US Hwy 2 & 42nd St SE Intersection Improvements

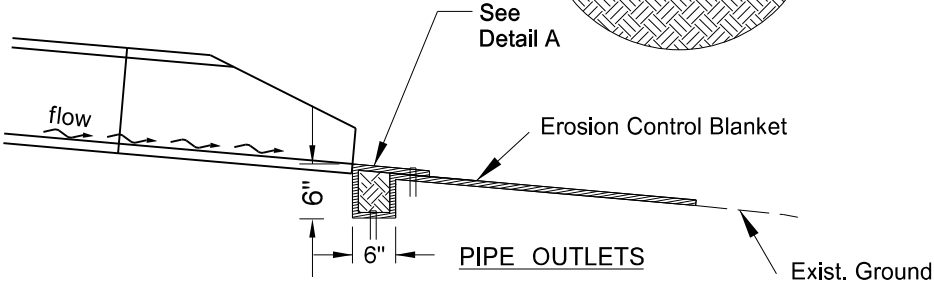
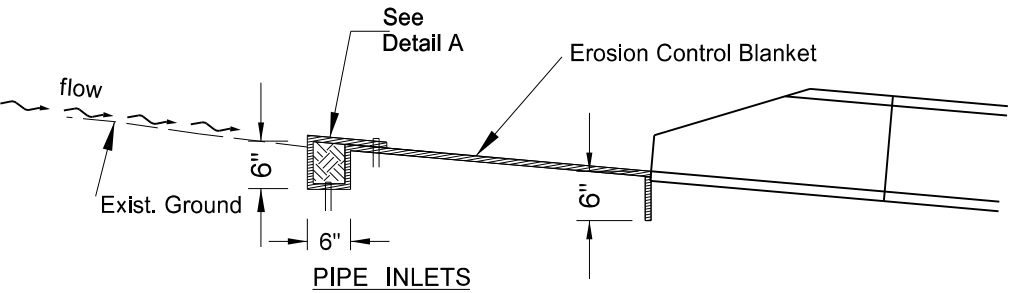
Erosion Control at Culvert Flared End Sections



CENTERLINE CULVERTS									
DIA	X	Y	Surface area to be protected	ECB	DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY	In	Ft	Ft	SF	SY
24	10.5	19.6	193.1	22	24	10.5	27.6	172.1	20
27	11.0	20.0	204.3	23	27	11.0	18.0	182.3	21
30	11.6	20.5	218.3	25	30	11.6	18.5	195.1	22
36	12.7	21.2	242.1	27	36	12.7	19.2	216.7	24
42	13.3	21.2	251.8	28	42	13.3	19.2	225.2	25
48	13.8	22.0	265.6	30	48	13.8	20.0	238.0	27
54	14.5	21.5	273.7	31	54	14.5	19.5	244.7	28
60	15.0	21.0	278.3	31	60	15.0	19.0	248.3	28
66	15.6	22.0	295.7	33	66	15.6	20.0	264.5	30
72	16.2	22.5	309.2	35	72	16.2	20.5	276.8	31
Note: Quantities based on 6:1 slope.					Note: Quantities based on 4:1 slope.				

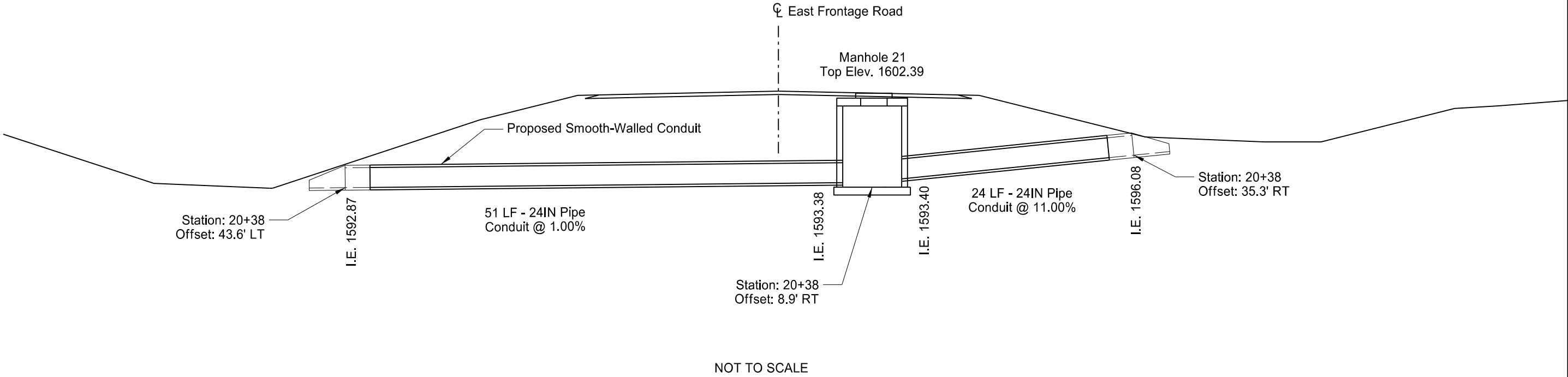


NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	20	5

714	4107	Pipe Conduit 24IN-Storm Drain		
		20+38 - 35' RT to 21	24	LF
		21 to 20+38 - 44' LT	51	LF
722	0100	Manhole 48IN		
		21	1	EA
722	1100	Manhole Riser 48IN		
		21	8.3	LF
754	0805	Object Marker - Culverts		
		20+38 RT/LT	2	EA



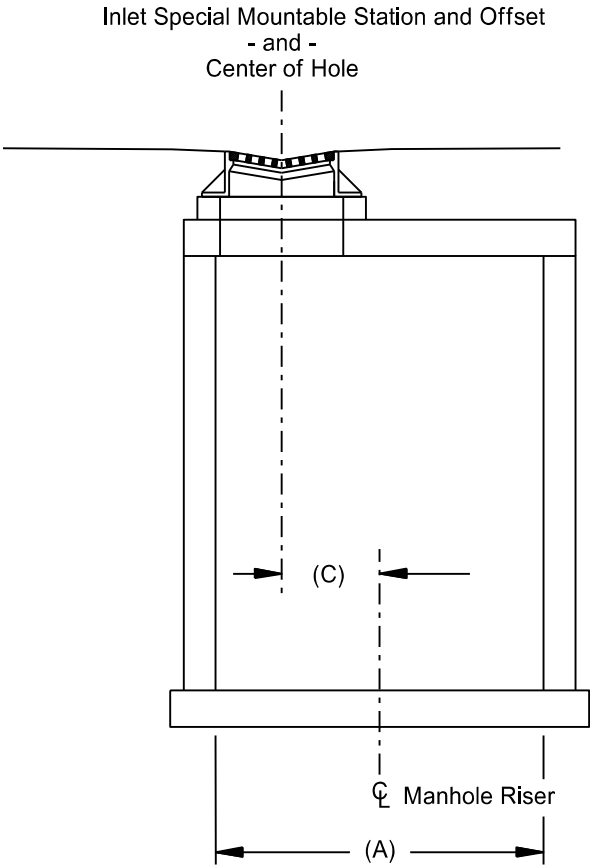
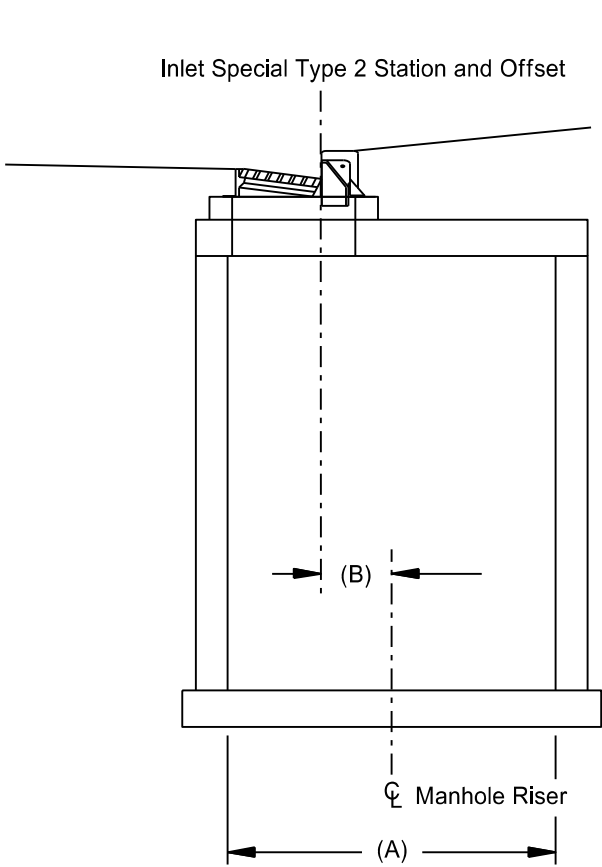
- General Notes:
- This detail applies only to smooth-walled conduit construction of the East Frontage Road centerline culvert at station 20+38. If rough-walled conduit is selected for construction, disregard this detail and construct based on the information provided in other portions of this planset.
 - See Sections 50 and 51 for additional information.
 - See East Frontage Road Cross Section 20+37.85 for accurate roadway cross section.

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General Details

US Hwy 2 & 42nd St SE
Intersection Improvements

Smooth-Walled Conduit Alternative for
Culvert at East Frontage Road 20+38



(A)	(B)	(C)
Diameter (in.)	Offset for Type 2 Inlet (ft.)	Offset for Mount. Inlet (ft.)
48	0.28	0.79
54	0.57	1.08
60	0.78	1.29
66	1.07	1.58
72	1.28	1.79
78	1.57	2.08
84	1.78	2.29
90	2.07	2.58
96	2.37	2.88
102	2.66	3.17
108	2.78	3.29
120	3.28	3.79

Rotate structure behind the curb.
Position opening toward centerline of roadway.

Figures not to scale.

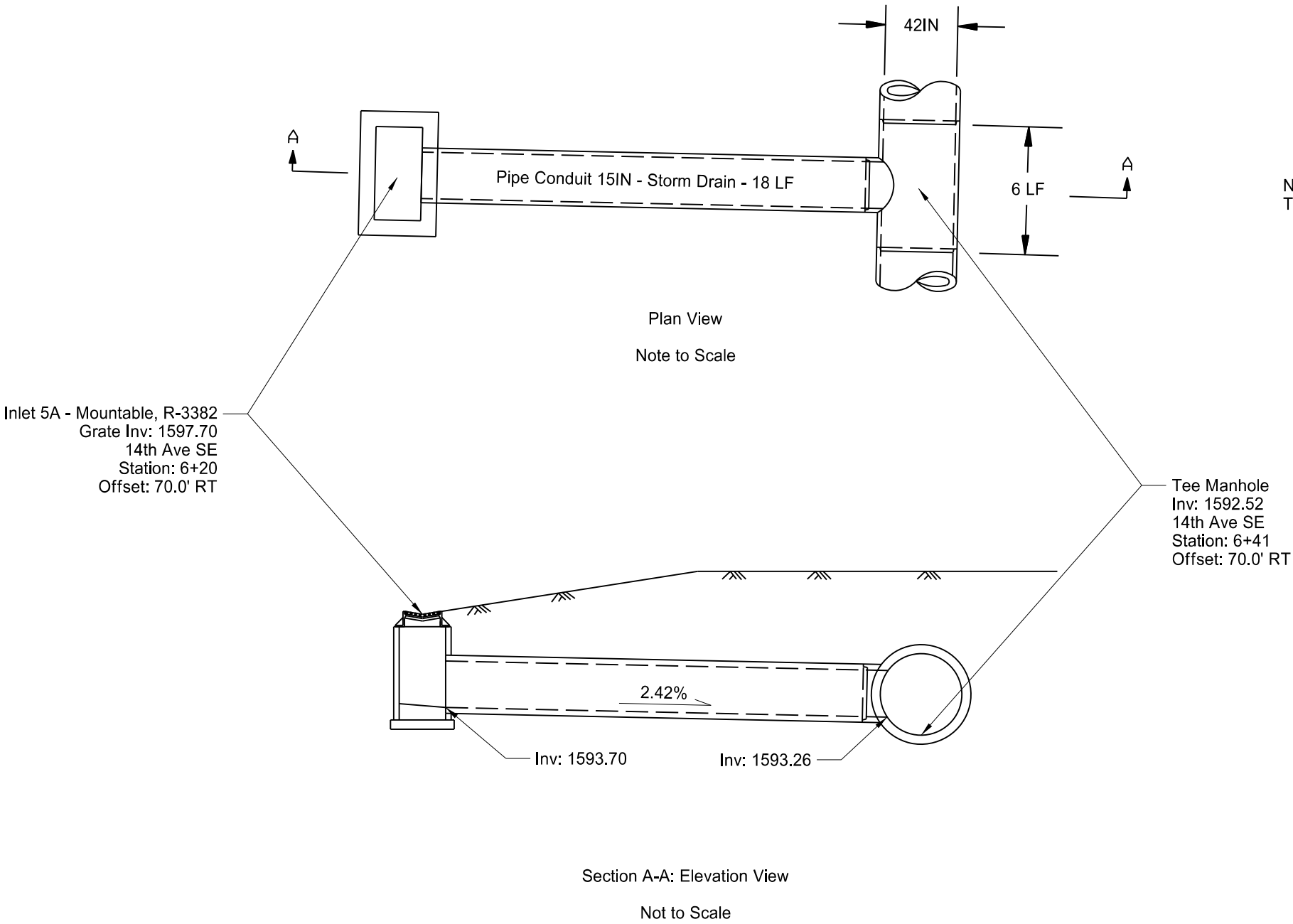
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General Details

US Hwy 2 & 42nd St SE
Intersection Improvements

Inlet Special Manhole Staking Detail

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	20	7

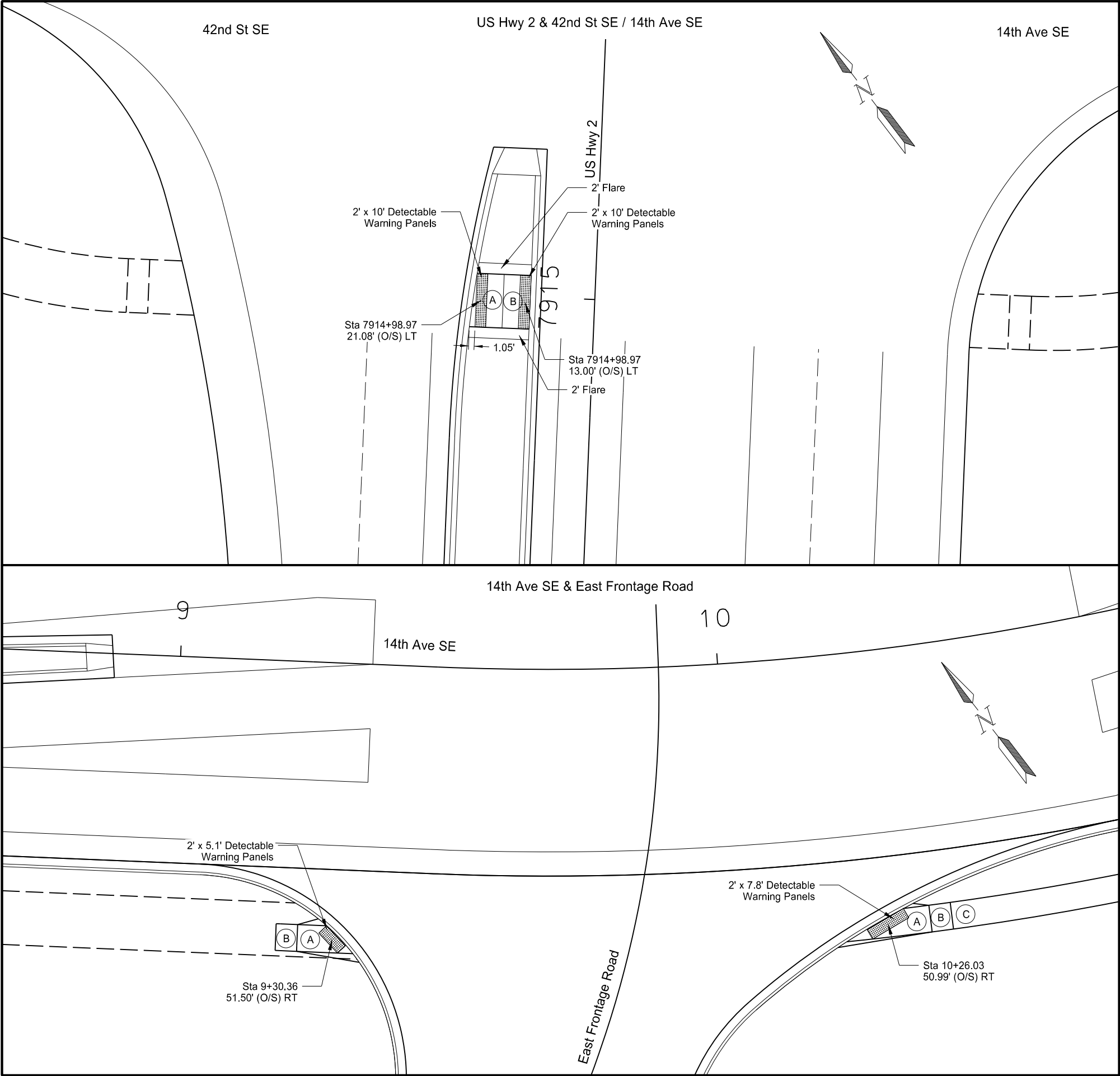


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General Details

US Hwy 2 & 42nd St SE
Intersection Improvements

Rotated Tee Manhole



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ND	NHU-4-002(116)149	20	8

Notes:

- Any ramp found to be in noncompliance shall be removed and replaced by the Contractor at their own expense.
- Dimensions shown may vary from actual. Contractor shall field fit adjust if maximum slopes Cannot be met with Dimensions Shown.
- Stations and offsets are based on SCL2CL Alignment and to the center of the detectable warning panel.
- See Standard Drawing D-750-3 for more details.

A Curb Ramp:
12:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

B Landing:
50:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope
4x4 Minimum, Match Width of Shared Use Path
4x4 Minimum not Necessary on Street Side of DWP

C 5' Sidewalk:
20:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

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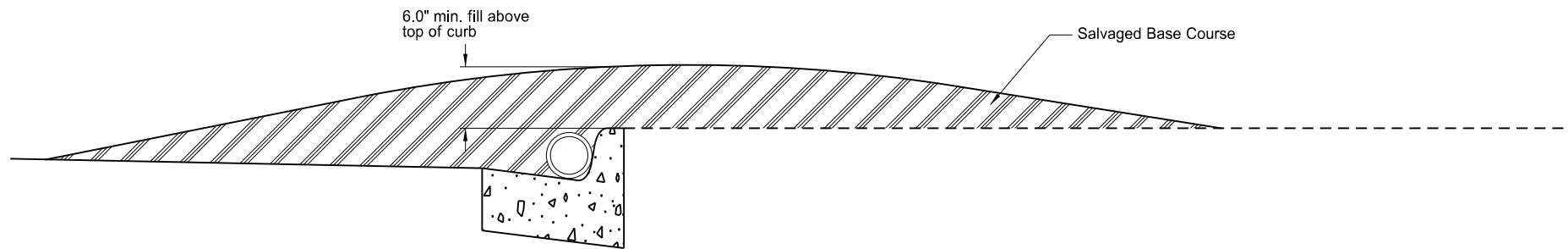
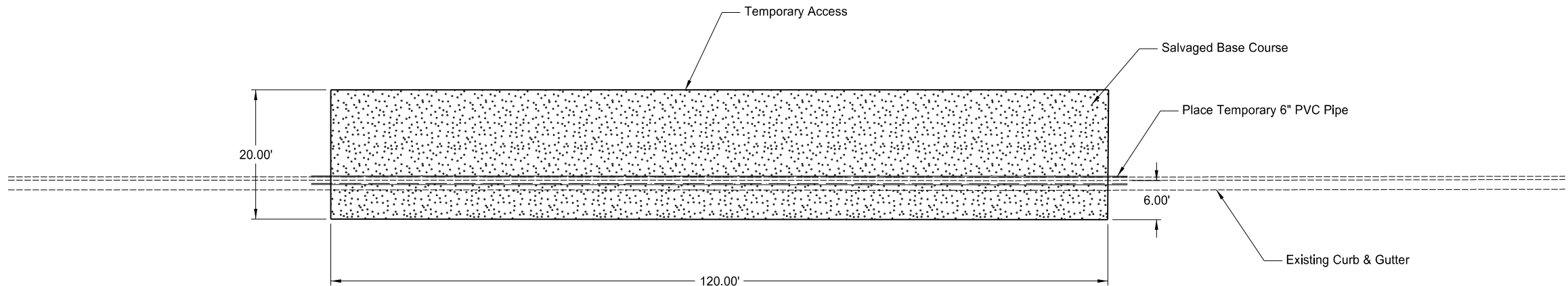
General Details

US Hwy 2 & 42nd St SE Intersection Improvements

ADA Ramp Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	20	10

Note:
Items paid for by Temporary Access which includes the installation, maintenance, and removal



Temporary Access over Curb & Gutter
Sta 8+40 to Sta 9+60 (PRFRONT_W)

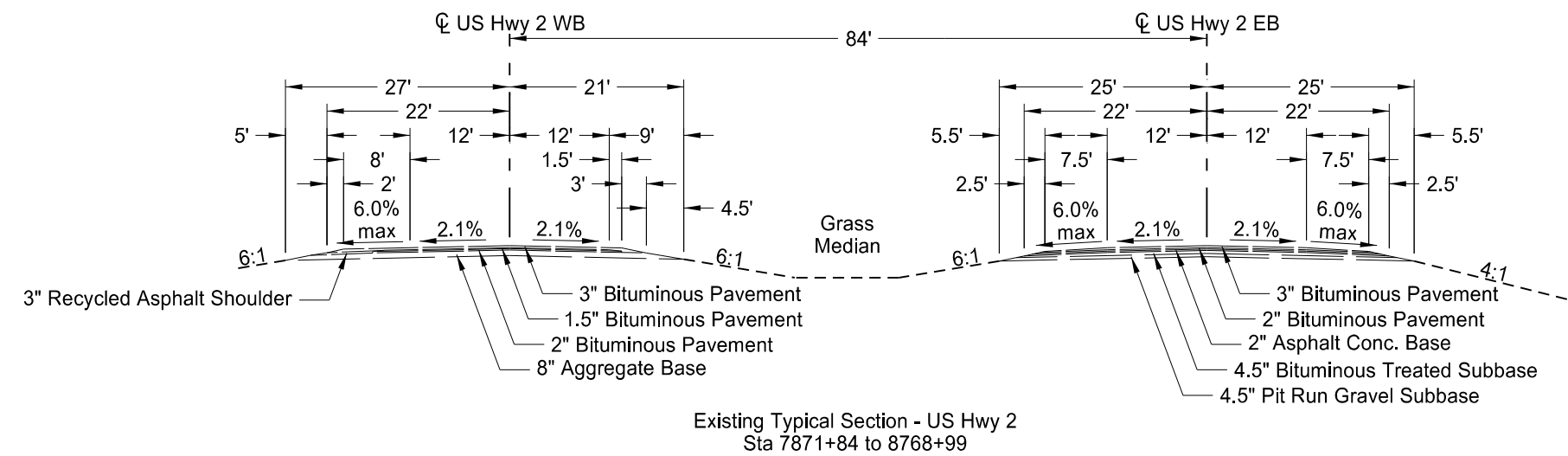
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General Details

US Hwy 2 & 42nd St SE
Intersection Improvements

Temporary Access over Curb & Gutter

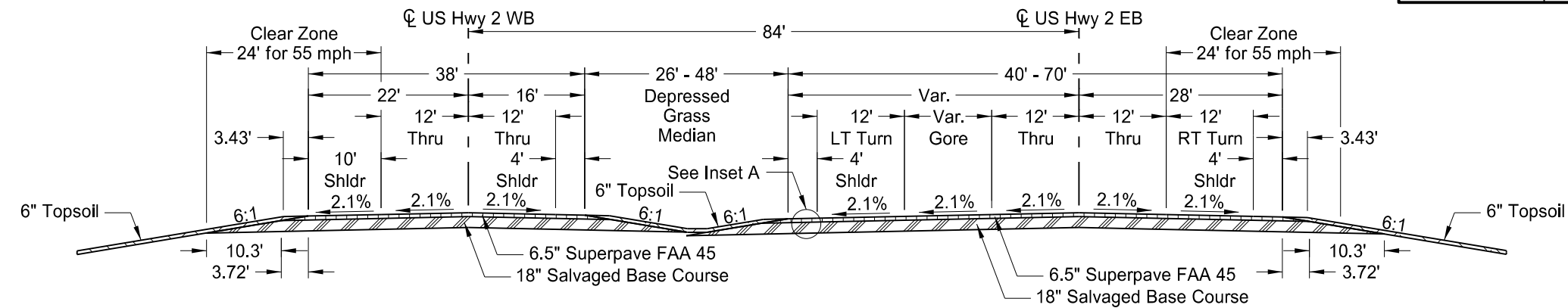
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	30	1



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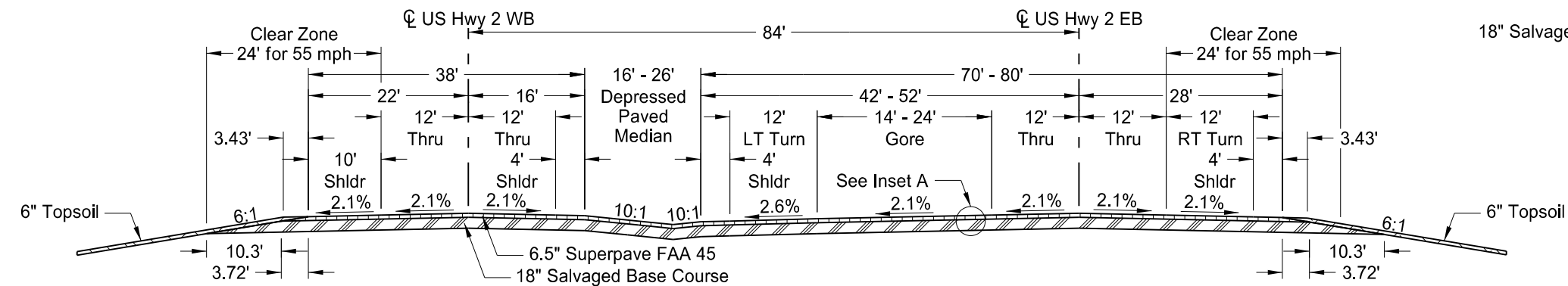
Typical Sections
US Hwy 2 & 42nd St SE
Intersection Improvements
Existing Typical Sections
US 2

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	30	2

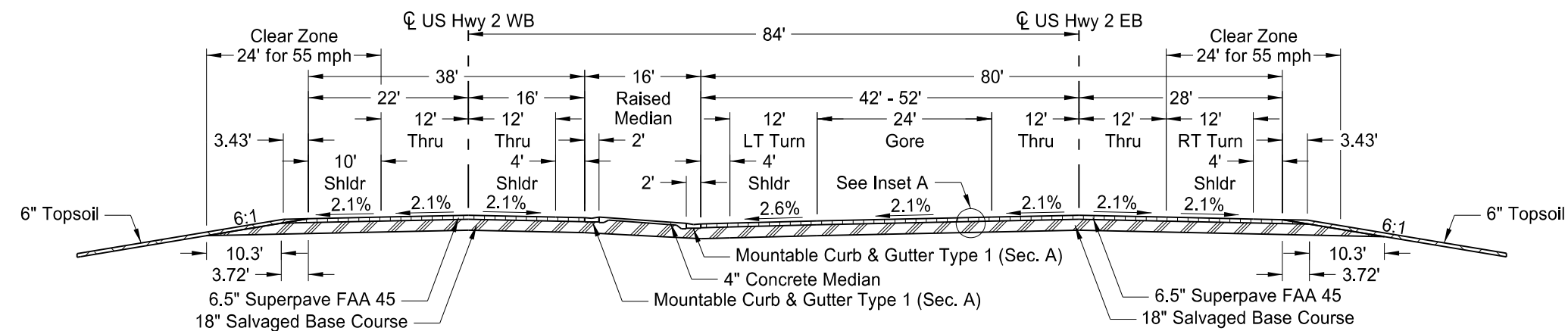


Proposed Typical Section - US Hwy 2
Sta 7906+27.50 to 7911+48.75

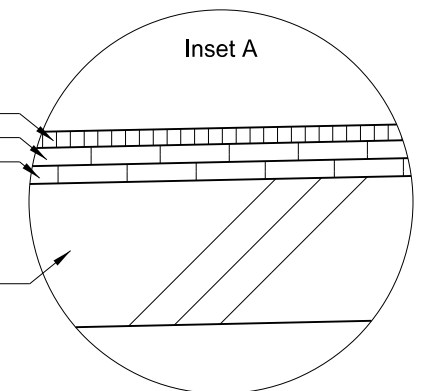
2" Superpave FAA 45 (PG 64-28)
2.25" Superpave FAA 45 (PG 58-28)
2.25" Superpave FAA 45 (PG 58-28)



Proposed Typical Section - US Hwy 2
Sta 7911+48.75 to 7913+92.50



Proposed Typical Section - US Hwy 2
Sta 7913+92.50 to 7916+00.00



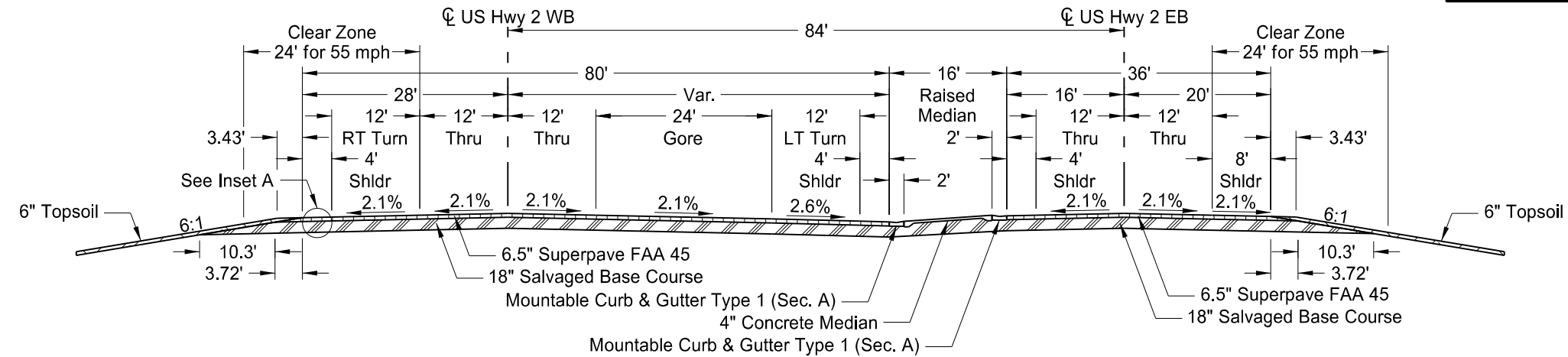
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Typical Sections

US Hwy 2 & 42nd St SE
Intersection Improvements

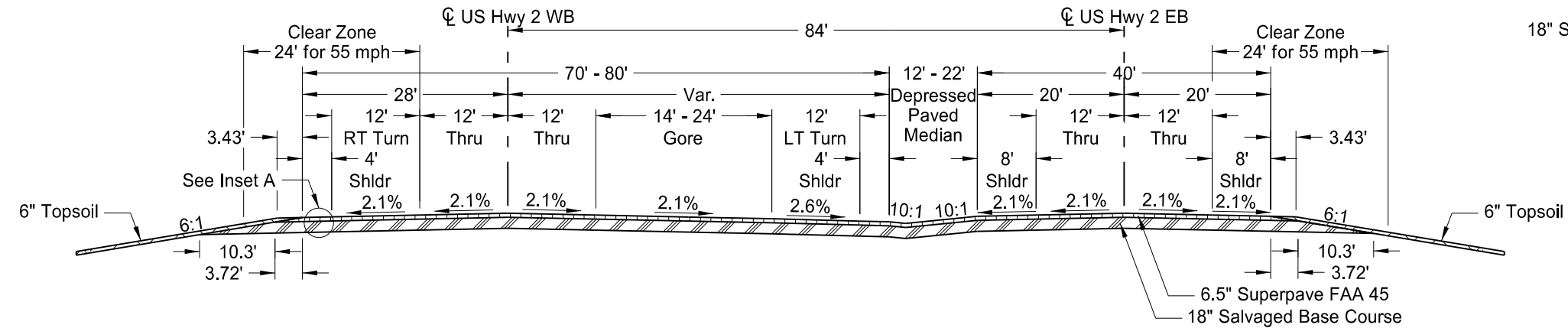
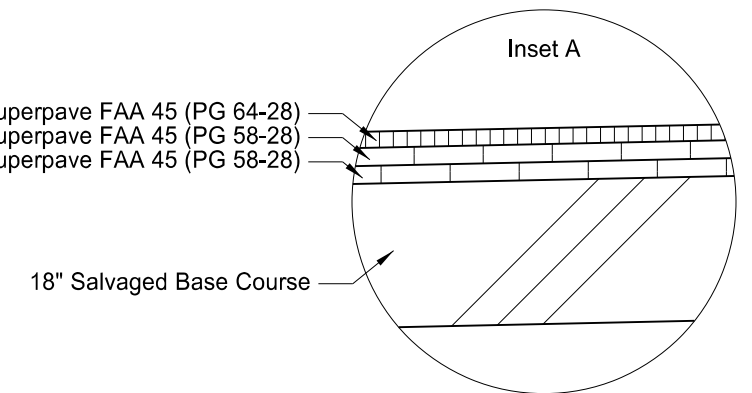
Proposed Typical Sections
US 2

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	30	3

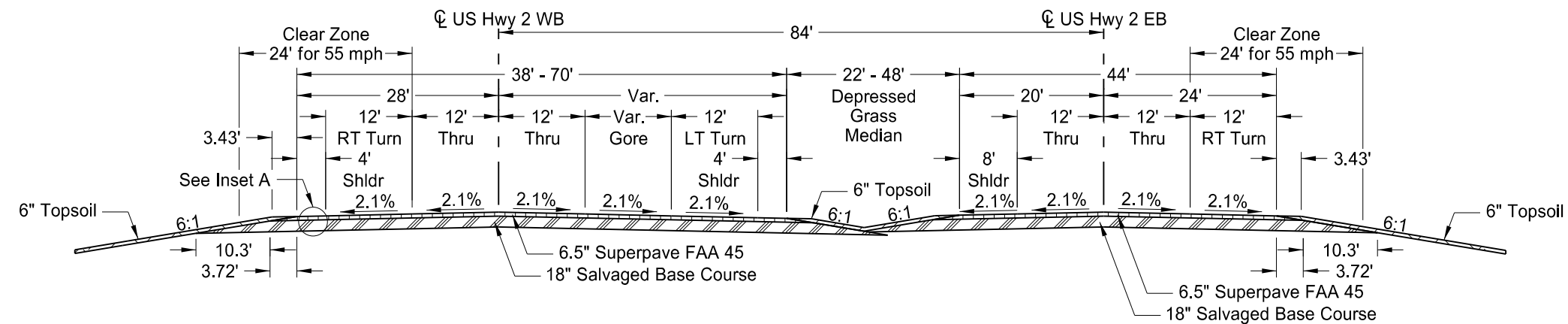


Proposed Typical Section - US Hwy 2
Sta 7916+00.00 to 7917+97.50

2" Superpave FAA 45 (PG 64-28)
2.25" Superpave FAA 45 (PG 58-28)
2.25" Superpave FAA 45 (PG 58-28)



Proposed Typical Section - US Hwy 2
Sta 7917+97.50 to 7919+80.77



Proposed Typical Section - US Hwy 2
Sta 7919+80.77 to 7924+36.29

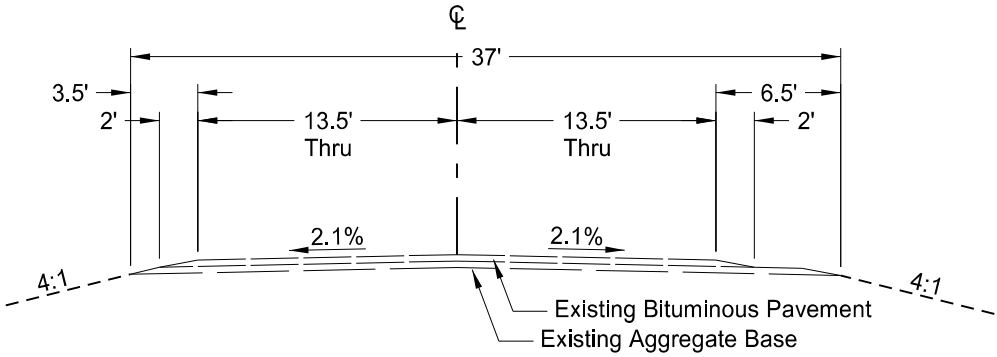
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Typical Sections

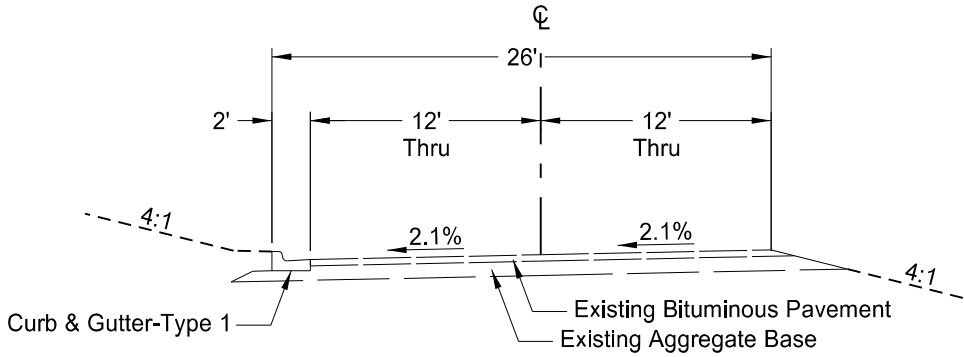
US Hwy 2 & 42nd St SE
Intersection Improvements

Proposed Typical Sections
US 2

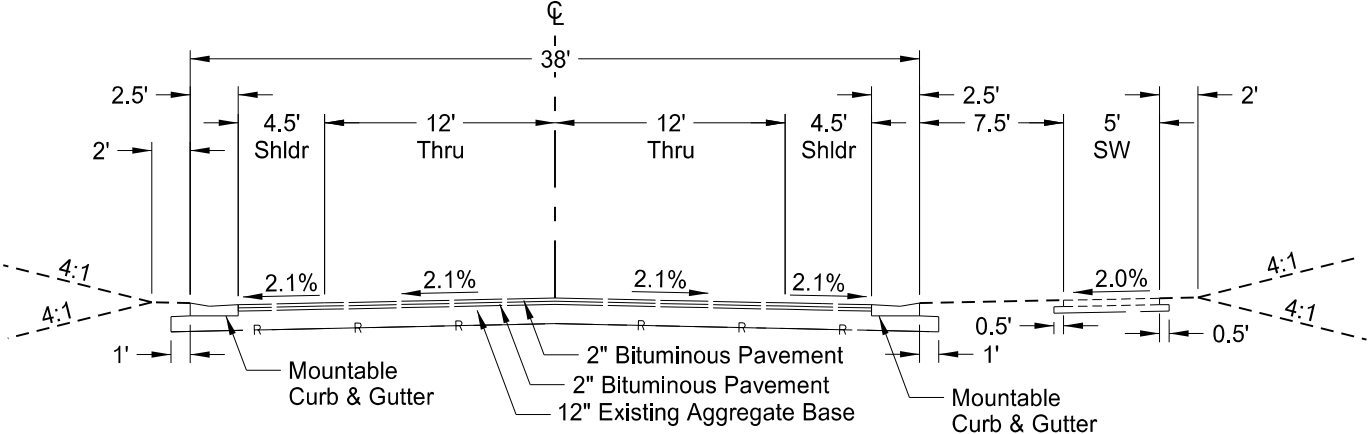
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	30	4



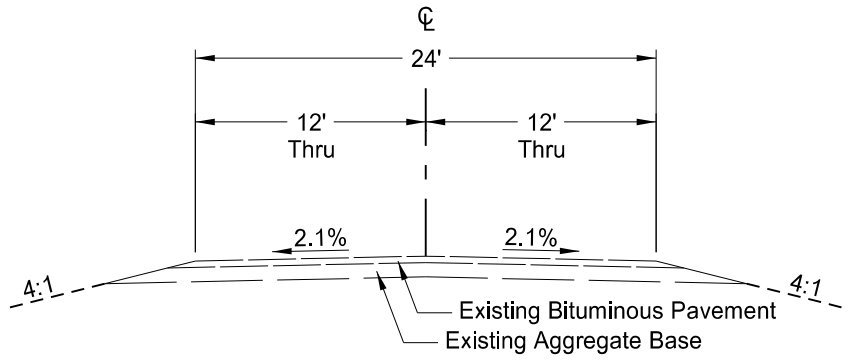
Existing Typical Section - 42nd St SE



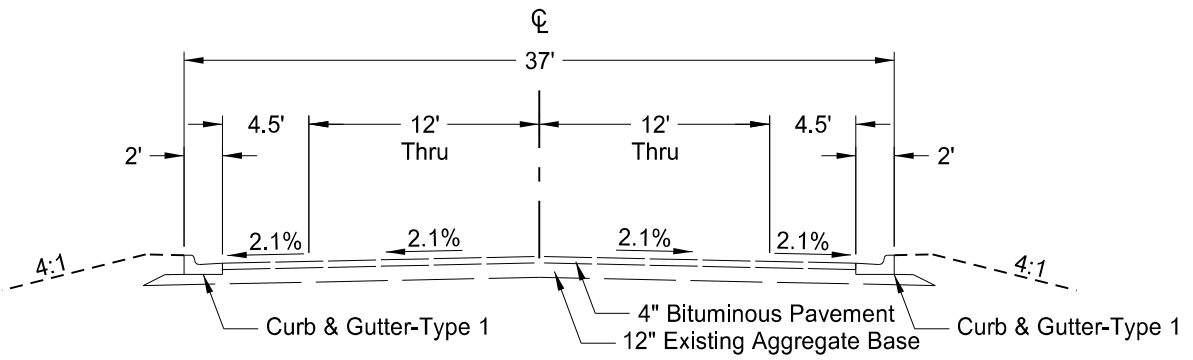
Existing Typical Section - West Frontage Road



Existing Typical Section - 14th Ave SE



Existing Typical Section - East Frontage Road



Existing Typical Section - 13th Ave SE

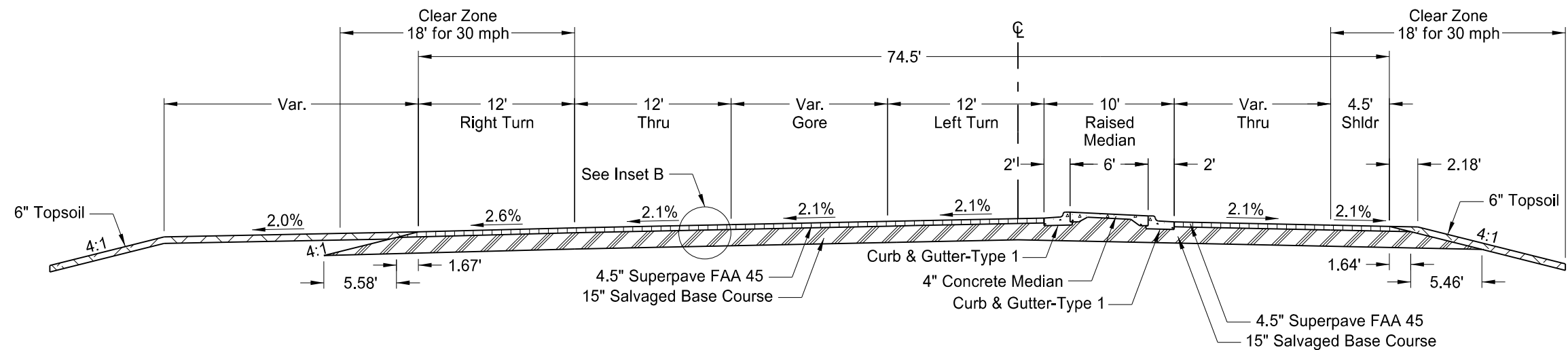
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Typical Sections

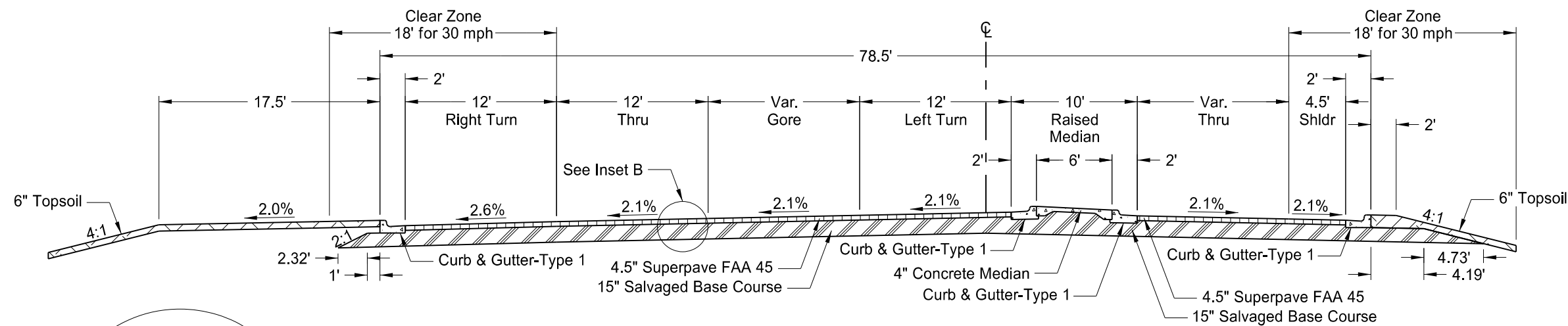
US Hwy 2 & 42nd St SE Intersection Improvements

Existing Typical Sections
42nd St SE, 14th Ave SE,
13th Ave SE, Frontage Roads

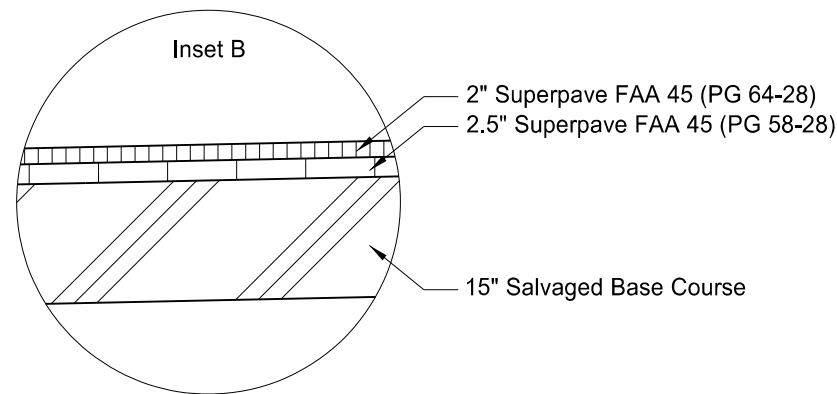
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	30	5



Proposed Typical Section - 42nd St SE
Sta 11+33.00 to 12+00.00 (PR42)



Proposed Typical Section - 42nd St SE
Sta 12+00.00 to 12+83.00 (PR42)



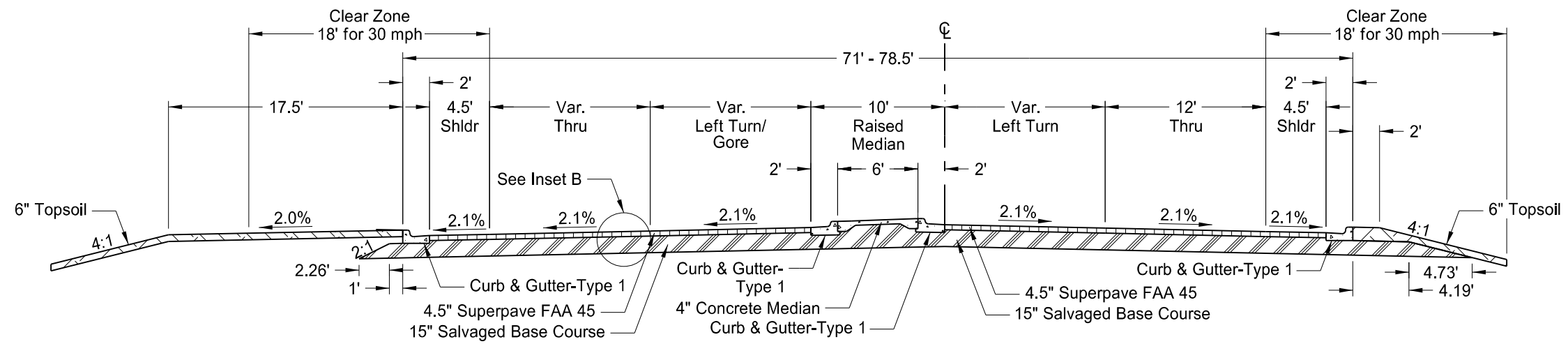
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Typical Sections

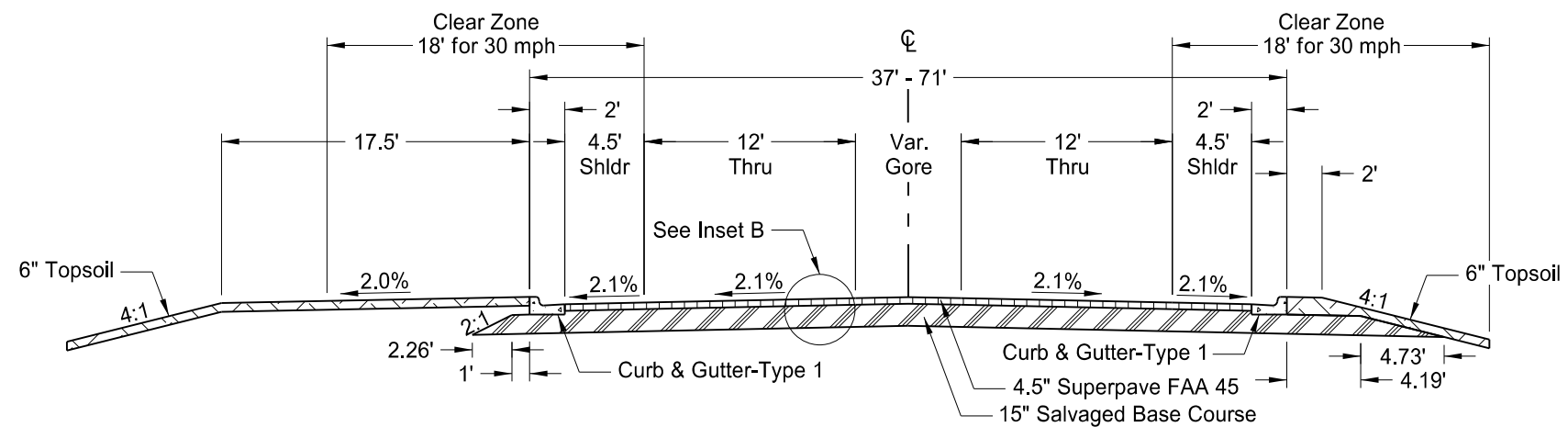
US Hwy 2 & 42nd St SE
Intersection Improvements

Proposed Typical Sections
42nd St SE

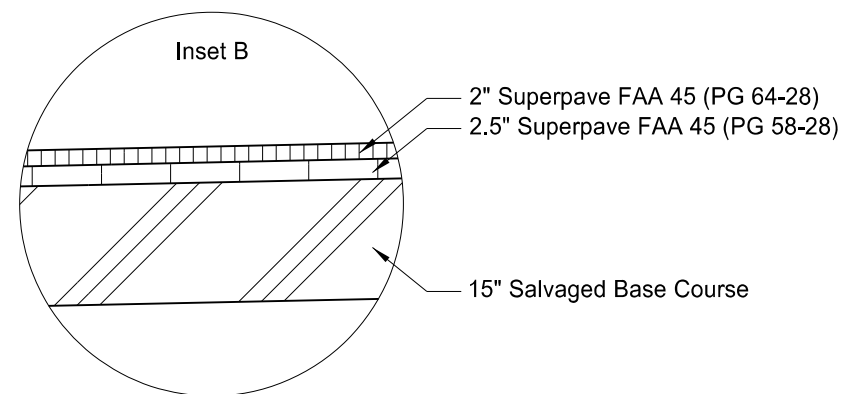
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	30	6



Proposed Typical Section - 42nd St SE
Sta 12+83.00 to 13+96.49 (PR42)



Proposed Typical Section - 42nd St SE
Sta 13+96.49 to 18+30.00 (PR42)



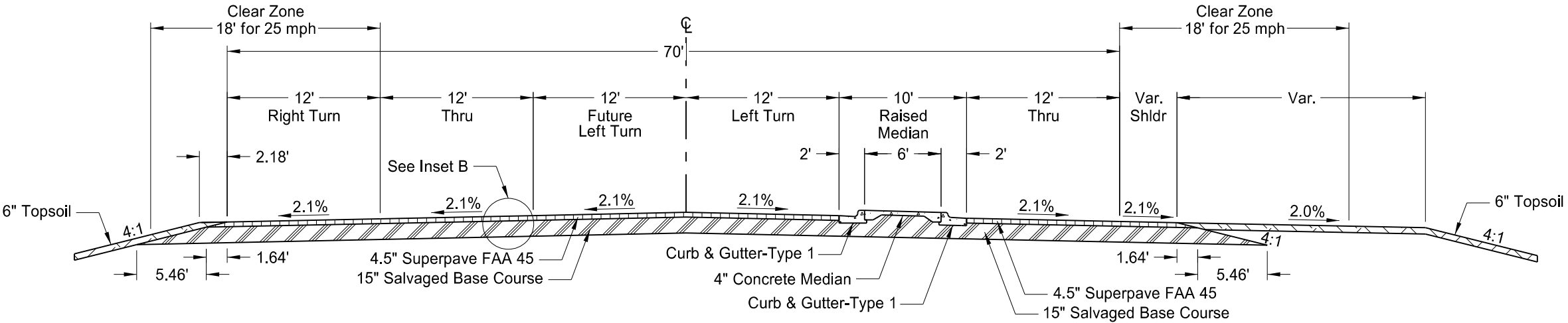
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Typical Sections

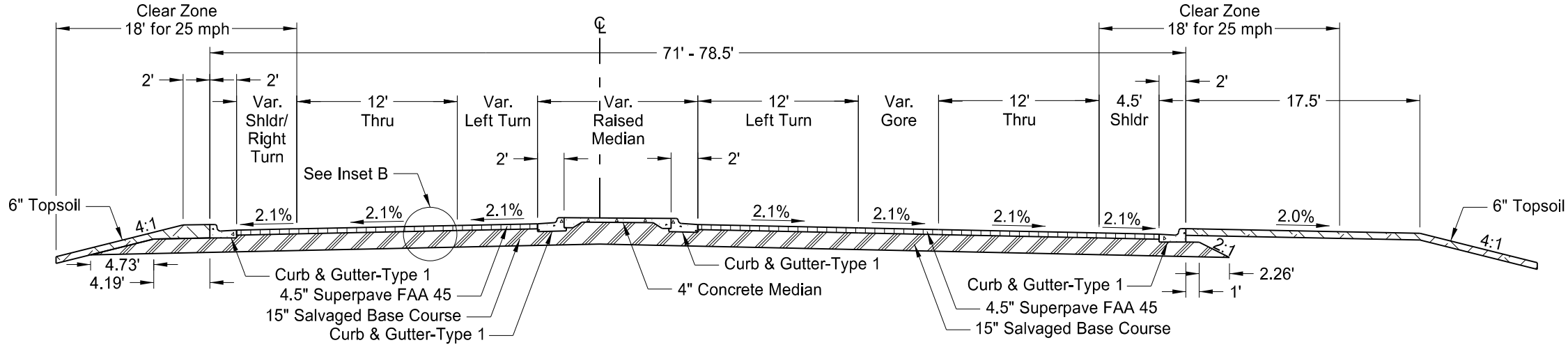
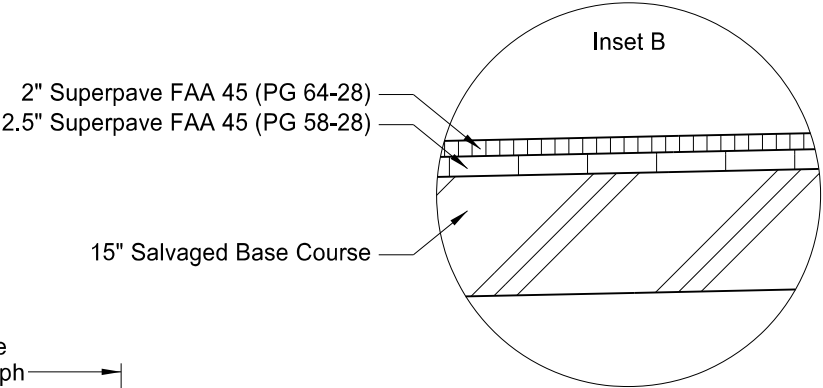
US Hwy 2 & 42nd St SE
Intersection Improvements

Proposed Typical Sections
42nd St SE

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	30	7



Proposed Typical Section - 14th Ave SE
Sta 6+33.00 to 7+00.00 (PR14)



Proposed Typical Section - 14th Ave SE
Sta 7+00.00 to 8+87.42 (PR14)

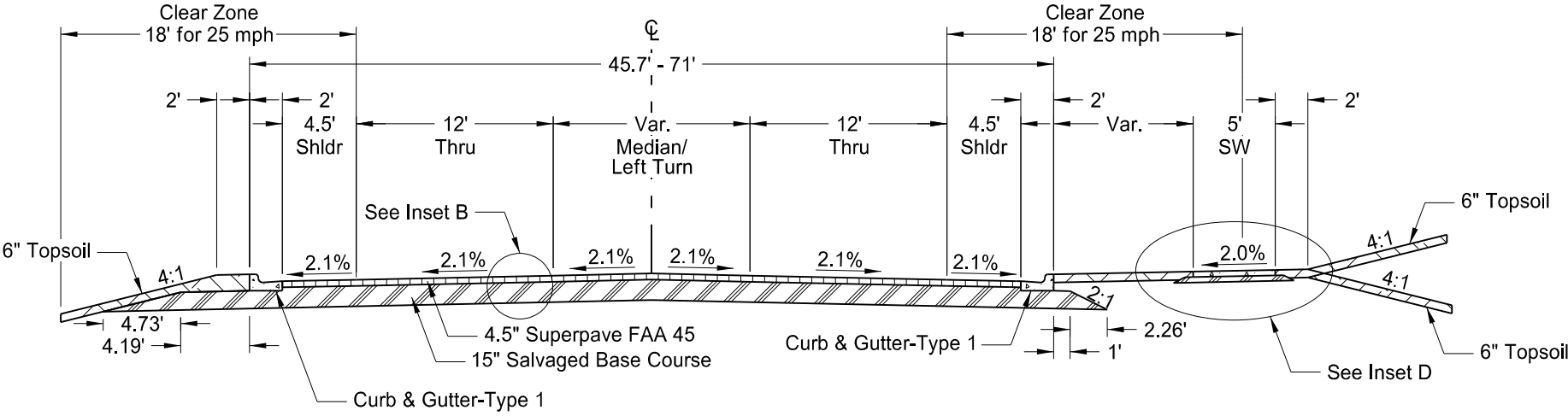
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Typical Sections

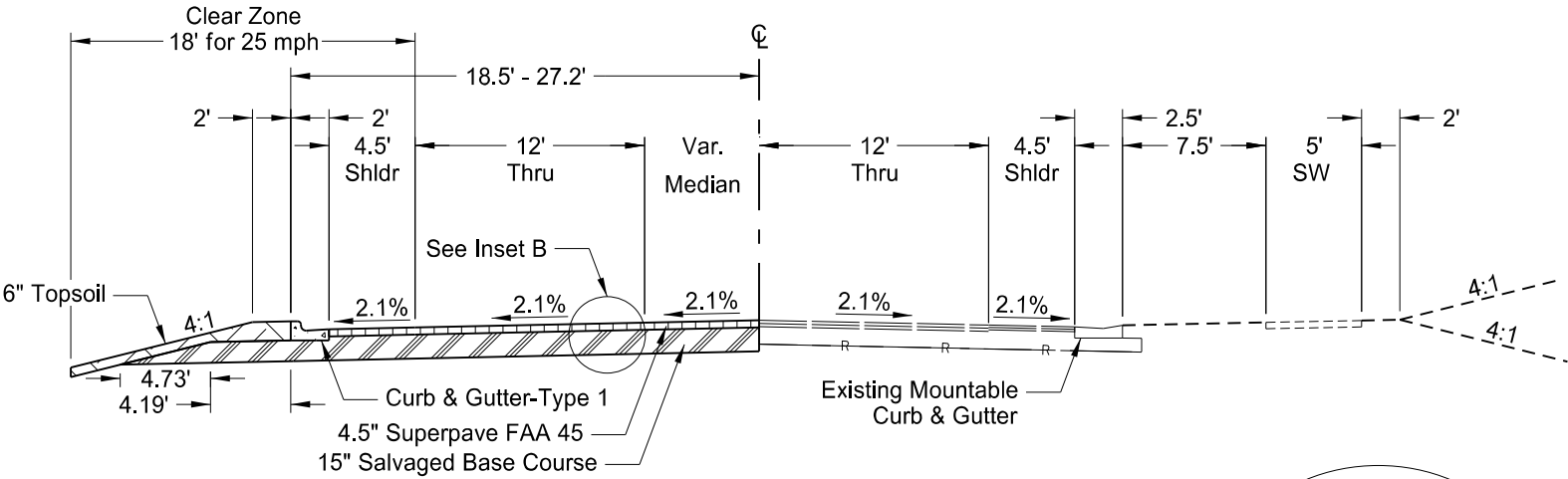
US Hwy 2 & 42nd St SE
Intersection Improvements

Proposed Typical Sections
14th Ave SE

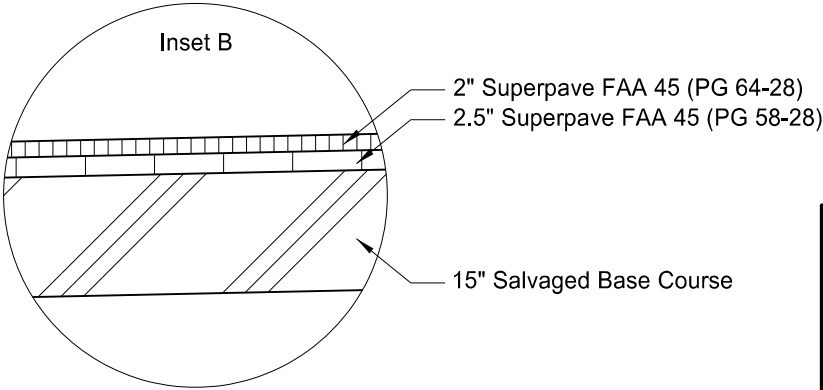
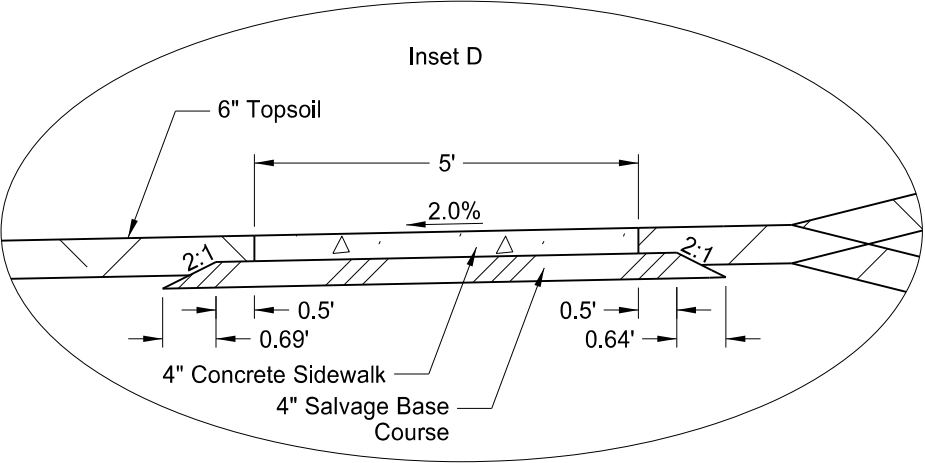
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	30	8



Proposed Typical Section - 14th Ave SE
Sta 8+87.42 to 12+97.97 (PR14)



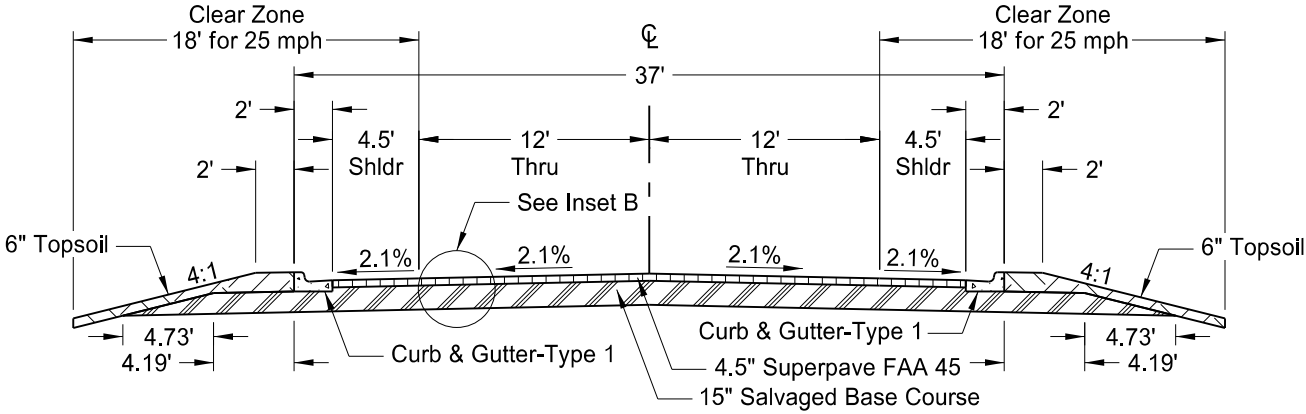
Proposed Typical Section - 14th Ave SE
Sta 12+97.97 to 13+88.97 (PR14)



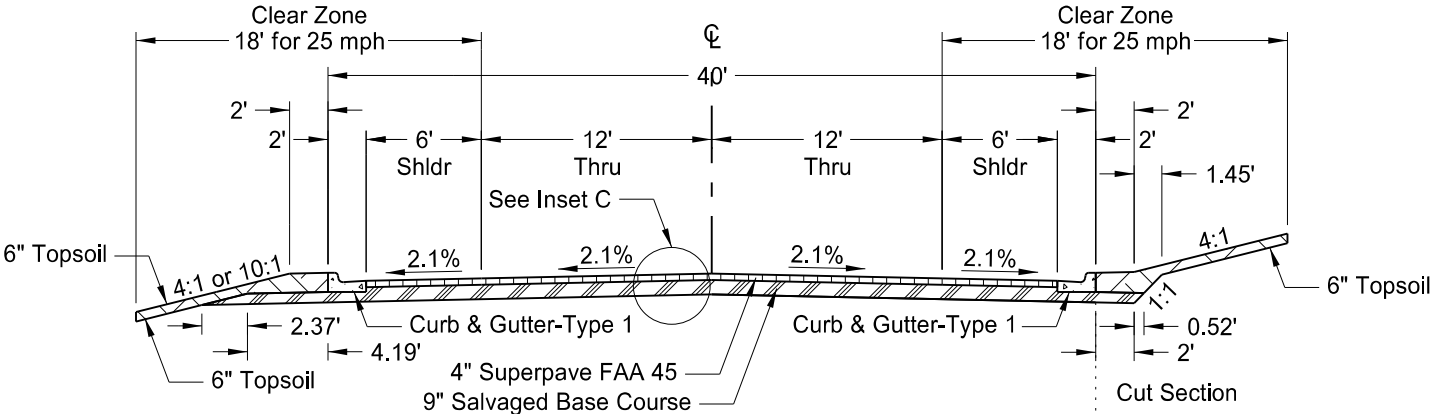
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Typical Sections
US Hwy 2 & 42nd St SE
Intersection Improvements
Proposed Typical Sections
14th Ave SE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	30	9

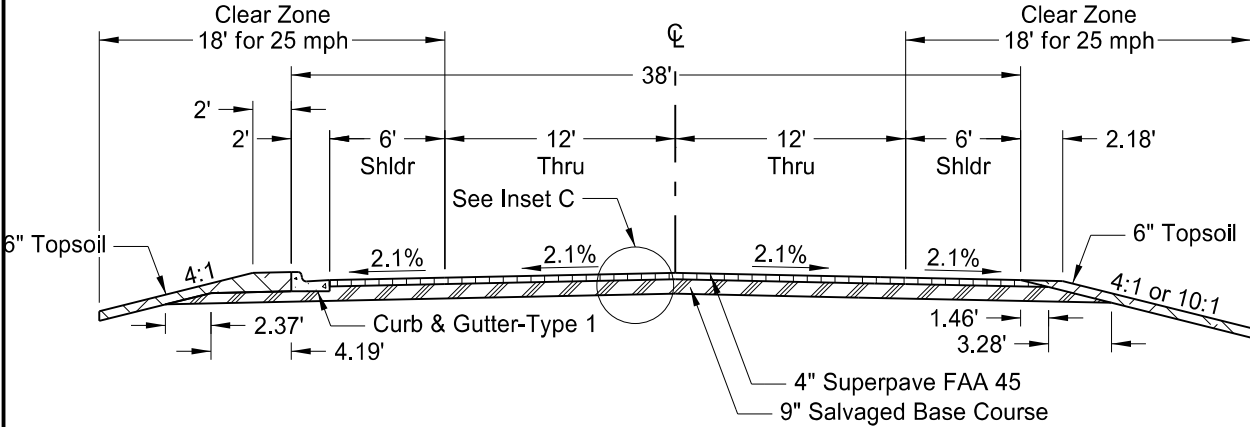


Proposed Typical Section - 13th Ave SE
Sta 1+32.67 to 2+77.62 (PR13)

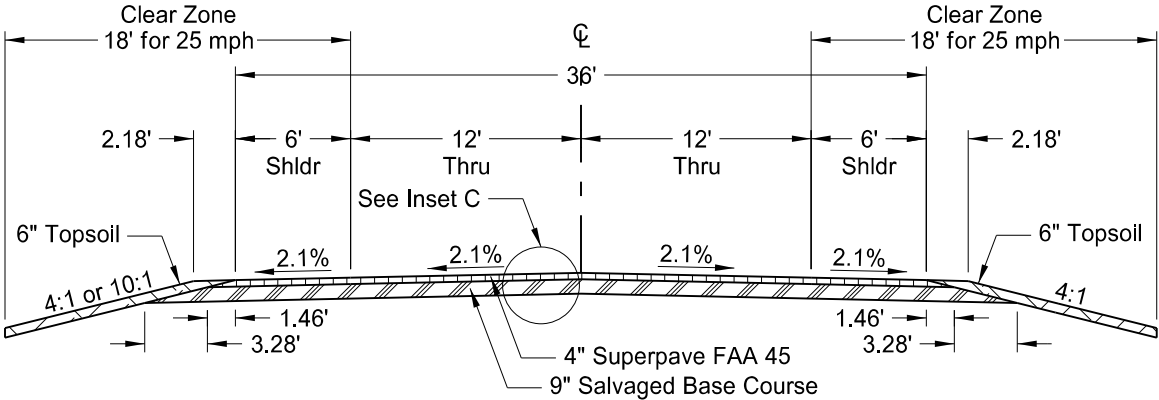


Proposed Typical Section - Frontage Roads
Sta 18+04.86 to 18+57.85 (PRFRONT_W)
Sta 8+64.83 to 14+42.87 (PRFRONT_E)
Sta 15+10.14 to 15+84.35 (PRFRONT_E)

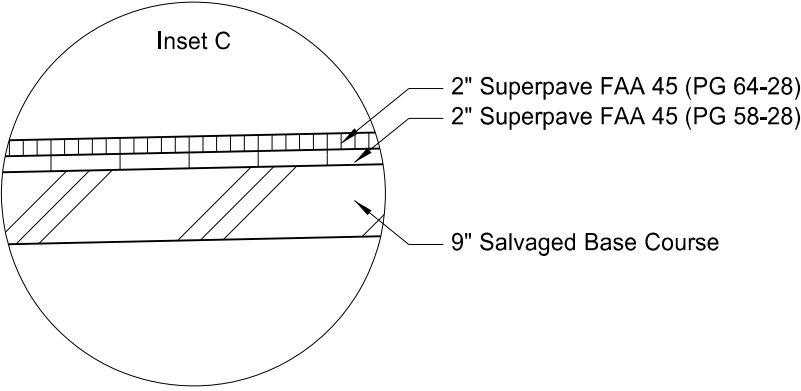
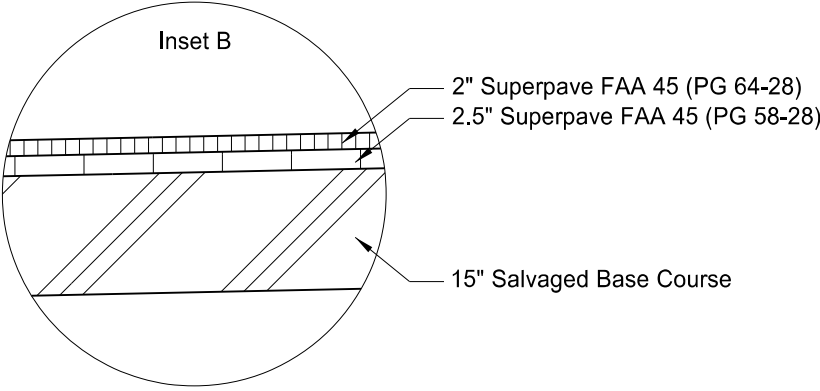
Fill Section



Proposed Typical Section - Frontage Roads
Sta 11+75.41 to 18+04.86 (PRFRONT_W)



Proposed Typical Section - Frontage Roads
Sta 8+16.83 to 8+64.83 (PRFRONT_E)
Sta 15+84.35 to 21+29.36 (PRFRONT_E)

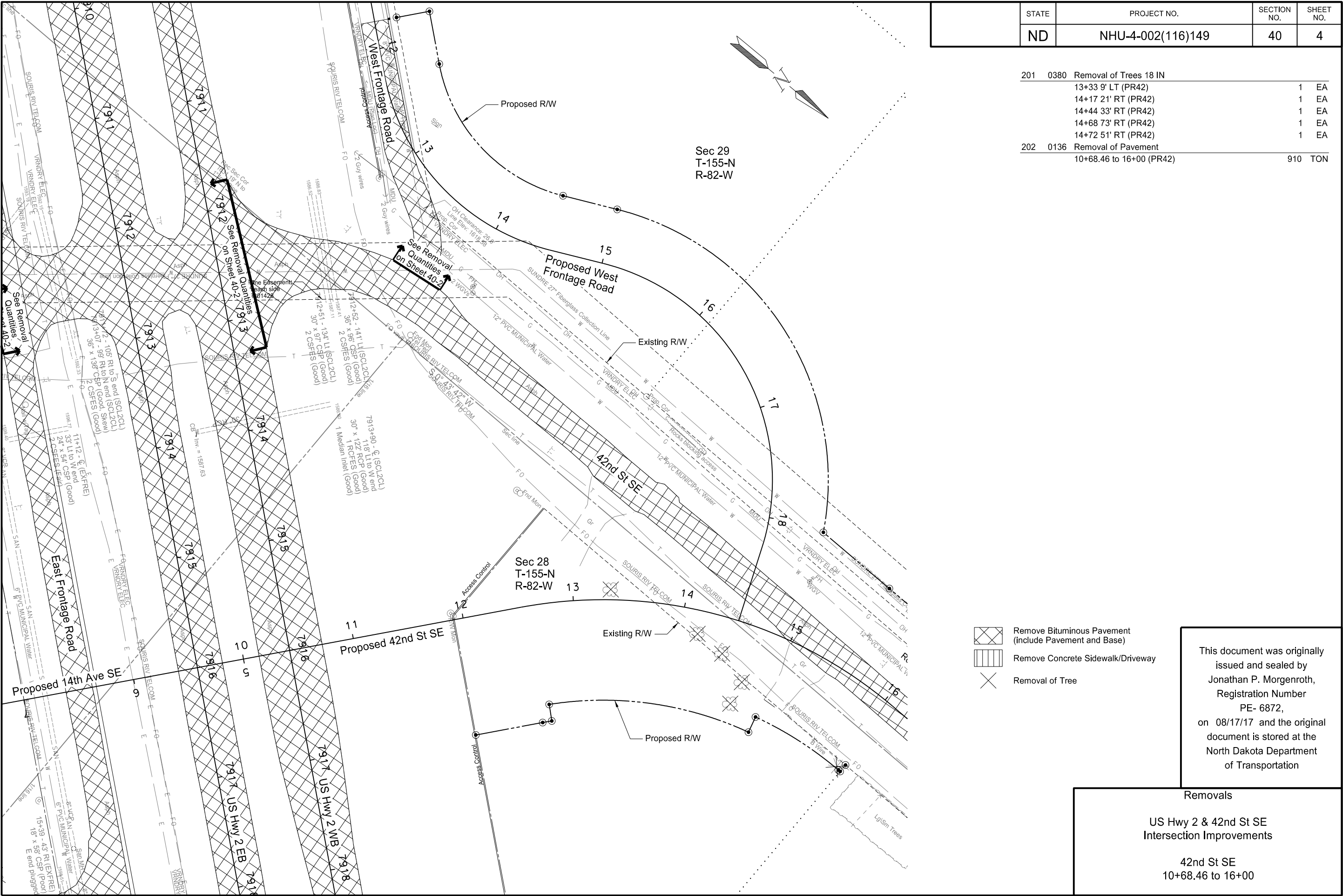


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Typical Sections

US Hwy 2 & 42nd St SE
Intersection Improvements

Proposed Typical Sections
13th Ave SE & Frontage Roads



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	40	4

201	0380	Removal of Trees 18 IN		
		13+33 9' LT (PR42)	1	EA
		14+17 21' RT (PR42)	1	EA
		14+44 33' RT (PR42)	1	EA
		14+68 73' RT (PR42)	1	EA
		14+72 51' RT (PR42)	1	EA
202	0136	Removal of Pavement		
		10+68.46 to 16+00 (PR42)	910	TON

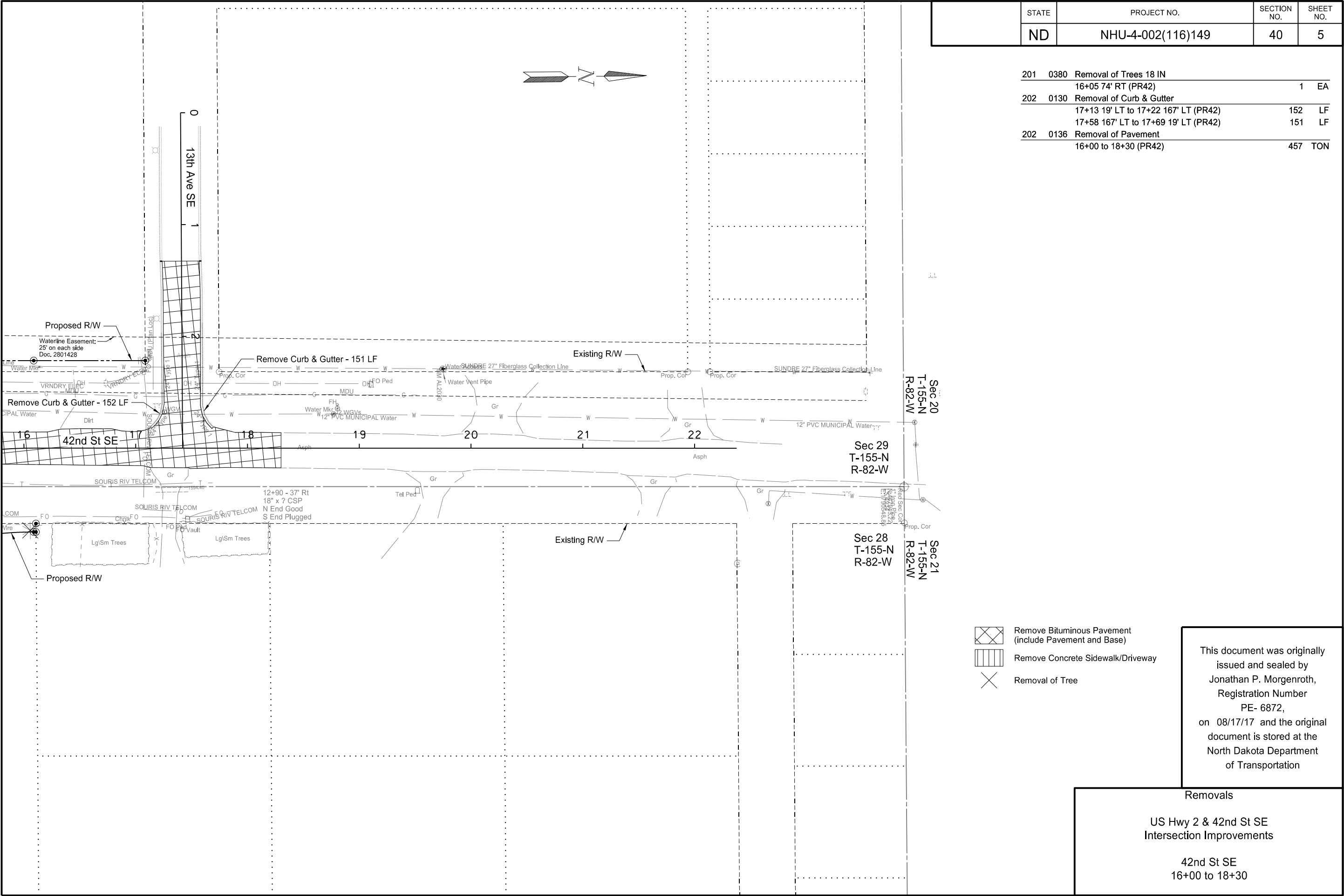
- Remove Bituminous Pavement (include Pavement and Base)
- Remove Concrete Sidewalk/Driveway
- Removal of Tree

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Removals

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
10+68.46 to 16+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	40	5

201	0380	Removal of Trees 18 IN		
		16+05 74' RT (PR42)	1	EA
202	0130	Removal of Curb & Gutter		
		17+13 19' LT to 17+22 167' LT (PR42)	152	LF
		17+58 167' LT to 17+69 19' LT (PR42)	151	LF
202	0136	Removal of Pavement		
		16+00 to 18+30 (PR42)	457	TON

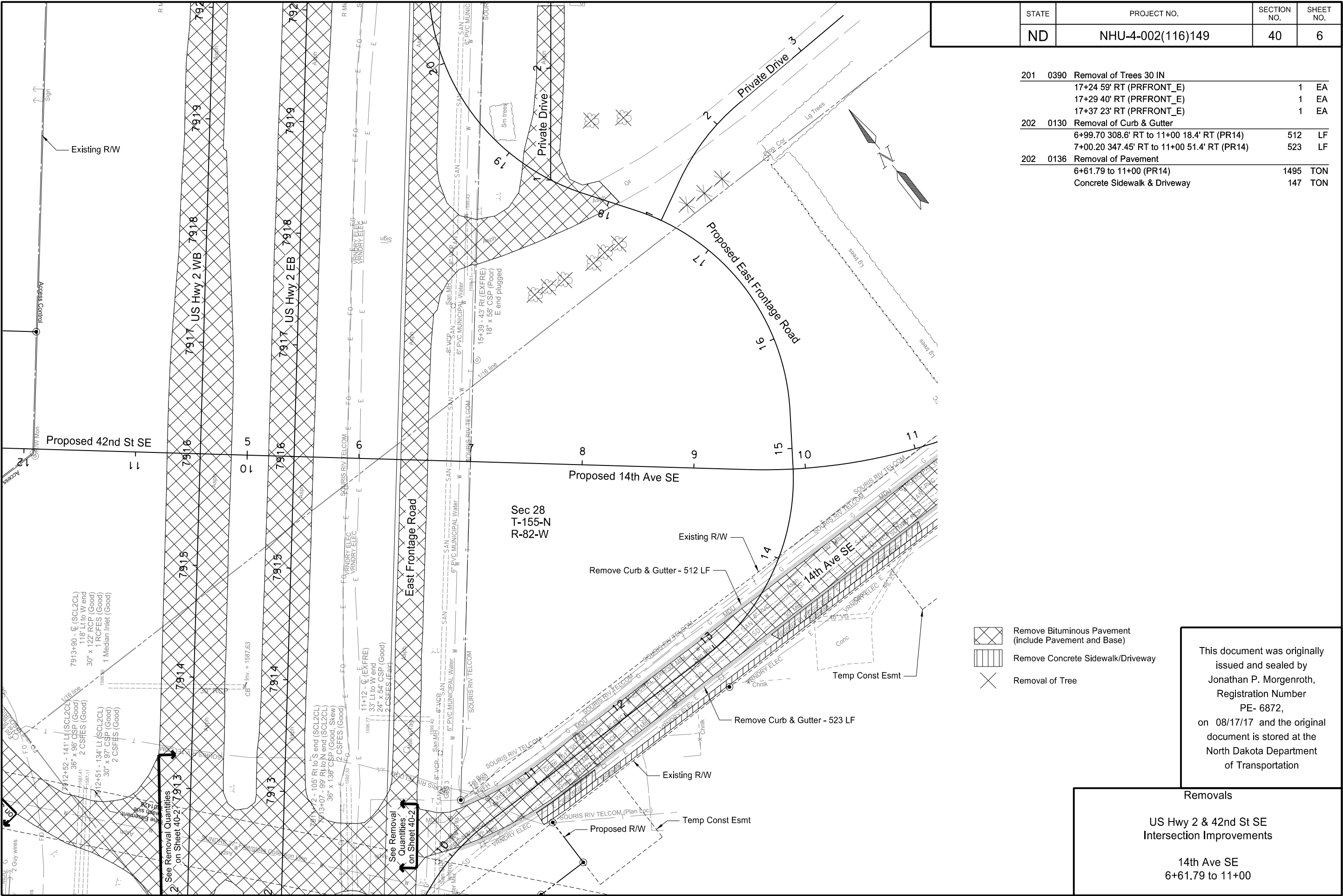
- Remove Bituminous Pavement (include Pavement and Base)
- Remove Concrete Sidewalk/Driveway
- Removal of Tree

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Removals

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
16+00 to 18+30



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	40	6

201	0390	Removal of Trees 30 IN		
		17+24 59' RT (PRFRONT_E)	1	EA
		17+29 40' RT (PRFRONT_E)	1	EA
		17+37 23' RT (PRFRONT_E)	1	EA
202	0130	Removal of Curb & Gutter		
		6+99.70 308.6' RT to 11+00 18.4' RT (PR14)	512	LF
		7+00.20 347.45' RT to 11+00 51.4' RT (PR14)	523	LF
202	0136	Removal of Pavement		
		6+61.79 to 11+00 (PR14)	1495	TON
		Concrete Sidewalk & Driveway	147	TON

- Remove Bituminous Pavement (include Pavement and Base)
- Remove Concrete Sidewalk/Driveway
- Removal of Tree

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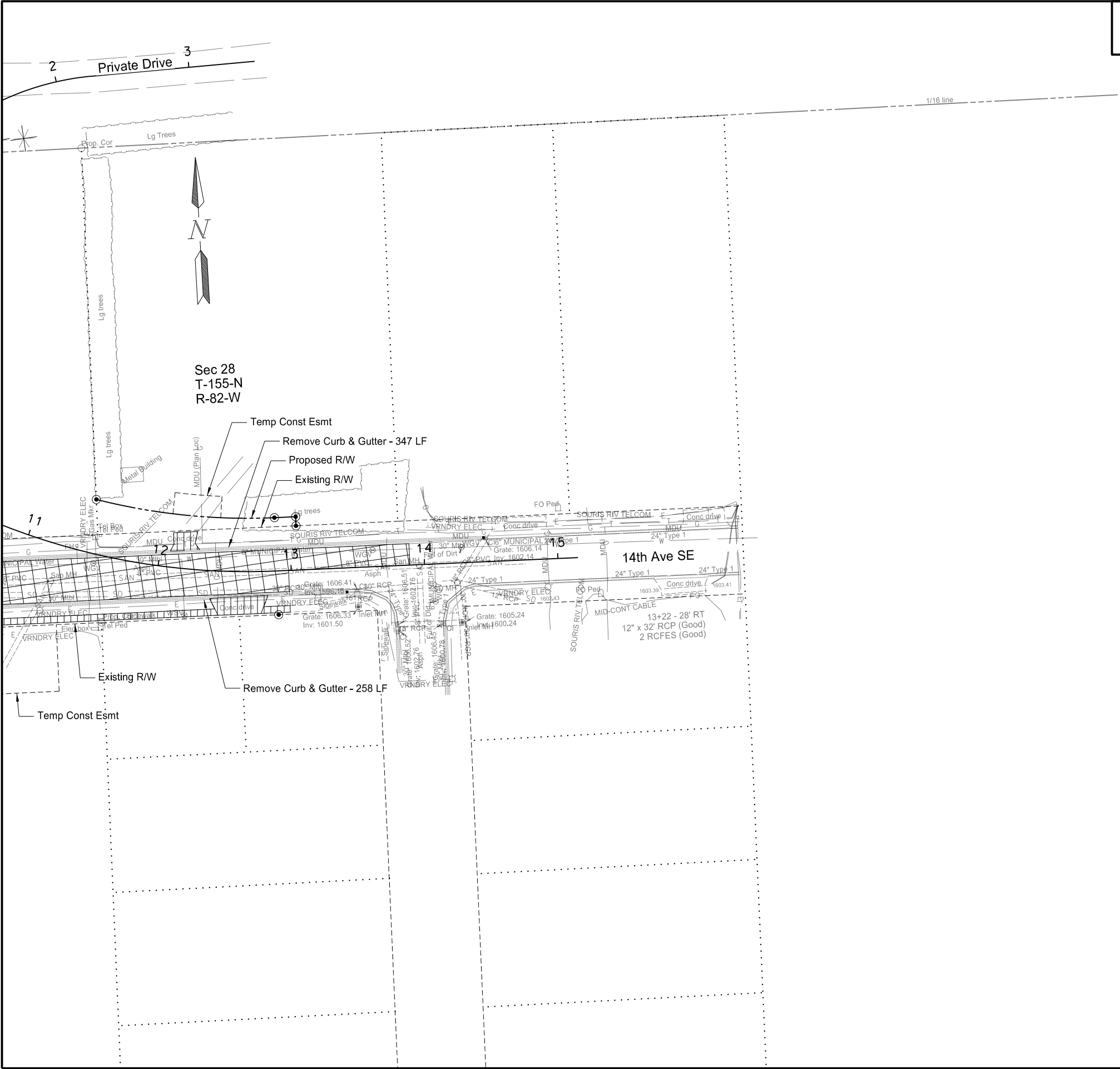
Removals

US Hwy 2 & 42nd St SE Intersection Improvements

14th Ave SE
6+61.79 to 11+00

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	40	7

202	0130	Removal of Curb & Gutter		
		11+00 18.4' RT to 14+45 18' LT (PR14)	347	LF
		11+00 51.4' RT to 13+41.1 18' RT (PR14)	258	LF
202	0136	Removal of Pavement		
		11+00 to 13+88.97 (PR14)	668	TON
		Concrete Sidewalk & Driveway	60	TON



- Remove Bituminous Pavement (Include Pavement and Base)
- Remove Concrete Sidewalk/Driveway
- Removal of Tree

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Removals

US Hwy 2 & 42nd St SE
Intersection Improvements

14th Ave SE
11+00 to 13+89

Hydraulic Data for NHU-4-002(116)149 (A)											
Alignment	Station	Existing Pipe	Proposed Pipe Size (IN)	Drainage Area (AC)	25-Year Data				100-Year Data		Notes
					Design Discharge (CFS)	Design Headwater (FT)	Design Velocity (FPS)	Design Stage (NAVD 88)	100-Year Discharge (CFS)	100-Year Stage (NAVD 88)	
14th Ave SE	6+41	36IN x 136FT CSP	36	93.93	36.1	3.35	7.4	1595.94	61.3	1598.15	
42nd St SE	11+56	30IN x 97FT CSP	30	192.74	78.2	3.62	6.8	1591.25	117.2	1593.89	
42nd St SE	11+66	36IN x 96FT CSP	36				6.7				
East Frontage Road	20+38	24IN x 54FT CSP	24	7.56	18.7	2.68	9.2	1599.46	25.1	1600.54	(B)

Notes: (A) Hydraulic data provided is for smooth-walled type conduits.
(B) Data presented for rough-walled type conduit; smooth-walled conduit will require broken configuration as detailed in section 20.

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Culvert Hydraulic Data

US Hwy 2 & 42nd St SE
Intersection Improvements

						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
						ND	NHU-4-002(116)149	50	2
Inlet No. 1A Inlet - Mtbl Curb, Type B US Hwy 2 Eastbound - 7916+74.00 - 20.7' LT Grate Type: L Grate Elev = 1600.53 Base Elev =1594.78 Invert Elev = 1594.99 H' Dist. = 5.00' 18 In. Conduit E = 1594.99 15 In. Conduit NW = 1595.42	Inlet No. 6A Inlet Special - Type 2 - R-3067 - 72IN 14th Ave SE - 6+41.00 - 13.0' RT Grate Type: L Grate Elev = 1599.23 Base Elev =1592.18 Invert Elev = 1592.55 H' Dist. = 5.64' 42 In. Conduit SW = 1592.55 36 In. Conduit NE = 1592.55 18 In. Conduit SE = 1594.73	Inlet No. 10A Inlet - Type 2 - R-3067 14th Ave SE - 13+51.00 - 21.2' LT Grate Type: L Grate Elev = 1606.82 Base Elev =1602.07 Invert Elev = 1602.57 H' Dist. = 5.64' 15 In. Conduit S = 1602.57	Inlet No. 15A Inlet - Type 2 - R-3067 42nd St SE - 15+05.00 - 29.5' RT Grate Type: L Grate Elev = 1597.13 Base Elev =1592.06 Invert Elev = 1592.25 H' Dist. = 5.00' 15 In. Conduit SE = 1592.25 15 In. Conduit W = 1592.35	Inlet No. 19B Inlet - Type 2 - R-3067 East Frontage Road - 14+07.06 - 19.0' RT Grate Type: L Grate Elev = 1608.99 Base Elev =1604.24 Invert Elev = 1604.74 H' Dist. = 4.00' 15 In. Conduit NE = 1604.74					
Inlet No. 2A Inlet - Mtbl Curb, Type B US Hwy 2 Eastbound - 7916+74.00 - 31.0' LT Grate Type: L Grate Elev = 1600.00 Base Elev =1595.08 Invert Elev = 1595.46 H' Dist. = 4.00' 15 In. Conduit SE = 1595.46 15 In. Conduit NE = 1595.56	Inlet No. 7A Inlet Special - Type 2 - R-3067 - 48IN 14th Ave SE - 7+10.00 - 13.0' RT Grate Type: L Grate Elev = 1600.65 Base Elev =1595.04 Invert Elev = 1595.25 H' Dist. = 4.36' 18 In. Conduit NW = 1595.25 18 In. Conduit NE = 1595.39 15 In. Conduit SW = 1595.73	Inlet No. 11A Inlet Special - Mtbl Curb - R-3382 - 48IN 42nd St SE - 11+55.90 - 58.1' LT Grate Type: C Grate Elev = 1597.21 Base Elev =1586.25 Invert Elev = 1586.54 H' Dist. = 9.55' 30 In. Conduit SW = 1586.54 30 In. Conduit NE = 1586.58	Inlet No. 16A Inlet - Type 2 - R-3067 42nd St SE - 15+05.00 - 39.2' LT Grate Type: L Grate Elev = 1596.93 Base Elev =1592.18 Invert Elev = 1592.68 H' Dist. = 4.00' 15 In. Conduit E = 1592.68	Inlet No. 19C Inlet - Type 2 - R-3067 East Frontage Road - 14+07.65 - 43.8' LT Grate Type: L Grate Elev = 1608.13 Base Elev =1603.38 Invert Elev = 1603.88 H' Dist. = 4.00' 15 In. Conduit SE = 1603.88					
Inlet No. 3A Inlet - Mtbl Curb, Type B US Hwy 2 Eastbound - 7917+13.00 - 31.0' LT Grate Type: L Grate Elev = 1599.99 Base Elev =1595.07 Invert Elev = 1595.74 H' Dist. = 4.00' 15 In. Conduit SW = 1595.74	Inlet No. 7B Inlet - T2 Double - R-3295-2 14th Ave SE - 7+10.00 - 39.5' RT Grate Type: L Grate Elev = 1600.09 Base Elev =1595.65 Invert Elev = 1595.84 H' Dist. = 4.00' 15 In. Conduit NE = 1595.84	Inlet No. 12A Inlet - Type 2 - R-3067 42nd St SE - 13+26.00 - 41.6' LT Grate Type: L Grate Elev = 1595.78 Base Elev =1589.03 Invert Elev = 1589.24 H' Dist. = 6.00' 18 In. Conduit SW = 1589.24 15 In. Conduit NE = 1591.05	Inlet No. 17A Inlet - Type 2 - R-3067 East Frontage Road - 8+72.00 - 19.0' LT Grate Type: L Grate Elev = 1601.10 Base Elev =1594.35 Invert Elev = 1594.56 H' Dist. = 6.00' 18 In. Conduit NW = 1594.56 15 In. Conduit SE = 1596.67	Inlet No. 20A Inlet - Type 2 - R-3067 East Frontage Road - 15+77.00 - 19.2' RT Grate Type: L Grate Elev = 1608.91 Base Elev =1604.16 Invert Elev = 1604.66 H' Dist. = 4.00' 15 In. Conduit SW = 1604.66					
Inlet No. 4A Inlet - Median Drain, Type A US Hwy 2 Westbound - 7924+08.49 - 42.0' RT Grate Type: Median Drain Precast Concrete - Type A Grate Elev = 1598.36 Base Elev =1593.49 Invert Elev = 1593.70 H' Dist. = 4.45' 18 In. Conduit NW = 1593.70	Inlet No. 8A Inlet - Type 2 - R-3067 14th Ave SE - 7+10.00 - 37.0' LT Grate Type: L Grate Elev = 1600.15 Base Elev =1595.41 Invert Elev = 1595.62 H' Dist. = 4.00' 18 In. Conduit SW = 1595.62 15 In. Conduit SE = 1595.87	Inlet No. 13A Inlet - Type 2 - R-3067 42nd St SE - 13+39.03 - 29.5' RT Grate Type: L Grate Elev = 1596.02 Base Elev =1591.21 Invert Elev = 1591.40 H' Dist. = 5.00' 15 In. Conduit SW = 1591.40 15 In. Conduit NW = 1591.50	Inlet No. 18A Inlet - T2 Double - R-3295-2 East Frontage Road - 8+72.00 - 19.0' RT Grate Type: L Grate Elev = 1601.10 Base Elev =1596.66 Invert Elev = 1596.85 H' Dist. = 4.00' 15 In. Conduit NW = 1596.85	Manhole No. 21 Manhole - 48IN East Frontage Road - 20+37.85 - 8.9' RT Casting Type: Solid Cover Top Elev = 1602.39 Base Elev =1593.13 Invert Elev = 1593.38 Riser = 8.26' 24 In. Conduit NW = 1593.38 24 In. Conduit SE = 1593.40					
Inlet No. 5A Inlet - Mtbl Curb - R-3382 14th Ave SE - 6+19.59 - 70.0' RT Grate Type: C Grate Elev = 1597.70 Base Elev =1592.78 Invert Elev = 1593.70 H' Dist. = 4.00' 15 In. Conduit SE = 1593.70	Manhole No. 9 Manhole - 48IN 14th Ave SE - 10+02.39 - 25.9' LT Casting Type: Solid Cover Top Elev = 1609.51 Base Elev =1602.83 Invert Elev = 1603.02 Riser = 5.68' 15 In. Conduit NW = 1603.02 15 In. Conduit NE = 1603.97 15 In. Conduit SW = 1603.02	Inlet No. 14A Inlet Special - Mtbl Curb - R-3382 - 48IN 42nd St SE - 13+75.04 - 64.9' RT Grate Type: C Grate Elev = 1595.66 Base Elev =1590.87 Invert Elev = 1591.08 H' Dist. = 4.00' 18 In. Conduit SE = 1591.08 18 In. Conduit NW = 1591.08	Inlet No. 19A Inlet Special - Type 2 - R-3067 - 60IN East Frontage Road - 14+19.90 - 22.1' RT Grate Type: L Grate Elev = 1608.95 Base Elev =1603.28 Invert Elev = 1603.47 H' Dist. = 4.25' 15 In. Conduit NE = 1603.47 15 In. Conduit SW = 1604.53 15 In. Conduit NW = 1603.57	Inlet No. 22A Inlet - T2 Double - R-3295-2 West Frontage Road - 12+29.00 - 19.0' LT Grate Type: L Grate Elev = 1590.97 Base Elev =1586.23 Invert Elev = 1586.44 H' Dist. = 4.00' 18 In. Conduit SE = 1586.44					
(A) Structure to be included only with smooth-walled alternative for East Frontage Road centerline culvert at station 20+38. See detail in Section 20. General Notes: For any Neenah casting, use the indicated casting or city-approved equal.									

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Inlet and Manhole Summary

US Hwy 2 & 42nd St SE Intersection Improvements

Begin Alignment	Begin Station/ Location	Begin Offset	End Alignment	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 Treatments		R1 Fabric (Pay Item)	Applicable Backfill Detail	Notes
						IN	Bid Item	LF						Begin	End			
									Reinforced Concrete Pipe - Class III (Barrel Length = 180 LF)	IN	Type	IN	IN	EA	EA	SY		
42nd St SE	11+66	67.1' RT	42nd St SE	11+66	117.5' LT	36	Pipe Conduit	185	Spiral Rib Steel Pipe	36	Z, A, P	3/4, 1	0.168	FES	FES	858	D-714-25M	
									Corrugated Steel Pipe	42	Z, A, P	2	0.168					
East Frontage Road	20+38	34.1' RT	East Frontage Road	20+38	43.8' LT	24	Pipe Conduit	78	Reinforced Concrete Pipe - Class III (Barrel Length = 74 LF)	24				FES	FES	447	D-714-25	(A)
									Spiral Rib Steel Pipe		Z, A, P	3/4, 1	0.168					
									Corrugated Steel Pipe	24	A, P	2	0.138					

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

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

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

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section

Notes: (A) Information shown in Section 55 and on this sheet are for rough-walled conduit alternative. Smooth-walled conduit construction details can be found in Section 20.

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Allowable Pipe List

US Hwy 2 & 42nd St SE
Intersection Improvements

Centerline Culverts

Begin Alignment	Begin Station/ Location	Begin Offset	End Alignment	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 Treatments		R1 Fabric (Pay Item)	Applicable Backfill Detail	Notes
						IN	Bid Item	LF						Begin	End			
									Reinforced Concrete Pipe - Class III (Barrel Length = 42 LF)	18				EA	EA	SY		
42nd St SE	17+53	43.5' RT	42nd St SE	17+05	47.9' RT	18	Pipe Conduit - Approach	49	Spiral Rib Steel Pipe		Z, A, P	3/4, 1	0.064	FES	FES		D-203-8	
									Corrugated Steel Pipe	18	Z, A, P	2	0.064					
East Frontage Road	17+26	45.4' RT	East Frontage Road	17+83	46.5' RT	18	Pipe Conduit - Approach	68	Reinforced Concrete Pipe - Class V (Barrel Length = 62 LF)	18				FES	FES		D-203-8	
East Frontage Road	18+46	56.4' RT	East Frontage Road	19+64	51.4' RT	24	Pipe Conduit - Approach	85	Reinforced Concrete Pipe - Class V (Barrel Length = 80 LF)	24				FES	FES		D-203-8	
Temp Access Road	22+10	68.8' LT	Temp Access Road	22+10	105.2' RT	24	Pipe Conduit - Approach	174	Corrugated Steel Pipe	24	A, P	2	0.064				D-203-8	(A)
Temp Access Road	24+33	102.2' LT	Temp Access Road	24+33	119.8' RT	24	Pipe Conduit - Approach	222	Corrugated Steel Pipe	24	A, P	2	0.064				D-203-8	(A)

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

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

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

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section

Notes: (A) Temporary culvert

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Allowable Pipe List

US Hwy 2 & 42nd St SE
Intersection Improvements

Approach Culverts

Begin Alignment	Begin Station/ Location	Begin Offset	End Alignment	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 Treatments		R1 Fabric (Pay Item)	Applcable Backfill Detail
						IN	Bid Item	LF						Begin EA	End EA		
US Hwy 2 Eastbound	1A		US Hwy 2 Eastbound	7917+17	63' RT	18	Pipe Conduit - Storm Drain	93	Reinforced Concrete Pipe - Class III	18					FES	317	D-714-25
US Hwy 2 Eastbound	2A		US Hwy 2 Eastbound	1A		15	Pipe Conduit - Storm Drain	9	Reinforced Concrete Pipe - Class III	15						61	D-714-26
US Hwy 2 Eastbound	3A		US Hwy 2 Eastbound	2A		15	Pipe Conduit - Storm Drain	36	Reinforced Concrete Pipe - Class III	15							D-714-27
US Hwy 2 Westbound	4A		US Hwy 2 Westbound	7924+08	64' LT	18	Pipe Conduit - Storm Drain	106	Reinforced Concrete Pipe - Class III	18					FES	610	D-714-26
14th Ave SE	5A		14th Ave SE	6+41	70' LT	15	Pipe Conduit - Storm Drain	19	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168				D-714-27
14th Ave SE	6+41	58' LT	14th Ave SE	6A		36	Pipe Conduit - Storm Drain	68	Reinforced Concrete Pipe - Class III								
14th Ave SE	6+41	58' LT	14th Ave SE	6A		36	Pipe Conduit - Storm Drain	68	Spiral Rib Steel Pipe	36	Z, A, P	3/4, 1	0.168	FES		465	D-714-26
14th Ave SE	6A		14th Ave SE	6+41	70' LT	42	Pipe Conduit - Storm Drain	52	Reinforced Concrete Pipe - Class III	42	Z, A, P	3/4, 1	0.168			376	D-714-26
14th Ave SE	6+41	70' LT	14th Ave SE	6+41	98' RT	42	Pipe Conduit - Storm Drain	25	Spiral Rib Steel Pipe								
14th Ave SE	6+41	70' LT	14th Ave SE	6+41	98' RT	42	Pipe Conduit - Storm Drain	25	Reinforced Concrete Pipe - Class III	42	Z, A, P	3/4, 1	0.168		FES	172	D-714-26
14th Ave SE	7A		14th Ave SE	6A		18	Pipe Conduit - Storm Drain	64	Spiral Rib Steel Pipe								
14th Ave SE	7A		14th Ave SE	6A		18	Pipe Conduit - Storm Drain	64	Reinforced Concrete Pipe - Class III	18	Z, A, P	3/4, 1	0.168				D-714-27
14th Ave SE	7B		14th Ave SE	7A		15	Pipe Conduit - Storm Drain	24	Spiral Rib Steel Pipe								
14th Ave SE	8A		14th Ave SE	7A		18	Pipe Conduit - Storm Drain	47	Reinforced Concrete Pipe - Class III	18	Z, A, P	3/4, 1	0.168			299	D-714-26
14th Ave SE	8A		14th Ave SE	7A		18	Pipe Conduit - Storm Drain	47	Spiral Rib Steel Pipe								
14th Ave SE	9		14th Ave SE	8A		15	Pipe Conduit - Storm Drain	286	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168				D-714-27
14th Ave SE	9		14th Ave SE	8A		15	Pipe Conduit - Storm Drain	286	Spiral Rib Steel Pipe								
14th Ave SE	10A		14th Ave SE	EX3A		15	Pipe Conduit - Storm Drain	37	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168			229	D-714-26
14th Ave SE	10A		14th Ave SE	EX3A		15	Pipe Conduit - Storm Drain	37	Spiral Rib Steel Pipe								
42nd St SE	11+56	67' RT	42nd St SE	11A		30	Pipe Conduit - Storm Drain	123	Reinforced Concrete Pipe - Class III	30	Z, A, P	3/4, 1	0.168	FES		679	D-714-25
42nd St SE	11+56	67' RT	42nd St SE	11A		30	Pipe Conduit - Storm Drain	123	Spiral Rib Steel Pipe								
42nd St SE	11A		42nd St SE	11+56	118' LT	30	Pipe Conduit - Storm Drain	57	Reinforced Concrete Pipe - Class III	30	Z, A, P	3/4, 1	0.168		FES		D-714-27
42nd St SE	11A		42nd St SE	11+56	118' LT	30	Pipe Conduit - Storm Drain	57	Spiral Rib Steel Pipe								
42nd St SE	12A		42nd St SE	13+26	92' LT	18	Pipe Conduit - Storm Drain	49	Reinforced Concrete Pipe - Class III	18	Z, A, P	3/4, 1	0.168		FES	189	D-714-25
42nd St SE	12A		42nd St SE	13+26	92' LT	18	Pipe Conduit - Storm Drain	49	Spiral Rib Steel Pipe								
42nd St SE	13A		42nd St SE	12A		15	Pipe Conduit - Storm Drain	70	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168			417	D-714-26
42nd St SE	13A		42nd St SE	12A		15	Pipe Conduit - Storm Drain	70	Spiral Rib Steel Pipe								
42nd St SE	14+89	55' RT	42nd St SE	14A		18	Pipe Conduit - Storm Drain	94	Reinforced Concrete Pipe - Class III	18	Z, A, P	3/4, 1	0.168	FES			D-714-27
42nd St SE	14+89	55' RT	42nd St SE	14A		18	Pipe Conduit - Storm Drain	94	Spiral Rib Steel Pipe								
42nd St SE	14A		42nd St SE	12+39	66' RT	18	Pipe Conduit - Storm Drain	113	Reinforced Concrete Pipe - Class III	18	Z, A, P	3/4, 1	0.168		FES		D-714-27
42nd St SE	14A		42nd St SE	12+39	66' RT	18	Pipe Conduit - Storm Drain	113	Spiral Rib Steel Pipe								
42nd St SE	15A		42nd St SE	13A		15	Pipe Conduit - Storm Drain	150	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168				D-714-27
42nd St SE	15A		42nd St SE	13A		15	Pipe Conduit - Storm Drain	150	Spiral Rib Steel Pipe								
42nd St SE	16A		42nd St SE	15A		15	Pipe Conduit - Storm Drain	67	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168			397	D-714-26
42nd St SE	16A		42nd St SE	15A		15	Pipe Conduit - Storm Drain	67	Spiral Rib Steel Pipe								
East Frontage Road	17A		East Frontage Road	8+72	46' LT	18	Pipe Conduit - Storm Drain	27	Reinforced Concrete Pipe - Class III	18	Z, A, P	3/4, 1	0.168		FES	103	D-714-25
East Frontage Road	17A		East Frontage Road	8+72	46' LT	18	Pipe Conduit - Storm Drain	27	Spiral Rib Steel Pipe								
East Frontage Road	18A		East Frontage Road	17A		15	Pipe Conduit - Storm Drain	36	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168			215	D-714-26
East Frontage Road	18A		East Frontage Road	17A		15	Pipe Conduit - Storm Drain	36	Spiral Rib Steel Pipe								
East Frontage Road	19A		14th Ave SE	9		15	Pipe Conduit - Storm Drain	89	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168			350	D-714-25
East Frontage Road	19A		14th Ave SE	9		15	Pipe Conduit - Storm Drain	89	Spiral Rib Steel Pipe								
East Frontage Road	19B		East Frontage Road	19A		15	Pipe Conduit - Storm Drain	11	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168				D-714-27
East Frontage Road	19B		East Frontage Road	19A		15	Pipe Conduit - Storm Drain	11	Spiral Rib Steel Pipe								
East Frontage Road	19C		East Frontage Road	19A		15	Pipe Conduit - Storm Drain	62	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168			220	D-714-25
East Frontage Road	19C		East Frontage Road	19A		15	Pipe Conduit - Storm Drain	62	Spiral Rib Steel Pipe								
East Frontage Road	20A		14th Ave SE	9		15	Pipe Conduit - Storm Drain	70	Reinforced Concrete Pipe - Class III	15	Z, A, P	3/4, 1	0.168			245	D-714-25
East Frontage Road	20A		14th Ave SE	9		15	Pipe Conduit - Storm Drain	70	Spiral Rib Steel Pipe								
East Frontage Road	20+38	35' RT	East Frontage Road	21		24	Pipe Conduit - Storm Drain	24	Reinforced Concrete Pipe - Class III	24	Z, A, P	3/4, 1	0.168	FES		126	D-714-25
East Frontage Road	20+38	35' RT	East Frontage Road	21		24	Pipe Conduit - Storm Drain	24	Spiral Rib Steel Pipe								
East Frontage Road	21		East Frontage Road	20+38	44' LT	24	Pipe Conduit - Storm Drain	51	Reinforced Concrete Pipe - Class III	24	Z, A, P	3/4, 1	0.168		FES	250	D-714-25
East Frontage Road	21		East Frontage Road	20+38	44' LT	24	Pipe Conduit - Storm Drain	51	Spiral Rib Steel Pipe								
West Frontage Road	22A		West Frontage Road	12+29	49' RT	18	Pipe Conduit - Storm Drain	67	Reinforced Concrete Pipe - Class III	18	Z, A, P	3/4, 1	0.168		FES	387	D-714-26
West Frontage Road	22A		West Frontage Road	12+29	49' RT	18	Pipe Conduit - Storm Drain	67	Spiral Rib Steel Pipe								
East Frontage Road	9+00	37' LT	East Frontage Road	8+95	42' LT	30	Pipe Conc Reinforced Storm Drain	8	Reinforced Concrete Pipe - Class III	30					R&R		D-714-27

Coatings:

Z = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

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 treatments.
FES = Flared End Section
TES = Traversable End Section
Plug = Concrete Plug If Concrete Alternative Is Used. Use Manufacturer's Recommended Plug If Other Pipe Alternatives Are Used.

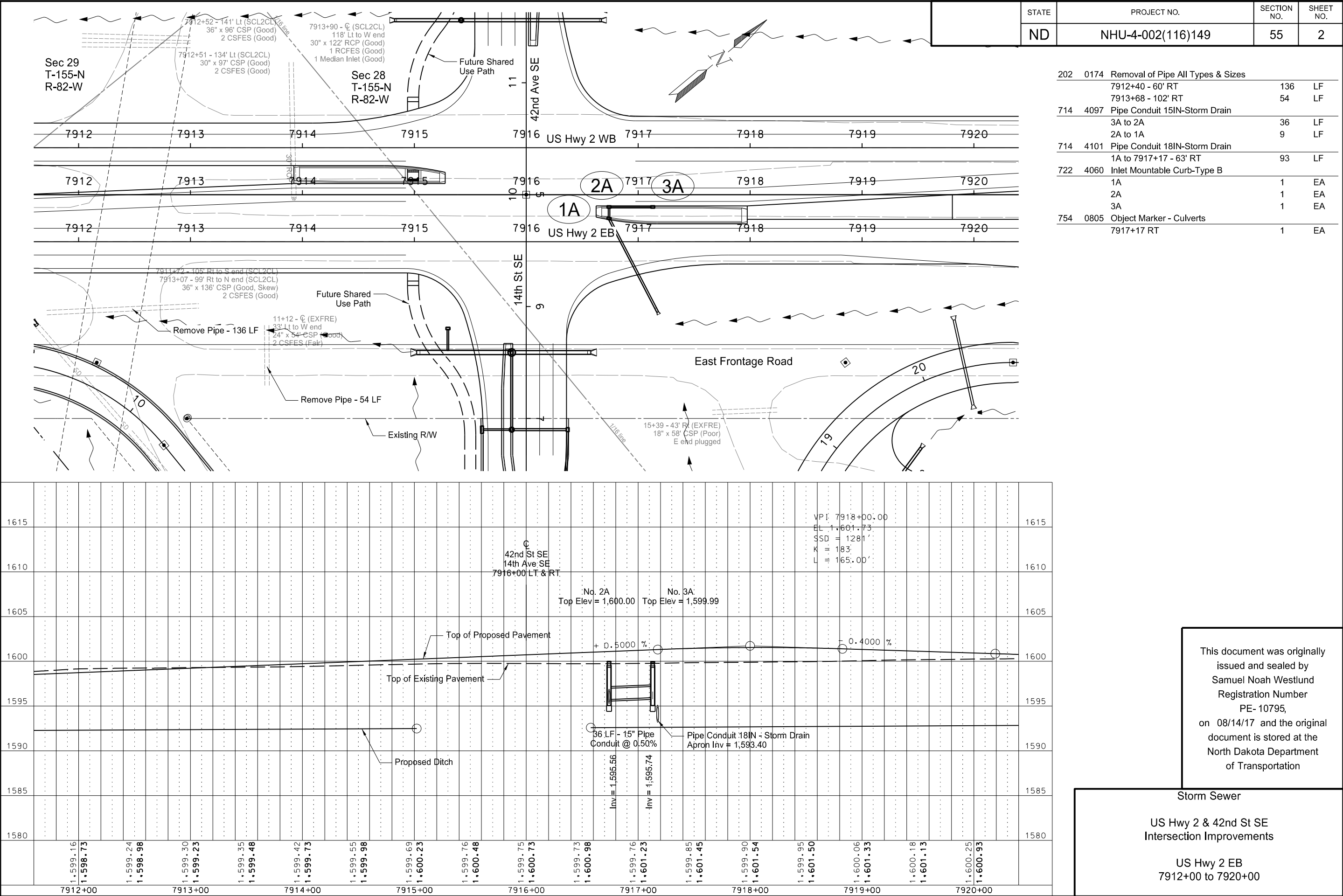
(A) Pipe to be included only with smooth-walled alternative for East Frontage Road centerline culvert at 20+38. See detail in section 20.

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Allowable Pipe List

US Hwy 2 & 42nd St SE Intersection Improvements

Storm Drain

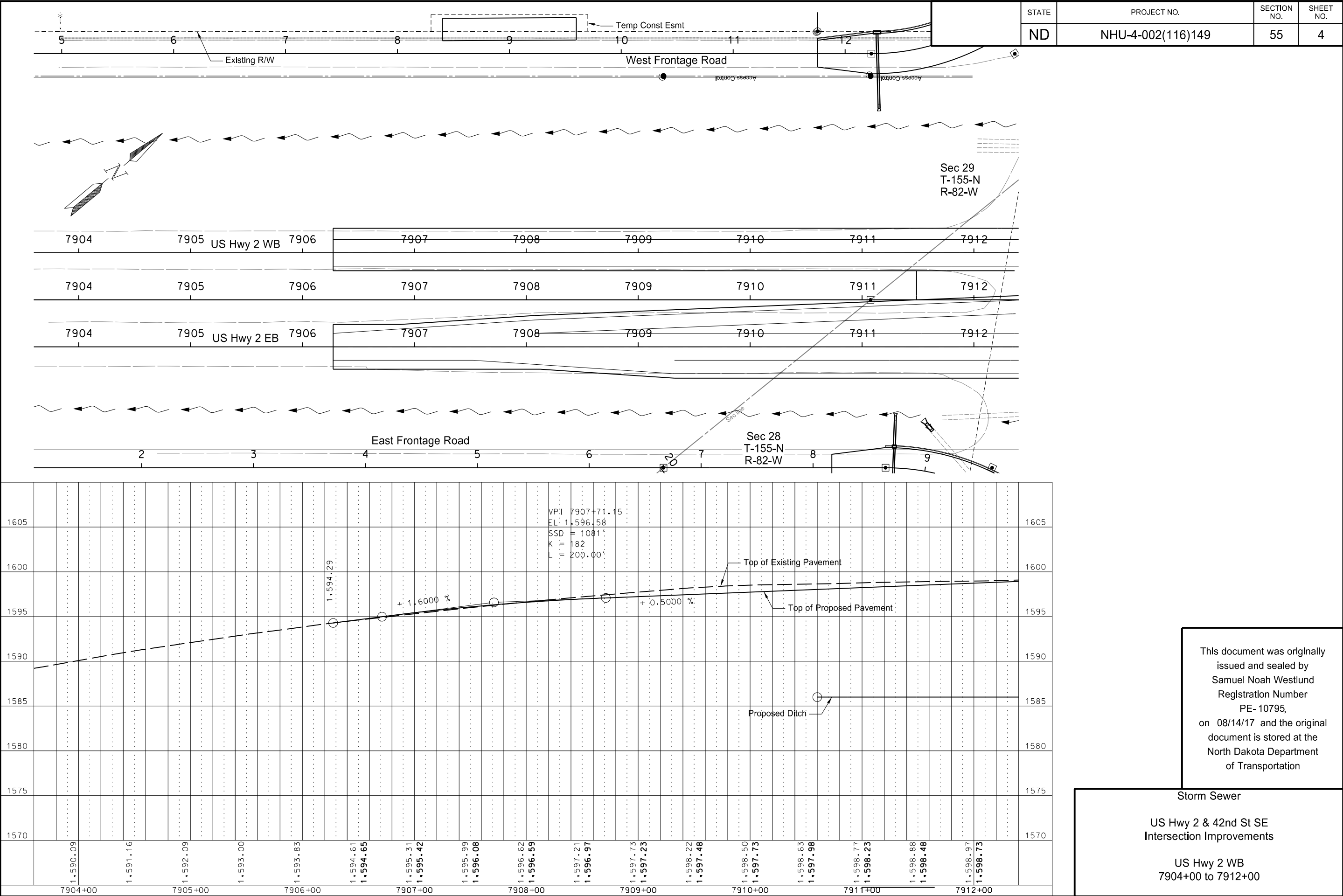


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Storm Sewer

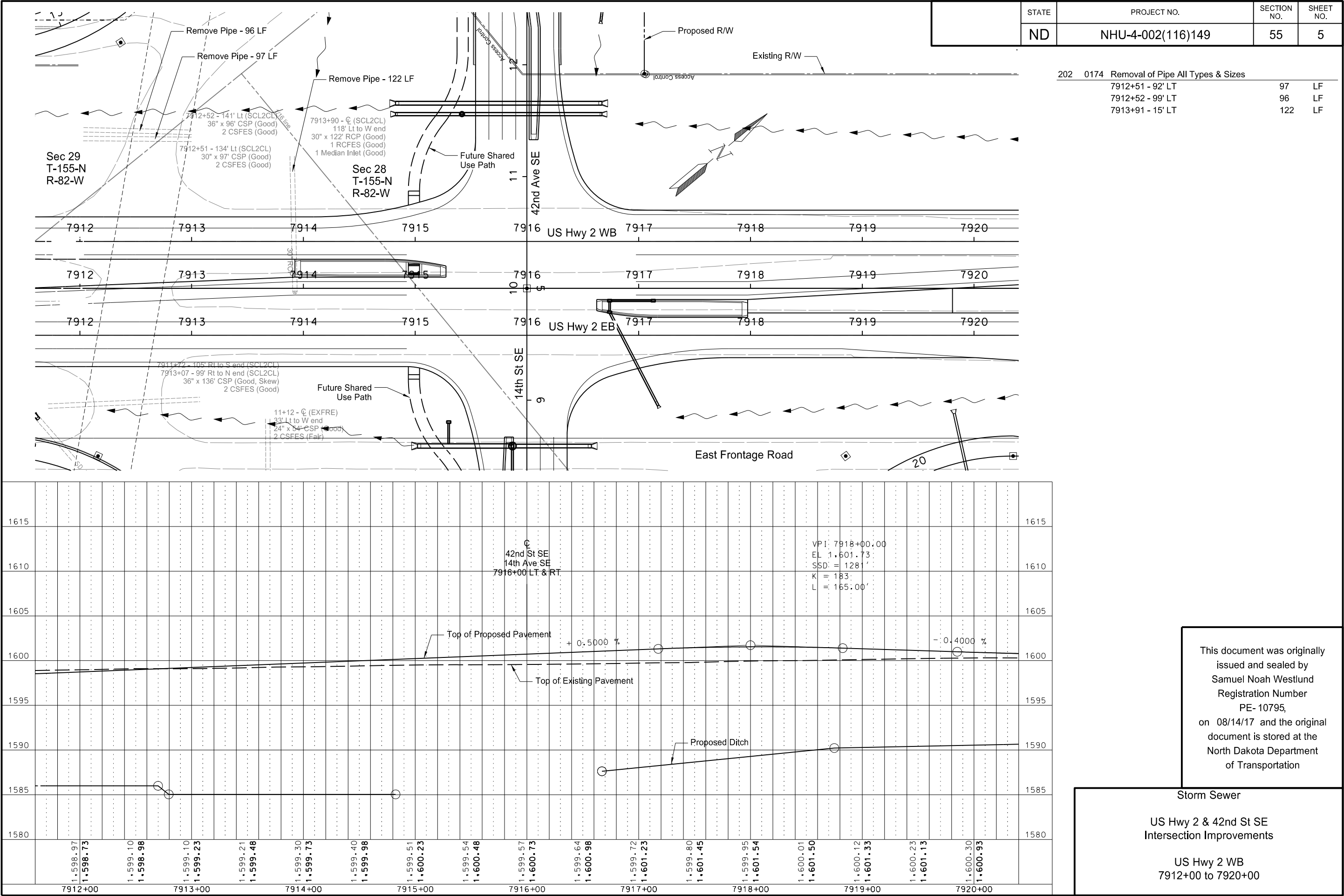
US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2 EB
7912+00 to 7920+00



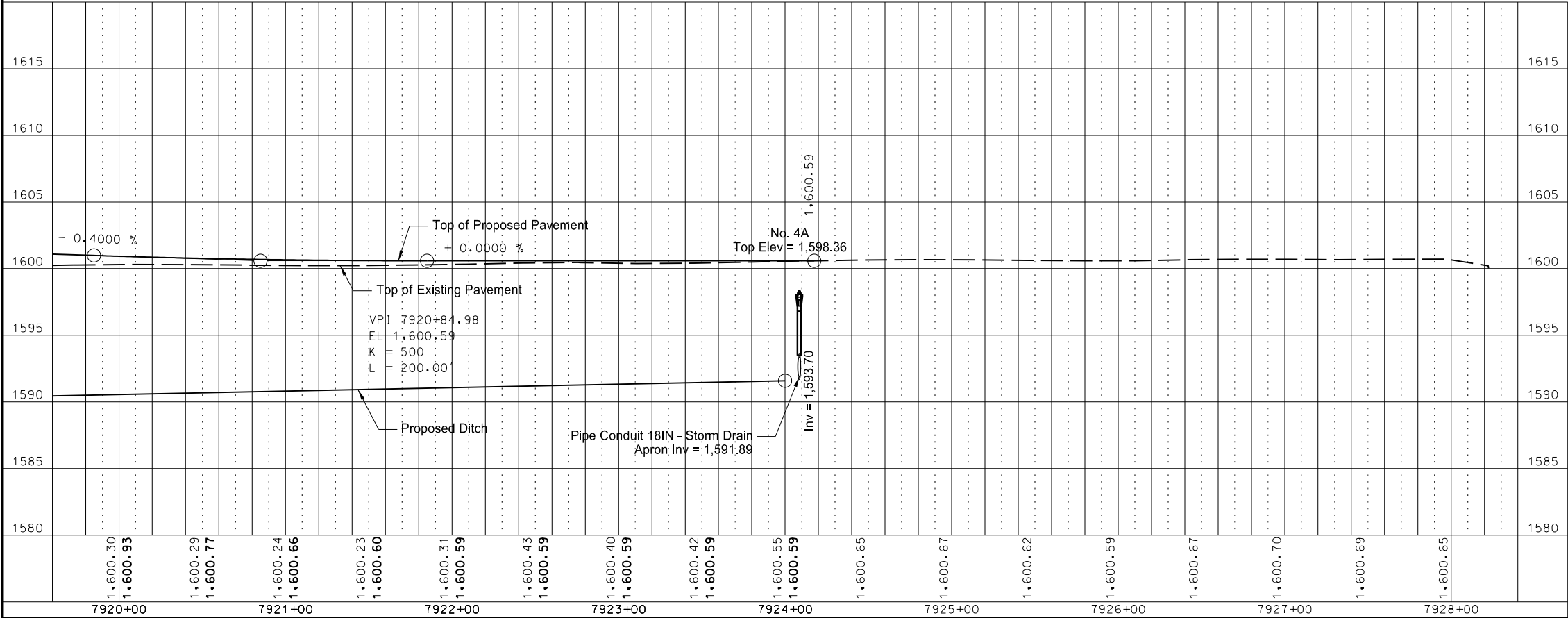
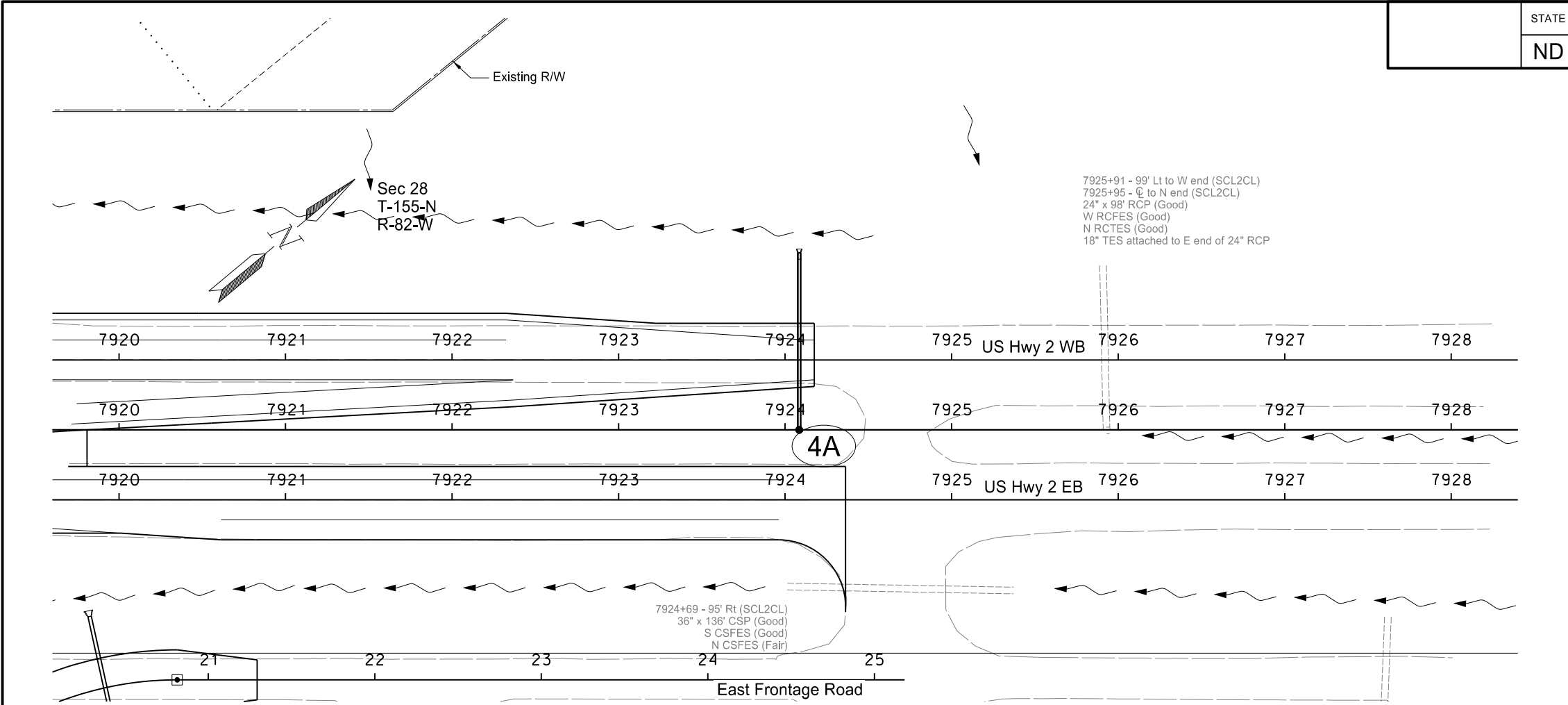
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Storm Sewer
US Hwy 2 & 42nd St SE
Intersection Improvements
US Hwy 2 WB
7904+00 to 7912+00



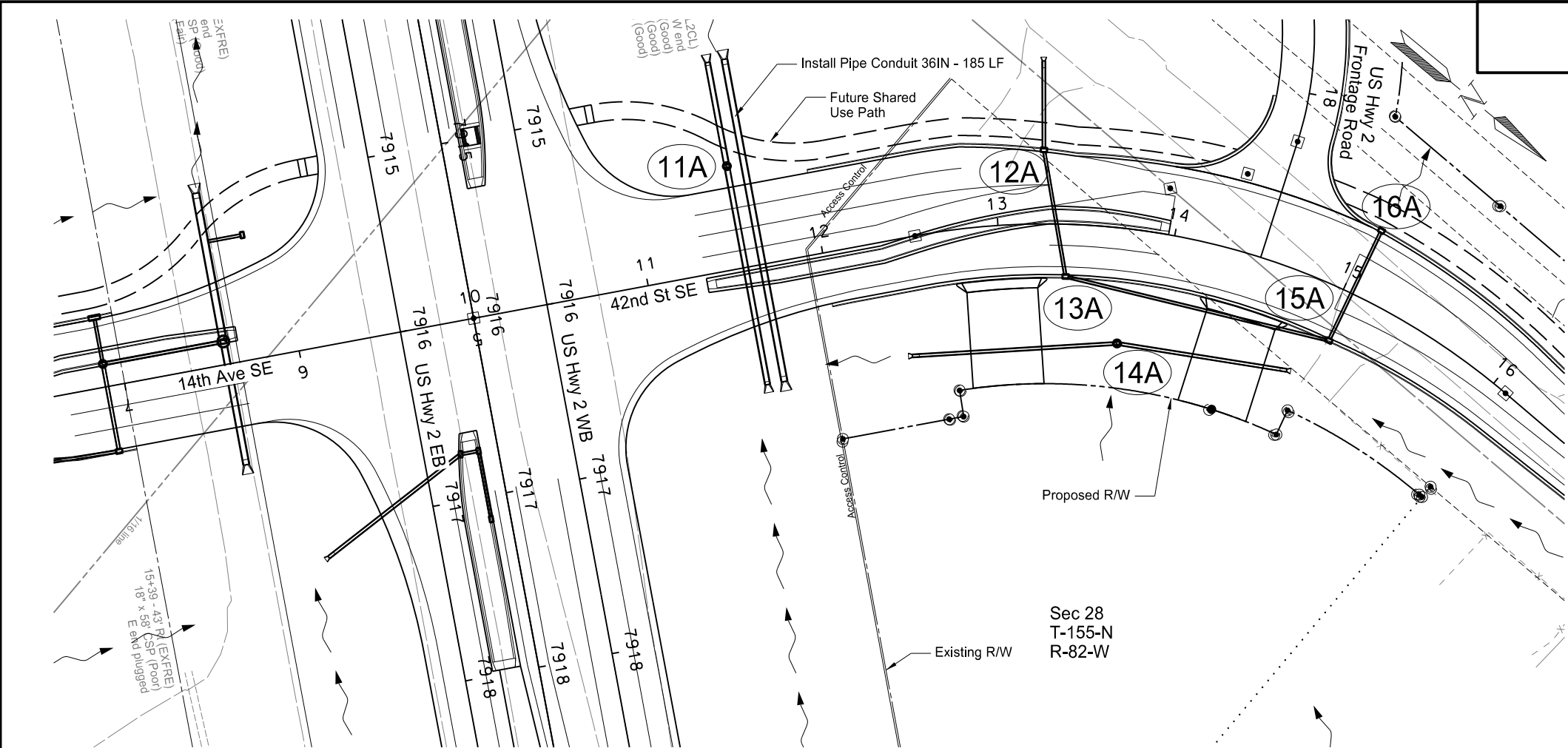
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	6

714	4101	Pipe Conduit 18IN-Storm Drain 4A to 7924+08 - 64' LT	106	LF
722	4565	Median Drain Precast Concrete-Type A 4A	1	EA
754	0805	Object Marker - Culverts 7924+08 LT	1	EA



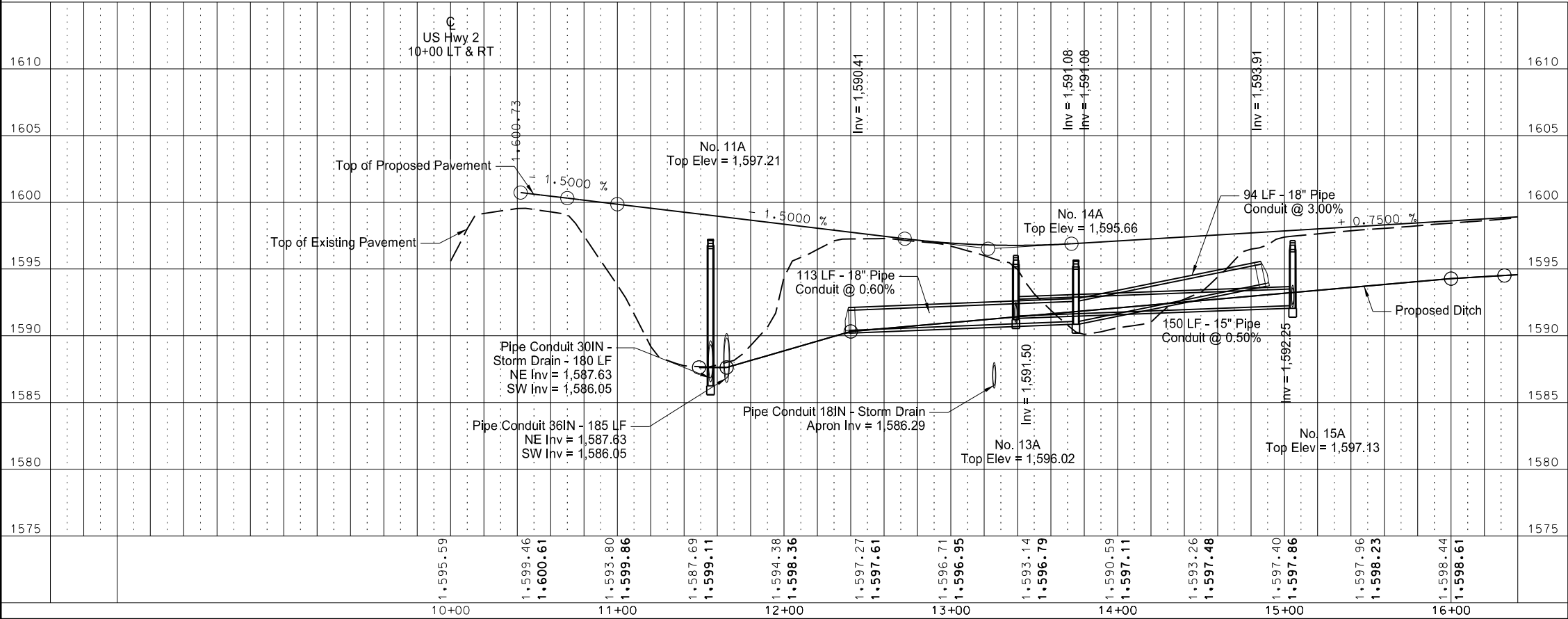
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Storm Sewer
US Hwy 2 & 42nd St SE
Intersection Improvements
US Hwy 2 WB
7920+00 to 7928+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	7

714	4097	Pipe Conduit 15IN-Storm Drain		
		16A to 15A	67	LF
		15A to 13A	150	LF
		13A to 12A	70	LF
714	4101	Pipe Conduit 18IN-Storm Drain		
		12A to 13+26 - 92' LT	49	LF
		14+89 - 55' RT to 14A	94	LF
		14A to 12+40 - 66' RT	113	LF
714	4112	Pipe Conduit 30IN-Storm Drain		
		11+56 - 67' RT to 11A	123	LF
		11A to 11+56 - 118' LT	57	LF
714	4115	Pipe Conduit 36IN		
		11+66 - 67' RT to 11+66 - 118' LT	185	LF
722	3510	Inlet-Type 2		
		12A	1	EA
		13A	1	EA
		15A	1	EA
		16A	1	EA
722	3713	Inlet Special Mountable-Type B 48IN		
		11A	1	EA
		14A	1	EA
754	0805	Object Marker - Culverts		
		11+56 RT / LT	2	EA
		11+66 RT / LT	2	EA
		12+40 RT	1	EA
		13+26 LT	1	EA
		14+89 RT	1	EA



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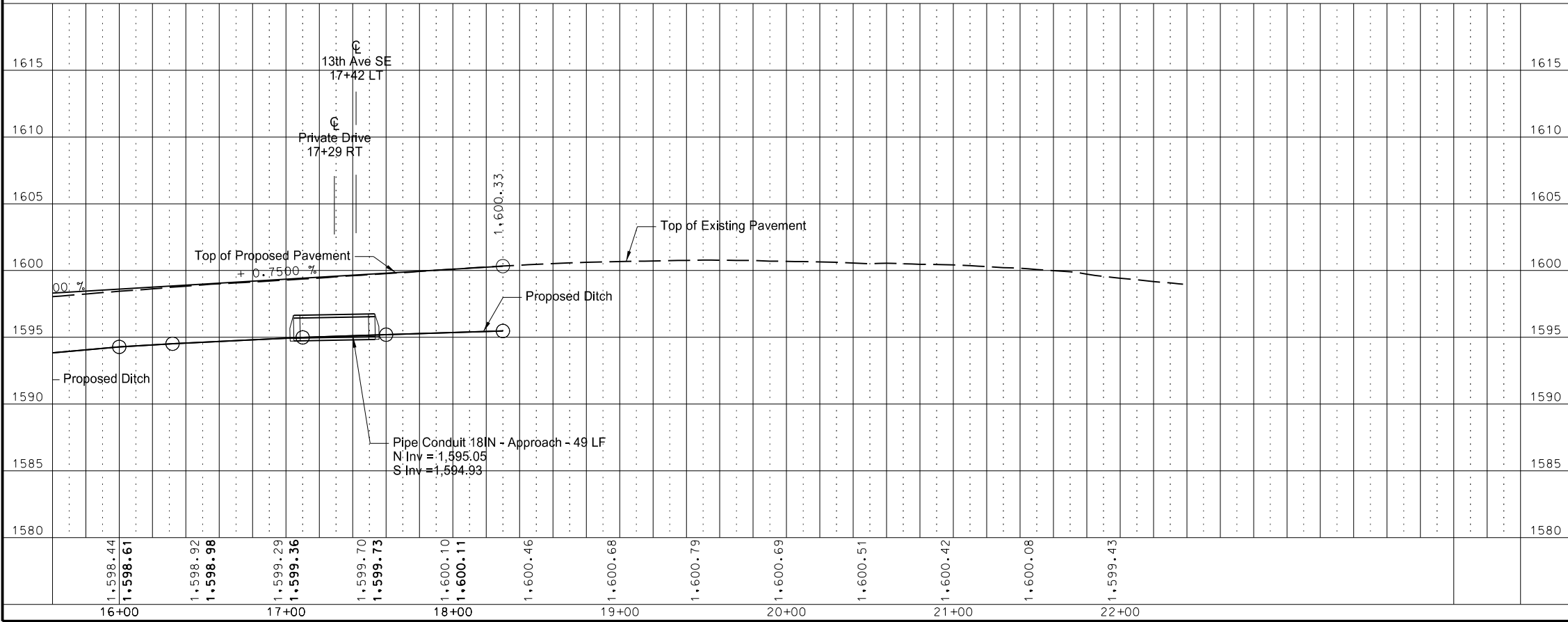
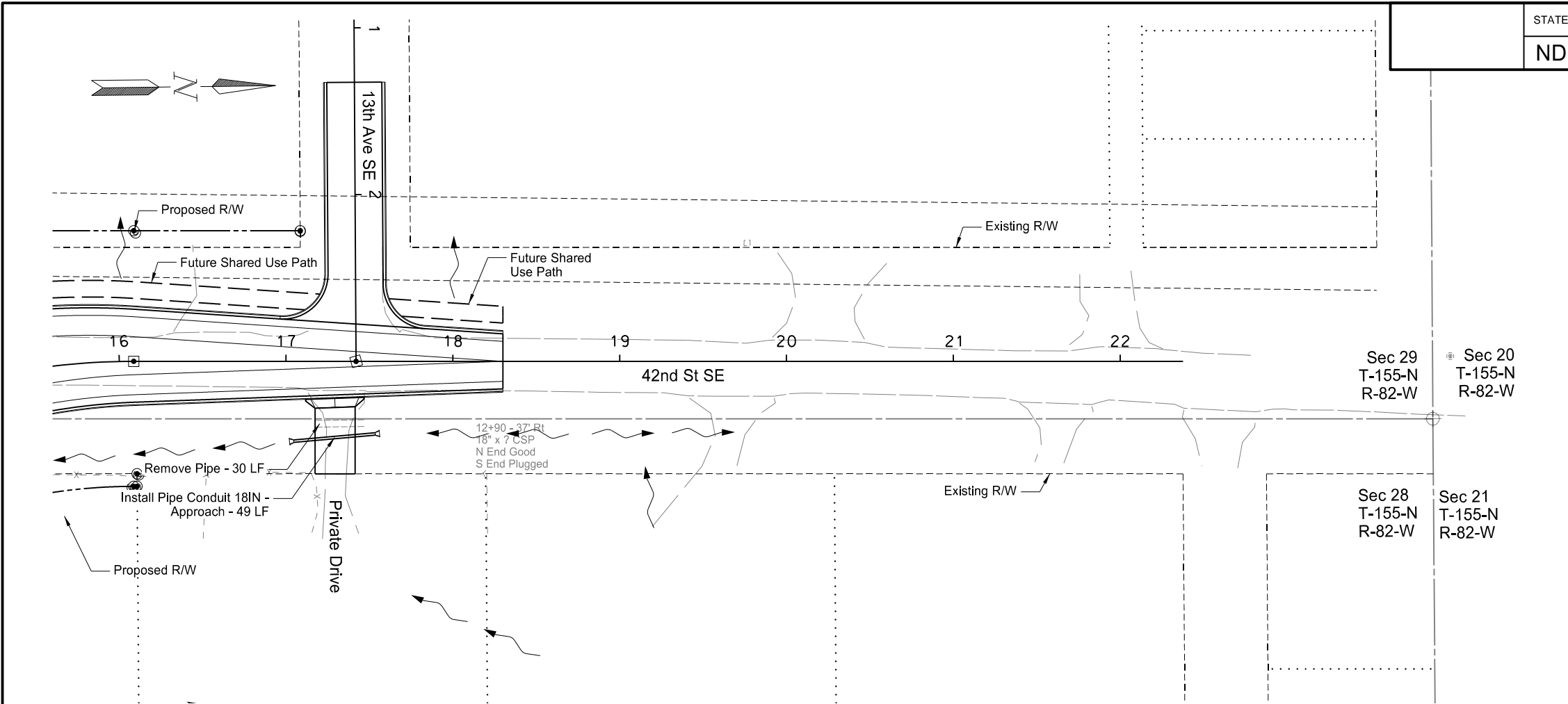
Storm Sewer

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
10+00 to 16+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	8

202	0174	Removal of Pipe All Types & Sizes		
		17+32 - 37' RT	30	LF
714	4099	Pipe Conduit 18IN-Approach		
		17+05 - 48' RT to 17+53 - 44' RT	49	LF
754	0805	Object Marker - Culverts		
		17+05 RT	1	EA
		17+53 RT	1	EA

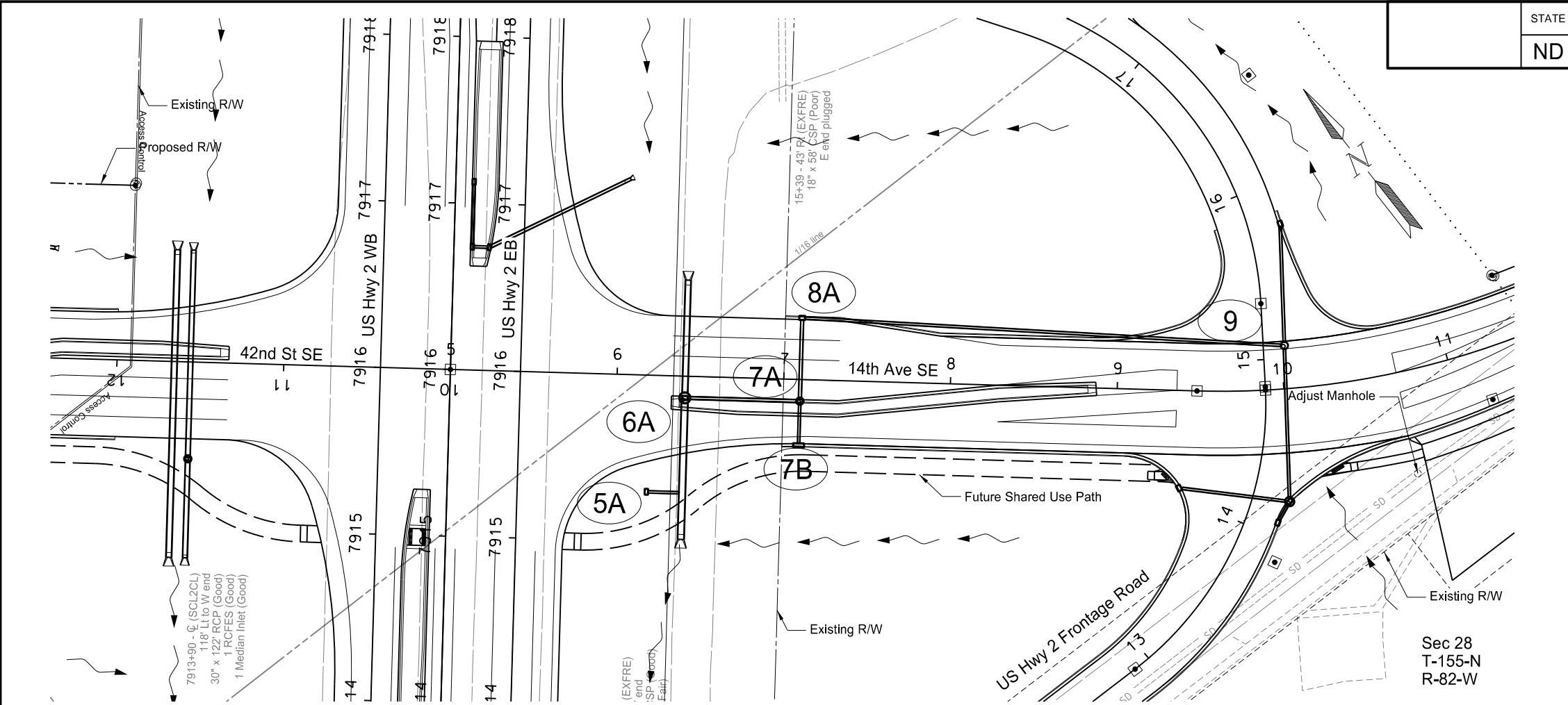


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Storm Sewe

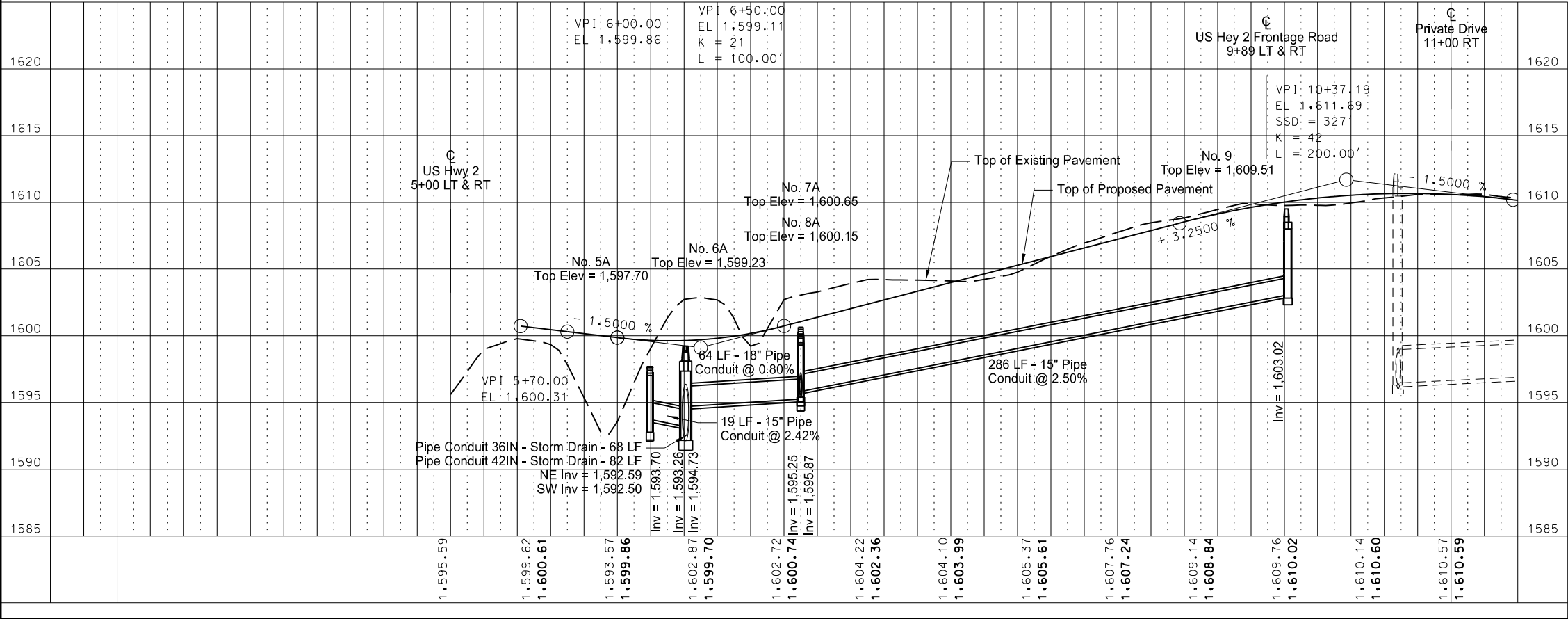
US Hwy 2 & 42nd St SE Intersection Improvements

42nd St SE
16+00 t 18+3



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	9

714	4097	Pipe Conduit 15IN-Storm Drain		
		9 to 8A	286	LF
		7B to 7A	24	LF
		5A to 6+41 - 70' RT	19	LF
714	4101	Pipe Conduit 18IN-Storm Drain		
		8A to 7A	47	LF
		7A to 6A	64	LF
714	4117	Pipe Conduit 36IN-Storm Drain		
		6+41 - 58' LT to 6A	68	LF
714	4121	Pipe Conduit 42IN-Storm Drain		
		6A to 6+41 - 98' RT	82	LF
		(Includes 1 Tee Structure: 15IN on 42IN X 6 FT)		
722	0100	Manhole 48IN		
		9	1	EA
722	1100	Manhole Riser 48IN		
		9	5.7	LF
722	4060	Inlet Mountable Curb-Type B		
		5A	1	EA
722	3510	Inlet-Type 2		
		8A	1	EA
722	3520	Inlet-Type 2-Double		
		7B	1	EA
722	3701	Inlet Special-Type 2 48IN		
		7A	1	EA
722	3766	Inlet Special-Type 2 72IN		
		6A	1	EA
722	6200	Adjust Manhole		
		10+68 - 62' RT	1	EA
754	0805	Object Marker - Culverts		
		6+41 RT	1	EA
		6+41 LT	1	EA

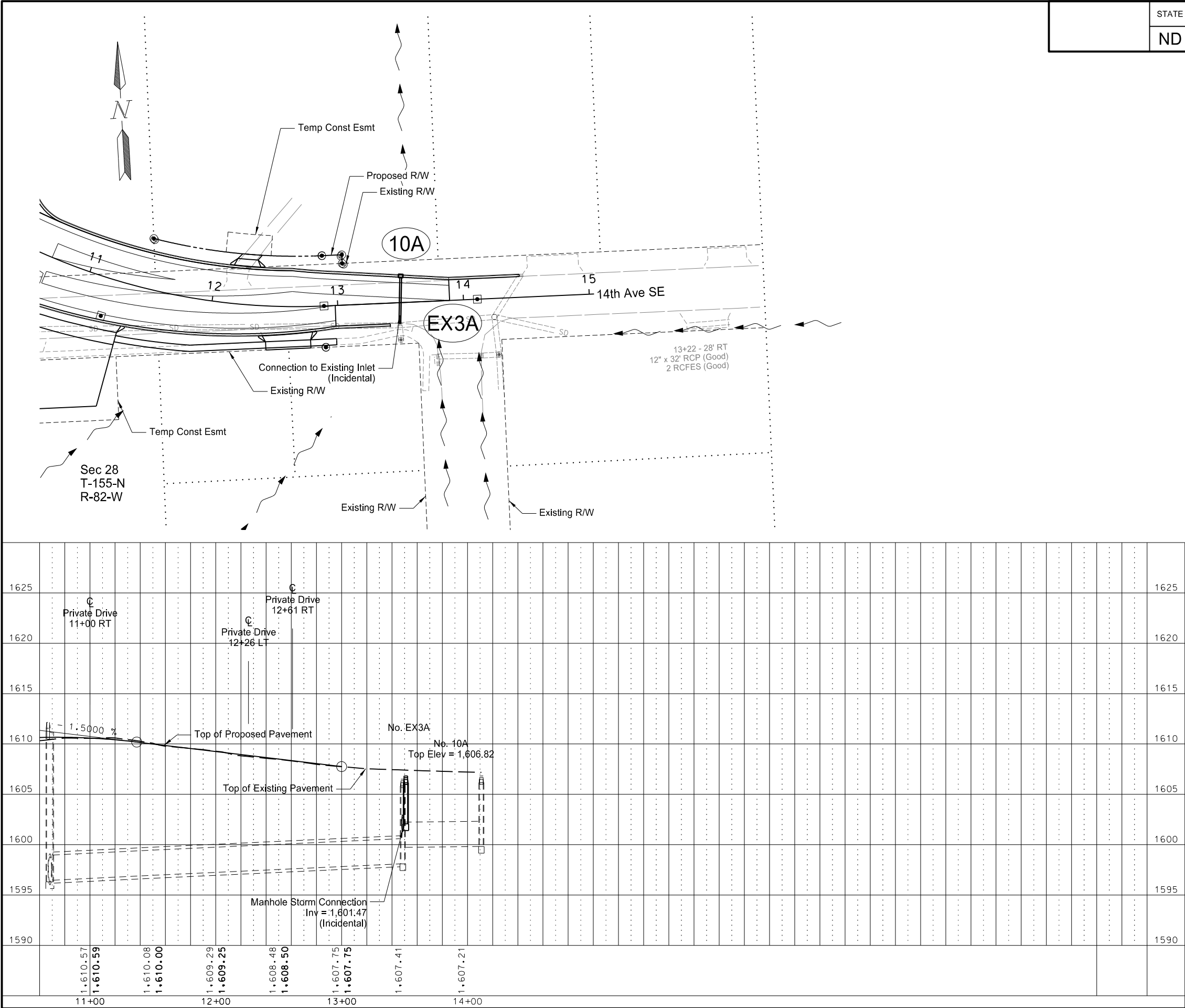


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Storm Sewer
US Hwy 2 & 42nd St SE
Intersection Improvements
14th Ave SE
5+00 to 11+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	10

714	4097	Pipe Conduit 15IN-Storm Drain		
		10A to EX3A	37	LF
722	3510	Inlet-Type 2		
		10A	1	EA



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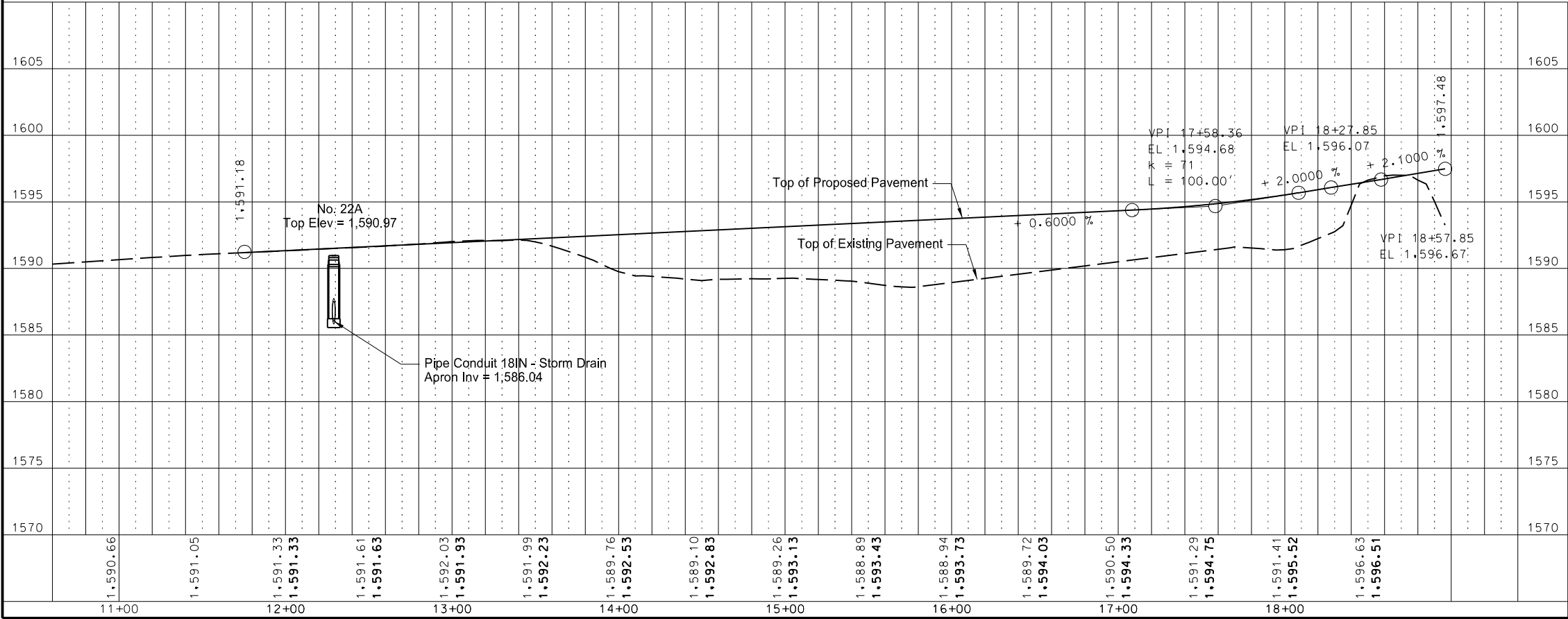
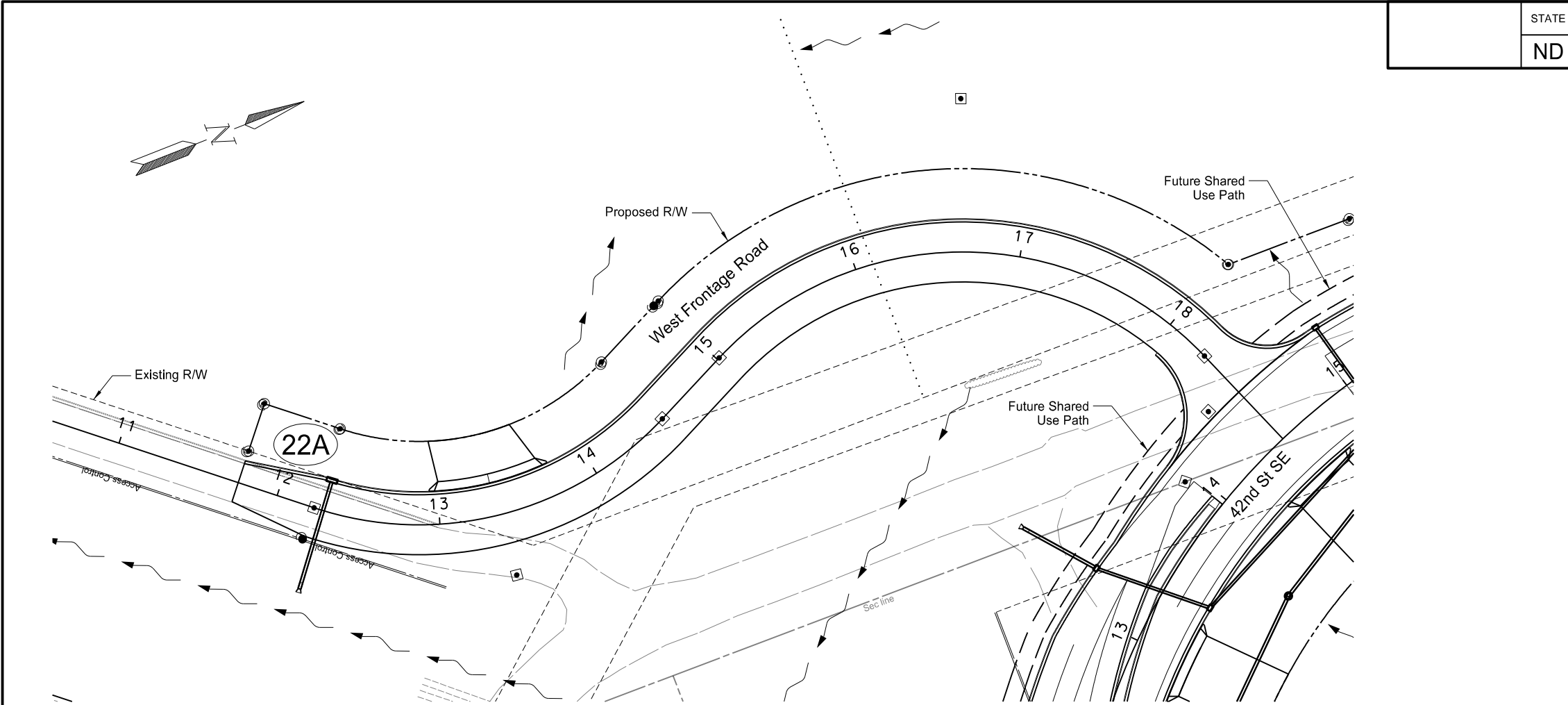
Storm Sewer

US Hwy 2 & 42nd St SE Intersection Improvements

14th Ave SE
11+00 to 13+89

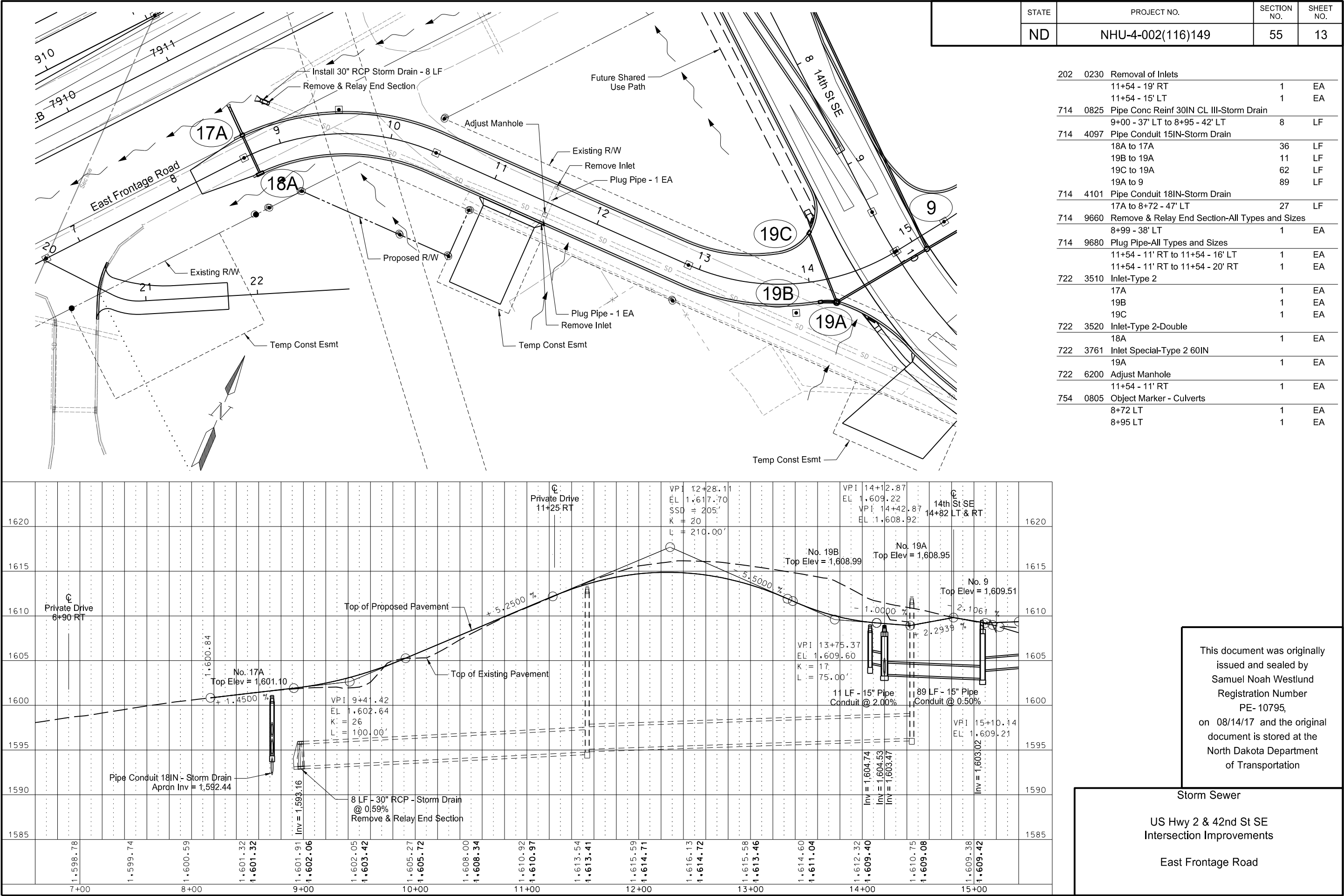
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	11

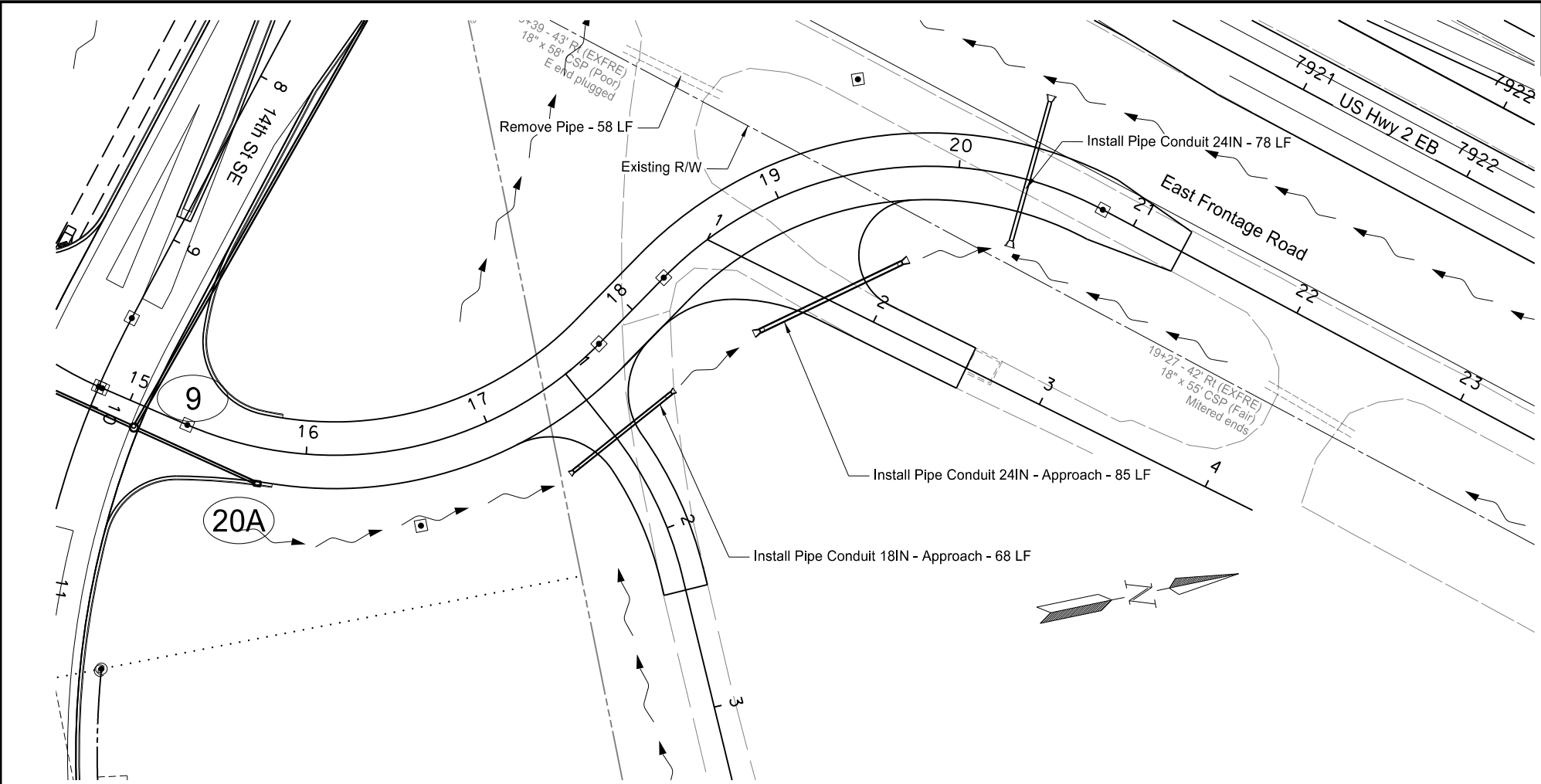
714	4101	Pipe Conduit 18IN-Storm Drain		
		22A to 12+29 - 49' RT	67	LF
722	3520	Inlet-Type 2-Double		
		22A	1	EA
754	0805	Object Marker - Culverts		
		12+29 RT	1	EA



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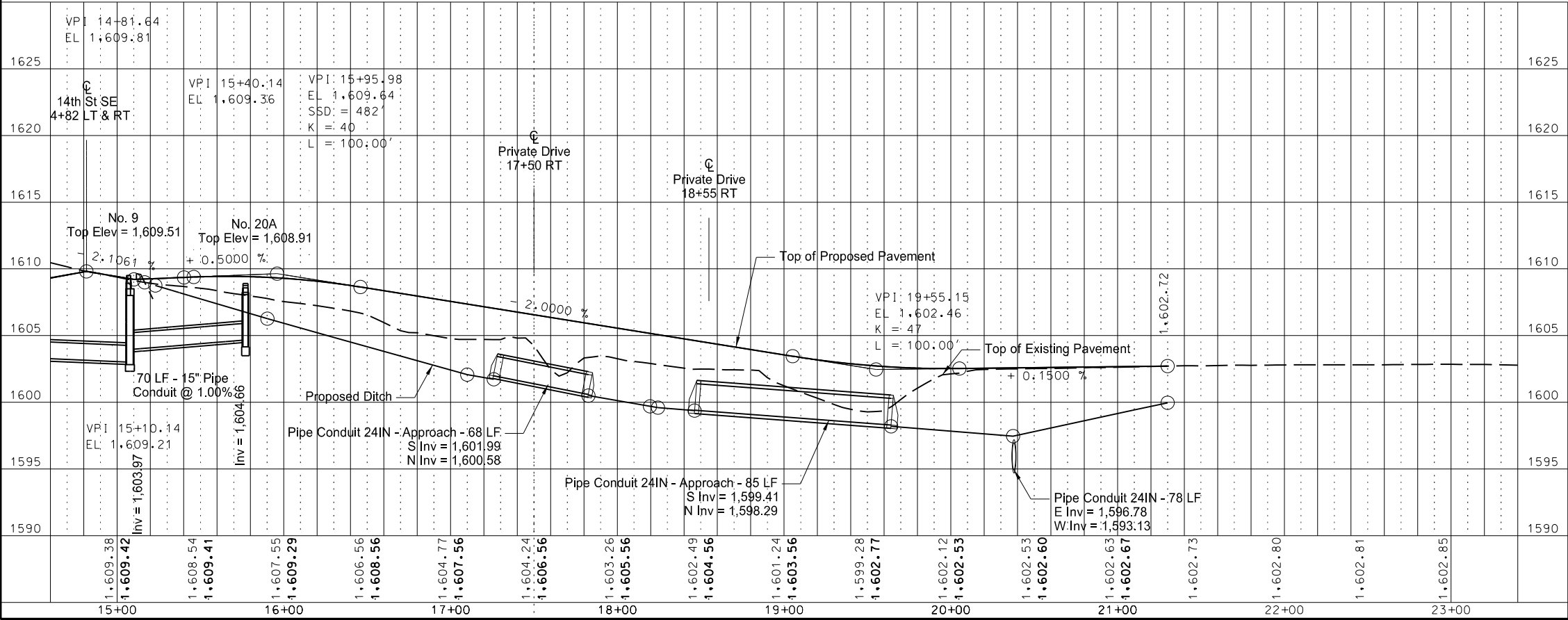
Storm Sewer
US Hwy 2 & 42nd St SE
Intersection Improvements
West Frontage Road





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	14

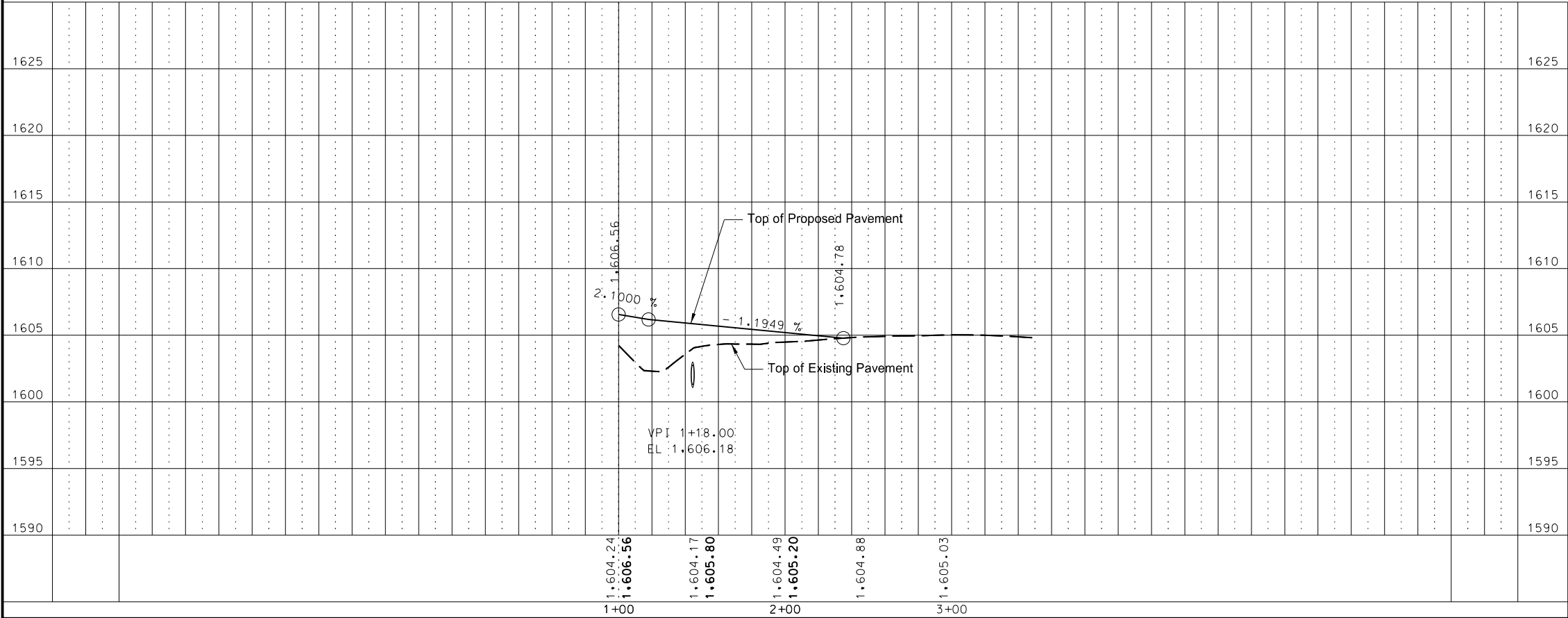
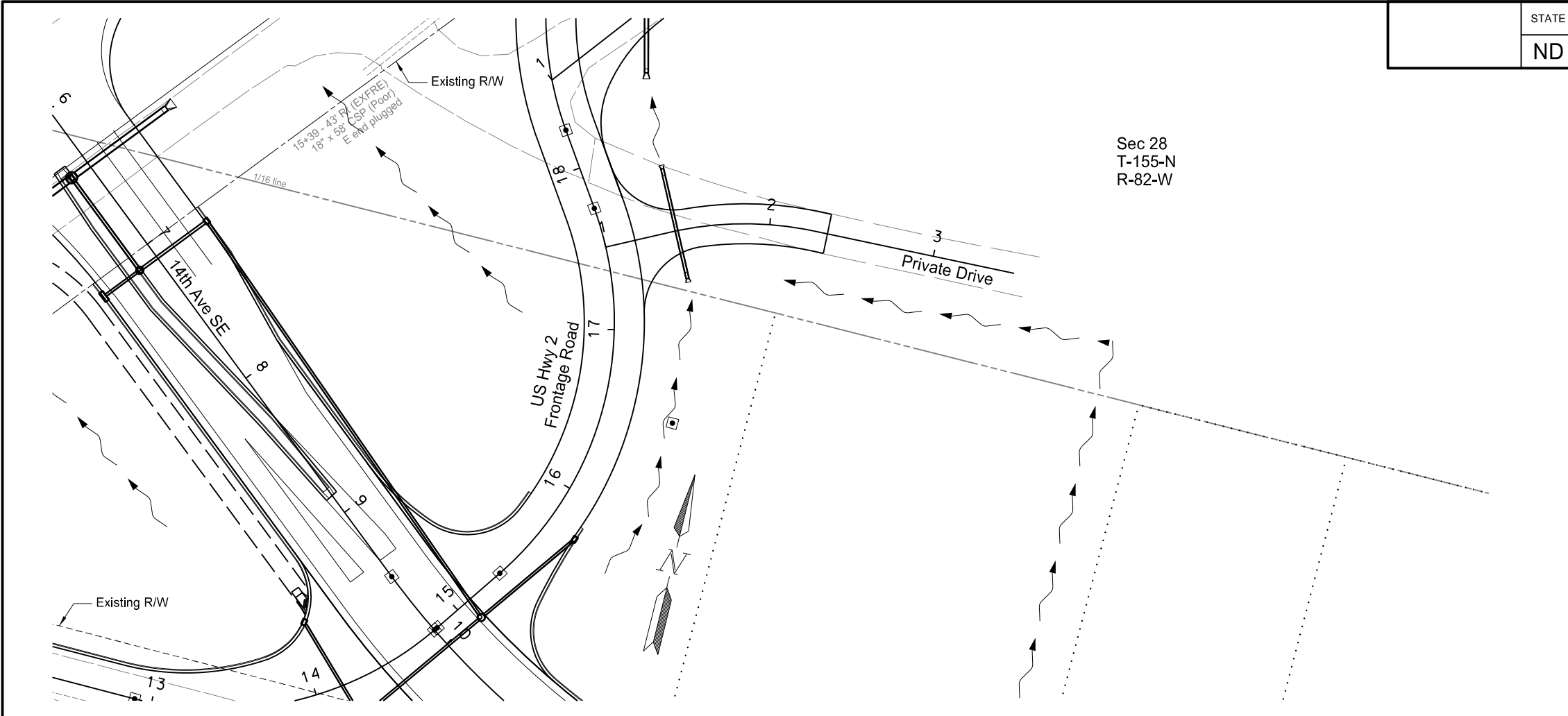
202	0174	Removal of Pipe All Types & Sizes		
		18+83 - 86' LT	58	LF
714	4099	Pipe Conduit 18IN-Approach		
		17+26 - 45' RT to 17+83 - 47' RT	68	LF
714	4097	Pipe Conduit 15IN-Storm Drain		
		20A to 9	70	LF
714	4105	Pipe Conduit 24IN		
		20+38 - 34' RT to 20+38 - 44' LT	78	LF
714	4106	Pipe Conduit 24IN-Approach		
		18+46 - 56' RT to 19+64 - 51' RT	85	LF
722	3510	Inlet-Type 2		
		20A	1	EA
754	0805	Object Marker - Culverts		
		17+26 RT	1	EA
		17+83 RT	1	EA
		18+46 RT	1	EA
		19+64 RT	1	EA
		20+38 RT/LT	2	EA



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Storm Sewer
US Hwy 2 & 42nd St SE
Intersection Improvements
East Frontage Road

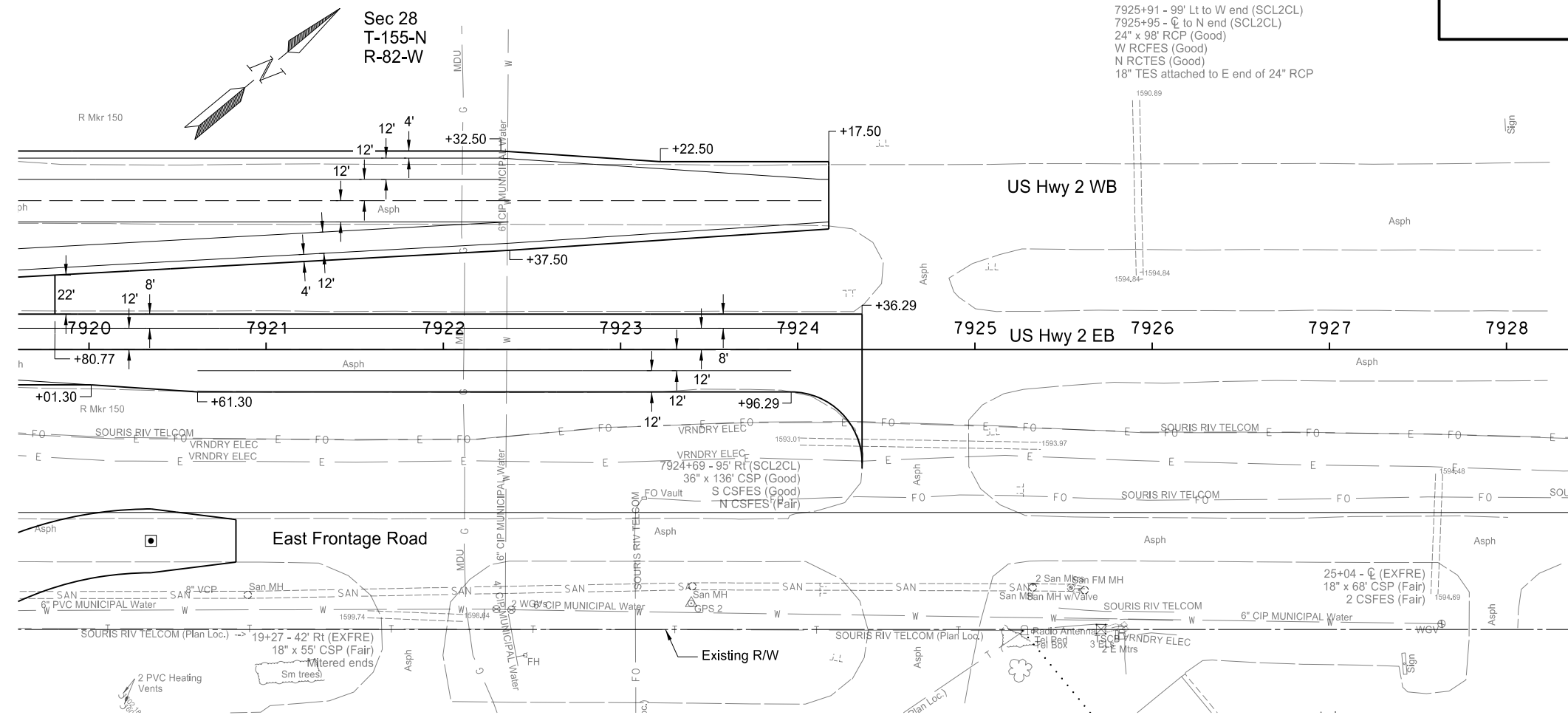
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	55	15



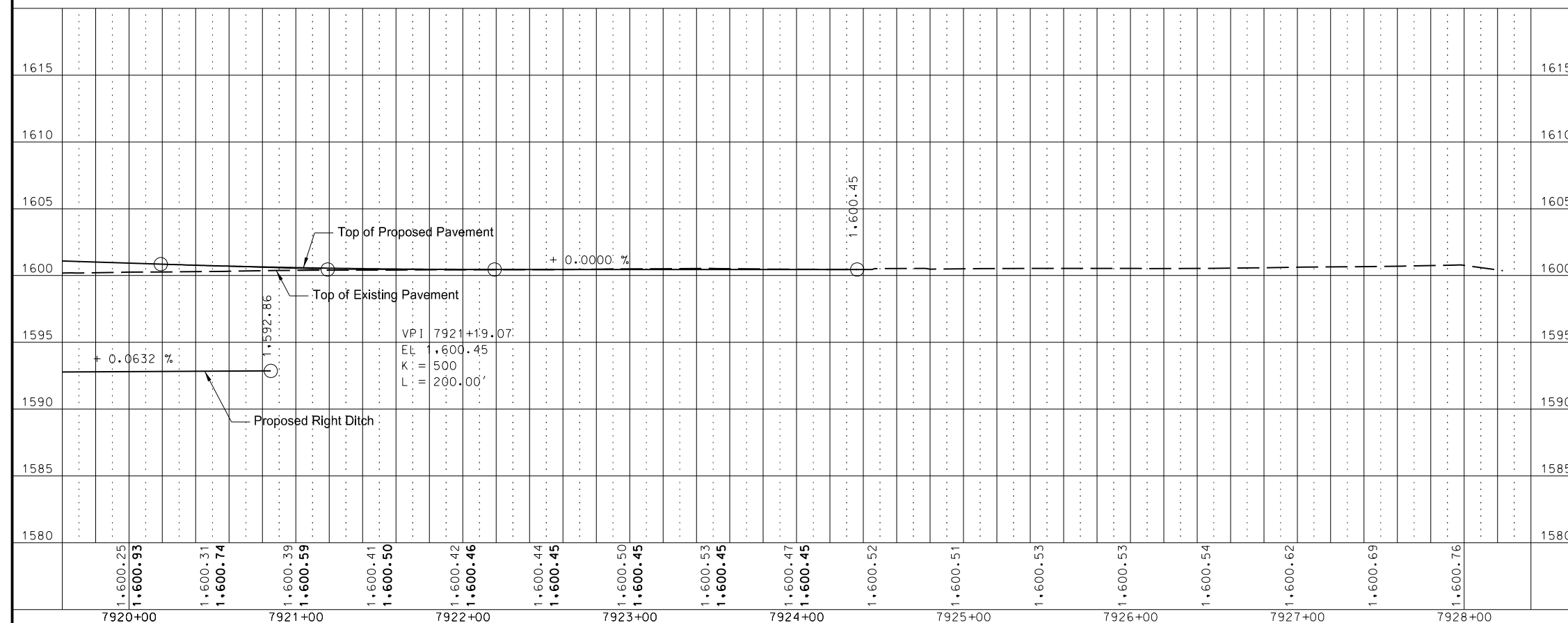
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Storm Sewer
US Hwy 2 & 42nd St SE
Intersection Improvements
Private Drive

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	60	3



302	0100	Salvaged Base Course		
		7919+80.77 to 7924+36.29	2849	TON
401	0050	Tack Coat		
		7919+80.77 to 7924+36.29	253	GAL
401	0060	Prime Coat		
		7919+80.77 to 7924+36.29	632	GAL
401	0160	Blotter Material CL 44		
		7919+80.77 to 7924+36.29	19	TON
430	0045	Superpave FAA 45		
		7919+80.77 to 7924+36.29	846	TON
430	5828	PG 58-28 Asphalt Cement		
		7919+80.77 to 7924+36.29	34	TON
430	6428	PG 64-28 Asphalt Cement		
		7919+80.77 to 7924+36.29	15	TON

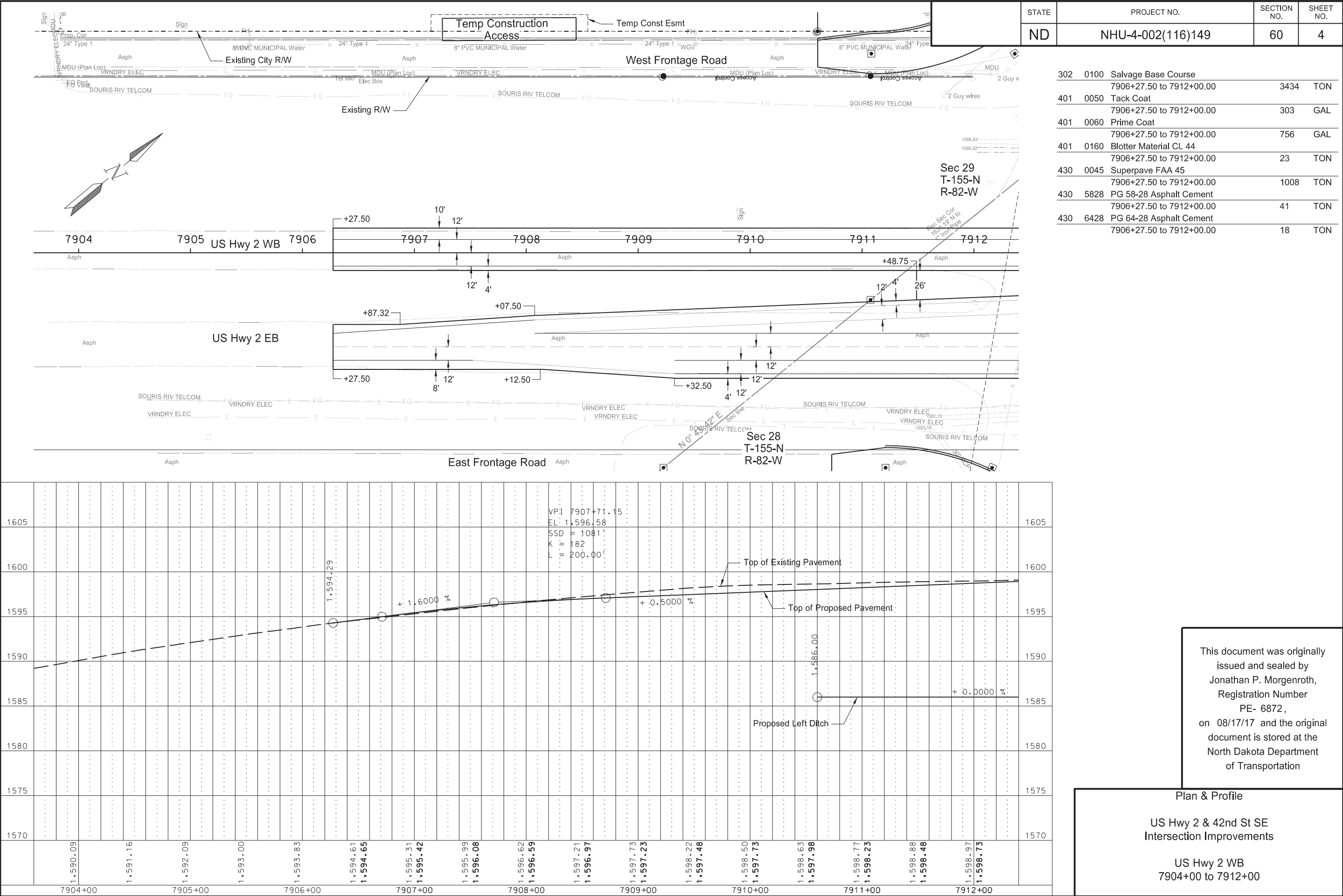


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Plan & Profile

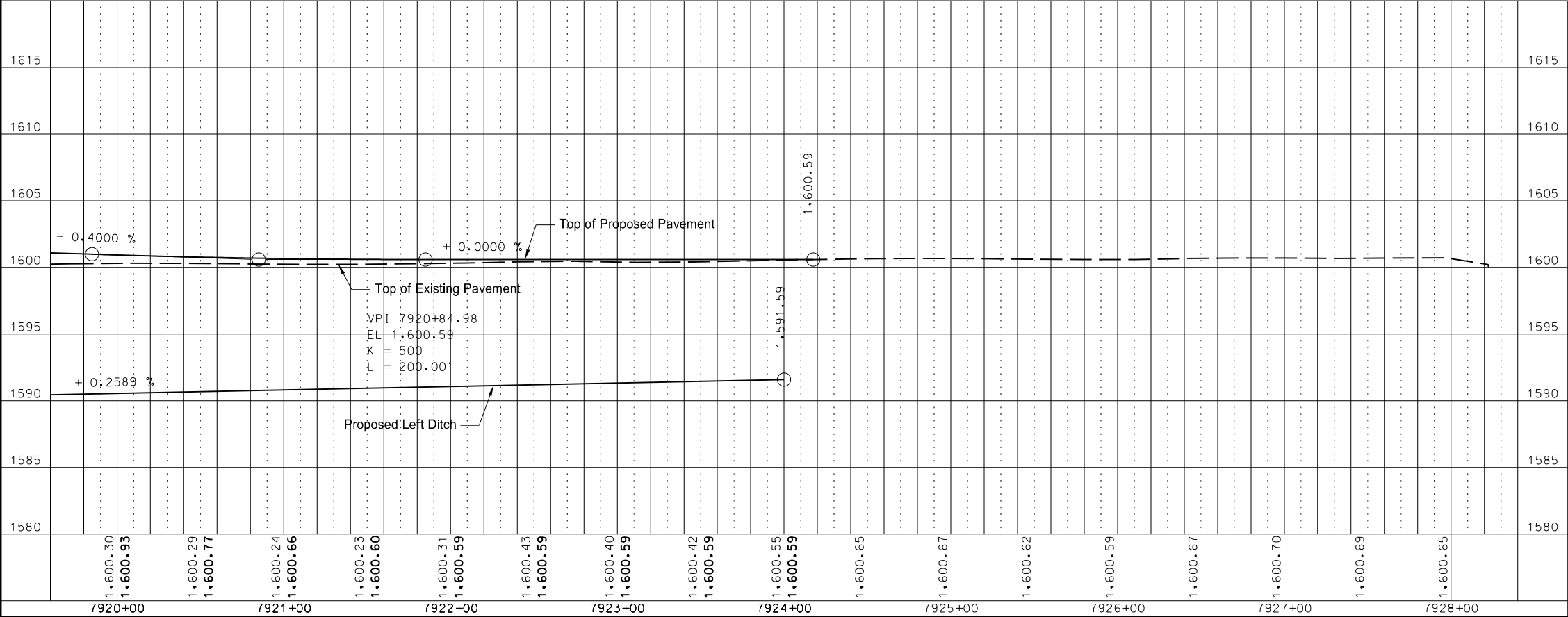
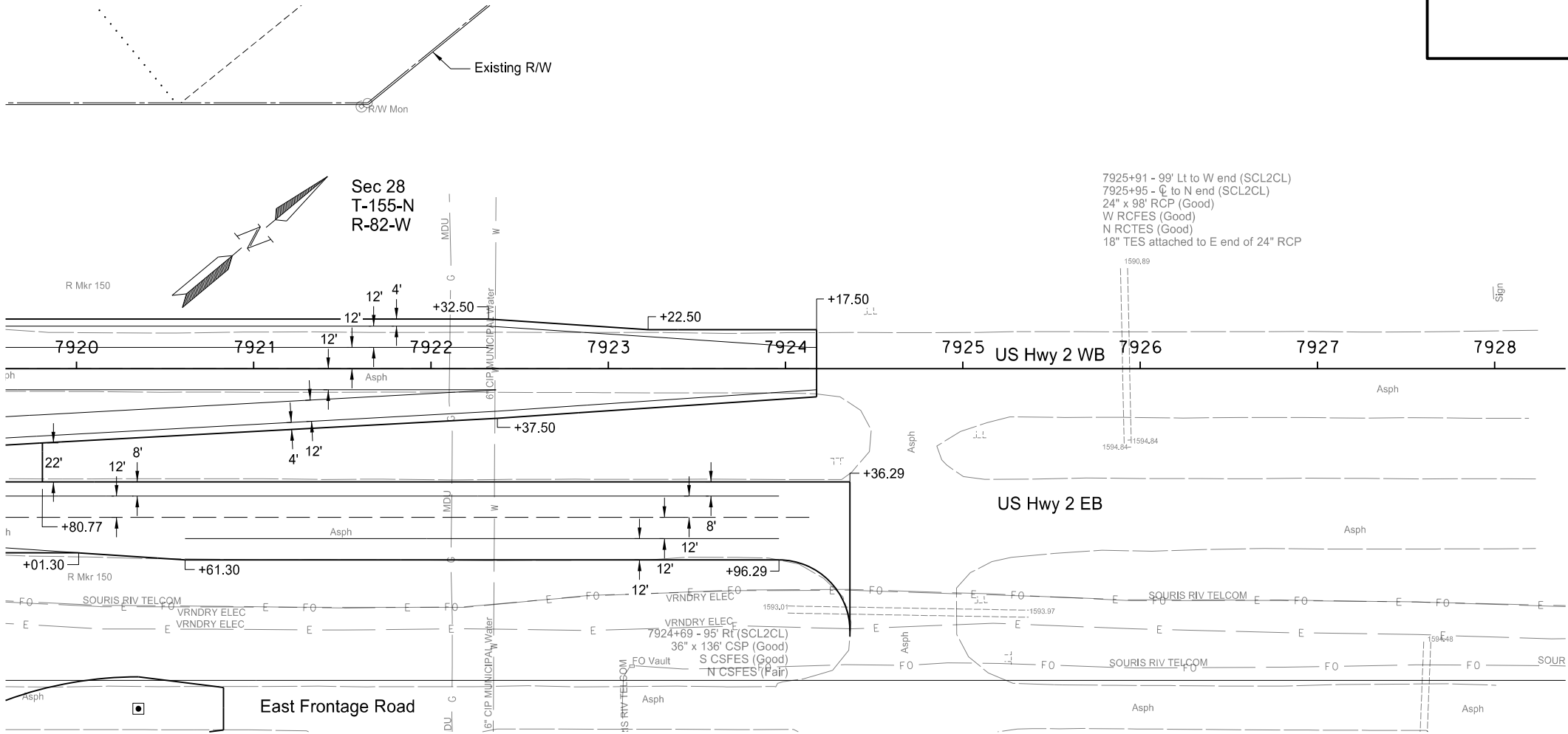
US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2 EB
7920+00 to 7928+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	60	6

302	0100	Salvaged Base Course		
		7919+80.77 to 7924+36.29	3169	TON
401	0050	Tack Coat		
		7919+80.77 to 7924+36.29	291	GAL
401	0060	Prime Coat		
		7919+80.77 to 7924+36.29	726	GAL
401	0160	Blotter Material CL 44		
		7919+80.77 to 7924+36.29	22	TON
430	0045	Superpave FAA 45		
		7919+80.77 to 7924+36.29	986	TON
430	5828	PG 58-28 Asphalt Cement		
		7919+80.77 to 7924+36.29	40	TON
430	6428	PG 64-28 Asphalt Cement		
		7919+80.77 to 7924+36.29	18	TON

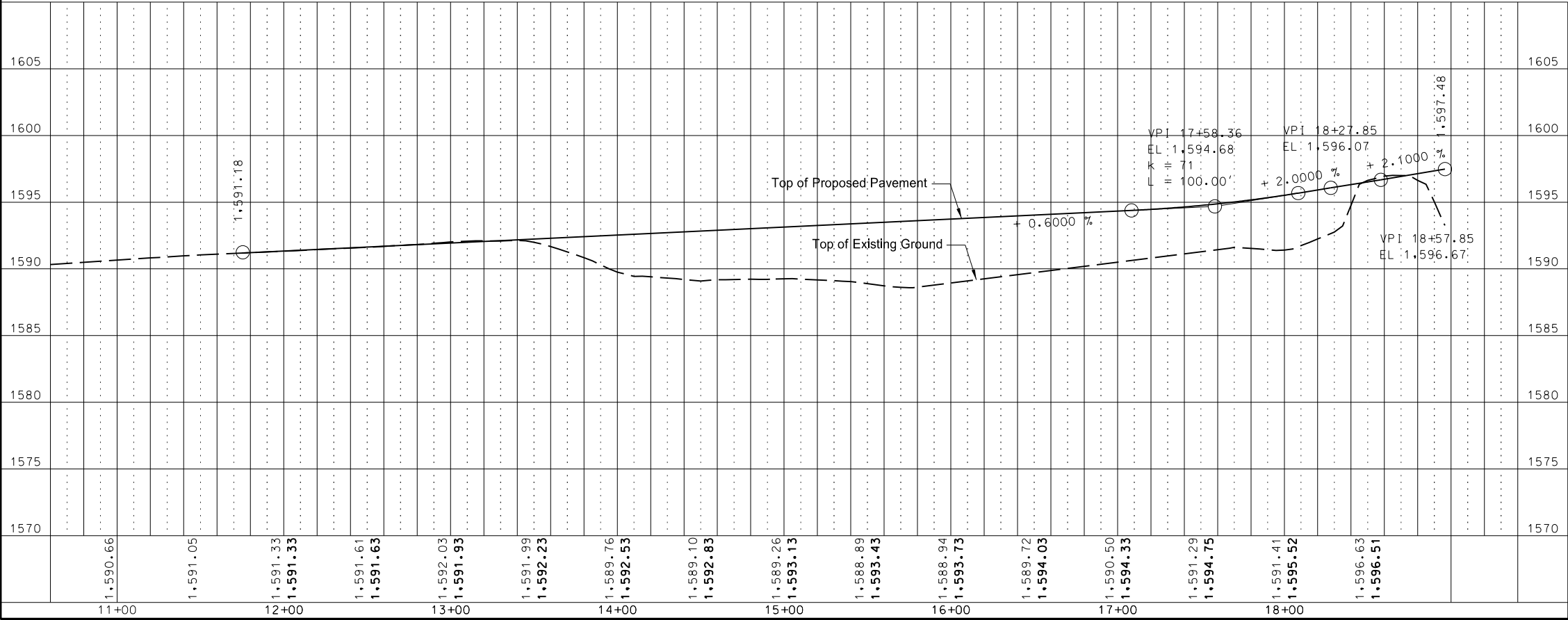
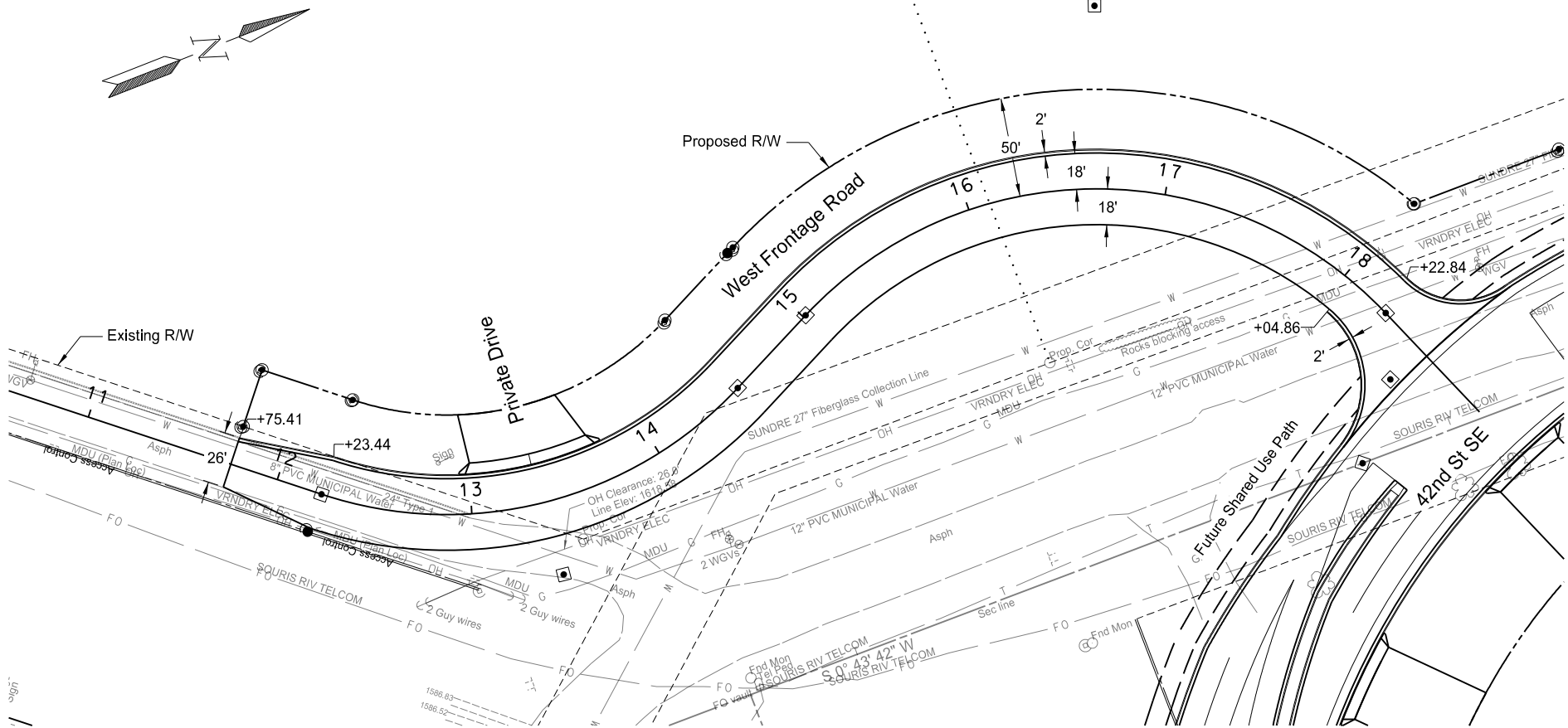


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Plan & Profile
US Hwy 2 & 42nd St SE
Intersection Improvements
US Hwy 2 WB
7920+00 to 7928+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	60	11

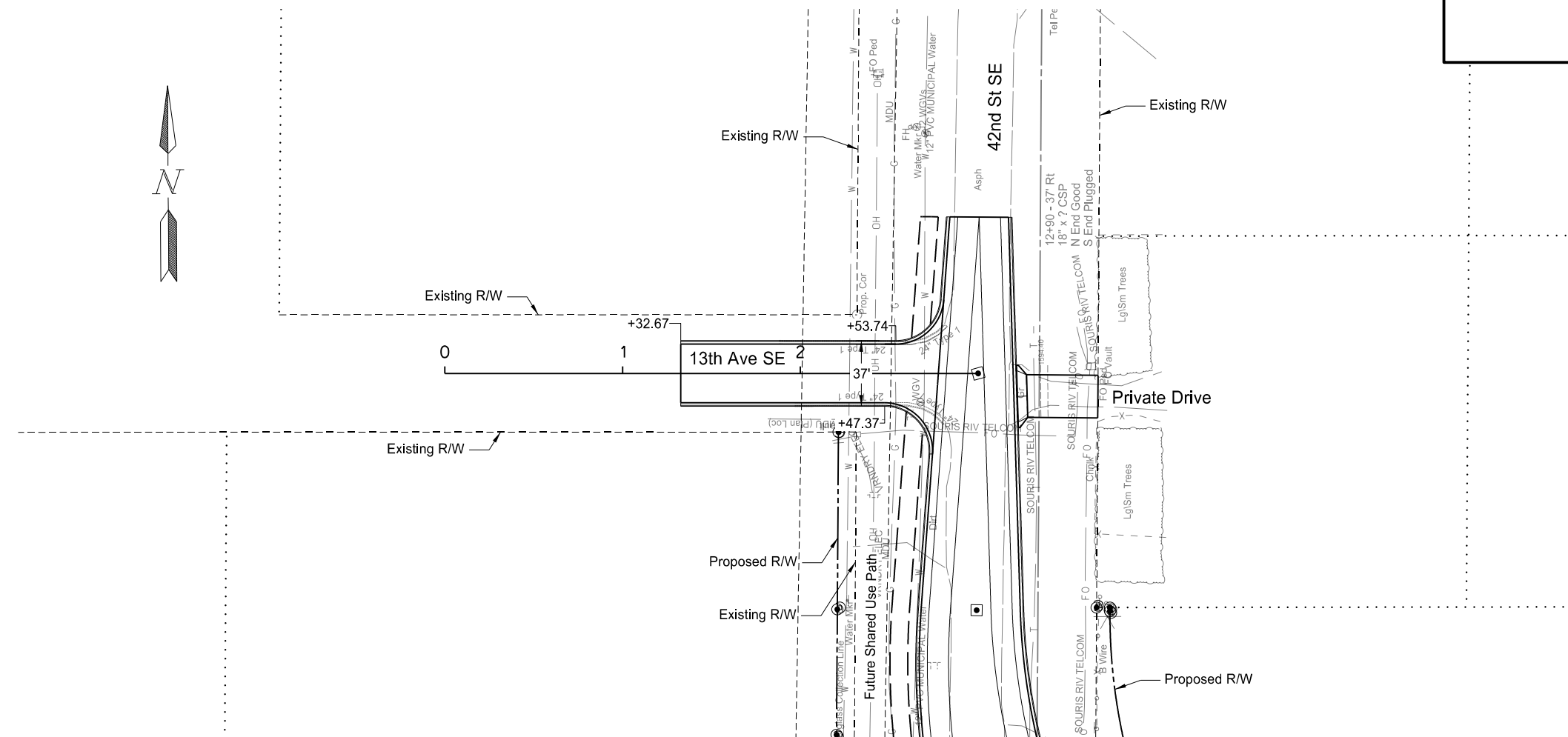
302	0100	Salvaged Base Course		
		11+75.41 to 18+04.86	1830	TON
		Driveway @ 13+35 LT	128	TON
401	0050	Tack Coat		
		11+75.41 to 18+04.86	157	GAL
401	0060	Prime Coat		
		11+75.41 to 18+04.86	769	GAL
401	0160	Blotter Material CL 44		
		11+75.41 to 18+04.86	23	TON
430	0045	Superpave FAA 45		
		11+75.41 to 18+04.86	651	TON
430	5828	PG 58-28 Asphalt Cement		
		11+75.41 to 18+04.86	19	TON
430	6428	PG 64-28 Asphalt Cement		
		5+70.00 to 11+00.00	19	TON
748	0140	Curb & Gutter-Type 1		
		11+75.41 to 18+04.86	784	LF
750	1020	Driveway Concrete 8IN		
		Driveway @ 13+35 LT	42	SY



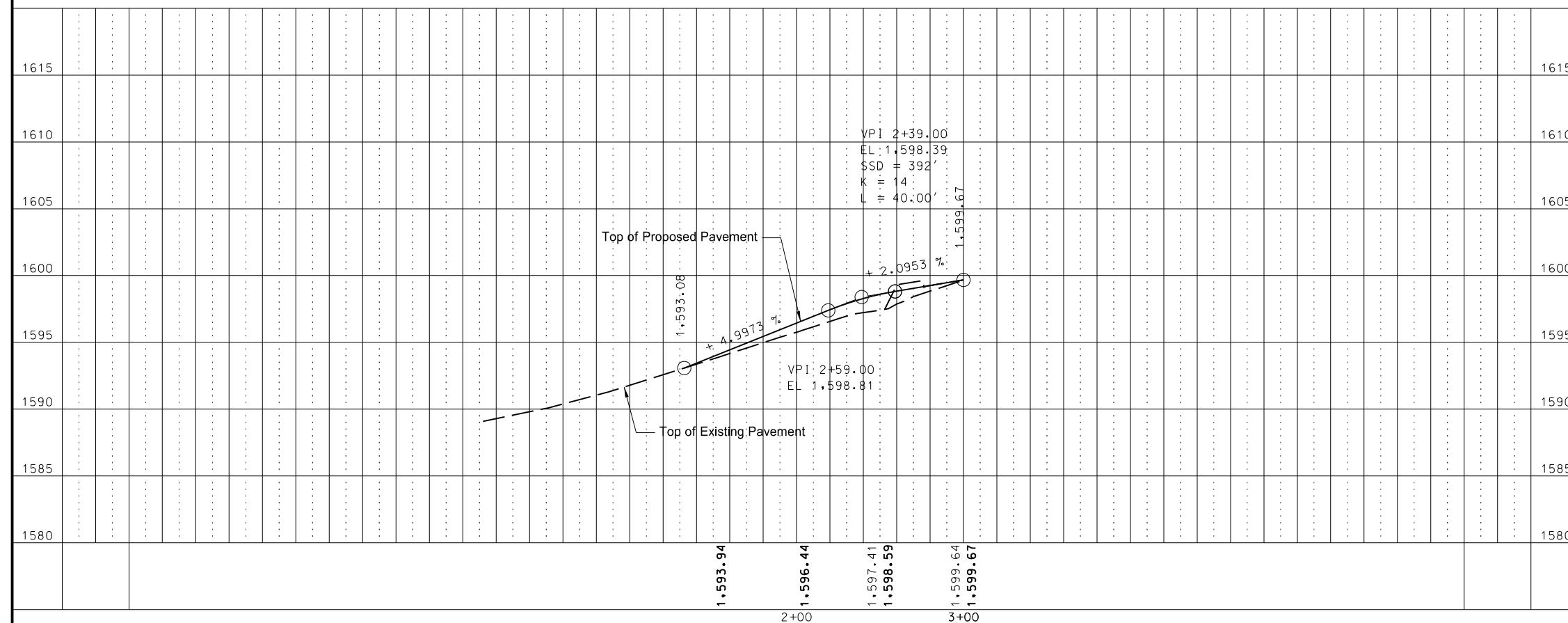
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Plan & Profile
US Hwy 2 & 42nd St SE
Intersection Improvements
West Frontage Road

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	60	12



302	0100	Salvaged Base Course		
		2+47.37 to 2+77.62	660	TON
401	0050	Tack Coat		
		2+47.37 to 2+77.62	30	GAL
401	0060	Prime Coat		
		2+47.37 to 2+77.62	142	GAL
401	0160	Blotter Material CL 44		
		2+47.37 to 2+77.62	4	TON
430	0045	Superpave FAA 45		
		2+47.37 to 2+77.62	142	TON
430	5828	PG 58-28 Asphalt Cement		
		2+47.37 to 2+77.62	5	TON
430	6428	PG 64-28 Asphalt Cement		
		2+47.37 to 2+77.62	4	TON
748	0140	Curb & Gutter-Type 1		
		2+47.37 to 2+77.62	316	LF

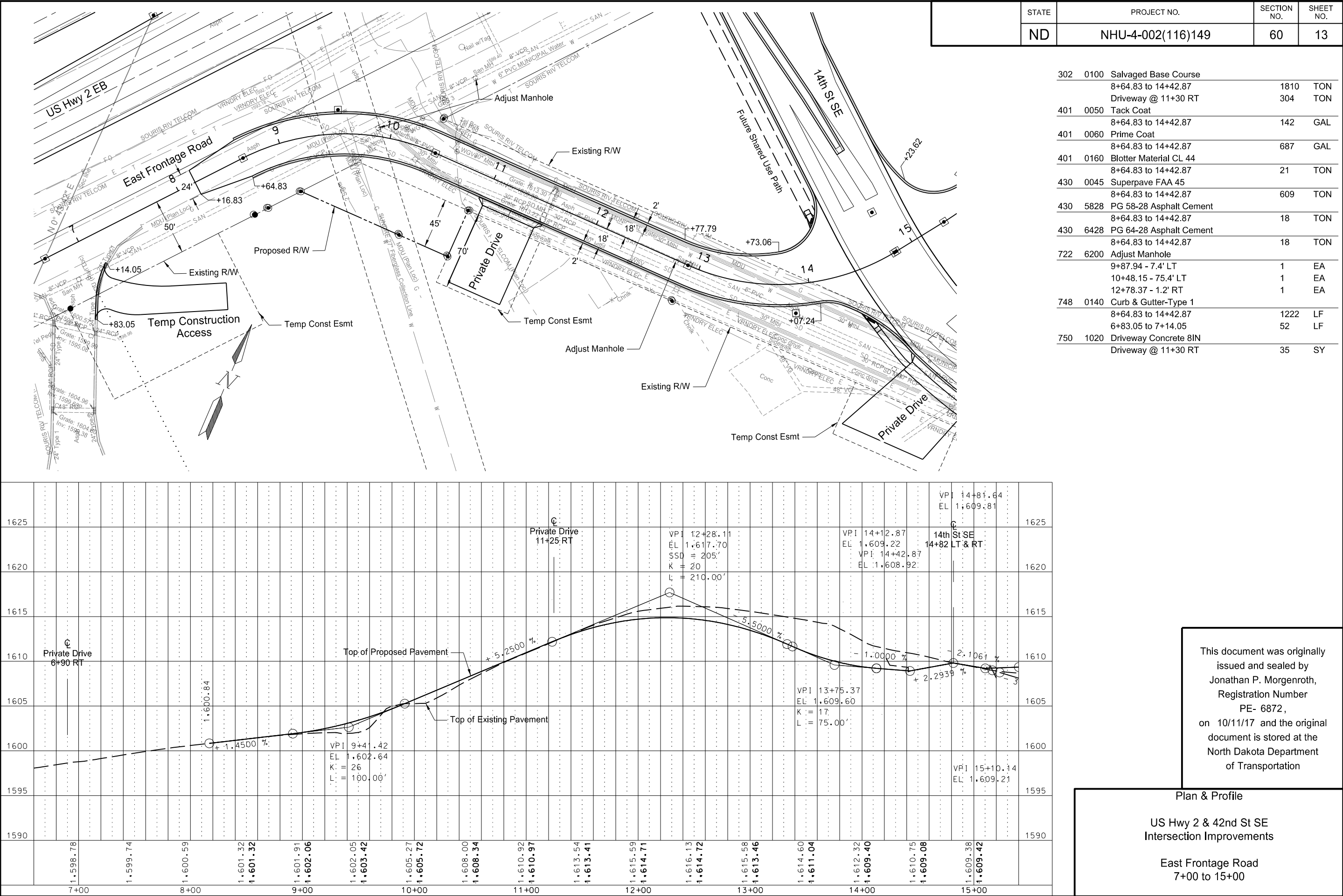


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Plan & Profile

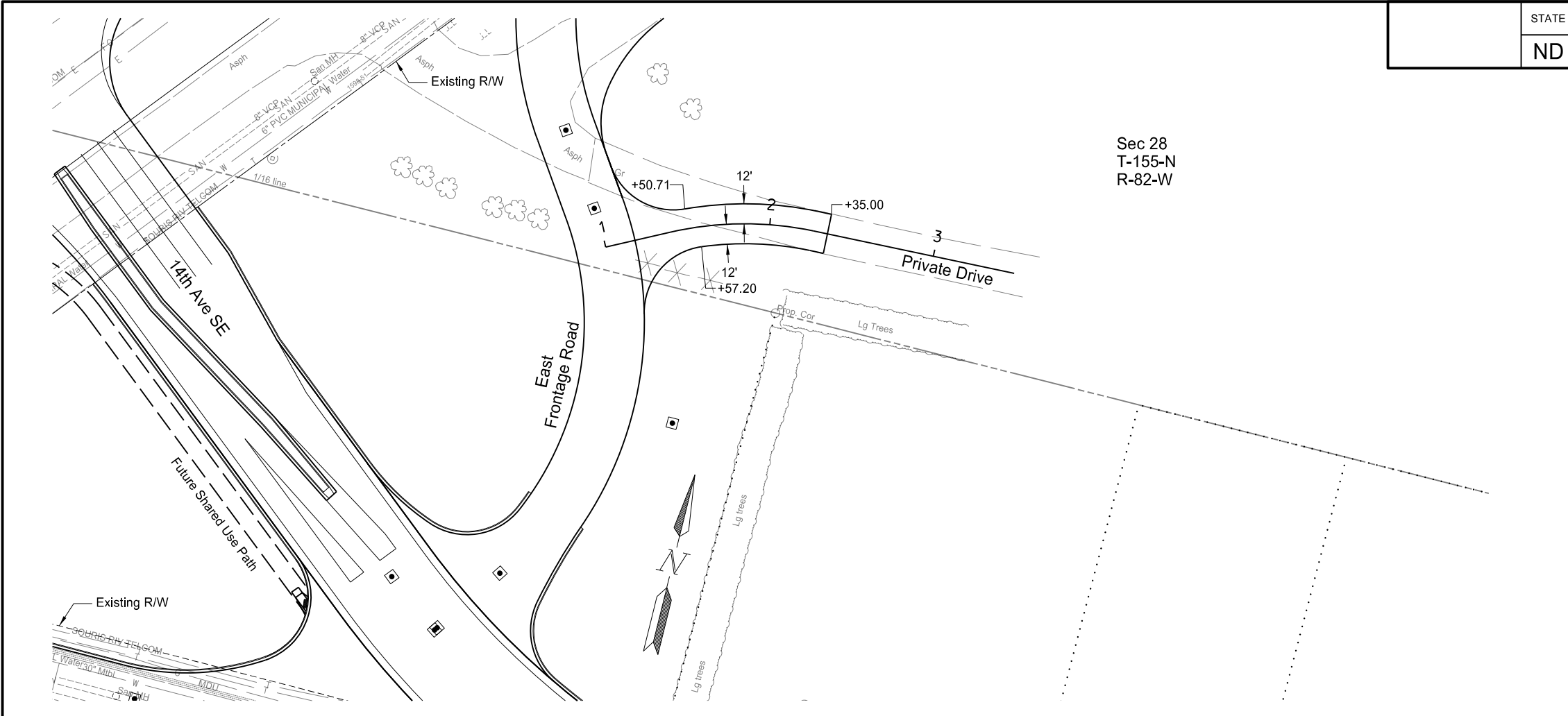
US Hwy 2 & 42nd St SE
Intersection Improvements

13th Ave SE

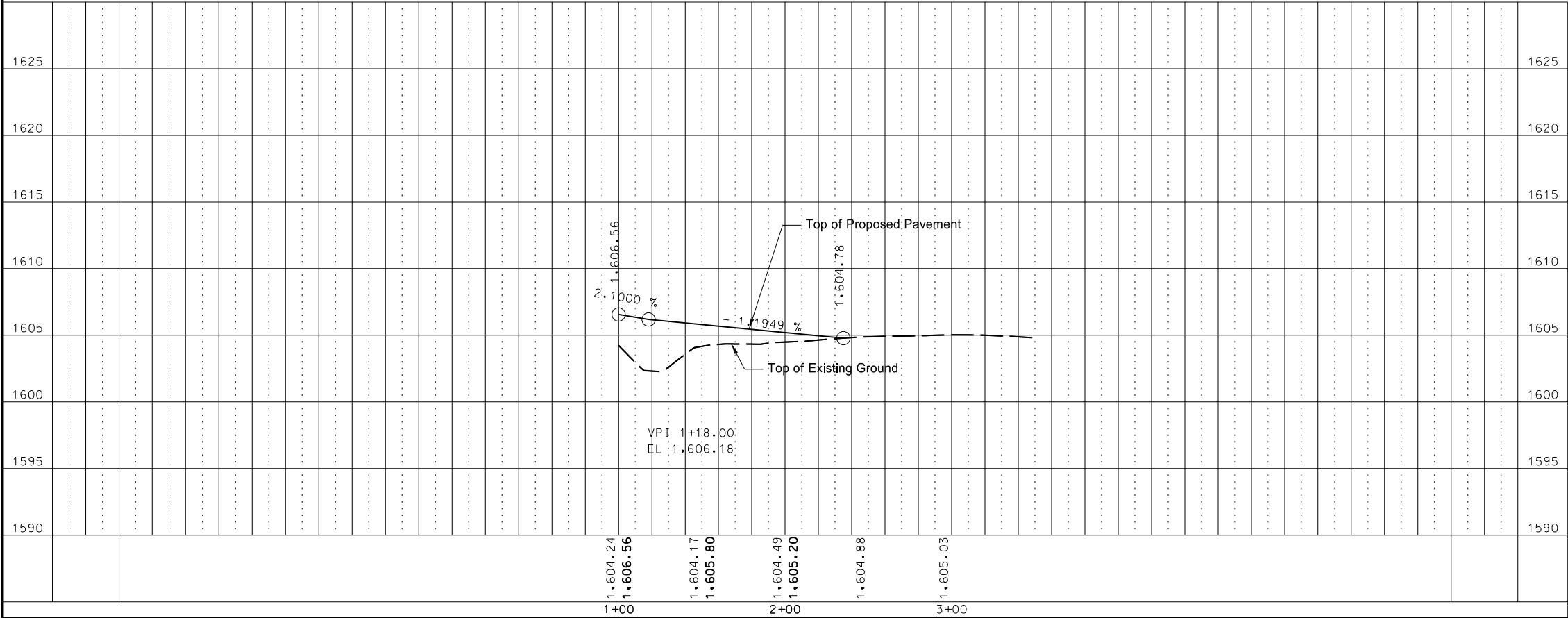


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	60	15

302	0100	Salvaged Base Course		
		1+18.00 to 2+35.00	217	TON
401	0050	Tack Coat		
		1+18.00 to 2+35.00	21	GAL
401	0060	Prime Coat		
		1+18.00 to 2+35.00	104	GAL
401	0160	Blotter Material CL 44		
		1+18.00 to 2+35.00	3	TON
430	0045	Superpave FAA 45		
		1+18.00 to 2+35.00	87	TON
430	5828	PG 58-28 Asphalt Cement		
		1+18.00 to 2+35.00	3	TON
430	6428	PG 64-28 Asphalt Cement		
		1+18.00 to 2+35.00	3	TON

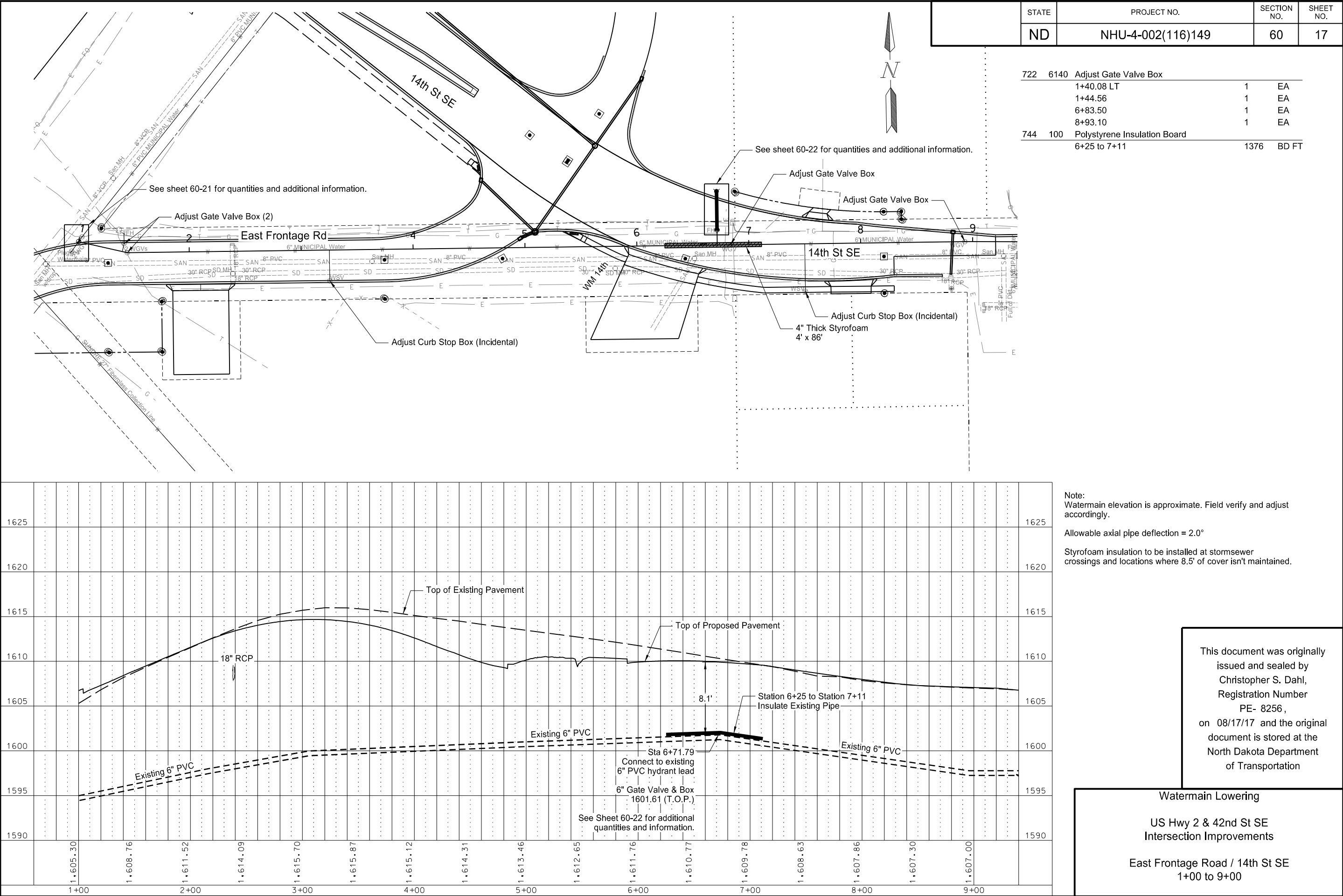


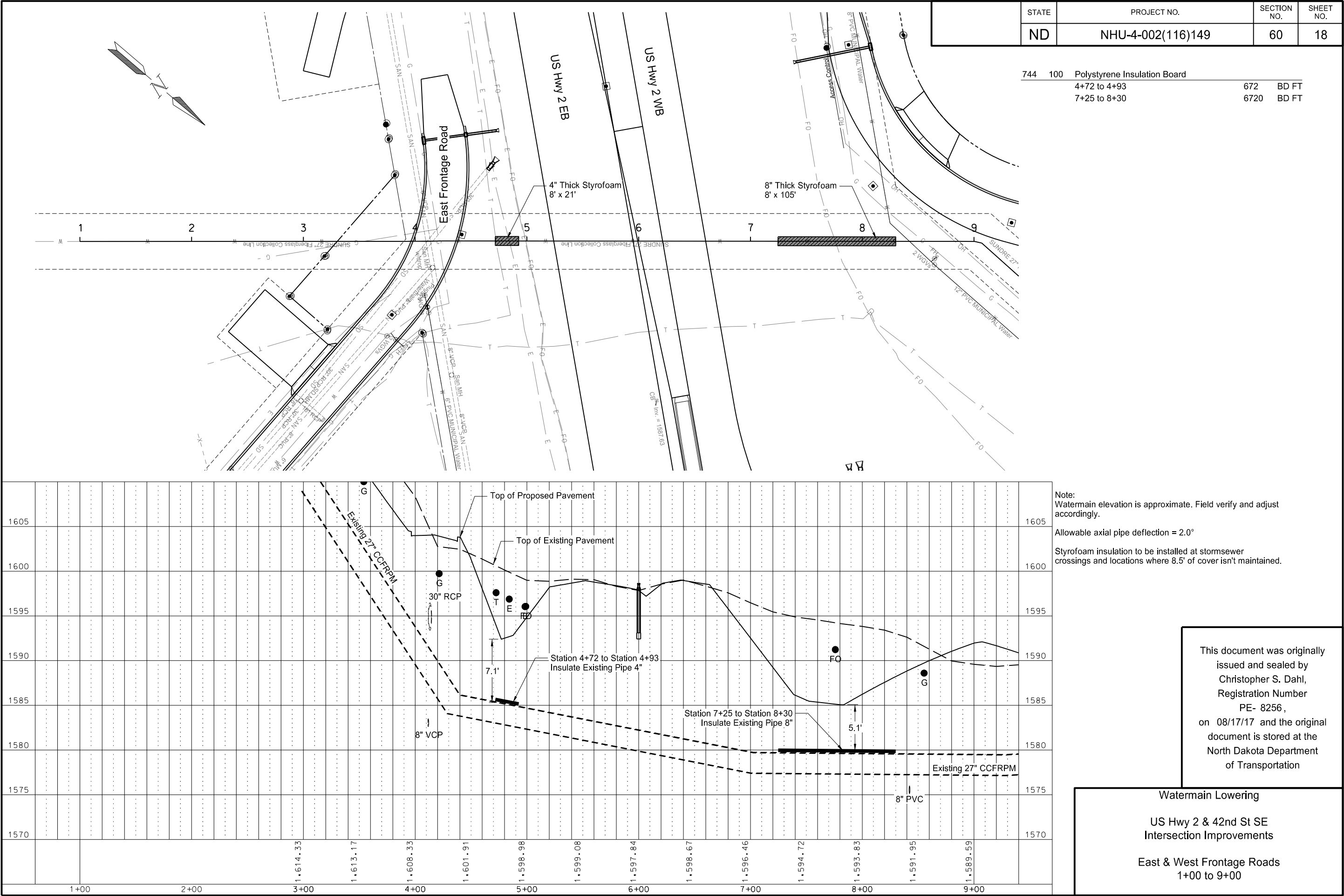
Sec 28
T-155-N
R-82-W



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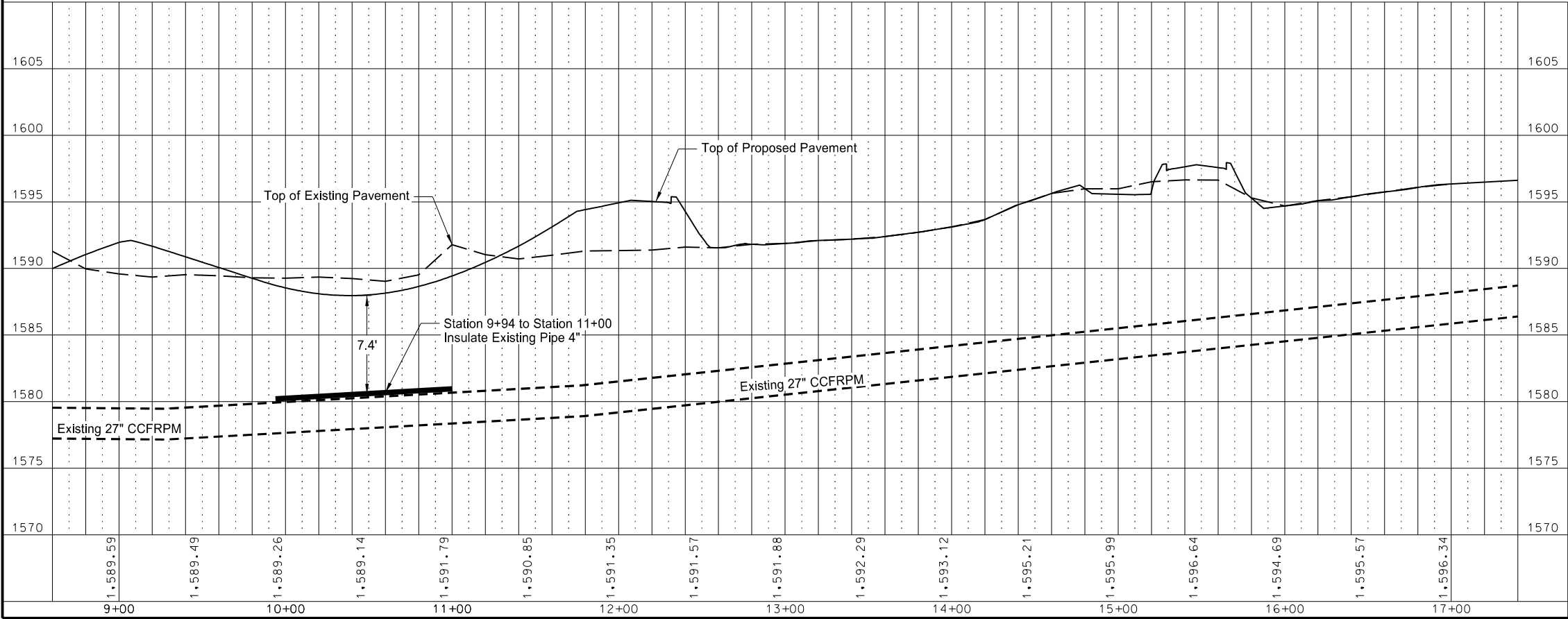
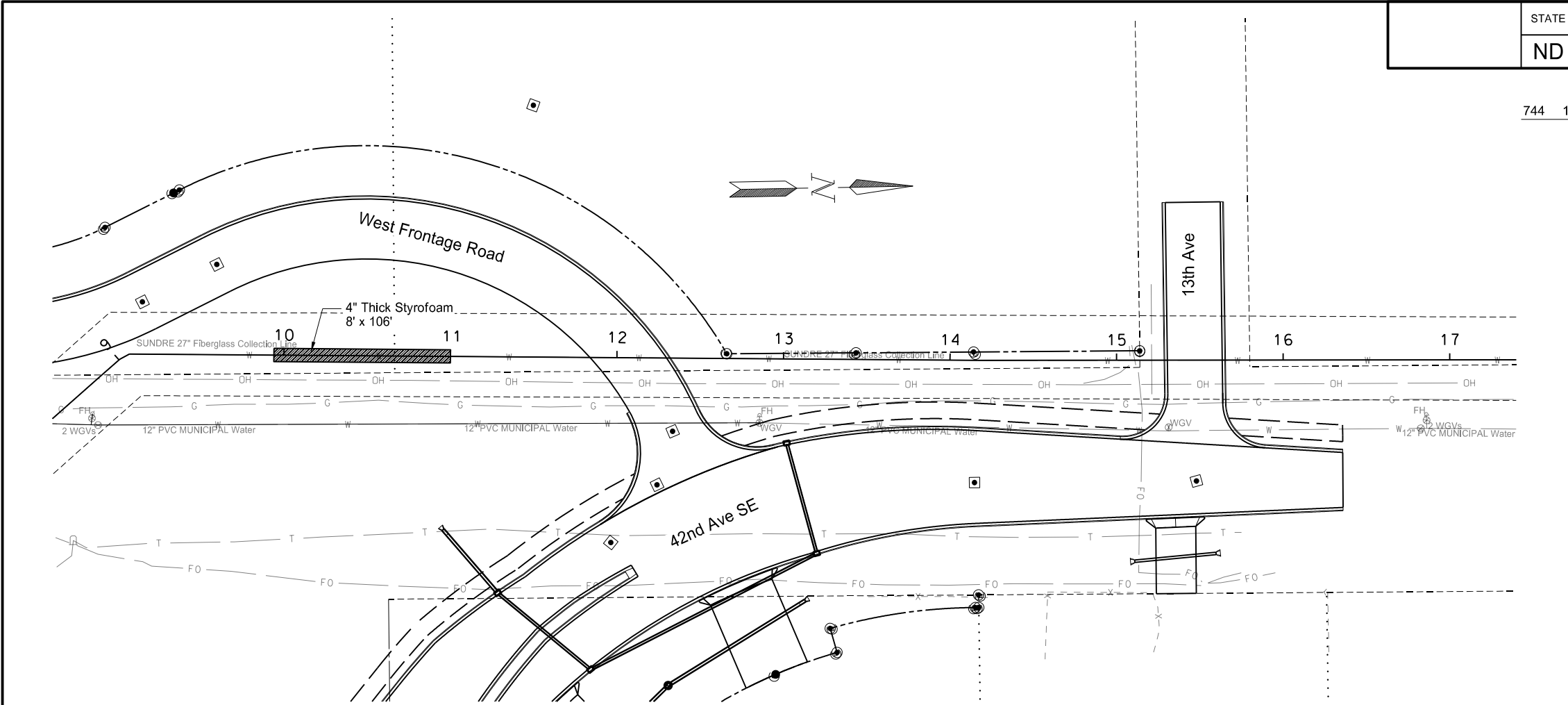
Plan & Profile
US Hwy 2 & 42nd St SE
Intersection Improvements
Private Drive





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	60	19

744 100 Polystyrene Insulation Board
9+94 to 11+00 3392 BD FT



Note:
Watermain elevation is approximate. Field verify and adjust accordingly.

Allowable axial pipe deflection = 2.0°

Styrofoam insulation to be installed at stormsewer crossings and locations where 8.5' of cover isn't maintained.

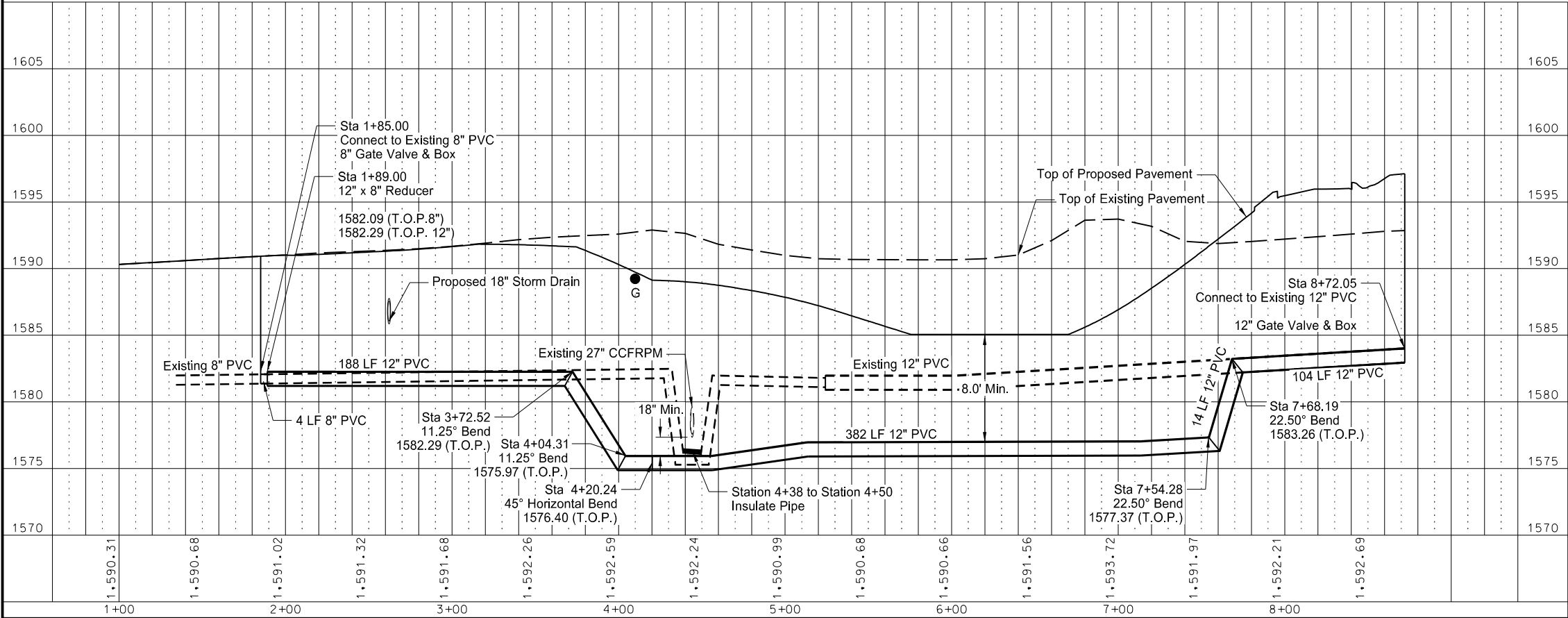
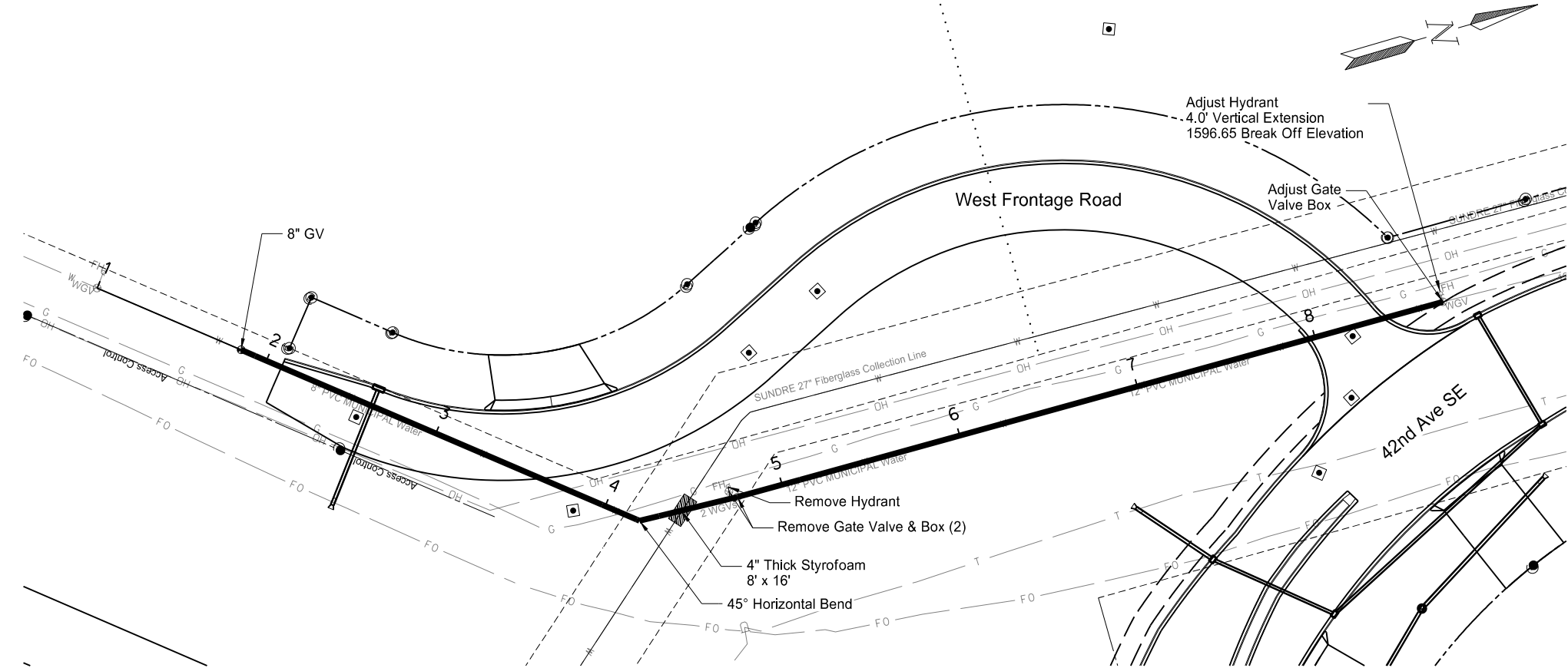
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Watermain Lowering

US Hwy 2 & 42nd St SE Intersection Improvements

West Frontage Road 9+00 to 17+00

724	270	Remove Gate Valve & Box		
	4+71.11		1	EA
	4+74.86		1	EA
724	310	Gate Valve & Box 8IN		
	1+85.00		1	EA
724	314	Gate Valve & Box 12IN		
	8+72.05		1	EA
724	427	Adjust Hydrant		
	8+72.06 LT		1	EA
724	430	Remove Hydrant		
	4+71.97		1	EA
724	830	Watermain 8IN PVC		
	1+85.00 to 1+89.00		4	LF
724	850	Watermain 12IN PVC		
	1+89.00 to 8+72.05		684	LF
724	944	Connection to Existing Main		
	1+85.00		1	EA
	8+72.05		1	EA
724	6840	12IN 11.25Deg Bend		
	3+72.52		1	EA
	4+04.31		1	EA
724	6842	12IN 22.5Deg Bend		
	7+54.28		1	EA
	7+68.19		1	EA
724	6844	12IN 45Deg Bend		
	4+20.24		1	EA
724	8097	12IN X 8IN Reducer		
	1+89.00		1	EA
744	100	Polystyrene Insulation Board		
	4+38 to 4+50		512	BD FT



Note:
Watermain elevation is approximate. Field verify and adjust accordingly.

Allowable axial pipe deflection = 2.0°

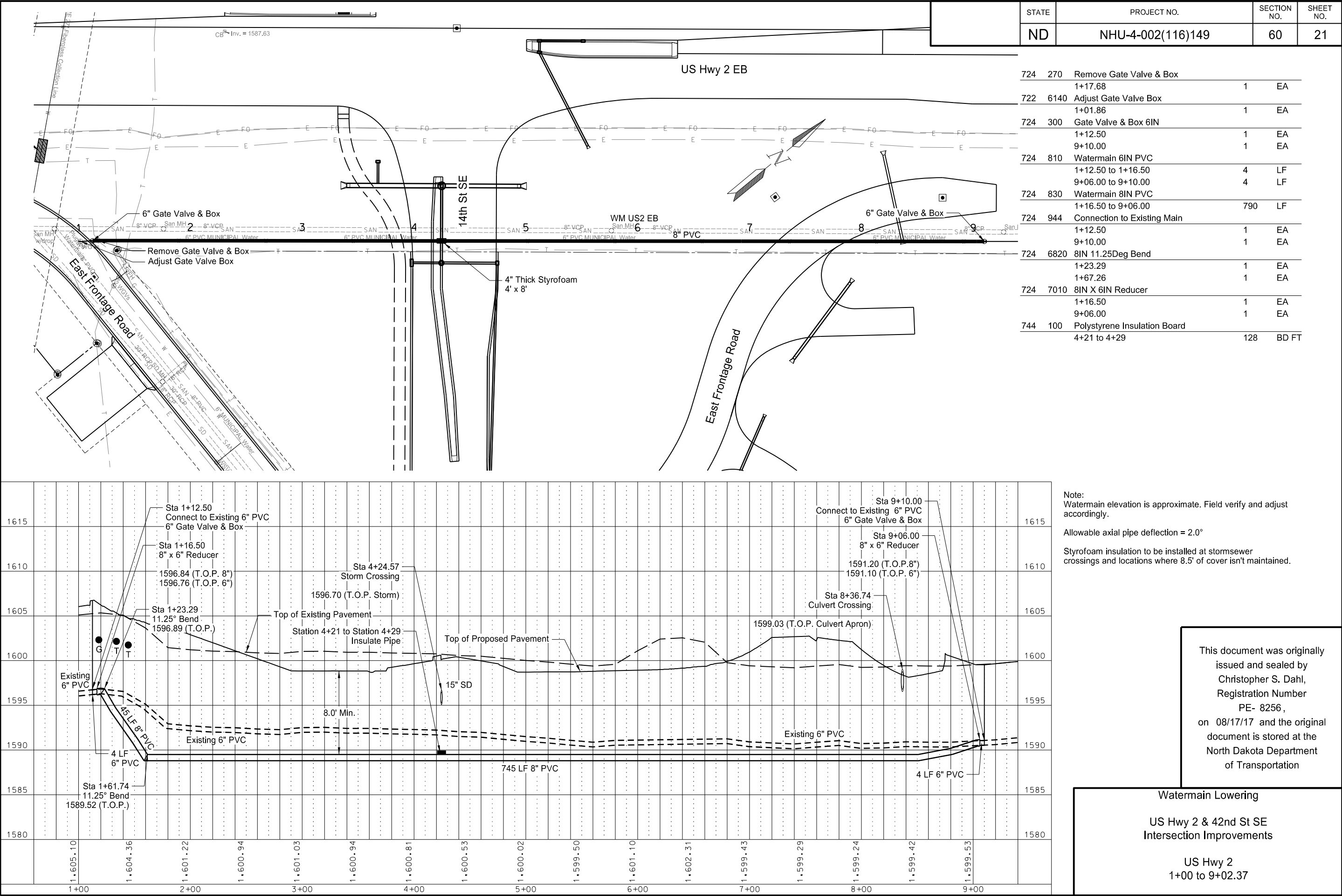
Styrofoam insulation to be installed at stormsewer crossings and locations where 8.5' of cover isn't maintained.

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Watermain Lowering

US Hwy 2 & 42nd St SE
Intersection Improvements

West Frontage Road
1+00 to 8+72.06



Note:
Watermain elevation is approximate. Field verify and adjust accordingly.

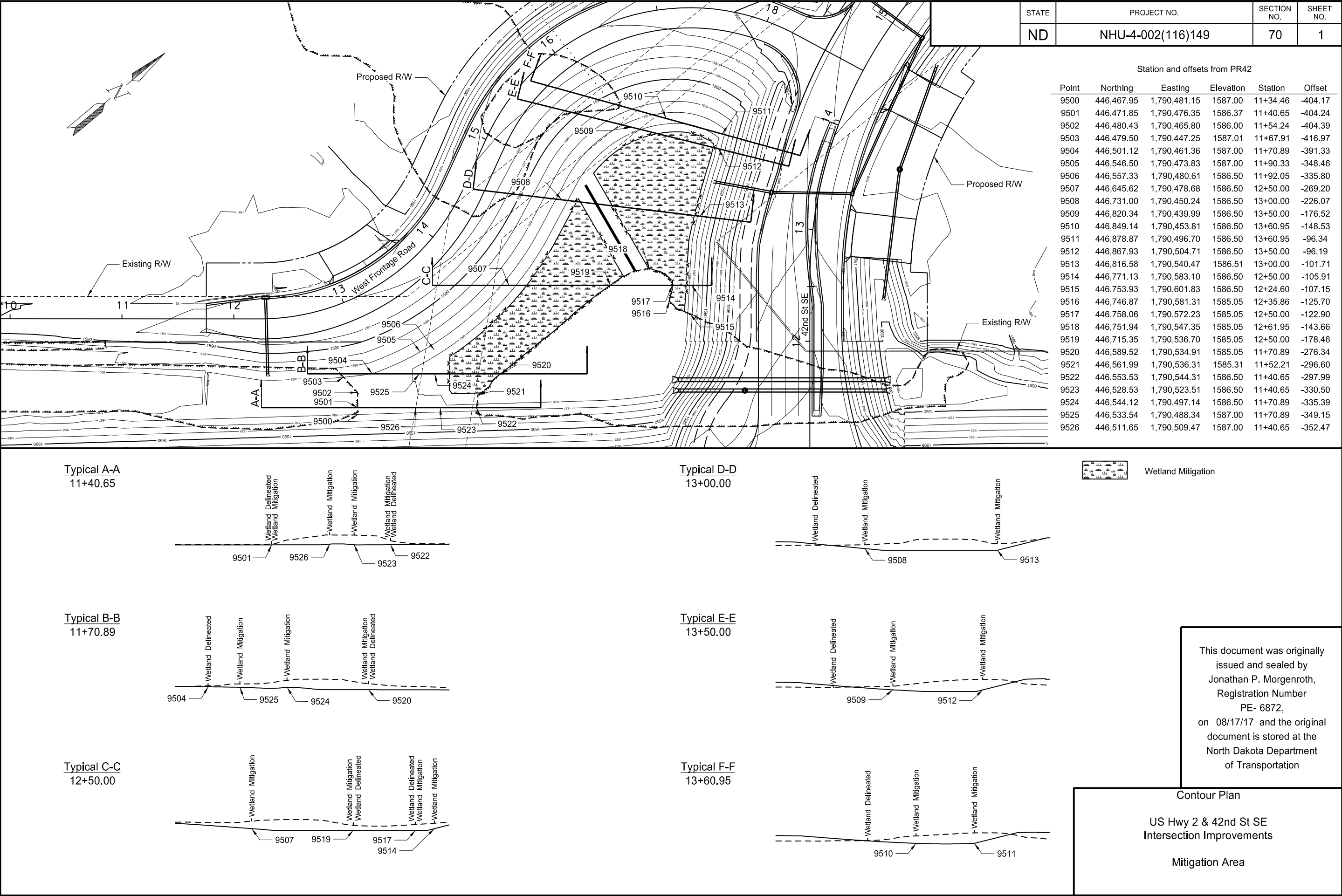
Allowable axial pipe deflection = 2.0°

Styrofoam insulation to be installed at stormsewer crossings and locations where 8.5' of cover isn't maintained.

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Watermain Lowering
US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
1+00 to 9+02.37



Wetland Impact Table															
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands ¹	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation						
									Mitigation Required			Onsite			
					Temp.	Perm.	Temp.	Perm.	EO 11990	USACE	USFWS	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
1	Sec. 29 T155N, R82W	Ditch	Artificial	Yes	0.35	0.02	-	-	N	N	N				
2	Sec. 29 T155N, R82W	Ditch	Artificial	No	0	0	-	-	N	N	N				
3	Sec. 29 T155N, R82W	Ditch	Artificial	No	0.06	0	-	-	N	N	N				
4	Sec. 28 T155N, R82W	Ditch	Artificial	No	0	0.09	-	-	N	N	N				
5	Sec. 28 T155N, R82W	Ditch	Artificial	No	0	0	-	-	N	N	N				
6	Sec. 28 T155N, R82W	Ditch	Artificial	No	0	0.05	-	-	N	N	N				
7	Sec. 28 T155N, R82W	Ditch	Artificial	Yes	0.35	0.35	-	-	N	N	N			Site 1 Site 2	0.21 0.21
8a	Sec. 29 T155N, R82W	Basin	Artificial	No	0	0.14	-	-	N	N	N				
8b	Sec. 29 T155N, R82W	Basin	Natural	No	0.04	0.19	-	-	Y	N	N	2:1 Ratio	0.38		
8c	Sec. 29 T155N, R82W	Basin	Artificial	No	0	0	-	-	N	N	N				
9	Sec. 29 T155N, R82W	Ditch	Artificial	Yes	0	0	-	-	N	N	N				
Totals					0.80	0.84	-	-					0.38		0.42

¹A wetland Jurisdictional Determination was issued by the USACE on 8/30/2016 NWO-2016-1393-BIS.

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Wetlands Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

Wetland Impact and Mitigation Table

Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	0.00	Temporary JD	0.70
Natural/Non-JD	0.19	Non-JD Temporary	0.10
Artificial/JD	0.37	Permanent JD > 0.10	0.35
Artificial /Non-JD	0.28	Permanent OW	0
Total	0.84	Temporary OW	0

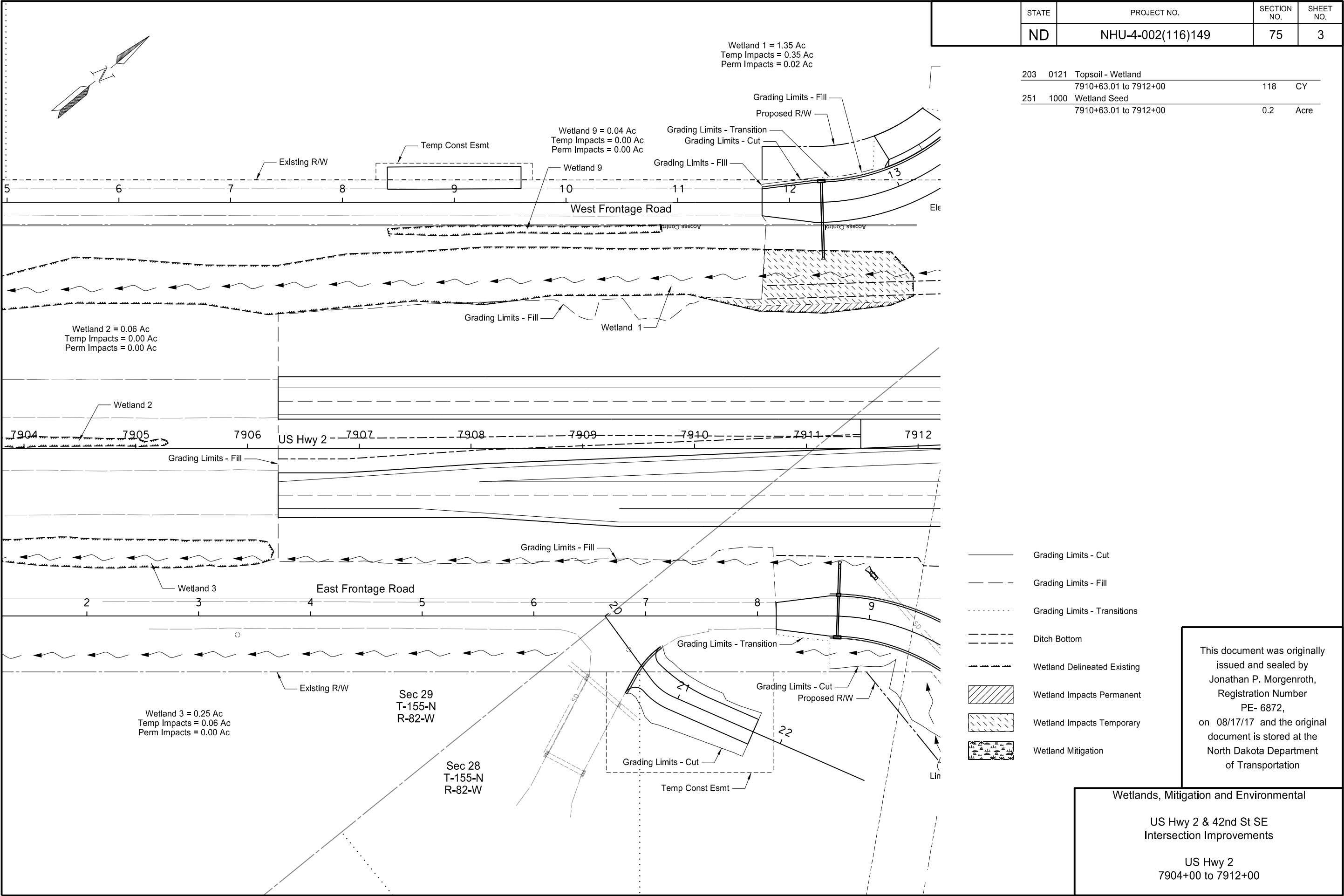
Mitigation Summary Table		
	Location	Onsite Acre(s)
USACE Only		
EO 11990 Only	Onsite	0.42
USACE/11990		
USFWS		
	Total	0.42

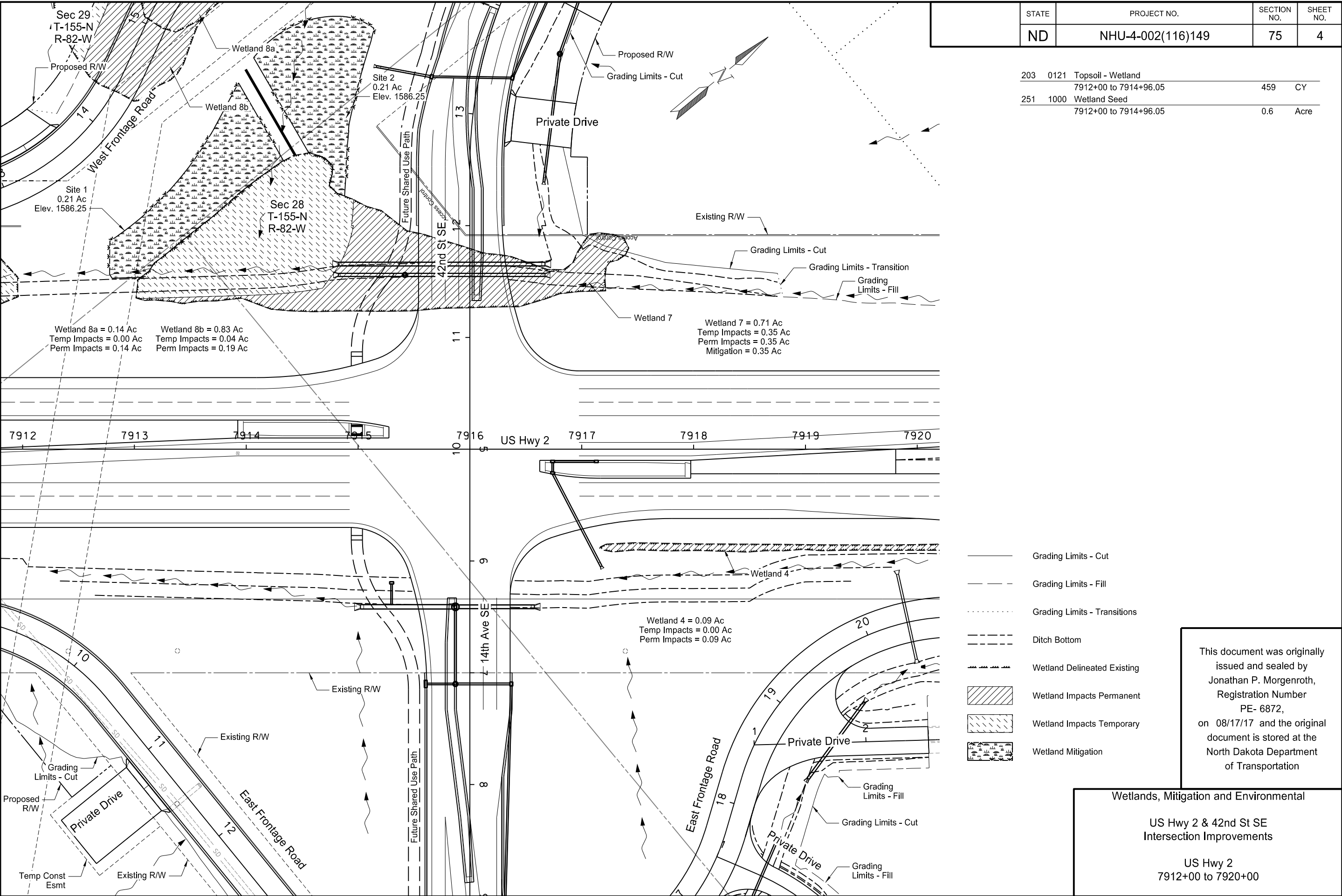
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Wetlands Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

Wetland Impact and Mitigation Table





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	75	4

203	0121	Topsoil - Wetland		
		7912+00 to 7914+96.05	459	CY
251	1000	Wetland Seed		
		7912+00 to 7914+96.05	0.6	Acre

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation

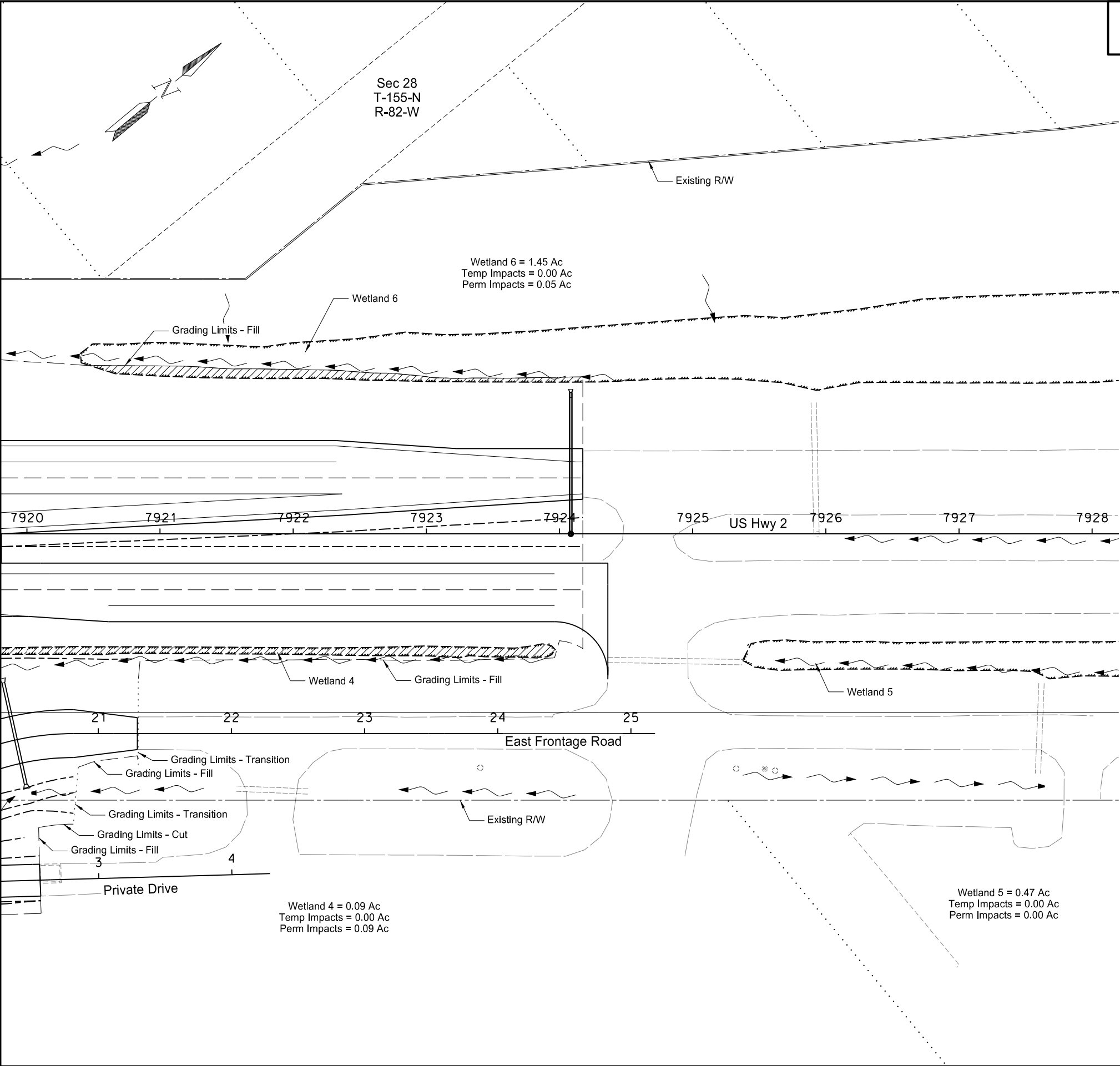
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Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7912+00 to 7920+00

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	75	5



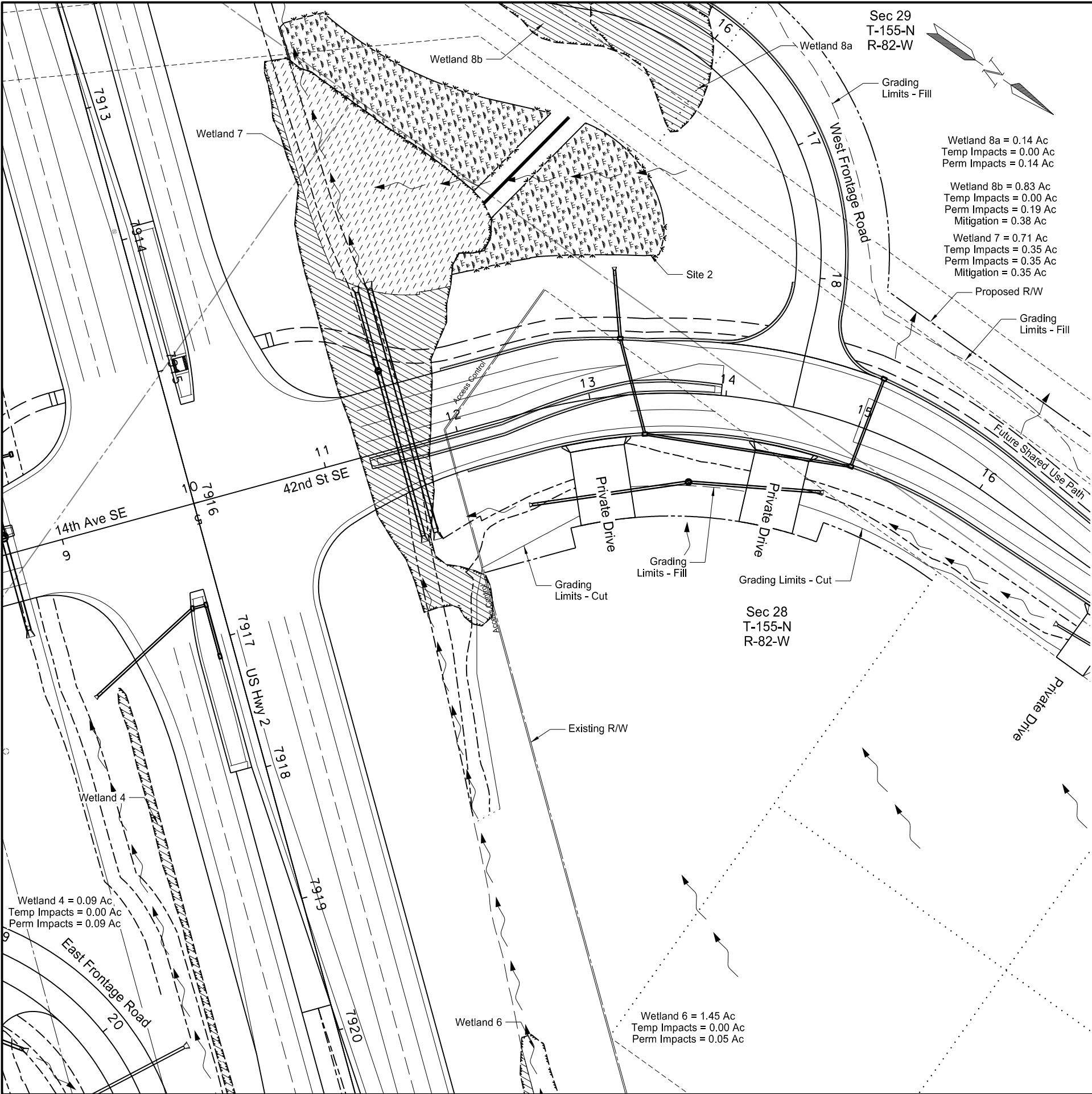
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation

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Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7920+00 to 7928+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	75	6

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation

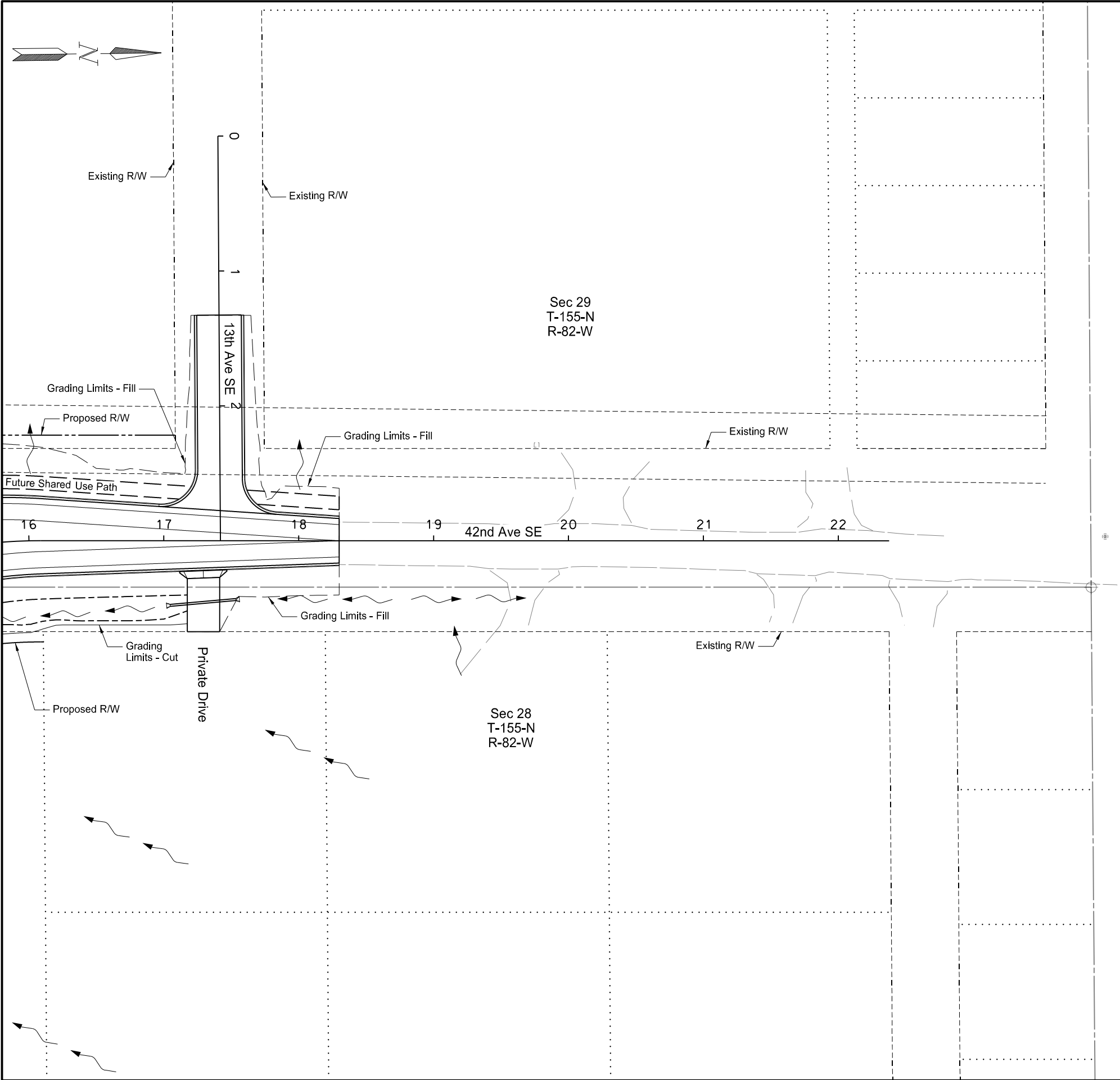
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Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
10+68.46 to 16+00

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	75	7



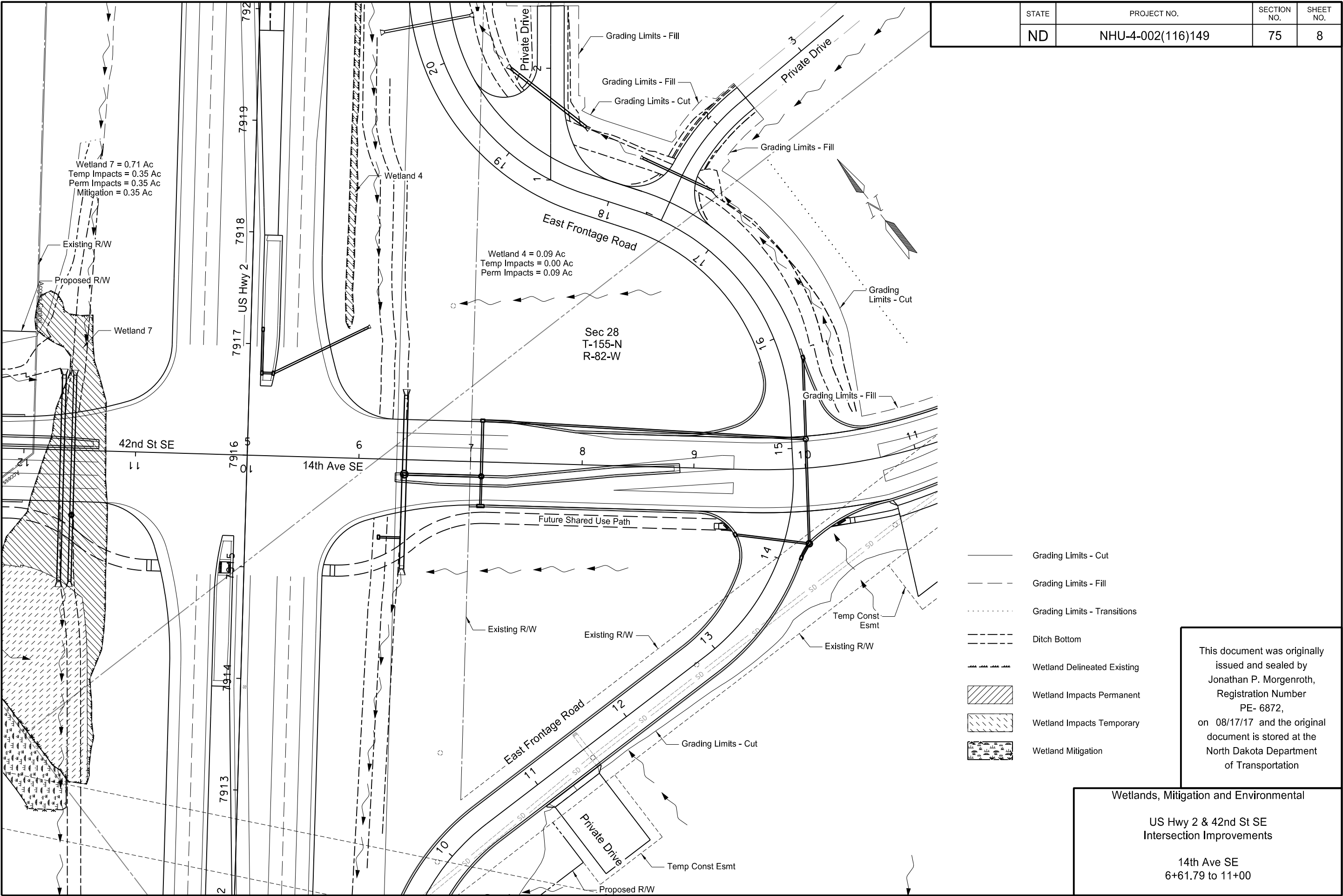
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
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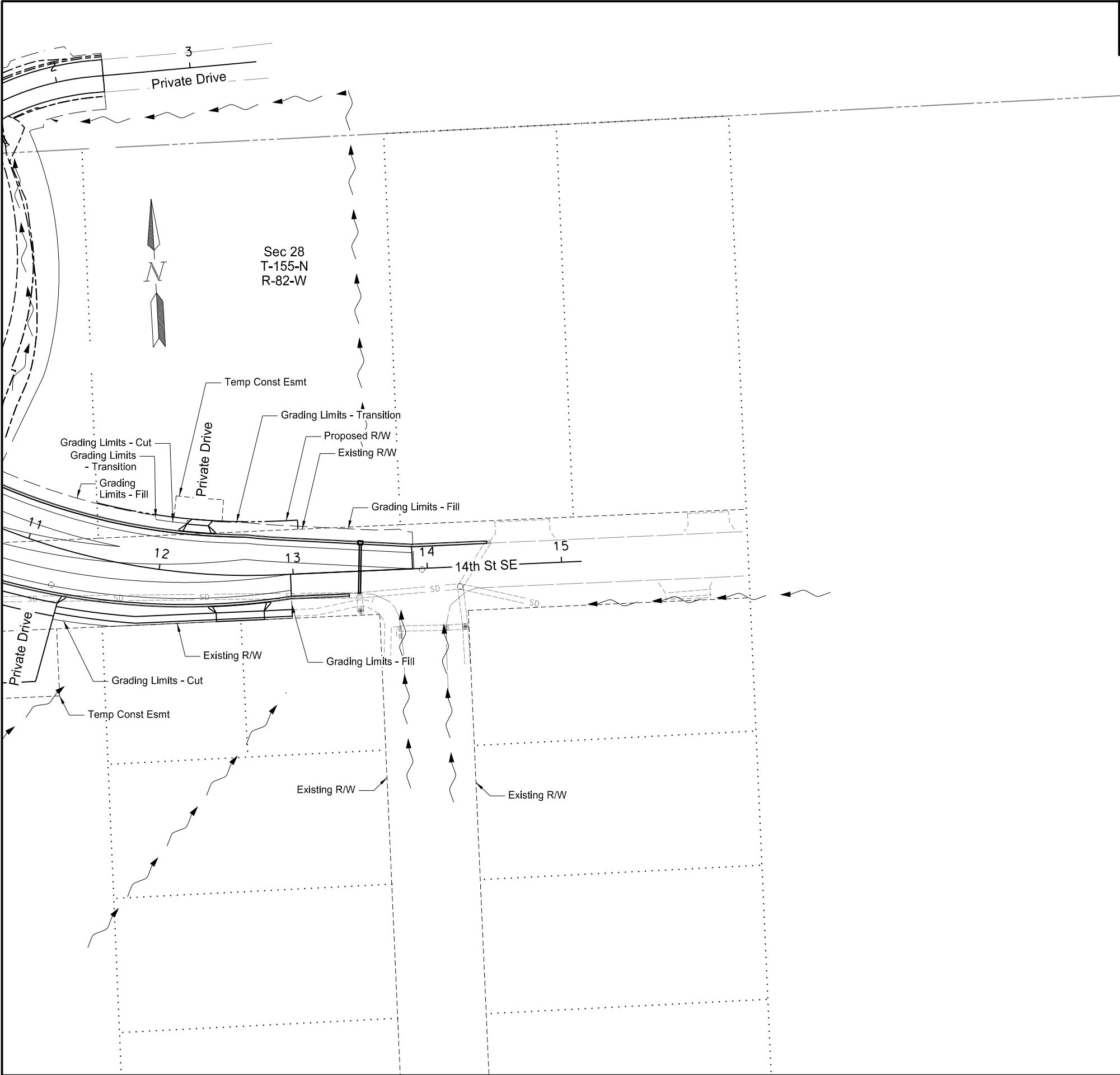
Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
16+00 to 18+30



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	75	9



- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
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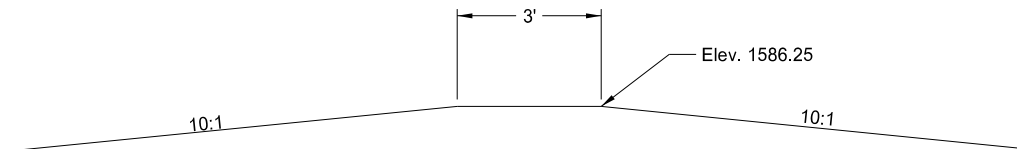
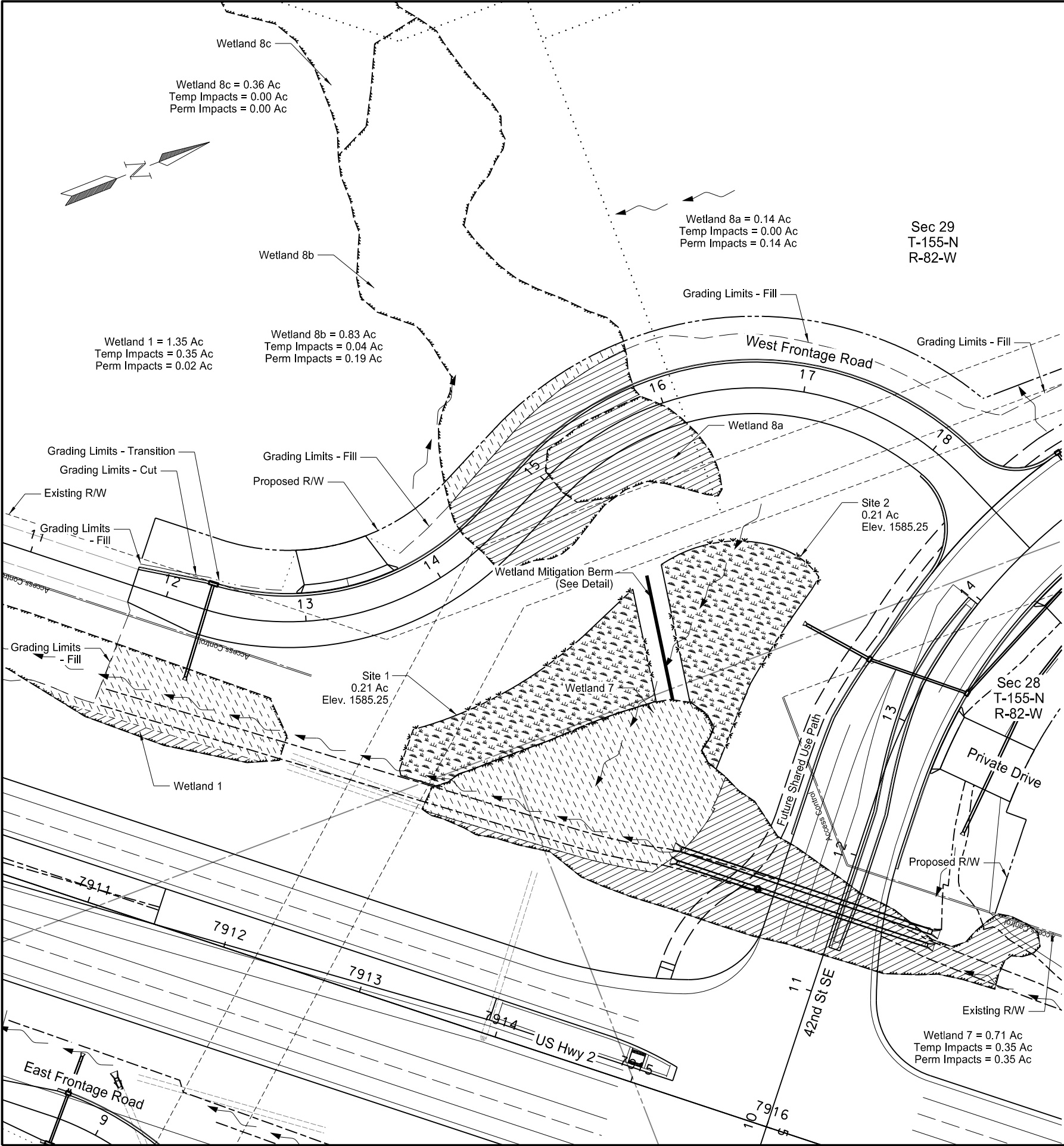
Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

14th Ave SE
11+00 to 13+89

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	75	10

203	0121	Topsoil - Wetland	
		14+39.59 to 15+90.09	31 CY



- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation

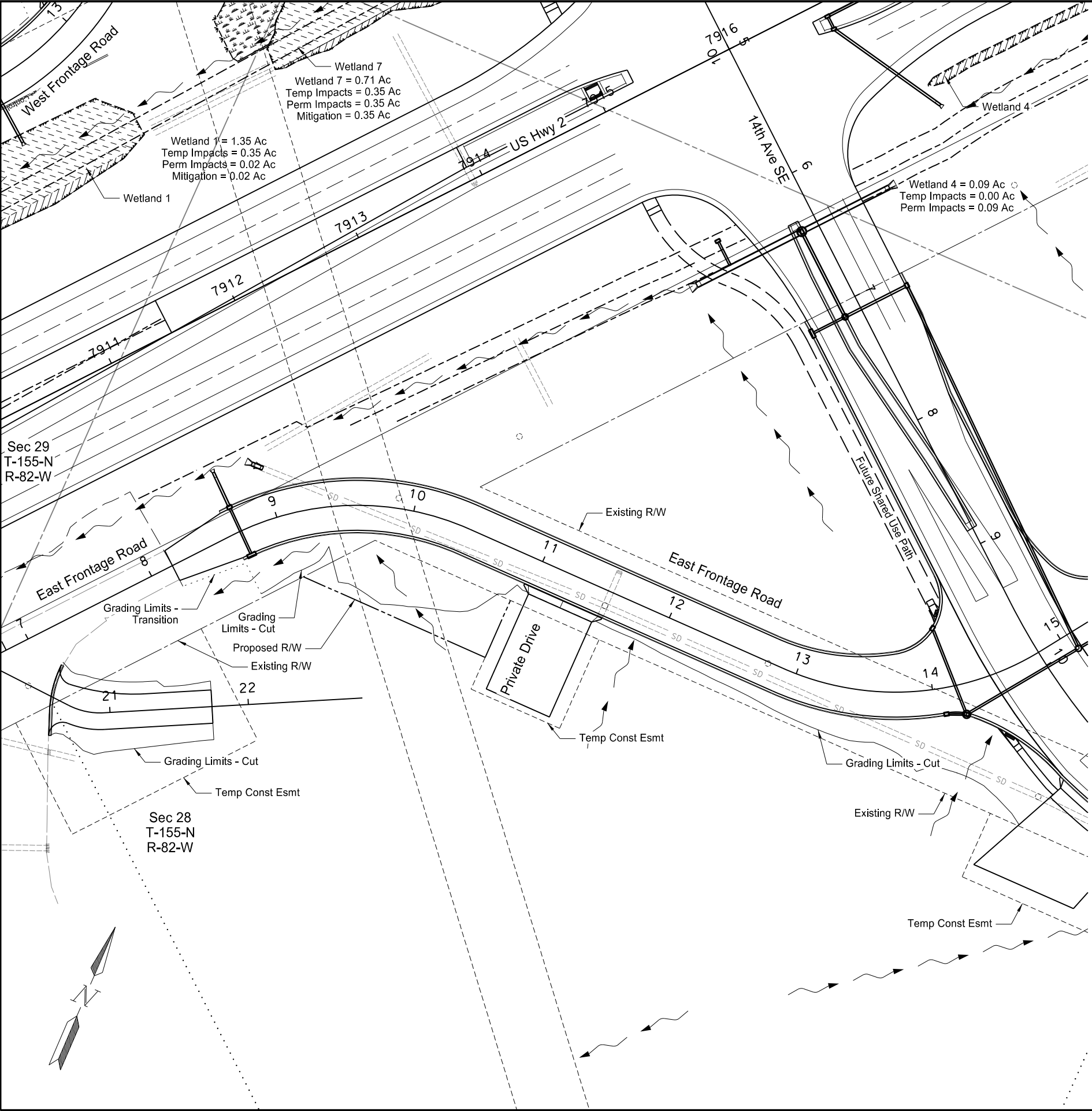
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Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

West Frontage Road

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	75	11



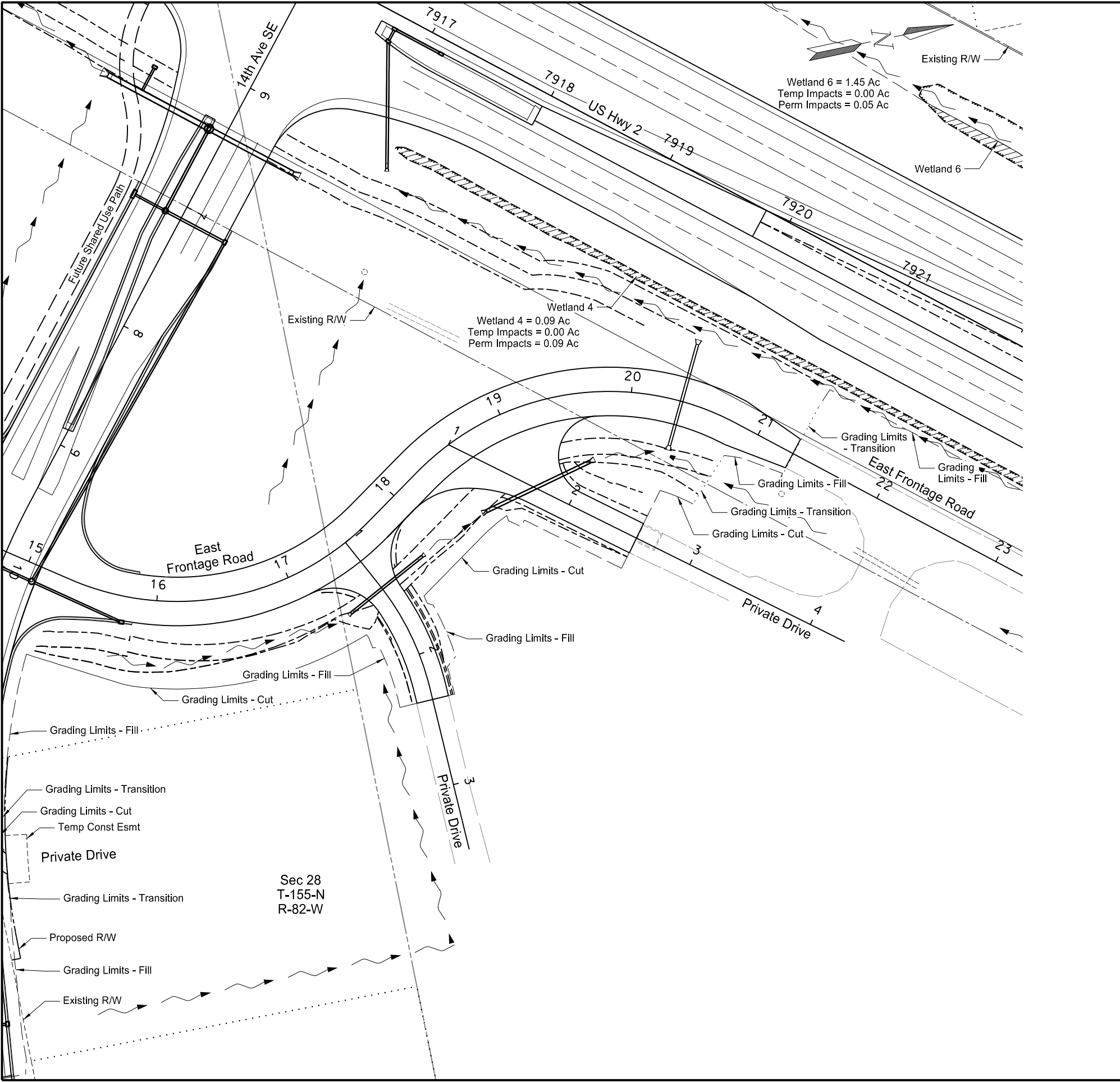
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation

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Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

East Frontage Road
7+00 to 15+00



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	75	12

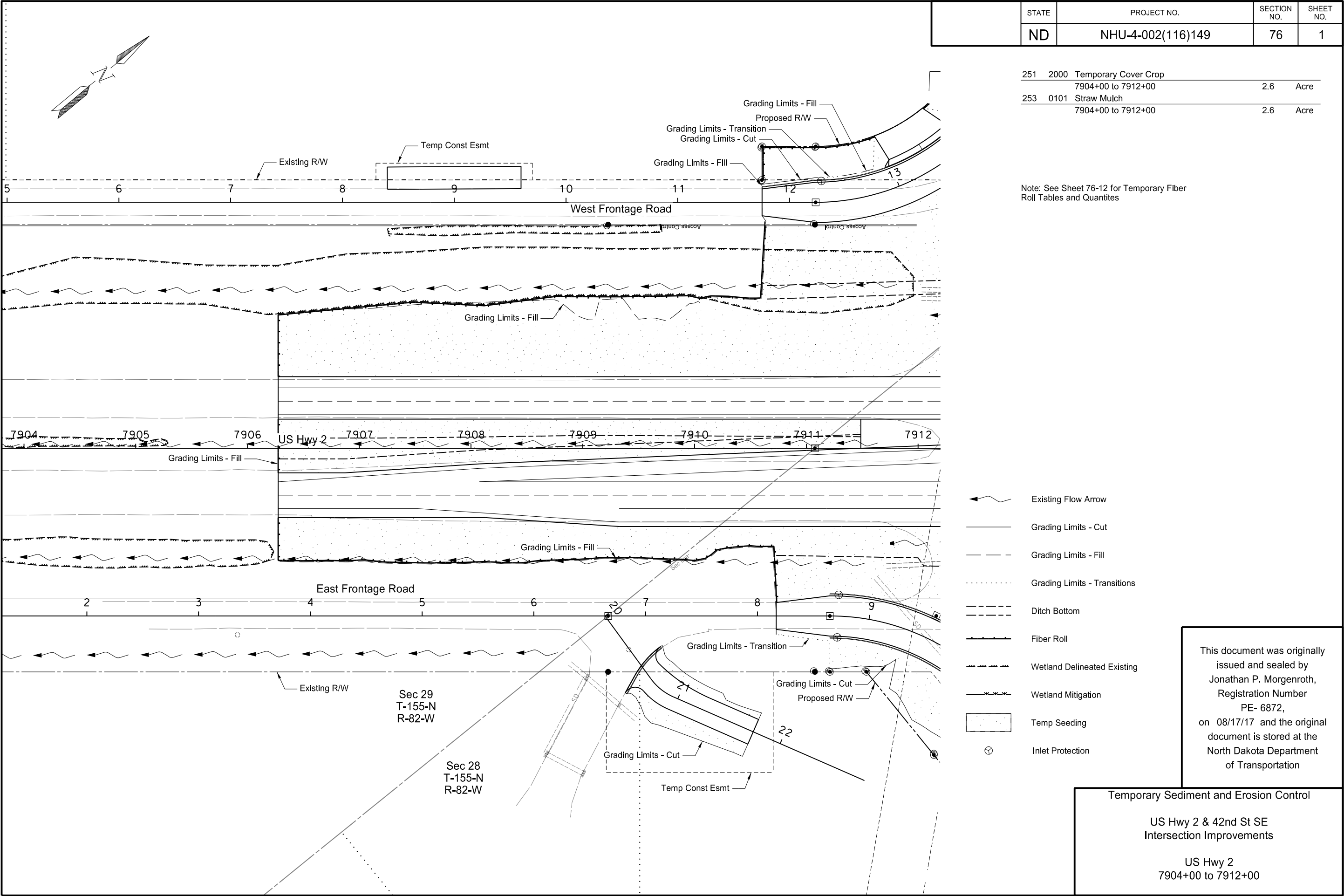
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation

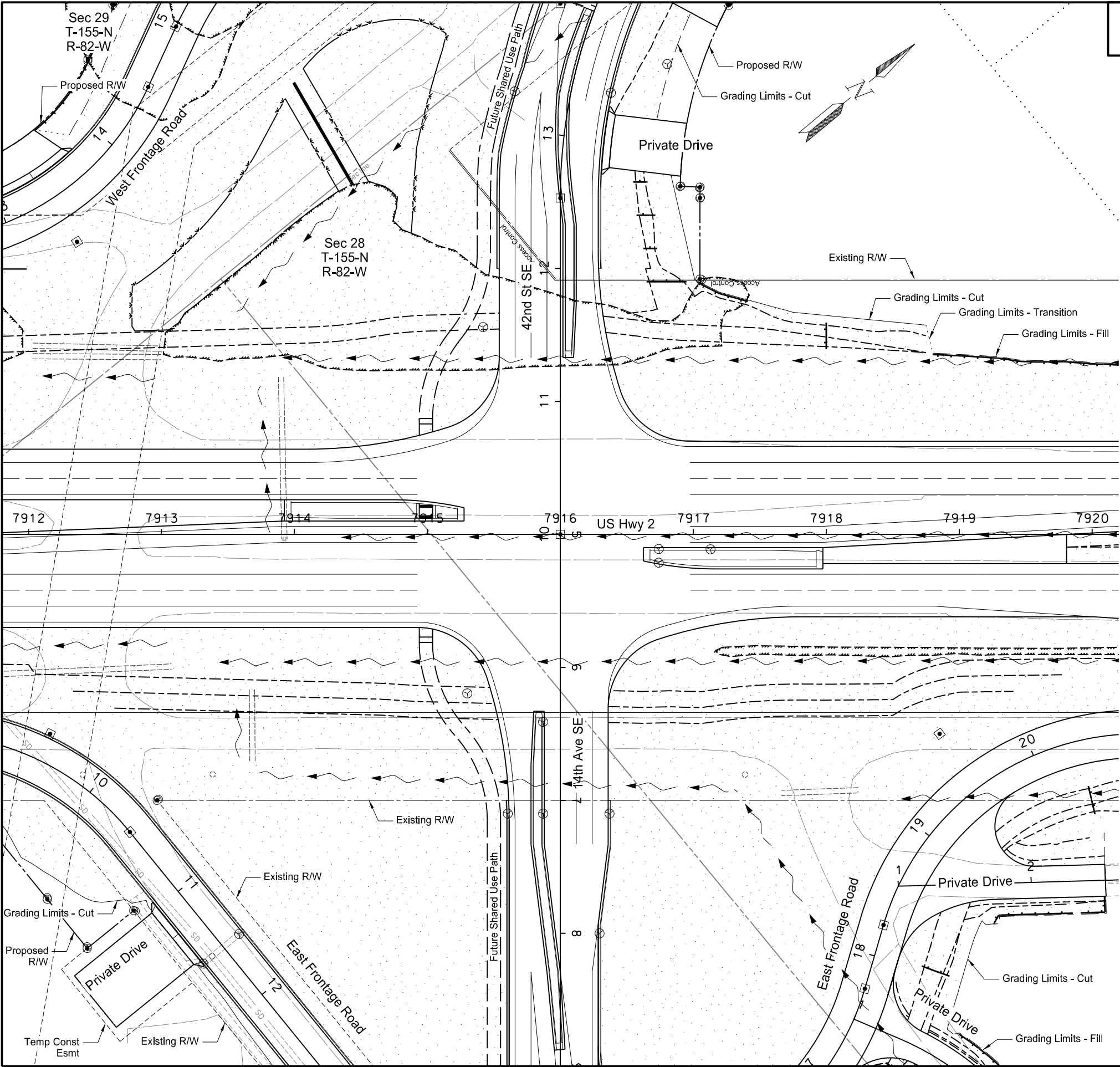
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Wetlands, Mitigation and Environmental

US Hwy 2 & 42nd St SE
Intersection Improvements

East Frontage Road
15+00 to 23+00





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	2

251	2000	Temporary Cover Crop		
		7912+00 to 7920+00	5.3	Acre
253	0101	Straw Mulch		
		7912+00 to 7920+00	5.3	Acre
708	1540	Inlet Protection-Special		
		7912+00 to 7920+00	5	EA
708	1541	Remove Inlet Protection-Special		
		7912+00 to 7920+00	5	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

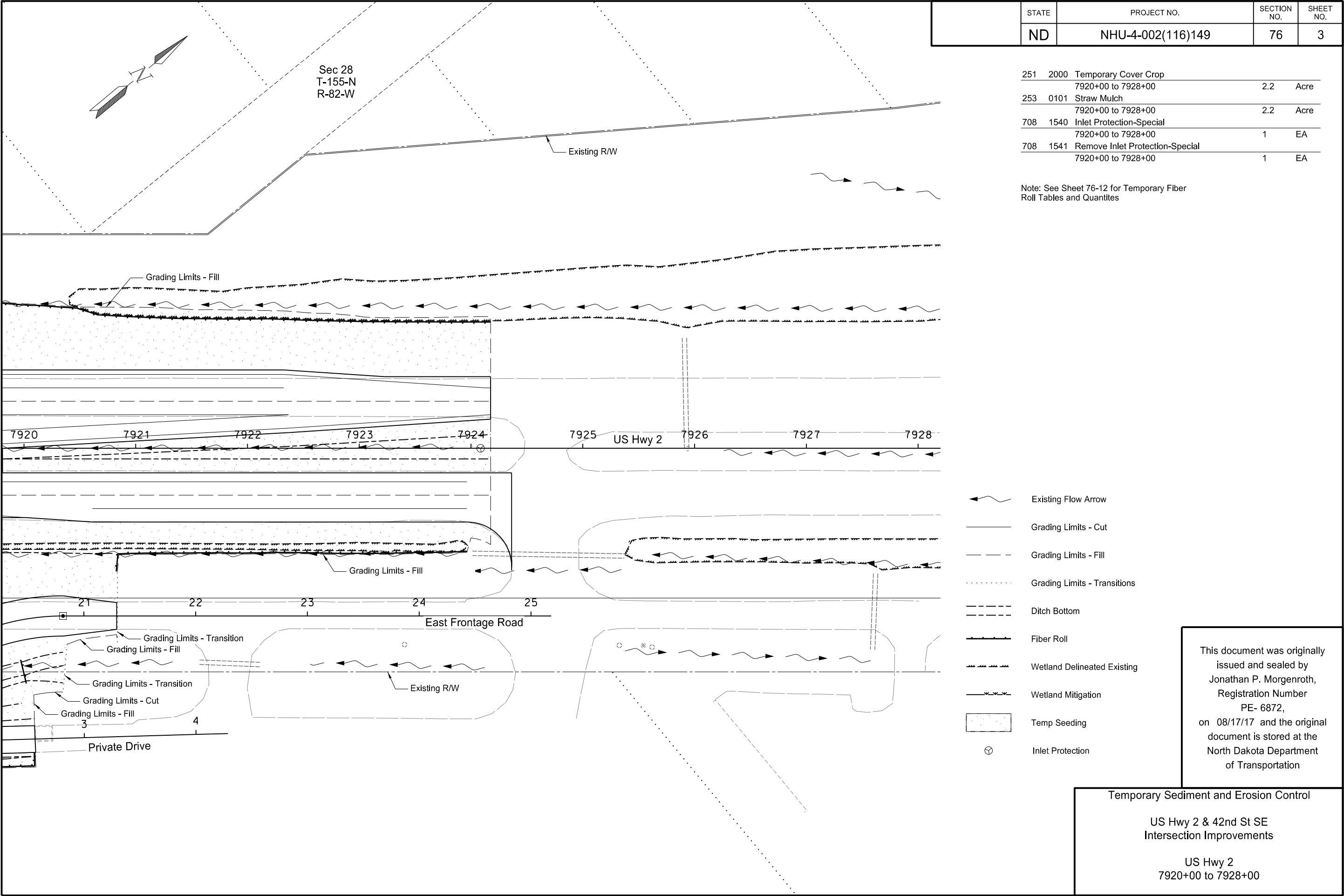
- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated Existing
- Wetland Mitigation
- Temp Seeding
- Inlet Protection

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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7912+00 to 7920+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	3

251	2000	Temporary Cover Crop		
		7920+00 to 7928+00	2.2	Acre
253	0101	Straw Mulch		
		7920+00 to 7928+00	2.2	Acre
708	1540	Inlet Protection-Special		
		7920+00 to 7928+00	1	EA
708	1541	Remove Inlet Protection-Special		
		7920+00 to 7928+00	1	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

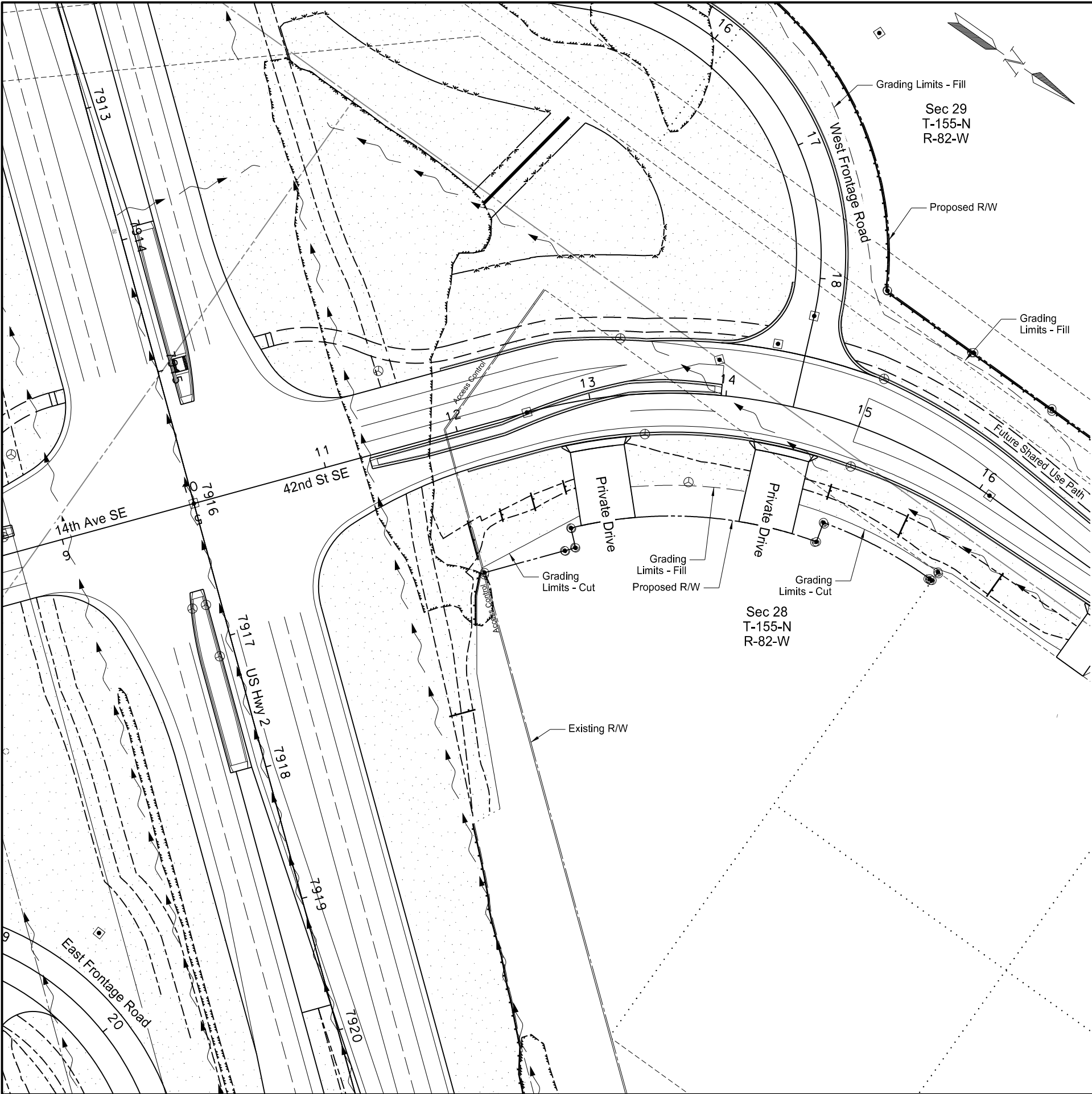
- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
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- Fiber Roll
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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7920+00 to 7928+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	4

251	2000	Temporary Cover Crop		
		10+68.46 to 16+00	1.1	Acre
253	0101	Straw Mulch		
		10+68.46 to 16+00	1.1	Acre
708	1540	Inlet Protection-Special		
		10+68.46 to 16+00	6	EA
708	1541	Remove Inlet Protection-Special		
		10+68.46 to 16+00	6	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

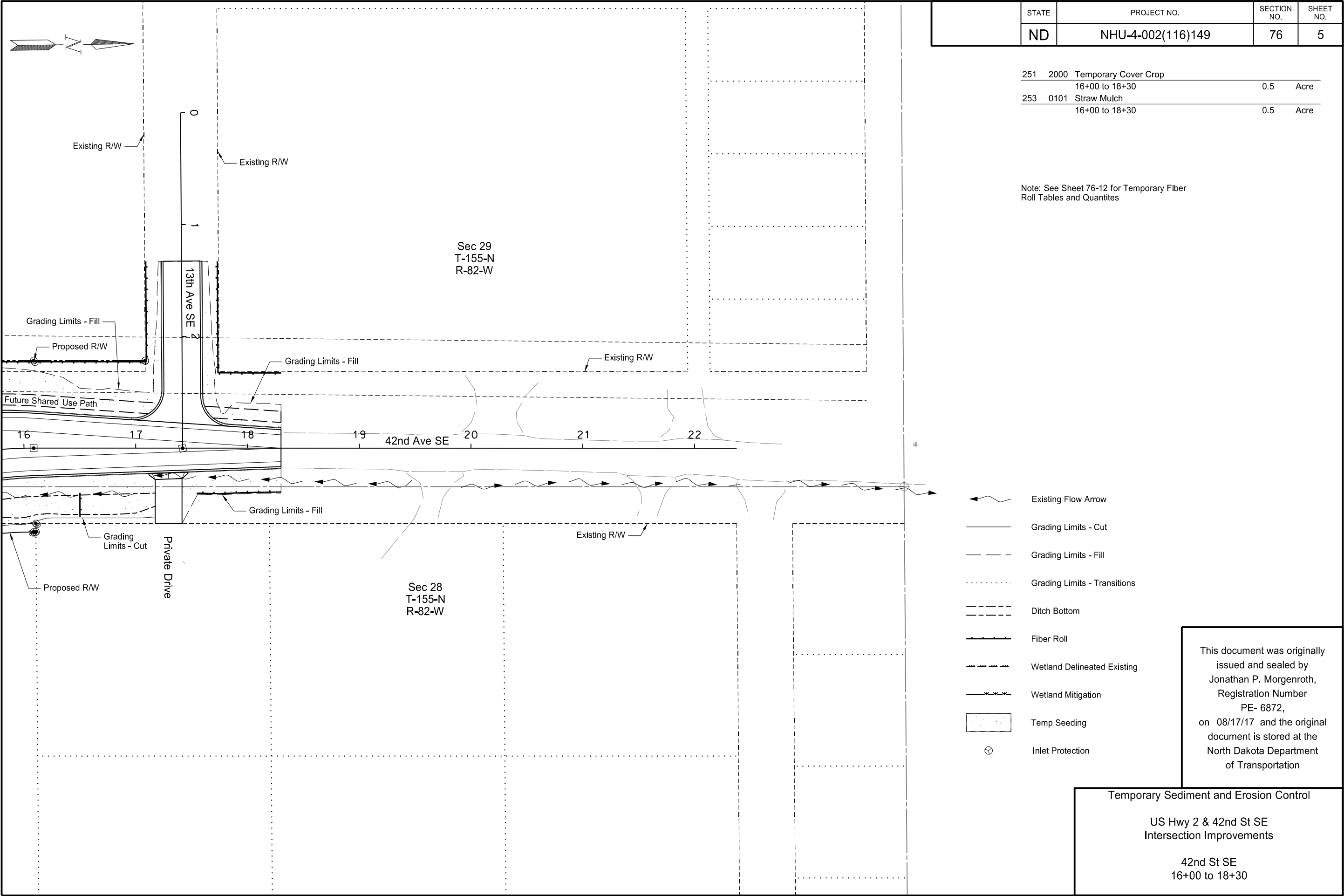
- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
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- Wetland Mitigation
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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
10+68.46 to 16+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	5

251	2000	Temporary Cover Crop		
		16+00 to 18+30	0.5	Acre
253	0101	Straw Mulch		
		16+00 to 18+30	0.5	Acre

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

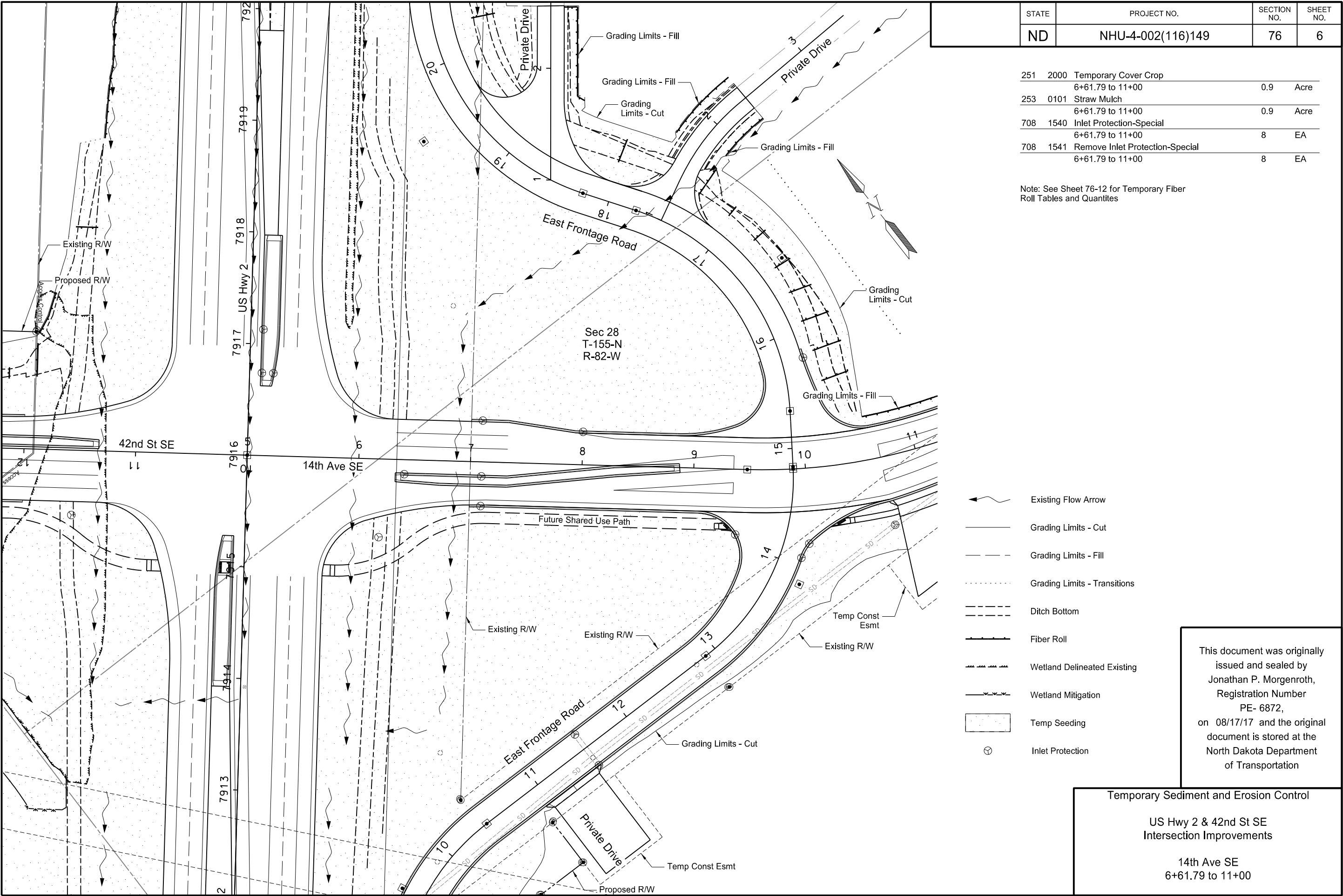
- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
16+00 to 18+30



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	6

251	2000	Temporary Cover Crop		
		6+61.79 to 11+00	0.9	Acre
253	0101	Straw Mulch		
		6+61.79 to 11+00	0.9	Acre
708	1540	Inlet Protection-Special		
		6+61.79 to 11+00	8	EA
708	1541	Remove Inlet Protection-Special		
		6+61.79 to 11+00	8	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

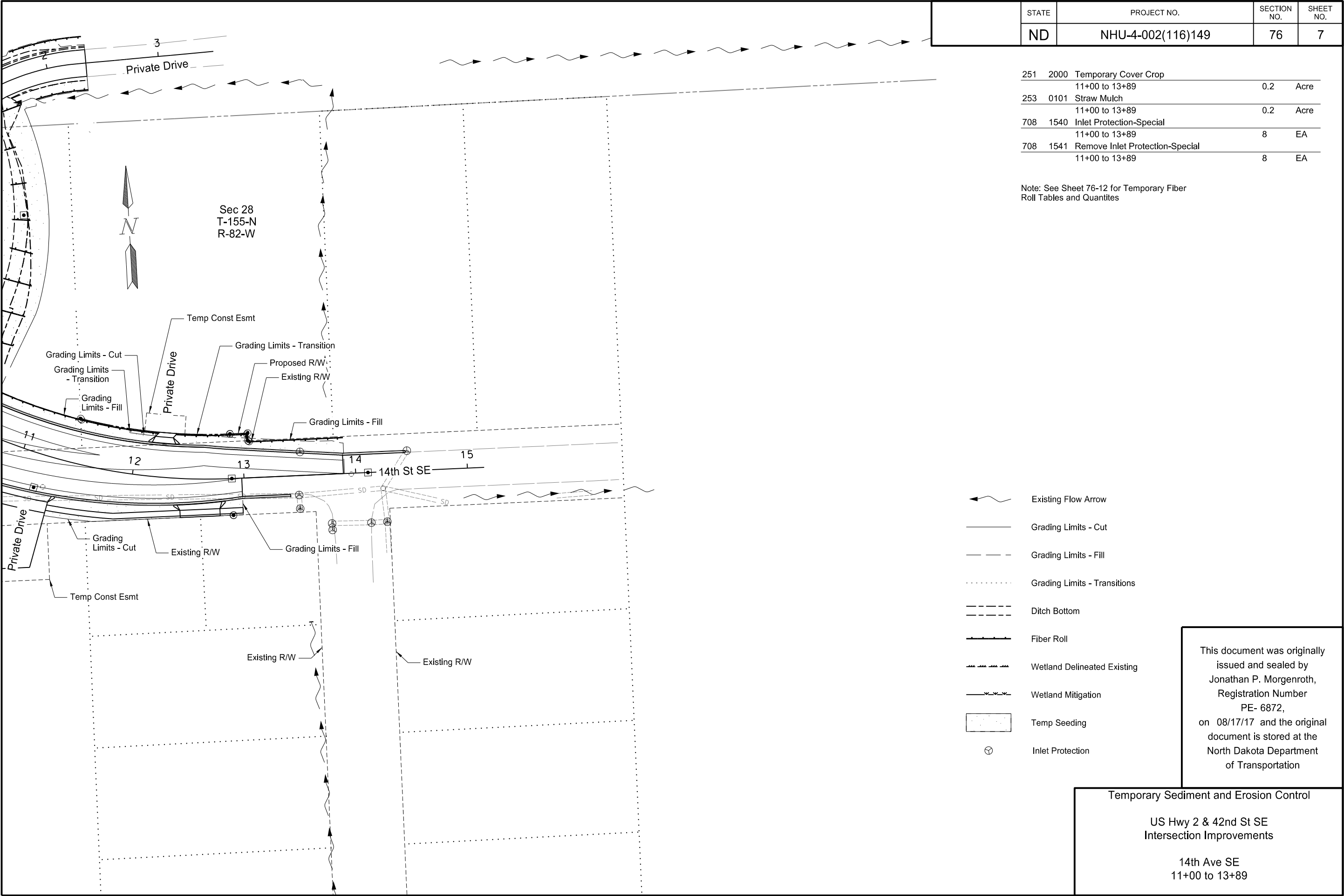
- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
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- Wetland Mitigation
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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

14th Ave SE
6+61.79 to 11+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	7

251	2000	Temporary Cover Crop		
		11+00 to 13+89	0.2	Acre
253	0101	Straw Mulch		
		11+00 to 13+89	0.2	Acre
708	1540	Inlet Protection-Special		
		11+00 to 13+89	8	EA
708	1541	Remove Inlet Protection-Special		
		11+00 to 13+89	8	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

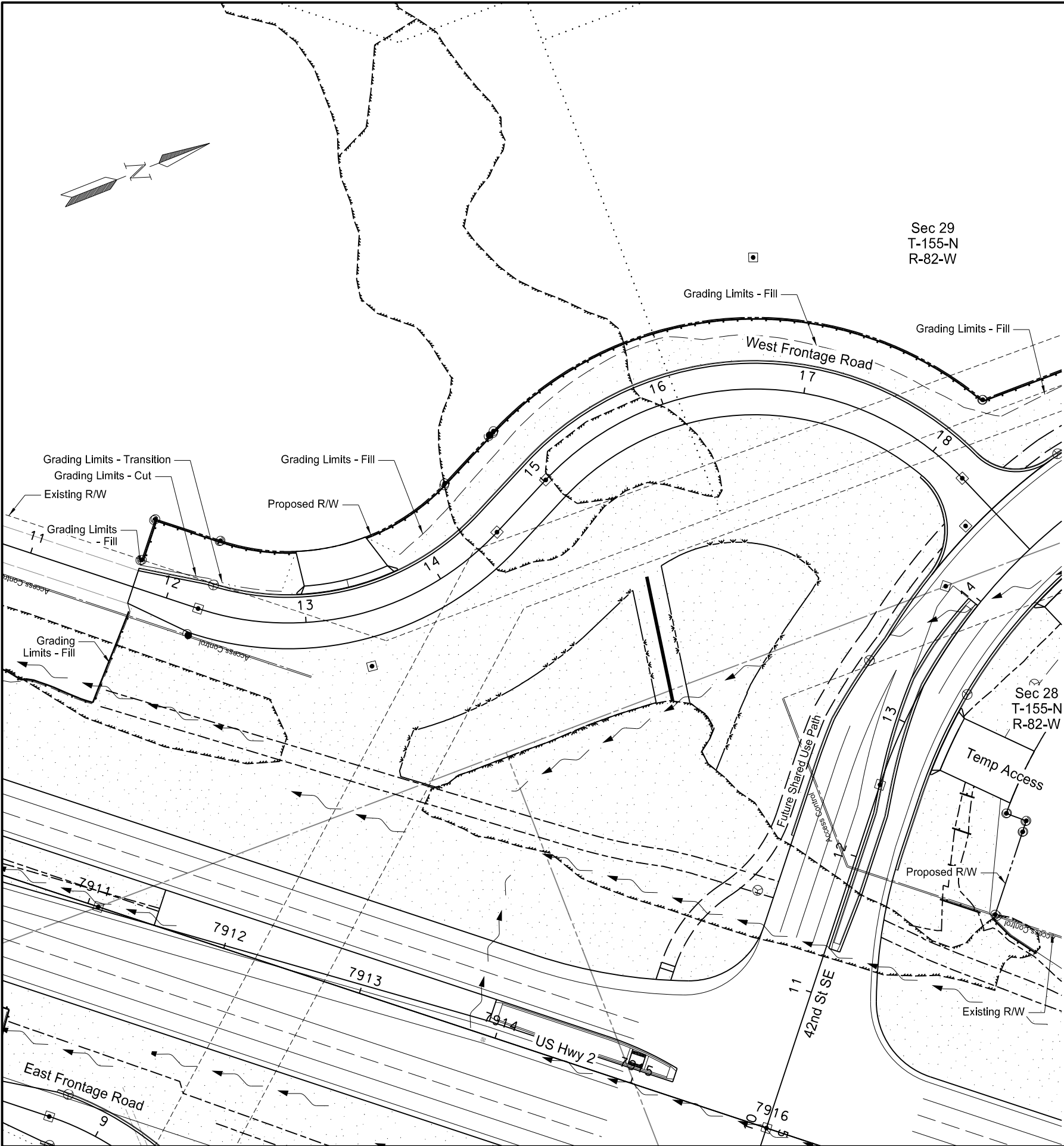
- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated Existing
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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

14th Ave SE
11+00 to 13+89



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	8

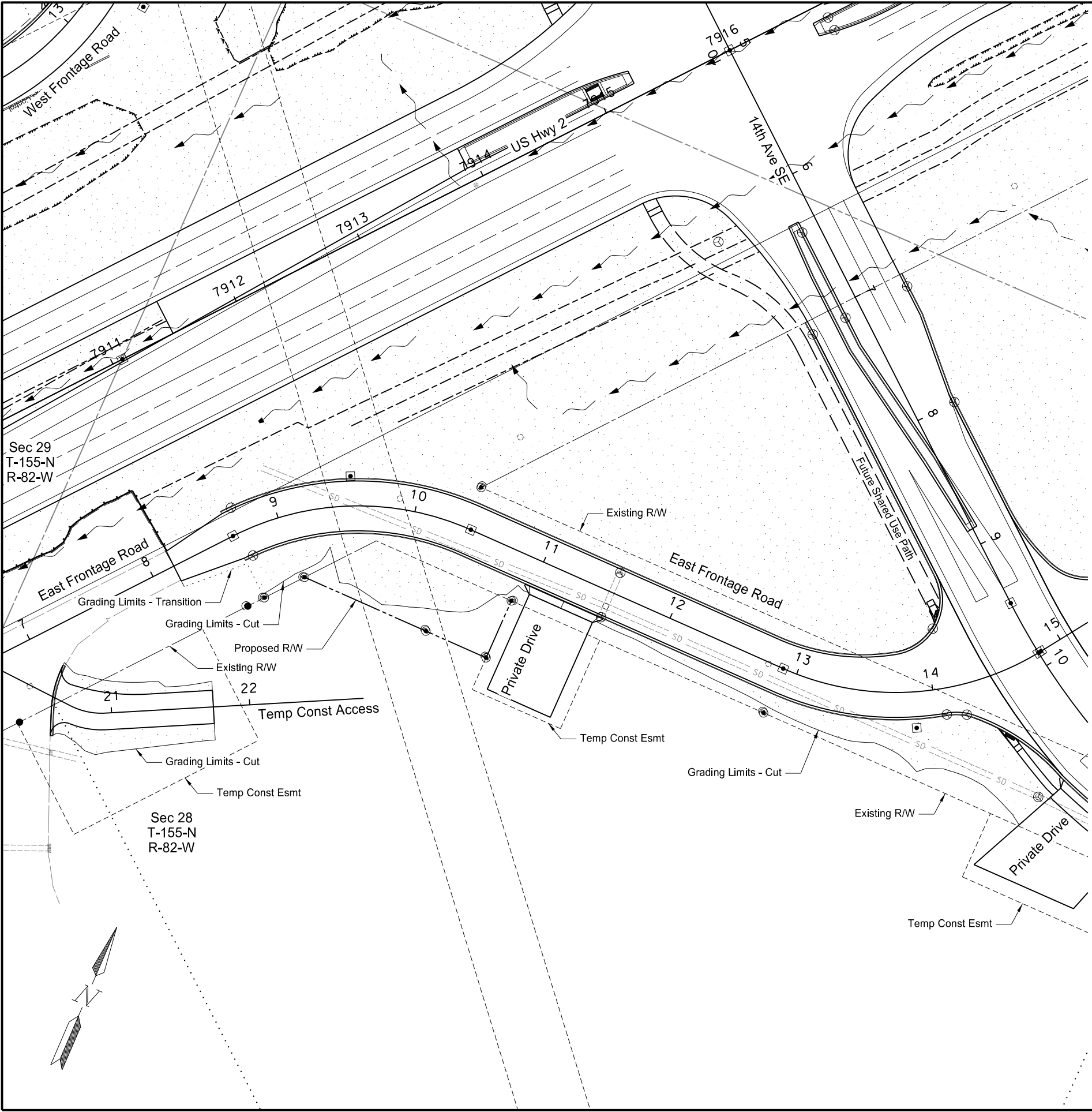
251	2000	Temporary Cover Crop		
		11+00 to 18+96.35	1.0	Acre
253	0101	Straw Mulch		
		11+00 to 18+96.35	1.0	Acre
708	1540	Inlet Protection-Special		
		11+00 to 18+96.35	1	EA
708	1541	Remove Inlet Protection-Special		
		11+00 to 18+96.35	1	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated Existing
- Wetland Mitigation
- Temp Seeding
- Inlet Protection

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Temporary Sediment and Erosion Control
US Hwy 2 & 42nd St SE
Intersection Improvements
West Frontage Road



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	9

251	2000	Temporary Cover Crop		
		7+00 to 15+00	1.3	Acre
253	0101	Straw Mulch		
		7+00 to 15+00	1.3	Acre
708	1540	Inlet Protection-Special		
		7+00 to 15+00	4	EA
708	1541	Remove Inlet Protection-Special		
		7+00 to 15+00	4	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
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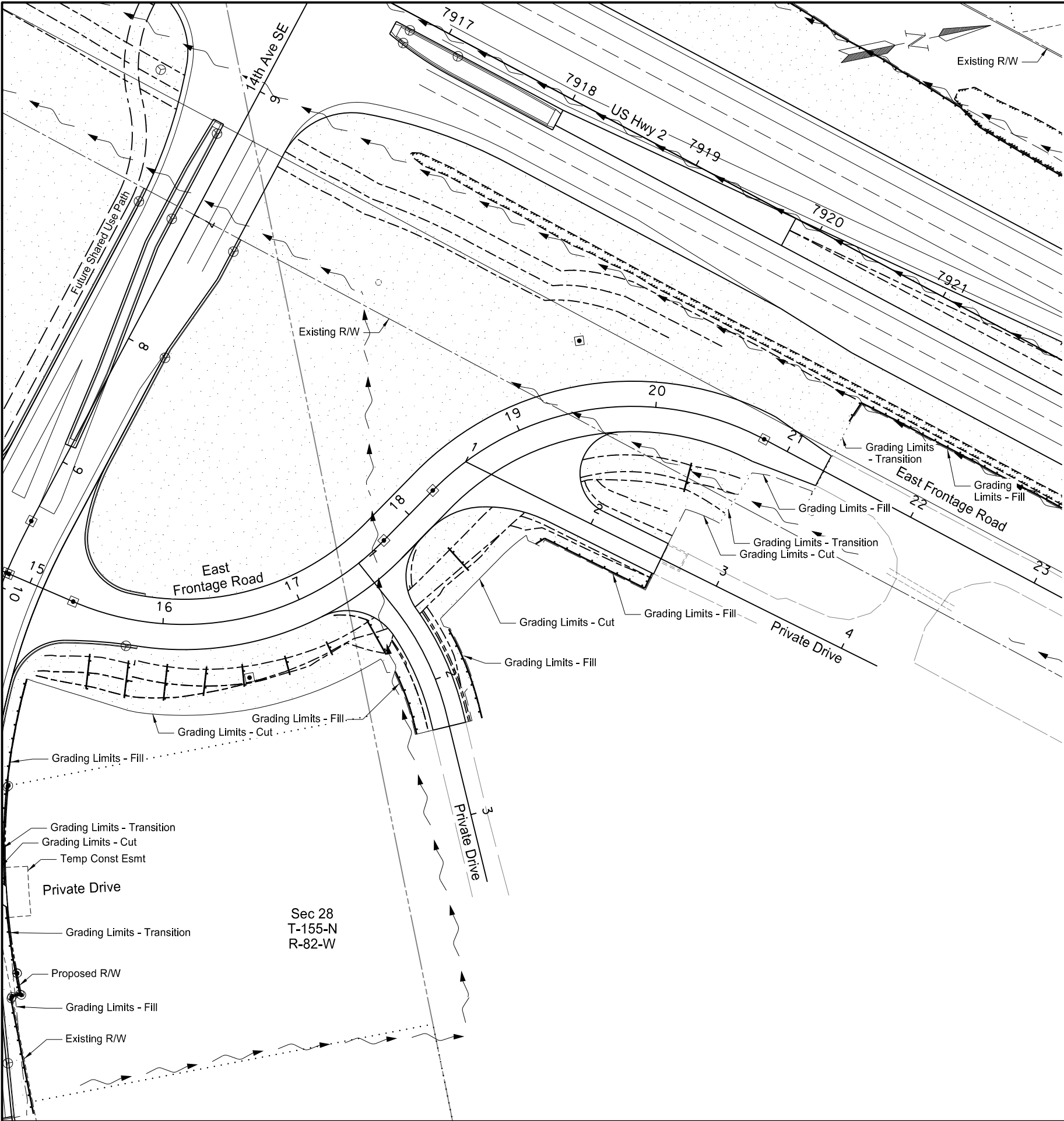
Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE

Intersection Improvements

East Frontage Road

7+00 to 15+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	10

251	2000	Temporary Cover Crop		
		15+00 to 23+00	1.1	Acre
253	0101	Straw Mulch		
		15+00 to 23+00	1.1	Acre
708	1540	Inlet Protection-Special		
		15+00 to 23+00	1	EA
708	1541	Remove Inlet Protection-Special		
		15+00 to 23+00	1	EA

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

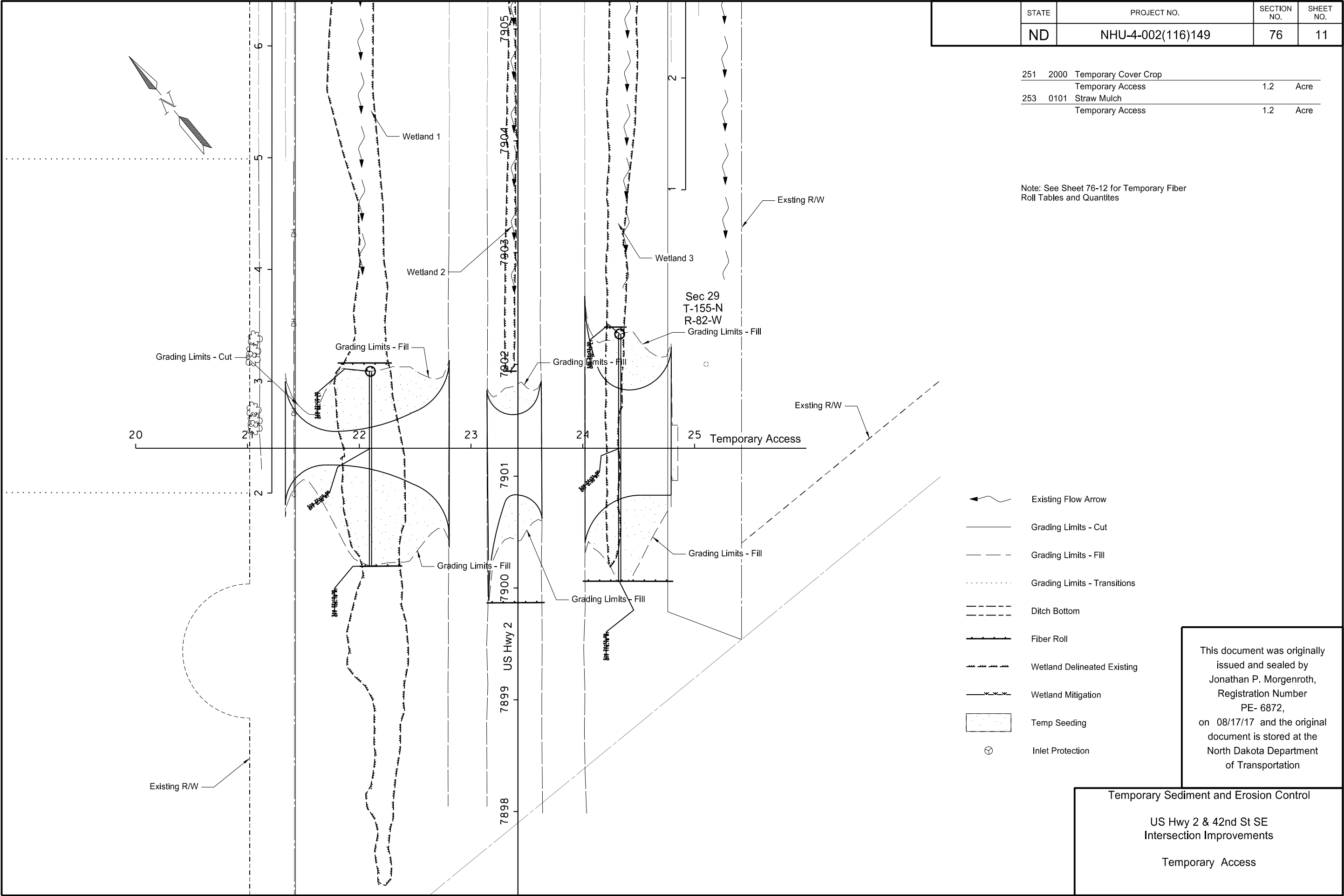
- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated Existing
- Wetland Mitigation
- Temp Seeding
- Inlet Protection

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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

East Frontage Road
15+00 to 23+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	76	11

251	2000	Temporary Cover Crop		
		Temporary Access	1.2	Acre
253	0101	Straw Mulch		
		Temporary Access	1.2	Acre

Note: See Sheet 76-12 for Temporary Fiber Roll Tables and Quantities

- Existing Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated Existing
- Wetland Mitigation
- Temp Seeding
- Inlet Protection

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Temporary Sediment and Erosion Control
US Hwy 2 & 42nd St SE
Intersection Improvements
Temporary Access

Ditch Fiber Rolls

Alignment (Chain Name)	Station	Fiber Rolls 12" (LF)	
		LT	RT
US Hwy 2 (SCL2CL)	7918+00.00	20	
42nd St (PR42)	11+90.00		30
42nd St (PR42)	12+15.00		10
42nd St (PR42)	12+40.00		14
42nd St (PR42)	12+66.92		11
42nd St (PR42)	14+95.31		12
42nd St (PR42)	15+63.51		19
42nd St (PR42)	16+50.09		21
East Frontage Road (PRFRONT_E)	15+55.98		25
East Frontage Road (PRFRONT_E)	15+80.32		27
East Frontage Road (PRFRONT_E)	16+03.54		26
East Frontage Road (PRFRONT_E)	16+26.09		21
East Frontage Road (PRFRONT_E)	16+50.00		16
East Frontage Road (PRFRONT_E)	16+77.24		14
East Frontage Road (PRFRONT_E)	17+04.38		11
East Frontage Road (PRFRONT_E)	17+30.73		29
East Frontage Road (PRFRONT_E)	18+01.29		22
East Frontage Road (PRFRONT_E)	20+35.05		22

Pipe End Section

Alignment (Chain Name)	Station	Fiber Rolls 12" (LF)	
		LT	RT
Temp Access (PRTEMP)	22+10.00	27	
Temp Access (PRTEMP)	24+33.00	27	

R/W Fiber Rolls

Alignment (Chain Name)	Station to Station		Fiber Rolls 20" (LF)	
			LT	RT
US Hwy 2 (SCL2CL)	7906+27.50	to 7906+27.50		38
US Hwy 2 (SCL2CL)	7906+27.50	to 7906+27.50	48	
US Hwy 2 (SCL2CL)	7906+27.50	to 7906+27.50	55	
US Hwy 2 (SCL2CL)	7906+27.50	to 7910+59.05	434	
US Hwy 2 (SCL2CL)	7906+27.50	to 7910+70.95		447
US Hwy 2 (SCL2CL)	7910+70.95	to 7910+73.48		50
US Hwy 2 (SCL2CL)	7918+79.95	to 7924+17.50	539	
US Hwy 2 (SCL2CL)	7920+82.63	to 7923+96.52		328
42nd St (PR42)	11+75.25	to 11+90.00		40
42nd St (PR42)	14+87.87	to 17+09.51	250	
42nd St (PR42)	17+08.91	to 17+09.51	90	
42nd St (PR42)	17+55.02	to 18+29.98		75
42nd St (PR42)	17+72.93	to 17+73.58	100	
42nd St (PR42)	17+73.58	to 18+30.00	56	
14th Ave SE (PR14)	10+58.51	to 12+19.97	149	
14th Ave SE (PR14)	12+36.91	to 13+04.00	63	
14th Ave SE (PR14)	13+04.00	to 13+90.00	93	
West Frontage Road (PRFRONT_W)	11+74.14	to 11+78.08		69
West Frontage Road (PRFRONT_W)	11+76.41	to 11+76.41	29	
West Frontage Road (PRFRONT_W)	11+76.41	to 12+95.00	101	
West Frontage Road (PRFRONT_W)	13+61.78	to 18+04.32	495	
East Frontage Road (PRFRONT_E)	17+22.81	to 17+29.85		47
East Frontage Road (PRFRONT_E)	17+49.74	to 17+65.02		68
East Frontage Road (PRFRONT_E)	18+63.68	to 20+07.92		87
East Frontage Road (PRFRONT_E)	20+07.92	to 20+17.53		12
Temp Access (PRTEMP)	21+80.74	to 22+29.20	48	
Temp Access (PRTEMP)	22+00.38	to 22+38.49		38
Temp Access (PRTEMP)	23+13.82	to 23+65.97		52
Temp Access (PRTEMP)	23+28.71	to 23+40.91	12	
Temp Access (PRTEMP)	24+00.03	to 24+80.86		81
Temp Access (PRTEMP)	24+18.98	to 24+39.21	20	

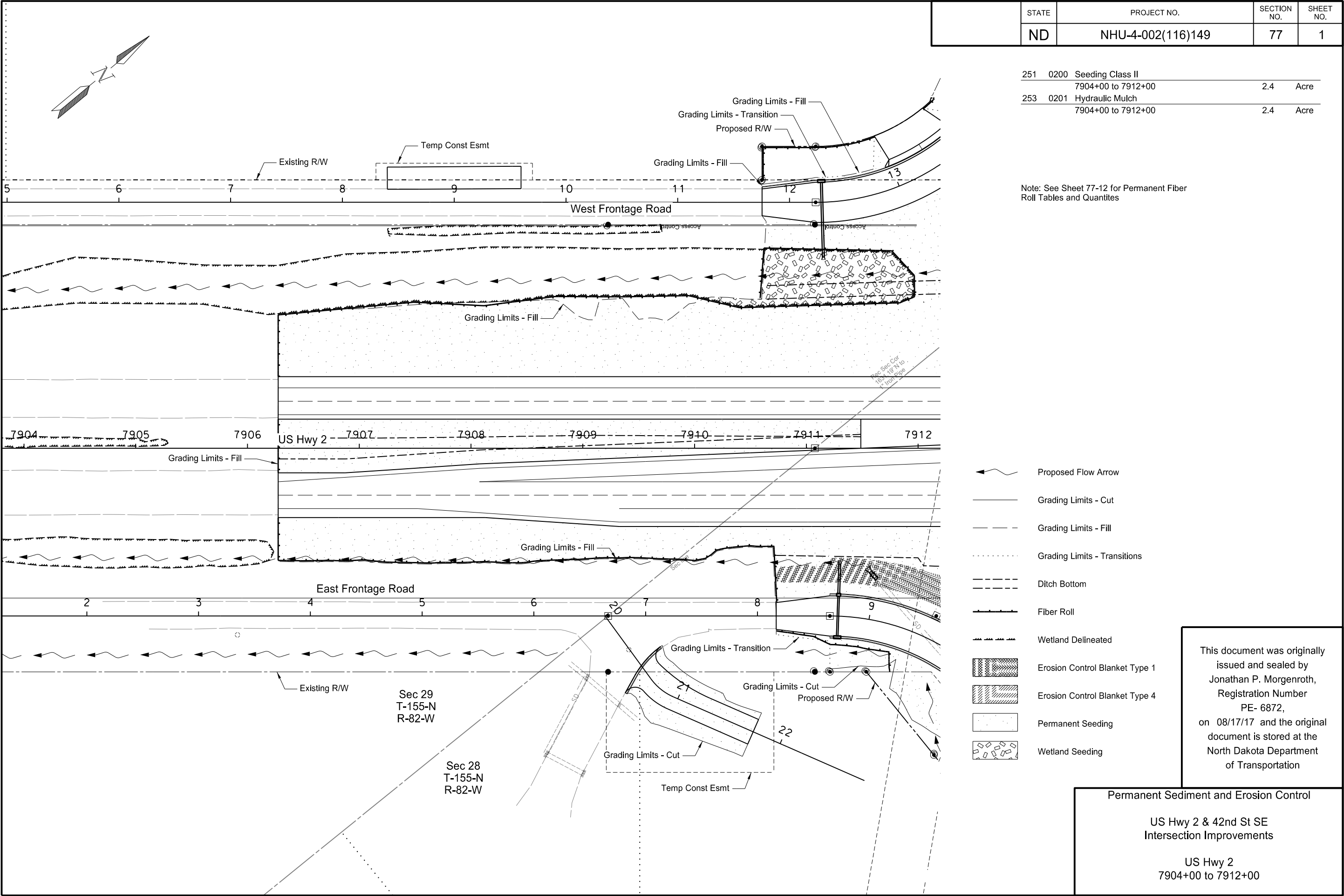
261	0112	Fiber Rolls 12IN		
		US Hwy 2 (SCL2CL)	20	LF
		42nd St (PR42)	117	LF
		East Frontage Road (PRFRONT_E)	213	LF
		Temp Access (PRTEMP)	54	LF
		Total	404	LF
261	0113	Remove Fiber Rolls 12IN		
		US Hwy 2 (SCL2CL)	20	LF
		42nd St (PR42)	117	LF
		East Frontage Road (PRFRONT_E)	213	LF
		Temp Access (PRTEMP)	54	LF
		Total	404	LF
261	0120	Fiber Rolls 20IN		
		US Hwy 2 (SCL2CL)	1939	LF
		42nd St (PR42)	611	LF
		14th Ave SE (PR14)	305	LF
		West Frontage Road (PRFRONT_W)	694	LF
		East Frontage Road (PRFRONT_E)	214	LF
		Temp Access (PRTEMP)	251	LF
		Total	4014	LF
261	0121	Remove Fiber Rolls 20IN		
		US Hwy 2 (SCL2CL)	1939	LF
		42nd St (PR42)	611	LF
		14th Ave SE (PR14)	305	LF
		West Frontage Road (PRFRONT_W)	694	LF
		East Frontage Road (PRFRONT_E)	214	LF
		Temp Access (PRTEMP)	251	LF
		Total	4014	LF

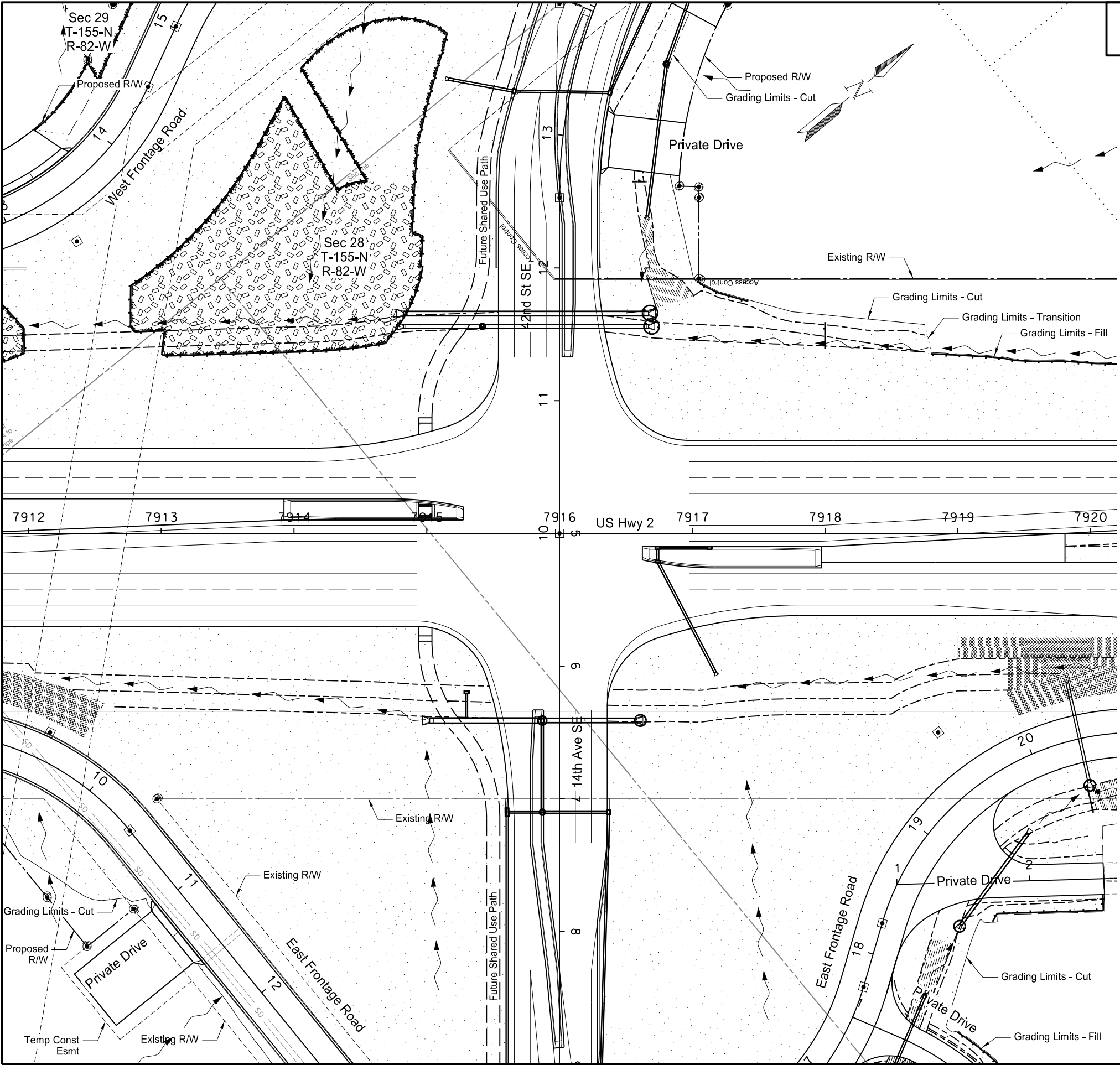
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Temporary Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

Fiber Rolls





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	77	2

251	0200	Seeding Class II		
		7912+00 to 7920+00	4.8	Acre
253	0201	Hydraulic Mulch		
		7912+00 to 7920+00	4.8	Acre
255	0101	ECB - Type 1		
		7912+00 to 7920+00 RT	282	SY

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

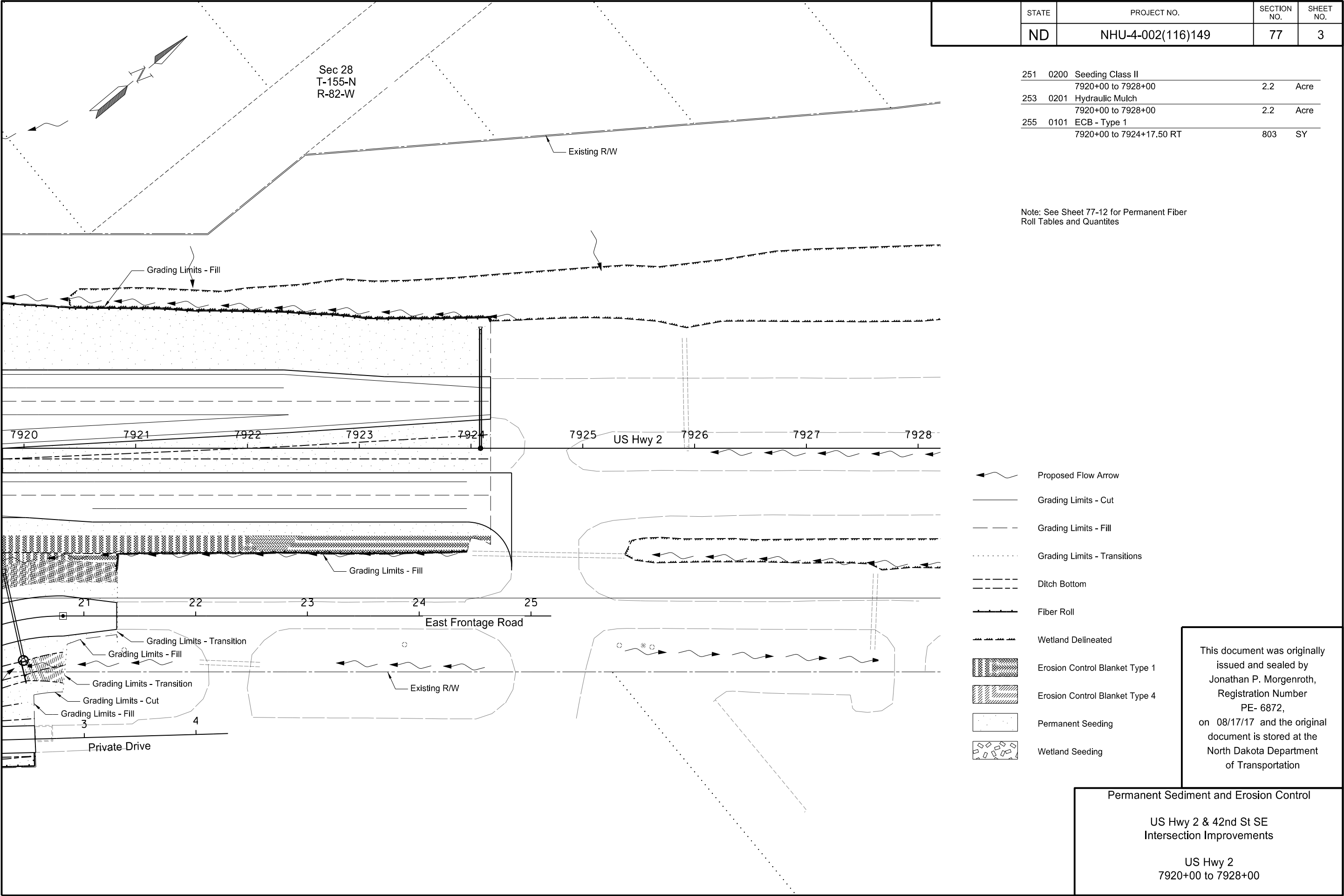
- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Permanent Seeding
- Wetland Seeding

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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7912+00 to 7920+00



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	77	3

251	0200	Seeding Class II		
		7920+00 to 7928+00	2.2	Acre
253	0201	Hydraulic Mulch		
		7920+00 to 7928+00	2.2	Acre
255	0101	ECB - Type 1		
		7920+00 to 7924+17.50 RT	803	SY

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

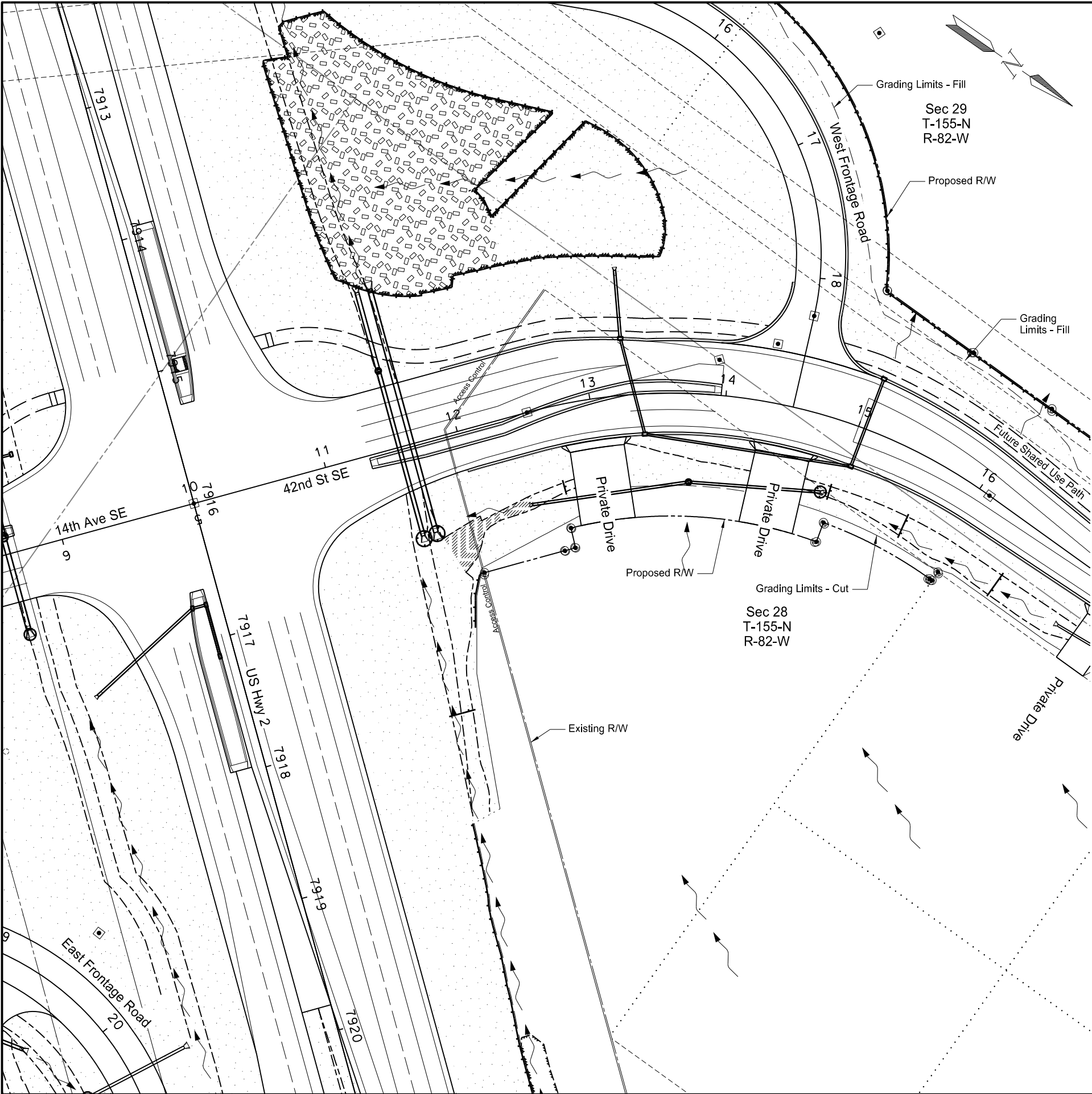
- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Permanent Seeding
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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7920+00 to 7928+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	77	4

251	0200	Seeding Class II		
		10+68.46 to 16+00	1.1	Acre
253	0201	Hydraulic Mulch		
		10+68.46 to 16+00	1.1	Acre
255	0104	ECB - Type 4		
		11+65.56 to 12+40 RT	108	SY

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

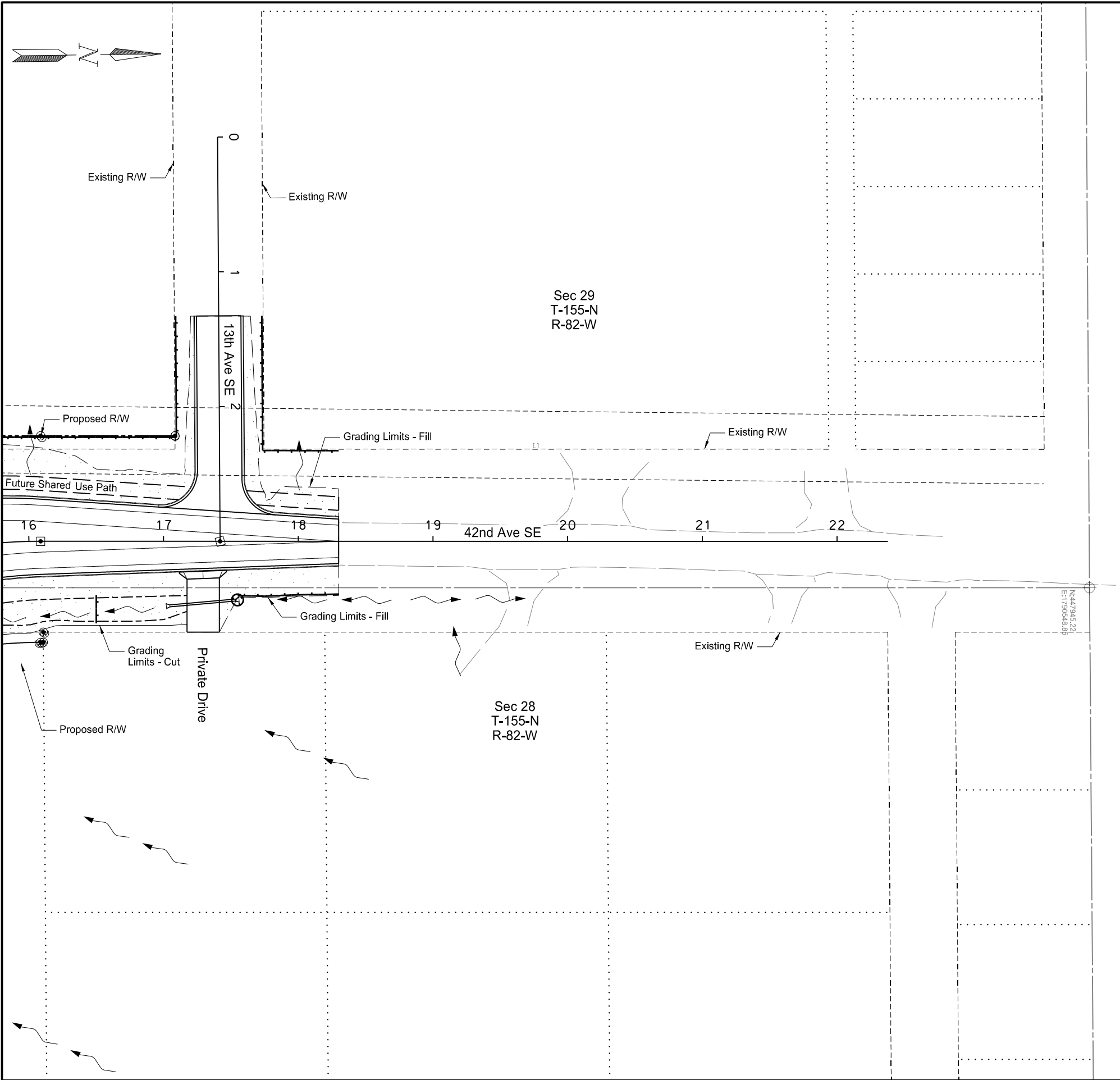
- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Permanent Seeding
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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
10+68.46 to 16+00



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	77	5

251	0200	Seeding Class II		
		16+00 to 18+30	0.5	Acre
253	0201	Hydraulic Mulch		
		16+00 to 18+30	0.5	Acre

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

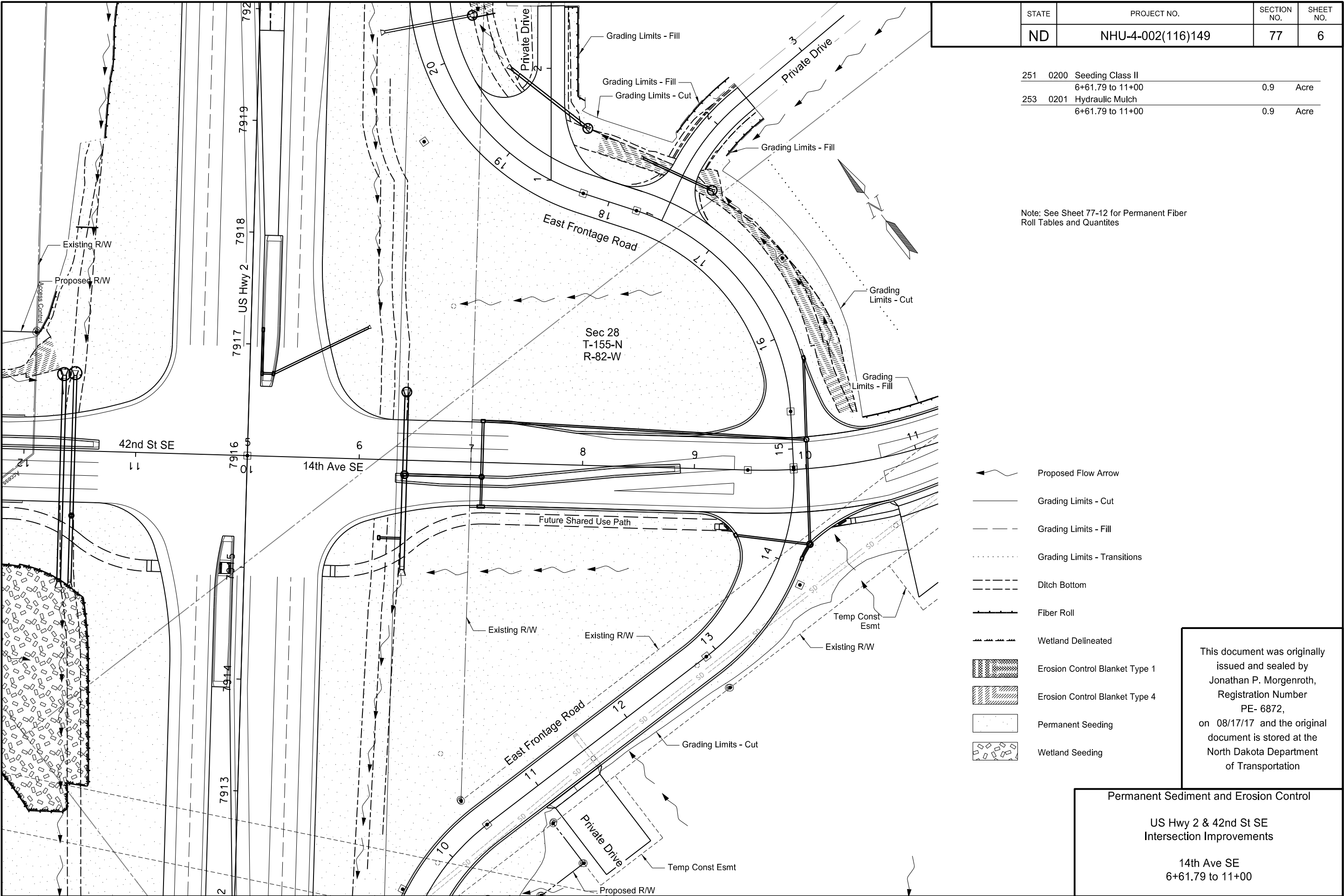
- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Permanent Seeding
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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
16+00 to 18+30



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	77	6

251	0200	Seeding Class II		
		6+61.79 to 11+00	0.9	Acre
253	0201	Hydraulic Mulch		
		6+61.79 to 11+00	0.9	Acre

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

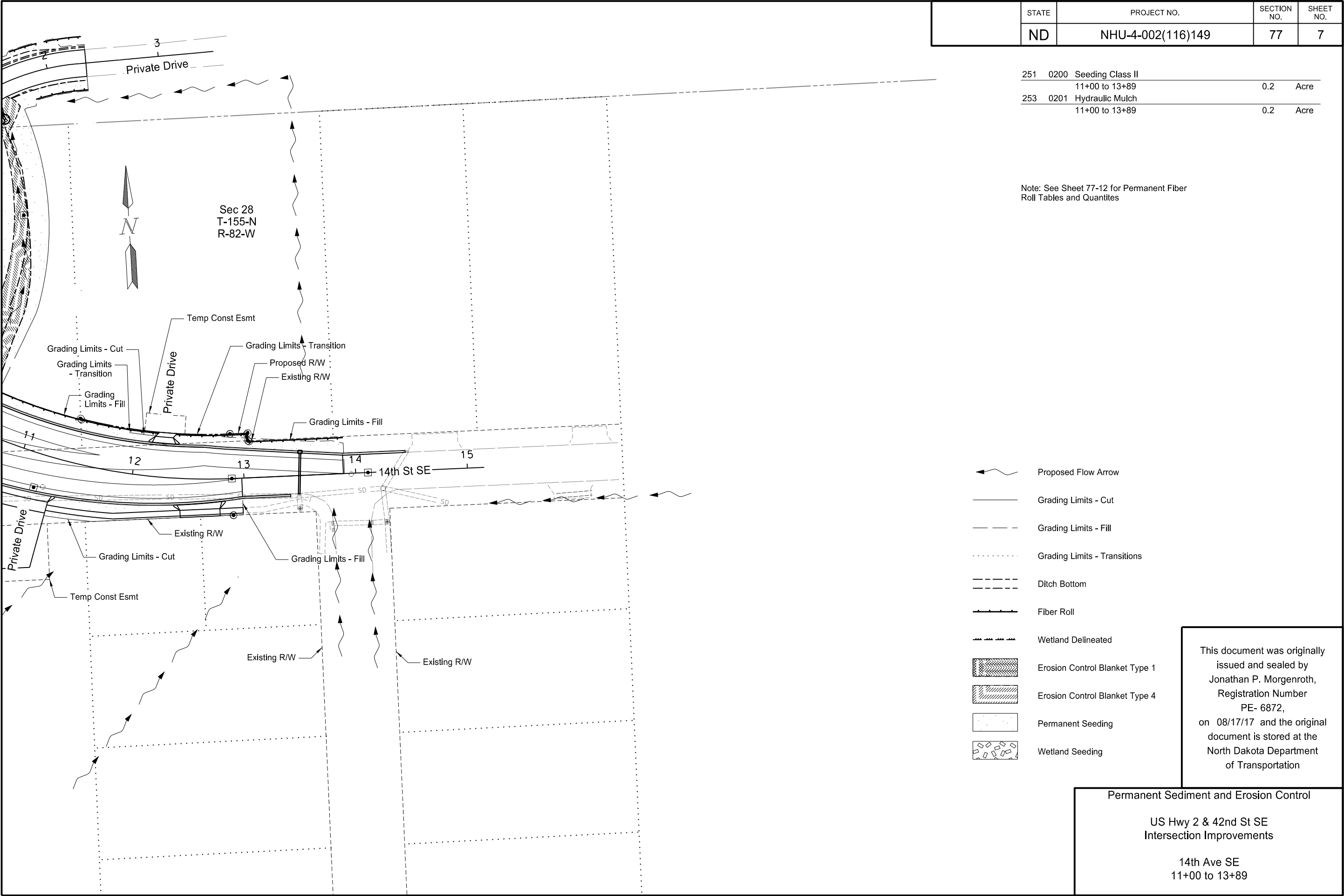
- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

14th Ave SE
6+61.79 to 11+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	77	7

251	0200	Seeding Class II		
		11+00 to 13+89	0.2	Acre
253	0201	Hydraulic Mulch		
		11+00 to 13+89	0.2	Acre

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

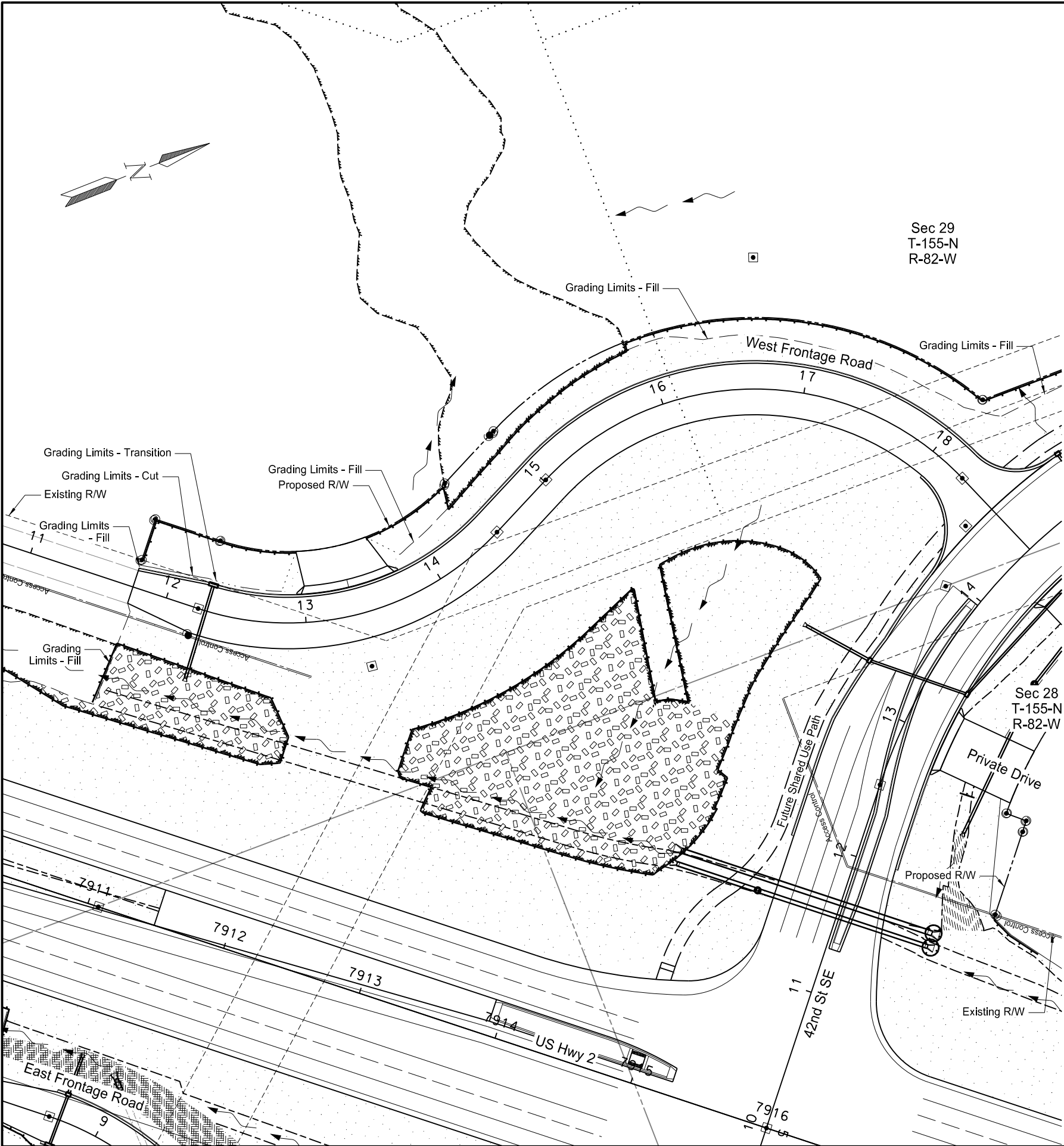
	Proposed Flow Arrow
	Grading Limits - Cut
	Grading Limits - Fill
	Grading Limits - Transitions
	Ditch Bottom
	Fiber Roll
	Wetland Delineated
	Erosion Control Blanket Type 1
	Erosion Control Blanket Type 4
	Permanent Seeding
	Wetland Seeding

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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

14th Ave SE
11+00 to 13+89



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	77	8

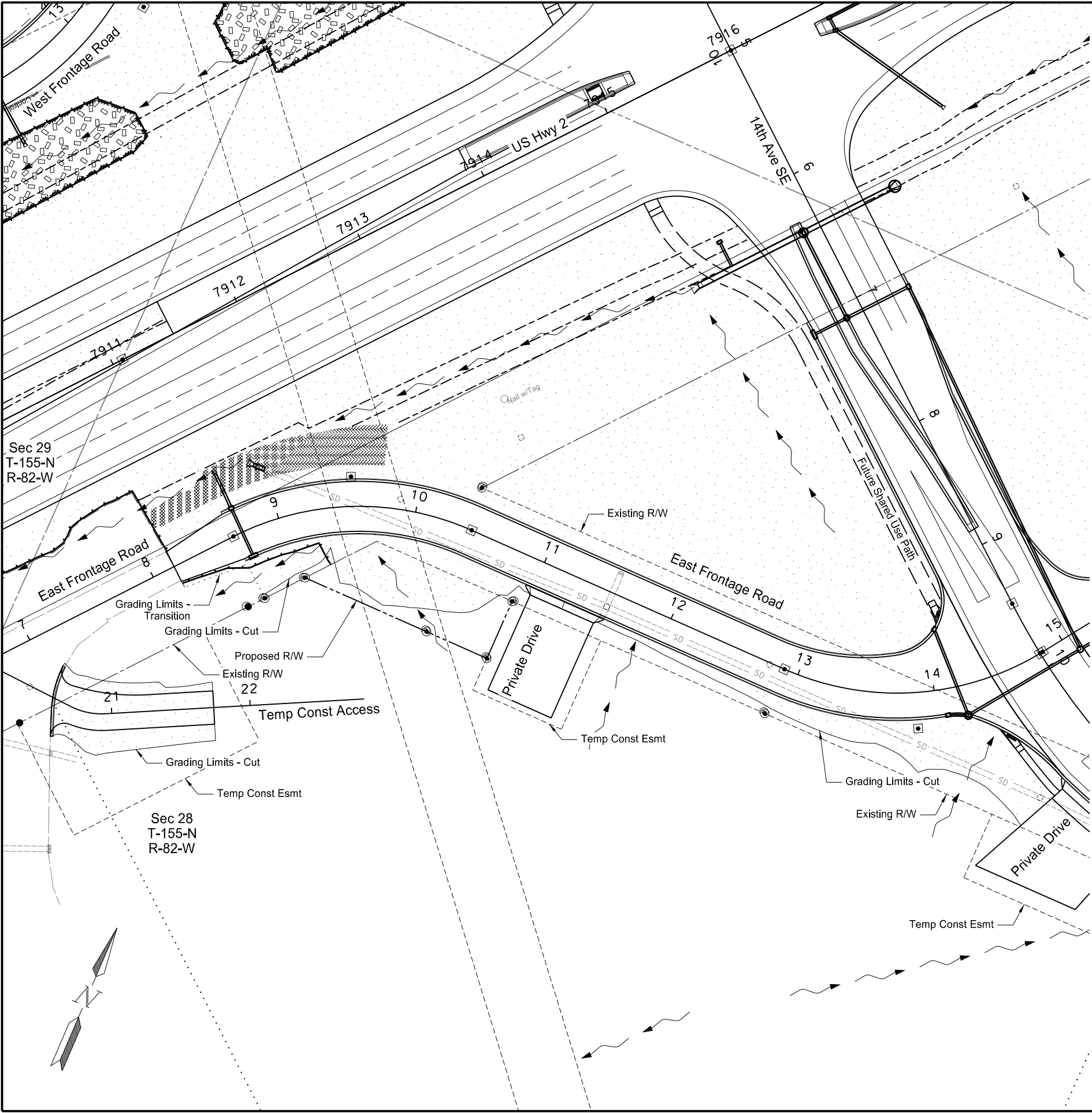
251	0200	Seeding Class II		
		11+00 to 18+96.35	1.0	Acre
253	0201	Hydraulic Mulch		
		11+00 to 18+96.35	1.0	Acre

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Permanent Seeding
- Wetland Seeding

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Permanent Sediment and Erosion Control
US Hwy 2 & 42nd St SE
Intersection Improvements
West Frontage Road



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	77	9

251	0200	Seeding Class II		
		7+00 to 15+00	1.3	Acre
253	0201	Hydraulic Mulch		
		7+00 to 15+00	1.3	Acre
255	0101	ECB - Type 1		
		7+00 to 15+00 LT	453	SY

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

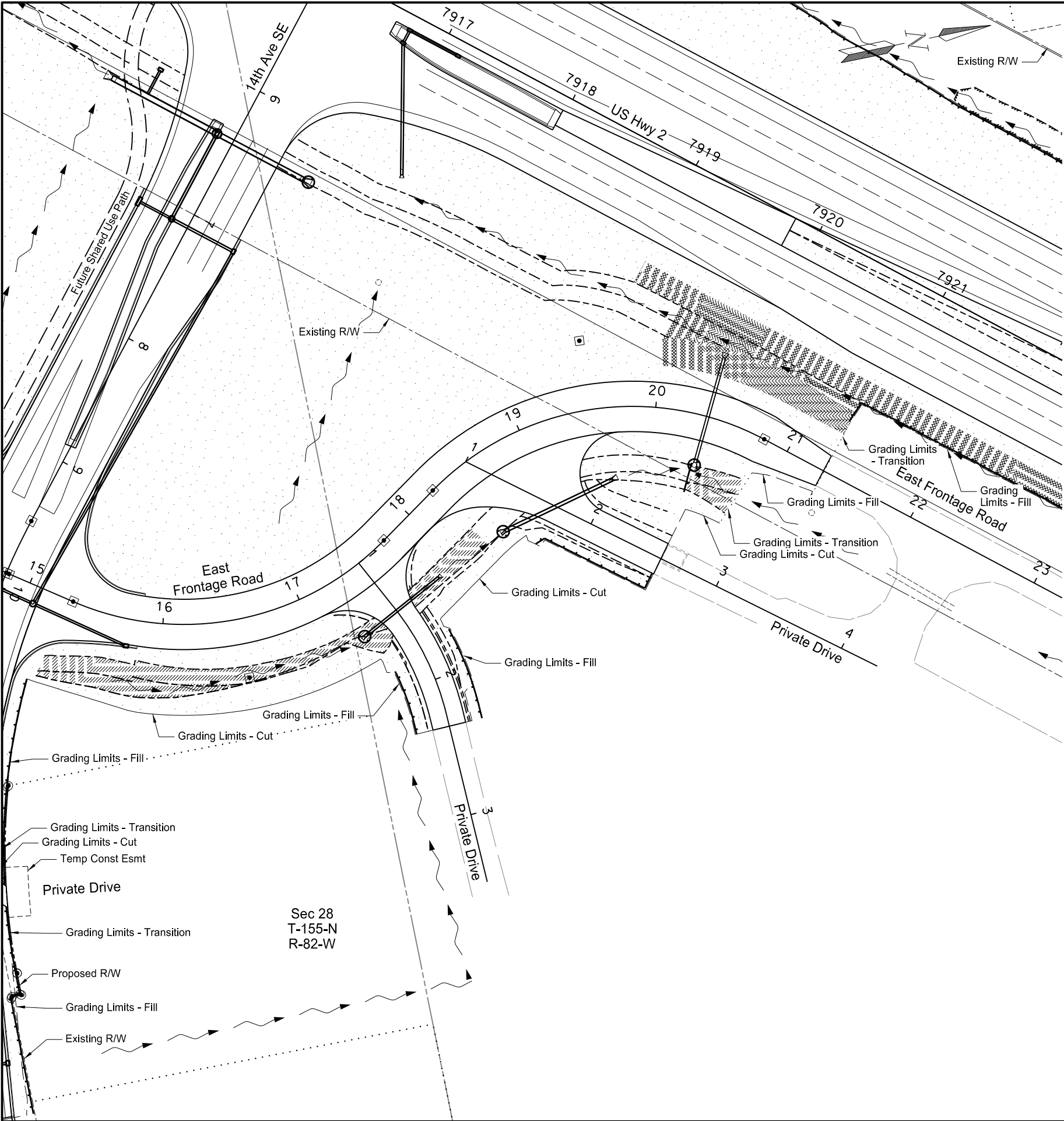
- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Permanent Seeding
- Wetland Seeding

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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

East Frontage Road
7+00 to 15+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	77	10

251	0200	Seeding Class II		
		15+00 to 23+00	1.1	Acre
253	0201	Hydraulic Mulch		
		15+00 to 23+00	1.1	Acre
255	0101	ECB - Type 1		
		15+00 to 23+00 LT	323	SY
255	0104	ECB - Type 4		
		15+00 to 23+00 RT	655	SY

Note: See Sheet 77-12 for Permanent Fiber Roll Tables and Quantities

- Proposed Flow Arrow
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transitions
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Permanent Seeding
- Wetland Seeding

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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

East Frontage Road
15+00 to 23+00

Ditch Fiber Rolls

Alignment (Chain Name)	Station	Fiber Rolls 12" (LF)	
		LT	RT
US Hwy 2 (SCL2CL)	7918+00.00	20	
42nd St (PR42)	12+66.92		11
42nd St (PR42)	14+95.31		12
42nd St (PR42)	15+63.51		19
42nd St (PR42)	16+50.09		21
East Frontage Road (PRFRONT_E)	20+35.05		22

Alignment (Chain Name)	Station	Fiber Rolls 12" (LF)	
		LT	RT
42nd St (PR42)	11+55.90		36
42nd St (PR42)	11+65.97		36
42nd St (PR42)	14+85.82		27
42nd St (PR42)	17+51.56		27
14th Ave SE (PR14)	6+40.98	27	
East Frontage Road (PRFRONT_E)	17+24.15		27
East Frontage Road (PRFRONT_E)	18+41.75		27
East Frontage Road (PRFRONT_E)	20+32.63		27

R/W Fiber Rolls

Alignment (Chain Name)	Station to Station		Fiber Rolls 20" (LF)	
			LT	RT
US Hwy 2 (SCL2CL)	7906+27.50	to 7906+27.50	55	
US Hwy 2 (SCL2CL)	7906+27.50	to 7906+27.50	48	
US Hwy 2 (SCL2CL)	7906+27.50	to 7906+27.50		38
US Hwy 2 (SCL2CL)	7906+27.50	to 7911+96.61	592	
US Hwy 2 (SCL2CL)	7906+27.50	to 7910+70.95		447
US Hwy 2 (SCL2CL)	7910+70.95	to 7910+73.48		50
US Hwy 2 (SCL2CL)	7912+77.09	to 7914+68.99	245	
US Hwy 2 (SCL2CL)	7920+45.84	to 7924+17.50	375	
US Hwy 2 (SCL2CL)	7920+82.63	to 7923+96.53		328
42nd St (PR42)	11+43.14	to 13+53.04	252	
42nd St (PR42)	11+74.90	to 11+92.31		43
42nd St (PR42)	14+87.87	to 17+09.51	250	
42nd St (PR42)	17+08.91	to 17+09.51	90	
42nd St (PR42)	17+55.02	to 18+29.98		75
42nd St (PR42)	17+72.93	to 17+73.58	100	
42nd St (PR42)	17+73.58	to 18+30.00	56	
14th Ave SE (PR14)	10+58.51	to 12+19.97	149	
14th Ave SE (PR14)	12+36.91	to 13+04.00	63	
14th Ave SE (PR14)	13+04.00	to 13+90.00	93	
West Frontage Road (PRFRONT_W)	11+73.84	to 11+77.13		45
West Frontage Road (PRFRONT_W)	11+76.41	to 11+76.41	29	
West Frontage Road (PRFRONT_W)	11+76.41	to 12+95.00	101	
West Frontage Road (PRFRONT_W)	11+77.13	to 12+87.65		144
West Frontage Road (PRFRONT_W)	13+48.66	to 17+85.62		512
West Frontage Road (PRFRONT_W)	13+61.78	to 18+04.32	521	
East Frontage Road (PRFRONT_E)	8+16.98	to 9+33.46		121
East Frontage Road (PRFRONT_E)	17+22.81	to 17+29.85		47
East Frontage Road (PRFRONT_E)	17+49.74	to 17+65.02		68
East Frontage Road (PRFRONT_E)	18+63.68	to 20+07.92		88
East Frontage Road (PRFRONT_E)	20+07.92	to 20+17.53		12
Temp Access (PRTEMP)	21+76.37	to 22+00.28		170
Temp Access (PRTEMP)	21+80.74	to 22+29.20	48	
Temp Access (PRTEMP)	22+00.38	to 22+38.49		38
Temp Access (PRTEMP)	22+28.16	to 22+42.55		176
Temp Access (PRTEMP)	23+13.82	to 23+65.97		52
Temp Access (PRTEMP)	23+28.71	to 23+40.91	12	
Temp Access (PRTEMP)	24+00.03	to 24+80.86		81
Temp Access (PRTEMP)	24+18.89	to 24+37.95	420	
Temp Access (PRTEMP)	24+18.98	to 24+39.21	20	

261	0112	Fiber Roll 12IN			
		US Hwy 2 (SCL2CL)	20	LF	
		42nd St (PR42)	189	LF	
		14th Ave SE (PR14)	27	LF	
		East Frontage Road (PRFRONT_E)	103	LF	
		Total	339	LF	
261	0120	Fiber Roll 20IN			
		US Hwy 2 (SCL2CL)	2178	LF	
		42nd St (PR42)	866	LF	
		14th Ave SE (PR14)	305	LF	
		West Frontage Road (PRFRONT_W)	1352	LF	
		East Frontage Road (PRFRONT_E)	336	LF	
		Temp Access (PRTEMP)	1017	LF	
		Total	6054	LF	

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Permanent Sediment and Erosion Control

US Hwy 2 & 42nd St SE
Intersection Improvements

Fiber Rolls

[illegible]

Iron Pin R/W Monuments						
Alignment	Station	Offset	Description	Include Iron Pin	Include R/W Marker	Point Number
PR42	11+92.00	105.00	R/W	x	x	7141
PR42	12+52.88	105.00	PC	x	x	7142
PR42	12+64.13	105.00	R/W	x	x	7143
PR42	12+64.13	90.00	R/W	x	x	7144
PR42	15+00.00	90.00	R/W	x	x	7169
PR42	15+00.00	75.00	R/W	x	x	7170
PR42	16+08.74	75.00	PT	x	x	7145
PR42	16+10.76	74.98	R/W	x	x	7146
PR42	16+10.70	67.46	R/W	x	x	7147
PR42	16+08.74	-78.34	PT	x	x	7148
PR42	17+08.50	-78.36	R/W	x	x	7149
PR14	11+42.75	-40.00	R/W	x	x	7150
PR14	12+89.08	32.83	PT	x	x	7151
PR14	12+89.08	-40.00	PT	x	x	7152
PR14	13+05.00	-40.00	R/W	x	x	7153
PR14	13+05.00	-33.17	R/W	x	x	7154
PRFRONT_W	11+75.41	-19.99	R/W	x	x	7155
PRFRONT_W	11+75.41	-50.00	R/W	x	x	7156
PRFRONT_W	12+23.41	-50.00	PC	x	x	7157
PRFRONT_W	14+51.40	-50.00	PT	x	x	7158
PRFRONT_W	15+01.40	-50.00	PC	x	x	7159
PRFRONT_W	18+03.86	-50.00	R/W	x	x	7160
PRFRONT_W	18+27.91	-119.79	PT	x	x	7161
PRFRONT_E	8+64.83	50.00	PC	x	x	7162
PRFRONT_E	9+07.65	46.49	R/W	x	x	7163
PRFRONT_E	10+37.65	-31.00	R/W	x	x	7164
PRFRONT_E	10+42.52	80.06	PT	x	x	7165
PRFRONT_E	10+90.11	80.05	R/W	x	x	7166
PRFRONT_E	10+90.10	35.05	R/W	x	x	7167
PRFRONT_E	12+89.53	34.98	PC	x	x	7168

Iron Pin Reference Monuments						
Alignment	Station	Offset	Description	Include Iron Pin	Include R/W Marker	Point Number
SCL2CL	7911+07.64	200	Sec Line	x	x	7135
SCL2CL	7911+07.64	-200	Sec Line	x	x	7136
PR42	14+49.46	90	Sec Line	x	x	7137
PR42	13+31.35	-350.49	Sec Line	x	x	7138
PRFRONT_E	6+66.38	50	Sec Line	x		7139
PRFRONT_E	6+66.38	-350	Sec Line	x	x	7140

- Note:
- Station and offsets given are perpendicular to alignment.
 - All iron pin R/W monuments and R/W markers shall be installed per NDDOT Standard Drawing D-720-1.

Alignment Monuments				
Alignment	Station	Offset	Description	Point Number
SCL2CL	7911+07.64	0.00	Sec Line	7100
SCL2CL	7916+00.00	0.00	Intersection	7101
PR42	12+52.88	0.00	PC	7102
PR42	13+93.12	-25.91	Sec Line	7103
PR42	14+30.81	-43.12	PI	7104
PR42	16+08.74	0.00	PT	7105
PR42	17+42.01	0.00	Intersection	7106
PR14	9+47.91	0.00	PC	7108
PR14	9+88.99	0.00	Intersection	7109
PR14	11+18.50	30.58	PI	7110
PR14	12+89.08	0.00	PT	7111
PR14	14+11.02	0.00	PT	7112
PRFRONT_W	12+23.41	0.00	PC	7115
PRFRONT_W	13+37.41	37.55	PI	7116
PRFRONT_W	14+51.40	0.00	PT	7117
PRFRONT_W	15+01.40	0.00	PC	7118
PRFRONT_W	16+64.66	-92.00	PI	7119
PRFRONT_W	18+27.91	0.00	PT	7120
PRFRONT_E	6+66.38	0.00	Sec Line	7121
PRFRONT_E	8+64.83	0.00	PC	7122
PRFRONT_E	9+53.68	-21.50	PI	7123
PRFRONT_E	10+42.52	0.00	PT	7124
PRFRONT_E	12+89.53	0.00	PC	7125
PRFRONT_E	13+86.60	26.11	PI	7126
PRFRONT_E	14+83.66	0.00	PT	7127
PRFRONT_E	15+33.63	0.00	PC	7128
PRFRONT_E	16+53.96	42.59	PI	7129
PRFRONT_E	17+74.28	0.00	PT	7130
PRFRONT_E	18+24.28	0.00	PC	7131
PRFRONT_E	19+52.82	-49.85	PI	7132
PRFRONT_E	20+81.36	0.00	PT	7133

720	0110	Right of Way Markers	Total =	35	EA
720	0125	Alignment Monuments	Total =	31	EA
720	0130	Iron Pin R/W Monuments	Total =	30	EA
720	0135	Iron Pin Reference Monuments	Total =	6	EA

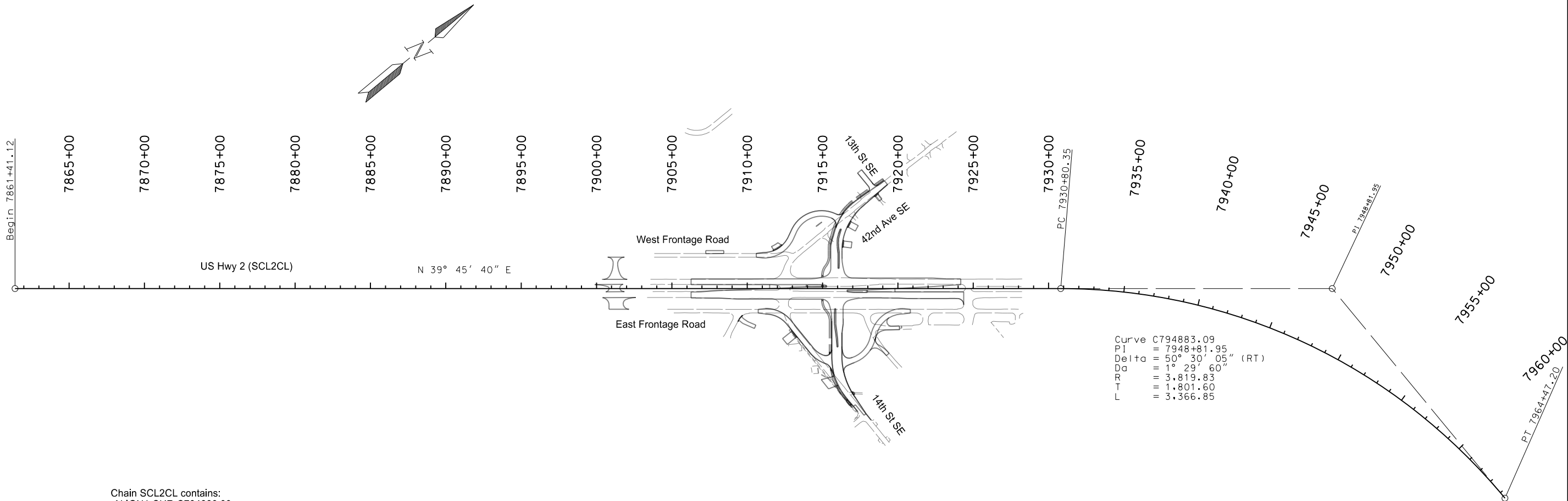
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Survey Coordinate and Curve Data

US Hwy 2 & 42nd St SE
Intersection Improvements

Iron Pin R/W Monuments

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	82	1



Chain SCL2CL contains:
ALIGN1 CUR C794883.09

Beginning chain SCL2CL description
=====

Point ALIGN1 N 442,496.3085 E 1,787,351.5746 Sta 7861+41.12

Course from ALIGN1 to PC C794883.09 N 39° 45' 40" E Dist 6,939.2306

Curve Data

Curve C794883.09
P.I. Station 7948+81.95 N 449,215.5305 E 1,792,942.1181
Delta = 50° 30' 05" (RT)
Degree = 1° 29' 60"
Tangent = 1,801.6000
Length = 3,366.8486
Radius = 3,819.8300
External = 403.5411
Long Chord = 3,258.9159
Mid. Ord. = 364.9830
P.C. Station 7930+80.35 N 447,830.6106 E 1,791,789.8336
P.T. Station 7964+47.20 N 449,207.2773 E 1,794,743.6992
C.C. N 445,387.4874 E 1,794,726.2005
Back = N 39° 45' 40" E
Ahead = S 89° 44' 15" E
Chord Bear = N 65° 00' 43" E

=====

Ending chain SCL2CL description

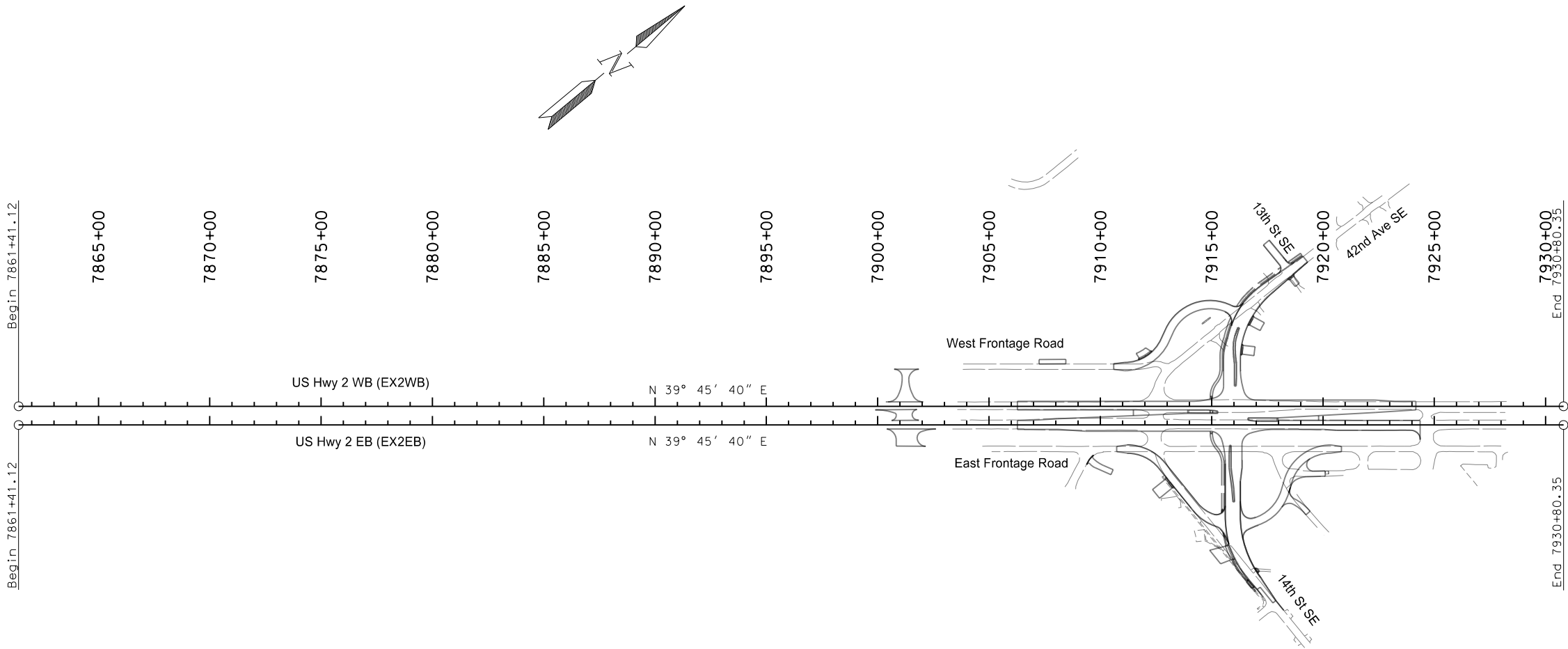
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Survey Data Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	82	2



Chain EX2EB contains:
ALIGN3 ALIGN4

Beginning chain EX2EB description
=====

Point ALIGN3 N 442,469.4458 E 1,787,383.8607 Sta 7861+41.12

Course from ALIGN3 to ALIGN4 N 39° 45' 40" E Dist 6,939.2306

Point ALIGN4 N 447,803.7478 E 1,791,822.1197 Sta 7930+80.35

=====

Ending chain EX2EB description

Chain EX2WB contains:
ALIGN5 ALIGN6

Beginning chain EX2WB description
=====

Point ALIGN5 N 442,523.1713 E 1,787,319.2885 Sta 7861+41.12

Course from ALIGN5 to ALIGN6 N 39° 45' 40" E Dist 6,939.2306

Point ALIGN6 N 447,857.4733 E 1,791,757.5475 Sta 7930+80.35

=====

Ending chain EX2WB description

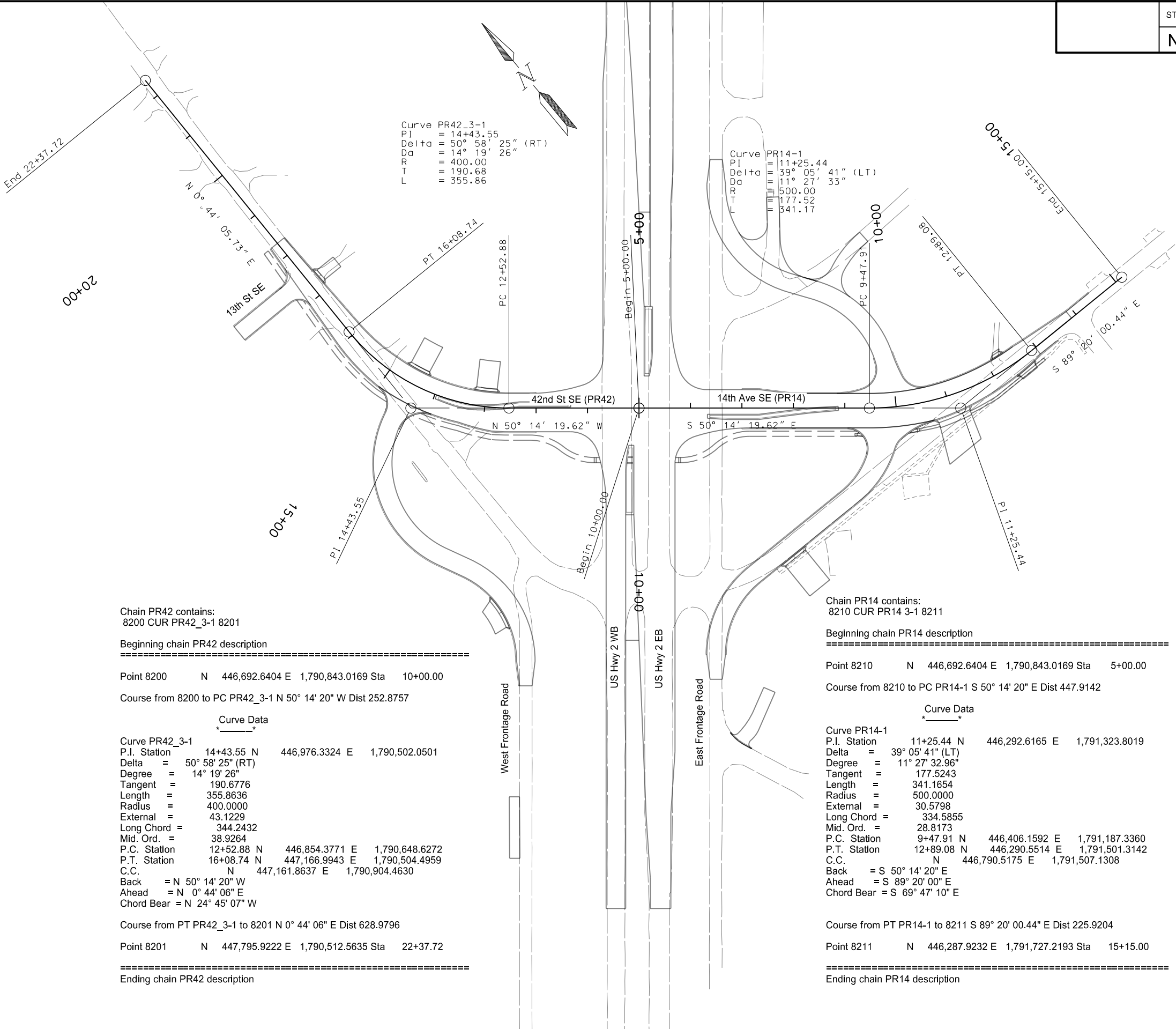
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Survey Data Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2 EB
US Hwy 2 WB

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	82	3



Chain PR42 contains:
8200 CUR PR42_3-1 8201

Beginning chain PR42 description
=====

Point 8200 N 446,692.6404 E 1,790,843.0169 Sta 10+00.00

Course from 8200 to PC PR42_3-1 N 50° 14' 20" W Dist 252.8757

Curve Data *-----*			
Curve PR42_3-1			
P.I. Station	14+43.55	N	446,976.3324 E 1,790,502.0501
Delta	= 50° 58' 25"	(RT)	
Degree	= 14° 19' 26"		
Tangent	= 190.6776		
Length	= 355.8636		
Radius	= 400.0000		
External	= 43.1229		
Long Chord	= 344.2432		
Mid. Ord.	= 38.9264		
P.C. Station	12+52.88	N	446,854.3771 E 1,790,648.6272
P.T. Station	16+08.74	N	447,166.9943 E 1,790,504.4959
C.C.	N	447,161.8637 E 1,790,904.4630	
Back	= N 50° 14' 20" W		
Ahead	= N 0° 44' 06" E		
Chord Bear	= N 24° 45' 07" W		

Course from PT PR42_3-1 to 8201 N 0° 44' 06" E Dist 628.9796

Point 8201 N 447,795.9222 E 1,790,512.5635 Sta 22+37.72

=====

Ending chain PR42 description

Chain PR14 contains:
8210 CUR PR14 3-1 8211

Beginning chain PR14 description
=====

Point 8210 N 446,692.6404 E 1,790,843.0169 Sta 5+00.00

Course from 8210 to PC PR14-1 S 50° 14' 20" E Dist 447.9142

Curve Data *-----*			
Curve PR14-1			
P.I. Station	11+25.44	N	446,292.6165 E 1,791,323.8019
Delta	= 39° 05' 41"	(LT)	
Degree	= 11° 27' 32.96"		
Tangent	= 177.5243		
Length	= 341.1654		
Radius	= 500.0000		
External	= 30.5798		
Long Chord	= 334.5855		
Mid. Ord.	= 28.8173		
P.C. Station	9+47.91	N	446,406.1592 E 1,791,187.3360
P.T. Station	12+89.08	N	446,290.5514 E 1,791,501.3142
C.C.	N	446,790.5175 E 1,791,507.1308	
Back	= S 50° 14' 20" E		
Ahead	= S 89° 20' 00" E		
Chord Bear	= S 69° 47' 10" E		

Course from PT PR14-1 to 8211 S 89° 20' 00.44" E Dist 225.9204

Point 8211 N 446,287.9232 E 1,791,727.2193 Sta 15+15.00

=====

Ending chain PR14 description

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Survey Data Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
14th Ave SE

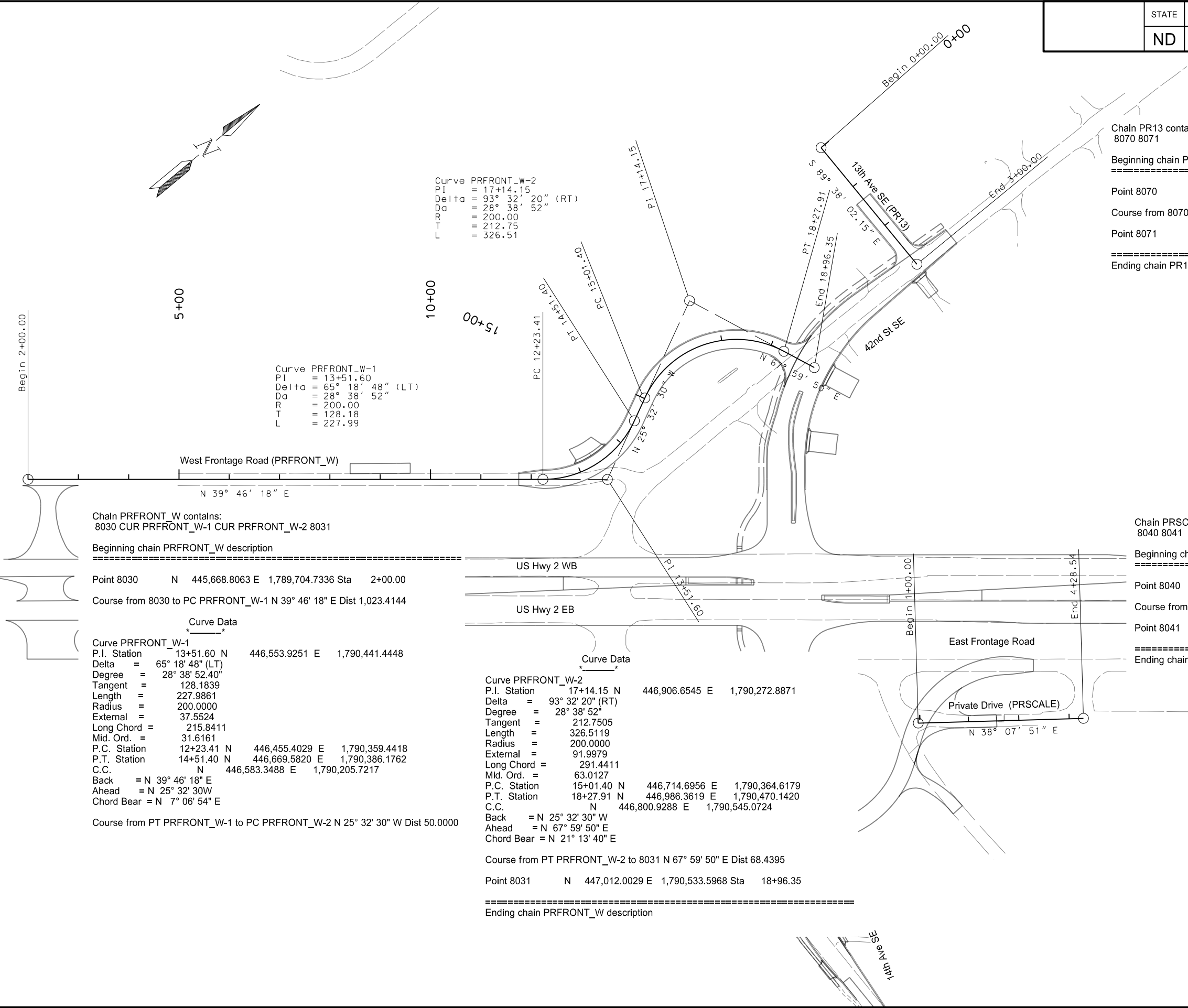
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	82	4

Chain PR13 contains: 8070 8071				
Beginning chain PR13 description				
=====				
Point 8070	N	447,302.1690 E	1,790,206.2114 Sta	0+00.00
Course from 8070 to 8071 S 89° 38' 02.15" E Dist 300.0000				
Point 8071	N	447,300.2523 E	1,790,506.2052 Sta	3+00.00
=====				
Ending chain PR13 description				

Chain PRSCALE contains: 8040 8041				
Beginning chain PRSCALE description				
=====				
Point 8040	N	446,718.8228 E	1,791,208.9366 Sta	1+00.00
Course from 8040 to 8041 N 38° 07' 51" E Dist 328.5417				
Point 8041	N	446,977.2549 E	1,791,411.7975 Sta	4+28.54
=====				
Ending chain PRSCALE description				

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Survey Data Layout
US Hwy 2 & 42nd St SE
Intersection Improvements
US Hwy 2 West Frontage Road
13th Ave SE & Private Drive



Chain PRFRONT_E contains:
8020 CUR PRFRONT_E-1 CUR PRFRONT_EA-2 CUR PRFRONT_E-3 CUR PRFRONT_E-4 8021

Beginning chain PRFRONT_E description

Point 8020 N 445,640.6094 E 1,790,162.8339 Sta 1+00.00

Course from 8020 to PC PRFRONT_E-1 N 39° 45' 40" E Dist 764.8313

Curve Data

Curve PRFRONT_E-1
P.I. Station 9+60.02 N 446,301.7239 E 1,790,712.8960
Delta = 50° 54' 19" (RT)
Degree = 28° 38' 52"
Tangent = 95.1924
Length = 177.6931
Radius = 200.0000
External = 21.4985
Long Chord = 171.9061
Mid. Ord. = 19.4119
P.C. Station 8+64.83 N 446,228.5479 E 1,790,652.0120
P.T. Station 10+42.52 N 446,300.6165 E 1,790,808.0819
C.C. N 446,100.6300 E 1,790,805.7553
Back = N 39° 45' 40" E
Ahead = S 89° 20' 00" E
Chord Bear = N 65° 12' 50" E

Course from PT PRFRONT_E-1 to PC PRFRONT_E-2 S 89° 20' 00.44" E Dist 247.0080

Curve Data

Curve PRFRONT_E-2
P.I. Station 13+95.01 N 446,296.5160 E 1,791,160.5440
Delta = 55° 36' 48" (LT)
Degree = 28° 38' 52"
Tangent = 105.4780
Length = 194.1274
Radius = 200.0000
External = 26.1097
Long Chord = 186.5961
Mid. Ord. = 23.0947
P.C. Station 12+89.53 N 446,297.7430 E 1,791,055.0732
P.T. Station 14+83.66 N 446,382.8623 E 1,791,221.1238
C.C. N 446,497.7295 E 1,791,057.3998
Back = S 89° 20' 00" E
Ahead = N 35° 03' 11" E
Chord Bear = N 62° 51' 35" E

Course from PT PRFRONT_E-2 to PC PRFRONT_E-3 N 35° 03' 11.27" E Dist 49.9746

Curve Data

Curve PRFRONT_E-3
P.I. Station 16+70.94 N 446,536.1700 E 1,791,328.6830
Delta = 68° 56' 23" (LT)
Degree = 28° 38' 52"
Tangent = 137.3013
Length = 240.6449
Radius = 200.0000
External = 42.5936
Long Chord = 226.3889
Mid. Ord. = 35.1152
P.C. Station 15+33.63 N 446,423.7725 E 1,791,249.8260
P.T. Station 17+74.28 N 446,650.1497 E 1,791,252.1307
C.C. N 446,538.6397 E 1,791,086.1020
Back = N 35° 03' 11" E
Ahead = N 33° 53' 12" W
Chord Bear = N 0° 34' 60" E

Course from PT PRFRONT_E-3 to PC PRFRONT_E-4 N 33° 53' 12" W Dist 50.0000

Curve Data

Curve PRFRONT_E-4
P.I. Station 19+74.03 N 446,815.9702 E 1,791,140.7604
Delta = 73° 38' 52" (RT)
Degree = 28° 38' 52"
Tangent = 149.7492
Length = 257.0792
Radius = 200.0000
External = 49.8496
Long Chord = 239.7429
Mid. Ord. = 39.9037
P.C. Station 18+24.28 N 446,691.6569 E 1,791,224.2532
P.T. Station 20+81.36 N 446,931.0849 E 1,791,236.5385
C.C. N 446,803.1670 E 1,791,390.2818
Back = N 33° 53' 12" W
Ahead = N 39° 45' 40" E
Chord Bear = N 2° 56' 14" E

Course from PT PRFRONT_E-4 to 8021 N 39° 45' 40" E Dist 436.7708

Point 8021 N 447,266.8379 E 1,791,515.8925 Sta 25+18.13

Ending chain PRFRONT_E description

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	82	5

Chain PRDOT contains:
8050 CUR PRDOT-1 8051

Beginning chain PRDOT description

Point 8050 N 446,629.2232 E 1,791,264.4125 Sta 1+00.00

Course from 8050 to PC PRDOT-1 N 63° 04' 08" E Dist 39.5217

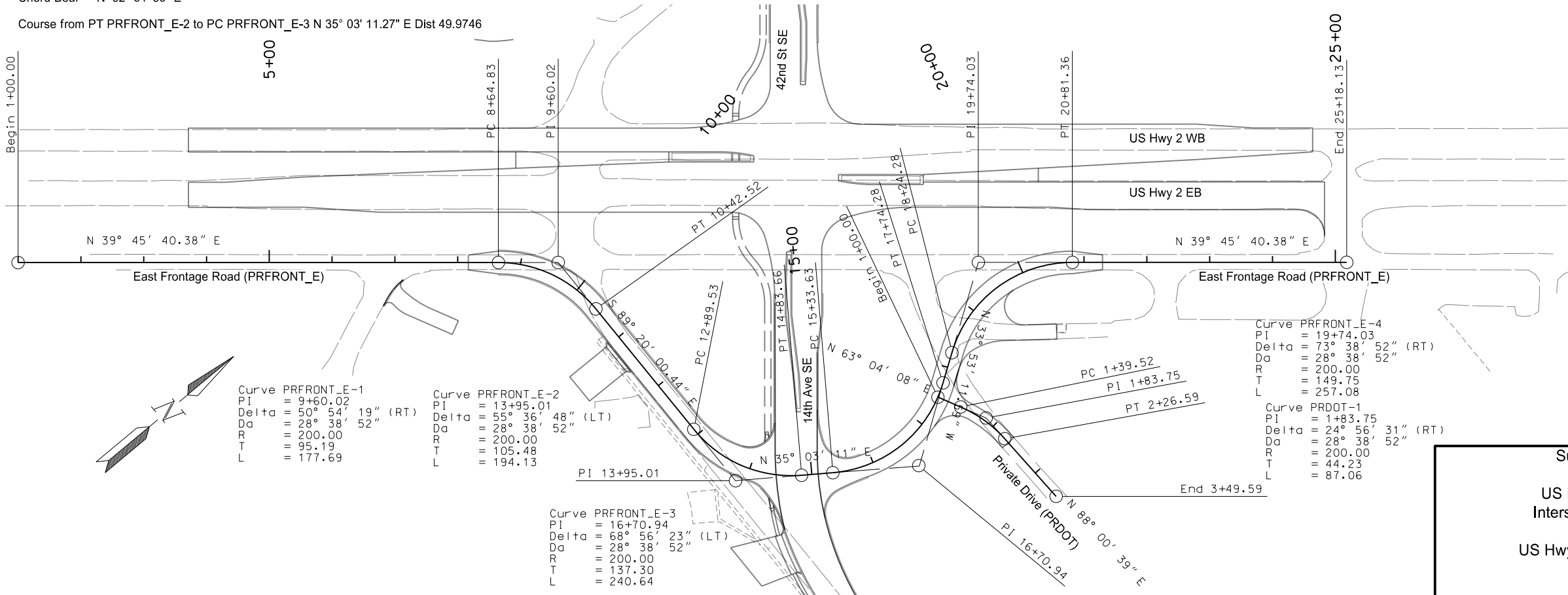
Curve Data

Curve PRDOT-1
P.I. Station 1+83.75 N 446,667.1570 E 1,791,339.0838
Delta = 24° 56' 31" (RT)
Degree = 28° 38' 52"
Tangent = 44.2325
Length = 87.0636
Radius = 200.0000
External = 4.8329
Long Chord = 86.3778
Mid. Ord. = 4.7189
P.C. Station 1+39.52 N 446,647.1233 E 1,791,299.6481
P.T. Station 2+26.59 N 446,668.6924 E 1,791,383.2897
C.C. N 446,468.8129 E 1,791,390.2317
Back = N 63° 04' 08" E
Ahead = N 88° 00' 39" E
Chord Bear = N 75° 32' 24" E

Course from PT PRDOT-1 to 8051 N 88° 00' 39" E Dist 123.0080

Point 8051 N 446,672.9620 E 1,791,506.2235 Sta 3+49.59

Ending chain PRDOT description

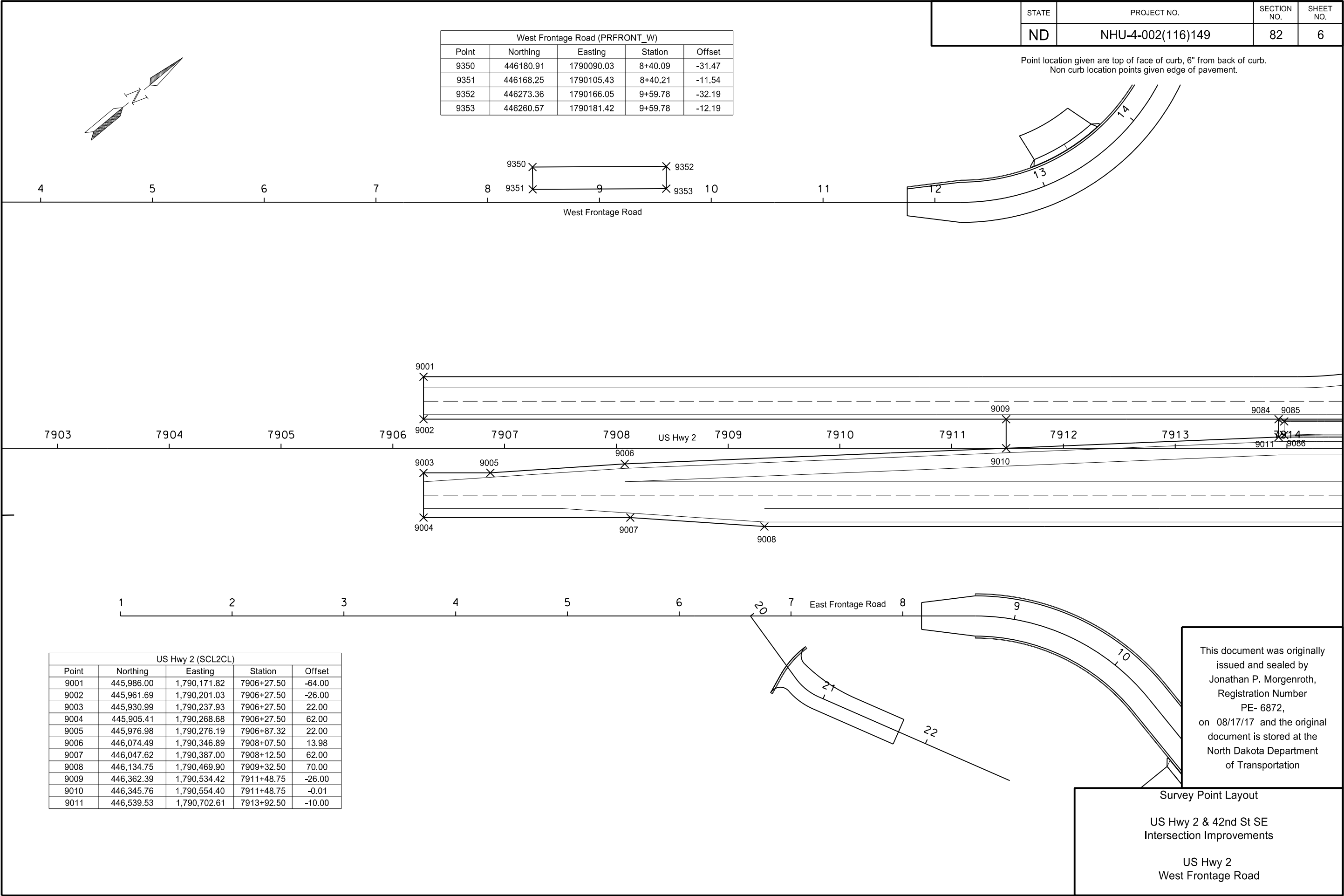


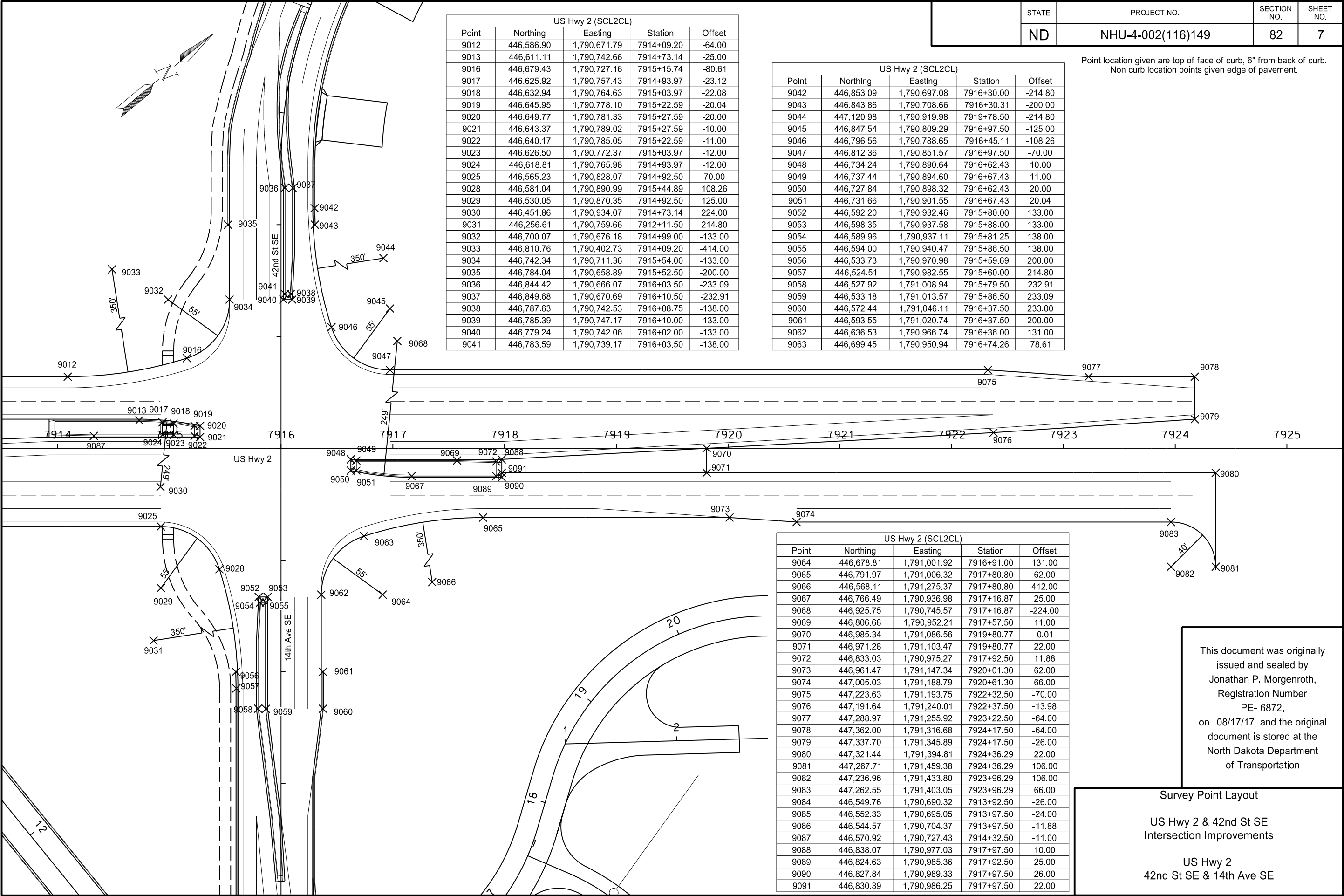
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Survey Data Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2 East Frontage Road
Private Drive





US Hwy 2 (SCL2CL)				
Point	Northing	Easting	Station	Offset
9012	446,586.90	1,790,671.79	7914+09.20	-64.00
9013	446,611.11	1,790,742.66	7914+73.14	-25.00
9016	446,679.43	1,790,727.16	7915+15.74	-80.61
9017	446,625.92	1,790,757.43	7914+93.97	-23.12
9018	446,632.94	1,790,764.63	7915+03.97	-22.08
9019	446,645.95	1,790,778.10	7915+22.59	-20.04
9020	446,649.77	1,790,781.33	7915+27.59	-20.00
9021	446,643.37	1,790,789.02	7915+27.59	-10.00
9022	446,640.17	1,790,785.05	7915+22.59	-11.00
9023	446,626.50	1,790,772.37	7915+03.97	-12.00
9024	446,618.81	1,790,765.98	7914+93.97	-12.00
9025	446,565.23	1,790,828.07	7914+92.50	70.00
9028	446,581.04	1,790,890.99	7915+44.89	108.26
9029	446,530.05	1,790,870.35	7914+92.50	125.00
9030	446,451.86	1,790,934.07	7914+73.14	224.00
9031	446,256.61	1,790,759.66	7912+11.50	214.80
9032	446,700.07	1,790,676.18	7914+99.00	-133.00
9033	446,810.76	1,790,402.73	7914+09.20	-414.00
9034	446,742.34	1,790,711.36	7915+54.00	-133.00
9035	446,784.04	1,790,658.89	7915+52.50	-200.00
9036	446,844.42	1,790,666.07	7916+03.50	-233.09
9037	446,849.68	1,790,670.69	7916+10.50	-232.91
9038	446,787.63	1,790,742.53	7916+08.75	-138.00
9039	446,785.39	1,790,747.17	7916+10.00	-133.00
9040	446,779.24	1,790,742.06	7916+02.00	-133.00
9041	446,783.59	1,790,739.17	7916+03.50	-138.00

US Hwy 2 (SCL2CL)				
Point	Northing	Easting	Station	Offset
9042	446,853.09	1,790,697.08	7916+30.00	-214.80
9043	446,843.86	1,790,708.66	7916+30.31	-200.00
9044	447,120.98	1,790,919.98	7919+78.50	-214.80
9045	446,847.54	1,790,809.29	7916+97.50	-125.00
9046	446,796.56	1,790,788.65	7916+45.11	-108.26
9047	446,812.36	1,790,851.57	7916+97.50	-70.00
9048	446,734.24	1,790,890.64	7916+62.43	10.00
9049	446,737.44	1,790,894.60	7916+67.43	11.00
9050	446,727.84	1,790,898.32	7916+62.43	20.00
9051	446,731.66	1,790,901.55	7916+67.43	20.04
9052	446,592.20	1,790,932.46	7915+80.00	133.00
9053	446,598.35	1,790,937.58	7915+88.00	133.00
9054	446,589.96	1,790,937.11	7915+81.25	138.00
9055	446,594.00	1,790,940.47	7915+86.50	138.00
9056	446,533.73	1,790,970.98	7915+59.69	200.00
9057	446,524.51	1,790,982.55	7915+60.00	214.80
9058	446,527.92	1,791,008.94	7915+79.50	232.91
9059	446,533.18	1,791,013.57	7915+86.50	233.09
9060	446,572.44	1,791,046.11	7916+37.50	233.00
9061	446,593.55	1,791,020.74	7916+37.50	200.00
9062	446,636.53	1,790,966.74	7916+36.00	131.00
9063	446,699.45	1,790,950.94	7916+74.26	78.61

US Hwy 2 (SCL2CL)				
Point	Northing	Easting	Station	Offset
9064	446,678.81	1,791,001.92	7916+91.00	131.00
9065	446,791.97	1,791,006.32	7917+80.80	62.00
9066	446,568.11	1,791,275.37	7917+80.80	412.00
9067	446,766.49	1,790,936.98	7917+16.87	25.00
9068	446,925.75	1,790,745.57	7917+16.87	-224.00
9069	446,806.68	1,790,952.21	7917+57.50	11.00
9070	446,985.34	1,791,086.56	7919+80.77	0.01
9071	446,971.28	1,791,103.47	7919+80.77	22.00
9072	446,833.03	1,790,975.27	7917+92.50	11.88
9073	446,961.47	1,791,147.34	7920+01.30	62.00
9074	447,005.03	1,791,188.79	7920+61.30	66.00
9075	447,223.63	1,791,193.75	7922+32.50	-70.00
9076	447,191.64	1,791,240.01	7922+37.50	-13.98
9077	447,288.97	1,791,255.92	7923+22.50	-64.00
9078	447,362.00	1,791,316.68	7924+17.50	-64.00
9079	447,337.70	1,791,345.89	7924+17.50	-26.00
9080	447,321.44	1,791,394.81	7924+36.29	22.00
9081	447,267.71	1,791,459.38	7924+36.29	106.00
9082	447,236.96	1,791,433.80	7923+96.29	106.00
9083	447,262.55	1,791,403.05	7923+96.29	66.00
9084	446,549.76	1,790,690.32	7913+92.50	-26.00
9085	446,552.33	1,790,695.05	7913+97.50	-24.00
9086	446,544.57	1,790,704.37	7913+97.50	-11.88
9087	446,570.92	1,790,727.43	7914+32.50	-11.00
9088	446,838.07	1,790,977.03	7917+97.50	10.00
9089	446,824.63	1,790,985.36	7917+92.50	25.00
9090	446,827.84	1,790,989.33	7917+97.50	26.00
9091	446,830.39	1,790,986.25	7917+97.50	22.00

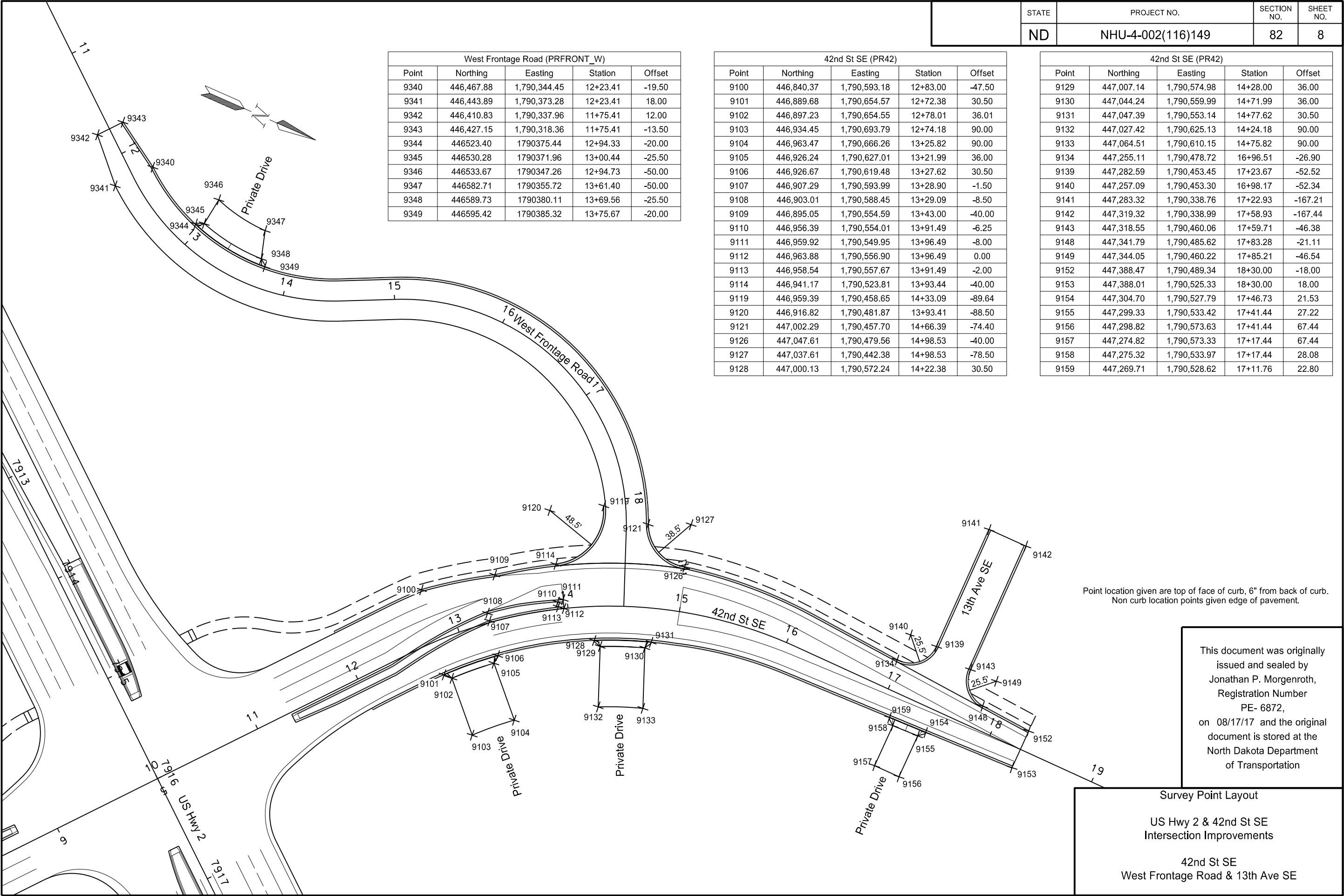
Point location given are top of face of curb, 6" from back of curb.
Non curb location points given edge of pavement.

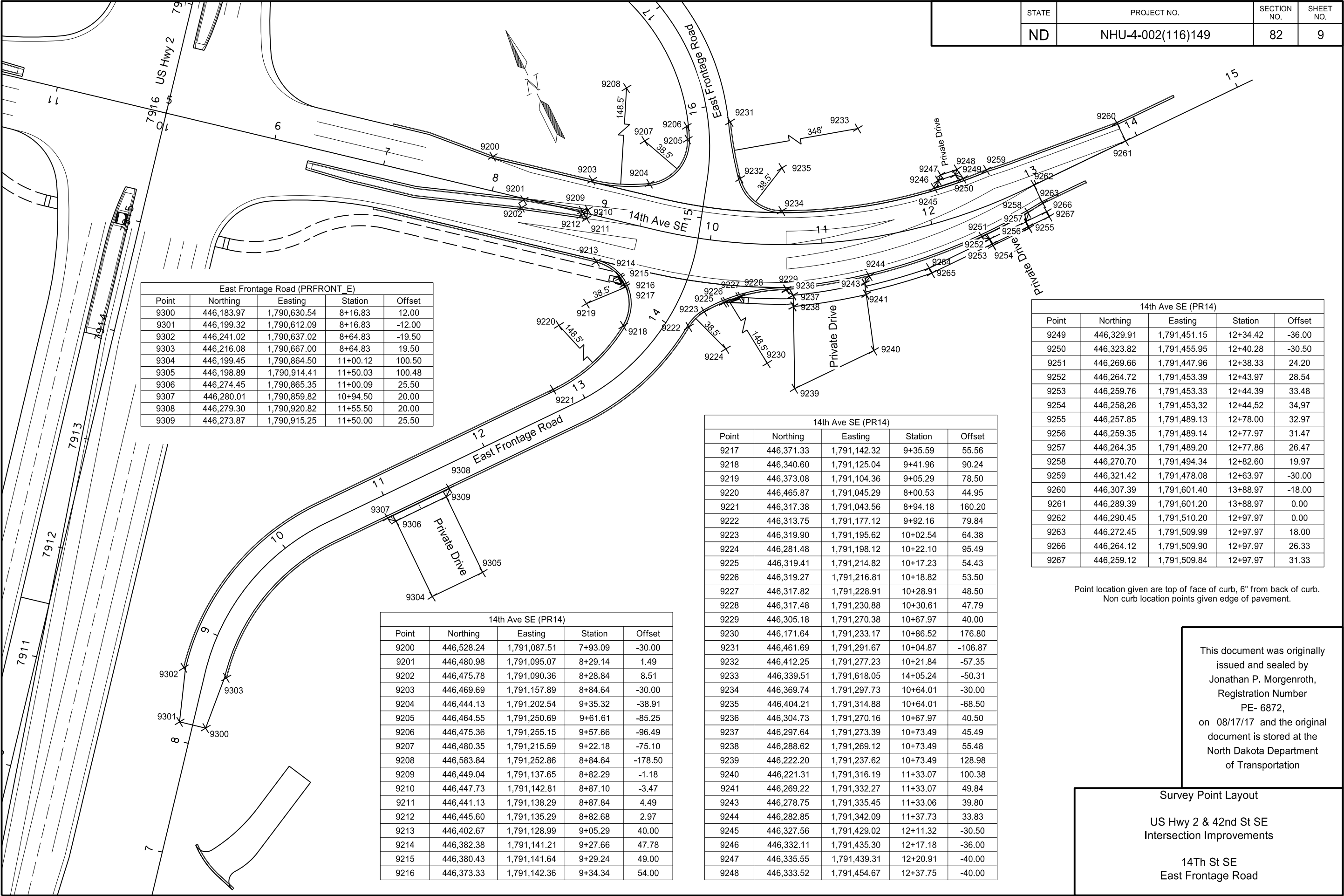
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Survey Point Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

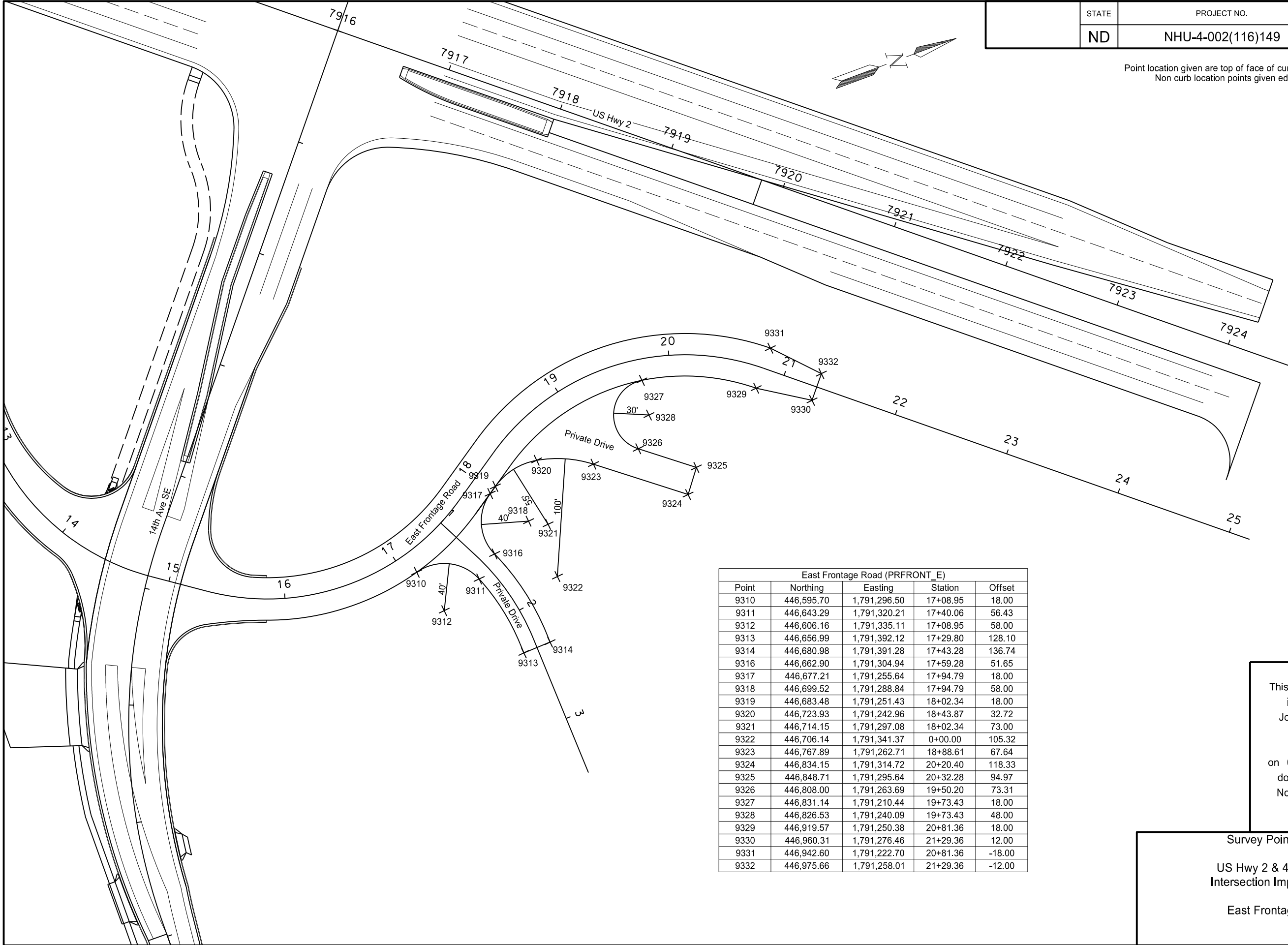
US Hwy 2
42nd St SE & 14th Ave SE





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	82	10

Point location given are top of face of curb, 6" from back of curb.
Non curb location points given edge of pavement.



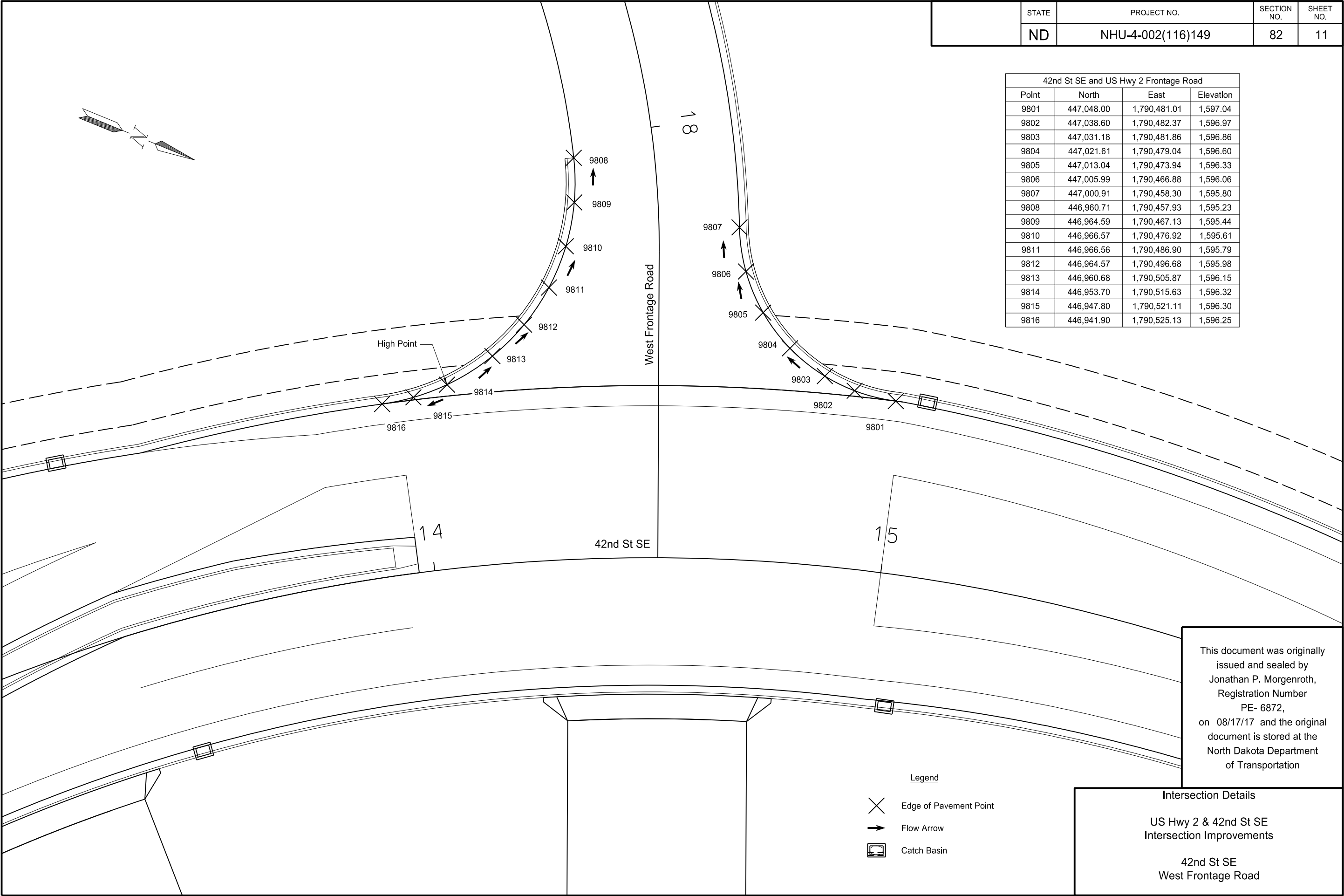
East Frontage Road (PRFRONT_E)				
Point	Northing	Easting	Station	Offset
9310	446,595.70	1,791,296.50	17+08.95	18.00
9311	446,643.29	1,791,320.21	17+40.06	56.43
9312	446,606.16	1,791,335.11	17+08.95	58.00
9313	446,656.99	1,791,392.12	17+29.80	128.10
9314	446,680.98	1,791,391.28	17+43.28	136.74
9316	446,662.90	1,791,304.94	17+59.28	51.65
9317	446,677.21	1,791,255.64	17+94.79	18.00
9318	446,699.52	1,791,288.84	17+94.79	58.00
9319	446,683.48	1,791,251.43	18+02.34	18.00
9320	446,723.93	1,791,242.96	18+43.87	32.72
9321	446,714.15	1,791,297.08	18+02.34	73.00
9322	446,706.14	1,791,341.37	0+00.00	105.32
9323	446,767.89	1,791,262.71	18+88.61	67.64
9324	446,834.15	1,791,314.72	20+20.40	118.33
9325	446,848.71	1,791,295.64	20+32.28	94.97
9326	446,808.00	1,791,263.69	19+50.20	73.31
9327	446,831.14	1,791,210.44	19+73.43	18.00
9328	446,826.53	1,791,240.09	19+73.43	48.00
9329	446,919.57	1,791,250.38	20+81.36	18.00
9330	446,960.31	1,791,276.46	21+29.36	12.00
9331	446,942.60	1,791,222.70	20+81.36	-18.00
9332	446,975.66	1,791,258.01	21+29.36	-12.00

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Survey Point Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

East Frontage Road



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	82	11

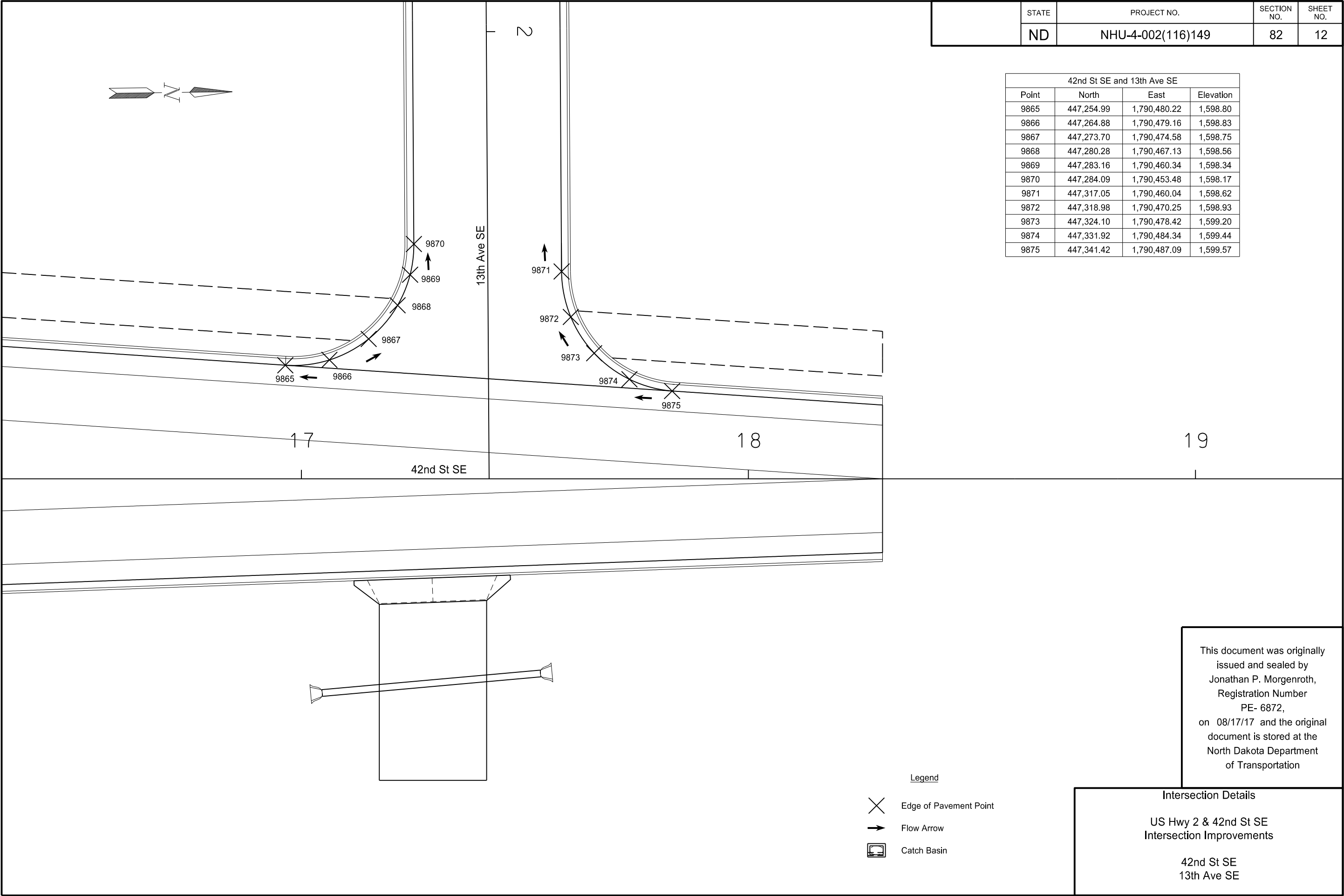
42nd St SE and US Hwy 2 Frontage Road			
Point	North	East	Elevation
9801	447,048.00	1,790,481.01	1,597.04
9802	447,038.60	1,790,482.37	1,596.97
9803	447,031.18	1,790,481.86	1,596.86
9804	447,021.61	1,790,479.04	1,596.60
9805	447,013.04	1,790,473.94	1,596.33
9806	447,005.99	1,790,466.88	1,596.06
9807	447,000.91	1,790,458.30	1,595.80
9808	446,960.71	1,790,457.93	1,595.23
9809	446,964.59	1,790,467.13	1,595.44
9810	446,966.57	1,790,476.92	1,595.61
9811	446,966.56	1,790,486.90	1,595.79
9812	446,964.57	1,790,496.68	1,595.98
9813	446,960.68	1,790,505.87	1,596.15
9814	446,953.70	1,790,515.63	1,596.32
9815	446,947.80	1,790,521.11	1,596.30
9816	446,941.90	1,790,525.13	1,596.25

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Intersection Details

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
West Frontage Road



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	82	12

42nd St SE and 13th Ave SE			
Point	North	East	Elevation
9865	447,254.99	1,790,480.22	1,598.80
9866	447,264.88	1,790,479.16	1,598.83
9867	447,273.70	1,790,474.58	1,598.75
9868	447,280.28	1,790,467.13	1,598.56
9869	447,283.16	1,790,460.34	1,598.34
9870	447,284.09	1,790,453.48	1,598.17
9871	447,317.05	1,790,460.04	1,598.62
9872	447,318.98	1,790,470.25	1,598.93
9873	447,324.10	1,790,478.42	1,599.20
9874	447,331.92	1,790,484.34	1,599.44
9875	447,341.42	1,790,487.09	1,599.57

Legend

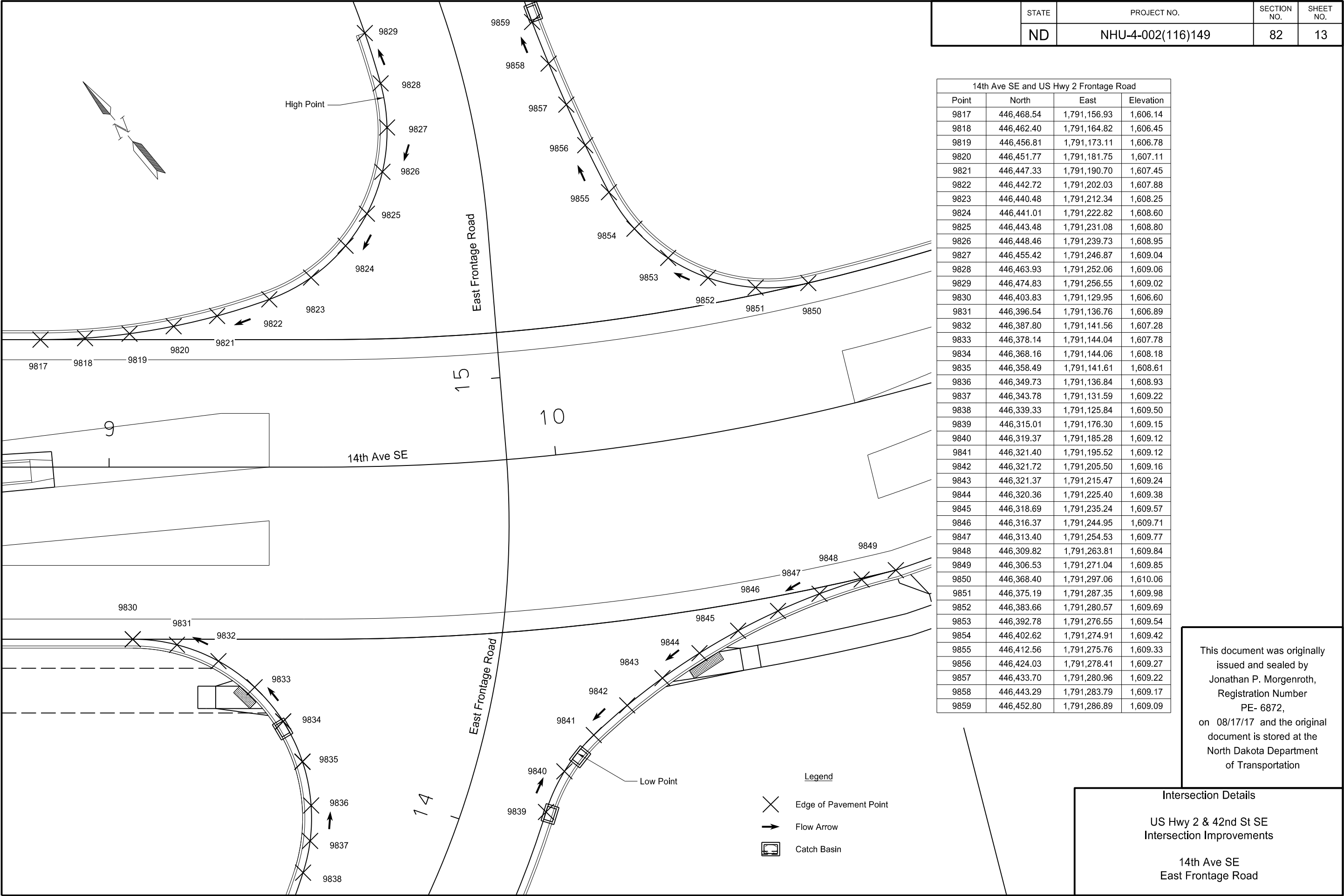
- ✕ Edge of Pavement Point
- ➔ Flow Arrow
- ☐ Catch Basin

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Intersection Details

US Hwy 2 & 42nd St SE
Intersection Improvements

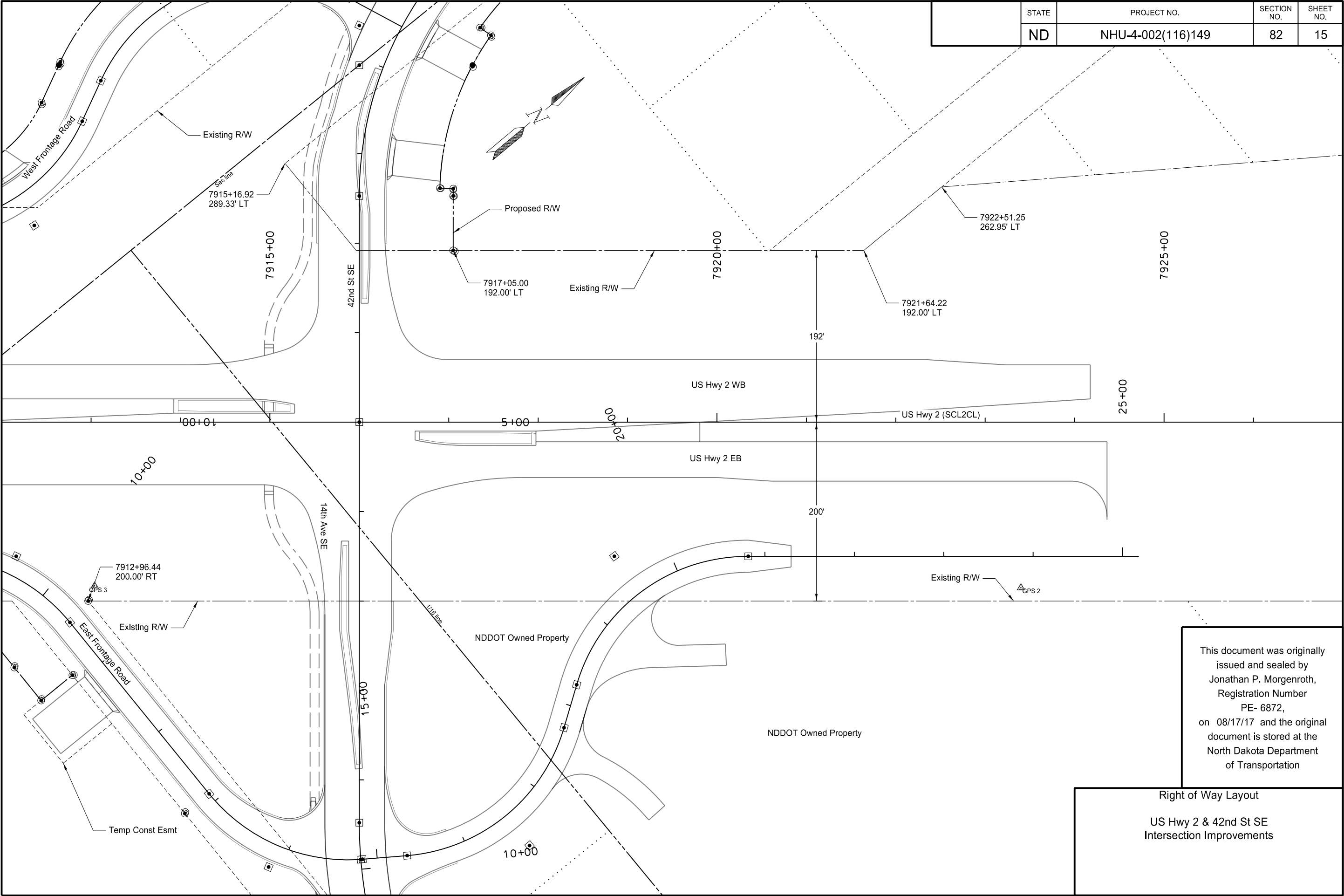
42nd St SE
13th Ave SE



14th Ave SE and US Hwy 2 Frontage Road			
Point	North	East	Elevation
9817	446,468.54	1,791,156.93	1,606.14
9818	446,462.40	1,791,164.82	1,606.45
9819	446,456.81	1,791,173.11	1,606.78
9820	446,451.77	1,791,181.75	1,607.11
9821	446,447.33	1,791,190.70	1,607.45
9822	446,442.72	1,791,202.03	1,607.88
9823	446,440.48	1,791,212.34	1,608.25
9824	446,441.01	1,791,222.82	1,608.60
9825	446,443.48	1,791,231.08	1,608.80
9826	446,448.46	1,791,239.73	1,608.95
9827	446,455.42	1,791,246.87	1,609.04
9828	446,463.93	1,791,252.06	1,609.06
9829	446,474.83	1,791,256.55	1,609.02
9830	446,403.83	1,791,129.95	1,606.60
9831	446,396.54	1,791,136.76	1,606.89
9832	446,387.80	1,791,141.56	1,607.28
9833	446,378.14	1,791,144.04	1,607.78
9834	446,368.16	1,791,144.06	1,608.18
9835	446,358.49	1,791,141.61	1,608.61
9836	446,349.73	1,791,136.84	1,608.93
9837	446,343.78	1,791,131.59	1,609.22
9838	446,339.33	1,791,125.84	1,609.50
9839	446,315.01	1,791,176.30	1,609.15
9840	446,319.37	1,791,185.28	1,609.12
9841	446,321.40	1,791,195.52	1,609.12
9842	446,321.72	1,791,205.50	1,609.16
9843	446,321.37	1,791,215.47	1,609.24
9844	446,320.36	1,791,225.40	1,609.38
9845	446,318.69	1,791,235.24	1,609.57
9846	446,316.37	1,791,244.95	1,609.71
9847	446,313.40	1,791,254.53	1,609.77
9848	446,309.82	1,791,263.81	1,609.84
9849	446,306.53	1,791,271.04	1,609.85
9850	446,368.40	1,791,297.06	1,610.06
9851	446,375.19	1,791,287.35	1,609.98
9852	446,383.66	1,791,280.57	1,609.69
9853	446,392.78	1,791,276.55	1,609.54
9854	446,402.62	1,791,274.91	1,609.42
9855	446,412.56	1,791,275.76	1,609.33
9856	446,424.03	1,791,278.41	1,609.27
9857	446,433.70	1,791,280.96	1,609.22
9858	446,443.29	1,791,283.79	1,609.17
9859	446,452.80	1,791,286.89	1,609.09

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Intersection Details
US Hwy 2 & 42nd St SE
Intersection Improvements
14th Ave SE
East Frontage Road



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	82	15

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Right of Way Layout
US Hwy 2 & 42nd St SE
Intersection Improvements

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED				TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
			BY PHASE NO.						
			1	2	3	4			
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)						6	
G20-1-60	60"x24"	ROAD WORK NEXT ____ MILES						34	
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	4	4	4	4	4	19	76
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)						18	
G20-10-108	108"x48"	CONTRACTOR SIGN					2	64	128
G20-50a-72	72"x36"	ROAD WORK NEXT ____ MILES RT & LT ARROWS						37	
G20-52a-72	72"x24"	ROAD WORK NEXT ____ MILES RT or LT ARROW						30	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT	4	4	4	4	4	59	236
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)	26	26	26	26	26	7	182
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	7	7	7	7	7	49
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	7	7	7	7	7	49
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)	1	1	1	1	1	7	7
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)	6	6	6	6	6	7	42
R1-1-48	48"x48"	STOP		2	2	2	2	32	64
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back	2	2	2	2	2	5	10
R1-2-60	60"x60"	YIELD		3	3	3	3	29	87
R2-1-48	48"x60"	SPEED LIMIT ____	9	9	9	9	9	39	351
R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	5	5	5	5	5	10	50
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT						35	
R4-1-48	48"x60"	DO NOT PASS						39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL						39	
R5-1-48	48"x48"	DO NOT ENTER		2	2	2	2	35	70
R5-1a-42	42"x30"	WRONG WAY		2	2	2	2	26	52
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT	4	4	4		4	13	52
R7-1-12	12"x18"	NO PARKING						11	
R9-9-24	24"x12"	SIDEWALK CLOSED		1	1	1	1	12	12
R10-6-24	24"x36"	STOP HERE ON RED						16	
R11-2-48	48"x30"	ROAD CLOSED	1	13	13	13	13	28	364
R11-2a-48	48"x30"	STREET CLOSED	1	2	2	2	2	28	56
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	2	2	2	2	2	31	62
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		3	3	3	3	26	78
W3-1-48	48"x48"	STOP AHEAD SYMBOL						35	
W3-2-48	48"x48"	YIELD AHEAD SYMBOL		1	1	1	1	35	35
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL						35	
W3-4-48	48"x48"	BE PREPARED TO STOP						35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD	4	4	4	4	4	35	140
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		4	4	4	4	35	140
W5-1-48	48"x48"	ROAD NARROWS						35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE						35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW						35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL						35	
W8-1-48	48"x48"	BUMP	4	4	4	4	4	35	140
W8-3-48	48"x48"	PAVEMENT ENDS	4	4	4	4	4	35	140
W8-7-48	48"x48"	LOOSE GRAVEL						35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF						35	
W8-11-48	48"x48"	UNEVEN LANES						35	
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.						35	
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	5	5	5	5	5	35	175
W20-2-48	48"x48"	DETOUR AHEAD or ____ FT	3	3	3	3	3	35	105
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or ____ FT.	3	3	3	3	3	35	105
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or ____ FT.						35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or ____ FT.		4	4	4	4	35	140
W20-7a-48	48"x48"	FLAGGING SYMBOL	2	2	2	2	2	35	70
W20-7k-24	24"x18"	____ FEET (Mounted on warning sign post)						10	
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)						12	

[illegible][illegible]

SPEC & CODE			
704-1000	TRAFFIC CONTROL SIGNS	TOTAL UNITS	4489

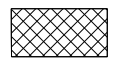
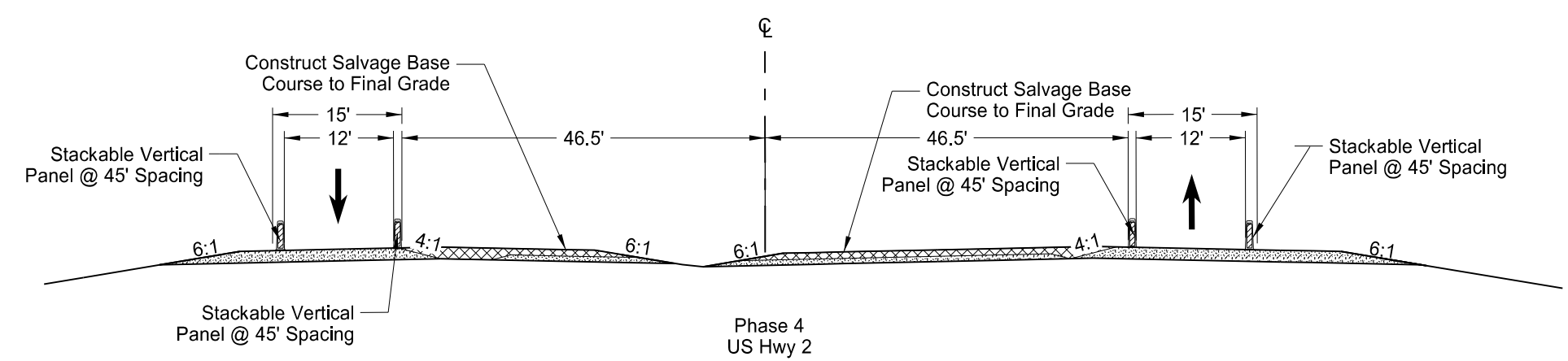
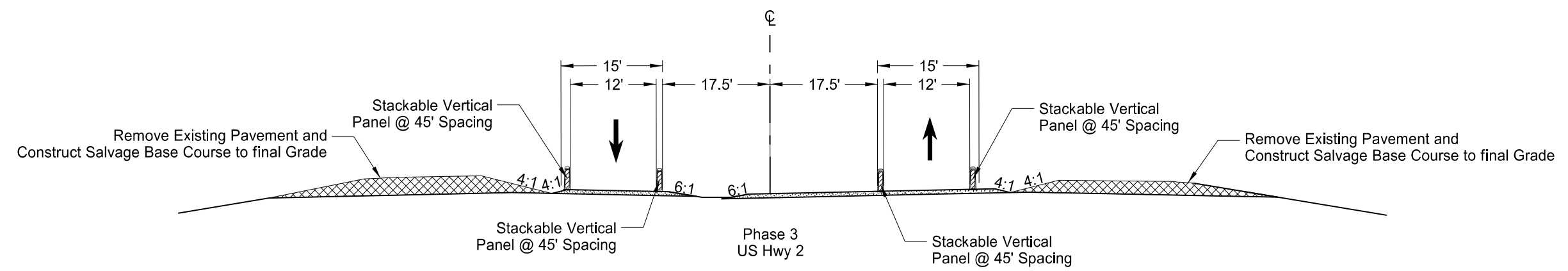
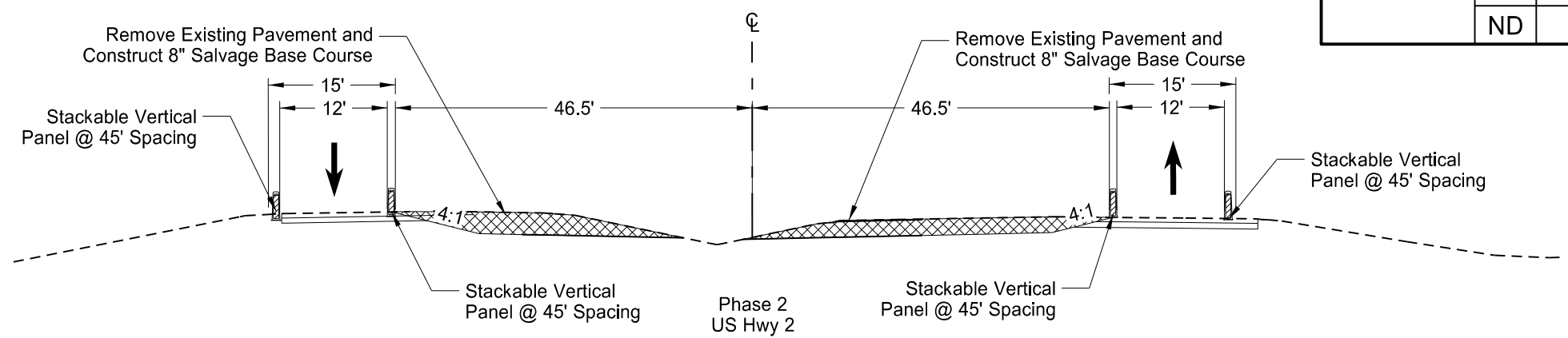
[illegible]

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/>

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Traffic Control Devices List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	100	3



Work Area

Phase 5: Construct Asphalt Pavement Utilizing Lane Closures

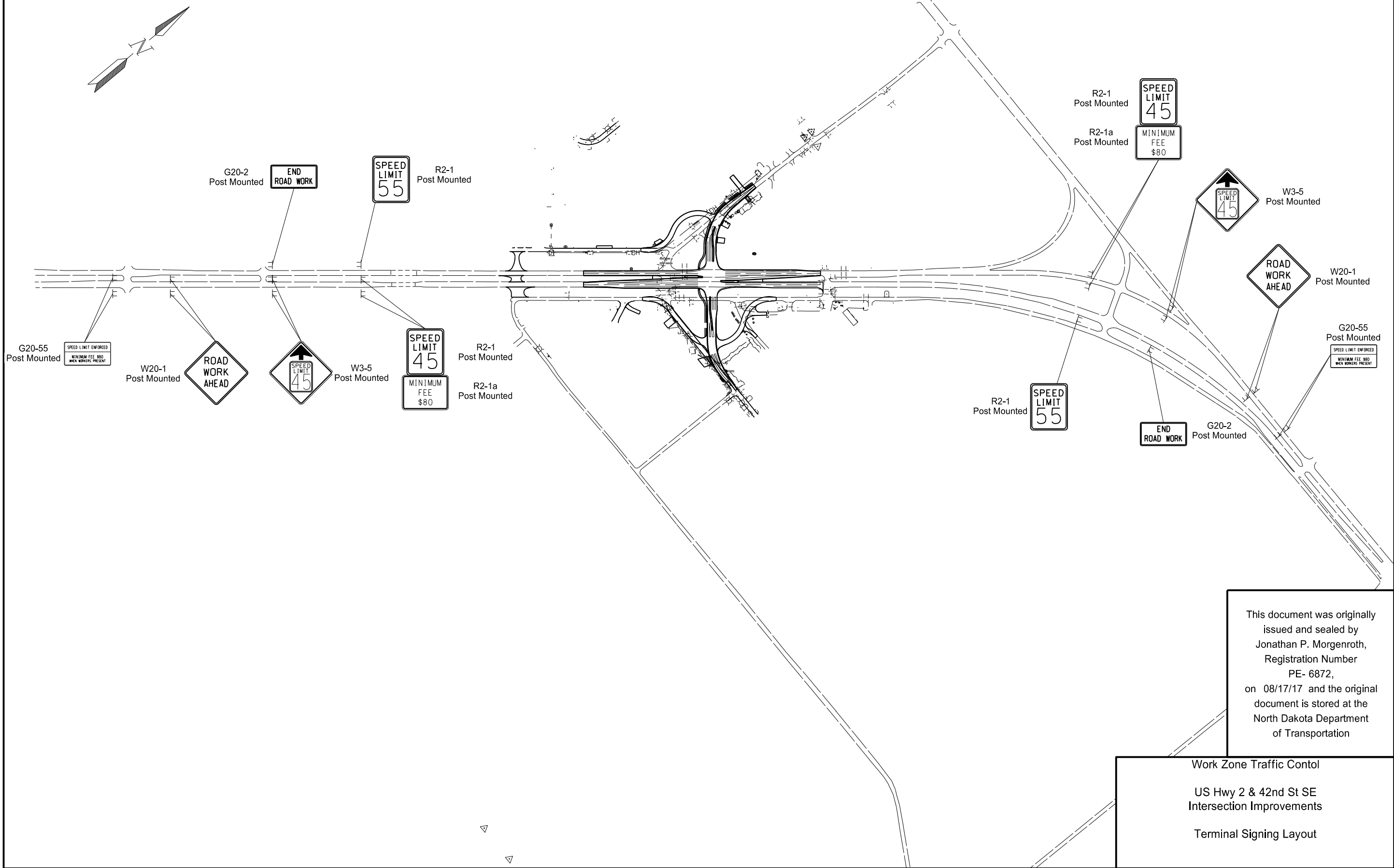
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Work Zone Traffic Control

US Hwy 2 & 42nd St SE Intersection Improvements

Typical Sections Phase 2 to 4

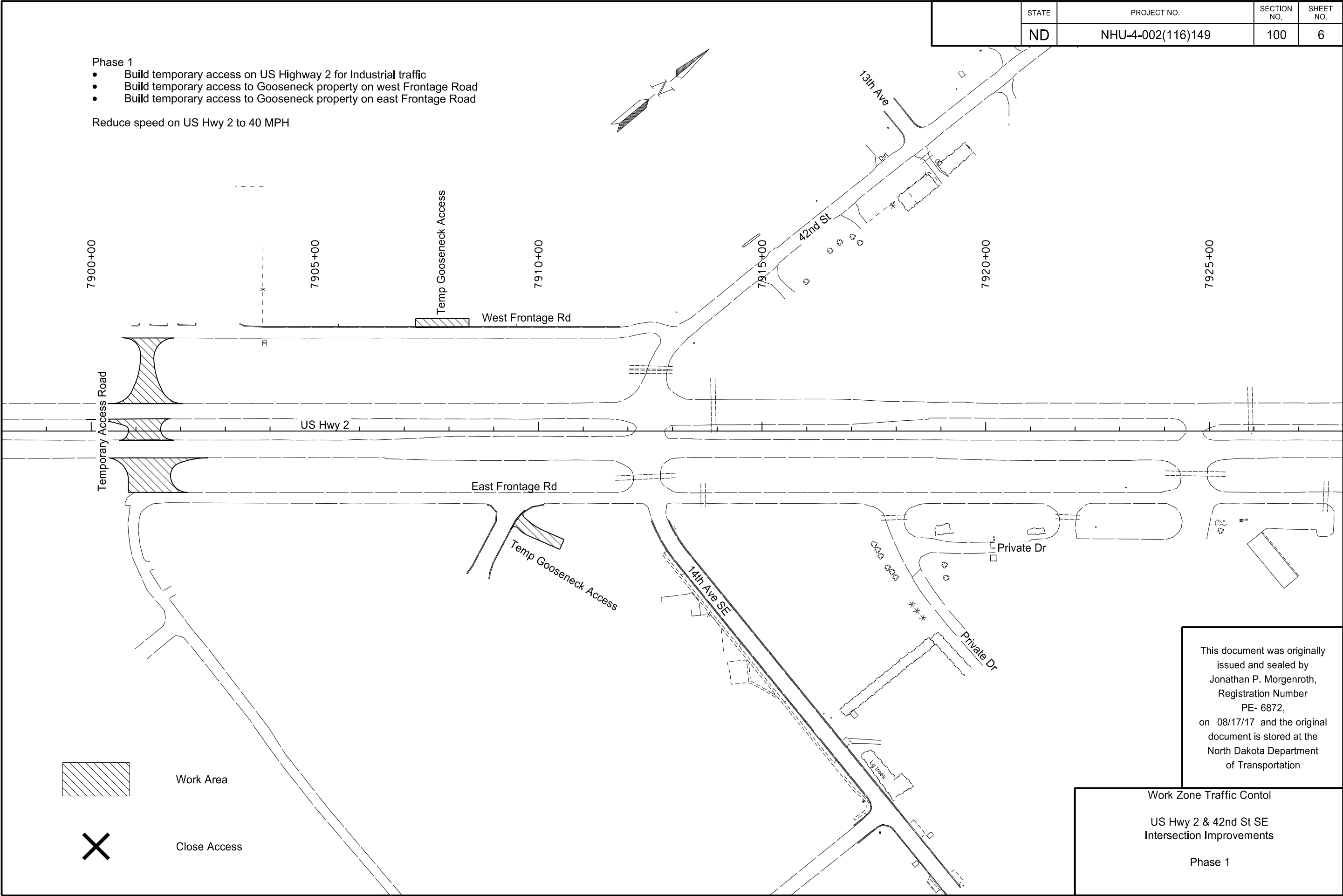
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	100	4



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	100	6

- Phase 1
- Build temporary access on US Highway 2 for industrial traffic
 - Build temporary access to Gooseneck property on west Frontage Road
 - Build temporary access to Gooseneck property on east Frontage Road

Reduce speed on US Hwy 2 to 40 MPH



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Work Zone Traffic Control

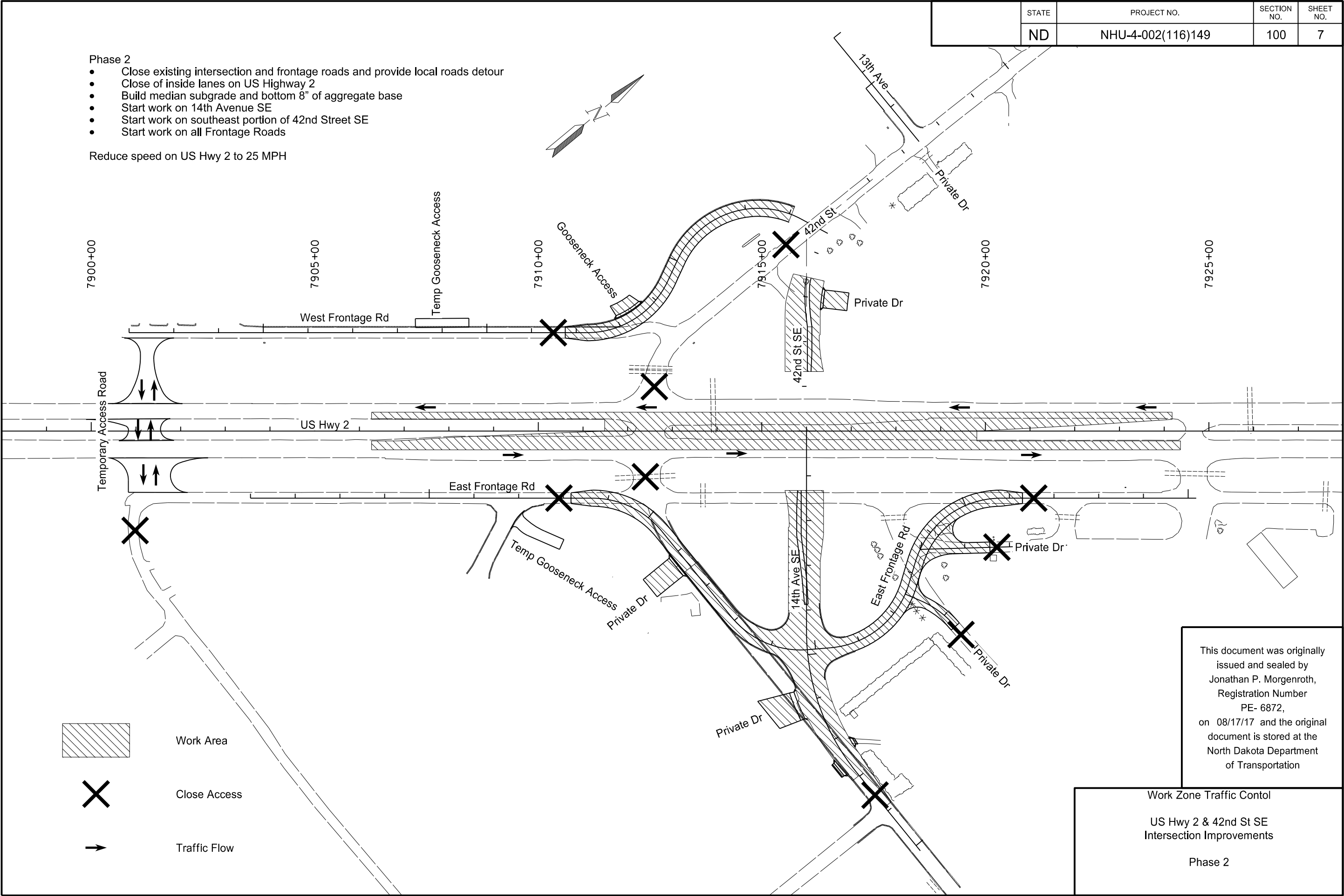
US Hwy 2 & 42nd St SE
Intersection Improvements

Phase 1

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	100	7

- Phase 2
- Close existing intersection and frontage roads and provide local roads detour
 - Close of inside lanes on US Highway 2
 - Build median subgrade and bottom 8" of aggregate base
 - Start work on 14th Avenue SE
 - Start work on southeast portion of 42nd Street SE
 - Start work on all Frontage Roads

Reduce speed on US Hwy 2 to 25 MPH



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Work Zone Traffic Control

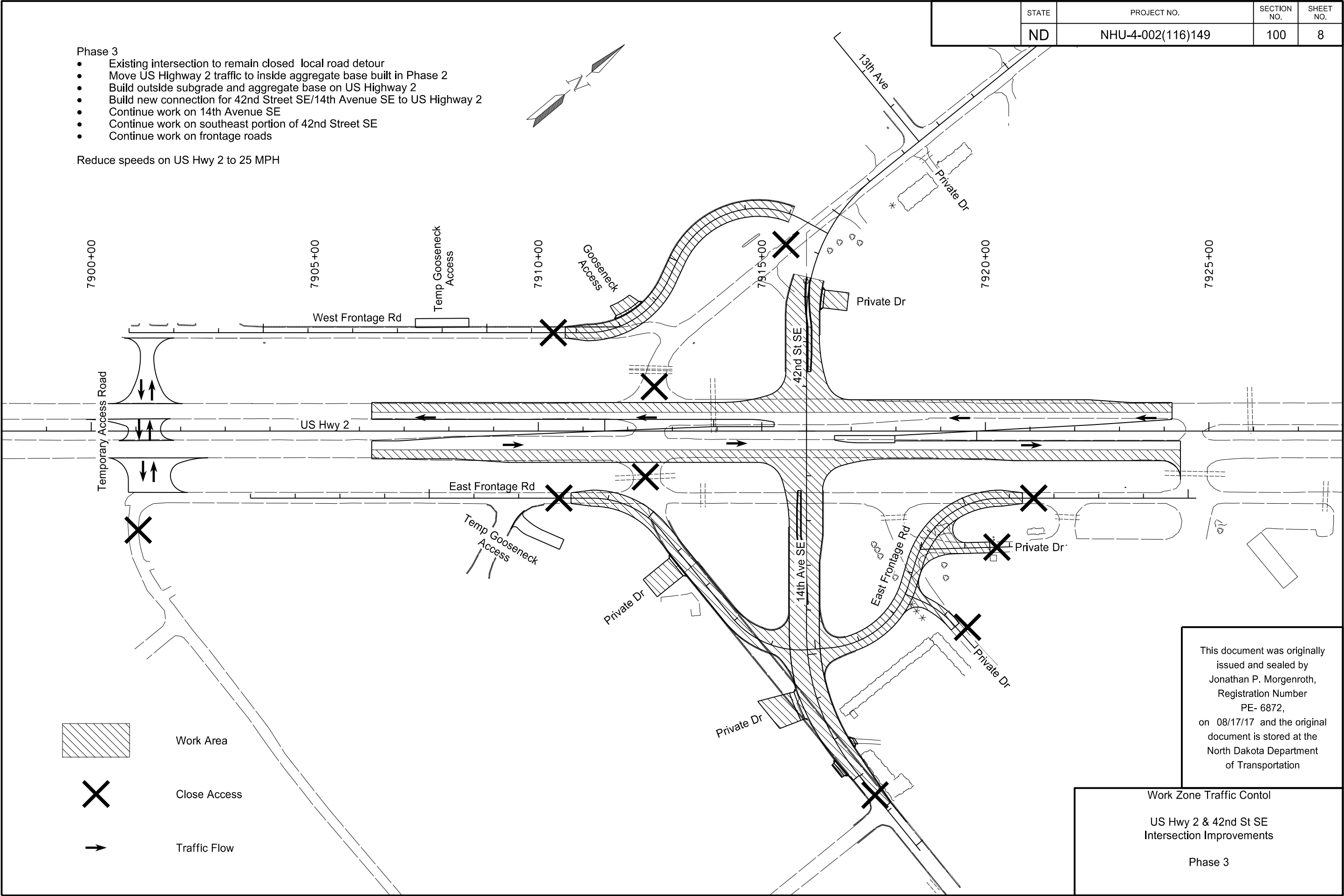
US Hwy 2 & 42nd St SE Intersection Improvements

Phase 2

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	100	8

- Phase 3
- Existing intersection to remain closed local road detour
 - Move US Highway 2 traffic to inside aggregate base built in Phase 2
 - Build outside subgrade and aggregate base on US Highway 2
 - Build new connection for 42nd Street SE/14th Avenue SE to US Highway 2
 - Continue work on 14th Avenue SE
 - Continue work on southeast portion of 42nd Street SE
 - Continue work on frontage roads

Reduce speeds on US Hwy 2 to 25 MPH



Work Area

X

Close Access

→

Traffic Flow

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Work Zone Traffic Control

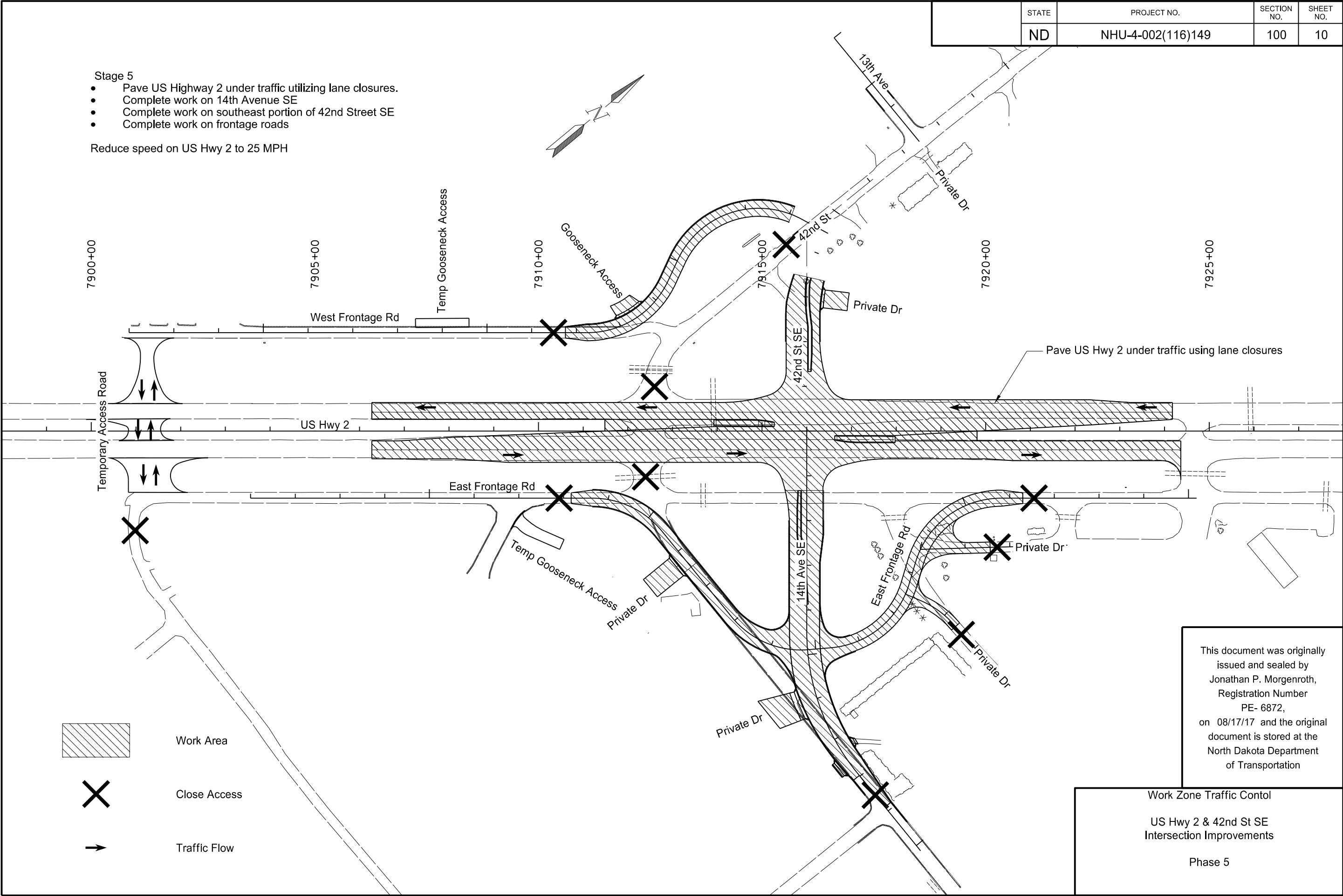
US Hwy 2 & 42nd St SE Intersection Improvements

Phase 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	100	10

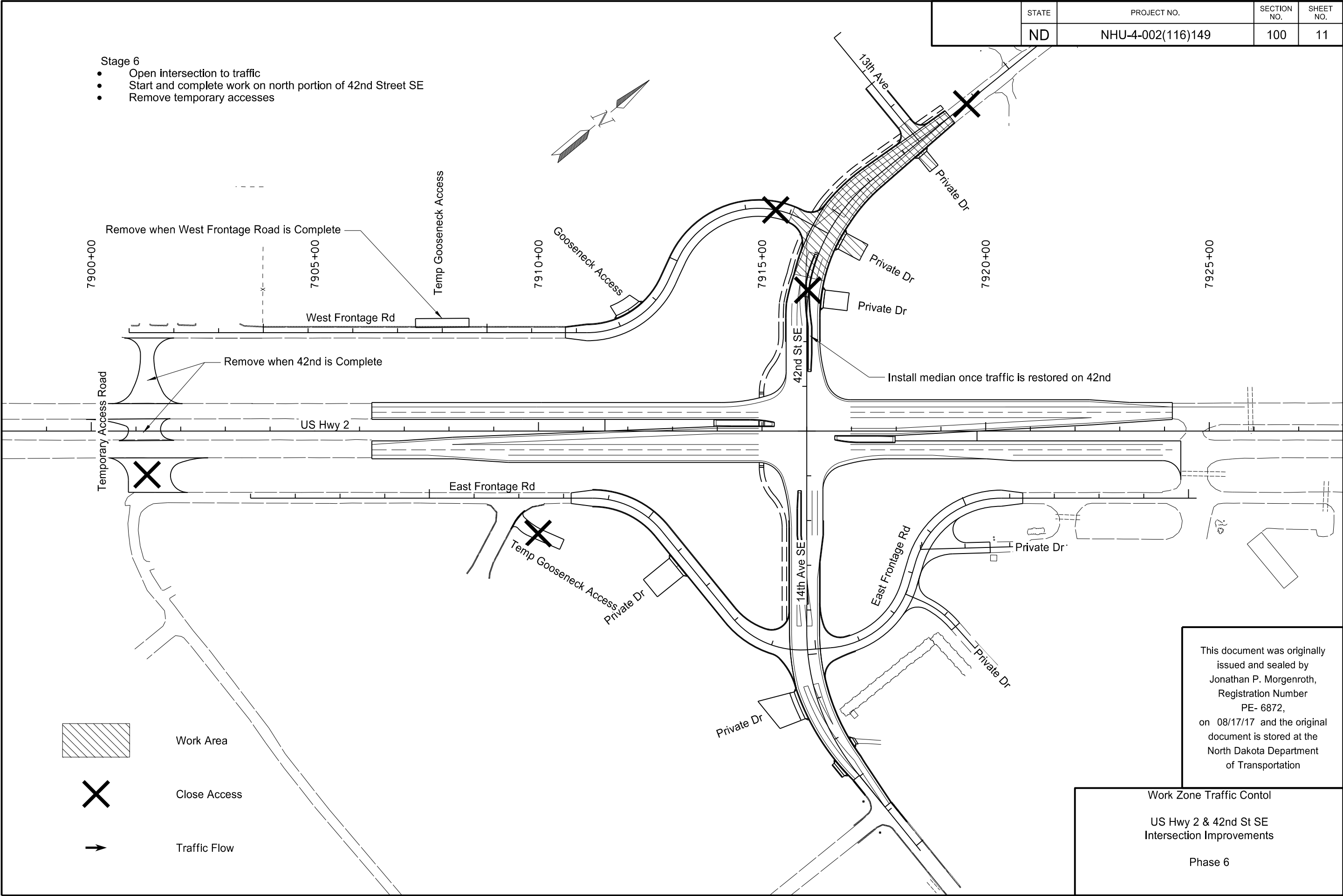
- Stage 5
- Pave US Highway 2 under traffic utilizing lane closures.
 - Complete work on 14th Avenue SE
 - Complete work on southeast portion of 42nd Street SE
 - Complete work on frontage roads

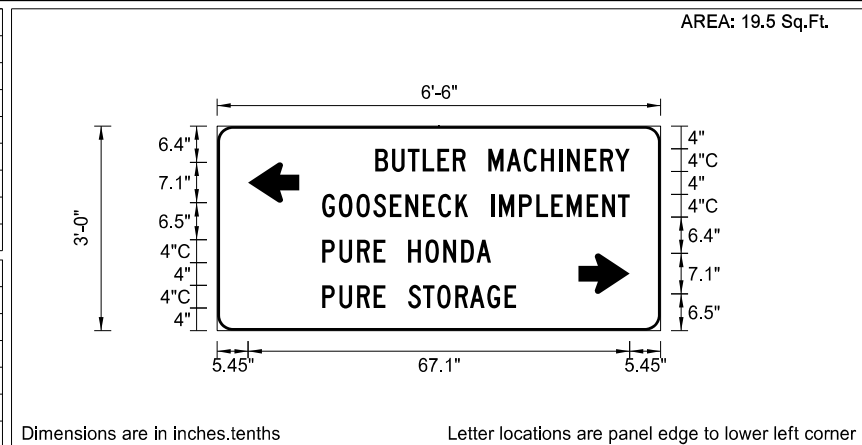
Reduce speed on US Hwy 2 to 25 MPH

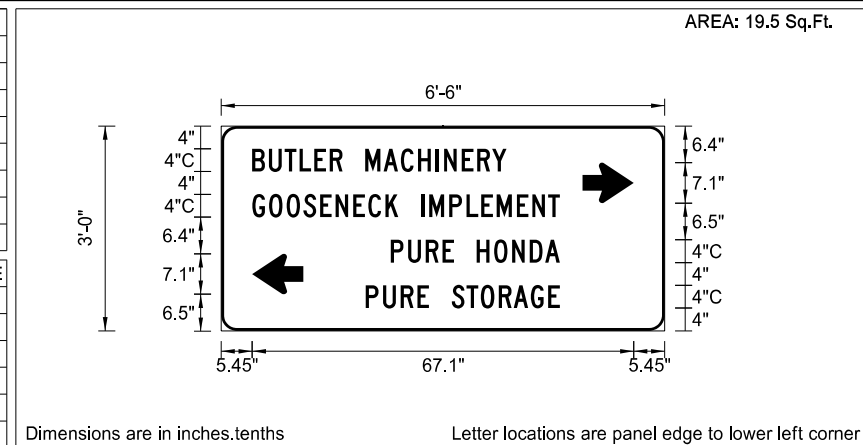


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	100	11

- Stage 6
 - Open intersection to traffic
 - Start and complete work on north portion of 42nd Street SE
 - Remove temporary accesses







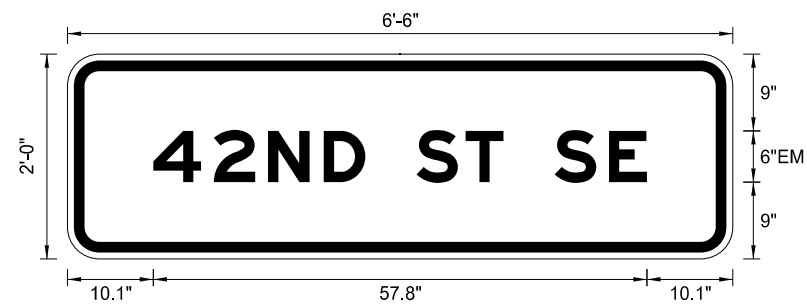
Sign Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	100	13

SIGN NUMBER	CONST SN 3
WIDTH x HEIGHT	6'-6" x 2'-0"
BORDER WIDTH	1.25" (inset 0.75")
CORNER RADIUS	3"
MOUNTING	Overhead
BACKGROUND	TYPE: XI High Intensity
	COLOR: Orange
LEGEND/BORDER	TYPE: Non-reflective
	COLOR: Black

[illegible]STATION(S):
none

AREA: 13.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Conv_Detour.ss

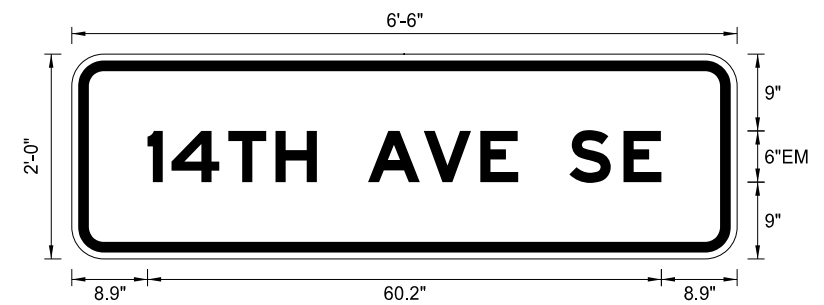
[illegible]

SIGN NUMBER	CONST SN 4
WIDTH x HEIGHT	6'-6" x 2'-0"
BORDER WIDTH	1.25" (inset 0.75")
CORNER RADIUS	3"
MOUNTING	Overhead
BACKGROUND	TYPE: <u>XI High Intensity</u>
	COLOR: Orange
LEGEND/BORDER	TYPE: Non-reflective
	COLOR: Black

[illegible]

STATION(S):
none

AREA: 13.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Conv_Detour.ssi

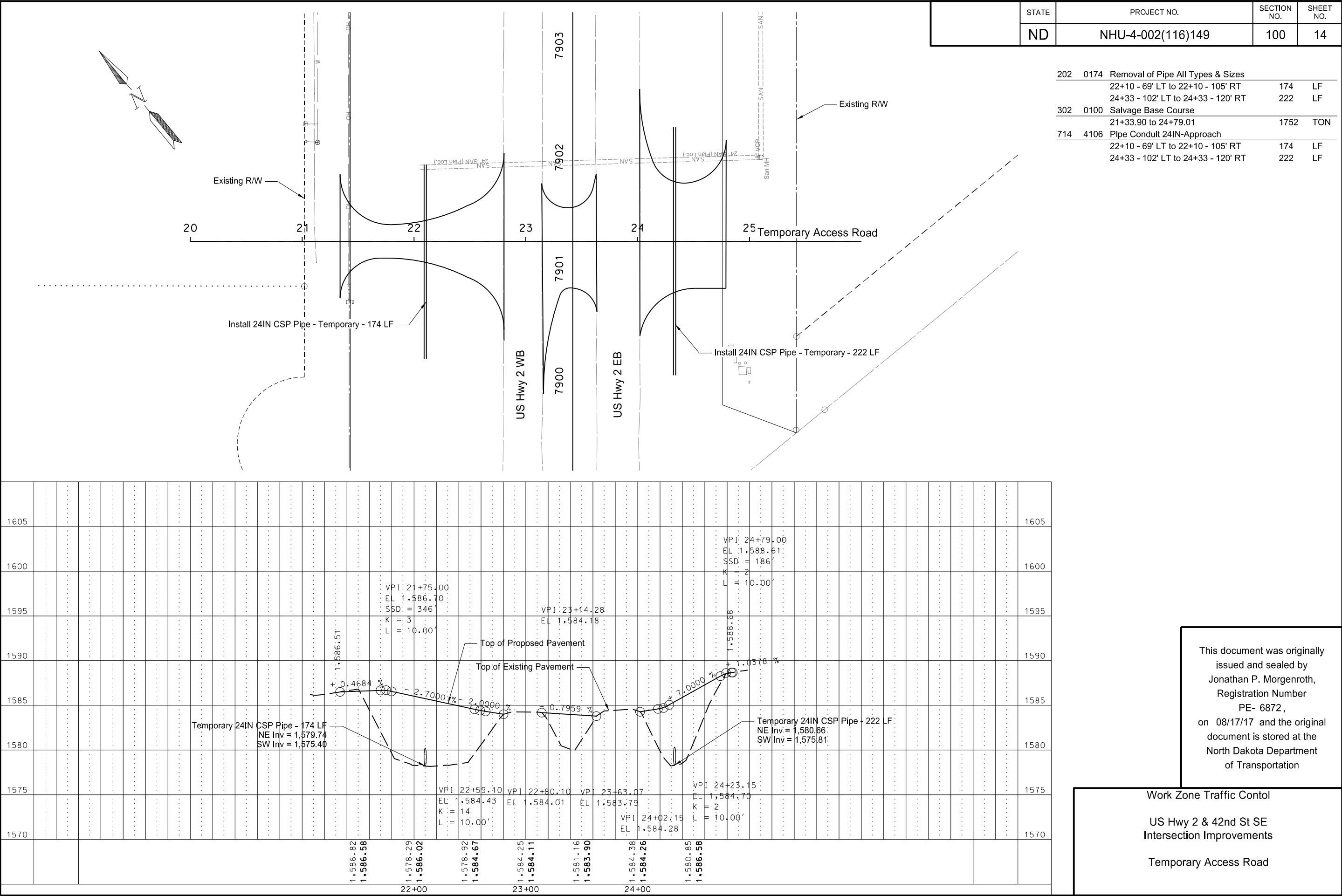
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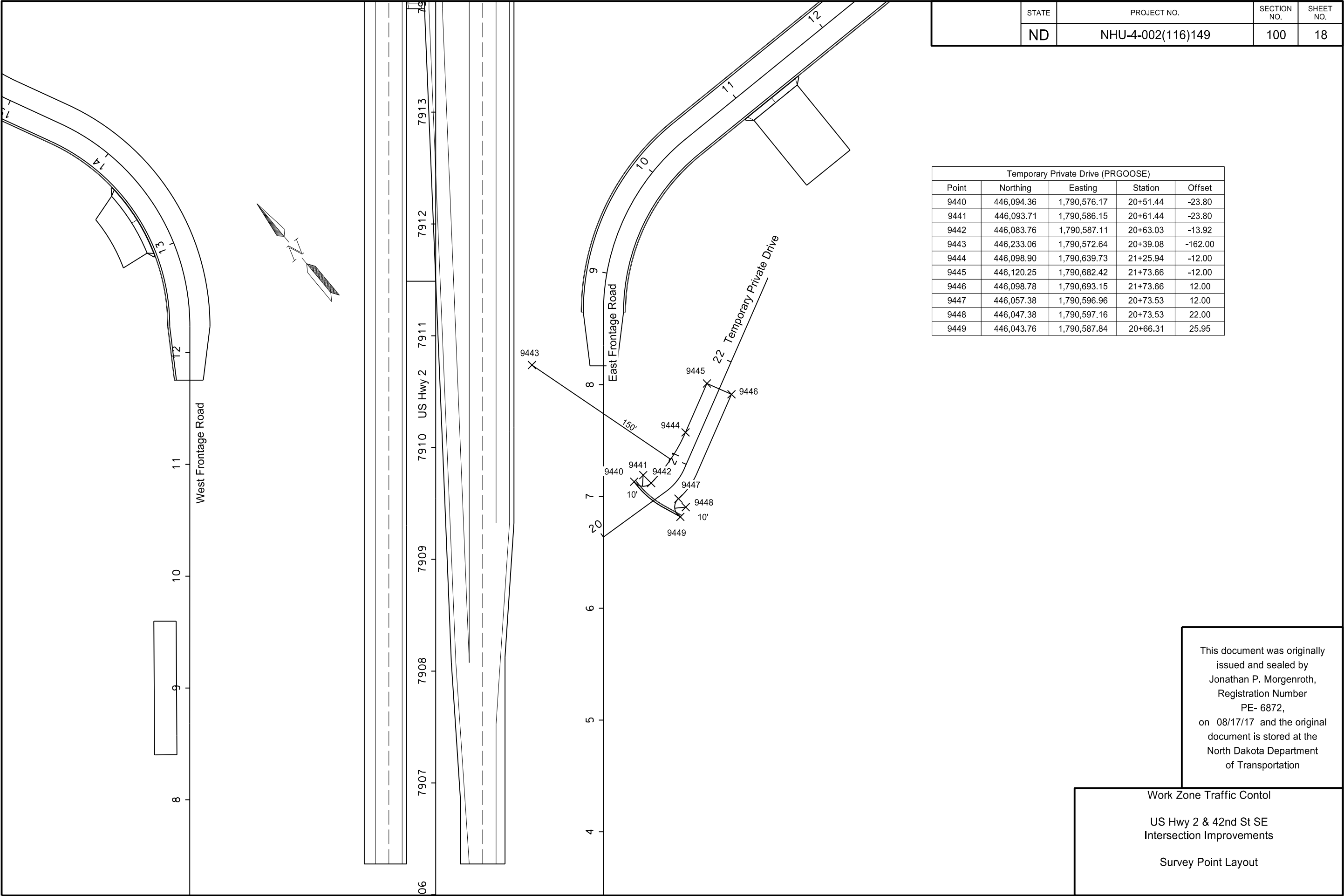
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Work Zone Traffic Control

US Hwy 2 & 42nd St SE
Intersection Improvements

Sign Details





Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF			1st LF	2nd LF	3rd LF	4th LF								
US Hwy 2																						
7905+28 Rt		21		16.0	15.7	16.2			2.5 x 2.5 12 ga	20.0	3.7	4.2			2.25 x 2.25 12 ga	2	4	3 x 3 7 ga			2	
7909+28 Rt		58		19.0	17.5	17.7	17.9		2.5 x 2.5 10 ga	19.4						3	4	3 x 3 7 ga			3	
7909+28 Rt mdn		58		19.0	17.1	17.1	17.1		2.5 x 2.5 10 ga	19.4						3	4	3 x 3 7 ga			3	
7911+54 Lt		11		12.0	14.5	14.9			2.5 x 2.5 12 ga	16.0						2	4	3 x 3 7 ga			2	
7913+54 Lt	SA A		13.5		15.9				2.5 x 2.5 10 ga	16.3	5.7				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
7914+63 Lt mdn	SN 4			12.0																	Mount on Mast Arm	
7914+64 Lt mdn	SN 4			12.0																	Mount on Mast Arm	
7914+90 Lt mdn		11		12.0	9.9				2.25 x 2.25 12 ga	11.2	3.0				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
7914+93 Lt	SN 2		51.8																		Mount on Mast Arm	
7915+39 Rt	SN 1		15.0																		Mount on Mast Arm	
7915+87 Rt	SN 4			12.0																	Mount on Mast Arm	
7916+03 Lt	SN 4			12.0																	Mount on Mast Arm	
7916+52 Lt	SN 1		15.0																		Mount on Mast Arm	
7916+69 Rt	SN 3		51.8																		Mount on Mast Arm	
7916+82 Rt mdn		11		12.0	9.9				2.25 x 2.25 12 ga	11.2	3.0				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
7916+93 Rt mdn	SN 4			12.0																	Mount on Mast Arm	
7916+94 Rt mdn	SN 4			12.0																	Mount on Mast Arm	
7918+38 Rt	SA A		13.5		15.9				2.5 x 2.5 10 ga	16.3	5.6				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
7919+38 Rt	SN 5		31.5		14.4	15.1	16.0	16.9	2.5 x 2.5 12 ga	19.9	2.7	3.4	4.3	5.2	2.25 x 2.25 12 ga	4	4	3 x 3 7 ga			4	
7922+30 Lt		58		19.0	17.6	17.7	17.9		2.5 x 2.5 10 ga	19.4						3	4	3 x 3 7 ga			3	
7922+30 Lt mdn		58		19.0	17.0	17.0	17.0		2.5 x 2.5 10 ga	19.4						3	4	3 x 3 7 ga			3	
7924+29 Rt mdn		450	9.9		14.5				2.25 x 2.25 12 ga	19.1	2.8				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
7926+30 Lt		21		16.0	15.3	15.6			2.5 x 2.5 12 ga	20.0	3.3	3.6			2.25 x 2.25 12 ga	2	4	3 x 3 7 ga			2	
7926+50 Rt		11		12.0	13.9				2.5 x 2.5 12 ga	14.3	5.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
Sub Total			202.0	228.0	Total 443.2											Total	112		0	0	28	

Basis of Estimate
Sign Support Lengths

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

Areas where parking and/or pedestrian movement will occur - 84"
Urban/rural expressway and freeway - 84" (Offset - 60")
Rural Roadway - 60"
Bike route - 60"

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Signing Summary

US Hwy 2 & 42nd St SE
Intersection Improvements

Perforated Tube

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments		
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF			1st LF	2nd LF	3rd LF	4th LF										
42nd St SE																								
11+48 Rt mdn		9		5.0	9.7			2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga							
12+54 Lt		437	8.4		11.8			2.5 x 2.5 12 ga	12.8						1	4	3 x 3 7 ga							
13+54 Lt			10.0		8.9			2.5 x 2.5 10 ga	11.1						1	4	3 x 3 7 ga			1				
13+82 Lt mdn		9		5.0	9.7			2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga							
16+50 Lt		20		9.0	10.4			2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga			1				
17+15 Lt	S.A.2E			5.2	10.4			2.25 x 2.25 12 ga	11.1						1	4	2.5 x 2.5 12 ga	1						
19+10 Lt		9		5.0	15.1			2.5 x 2.5 10 ga	18.5						1	4	3 x 3 7 ga			1				
19+10 Rt		9		5.0	14.2			2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga							
Sub Total			18.4	34.2	Total		90.2										Total	32			1	0	3	
14th Ave SE																								
06+48 Rt mdn		9		5.0	9.7			2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga							
07+53 Lt		437	8.4		16.7			2.5 x 2.5 12 ga	17.3	6.0				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1				
08+53 Lt			10.0		14.5			2.5 x 2.5 12 ga	15.7	5.2				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1				
08+73 Rt mdn		9		5.0	9.7			2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga							
13+15 Lt		20		9.0	10.4			2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga			1				
13+19 Rt		9		5.0																	Mount on Light Standard			
Sub Total			18.4	24.0	Total		61.0										Total	20			0	0	3	
West Frontage Road																								
05+50 Rt		9		5.0	13.5			2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga							
11+23 Rt		19		6.3	14.3			2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga							
15+00 Lt		9		5.0	14.3			2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga							
18+38 Rt		1		5.2	12.5			2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga							
Sub Total			0.0	21.5	Total		54.6										Total	16			0	0	0	

Basis of Estimate
Sign Support Lengths

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

Areas where parking and/or pedestrian movement will occur - 84"
Urban/rural expressway and freeway - 84" (Offset - 60")
Rural Roadway - 60"
Bike route - 60"

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Signing Summary

US Hwy 2 & 42nd St SE
Intersection Improvements

Perforated Tube

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments	
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF			1st LF	2nd LF	3rd LF	4th LF									
East Frontage Road																							
01+00 Rt		9		5.0	15.1				2.5 x 2.5 12 ga	15.4						1	4	3 x 3 7 ga					
12+00 Lt		9		5.0	13.4				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga					
14+12 Rt		1		5.2	8.2				2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga					
15+38 Lt		1		5.2	13.3				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga					
16+53 Rt		9		5.0	14.8				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga					
21+81 Lt		19		6.3	14.5				2.25 x 2.25 12 ga	19.3	3.0				2 x 2 12 ga	1	4	3 x 3 7 ga			1		
23+50 Lt		9		5.0	14.3				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga					
Sub Total				0.0	36.7	Total		93.6									Total	28			0	0	1
PRDOT																							
1+32 Lt		4		3.9	12.8				2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga					
1+83 Lt					13.0				2.5 x 2.5 12 ga	15.1						1	4	3 x 3 7 ga	1				
Sub Total				0.0	3.9	Total		25.8									Total	8			1	0	0
PRSCALE																							
1+82 Lt		4		3.9	13.3				2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga					
Sub Total				0.0	3.9	Total		13.3									Total	4			0	0	0
Grand Total				238.8	352.2	Total		781.7									Total	220			2	0	35

Basis of Estimate
Sign Support Lengths

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

Areas where parking and/or pedestrian movement will occur - 84"
Urban/rural expressway and freeway - 84" (Offset - 60")
Rural Roadway - 60"
Bike route - 60"

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Signing Summary

US Hwy 2 & 42nd St SE
Intersection Improvements

Perforated Tube

Sta/RP	Sign/ Assembly No.	Flat Sheet For Signs		Panel For Signs		Overlay Panel		Galv Steel Post Standard Pipe			Galv Steel Post W-Shape Posts			Max Post Len LF	Post Space FT	Revise Fuse Joint EA	Std Pipe Fdn			W-Shape Pile LF	Remove Sign Fdns		Reset Sign Panel EA	Reset Sign Support EA	Stub Post EA	Multi Dir Base EA	Comments	
		IV	XI	IV	XI	IV	XI	1st	2nd		1st	2nd	3rd				Dia	Dep	Vol		Conc Fdn	W-Shape Pile						
		SF	SF	SF	SF	SF	SF	LF	LF	Size	LF	LF	LF				FT	FT	CY		EA	EA						
US Hwy 2																												
7909+54 Lt					0.0					W8x31	23.8	25.0		27.4	7.3					28			1					
Sub Total		0.0	0.0	0.0	0.0	0.0	0.0	Total	0.0		Total	48.8							0.0	28	0	0	1	0	0	0		
Grand Total		0.0	0.0	0.0	0.0	0.0	0.0	Total	0.0		Total	48.8							0.0	28	0	0	1	0	0	0		

Basis of Estimate
Sign Support Lengths

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

- Areas where parking and/or pedestrian movement will occur - 84"
- Urban/rural expressway and freeway - 84" (Offset - 60")
- Rural Roadway - 60"

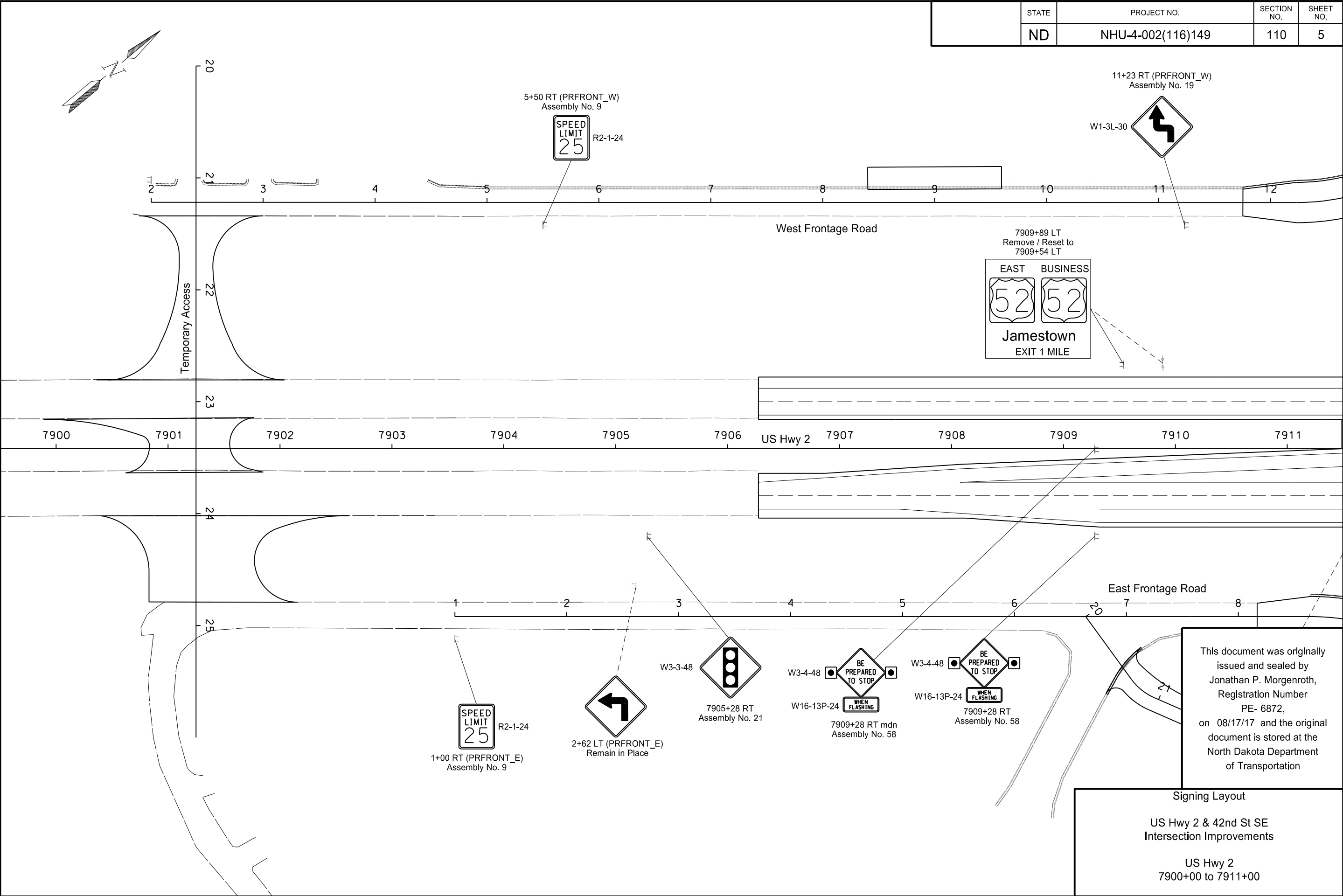
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Signing Summary

US Hwy 2 & 42nd St SE
Intersection Improvements

Round Steel Pipe and W-Shape

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	110	5

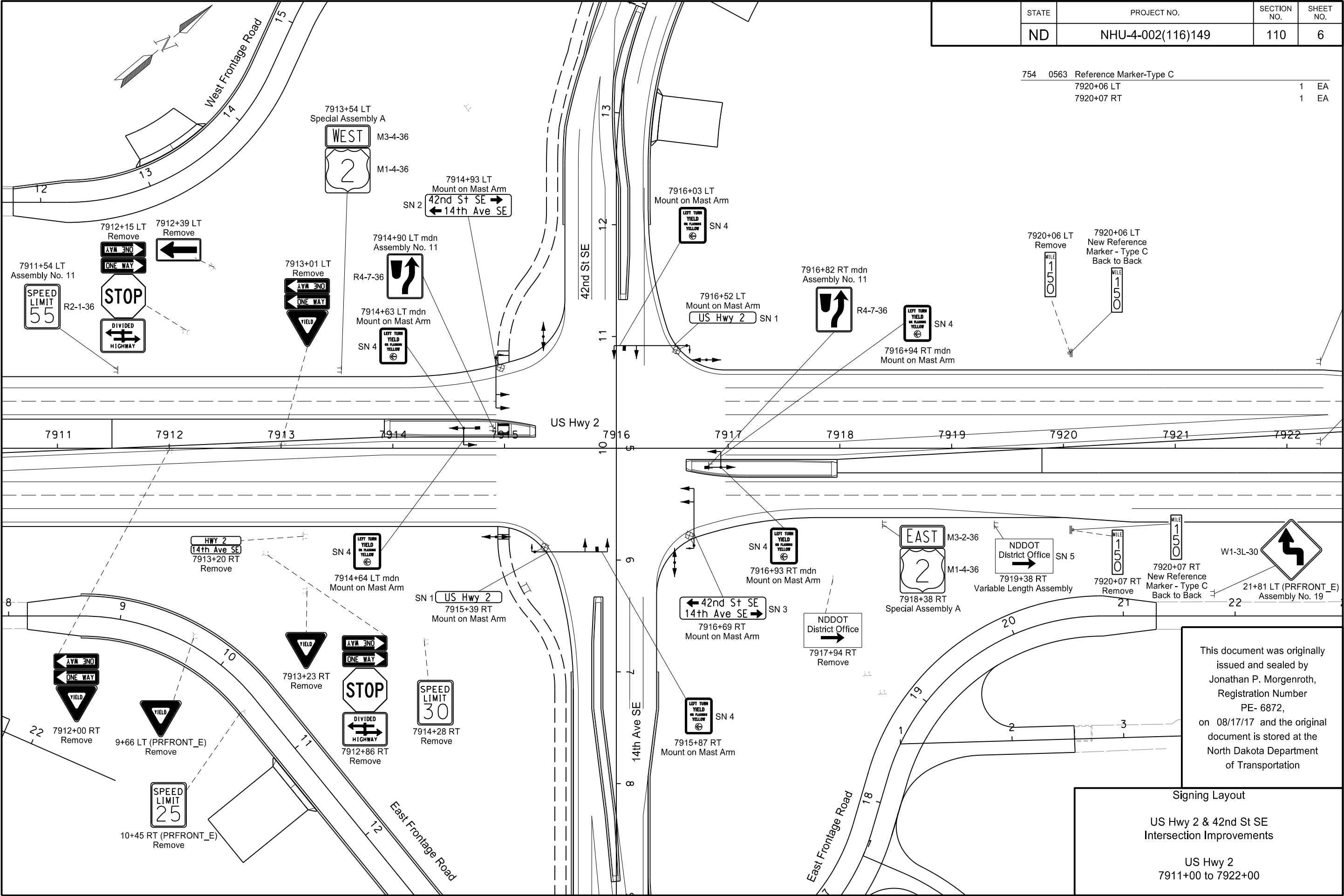


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Signing Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7900+00 to 7911+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-4-002(116)149	110	6

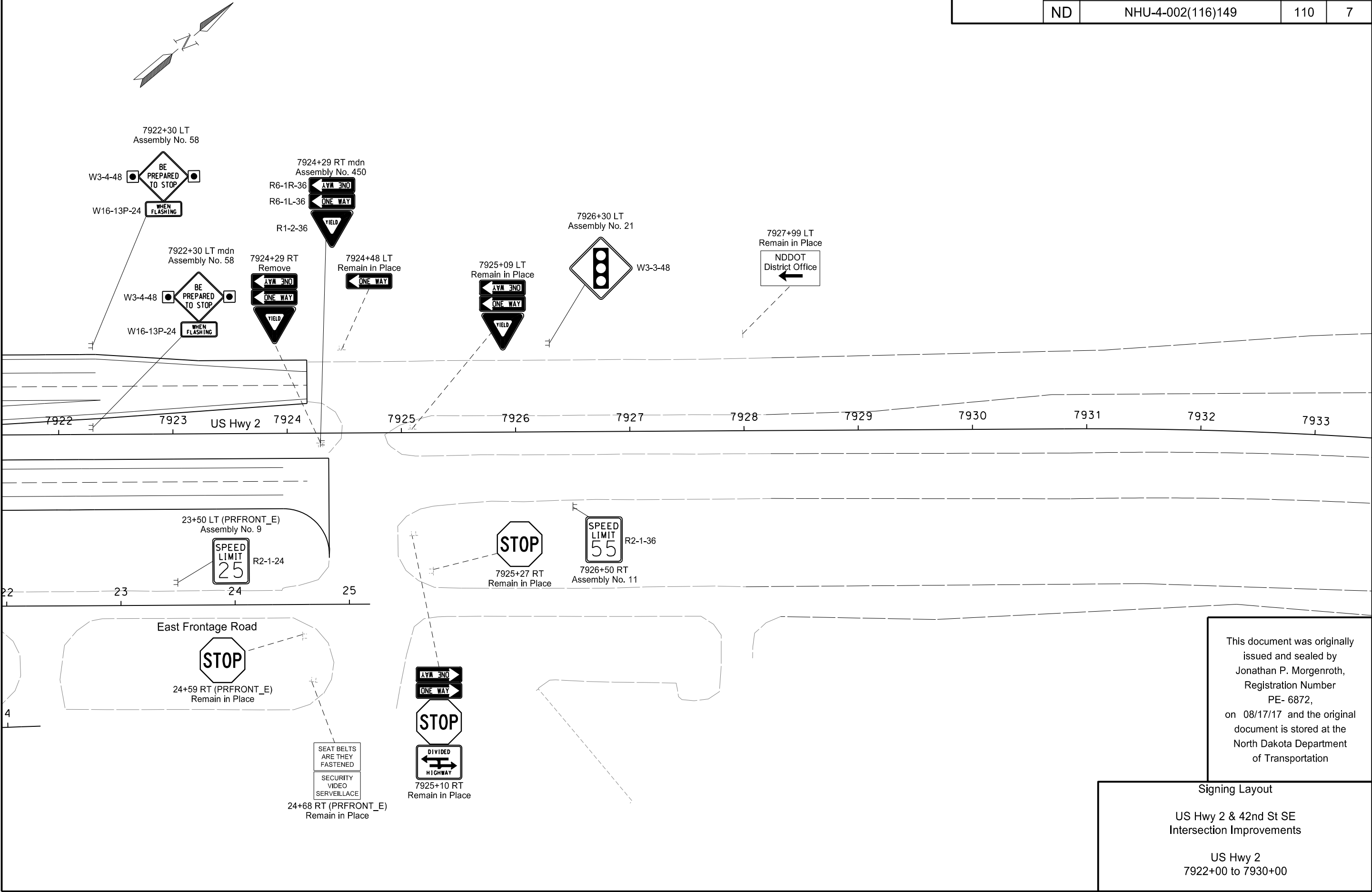
754	0563	Reference Marker-Type C		
		7920+06 LT	1	EA
		7920+07 RT	1	EA

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Signing Layout
US Hwy 2 & 42nd St SE
Intersection Improvements

US Hwy 2
7911+00 to 7922+00

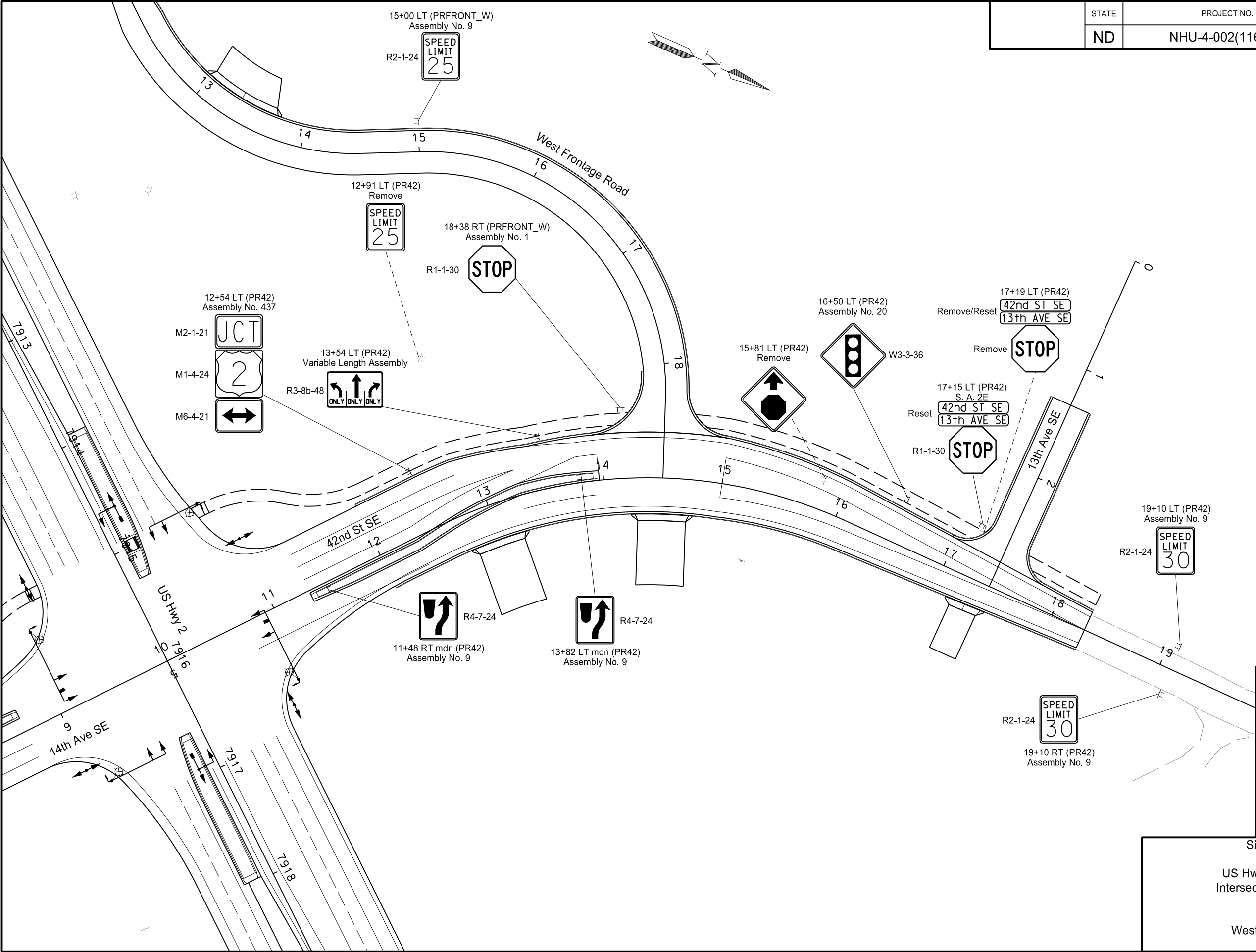
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	110	7



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Signing Layout
US Hwy 2 & 42nd St SE
Intersection Improvements
US Hwy 2
7922+00 to 7930+00

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	110	8



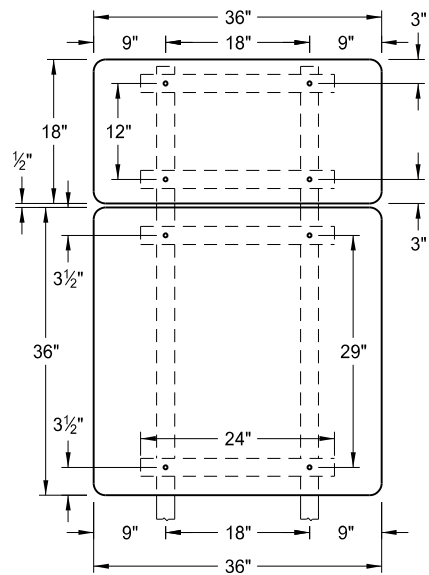
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Signing Layout

US Hwy 2 & 42nd St SE
Intersection Improvements

42nd St SE
West Frontage Road

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NHU-4-002(116)149	110	12



Special Assembly A
7913+54 LT
7918+38 RT

Design Area: 13.63 SF
Pay Area: 13.5 SF

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Signing Details

US Hwy 2 & 42nd St SE
Intersection Improvements

Special Assemblies