STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	20325	1	1

JOB # 24
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SOIA-CPU-7-804(049)247
FHWA Non Involvement
Mountrail County
From Jct. of ND 1804 & ND 23 North Approximately One Mile
Intersection Work at the Jct. ND 23 and ND 1804

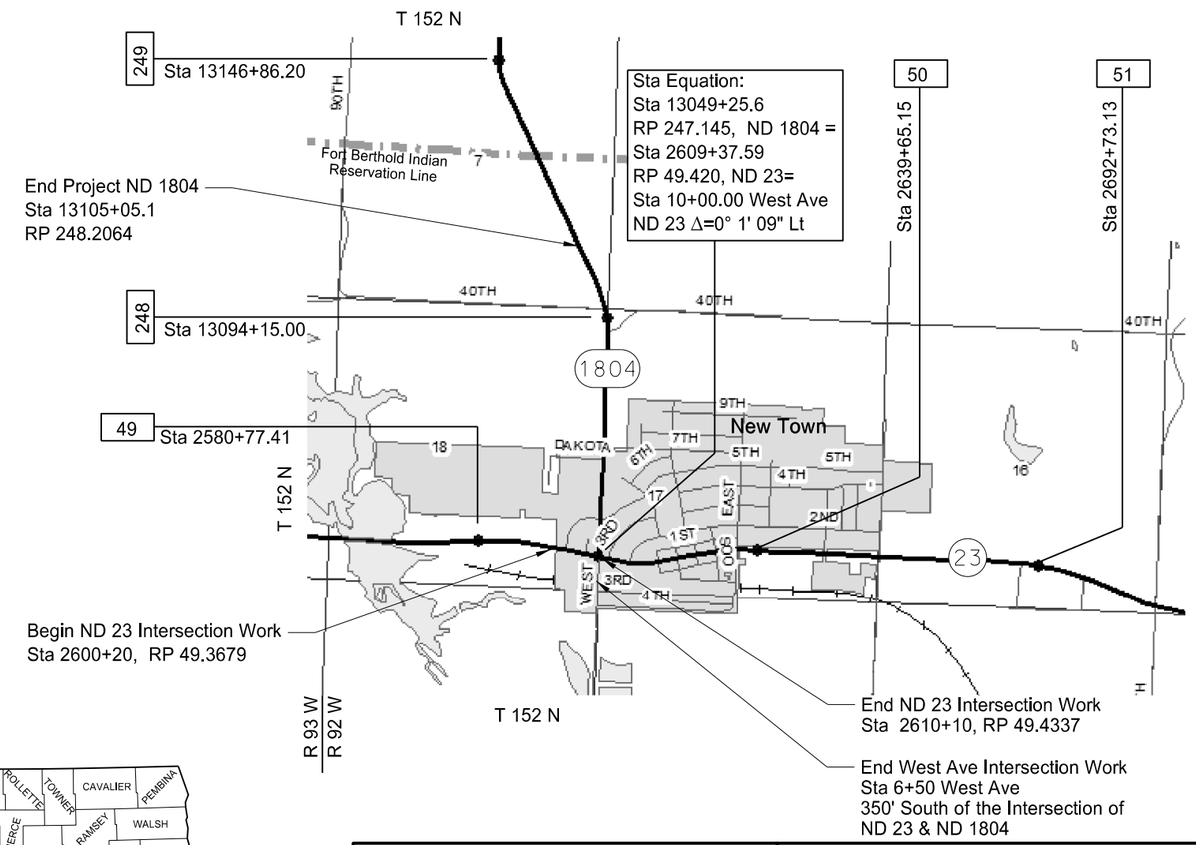
PCC Reconstruction, Widening ND 1804 to a 3-lane Section,
Sidewalk, Storm Drain, Lighting, Traffic Signal, Pushbutton Activated Flashing Beacon, and Incidentals

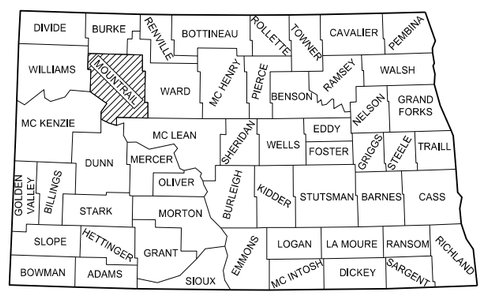
GOVERNING SPECIFICATIONS:
Standard Specifications adopted by the North Dakota Department of Transportation October 2008; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SOIA-CPU-7-804(049)247	1.2968	1.2968

DESIGN DATA - Hwy 1804				
Traffic	Average Daily			
Current: 2013	Pass: 1,410	Trucks: 2,250	Total: 3,660	
Forecast: 2033	Pass: 2,105	Trucks: 3,355	Total: 5,460	
Clear Zone Distance: 16', 26'		Design Speed: 25 mph, 45 mph		
Minimum Sight Dist. for Stopping: 155', 360'		Bridges: N/A		
Sight Dist. for No Passing Zone: 450', 700'				
Pavement Design Life: 30 years				
Design Accumulated One-way rigid ESALs: 19,323,590				

DESIGN DATA - Hwy 23				
Traffic	Average Daily			
Current: 2013	Pass: 6,600	Trucks: 1,655	Total: 8,255	
Forecast: 2033	Pass: 10,825	Trucks: 2,470	Total: 13,295	
Clear Zone Distance: 16'		Design Speed: 25 mph		
Minimum Sight Dist. for Stopping: 155'		Bridges: N/A		
Sight Dist. for No Passing Zone: 450'				
Pavement Design Life: 30 years				
Design Accumulated One-way rigid ESALs: 19,323,590				





STATE COUNTY MAP

DESIGNERS

Darell Arne /s/

Jeffery R. Rensch /s/

Douglas A. Schumaker /s/

DISTRICT REVIEW

Joel M. Wilt /s/
WILLISTON DISTRICT

APPROVED DATE 01/06/14

Robert Fode /s/
OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

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

APPROVED DATE 01/06/14

James Douglas Rath /s/
NDDOT DESIGN DIVISION

This document was originally issued and sealed by James Douglas Rath, Registration Number PE- 4288, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation

TABLE OF CONTENTS

Section No.	Sheet No.	Description
1	1	Title Sheet
2	1	Table of Contents
2	2-3	List of Standard Drawings
4	1	Scope of Work
6	1-10	Notes
6	11	Environmental Commitments
8	1-5	Quantities
10	1-3	Basis of Estimate
11	1	Data Tables
20	1-8	General Details
30	1-3	Typical Sections
40	1-10	Removals
50	1-2	Inlet and Manhole Summary
50	3	Culvert Hydraulic Data
51	1-2	Pipe List
60	1-19	Plan & Profile Sheets
60	20-25	Watermain and Sanitary Sewer Plan & Profile
75	1-10	Wetland, Seeding & Temporary Erosion Control
75	11-20	Wetland, Seeding & Permanent Erosion Control
81	1	Survey Coordinate and Curve Data
82	1-20	Survey Data Layouts
90	1-19	Paving Layouts
100	1-57	Work Zone Traffic Control
110	1-14	Signing
120	1-6	Pavement Marking
140	1-7	Lighting
150	1-15	Traffic Signals and Flashing Beacons
200	1-2	West Avenue Cross Sections
200	3-47	ND 1804 Cross Sections
200	48-59	ND 23 Cross Sections

LIST OF SPECIAL PROVISIONS (SP)

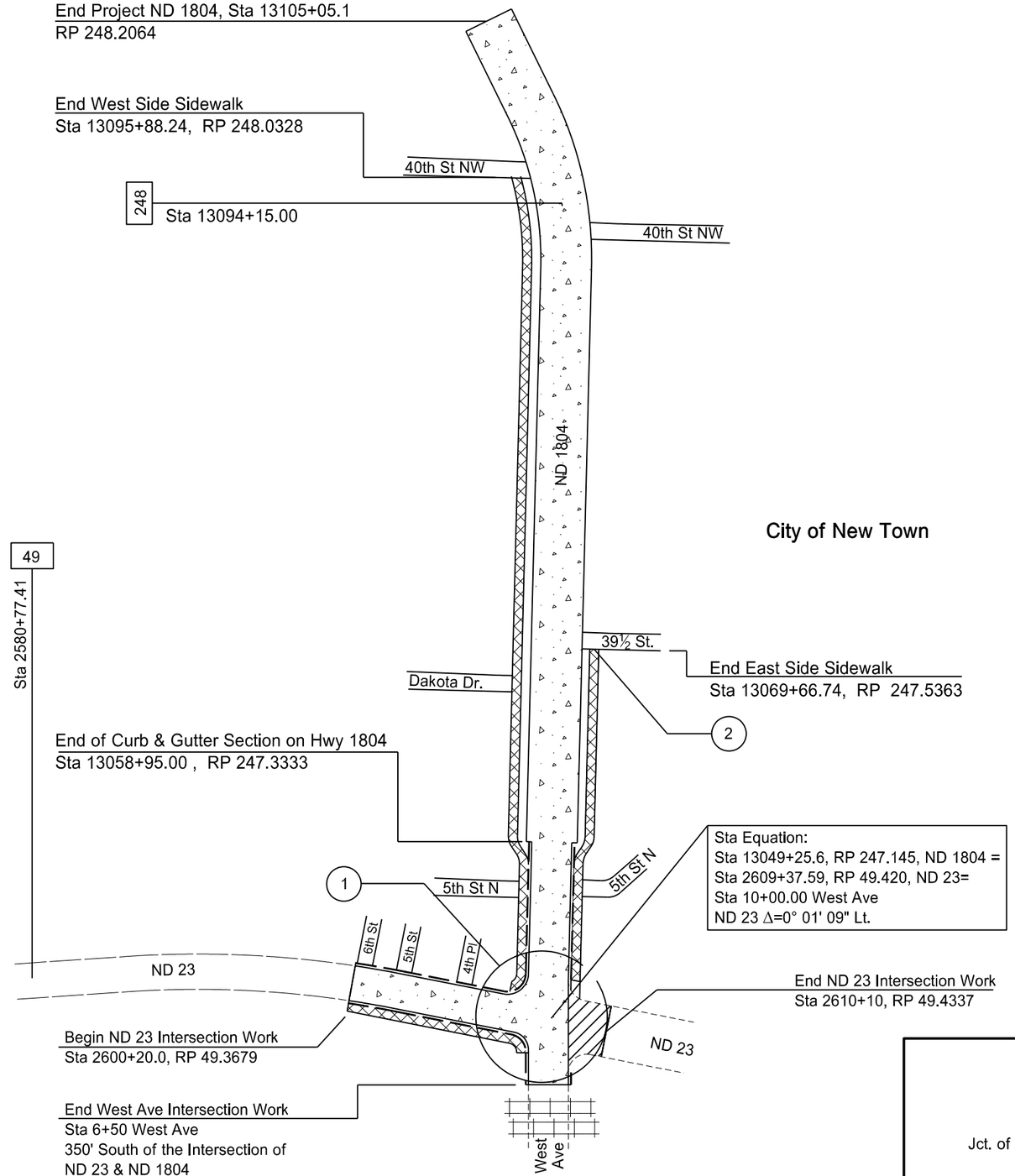
SP #	Description
SP 1010(08)	Temporary Erosion and Sediment Best Management Practices
SP 1101(08)	Split Sampling and Testing Requirements for Aggregate Base
SP 1285(08)	Monuments and Right of Way Markers
SP 1286(08)	Concrete Mix Design
SP 1287(08)	PCC Pavement - Uncontrolled Cracking
SP 1306(08)	TERO
SP 1307(08)	Rigid Pavement Surface Tolerance – Urban
SP 1308(08)	Video Vehicle Detection System
SP 1338(08)	Stringless Grade Control
SP 1340(08)	Dowel Bar Placement
SP 1377(08)	City of New Town Supplemental Specifications

LIST OF STANDARD DRAWINGS

Standard No.	Description
D-20-1 to D-20-32	Abbreviations, Line Styles, & Symbols
D-550-2	Longitudinal Joint Details
D-550-5	Transverse Construction Joints
D-704-7	Breakaway Systems for Construct Zone Signs - Perforated Tube
D-704-8	Breakaway Systems for Construct Zone Signs
D-704-9	Construction Sign Details - Terminal and Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11	Construction Sign Details - Warning Signs
D-704-12	Shoulder Closure Tapers
D-704-13	Barricade Details and Channelizing Details
D-704-14	Construction Sign Punching and Mounting Details
D-704-15	Road Closure Layouts
D-704-19	Road Closure and Lane Closure on a Two Way Road Layouts
D-704-20	Terminal and Seal Coat Sign Layouts
D-704-22	Construction Truck and Temporary Detour Layouts
D-704-26	Miscellaneous Sign Layouts
D-704-27	Traffic Control Plan for Moving Operations
D-704-50	Portable Sign Support Assembly
D-704-51	Portable Precast Concrete Median Barrier (Temporary Usage)
D-706-1	Field Laboratory
D-708-2	Erosion and Siltation Controls
D-708-5	Erosion and Siltation Control - Erosion Control Blanket Installation
D-708-6	Erosion and Siltation Controls - Median or Ditch Inlet Protection
D-708-7	Erosion Control Fiber Roll Staking Details
D-714-1	Reinforced Concrete Pipe Culvert and End Section
D-714-4	Round Corrugated Steel Pipe Culverts and End Sections
D-714-11	Traversable End Sections for Corrugated Steel Pipe Culverts
D-714-16	Jacked and Bored Pipe
D-714-22	Concrete Pipe Ties
D-714-25	Transverse Mainline Pipe Excavation and Installation Detail for Pipes More Than 4 Feet Below The Top
D-714-26	Transverse Mainline Pipe Excavation and Installation Detail for Pipes 4 Feet or Less Below the Top
D-714-27	Pipe Excavation and Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway
D-720-1	Standard Monuments and Right of Way Markers
D-722-1B	Inlet - Special
D-722-2	Inlet Type 2
D-722-03A	Inlet - Slotted Drain
D-722-5	Manhole Details
D-722-5A	Floating Manhole Casting
D-724-1	Water Works
D-748-1	Valley Gutter and Curb & Gutter
D-750-1	Concrete Driveway (Urban)
D-750-1A	Concrete Driveway Type 2 and 3 (Urban)
D-750-2	Sidewalk and Curb Ramps
D-750-3	Curb Ramp Details
D-754-19	(Conventional Use) Reference Markers
D-754-21	Reflectorized Delineators
D-754-23	Perforated Tube Assembly Details
D-754-24	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System for Perforated Tubes
D-754-25	Mounting Details Perforated Tube
D-754-26	Sign Punching, Stringer, and Support Location Details Regulatory, Warning, and Guide Signs
D-754-27	Sign Punching, Stringer, and Support Location Details Regulatory, Warning, and Guide Signs
D-754-28	Sign Punching, Stringer, and Support Location Details Regulatory, Warning, and Guide Signs
D-754-29	Sign Punching, Stringer, and Support Location Details Regulatory, Warning, and Guide Signs
D-754-38	Sign Punching, Stringer, and Support Location Details Regulatory, Warning, and Guide Signs
D-754-47	Sign Punching, Stringer, and Support Location Details for Variable Length Signs
D-754-49	Sign Punching, Stringer, and Support Location Details for Variable Length Signs
D-754-57	Sign Punching, Stringer, and Support Location Details - Route Marker Signs
D-754-59	Sign Punching, Stringer, and Support Location Details - Route Marker Signs
D-754-80	Light Standard, Signal Standard, and Span Wire Mounted Sign Assembly Detail
D-754-83	Object Markers - Culverts

D-754-87	Sign Punching, Stringer and Support Location Details for Street Name Signs and 911 Signing
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
D-762-6	Short-Term Pavement Marking
D-766-1	Mailbox Location Details
D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting
D-770-2	Feed Points (Roadway Lighting)
D-770-2A	Combination Feed Point Details
D-770-3	Pull Box Details
D-770-4	Lighting and Signal Details
D-770-5	Light Standard Details
D-772-2	Traffic Signal Standards
D-772-3	Traffic Signal Standards (Mast Arm Type)
D-772-4	Traffic Signal Head Mounting
D-772-6	Interim Traffic Signals

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	4	1



Legend:

- Curb & Gutter
- PCC Reconstruction
- Sidewalk
- Hot Bit. Pvmt
- (1) Install Traffic Signal at intersection of ND 23 & ND 1804
- (2) Install Pushbutton Activated Flashing Beacon at intersection of ND 1804 & 39½ Street

OTHER WORK:

Install storm drain from ND 1804/ND 23 intersection to South of 5th Street

Install Lighting System from ND 1804/ND 23 intersection to north of 39½ Street (Sta 13070+75)

Watermain and Sanitary Sewer Work

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 1/06/14 and the original document is stored at the North Dakota Department of Transportation

Scope of Work

ND 1804

Jct. of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	6	1

NOTES

100-132 This project is within the exterior boundaries of an Indian Reservation. Therefore, the contractor is advised to review any and all laws or ordinances pertaining to doing work within the exterior boundaries of the reservation.

100-160 UTILITY POLES: Equipment shall work around utility poles within the construction area that are not to be disturbed.

100-P01 WEEKLY PLANNING/REPORTING MEETING:

A. Purpose of Weekly Meeting.
   1. The Contractor shall organize the weekly meeting to coordinate the efforts between subcontractors, utilities, local authorities, and others.

B. Contractor's Project Manager/Superintendent: Planning and Reporting.
   1. The Contractor will be responsible for sending a knowledgeable representative to conduct a weekly Reporting/Planning meeting. It will be the contractor's responsibility to prepare minutes for each meeting and to make the appropriate distribution of the minutes. The minutes shall be approved by the Engineer prior to distribution.
   2. The Contractor will be required to provide a written schedule of the next week's work and a tentative schedule of the following week.
   3. Reporting/Planning meeting will include discussion of problems encountered during the current week; information of interest to local authorities, subcontractors, utilities, and next week's prospective schedule.
   4. The Contractor shall organize the weekly meeting contacting interested agencies. These agencies include, but are not limited to, the following:
      a. North Dakota Department of Transportation
      b. Local Government Agencies
      c. Police department
      d. Fire department
      e. Ambulance service
      f. Telephone Co.
      g. Power Co.
      h. Cable T.V.
      i. Gas Co.
      j. Railroad Co.
      k. Subcontractors
      l. Chamber of Commerce
      m. Mandan, Hidatsa, and Arikara Nation (MHAN)
      n. Hospital
      o. Bureau of Indian Affairs (BIA)
   5. The contractor shall provide a suitable meeting facility. Room must be approved by the Engineer. All costs for the Weekly Planning/Reporting Meeting included, but not limited to, providing minutes, schedules and meeting facility room shall be included in the price bid for other items.

103-080 ESCROW OF BID DOCUMENTATION: The Contractor shall provide an escrow of bid documentation for the prime contract and any sub-contract over $500,000. The escrow of bid documentation can be held in the NDDOT safe for no charge.

105-200 UTILITY COORDINATION: The Contractor shall arrange a Post Bid Utility Coordination Meeting with affected Utility Companies, NDDOT District Office, and the Project Engineer. This meeting shall be in addition to the preconstruction meeting. The Post Bid Utility Coordination Meeting shall be held near the project area or at the District office and shall be held no later than two weeks after the Department and the Contractor have executed the contract, as approved by the Engineer. The Contractor shall provide an agenda for the meeting, and be prepared to discuss the items on it. Items to discuss shall include, but not be limited to; plan for constructing the project, work schedule, utility adjustment/relocates needed prior to project start, utility adjustment/relocates that can be done concurrent with project, utility locates and site access. The Contractor shall publish meeting minutes and distribute the minutes to all attendees and the NDDOT Utilities Engineer within one week after the meeting.

105-P01 COORDINATION OF PROJECTS: A number of other projects will be under contract during the 2014 construction season in the vicinity of this project. It shall be the Contractor's responsibility to coordinate activities (including transitions at the beginning and end of the project), schedules, and traffic control delineations between projects.

105-P02 CONTROL OF WORK - PIPE JACKING/BORING: Pipe jacking/boring at Sta 13099+61 shall be completed prior to starting any other ND 1804 roadway widening or reconstruction, as the jersey barriers needed during the pipe jacking/boring will be needed for Phase 1 of the traffic control.

105-P03 PRIVATE DRIVE CONNECTION: Private drive connection located at Sta 8+80.50 (Chain SCLWESTST) shall not be built until the storm drain outlet is installed.

107-P01 HAUL ROAD RESTRICTIONS: The Contractor shall contact the appropriate State, County, Township, City or Political Subdivision official(s) to determine if the proposed haul road has local load restrictions or is designated as a "No Haul Route" prior to preparing a bid for this project. Paved roads off the state system will not be designated as haul roads by the NDDOT. If the Contractor chooses to use a paved road off the state system for this project, the Contractor shall be responsible for all costs of the inspection, maintenance, restoration, and release of the haul road.

107-P02 PAVEMENT SWEEPING: The Contractor shall sweep the driving lane(s) as directed by the Engineer. The Contractor shall sweep new pavements before opening to traffic and for final acceptance. For this sweeping, the Contractor shall furnish and utilize a vacuum type sweeper to control the dust and debris. All costs connected with this work shall be as stated in Section 107.05 A.6, of NDDOT Standard Specifications (Urban Work).

200-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

200-060 PAVEMENT REMOVAL: All concrete and pavements paid for as removal have been deducted from the excavation quantity.

201-P01 CLEARING AND GRUBBING: The Contractor shall remove all obstructions along this project in accordance to all laws and requirements as may be mandated by a federal, state, or local agency. The obstructions to be removed shall include, but are not limited to the fences, tree stumps, shrubs, hedges, brush, and any other extraneous materials within the right of way as directed by the Engineer in the field. All material shall become property of the Contractor and disposed of outside of NDDOT right of way. All cost associated with labor, equipment, removals, and disposal of materials shall be included in the price bid for "Clearing & Grubbing."

The Contractor shall backfill voids with Engineer-approved material placed in 12" loose thickness lifts and compacted. The area shall be graded to drain. All costs for providing the suitable material, placing, and compacting shall be included in the lump sum price for "Clearing and Grubbing."

Large trees, 10 inches and greater in diameter, designated for removal, are paid for as "Removal of Trees 10 IN."

202-P01 ABUTTING PAVEMENT: The new pavement shall be placed to match the existing pavement and to provide a satisfactory surface profile. Side street width shall match existing width. The areas to be sawed are shown on the removal sheets. Sawing (including concrete) shall be paid as "Saw Bituminous Surfacing - Full Depth."

203-P01 COMMON EXCAVATION TYPE - A: The Common Excavation-Type A will be paid according to Section 203.03 B of NDDOT Standard Specifications (Plan Quantity).

203-P02 CONTRACTOR FURNISHED PROCTORS: The Contractor shall be responsible for the testing of materials proposed to be used for embankment prior to placement of said materials. A minimum of one 5 point proctor for each type of soil encountered shall be performed, with soil samples submitted to the Engineer for Engineer's reference and identification. The cost of testing shall be included in the bid price for "Common Excavation – Type A" and "Borrow – Excavation".

203-P03 BORROW-EXCAVATION: All borrow required shall be obtained by the Contractor from a source outside of the highway right of way.

203-P04 TOPSOIL: In all disturbed areas, the existing topsoil shall be salvaged. Removal of topsoil is based upon a 6" depth.

Due to roadway widening, the amount of removed topsoil is larger than the topsoil being replaced. Any excess topsoil shall remain property of the NDDOT and is to be spread uniformly over the disturbed areas.

203-P05 EXCESS EXCAVATION: Unused excess excavation shall be disposed of off the highway right-of-way at a site selected by the Contractor and approved by the Engineer. Disposal in wetland areas will not be approved.

All costs for hauling and disposal of 1,142 CY of excess excavation resulting from the roadway regrading shall be included in the price bid for "Common Excavation – Type A."

All costs for hauling and disposal of 10,950 CY of excess excavation resulting from removal of temporary roadway widening shall be included in the price bid for "Common Excavation – Waste."

230-P01 SUBGRADE PREPARATION: Subgrade preparation shall comply with Section 230.02 B.2 for Type A -12" of the standard Specification.

Compaction and density control shall be in accordance with Section 203.02 G of the Standard Specifications AASHTO T-180.

302-P01 SALVAGED BASE COURSE: The Salvaged Base Course shall be trimmed in accordance with Surface Tolerance Type B - Section 302.04 F.2 of the NDDOT Standard Specifications.

405-P01 STOCKPILE SITE: The Contractor shall furnish a stockpile site and provide a release for the stockpile site. All sites shall be approved by the Engineer. The stockpile site shall be used to stockpile and process HBP, concrete, and aggregate materials that are salvaged.

The lump sum bid for "Prepare Stockpile Site" shall be full payment for one site only.

Any additional stockpile sites required by the Contractor's operation will be at his own expense.

All excess salvaged bituminous pavement, salvaged concrete material, and aggregate stockpiled at the site shall be considered the property of the Contractor. No payment shall be made for salvaged material which is stockpiled and not incorporated into the project. All other stockpiled material shall become the property of the Contractor.

After final paving is done, the Contractor will be allowed 20 days to restore the stockpile site.

The lump sum bid for "Prepare Stockpile Site" shall include all costs to prepare and restore, shape the subgrade, replace the topsoil, dispose of the aggregate bedding, seeding, and all incidental items.

408-P01 HOT BITUMINOUS PAVEMENT: The hot bituminous pavement shall be compacted in accordance with Section 408.04.I.2 (ordinary compaction) of the Standard Specifications.

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

408-P02 HOT BITUMINOUS PAVEMENT PROPERTIES: The aggregate blend and properties will meet the requirements outlined in Section 410 Superpave Volumetric Mix Design.

The following aggregate and mix design properties are required:

Test	Criteria	Reference
Coarse Aggregate Angularity	75% min	NDDOT Field Sampling/Testing Manual
Fine Aggregate Angularity	42% min	AASHTO T 304
Gyratory Effort, # Gyrations	N_{ini}=7, N_{des}=75, N_{max}=115	AASHTO R 35
Voids Filled with Asphalt	65-78%	AASHTO M 323, T 166
$\%G_{mm}$ @ N_{ini}	89% max	AASHTO M 323, T 166

408-P03 SUPERPAVE FAA 42: The hot bituminous pavement shall be laid in lifts not to exceed two and a half inches.

550-P01 HOT POURED ELASTIC-TYPE JOINT SEAL INSTALLATION: All joints shall be hot poured according to NDDOT Standard Specification 550.04 M.2. All joints will be sealed with Type 2 Hot Applied Joint Sealant as per NDDOT Standard Specification 826.02 A.2. Silicone sealant with backer rod shall not be used. Joints shall only be widened to a 1/8”-3/16" inch width maximum as shown in Section 20 of the plans.

704-P01 WORK ZONE TRAFFIC CONTROL: The traffic control details, as indicated on the plans, have been developed on the basis that this project will be constructed in phases as described below. The work zone traffic control summary lists include the required number of devices for each phase of each described work area. The devices for the first phase will be moved as required for the second phase through the last phase. Traffic control devices and signing have been provided as shown for each phase on the Work Zone Traffic Control layout sheets.

Phase 1: Hwy 1804
- Construct the temporary NB lane of Hwy 1804 from the Jct of ND 23 to 39½ St.
- Place precast concrete median barriers and attenuation devices that are required for Phases 2 and 3.
- Construct the widening for the SB lane of Hwy 1804 from 39½ St. to north project termini.
- Maintain two lanes of Hwy 1804 traffic on the existing paved highway.

Phase 1: Hwy 23
- No work is being performed. Maintain all lanes of traffic on Hwy 23.

Phase 2: Hwy 1804
- Shift NB Hwy 1804 traffic to the temporary NB lane from Jct 23 to 39½ St.
- Shift SB Hwy 1804 traffic east on the existing highway to construct the west side of 1804 to proposed dirt grade and proposed aggregate base grade.
- Continue constructing the widening for the SB lane of Hwy 1804 from 39½ St. to north project termini.

Phase 2: Hwy 23
- Shift both lanes of Hwy 23 to the north side of the roadway.
- Install sanitary sewer line along the south side of ND 23.
- Install sanitary sewer service lines across ND 23. Only one trench can be open at a time for a maximum of 12 hours. Open trench shall be closed and made passable for traffic prior to daily shutdown. Traffic will be handled using flaggers and lane closures. One lane of traffic will be allowed to carry traffic through this area.
- Construct the south lanes of concrete pavement.
- Close and construct West Avenue from Hwy 23 to the south project limits.
- One pavement leave-out is required to maintain access. Pave the leave-out by shifting the access onto the new concrete pavement when ready. No construction signing layouts are provided for paving the leave-out.

Phase 3: Hwy 1804
- Maintain the NB Hwy 1804 traffic on the temporary NB lane from Jct 23 to 39½ St.
- Shift SB Hwy 1804 traffic west on to the finished aggregate base grade.
- Complete the earthwork and aggregate base west of centerline.
- Remove the precast concrete median barrier closest to centerline.
- Continue constructing the widening for the SB lane of Hwy 1804 from 39½ St. to north project termini.

Phase 3: Hwy 23
- Open West Avenue to traffic.
- Shift both lanes of Hwy 23 traffic on to the newly constructed south lanes of concrete pavement.
- Construct the north lanes of concrete pavement from 5th St. to 4th Place.

Phase 4: Hwy 1804
- Shift the NB and SB Hwy 1804 traffic onto the completed aggregate base grade (from Jct 23 to 39½ St.) and temporary HBP widening (39½ St. to north termini) west of centerline.
- Remove remaining precast concrete median barriers from the project.
- Install watermain along the east side of ND 1804
- Install lateral crossings at 5th Street and Dakota Drive. Only one trench can be open at a time for a maximum of 12 hours. Open trench shall be closed and made passable for traffic prior to daily shutdown.

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

- Complete the earthwork and aggregate base east of centerline.
- Pave the 14′ NB concrete pavement from the Jct of 23 to 39½ St.
- Pave the 20′ NB concrete pavement from 39½ St. to north termini.
- Two pavement leave-outs are required to maintain access. Pave the leave-outs by shifting the access onto the new concrete pavement when ready. No construction signing layouts are provided for paving the leave-outs.

Phase 4: Hwy 23
- Maintain both lanes of Hwy 23 traffic on the concrete pavement on the south side of the roadway.
- Construct the north lanes of concrete pavement from the west project termini to 5th St.

Phase 5: Hwy 1804
- Shift NB Hwy 1804 traffic onto the concrete pavement from the Jct 23 to the north termini.
- Maintain the SB Hwy 1804 traffic onto the completed aggregate base grade (from Jct 23 to 39½ St.) and temporary HBP widening (39½ St. to north termini) west of centerline.
- Pave the 12′ center lane of concrete pavement.
- Two pavement leave-outs are required to maintain access. Pave the leave-outs by shifting the access onto the new concrete pavement when ready. No construction signing layouts are provided for paving the leave-outs.

Phase 5: Hwy 23
- Maintain both lanes of Hwy 23 traffic on the south lanes of concrete pavement.
- No work is being performed on Hwy 23 in this phase.

Phase 6: Hwy 1804
- Shift SB Hwy 1804 traffic onto the concrete pavement from the Jct 23 to the north termini. Both lanes of Hwy 1804 traffic are on the concrete pavement.
- Pave the 14′ SB concrete pavement from the Jct of 23 to 39½ St.
- Pave the 20′ SB concrete pavement from 39½ St. to north termini.
- Two pavement leave-outs are required to maintain access. Pave the leave-outs by shifting the access onto the new concrete pavement when ready. No construction signing layouts are provided for paving the leave-outs.

Phase 6: Hwy 23
- Maintain both lanes of Hwy 23 traffic on the south lanes of concrete pavement.
- Construct the north lanes of concrete pavement from 4th Place to the Jct of 23.

704-P02 TRAFFIC CONTROL SUPERVISOR: Traffic control supervisor shall be provided on this project. The traffic control supervisor shall be solely dedicated to traffic control duties. The traffic control supervisor shall not have any other duties on the project.

704-P03 CLOSING ACCESS: During the construction phasing for this project, a number of private driveways and city streets will have to be closed. The Contractor shall notify property owners and the city of New Town one week prior to any closures.

704-P04 PORTABLE CHANGEABLE MESSAGE SIGN: Portable Changeable Message Signs (PCMS) shall be staged prior to removing any pavement on the project. PCMS will be used to display information throughout the project duration, and the Engineer will determine the message to be displayed. The Contractor shall be trained in the operation and shall have the message displayed on all signs within one hour of the Engineer's request. The PCMS shall conform to the requirements of the MUTCD, Part 6, and specifications. Upon completion of the project, the Contractor shall retain ownership of the PCMS.

704-P05 WORKZONE TRAFFIC CONTROL: One lane in each direction on US highway 1804 will be used to carry traffic through construction. The traffic control devices list has been developed using the traffic control phasing layouts and Standard Drawings for traffic control:

D-704-7, 8, 9, 10, 11, 12, 13, and 14 are applicable
D-704-15, Layout Type A
D-704-15, Layout B and 704-19, Layout F: Traffic Control for pipe replacement and pipe jacking/boring
D-704-20, Layout Type G as the basis for the Terminal Signing.
D-704-22, Layout Type K and Type L for construction trucks hauling material
D-704-26, Layout Type EE as needed
D-704-27, for pavement marking operations
D-704-50 Portable Sign Support Assembly
D-704-51 Portable Precast Concrete Median Barriers (Temporary Usage)

The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the Contract Unit Price for each device. Additional devices required to accommodate the Contractor's operation shall be the Contractor's responsibility.

704-P06 TRAFFIC CONTROL: When the Engineer notifies the Contractor, Traffic Control Supervisor, or Watchperson of the need for traffic control to be furnished, installed, relocated, maintained, removed, or otherwise revised; the Contractor, Traffic Control Supervisor, or Watchperson must be on the project addressing the issue within one hour of the notification and, if additional resources or time are needed, determining an action plan and an estimated time of completion. When it's determined additional resources are needed the Engineer and the traffic control personnel onsite will agree to an estimated time of completion.

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

If the Contractor, Traffic Control Supervisor, or Watchperson fails to comply, the Engineer will perform any combination of the following:

1. The Engineer will apply a contract price reduction of $750 if the Contractor, Traffic Control Supervisor, or Watchperson is not on the project addressing the issue within one hour.
2. The Engineer will apply a contract price reduction of $750 for every day the work is not completed after the estimated time of completion.
3. The Engineer will have the work completed by other means, without additional notification, and deduct the cost of the work from monies due or to become due the Contractor.
4. The Engineer will direct all other work to cease until the deficiencies have been corrected.

704-P07 PRECAST CONCRETE MEDIAN BARRIERS - STATE FURNISHED: The number of precast concrete median barriers required on the project shall be 257 ten x 2.5 foot units. The Contractor shall obtain the barriers from the US 2 RP 12 storage location west of Williston. Upon completion of the project, all barriers shall remain the property of the state and the Contractor shall return them to the US 2 RP 12 storage yard west of Williston. Upon final storage, one barrier connecting bolt with two washers shall be placed through the barrier loops at one end of each segment, and the nut shall be installed sufficiently threaded to the bolt to retain this hardware during transportation. Any barrier segments that become damaged during handling, transportation, placing, or use, or any missing connecting bolts, nuts or washers, shall be replaced at the Contractor's expense. The Contractor shall contact the Williston District Office during regular office hours a minimum of 24 hours prior to picking up the barriers and a minimum of 24 hours prior to returning them. The Contractor is responsible for all equipment and labor to load and unload the barriers.

The barriers shall be counted prior to removal from the storage area and after placement on the roadway and the number agreed to by the Engineer and the Contractor. Another count shall be made once the barriers have been returned to the storage area and agreed to by the Engineer and the Contractor. Both agreements shall be made in writing and signed by all parties.

Upon final storage, the state furnished barriers shall be stacked a maximum of two high and shall be placed on 4" x 4" boards separating the barrier from the ground and separating the barriers between stacked rows.

The cost of obtaining, transporting, installing, moving, and maintaining the portable precast concrete median barriers shall be included in the price bid for the item "Precast Concrete Median Barriers - State Furnished."

704-P08 STACKABLE VERTICAL PANEL: The stackable vertical panel made of hollow low density polyethylene orange plastic panel which is held in an upright position by a molded rubber base shall be provided.

The panel shall be a minimum 43 inches high with a minimum bottom dimension 15 inches x 9 inches. The panel shall be held down with a molded rubber base. The minimum weight of the panel shall be 4 pounds. The minimum weight of the molded rubber base shall be 30 pounds.

The reflective sheeting shall have a minimum width of 8 inches and 36 inches long. The reflective sheeting shall be as specified for vertical panel and shall have 6" wide stripes sloping downward at an angle of 45 degrees in the direction vehicular traffic is to pass. The reflective sheeting shall be on both sides of the Stackable Vertical Panels. The Stackable Vertical Panel shall meet the requirements of NCHRP Report 350 as a Category II Traffic Control Device.

The item "Stackable Vertical Panel" shall be measured by the number of each installed. All materials, equipment, and labor for installation, relocation, and removal shall be included in the price bid for "Stackable Vertical Panel."

704-P09 ATTENUATION DEVICE TYPE B: A liquid filled type attenuation devices will be required on this project. The devices shall be 2.5 feet wide. The devices shall meet NCHRP Report 350 or MASH test criteria and must be accepted for use on the NHS by the FHWA.

At the Preconstruction Conference the Contractor shall provide the Engineer a Certificate of Compliance stating that the devices are NCHRP Report 350 or MASH approved and a copy of the Acceptance Letter from FHWA showing approval for use on the NHS.

The devices provided must be rated for the 25 mph speed and installed according to manufacturer's specifications.

Calcium Magnesium Acetate or Potassium Acetate shall be added as an antifreeze agent when the ambient air temperature drops below 32 degrees Fahrenheit. The Contractor shall supply a containment and remediation plan for the antifreeze mixture to the Engineer. The Contractor shall dispose of the antifreeze mixture inside the device as specified in Section 107.10.

The Contractor shall provide and have available on the project site additional replacement pieces for each location up to a maximum of 20 pieces per project. The replacement pieces shall include a minimum of 2 nose pieces.

The Contractor shall immediately replace any damaged pieces. The Department will reimburse the Contractor for damaged pieces based on the invoice price plus 10 percent. All other costs associated with installing and maintaining replacement pieces will be at no additional cost to the Department.

The attenuation devices shall be measured by the number of locations the devices are installed and paid for as "Attenuation Device Type B." The Contractor shall include in the price bid all costs for materials, labor, equipment, relocation if required, and removal.

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

704-P10 TRAFFIC CONTROL FOR PAVEMENT DROP-OFF: During the various phases of work zone traffic control, there may be areas where there is a pavement drop-off adjacent to the traveled lane. These areas shall not have a drop off greater than 2 inches. If a drop off exceeds 2 inches, the Contractor will be required to provide a safe and traversable slope. A safe and traversable slope is defined as having a cross slope of 4:1 or flatter. The reshaping of the aggregate or embankment required for this operation shall not be paid for separately but shall be included in the price bid for aggregate or embankment items.

704-P11 TRAFFIC CONTROL FOR PIPE REPLACEMENT: Traffic control for the installation of the centerline pipe conduit shall be in accordance with the Traffic Control Layout for Pipe Removal & Replacement Locations in conjunction with Standard Drawing D-704-19, Layout Type F. The Contractor will need to install pipe, backfill trench up to grade, and return traffic to normal by end of day's work. If the Contractor is unable to complete the centerline pipe replacement work in one working day, the area shall be made traversable for two lanes of traffic or flagged 24 hours per day. To maintain traffic a fifteen foot wide driving surface shall be provided with the use of flaggers or a thirty foot wide driving surface with the use of traffic control devices (D-704-15 Type B).

706-P01 FIELD OFFICE: The Contractor shall provide a field office which meets the following requirements:

1. The field office shall be a minimum of 450 square feet.
2. Indoor bathroom facilities
3. Air conditioner (20,000 BTU minimum)
4. Lighting (lumens required 110 foot- candles)
5. Minimum of 3 phone jacks
6. Heat, electric, sewer, and water hookups to be furnished by Contractor, Contractor to pay utility bills.
7. Cabinet space of a minimum of 32 cubic feet.
8. Counter space of a minimum of 40 square feet.
9. The floor is to be free of protrusions so that it will accommodate NDDOT furnished office equipment.
10. Photocopy machine capable of 11x17 photocopies and toner to last the duration of the project. NDDOT will provide paper.
11. The location of the field office shall be on, or as close to the project as possible and approved by the Engineer. Any rental fees shall be paid by Contractor.
12. The field office shall be available for occupancy at the start of the project and remain available to project completion.
13. The following services will be furnished and paid for by the Contractor:
    a) Telephone
    b) Fax
    c) Broadband internet service

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

Payment for the field office shall be under the bid item "Field Office." Payment schedule: 25% when field office is set up on site, 50% when 30% of work is completed, 75% when 60% of work is complete, 100% when project is completed.

708-P01 INLET PROTECTION: Inlet protection shall be placed per the details. The unit price bid for "Inlet Protection-Special" shall be considered full compensation for installing, cleaning, removing sediment, maintaining and replacing damaged devices. All devices that are installed shall remain in place until the turf has been established.

If the turf has not been established by November 1st all devices that are installed in a street section and are determined to have the potential to cause damage to snow removal equipment shall be removed and reinstalled as directed by the Engineer in the spring. This work is considered normal maintenance and the Contractor shall not be entitled to additional compensation.

708-P02 SEEDING – HYDRO MULCH: Class III seed will be used in non-urban areas.

In urban areas use Class V Hydro Mulch seed as follows:

Species	Variety	Pound Pure Live Seed/Acre
Kentucky Bluegrass	Park	1.5
Perennial Rye Grass	-----	2.7
Blue Grama	Bad River	1.2
Sideoats Grama	Kildeer, Pierre, or Butte	3.6
TOTAL		9.0

No fertilizer will be used in non-urban areas.

The hydro mulch material shall be as specified in the NDDOT specification 708.02B.3.a. The hydro mulch shall be applied after the seed is drilled into the topsoil. The seed shall be watered for three weeks minimum after placement in order to provide sufficient moisture for growth as determined by the Engineer. All cost for labor, equipment and materials necessary to complete the work shall be included in the price bid for "Seeding-Hydro Mulch."

710-P01 TEMPORARY BYPASS: Phase 1 of the Work Zone Traffic Control requires the Contractor to construct a temporary bypass near the east right of way line along Hwy 1804. The temporary bypass will extend from the Junction of Hwy 23 to 39 ½ St (Sta 13049+90 to Sta 13070+00 - approximately 2000 LF). The amount of excavation and borrow required are shown in Section 10 – Salvaged Base Course and Earthwork Summary for Traffic Control. The temporary bypass width and details are shown in Section 100 - Work Zone Traffic Control Typical Sections – Phase 1.

The earthwork estimate was based on the bypass centerline being constructed approximately 23' from the

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

existing 1804 roadway centerline. From Sta 13049+90 to Sta 13059+00 (910 LF), the bypass alignment and profile shall be determined in the field and shall be constructed within the highway right of way. From Sta 13059+00 to Sta 13067+50 (850 LF), the temporary bypass shall be constructed to the finished dirt and finished aggregate base course elevation required for the proposed concrete roadway. The temporary bypass shall be smooth, well drained, and maintained to a safe condition at all times. All costs to complete this additional earthwork and maintenance required for the temporary bypass will be included in the price bid for "Temporary Bypass". The 8" of Salvaged Base Course surfacing required for the bypass will be paid for separately. Any additional aggregate base material required for maintenance of the temporary bypass will also be paid for as "Salvaged Base Course".

714-P01 PIPE CONDUIT 30" - JACKED OR BORED: The method used to install the conduits indicated as jacked or bored on the plans shall be left to the discretion of the contractor. The boring or jacked methods are acceptable.

If the boring method is used, the contractor may use smooth wall steel pipe in lieu of RCP. Jacked concrete pipe sections shall be Cl. III, but concrete compressive strength shall be a minimum of 6,000 psi or greater. If smooth walled steel pipe is to be used, this material shall be welded steel pipe of new material, meeting ASTM Specifications A-139, Grade B with minimum yield strength of 35,000 psi. For 30" conduit the wall thickness shall be 0.406 inches.

Regardless of the method or type of pipe used, the price bid for jacked pipe shall be considered full compensation for the pipe and its installation. All costs for labor, equipment and materials required installing the pipe through the roadway by boring or jacking shall be included in the price bid for the items "Pipe Conduit 30 IN – Jacked or Bored".

714-P02 PLUG PIPE: At location designated on the plans for plug and abandon pipe, the Contractor shall pump the pipe full of controlled density backfill to prevent any future collapse or failure of the abandoned pipe.

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

MIX DESIGN	
Fly Ash	300 lbs
Water	70 gals
Cement	100 lbs
Fine Aggregate	2,600 lbs

Controlled density backfill shall be placed at the far end of the pipe cavity and the cavity is filled progressively from one end to the other. Controlled density backfill shall continue until refusal (when no more grout can be pumped). All labor, materials, and equipment necessary to perform this described work shall be included in the price bid for "Plug Pipe – All Types & Sizes."

714-P03 CENTERLINE PIPE: The Contractor shall provide dewatering if necessary according to site conditions. All costs associated with dewatering shall be included in the price bid for centerline pipe installation.

722-P01 STORM DRAIN: The new storm sewer is to be connected into an existing storm sewer at the following locations:

Sta 2608+60.96 33.99' Lt (SCL23)
Sta 2609+65.11 18.22' Lt (SCL23)
Sta 2610+03.2 23.94' Rt (SCL23)

The cost of connecting the proposed storm drain pipe into the existing catch basin at Sta 2608+60.96 shall be included in the price bid for "Pipe Conduit 15 IN - Storm Drain."

The cost of cutting the existing storm sewer and connecting it into the new manholes and grouting shall be included in the price bids for "Manhole 48 IN" and "Manhole 84 IN."

722-P02 INLETS AND MANHOLES: All new inlets and manholes on this project shall have a minimum 4-foot riser. The bottom of the inlet or manhole shall be filled with concrete to the elevation that will accommodate the lowest invert elevation. All costs to accomplish this work will be included in the unit price bid for the respective inlet or manhole.

722-P03 MANHOLE CASTING: All new manhole castings on this project shall be floating manhole castings as specified on Standard Drawing D-722-05A. The castings shall be positioned to avoid falling within a wheel path.

722-P04 ADJUST MANHOLE SPECIAL: The sanitary manholes at station 13056+25 – 27' Lt and 13056+23 – 34' Rt will need to be lowered approximately 0.6 feet and 0.7 feet respectively. This can be accomplished either by removing the adjusting rings (if any) or by cutting the existing concrete riser. If there is a top conical section, this section will need to be removed in order to cut the existing riser and then reset after cutting the existing concrete riser.

The sanitary manhole at station 13067+65 – 30' Rt will need to be adjusted upward approximately 1.8 feet. The contractor will need to remove the top conical section in order to add a precast reinforced concrete riser. After this work is done the top conical section will be reset.

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

The new sanitary precast reinforced concrete riser(s) shall conform to ASTM C-478. Seal the barrel to barrel joints according to the manufacturer's recommendations using an exterior joint seal and primer that meets or exceeds the requirements of ASTM C-877, Type II or a pre-approved equal conforming to the following requirements:

External joint seals shall consist of a collar 6 inches wide with an outer layer of polyethylene, with a minimum tensile strength of 4000 psi and a minimum tear resistance of 1500 psi, and an under layer of rubberized mastic that is reinforced with a woven polypropylene fabric. Locate two 5/8 inches steel straps within the collar 3/4 inches from each edge. The straps shall be confined in tubes that isolate them from the mastic and allow them to slip freely when mechanically tightened and locked around the manhole. The collar shall be furnished with a minimum 12 inches overlap and a closing flap to cover any remaining exposed strap.

Submit the manufacturer's literature, shop drawings, installation instructions, and a notarized certification from the manufacturer stating that their product meets, or exceeds, the requirements of ASTM C-877, Type II.

Coat the manhole using a high sulfide resistant product called super coat.

Install manhole steps in the new sanitary manhole riser section.

Field verify the diameter and elevation of manhole and adjustment distance prior to ordering materials.

Any items designated for removal shall become the property of the contractor.

All costs for new materials, resetting, removal and disposal of existing materials, and all labor shall be included in the price bid for "Adjust Manhole Special".

724-P01 WATER MAINS: Any water main that requires adjusting due to the construction of the storm drain shall be adjusted as indicated in the Water Main Redirection Detail Plan Sheet. Any adjustments to the water mains shall conform to requirements listed under section 724.03 D of the Standard Specifications. If any service is interrupted for more than four hours and temporary service has not been provided, the Contractor shall provide all necessary temporary services prior to continuing any other work.

Scheduling of work requiring closure of any watermains shall be coordinated with the City.

The cost of providing temporary water services and notifying property occupants, if required, shall be included in the bid item "Watermain 12 IN PVC."

752-P01 TEMPORARY SAFETY FENCE: A temporary safety fence shall be installed by the Contractor for pedestrians as directed by the Engineer. Payment will be full compensation for materials, labor and equipment necessary to provide, install, maintain and remove the temporary safety fence.

762-P01 PAVEMENT MARKING: Pavement markings will not be measured for payment unless changes are made in the field. Payment for pavement markings will be at plan quantity.

762-P02 OBLITERATION OF PAVEMENT MARKING: When the Hwy 1804 traffic is shifted as shown in the WZTC Typical Sections - Phases 1 and 4, portions of the double yellow and white edge line pavement marking shall be obliterated. In lieu of obliterating the markings, the Contractor may choose to cover the markings with black preformed plastic sheeting with an adhesive coating or cover the markings using pavement marking paint. The pavement marking painting width shall be a maximum of 1" wider than the existing marking on all sides. The paint shall be mixed so as to closely approximate the color of the in-place pavement.

The cost of all equipment, material, and labor shall be included in the price bid for "Obliteration of Pavement Marking".

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

SECTION 110

894-100 RETROREFLECTIVE SHEETING: Provide Type IV retroreflective sheeting that meets ASTM D 4956, Type IV. Provide Type XI retroreflective sheeting that meets ASTM D 4956, Type XI.

SECTION 140

770-700 LUMINAIRES: The high-pressure sodium vapor luminaires shall be internal ballast-constant wattage, 120x240 voltage, operated on 240 volts.

770-P01 MULTIPLE UNDERGROUND CABLE: The plans call for using Multiple Underground Cable and Conduit in various locations. In lieu of the Multiple Underground Cable, the contractor may furnish and install rigid conduit and single RHW conductors of the same size as shown in the plans for the Multiple Underground Cable.

The conduit size shall be as specified in the National Electric Code. If the contractor chooses to use the conduit and single conductors, the cost to furnish conduit and conductors shall be included in the item Multiple Underground Cable. The cost of installing conduit with single conductors shall be included in the bid price for the "Lighting System".

The conduit shown in the plans under roadways for installing Multiple Underground Cable will be included in the item “Lighting System”.

770-P02 LIGHT STANDARD: The light standard base shall be designed to have a minimum of 4 anchor bolts.

770-P03 LIGHT STANDARDS: The light standards shall be of the davit type and designed for 6', 10’, and 12' mast arms as shown in the plans and shall be galvanized.

770-P04 LIGHTING STANDARDS: The design of the Lighting standards shall meet the requirements of AASHTO publication, Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (5th Edition 2010 Interim). A wind velocity of 90 mph with the necessary coefficient of height correction factor shall be used in the calculations. Each structure component shall be designed using the requirements of Table 11-1, “Fatigue Importance Factor, I_F” Fatigue Category I shall be used for High Mast Lighting and Fatigue Category III shall be used for Lighting Standards. All the necessary calculations and drawings used in the design of these poles shall be furnished with the shop drawing submittal. Calculations and work drawings used in the design of Lighting Standards shall be signed, sealed, and dated by a Professional Engineer duly registered in the State of North Dakota.

SECTION 150

772-P01 TRAFFIC SIGNAL HEAD BACK PLATES: Traffic signal head back plates shall be furnished with a yellow retroreflective border. The yellow border shall be installed around the perimeter of the face of the backplate and shall be 1 inch wide. The border shall be furnished with sheeting consisting of prismatic lenses formed in a transparent synthetic resin, sealed, and backed with an aggressive pressure sensitive adhesive protected by a removable liner. The sheeting shall have a smooth surface with a distinctive interlocking diamond seal pattern and orientation marks visible on the face. Sheeting shall be Type XI reflective sheeting.

The cost for furnishing the border shall not be bid separately but shall be included in the item “Traffic Signals System”.

772-P02 VIDEO DETECTION SYSTEM: The system shall be designed to operate satisfactorily in all weather conditions. It shall eliminate false actuations due to shadows and shall accurately detect all vehicles. The system shall be capable of transmitting continuous real-time digital video images from any camera to a remote computer over voice grade telephone lines. Image sensor cameras shall be thermal imaging type high resolution with 320x240 Array Format. The camera shall be housed in a IP66 enclosure. Manufacturer: Flir FC-Series or equal. Output shall be compatible with volume density traffic controllers. Manufacturer: Econolite Autoscope Series. Include one spare camera, one spare interface panel, and one spare processor. Cost for complete installation, setup, and programming shall be included in the item “Traffic Signals System”.

772-P03 EMERGENCY VEHICLE PRE-EMPTION UNIT: Shall be equal to and compatible with the existing emergency vehicle pre-emption equipment used in the City of New Town. The indicator lamps shall be white. The cost for the emergency vehicle pre-emption shall be included in the item “Traffic Signals System”.

772-P04 ACCESSIBLE PEDESTRIAN SIGNALS (APS) PUSHBUTTON AND SIGN: Shall include the features, installation procedures, and be compliant with the following:

A. Features:
   1. Rapid tick WALK indication, no more than 2–5dBA above ambient sound
   2. Vibrotactile WALK indication
   3. Speaker and vibrotactile indication located at pushbutton
   4. Pushbutton locator tone
   5. Tactile arrow on each device aligned in direction of travel on the crosswalk

B. Installation Procedures
   1. APS should be reachable from the level landing of the curb ramp for the crossing or from a level surface with an accessible path to the ramp (MUTCD Section 4E.08 and Proposed and Draft PROWAG).
   2. APS should be within 5 feet of the crosswalk line furthest from the center of the intersection and within 10 feet of the curb (MUTCD Section 4E.08).
   3. Tactile arrow shall be aligned with parallel to the direction of travel on the crosswalk (MUTCD Section 4E.12, P1).

This document was originally issued and sealed by Blaine D. Johanneson, Registration Number PE-5038, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

NOTES

4. Pushbutton required to be located within reach range for wheelchair users (Proposed PROWAG, R406).

C. Code Compliance:
1. Functionality: MUTCD 2009 - 4E
2. Temperature and Humidity: NEMA TS 2
3. Transient Voltage Protection: NEMA TS 2
4. Transient Suppression: IEC 61000-4-4, IEC 61000-4-5
5. Electronic Noise: FCC Title 47, Part 15, Class A
6. Mechanical Shock and Vibration: NEMA TS 2
7. EN4 PBS Enclosure: NEMA 250 - Type 4X
8. Electrical Reliability: NEMA TS 4

The cost for the accessible pedestrian signals pushbutton and sign shall not be bid separately but shall be included in the item “Traffic Signals System”.

772-P05 TRAFFIC SIGNAL STANDARD: At Sta 2608+45-43’lt the post shall be designed to allow changing to a 49’ mast arm length. The 49’ mast arm will have 4 section head mounted at 48’, a 3 section head mounted at 30’, and a 3 section head mounted on the post. A 4’ by 4’ sign will be placed at 45’, and sign 13 will be mounted as shown in the plans. The cost to design for the longer mast arm shall be included in the item “Traffic Signals System”.

772-P06 SIGNAL HEAD MOUNTING HEIGHT: The signal heads shall be mounted between 20.5 feet and 21.5 feet above the roadway to the bottom of the backplate.

772-P07 REVISE CONTROLLER: The item revise controller shall consist of adding emergency vehicle pre-emption, and changing to a different video detection system.

The cost for revise controller shall be included in the item “Traffic Signals System”.

772-P08 SIGNAL EQUIPMENT: The signal heads shall be cast aluminum. Signal plumbizer and pedestal adapters/collars shall be steel. Astro brackets may be used for signal heads located at the end of the mast arm.

772-P09 TRAFFIC SIGNAL STANDARDS: The design of the Traffic Signal Standards shall meet the requirements of AASHTO publication, Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (5th Edition 2010 Interim). A wind velocity of 90 mph with the necessary coefficient of height correction factor shall be used in the calculations. Each structure component shall be designed using the requirements of Table 11-1, “Fatigue Importance Factor, I_F” Fatigue Category III shall be used for Traffic Signal Standards with mast arm lengths less than 40 feet, Fatigue Category II shall be used for Traffic Signal Standards with mast arm lengths greater than or equal to 40 feet. All the necessary calculations and drawings used in the design of the Traffic Signal Standards shall be furnished with the shop drawing submittal. Calculations and work drawings used in the design of the Traffic Signal Standards shall be signed, sealed, and dated by a Professional Engineer duly registered in the State of North Dakota.

This document was originally issued and sealed by Blaine D. Johanneson, Registration Number PE-5038, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation.

ENVIRONMENTAL COMMITMENTS

Based on the NEPA documentation, no additional permits or environmental commitments have been identified beyond what is covered by the NDDOT's Standard Specification of Road and Bridge Construction.

Wetland Number	Test Hole (in wetland)	Location	LONG (Dec. Deg.)	LAT (Dec. Deg.)	Field Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	*RPF
No wetlands present within project area (125 FT from centerline).**									
						Totals:	**0.00**		

*RPF - Relatively permanent flow. May require field verification.
** A Jurisdictional Determination is not needed as no wetlands were identified in project area.

PERMITS REQUIRED:

- NPDES from the EPA

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	MAINLINE CITY-50 % PARTICIPAT	WATERMAIN CITY-100 % PARTICIPAT	TOTAL
103	0100	CONTRACT BOND	L SUM	1			1
103	0200	ESCROW OF BID DOCUMENTATION	L SUM	1			1
108	0001	CRITICAL PATH METHOD SCHEDULE	L SUM	1			1
201	0330	CLEARING & GRUBBING	L SUM	1			1
201	0370	REMOVAL OF TREES 10IN	EA	64			64
202	0136	REMOVAL OF PAVEMENT	TON	20,433			20,433
202	0153	SAW BITUMINOUS SURFACING-FULL DEPTH	LF	946			946
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	1,090			1,090
202	0210	REMOVAL OF MANHOLES	EA	1		3	4
202	0230	REMOVAL OF INLETS	EA	2			2
203	0101	COMMON EXCAVATION-TYPE A	CY	17,418			17,418
203	0109	TOPSOIL	CY	7,537			7,537
203	0113	COMMON EXCAVATION-WASTE	CY	10,950			10,950
203	0140	BORROW-EXCAVATION	CY	20,152			20,152
216	0100	WATER	M GAL	935			935
230	0301	SUBGRADE PREPARATION-TYPE A	MILE	1.3			1.3
302	0100	SALVAGED BASE COURSE	TON	26,131			26,131
302	9970	TYPE II PIPE BEDDING	CY			50	50
401	0150	SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT	GAL	680			680
405	0100	PREPARE STOCKPILE SITE	L SUM	1			1
408	0445	PG 58-28 ASPHALT CEMENT	TON	163.1			163.1
408	0802	SUPERPAVE FAA 42	TON	2,811			2,811
550	0317	11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	37,459			37,459
702	0100	MOBILIZATION	L SUM	1			1
704	0100	FLAGGING	MHR	1,800			1,800
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,336			2,336
704	1035	ATTENUATION DEVICE-TYPE B-25	EA	4			4
704	1052	TYPE III BARRICADE	EA	64			64
704	1060	DELINEATOR DRUMS	EA	286			286
704	1067	TUBULAR MARKERS	EA	77			77
704	1080	STACKABLE VERTICAL PANELS	EA	297			297
704	1081	VERTICAL PANELS-BACK TO BACK	EA	260			260

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	8	2

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	MAINLINE CITY-50 % PARTICIPAT	WATERMAIN CITY-100 % PARTICIPAT	TOTAL
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	257			257
704	4011	PORTABLE CHANGEABLE MESSAGE SIGN	EA	3			3
706	0200	FIELD LABORATORY-TYPE B	EA	1			1
706	0400	FIELD OFFICE	EA	1			1
708	1355	TEMPORARY SEDIMENT TRAP	EA	2			2
708	1356	REMOVAL OF TEMPORARY SEDIMENT TRAP	EA	2			2
708	1430	FIBER ROLLS 12IN	LF	19,494			19,494
708	1431	REMOVAL FIBER ROLLS 12IN	LF	9,499			9,499
708	1531	INLET PROTECTION-FIBER ROLL 12IN	EA	1			1
708	1533	REMOVAL INLET PROTECTION-FIBER ROLL 12IN	EA	1			1
708	1540	INLET PROTECTION-SPECIAL	EA	18			18
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	18			18
708	2240	SEEDING-TYPE B-CL II	ACRE	4.5			4.5
708	2260	SEEDING-TYPE B-CL IV	ACRE	4.5			4.5
708	2950	SEEDING-HYDRO MULCH	ACRE	2			2
708	5500	MULCHING	ACRE	4.5			4.5
708	5651	ECB TYPE 2	SY	893			893
709	0701	GEOTEXTILE FABRIC-TYPE R1	SY	676			676
710	0200	TEMPORARY BYPASS	L SUM	1			1
714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	258			258
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	378			378
714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	464			464
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	132			132
714	4107	PIPE CONDUIT 24IN-STORM DRAIN	LF	134			134
714	4110	PIPE CONDUIT 30IN	LF	50			50
714	4115	PIPE CONDUIT 36IN	LF	540			540
714	4131	PIPE CONDUIT 54IN-STORM DRAIN	LF	98			98
714	4136	PIPE CONDUIT 60IN-STORM DRAIN	LF	66			66
714	4166	PIPE CONDUIT 30IN-JACKED OR BORED	LF	92			92
714	7040	SANITARY SEWER SERVICE CONNECTION	EA			10	10
714	8498	CASING PIPE 18IN	LF			204	204
714	8504	CASING PIPE 24IN	LF			56	56

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	8	3

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	MAINLINE CITY-50 % PARTICIPAT	WATERMAIN CITY-100 % PARTICIPAT	TOTAL
714	9680	PLUG PIPE-ALL TYPES & SIZES	EA	1			1
720	0100	MONUMENTS	EA	65			65
720	0110	RIGHT OF WAY MARKERS	EA	3			3
722	0100	MANHOLE 48IN	EA	3			3
722	0110	MANHOLE 60IN	EA	1			1
722	0120	MANHOLE 72IN	EA	1			1
722	0130	MANHOLE 84IN	EA	1			1
722	0200	MANHOLE 108IN	EA	1			1
722	0300	MANHOLE SANITARY	EA			4	4
722	1100	MANHOLE RISER 48IN	LF	13.61			13.61
722	1110	MANHOLE RISER 60IN	LF	4			4
722	1120	MANHOLE RISER 72IN	LF	7.52			7.52
722	1130	MANHOLE RISER 84IN	LF	8.67			8.67
722	1200	MANHOLE RISER 108IN	LF	8.4			8.4
722	3510	INLET-TYPE 2	EA	8			8
722	3520	INLET-TYPE 2 DOUBLE	EA	2			2
722	3701	INLET SPECIAL-TYPE 2 48IN	EA	1			1
722	3910	INLET SLOTTED DRAIN 15IN	LF	20			20
722	3920	INLET SLOTTED DRAIN 18IN	LF	20			20
722	6160	ADJUST INLET	EA	8			8
722	6200	ADJUST MANHOLE	EA	1			1
722	6201	ADJUST MANHOLE SPECIAL	EA	3			3
722	6240	ADJUST UTILITY APPURTENANCE	EA	10			10
724	0101	BUTTERFLY VALVE & BOX 10IN	EA			7	7
724	0300	GATE VALVE & BOX 6IN	EA			2	2
724	0310	GATE VALVE & BOX 8IN	EA			1	1
724	0411	6IN HYDRANT	EA			3	3
724	0809	PLUG 10IN WATERMAIN	EA			1	1
724	0810	WATERMAIN 6IN PVC	LF			66	66
724	0830	WATERMAIN 8IN PVC	LF			8	8
724	0840	WATERMAIN 10IN PVC	LF			1,404	1,404
724	0850	WATERMAIN 12IN PVC	LF	60			60

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	8	4

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	MAINLINE CITY-50 % PARTICIPAT	WATERMAIN CITY-100 % PARTICIPAT	TOTAL
724	0942	10IN FUSIBLE OR RESTRAINED JOINT PVC WATER MAIN	LF			156	156
724	0944	CONNECTION TO EXISTING MAIN	EA			3	3
724	0975	WATER LINE CONNECTION 6IN	EA			2	2
724	0980	WATER LINE CONNECTION 8IN	EA			1	1
724	0982	WATER LINE CONNECTION 10IN	EA			1	1
724	1110	8IN SANITARY SEWER PIPE	LF			83	83
724	1117	12IN SANITARY SEWER PIPE	LF			786	786
724	1118	15IN SANITARY SEWER PIPE	LF			78	78
724	1120	6IN SEWER SERVICE PIPE	LF			380	380
724	1136	12IN X 6IN SEWER WYE BRANCH	EA			10	10
724	6031	ABANDON WATER MAIN/SERVICE LINE	LF			1,816	1,816
724	6832	10IN 22.5DEG BEND	EA			4	4
724	6835	10IN 45DEG BEND	EA			10	10
724	6860	10IN X 6IN REDUCING BEND	EA			2	2
724	6982	10IN X 10IN X 6IN TEE	EA			3	3
724	6983	10IN X 10IN X 8IN TEE	EA			1	1
724	6984	10IN X 10IN X 10IN TEE	EA			2	2
724	7007	6IN 45DEG BEND	EA			2	2
744	0100	POLYSTYRENE INSULATION BOARD	BD FT	1,792			1,792
748	0140	CURB & GUTTER-TYPE I	LF	4,147			4,147
748	1000	VALLEY GUTTER 36IN	LF	240			240
750	0115	SIDEWALK CONCRETE 4IN	SY	4,454			4,454
750	1000	DRIVEWAY CONCRETE	SY	463			463
750	2115	DETECTABLE WARNING PANELS	SF	212			212
752	0911	TEMPORARY SAFETY FENCE	LF	500			500
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	151			151
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	162			162
754	0151	RESET DELINEATOR POST-TYPE A	EA	3			3
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	435			435
754	0563	REFERENCE MARKER-TYPE C	EA	1			1
754	0592	RESET SIGN PANEL	EA	8			8
754	0593	RESET SIGN SUPPORT	EA	7			7

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	8	5

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	MAINLINE CITY-50 % PARTICIPAT	WATERMAIN CITY-100 % PARTICIPAT	TOTAL
754	0805	OBJECT MARKERS - CULVERTS	EA	35			35
762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	480			480
762	0420	SHORT TERM 4IN LINE-TYPE R	LF	16,984			16,984
762	0426	SHORT TERM 24IN LINE-TYPE R	LF	102			102
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	7,576			7,576
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	24,681			24,681
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	742			742
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	977			977
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	127			127
762	1500	OBLITERATION OF PVMT MK	SF	3,225			3,225
766	0100	MAILBOX-ALL TYPES	EA	2			2
770	0001	LIGHTING SYSTEM	EA	0.5	0.5		1
772	0001	TRAFFIC SIGNALS SYSTEM	EA	1			1
772	2110	FLASHING BEACON-POST MOUNTED	EA	1			1
772	2910	REVISE INTERIM TRAFFIC SIGNAL SYSTEM	EA	1			1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	10	1

MATERIALS

Salvaged Base Course @ 1.5 Ton/CY + 25% = 1.875 Ton/CY

Superpave FAA 42 @ 2.0 Ton/CY

PG 58-28 Asphalt Cement @ 5.8% of Hot Bituminous Pavement

SS1H or CSS1H Emulsified Asphalt for HBP Tack Coat @ 0.05 Gal/SY

Water
25 MGal/Mile for dust palliative
20 Gal/Ton for Salvaged Base Course
10 Gal/CY for Embankment

Topsoil
6" removal depth

Removal of Pavement
Concrete @ 2.0 Ton/CY:
Driveway removal based on 6" thickness
Curb & Gutter removal based on 1.32 SF cross sectional area

Bituminous Pavement @ 1.875 Ton/CY:
ND 1804 Sta 6+50 to Sta 13105+05.1 Mainline Bit Pvmt removal based on 4.5" thickness
ND 23 Sta 2600+20 to Sta 2608+50 Mainline Bit Pvmt removal based on 4.5" thickness
ND 23 Sta 2609+60.7 to Sta 2610+10 Mainline Bit Pvmt removal based on 4.5" thickness
Side streets removal based on 4" thickness
Driveway removal based on 4" thickness

Base Material @ 1.875 Ton/CY
ND 1804 Sta 6+50 to Sta 13105+05.1 Mainline Base removal based on 5" thickness
ND 23 Sta 2600+20 to Sta 2608+50 Mainline Base removal based on 13" thickness
ND 23 Sta 2609+60.7 to Sta 2610+10 Mainline Base removal based on 3.5" thickness

Seeding - Hydro Mulch
Urban Areas (City Limits Only): Estimated at 2.0 Acres
-ND 1804 from Jct. ND 23 north to 39 1/2 St.
-ND 23 from West project limit to East project limit
-West Avenue from South project limit to Jct. ND 23

Seeding - Type B - CL II
Rural Areas: Estimated at 4.5 Acres
-ND 1804 from 39 1/2 St to North project limit

Seeding - Type B - CL IV
Rural Areas: Estimated at 4.5 Acres
-ND 1804 from 39 1/2 St to North project limit

Mulching
Rural Areas: Estimated at 4.5 Acres
-ND 1804 from 39 1/2 St to North project limit

SPEC	CODE	BID ITEM	UNIT	QUANTITY
754	805	**OBJECT MARKERS - CULVERTS**		
		Sta 8+71 (West Avenue) - Lt	EA	1
		Sta 13058+90 - Lt	EA	1
		Sta 13058+90 - Rt	EA	1
		Sta 13064+02 to Sta 13064+32 - 6 - CL pipe	EA	4
		Sta 13066+03 - Lt	EA	2
		Sta 13067+59 - Lt	EA	2
		Sta 13068+19 - Lt	EA	2
		Sta 13070+22 - Lt	EA	2
		Sta 13071+58 - Lt	EA	2
		Sta 13072+57 - Lt	EA	2
		Sta 13073+93 - Lt	EA	2
		Sta 13078+67 - Rt	EA	2
		Sta 13078+68 - Lt	EA	2
		Sta 13085+75 - Lt	EA	2
		Sta 13087+32 - Lt	EA	2
		Sta 13090+06 - Lt	EA	2
		Sta 13092+51 - Lt	EA	2
		Sta 13099+55 - CL	EA	2
		TOTAL	**EA**	**35**

Mailboxes

Station	Number	Type	Work
13072+73.4 - 31.8' Lt	1	Double	Replace
13089+81.5 - 31.2' Rt	1	Single	Replace

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/19/13 and the original document is stored at the North Dakota Department of Transportation

Basis of Estimate

ND 1804

Jct of ND 23 Extending North 1 Mile

EARTHWORK SUMMARY

Location	Excavation (CY)	Pvmt & Aggr Removal from Excavation Areas (CY)	Common Excavation - Type A (CY) Pay Item	Embankment (CY)*	Borrow - Excavation (CY) Pay Item	Excess Excavation (CY)	Topsoil From Stripping (CY) Pay Item	Topsoil Required (CY)
	A	B	C = A - B	D	E = D - C (if > 0)	F = C - D (if > 0)	F	F
West Street - Sta 6+50 to Sta 9+18.83	731	329	402	3	0	399	46	47
ND 1804 - Sta 13050+15 to Sta 13105+05.10	21,459	5,335	16,124	25,326	9,202	0	7,167	4,728
ND 23 - Sta 2600+20 to Sta 2610+10	3,691	2,799	892	149	0	743	324	233
TOTALS =	25,881	8,463	17,418	25,478	9,202	1,142	7,537	5,008

*Includes 25% Shrinkage in Earth Embankment.

Note: This is not a balance sheet. The contractor must balance their own materials.

SALVAGED BASE COURSE SUMMARY

Location	Removal of Aggregate (TON)	Removal of HBP (TON)	Removal of Concrete (TON)	Removal of Curb & Gutter (TON)	Material (Aggr., Bit., Conc. & Curb) to be removed and salvaged (TON)	Salvaged Base Course Required (TON) Pay Item
	A	B	C	D	E	F
West Street ML - Sta 6+50 to Sta 9+18.83	291	262	18	51	622	611
ND 1804 ML - Sta 13050+15 to Sta 13105+05.10	5,078	4,570	0	0	9,648	14,238
ND 23 ML - Sta 2600+20 to Sta 2610+10	3,408	1,440	0	177	5,025	3,166
Side Streets	0	194	3	7	204	1,089
Sidewalk and Driveways	0	282	111	3	396	1,572
Work Zone Traffic Control	0	4,540	0	0	4,540	5,455
TOTAL	**8,777**	**11,288**	**132**	**238**	**20,435**	**26,131**

Note: This is not a balance sheet. The contractor must balance their own materials. Material may not be available when needed.

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

EARTHWORK AND
SALVAGED BASE COURSE SUMMARY

ND 1804 & ND 23

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	10	3

ND 1804 Temporary Aggregate Surfacing Quantities

Quantity based on 4" thickness at all locations.

Station	Description	Phase 2 Salvaged Base Pay Item (Ton)	Phase 3 Salvaged Base Pay Item (Ton)	Phase 4 Salvaged Base Pay Item (Ton)	Phase 5 Salvaged Base Pay Item (Ton)	Phase 6 Salvaged Base Pay Item (Ton)
13049+00	East Hwy 23 Access	-	60	(A)	(A)	(A)
13053+05	West Driveway Access	-	10	(A)	(A)	-
13056+35	West 5th Street Access	40	(A)	(A)	(A)	-
13063+80	West Driveway Access	30	(A)	(A)	(A)	-
13066+05	West Driveway Access	30	(A)	(A)	(A)	(A)
13067+60	West Dakota Drive Access	50	(A)	(A)	(A)	(A)
13067+80 to 13074+00	West Driveway Accesses	-	-	-	-	200
13067+80	Median Access	-	-	-	20	-
13068+10	West Driveway Access	20	(A)	(A)	(A)	-
13068+15	East Driveway Access	-	-	20	(A)	-
13069+75	Median Access	-	-	-	20	-
13070+25	West Driveway Access	-	-	10	(A)	-
13071+60	West Driveway Access	-	-	10	(A)	-
13072+60	West Driveway Access	-	-	10	(A)	-
13074+00	West Driveway Access	-	-	10	(A)	-
13078+65	West Driveway Access	-	-	10	(A)	-
13085+70	West Driveway Access	-	-	10	(A)	(A)
13087+25	West Driveway Access	-	-	10	(A)	(A)
13087+50	Median Access	-	-	-	20	-
13090+00	West Driveway Access	-	-	10	(A)	-
13092+50	West Driveway Access	-	-	10	(A)	(A)
13095+90	Median Access	-	-	-	20	-
13096+00	West 40th Street Access	-	-	30	(A)	(A)
13105+00	Project End Taper	-	-	-	30	(A)
Additional for Unspecified Locations		50	50	50	50	50
	Total for Phase (Ton)	**220**	**120**	**190**	**160**	**250**

(A) Quantity placed in previous phase to remain in place.

ND 23 Temporary Aggregate Surfacing Quantities

Quantity based on 4" thickness at all locations.

Station	Description	Phase 2 Salvaged Base Pay Item (Ton)	Phase 3 Salvaged Base Pay Item (Ton)	Phase 4 Salvaged Base Pay Item (Ton)	Phase 5 Salvaged Base Pay Item (Ton)	Phase 6 Salvaged Base Pay Item (Ton)
2599+80	South Driveway Access	60	-	-	-	-
2600+00 to 2603+00	North Roadway & 5th Street Access	-	40	-	-	-
2605+00 to 2607+70	South Driveway Accesses	80	-	-	-	-
2607+00 to 2609+70	North Roadway & 4th Place Access	-		60	(A)	-
	Total for Phase (Ton)	**140**	**40**	**60**	**0**	**0**

(A) Quantity placed in previous phase to remain in place.

ND 1804 Temporary Bypass Quantities

Location	Common Excavation Type A ** (CY)	Embankment * ** (CY)	Borrow Excavation ** (CY)	Salvaged Base Course Pay Item (Ton)	Temporary Bypass Pay Item (Lump Sum)
				1.875	
ND 1804 East - Sta 13050+00 to Sta 13070+00	871	1,262	391	1,120	1

* Embankment quantity includes 25% increase for shrinkage.
** Not a pay item. Shall be included in the lump sum bid price for Temporary Bypass.

ND 1804 Temporary Widening Quantities

Location	Common Excavation Type A*** (CY)	Embankment * (CY)	Borrow Excavation Pay Item (CY)	Salvaged Base Course Pay Item (Ton)	Superpave FAA 42 Pay Item (Ton)	PG 58-28 Asphalt Cement Pay Item (Ton)	SS1H or CSS1H Emulsified Asphalt Pay Item (Gal)	Removal of Pavement ** Pay Item (Ton)
				1.875	*2.0 Ton/CY*	*5.80%*	*0.05 Gal/SY*	
ND 1804 West - Sta 13068+50 to Sta 13105+00	309	11,259	10,950	2,980	1,560	90.5	305	4,540

* Embankment quantity includes 25% increase for shrinkage.
** Includes removal of Superpave FAA 42 and Salvaged Base Course.
*** This quantity has been included in the ND 1804 Mainline earthwork summary.

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Salvaged Base Course and Earthwork Summary for Workzone Traffic

ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	11	1

ND 1804 SURVEY CENTERLINE

Curve SCL1804-C301

Curve C301		
P.C. Station		13090+62.05
P.I. Station		13095+32.49
Delta	=	27° 40' 20" (LT)
Degree	=	2° 59' 59"
Tangent	=	470.44
Length	=	922.52
Radius	=	1,910.08
External	=	57.08
P.T. Station		13099+84.56

Station	Left Slope	Right Slope
PC - 202.48'	-2.10	-2.10
PC - 132'	-2.10	0.00
PC	-3.93	3.93
PC +66'	-5.90	5.90
PT - 66'	-5.90	5.90
PT	-3.93	3.93
PT + 132'	-2.10	0.00
PT + 202.48'	-2.10	-2.10

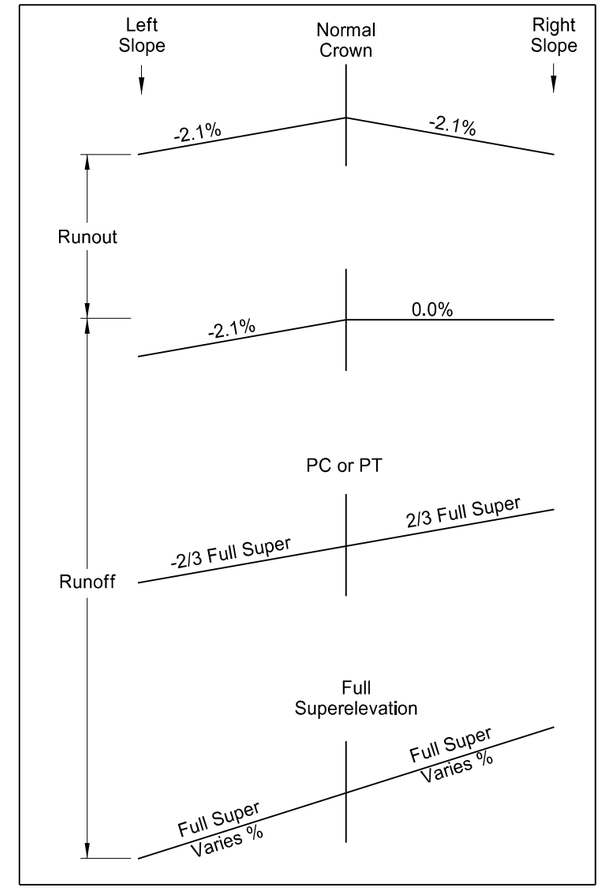
ND 23 SURVEY CENTERLINE

Curve SCL23-C305

Curve C301		
P.C. Station		2586+03.38
P.I. Station		2593+60.08
Delta	=	15° 02' 49" (RT)
Degree	=	1° 00' 00"
Tangent	=	756.70
Length	=	1,504.69
Radius	=	5,729.58
External	=	49.75
P.T. Station		2601+08.07

No superelevation on this curve (Normal Crown).

SIMPLE CURVE



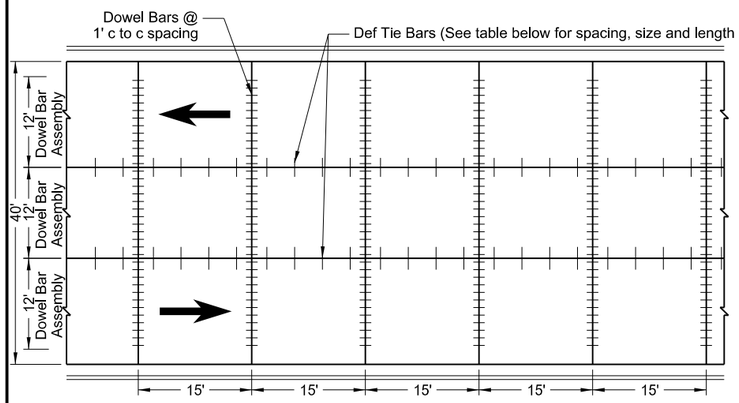
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/19/13 and the original document is stored at the North Dakota Department of Transportation

Superelevation Tables

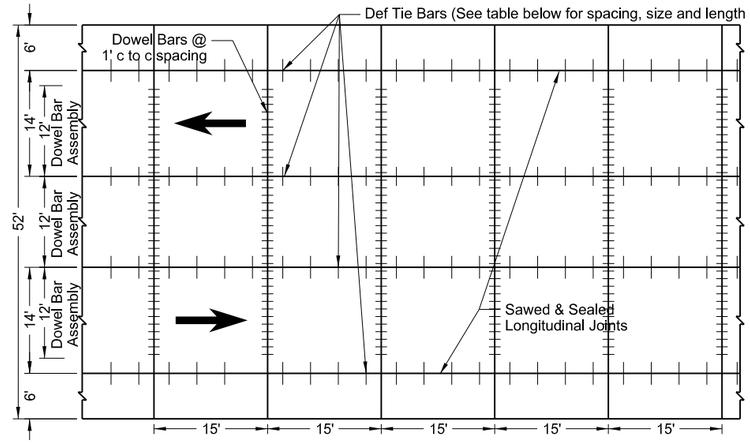
ND 1804

Jct of ND 23 Extending North 1 Mile

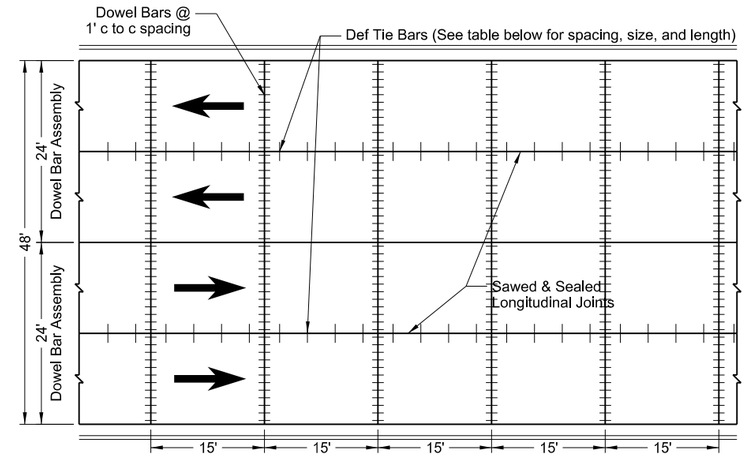
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	1



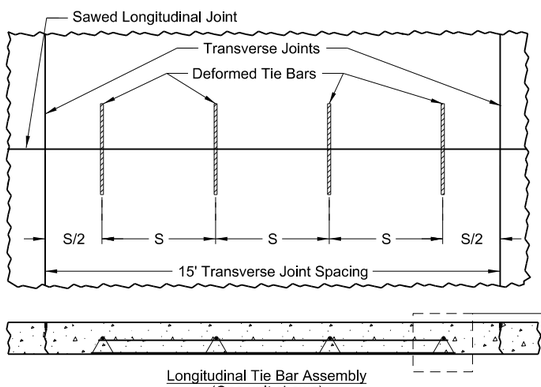
ND 1804 and West Avenue Urban Section
15' Joint Spacing



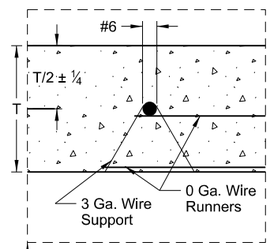
ND 1804 Rural Section
15' Joint Spacing

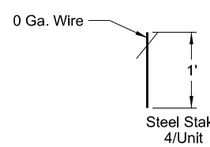


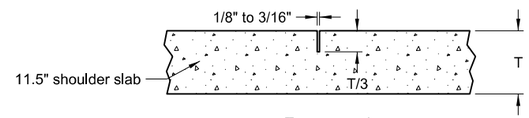
ND 23 Urban Section
15' Joint Spacing



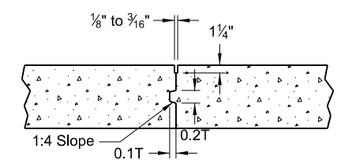
Longitudinal Tie Bar Assembly
(One unit shown)



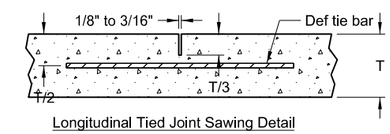




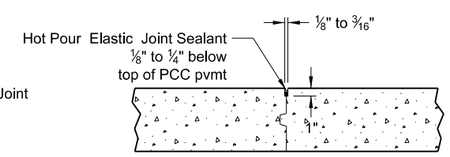
Transverse Joint
(non-doweled shoulder joint)



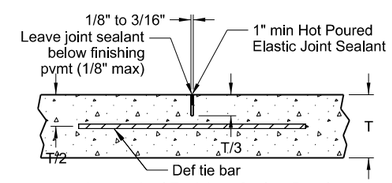
Longitudinal Keyed Joint Sawing Detail
(non-tied)



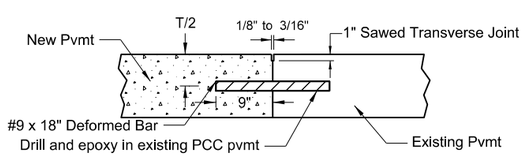
Longitudinal Tied Joint Sawing Detail



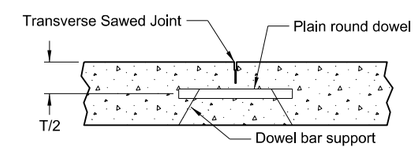
Longitudinal Keyed Joint Sealing Detail
(non-tied)



Longitudinal Tied Joint Sealing Detail



Deformed Bar Installation (2'-0" c to c)
(Transverse Joints)

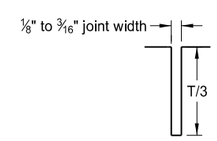


Doweled Transverse Joint

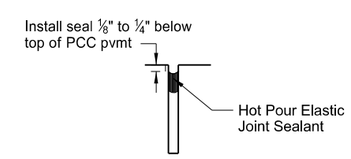
Longitudinal Joint Tie Bar Size and Length**	
11.5" PCC Depth (Mainline)	# 6 Bar x 36"
11.5" PCC Depth (Shoulder)	# 3 Bar x 24"

**Tie Bar Lengths listed are for Grade 40 Steel.
See Std D-550-2 for Grade 60 Steel.

Notes:
T = Pavement Thickness
Dowel bars shall be 1½" x 18" for T greater than 10".
S = Tiebar spacing. See Std D-550-2.



Transverse Joint Sawing



Transverse Joint Sealing

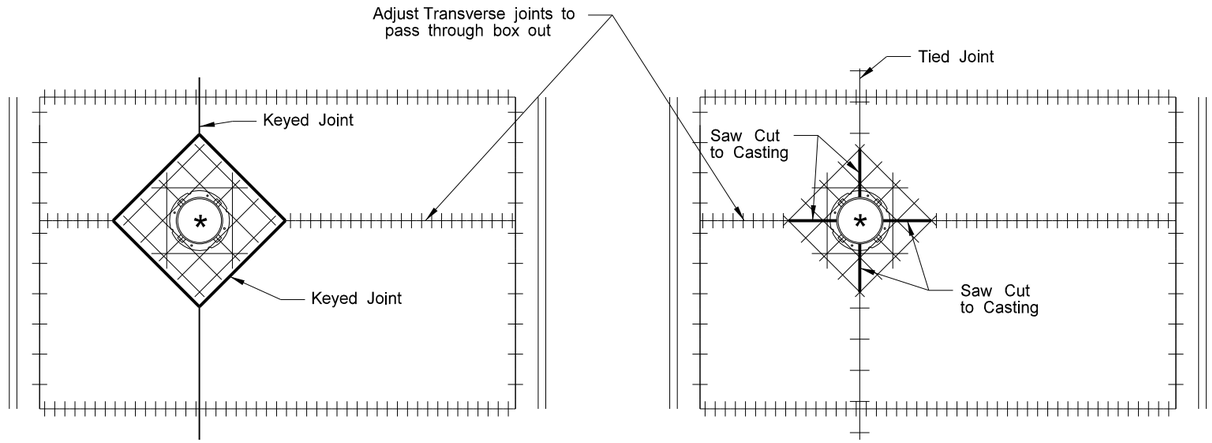
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

PCC Pavement Joint Details
Perpendicular With 15' Joint Width

ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	2



Boxout for Keyed Joint

Boxout for Tied Joint

* See Standard D-722-5A Floating Manhole Casting for reinforcing steel location.

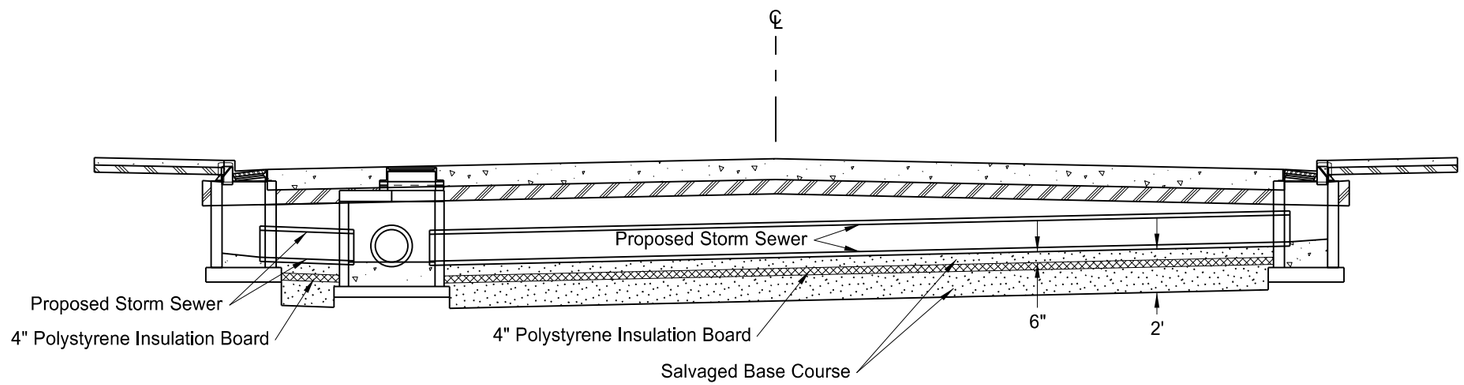
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Manhole Boxout Detail

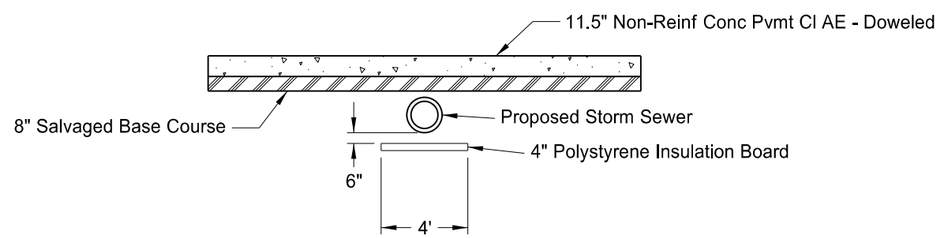
ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	3



Typical Section View



Roadway Profile View

Note:
1. Polystyrene insulation board shall be placed at locations where the proposed storm sewer is at or less than 1' below the proposed aggregate base.
2. Extruded polystyrene board shall meet requirements of AASHTO M230-98, with a minimum compressive strength of 25 psi.
3. The aggregate on which the insulation board is placed, shall be smooth and level to prevent point loadings. Construction equipment shall not be allowed on the insulation board.
4. BD FT = 1 SF / 1" Thick

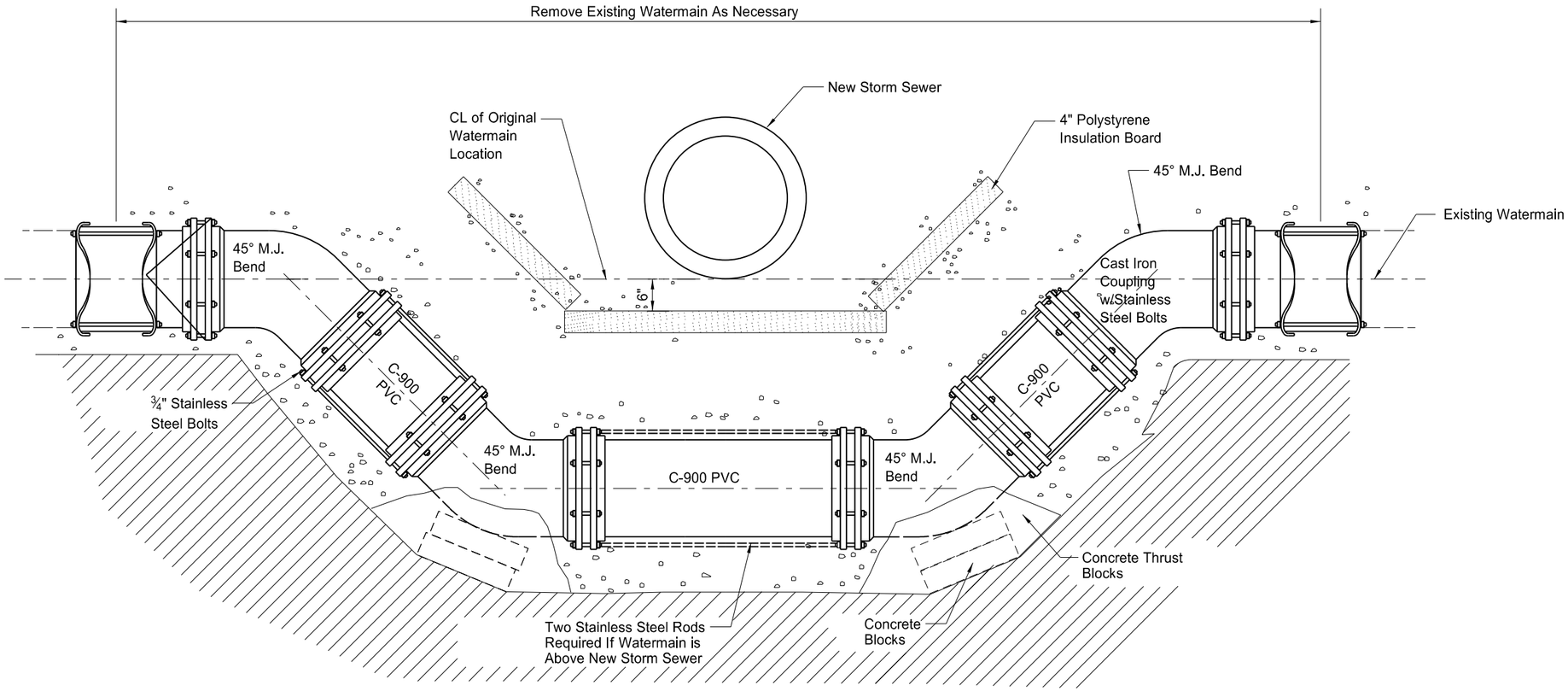
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

POLYSTYRENE INSULATION BOARD DETAIL

ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	4

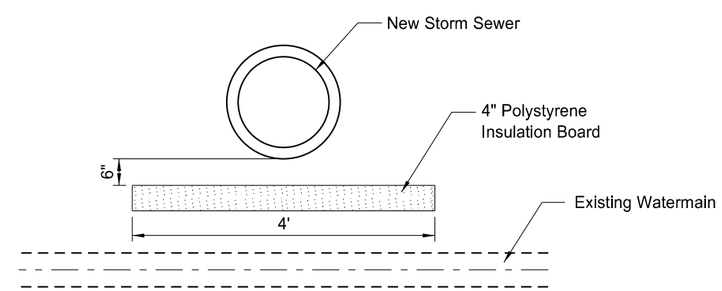


Watermain Redirection

Notes:
This sheet shall be used if there is a conflict with the proposed storm drain and existing water main. All costs relating shall be paid for "Watermain 12 IN PVC."

All fittings to be wrapped in polyethylene plastic (8 mil min.) Bells and bolts to be kept free of concrete.

Gravel Backfill shall consist of approved backfill as required on Standard Drawing D-714-27.



Note: Polystyrene insulation board shall be placed at locations where the proposed storm sewer crosses near an existing watermain. The approximate locatons are noted on the plan & profile plan sheets.

Watermain Insulation

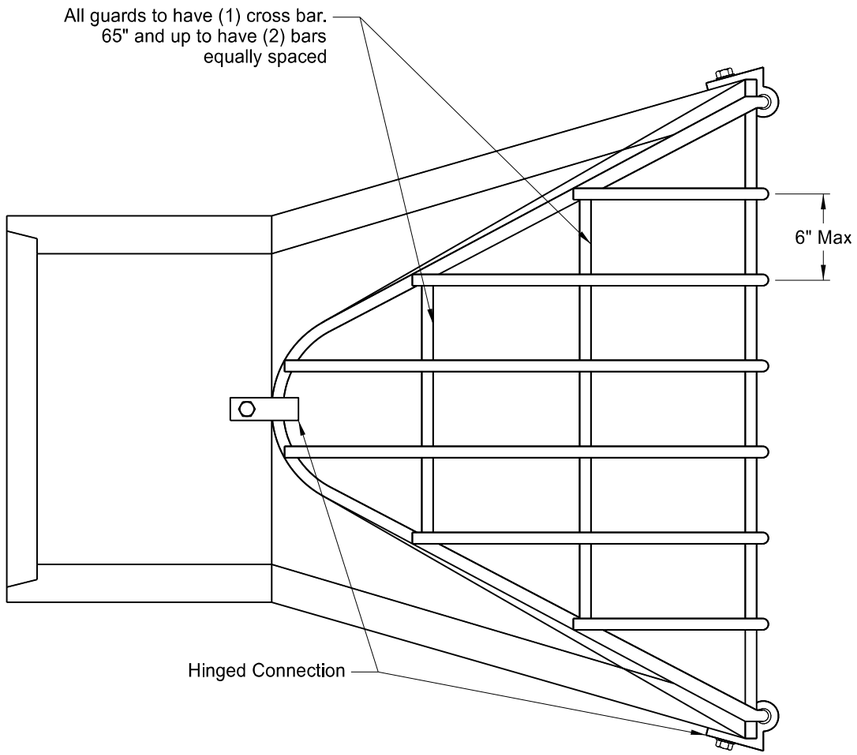
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

WATERMAIN REDIRECTION & INSULATION

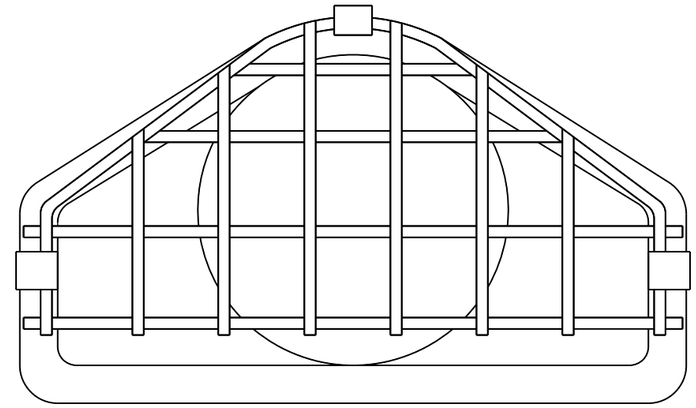
ND 1804 & ND 23

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	5



Plan View



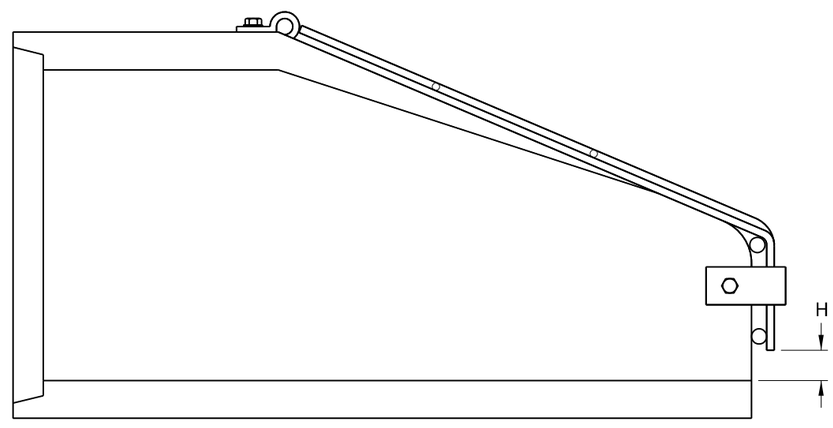
Front View

Location:	Pipe Size
West Street: Sta 8+71 - 59' Lt	60"

Notes:
1. All metal parts are to be hot galvanized per ASTM A153
2. The cost of the Trash Guard shall be included in the price bid for "Pipe Conduit - Storm Drain".

Bar Sizes			
Pipe Size	Hole Diameter Required	Bolt Diameter	Bar Size
24"-27"	¾"	⅝"	⅝"
30"-54"	⅞"	¾"	¾"
60"-90"	1⅛"	1"	1"
Bolt Length = Pipe Wall Thickness + 2½"			

Round	
Pipe Size	H
24"-27"	4"
30"-42"	5"
48"-60"	6"
66"-90"	7"



Elevation View

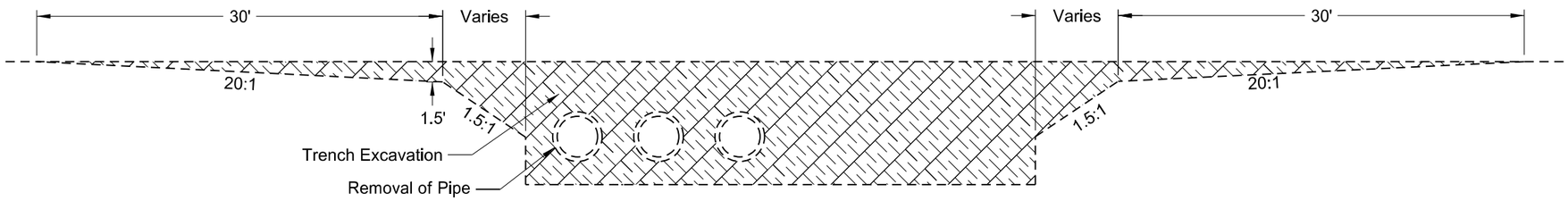
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Trash Guard Detail
for Flared End Sections

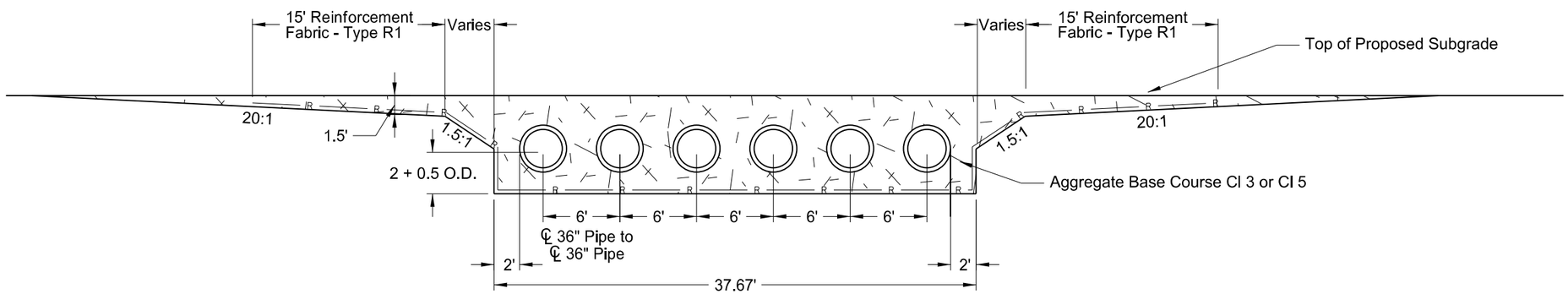
ND 1804

Jct of ND 23 extending North 1 Mile

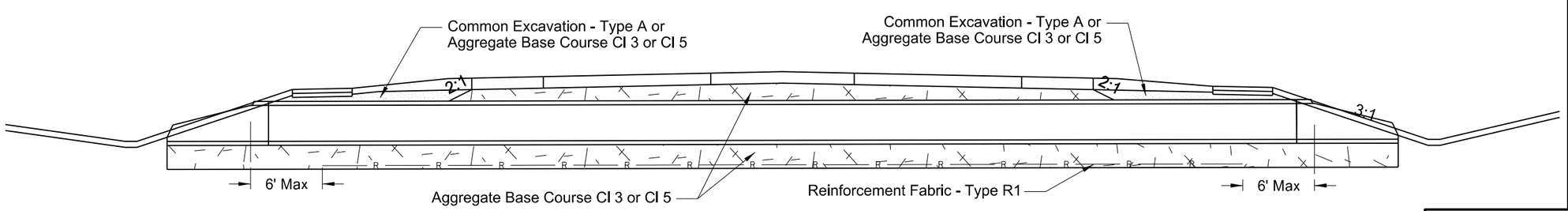
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	6



Excavation Detail for 36" Multiple RCP



Installation Detail for 36" Multiple RCP at Sta 13064+17



Cross Section

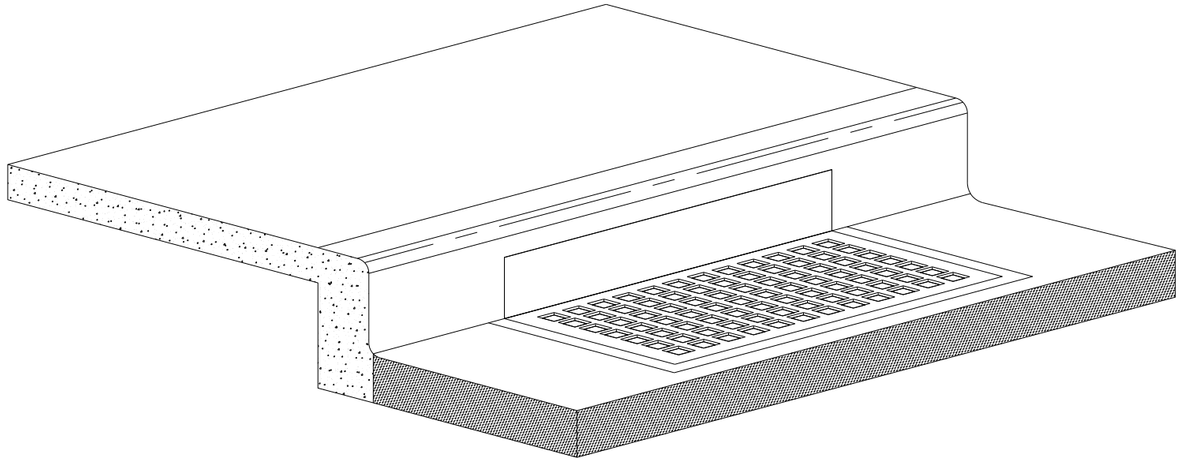
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Pipe Installation Detail

ND 1804

Jct ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	7



Inlet Protection Device

Installation Notes:

1. Place device tightly against drain opening and cover entire grate. The device should extend at least 2 inches past grate toward street.

2. Overlap the segments at longer openings.

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

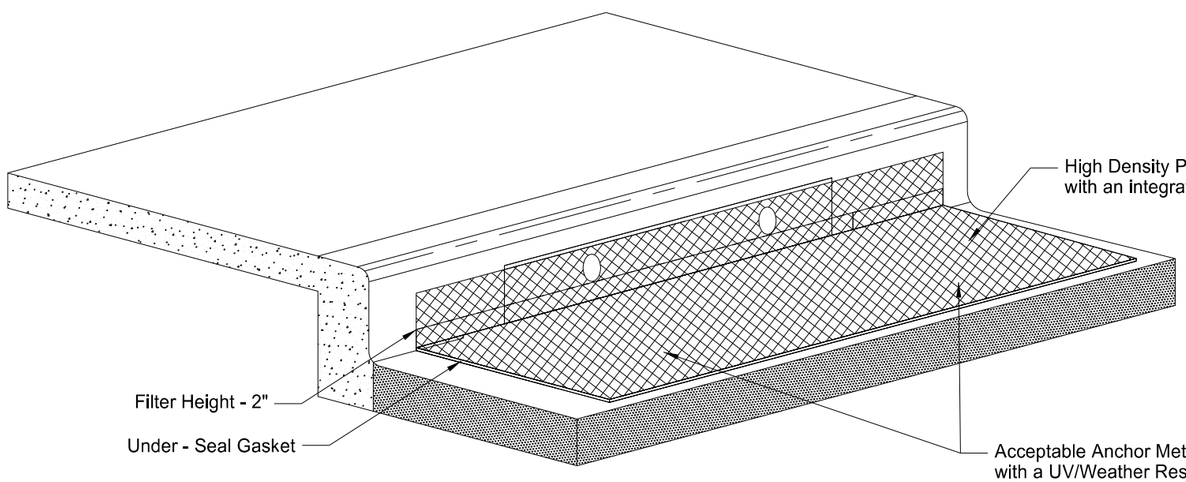
General Notes:

1. Inlet Protection shall be maintained or replaced at the direction of the engineer.

2. Manufactured alternatives may be substituted at the direction of the engineer.

3. When removing or maintaining inlet protection, care shall be taken so that fabric does not fall into the inlet. Any material falling into the inlet shall be removed immediately.

4. Inlet protection is to be used (and reused) as needed to prevent material from entering inlets as the work progresses through the project.



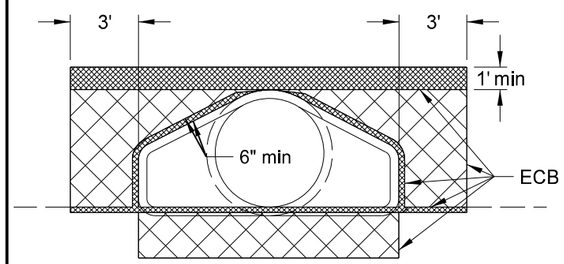
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Inlet Protection Device

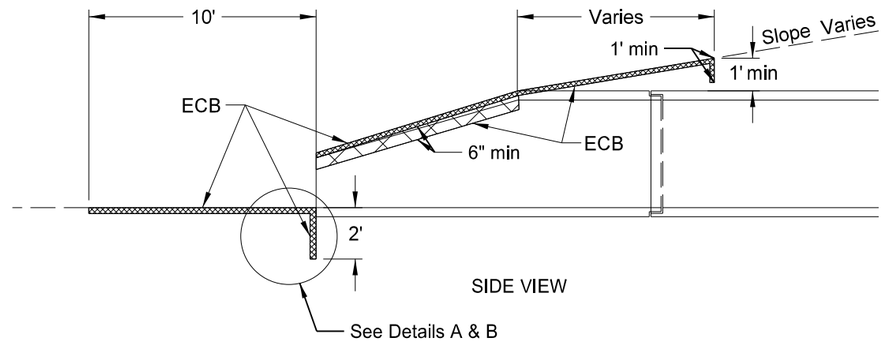
ND 1804

Jct of ND 23 Extending North 1 Mile

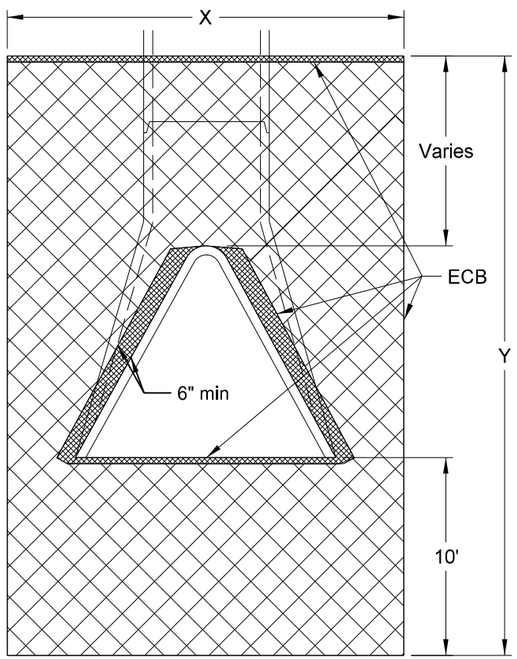
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	20	8



FRONT VIEW

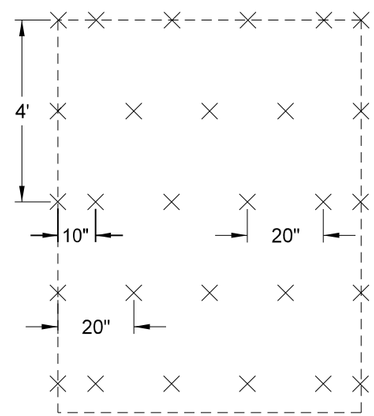


SIDE VIEW



TOP VIEW

NOTE: The ECB shall be tucked a minimum of 1' into the embankment above the flared end section, a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section, and 2' into the ground at the end of the flared end section.



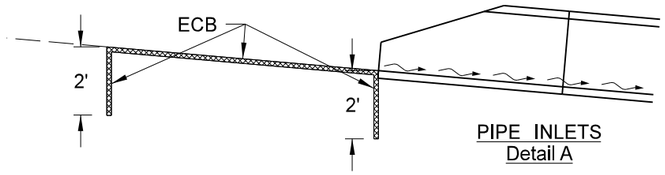
STAPLE PATTERN: 3.8 staples per square yard using 8-inch 11 gauge wire "u" staples

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
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

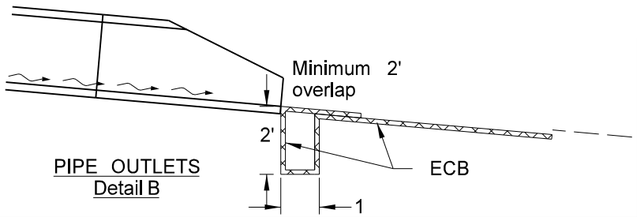
Note: Quantities based on 8:1 slope.

708 5651 ECB TYPE 2				
Location of Surface Area to be Protected	**Pipe Dia**	**No**	**Unit Quantity**	**Total Quantity**
ND 1804	(In)		(SY)	(SY)
8+71 (West Ave.) - Lt	60	1	35	35
13058+90 - Lt	15	1	20	20
13058+90 - Rt	15	1	20	20
13064+02 - CL	36	2	30	60
13064+08 - CL	36	2	30	60
13064+14 - CL	36	2	30	60
13064+20 - CL	36	2	30	60
13064+26 - CL	36	2	30	60
13064+32 - CL	36	2	30	60
13067+59 - Lt	18	4	22	88
13068+19 - Lt	18	2	22	44
13070+22 - Lt	18	2	22	44
13071+58 - Lt	18	2	22	44
13072+57 - Lt	18	2	22	44
13073+93 - Lt	18	2	22	44
13078+67 - Rt	24	2	24	48
13087+32 - Lt	24	2	24	48
13099+55 - CL	30	2	27	54
Total (SY)				**893**

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/19/13 and the original document is stored at the North Dakota Department of Transportation



PIPE INLETS
Detail A



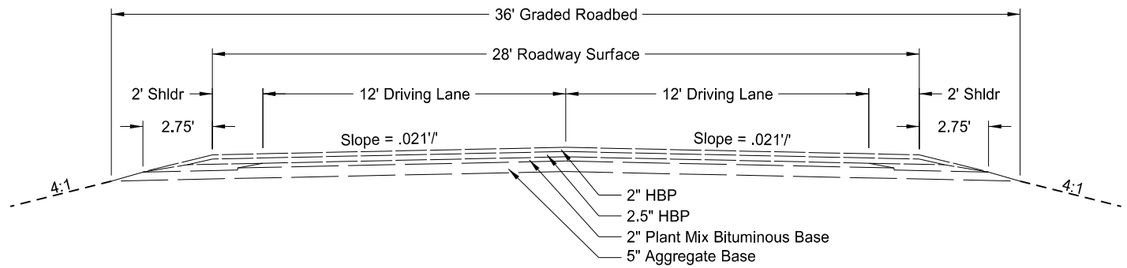
PIPE OUTLETS
Detail B

Erosion Control at Culvert Flared End Sections

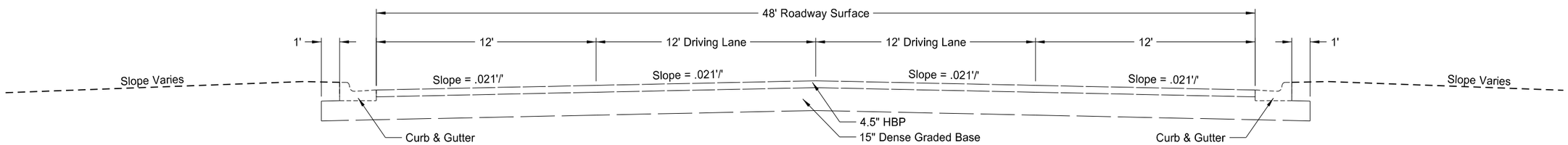
ND 1804

Jct of ND 23 Extending North 1 Mile

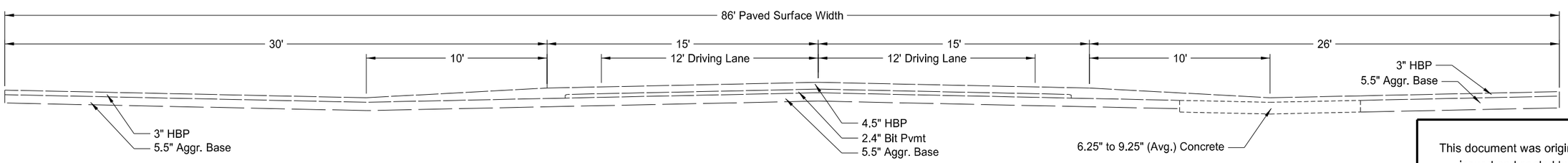
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	30	1



ND 1804



ND 23 - West of ND 1804 Jct.



ND 23 - East of ND 1804 Jct.

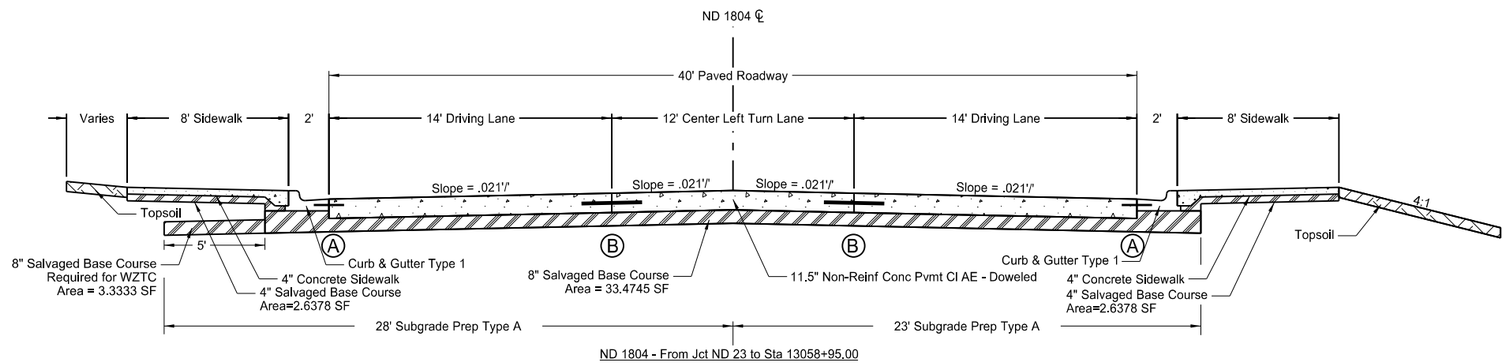
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

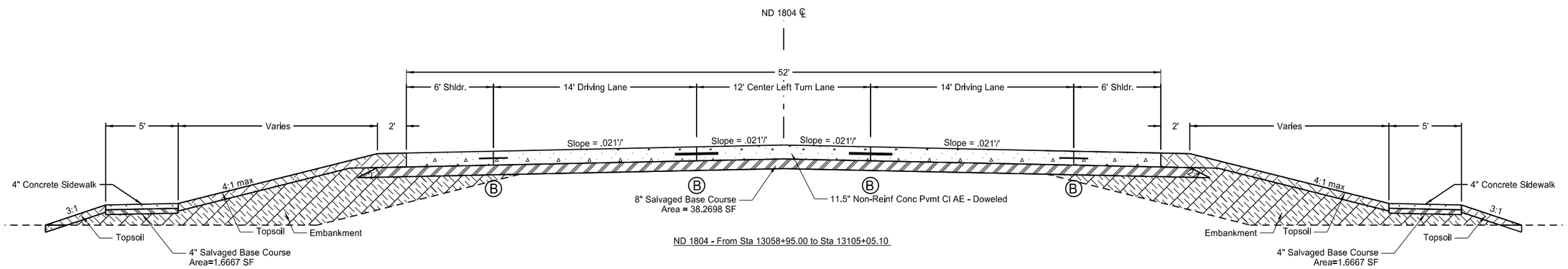
Existing Typical Sections

ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	30	2





(A) No. 3 x 18" Tie Bars @ 4' c to c

(B) Tied Joint (Sawed)

NOTE: Sidewalk on the west side from Jct ND 23 to 40' St. NW.
Sidewalk on the east side from Jct ND 23 to 39½ St.

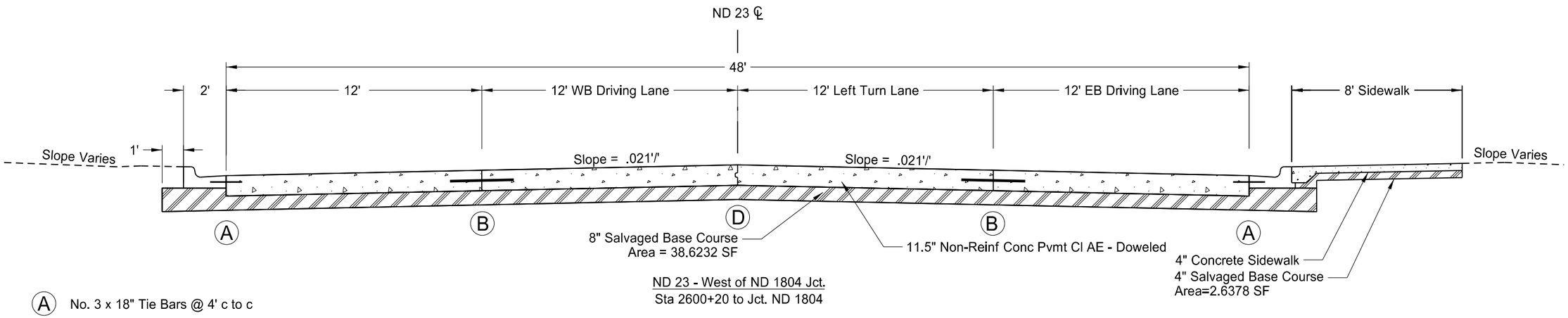
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Proposed Typical Sections

ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	30	3



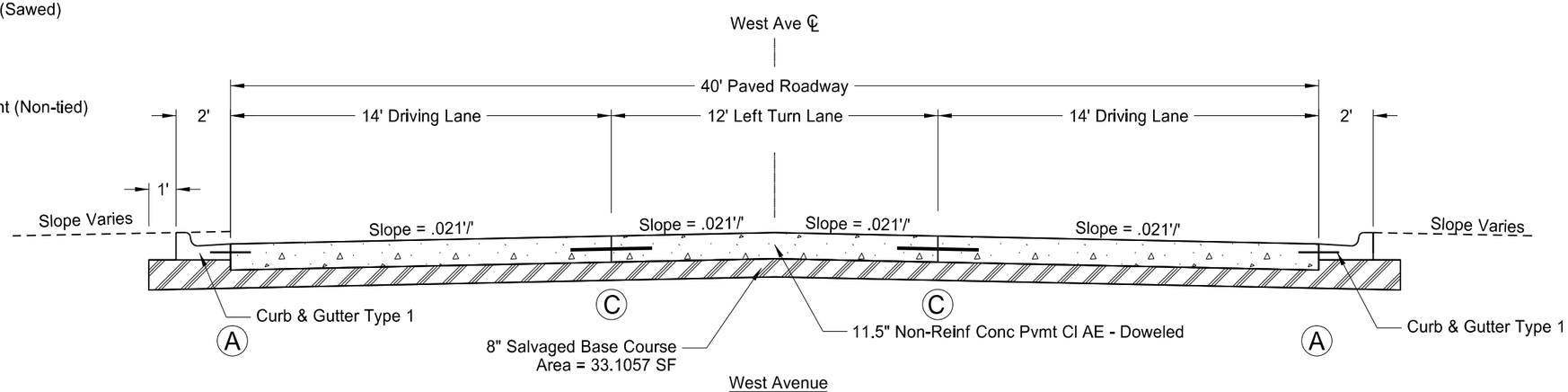
ND 23 - West of ND 1804 Jct.
Sta 2600+20 to Jct. ND 1804

A No. 3 x 18" Tie Bars @ 4' c to c

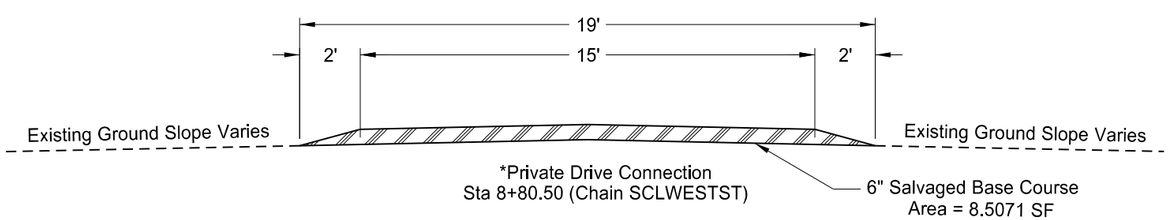
B Tied Joint (Sawed)

C Tied Joint

D Keyed Joint (Non-tied)



West Avenue
Sta 6+50 (Chain SCLWESTST) to Jct. ND 23



This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

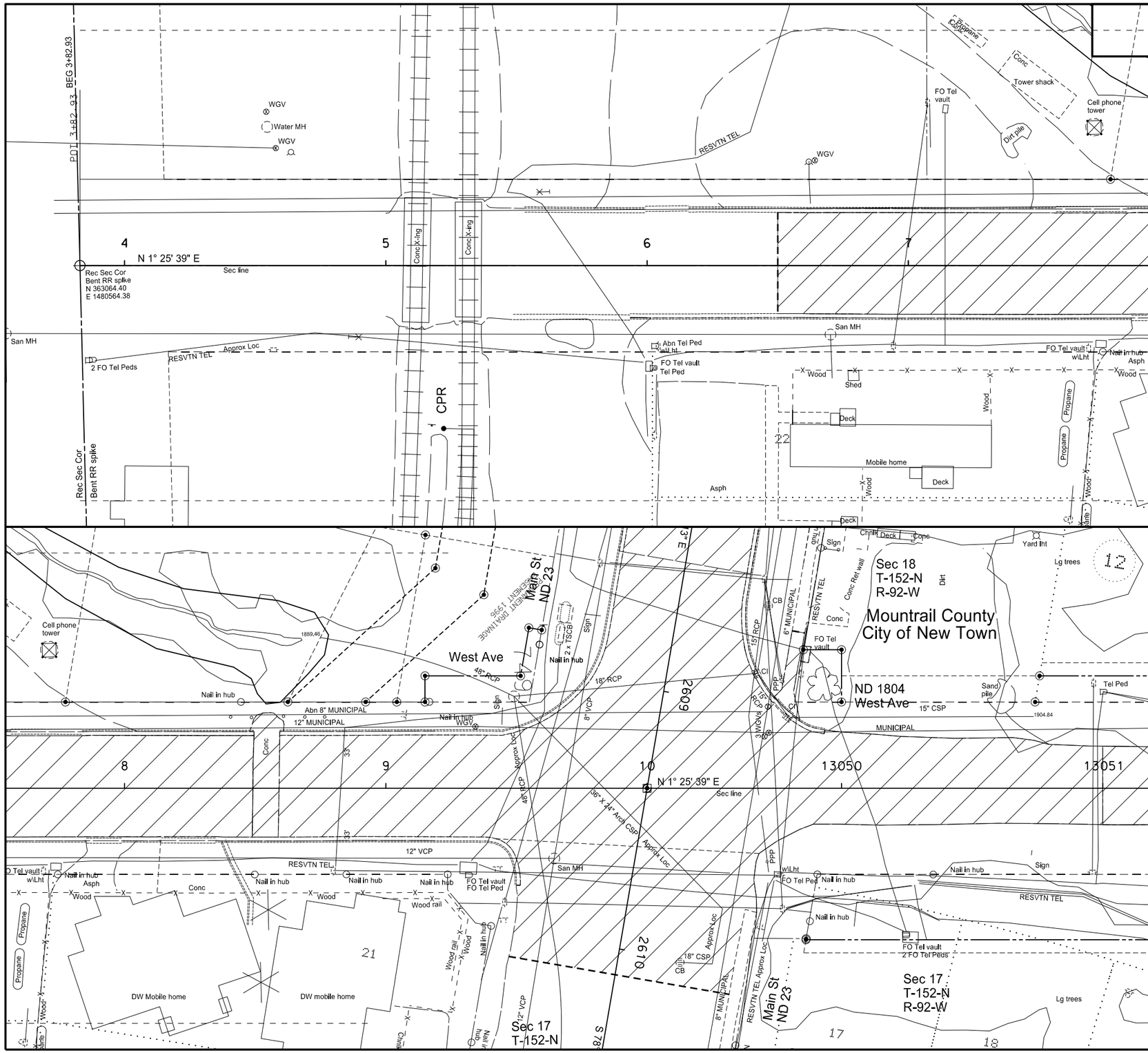
Proposed Typical Sections

ND 23 and West Avenue

Intersection Work at Jct. ND 1804 & ND 23

*See Plan and Profile sheets.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	1



SPEC	CODE	BID ITEM	UNIT	QUANTITY
201	370	**REMOVAL OF TREES 10IN**		
		Approx. Sta 13049+93 (Lt)	EA	1
		Approx. Sta 13050+85 (Lt)	EA	1
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		6+50 to 13051+00 (ML)	TON	620.1
		2609+60.7 to 2610+10 (ML)	TON	114.7
		Concrete Pavement		
		8+49 to 8+59 (Valley Gutter)	TON	17.7
		6+00 to 13051+00 (C&G Lt)	TON	43.3
		6+00 to 13051+00 (C&G Rt)	TON	30.3
		13049+84 (SW - Lt)	TON	3.7
		Base Material		
		6+50 to 13051+00 (ML)	TON	689
		2609+60.7 to 2610+10 (ML)	TON	89.2
202	153	**SAW BITUMINOUS SURFACING - FULL DEPTH**		
		6+50 (ML)	LF	39
		6+50 (C&G Lt)	LF	2
		6+50 (C&G Rt)	LF	2
		13049+84 (SW - 60' Lt)	LF	5
		2610+10 (ML)	LF	86

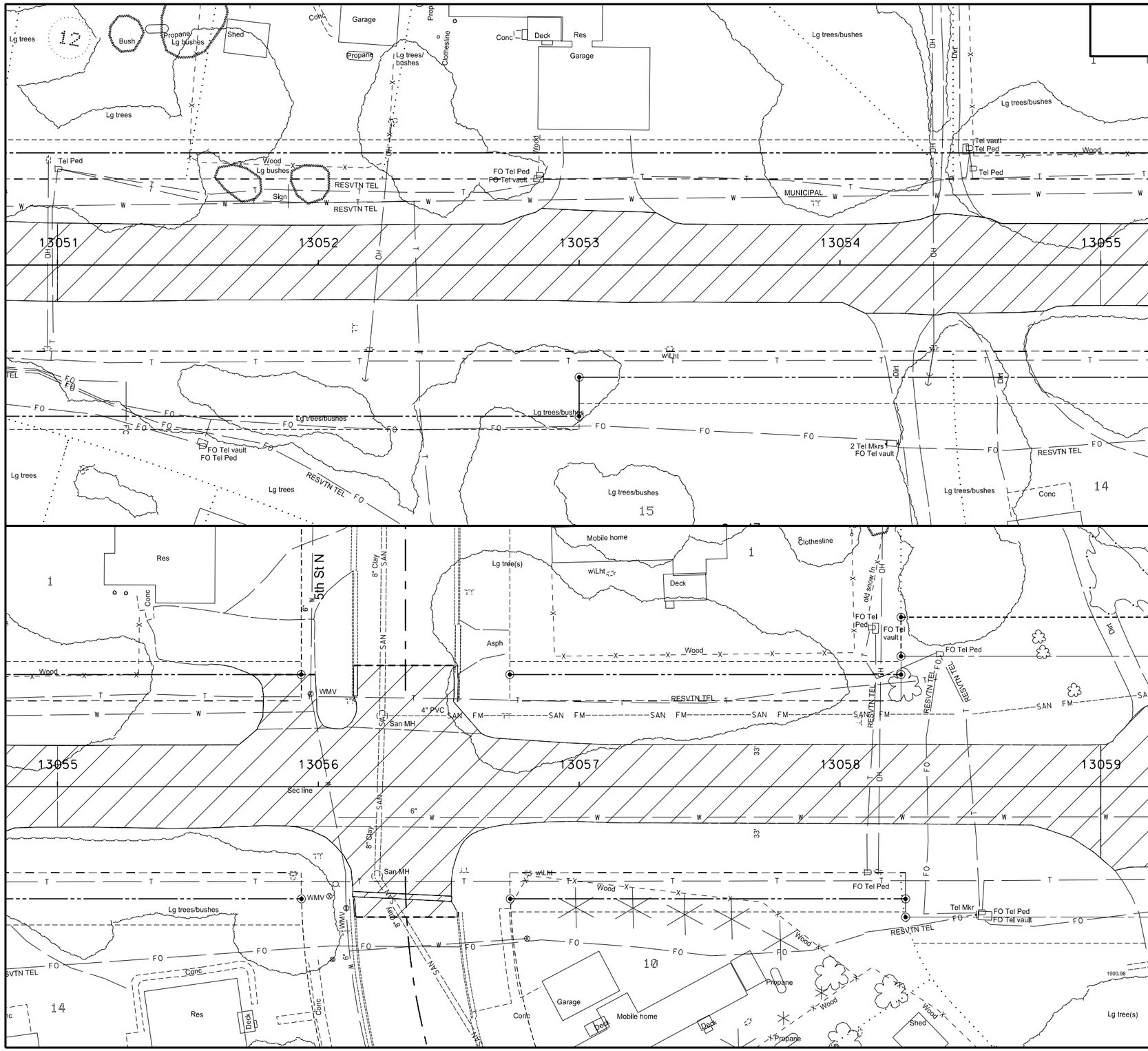
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	2



SPEC	CODE	BID ITEM	UNIT	QUANTITY
201	370	**REMOVAL OF TREES 10IN**		
		Approx. Sta 13051+00 to Sta 13051+50 (Lt)	EA	5
		Approx. Sta 13052+30 to Sta 13052+80 (Lt)	EA	3
		Approx. Sta 13053+95 to Sta 13054+30 (Lt)	EA	5
		Approx. Sta 13054+40 (Rt)	EA	1
		Approx. Sta 13054+80 to Sta 13056+00 (Rt)	EA	11
		Approx. Sta 13056+70 to Sta 13058+00 (Lt)	EA	11
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		13051+00 to 13059+00 (ML)	TON	666.2
		13055+86.5 (DW Lt)	TON	10.4
		5th Street (Lt)	TON	22.9
		5th Street (Rt)	TON	33.1
		Concrete Pavement		
		5th Street Rt (Valley Gutter)	TON	2.8
		5th Street Rt (C&G)	TON	0.9
		5th Street Lt (C&G)	TON	2.5
		Base Material		
		13051+00 to 13059+00 (ML)	TON	740.3
202	153	**SAW BITUMINOUS SURFACING - FULL DEPTH**		
		13055.86.5 (DW - 43' Lt)	LF	25
		5th Street (46.5' Lt)	LF	37
		5th Street Lt (C&G Lt & Rt)	LF	4
		5th Street (50' Rt)	LF	39
		5th Street Rt (C&G Lt & Rt)	LF	4

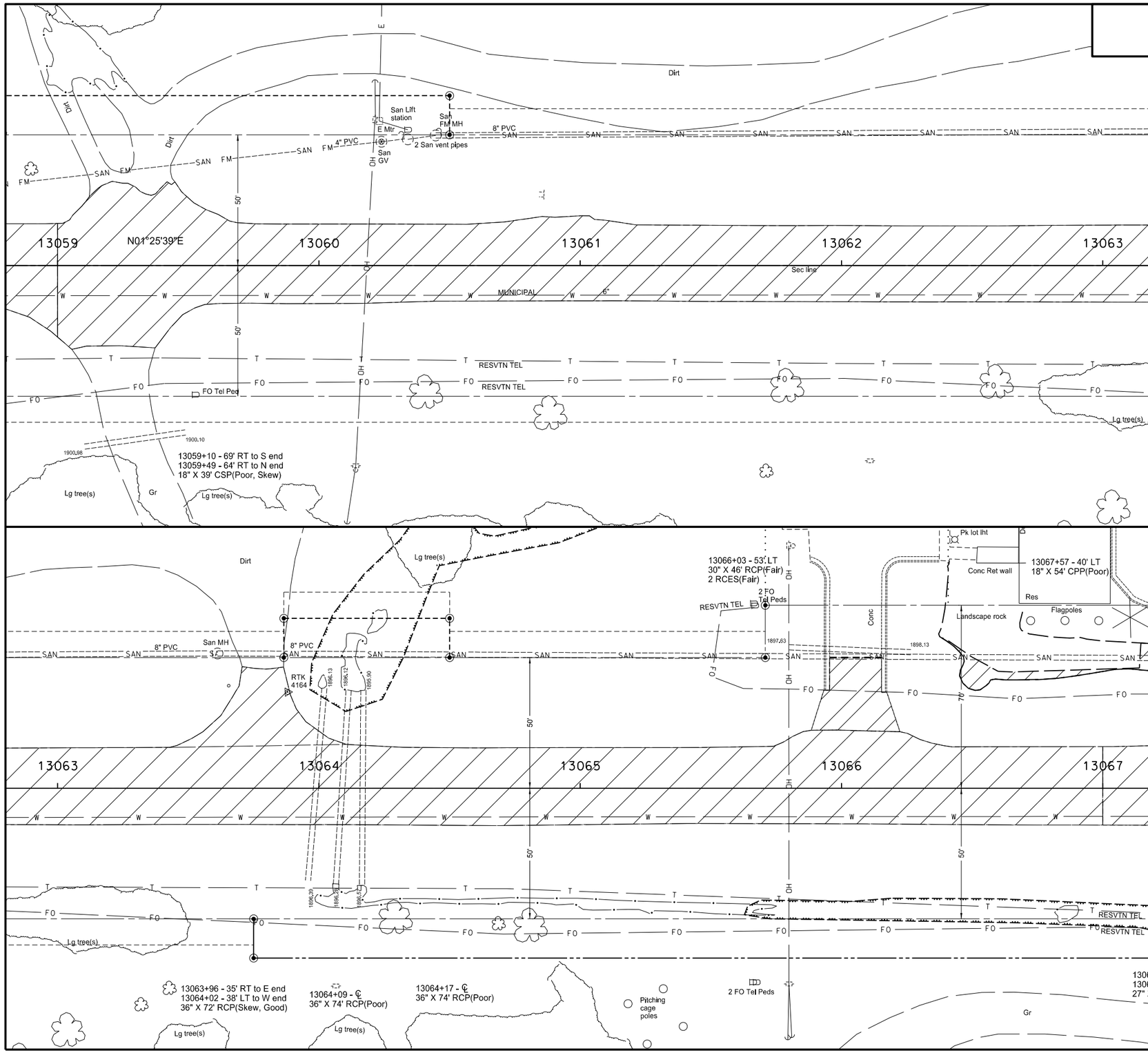
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	3



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		13059+00 to 13067+00 (ML)	TON	664.9
		13063+78.1 (DW Lt)	TON	21.3
		Concrete Pavement		
		13066+05.4 (DW Lt)	TON	25.7
		13066+05.4 (DW Lt - C&G)	TON	2.5
		13066+38 to 13067+34 (Landscaping Rock Lt)	TON	15
		Base Material		
		13059+00 to 13067+00 (ML)	TON	738.8
202	153	**SAW BITUMINOUS SURFACING - FULL DEPTH**		
		13066+05.4 (DW - 50' Lt)	LF	20
		13066+05.4 (DW Lt - C&G)	LF	4

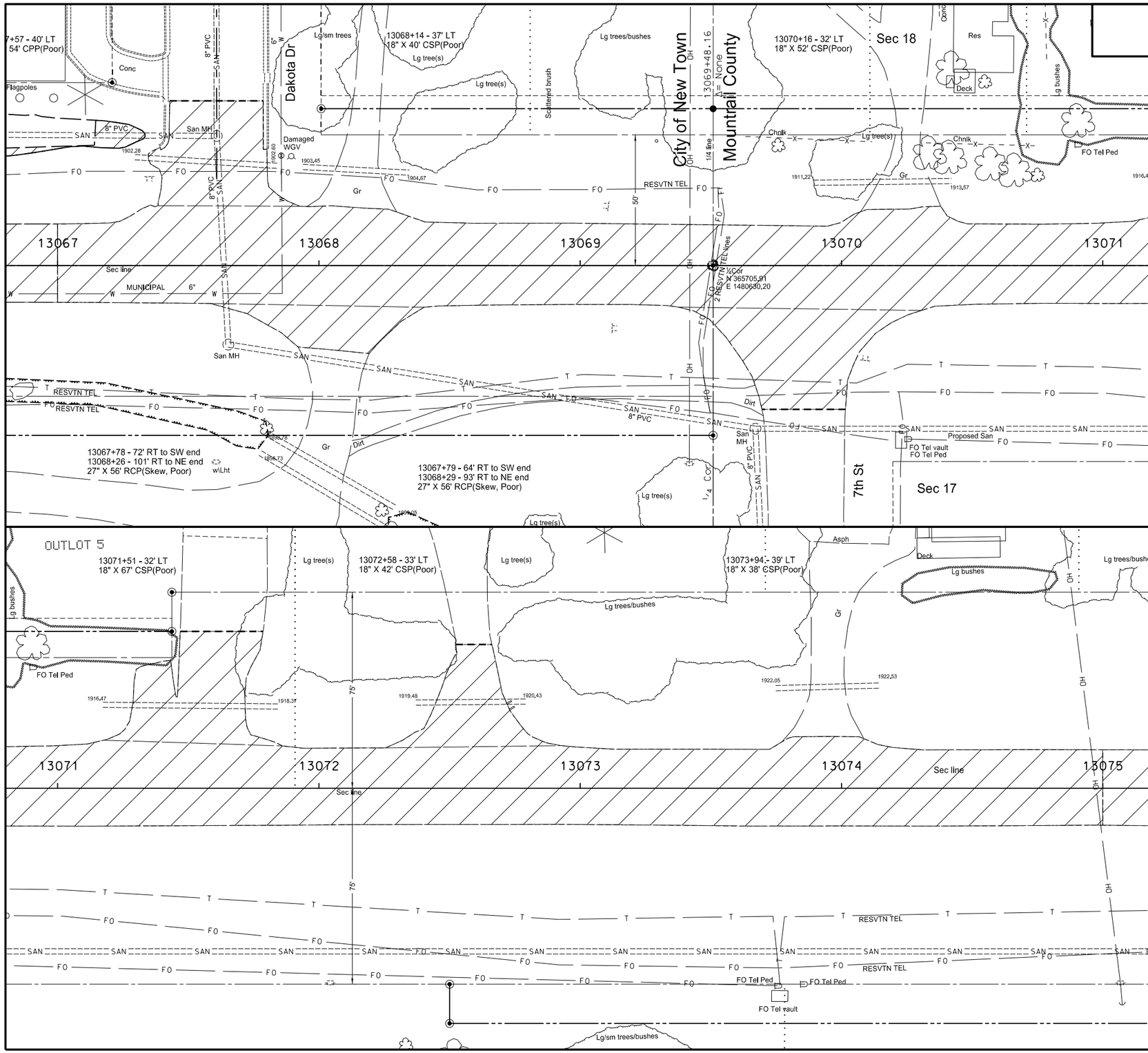
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	4



SPEC	CODE	BID ITEM	UNIT	QUANTITY
201	370	**REMOVAL OF TREES 10IN**		
		Approx. Sta 13068+40 to Sta 13068+70 (Lt)	EA	2
		Approx. Sta 13069+40 to Sta 13069+60 (Lt)	EA	2
		Approx. Sta 13069+90 to Sta 13070+10 (Lt)	EA	2
		Approx. Sta 13070+33 to Sta 13070+90 (Lt)	EA	5
		Approx. Sta 13071+80 to Sta 13072+50 (Lt)	EA	5
		Approx. Sta 13072+75 to Sta 13073+80 (Lt)	EA	2
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		13067+00 to 13075+00 (ML)	TON	664.8
		Dakota Drive (Lt)	TON	37.6
		13068+00 (DW Rt)	TON	19.3
		7th Street (Rt)	TON	43.4
		13071+52 (DW Lt)	TON	40.2
		13072+59 (DW Lt)	TON	25.6
		Concrete Pavement		
		Dakota Drive (C&G)	TON	3.5
		Base Material		
		13067+00 to 13075+00 (ML)	TON	738.7
202	153	**SAW BITUMINOUS SURFACING - FULL DEPTH**		
		Dakota Drive (63' Lt)	LF	36
		Dakota Drive (C&G)	LF	4
		7th Street (55' Rt)	LF	32
		13071+61.5 (DW - 60' Lt)	LF	32
		13072+59.6 (DW - 55' Lt)	LF	14

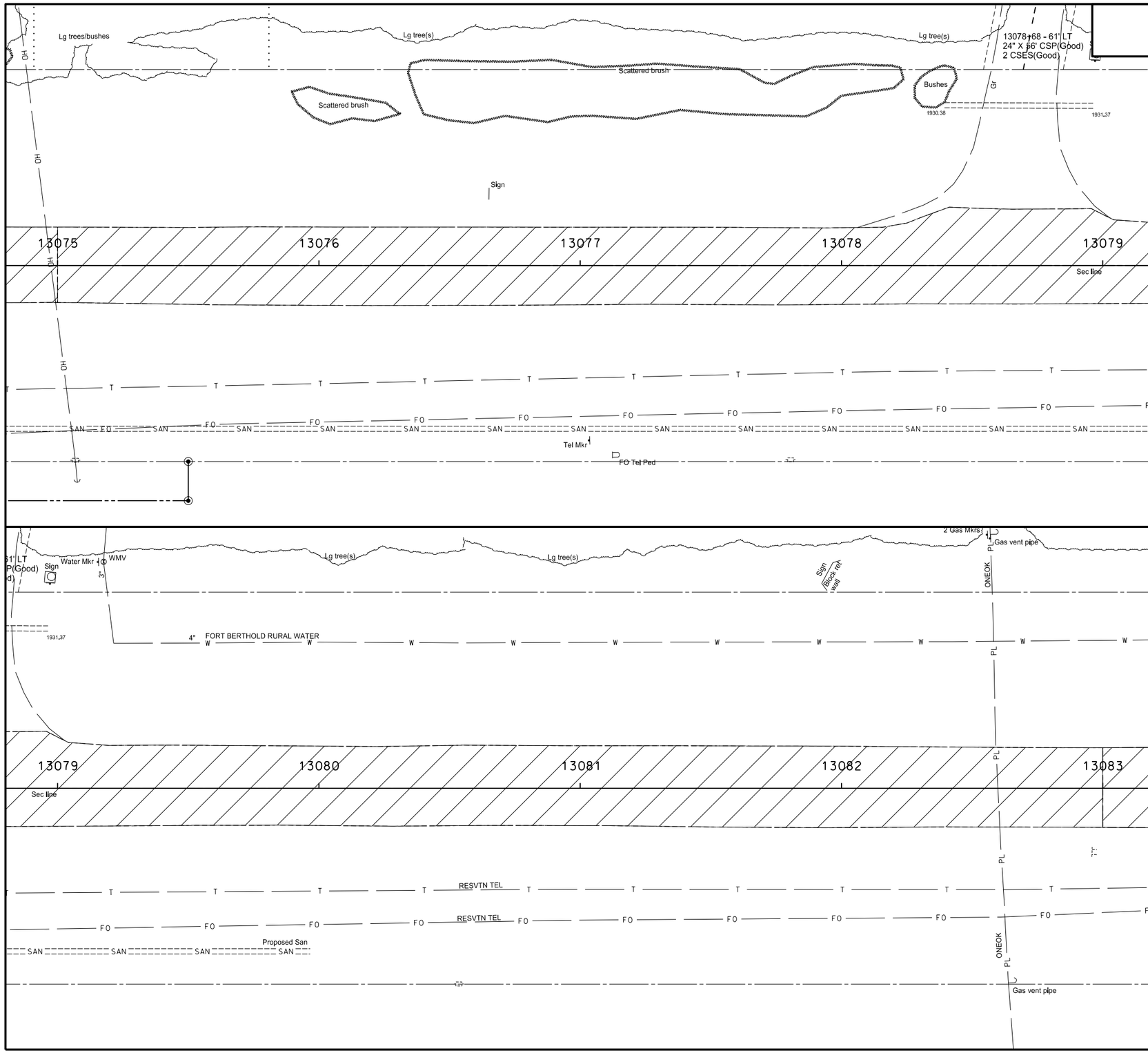
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	5



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		13075+00 to 13083+00 (ML)	TON	641.2
		Base Material		
		13075+00 to 13083+00 (ML)	TON	712.4

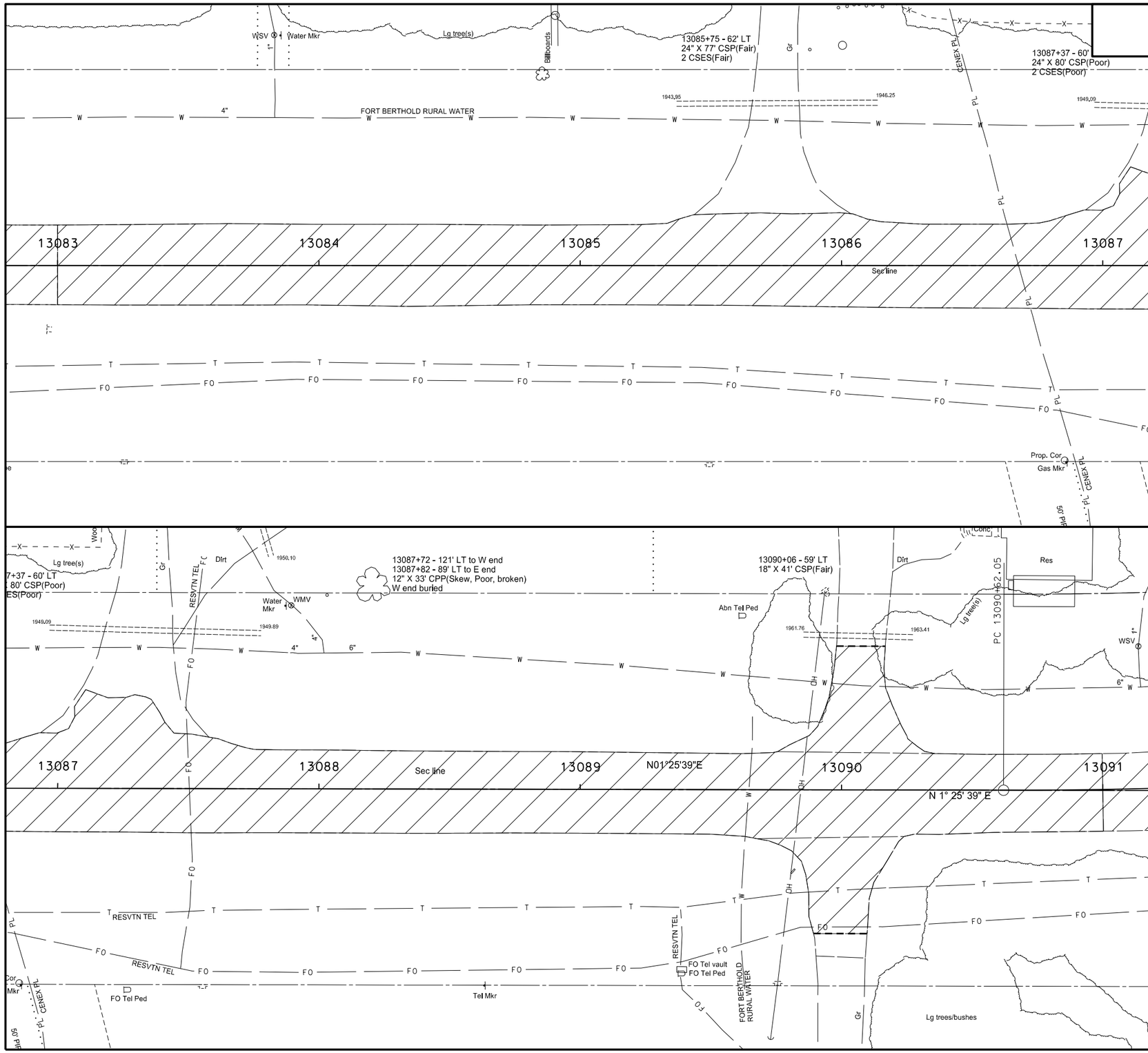
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	6



SPEC	CODE	BID ITEM	UNIT	QUANTITY
201	370	**REMOVAL OF TREES 10IN**		
		Approx. Sta 13089+80 (Lt)	EA	1
		Approx. Sta 13090+20 to Sta 13091+30 (Lt)	EA	4
		Approx. Sta 13090+40 to Sta 13091+30 (Lt)	EA	3
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		13083+00 to 13091+00 (ML)	TON	685.3
		13089+96 (DW Rt)	TON	26
		13090+06 (DW Lt)	TON	24.6
		Base Material		
		13083+00 to 13091+00 (ML)	TON	761.4
202	153	**SAW BITUMINOUS SURFACING - FULL DEPTH**		
		13089+96 (DW - 55' Rt)	LF	21
		13090+06 (DW - 55' Lt)	LF	19

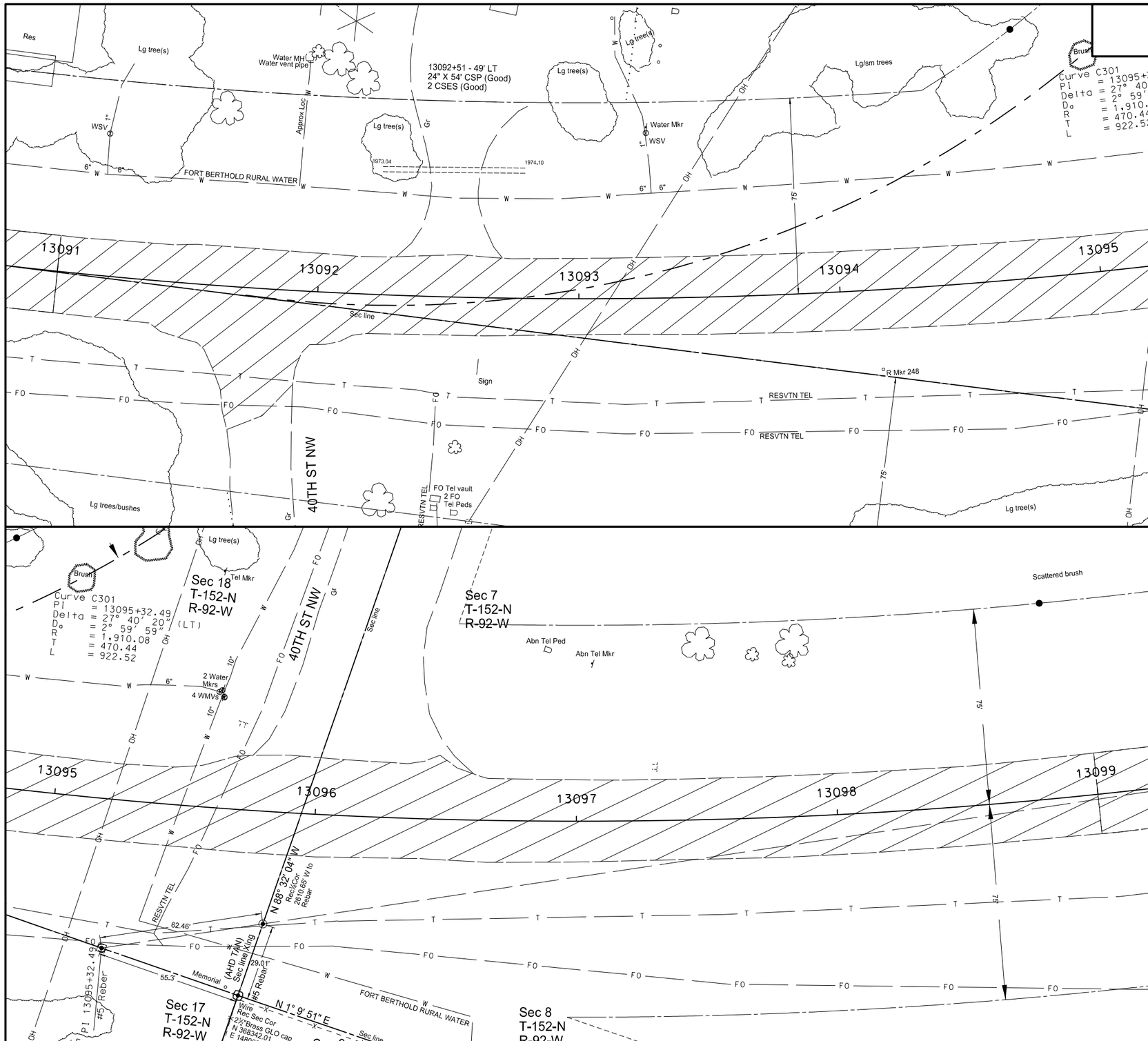
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	7



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		13091+00 to 13099+00 (ML)	TON	682.6
		Base Material		
		13091+00 to 13099+00 (ML)	TON	758.5

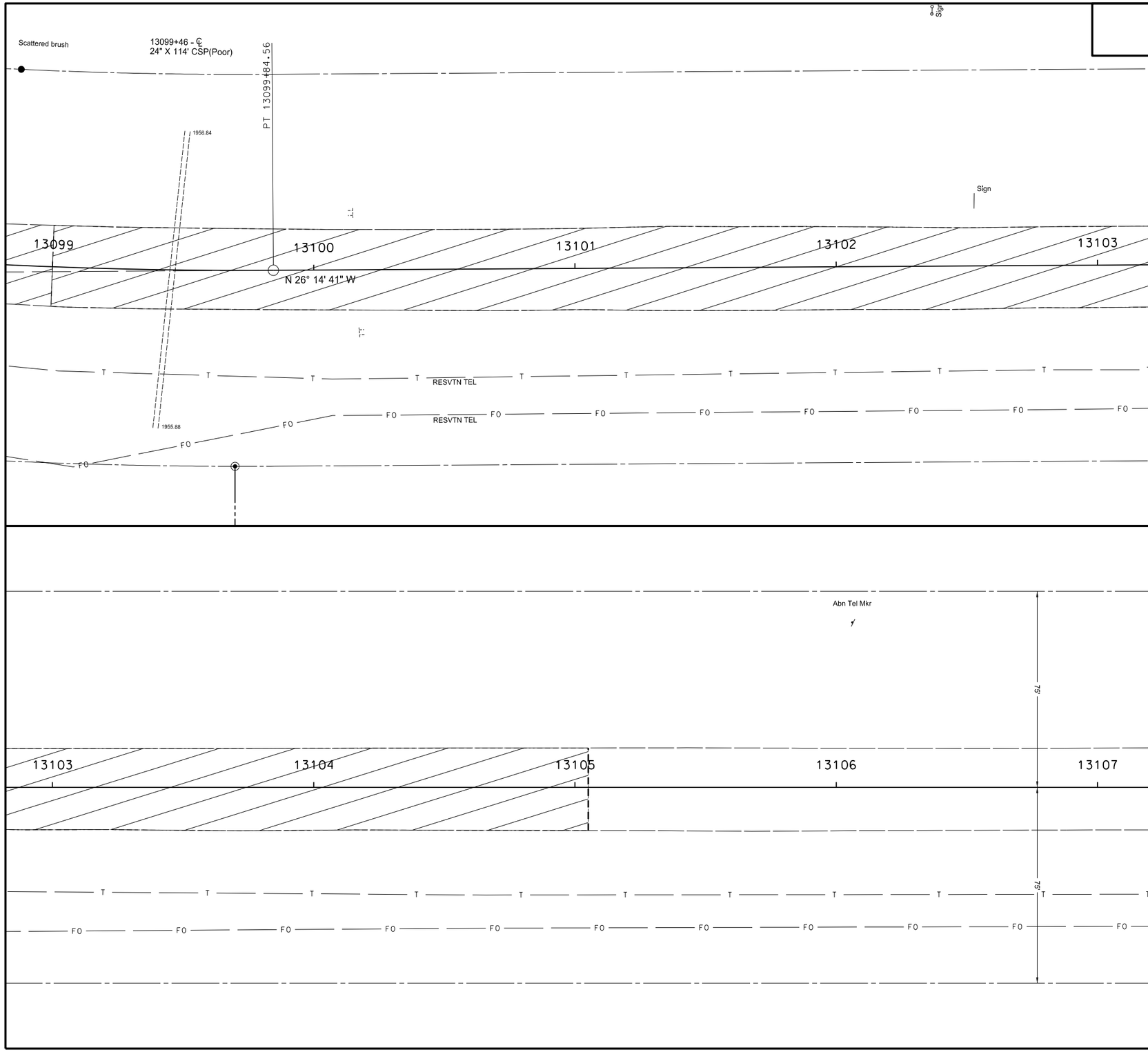
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	8



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		13099+00 to 13105+05.1 (ML)	TON	493.3
		Base Material		
		13099+00 to 13105+05.1 (ML)	TON	548.1
202	153	**SAW BITUMINOUS SURFACING - FULL DEPTH**		
		13105+05.1 (ML)	LF	32

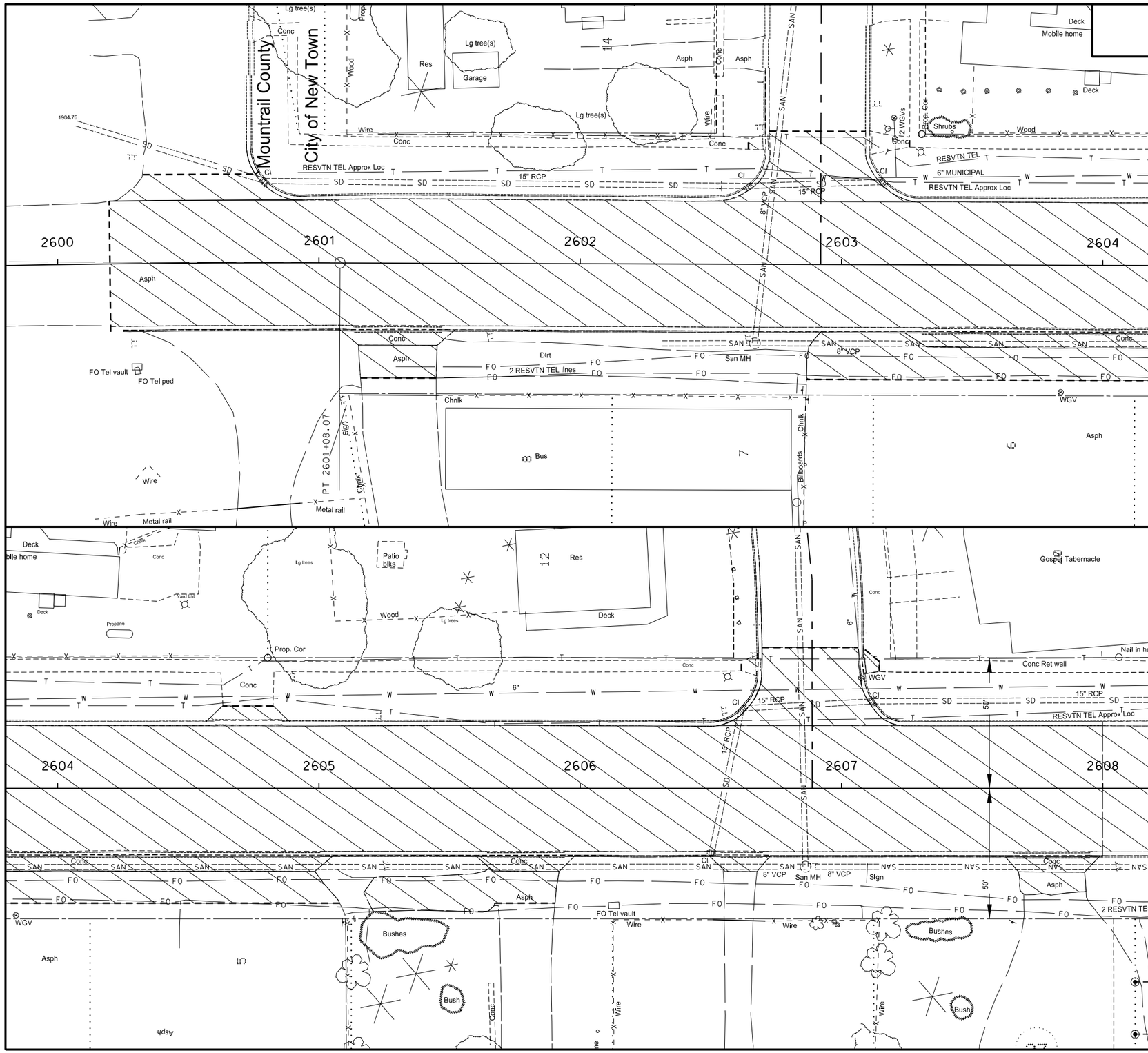
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	9



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		2600+20 to 2608+00 (ML)	TON	975.9
		2600+54 (DW Lt)	TON	12.2
		2601+31 (DW Rt)	TON	8.6
		5th Street (Lt)	TON	27.2
		2603+97 (DW Rt)	TON	66.7
		2605+79 (DW Rt)	TON	22
		4th Street (Lt)	TON	29.7
		2607+83 (DW Rt)	TON	0.9
		Concrete Pavement		
		2600+76 to 2608+00 (C&G Lt)	TON	69.6
		2600+25 to 2608+00 (C&G Rt)	TON	75.3
		2601+31 (DW Rt)	TON	7.5
		2602+64 (SW Lt)	TON	0.8
		2603+11 (SW Lt)	TON	2.4
		2604+16 (DW Rt)	TON	36.4
		2604+73 (DW Lt)	TON	5.2
		2605+79 (DW Rt)	TON	6.5
		2606+62 (DW Rt)	TON	3.8
		2606+62 (SW Lt)	TON	0.9
		2607+09 (SW Lt)	TON	0.7
		2707+80 (DW Rt)	TON	6.5
		Base Material		
		2600+20 to 2608+00 (ML)	TON	2819.2
202	153	**SAW BITUMINOUS SURFACING - FULL DEPTH**		
		2600+20 (ML)	LF	48
		2600+54 (DW - 34' Lt)	LF	43
		2600+54 (C&G)	LF	2
		2601+31 (DW - 44' Rt)	LF	29
		2602+64 (SW Lt)	LF	4
		5th Street (51' Lt)	LF	37
		5th Street (C&G)	LF	4
		2603+11 (SW Lt)	LF	4
		2603+97 (DW - 44' Rt)	LF	221
		2604+73 (DW - 31.5' Lt)	LF	19
		2605+79 (DW - 44' Rt)	LF	23
		2606+62 (SW Lt)	LF	4
		4th Street (54' Lt)	LF	37
		4th Street (C&G)	LF	4
		2607+09 (SW Lt)	LF	10

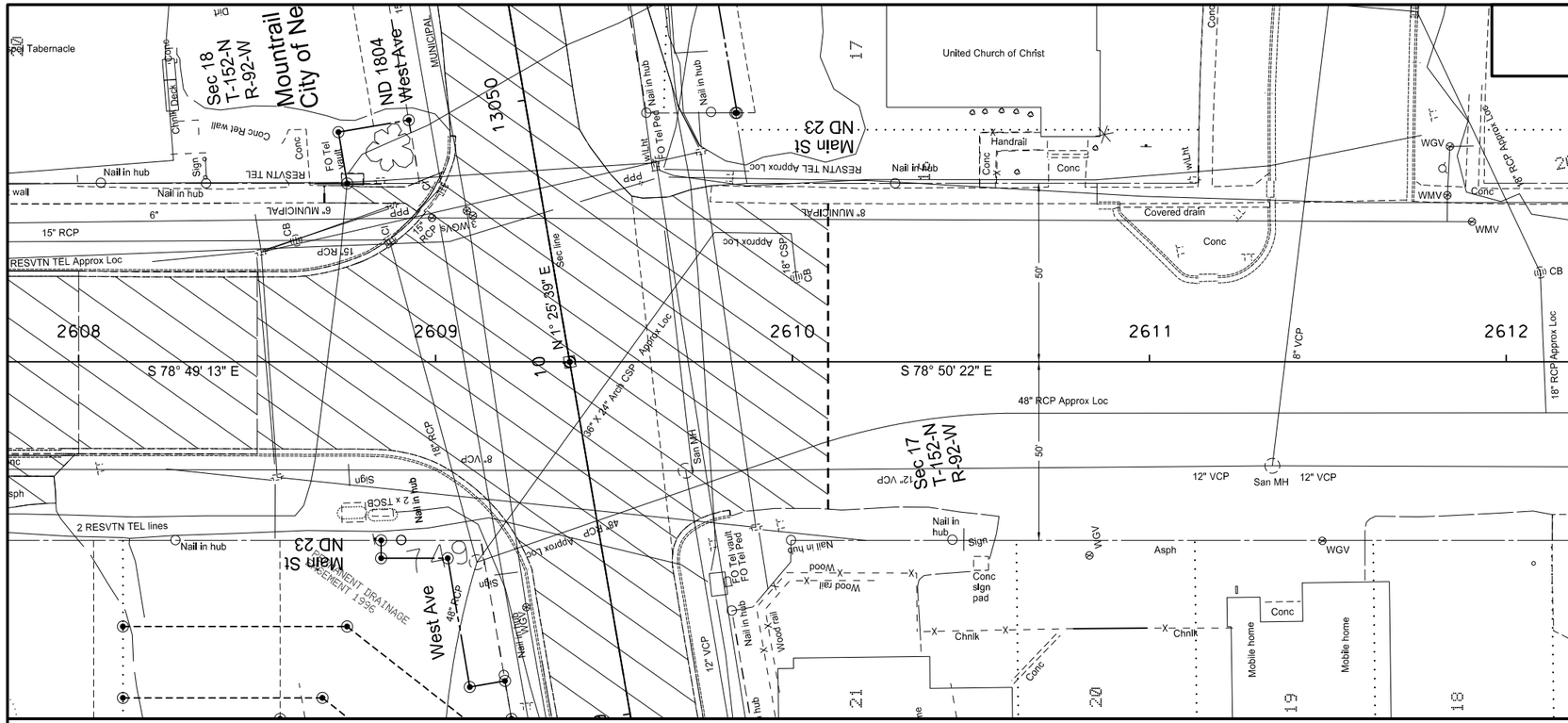
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/19/13 and the original document is stored at the North Dakota Department of Transportation

Removals

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	40	10



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	136	**REMOVAL OF PAVEMENT**		
		Bituminous Pavement		
		2608+00 to 2608+50 (ML)	TON	62.7
		Concrete Pavement		
		2608+00 to 2608+50 (C&G Rt)	TON	4.9
		2608+00 to 2608+50 (C&G Lt)	TON	4.9
		Base Material		
		2608+00 to 2608+50 (ML)	TON	181.1

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

N

Removals

ND 23

Jct of ND 23 extending North 1 Mile

INLET AND MANHOLE SUMMARY

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	50	1

Manhole No. 1 - 48In.
Sta. 13053+29.98 - 12' Lt. (SCL1804)
Top Elev. 1,916.96
Base Elev. 1,911.46
Invert Elev. 1,911.67
Riser 4.00 Ft.

15 In. Conduit W	1,912.17
15 In. Conduit E	1,911.77
18 In. Conduit S	1,911.67

Inlet No. 1A
Type Inlet - Type 2
Grate Style V
Sta. 13053+29.50 - 21' Lt. (SCL1804)
Grate Elev. 1,916.61
Base Elev. 1,912.28
Invert Elev. 1,912.47
H' Dist. 4.00 Ft.

Inlet No. 1B
Type Inlet - Type 2
Grate Style V
Sta. 13053+30.55 - 21' Rt. (SCL1804)
Grate Elev. 1,916.61
Base Elev. 1,912.28
Invert Elev. 1,912.47
H' Dist. 4.00 Ft.

Manhole No. 2 - 48In.
Sta. 13050+72.6 - 12' Lt. (SCL1804)
Top Elev. 1,908.03
Base Elev. 1,902.53
Invert Elev. 1,902.74
Riser 4.00 Ft.

18 In. Conduit N	1,902.84
15 In. Conduit W	1,903.14
18 In. Conduit S	1,902.74

Inlet No. 2A
Type Inlet - Type 2
Grate Style V
Sta. 13050+72.5 - 21' Lt. (SCL1804)
Grate Elev. 1,907.64
Base Elev. 1,903.31
Invert Elev. 1,903.50
H' Dist. 4.00 Ft.

Manhole No. 3 - 60In.
Sta. 13049+89.74 - 13.4' Lt. (SCL1804)
Top Elev. 1,903.60
Base Elev. 1,897.93
Invert Elev. 1,898.14
Riser 4.00 Ft.

18 In. Conduit N	1,898.24
15 In. Conduit W	1,898.47
15 In. Conduit E	1,898.47
18 In. Conduit S	1,898.14

Inlet No. 3A
Type Inlet - Type 2
Grate Style D
Sta. 13049+89.93 - 27.4' Lt. (SCL1804)
Grate Elev. 1,903.32
Base Elev. 1,898.99
Invert Elev. 1,899.18
H' Dist. 4.00 Ft.

Inlet No. 3B
Type Inlet - Type 2
Grate Style V
Sta. 13050+10.7 - 21' Rt. (SCL1804)
Grate Elev. 1,904.20
Base Elev. 1,899.87
Invert Elev. 1,900.06
H' Dist. 4.00 Ft.

Manhole No. 4 - 48In.
Sta. *2609+65.11 - 18.22' Lt. (SCL23)
Top Elev. *1,901.12
Base Elev. *1,894.01
Invert Elev. *1,894.20
Riser 5.61 Ft.

18 In. Conduit E	1,895.04
15 In. Conduit W	1,894.20

*Sta & inverts to be field adjusted as necessary to match existing storm drain.

Manhole No. 5 - 72In.
Sta. 2609+22 - 5.99' Lt. (SCL23)
Top Elev. 1,902.38
Base Elev. 1,893.19
Invert Elev. 1,893.44
Riser 7.52 Ft.

15 In. Conduit NW	1,893.75
18 In. Conduit N	1,893.54
15 In. Conduit E	1,893.54
24 In. Conduit S	1,893.44

Inlet No. 5A
Type Inlet - Special - Type 2 - 48 In.
Grate Style D
Sta. 2608+71.95 - 28.07' Lt. (SCL23)
Grate Elev. 1,903.36
Base Elev. 1,896.09
Invert Elev. 1,896.28
H' Dist. 6.44 Ft.

15 In. Conduit NW	1,896.90
15 In. Conduit SE	1,896.28

Manhole No. 6 - 84In.
Sta. *2610+03.2 - 23.94' Rt. (SCL23)
Top Elev. *1,900.28
Base Elev. *1,889.94
Invert Elev. *1,890.40
Riser 8.67 Ft.

48 In. Conduit E	1,890.67
54 In. Conduit W	1,890.40

*Sta & inverts to be field adjusted as necessary to match existing storm drain.

This document was originally issued and sealed by Randall Sandvig, Registration Number PE-8783, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation.

INLET AND MANHOLE SUMMARY

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	50	2

Manhole No. 7 - 108In.
Sta. 2609+09.36 – 63.46’ Rt. (SCL23)
Top Elev. 1,899.90
Base Elev. 1,889.50
Invert Elev. 1,890.00
Riser 8.40 Ft.
---
24 In. Conduit N 1,890.10
54 In. Conduit E 1,890.10
60 In. Conduit S 1,890.00

Inlet No. 8A
Type Inlet - Type 2 - Double
Grate Style D
Sta. 8+54.27 - 21' Lt. (SCLWESTST)
Grate Elev. 1,897.09
Base Elev. 1,892.46
Invert Elev. 1,892.71
H’ Dist. 4.30 Ft.

Inlet No. 8B
Type Inlet - Type 2 - Double
Grate Style D
Sta. 8+54.27 - 21' Rt. (SCLWESTST)
Grate Elev. 1,897.09
Base Elev. 1,892.76
Invert Elev. 1,893.01
H’ Dist. 4.00 Ft.

Inlet No. 8C
Type Inlet - Type 2
*20 ft of 18” Slotted Drain
Grate Style V
Sta. 7+73.7 - 21' Rt. (SCLWESTST)
Grate Elev. 1,897.94
Base Elev. 1,893.61
Invert Elev. 1,893.82
H’ Dist. 4.00 Ft.

Inlet No. 9A
Type Inlet - Type 2
*10 ft of 15” Slotted Drain
Grate Style V
Sta. 13058+90 - 21' Lt. (SCL1804)
Grate Elev. 1,908.41
Base Elev. 1,904.08
Invert Elev. 1,904.27
H’ Dist. 4.00 Ft.

Inlet No. 9B
Type Inlet - Type 2
*10 ft of 15” Slotted Drain
Grate Style V
Sta. 13058+90 - 21' Rt. (SCL1804)
Grate Elev. 1,908.41
Base Elev. 1,904.08
Invert Elev. 1,904.54
H’ Dist. 4.00 Ft.

This document was originally issued and sealed by Randall Sandvig, Registration Number PE-8783, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation.

HYDRAULIC DATA FOR SOIA-7-804(049)247 (A)

STATION	EXISTING PIPE	PROPOSED PIPE SIZE	DRAINAGE AREA (ACRES)	25-YEAR DATA				100-YEAR DATA	
				DESIGN DISCHARGE (CFS)	DESIGN HEADWATER (FT)	DESIGN VELOCITY (FPS)	DESIGN STAGE (NAVD 88)	100-YEAR DISCHARGE (CFS)	100-YEAR STAGE (NAVD 88)
13064+02	3-36" RCP	6-36"	93.0	227.0	3.30	7.57	1899.50	375.0	1901.29
13099+55	24" CSP	30" (B)	8.0	12.0	1.69	6.39	1958.51	19.0	1959.06

(A) Hydraulic data provided is for smooth-walled (Manning's n=0.012) type conduits.
(B) Minimum size due to conduit length.

This document was originally issued and sealed by Brad Pfeifer, Registration Number PE- 5247, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Culvert Hydraulic Data

ND 1804
JCT ND 23 TO TRUCK RELIEVER ROUTE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	51	1

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Conduit Pay Length	Pipe Conduit Storm Drain Pay Size	Pipe Conduit Pay Size	Pipe Conduit Approach Pay Size	Allowable Material	Required Diameter	Minimum Thickness	R1 Fabric Pay Item	End Sections (A) Begin	End Sections (A) End	Applicable Backfill Detail
				LF	IN	IN	IN		IN	IN	SY	EA	EA	
Inlet 8C		Inlet 8B		76	18			Reinforced Concrete Pipe - Class III	18					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	18	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	18	0.064				
Inlet 8A		Inlet 8B		40	24			Reinforced Concrete Pipe - Class III	24					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	24	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	24	0.064				
Inlet 8A		Sta 8+54	49.4' Lt (SCLWESTST)	28	24			Reinforced Concrete Pipe - Class III	24				1	D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	24	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	24	0.064				
Sta 8+76	57.7' Lt (SCLWESTST)	MH 7		66	60			Reinforced Concrete Pipe - Class III	60					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	60	0.079		1		
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	60	0.079				
MH 7		MH 6		98	54			Reinforced Concrete Pipe - Class III	54					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	54	0.079				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	54	0.064				
MH 7		MH 5		66	24			Reinforced Concrete Pipe - Class III	24					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	24	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	24	0.064				
MH 5		MH 4		42	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
MH 5		Inlet 5A		52	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
Inlet 5A		Existing CB		10	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
MH 5		MH 3		52	18			Reinforced Concrete Pipe - Class III	18					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	18	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	18	0.064				
MH 3		Inlet 3A		12	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
MH 3		Inlet 3B		40	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
MH 3		MH 2		80	18			Reinforced Concrete Pipe - Class III	18					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	18	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	18	0.064				
MH 2		Inlet 2A		8	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
MH 2		MH 1		256	18			Reinforced Concrete Pipe - Class III	18					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	18	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	18	0.064				
MH 1		Inlet 1A		8	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
MH 1		Inlet 1B		32	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064				
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
Sta 13058+90	52.8' Lt	Inlet 9A		32	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064		1		
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
Inlet 9B		Sta 13058+90	42.8' Rt	22	15			Reinforced Concrete Pipe - Class III	15					D-714-27
								Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2")	15	0.064			1	
								Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2")	15	0.064				
Sta 13064+02	44.25' Lt	Sta 13064+02	44.25' Rt	90		36		Reinforced Concrete Pipe - Class III (Barrel Length = 86 LF)	36		676	1(Trav)	1(Trav)	D-714-26
Sta 13064+08	44.25' Lt	Sta 13064+08	44.25' Rt	90		36		Reinforced Concrete Pipe - Class III (Barrel Length = 86 LF)	36			1(Trav)	1(Trav)	D-714-26
Sta 13064+14	44.25' Lt	Sta 13064+14	44.25' Rt	90		36		Reinforced Concrete Pipe - Class III (Barrel Length = 86 LF)	36			1(Trav)	1(Trav)	D-714-26
Sta 13064+20	44.25' Lt	Sta 13064+20	44.25' Rt	90		36		Reinforced Concrete Pipe - Class III (Barrel Length = 86 LF)	36			1(Trav)	1(Trav)	D-714-26
Sta 13064+26	44.25' Lt	Sta 13064+26	44.25' Rt	90		36		Reinforced Concrete Pipe - Class III (Barrel Length = 86 LF)	36			1(Trav)	1(Trav)	D-714-26
Sta 13064+32	44.25' Lt	Sta 13064+32	44.25' Rt	90		36		Reinforced Concrete Pipe - Class III (Barrel Length = 86 LF)	36			1(Trav)	1(Trav)	D-714-26

(A) Not paid for separately; Included in unit price bid for Pipe Conduit
(Trav) = Traversable End Section

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation

ALLOWABLE PIPE LIST

ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	51	2

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Conduit Pay Length	Pipe Conduit Storm Drain Pay Size	Pipe Conduit Pay Size	Pipe Conduit Approach Pay Size	Allowable Material	Required Diameter	Minimum Thickness	R1 Fabric Pay Item	End Sections (A) Begin	End Sections (A) End	Applicable Backfill Detail
				LF	IN	IN	IN		IN	IN	SY	EA	EA	
Sta 13067+26	48.4' Lt	Sta 13067+92	51.6' Lt	66			18	Reinforced Concrete Pipe - Class III (Barrel Length = 64 LF)	18			1(Trav)	1(Trav)	N/A
Sta 13067+27	45' Lt	Sta 13067+92	48.1' Lt	66			18	Reinforced Concrete Pipe - Class III (Barrel Length = 64 LF)	18			1(Trav)	1(Trav)	N/A
Sta 13068+01	47' Lt	Sta 13068+37	43.9' Lt	36			18	Reinforced Concrete Pipe - Class III (Barrel Length = 28 LF)	18			1	1	N/A
								Zinc Coated Corrugated Steel	18	0.064				
								Aluminum Coated Corrugated Steel (Type 2)	18	0.064				
								Polymeric Coated Steel (over Zinc or Aluminum Coated Steel)	18	0.064				
								High - Density Polyethylene (HDPE)	18					
Sta 13070+02	42.3' Lt	Sta 13070+41	43.8' Lt	40			18	Reinforced Concrete Pipe - Class III (Barrel Length = 38 LF)	18			1(Trav)	1(Trav)	N/A
Sta 13071+28	43.7' Lt	Sta 13071+88	44.9' Lt	62			18	Reinforced Concrete Pipe - Class III (Barrel Length = 56 LF)	18			1(Trav)	1	N/A
Sta 13072+28	48.9' Lt	Sta 13072+87	49.6' Lt	60			18	Reinforced Concrete Pipe - Class III (Barrel Length = 52 LF)	18			1	1	N/A
								Zinc Coated Corrugated Steel	18	0.064				
								Aluminum Coated Corrugated Steel (Type 2)	18	0.064				
								Polymeric Coated Steel (over Zinc or Aluminum Coated Steel)	18	0.064				
								High - Density Polyethylene (HDPE)	18					
Sta 13073+69	49.5' Lt	Sta 13074+16	49.5' Lt	48			18	Reinforced Concrete Pipe - Class III (Barrel Length = 40 LF)	18			1	1	N/A
								Zinc Coated Corrugated Steel	18	0.064				
								Aluminum Coated Corrugated Steel (Type 2)	18	0.064				
								Polymeric Coated Steel (over Zinc or Aluminum Coated Steel)	18	0.064				
								High - Density Polyethylene (HDPE)	18					
Sta 13078+31	60' Rt	Sta 13079+02	60' Rt	72			24	Reinforced Concrete Pipe - Class III (Barrel Length = 66 LF)	24			1	1	N/A
								Zinc Coated Corrugated Steel	24	0.064				
								Aluminum Coated Corrugated Steel (Type 2)	24	0.064				
								Polymeric Coated Steel (over Zinc or Aluminum Coated Steel)	24	0.064				
								High - Density Polyethylene (HDPE)	24					
Sta 13087+03	61.3' Lt	Sta 13087+61	59.9' Lt	60			24	Reinforced Concrete Pipe - Class III (Barrel Length = 56 LF)	24			1	1	N/A
Sta 13099+64	62.8' Lt	Sta 13099+61	45.5' Lt	18		30		Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	30			1		D-714-25
								Polymeric Coated Steel (over Zinc or Aluminum Coated Steel)	30	0.064				
Sta 13099+61	45.5' Lt	Sta 13099+50	45.8' Rt	92		30 Jacked or Bored		Reinforced Concrete Pipe - Class III (Barrel Length = 92 LF)	30					D-714-16
								Smooth Wall Steel Pipe	30	0.406				
Sta 13099+50	45.8' Rt	Sta 13099+46	77.4' Rt	32		30		Reinforced Concrete Pipe - Class III (Barrel Length = 30 LF)	30				1	D-714-25
								Polymeric Coated Steel (over Zinc or Aluminum Coated Steel)	30	0.064				

(A) Not paid for separately; Included in unit price bid for Pipe Conduit
(Trav) = Traversable End Section

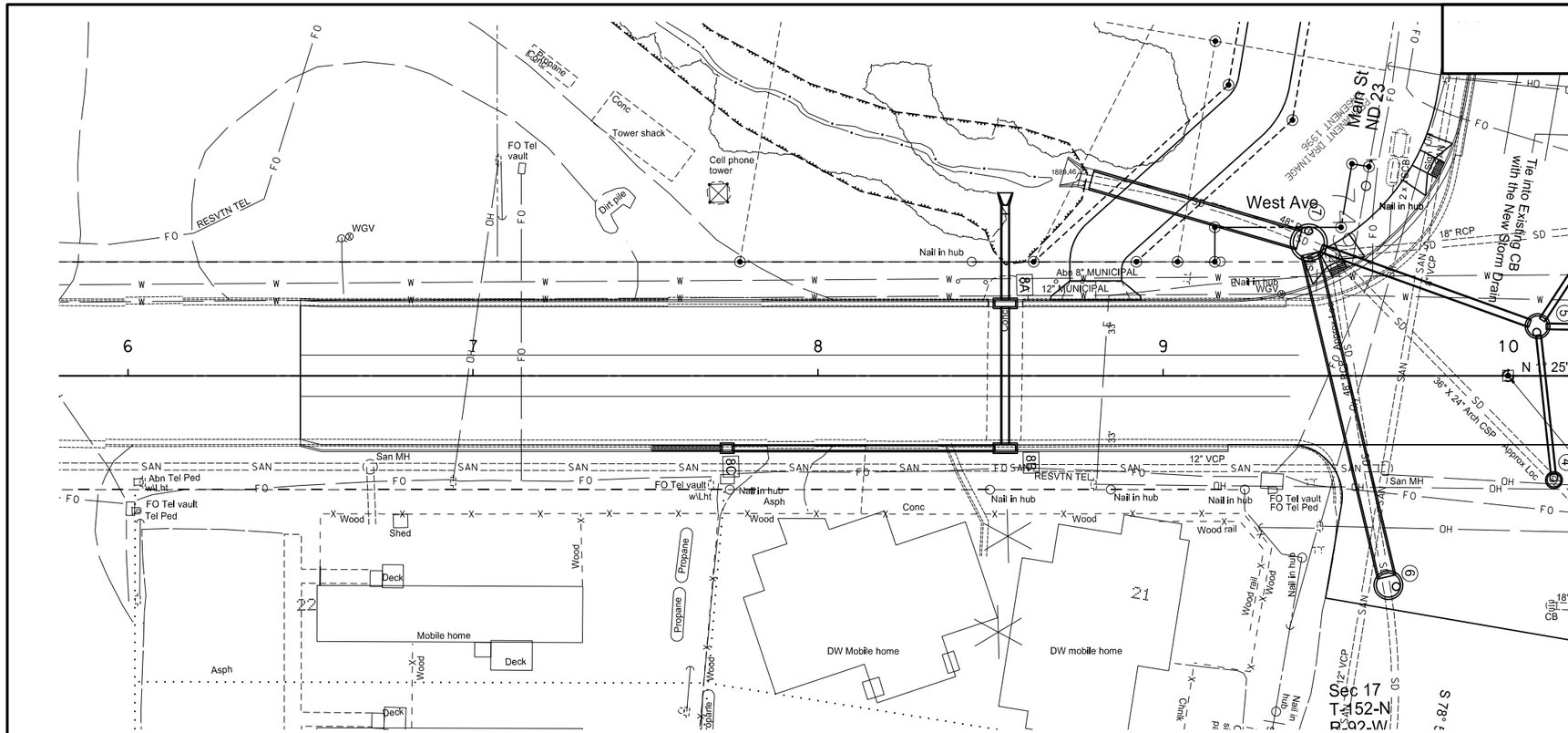
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/30/13 and the original document is stored at the North Dakota Department of Transportation

ALLOWABLE PIPE LIST

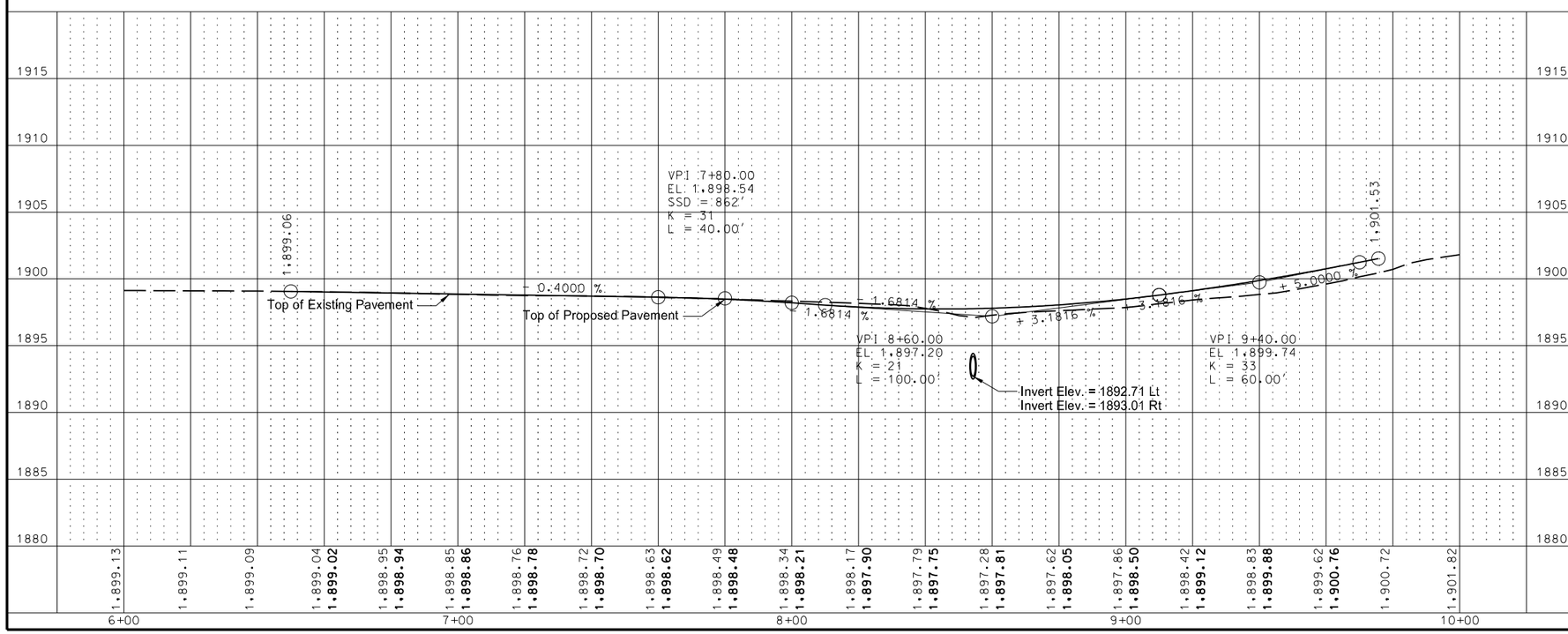
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	1



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	4101	**PIPE CONDUIT 18 IN-STORM DRAIN**		
		8C to 8B	LF	76
714	4107	**PIPE CONDUIT 24 IN-STORM DRAIN**		
		8A to 8B	LF	40
		8A to Outlet	LF	28
722	3510	**INLET TYPE 2**		
		8C	EA	1
722	3520	**INLET - TYPE 2 DOUBLE**		
		8A	EA	1
		8B	EA	1
722	3920	**INLET SLOTTED DRAIN 18IN**		
		Sta 7+52 to Sta 7+72 (Rt)	LF	20
722	6240	**ADJUST UTILITY APPURTENANCE**		
		Sta 9+34 (WGV - 23.6' Lt)	EA	1
744	100	**POLYSTYRENE INSULATION BOARD**		
		Inlet 8A to Outlet (8' x 10')	BD FT	320



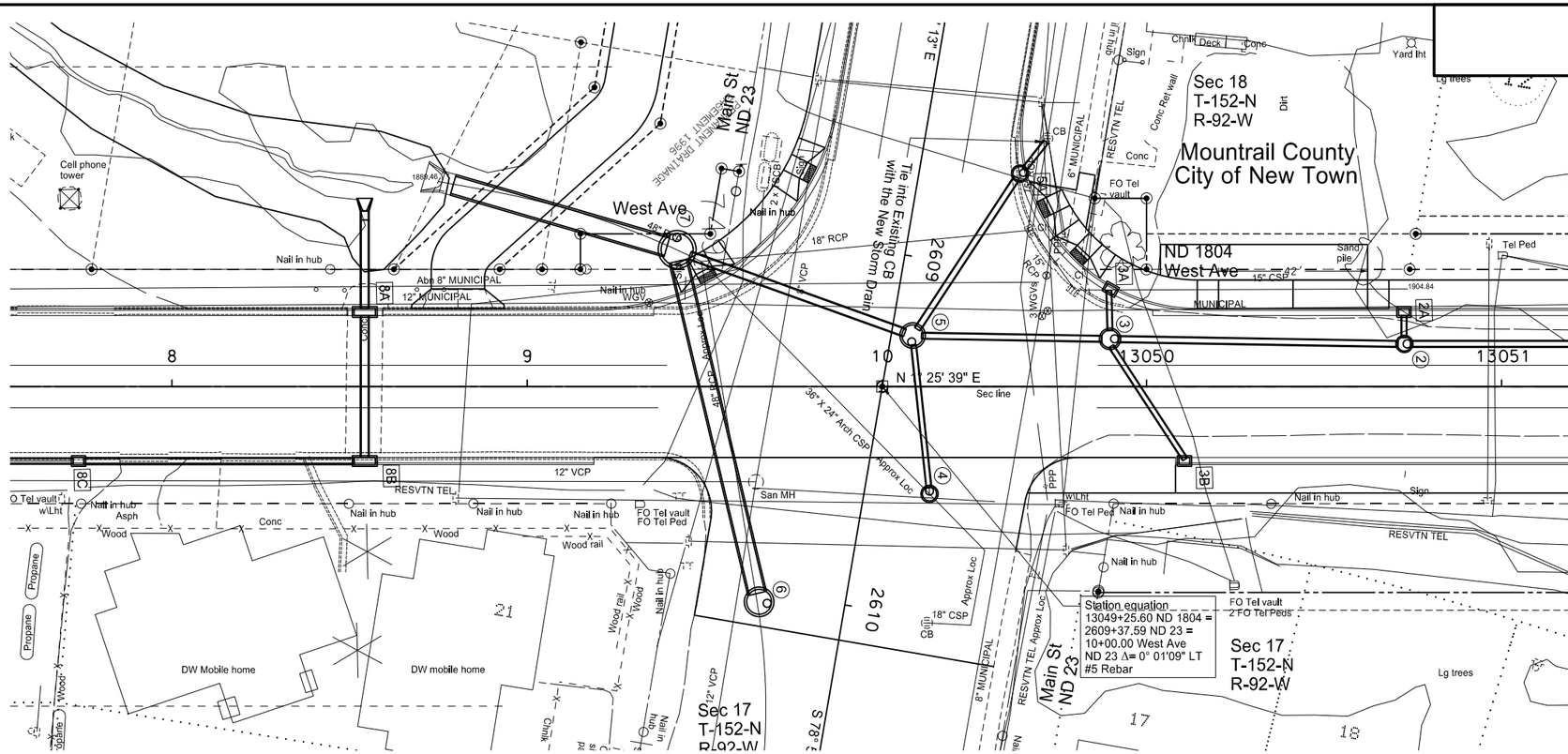
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/30/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

West Avenue

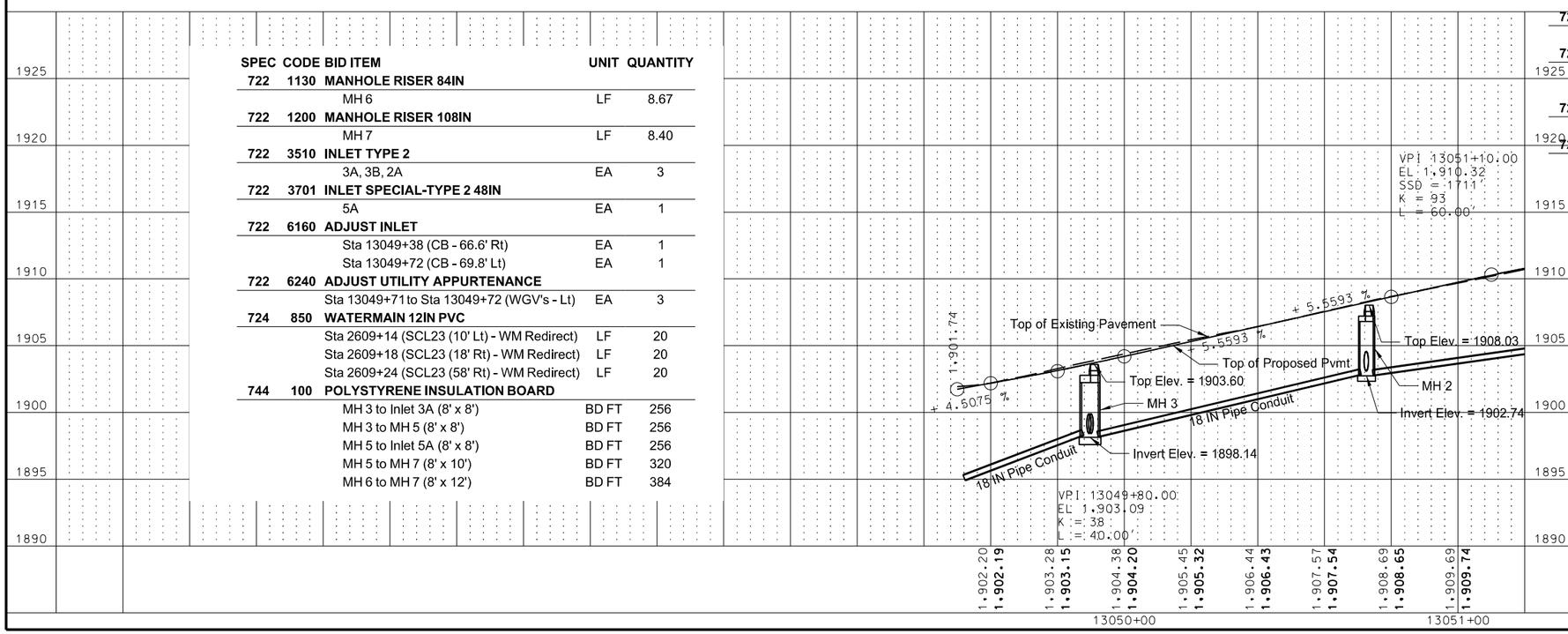
Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	2



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Various Locations Throughout Intersection (All pipe needed to install new SD system)	LF	497
202	210	**REMOVAL OF MANHOLES**		
		Sta. 9+49 - 35.1' Lt	EA	1
202	230	**REMOVAL OF INLETS**		
		Sta. 13049+67 - 43.7' Lt	EA	1
		Sta. 13049+79 - 27' Lt	EA	1
714	4097	**PIPE CONDUIT 15 IN-STORM DRAIN**		
		MH 5 to MH 4	LF	42
		MH 5 to Inlet 5A	LF	52
		Inlet 5A to CB	LF	10
		MH 3 to Inlet 3A	LF	12
		MH 3 to Inlet 3B	LF	40
		MH 2 to Inlet 2A	LF	8
714	4101	**PIPE CONDUIT 18 IN-STORM DRAIN**		
		MH 5 to MH 3	LF	52
		MH 3 to MH 2	LF	80
		MH 2 to Sta 13051+00	LF	26
714	4107	**PIPE CONDUIT 24 IN-STORM DRAIN**		
		MH 5 to MH 7	LF	66
714	4131	**PIPE CONDUIT 54 IN-STORM DRAIN**		
		MH 6 to MH 7	LF	98
714	4136	**PIPE CONDUIT 60 IN-STORM DRAIN**		
		MH 7 to Outlet (Includes Trash Guard)	LF	66
722	100	**MANHOLE 48IN**		
		MH 4	EA	1
		MH 2	EA	1
722	110	**MANHOLE 60IN**		
		MH 3	EA	1
722	120	**MANHOLE 72IN**		
		MH 5	EA	1
722	130	**MANHOLE 84IN**		
		MH 6	EA	1
722	200	**MANHOLE 108IN**		
		MH 7	EA	1
722	1100	**MANHOLE RISER 48IN**		
		MH 4	LF	5.61
		MH 2	LF	4.00
722	1110	**MANHOLE RISER 60IN**		
		MH 3	LF	4.00
722	1120	**MANHOLE RISER 72IN**		
		MH 5	LF	7.52

SPEC	CODE	BID ITEM	UNIT	QUANTITY
722	1130	**MANHOLE RISER 84IN**		
		MH 6	LF	8.67
722	1200	**MANHOLE RISER 108IN**		
		MH 7	LF	8.40
722	3510	**INLET TYPE 2**		
		3A, 3B, 2A	EA	3
722	3701	**INLET SPECIAL-TYPE 2 48IN**		
		5A	EA	1
722	6160	**ADJUST INLET**		
		Sta 13049+38 (CB - 66.6' Rt)	EA	1
		Sta 13049+72 (CB - 69.8' Lt)	EA	1
722	6240	**ADJUST UTILITY APPURTENANCE**		
		Sta 13049+71 to Sta 13049+72 (WGV's - Lt)	EA	3
724	850	**WATERMAIN 12IN PVC**		
		Sta 2609+14 (SCL23 (10' Lt) - WM Redirect)	LF	20
		Sta 2609+18 (SCL23 (18' Rt) - WM Redirect)	LF	20
		Sta 2609+24 (SCL23 (58' Rt) - WM Redirect)	LF	20
744	100	**POLYSTYRENE INSULATION BOARD**		
		MH 3 to Inlet 3A (8' x 8')	BD FT	256
		MH 3 to MH 5 (8' x 8')	BD FT	256
		MH 5 to Inlet 5A (8' x 8')	BD FT	256
		MH 5 to MH 7 (8' x 10')	BD FT	320
		MH 6 to MH 7 (8' x 12')	BD FT	384



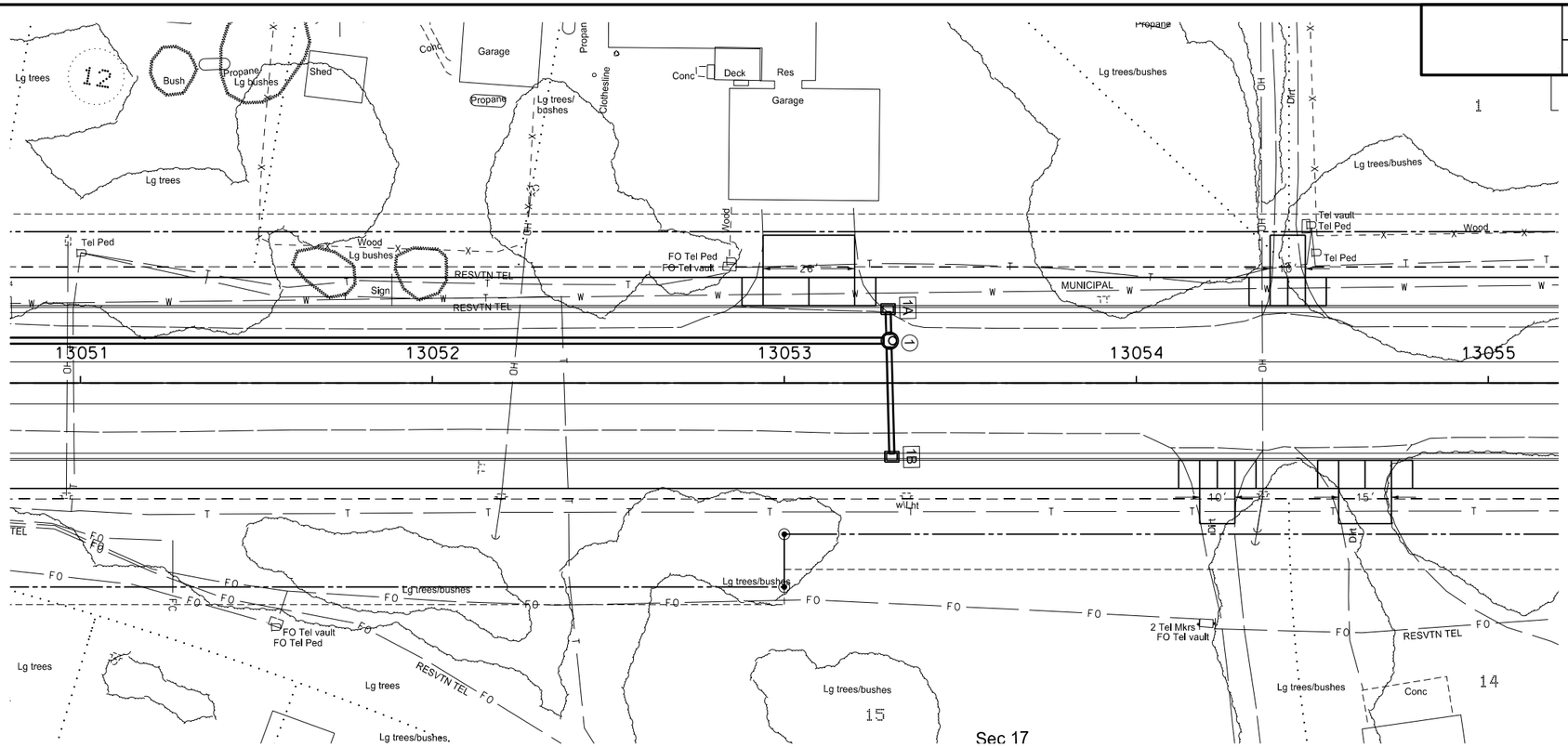
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

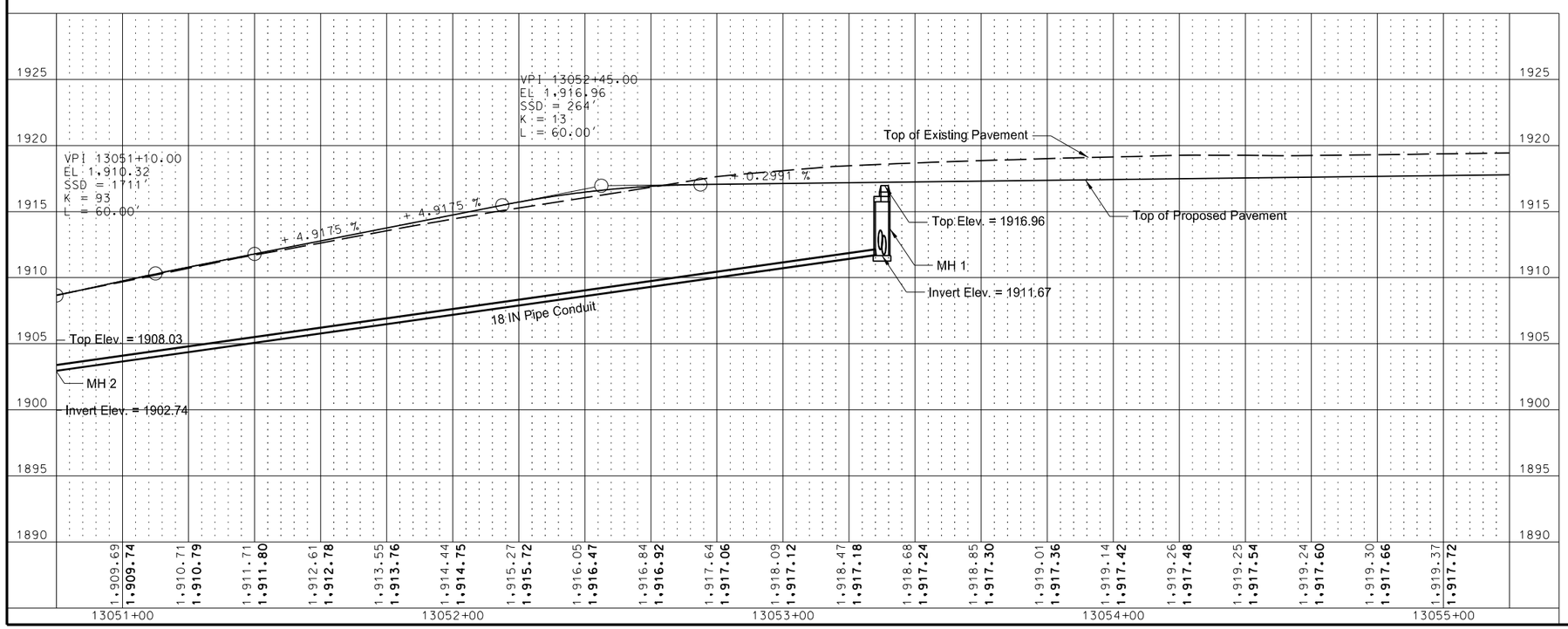
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	3



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	4097	**PIPE CONDUIT 15 IN-STORM DRAIN**		
		MH 1 to Inlet 1A	LF	8
		MH 1 to Inlet 1B	LF	32
714	4101	**PIPE CONDUIT 18 IN-STORM DRAIN**		
		Sta. 13051+00 to MH 1	LF	230
722	100	**MANHOLE 48IN**		
		MH 1	EA	1
722	1100	**MANHOLE RISER 48IN**		
		MH 1	LF	4.00
722	3510	**INLET TYPE 2**		
		Inlet 1A	EA	1
		Inlet 1B	EA	1



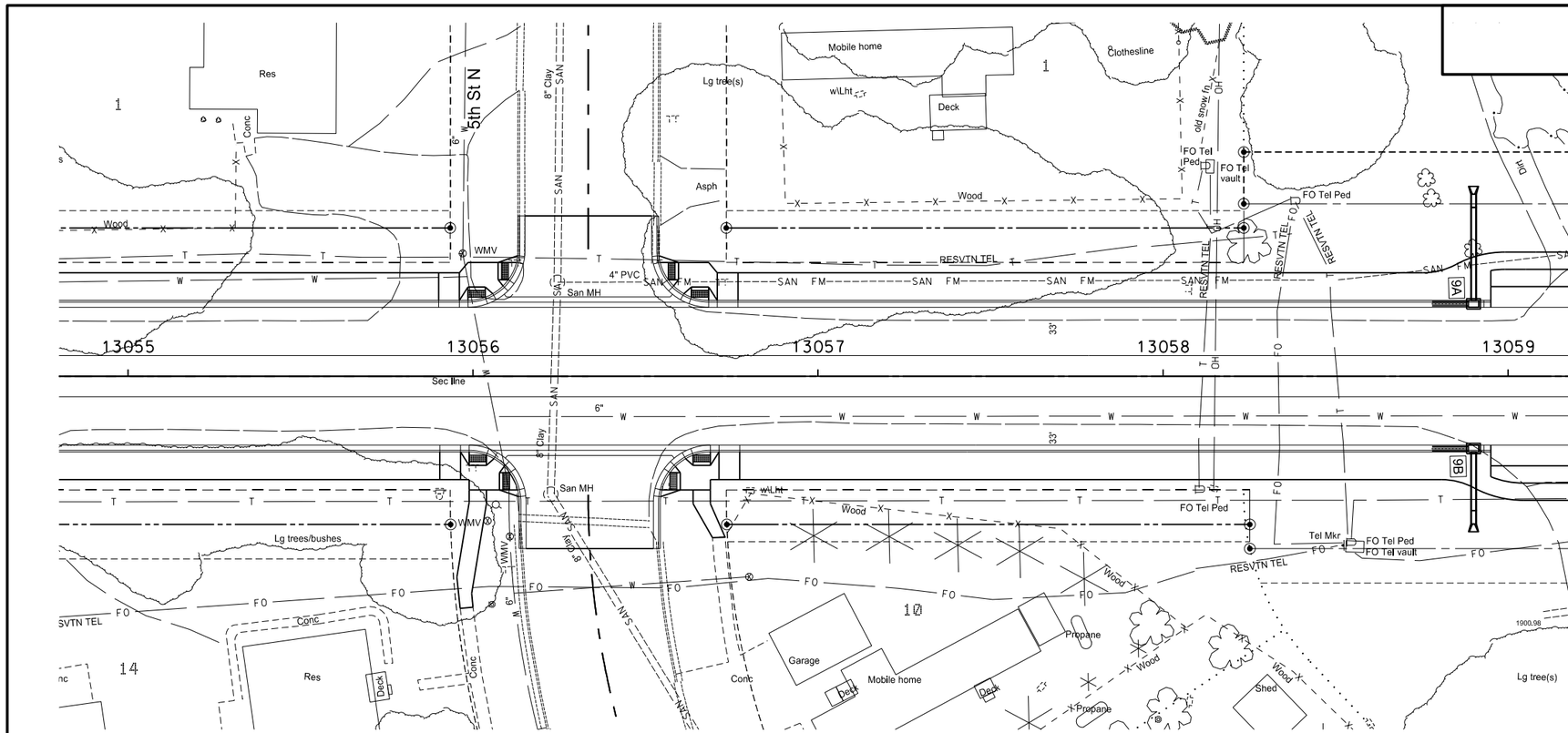
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

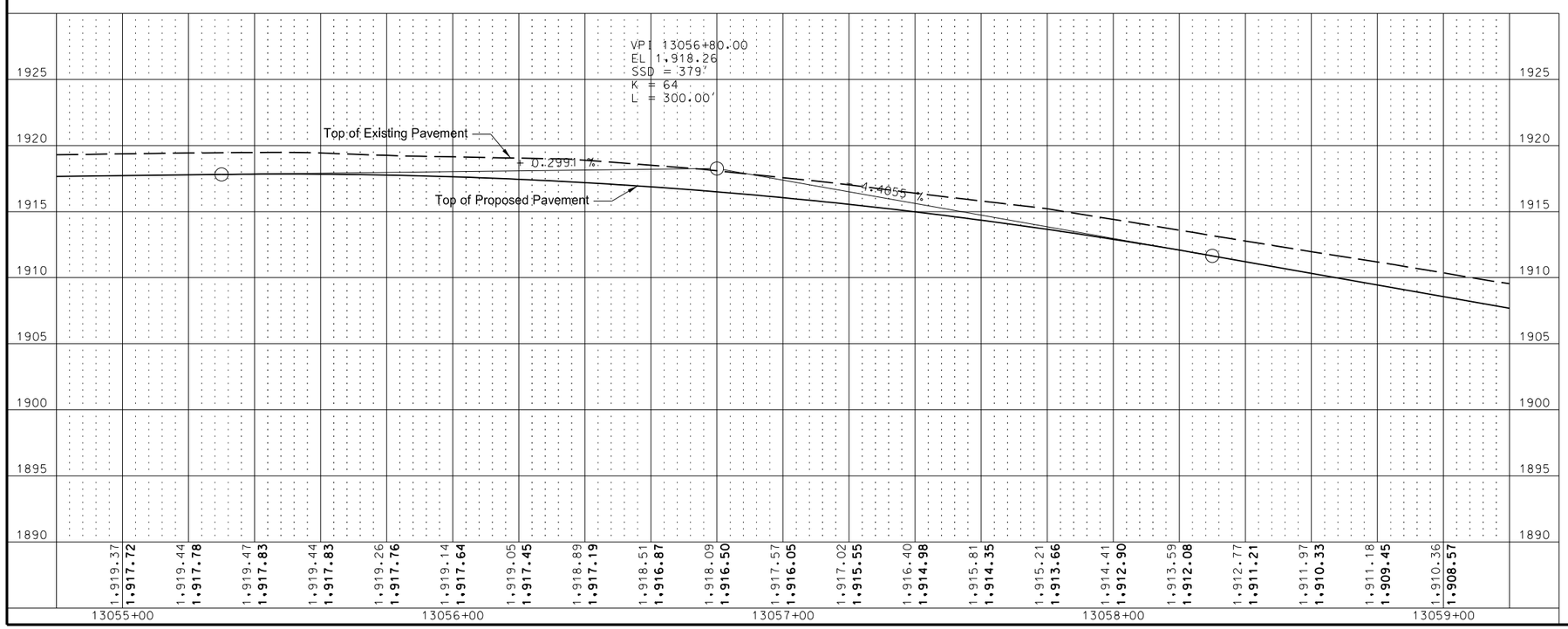
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	4



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	4097	**PIPE CONDUIT 15 IN-STORM DRAIN**		
		Sta 13058+90 - 53' Lt to 9A	LF	32
		9B to Sta 13058+90 - 43' Rt	LF	22
722	3510	**INLET TYPE 2**		
		9A	EA	1
		9B	EA	1
722	3910	**INLET SLOTTED DRAIN 15IN**		
		Sta 13058+78 to 9A	LF	10
		Sta 13058+78 to 9B	LF	10
722	6201	**ADJUST MANHOLE SPECIAL**		
		Sta 13056+23 (Sanitary - 34.3' Rt)	EA	1
		Sta 13056+25 (Sanitary - 27.2' Lt)	EA	1



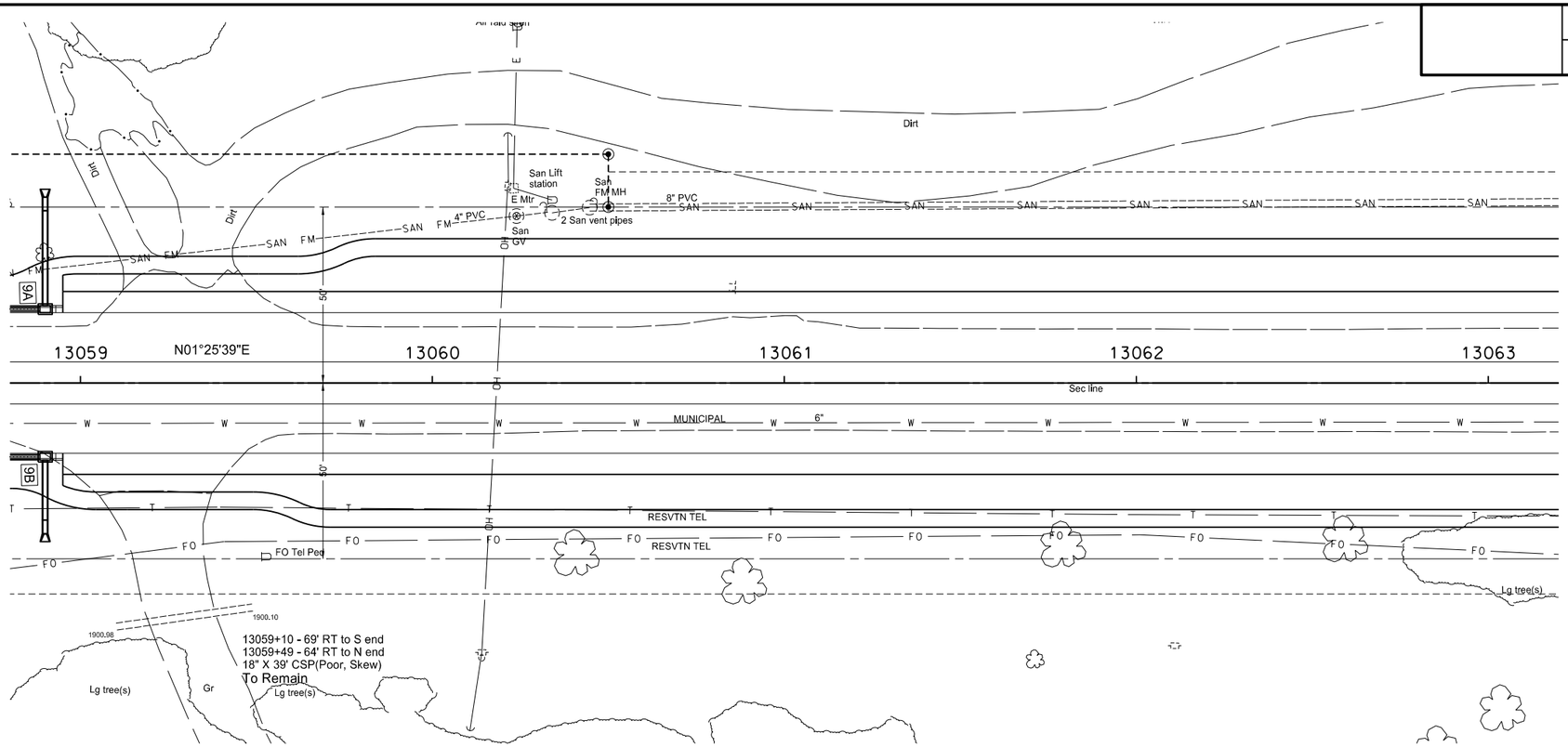
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/30/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

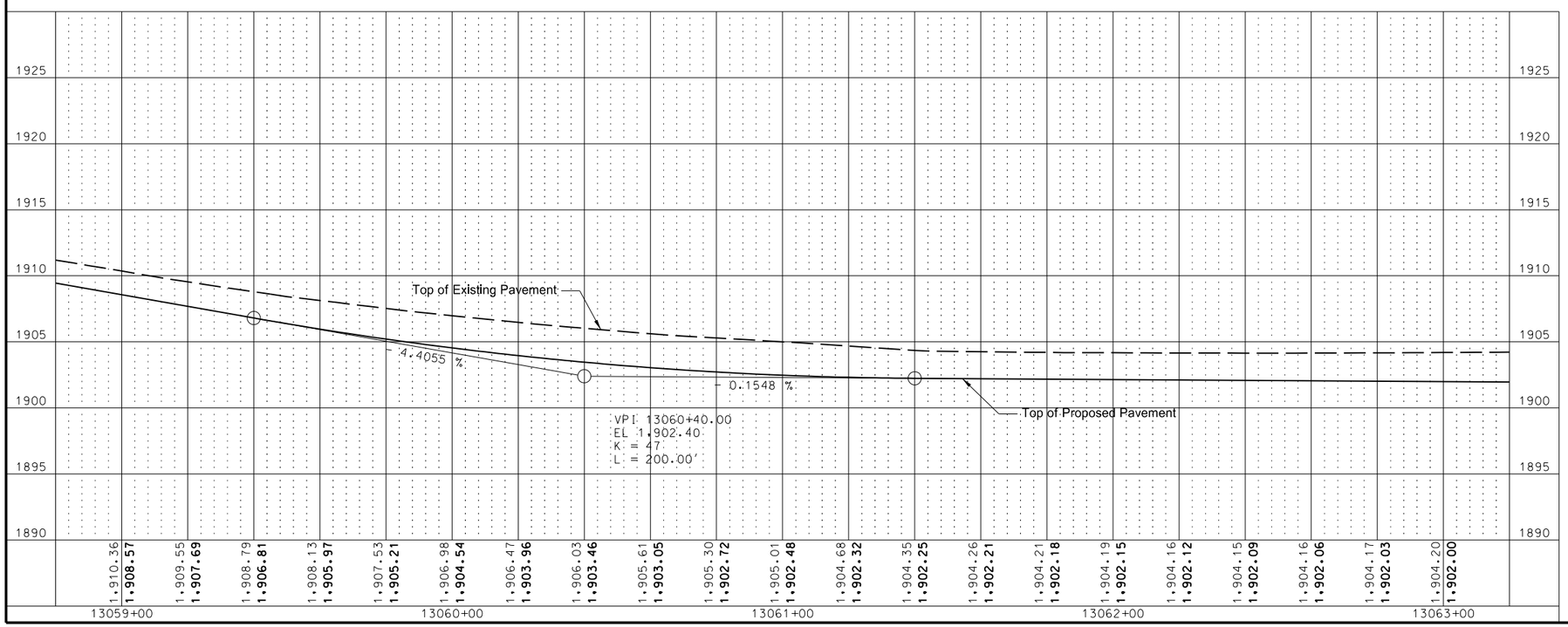
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	5



SPEC	CODE	BID ITEM	UNIT	QUANTITY
722	6240	ADJUST UTILITY APPURTENANCE		
		Sta 13060+24 (San GV - 47.4' Lt)	EA	1



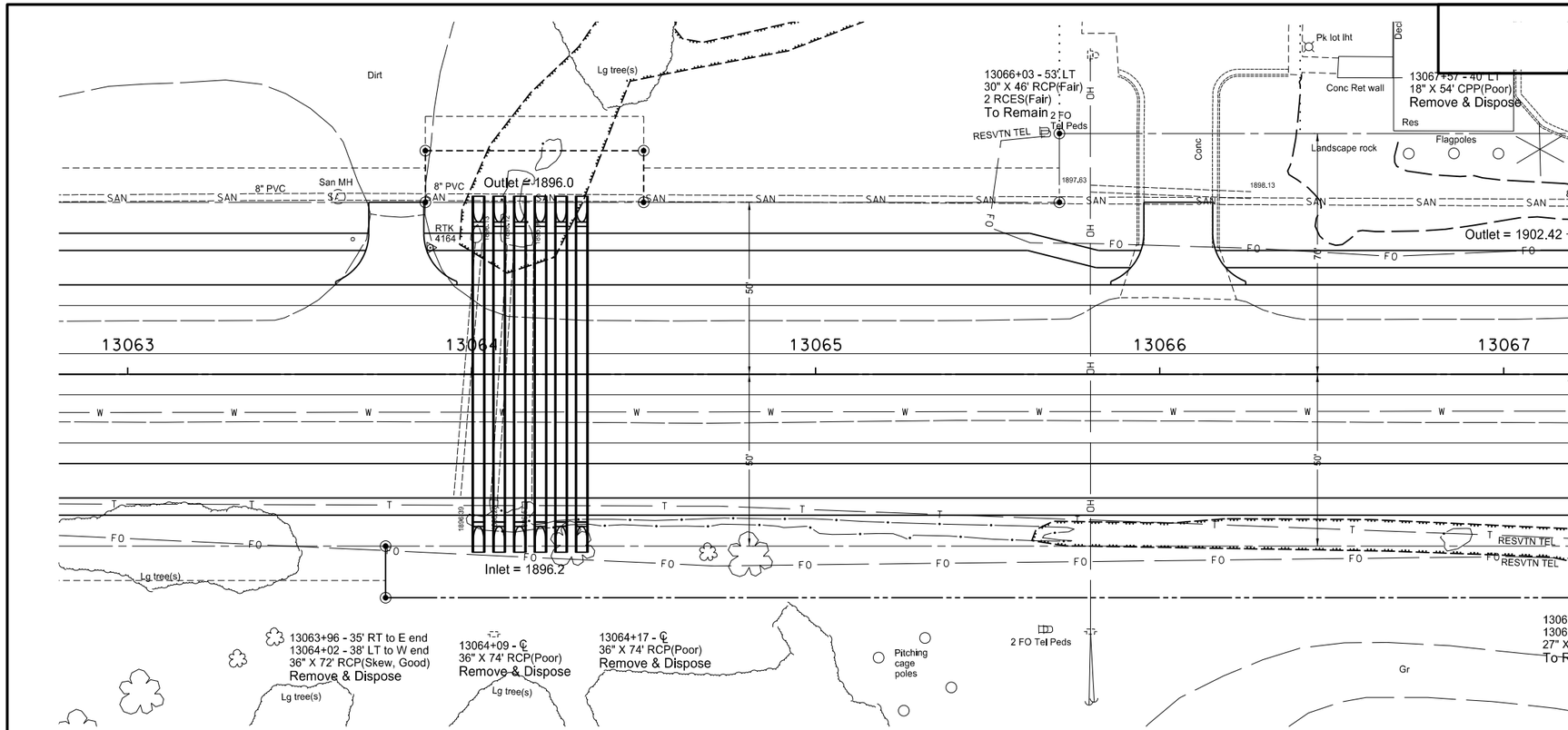
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

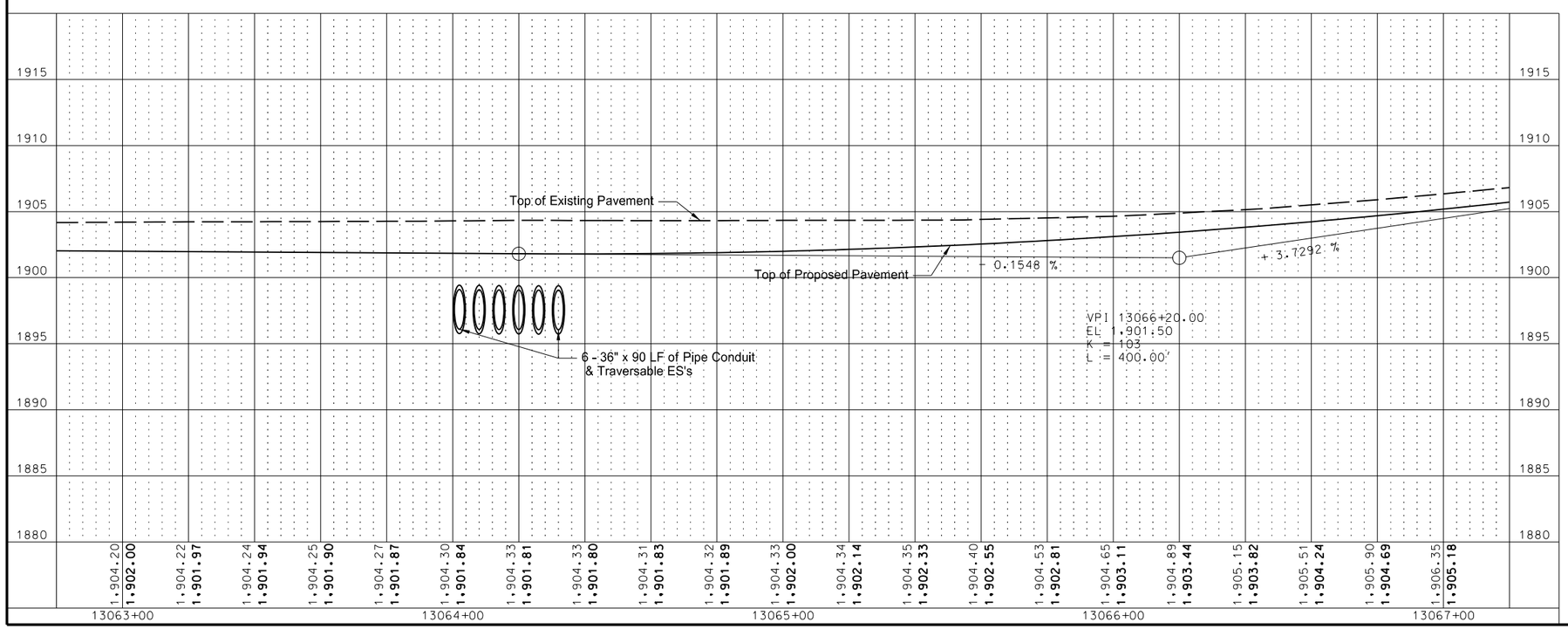
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	6



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta. 13063+99 - CL	LF	72
		Sta. 13064+09 - CL	LF	74
		Sta. 13064+17 - CL	LF	74
709	701	**GEOTEXTILE FABRIC-TYPE R1**		
		Sta. 13064+02 to Sta 13064+32	SY	676
		(6 - 36" Pipe Conduit)		
714	4115	**PIPE CONDUIT 36IN**		
		Sta. 13064+02 - CL	LF	90
		Sta. 13064+08 - CL	LF	90
		Sta. 13064+14 - CL	LF	90
		Sta. 13064+20 - CL	LF	90
		Sta. 13064+26 - CL	LF	90
		Sta. 13064+32 - CL	LF	90



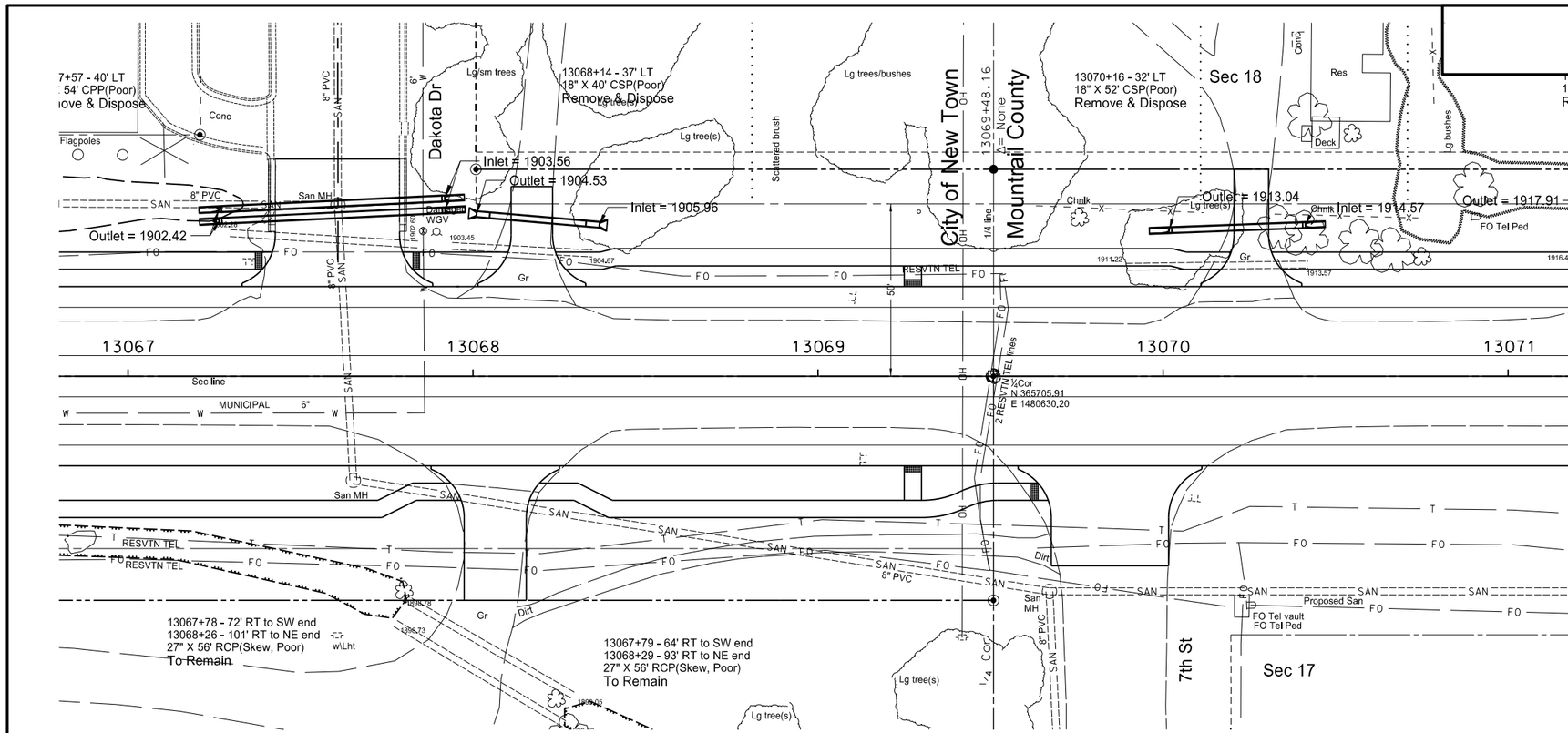
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

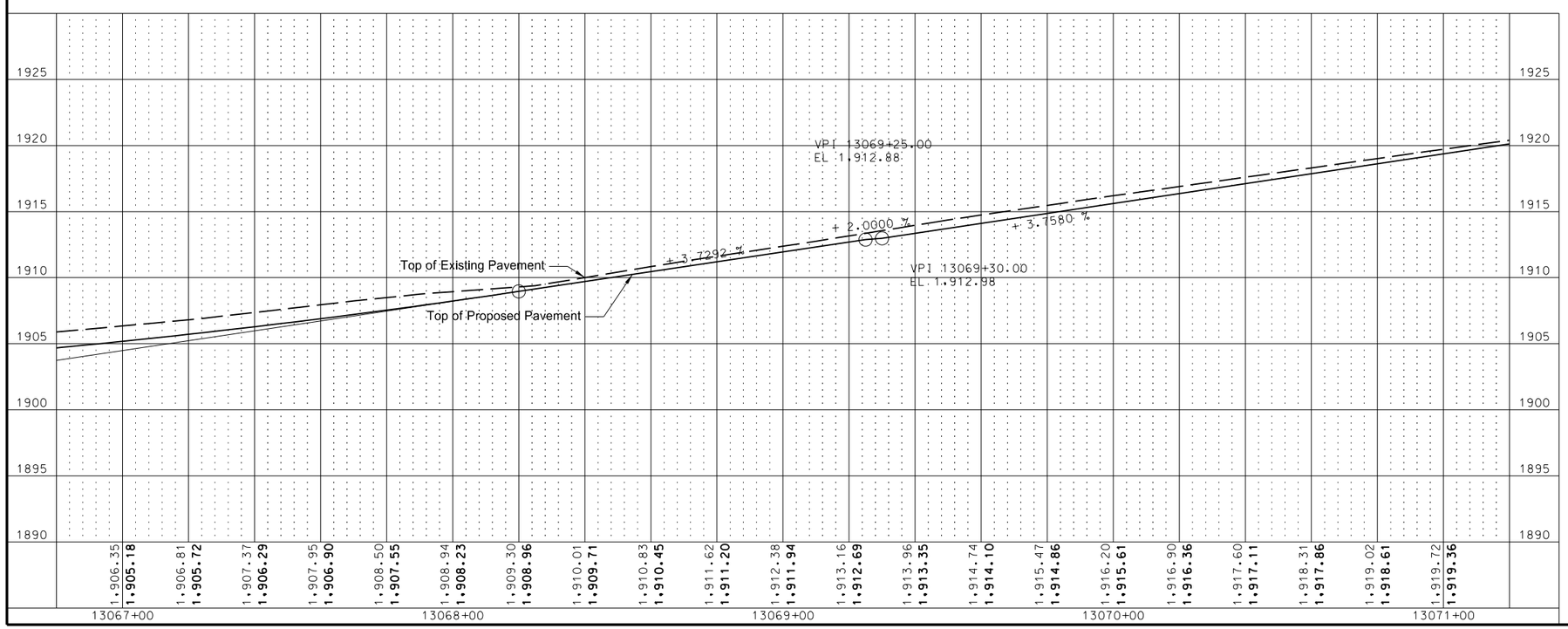
Plan & Profile

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	7





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta. 13067+57 - 40' Lt	LF	54
		Sta. 13068+14 - 37' Lt	LF	40
		Sta. 13070+16 - 32' Lt	LF	52
714	4099	**PIPE CONDUIT 18IN - APPROACH**		
		Dakota Drive	LF	132
		(Dbl 18" Approach Pipe)		
		Sta. 13068+17 - 45.6' Lt	LF	36
		Sta. 13070+22 - 43.1' Lt	LF	40
722	6200	**ADJUST MANHOLE**		
		Sta 13067+61 (Sanitary - 49.6' Lt)	EA	1
722	6201	**ADJUST MANHOLE SPECIAL**		
		Sta 13067+65 (Sanitary - 30.2' Rt)	EA	1

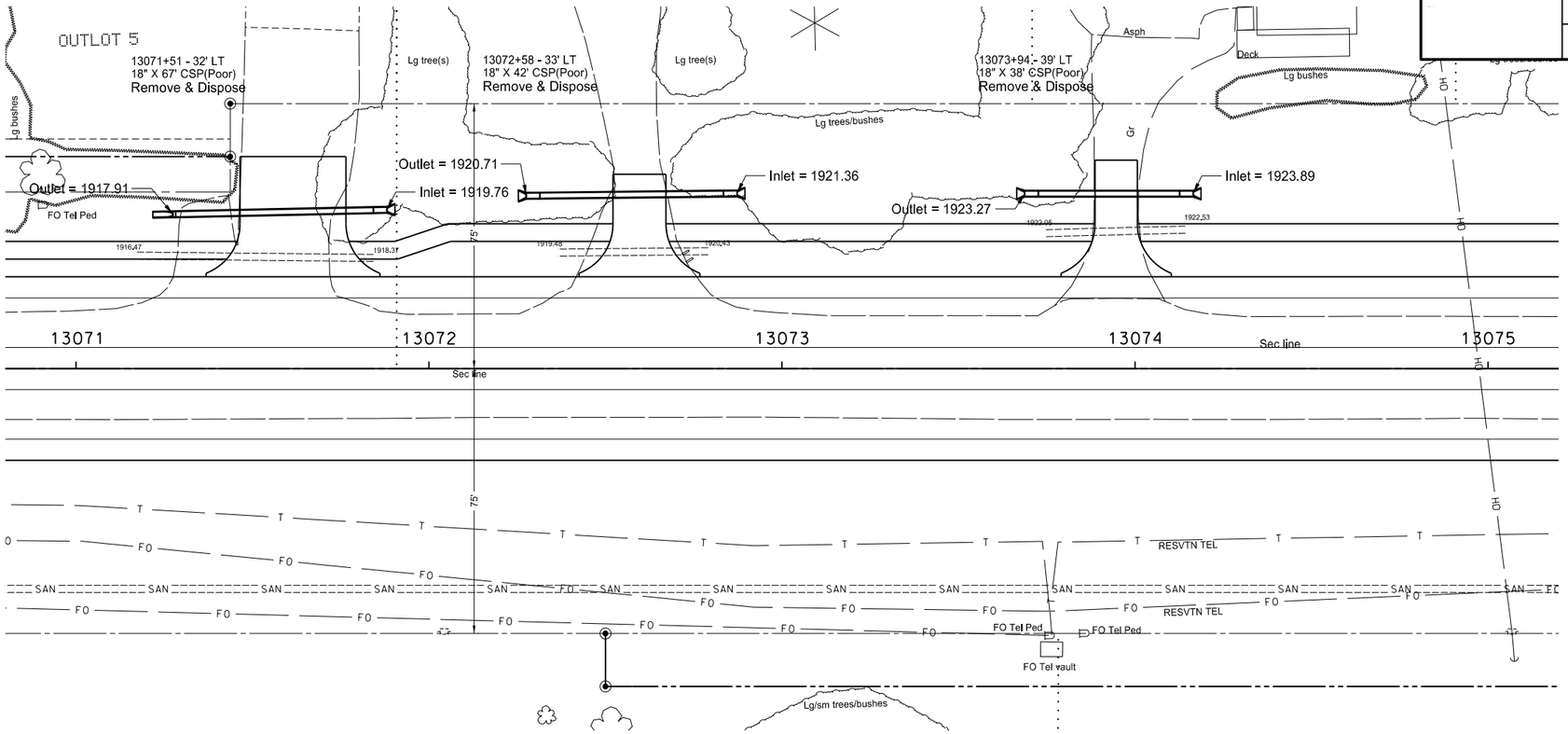
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/30/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

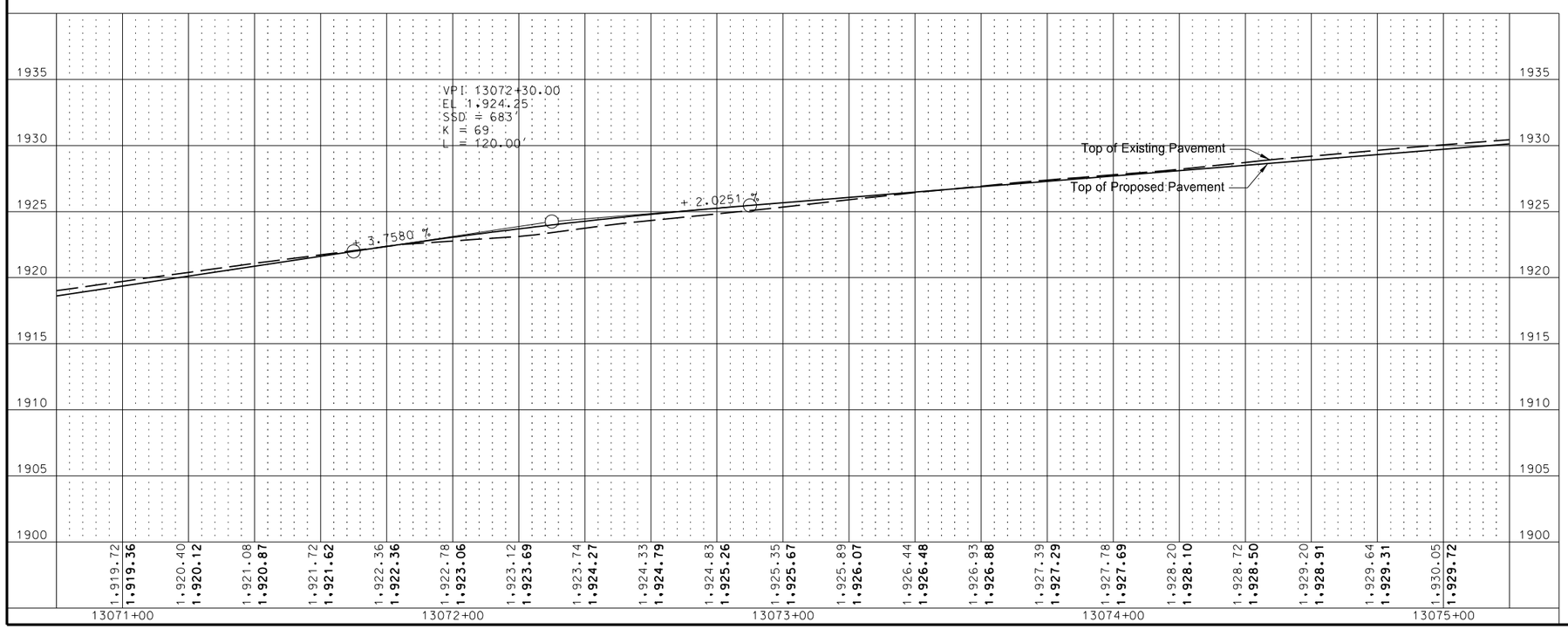
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	8



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta. 13071+51 - 32' Lt	LF	67
		Sta. 13072+58 - 33' Lt	LF	42
		Sta. 13073+94 - 39' Lt	LF	38
714	4099	PIPE CONDUIT 18IN - APPROACH		
		Sta. 13071+56 - 44.3' Lt	LF	62
		Sta. 13072+57 - 49.2' Lt	LF	60
		Sta. 13073+93 - 49.5' Lt	LF	48



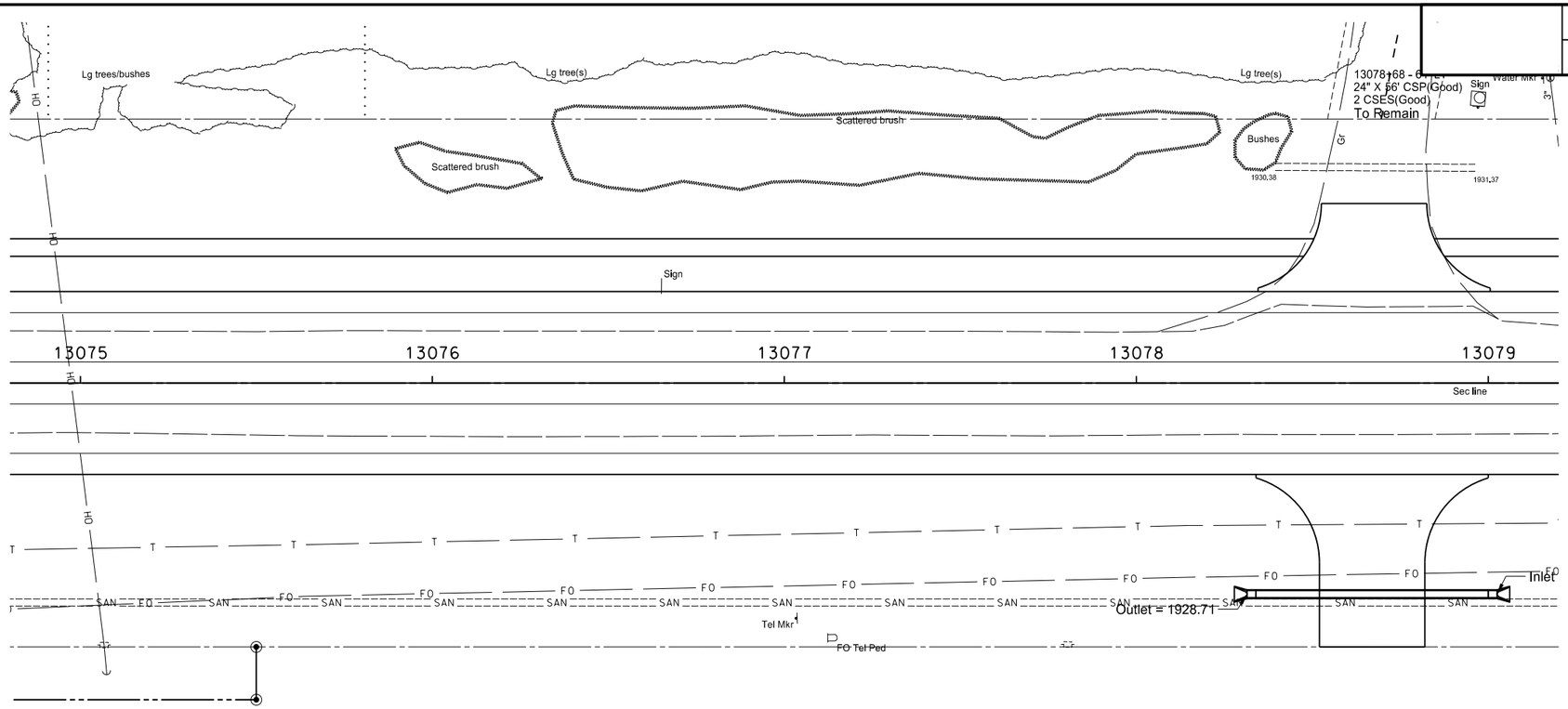
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/19/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

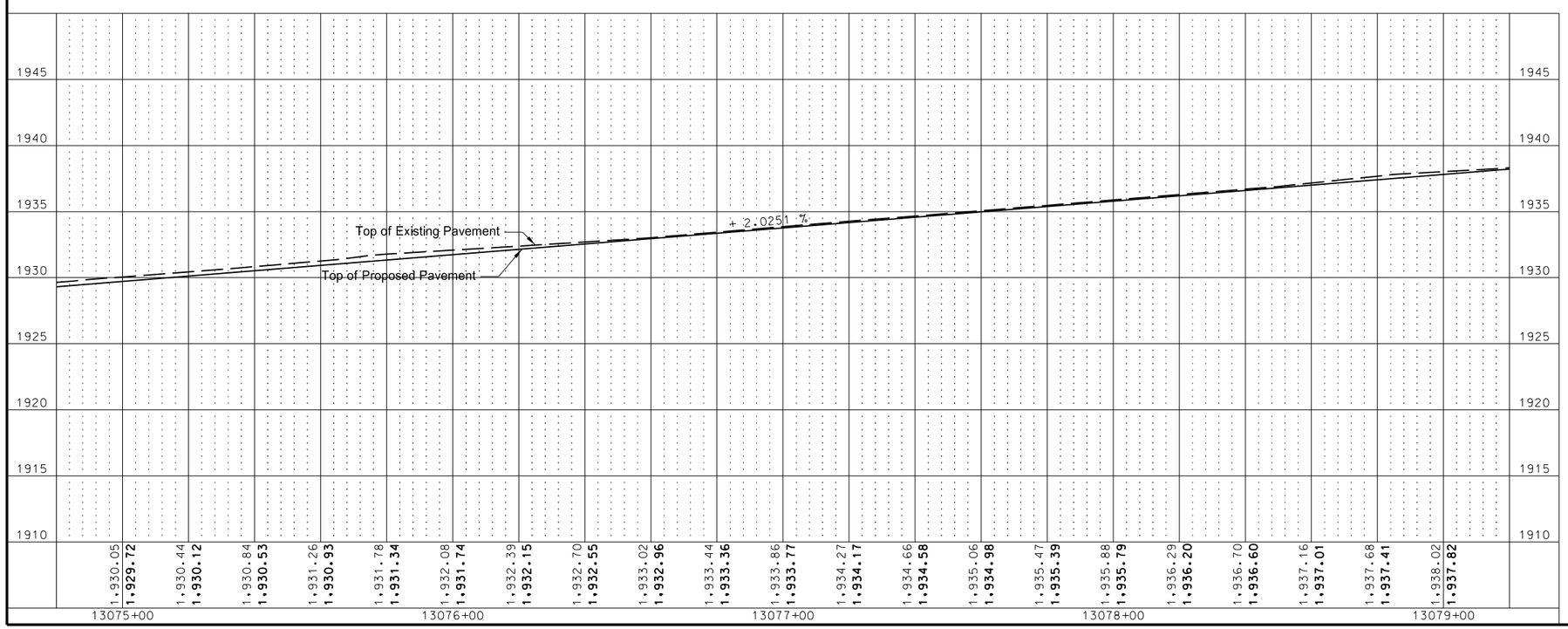
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	9



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	4106	PIPE CONDUIT 24IN - APPROACH		
		Sta. 13078+67 - 60' Rt	LF	72



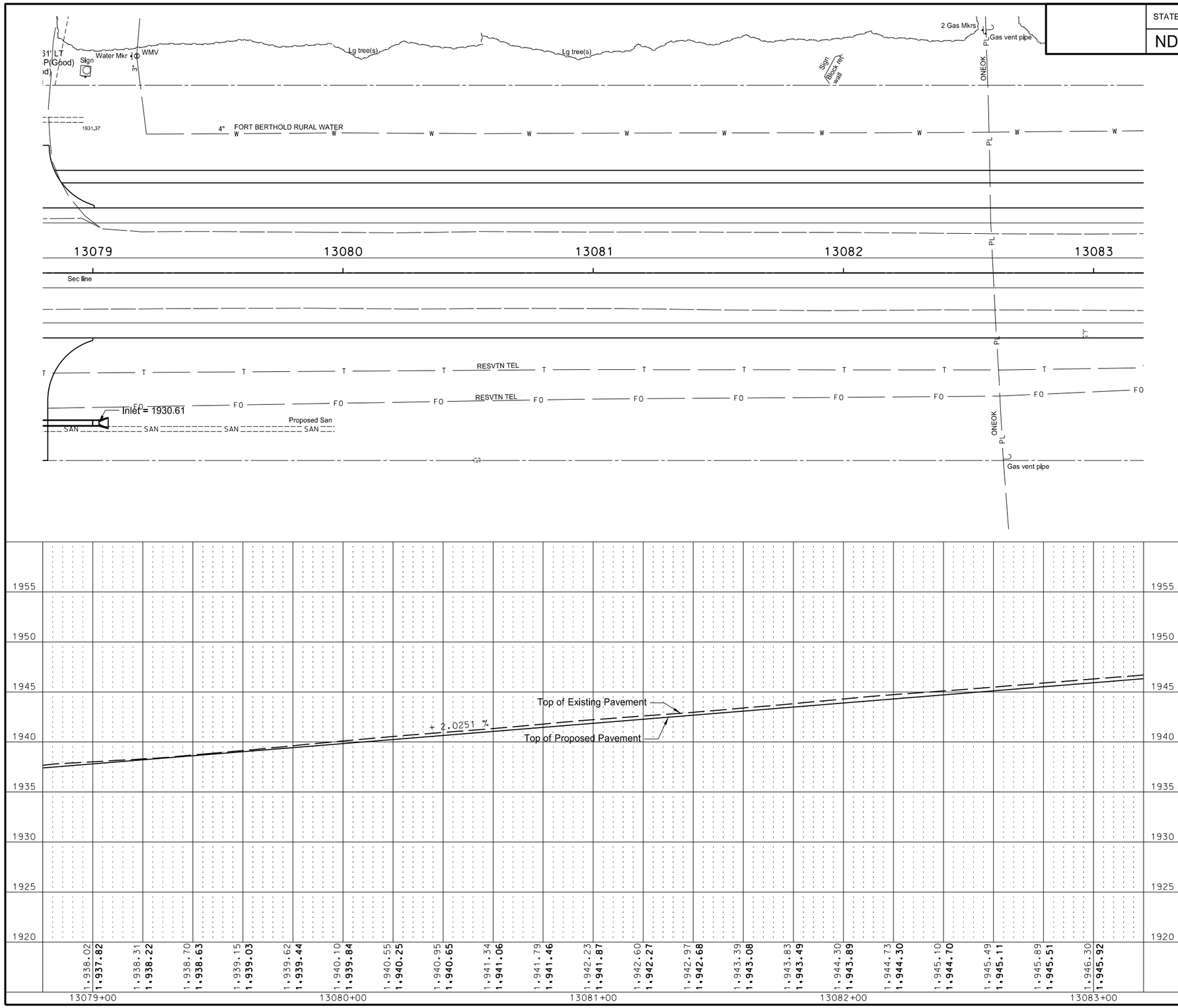
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/19/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	10



N

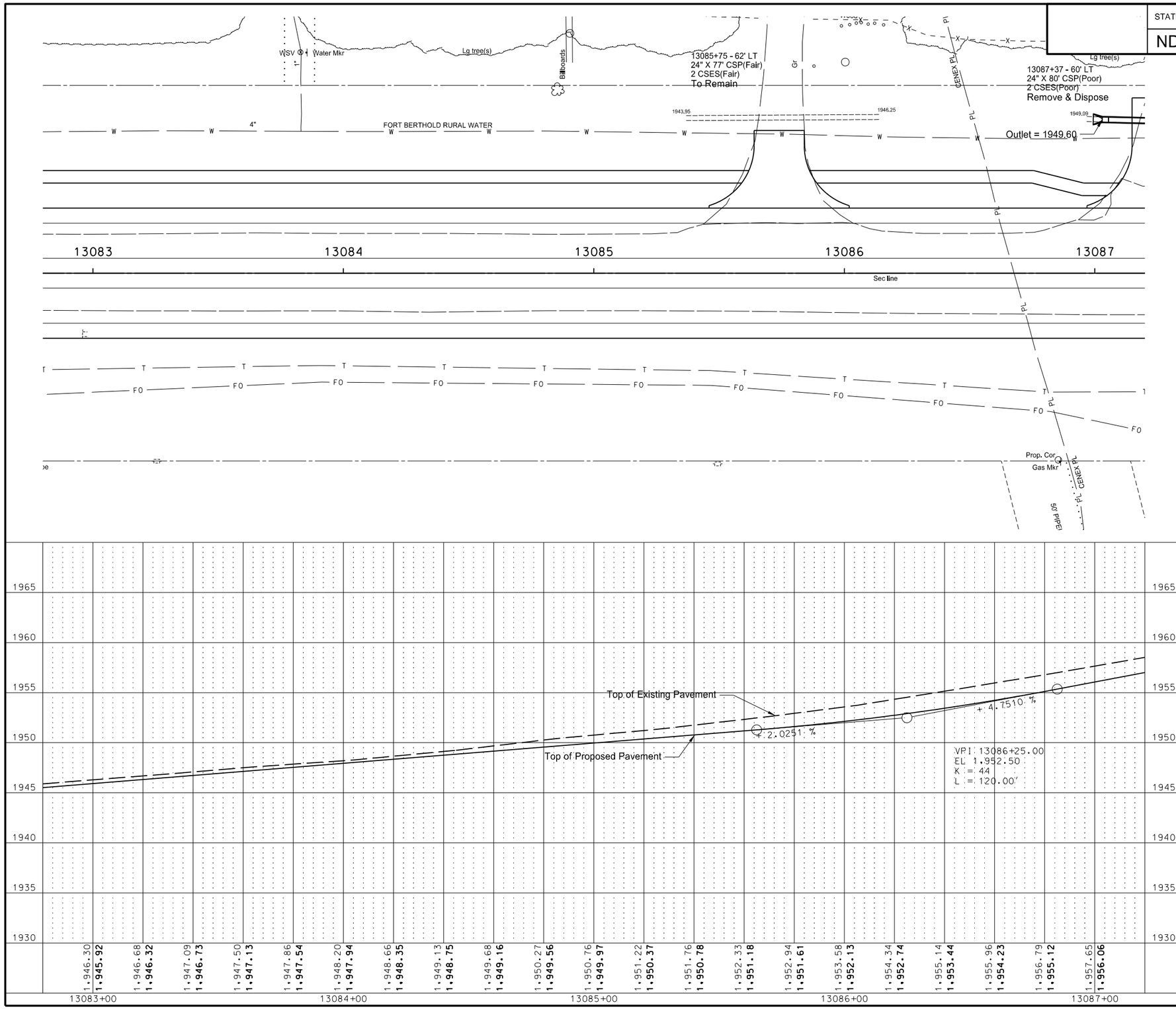
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	11



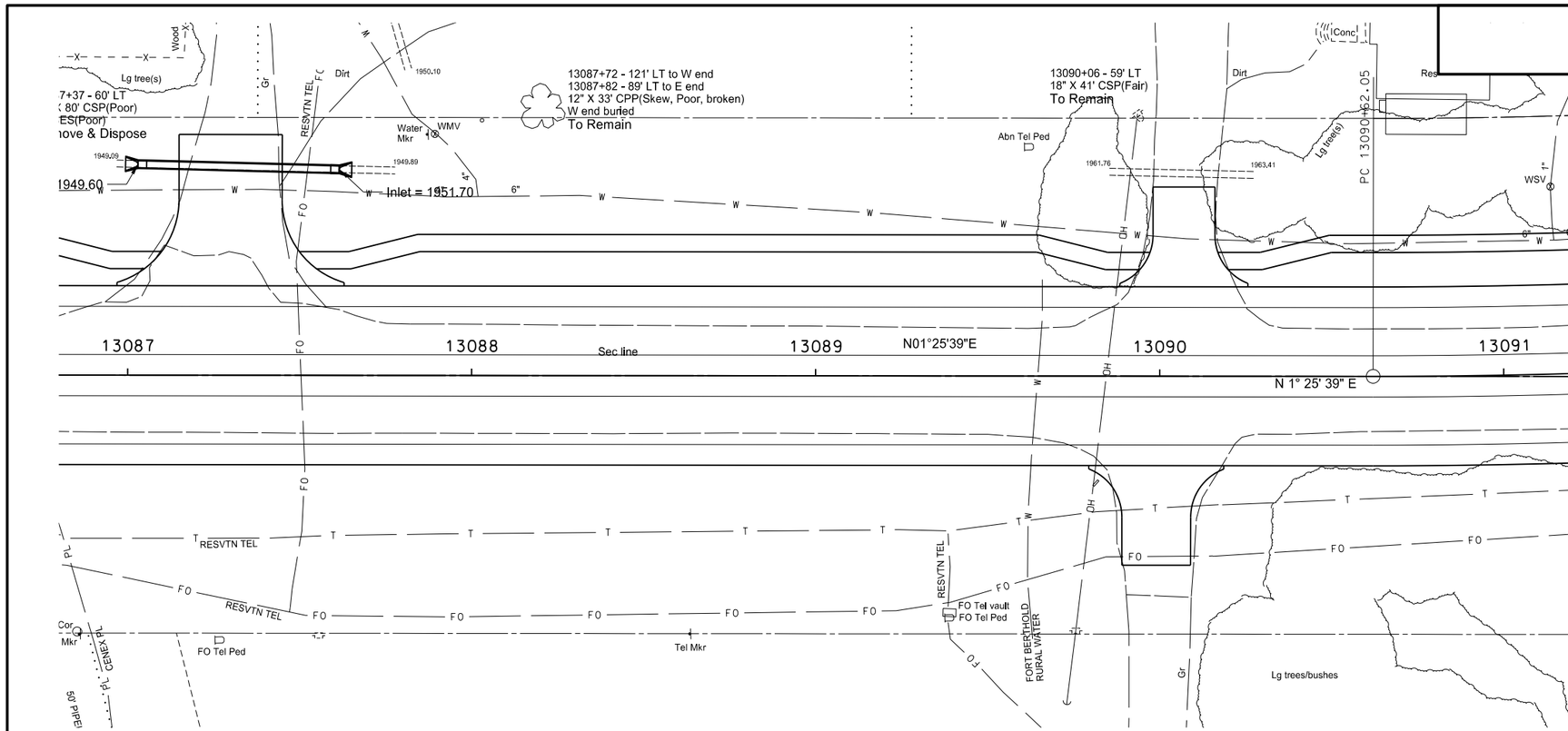
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

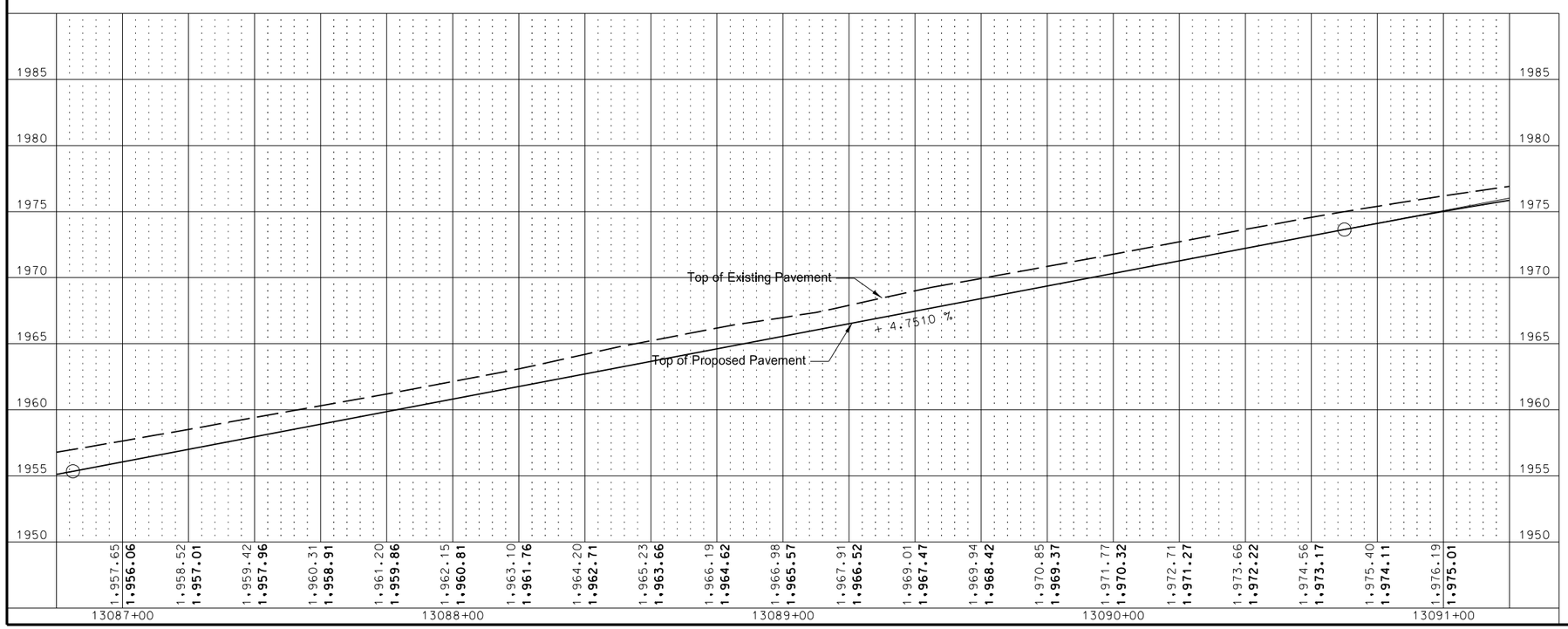
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	12



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta. 13087+37 - 60' Lt	LF	80
714	4106	PIPE CONDUIT 24IN - APPROACH		
		Sta. 13087+32 - 60.6' Lt	LF	60



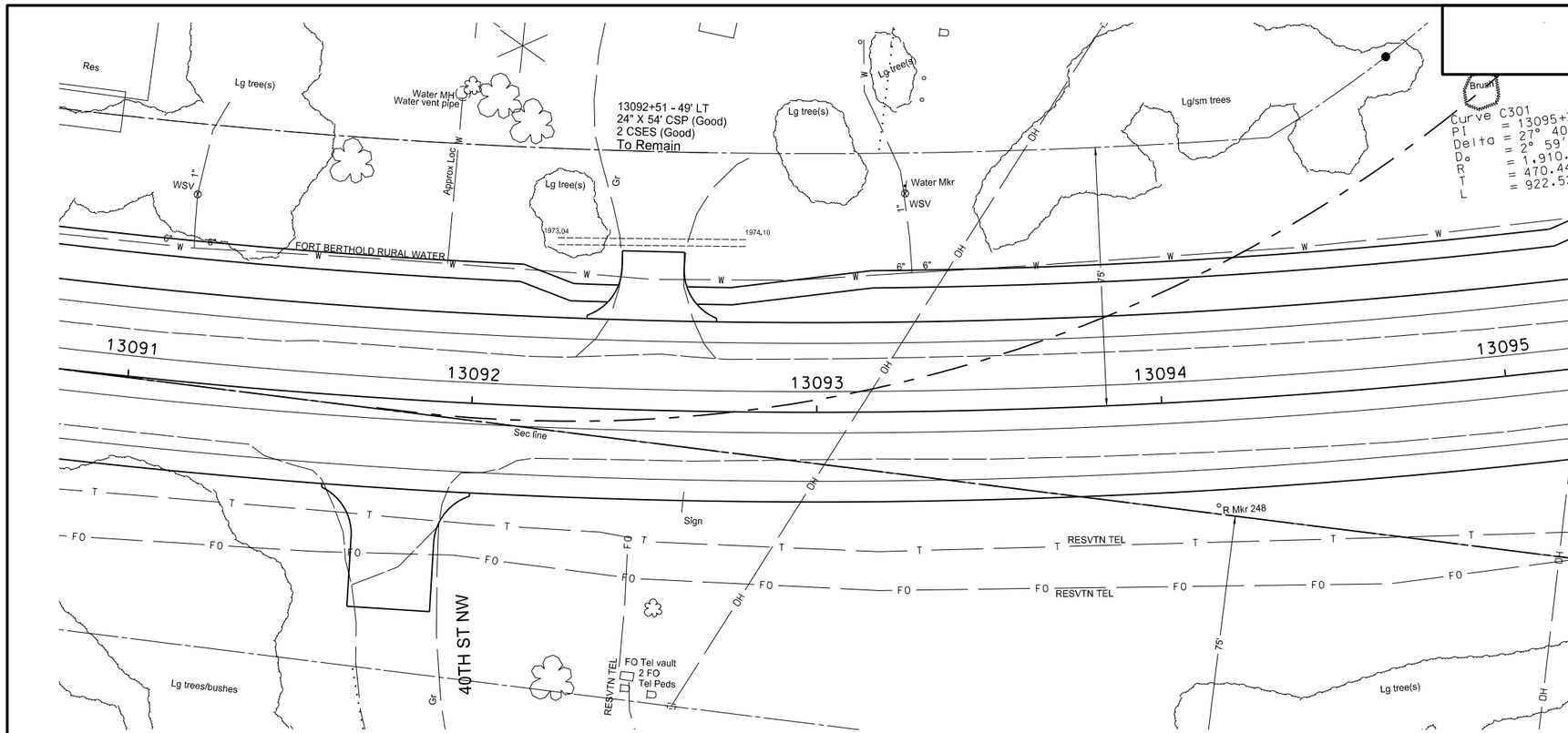
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

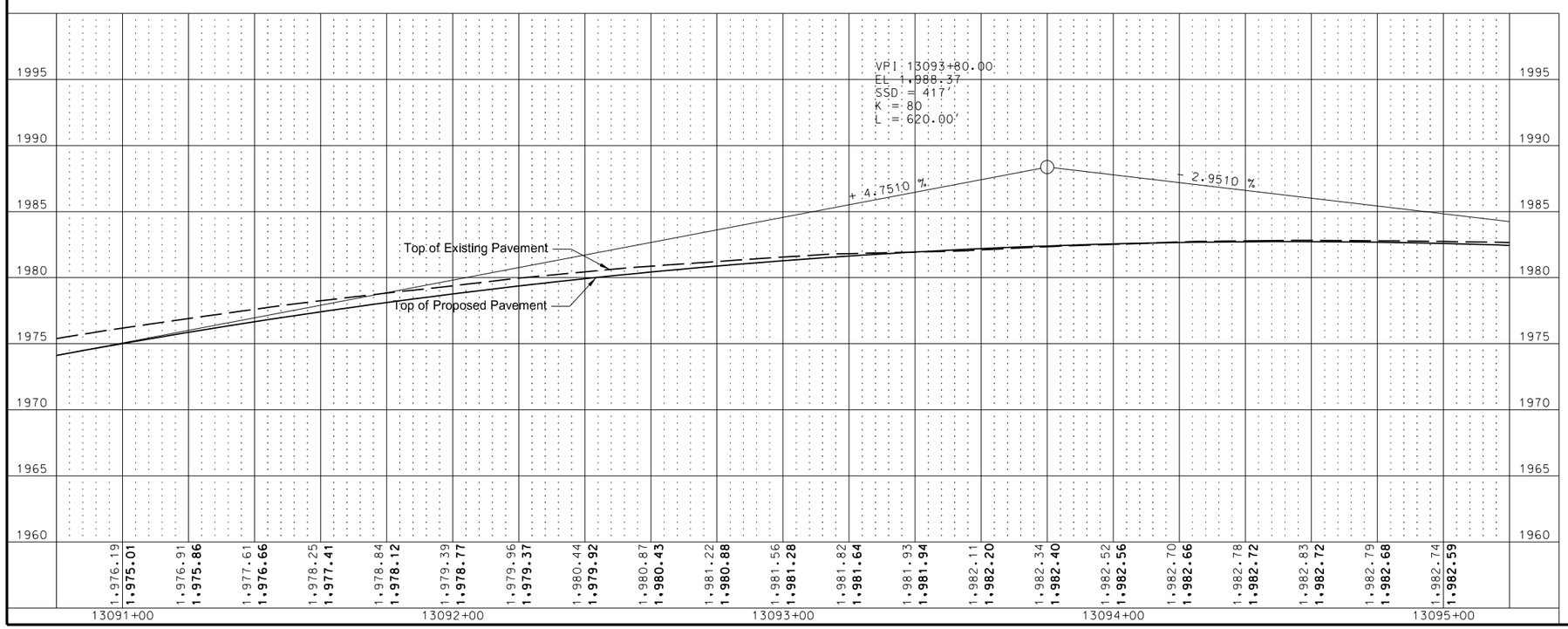
Plan & Profile

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	13





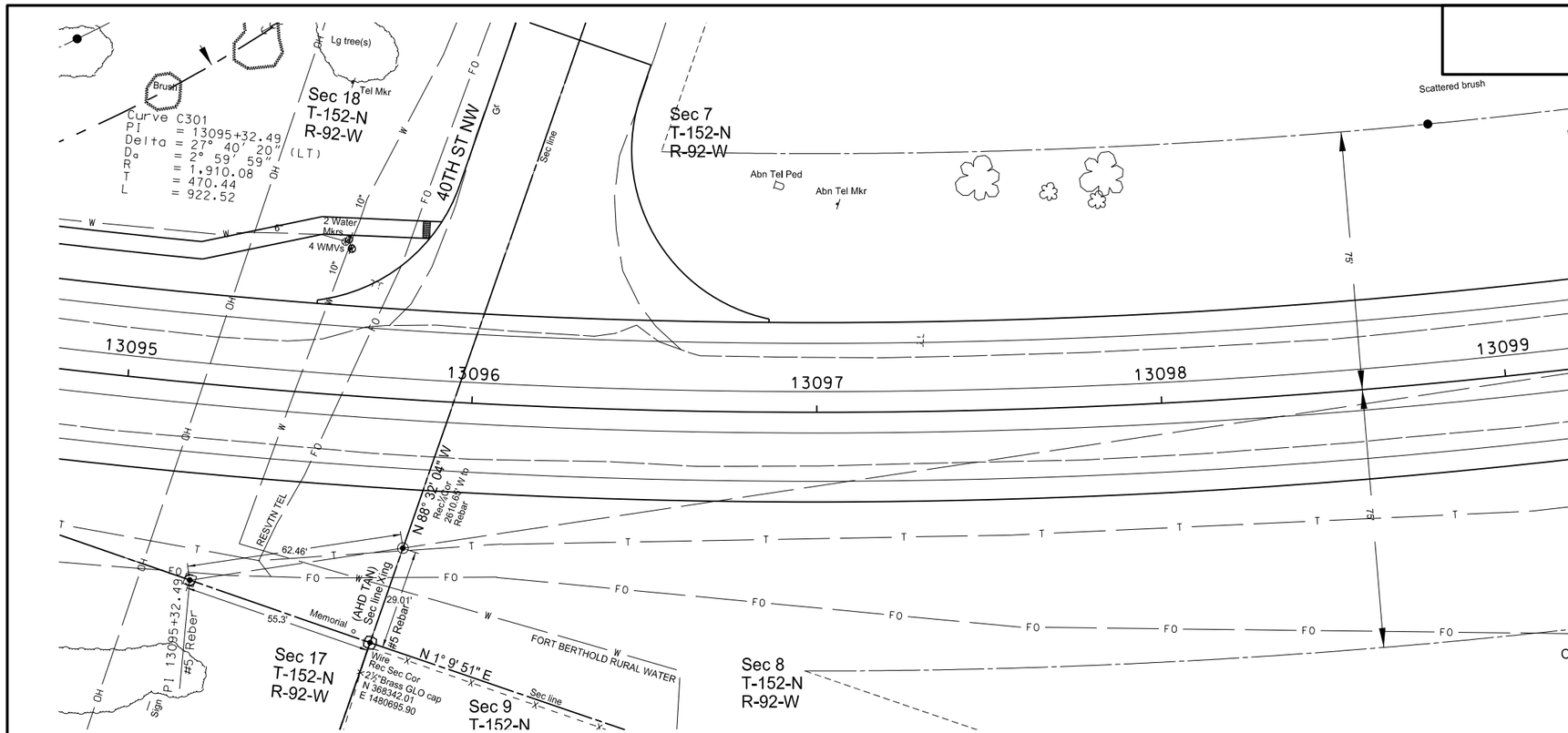
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/19/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

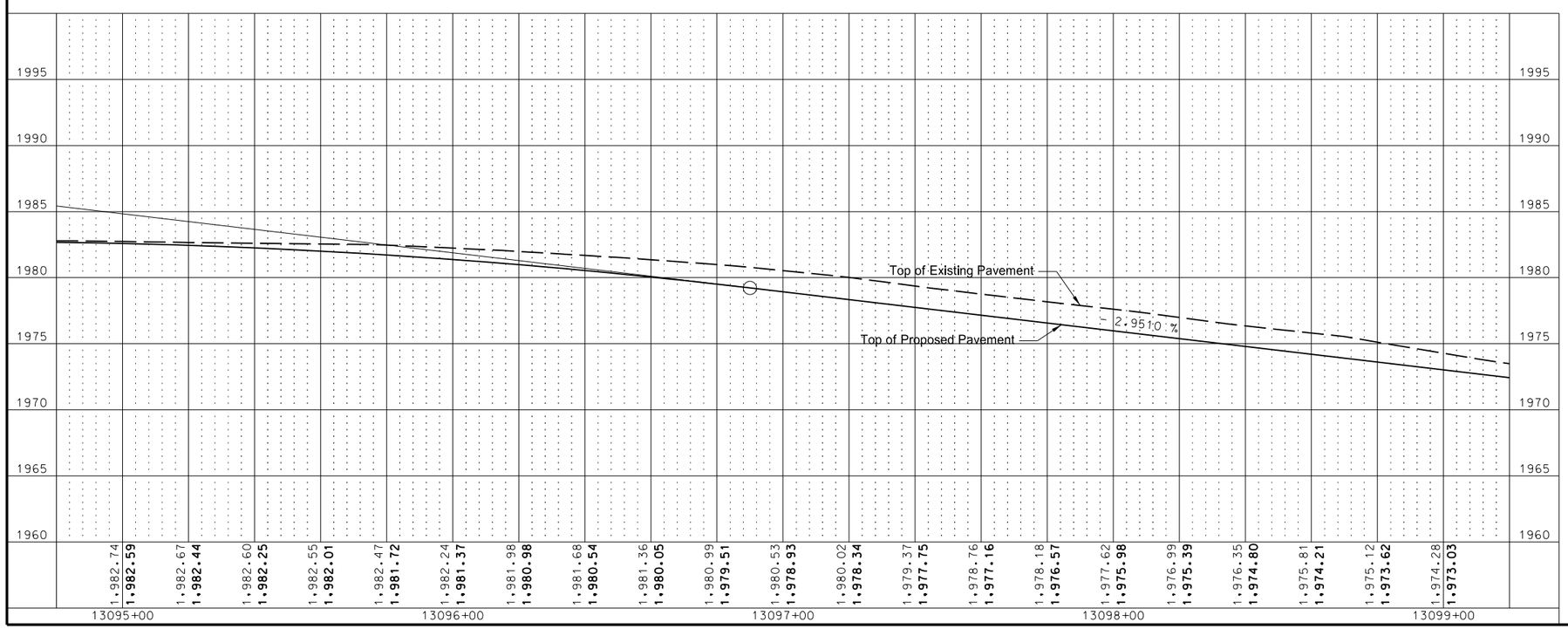
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	14



SPEC	CODE	BID ITEM	UNIT	QUANTITY
722	6240	ADJUST UTILITY APPURTENANCE		
		Sta 13095+61 (4 - WMV's - 45' Lt)	EA	4



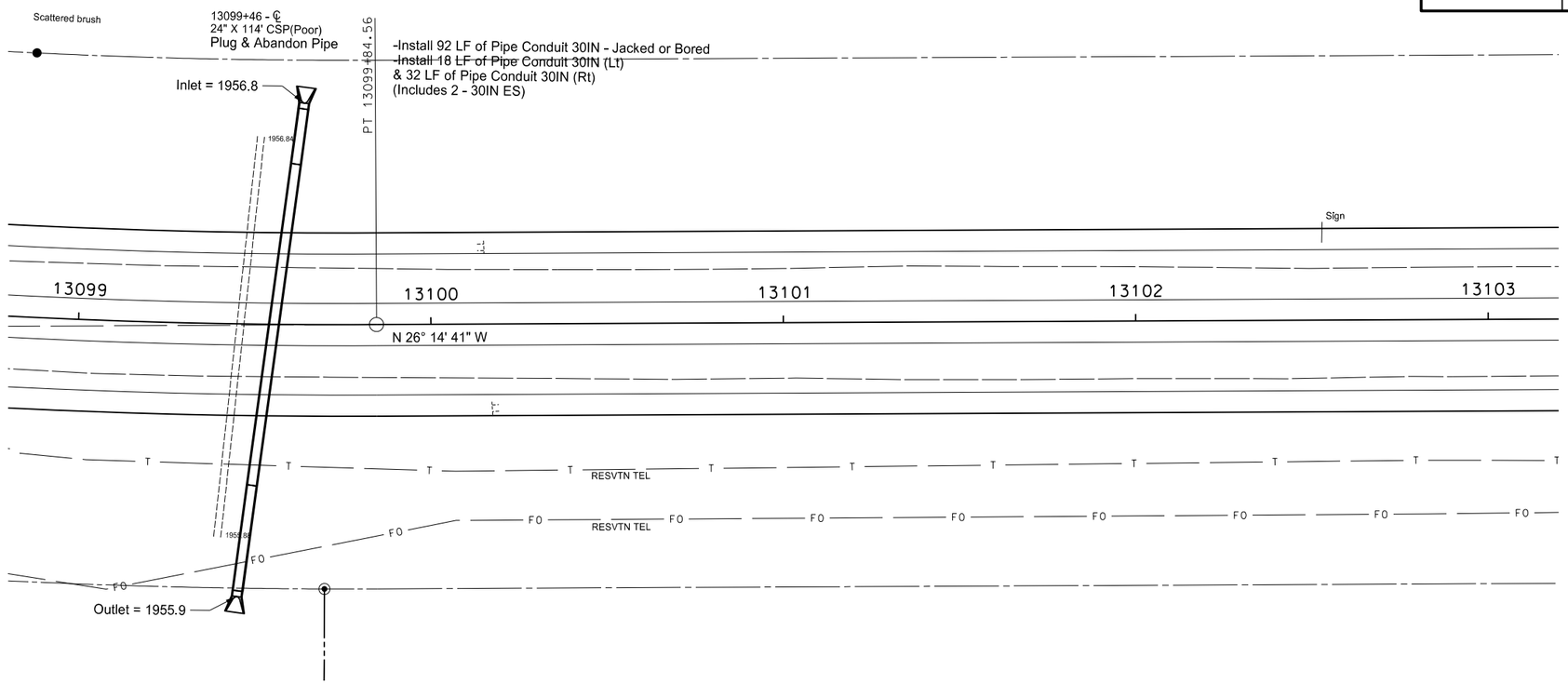
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

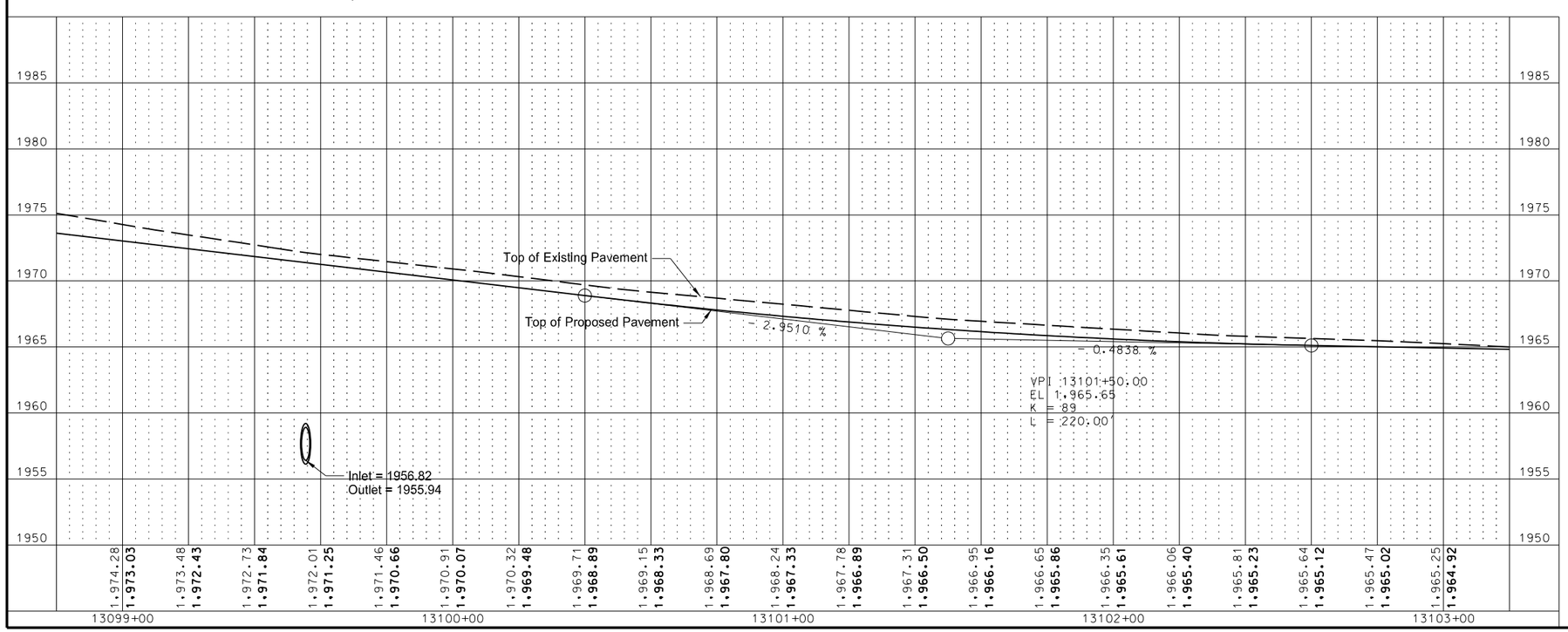
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	15



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	4110	**PIPE CONDUIT 30IN**		
		Sta. 13099+48 - Skewed Rt	LF	32
		Sta. 13099+62 - Skewed Lt	LF	18
714	4166	**PIPE CONDUIT 30IN - JACKED OR BORED**		
		Sta. 13099+55 - Skewed	LF	92
714	9680	**PLUG PIPE - ALL TYPES & SIZES**		
		Sta. 13099+46 - Skewed CL Pipe	EA	1



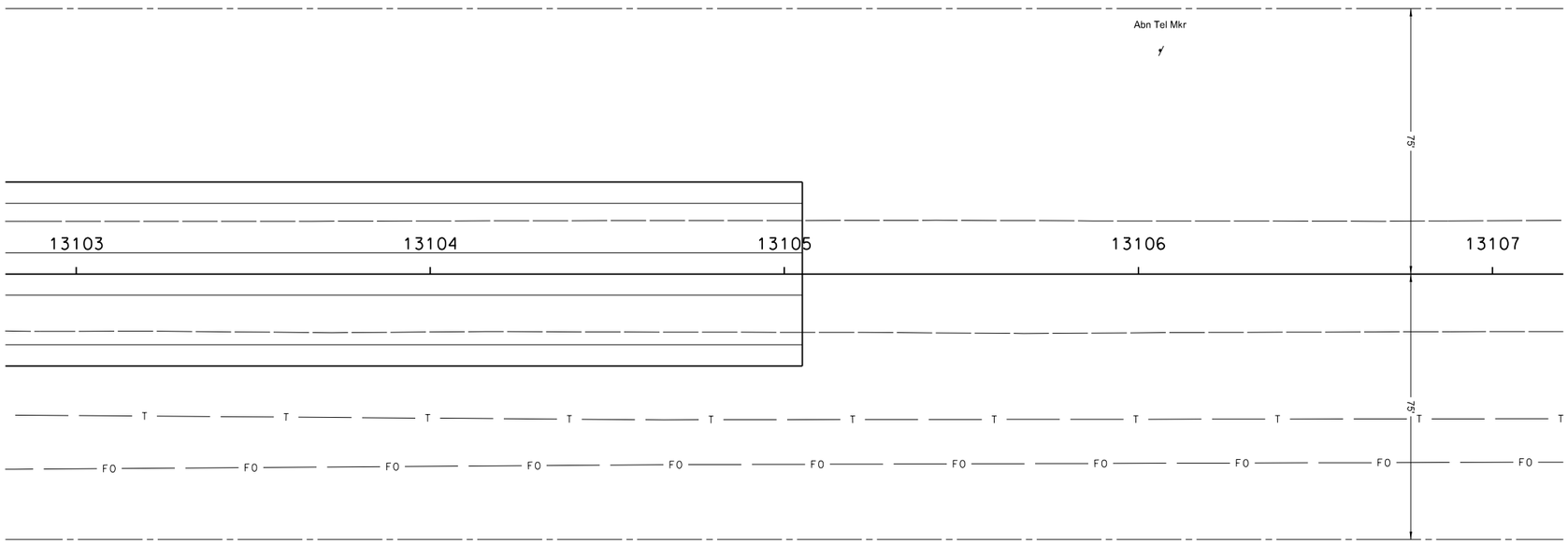
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

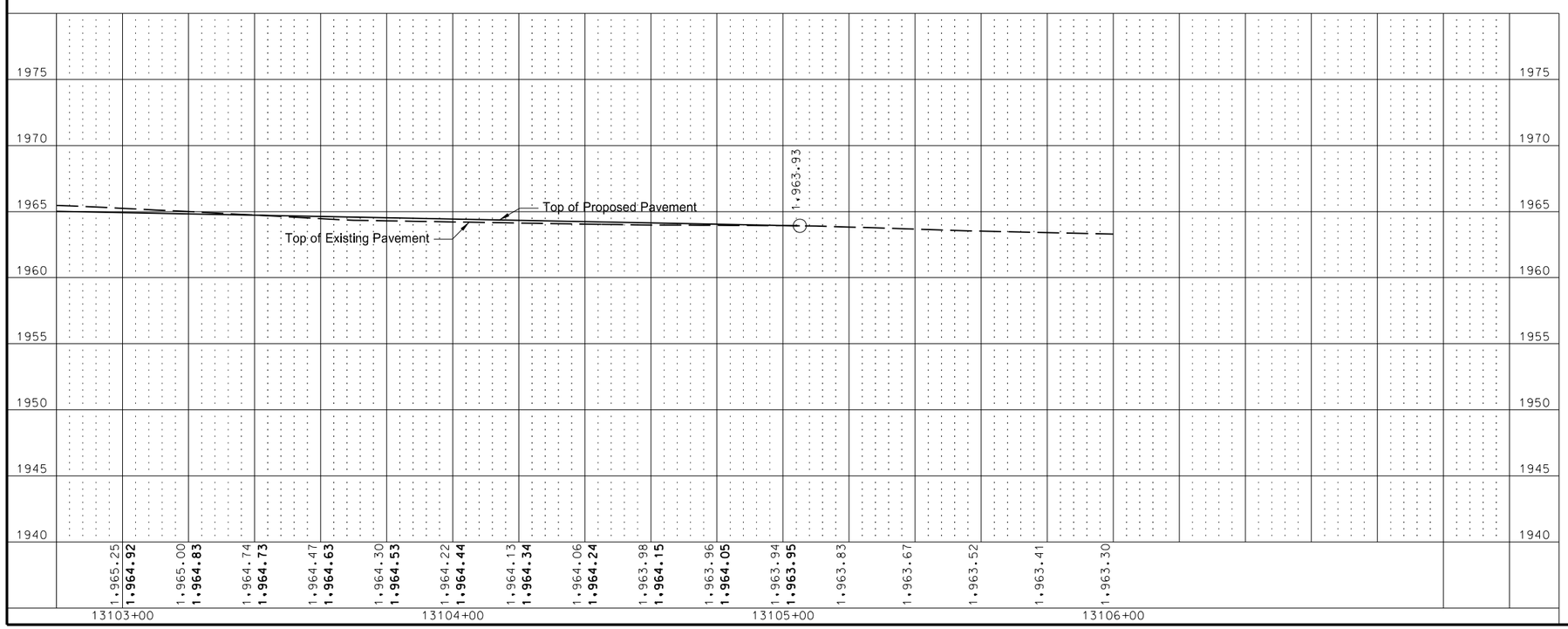
Plan & Profile

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	16





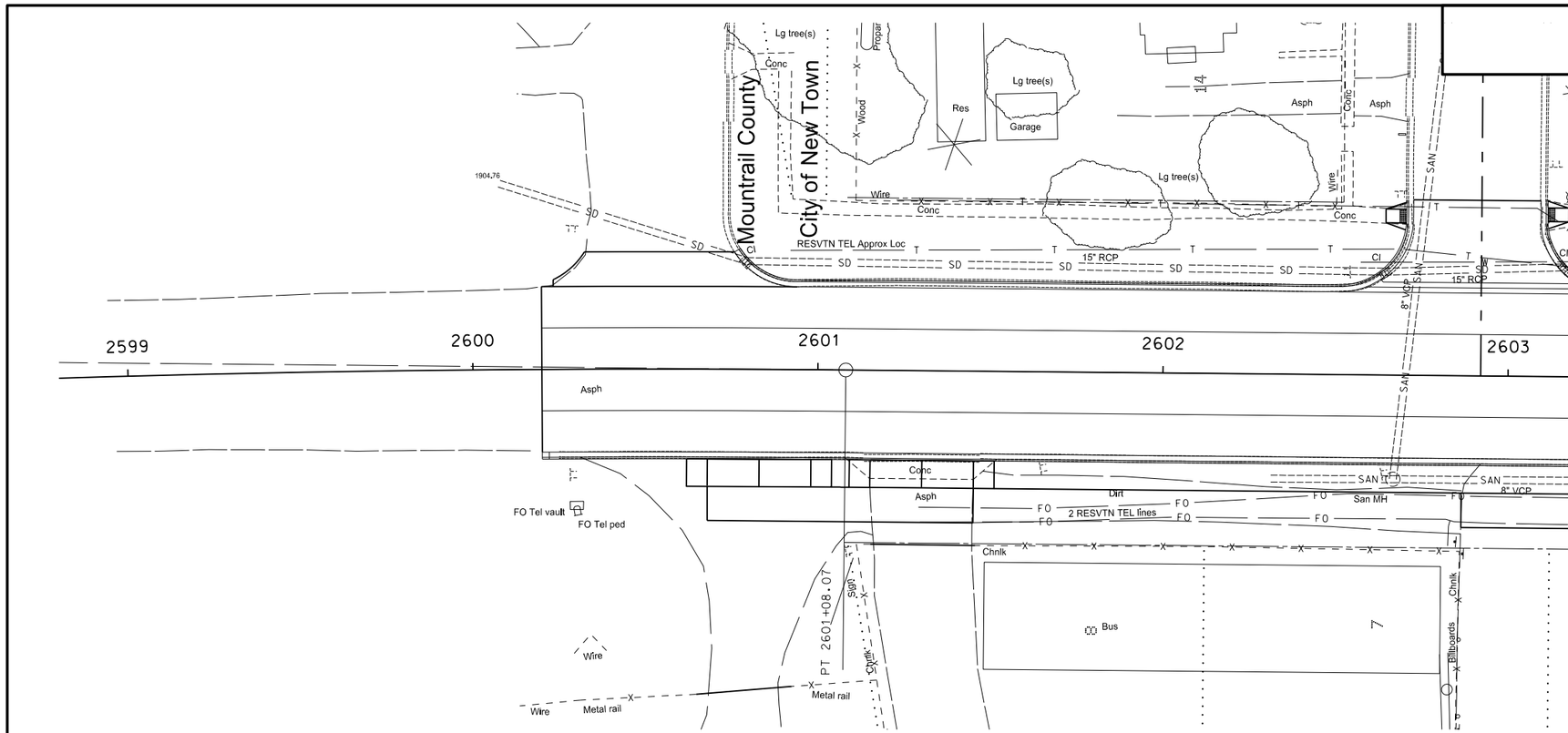
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

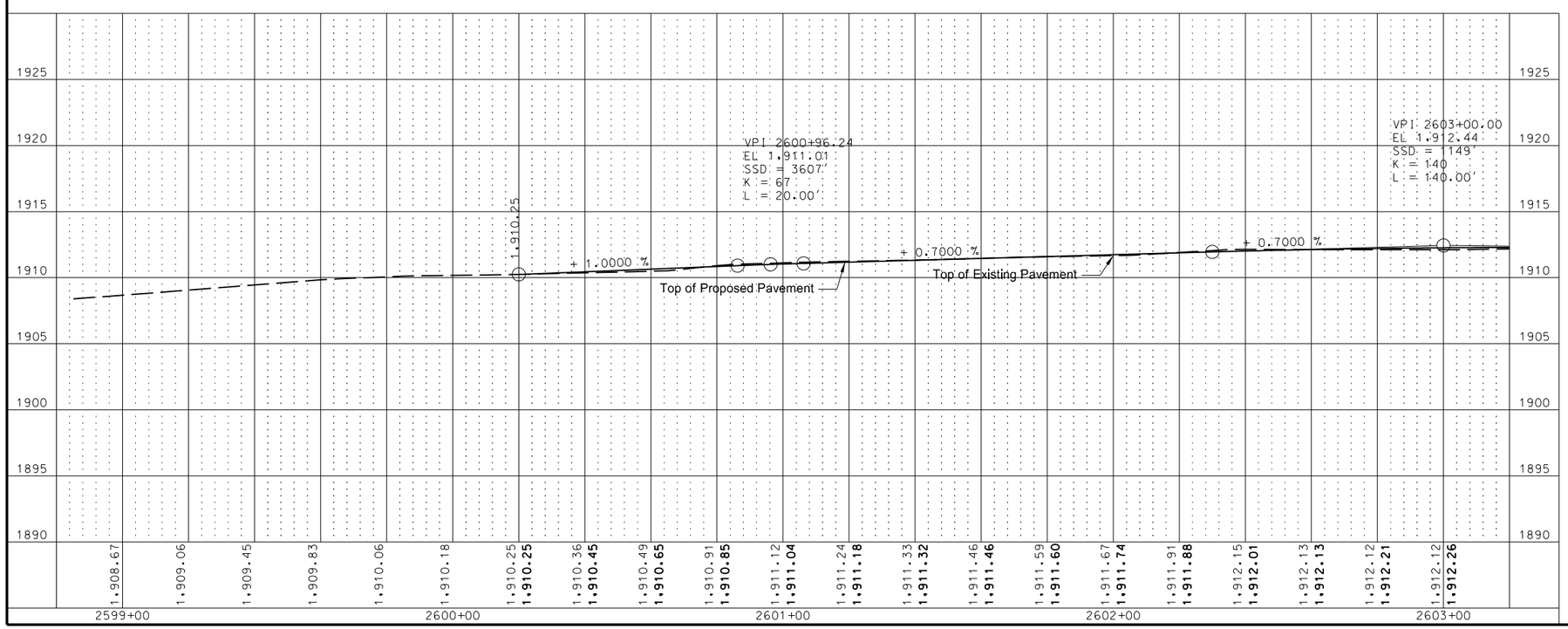
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	17



SPEC	CODE	BID ITEM	UNIT	QUANTITY
722	6160	ADJUST INLET		
		Sta 2600+79 (CI - 30.9' Lt)	EA	1
		Sta 2602+64 (CI - 29.4' Lt)	EA	1



N

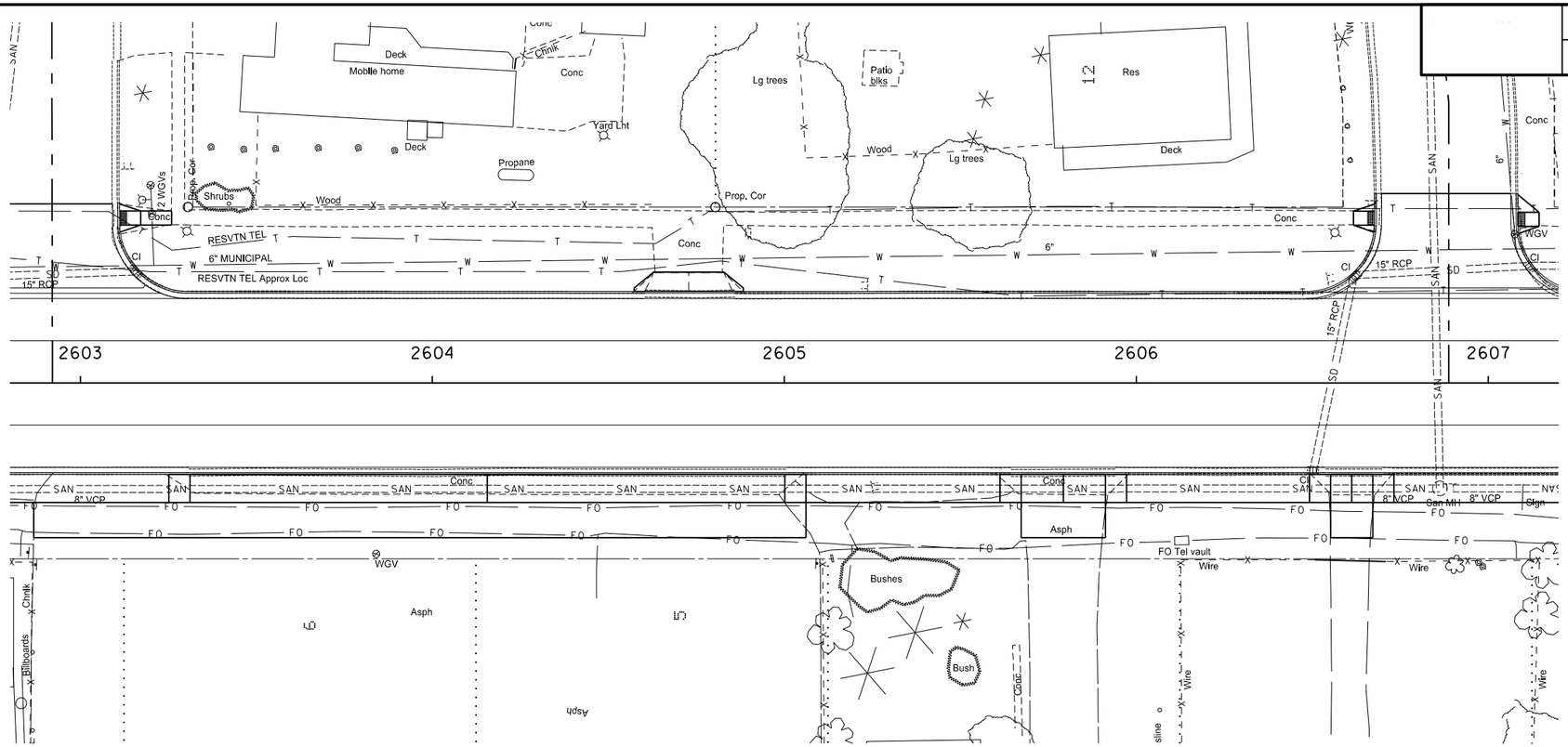
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/30/13 and the original document is stored at the North Dakota Department of Transportation

Plan & Profile

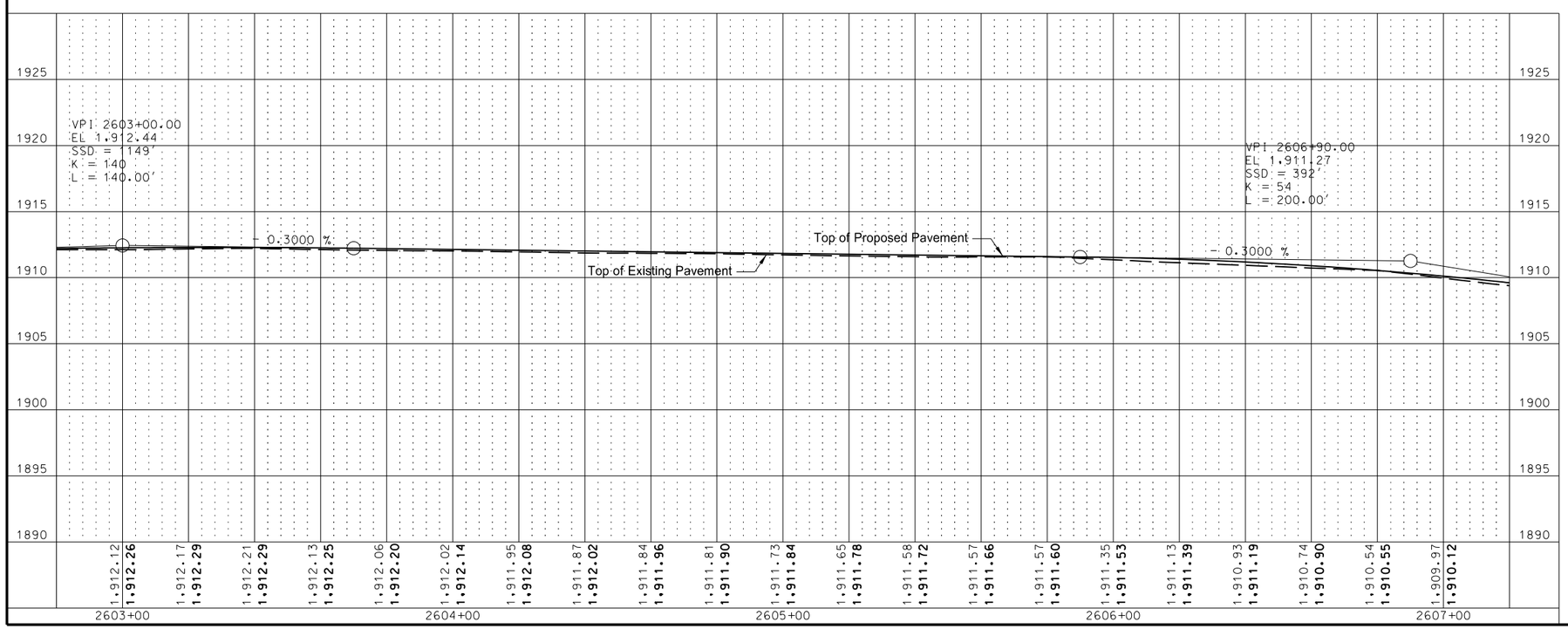
ND 23

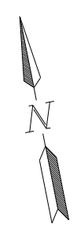
Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	18



SPEC	CODE	BID ITEM	UNIT	QUANTITY
722	6160	ADJUST INLET		
		Sta 2603+16 (CI - 31.2' Lt)	EA	1
		Sta 2606+50 (CI - 24.9' Rt)	EA	1
		Sta 2606+62 (CI - 30.1' Lt)	EA	1





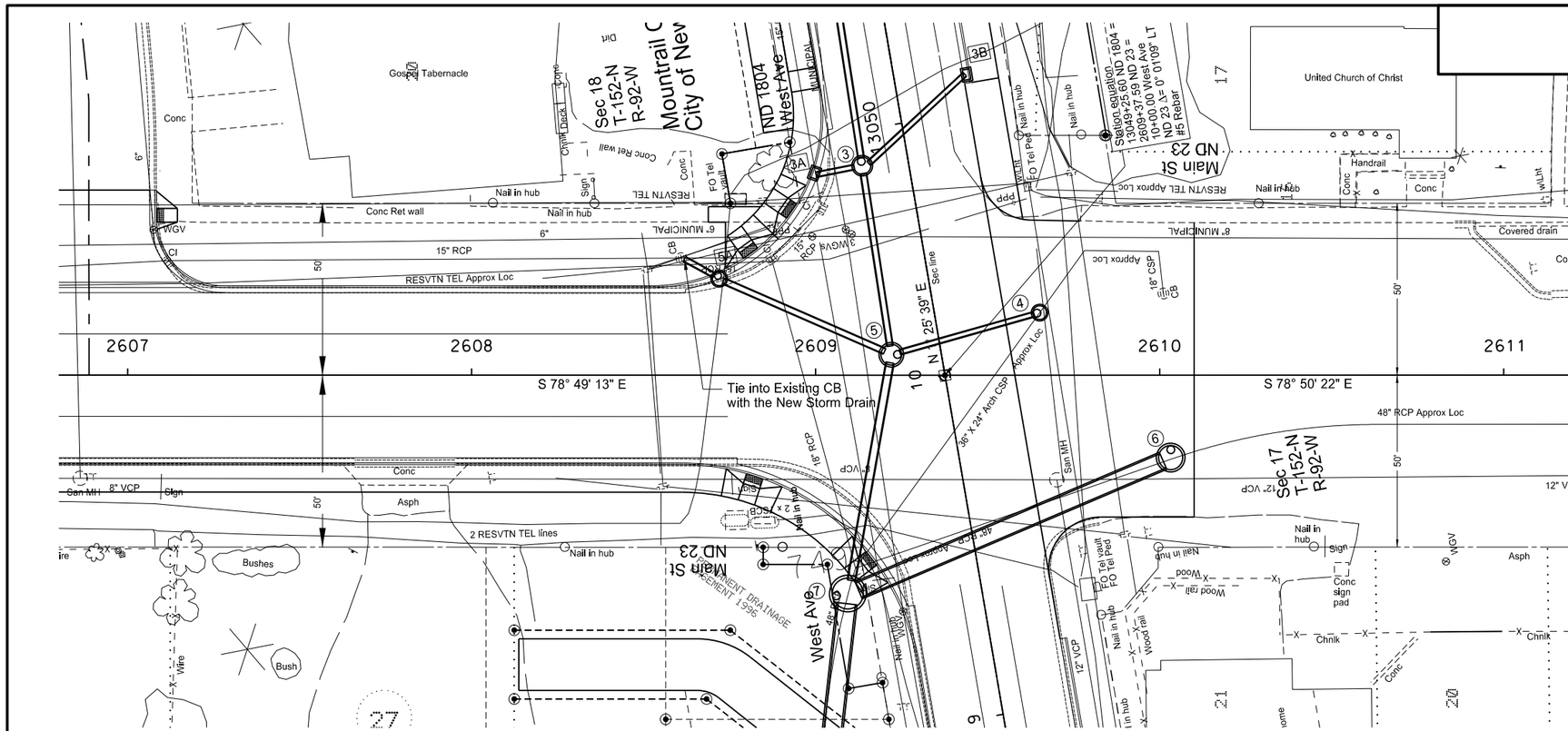
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/30/13 and the original document is stored at the North Dakota Department of Transportation

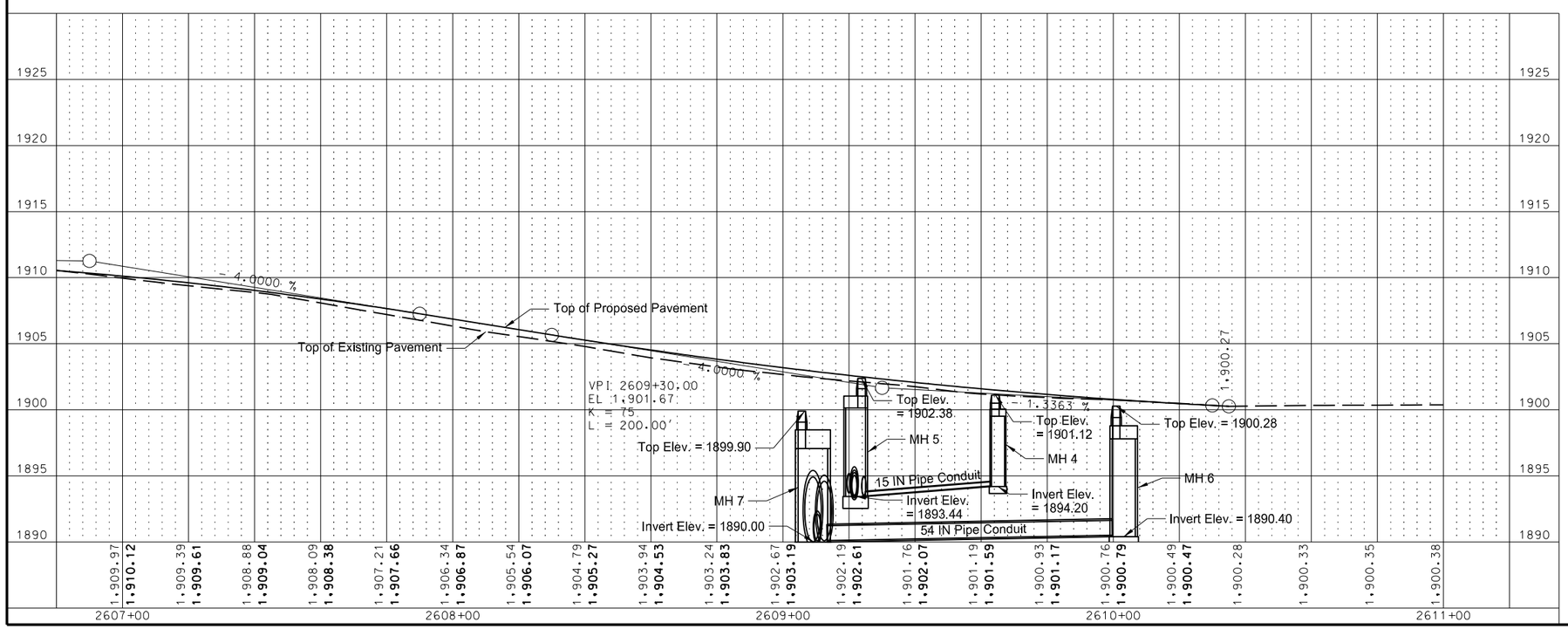
Plan & Profile

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	60	19





SPEC	CODE	BID ITEM	UNIT	QUANTITY
722	6160	**ADJUST INLET**		
		Sta 2607+12 (CI - 32.9' Lt)	EA	1
722	6240	**ADJUST UTILITY APPURTENANCE**		
		Sta 2607+08 (WGV - 42.2' Lt)	EA	1

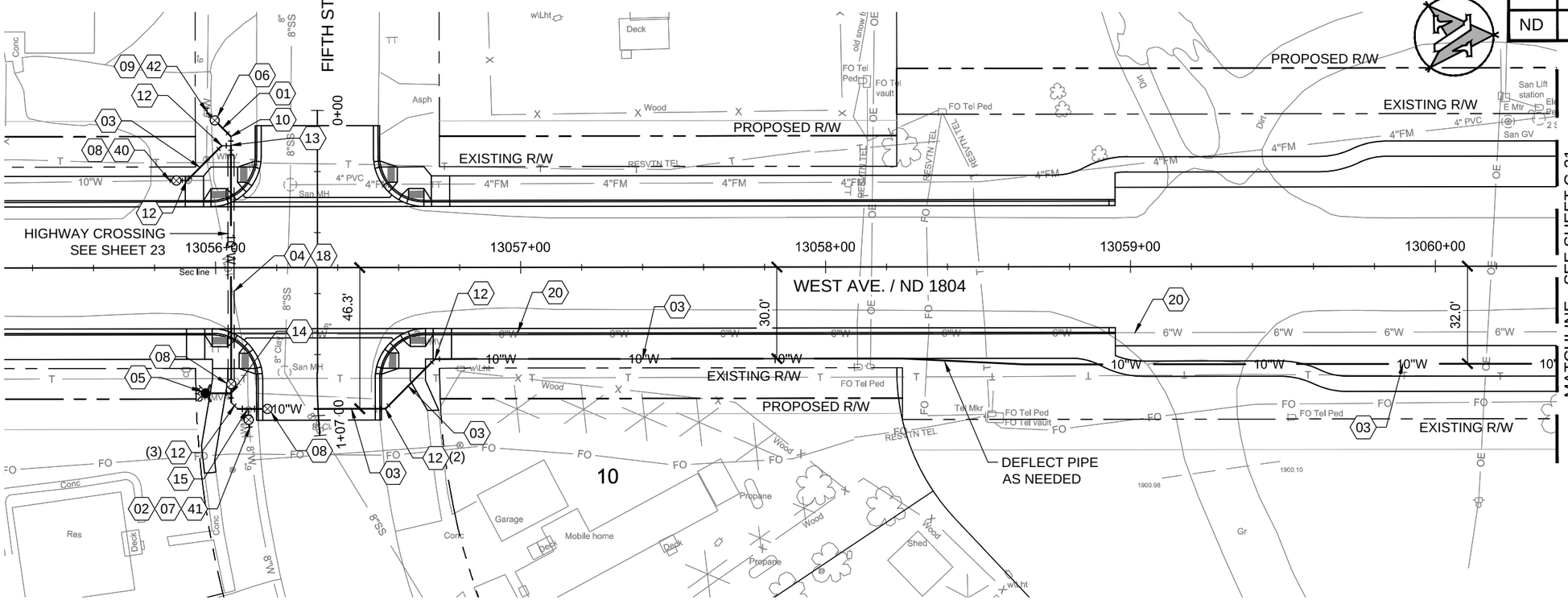
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

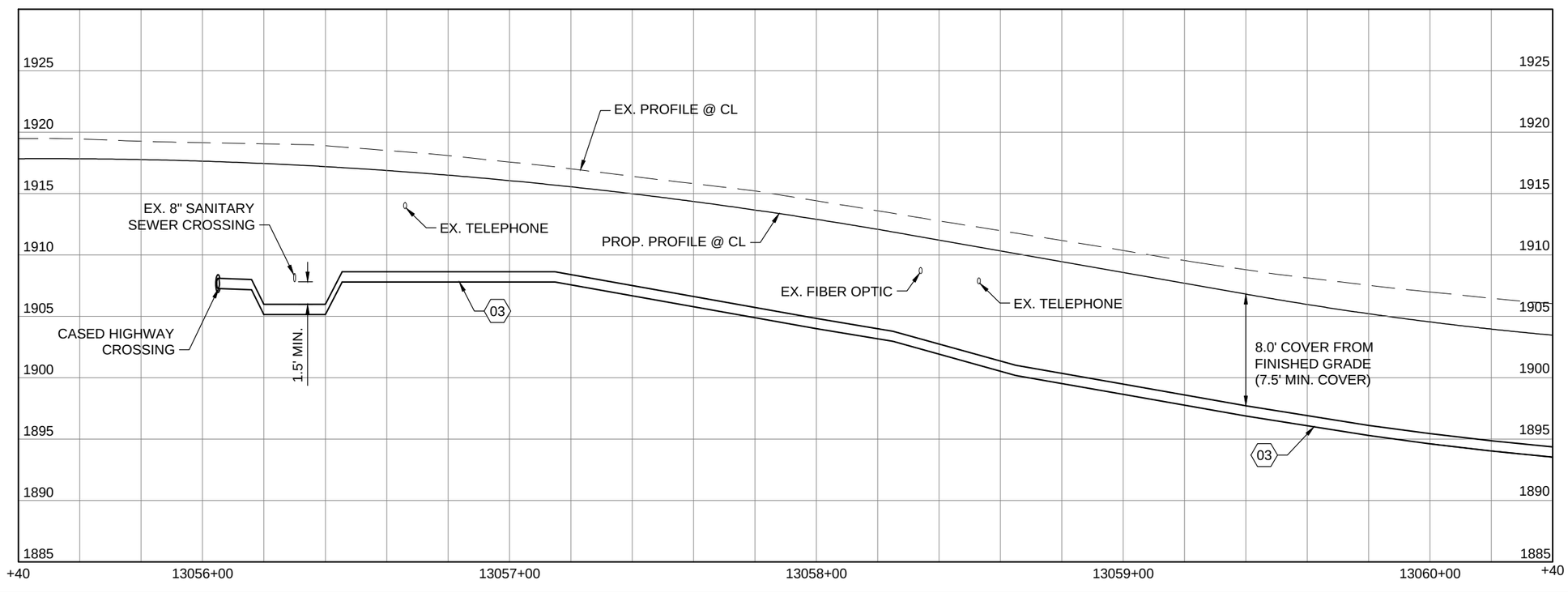
Plan & Profile

ND 23

Jct of ND 23 extending North 1 mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	60	20





CONSTRUCTION NOTES:

1. REFER TO NDDOT PLANS FOR CONTROL AND BENCHMARKS
2. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE OWNERS. UTILITY LOCATIONS ARE APPROXIMATE AND CONTRACTOR WILL VERIFY LOCATIONS PRIOR TO CONSTRUCTION
3. EXISTING WATERMAIN TO REMAIN IN SERVICE DURING CONSTRUCTION.
4. SALVAGE ALL VALVES & HYDRANTS, RETURN TO CITY, INCIDENTAL TO ABANDONED WATERMAIN.

SHEET KEYNOTES:

01 WATERMAIN 6IN PVC (20 LF)
02 WATERMAIN 8IN PVC (8 LF)
03 WATERMAIN 10IN PVC (382 LF)
04 10IN FUSIBLE OR RESTRAINED JOINT PVC WATERMAIN (78 LF)
05 6" HYDRANT (1 EA)
06 GATE VALVE & BOX 6IN (1 EA)
07 GATE VALVE & BOX 8IN (1 EA)
08 BUTTERFLY VALVE & BOX 10IN (3 EA)
09 6IN 45DEG BEND (1 EA)
10 10IN X 6IN REDUCING BEND (1 EA)
12 10IN 45DEG BEND (8 EA)
13 10IN X 10IN X 10IN TEE (1 EA)
14 10IN X 10IN X 6IN TEE (1 EA)
15 10IN X 10IN X 8IN TEE (1 EA)
18 CASING PIPE 18" (74 LF)
20 ABANDON EXISTING WATERMAIN/SERVICE LINE (530 LF)
40 WATER LINE CONNECTION 10IN
41 WATER LINE CONNECTION 8IN
42 WATER LINE CONNECTION 6IN

This document was originally issued and sealed by STEVEN P. IKE Registration Number 2326 on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

ACKERMAN ESTVOLD
107 Main Street · Williston, ND 58801
701.577.4127 · www.ackerman-estvold.com
Minot, ND | Williston, ND

SCALE (H): 1"=40'
SCALE (V): 1"=10'

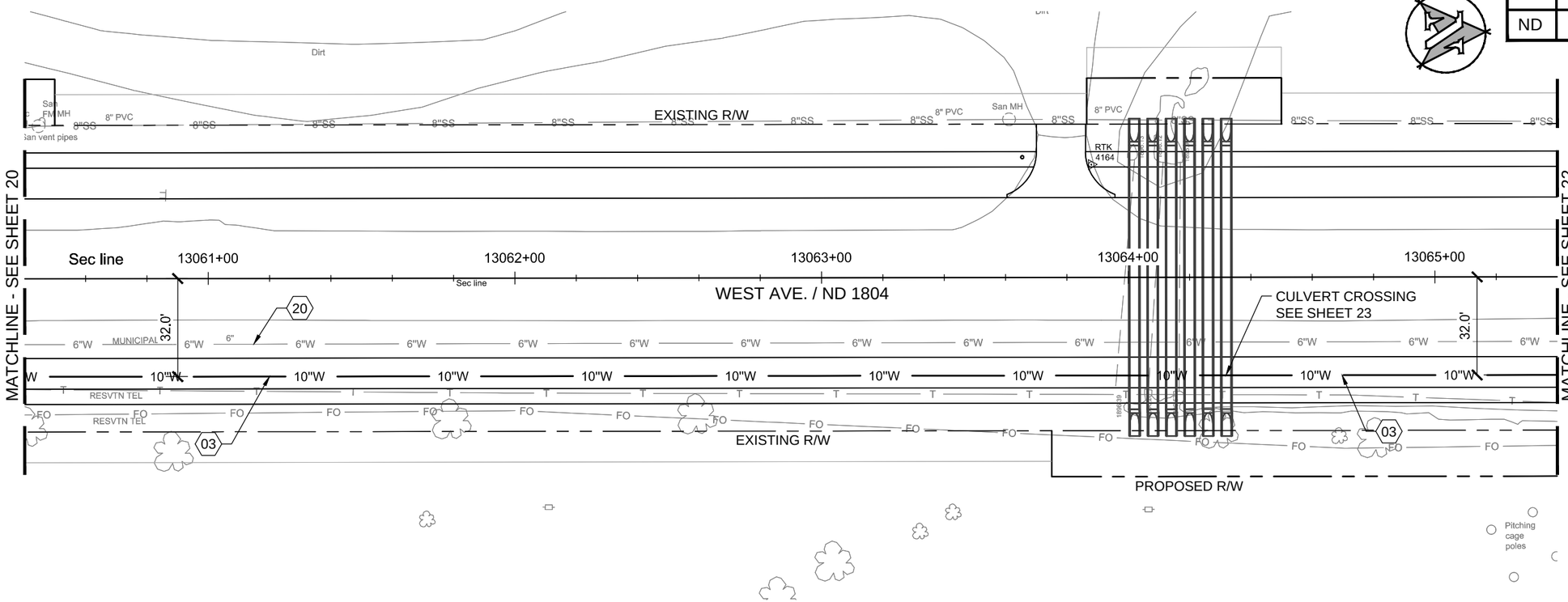
20 10 0 20 40

HIGHWAY 1804 & HIGHWAY 23
IMPROVEMENTS
NEW TOWN, ND
WATERMAIN PLAN & PROFILE
13056+00 TO 13060+40

Ackerman-Estvold Project No. M13043

I:\ACADDWGS-I\2013 PROJECTS\13-043 New Town Sewer Rehab\Water Relocation - 1804\dwg\plans\current\13043_sheets plan-profile.dwg

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	60	21

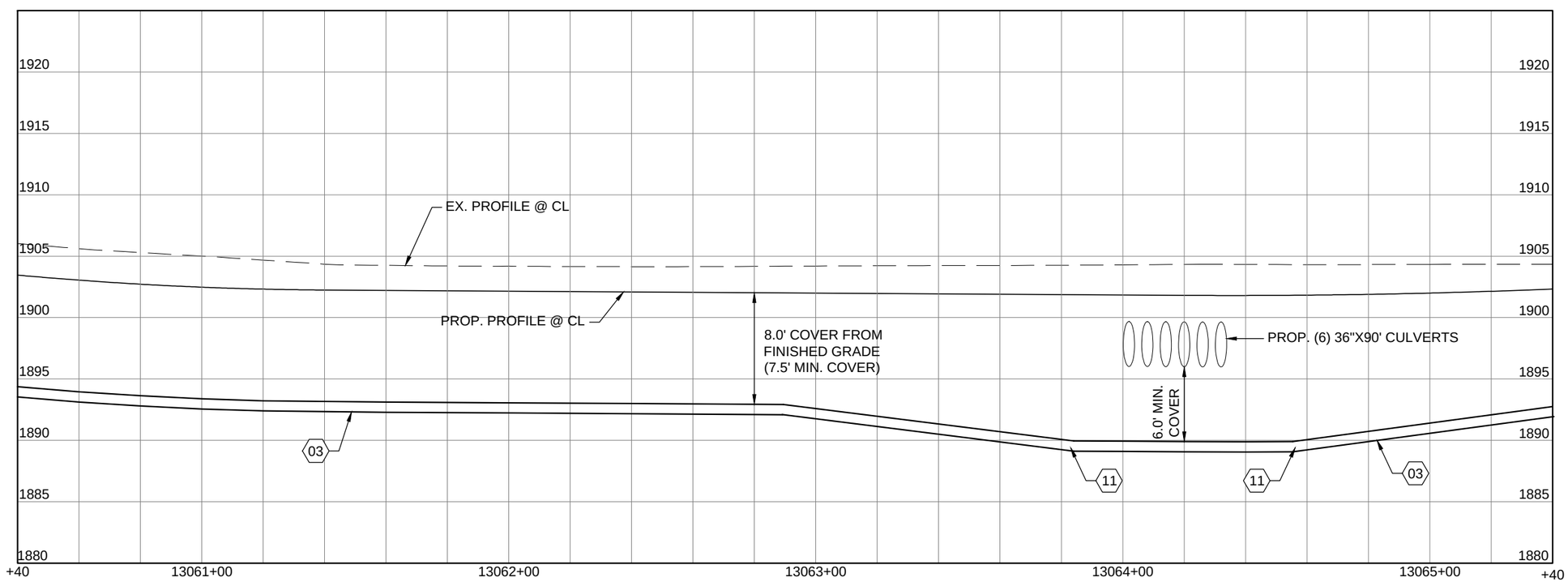


CONSTRUCTION NOTES:

1. REFER TO NDDOT PLANS FOR CONTROL AND BENCHMARKS
2. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE OWNERS. UTILITY LOCATIONS ARE APPROXIMATE AND CONTRACTOR WILL VERIFY LOCATIONS PRIOR TO CONSTRUCTION
3. EXISTING WATERMAIN TO REMAIN IN SERVICE DURING CONSTRUCTION.
4. SALVAGE ALL VALVES & HYDRANTS, RETURN TO CITY, INCIDENTAL TO ABANDONED WATERMAIN.

SHEET KEYNOTES:

03 WATERMAIN 10IN PVC (500 LF)
11 10IN 22.5 DEG BEND (2 EA)
20 ABANDON EXISTING WATERMAIN/SERVICE LINE (500 LF)



This document was originally issued and sealed by STEVEN P. IKE Registration Number 2326 on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

ACKERMAN ESTVOLD
107 Main Street · Williston, ND 58801
701.577.4127 · www.ackerman-estvold.com
Minot, ND | Williston, ND

SCALE (H): 1"=40'
SCALE (V): 1"=10'

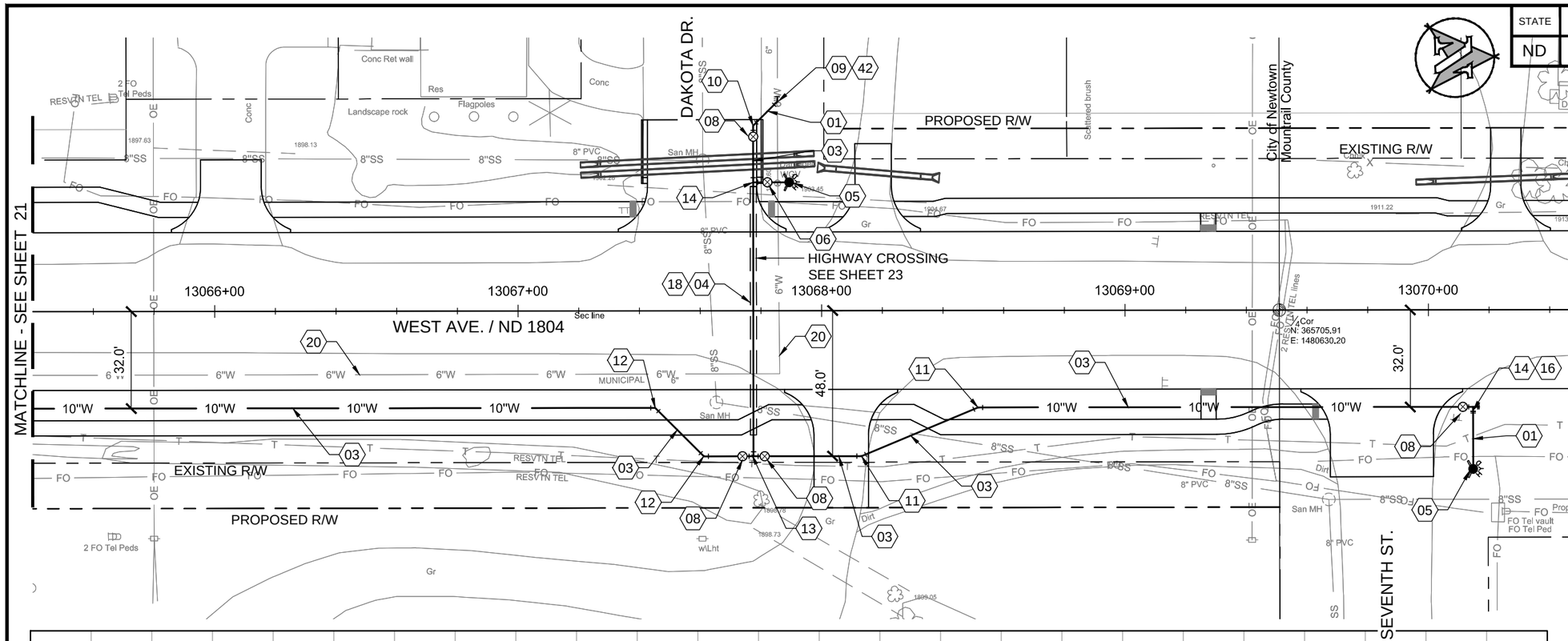
20 10 0 20 40

HIGHWAY 1804 & HIGHWAY 23
IMPROVEMENTS
NEW TOWN, ND
SANITARY SEWER PLAN & PROFILE
13060+40 TO 13065+40

Ackerman-Estvold Project No. M13043

I:\ACADDWGS-I\2013 PROJECTS\13-043 New Town Sewer Rehab\Water Relocation - 1804\dwg\plans\current\13043_sheets plan-profile.dwg

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	60	22

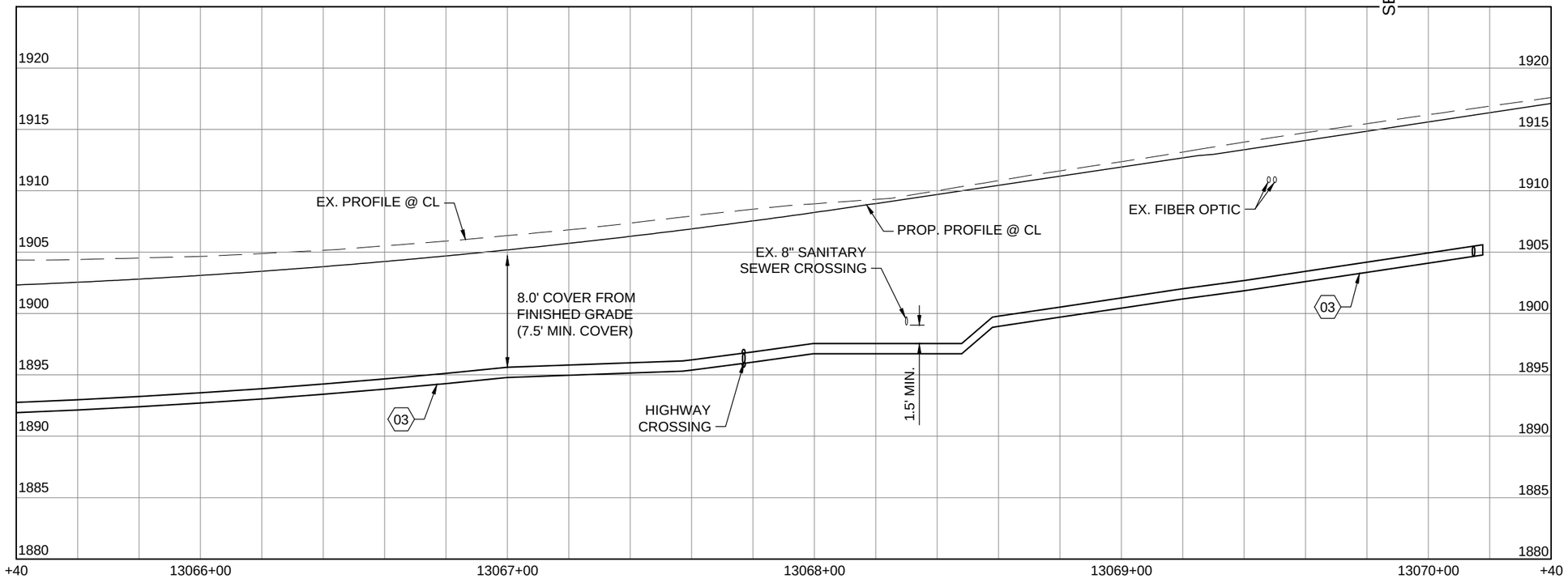


CONSTRUCTION NOTES:

1. REFER TO NDDOT PLANS FOR CONTROL AND BENCHMARKS
2. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE OWNERS. UTILITY LOCATIONS ARE APPROXIMATE AND CONTRACTOR WILL VERIFY LOCATIONS PRIOR TO CONSTRUCTION
3. EXISTING WATERMAIN TO REMAIN IN SERVICE DURING CONSTRUCTION.
4. SALVAGE ALL VALVES & HYDRANTS, RETURN TO CITY, INCIDENTAL TO ABANDONED WATERMAIN.

SHEET KEYNOTES:

01 WATERMAIN 6IN PVC (46 LF)
03 WATERMAIN 10IN PVC (522 LF)
04 10" FUSIBLE OR RESTRAINED JOINT PVC WATERMAIN (78 LF)
05 6IN HYDRANT (2 EA)
06 GATE VALVE & BOX 6IN (1 EA)
08 BUTTERFLY VALVE & BOX 10IN (4 EA)
09 6IN 45DEG BEND (1 EA)
10 10IN X 6IN REDUCING BEND (1 EA)
11 10IN 22.5DEG BEND (2 EA)
12 10IN 45DEG BEND (2 EA)
13 10IN X 10IN X 10IN TEE (1 EA)
14 10IN X 10IN X 6IN TEE (2 EA)
16 10IN WATER MAIN PLUG (1 EA)
18 CASING PIPE 18IN (74 LF)
20 ABANDON EXISTING WATERMAIN/SERVICE LINE (786 LF)
42 WATER LINE CONNECTION 6IN



This document was originally issued and sealed by STEVEN P. IKE Registration Number 2326 on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

ACKERMAN ESTVOLD
107 Main Street · Williston, ND 58801
701.577.4127 · www.ackerman-estvold.com
Minot, ND | Williston, ND

SCALE (H): 1"=40'
SCALE (V): 1"=10'

20 10 0 20 40

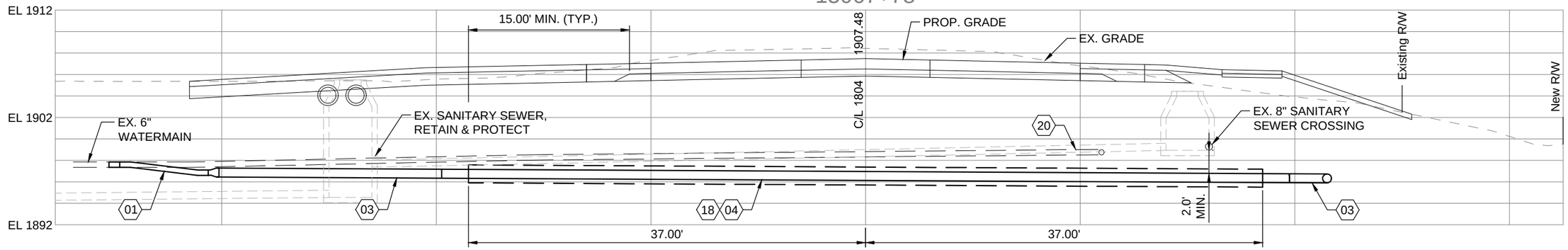
HIGHWAY 1804 & HIGHWAY 23
IMPROVEMENTS
NEW TOWN, ND
WATERMAIN PLAN & PROFILE
13065+40 TO 13070+40

Ackerman-Estvold Project No. M13043

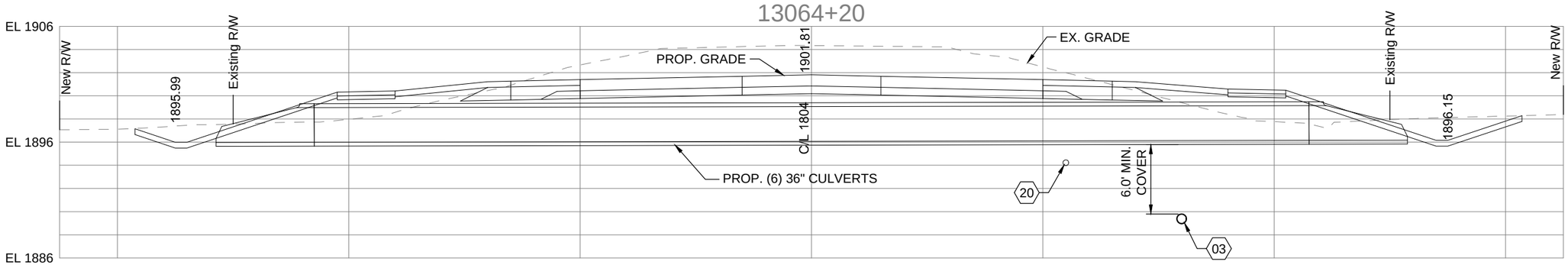
I:\ACADDWGS\I2013 PROJECTS\13-043 New Town Sewer Rehab\Water Relocation - 1804\dwg\plans\current\13043_sheets plan-profile.dwg

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	60	23

13067+78



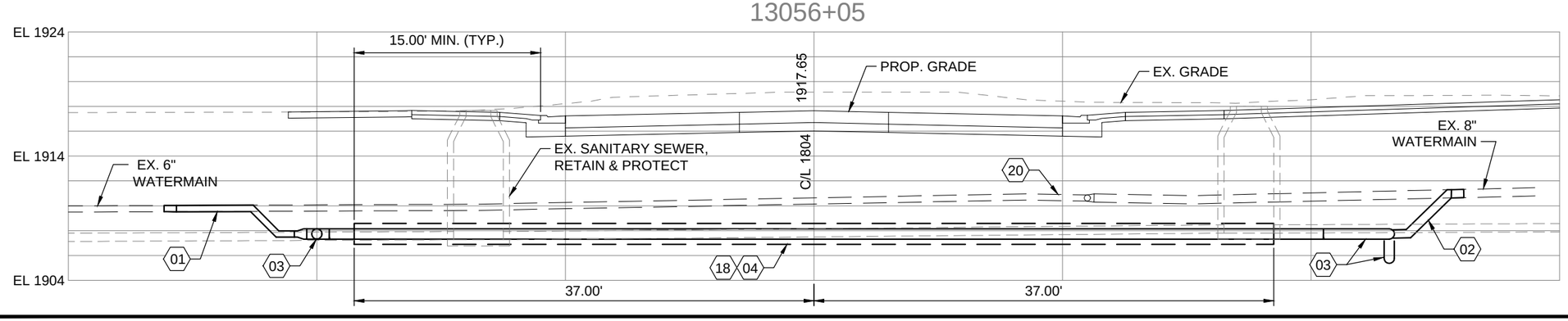
13064+20



SHEET KEYNOTES:

01 WATERMAIN 6IN PVC
02 WATERMAIN 8IN PVC
03 WATERMAIN 10IN PVC
04 10" FUSIBLE OR RESTRAINED JOINT PVC WATERMAIN
18 CASING PIPE 18IN
20 ABANDON EXISTING WATERMAIN/ SERVICE LINE

13056+05



This document was originally issued and sealed by STEVEN P. IKE Registration Number 2326 on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

ACKERMAN ESTVOLD
107 Main Street · Williston, ND 58801
701.577.4127 · www.ackerman-estvold.com
Minot, ND | Williston, ND

SCALE (H): 1"=40'
SCALE (V): 1"=10'

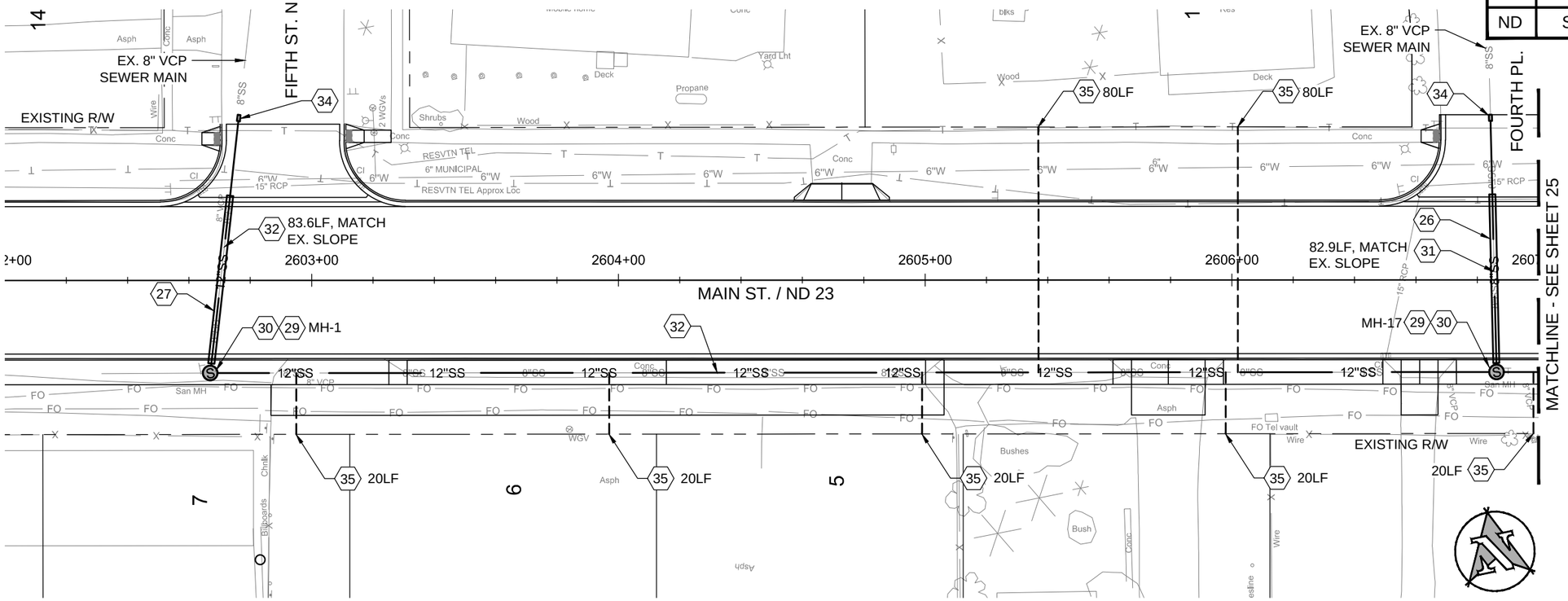
20 10 0 20 40

HIGHWAY 1804 & HIGHWAY 23
IMPROVEMENTS
NEW TOWN, ND
WATERMAIN
HIGHWAY CROSSINGS

Ackerman-Estvold Project No. M13043

I:\ACADDWGS-I\2013 PROJECTS\13-043 New Town Sewer Rehab\Water Relocation - 1804\dwg\plans\current\13043_sheets plan-profile.dwg

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	60	24

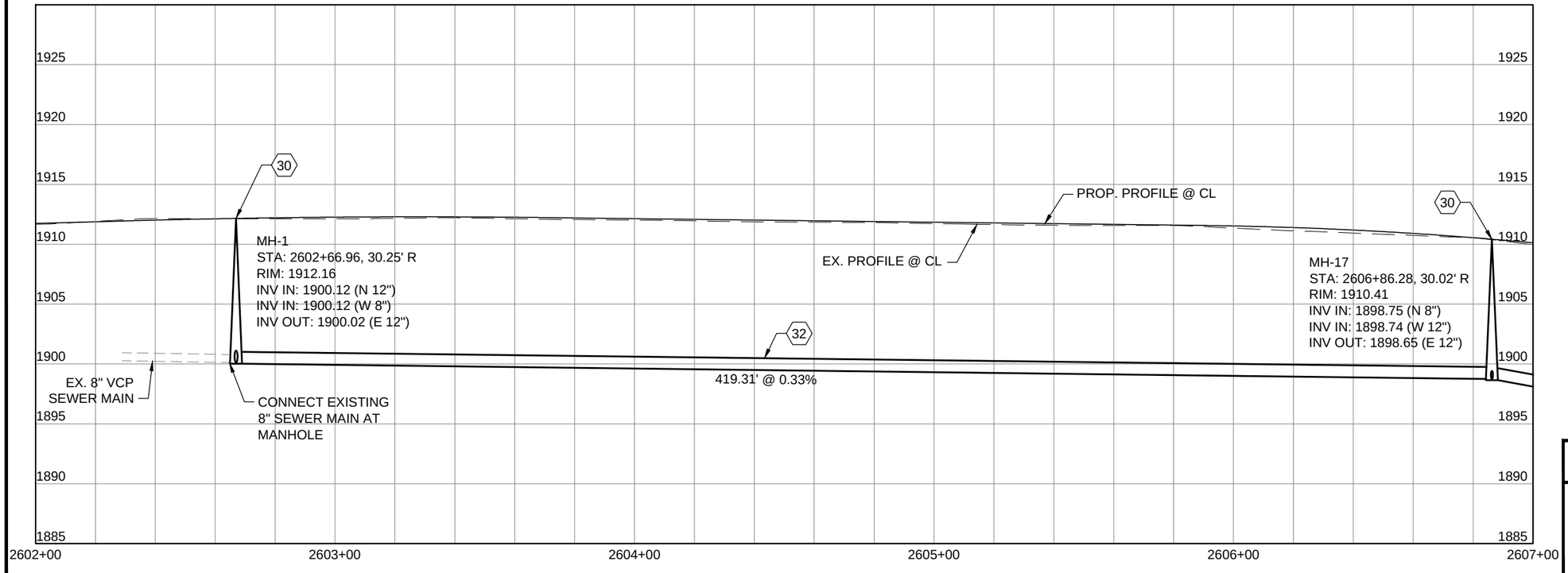


CONSTRUCTION NOTES:

1. REFER TO NDDOT PLANS FOR CONTROL AND BENCHMARKS
2. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE OWNERS. UTILITY LOCATIONS ARE APPROXIMATE AND CONTRACTOR WILL VERIFY LOCATIONS PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO VERIFY EXISTING MANHOLE DEPTHS AND PIPE INVERTS PRIOR TO CONSTRUCTION.
4. CONTRACTOR MUST PROVIDE CONTINUOUS SANITARY SEWER SERVICE DURING CONSTRUCTION.
5. REMOVAL OF EXISTING SANITARY SEWER PIPING SHALL BE INCIDENTAL TO INSTALLATION OF NEW PIPING AND MANHOLES.

SHEET KEYNOTES

26 CASING PIPE 18IN (56 LF)
27 CASING PIPE 24IN (56 LF)
29 REMOVAL OF MANHOLES (2 EA)
30 MANHOLE SANITARY - 48IN DIA. (2 EA)
31 8IN SANITARY SEWER PIPE (83 LF)
32 12IN SANITARY SEWER PIPE (516 LF)
34 CONNECTION TO EXISTING MAIN (2 EA)
35 SANITARY SEWER SERVICE CONNECTION, 6IN SEWER SERVICE PIPE CONNECT TO EXISTING AT RIGHT-OF-WAY (7 EA - 260 LF), 12IN X 6IN SEWER WYE BRANCH (7 EA)



This document was originally issued and sealed by STEVEN P. IKE Registration Number 2326 on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

ACKERMAN ESTVOLD
107 Main Street · Williston, ND 58801
701.577.4127 · www.ackerman-estvold.com
Minot, ND | Williston, ND

SCALE (H): 1"=40'
SCALE (V): 1"=10'

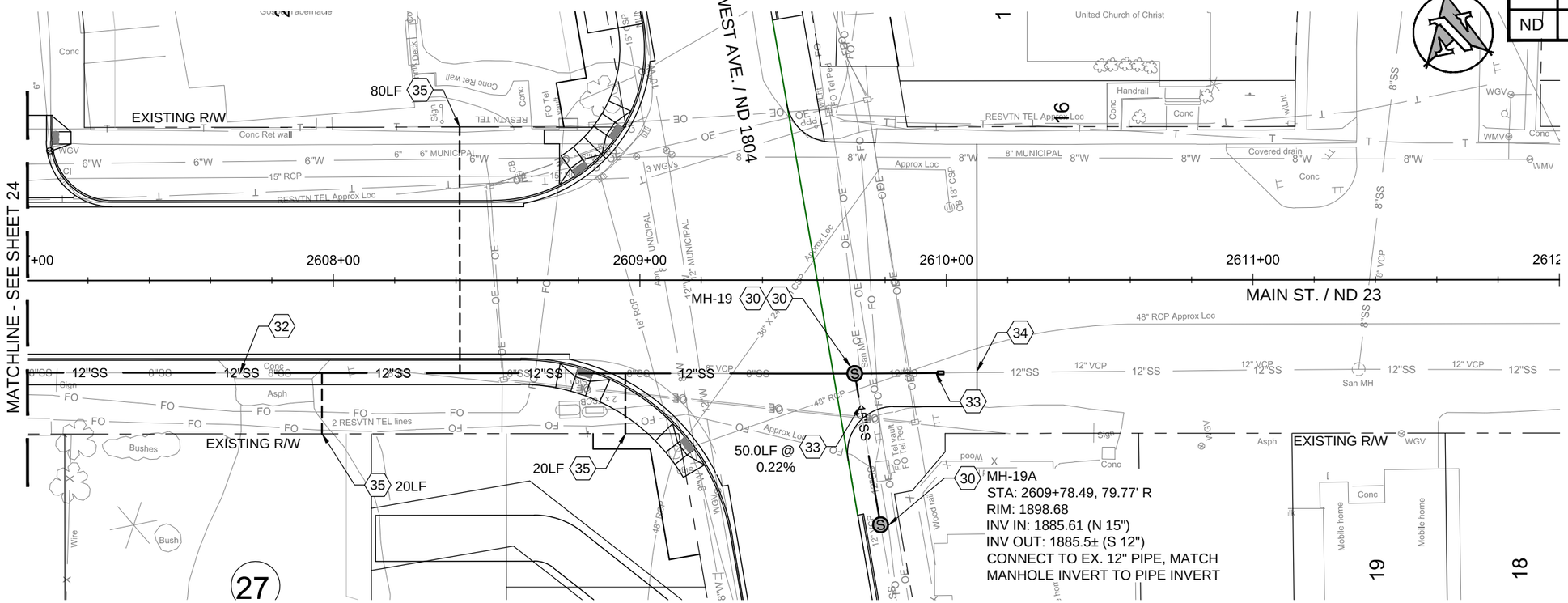
20 10 0 20 40

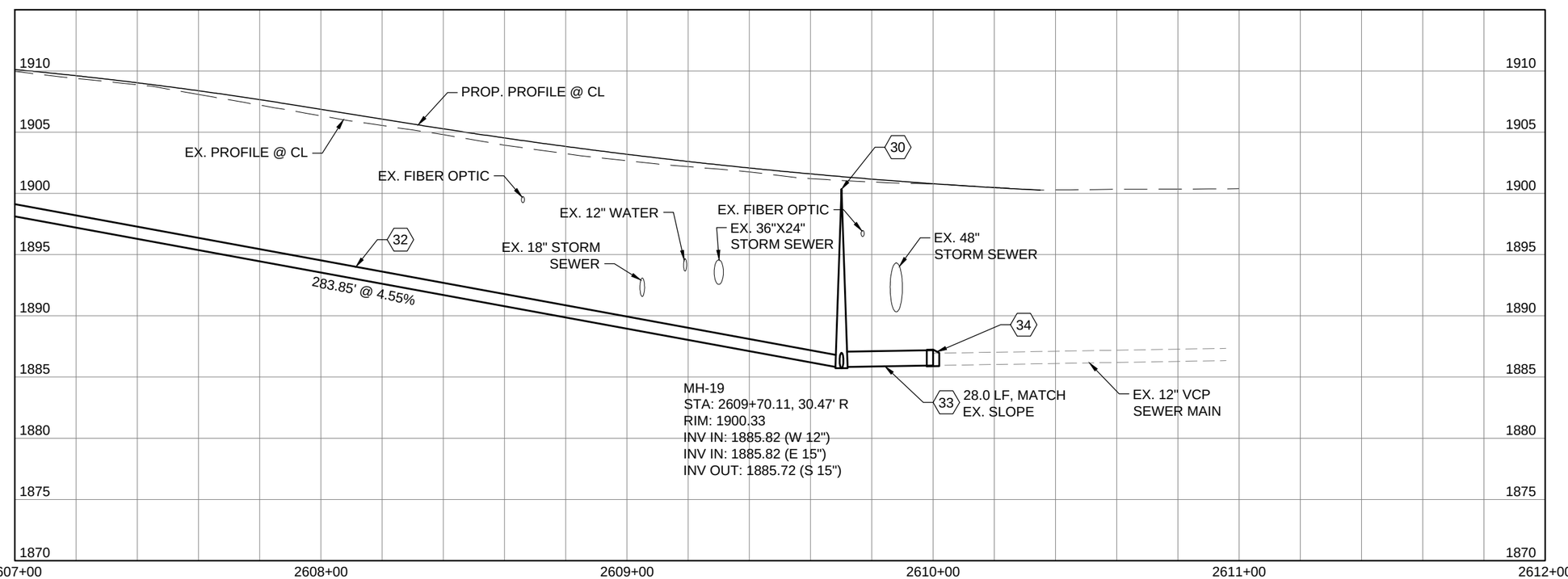
HIGHWAY 1804 & HIGHWAY 23 IMPROVEMENTS
NEW TOWN, ND
SANITARY SEWER PLAN & PROFILE
2602+00 TO 2607+00

Ackerman-Estvold Project No. M13043

I:\ACADDWGS-II\2013 PROJECTS\13-043 New Town Sewer Rehab\Water Relocation - 1804\dwg\plans\current\13043_sheets plan-profile.dwg

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-CPU-7-804(049)247	60	25





CONSTRUCTION NOTES:

1. REFER TO NDDOT PLANS FOR CONTROL AND BENCHMARKS
2. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE OWNERS. UTILITY LOCATIONS ARE APPROXIMATE AND CONTRACTOR WILL VERIFY LOCATIONS PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO VERIFY EXISTING MANHOLE DEPTHS AND PIPE INVERTS PRIOR TO CONSTRUCTION.
4. CONTRACTOR MUST PROVIDE CONTINUOUS SANITARY SEWER SERVICE DURING CONSTRUCTION.
5. REMOVAL OF EXISTING SANITARY SEWER PIPING SHALL BE INCIDENTAL TO INSTALLATION OF NEW PIPING AND MANHOLES.

SHEET KEYNOTES

29 REMOVAL OF MANHOLES (1 EA)
30 MANHOLE SANITARY - 48IN DIA. (2 EA)
32 12IN SANITARY SEWER PIPE (270 LF)
33 15IN SANITARY SEWER PIPE (78 LF)
34 CONNECTION TO EXISTING MAIN (1 EA)
35 SANITARY SEWER SERVICE CONNECTION, 6IN SEWER SERVICE PIPE CONNECT TO EXISTING AT RIGHT-OF-WAY (3 EA - 120 LF), 12IN X 6IN SEWER WYE BRANCH (3 EA)

This document was originally issued and sealed by STEVEN P. IKE Registration Number 2326 on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

ACKERMAN ESTVOLD
107 Main Street · Williston, ND 58801
701.577.4127 · www.ackerman-estvold.com
Minot, ND | Williston, ND

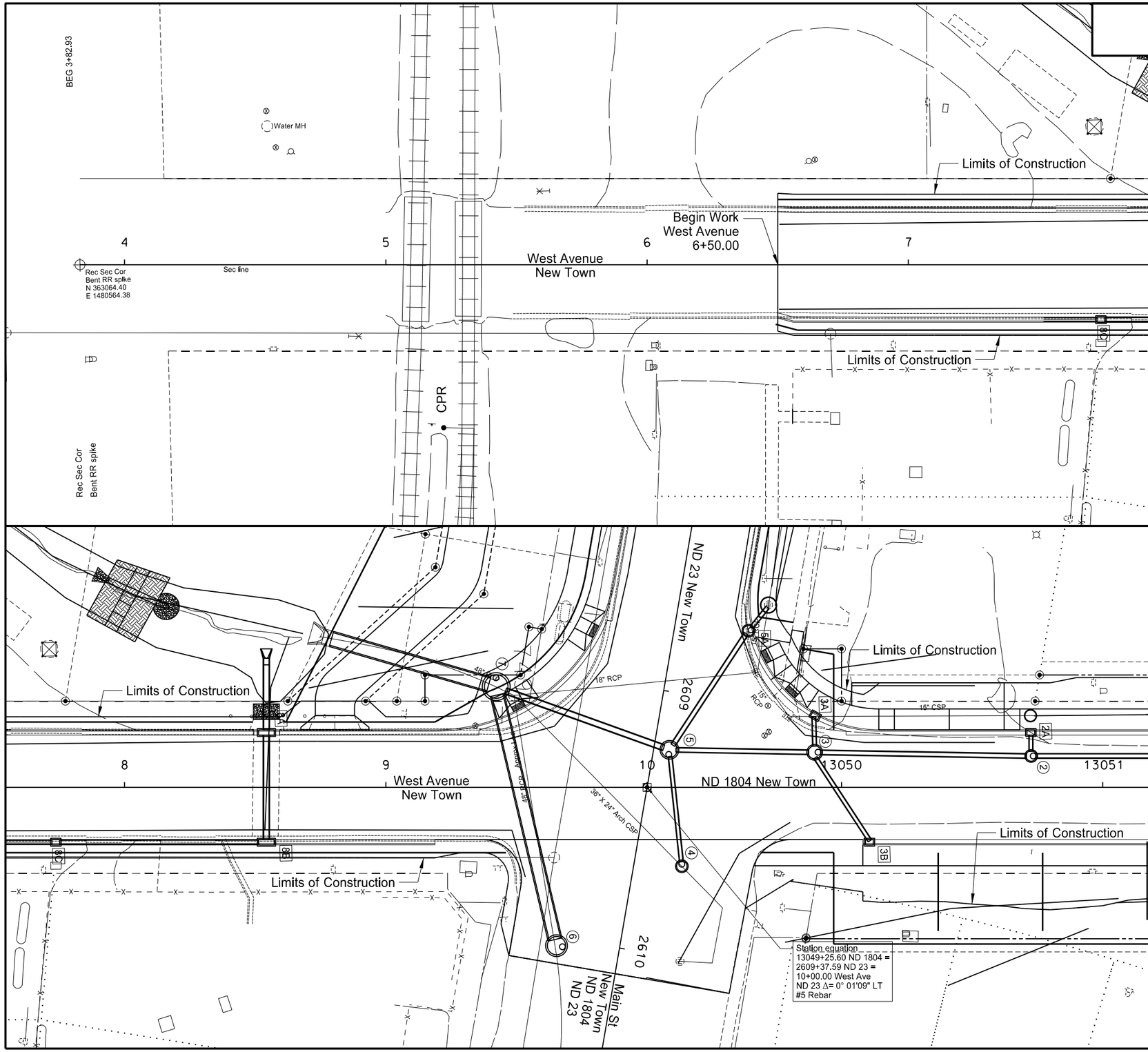
SCALE (H): 1"=40'
SCALE (V): 1"=10'

20 10 0 20 40

HIGHWAY 1804 & HIGHWAY 23
IMPROVEMENTS
NEW TOWN, ND
SANITARY SEWER PLAN & PROFILE
2607+00 TO 2610+20

Ackerman-Estvold Project No. M13043

I:\ACADDWGS-I\2013 PROJECTS\13-043 New Town Sewer Rehab\Water Relocation - 1804\dwg\plans\current\13043_sheets plan-profile.dwg



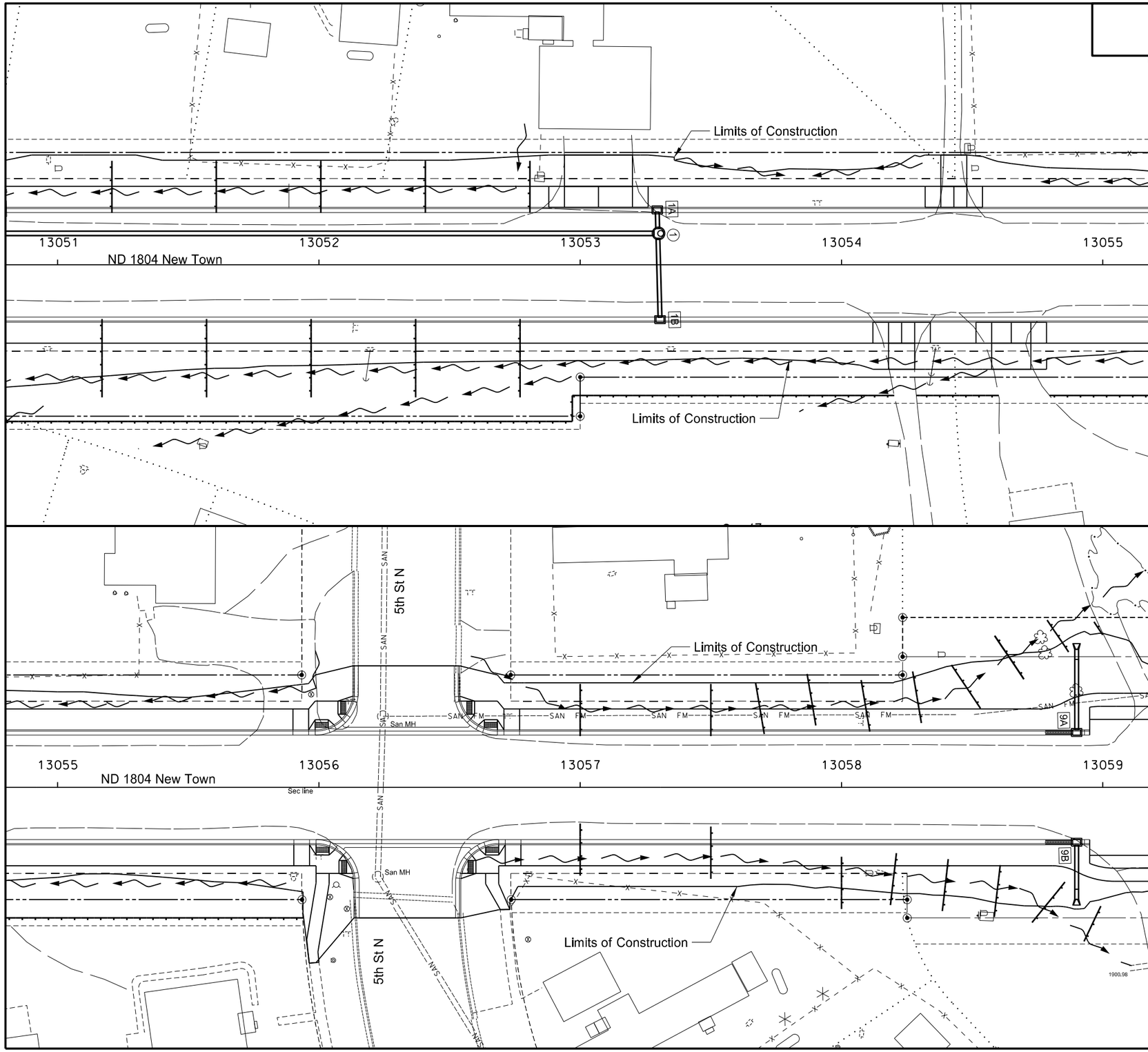
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	1

SPEC CODE	BID ITEM		UNIT QUANTITY
708 1355	**TEMPORARY SEDIMENT TRAP**		
	8+00 - 72' Lt. (West Avenue) Trap Type = Riser Pipe Outlet	EA	1
	8+54 - 30' Lt. (West Avenue) Trap Type = Rock Outlet	EA	1
708 1356	**REMOVAL OF TEMPORARY SEDIMENT TRAP**		
	8+00 - 72' Lt. (West Avenue) Trap Type = Riser Pipe Outlet	EA	1
	8+54 - 30' Lt. (West Avenue) Trap Type = Rock Outlet	EA	1
708 1430	**FIBER ROLLS 12IN**		
	6+50 Lt. to 9+88 Lt. (West Avenue) Curb Sediment Barrier	LF	409
	8+62 Lt. to 9+88 Lt. (West Avenue) Slope Barrier	LF	196
	6+50 Rt. to 9+46 Rt. (West Avenue) Curb Sediment Barrier	LF	297
	13049+69 Lt. to 13049+97 Lt. Curb Sediment Barrier	LF	68
	13050+79 Lt. Ex. Culvert Inlet	LF	15
	13049+69 Rt. to 13051+00 Rt.	LF	166
	13050+37 Rt. to 13050+77 Rt. Ditch Checks 2 @ 30 LF	LF	60
708 1431	**REMOVAL FIBER ROLLS 12IN**		
	6+50 Lt. to 9+88 Lt. (West Avenue) Curb Sediment Barrier	LF	409
	8+62 Lt. to 9+88 Lt. (West Avenue) Slope Barrier	LF	196
	6+50 Rt. to 9+46 Rt. (West Avenue) Curb Sediment Barrier	LF	297
	13049+69 Lt. to 13049+97 Lt. Curb Sediment Barrier	LF	68
	13050+79 Lt. Ex. Culvert Inlet	LF	15
	13049+69 Rt. to 13051+00 Rt.	LF	166
	13050+37 Rt. to 13050+77 Rt. Ditch Checks 2 @ 30 LF	LF	60
708 1531	**INLET PROTECTION - FIBER ROLLS 12IN**		
	13049+72 Lt. Ex. Median Inlet	EA	1
708 1533	**REMOVE INLET PROTECTION - FIBER ROLLS 12IN**		
	13049+72 Lt. Ex. Median Inlet	EA	1
708 1540	**INLET PROTECTION - SPECIAL**		
	7+74 Rt. (West Avenue) Curb Inlet - New Installation	EA	1
	8+54 Lt. (West Avenue) Curb Inlet - New Installation	EA	1
	8+54 Rt. (West Avenue) Curb Inlet - New Installation	EA	1
	13049+38 Rt. (Ex. CB Inlet)	EA	1
	13049+65 Lt. Curb Inlet - New Installation	EA	1
	13049+69 Lt. (Ex. Curb Inlet)	EA	1
	13049+79 Lt. (Ex. Curb Inlet)	EA	1
	13049+90 Lt. Curb Inlet - New Installation	EA	1
	13050+72 Lt. Curb Inlet - New Installation	EA	1
	13050+11 Rt. Curb Inlet - New Installation	EA	1
708 1541	**REMOVE INLET PROTECTION - SPECIAL**		
	7+74 Rt. (West Avenue) Curb Inlet - New Installation	EA	1
	8+54 Lt. (West Avenue) Curb Inlet - New Installation	EA	1
	8+54 Rt. (West Avenue) Curb Inlet - New Installation	EA	1
	13049+38 Rt. (Ex. CB Inlet)	EA	1
	13049+65 Lt. Curb Inlet - New Installation	EA	1
	13049+69 Lt. (Ex. Curb Inlet)	EA	1
	13049+79 Lt. (Ex. Curb Inlet)	EA	1
	13049+90 Lt. Curb Inlet - New Installation	EA	1
	13050+72 Lt. Curb Inlet - New Installation	EA	1
	13050+11 Rt. Curb Inlet - New Installation	EA	1

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
West Avenue: 6+50.00 to 10+00.00
ND 1804: 13049+25.60 to 13051+00
ND 1804
Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	2



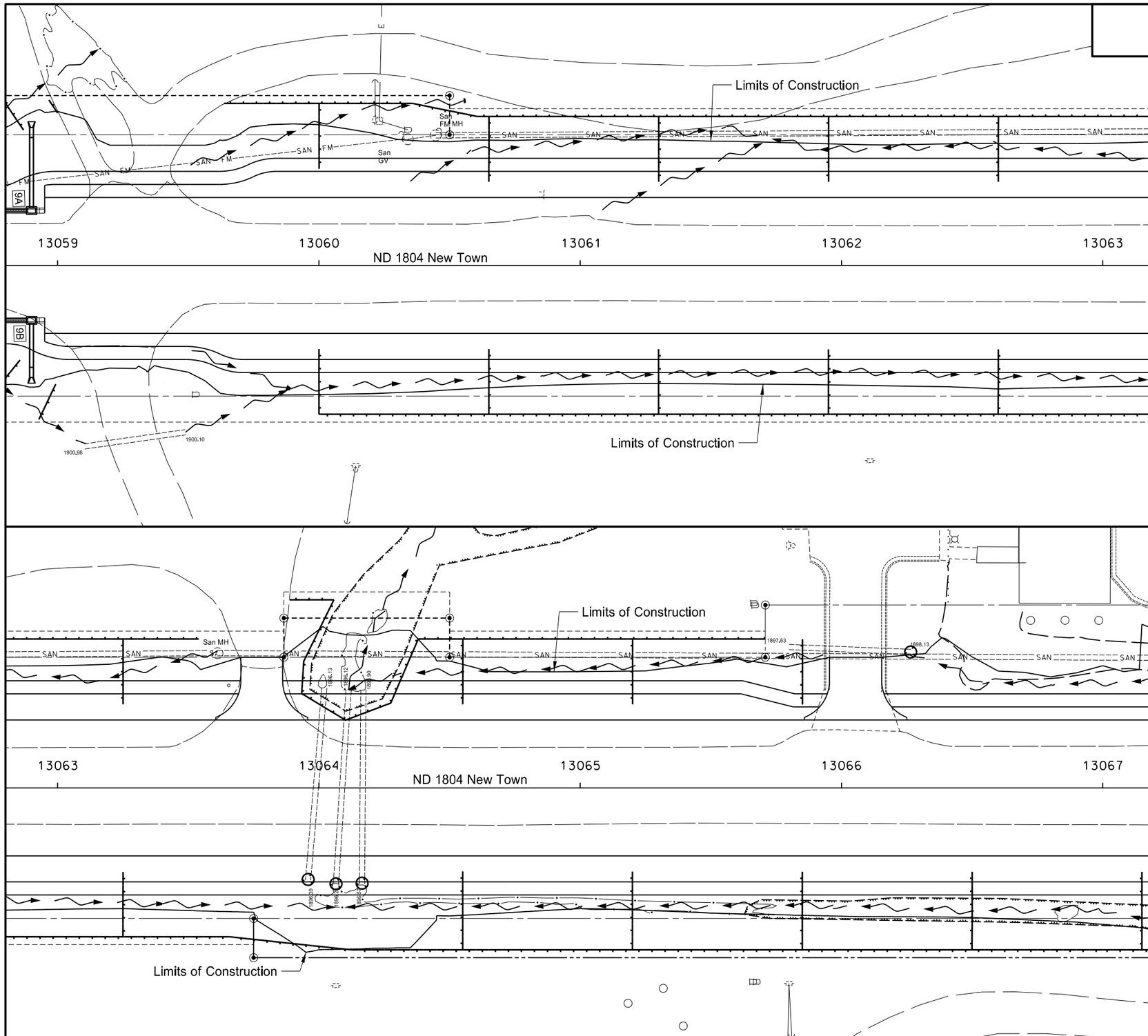
SPEC CODE	BID ITEM		UNIT QUANTITY
708 1430	**FIBER ROLLS 12IN**		
	13051+21 Lt. to 13052+81 Lt. (Ditch Checks) 5 @ 20 LF	LF	100
	13057+00 Lt. to 13057+50 Lt. (Ditch Checks) 2 @ 20 LF	LF	40
	13057+70Lt.to13059+00Lt.(Ditch Checks)6@20LF,15,6LF	LF	141
	13051+17 Rt. to 13052+77 Rt. (Ditch Checks) 5 @ 30 LF	LF	150
	13051+00 Rt. to 13055+94 Rt.	LF	476
	13057+00 Rt. to 13058+00 Rt. (Ditch Checks) 3 @ 20 LF	LF	60
	13058+20Rt.to13059+00 Rt.(Ditch Checks)4@20 LF,15LF	LF	95
708 1431	**REMOVAL FIBER ROLLS 12IN**		
	13051+21 Lt. to 13052+81 Lt. (Ditch Checks) 5 @ 20 LF	LF	100
	13057+00 Lt. to 13057+50 Lt. (Ditch Checks) 2 @ 20 LF	LF	40
	13057+70Lt.to13059+00Lt.(Ditch Checks)6@20LF,15,6LF	LF	141
	13051+17 Rt. to 13052+77 Rt. (Ditch Checks) 5 @ 30 LF	LF	150
	13051+00 Rt. to 13055+94 Rt.	LF	476
	13057+00 Rt. to 13058+00 Rt. (Ditch Checks) 3 @ 20 LF	LF	60
	13058+20Rt.to13059+00 Rt.(Ditch Checks)4@20 LF,15LF	LF	95
708 1540	**INLET PROTECTION - SPECIAL**		
	13053+30 Lt. Curb Inlet - New Installation	EA	1
	13053+30 Rt. Curb Inlet - New Installation	EA	1
708 1541	**REMOVE INLET PROTECTION - SPECIAL**		
	13053+30 Lt. Curb Inlet - New Installation	EA	1
	13053+30 Rt. Curb Inlet - New Installation	EA	1

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
13051+00 to 13059+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	3



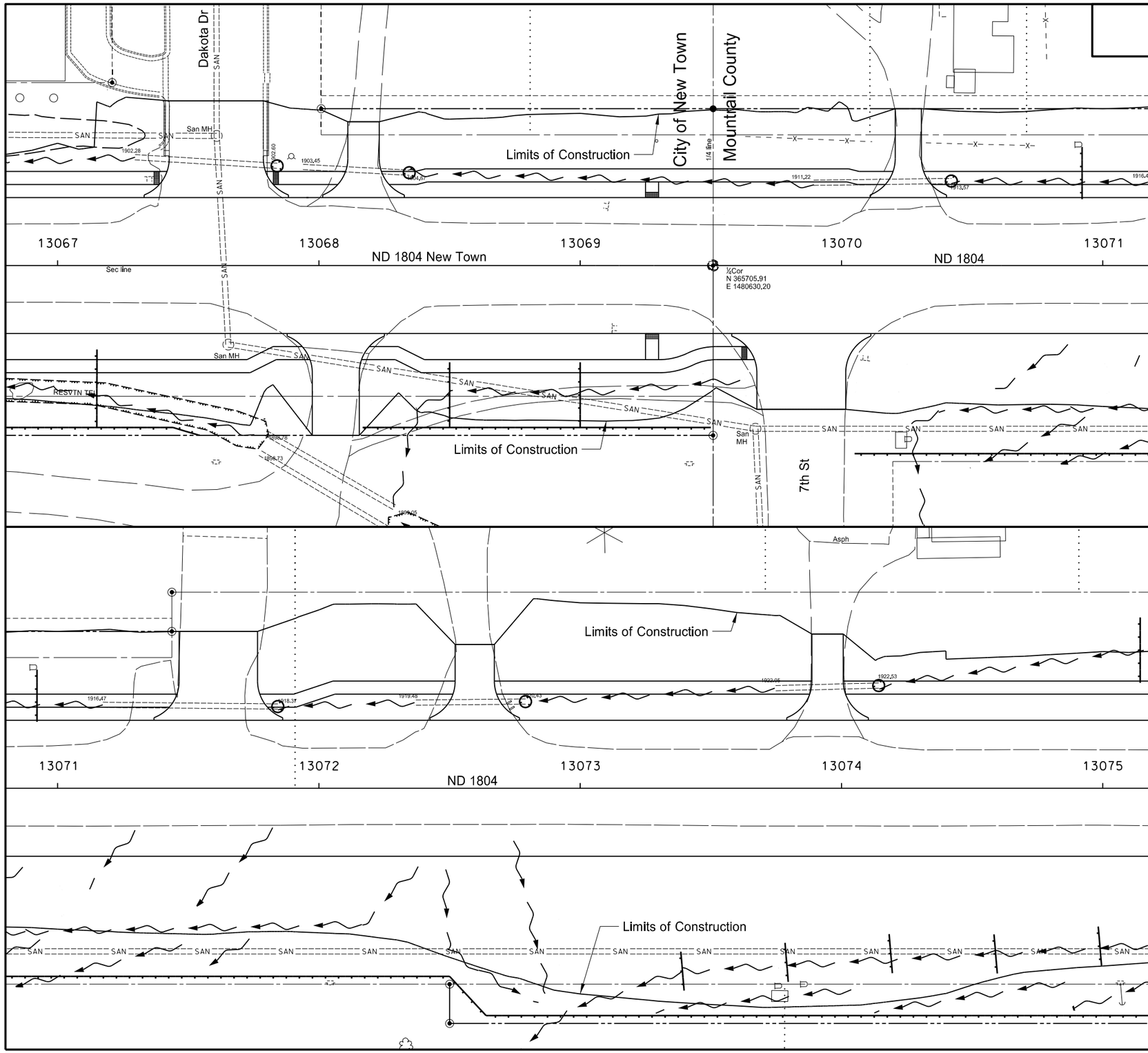
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	13059+64 Lt. to 13063+54 Lt.	LF	391
	13063+89 Lt. to 13065+71 Lt.	LF	254
	13060+00 Lt. to 13063+25 Lt.(Ditch Checks) 6 @ 25 LF	LF	150
	13064+55 Lt. to 13065+85 Lt.(Ditch Checks) 3 @ 25 LF	LF	75
	13066+27 Lt. Ex. Culvert Inlet	LF	15
	13060+00 Rt. to 13067+00 Rt.	LF	700
	13060+00 Rt. to 13063+25 Rt.(Ditch Checks) 6 @ 25 LF	LF	150
	13064+55 Rt. to 13066+50 Rt.(Ditch Checks) 4 @ 30 LF	LF	120
	13063+96 Rt. Ex. Culvert Inlet	LF	15
	13064+07 Rt. Ex. Culvert Inlet	LF	15
	13064+17 Rt. Ex. Culvert Inlet	LF	15
708 1431	REMOVAL FIBER ROLLS 12IN		
	13059+64 Lt. to 13063+54 Lt.	LF	391
	13063+89 Lt. to 13065+71 Lt.	LF	254
	13060+00 Lt. to 13063+25 Lt.(Ditch Checks) 6 @ 25 LF	LF	150
	13064+55 Lt. to 13065+85 Lt.(Ditch Checks) 3 @ 25 LF	LF	75
	13066+27 Lt. Ex. Culvert Inlet	LF	15
	13060+00 Rt. to 13067+00 Rt.	LF	700
	13060+00 Rt. to 13063+25 Rt.(Ditch Checks) 6 @ 25 LF	LF	150
	13064+55 Rt. to 13066+50 Rt.(Ditch Checks) 4 @ 30 LF	LF	120
	13063+96 Rt. Ex. Culvert Inlet	LF	15
	13064+07 Rt. Ex. Culvert Inlet	LF	15
	13064+17 Rt. Ex. Culvert Inlet	LF	15

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
13059+00 to 13067+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	4



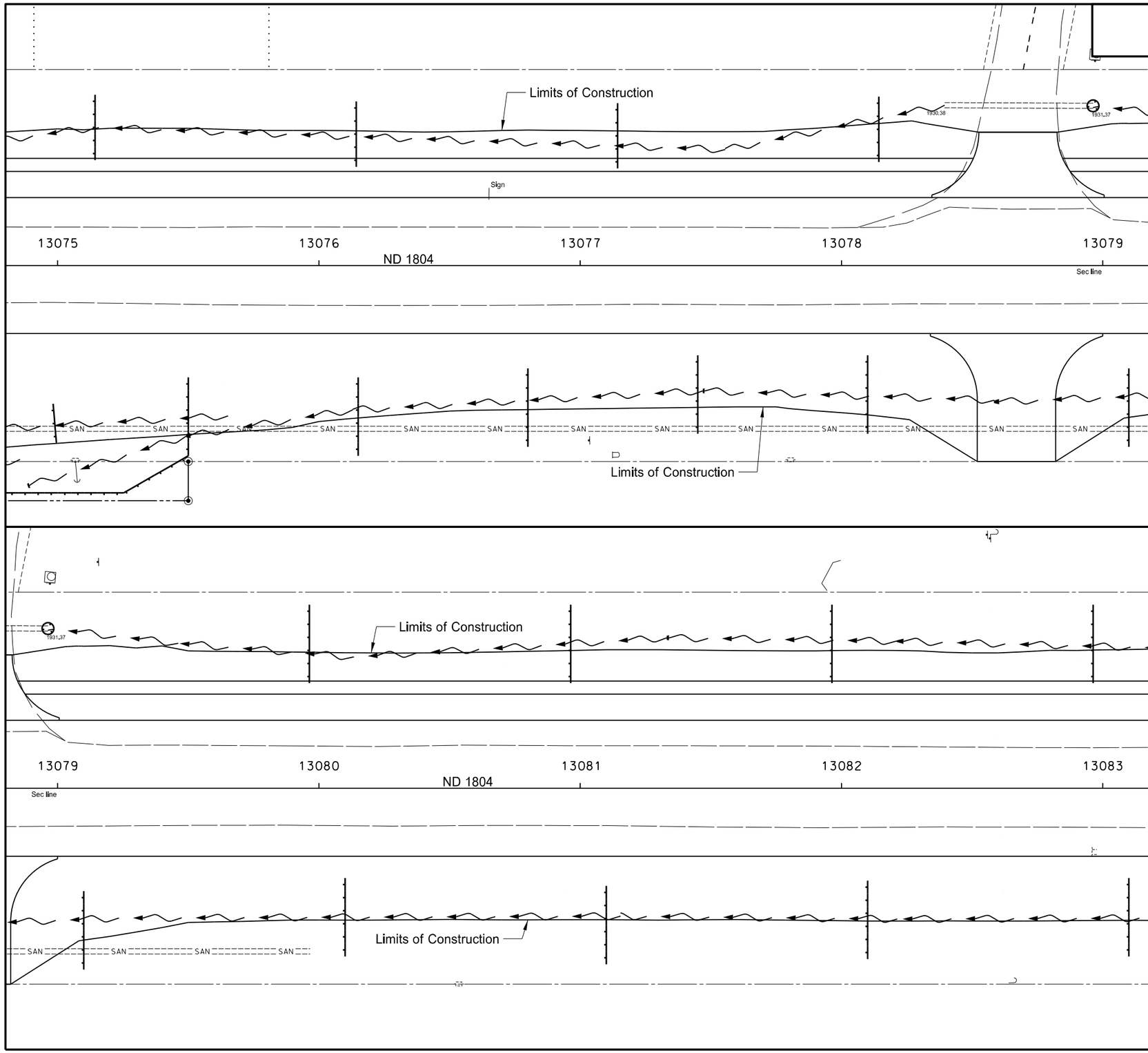
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	13067+84 Lt. Ex. Culvert Inlet	LF	15
	13068+35 Lt. Ex. Culvert Inlet	LF	15
	13070+42 Lt. Ex. Culvert Inlet	LF	15
	13070+92 Lt. (Ditch Check) 1@ 20 LF	LF	20
	13071+84 Lt. Ex. Culvert Inlet	LF	15
	13072+79 Lt. Ex. Culvert Inlet	LF	15
	13074+14 Lt. Ex. Culvert Inlet	LF	15
	13067+00 Rt. to 13067+55 Rt.	LF	55
	13067+15 Rt. (Ditch Check) 1@ 30 LF	LF	30
	13068+17 Rt. to 13069+50 Rt.	LF	133
	13068+50 Rt. to 13069+00 Rt. (Ditch Checks) 2 @ 25 LF	LF	50
	13070+05 Rt. to 13075+00 Rt.	LF	502
	13073+39 Rt. to 13075+00 Rt. (Ditch Checks) 5 @ 15 LF	LF	75
708 1431	REMOVAL FIBER ROLLS 12IN		
	13067+84 Lt. Ex. Culvert Inlet	LF	15
	13068+35 Lt. Ex. Culvert Inlet	LF	15
	13070+42 Lt. Ex. Culvert Inlet	LF	15
	13070+92 Lt. (Ditch Check) 1@ 20 LF	LF	20
	13071+84 Lt. Ex. Culvert Inlet	LF	15
	13072+79 Lt. Ex. Culvert Inlet	LF	15
	13074+14 Lt. Ex. Culvert Inlet	LF	15
	13067+00 Rt. to 13067+55 Rt.	LF	55
	13067+15 Rt. (Ditch Check) 1@ 30 LF	LF	30
	13068+17 Rt. to 13069+50 Rt.	LF	133
	13068+50 Rt. to 13069+00 Rt. (Ditch Checks) 2 @ 25 LF	LF	50
	13070+05 Rt. to 13075+00 Rt.	LF	502
	13073+39 Rt. to 13075+00 Rt. (Ditch Checks) 5 @ 15 LF	LF	75

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
13067+00 to 13075+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	5



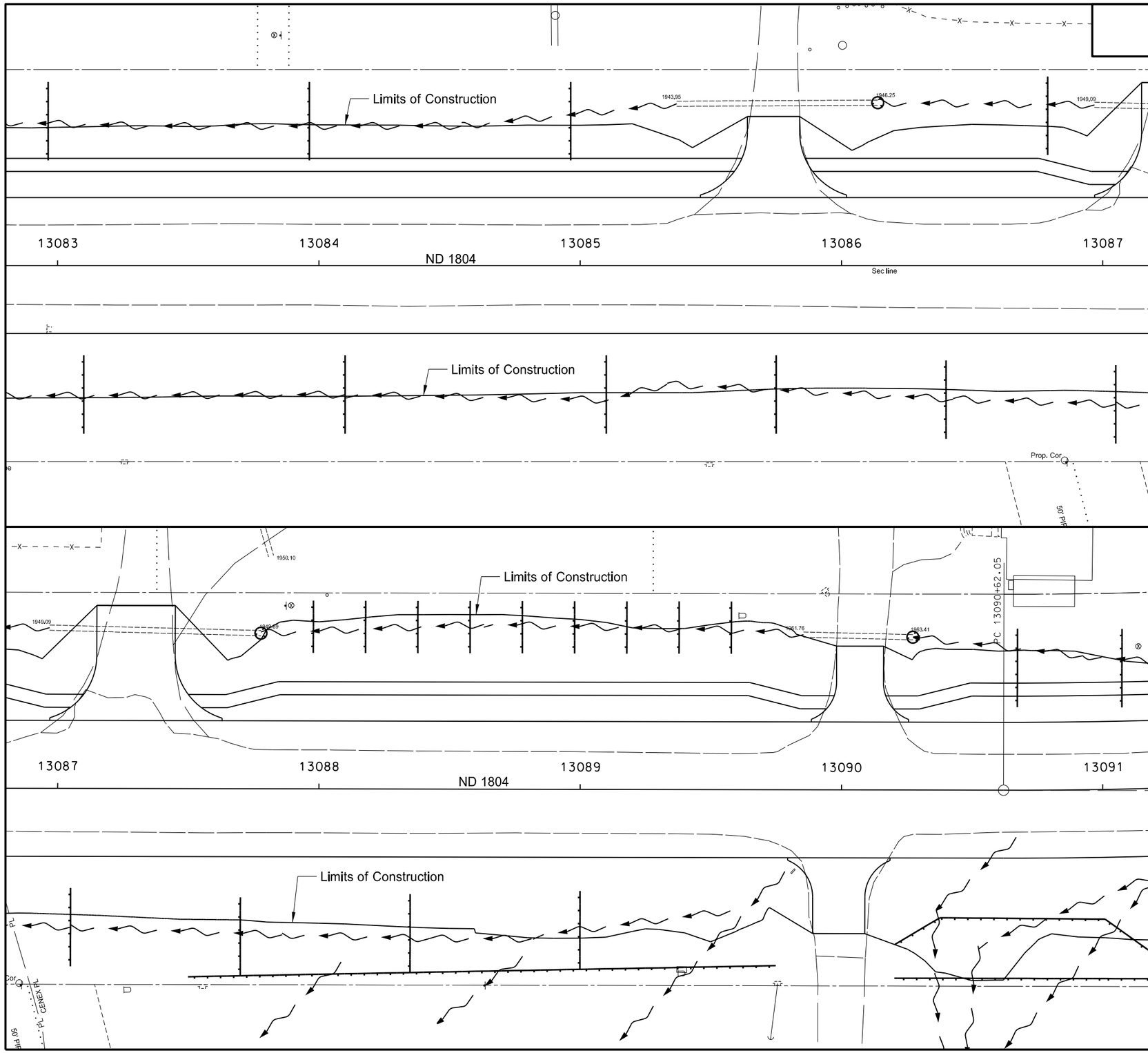
SPEC CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN		
		13075+15 Lt. to 13078+15 Lt. (Ditch Checks) 4 @ 25 LF	LF	100
		13078+97 Lt. Ex. Culvert Inlet	LF	15
		13079+97 Lt. to 13082+97 Lt. (Ditch Checks) 4 @ 30 LF	LF	120
		13075+00 Rt. to 13075+50 Rt.	LF	54
		13075+50 Rt. to 13078+10 Rt. (Ditch Checks) 5 @ 30 LF	LF	150
		13079+10 Rt. to 13082+10 Rt. (Ditch Checks) 4 @ 30 LF	LF	120
708	1431	REMOVAL FIBER ROLLS 12IN		
		13075+15 Lt. to 13078+15 Lt. (Ditch Checks) 4 @ 25 LF	LF	100
		13078+97 Lt. Ex. Culvert Inlet	LF	15
		13079+97 Lt. to 13082+97 Lt. (Ditch Checks) 4 @ 30 LF	LF	120
		13075+00 Rt. to 13075+50 Rt.	LF	54
		13075+50 Rt. to 13078+10 Rt. (Ditch Checks) 5 @ 30 LF	LF	150
		13079+10 Rt. to 13082+10 Rt. (Ditch Checks) 4 @ 30 LF	LF	120

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
13075+00 to 13083+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	6



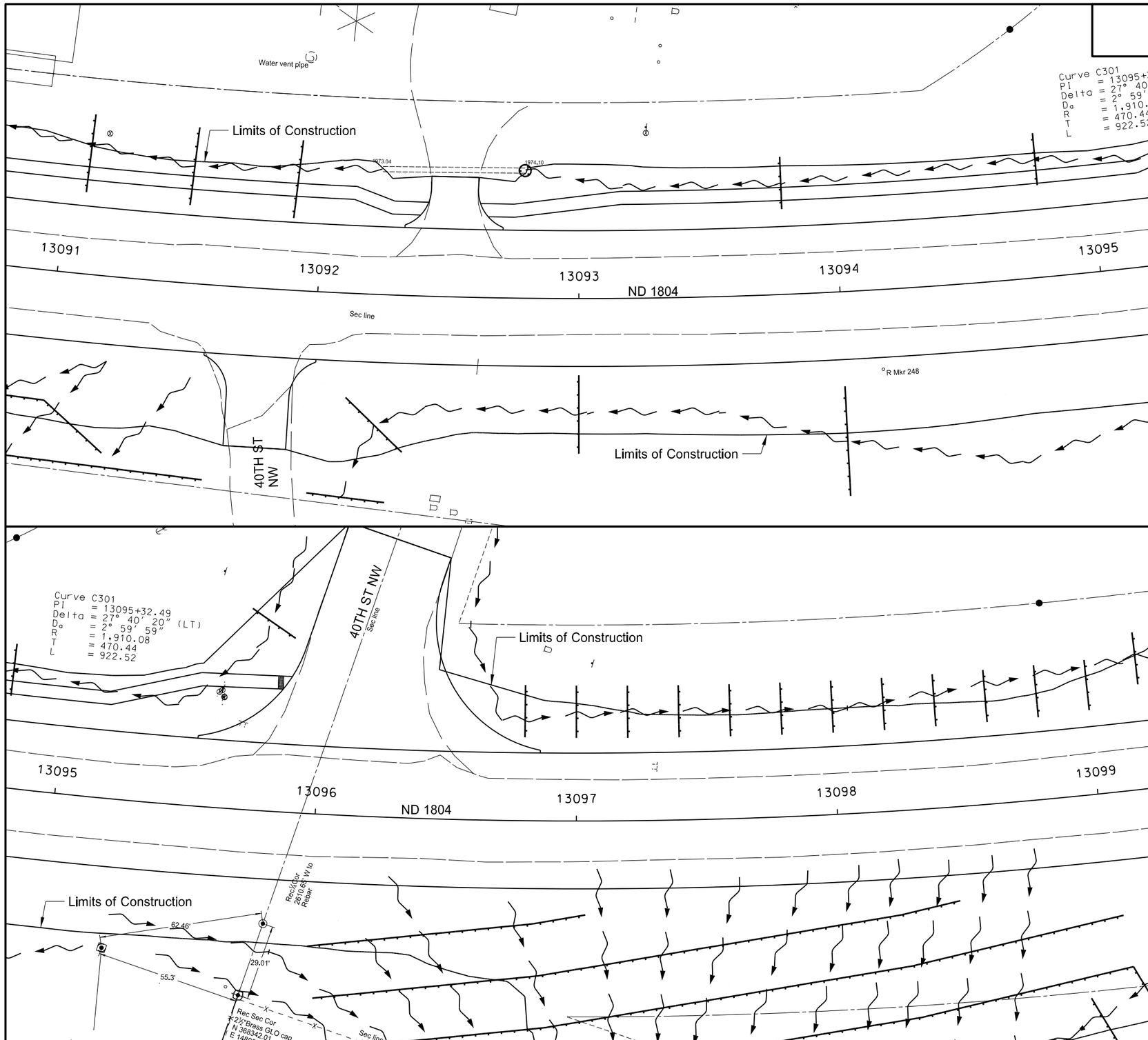
SPEC CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN		
		13083+97 Lt. to 13084+97 Lt. (Ditch Checks) 2 @ 30 LF	LF	60
		13086+14 Lt. Ex. Culvert Inlet	LF	15
		13086+79 Lt. (Ditch Check) 1 @ 30 LF	LF	30
		13087+78 Lt. Ex. Culvert Inlet	LF	15
		13087+98 Lt. to 13089+58 Lt. (Ditch Checks) 9 @ 20 LF	LF	180
		13090+27 Lt. Ex. Culvert Inlet	LF	15
		13090+67 Lt. (Ditch Check) 1 @ 30 LF	LF	30
		13083+10 Rt. to 13085+10 Rt. (Ditch Checks) 3 @ 30 LF	LF	90
		13085+75 Rt. to 13089+00 Rt. (Ditch Checks) 6 @ 30 LF	LF	180
		13087+50 Rt. to 13089+75 Rt.	LF	225
		13090+21 Rt. to 13091+00 Rt.	LF	165
708	1431	REMOVAL FIBER ROLLS 12IN		
		13083+97 Lt. to 13084+97 Lt. (Ditch Checks) 2 @ 30 LF	LF	60
		13086+14 Lt. Ex. Culvert Inlet	LF	15
		13086+79 Lt. (Ditch Check) 1 @ 30 LF	LF	30
		13087+78 Lt. Ex. Culvert Inlet	LF	15
		13087+98 Lt. to 13089+58 Lt. (Ditch Checks) 9 @ 20 LF	LF	180
		13090+27 Lt. Ex. Culvert Inlet	LF	15
		13090+67 Lt. (Ditch Check) 1 @ 30 LF	LF	30
		13083+10 Rt. to 13085+10 Rt. (Ditch Checks) 3 @ 30 LF	LF	90
		13085+75 Rt. to 13089+00 Rt. (Ditch Checks) 6 @ 30 LF	LF	180
		13087+50 Rt. to 13089+75 Rt.	LF	225
		13090+21 Rt. to 13091+00 Rt.	LF	165

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
13083+00 to 13091+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	7



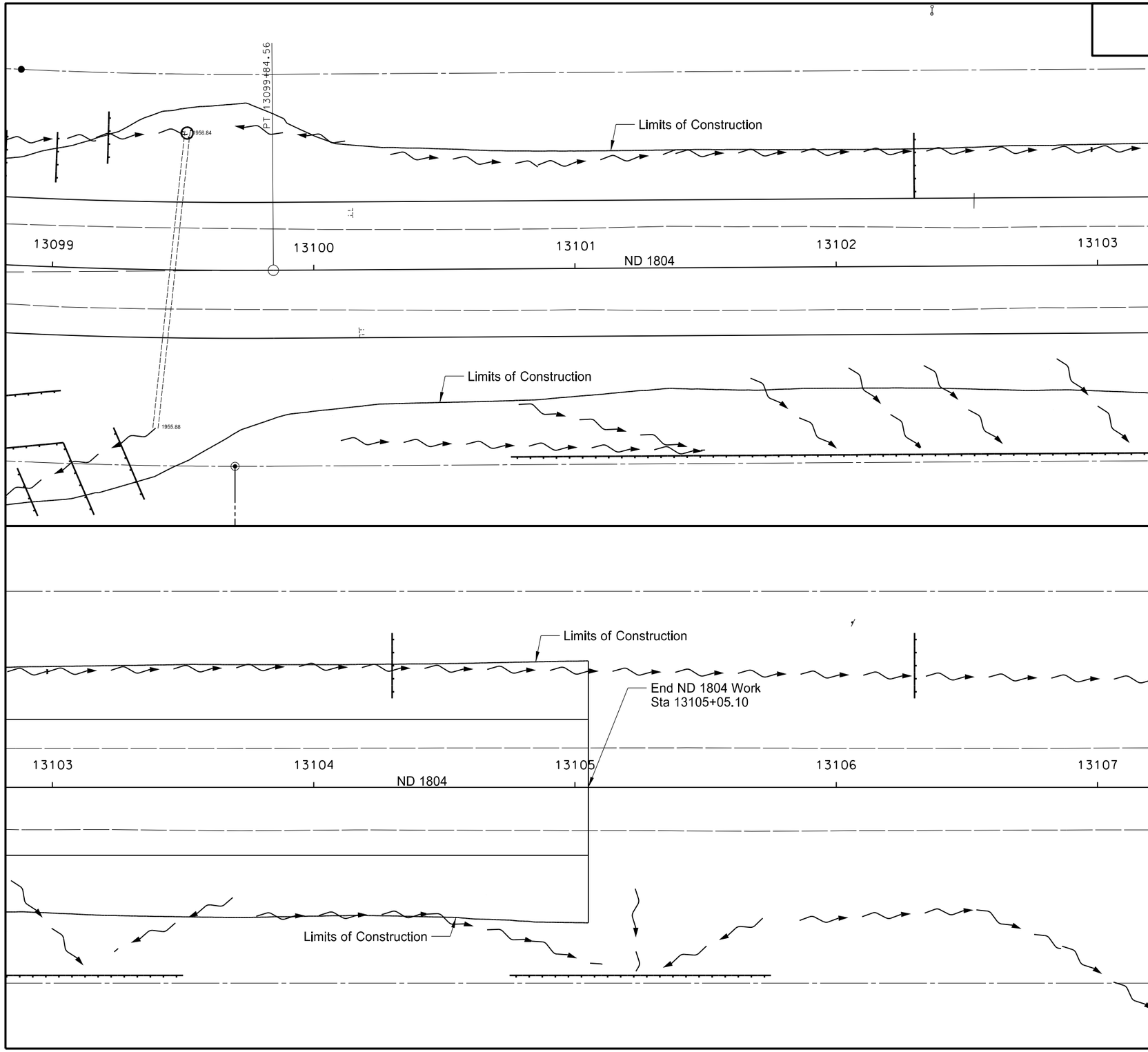
SPEC	CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN			
		13091+08 Lt. to 13091+89 Lt. (Ditch Checks) 3 @ 30 LF		LF	90
		13092+79 Lt. Ex. Culvert Inlet		LF	15
		13093+79 Lt. to 13096+04 Lt. (Ditch Checks) 4 @ 20 LF		LF	80
		13096+80 Lt. to 13099+00 Lt. (Ditch Checks) 12 @ 20 LF		LF	240
		13091+00 Rt. to 13091+24 Rt.		LF	30
		13091+00 Rt. to 13091+61 Rt.		LF	64
		13092+00 Rt. to 13093+00 Rt. (Ditch Checks) 3 @ 30 LF		LF	90
		13094+00 Rt. (Ditch Check) 1 @ 42 LF		LF	42
		13096+00 Rt. to 13099+00 Rt. Slope Barrier 6 rows		LF	1319
		13096+93 Rt. (Ditch Check) 1 @ 86 LF bottom of drain		LF	86
		13097+00Rt.to13099+00(Ditch Checks)5@20,2@15,2@12		LF	142
708	1431	REMOVAL FIBER ROLLS 12IN			
		13091+08 Lt. to 13091+89 Lt. (Ditch Checks) 3 @ 30 LF		LF	90
		13092+79 Lt. Ex. Culvert Inlet		LF	15
		13093+79 Lt. to 13096+04 Lt. (Ditch Checks) 4 @ 20 LF		LF	80
		13096+80 Lt. to 13099+00 Lt. (Ditch Checks) 12 @ 20 LF		LF	240
		13091+00 Rt. to 13091+24 Rt.		LF	30
		13091+00 Rt. to 13091+61 Rt.		LF	64
		13092+00 Rt. to 13093+00 Rt. (Ditch Checks) 3 @ 30 LF		LF	90
		13094+00 Rt. (Ditch Check) 1 @ 42 LF		LF	42
		13096+00 Rt. to 13099+00 Rt. Slope Barrier 6 rows		LF	1319
		13096+93 Rt. (Ditch Check) 1 @ 86 LF bottom of drain		LF	86
		13097+00Rt.to13099+00(Ditch Checks)5@20,2@15,2@12		LF	142

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
13091+00 to 13099+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	8



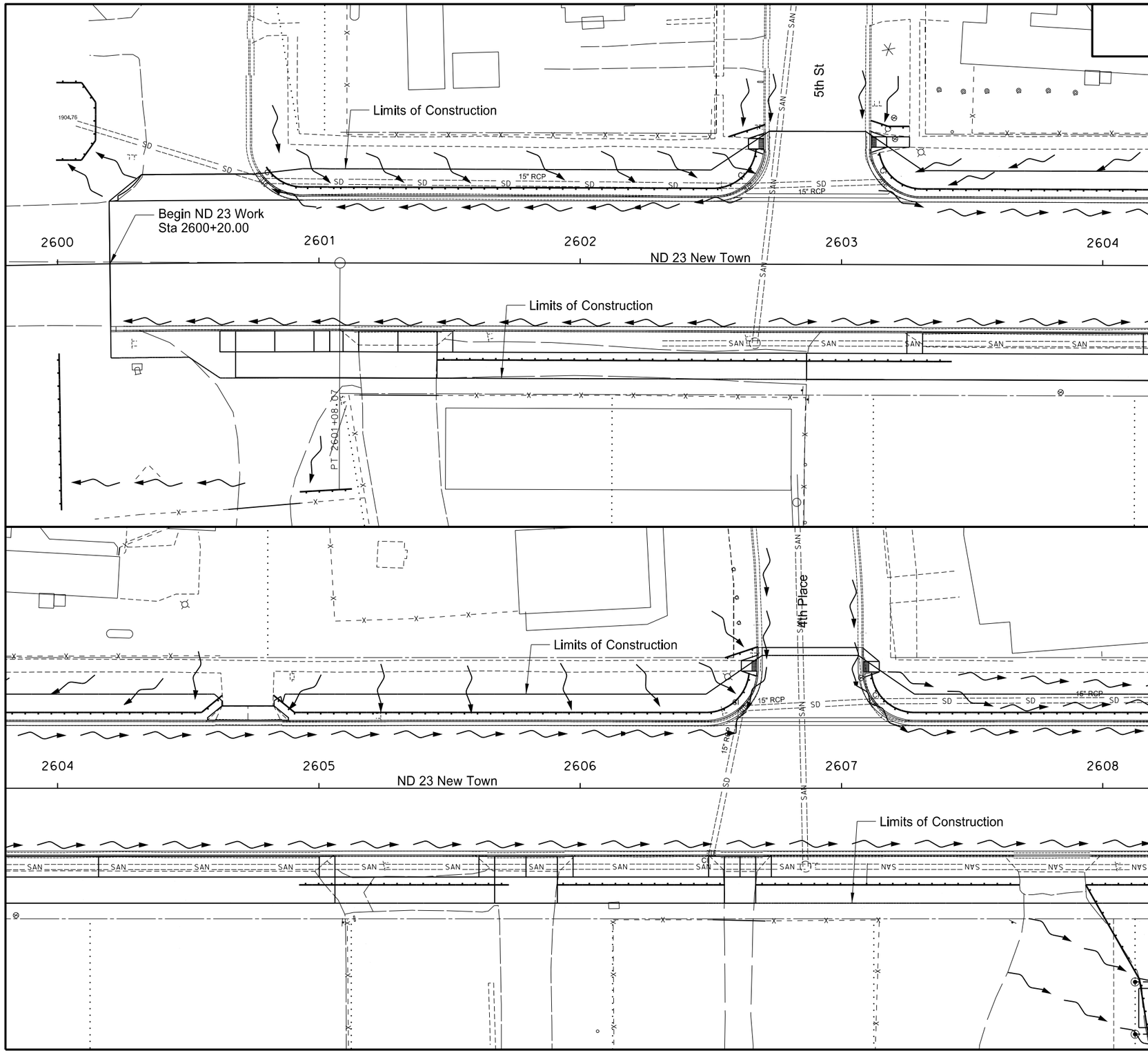
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	13099+20 Lt. (Ditch Check) 1 @ 20 LF	LF	20
	13099+51 Lt. Ex. Culvert Inlet	LF	15
	13102+30 Lt. to 13106+30 Lt. (Ditch Checks) 3 @ 25 LF	LF	75
	13099+00 Rt. to 13099+07 Rt. Slope Barrier 2 rows	LF	12
	13099+07 Rt. to 13099+25 Lt. (Ditch Checks) 2 @ 30 LF	LF	60
	13100+75 Rt. to 13103+50 Rt.	LF	275
	13104+75 Rt. to 13105+75 Rt.	LF	100
708 1431	REMOVAL FIBER ROLLS 12IN		
	13099+20 Lt. (Ditch Check) 1 @ 20 LF	LF	20
	13099+51 Lt. Ex. Culvert Inlet	LF	15
	13102+30 Lt. to 13106+30 Lt. (Ditch Checks) 3 @ 25 LF	LF	75
	13099+00 Rt. to 13099+07 Rt. Slope Barrier 2 rows	LF	12
	13099+07 Rt. to 13099+25 Lt. (Ditch Checks) 2 @ 30 LF	LF	60
	13100+75 Rt. to 13103+50 Rt.	LF	275
	13104+75 Rt. to 13105+75 Rt.	LF	100

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
13099+00 to 13105+05.10
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	9



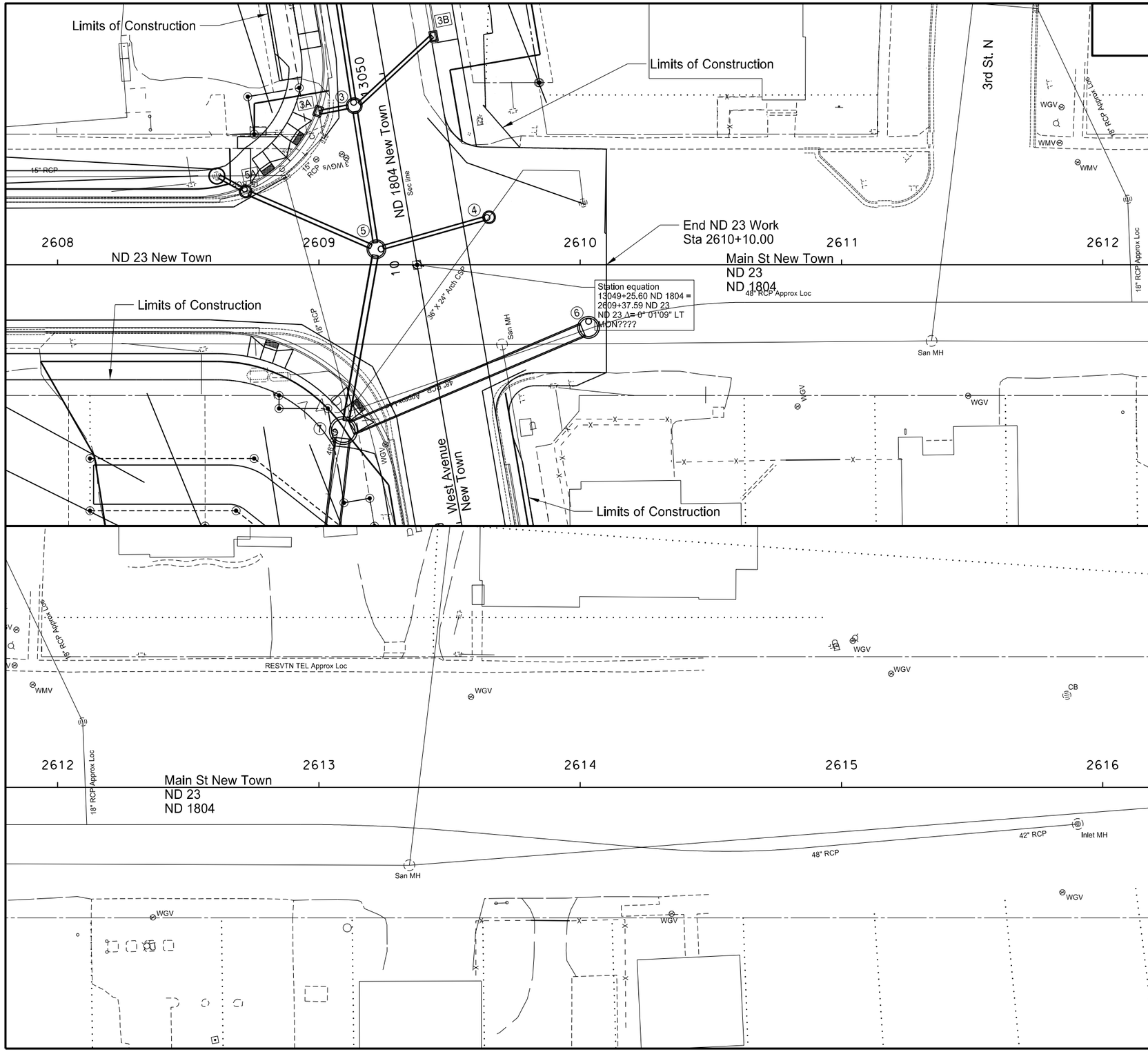
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	2600+00 Lt. to 2600+15 Lt. - Slope Barrier	LF	53
	2600+80 Lt. to 2602+67 Lt. - Curb Barrier	LF	198
	2602+57 Lt. to 2602+71 Lt.	LF	15
	2603+11 Lt. to 2603+25 Lt.	LF	15
	2603+15 Lt. to 2604+63 Lt. - Curb Barrier	LF	173
	2604+83 Lt. to 2606+65 Lt. - Curb Barrier	LF	193
	2606+56 Lt. to 2606+68 Lt.	LF	14
	2607+12 Lt. to 2608+00 Lt. - Curb Barrier	LF	97
	2600+00 Rt. (Ditch Check) 1@ 60 LF	LF	60
	2600+93 Rt. to 2601+13 Rt.	LF	20
	2601+45 Rt. to 2603+42 Rt. - Curb Barrier	LF	197
	2604+92 Rt. to 2605+73 Rt. - Curb Barrier	LF	81
	2605+91 Rt. to 2606+56 Rt. - Curb Barrier	LF	65
	2606+67 Rt. to 2607+68 Rt. - Curb Barrier	LF	101
708 1431	REMOVAL FIBER ROLLS 12IN		
	2600+00 Lt. to 2600+15 Lt. - Slope Barrier	LF	53
	2600+80 Lt. to 2602+67 Lt. - Curb Barrier	LF	198
	2602+57 Lt. to 2602+71 Lt.	LF	15
	2603+11 Lt. to 2603+25 Lt.	LF	15
	2603+15 Lt. to 2604+63 Lt. - Curb Barrier	LF	173
	2604+83 Lt. to 2606+65 Lt. - Curb Barrier	LF	193
	2606+56 Lt. to 2606+68 Lt.	LF	14
	2607+12 Lt. to 2608+00 Lt. - Curb Barrier	LF	97
	2600+00 Rt. (Ditch Check) 1@ 60 LF	LF	60
	2600+93 Rt. to 2601+13 Rt.	LF	20
	2601+45 Rt. to 2603+42 Rt. - Curb Barrier	LF	197
	2604+92 Rt. to 2605+73 Rt. - Curb Barrier	LF	81
	2605+91 Rt. to 2606+56 Rt. - Curb Barrier	LF	65
	2606+67 Rt. to 2607+68 Rt. - Curb Barrier	LF	101
708 1540	INLET PROTECTION - SPECIAL		
	2600+79 Lt. (Curb Inlet)	EA	1
	2602+64 Lt. (Curb Inlet)	EA	1
	2603+16 Lt. (Curb Inlet)	EA	1
	2606+50 Rt. (Curb Inlet)	EA	1
	2606+62 Lt. (Curb Inlet)	EA	1
	2607+12 Lt. (Curb Inlet)	EA	1
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	2600+79 Lt. (Curb Inlet)	EA	1
	2602+64 Lt. (Curb Inlet)	EA	1
	2603+16 Lt. (Curb Inlet)	EA	1
	2606+50 Rt. (Curb Inlet)	EA	1
	2606+62 Lt. (Curb Inlet)	EA	1
	2607+12 Lt. (Curb Inlet)	EA	1

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
2600+20 to 2608+00
ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	10



SPEC CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN		
		2608+00 Lt. to 2608+52 Lt. - Curb Barrier	LF	52
708	1431	REMOVAL FIBER ROLLS 12IN		
		2608+00 Lt. to 2608+52 Lt. - Curb Barrier	LF	52

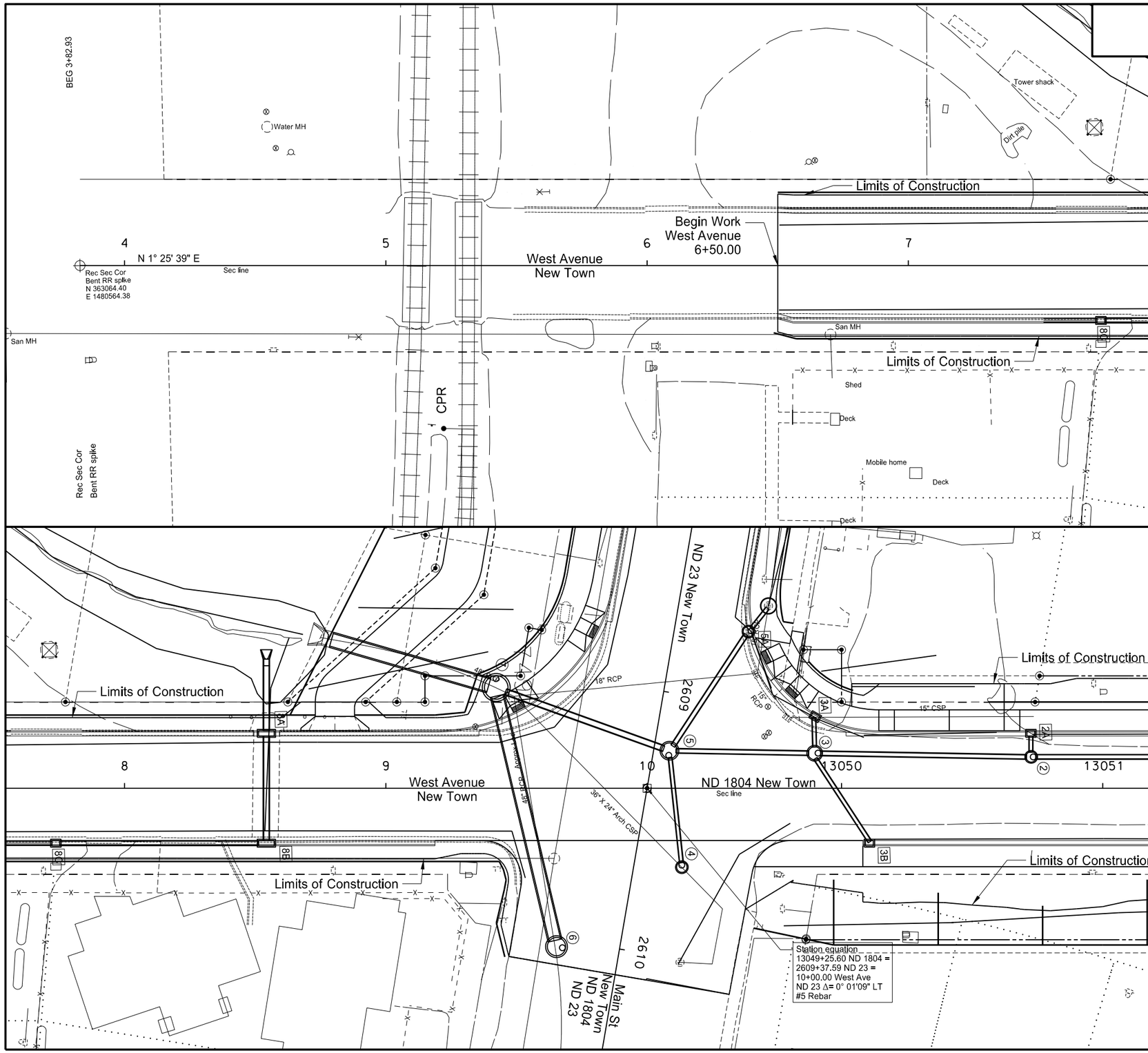
Note: Other quantities are shown on sheet 75-1.

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Temporary Erosion Control
2608+00 to 2610+10.00
ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	11

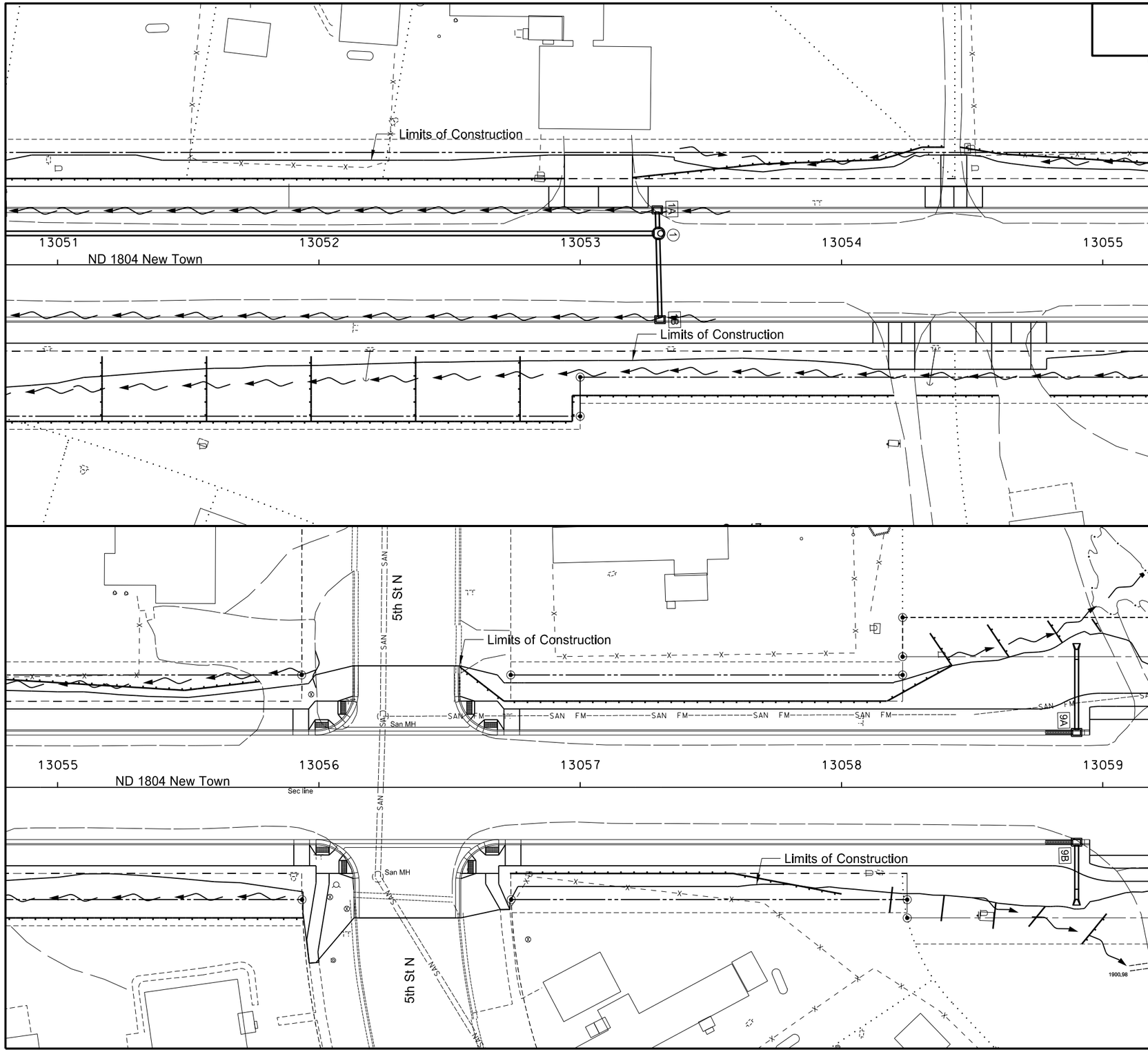


SPEC CODE	BID ITEM		UNIT QUANTITY
708 1430	FIBER ROLLS 12IN		
	6+50 Lt. to 9+79 Lt. (West Avenue) Curb Sediment Barrier	LF	398
	8+63 Lt. to 9+79 Lt. (West Avenue) Slope Barrier	LF	184
	6+50 Rt. to 9+46 Rt. (West Avenue) Curb Sediment Barrier	LF	333
	13049+69 Lt. to 13051+00 Lt. Curb Sediment Barrier	LF	84
	13049+66 Rt. to 13051+00 Rt.	LF	134
	13049+97 Rt. to 13050+77 Rt. 3 Ditch Checks 25,20,15 LF	LF	60

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
West Avenue: 6+50.00 to 10+00.00
ND 1804: 13049+25.60 to 13051+00
ND 1804
Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	12



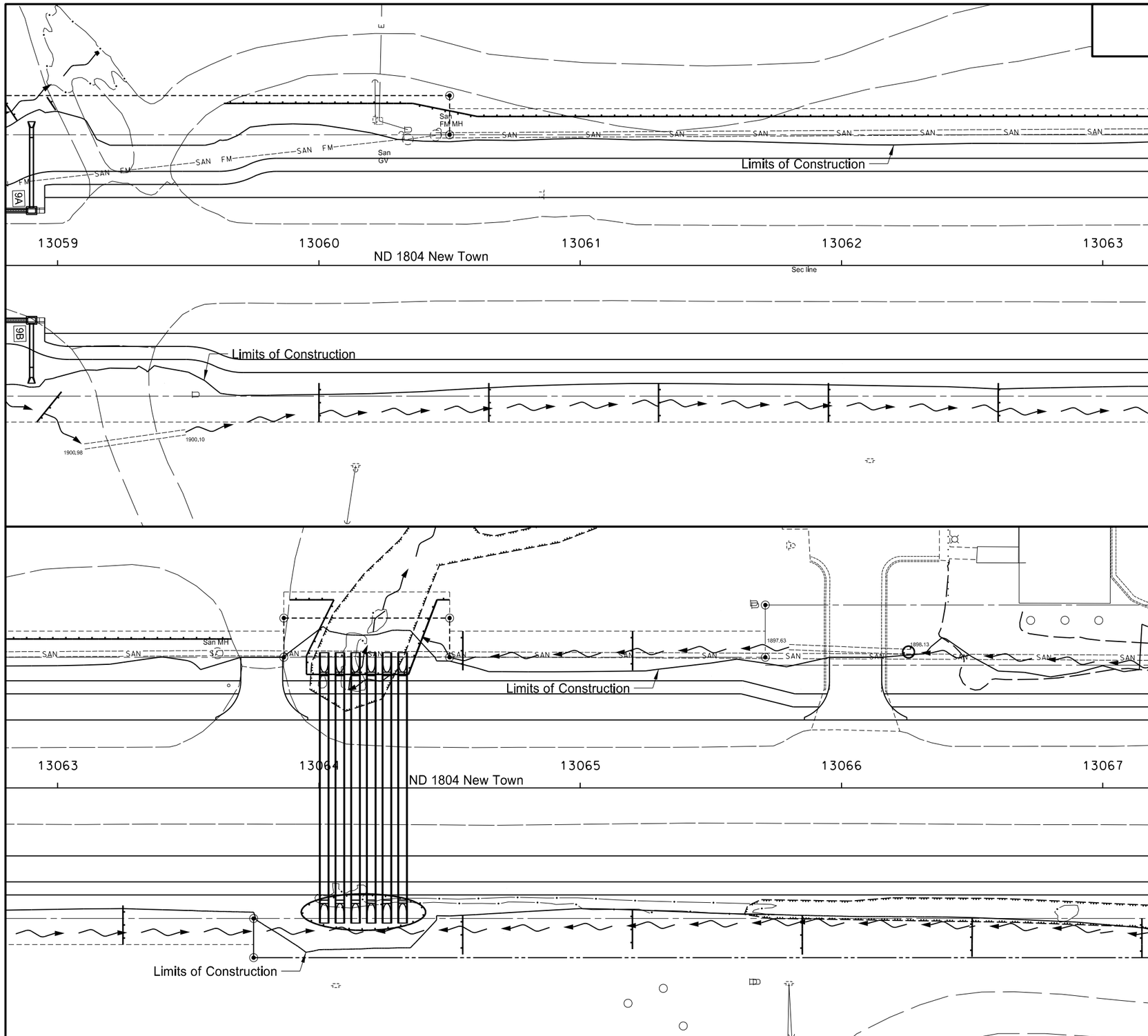
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	13051+00 Lt. to 13058+42 Lt.	LF	644
	13058+42Lt.to13058+85Lt.(Ditch Checks)2@15LF,1@10LF	LF	40
	13058+98 Lt. (Ditch Check) 1@ 6 LF	LF	6
	13051+00 Rt. to 13058+00 Rt.	LF	604
	13051+17 Rt. to 13052+77 Rt. (Ditch Checks) 5 @ 25 LF	LF	125
	13058+20 Rt. to 13058+78 Rt. (Ditch Checks) 4 @ 10 LF	LF	40
	13059+00 Rt. (Ditch Check) 1@ 15 LF	LF	15

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
13051+00 to 13059+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	13



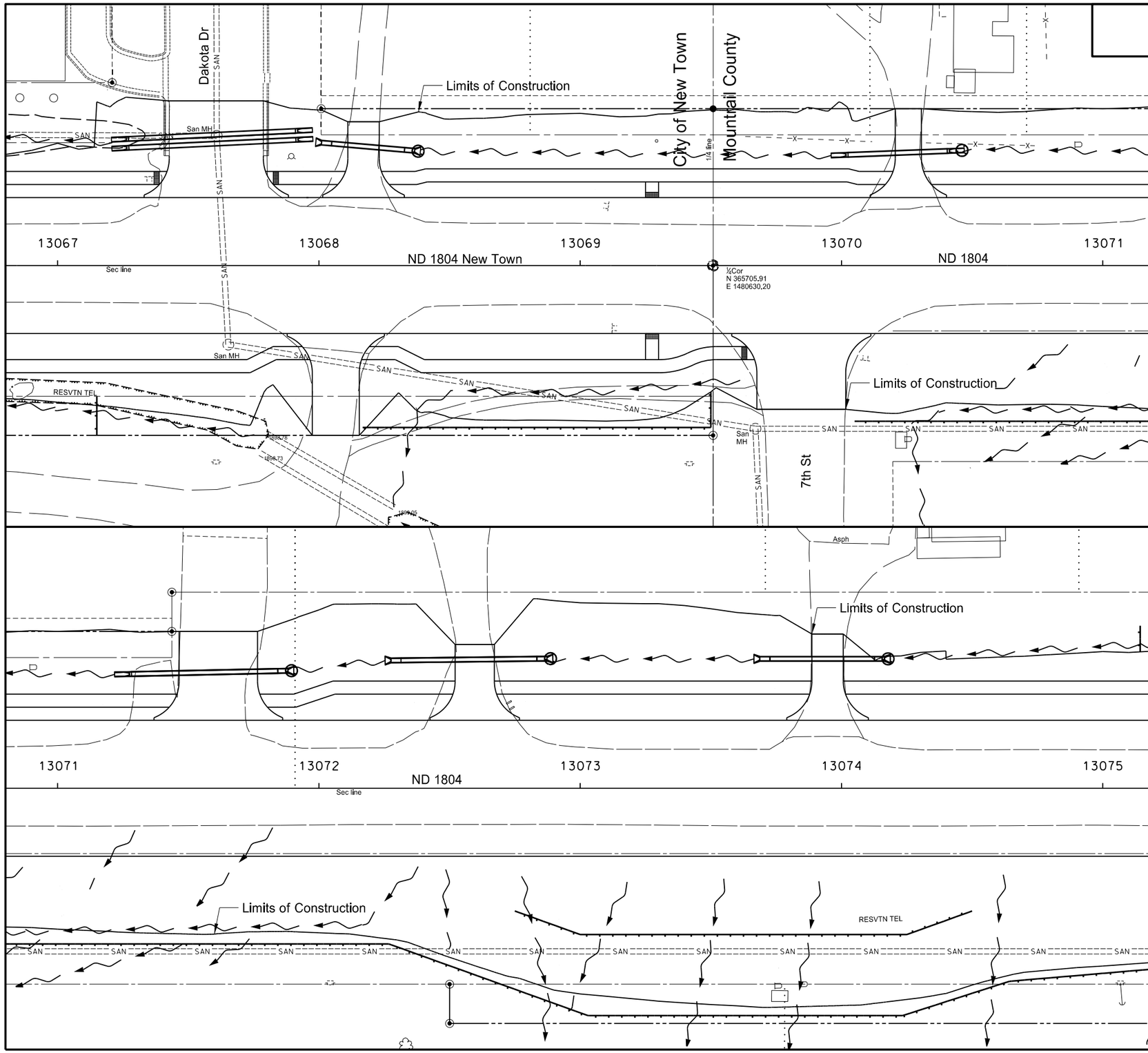
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	13059+64 Lt. to 13064+50 Lt.	LF	526
	13064+55 Lt. to 13065+20 Lt.(Ditch Checks) 2 @ 15 LF	LF	30
	13066+27 Lt. Ex. Culvert Inlet	LF	15
	13060+00 Rt. to 13063+25 Rt.(Ditch Checks) 6 @ 15 LF	LF	90
	13064+17 Rt. New Culvert Inlets	LF	104
	13064+55 Rt. to 13066+50 Rt.(Ditch Checks) 4 @ 15 LF	LF	60

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/18/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
13059+00 to 13067+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	14



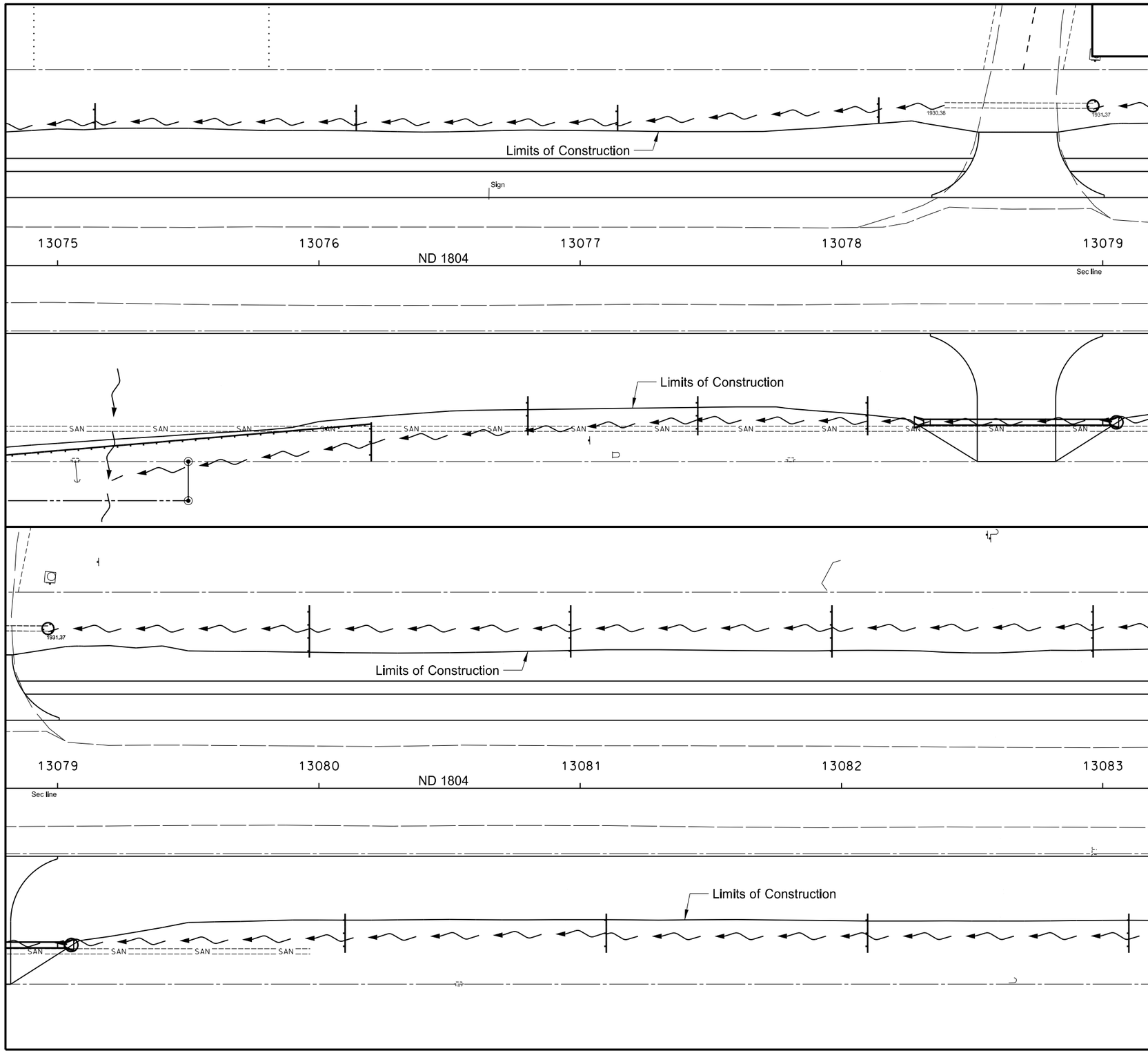
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	13068+39 Lt. New Culvert Inlet	LF	15
	13070+41 Lt. New Culvert Inlet	LF	15
	13071+88 Lt. New Culvert Inlet	LF	15
	13072+88 Lt. New Culvert Inlet	LF	15
	13074+17 Lt. New Culvert Inlet	LF	15
	13067+15 Rt. (Ditch Check) 1 @ 15 LF	LF	15
	13068+17 Rt. to 13075+00 Rt.	LF	827

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
13067+00 to 13075+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	15



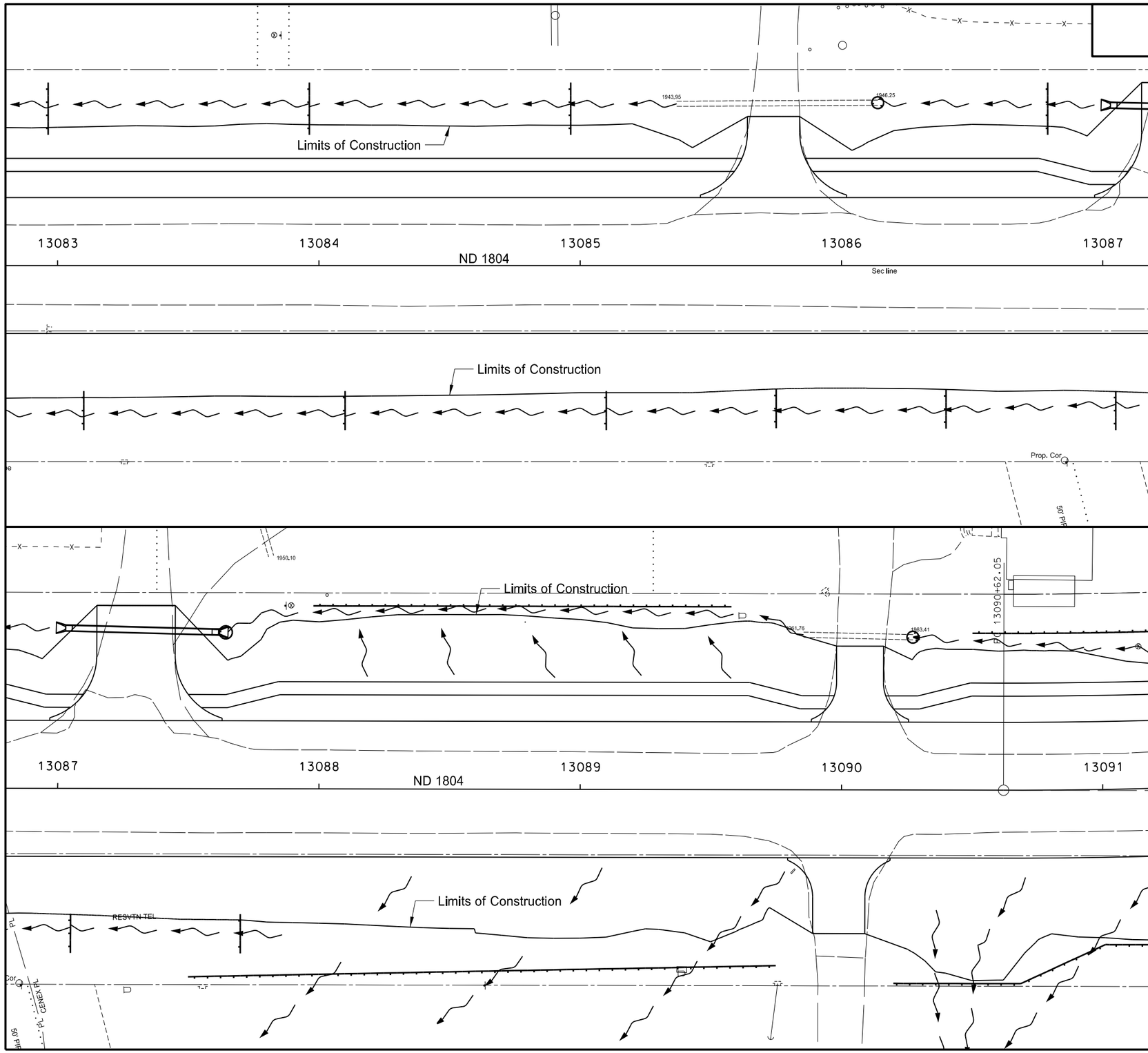
SPEC CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN		
		13075+15 Lt. to 13078+15 Lt. (Ditch Checks) 4 @ 10 LF	LF	40
		13079+96 Lt. to 13082+96 Lt. (Ditch Checks) 4 @ 20 LF	LF	80
		13076+20 Rt. to 13078+10 Rt. (Ditch Checks) 4 @ 15 LF	LF	60
		13079+02 Rt. New Culvert Inlet	LF	20
		13080+10 Rt. to 13082+10 Rt. (Ditch Checks) 3 @ 15 LF	LF	45

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
13075+00 to 13083+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	16



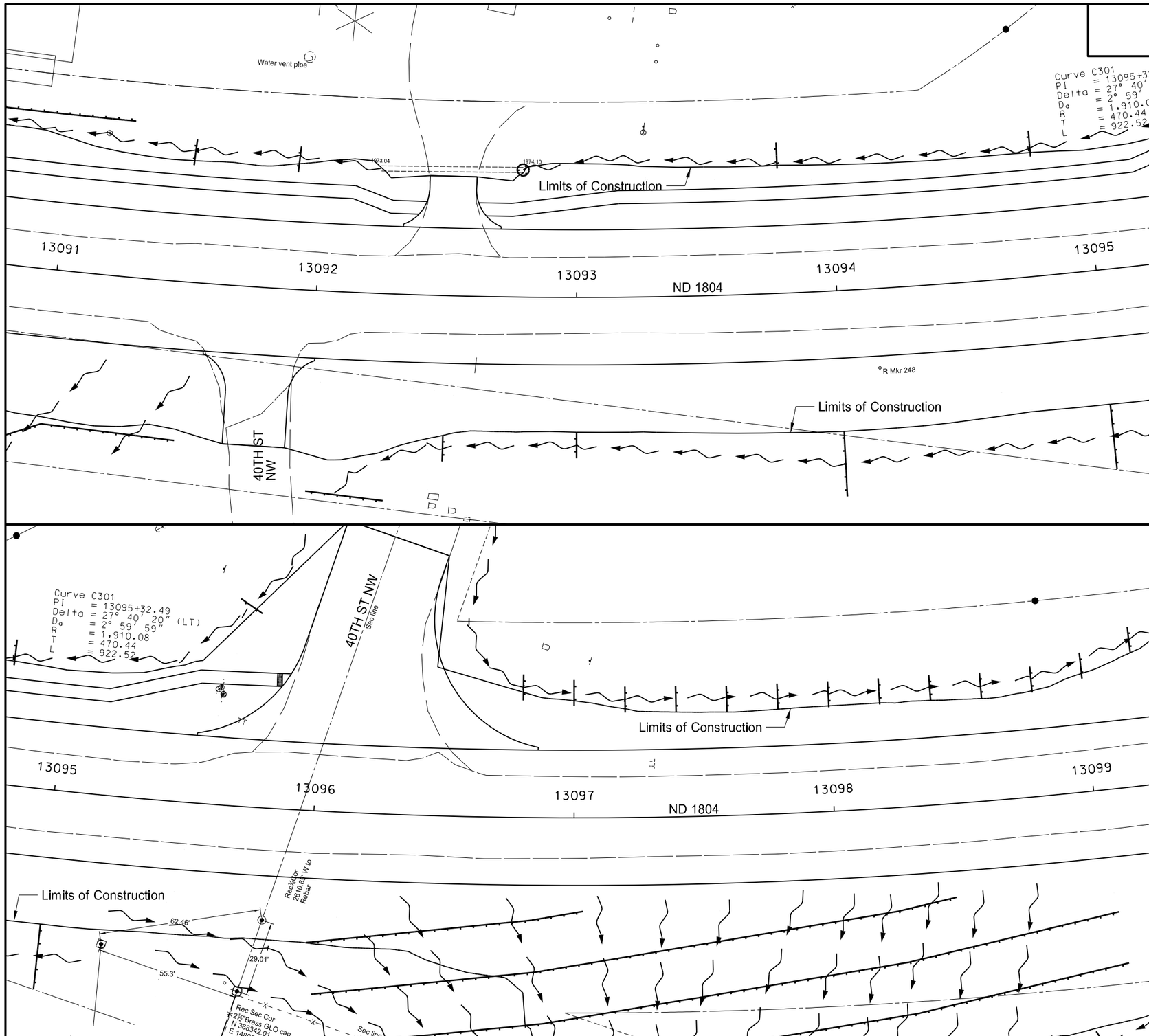
SPEC CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN		
		13083+97 Lt. to 13084+97 Lt. (Ditch Checks) 2 @ 20 LF	LF	40
		13086+79 Lt. (Ditch Check) 1 @ 20 LF	LF	20
		13087+62 Lt. New Culvert Inlet	LF	20
		13087+98 Lt. to 13089+58 Lt.	LF	160
		13090+50 Lt. to 13091+00 Lt.	LF	50
		13083+10 Rt. to 13085+10 Rt. (Ditch Checks) 3 @ 15 LF	LF	45
		13085+75 Rt. to 13087+70 Rt. (Ditch Checks) 4 @ 15 LF	LF	60
		13090+20 Rt. to 13091+00 Rt.	LF	85

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
13083+00 to 13091+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	17



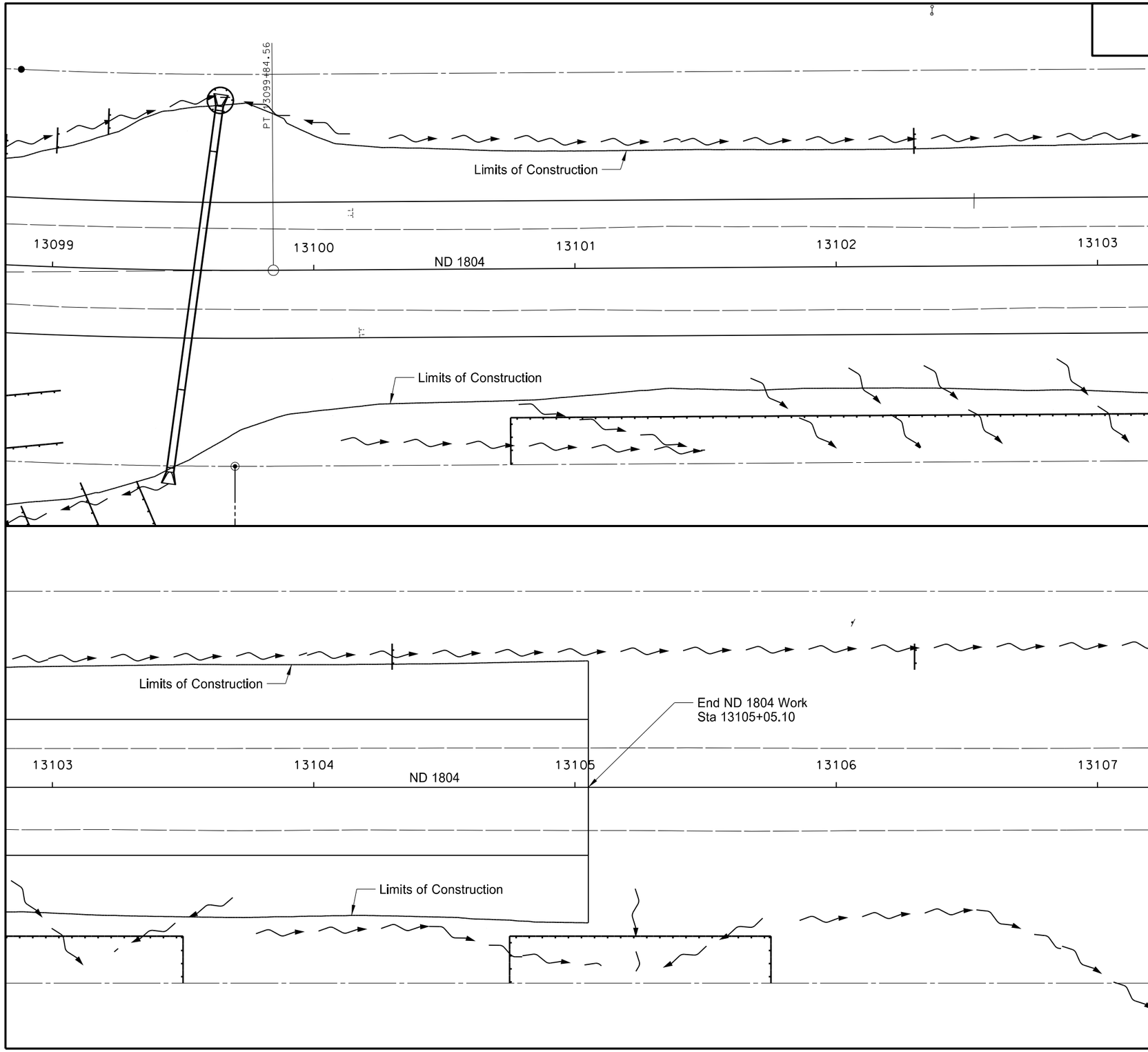
SPEC CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN		
		13091+00 Lt. to 13091+25 Lt.	LF	25
		13091+50 Lt. to 13091+91Lt. (Ditch Checks) 2 @ 10 LF	LF	20
		13092+79 Lt. Ex Culvert Inlet	LF	15
		13093+79 Lt. to 13095+75 Lt. (Ditch Checks) 3 @ 10 LF	LF	30
		13095+95 Lt. (Ditch Check) 1 @ 20 LF	LF	20
		13096+80 Lt. to 13099+00 Lt. (Ditch Checks) 12 @ 10 LF	LF	120
		13091+00 Rt. to 1391+50 Rt.	LF	52
		13092+00Rt.to13095+00Rt.(Ditch Checks)30,10,10,25,25	LF	100
		13096+00 Rt. to 13099+00 Rt. Slope Barrier 6 rows	LF	1319
		13096+93 Rt. (Ditch Check) 1 @ 86 LF bottom of drain	LF	86
		13097+00Rt.to13099+00Rt.(Ditch Checks)5@20,2@15,12	LF	142

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
13091+00 to 13099+00
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	18



708 1430 FIBER ROLLS 12IN

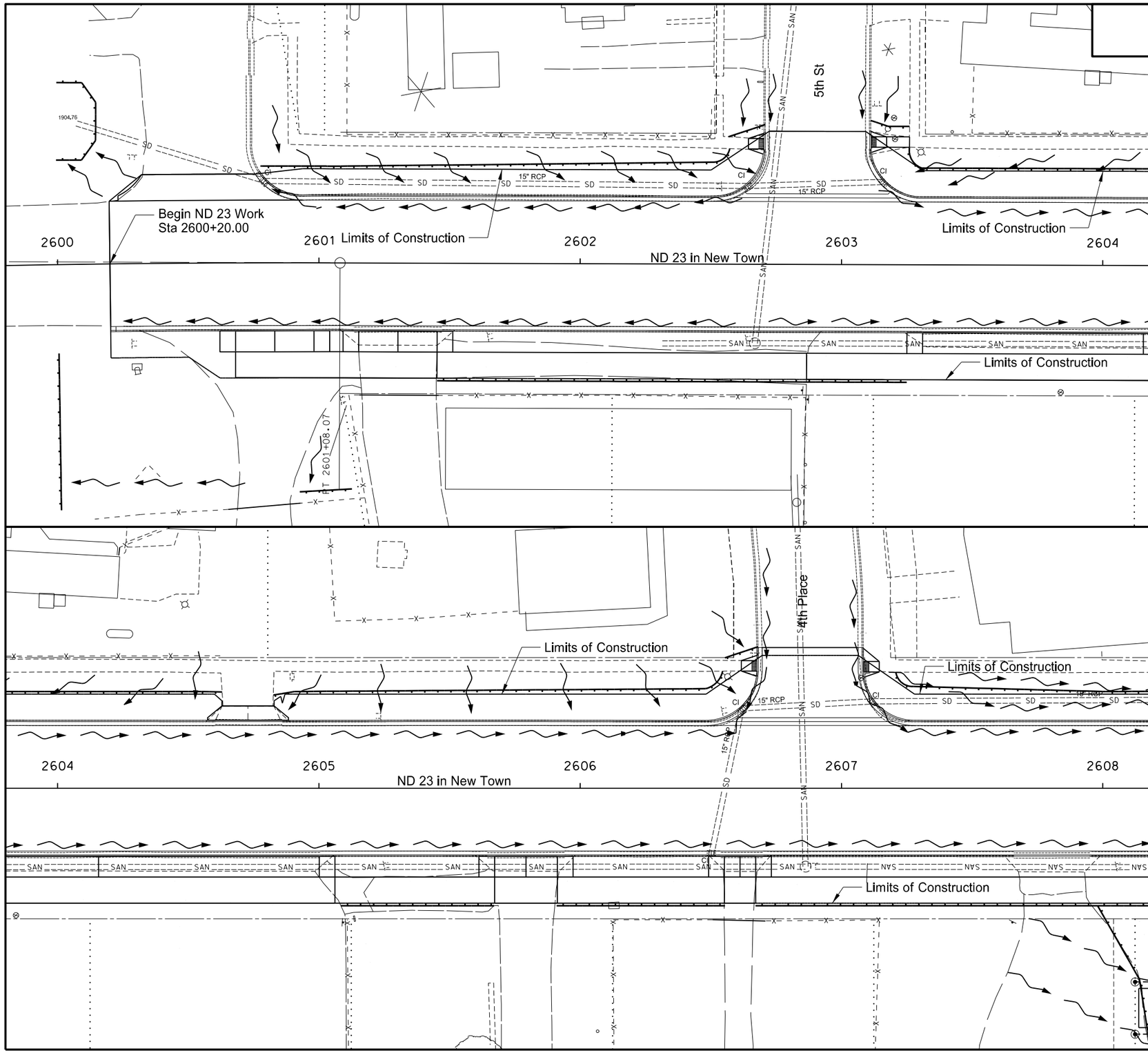
13099+20 Lt. (Ditch Check) 1 @ 10 LF	LF	20
13099+63 Lt. New Culvert Inlet	LF	32
13102+30 Lt. to 13106+30 Lt. (Ditch Checks) 3 @ 10 LF	LF	30
13099+00 Rt. to 13099+07 Rt. Slope Barrier 2 rows	LF	12
13099+07 Rt. to 13099+25 Rt. (Ditch Checks) 2 @ 30 LF	LF	60
13100+75 Rt. to 13103+50 Rt.	LF	311
13104+75 Rt. to 13105+75 Rt.	LF	136

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
13099+00 to 13105+05.10
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	19



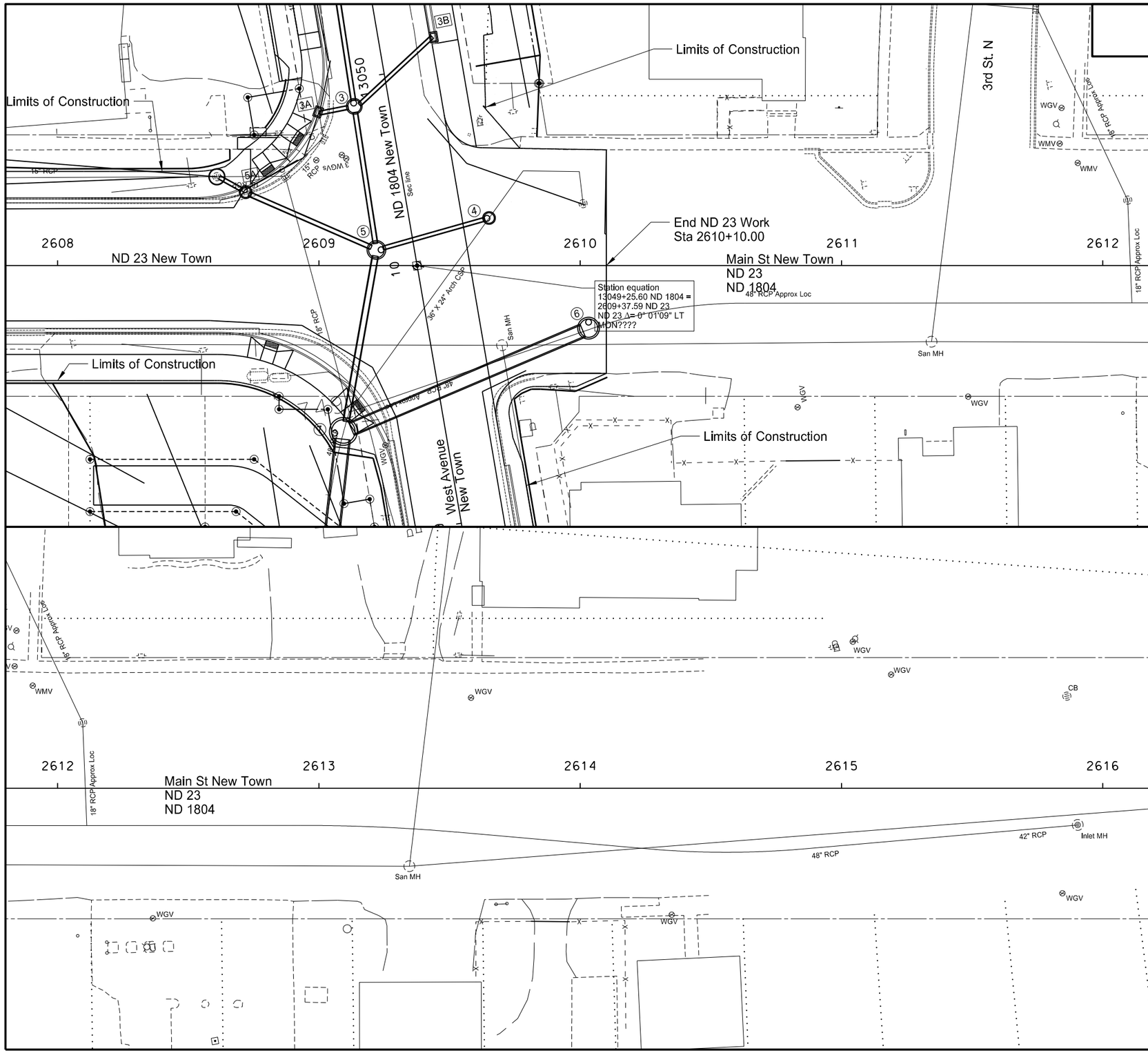
SPEC CODE	BID ITEM	UNIT	QUANTITY
708 1430	FIBER ROLLS 12IN		
	2600+78 Lt. to 2602+57 Lt. - Curb Barrier	LF	182
	2603+26 Lt. to 2604+63 Lt. - Curb Barrier	LF	142
	2604+83 Lt. to 2606+55 Lt. - Curb Barrier	LF	176
	2607+12 Lt. to 2608+00 Lt. - Curb Barrier	LF	82
	2601+45 Rt. to 2603+25 Rt. - Curb Barrier	LF	180
	2605+09 Rt. to 2605+67 Rt. - Curb Barrier	LF	59
	2605+91 Rt. to 2606+56 Rt. - Curb Barrier	LF	65
	2606+67 Rt. to 2607+98 Rt. - Curb Barrier	LF	131

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
2600+20 to 2608+00
ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	75	20



SPEC CODE	BID ITEM		UNIT	QUANTITY
708	1430	FIBER ROLLS 12IN		
		2608+00 Lt. to 2608+52 Lt. - Curb Barrier	LF	52

Note: Other quantities are shown on sheet 75-11.

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Wetland, Seeding & Permanent Erosion Control
2608+00 to 2610+10.00
ND 23

Jct of ND 23 extending North 1 Mile

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - Jct ND 23 to Truck Reliever Route

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
ND 1804 (SCL1804			
Intersection Equation of ND 1804, ND 23 & West Ave			
BEG ND 1804	13049+25.60	363681.28	1480579.75
ND 23	2609+37.59	363681.28	1480579.75
End West Ave	10+00.00	363681.28	1480579.75
PC	13090+62.05	367816.44	1480682.80
PI C301	13095+32.49	368286.73	1480694.52
Sec line	AHD TAN 62.46' from PI	368342.76	1480666.90
PT	13099+84.56	368708.67	1480486.49
END	13144+46.33	372710.50	1478513.47
ND 23 (SCL23)			
BEG	2579+86.61	363896.19	1477653.29
PC	2586+03.38	363937.79	1478268.65
PI C305	2593+60.08	363988.82	1479023.63
PI REF	AHD TAN 100' from PI	363969.43	1479121.73
PT	2601+08.07	363842.11	1479765.97
Intscn 1804	2609+37.59	363681.28	1480579.75
END	2617+32.54	363527.41	1481359.66
West Ave (SCLWESTAVE)			
BEG	3+82.93	363064.40	1480564.38
Intscn 1804	10+00.00	363681.28	1480579.75

CURVE DATA

ARC DEFINITION

C301	
PI STA=	13095+32.49
Delta =	27° 40' 20" LT
D_a =	2° 59' 59"
R =	1910.08'
T =	470.44'
L =	922.52'
C305	
PI STA=	2593+60.08
Delta =	15° 02' 49" RT
D_a =	1° 00' 00"
R =	5729.58'
T =	756.70'
L =	1504.69'

US PUBLIC LAND SURVEY DATA

DESC.	SEC-TWP-RGE	NORTHING	EASTING
SE Cor	Sec 18 T-152-N R-92-W	363064.40	1480564.38
E 1/4 Cor	Sec 18 T-152-N R-92-W	365703.21	1480630.14
NE Cor	Sec 18 T-152-N R-92-W	368342.01	1480695.90
N 1/4 Cor	Sec 18 T-152-N R-92-W	368409.52	1478057.10
NW Cor	Sec 18 T-152-N R-92-W	368471.71	1475613.68

REFERENCE MARKERS

R Mkr #	NORTHING	EASTING	STATION	OFFSET	ALIGNMENT
248	368172.74	1480689.21	13094+15	31' Rt	SCL1804
249	372915.93	1478554.66	N/A	N/A	N/A

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
CONTROL POINT DESCRIPTION					
PRIMARY CONTROL					
GPS 1	374748.26	1478393.22	2081.48	N/A	N/A
#6 Rebar w/Alum cap stamped 'ND DOT - LS 3047' at RM 249.34; 118'± W. of ℄ ND 1804 & 28'± S. of ℄ approach					
GPS 2	383832.26	1474615.12	1958.44	N/A	N/A
#6 Rebar w/Alum cap stamped 'ND DOT - LS 3047'					
SECONDARY CONTROL					
RTK 4163	365187.09	1480434.68	1896.95	13064+27	183' Lt
RTK 4164	365144.14	1480579.40	1901.57	13063+88	37' Lt

NOTES: Sheet 1 of 1

Date Survey Completed 11/26/2013

☐ Assumed Coordinates

☒ All coordinates on this sheet are Mountrail County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96).North Zone Combination Factor (cf) = 0.9998350

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

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

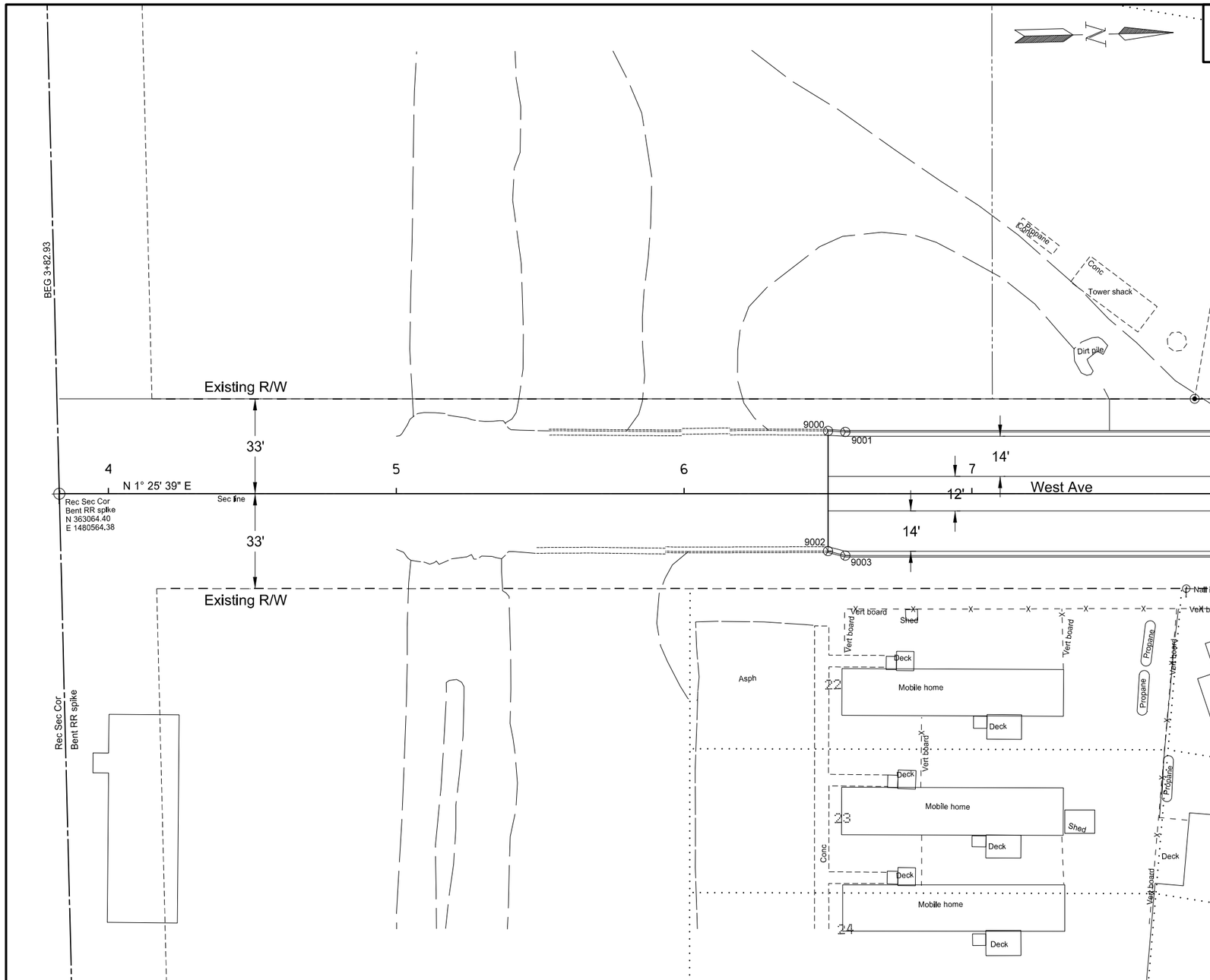
☒ NAVD-88
☐ NGVD-29
☒ GEOID 09 ☐ _____
☐ GEOID 12A

This document was originally issued and sealed by Chad A. Hanson Registration Number LS-5572, on 12/18/13 stored at the North Dakota Department of Transportation

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	1

Stations and Offsets are from Centerline Chain: SCLWESTST

Point	North	East	Station	Offset
9000	363331.9288	1480549.2097	6+50.00	-21.8266
9001	363337.9188	1480549.6857	6+56.00	-21.5000
9002	363330.8889	1480590.9387	6+50.00	19.9153
9003	363336.8475	1480592.6724	6+56.00	21.5000



NOTE:

RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

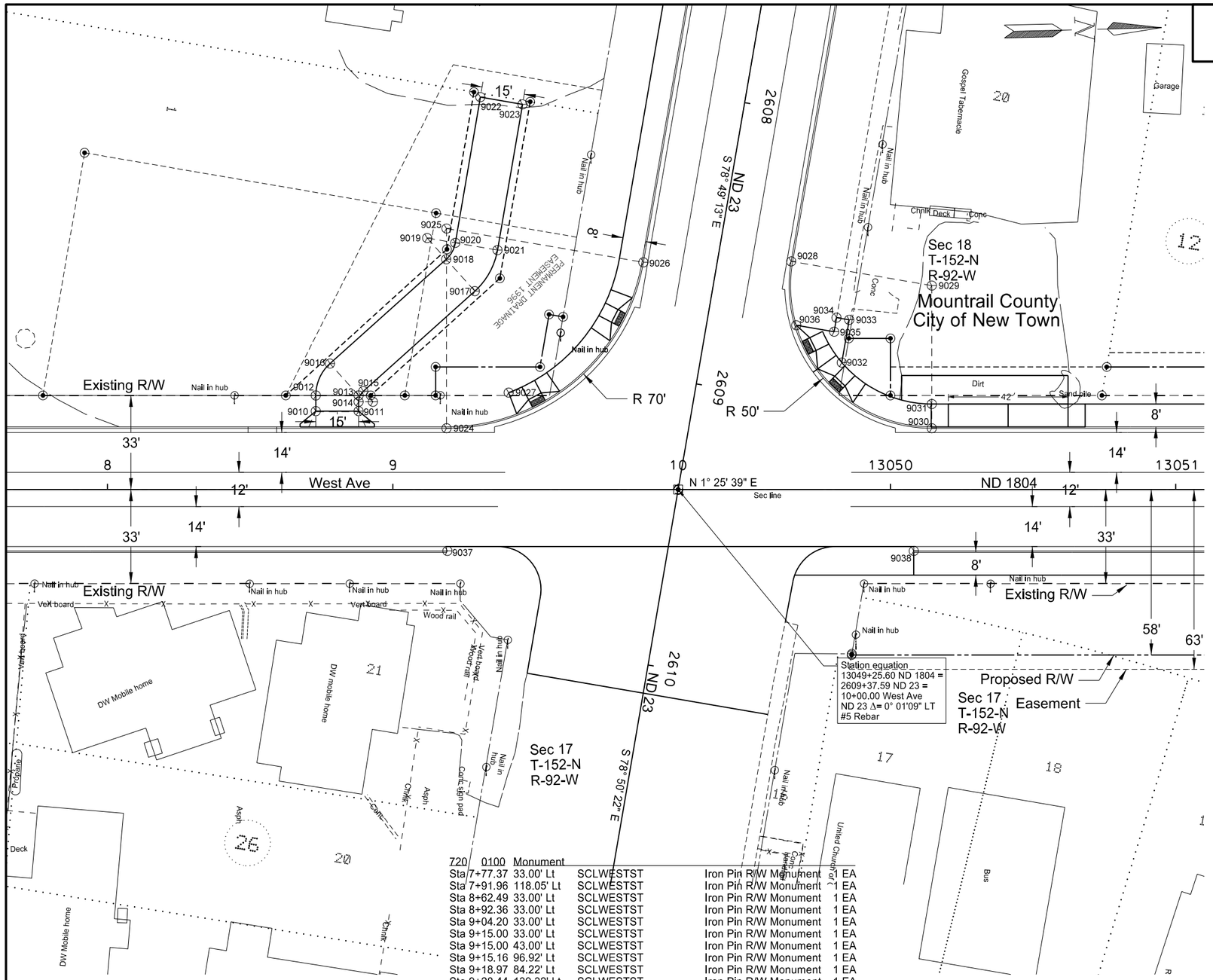
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	2



Stations and Offsets are from Centerline Chain: SCLWESTST

Point	North	East	Station	Offset
9010	363555.0009	1480549.0936	8+73.00	-27.5000
9011	363569.9963	1480549.4673	8+88.00	-27.5000
9012	363555.1380	1480543.5953	8+73.00	-33.0000
9013	363570.1333	1480543.9690	8+88.00	-33.0000
9014	363570.0777	1480546.1993	8+88.00	-30.7690
9015	363571.8303	1480542.5207	8+89.66	-34.4901
9016	363560.3956	1480532.5595	8+77.98	-44.1634
9017	363611.7679	1480508.4354	9+28.74	-69.5599
9018	363602.0302	1480497.0258	9+18.72	-80.7233
9019	363595.5385	1480489.4194	9+12.04	-88.1656
9020	363605.3487	1480491.3583	9+21.89	-86.4717
9021	363620.0641	1480494.2666	9+36.68	-83.9309
9022	363615.3984	1480440.5090	9+30.67	-137.5556
9023	363630.1137	1480443.4173	9+45.46	-135.0148
9024	363600.6630	1480556.2334	9+18.83	-21.5000
9025	363602.4069	1480486.2551	9+18.83	-91.5000
9026	363671.0786	1480499.8272	9+87.81	-79.6430
9027	363622.7542	1480544.2917	9+40.61	-33.9884
9037	363599.8954	1480599.2276	9+19.13	21.5000

Stations and Offsets are from Centerline Chain: SCL23

Point	North	East	Station	Offset
9010	363555.0009	1480549.0936	2609+32.00	129.8229
9011	363569.9963	1480549.4673	2609+29.46	115.0396
9012	363555.1380	1480543.5953	2609+26.58	130.7545
9013	363570.1333	1480543.9690	2609+24.04	115.9713
9014	363570.0777	1480546.1993	2609+26.24	115.5934
9015	363571.8303	1480542.5207	2609+22.29	114.5873
9016	363560.3956	1480532.5595	2609+14.73	127.7363
9017	363611.7679	1480508.4354	2608+81.11	82.0162
9018	363602.0302	1480497.0258	2608+71.80	93.7812
9019	363595.5385	1480489.4194	2608+65.60	101.6246
9020	363605.3487	1480491.3583	2608+65.60	91.6246
9021	363620.0641	1480494.2666	2608+65.60	76.6246
9022	363615.3984	1480440.5090	2608+13.77	91.6246
9023	363630.1137	1480443.4173	2608+13.77	76.6246
9024	363600.6630	1480556.2334	2609+30.15	83.6430
9025	363602.4069	1480486.2551	2608+61.16	95.5000
9026	363671.0786	1480499.8272	2608+61.16	25.5000
9027	363622.7542	1480544.2917	2609+14.15	64.2863
9028	363722.8745	1480500.7915	2608+52.07	-25.5000
9029	363771.9257	1480510.4858	2608+52.07	-75.5000
9030	363770.6801	1480560.4703	2609+01.34	-83.9693
9031	363770.8918	1480551.9729	2608+92.97	-82.5295
9032	363739.7357	1480536.6785	2608+84.00	-48.9993
9033	363742.6811	1480521.7755	2608+68.81	-48.9993
9034	363738.2672	1480520.9031	2608+68.81	-44.5000
9035	363737.2978	1480525.8082	2608+73.81	-44.5000
9036	363724.0856	1480523.1970	2608+73.81	-31.0322
9037	363599.8954	1480599.2276	2609+72.45	76.0717
9038	363763.3165	1480603.3002	2609+44.82	-85.0472

720	0100	Monument			
Sta 7+77.37	33.00' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 7+91.96	118.05' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 8+62.49	33.00' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 8+92.36	33.00' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+04.20	33.00' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+15.00	33.00' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+15.00	43.00' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+15.16	96.92' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+18.97	84.22' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+28.44	139.32' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+37.51	74.04' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+48.15	135.94' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+51.58	43.00' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+54.75	61.39' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 9+59.67	60.55' Lt	SCLWESTST	Iron Pin R/W Monument	1	EA
Sta 13049+25.60	CL	SCL1804	Iron Pin R/W Monument	1	EA
Sta 13049+85.42	53.00' Lt	SCL1804	Iron Pin R/W Monument	1	EA
Sta 13050+00	53.00' Lt	SCL1804	Iron Pin R/W Monument	1	EA
Sta 13050+00	33.00' Lt	SCL1804	Iron Pin R/W Monument	1	EA
Sta 13050+74.11	33.00' Lt	SCL1804	Iron Pin R/W Monument	1	EA
Sta 13050+75.83	43.00' Lt	SCL1804	Iron Pin R/W Monument	1	EA
Sta 13049+86.41	58.00' Rt	SCL1804	Iron Pin R/W Monument	1	EA
Sta 13049+86.48	57.57' Rt	SCL1804	Iron Pin R/W Monument	1	EA

Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9028	363722.8745	1480500.7915	13049+65.22	-79.9693
9029	363771.9257	1480510.4858	13050+14.50	-71.5000
9030	363770.6801	1480560.4703	13050+14.50	-21.5000
9031	363770.8918	1480551.9729	13050+14.50	-30.0000
9032	363739.7357	1480536.6785	13049+82.97	-44.5135
9033	363742.6811	1480521.7755	13049+85.54	-59.4853
9034	363738.2672	1480520.9031	13049+81.11	-60.2474
9035	363737.2978	1480525.8082	13049+80.26	-55.3197
9036	363724.0856	1480523.1970	13049+66.99	-57.6009
9038	363763.3165	1480603.3002	13050+08.20	21.5000

NOTE:

RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

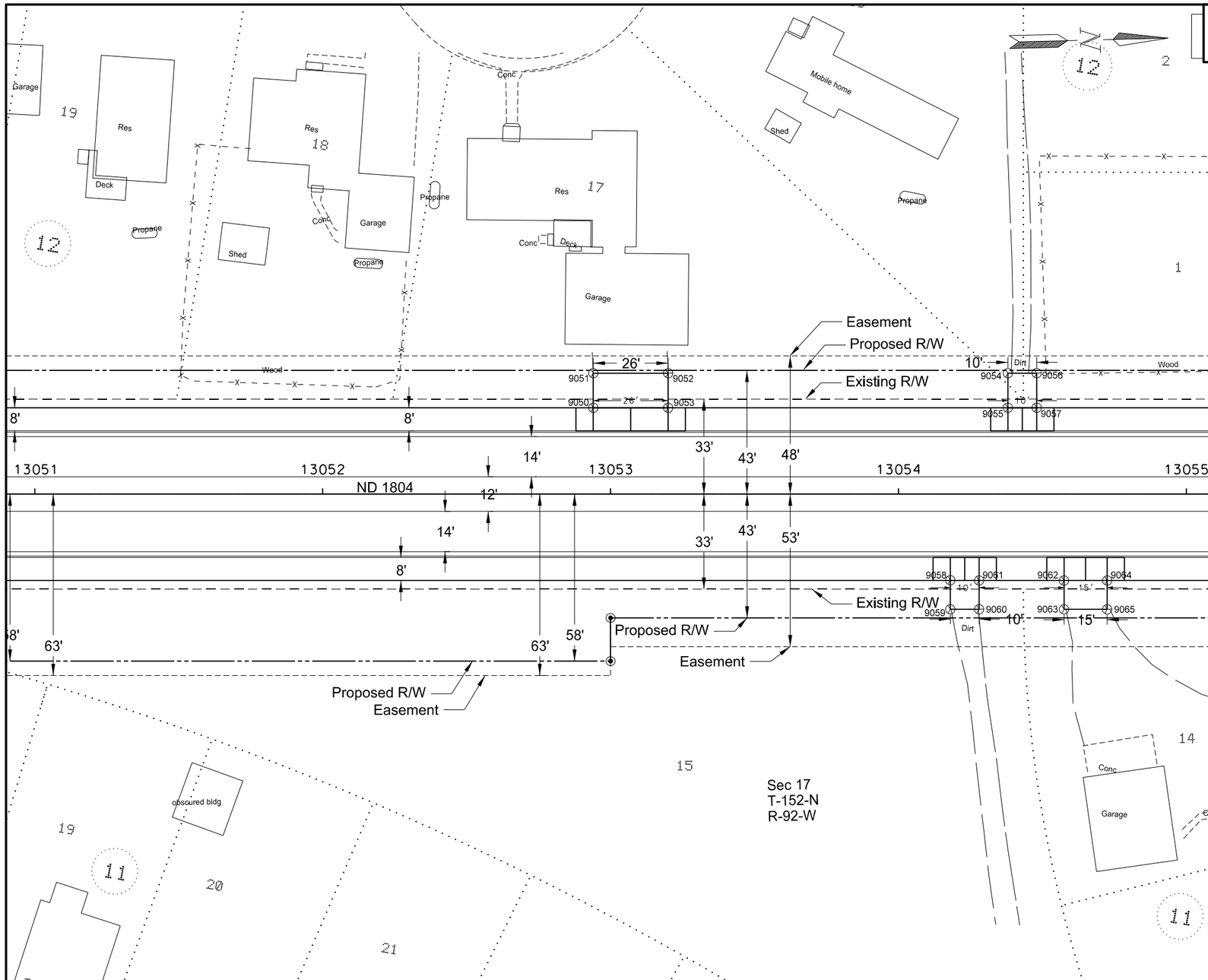
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	3



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9050	364050.3094	1480558.9361	13052+94.00	-30.0000
9051	364050.6084	1480546.9399	13052+94.00	-42.0000
9052	364076.6003	1480547.5876	13053+20.00	-42.0000
9053	364076.3013	1480559.5839	13053+20.00	-30.0000
9054	364194.5637	1480550.5273	13054+38.00	-42.0000
9055	364194.2647	1480562.5236	13054+38.00	-30.0000
9056	364204.5606	1480550.7764	13054+48.00	-42.0000
9057	364204.2616	1480562.7727	13054+48.00	-30.0000
9058	364172.7762	1480622.0067	13054+18.00	30.0000
9059	364172.5270	1480632.0036	13054+18.00	40.0000
9060	364182.5239	1480632.2527	13054+28.00	40.0000
9061	364182.7731	1480622.2558	13054+28.00	30.0000
9062	364212.2639	1480622.9907	13054+57.50	30.0000
9063	364212.0148	1480632.9876	13054+57.50	40.0000
9064	364227.2593	1480623.3644	13054+72.50	30.0000
9065	364227.0101	1480633.3613	13054+72.50	40.0000

720 0100 Monument

Sta 13053+00	43.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13053+00	58.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

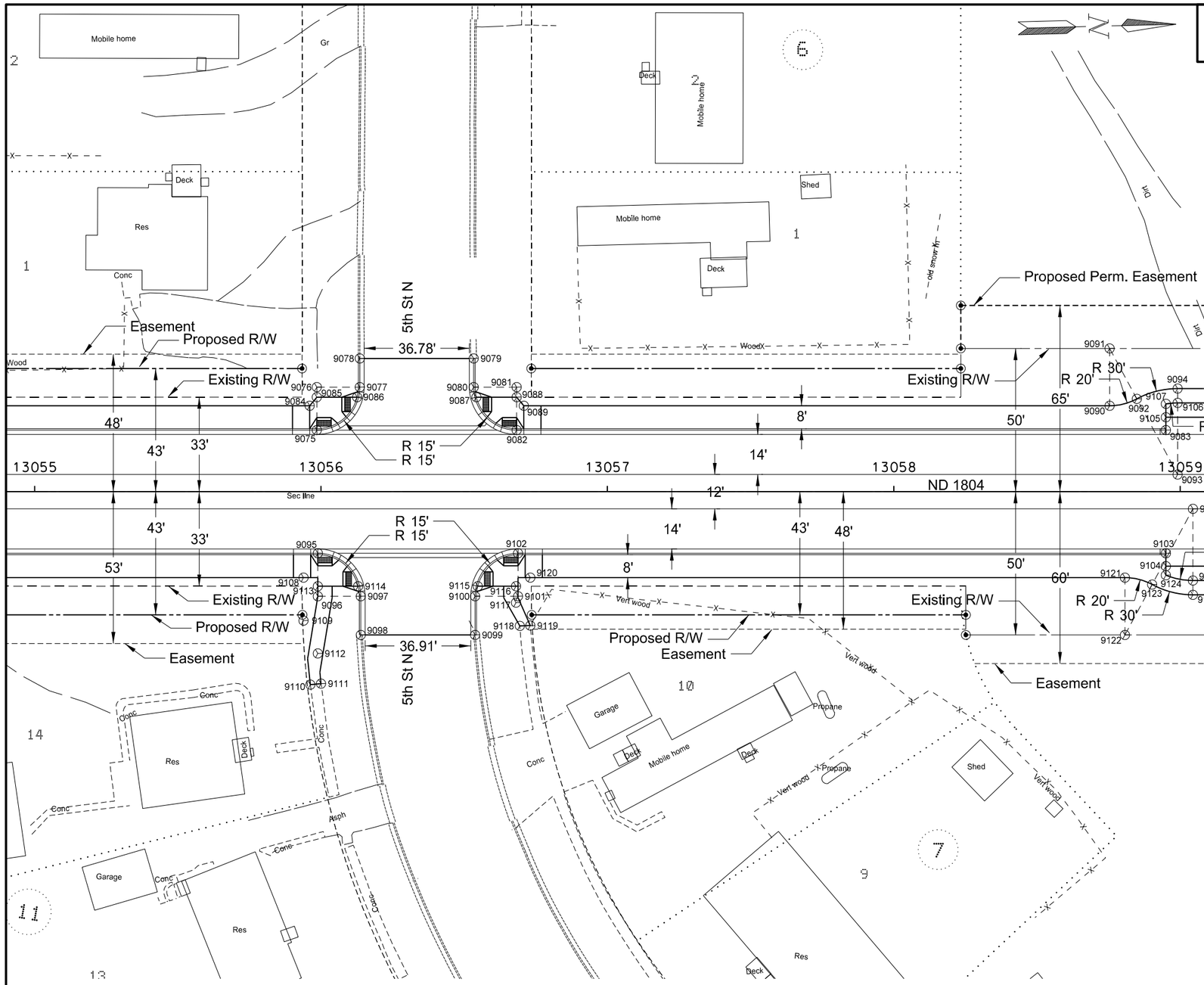
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	4



Point	North	East	Station	Offset
9075	364354.5424	1480575.0204	13055+98.54	-21.5000
9076	364354.9161	1480560.0250	13055+98.54	-36.5000
9077	364369.9114	1480560.3987	13056+13.54	-36.5000
9078	364370.1605	1480550.4018	13056+13.54	-46.5000
9079	364409.9295	1480551.3929	13056+53.32	-46.5000
9080	364409.6804	1480561.3898	13056+53.32	-36.5000
9081	364424.6757	1480561.7635	13056+68.32	-36.5000
9082	364424.3020	1480576.7588	13056+68.32	-21.5000
9083	364650.9111	1480582.4060	13058+95.00	-21.5000
9084	364352.2549	1480566.4607	13055+96.04	-30.0000
9085	364354.8289	1480563.5240	13055+98.54	-33.0000
9086	364368.8957	1480563.8745	13056+12.61	-33.0000
9087	364410.5216	1480564.9118	13056+54.25	-33.0000
9088	364424.5885	1480565.2624	13056+68.32	-33.0000
9089	364427.0130	1480568.3237	13056+70.82	-30.0000
9090	364631.4782	1480573.4191	13058+75.35	-30.0000
9091	364631.9765	1480553.4253	13058+75.35	-50.0000
9092	364641.0345	1480571.2565	13058+84.85	-32.4000
9093	364654.6216	1480598.0033	13058+99.10	-6.0000
9094	364655.3690	1480568.0126	13058+99.10	-36.0000
9095	364353.8305	1480618.0160	13055+98.90	21.5000
9096	364353.4569	1480633.0113	13055+98.90	36.5000
9097	364368.4522	1480633.3850	13056+13.90	36.5000
9098	364368.1159	1480646.8808	13056+13.90	50.0000
9099	364408.0118	1480647.8751	13056+53.81	50.0000
9100	364408.3482	1480634.3793	13056+53.81	36.5000
9101	364423.3435	1480634.7529	13056+68.81	36.5000
9102	364423.7172	1480619.7576	13056+68.81	21.5000
9103	364649.8399	1480625.3927	13058+95.00	21.5000
9104	364649.7278	1480629.8913	13058+95.00	26.0000
9105	364651.0232	1480577.9074	13058+95.00	-26.0000
9106	364655.2444	1480573.0110	13058+99.10	-31.0000
9107	364651.1394	1480573.2470	13058+95.00	-30.6619
9108	364348.6203	1480626.3888	13055+93.90	30.0000
9109	364348.2466	1480641.3841	13055+93.90	45.0000
9110	364350.0844	1480663.7700	13055+96.29	67.3332
9111	364353.8256	1480663.5159	13056+00.03	66.9859
9112	364352.9596	1480652.9661	13055+98.90	56.4609
9113	364353.5440	1480629.5124	13055+98.90	33.0000
9114	364367.6109	1480629.8630	13056+12.97	33.0000
9115	364409.3638	1480630.9035	13056+54.74	33.0000
9116	364422.7095	1480631.2361	13056+68.09	33.0000
9117	364422.5667	1480636.9652	13056+68.09	38.7309
9118	364423.7114	1480645.0943	13056+69.43	46.8290
9119	364427.3658	1480645.0872	13056+73.09	46.7309
9120	364427.7826	1480628.3615	13056+73.09	30.0000
9121	364635.3289	1480633.5337	13058+80.70	30.0000
9122	364634.8307	1480653.5275	13058+80.70	50.0000
9123	364644.7657	1480636.1696	13058+90.20	32.4000
9124	364649.6494	1480633.0374	13058+95.00	29.1472
9125	364659.6681	1480610.1328	13059+04.45	6.0000
9126	364659.0453	1480635.1250	13059+04.45	31.0000
9127	364658.9208	1480640.1235	13059+04.45	36.0000

Stations and Offsets are from Centerline Chain: SCL1804

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

720 0100 Monument

Sta 13055+93.40	43.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13055+93.52	43.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13056+73.40	43.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13056+73.57	43.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13058+23.40	43.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13058+23.40	50.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13058+23.40	65.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13058+25.15	43.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13058+25.15	50.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA

NOTE:

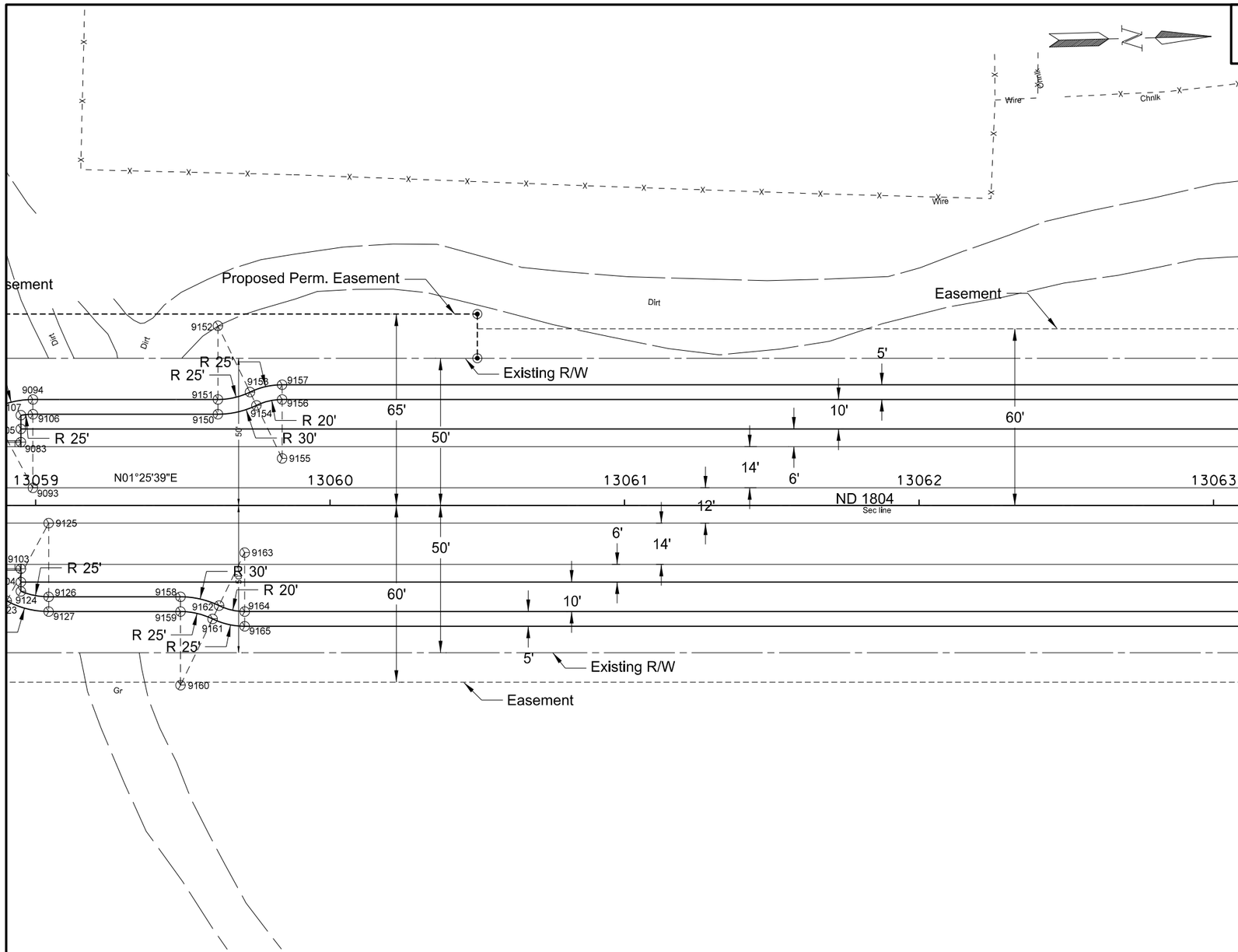
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	5



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9125	364659.6681	1480610.1328	13059+04.45	6.0000
9126	364659.0453	1480635.1250	13059+04.45	31.0000
9127	364658.9208	1480640.1235	13059+04.45	36.0000
9150	364718.0446	1480574.5760	13059+61.92	-31.0000
9151	364718.1692	1480569.5776	13059+61.92	-36.0000
9152	364718.7920	1480544.5854	13059+61.92	-61.0000
9153	364729.1253	1480567.3499	13059+72.81	-38.5000
9154	364731.1920	1480571.9028	13059+74.99	-34.0000
9155	364739.4586	1480590.1144	13059+83.71	-16.0000
9156	364739.9569	1480570.1206	13059+83.71	-36.0000
9157	364740.0815	1480565.1221	13059+83.71	-41.0000
9158	364703.8109	1480636.2406	13059+49.22	31.0000
9159	364703.6863	1480641.2390	13059+49.22	36.0000
9160	364703.0635	1480666.2308	13059+49.22	60.9995
9161	364714.5179	1480644.0097	13059+60.12	38.5000
9162	364716.8087	1480639.5654	13059+62.30	34.0000
9163	364725.9723	1480621.7882	13059+71.02	16.0000
9164	364725.4741	1480641.7820	13059+71.02	36.0000
9165	364725.3495	1480646.7804	13059+71.02	41.0000

720 0100 Monument

Sta 13060+50.00	50.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13060+50.00	65.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

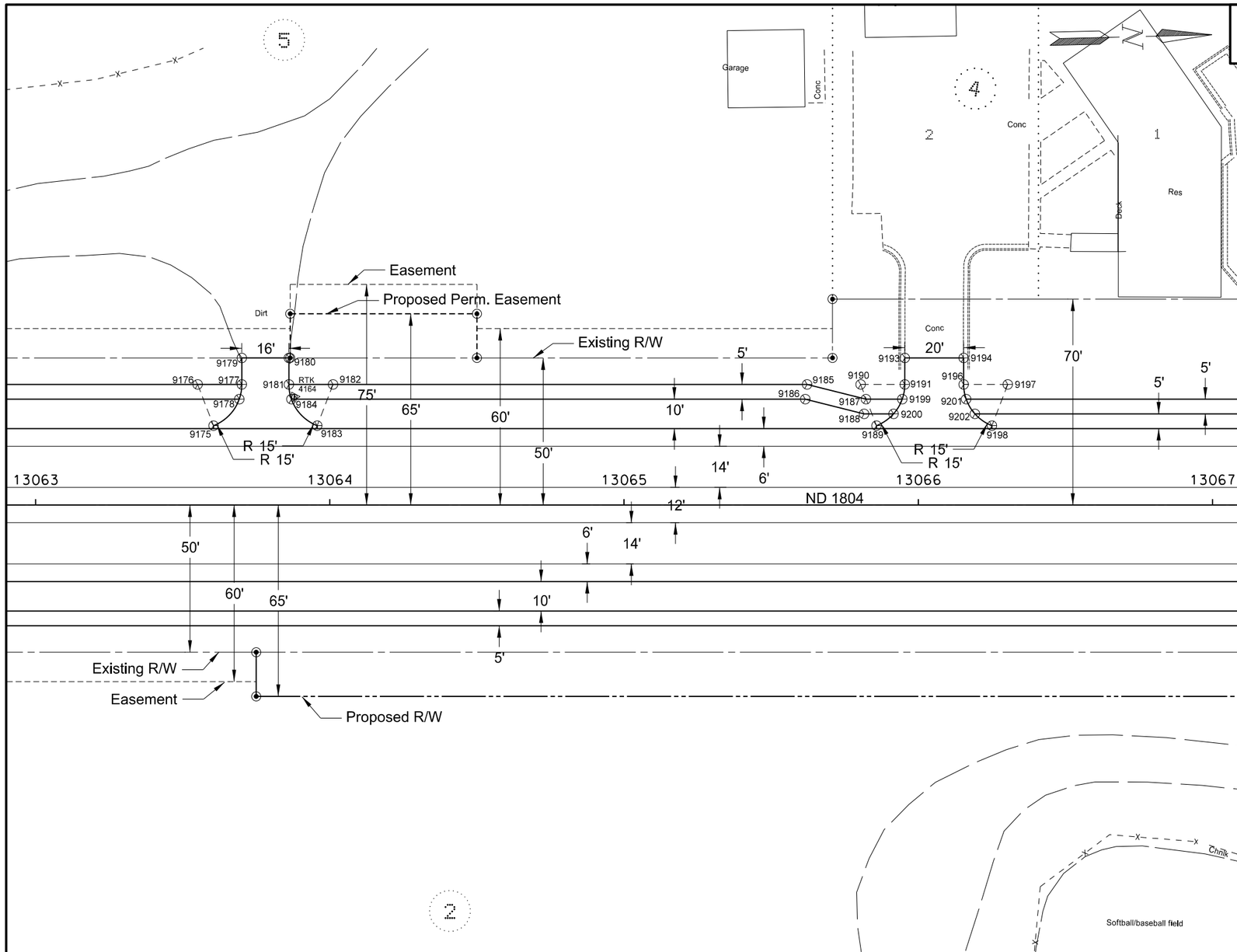
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	6



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9175	365116.3896	1480588.5042	13063+60.49	-27.0000
9176	365111.3549	1480574.3744	13063+55.10	-41.0000
9177	365126.3502	1480574.7481	13063+70.10	-41.0000
9178	365125.3681	1480579.7252	13063+69.24	-36.0000
9179	365126.5745	1480565.7509	13063+70.10	-50.0000
9180	365142.5695	1480566.1495	13063+86.10	-50.0000
9181	365142.3453	1480575.1467	13063+86.10	-41.0000
9182	365157.3406	1480575.5204	13064+01.10	-41.0000
9183	365151.6083	1480589.3819	13063+95.72	-27.0000
9184	365143.0783	1480580.1665	13063+86.96	-36.0000
9185	365318.3903	1480579.5338	13065+62.20	-41.0000
9186	365317.6504	1480584.5169	13065+61.58	-36.0000
9187	365338.2596	1480585.0305	13065+82.20	-36.0000
9188	365337.5197	1480590.0136	13065+81.58	-31.0000
9189	365341.6235	1480594.1171	13065+85.79	-27.0000
9190	365336.5888	1480579.9873	13065+80.40	-41.0000
9191	365351.5842	1480580.3610	13065+95.40	-41.0000
9193	365351.8084	1480571.3638	13065+95.40	-50.0000
9194	365371.8022	1480571.8620	13066+15.40	-50.0000
9196	365371.5780	1480580.8592	13066+15.40	-41.0000
9197	365386.5733	1480581.2329	13066+30.40	-41.0000
9198	365380.8410	1480595.0944	13066+25.02	-27.0000
9199	365350.6020	1480585.3381	13065+94.55	-36.0000
9200	365347.5166	1480590.2627	13065+91.58	-31.0000
9201	365372.3110	1480585.8791	13066+16.26	-36.0000
9202	365375.1473	1480590.9513	13066+19.22	-31.0000

720 0100 Monument

Sta 13063+75.00	50.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13063+75.00	65.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13063+86.55	50.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13063+86.55	65.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13064+50.00	50.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13064+50.00	65.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13065+70.85	50.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13065+70.85	70.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

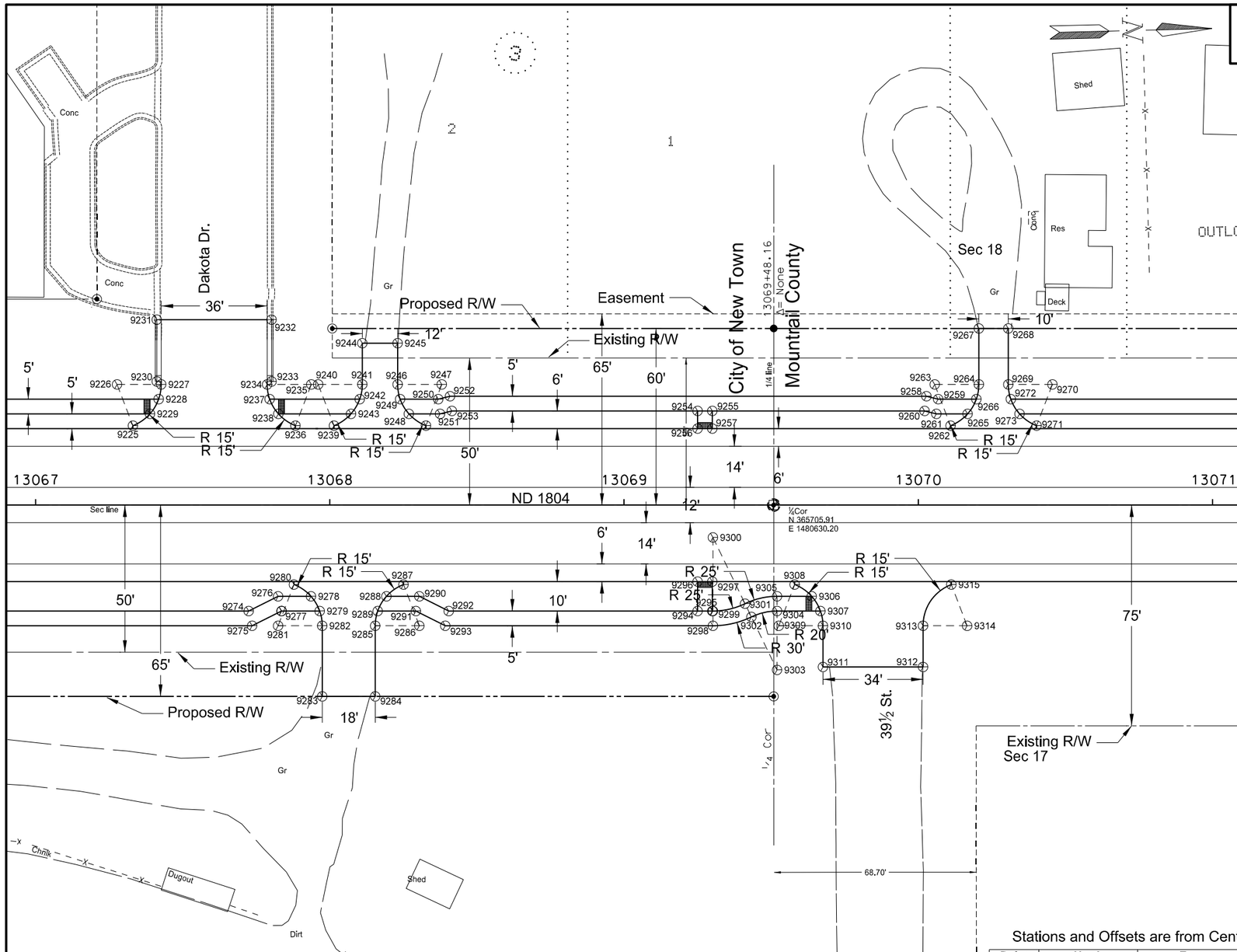
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	7



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9225	365488.8795	1480597.7868	13067+33.09	-27.0000
9226	365483.8447	1480583.6570	13067+27.71	-41.0000
9227	365498.8401	1480584.0307	13067+42.71	-41.0000
9228	365497.8579	1480589.0077	13067+41.85	-36.0000
9229	365494.7725	1480593.9324	13067+38.89	-31.0000
9230	365497.3655	1480582.9936	13067+41.21	-42.0000
9231	365497.8886	1480562.0001	13067+41.21	-63.0000
9232	365536.8765	1480562.9717	13067+80.21	-63.0000
9233	365536.3534	1480583.9652	13067+80.21	-42.0000
9234	365534.8289	1480584.9275	13067+78.71	-41.0000
9235	365549.8243	1480585.3012	13067+93.71	-41.0000
9236	365544.0920	1480599.1627	13067+88.32	-27.0000
9237	365535.5619	1480589.9473	13067+79.56	-36.0000
9238	365538.3983	1480595.0196	13067+82.53	-31.0000
9239	365557.1983	1480599.4893	13068+01.43	-27.0000
9240	365552.1636	1480585.3595	13067+96.05	-41.0000
9241	365567.1589	1480585.7332	13068+11.05	-41.0000
9242	365566.1668	1480590.7100	13068+10.18	-36.0000
9243	365563.0813	1480595.6347	13068+07.22	-31.0000
9244	365567.5077	1480571.7375	13068+11.05	-55.0000
9245	365579.5040	1480572.0365	13068+23.05	-55.0000
9246	365579.1552	1480586.0322	13068+23.05	-41.0000
9247	365594.1506	1480586.4058	13068+38.05	-41.0000
9248	365582.7246	1480596.1242	13068+26.87	-31.0000
9249	365579.8883	1480591.0520	13068+23.90	-36.0000
9250	365592.8460	1480591.3749	13068+36.87	-36.0000
9251	365593.3368	1480596.3887	13068+37.48	-31.0000
9252	365596.8697	1480590.4748	13068+40.87	-37.0000
9253	365597.3605	1480595.4886	13068+41.48	-32.0000
9254	365680.8530	1480597.5693	13069+25.00	-32.0000
9255	365685.8515	1480597.6939	13069+30.00	-32.0000
9256	365680.7035	1480603.5674	13069+25.00	-26.0000
9257	365685.7020	1480603.6920	13069+30.00	-26.0000
9258	365758.7128	1480594.5080	13070+02.76	-37.0000
9259	365762.6867	1480595.6074	13070+06.76	-36.0000
9260	365757.9729	1480599.4912	13070+02.14	-32.0000
9261	365761.9468	1480600.5905	13070+06.14	-31.0000
9262	365766.6660	1480604.7093	13070+10.96	-27.0000
9263	365761.6313	1480590.5795	13070+05.58	-41.0000
9264	365776.6266	1480590.9532	13070+20.58	-41.0000
9265	365772.5590	1480600.8550	13070+16.76	-31.0000
9266	365775.6444	1480595.9303	13070+19.72	-36.0000
9267	365777.0999	1480571.9591	13070+20.58	-60.0000
9268	365787.0968	1480572.2082	13070+30.58	-60.0000
9269	365786.6235	1480591.2023	13070+30.58	-41.0000
9270	365801.6188	1480591.5760	13070+45.58	-41.0000
9271	365795.8866	1480605.4375	13070+40.19	-27.0000
9272	365787.3565	1480596.2222	13070+31.44	-36.0000
9273	365790.1928	1480601.2944	13070+34.40	-31.0000
9274	365526.6356	1480661.7472	13067+72.43	36.0000
9275	365527.6910	1480666.7751	13067+73.61	41.0000
9276	365536.7570	1480656.9979	13067+82.43	31.0000
9277	365537.8124	1480662.0258	13067+83.61	36.0000
9278	365547.9339	1480657.2765	13067+93.61	31.0000
9279	365550.7702	1480662.3487	13067+96.57	36.0000
9280	365542.2402	1480653.1333	13067+87.81	27.0000
9281	365536.5079	1480666.9948	13067+82.43	41.0000
9282	365551.5032	1480667.3685	13067+97.43	41.0000
9283	365550.9053	1480691.3611	13067+97.43	65.0000

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

720 0100 Monument

Sta 13067+20.85	70.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13068+00.85	60.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13069+50.86	60.00' Lt	SCL1804	Iron Pin Ref Monument	1 EA
Sta 13069+50.86	CL	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13069+50.86	65.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA

NOTE:

RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9301	365695.3191	1480663.4501	13069+41.10	33.5000
9302	365697.3857	1480668.0030	13069+43.28	38.0000
9303	365705.6524	1480686.2146	13069+52.00	56.0000
9304	365706.1507	1480666.2208	13069+52.00	36.0000
9305	365706.2752	1480661.2224	13069+52.00	31.0000
9306	365718.0495	1480661.5158	13069+63.78	31.0000
9307	365720.8859	1480666.5880	13069+66.74	36.0000
9308	365712.3558	1480657.3727	13069+57.98	27.0000
9309	365706.6236	1480671.2342	13069+52.60	41.0000
9310	365721.6189	1480671.6079	13069+67.60	41.0000
9311	365721.2701	1480685.6035	13069+67.60	55.0000
9312	365755.2596	1480686.4505	13070+01.60	55.0000
9313	365755.6083	1480672.4549	13070+01.60	41.0000
9314	365770.6037	1480672.8286	13070+16.60	41.0000
9315	365765.5690	1480658.6988	13070+11.21	27.0000

Stations and Offsets are from Centerline Chain: SCL1804

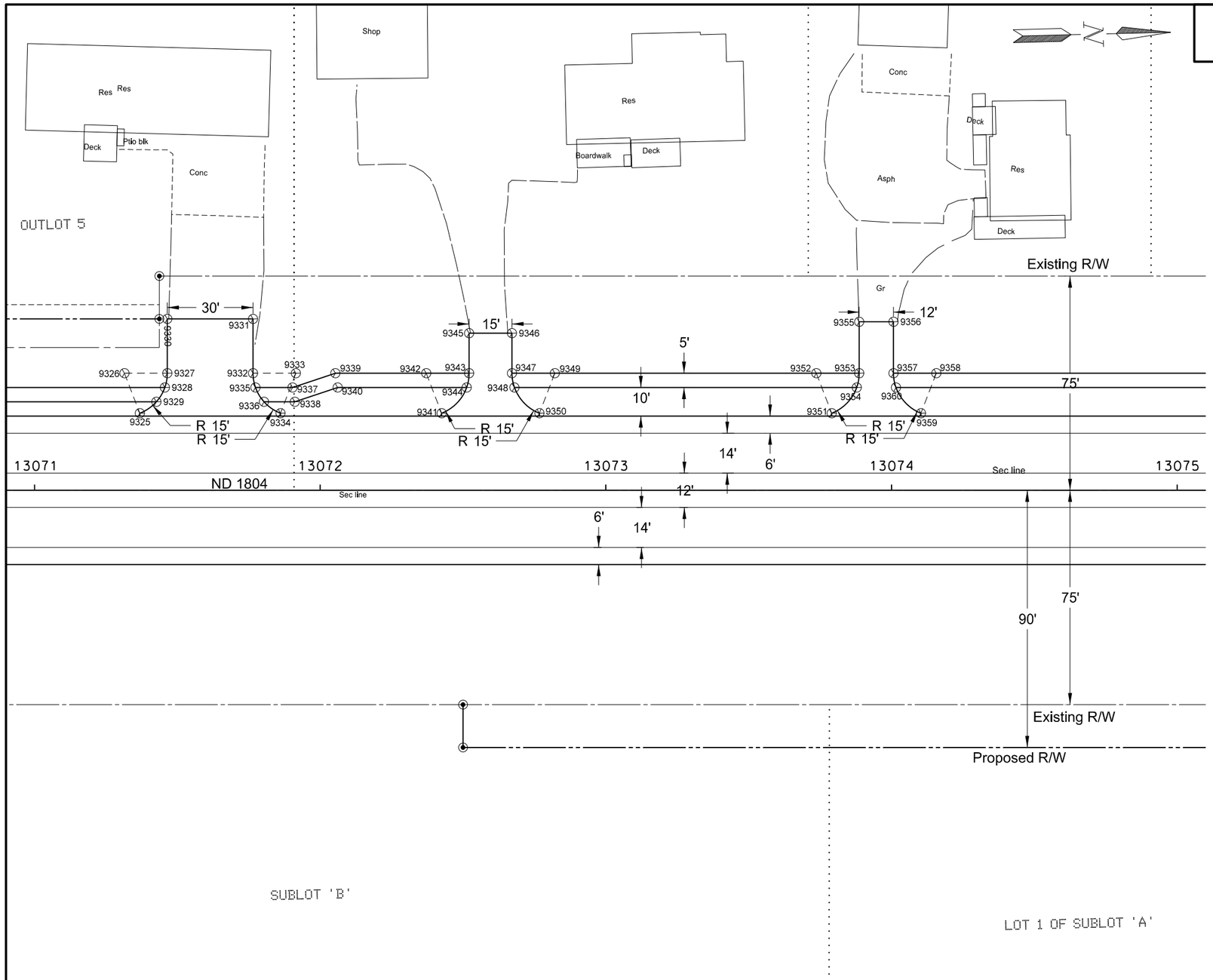
Point	North	East	Station	Offset
9284	365568.8998	1480691.8095	13068+15.43	65.0000
9285	365569.4977	1480667.8169	13068+15.43	41.0000
9286	365584.4930	1480668.1906	13068+30.43	41.0000
9287	365579.4583	1480654.0608	13068+25.04	27.0000
9288	365573.5653	1480657.9152	13068+19.25	31.0000
9289	365570.4798	1480662.8399	13068+16.29	36.0000
9290	365584.7421	1480658.1937	13068+30.43	31.0000
9291	365583.4376	1480663.1628	13068+29.25	36.0000
9292	365594.6145	1480663.4413	13068+40.43	36.0000
9293	365593.3099	1480668.4103	13068+39.25	41.0000
9294	365679.1590	1480665.5482	13069+25.00	36.0000
9295	365684.1574	1480665.6728	13069+30.00	36.0000
9296	365679.4081	1480655.5513	13069+25.00	26.0000
9297	365684.4065	1480655.6759	13069+30.00	26.0000
9298	365684.2384	1480670.6763	13069+30.21	41.0000
9299	365684.3629	1480665.6779	13069+30.21	36.0000
9300	365684.9857	1480640.6856	13069+30.21	11.0000

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	8



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9325	365892.5446	1480607.8463	13071+36.88	-27.0000
9326	365887.5099	1480593.7165	13071+31.50	-41.0000
9327	365902.5052	1480594.0902	13071+46.50	-41.0000
9328	365901.5230	1480599.0672	13071+45.64	-36.0000
9329	365898.4376	1480603.9919	13071+42.68	-31.0000
9330	365902.9785	1480575.0961	13071+46.50	-60.0000
9331	365932.9692	1480575.8434	13071+76.50	-60.0000
9332	365932.4959	1480594.8375	13071+76.50	-41.0000
9333	365947.4912	1480595.2112	13071+91.50	-41.0000
9334	365941.7590	1480609.0727	13071+86.11	-27.0000
9335	365933.2289	1480599.8574	13071+77.35	-36.0000
9336	365936.0652	1480604.9296	13071+80.32	-31.0000
9337	365946.1867	1480600.1803	13071+90.32	-36.0000
9338	365946.8733	1480605.1989	13071+91.13	-31.0000
9339	365961.3066	1480595.5555	13072+05.32	-41.0000
9340	365961.9932	1480600.5742	13072+06.13	-36.0000
9341	365998.1547	1480610.4781	13072+42.52	-27.0000
9342	365993.1199	1480596.3483	13072+37.14	-41.0000
9343	366008.1153	1480596.7220	13072+52.14	-41.0000
9344	366007.1331	1480601.6991	13072+51.28	-36.0000
9345	366008.4641	1480582.7263	13072+52.14	-55.0000
9346	366023.4594	1480583.1000	13072+67.14	-55.0000
9347	366023.1106	1480597.0957	13072+67.14	-41.0000
9348	366023.8437	1480602.1155	13072+68.00	-36.0000
9349	366038.1060	1480597.4694	13072+82.14	-41.0000
9350	366032.3737	1480611.3309	13072+76.75	-27.0000
9351	366134.6671	1480613.8801	13073+79.08	-27.0000
9352	366129.6324	1480599.7503	13073+73.69	-41.0000
9353	366144.6278	1480600.1239	13073+88.69	-41.0000
9354	366143.6456	1480605.1010	13073+87.84	-36.0000
9355	366145.0762	1480582.1295	13073+88.69	-59.0000
9356	366157.0725	1480582.4285	13074+00.69	-59.0000
9357	366156.6240	1480600.4229	13074+00.69	-41.0000
9358	366171.6194	1480600.7966	13074+15.69	-41.0000
9359	366165.8871	1480614.6581	13074+10.31	-27.0000
9360	366157.3571	1480605.4427	13074+01.55	-36.0000

720 0100 Monument

Sta 13071+43.70	60.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13071+43.70	75.00' Lt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13072+50.00	75.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13072+50.00	90.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

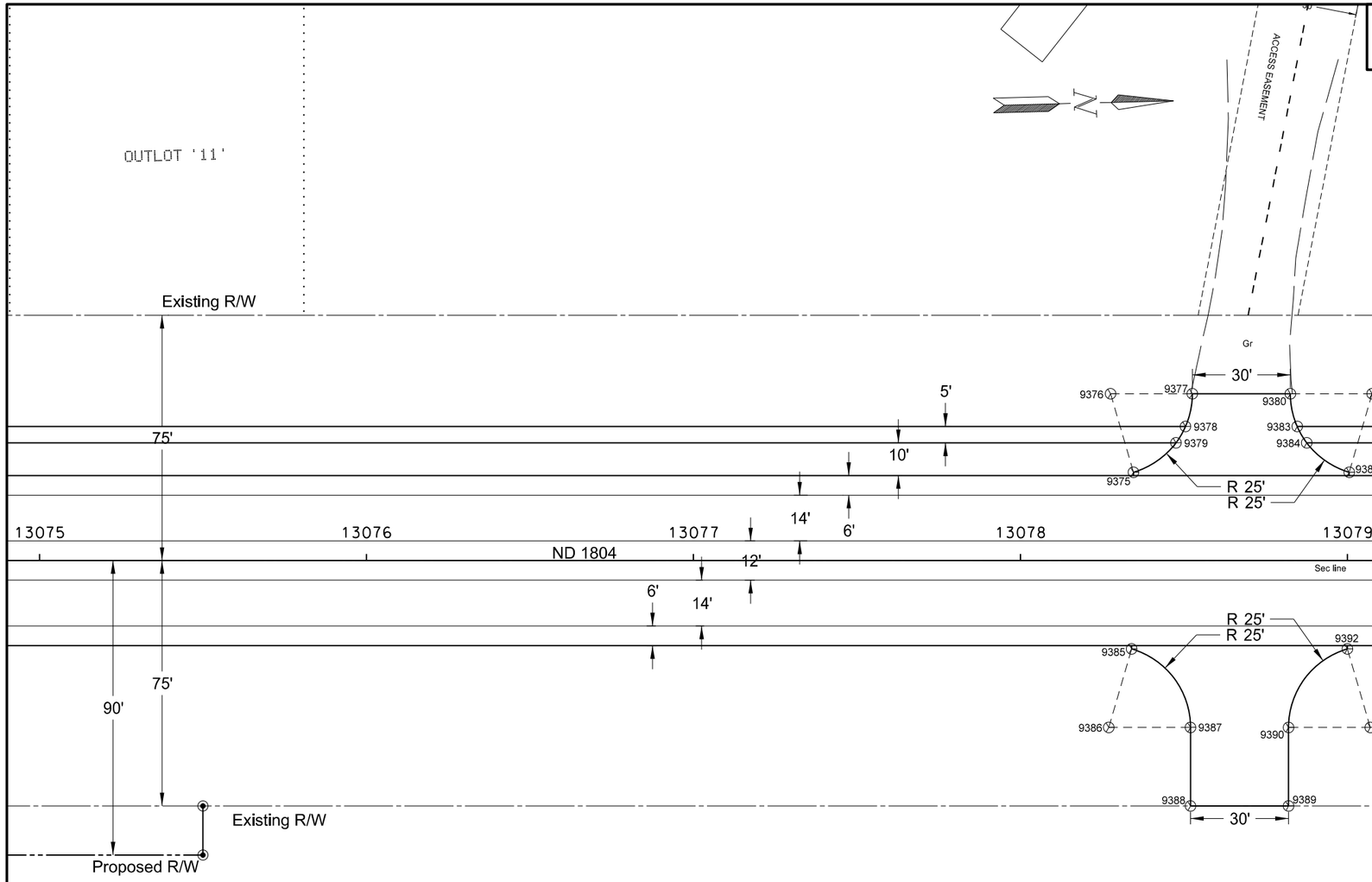
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	9



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9375	366590.0085	1480625.2273	13078+34.56	-27.0000
9376	366583.6085	1480601.0604	13078+27.56	-51.0000
9377	366608.6008	1480601.6832	13078+52.56	-51.0000
9378	366606.2652	1480611.6281	13078+50.48	-41.0000
9379	366603.2286	1480616.5540	13078+47.56	-36.0000
9380	366638.5915	1480602.4306	13078+82.56	-51.0000
9381	366663.5837	1480603.0534	13079+07.56	-51.0000
9382	366655.9880	1480626.8716	13079+00.56	-27.0000
9383	366640.4288	1480612.4795	13078+84.65	-41.0000
9384	366643.2162	1480617.5505	13078+87.56	-36.0000
9385	366588.1011	1480679.1966	13078+34.00	27.0000
9386	366580.5053	1480703.0147	13078+27.00	51.0000
9387	366605.4976	1480703.6376	13078+52.00	51.0000
9388	366604.8997	1480727.6301	13078+52.00	75.0000
9389	366634.8903	1480728.3775	13078+82.00	75.0000
9390	366635.4883	1480704.3849	13078+82.00	51.0000
9391	366660.4805	1480705.0078	13079+07.00	51.0000
9392	366654.0806	1480680.8408	13079+00.00	27.0000

720 0100 Monument

Sta 13075+50.00	75.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13075+50.00	90.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

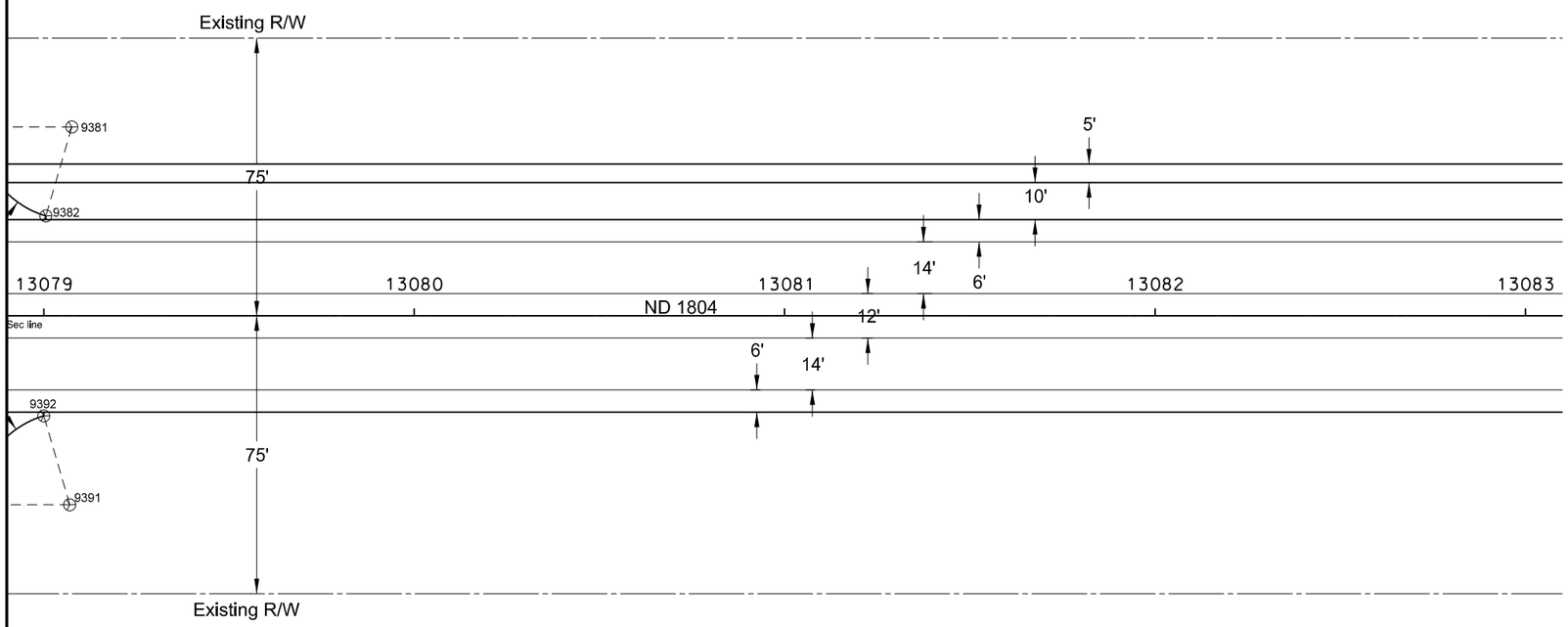
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	10

Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9381	366663.5837	1480603.0534	13079+07.56	-51.0000
9382	366655.9880	1480626.8716	13079+00.56	-27.0000
9391	366660.4805	1480705.0078	13079+07.00	51.0000
9392	366654.0806	1480680.8408	13079+00.00	27.0000



This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

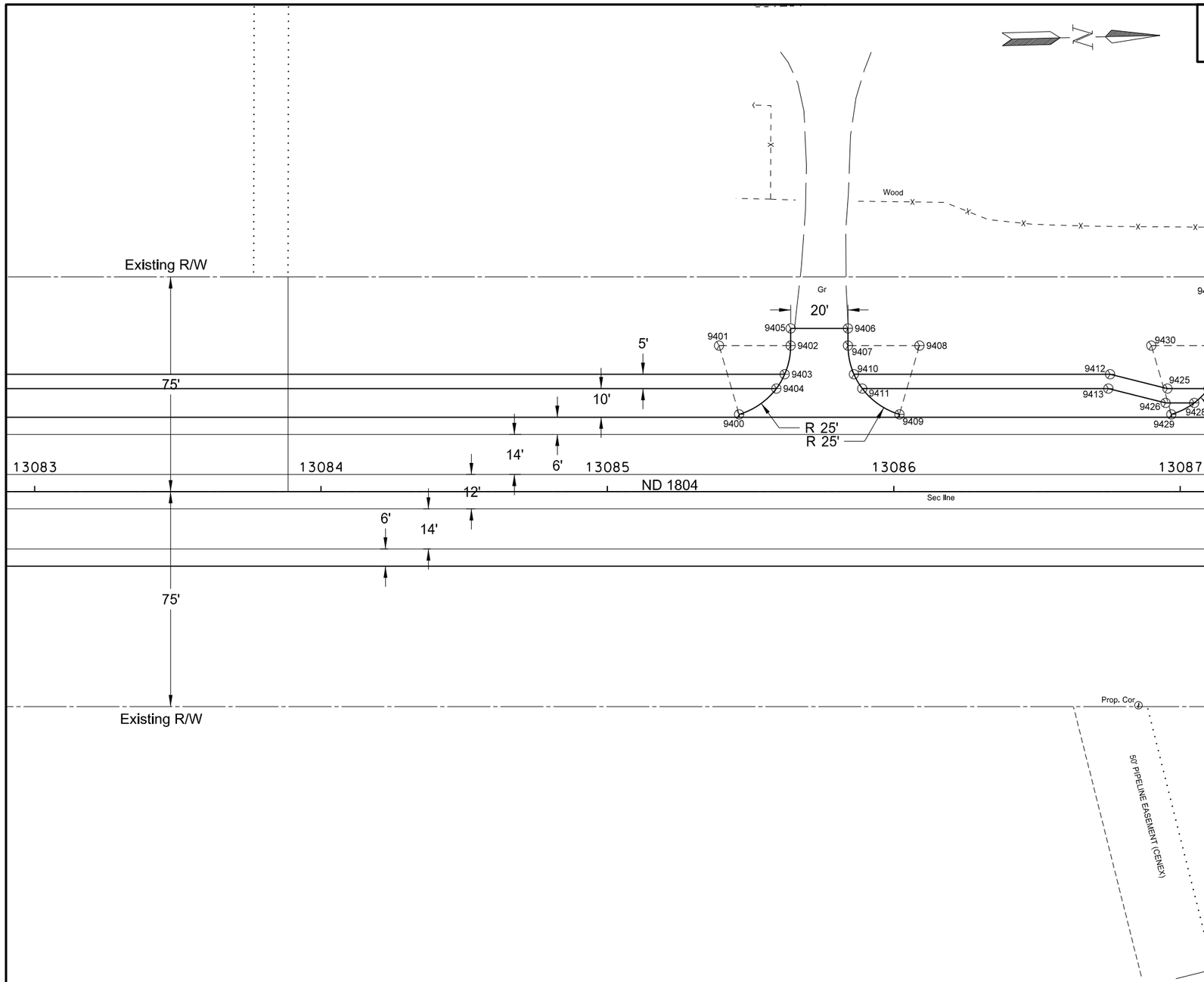
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	11



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9400	367301.2061	1480642.9507	13085+45.98	-27.0000
9401	367294.8062	1480618.7837	13085+38.98	-51.0000
9402	367319.7984	1480619.4065	13085+63.98	-51.0000
9403	367317.4628	1480629.3514	13085+61.89	-41.0000
9404	367314.4263	1480634.2773	13085+58.98	-36.0000
9405	367319.9479	1480613.4084	13085+63.98	-57.0000
9406	367339.9417	1480613.9067	13085+83.98	-57.0000
9407	367339.7922	1480619.9048	13085+83.98	-51.0000
9408	367364.7845	1480620.5276	13086+08.98	-51.0000
9409	367357.1887	1480644.3458	13086+01.98	-27.0000
9410	367341.6296	1480629.9537	13085+86.07	-41.0000
9411	367344.4170	1480635.0247	13085+88.98	-36.0000
9412	367431.0509	1480632.1821	13086+75.52	-41.0000
9413	367430.3110	1480637.1652	13086+74.90	-36.0000

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

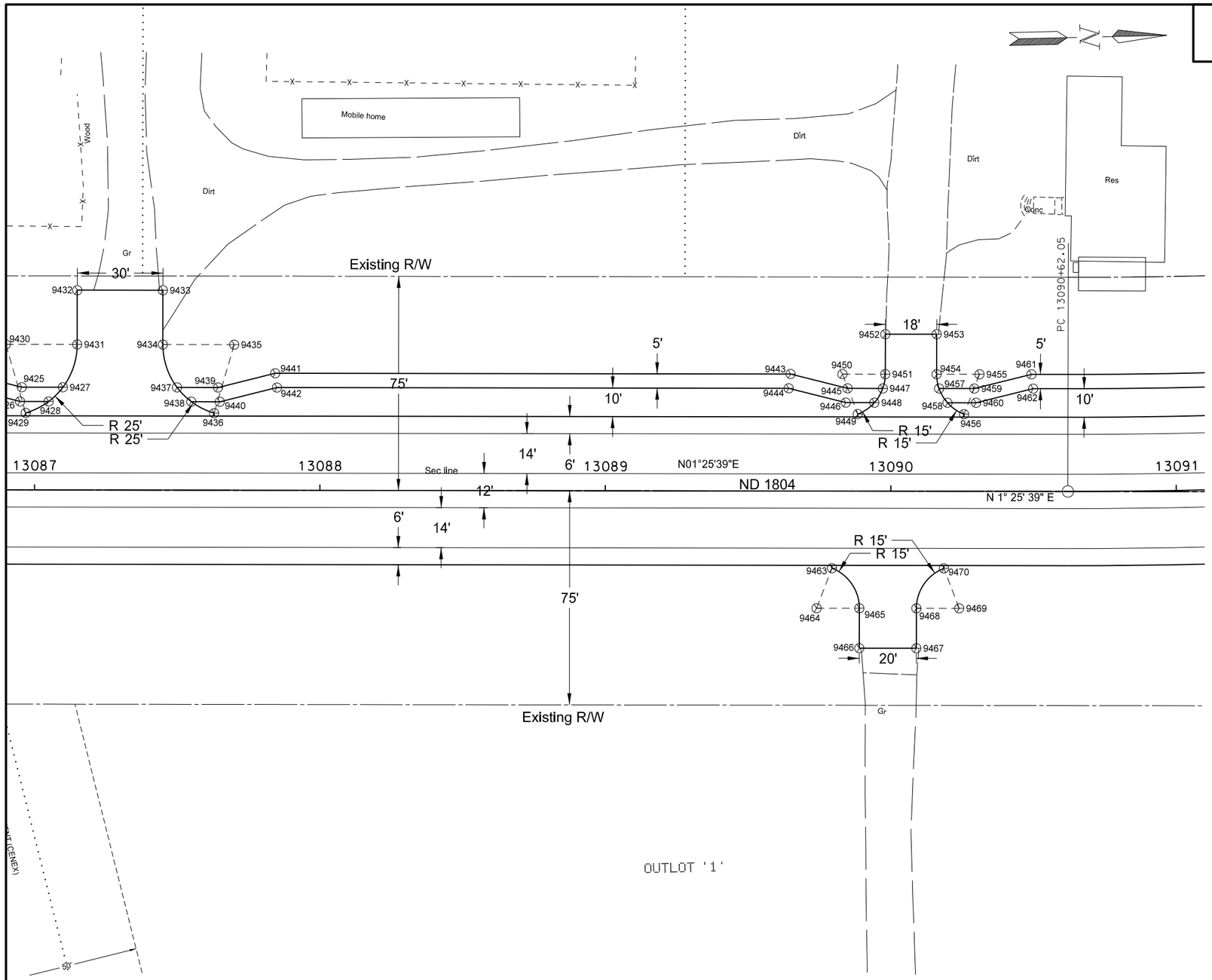
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	12



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9425	367450.9201	1480637.6788	13086+95.52	-36.0000
9426	367450.1802	1480642.6619	13086+94.90	-31.0000
9427	367465.3001	1480638.0372	13087+09.90	-36.0000
9428	367460.1771	1480642.9110	13087+04.90	-31.0000
9429	367452.0799	1480646.7105	13086+96.90	-27.0000
9430	367445.6800	1480622.5436	13086+89.90	-51.0000
9431	367470.6722	1480623.1664	13087+14.90	-51.0000
9432	367471.1456	1480604.1723	13087+14.90	-70.0000
9433	367501.1363	1480604.9197	13087+44.90	-70.0000
9434	367500.6629	1480623.9138	13087+44.90	-51.0000
9435	367525.6552	1480624.5366	13087+69.90	-51.0000
9436	367518.0594	1480648.3547	13087+62.90	-27.0000
9437	367505.2877	1480639.0337	13087+49.90	-36.0000
9438	367510.1616	1480644.1567	13087+54.90	-31.0000
9439	367519.6677	1480639.3920	13087+64.29	-36.0000
9440	367520.1585	1480644.4058	13087+64.90	-31.0000
9441	367539.7861	1480634.8918	13087+84.29	-41.0000
9442	367540.2768	1480639.9056	13087+84.90	-36.0000
9443	367720.2543	1480639.3892	13089+64.81	-41.0000
9444	367719.5144	1480644.3723	13089+64.19	-36.0000
9445	367740.1235	1480644.8859	13089+84.81	-36.0000
9446	367739.3836	1480649.8690	13089+84.19	-31.0000
9447	367752.4660	1480645.1934	13089+97.16	-36.0000
9448	367749.3805	1480650.1181	13089+94.19	-31.0000
9449	367743.4875	1480653.9725	13089+88.40	-27.0000
9450	367738.4528	1480639.8427	13089+83.01	-41.0000
9451	367753.4481	1480640.2164	13089+98.01	-41.0000
9452	367753.7969	1480626.2207	13089+98.01	-55.0000
9453	367771.7913	1480626.6691	13090+16.01	-55.0000
9454	367771.4426	1480640.6648	13090+16.01	-41.0000
9455	367786.4379	1480641.0385	13090+31.01	-41.0000
9456	367780.7056	1480654.9000	13090+25.63	-27.0000
9457	367772.1756	1480645.6846	13090+16.87	-36.0000
9458	367775.0119	1480650.7568	13090+19.83	-31.0000
9459	367784.5180	1480645.9922	13090+29.22	-36.0000
9460	367785.0088	1480651.0060	13090+29.83	-31.0000
9461	367804.6364	1480641.4920	13090+49.22	-41.0000
9462	367805.1272	1480646.5058	13090+49.83	-36.0000
9463	367733.1680	1480707.7321	13089+79.42	27.0000
9464	367727.4357	1480721.5936	13089+74.04	41.0000
9465	367742.4310	1480721.9673	13089+89.04	41.0000
9466	367742.0823	1480735.9629	13089+89.04	55.0000
9467	367762.0761	1480736.4612	13090+09.04	55.0000
9468	367762.4248	1480722.4655	13090+09.04	41.0000
9469	367777.4202	1480722.8392	13090+24.04	41.0000
9470	367772.3855	1480708.7094	13090+18.65	27.0000

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

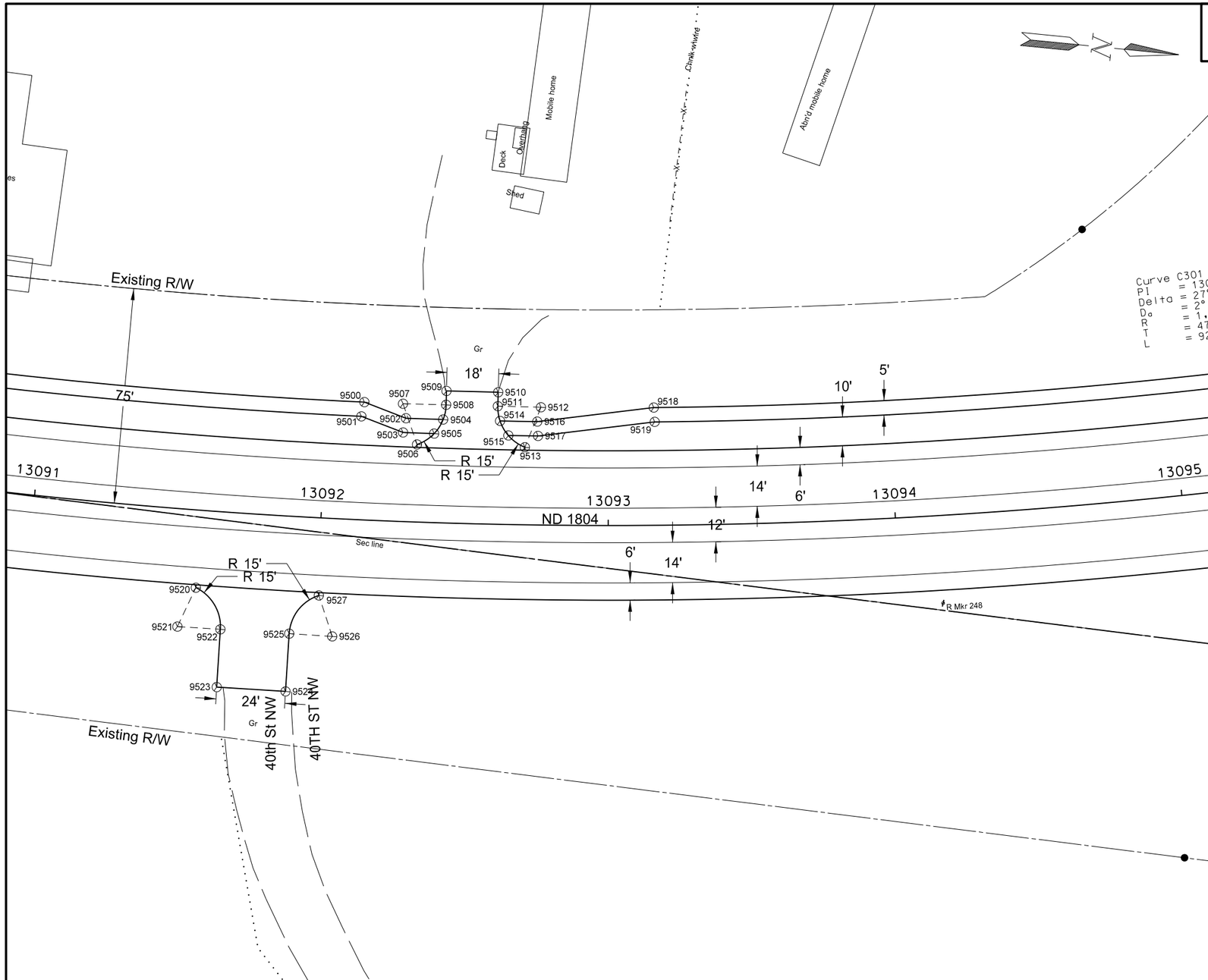
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	13



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9500	367965.3650	1480639.6424	13092+13.25	-41.0000
9501	367964.8193	1480644.6792	13092+12.42	-36.0000
9502	367980.3209	1480643.7798	13092+28.24	-36.0000
9503	367979.7946	1480648.8220	13092+27.39	-31.0000
9504	367993.2472	1480642.9313	13092+41.45	-36.0000
9505	367990.6102	1480648.1231	13092+38.41	-31.0000
9506	367985.0636	1480652.4977	13092+32.50	-27.0000
9507	367978.8092	1480638.8638	13092+27.01	-41.0000
9508	367993.7678	1480637.7504	13092+42.34	-41.1324
9509	367993.4081	1480632.9179	13092+42.32	-45.9783
9510	368011.3585	1480631.5819	13092+60.76	-45.9783
9511	368011.7181	1480636.4144	13092+60.74	-41.1324
9512	368026.6768	1480635.3011	13092+76.07	-41.0000
9513	368022.5096	1480649.7106	13092+70.58	-27.0000
9514	368013.0000	1480641.4611	13092+61.63	-36.0000
9515	368016.3765	1480646.2054	13092+64.67	-31.0000
9516	368025.9094	1480640.3867	13092+74.84	-36.0000
9517	368026.6747	1480645.3391	13092+75.18	-31.0000
9518	368065.7587	1480631.4730	13093+16.20	-41.0000
9519	368066.5770	1480636.4135	13093+16.48	-36.0000
9520	367913.4453	1480709.7612	13091+58.37	27.0000
9521	367908.3994	1480723.8870	13091+53.08	41.0000
9522	367923.3894	1480723.3384	13091+67.77	40.8501
9523	367924.1261	1480743.4657	13091+67.89	60.9905
9524	367948.1100	1480742.5879	13091+91.15	60.9905
9525	367947.3733	1480722.4605	13091+91.27	40.8501
9526	367962.3633	1480721.9119	13092+05.95	41.0000
9527	367956.2983	1480708.1927	13092+00.66	27.0000

720 0100 Monument

Sta 13094+73.83	95.59' Lt	SCL1804	Iron Pin Ref Monument	1 EA
Sta 13094+88.52	125.53' Rt	SCL1804	Iron Pin Ref Monument	1 EA

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

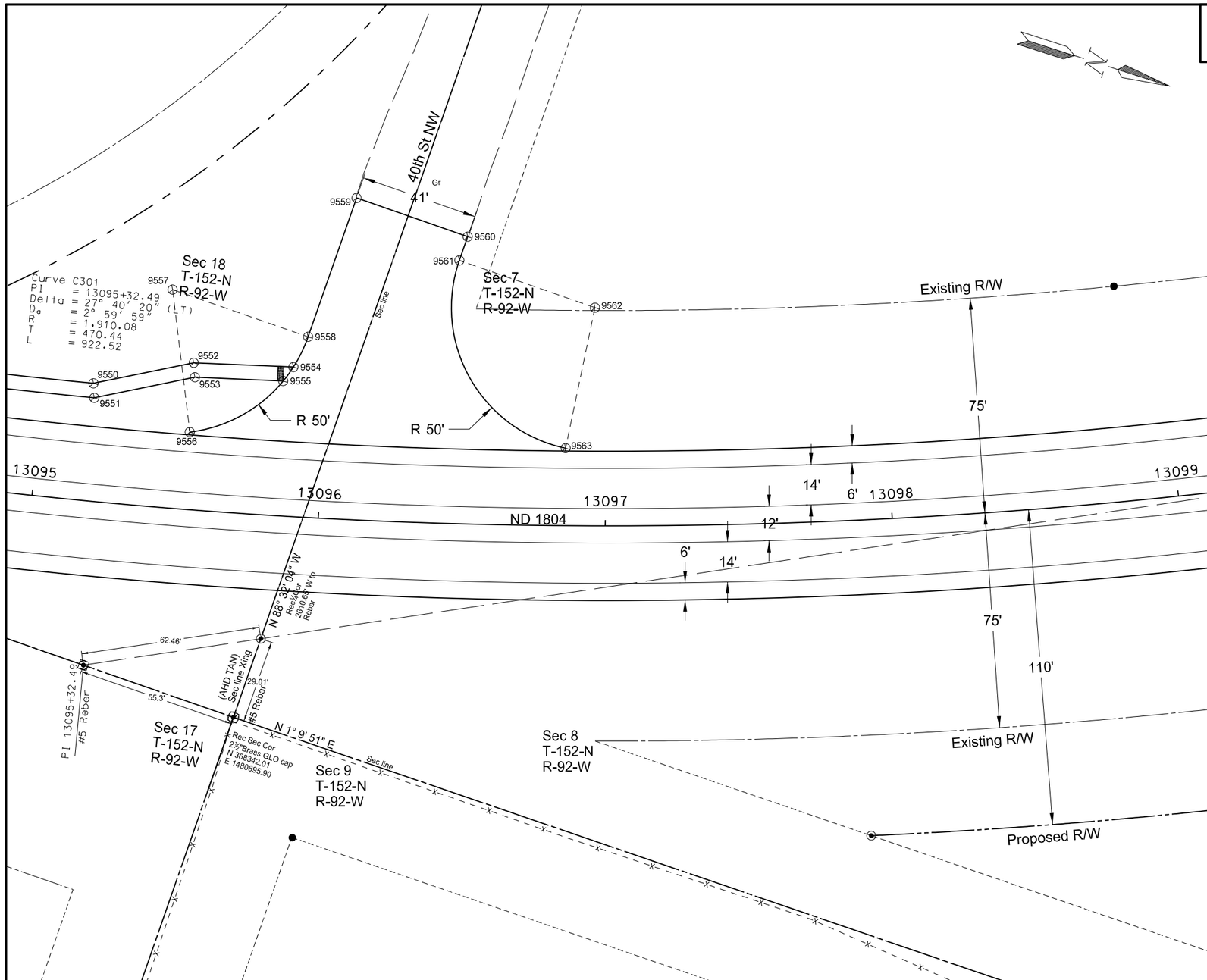
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	14



Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9550	368260.1462	1480599.9337	13095+17.54	-41.0000
9551	368261.9408	1480604.6606	13095+18.31	-36.0000
9552	368291.2125	1480582.4780	13095+52.54	-51.1631
9553	368293.1252	1480587.1386	13095+53.35	-46.1876
9554	368324.7271	1480573.3128	13095+88.24	-52.0567
9555	368322.8328	1480579.0144	13095+84.91	-47.0000
9556	368297.2511	1480605.8797	13095+53.05	-27.0000
9557	368276.4159	1480560.4276	13095+42.82	-76.0000
9558	368326.3995	1480561.7063	13095+92.89	-62.8807
9559	368327.7096	1480510.4968	13096+07.86	-112.0768
9560	368368.6962	1480511.5453	13096+49.36	-100.0664
9561	368368.4721	1480520.3053	13096+46.57	-91.7144
9562	368418.4557	1480521.5840	13096+96.22	-76.0000
9563	368423.6498	1480571.3134	13096+85.99	-27.0000

720 0100 Monument

Sta 13095+23.30	57.08' Rt	SCL1804	Precast Conc R/W Mon	1 EA
Sta 13095+75.08	71.03' Rt	SCL1804	Precast Conc R/W Mon	1 EA
Sta 13095+82.63	43.08' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13095+96.89	111.59' Rt	SCL1804	Iron Pin Ref Monument	1 EA
Sta 13097+87.68	110.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13098+84.62	75.00' Lt	SCL1804	Iron Pin Ref Monument	1 EA

720 0110 Right of Way Marker

Sta 13097+87.68	109.00' Rt	SCL1804	1 EA

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

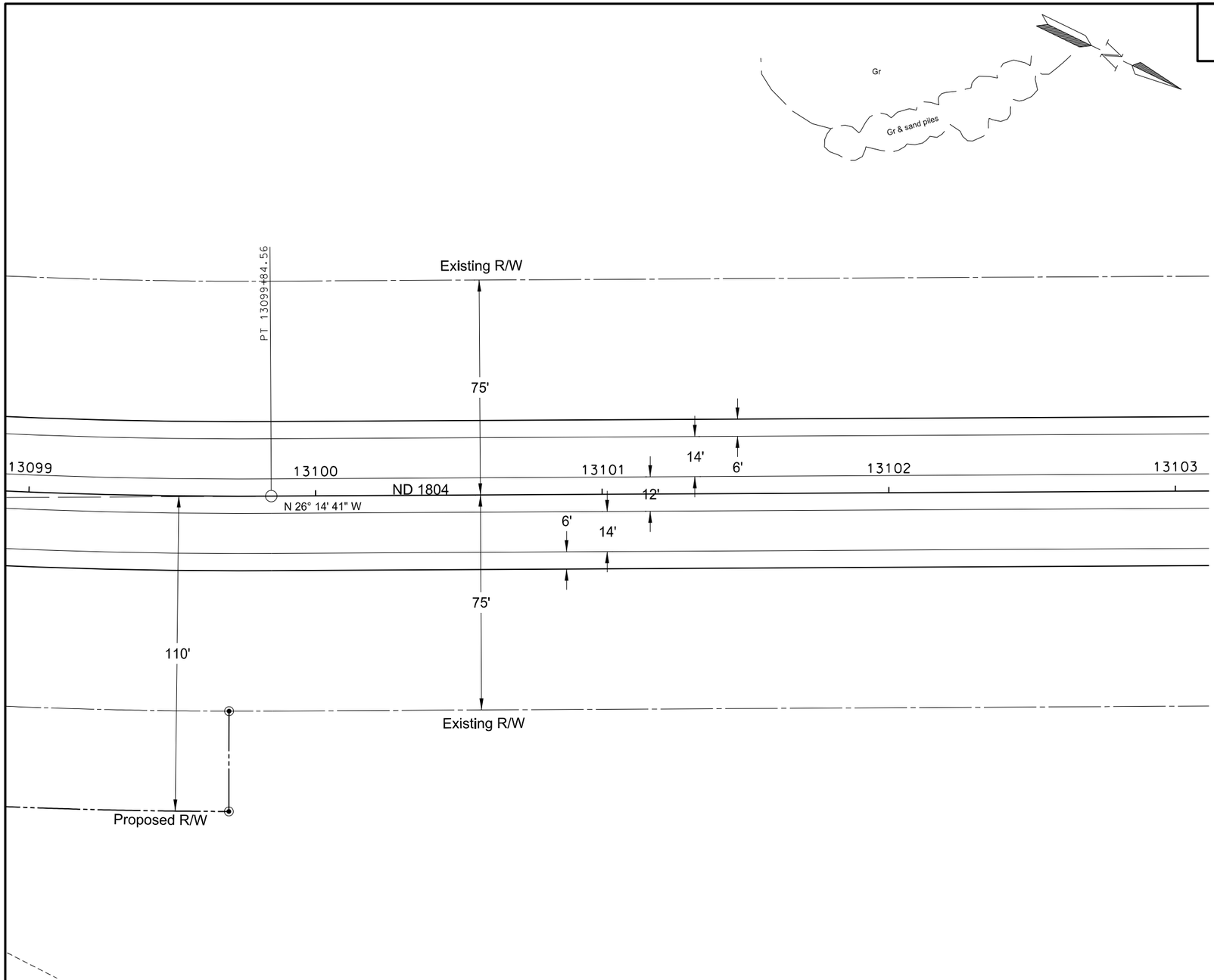
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	15



720 0100 Monument

Sta 13099+70.00	75.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA
Sta 13099+70.00	110.00' Rt	SCL1804	Iron Pin R/W Monument	1 EA

720 0110 Right of Way Marker

Sta 13099+70.00	74.00' Rt	SCL1804	1 EA
Sta 13099+70.00	109.00' Rt	SCL1804	1 EA

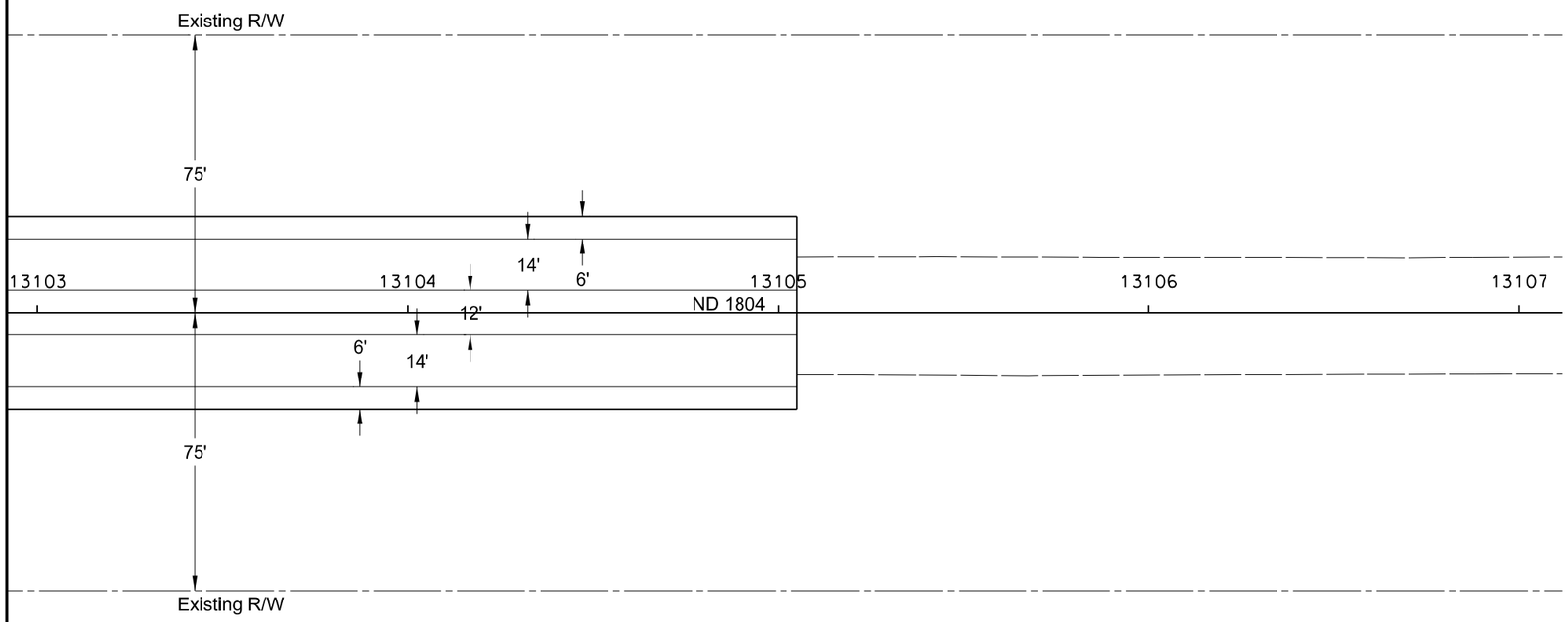
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	16



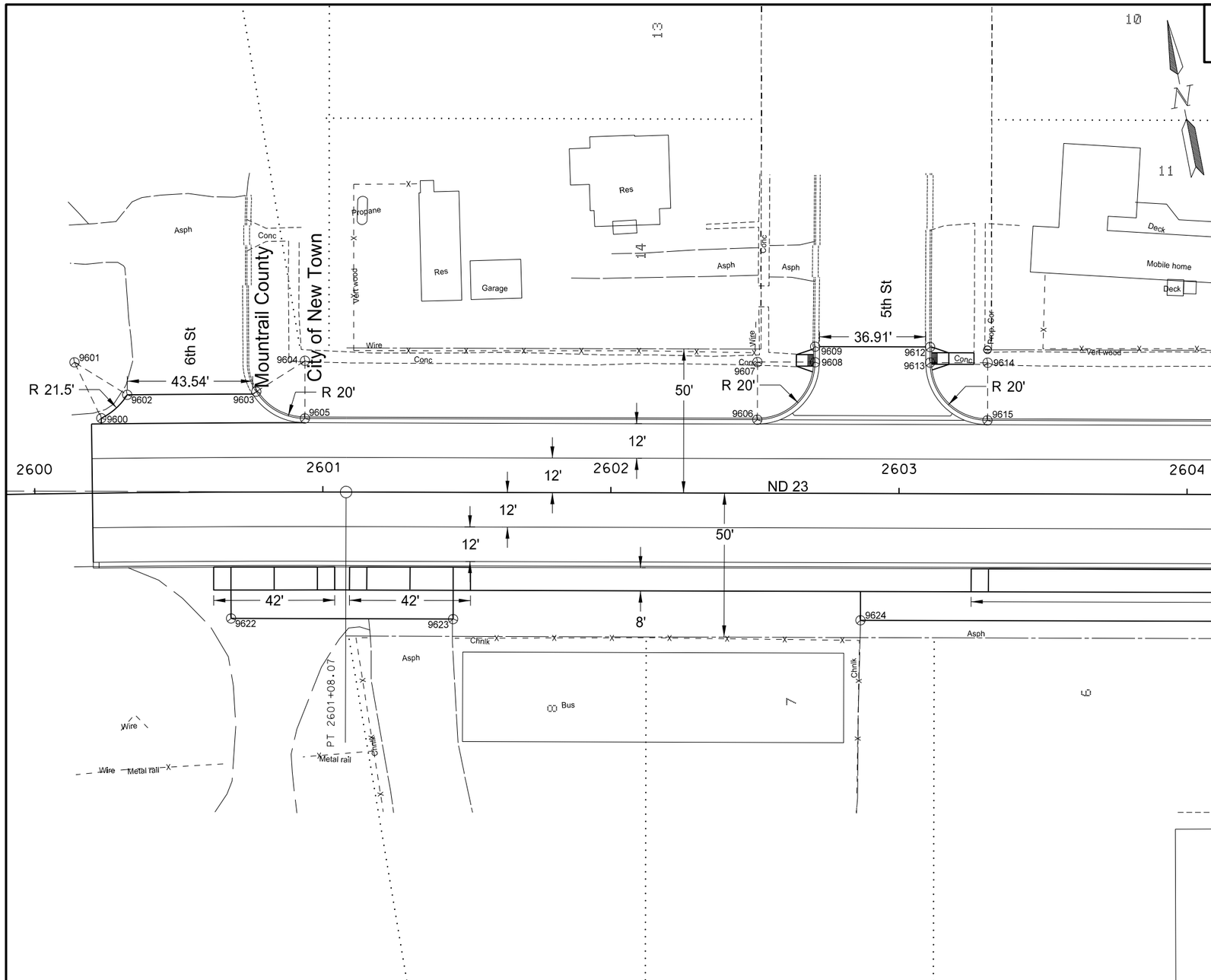
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Survey Data Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	17



Stations and Offsets are from Centerline Chain: SCL23

Point	North	East	Station	Offset
9600	363883.4905	1479687.4440	2600+23.39	-26.0000
9601	363904.2943	1479682.0167	2600+14.39	-45.5000
9602	363889.7224	1479697.8253	2600+32.43	-34.0000
9603	363882.2295	1479742.0190	2600+76.98	-34.8005
9604	363889.5236	1479760.6414	2600+93.76	-45.5000
9605	363869.8935	1479756.8127	2600+93.76	-25.5000
9606	363839.4641	1479910.8717	2602+50.73	-25.5000
9607	363859.0846	1479914.7494	2602+50.73	-45.5000
9608	363855.2069	1479934.3699	2602+70.73	-45.5000
9609	363860.5062	1479935.4172	2602+70.73	-50.9018
9612	363852.7672	1479974.5747	2603+10.65	-50.9018
9613	363847.4680	1479973.5274	2603+10.65	-45.5000
9614	363843.5902	1479993.1479	2603+30.65	-45.5000
9615	363823.9698	1479989.2702	2603+30.65	-25.5000
9622	363806.6613	1479718.3896	2600+67.96	43.8607
9623	363791.7166	1479794.0065	2601+45.34	44.0000
9624	363764.3015	1479932.7215	2602+86.74	44.0000

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

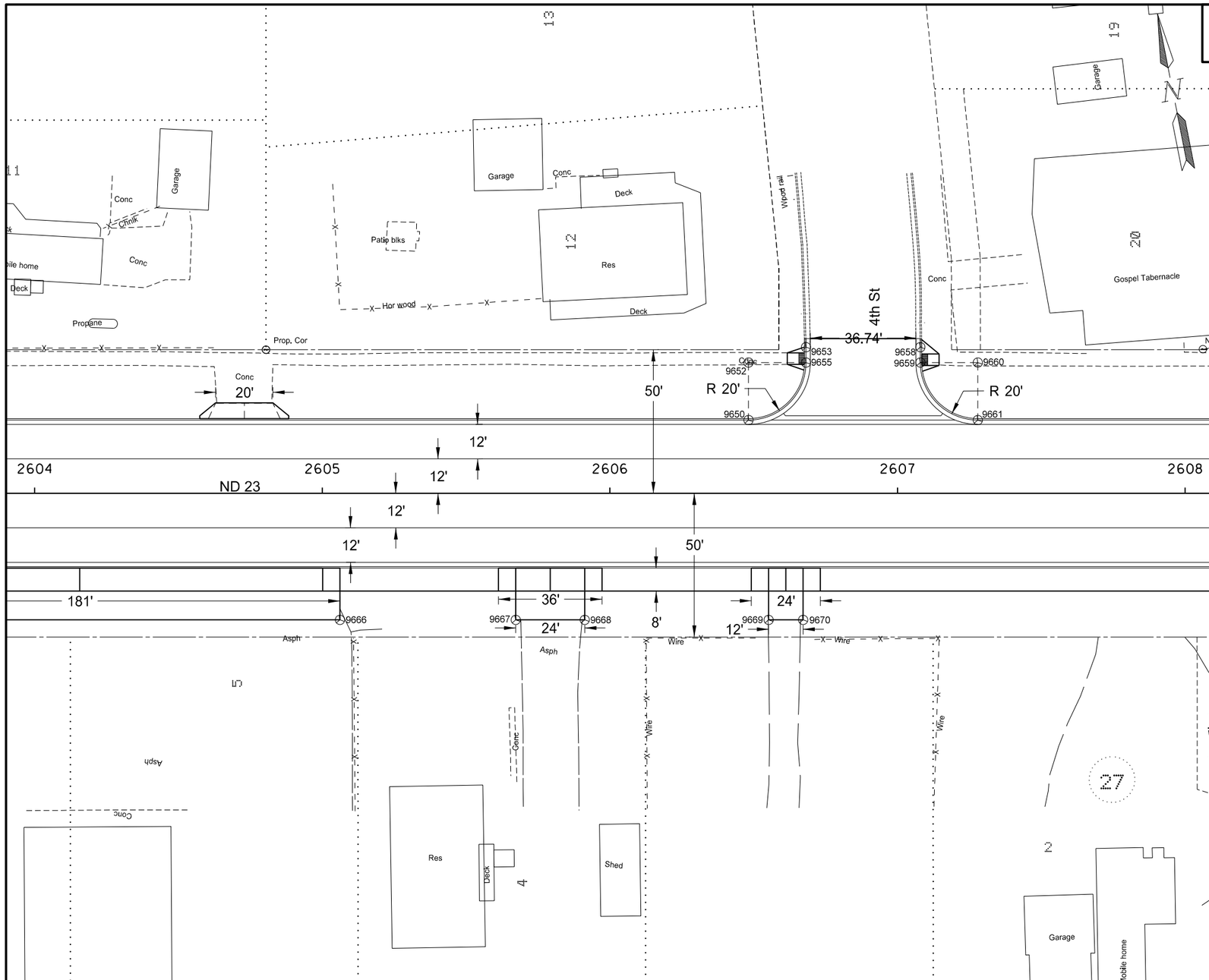
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	18



Stations and Offsets are from Centerline Chain: SCL23

Point	North	East	Station	Offset
9650	363762.4026	1480300.7872	2606+48.19	-25.5000
9651	363782.0231	1480304.6649	2606+48.19	-45.5000
9652	363782.0231	1480304.6649	2606+48.19	-45.5000
9653	363783.3890	1480325.3217	2606+68.19	-50.8450
9655	363778.1454	1480324.2854	2606+68.19	-45.5000
9659	363770.4396	1480363.2749	2607+07.94	-45.5000
9660	363766.5619	1480382.8954	2607+27.94	-45.5000
9661	363746.9414	1480379.0177	2607+27.94	-25.5000
9666	363721.7627	1480147.9591	2605+06.14	44.0000
9667	363709.9138	1480207.9120	2605+67.26	44.0000
9668	363705.2605	1480231.4566	2605+91.26	44.0000
9669	363692.8643	1480294.1791	2606+55.19	44.0000
9670	363690.5377	1480305.9514	2606+67.19	44.0000

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NOTE:

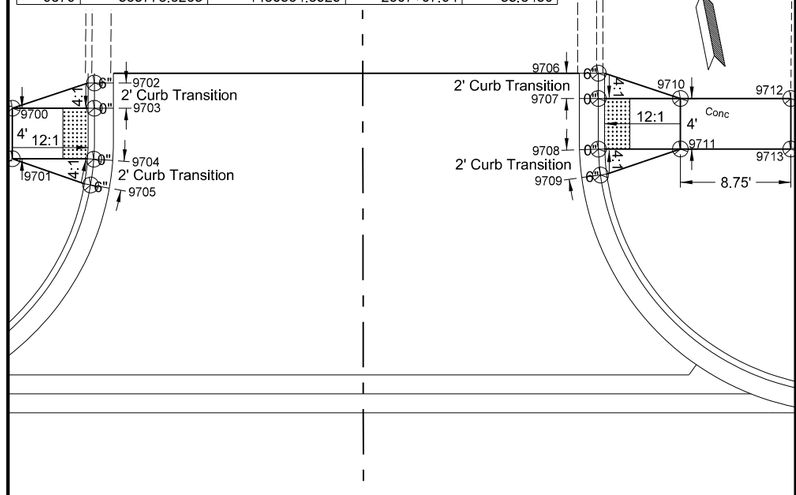
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB

Survey Data Layouts

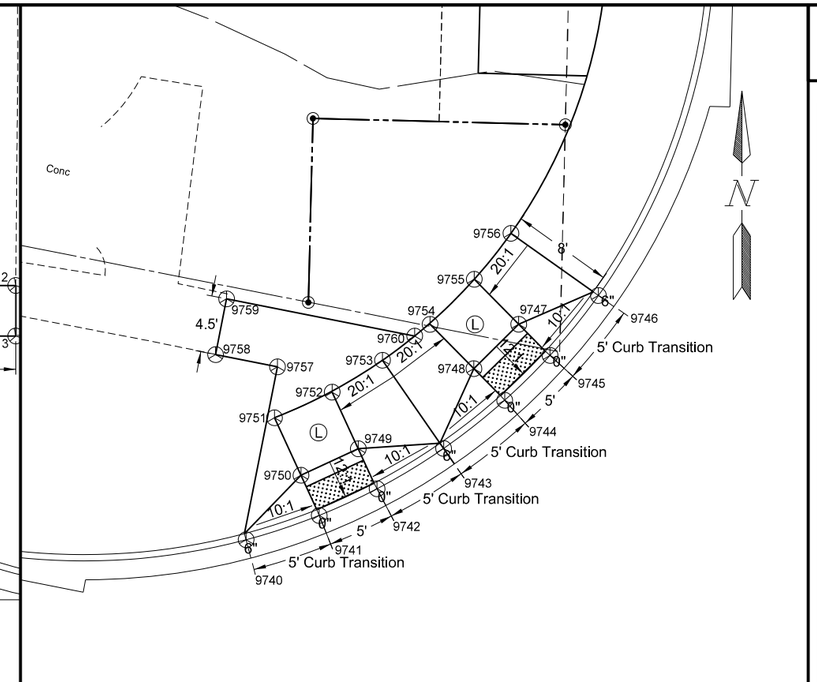
ND 23

Jct of ND 23 extending North 1 Mile

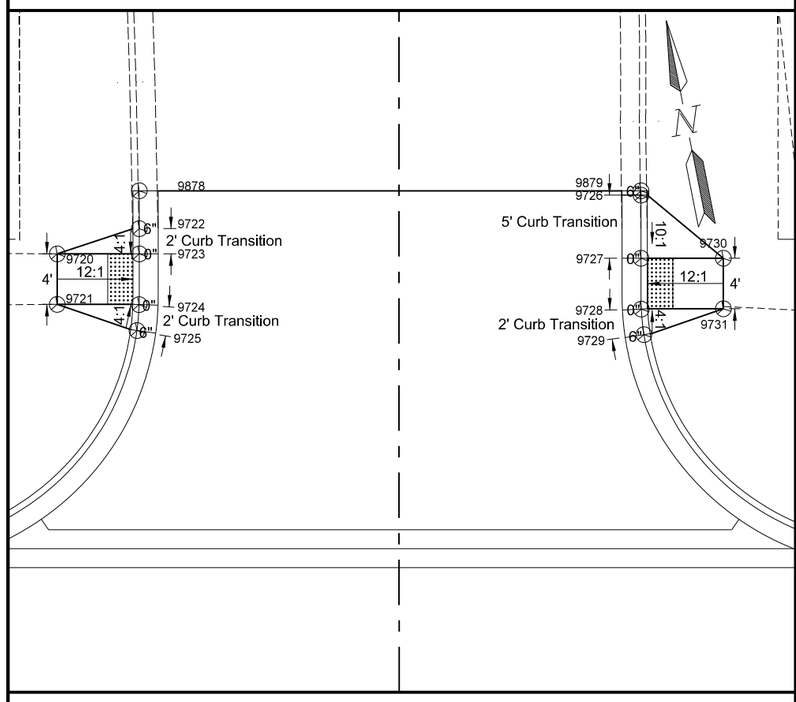
Point	North	East	Station	Offset
9787	363659.4850	1480509.1537	2608+72.56	35.0653
9788	363657.4191	1480513.7490	2608+77.47	36.2011
9789	363655.0038	1480518.1270	2608+82.23	37.7216
9790	363652.2184	1480522.3254	2608+86.89	39.6402
9791	363636.2349	1480537.6158	2609+04.99	52.3558
9792	363631.9172	1480540.2124	2609+08.37	56.0881
9793	363627.4366	1480542.4314	2609+11.42	60.0535
9794	363622.7542	1480544.2917	2609+14.15	64.2863
9878	363786.3320	1480325.9034	2606+68.19	-53.8450
9879	363778.6263	1480364.8929	2607+07.94	-53.8450



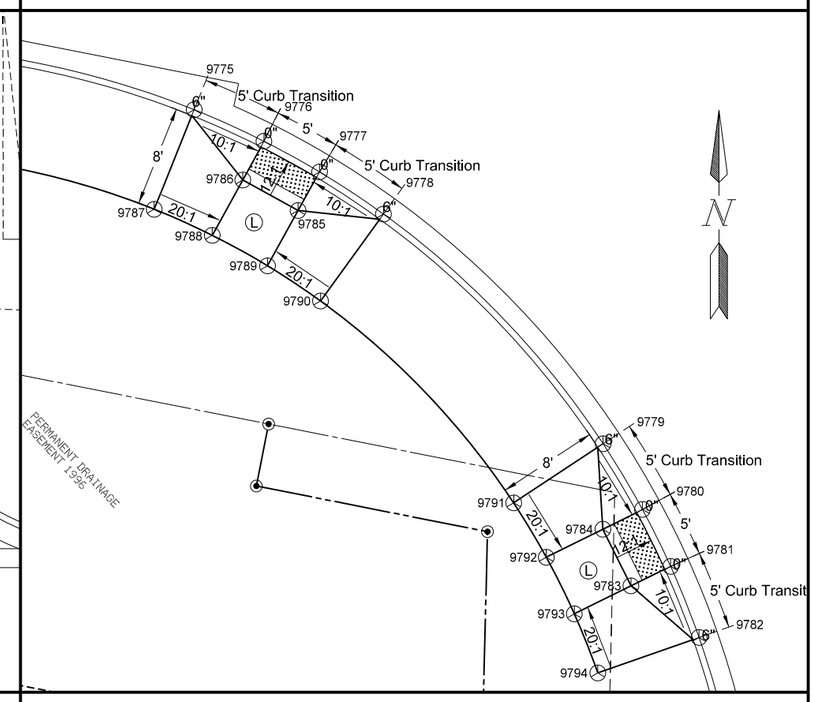
Intersection - 5th Street & ND 23
North Leg



Intersection - ND 1804 & ND 23
Northwest Corner



Intersection - 4th Place & ND 23
North Leg



Intersection - ND 1804 & ND 23
Southwest Corner

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	19

NOTE:
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB
Ⓛ= LANDING - LANDINGS SHALL BE A MINIMUM 4'X4' AND SHALL HAVE A MAX 2% SLOPE IN ANY DIRECTION

Stations and Offsets are from Centerline Chain: SCL23

Point	North	East	Station	Offset
9700	363859.0464	1479928.5030	2602+64.23	-48.1292
9701	363855.1223	1479927.7275	2602+64.23	-44.1292
9702	363859.7482	1479935.2674	2602+70.73	-50.1292
9703	363857.7862	1479934.8797	2602+70.73	-48.1292
9704	363853.8372	1479934.0488	2602+70.69	-44.0940
9705	363851.8807	1479933.4069	2602+70.44	-42.0502
9706	363852.7672	1479974.5747	2603+10.65	-50.9018
9707	363850.8052	1479974.1870	2603+10.65	-48.9018
9708	363846.8645	1479973.4177	2603+10.66	-44.8867
9709	363844.8191	1479973.1857	2603+10.83	-42.8352
9710	363849.5449	1479980.5636	2603+17.15	-48.9018
9711	363845.6208	1479979.7881	2603+17.15	-44.9018
9712	363847.8484	1479989.1478	2603+25.90	-48.9018
9713	363843.9243	1479988.3722	2603+25.90	-44.9018
9720	363782.6872	1480318.5573	2606+61.69	-48.8450
9721	363778.7631	1480317.7817	2606+61.69	-44.8450
9722	363783.3890	1480325.3217	2606+68.19	-50.8450
9723	363781.4269	1480324.9339	2606+68.19	-48.8450
9724	363777.4885	1480324.1441	2606+68.18	-44.8282
9725	363775.5101	1480323.5747	2606+68.01	-42.7769
9726	363778.2878	1480364.8260	2607+07.94	-53.5000
9727	363773.3827	1480363.8566	2607+07.94	-48.5000
9728	363769.4284	1480363.1019	2607+07.96	-44.4744
9729	363767.4051	1480362.9132	2607+08.17	-42.4529
9730	363772.1175	1480370.2584	2607+14.46	-48.5000
9731	363768.1934	1480369.4828	2607+14.46	-44.5000
9740	363723.6024	1480523.3254	2608+74.03	-30.5831
9741	363725.5249	1480529.1130	2608+79.34	-33.5913
9742	363727.6408	1480533.6989	2608+83.42	-36.5561
9743	363730.8327	1480538.9704	2608+87.98	-40.7096
9744	363734.6489	1480543.8091	2608+91.98	-45.3915
9745	363738.2008	1480547.3996	2608+94.82	-49.5721
9746	363742.9456	1480551.2308	2608+97.66	-54.9698
9747	363740.6708	1480544.9207	2608+91.91	-51.5146
9748	363737.1545	1480541.3661	2608+89.10	-47.3758
9749	363730.8077	1480532.2099	2608+81.35	-39.3742
9750	363728.7130	1480527.6699	2608+77.30	-36.4390
9751	363733.2641	1480525.5701	2608+74.36	-40.4967
9752	363735.2904	1480530.1417	2608+78.45	-43.3709
9753	363737.8185	1480534.1280	2608+81.87	-46.6239
9754	363740.6642	1480537.8942	2608+85.01	-50.1458
9755	363744.2341	1480541.3958	2608+87.76	-54.3269
9756	363747.8722	1480544.3042	2608+89.91	-58.4599
9757	363737.2978	1480525.8082	2608+73.81	-44.5000
9758	363738.2672	1480520.9031	2608+68.81	-44.5000
9759	363742.6811	1480521.7755	2608+68.81	-48.9993
9760	363739.7357	1480536.6785	2608+84.00	-48.9993
9775	363667.3738	1480512.3185	2608+74.13	26.7126
9776	363664.8751	1480517.8418	2608+80.04	28.0929
9777	363662.4425	1480522.2513	2608+84.83	29.6245
9778	363659.1029	1480527.3107	2608+90.45	31.9197
9779	363640.9103	1480544.7144	2609+11.05	46.3928
9780	363635.7080	1480547.8266	2609+15.11	50.8930
9781	363631.1950	1480550.0614	2609+18.18	54.8870
9782	363625.5665	1480552.3130	2609+21.48	59.9722
9783	363629.6581	1480546.9173	2609+15.39	57.0044
9784	363634.1387	1480544.6984	2609+12.34	53.0390
9785	363659.3869	1480520.5450	2608+83.75	32.9529
9786	363661.8022	1480516.1671	2608+78.99	31.4323

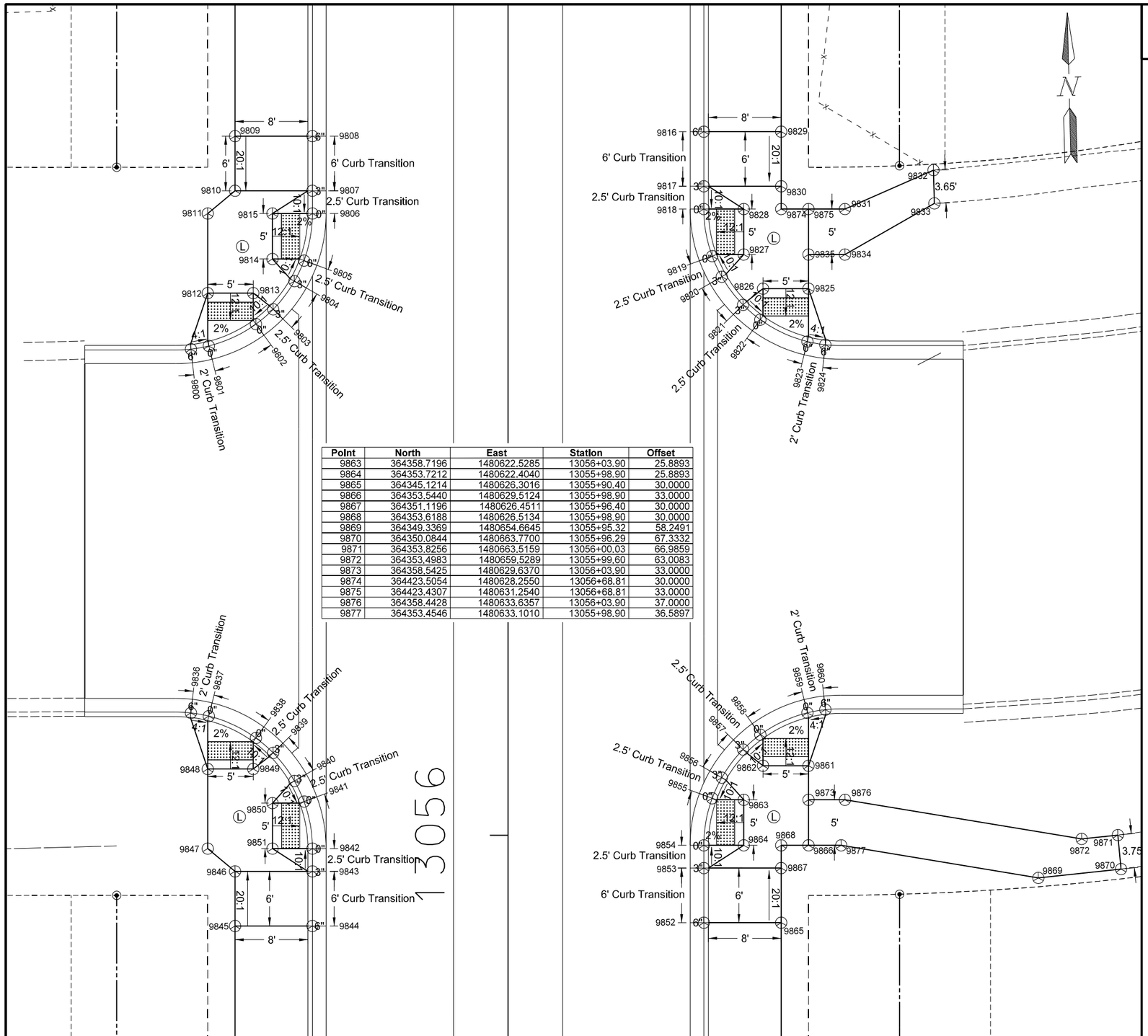
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Survey Data Layouts - Curb Ramps

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	82	20



Point	North	East	Station	Offset
9863	364358.7196	1480622.5285	13056+03.90	25.8893
9864	364353.7212	1480622.4040	13055+98.90	25.8893
9865	364345.1214	1480626.3016	13055+90.40	30.0000
9866	364353.5440	1480629.5124	13055+98.90	33.0000
9867	364351.1196	1480626.4511	13055+96.40	30.0000
9868	364353.6188	1480626.5134	13055+98.90	30.0000
9869	364349.3369	1480654.6645	13055+95.32	58.2491
9870	364350.0844	1480663.7700	13055+96.29	67.3332
9871	364353.8256	1480663.5159	13056+00.03	66.9859
9872	364353.4983	1480659.5289	13055+99.60	63.0083
9873	364358.5425	1480629.6370	13056+03.90	33.0000
9874	364423.5054	1480628.2550	13056+68.81	30.0000
9875	364423.4307	1480631.2540	13056+68.81	33.0000
9876	364358.4428	1480633.6357	13056+03.90	37.0000
9877	364353.4546	1480633.1010	13055+98.90	36.5897

Intersection - 5th Street & ND 1804

Stations and Offsets are from Centerline Chain: SCL1804

Point	North	East	Station	Offset
9800	364409.7305	1480563.0450	13056+53.41	-34.8466
9801	364410.0336	1480565.0204	13056+53.76	-32.8793
9802	364412.3080	1480570.2511	13056+56.17	-27.7069
9803	364413.8874	1480572.1852	13056+57.80	-25.8127
9804	364416.9169	1480574.6010	13056+60.88	-23.4732
9805	364419.1541	1480575.7102	13056+63.15	-22.4200
9806	364424.3020	1480576.7588	13056+68.32	-21.5000
9807	364426.8012	1480576.8211	13056+70.82	-21.5000
9808	364432.7994	1480576.9706	13056+76.82	-21.5000
9809	364433.0111	1480568.4732	13056+76.82	-30.0000
9810	364427.0130	1480568.3237	13056+70.82	-30.0000
9811	364424.5885	1480565.2624	13056+68.32	-33.0000
9812	364415.8439	1480565.0445	13056+59.57	-33.0000
9813	364415.7193	1480570.0429	13056+59.57	-28.0000
9814	364419.4129	1480572.2463	13056+63.32	-25.8893
9815	364424.4114	1480572.3708	13056+68.32	-25.8893
9816	364432.2146	1480619.9694	13056+77.31	21.5000
9817	364426.2164	1480619.8199	13056+71.31	21.5000
9818	364423.7172	1480619.7576	13056+68.81	21.5000
9819	364418.5235	1480620.5485	13056+63.63	22.4200
9820	364416.2338	1480621.5449	13056+61.37	23.4732
9821	364413.0877	1480623.8067	13056+58.28	25.8127
9822	364411.4139	1480625.6598	13056+56.65	27.7069
9823	364408.8818	1480630.7707	13056+54.25	32.8793
9824	364408.4807	1480632.7286	13056+53.90	34.8466
9825	364414.6861	1480631.0361	13056+60.06	33.0000
9826	364414.8106	1480626.0377	13056+60.06	28.0000
9827	364418.6094	1480624.0210	13056+63.81	25.8893
9828	364423.6078	1480624.1456	13056+68.81	25.8893
9829	364432.0028	1480628.4667	13056+77.31	30.0000
9830	364426.0047	1480628.3172	13056+71.31	30.0000
9831	364423.3311	1480635.2528	13056+68.81	37.0000
9832	364427.3658	1480645.0872	13056+73.09	46.7309
9833	364423.7114	1480645.0943	13056+69.43	46.8290
9834	364418.3326	1480635.1282	13056+63.81	37.0000
9835	364418.4323	1480631.1295	13056+63.81	33.0000
9836	364369.7788	1480562.0494	13056+13.45	-34.8466
9837	364369.3778	1480564.0072	13056+13.10	-32.8793
9838	364366.8456	1480569.1182	13056+10.69	-27.7069
9839	364365.1718	1480570.9712	13056+09.06	-25.8127
9840	364362.0258	1480573.2331	13056+05.98	-23.4732
9841	364359.7361	1480574.2295	13056+03.71	-22.4200
9842	364354.5424	1480575.0204	13055+98.54	-21.5000
9843	364352.0431	1480574.9581	13055+96.04	-21.5000
9844	364346.0450	1480574.8086	13055+90.04	-21.5000
9845	364346.2568	1480566.3113	13055+90.04	-30.0000
9846	364352.2549	1480566.4607	13055+96.04	-30.0000
9847	364354.8289	1480563.5240	13055+98.54	-33.0000
9848	364363.5735	1480563.7419	13056+07.29	-33.0000
9849	364363.4489	1480568.7403	13056+07.29	-28.0000
9850	364359.6502	1480570.7570	13056+03.54	-25.8893
9851	364354.6517	1480570.6324	13055+98.54	-25.8893
9852	364345.3332	1480617.8042	13055+90.40	21.5000
9853	364351.3313	1480617.9537	13055+96.40	21.5000
9854	364353.8305	1480618.0160	13055+98.90	21.5000
9855	364358.9784	1480619.0646	13056+04.07	22.4200
9856	364361.2156	1480620.1738	13056+06.34	23.4732
9857	364364.2451	1480622.5896	13056+09.42	25.8127
9858	364365.8246	1480624.5237	13056+11.05	27.7069
9859	364368.0990	1480629.7544	13056+13.46	32.8793
9860	364368.4020	1480631.7298	13056+13.81	34.8466
9861	364362.2887	1480629.7303	13056+07.65	33.0000
9862	364362.4132	1480624.7319	13056+07.65	28.0000

NOTE:
RADIUS POINTS GIVEN AT CURB & GUTTER - TYPE 1 ARE MEASURED FROM THE FACE OF CURB
Ⓛ= LANDING - LANDINGS SHALL BE A MINIMUM 4'X4' AND SHALL HAVE A MAX 2% SLOPE IN ANY DIRECTION

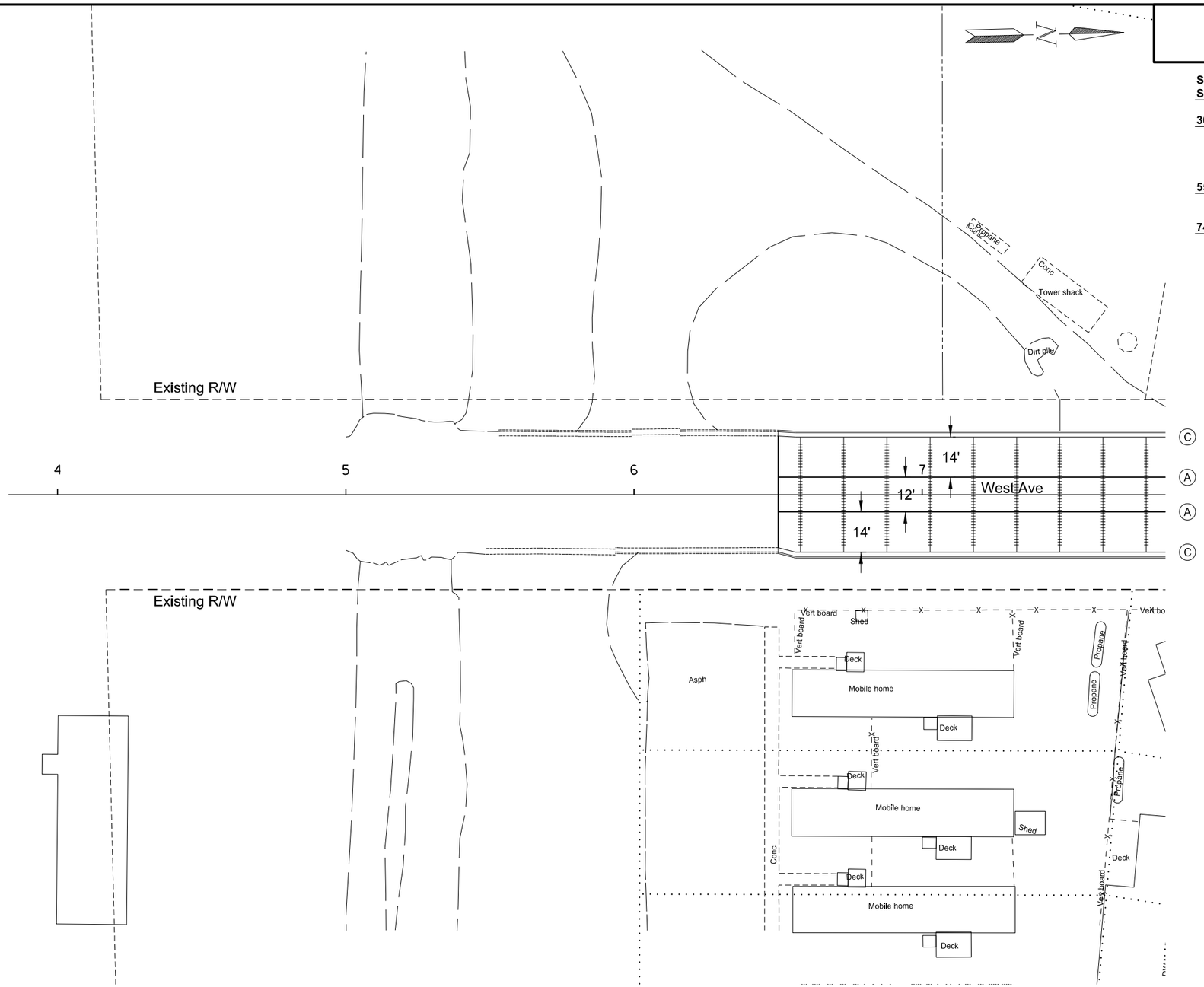
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Survey Data Layouts - Curb Ramps

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	1



STATION West Ave 6+50 to 7+75

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 6+50.00 to 7+75.00 (mainline 8")	230	TON
	Sta 6+50.00 to 7+75.00 Lt (gutter 12.5")	27	TON
	Sta 6+50.00 to 7+75.00 Rt (gutter 12.5")	27	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 6+50.00 to 7+75.00	552	SY
748-0140	**CURB & GUTTER-TYPE I**		
	Sta 6+50.00 to 7+75.00 Lt	124	LF
	Sta 6+50.00 to 7+75.00 Rt	125	LF

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

Note: Transverse joints spaced at 15', unless shown otherwise

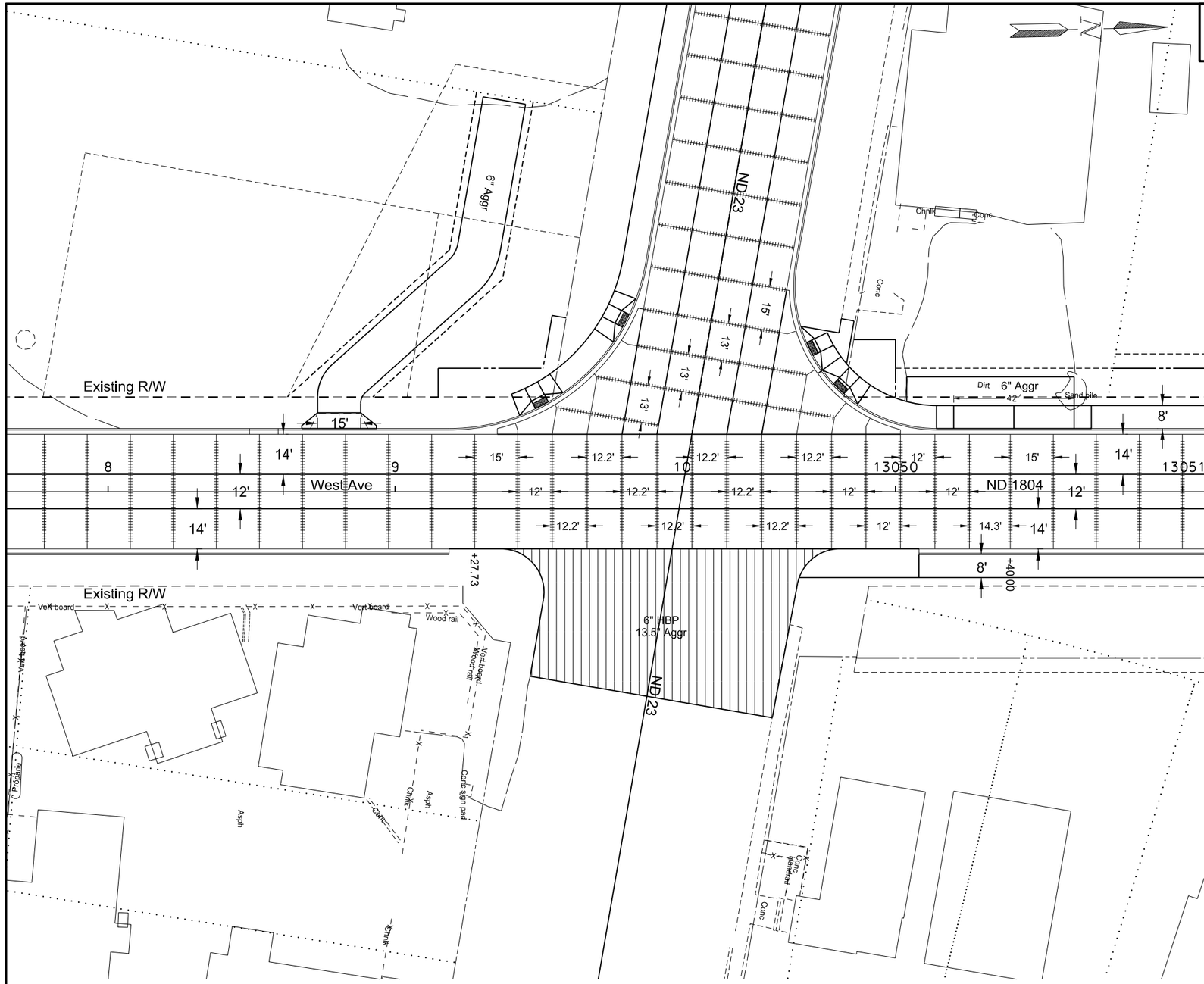
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	2



STATION West Ave 7+75 to 1804 13051+00 & ND 23 2608+00 to 2610+10

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 7+75.00 to 2608+00.00 to 13051+00 (mainline 8")	1,074	TON
	Sta 2609+57.88 to 2610+10.00 (mainline HBP 13.5")	360	TON
	Sta 7+75.00 Lt to 2608+00.00 Rt (gutter 12.5")	66	TON
	Sta 8+73.00 to 8+88.00 Lt (driveway 4")	3	TON
	Sta 8+73.00 to 9+45.46 Lt (driveway tie 6")	68	TON
	Sta 9+40.61 Lt to 2608+00.00 Rt (sidewalk 4")	24	TON
	Sta 2608+00.00 Lt to 13051+00.00 Lt (gutter 12.5")	49	TON
	Sta 2608+73.81 Lt to 13050+14.27 Lt (sidewalk 4")	12	TON
	Sta 13050+14.27 to 13050+68.27 Lt (driveway 4")	10	TON
	Sta 13050+14.27 to 13050+62.27 Lt (driveway tie 6")	20	TON
	Sta 13050+68.27 to 13051+00.00 Lt (sidewalk 4")	6	TON
	Sta 13049+94.09 to 13051+00.00 Lt (WZTC 8")	21	TON
	Sta 7+75.00 Rt to 9+18.83 Rt (gutter 12.5")	31	TON
	Sta 2609+60.26 Lt to 13051+00.00 Rt (sidewalk 4")	26	TON
	Sta 13050+08.20 to 13051+00.00 Rt (gutter 12.5")	2	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 2609+57.88 to 2610+10.00	51	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 2609+57.88 to 2610+10.00	171	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 7+75.00 to 2608+00.00 to 13051+00.00	2,577	SY
748-0140	**CURB & GUTTER-TYPE I**		
	Sta 7+75.00 Lt to 2608+00.00 Rt	304	LF
	Sta 2608+00.00 Lt to 13051+00.00 Lt	225	LF
	Sta 7+75.00 Rt .to 9+18.83 Rt	144	LF
	Sta 13050+08.20 to 13051+00.00 Rt	92	LF
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 9+40.61 Lt to 2608+00.00 Rt	115	SY
	Sta 2608+73.81 Lt to 13050+14.27 Lt	58	SY
	Sta 13050+68.27 to 13051+00.00 Lt	28	SY
	Sta 2609+60.26 Lt to 13051+00.00 Rt	124	SY
750-1000	**DRIVEWAY CONCRETE**		
	Sta 8+73.00 to 8+88.00 Lt	13	SY
	Sta 13050+14.27 to 13050+68.27 Lt	48	SY
750-2115	**DETECTABLE WARNING PANELS**		
	Sta 9+51.19 Lt	10	SF
	Sta 2608+82.28 Rt	10	SF
	Sta 2608+80.95 Lt	10	SF
	Sta 13049+80.23 Lt	10	SF

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

Concrete Median Nose Paving

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

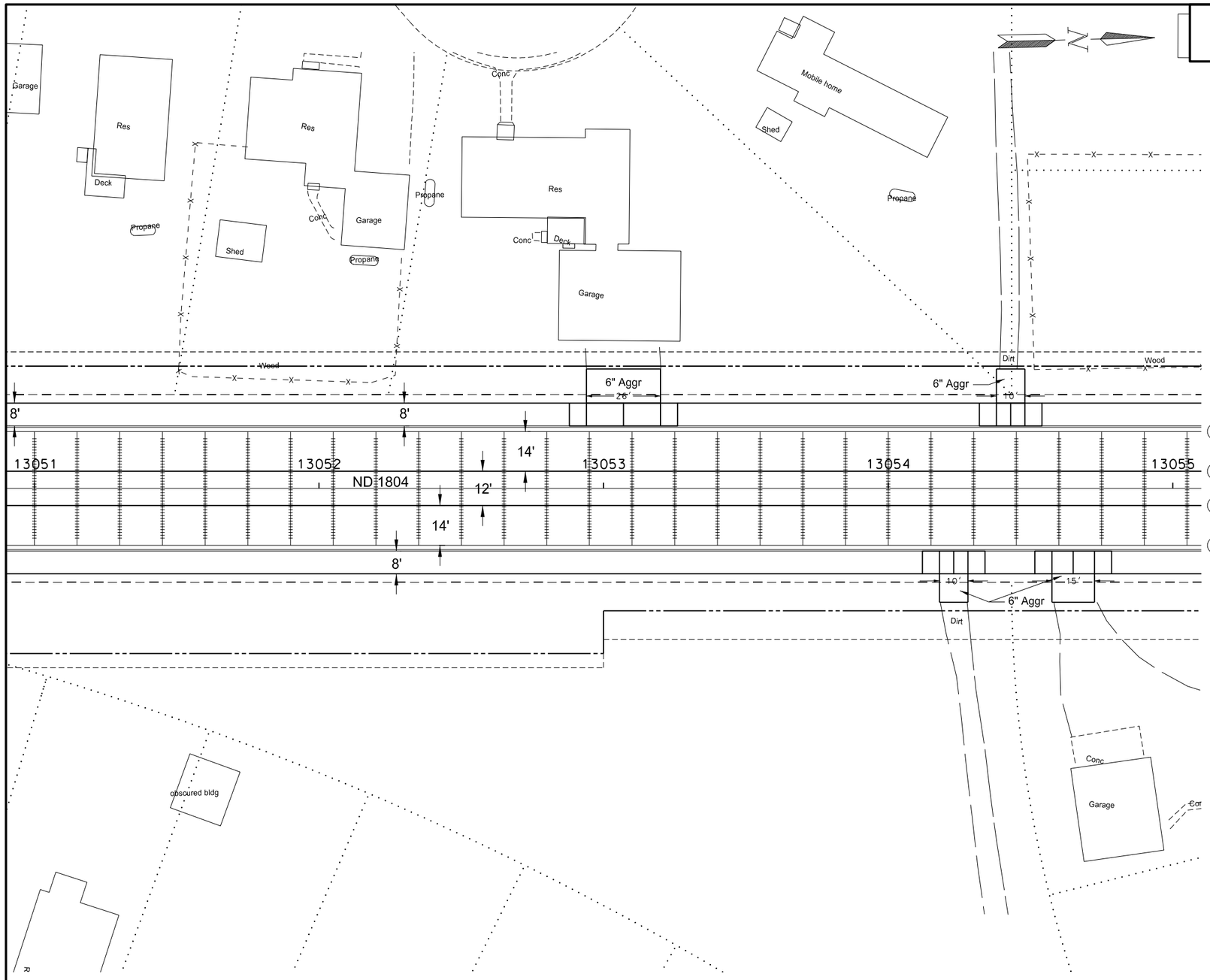
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	3



STATION 1804 13051+00 to 13055+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13051+00.00 to 13055+00.00 (mainline 8")	741	TON
	Sta 13051+00.00 to 13055+00.00 Lt (gutter 12.5")	87	TON
	Sta 13051+00.00 to 13055+00.00 (WZTC 8")	83	TON
	Sta 13051+00.00 to 13052+88.00 Lt (sidewalk 4")	35	TON
	Sta 13052+88.00 to 13053+26.00 Lt (driveway 4")	7	TON
	Sta 13052+94.00 to 13053+20.00 Lt (driveway tie 6")	11	TON
	Sta 13053+26.00 to 13054+32.00 Lt (sidewalk 4")	20	TON
	Sta 13054+32.00 to 13054+54.00 Lt (driveway 4")	4	TON
	Sta 13054+38.00 to 13054+48.00 Lt (driveway tie 6")	4	TON
	Sta 13054+54.00 to 13055+00.00 Lt (sidewalk 4")	9	TON
	Sta 13051+00.00 to 13055+00.00 Rt (gutter 12.5")	87	TON
	Sta 13051+00.00 to 13054+12.00 Rt (sidewalk 4")	58	TON
	Sta 13054+12.00 to 13054+34.00 Rt (driveway 4")	4	TON
	Sta 13054+18.00 to 13054+28.00 Rt (driveway tie 6")	3	TON
	Sta 13054+34.00 to 13054+51.50 Rt (sidewalk 4")	3	TON
	Sta 13054+51.50 to 13054+78.50 Rt (driveway 4")	5	TON
	Sta 13054+57.50 to 13054+72.50 Rt (driveway tie 6")	5	TON
	Sta 13054+78.50 to 13055+00.00 Rt (sidewalk 4")	4	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13051+00.00 to 13055+00.00	1,778	SY
748-0140	**CURB & GUTTER-TYPE I**		
	Sta 13051+00.00 to 13055+00.00 Lt	400	LF
	Sta 13051+00.00 to 13055+00.00 Rt	400	LF
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13051+00.00 to 13052+88.00 Lt	167	SY
	Sta 13053+26.00 to 13054+32.00 Lt	94	SY
	Sta 13054+54.00 to 13055+00.00 Lt	41	SY
	Sta 13051+00.00 to 13054+12.00 Rt	277	SY
	Sta 13054+34.00 to 13054+51.50 Rt	16	SY
	Sta 13054+78.50 to 13055+00.00 Rt	19	SY
750-1000	**DRIVEWAY CONCRETE**		
	Sta 13052+88.00 to 13053+26.00 Lt	34	SY
	Sta 13054+32.00 to 13054+54.00 Lt	20	SY
	Sta 13054+12.00 to 13054+34.00 Rt	20	SY
	Sta 13054+51.50 to 13054+78.50 Rt	24	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

Concrete Median Nose Paving

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

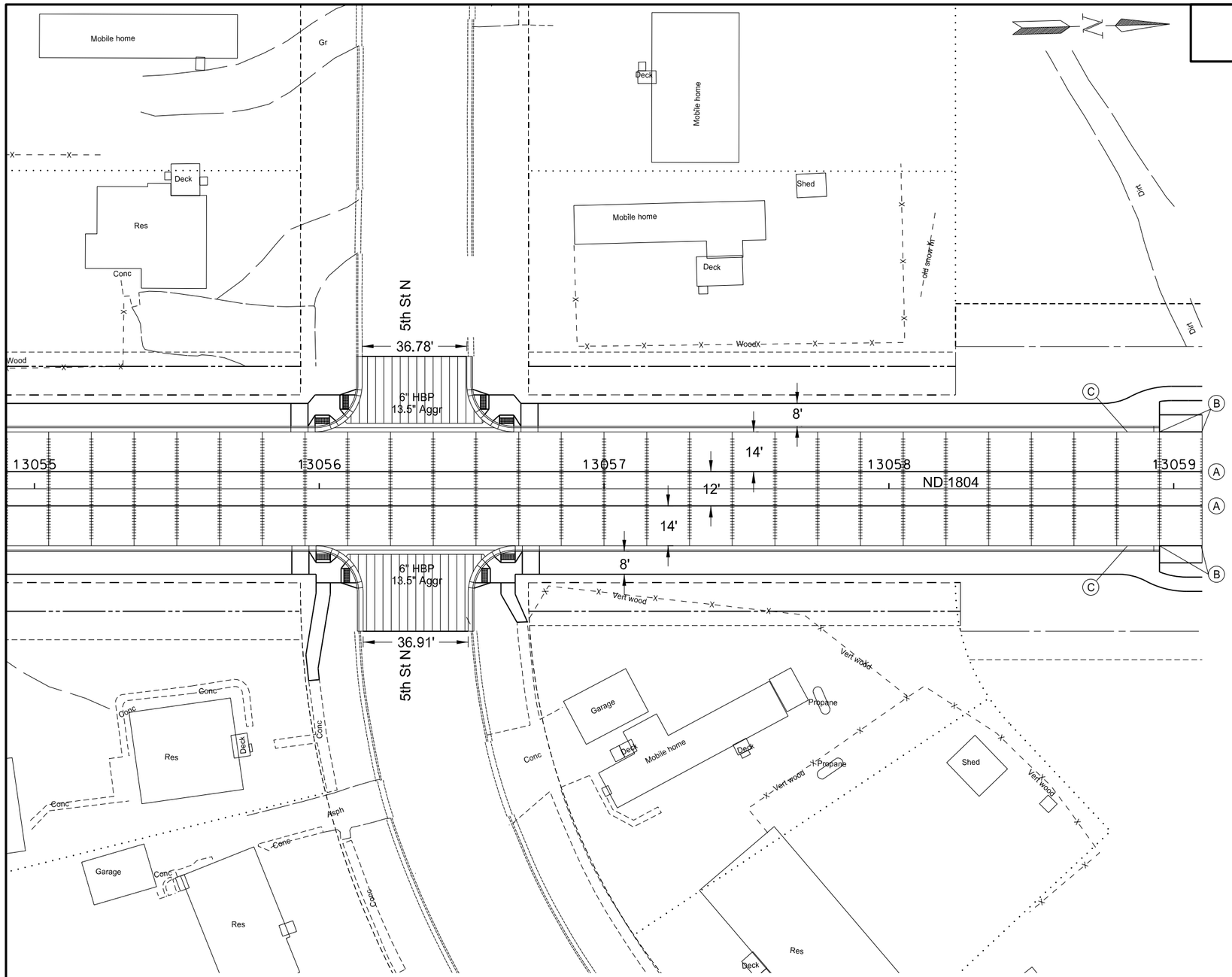
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	4



STATION 1804 13055+00 to 13059+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13055+00.00 to 13058+95.00 (mainline 8")	731	TON
	Sta 19058+95.00 to 13059+00.00 (mainline 8")	13	TON
	Sta 13055+00.00 to 13056+13.54 Lt (gutter 12.5")	29	TON
	Sta 13055+00.00 to 13056+12.95 Lt (sidewalk 4")	21	TON
	Sta 13055+00.00 to 13056+08.60 Lt (WZTC 8")	22	TON
	Sta 13056+05.41 to 13056+61.45 Lt (gutter 12.5")	12	TON
	Sta 13056+15.04 to 13056+51.82 Lt (street 13.5")	72	TON
	Sta 13056+53.32 to 13058+95.00 Lt (gutter 12.5")	56	TON
	Sta 13056+53.91 to 13059+00.00 Lt (sidewalk 12.5")	18	TON
	Sta 13056+58.26 to 13058+95.00 Lt (WZTC 8")	49	TON
	Sta 13055+00.00 to 13056+13.90 Rt (gutter 12.5")	30	TON
	Sta 13055+00.00 to 13056+13.31 Rt (sidewalk 4")	25	TON
	Sta 13056+05.77 to 13056+61.93 Rt (gutter 12.5")	12	TON
	Sta 13056+15.40 to 13056+52.31 Rt (street 13.5")	82	TON
	Sta 13056+53.81 to 13058+95.00 Rt (gutter 12.5"	57	TON
	Sta 13056+54.40 to 13059+00.00 Rt (sidewalk 4")	47	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13056+15.04 to 13056+51.82 Lt	10	GAL
	Sta 13056+15.40 to 13056+52.31 Rt	12	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13056+15.04 to 13056+51.82 Lt	34	TON
	Sta 13056+15.40 to 13056+52.31 Rt	39	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13055+00.00 to 13058+95.00	1,756	SY
	Sta 19058+95.00 to 13059+00.00	29	SY
748-0140	**CURB & GUTTER-TYPE I**		
	Sta 13055+00.00 to 13056+13.54 Lt	132	LF
	Sta 13056+53.32 to 13058+95.00 Lt	260	LF
	Sta 13055+00.00 to 13056+13.90 Rt	136	LF
	Sta 13056+53.81 to 13058+95.00 Rt	263	LF
748-1000	**VALLEY GUTTER 36IN**		
	Sta 13056+05.41 to 13056+61.45 Lt	56	LF
	Sta 13056+05.77 to 13056+61.93 Rt	56	LF
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13055+00.00 to 13056+12.95 Lt	101	SY
	Sta 13056+53.91 to 13059+00.00 Lt	224	SY
	Sta 13055+00.00 to 13056+13.31 Rt	120	SY
	Sta 13056+54.40 to 13059+00.00 Rt	227	SY
750-2115	**DETECTABLE WARNING PANELS**		
	Sta 13056+01.04 Lt	10	SF
	Sta 13056+10.29 Lt	10	SF
	Sta 13056+56.57 Lt	10	SF
	Sta 13056+65.82 Lt	10	SF
	Sta 13056+01.40 Rt	10	SF
	Sta 13056+10.65 Rt	10	SF
	Sta 13056+57.06 Rt	10	SF
	Sta 13056+66.31 Rt	10	SF

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

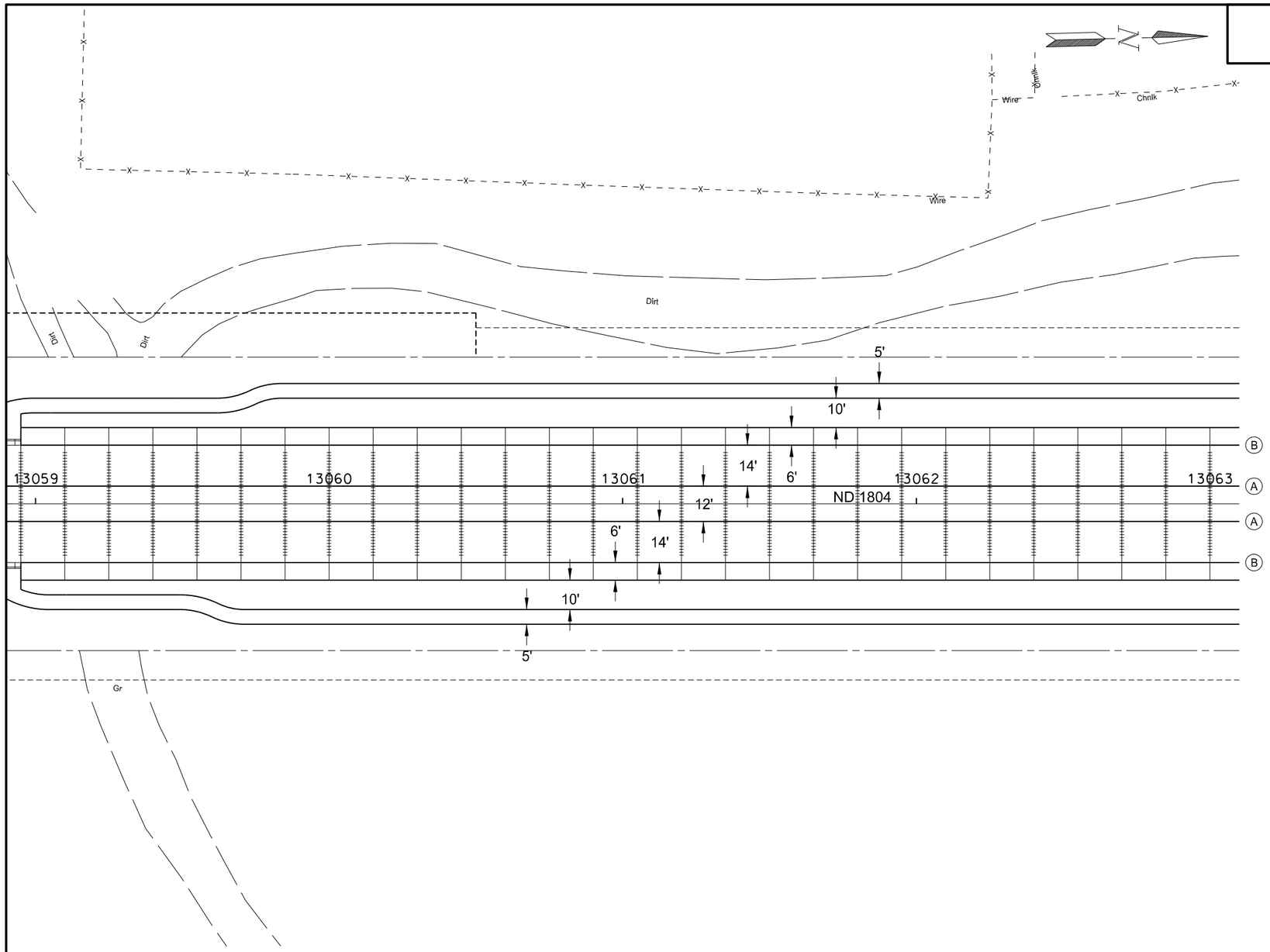
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	5



STATION 1804 13059+00 to 13063+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13059+00.00 to 13063+00.00 (mainline 8")	1,063	TON
	Sta 13059+00.00 to 13063+00.00 Lt (sidewalk 4")	46	TON
	Sta 13059+00.00 to 13063+00.00 Rt (sdewalk 4")	46	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13059+00.00 to 13063+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13059+00.00 to 13063+00.00 Lt	223	SY
	Sta 13059+00.00 to 13063+00.00 Rt	223	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

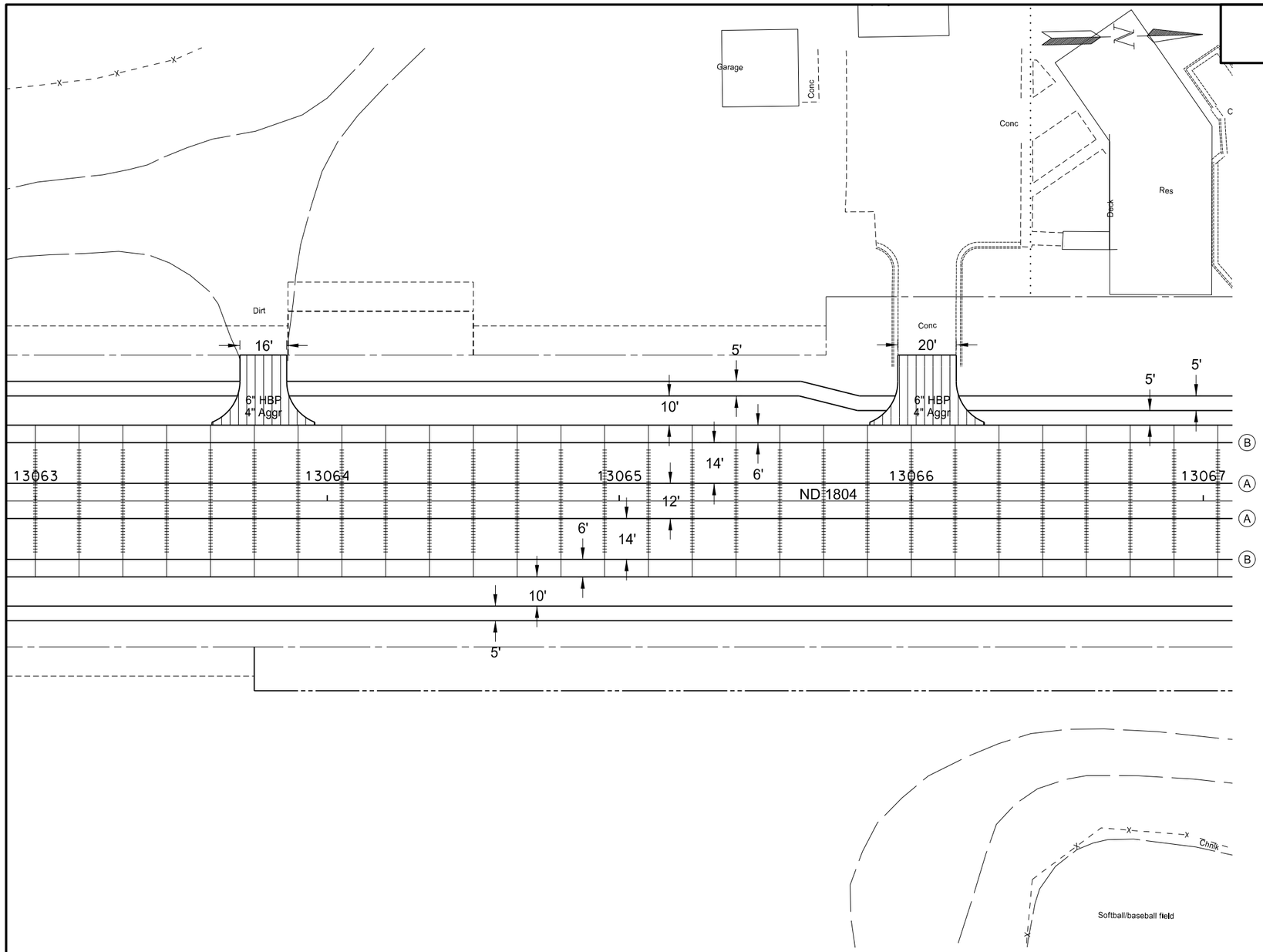
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	6



STATION 1804 13063+00 to 13067+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13063+00.00 to 13067+00.00 (mainline 8")	1,063	TON
	Sta 13063+00.00 to 13063+70.10 Lt (sidewalk 4")	8	TON
	Sta 13063+70.10 to 13063+86.10 Lt (driveway 4")	15	TON
	Sta 13063+86.10 to 13065+94.55 Lt (sidewalk 4")	24	TON
	Sta 13065+95.40 to 13066+15.40 Lt (driveway 4")	18	TON
	Sta 13066+16.26 to 13067+00.00 Lt (sidewalk 4")	10	TON
	Sta 13063+00.00 to 13067+00.00 Rt (sidewalk 4")	46	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13063+70.10 to 13063+86.10 Lt	6	GAL
	Sta 13065+95.40 to 13066+15.40 Lt	7	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13063+70.10 to 13063+86.10 Lt	19	TON
	Sta 13065+95.40 to 13066+15.40 Lt	23	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13063+00.00 to 13067+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13063+00.00 to 13063+70.10 Lt	39	SY
	Sta 13063+86.10 to 13065+94.55 Lt	115	SY
	Sta 13066+16.26 to 13067+00.00 Lt	46	SY
	Sta 13063+00.00 to 13067+00.00 Rt	222	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

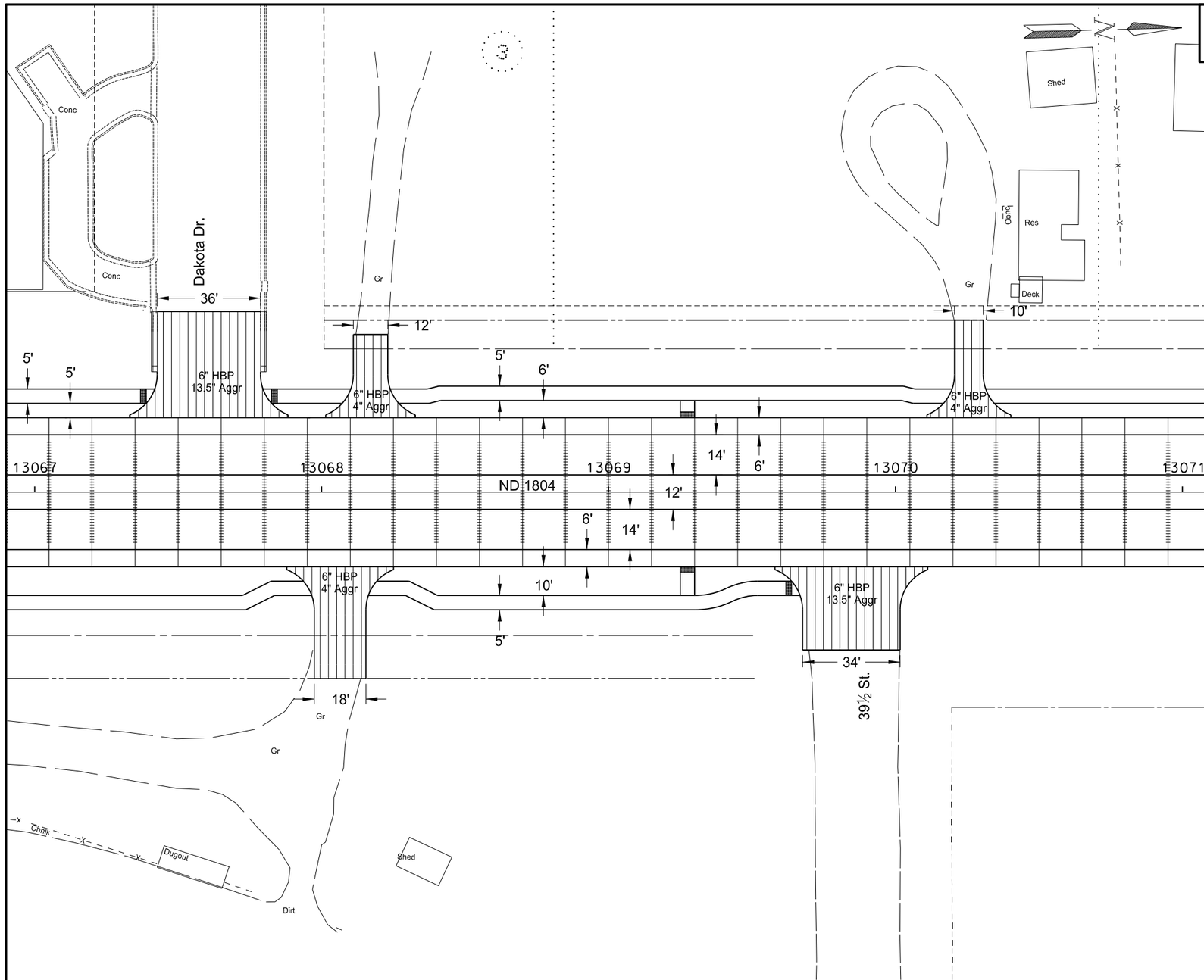
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	7



STATION 1804 13067+00 to 13071+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13067+00.00 to 13071+00.00 (mainline 8")	1,047	TON
	Sta 13067+00.00 to 13067+41.85 Lt (sidewalk 4")	5	TON
	Sta 13067+41.21 Lt (gutter 12.5")	16	TON
	Sta 13067+42.71 to 13067+78.71 Lt (street 13.5")	125	TON
	Sta 13067+80.21 Lt (gutter 12.5")	5	TON
	Sta 13067+79.56 to 13068+10.19 Lt (sidewalk 4")	3	TON
	Sta 13068+11.05 to 13068+23.05 Lt (driveway 4")	15	TON
	Sta 13068+23.90 to 13070+19.72 Lt (sidewalk 4")	23	TON
	Sta 13070+20.58 to 13070+30.58 Lt (driveway 4")	16	TON
	Sta 13070+31.44 to 13071+00.00 Lt (sidewalk 4")	8	TON
	Sta 13067+00.00 to 13067+96.57 Rt (sidewalk 4")	11	TON
	Sta 13067+97.43 to 13068+15.43 Rt (driveway 4")	25	TON
	Sta 13068+16.29 to 13069+66.74 Rt (sidewalk 4")	19	TON
	Sta 13069+67.60 to 13070+01.60 Rt (street 13.5")	107	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13067+42.71 to 13067+78.71 Lt	16	GAL
	Sta 13068+11.05 to 13068+23.05 Lt	6	GAL
	Sta 13070+20.58 to 13070+30.58 Lt	3	GAL
	Sta 13067+97.43 to 13068+15.43 Rt	10	GAL
	Sta 13069+67.60 to 13070+01.60 Rt	13	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13067+42.71 to 13067+78.71 Lt	54	TON
	Sta 13068+11.05 to 13068+23.05 Lt	18	TON
	Sta 13070+20.58 to 13070+30.58 Lt	18	TON
	Sta 13067+97.43 to 13068+15.43 Rt	32	TON
	Sta 13069+67.60 to 13070+01.60 Rt	42	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13067+00.00 to 13071+00.00	2,311	SY
748-0140	**CURB & GUTTER-TYPE I**		
	Sta 13067+41.21 Lt	21	LF
	Sta 13067+80.21 Lt	21	LF
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13067+00.00 to 13067+41.85 Lt	23	SY
	Sta 13067+79.56 to 13068+10.19 Lt	16	SY
	Sta 13068+23.90 to 13070+19.72 Lt	111	SY
	Sta 13070+31.44 to 13071+00.00 Lt	37	SY
	Sta 13067+00.00 to 13067+96.57 Rt	54	SY
	Sta 13068+16.29 to 13069+66.74 Rt	89	SY
750-2115	**DETECTABLE WARNING PANELS**		
	Sta 13067+38.89 Lt	10	SF
	Sta 13067+82.53 Lt	10	SF
	Sta 13069+27.50 Lt	10	SF
	Sta 13069+27.50 Rt	10	SF
	Sta 13069+63.78 Rt	10	SF

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

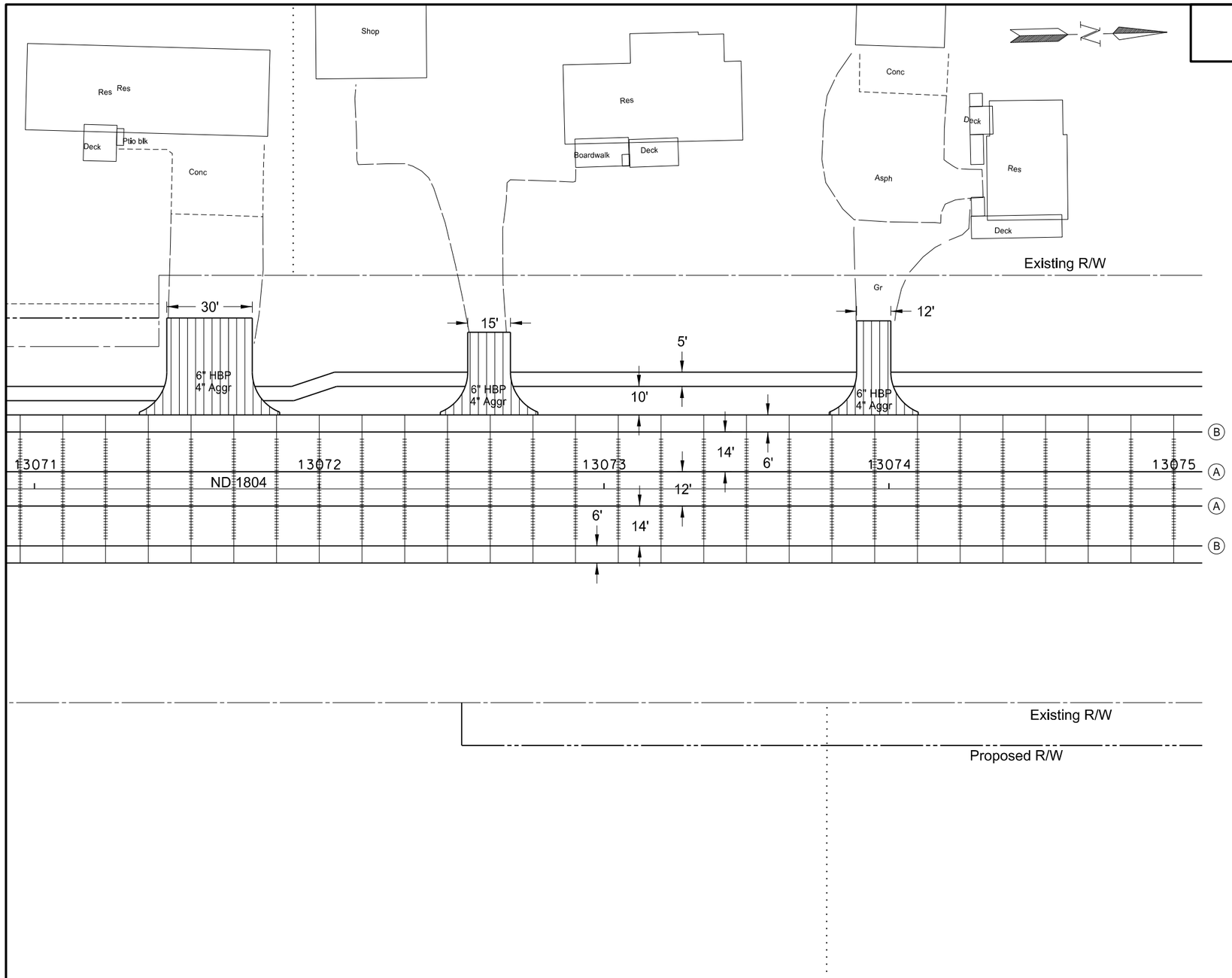
Doweled Joint - Placed in driving lanes only

Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIA-7-804(049)247	90	8

STATION 1804 13071+00 to 13075+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13071+00.00 to 13075+00.00 (mainline 8")	1,063	TON
	Sta 13071+00.00 to 13071+45.64 Lt (sidewalk 4")	5	TON
	Sta 13071+46.50 to 13071+76.50 Lt (driveway 4")	32	TON
	Sta 13071+77.35 to 13072+52.14 Lt (sidewalk 4")	9	TON
	Sta 13072+52.14 to 13072+67.14 Lt (driveway 4")	17	TON
	Sta 13072.67.14 to 13073+88.69 Lt (sidewalk 4")	14	TON
	Sta 13073+88.69 to 13074+00.69 Lt (driveway 4")	17	TON
	Sta 13074+00.69 to 13075+00.00 Lt (sidewalk 4")	11	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13071+46.50 to 13071+76.50 Lt	13	GAL
	Sta 13072+52.14 to 13072+67.14 Lt	6	GAL
	Sta 13073+88.69 to 13074+00.69 Lt	6	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13071+46.50 to 13071+76.50 Lt	44	TON
	Sta 13072+52.14 to 13072+67.14 Lt	22	TON
	Sta 13073+88.69 to 13074+00.69 Lt	20	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13071+00.00 to 13075+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13071+00.00 to 13071+45.64 Lt	25	SY
	Sta 13071+77.35 to 13072+52.14 Lt	41	SY
	Sta 13072.67.14 to 13073+88.69 Lt	67	SY
	Sta 13074+00.69 to 13075+00.00 Lt	55	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

++++ Doweled Joint - Placed in driving lanes only

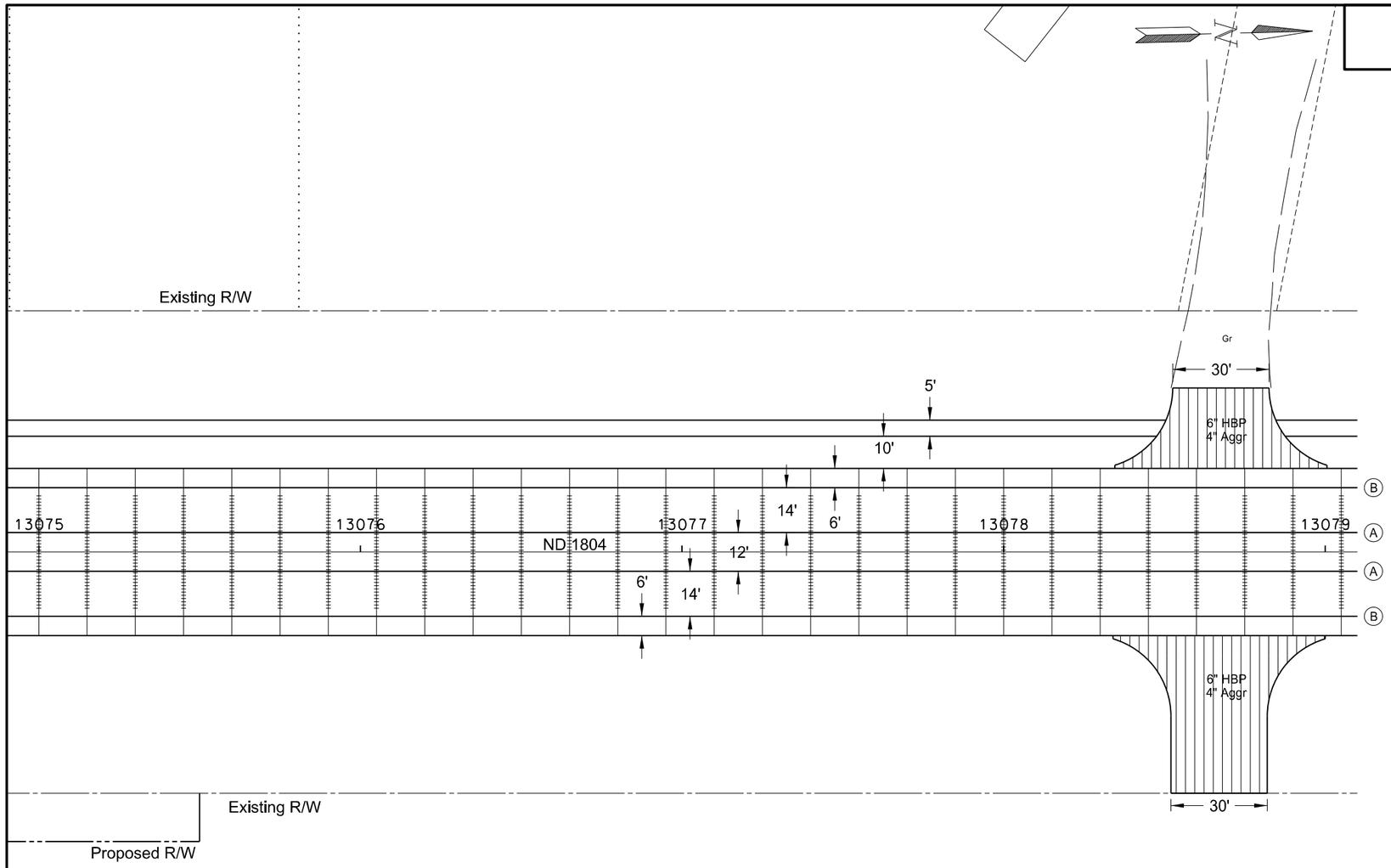
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	9



STATION 1804 13075+00 to 13079+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13075+00.00 to 13079+00.00 (mainline 8")	1,063	TON
	Sta 13075+00.00 to 13078+50.48 Lt (sidewalk 4")	40	TON
	Sta 13078+52.56 to 13078+82.56 Lt (driveway 4")	29	TON
	Sta 13078+84.65 to 13079+00.00 Lt (sidewalk 4")	2	TON
	Sta 13078+52.00 to 13078+82.00 Rt (driveway 4")	49	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13078+52.56 to 13078+82.56 Lt	12	GAL
	Sta 13078+52.00 to 13078+82.00 Rt	21	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13078+52.56 to 13078+82.56 Lt	40	TON
	Sta 13078+52.00 to 13078+82.00 Rt	68	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13075+00.00 to 13079+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13075+00.00 to 13078+50.48 Lt	194	SY
	Sta 13078+84.65 to 13079+00.00 Lt	8	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

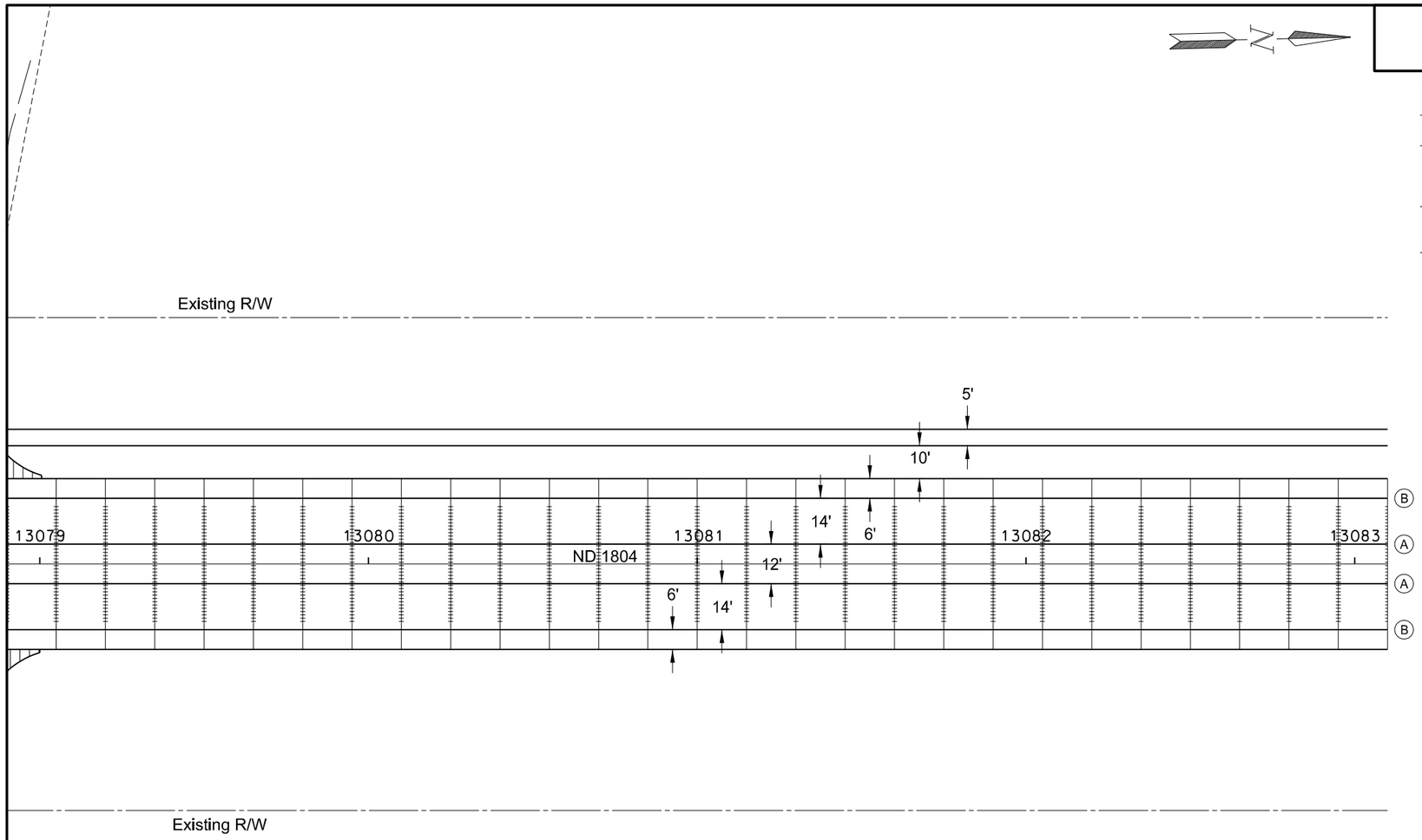
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	10



STATION 1804 13079+00 to 13083+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13079+00.00 to 13083+00.00 (mainline 8")	1,063	TON
	Sta 13079+00.00 to 13083+00.00 Lt (sidewalk 4")	46	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13079+00.00 to 13083+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13079+00.00 to 13083+00.00 Lt	222	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

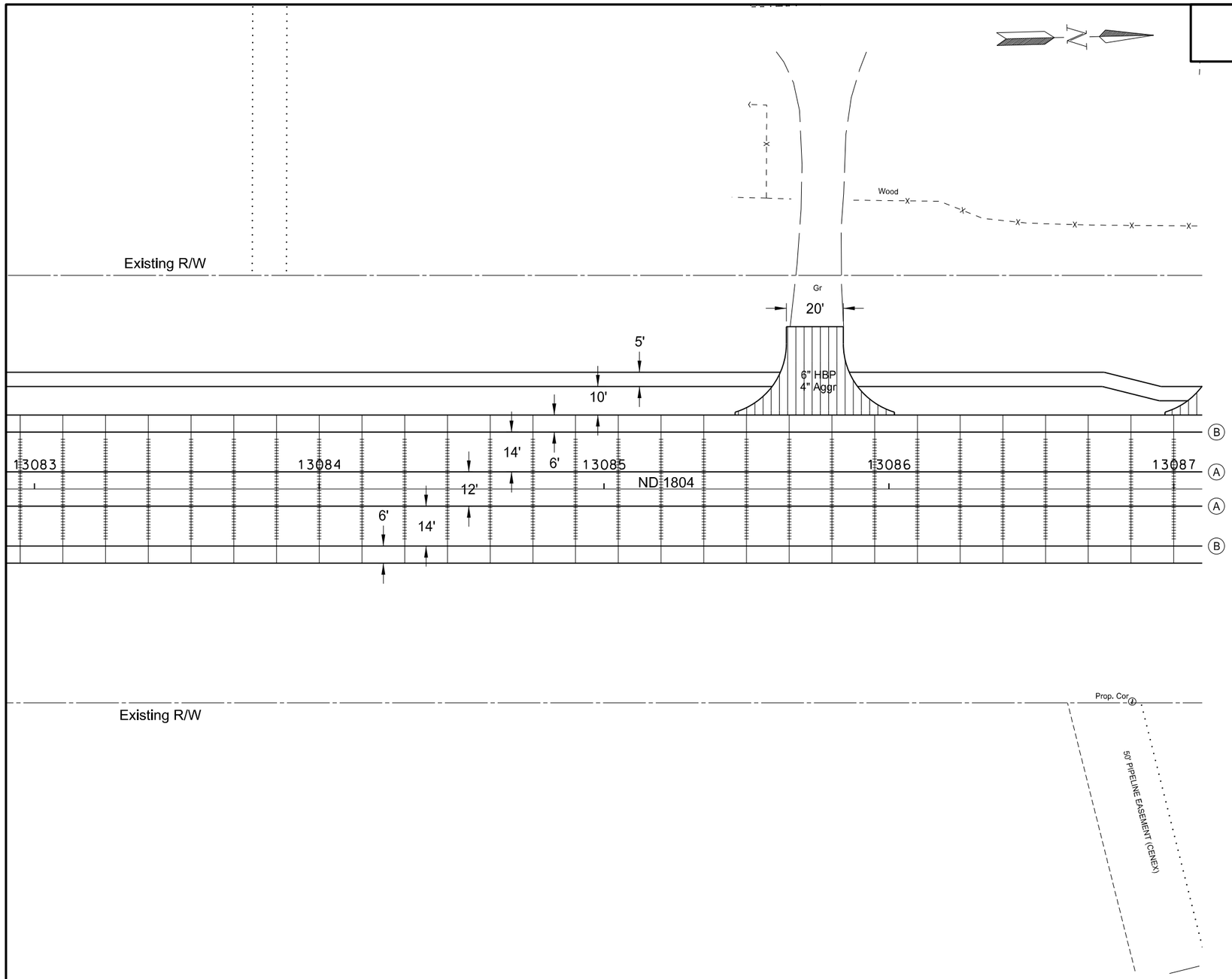
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	11



STATION 1804 13083+00 to 13087+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13083+00.00 to 13087+00.00 (mainline 8")	1,063	TON
	Sta 13083+00.00 to 13085+61.89 Lt (sidewalk 4")	30	TON
	Sta 13085+63.98 to 13085+83.98 Lt (driveway 4")	27	TON
	Sta 13085+86.07 to 13087+00.00 Lt (sidewalk 4")	13	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13085+63.98 to 13085+83.98 Lt	11	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13085+63.98 to 13085+83.98 Lt	35	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13083+00.00 to 13087+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13083+00.00 to 13085+61.89 Lt	145	SY
	Sta 13085+86.07 to 13087+00.00 Lt	63	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

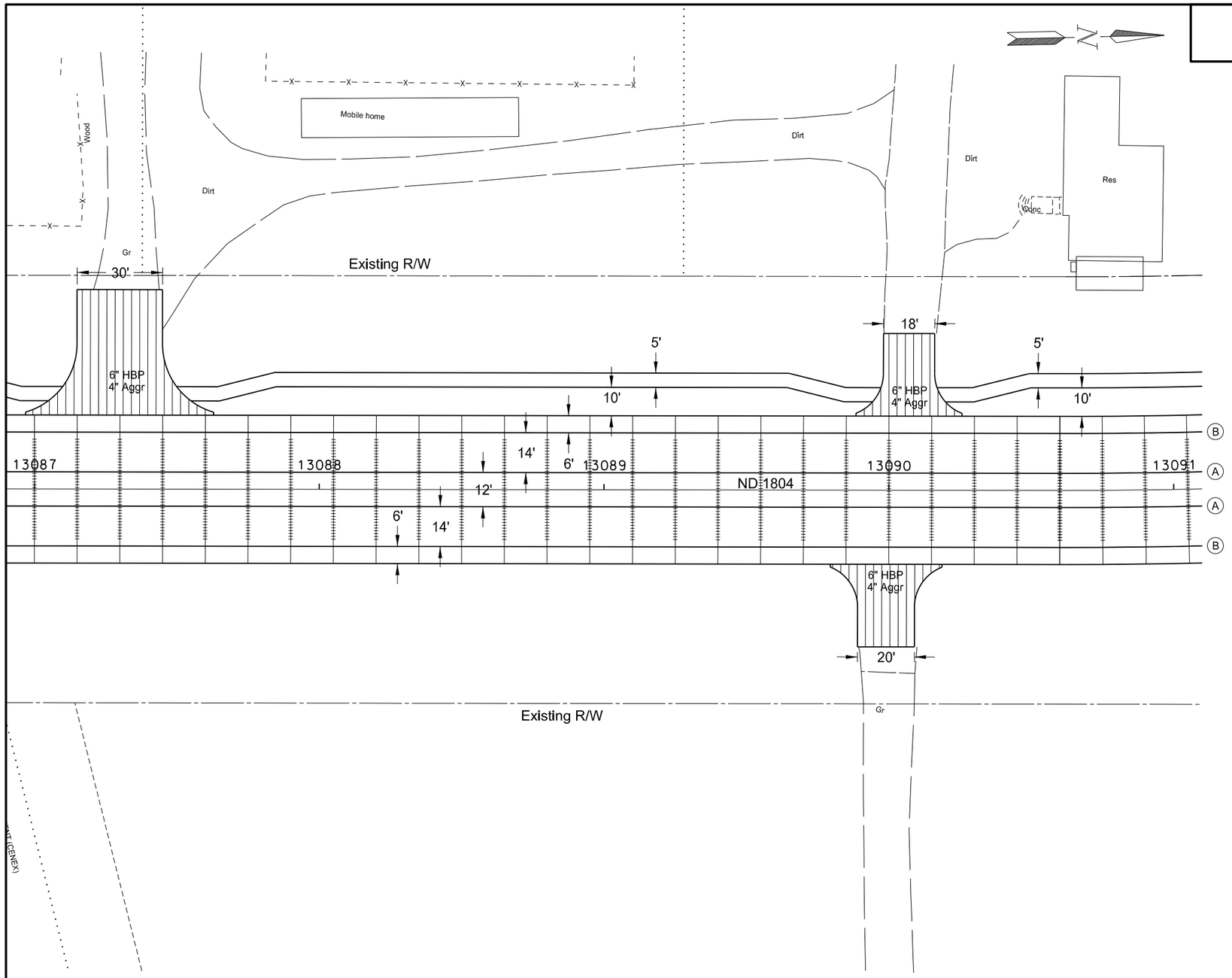
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	12



STATION 1804 13087+00 to 13091+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13087+00.00 to 13091+00.00 (mainline 8")	1,063	TON
	Sta 13087+00.00 to 13087+09.90 Lt (sidewalk 4")	1	TON
	Sta 13087+14.90 to 13087+44.90 Lt (driveway 4")	45	TON
	Sta 13087+49.90 to 13089+97.16 Lt (sidewalk 4")	28	TON
	Sta 13089+98.16 to 13090+16.01 Lt (driveway 4")	19	TON
	Sta 13090+16.87 to 13091+00.00 Lt (sidewalk 4")	9	TON
	Sta 13089+89.41 to 13090+09.04 Rt (driveway 4")	21	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13087+14.90 to 13087+44.90 Lt	19	GAL
	Sta 13089+98.16 to 13090+16.01 Lt	7	GAL
	Sta 13089+89.41 to 13090+09.04 Rt	8	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13087+14.90 to 13087+44.90 Lt	62	TON
	Sta 13089+98.16 to 13090+16.01 Lt	25	TON
	Sta 13089+89.41 to 13090+09.04 Rt	27	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13087+00.00 to 13091+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13087+00.00 to 13087+09.90 Lt	4	SY
	Sta 13087+49.90 to 13089+97.16 Lt	136	SY
	Sta 13090+16.87 to 13091+00.00 Lt	45	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

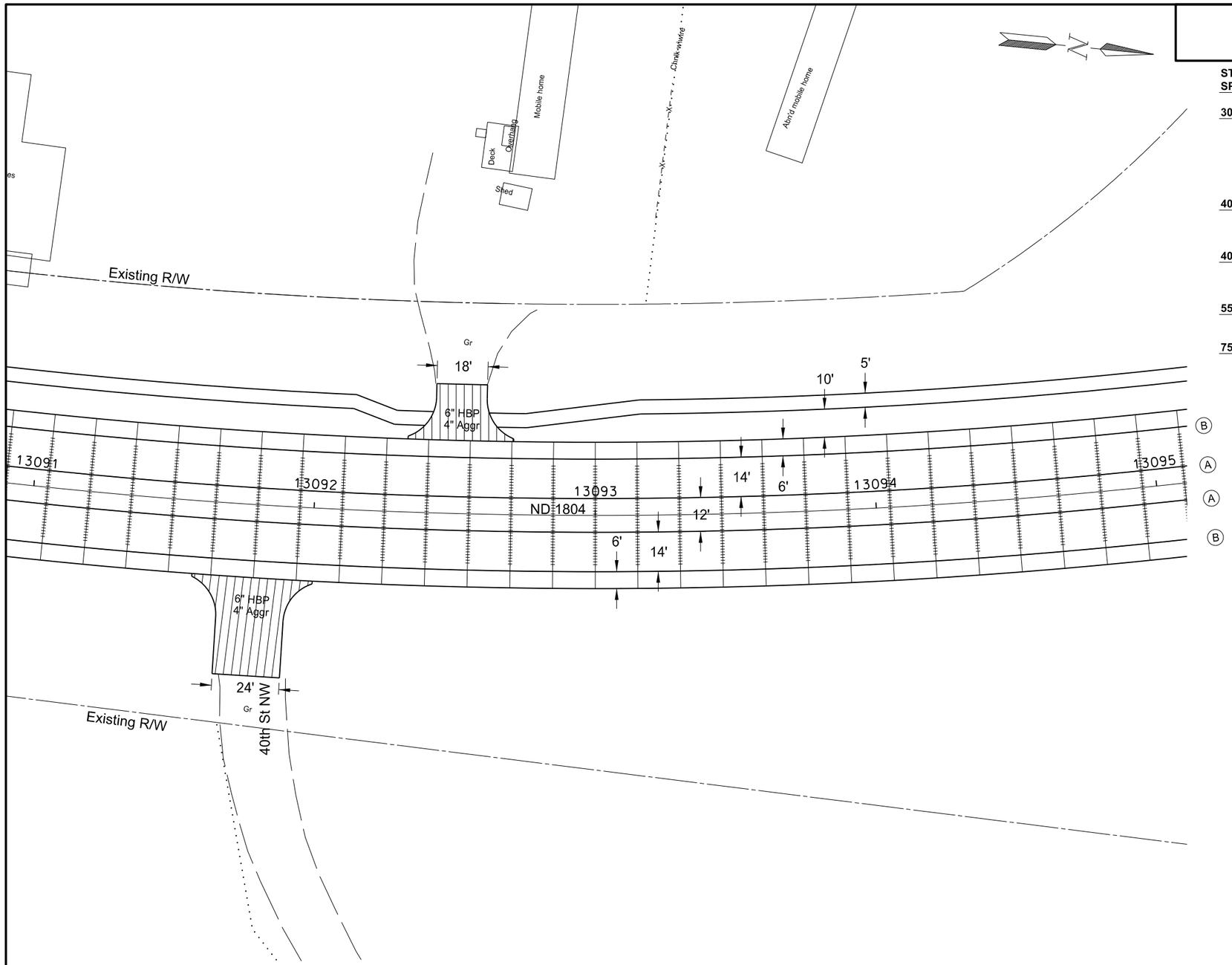
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	13



STATION 1804 13091+00 to 13095+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13091+00.00 to 13095+00.00 (mainline 8")	1,063	TON
	Sta 13091+00.00 to 13092+41.45 Lt (sidewalk 4")	16	TON
	Sta 13092+42.32 to 13092+60.69 Lt (driveway 4")	14	TON
	Sta 13092+61.63 to 13095+00.00 Lt (sidewalk 4")	27	TON
	Sta 13091+67.89 to 13091+91.15 Rt (driveway 4")	28	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13092+42.32 to 13092+60.69 Lt	5	GAL
	Sta 13091+67.89 to 13091+91.15 Rt	11	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13092+42.32 to 13092+60.69 Lt	18	TON
	Sta 13091+67.89 to 13091+91.15 Rt	37	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13091+00.00 to 13095+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13091+00.00 to 13092+41.45 Lt	77	SY
	Sta 13092+61.63 to 13095+00.00 Lt	129	SY

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

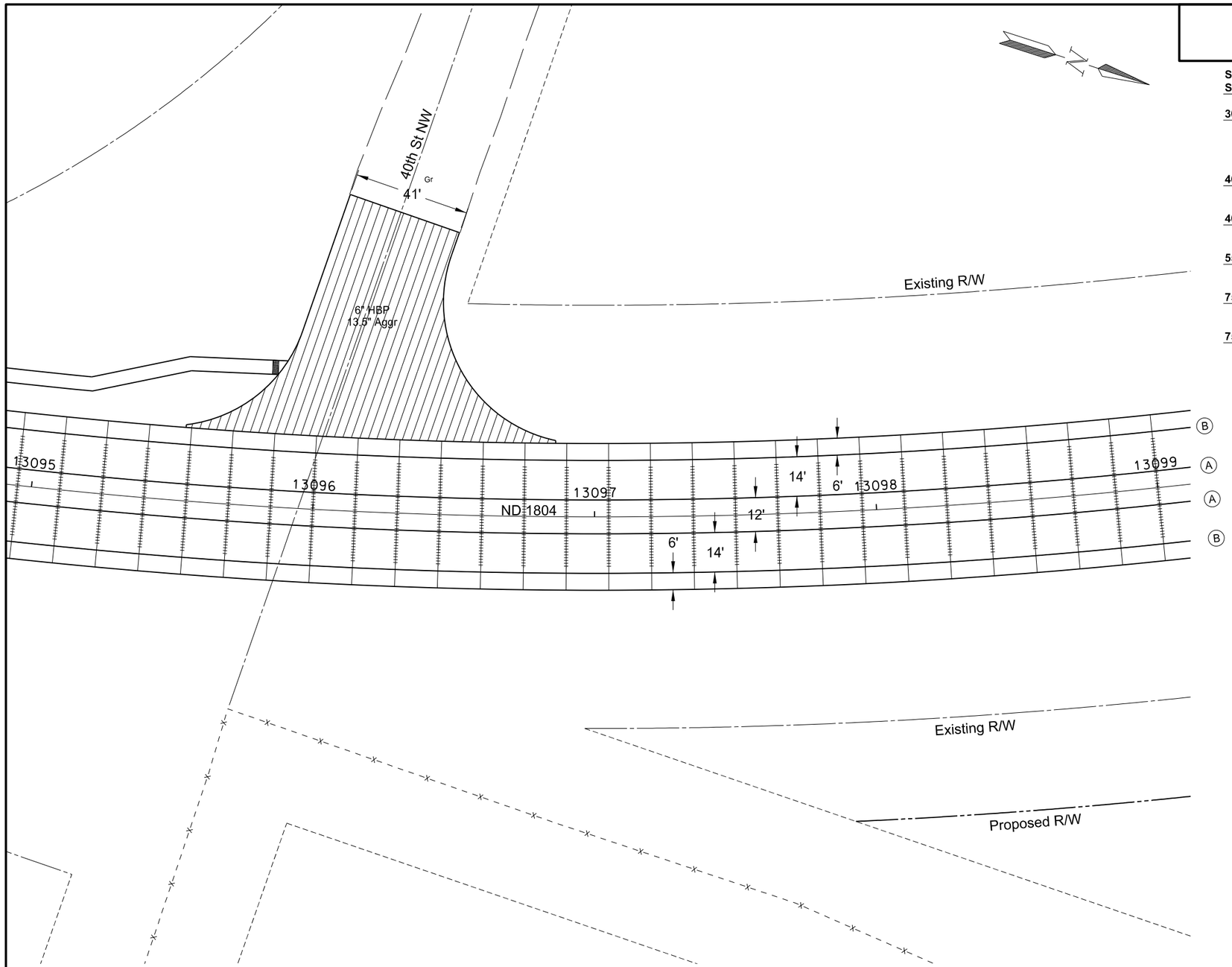
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	14



STATION 1804 13095+00 to 13099+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13095+00.00 to 13099+00.00 (mainline 8")	1,046	TON
	Sta 13095+00.00 to 13095+88.24 Lt (sidewalk 4")	10	TON
	Sta 13096+07.86 to 13096+49.36 Lt (street 13.5")	443	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 13096+07.86 to 13096+49.36 Lt	56	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 13096+07.86 to 13096+49.36 Lt	185	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13095+00.00 to 13099+00.00	2,311	SY
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 13095+00.00 to 13095+88.24 Lt	48	SY
750-2115	**DETECTABLE WARNING PANELS**		
	Sta 13095+84.86 Lt	10	SF

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

Note: Transverse joints spaced at 15', unless shown otherwise

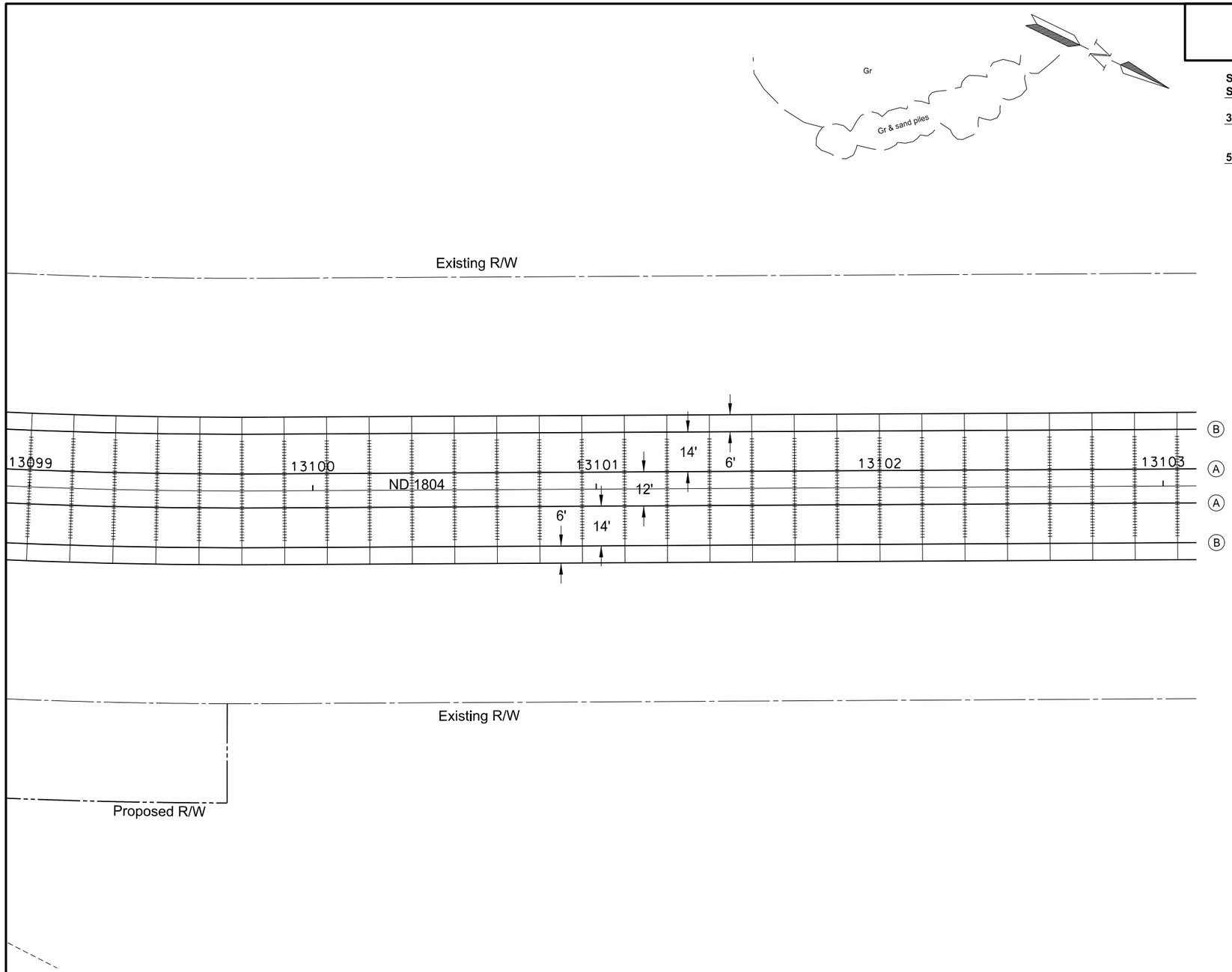
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	15



STATION 1804 13099+00 to 13103+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13099+00.00 to 13103+00.00 (mainline 8")	1,063	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13099+00.00 to 13103+00.00	2,311	SY

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

Note: Transverse joints spaced at 15', unless shown otherwise

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Paving Joint Layouts

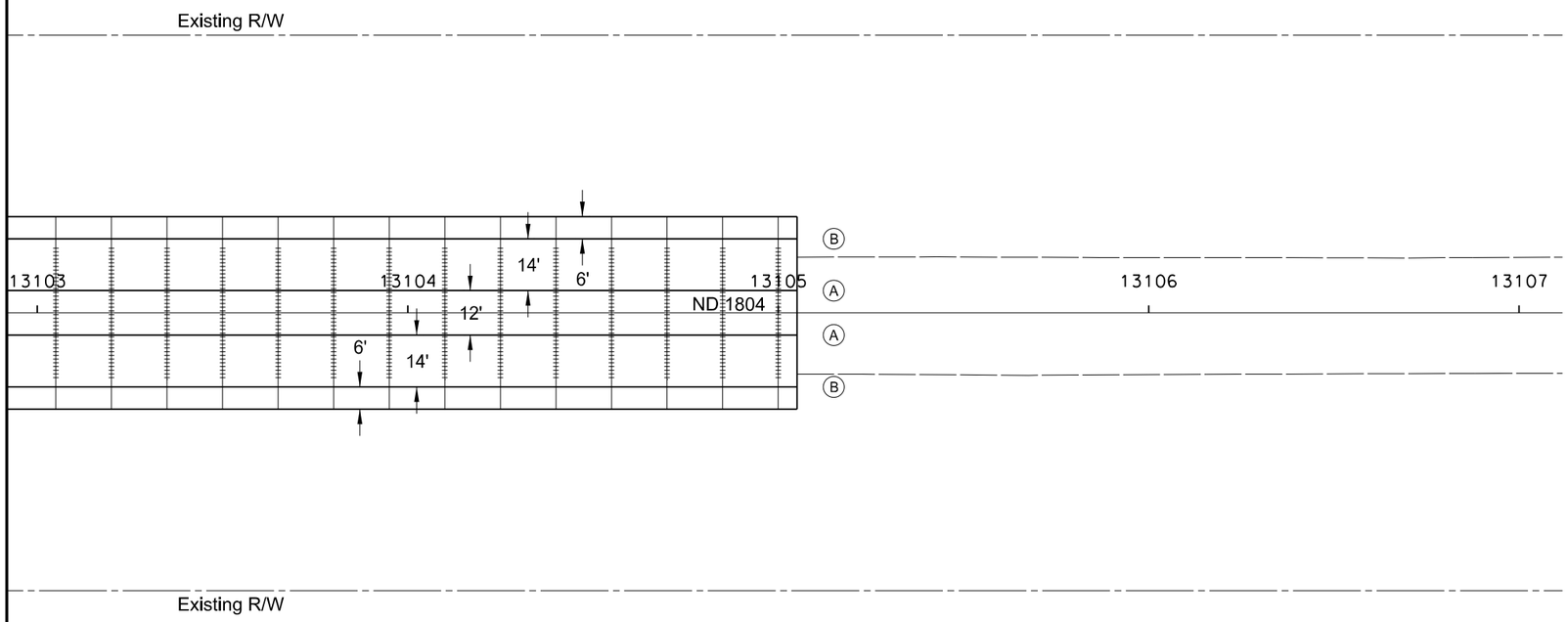
ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	16

STATION 1804 13103+00 to 13105+05

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 13103+00.00 to 13105+05.10 (mainline 8")	545	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 13103+00.00 to 13105+05.10	1,185	SY



This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

Doweled Joint - Placed in driving lanes only

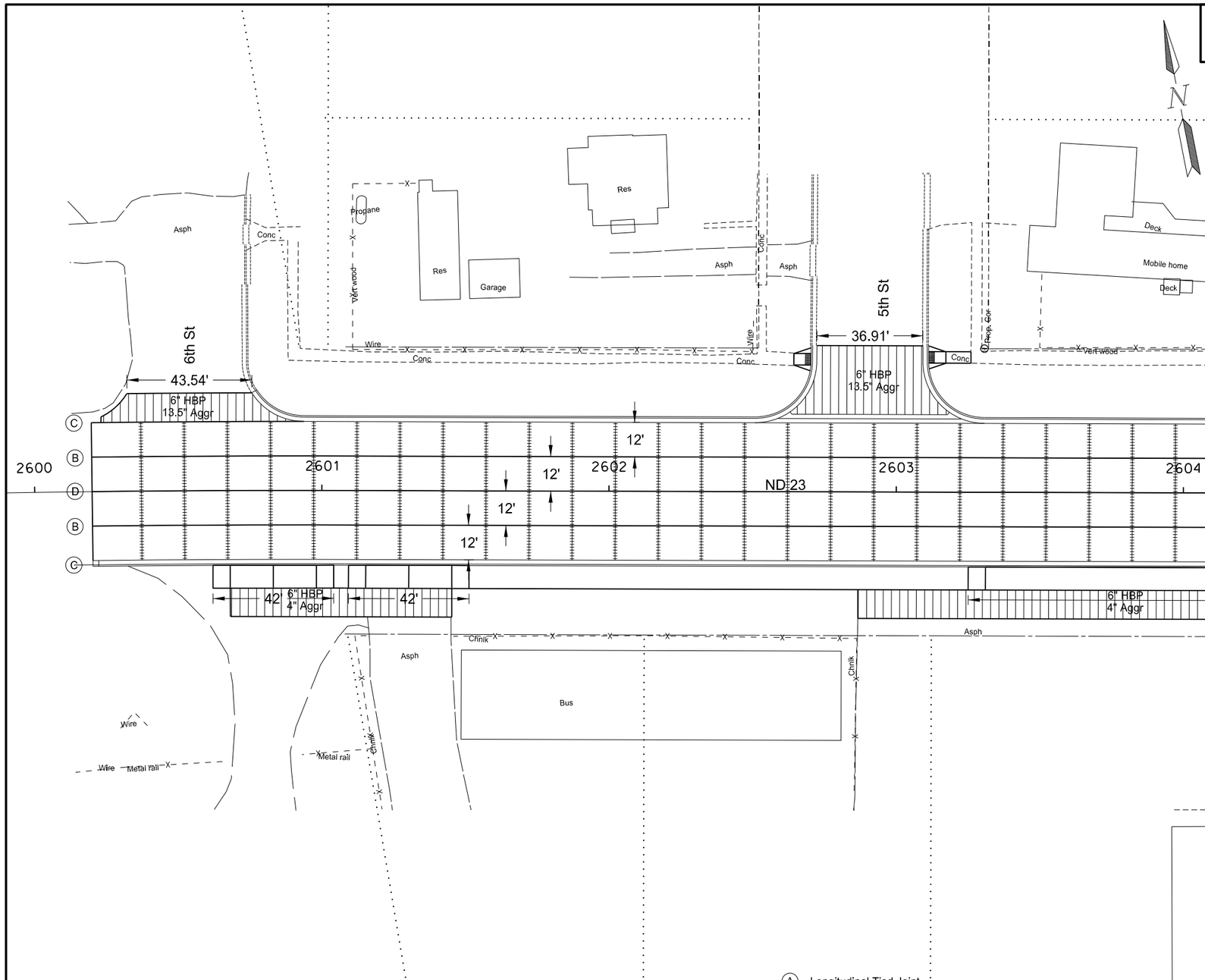
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 1804

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	17



Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

(D) Longitudinal Keyed Joint (Non-tied)

++++ Doweled Joint - Placed in driving lanes only

Note: Transverse joints spaced at 15', unless shown otherwise

STATION 23 2600+20 to 2604+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	**SALVAGED BASE COURSE**		
	Sta 2600+20.00 to 2604+00.00 (mainline 8")	844	TON
	Sta 2600+32.43 to 2600+75.72 Lt (street 13.5")	42	TON
	Sta 2600+76.98 to 2602+70.73 Lt (gutter 12.5")	46	TON
	Sta 2602+64.23 to 2602+70.23 Lt (sidewalk 4")	1	TON
	Sta 2602+58.62 to 2603+22.76 Lt (gutter 12.5")	14	TON
	Sta 2602+72.23 to 2603+09.15 Lt (street 13.5")	78	TON
	Sta 2603+11.15 to 2603+25.90 Lt (sidewalk 4")	2	TON
	Sta 2603+10.65 to 2604+00.00 Lt (gutter 12.5")	23	TON
	Sta 2600+20.00 to 2604+00.00 Rt (gutter 12.5")	82	TON
	Sta 2600+61.96 to 2601+04.18 Rt (driveway 4")	8	TON
	Sta 2601+04.18 to 2601+09.34 Rt (sidewalk 4")	1	TON
	Sta 2601+09.34 to 2601+51.56 Rt (driveway 4")	8	TON
	Sta 2600+67.97 to 2601+45.34 Rt (HBP tie 4")	18	TON
	Sta 2601+51.34 to 2603+25.14 Rt (sidewalk 4")	32	TON
	Sta 2603+25.14 to 2604+00.00 Rt (driveway 4")	14	TON
	Sta 2602+86.74 to 2604+00.00 Rt (HBP tie 4")	26	TON
401-0150	**SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT**		
	Sta 2600+32.43 to 2600+75.72 Lt	6	GAL
	Sta 2602+72.23 to 2603+09.15 Lt	11	GAL
	Sta 2600+67.97 to 2601+45.34 Rt	9	GAL
	Sta 2602+86.74 to 2604+00.00 Rt	13	GAL
408-0802	**SUPERPAVE FAA 42**		
	Sta 2600+32.43 to 2600+75.72 Lt	20	TON
	Sta 2602+72.23 to 2603+09.15 Lt	37	TON
	Sta 2600+67.97 to 2601+45.34 Rt	28	TON
	Sta 2602+86.74 to 2604+00.00 Rt	42	TON
550-0317	**11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED**		
	Sta 2600+20.00 to 2604+00.00	2,027	SY
748-0140	**CURB & GUTTER-TYPE I**		
	Sta 2600+76.98 to 2602+70.73 Lt	214	LF
	Sta 2603+10.65 to 2604+00.00 Lt	106	LF
	Sta 2600+20.00 to 2604+00.00 Rt	380	LF
748-1000	**VALLEY GUTTER 36IN**		
	Sta 2602+58.62 to 2603+22.76 Lt	64	LF
750-0115	**SIDEWALK CONCRETE 4IN**		
	Sta 2602+64.23 to 2602+70.23 Lt	4	SY
	Sta 2603+11.15 to 2603+25.90 Lt	8	SY
	Sta 2601+04.18 to 2601+09.34 Rt	5	SY
	Sta 2601+51.34 to 2603+25.14 Rt	154	SY
750-1000	**DRIVEWAY CONCRETE**		
	Sta 2600+61.96 to 2601+04.18 Rt	37	SY
	Sta 2601+09.34 to 2601+51.56 Rt	37	SY
	Sta 2603+25.14 to 2604+00.00 Rt	67	SY
750-2115	**DETECTABLE WARNING PANELS**		
	Sta 2602+70.21 Lt	8	SF
	Sta 2603+11.15 Lt	8	SF

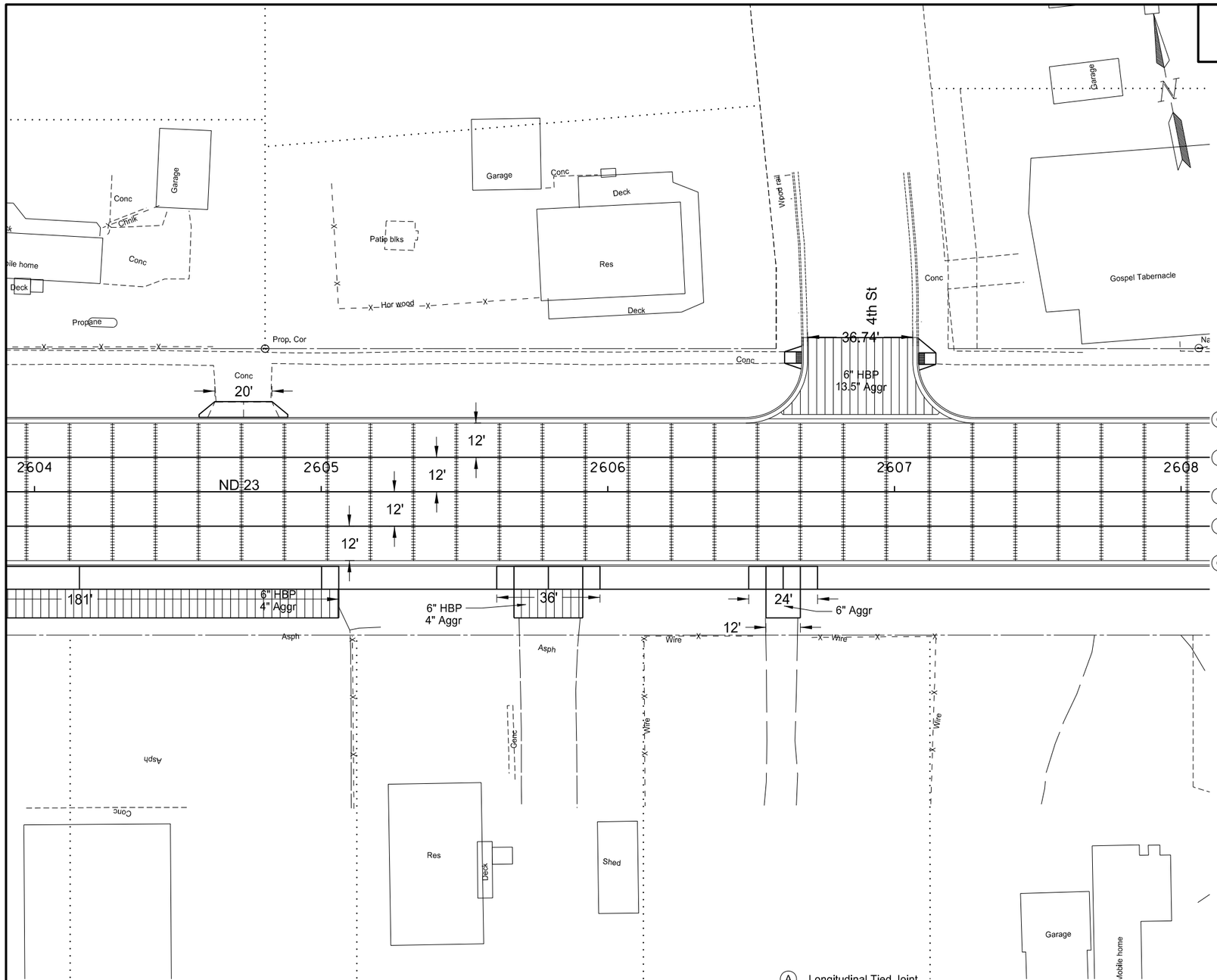
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Paving Joint Layouts

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	18



STATION 23 2604+00 to 2608+00

SPEC-CODE	BID ITEM	QUANTITY	UNIT
302-0100	SALVAGED BASE COURSE		
	Sta 2604+00.00 to 2608+00.00 (mainline 8")	889	TON
	Sta 2604+00.00 to 2606+68.19 Lt (gutter 12.5")	62	TON
	Sta 2604+62.87 to 2604+82.87 Lt (driveway 4")	3	TON
	Sta 2606+61.69 to 2606+67.69 Lt (sidewalk 4")	1	TON
	Sta 2606+56.08 to 2607+20.05 Lt (gutter 12.5")	14	TON
	Sta 2606+69.69 to 2607+06.44 Lt (street 13.5")	86	TON
	Sta 2607+08.44 to 2607+14.46 Lt (sidewalk 4")	1	TON
	Sta 2607+07.94 to 2608+00.00 Lt (gutter 12.5")	24	TON
	Sta 2604+00.00 to 2608+00.00 Rt (gutter 12.5")	87	TON
	Sta 2604+00.00 to 2605+06.14 Rt (driveway 4")	20	TON
	Sta 2604+00.00 to 2605+06.14 Rt (HBP tie 4")	25	TON
	Sta 2605+06.14 to 2605+61.26 Rt (sidewalk 4")	10	TON
	Sta 2605+61.26 to 2605+97.26 Rt (driveway 4")	7	TON
	Sta 2605+67.26 to 2605+91.26 Rt (HBP tie 4")	6	TON
	Sta 2605+97.26 to 2606+49.19 Rt (sidewalk 4")	10	TON
	Sta 2606+49.19 to 2606+73.19 Rt (driveway 4")	4	TON
	Sta 2606+55.19 to 2606+67.19 Rt (driveway tie 6")	4	TON
	Sta 2606+73.19 to 2608+00.00 Rt (sidewalk 4")	23	TON
401-0150	SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT		
	Sta 2606+69.69 to 2607+06.44 Lt	12	GAL
	Sta 2604+00.00 to 2605+06.14 Rt	12	GAL
	Sta 2605+67.26 to 2605+91.26 Rt	3	GAL
408-0802	SUPERPAVE FAA 42		
	Sta 2606+69.69 to 2607+06.44 Lt	41	TON
	Sta 2604+00.00 to 2605+06.14 Rt	39	TON
	Sta 2605+67.26 to 2605+91.26 Rt	9	TON
550-0317	11.5IN NON REINF CONCRETE PVMT CL AE-DOWELED		
	Sta 2604+00.00 to 2608+00.00	2,133	SY
748-0140	CURB & GUTTER-TYPE I		
	Sta 2604+00.00 to 2606+68.19 Lt	288	LF
	Sta 2607+07.94 to 2608+00.00 Lt	112	LF
	Sta 2604+00.00 to 2608+00.00 Rt	400	LF
748-1000	VALLEY GUTTER 36IN		
	Sta 2606+56.08 to 2607+20.05 Lt	64	LF
750-0115	SIDEWALK CONCRETE 4IN		
	Sta 2606+61.69 to 2606+67.69 Lt	4	SY
	Sta 2607+08.44 to 2607+14.46 Lt	5	SY
	Sta 2605+06.14 to 2605+61.26 Rt	49	SY
	Sta 2605+97.26 to 2606+49.19 Rt	46	SY
	Sta 2606+73.19 to 2608+00.00 Rt	113	SY
750-1000	DRIVEWAY CONCRETE		
	Sta 2604+62.87 to 2604+82.87 Lt	16	SY
	Sta 2604+00.00 to 2605+06.14 Rt	94	SY
	Sta 2605+61.26 to 2605+97.26 Rt	32	SY
	Sta 2606+49.19 to 2606+73.19 Rt	21	SY
750-2115	DETECTABLE WARNING PANELS		
	Sta 2606+67.69 Lt	8	SF
	Sta 2607+08.46 Lt	8	SF

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

(D) Longitudinal Keyed Joint (Non-tied)

++++ Doweled Joint - Placed in driving lanes only

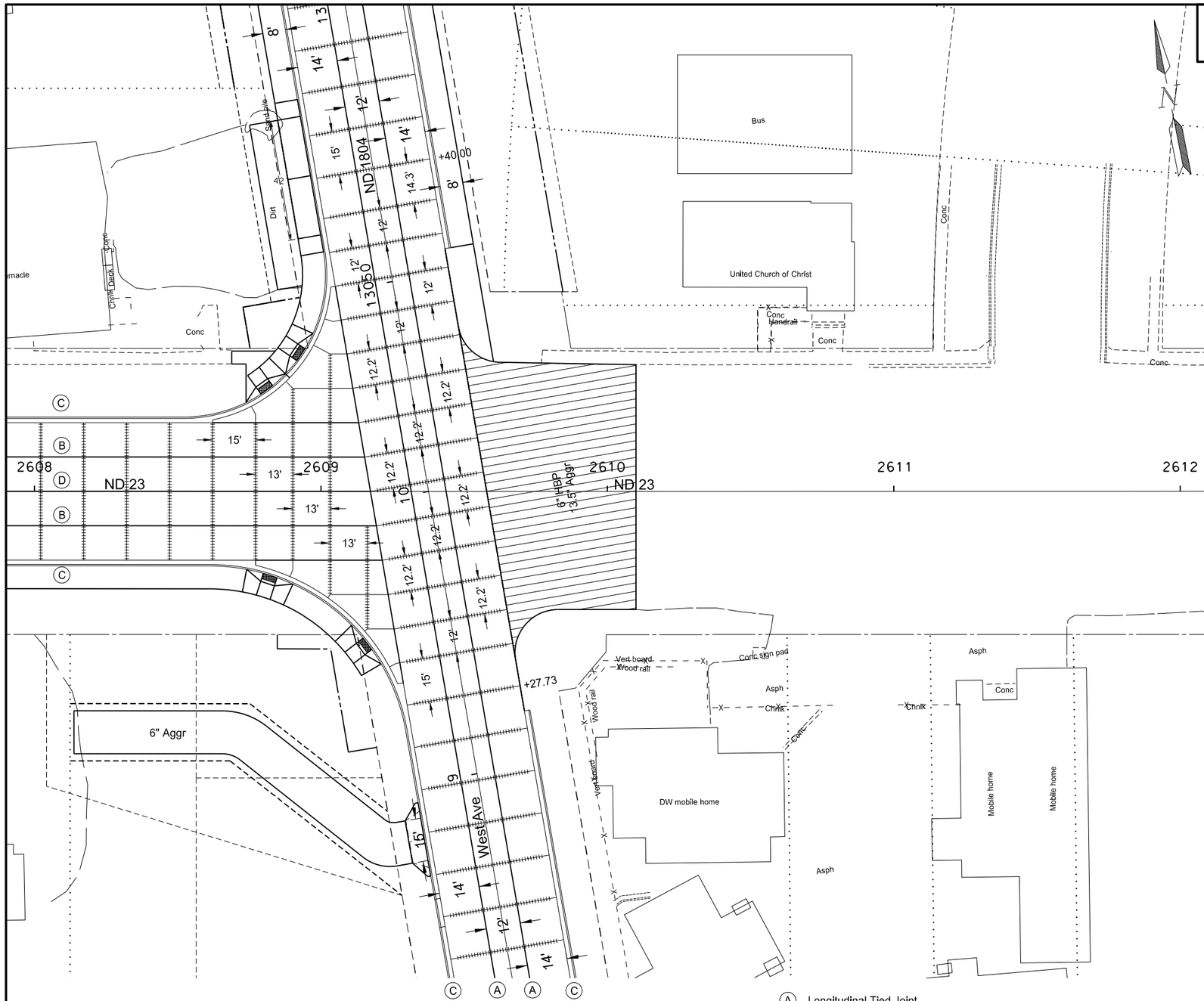
Note: Transverse joints spaced at 15', unless shown otherwise

Paving Joint Layouts

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	90	19



Hot Bituminous Pavement

(A) Longitudinal Tied Joint

(B) Longitudinal Tied Joint - Sawed

(C) No. 3 x 18" Tie Bar @ 4' c to c

(D) Longitudinal Keyed Joint (Non-tied)

Doweled Joint - Placed in driving lanes only

Note: Transverse joints spaced at 15', unless shown otherwise

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/31/13 and the original document is stored at the North Dakota Department of Transportation

Paving Joint Layouts

ND 23

Jct of ND 23 extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4	5	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)							6	
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**5**	**5**	**5**	**5**	**5**	**5**	**34**	**170**
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**	**10**	**10**	**10**	**10**	**10**	**10**	**19**	**190**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)							18	
G20-10-108	108"x48"	CONTRACTOR SIGN							64	
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**	**3**	**2**	**3**	**3**	**3**	**3**	**30**	**90**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**2**	**2**	**2**	**2**	**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)							10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)							10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)							10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)							7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)							7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)							7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)							7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)							7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT							15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT							23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)							7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)							7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)							7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)							7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)							7	
R1-1-48	**48"x48"**	**STOP**	**4**	**4**	**4**	**5**	**6**	**6**	**32**	**192**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**20**
R1-2-60	60"x60"	YIELD							29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**6**	**6**	**6**	**6**	**5**	**6**	**39**	**234**
R2-1a-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**5**	**5**	**5**	**5**	**4**	**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**					**8**	**8**	**35**	**280**
R6-1-36	**36"x12"**	**ONE WAY RIGHT or LEFT**		**2**	**2**		**2**	**2**	**13**	**26**
R7-1-12	12"x18"	NO PARKING							11	
R10-6-24	**24"x36"**	**STOP HERE ON RED**	**1**	**3**	**3**	**4**	**4**	**4**	**16**	**64**
R11-2-48	**48"x30"**	**ROAD CLOSED**	**1**	**2**	**1**	**1**		**2**	**28**	**56**
R11-2a-48	48"x30"	STREET CLOSED							28	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY							31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY							31	
R11-4a-60	**60"x30"**	**STREET CLOSED TO THRU TRAFFIC**	**1**	**2**	**1**	**1**		**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**			**2**		**2**	**2**	**26**	**52**
W3-1-48	48"x48"	STOP AHEAD SYMBOL							35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL							35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**4**	**4**	**4**	**4**	**4**	**4**	**35**	**140**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**	**2**	**2**	**2**	**2**	**2**	**35**	**70**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL							35	
W5-1-48	48"x48"	ROAD NARROWS							35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE							35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW							35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL							35	
W8-1-48	48"x48"	BUMP							35	
W8-3-48	48"x48"	PAVEMENT ENDS							35	
W8-7-48	48"x48"	LOOSE GRAVEL							35	
W8-9a-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.**	**2**	**2**	**2**	**2**	**2**	**2**	**35**	**70**
W8-55-48	**48"x48"**	**TRUCKS CROSSING AHEAD or __ FT.**	**2**	**2**	**2**	**2**	**2**	**2**	**35**	**70**
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY							35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL							35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL							35	
W13-1-24	24"x24"	__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)							11	
W13-4-48	48"x60"	RAMP ARROW							39	
W14-3-48	48"x36"	NO PASSING ZONE							23	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**6**	**6**	**6**	**6**	**6**	**6**	**35**	**210**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT							35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.							35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.							35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.							35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**4**	**4**	**4**	**4**	**4**	**4**	**35**	**140**
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	
W21-1a-48	48"x48"	WORKERS SYMBOL							35	
W21-2-48	48"x48"	FRESH OIL							35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT							35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4	5	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5-48	48"x48"	SHOULDER WORK							35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED							35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.							35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD							35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.							35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY							35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK							35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)							11	

SPECIAL SIGNS

NPDES	**36"x24"**	**NPDES PERMIT SIGN**	**2**	**2**	**2**	**2**	**2**	**2**	**16**	**32**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS 2336**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2	3	4	5	TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**300**	**300**	**300**	**300**	**300**	**1500**
704-1035	**ATTENUATION DEVICE-TYPE B-25**	EACH	**4**	**4**	**4**			**4**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH						
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH						
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH						
704-1050	TYPE I BARRICADES	EACH						
704-1051	TYPE II BARRICADES	EACH						
704-1052	**TYPE III BARRICADES**	EACH	**15**	**60**	**28**	**39**	**26**	**60**
704-1060	**DELINEATOR DRUMS**	EACH	**41**	**113**	**103**	**192**	**286**	**286**
704-1065	TRAFFIC CONES	EACH						
704-1067	**TUBULAR MARKERS**	EACH	**77**			**69**		**77**
704-1070	DELINEATOR	EACH						
704-1072	FLEXIBLE DELINEATORS	EACH						
704-1080	**STACKABLE VERTICAL PANELS**	EACH	**88**	**84**	**119**	**95**	**297**	**297**
704-1081	**VERTICAL PANELS - BACK TO BACK**	EACH		**201**	**260**	**200**	**194**	**260**
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH						
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH						
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH						
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH						
704-1095	TYPE B FLASHERS	EACH						
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF						
704-3510	**PRECAST CONCRETE MED BARRIER - STATE FURNISHED**	EACH	**257**	**257**	**78**			**257**
704-4011	**PORTABLE CHANGEABLE MESSAGE SIGN**	EACH	**3**	**3**	**3**	**3**	**3**	**3**
762-0200	RAISED PAVEMENT MARKERS	EACH						
762-0420	**SHORT TERM 4IN LINE - TYPE R**	LF		**2491**	**2856**	**200**	**382**	**5929**
762-0426	**SHORT TERM 24IN LINE-TYPE R**	LF	**12**	**36**	**42**		**12**	**102**
762-0430	**SHORT TERM 4IN LINE - TYPE NR**	LF				**7576**		**7576**
762-1500	**OBLITERATION OF PVMT MK**	SF	**2025**			**1200**		**3225**
772-2110	FLASHING BEACON - POST MOUNTED	EACH						

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

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation.

Traffic Control Devices List

Phases 1 to 5

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	2

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**5**	**34**	**170**
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**	**10**	**19**	**190**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		64	
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**	**3**	**30**	**90**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	**48"x48"**	**STOP**	**6**	**32**	**192**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**4**	**5**	**20**
R1-2-60	60"x60"	YIELD		29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**6**	**39**	**234**
R2-1a-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**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		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R10-6-24	**24"x36"**	**STOP HERE ON RED**	**4**	**16**	**64**
R11-2-48	**48"x30"**	**ROAD CLOSED**	**1**	**28**	**28**
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	**60"x30"**	**STREET CLOSED TO THRU TRAFFIC**	**1**	**31**	**31**
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	**48"x24"**	**LARGE ARROW**	**1**	**26**	**26**
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**4**	**35**	**140**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**	**35**	**70**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		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		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES		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.**	**2**	**35**	**70**
W8-55-48	**48"x48"**	**TRUCKS CROSSING AHEAD or __ FT.**	**2**	**35**	**70**
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**6**	**35**	**210**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.		35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**4**	**35**	**140**
W20-7k-24	24"x18"	__ FEET (Mounted on warning sign post)		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	
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT		35	

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

SPECIAL SIGNS

NPDES	**36"x24"**	**NPDES PERMIT SIGN**	**2**	**16**	**32**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**1945**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**300**
704-1035	ATTENUATION DEVICE-TYPE B-25	EACH	
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**64**
704-1060	**DELINEATOR DRUMS**	**EACH**	**233**
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	**STACKABLE VERTICAL PANELS**	**EACH**	**219**
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
704-4011	**PORTABLE CHANGEABLE MESSAGE SIGN**	**EACH**	**3**
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	**SHORT TERM 4IN LINE - TYPE R**	**LF**	**11055**
762-0426	SHORT TERM 24IN LINE-TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	
762-1500	OBLITERATION OF PVMT MK	SF	
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

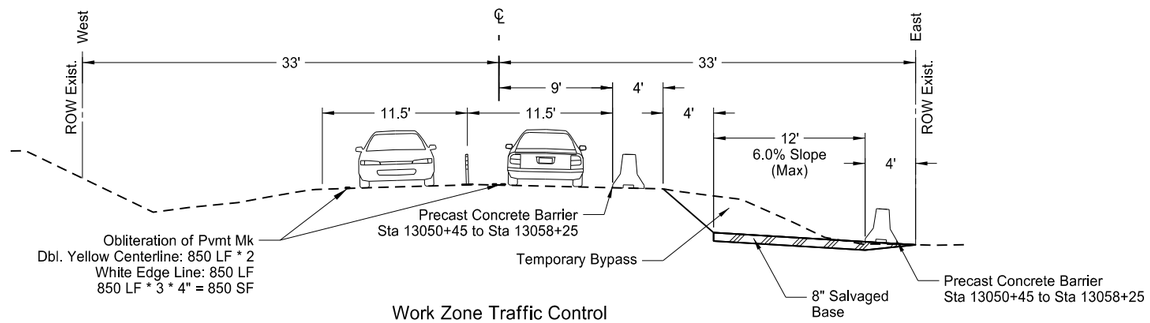
NOTE:
If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual.
http://www.dot.nd.gov/

This document was originally issued and sealed by Darell Arne, Registration Number PE-6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation.

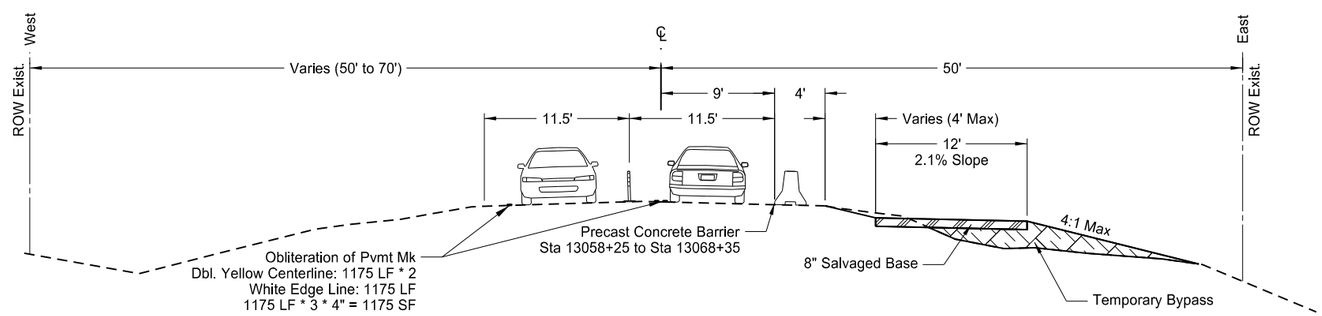
Traffic Control Devices List

Phase 6

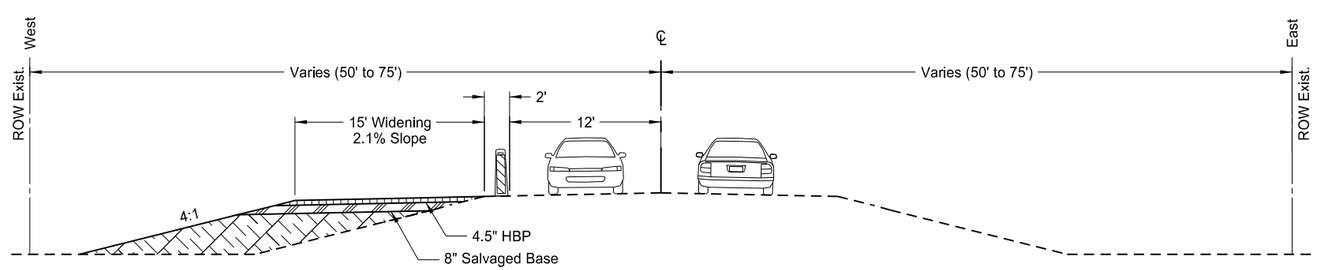
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	3



Work Zone Traffic Control
Phase 1
Sta 13049+75 to Sta 13058+25



Work Zone Traffic Control
Phase 1
Sta 13058+25 to Sta 13070+00



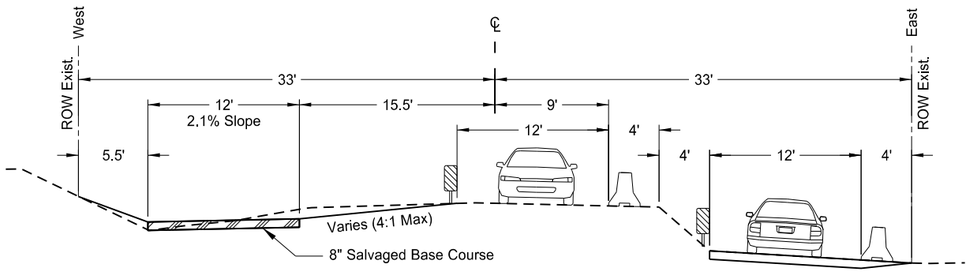
Work Zone Traffic Control
Phase 1
Sta 13070+00 to Sta 13105+05

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

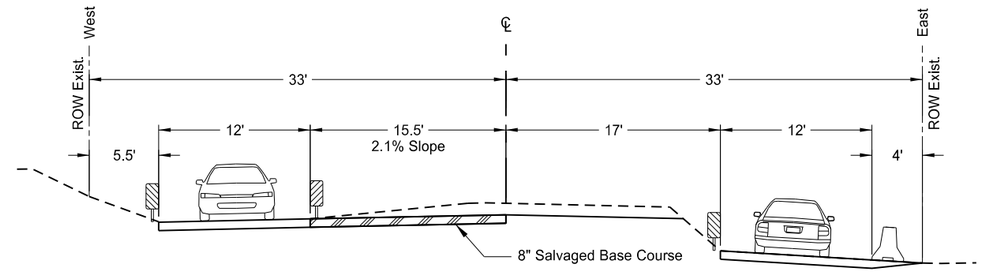
ND Hwy 1804

Work Zone Traffic Control
Typical Sections
Phase 1

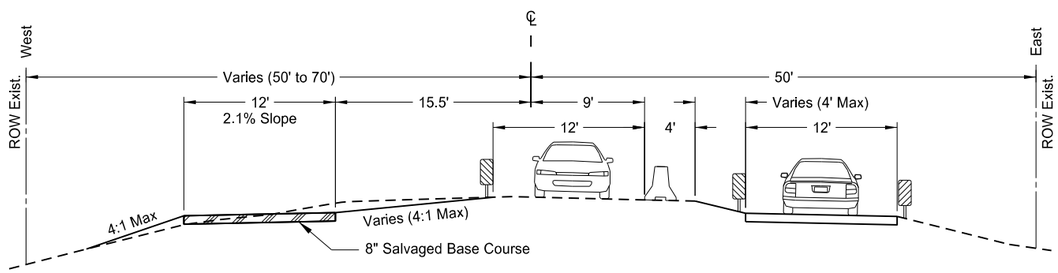
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	4



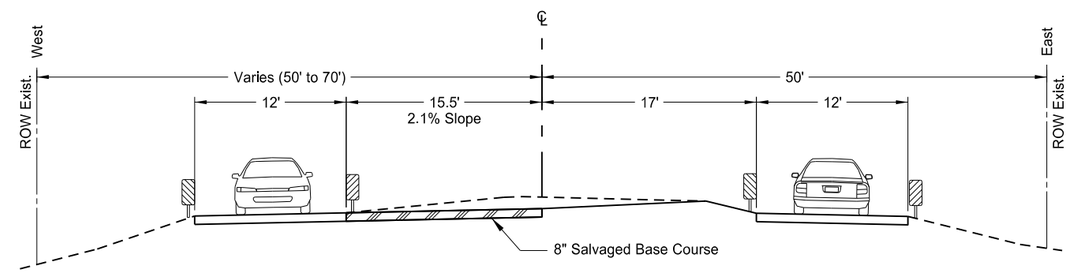
Work Zone Traffic Control
Phase 2
Sta 13049+75 to Sta 13058+25



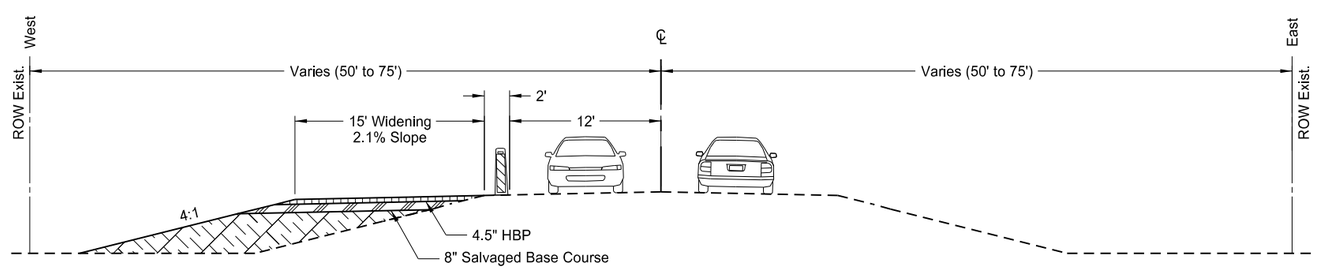
Work Zone Traffic Control
Phase 3
Sta 13049+75 to Sta 13058+25



Work Zone Traffic Control
Phase 2
Sta 13058+25 to Sta 13070+00



Work Zone Traffic Control
Phase 3
Sta 13058+25 to Sta 13070+00



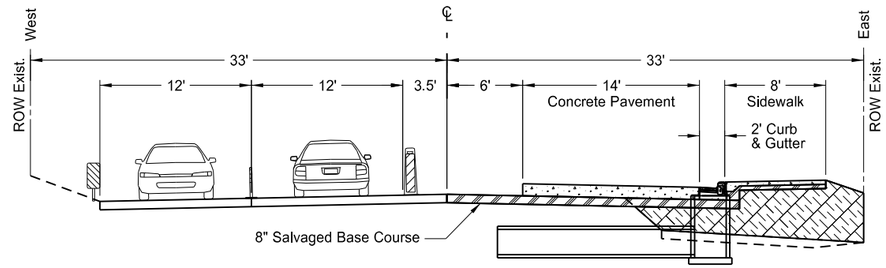
Work Zone Traffic Control
Phase 2-3
Sta 13070+00 to Sta 13105+05

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

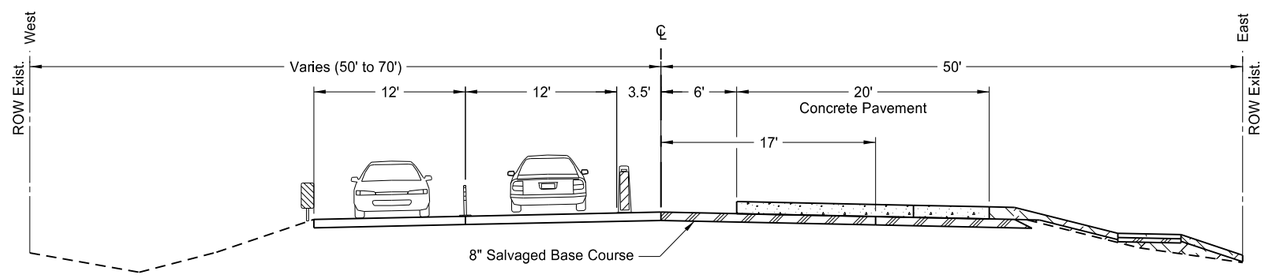
ND Hwy 1804

Work Zone Traffic Control
Typical Sections
Phases 2 & 3

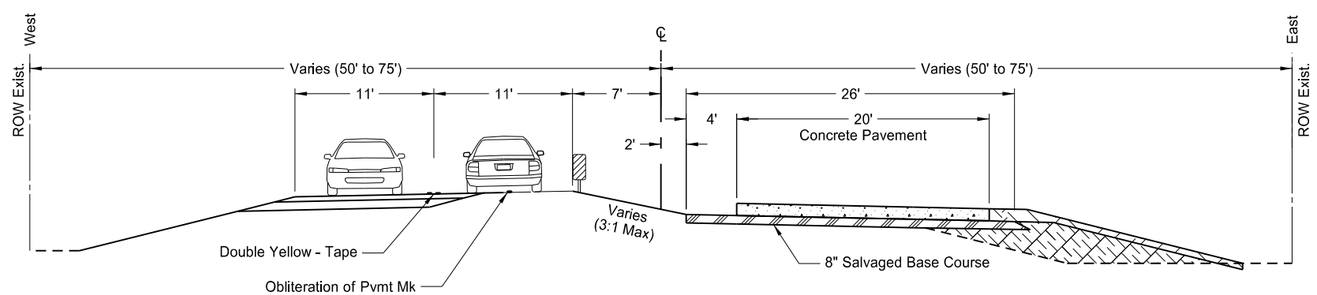
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	5



Work Zone Traffic Control
Phase 4
Sta 13049+75 to Sta 13058+25



Work Zone Traffic Control
Phase 4
Sta 13058+25 to Sta 13070+00



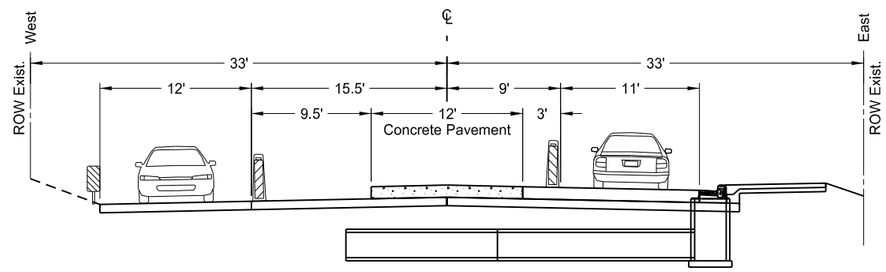
Work Zone Traffic Control
Phase 4
Sta 13070+00 to Sta 13105+05

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

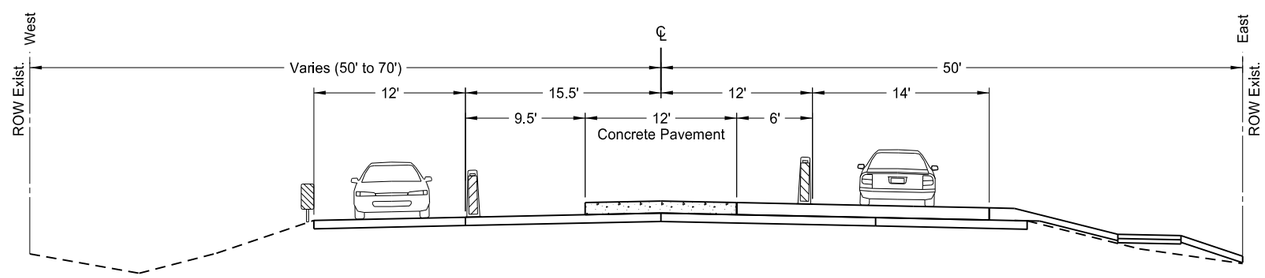
ND Hwy 1804

Work Zone Traffic Control
Typical Sections
Phase 4

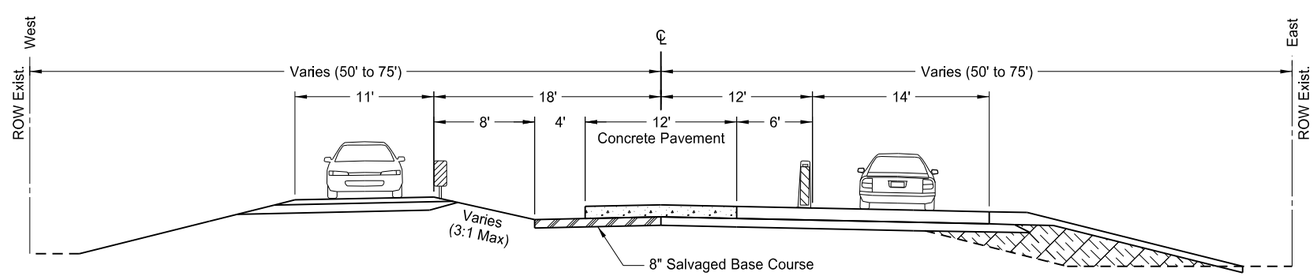
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	6



Work Zone Traffic Control
Phase 5
Sta 13049+75 to Sta 13058+25



Work Zone Traffic Control
Phase 5
Sta 13058+25 to Sta 13070+00



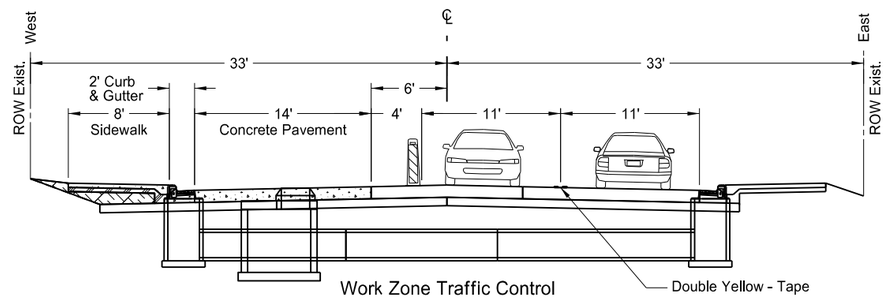
Work Zone Traffic Control
Phase 5
Sta 13070+00 to Sta 13105+05

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

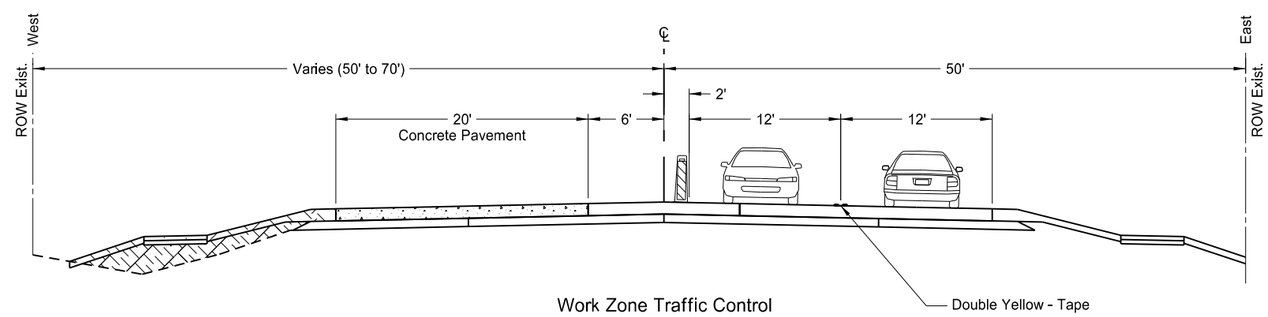
ND Hwy 1804

Work Zone Traffic Control
Typical Sections
Phase 5

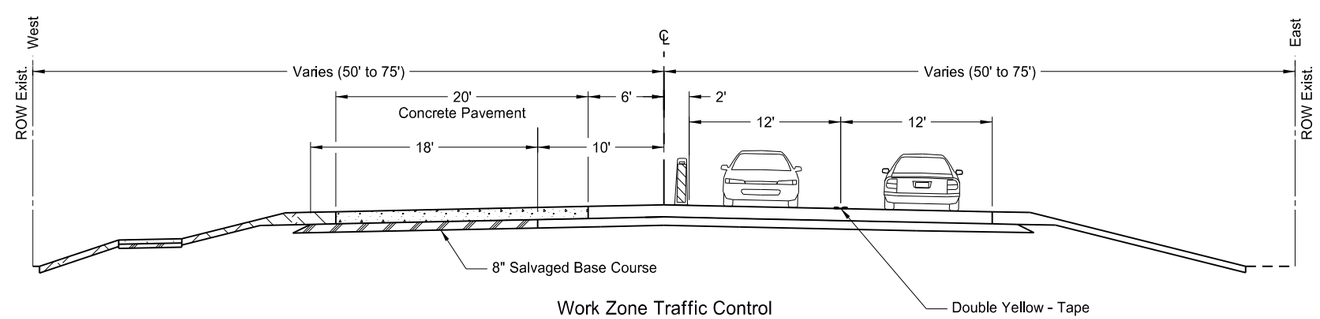
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	7



Work Zone Traffic Control
Phase 6
Sta 13049+75 to Sta 13058+25



Work Zone Traffic Control
Phase 6
Sta 13058+25 to Sta 13070+00



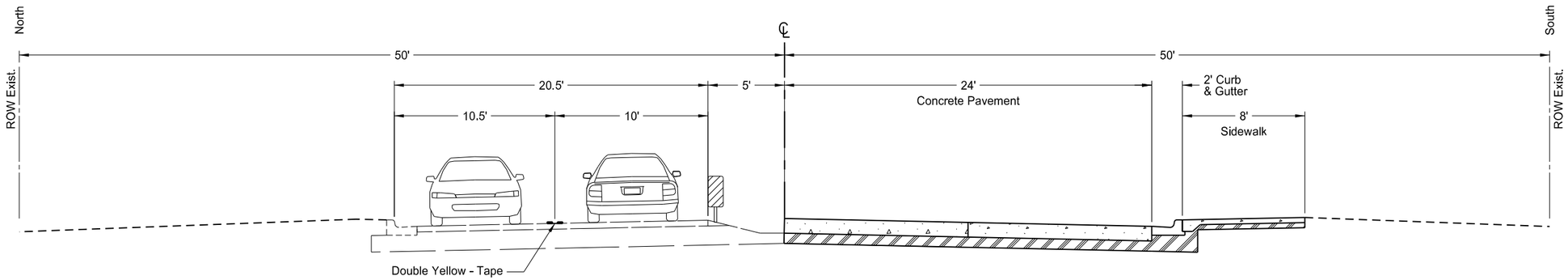
Work Zone Traffic Control
Phase 6
Sta 13070+00 to Sta 13105+05

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

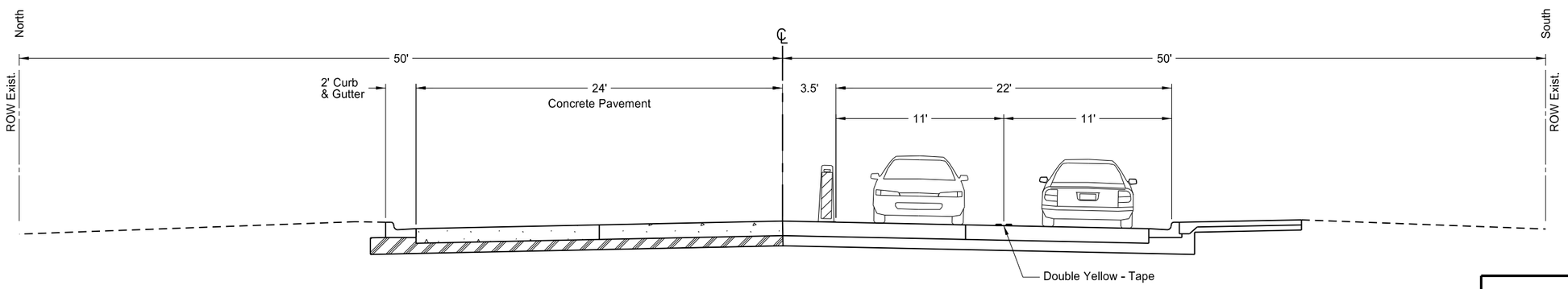
ND Hwy 1804

Work Zone Traffic Control
Typical Sections
Phase 6

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	8



Work Zone Traffic Control
Phase 2
ND 23



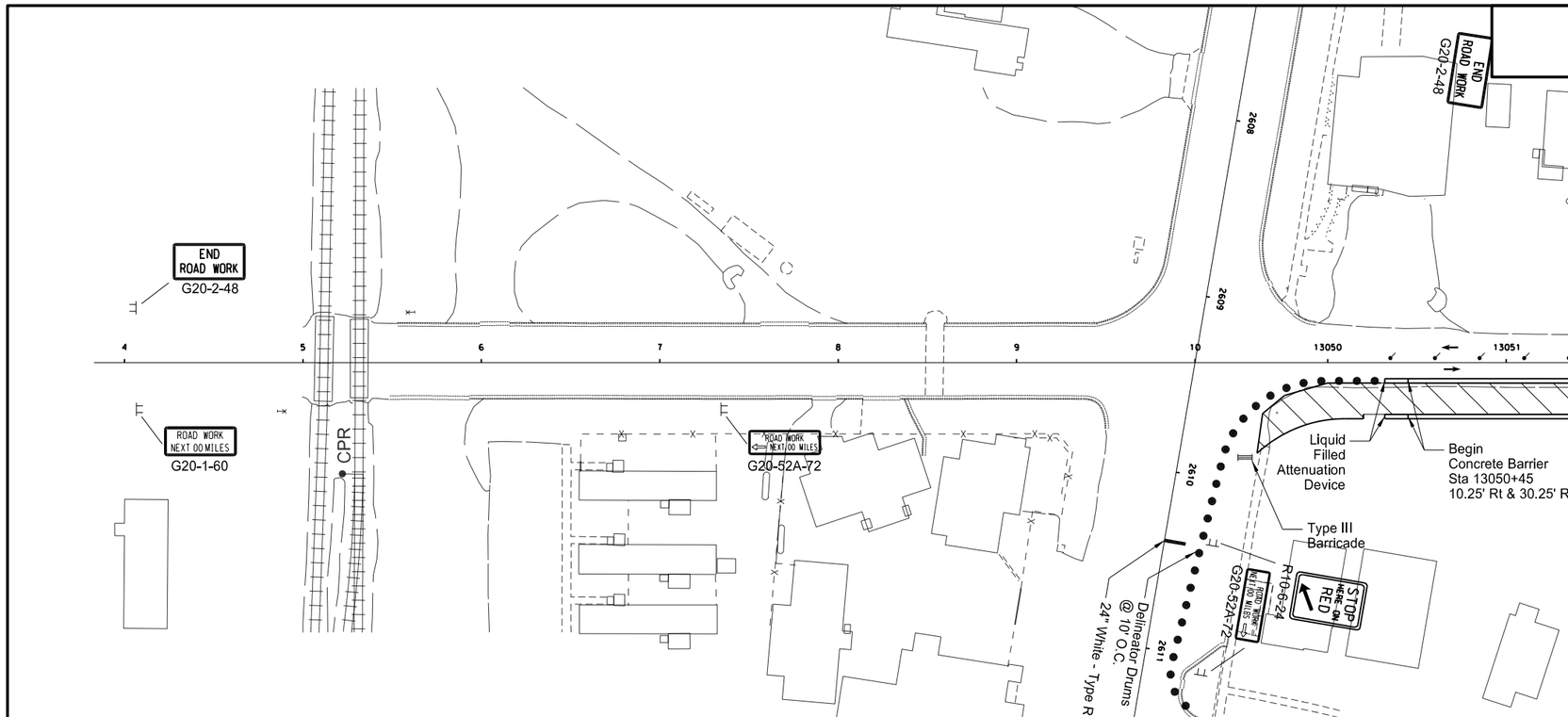
Work Zone Traffic Control
ND 23 - Phase 3 to 6
ND 23

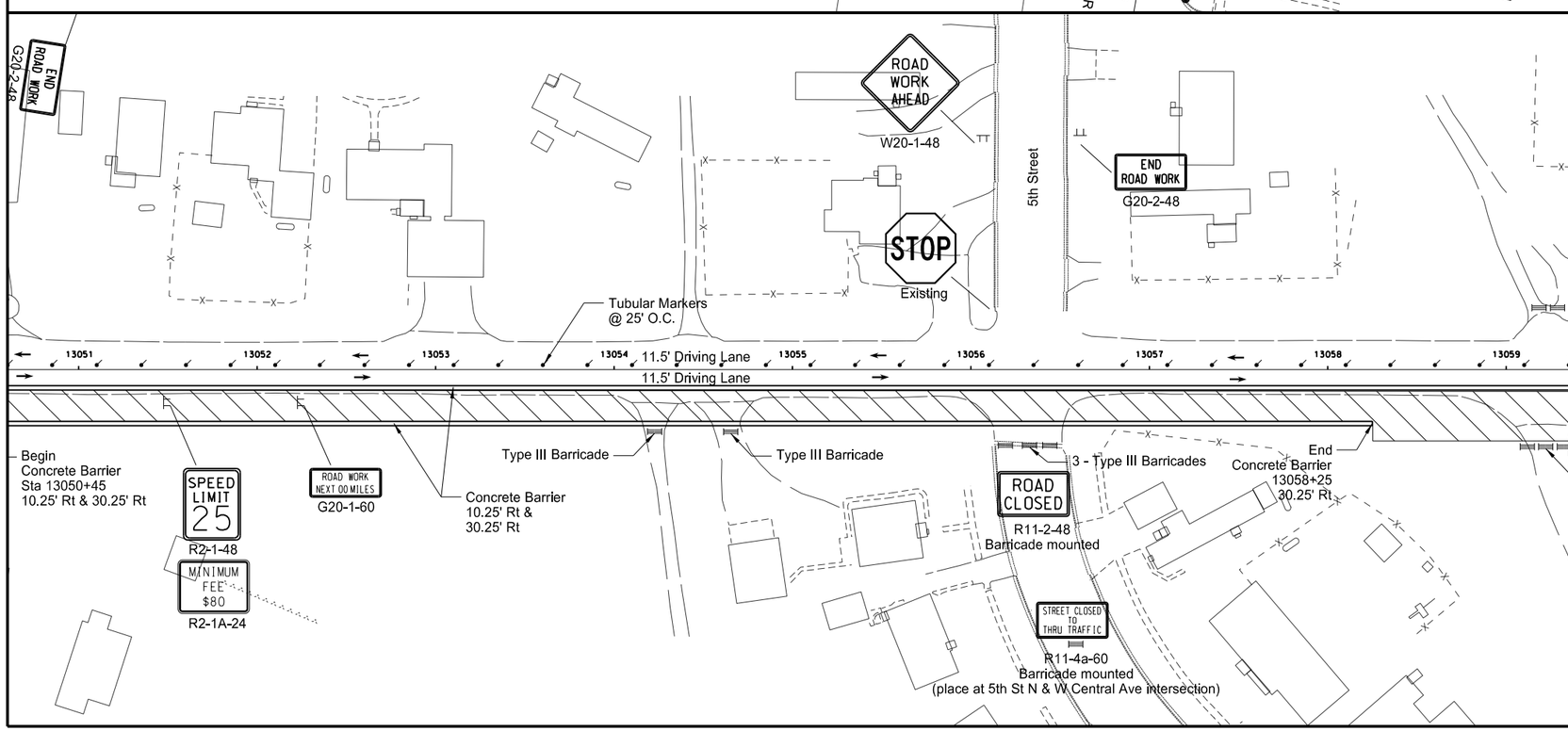
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

ND Hwy 23

Work Zone Traffic Control
Typical Sections
Phases 2 to 6

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	9





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

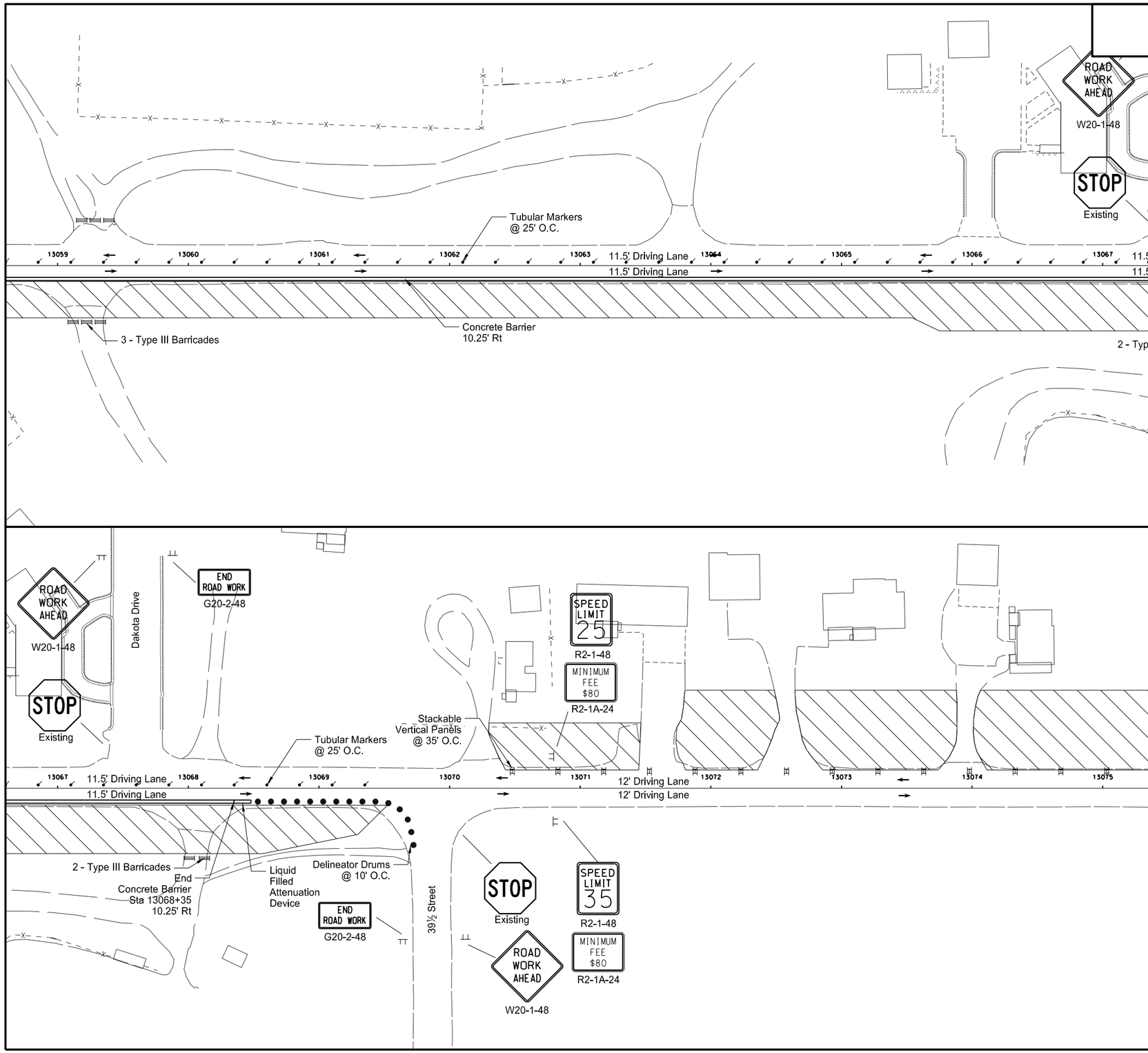
Work Zone Traffic Control

Phase 1

ND 1804

12/18/2013 3:26:38 PM darne R:\project\71804247.049\design\WZTC\100WZ_009_Hwy_1804_Phase_1.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	10



Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

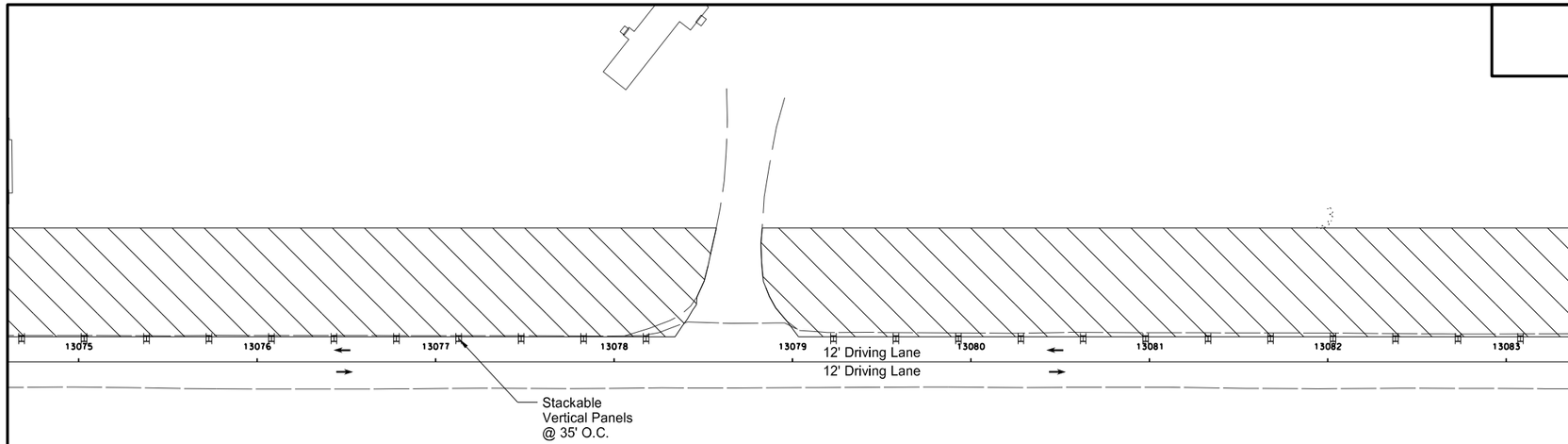
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

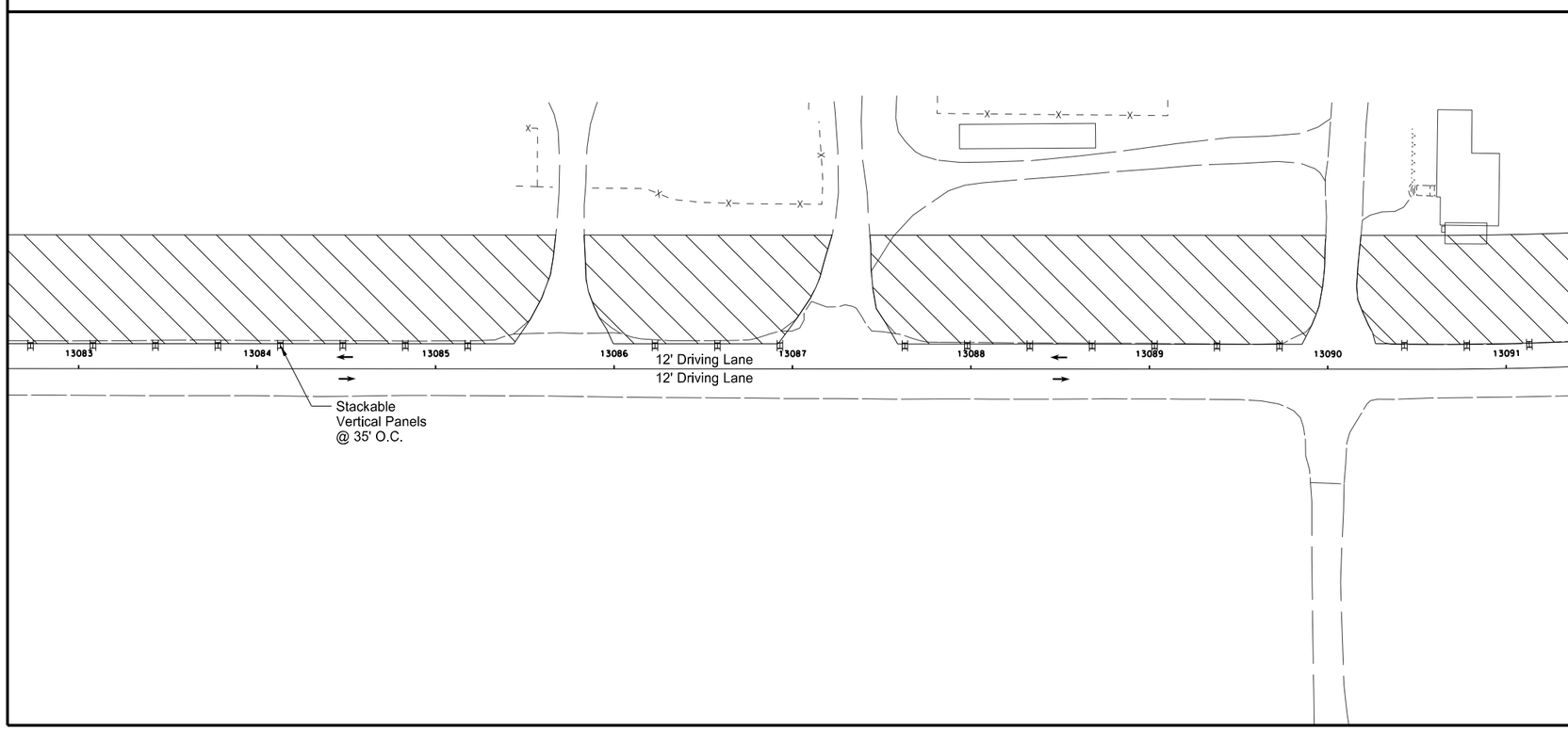
Work Zone Traffic Control

Phase 1

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	11





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

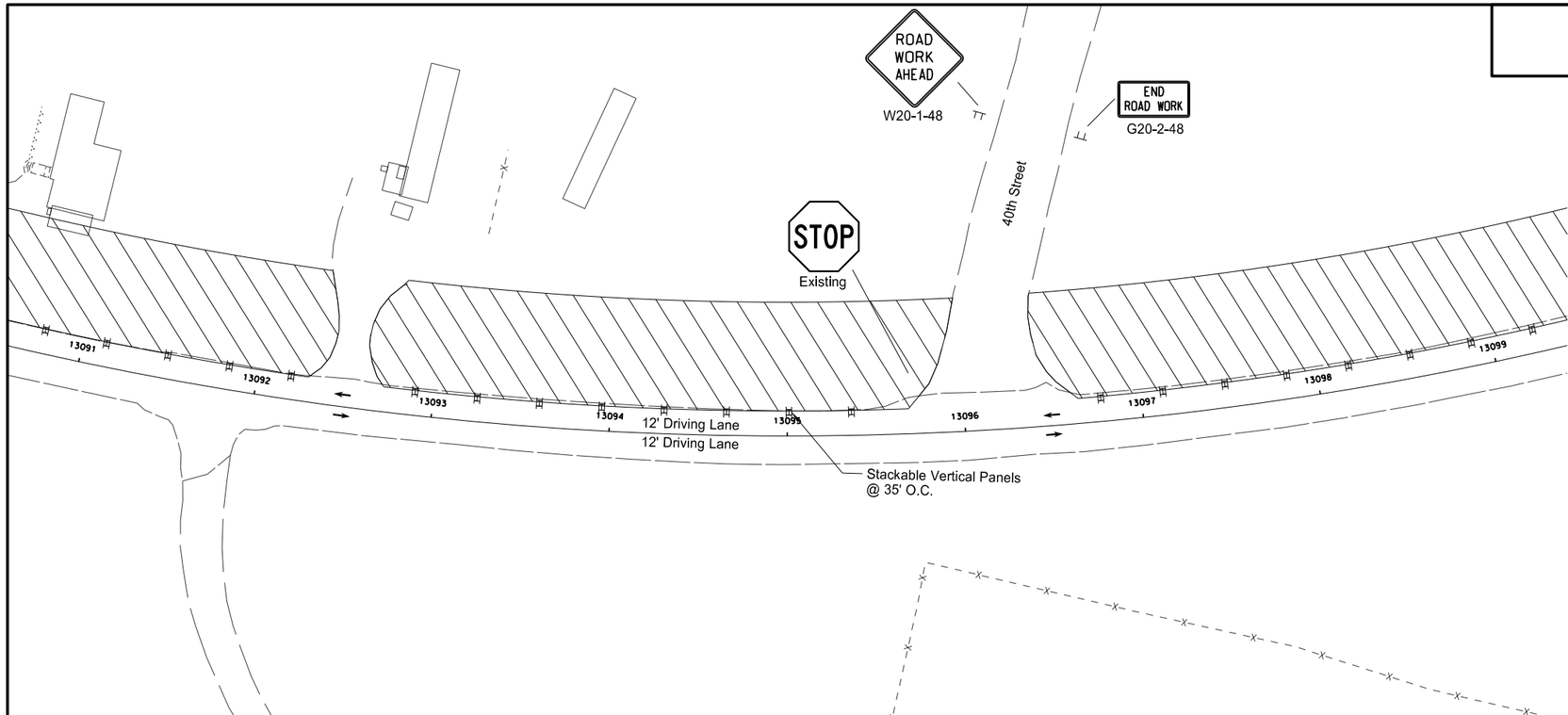
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

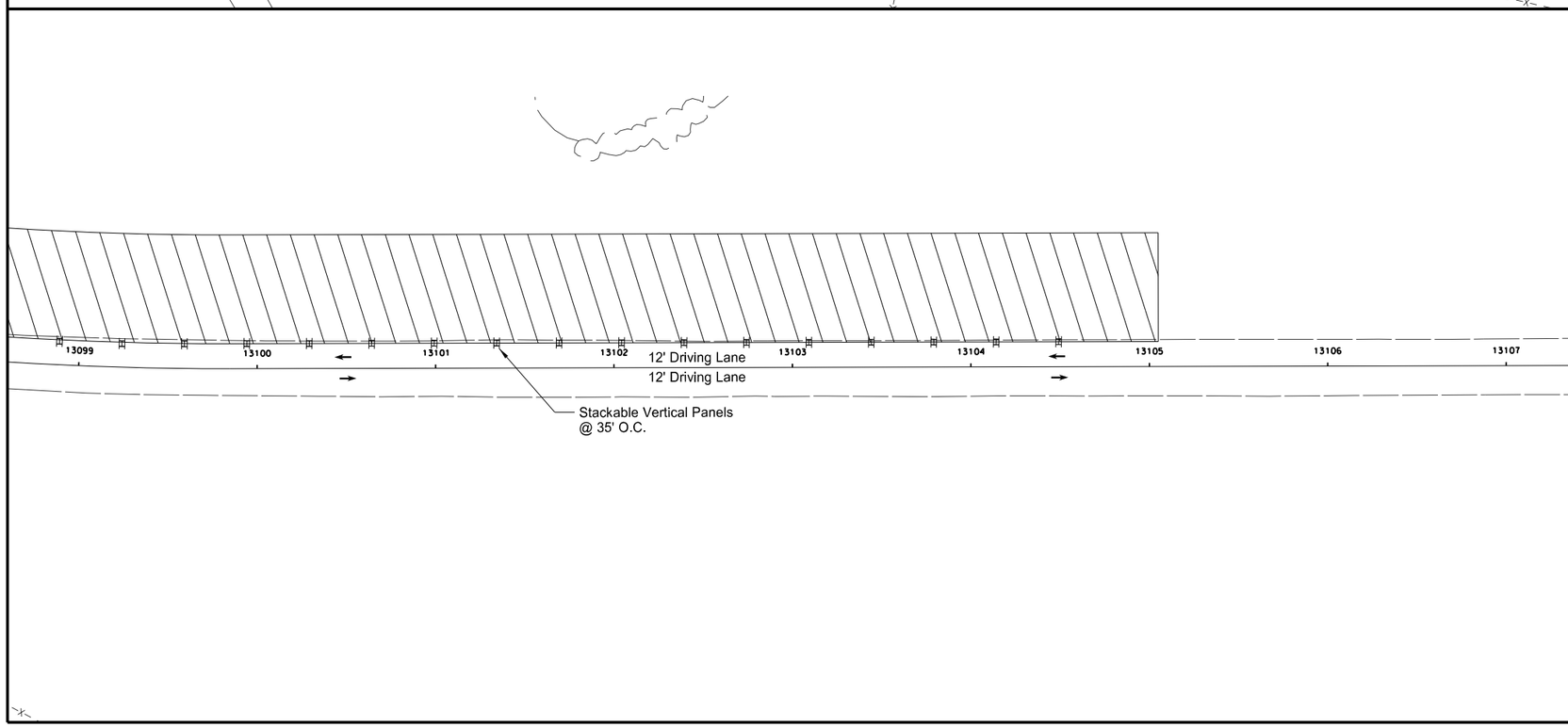
Work Zone Traffic Control

Phase 1

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	12





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

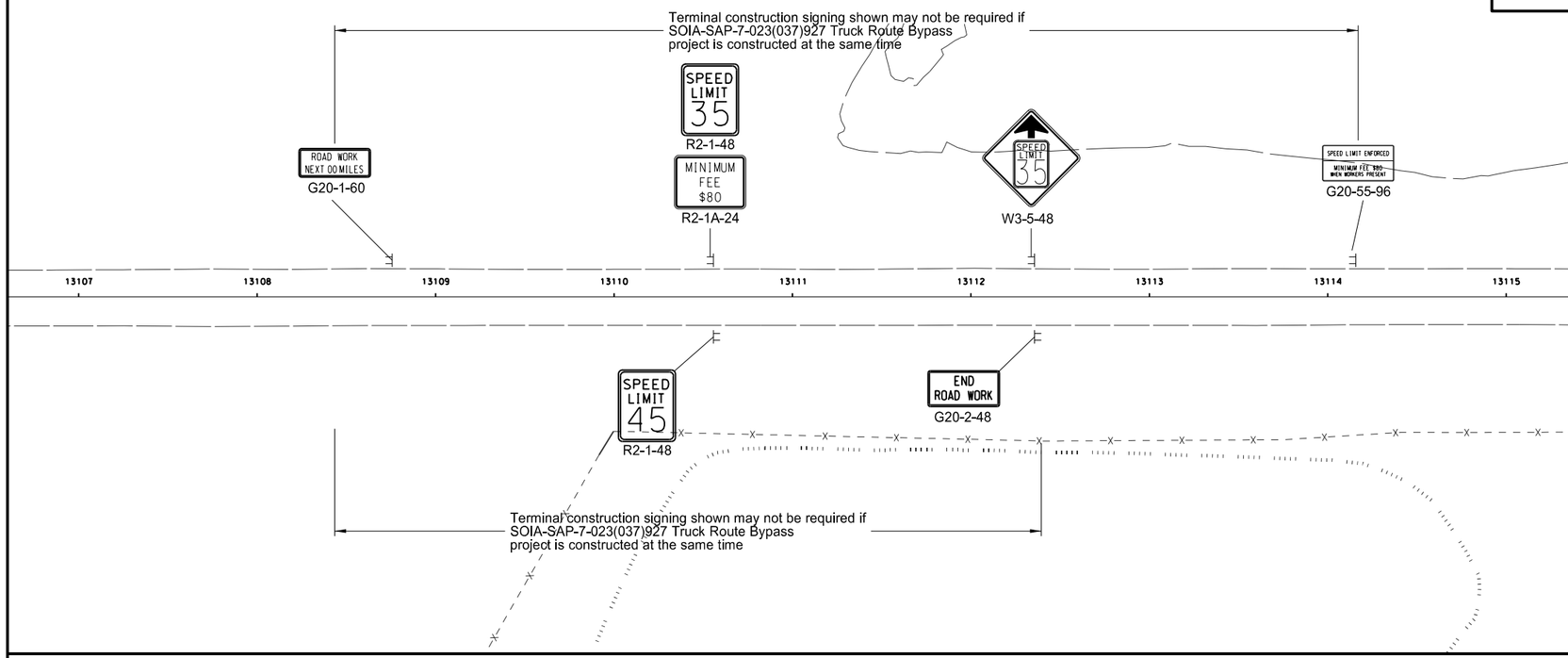
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

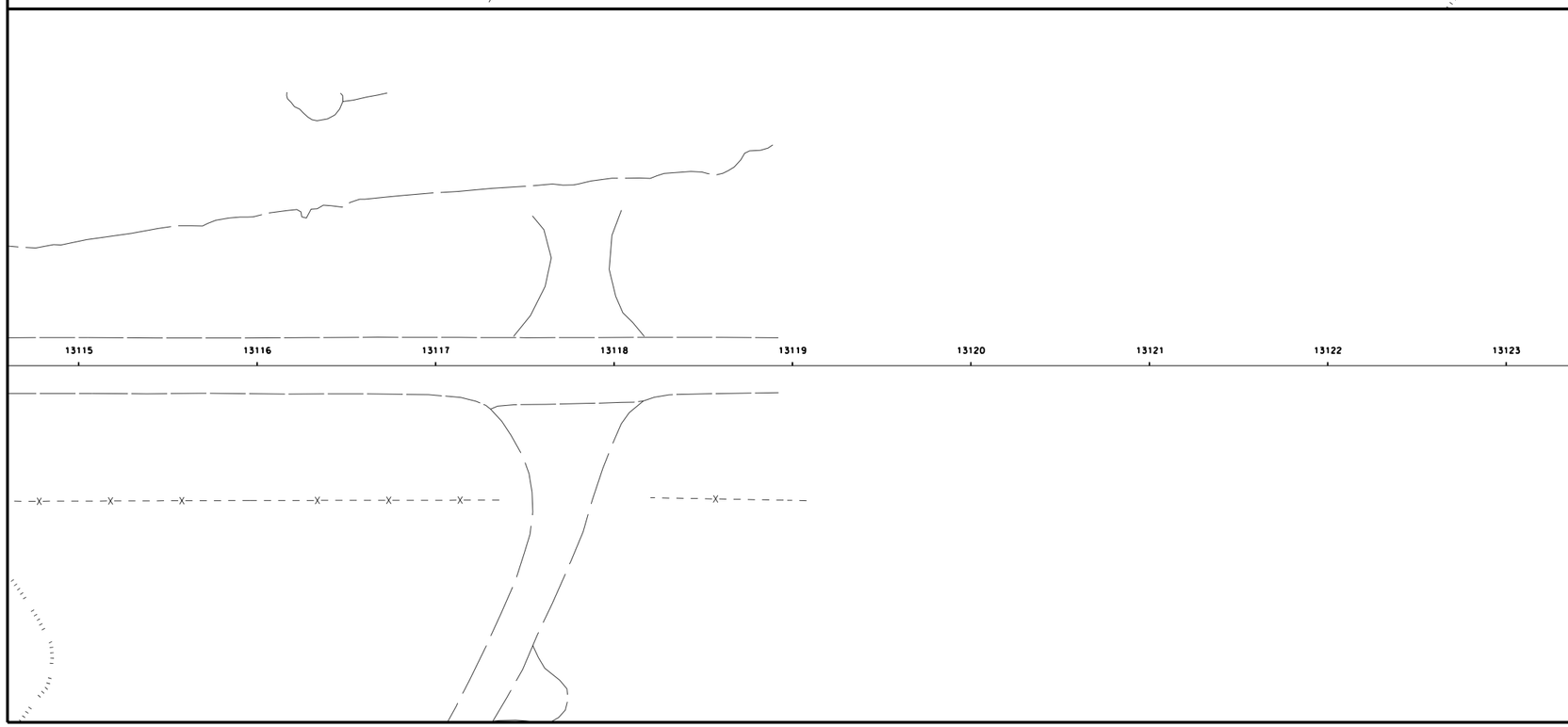
Work Zone Traffic Control

Phase 1

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	13





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

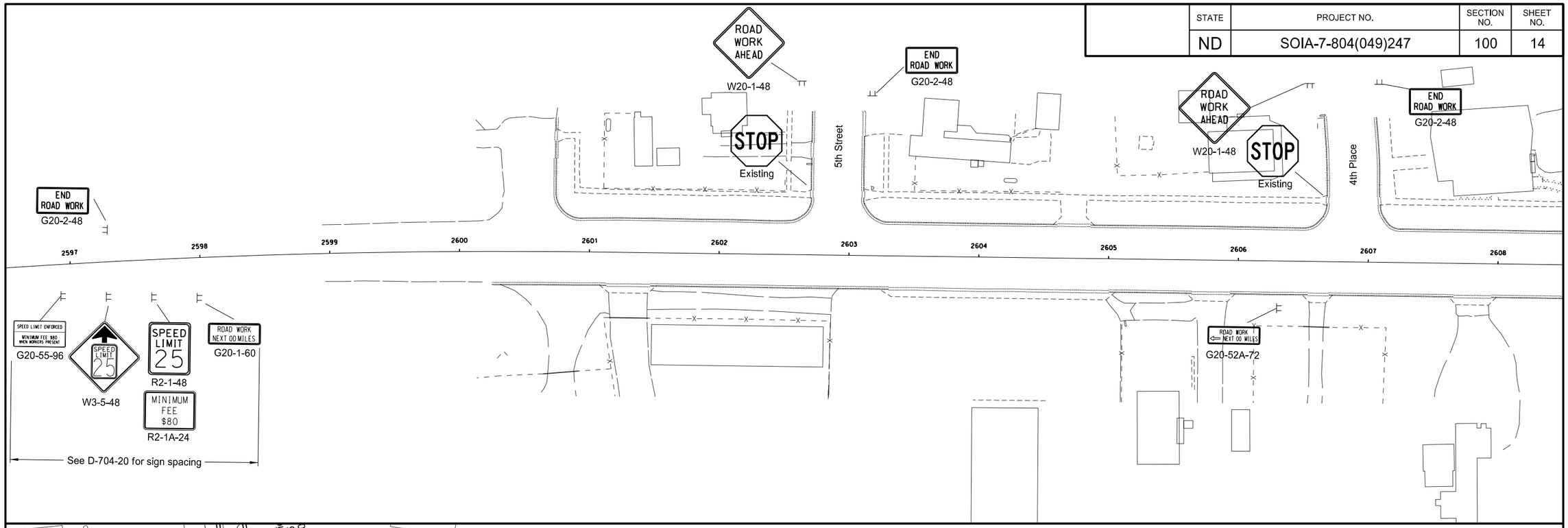
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

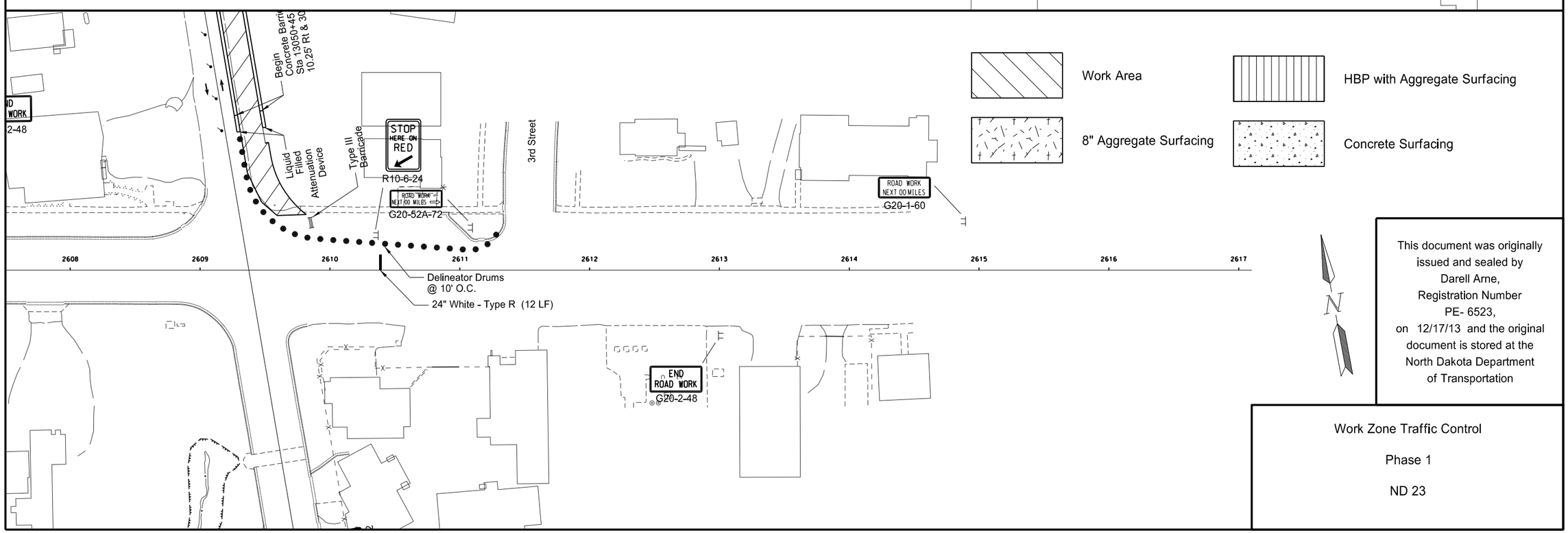
Work Zone Traffic Control

Phase 1

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	14





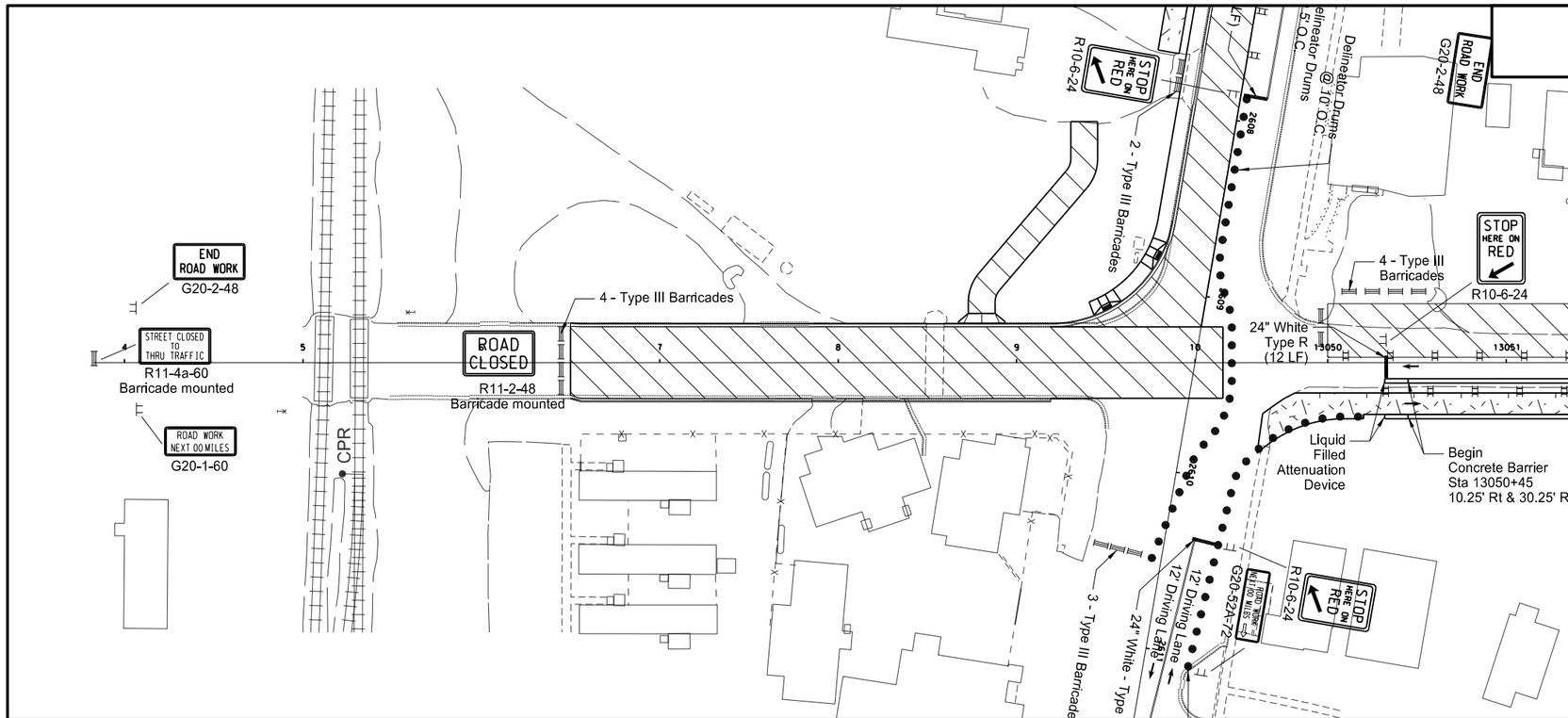
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

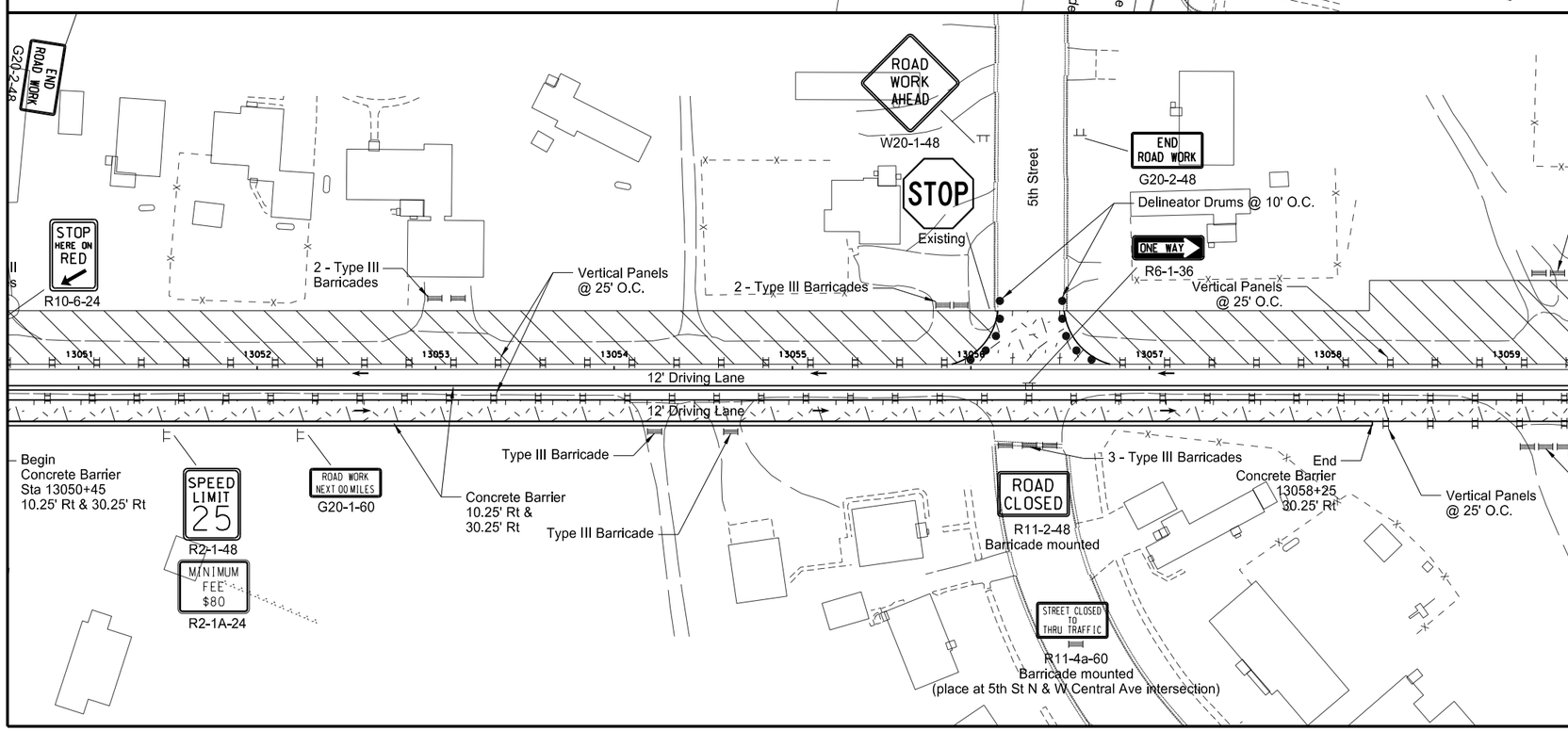
Work Zone Traffic Control

Phase 1

ND 23

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	15





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

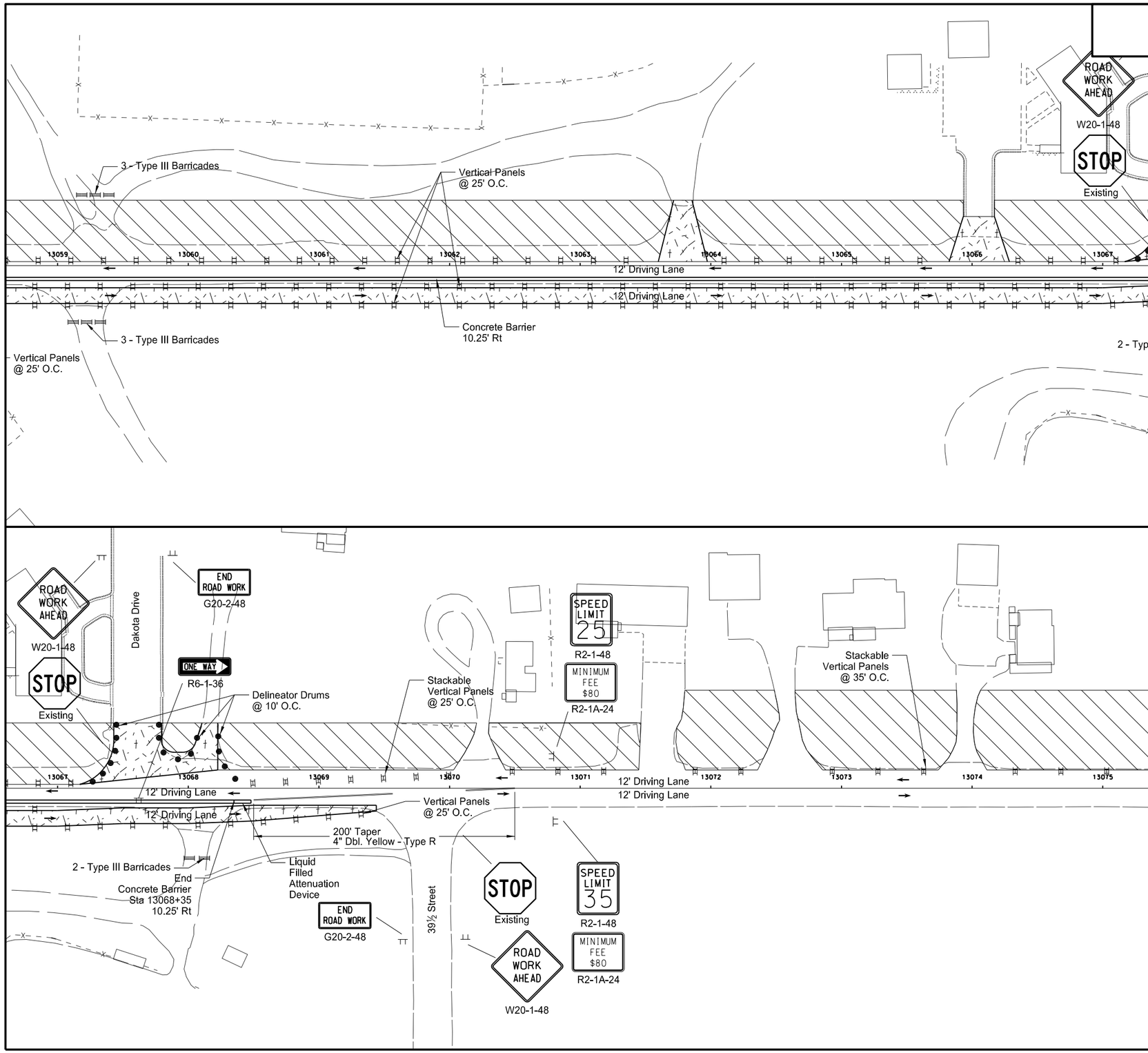
Work Zone Traffic Control

Phase 2

ND 1804

12/18/2013 3:27:03 PM darne R:\project\71804247.049\design\WZTC\100WZ_015_Hwy_1804_Phase_2.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	16



Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

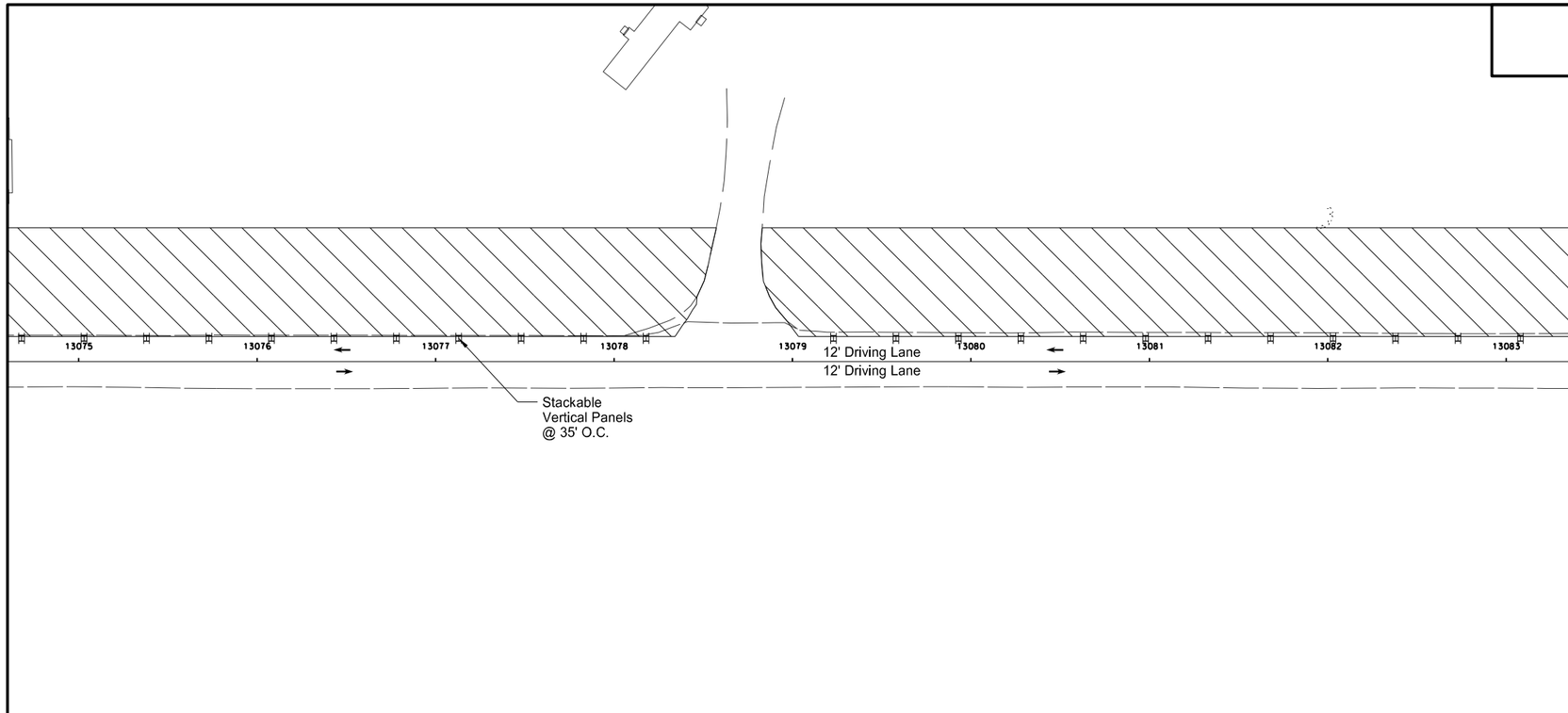
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

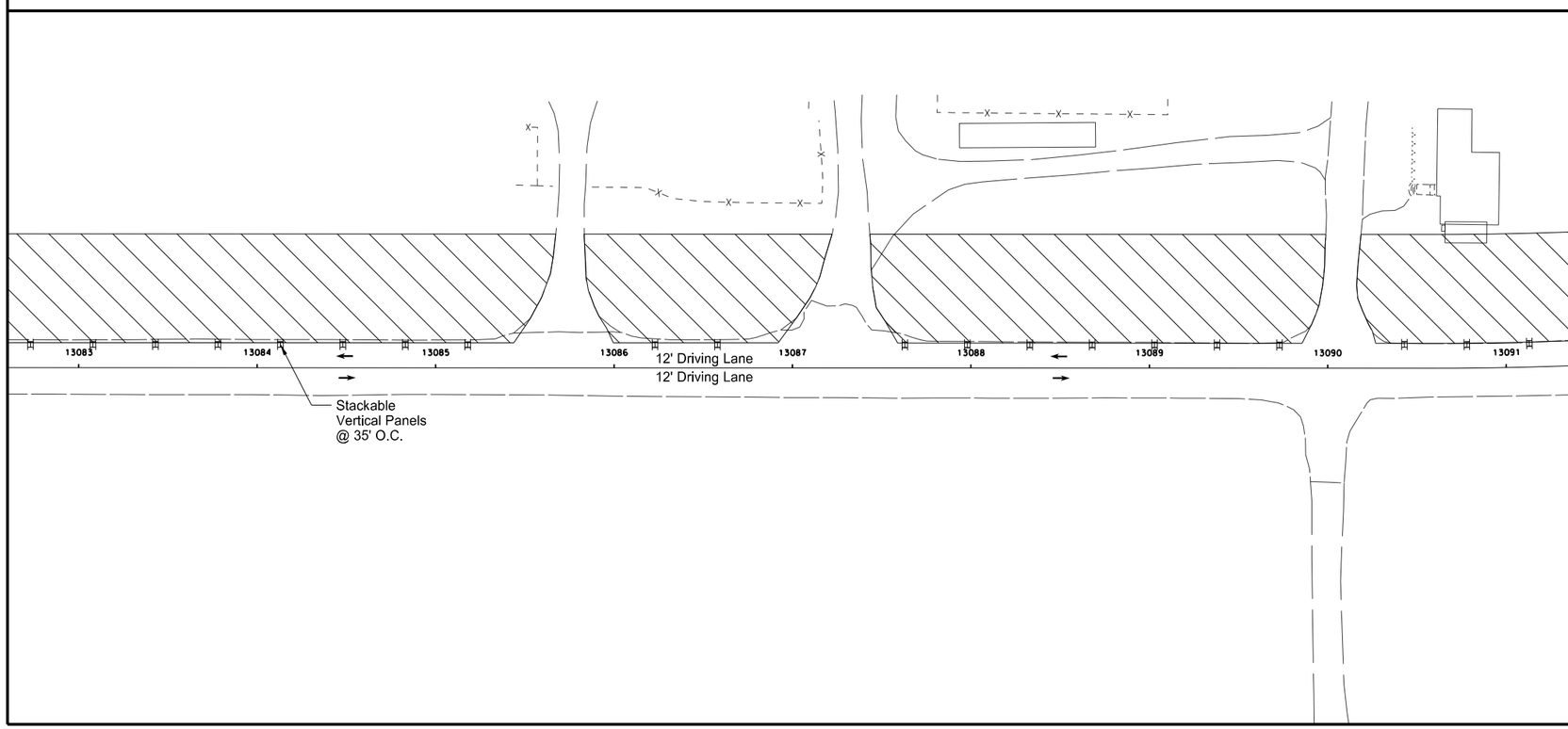
Work Zone Traffic Control

Phase 2

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	17





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

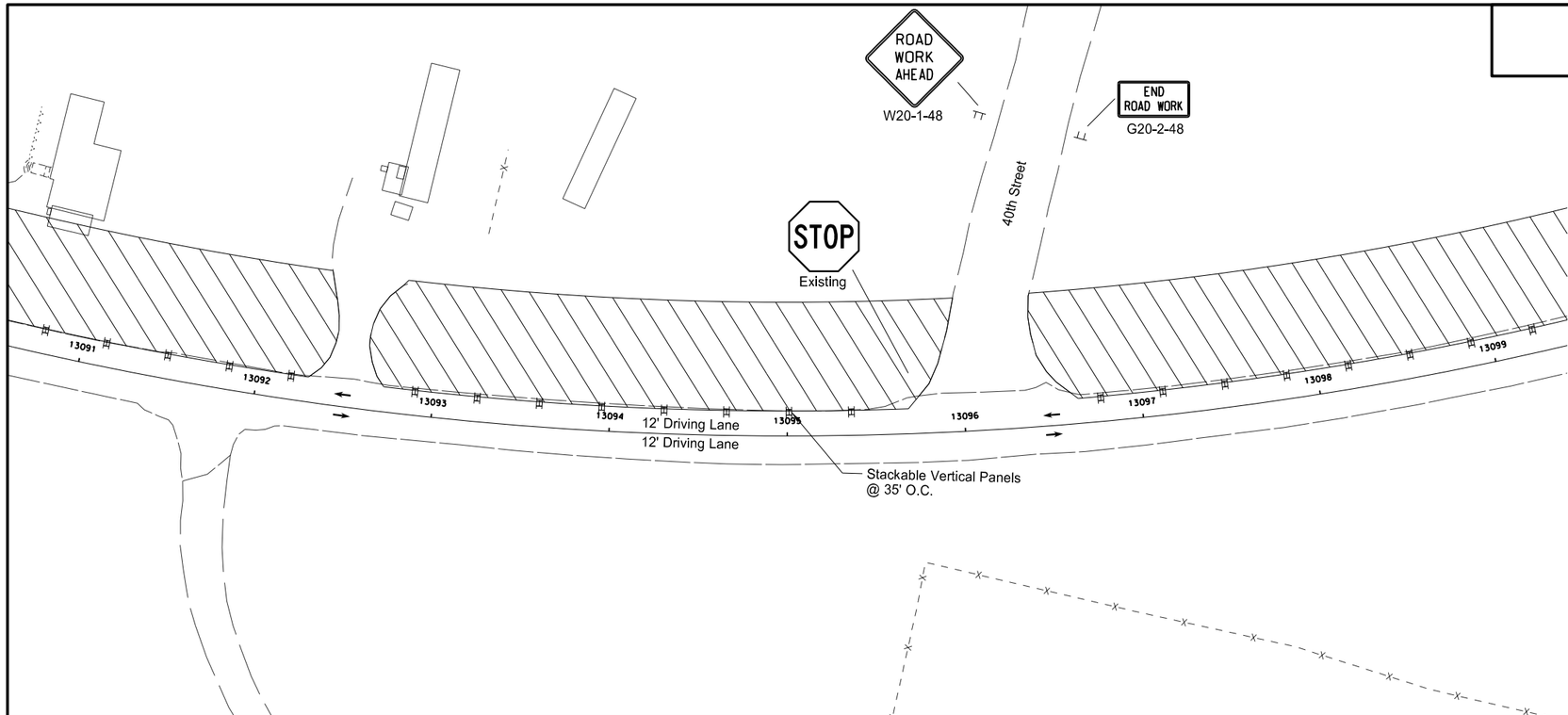
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

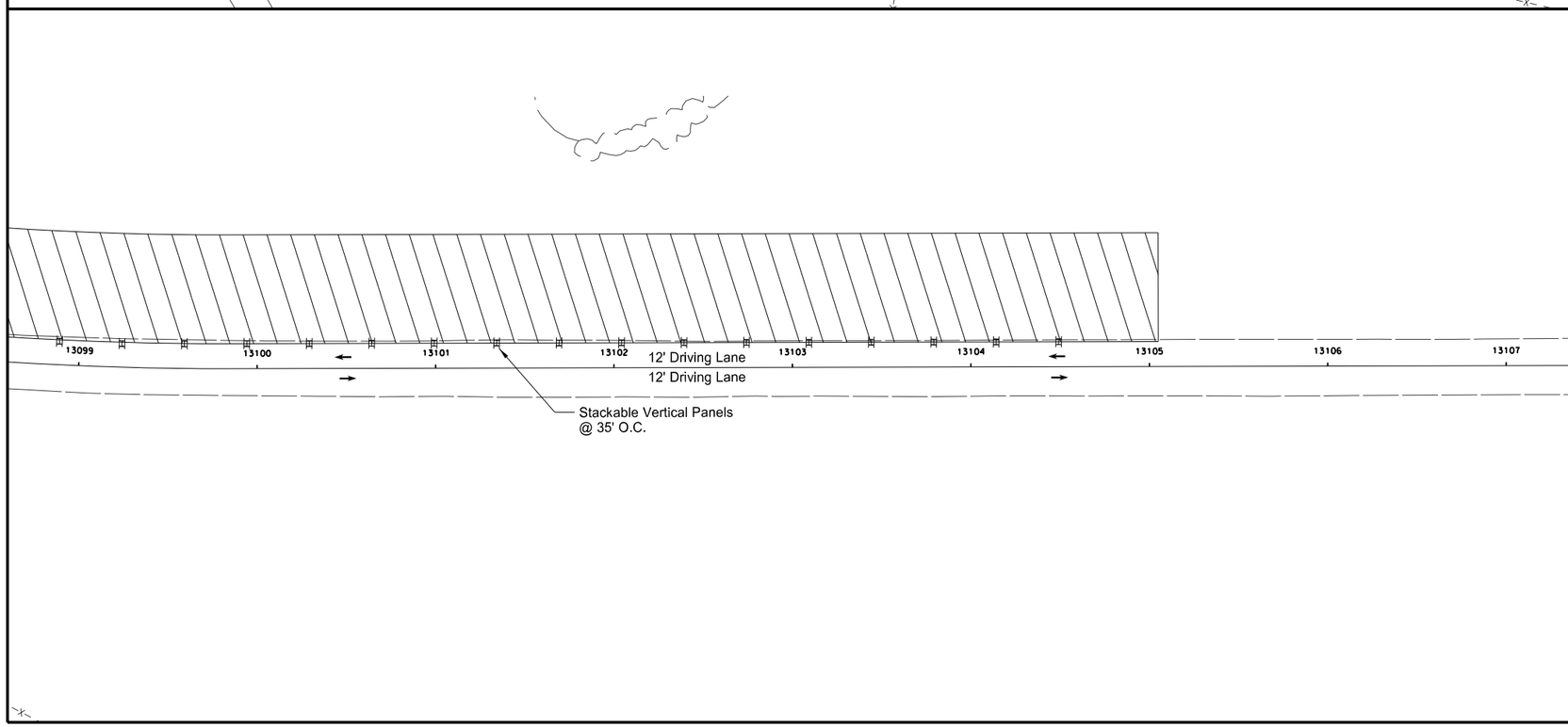
Work Zone Traffic Control

Phase 2

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	18





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

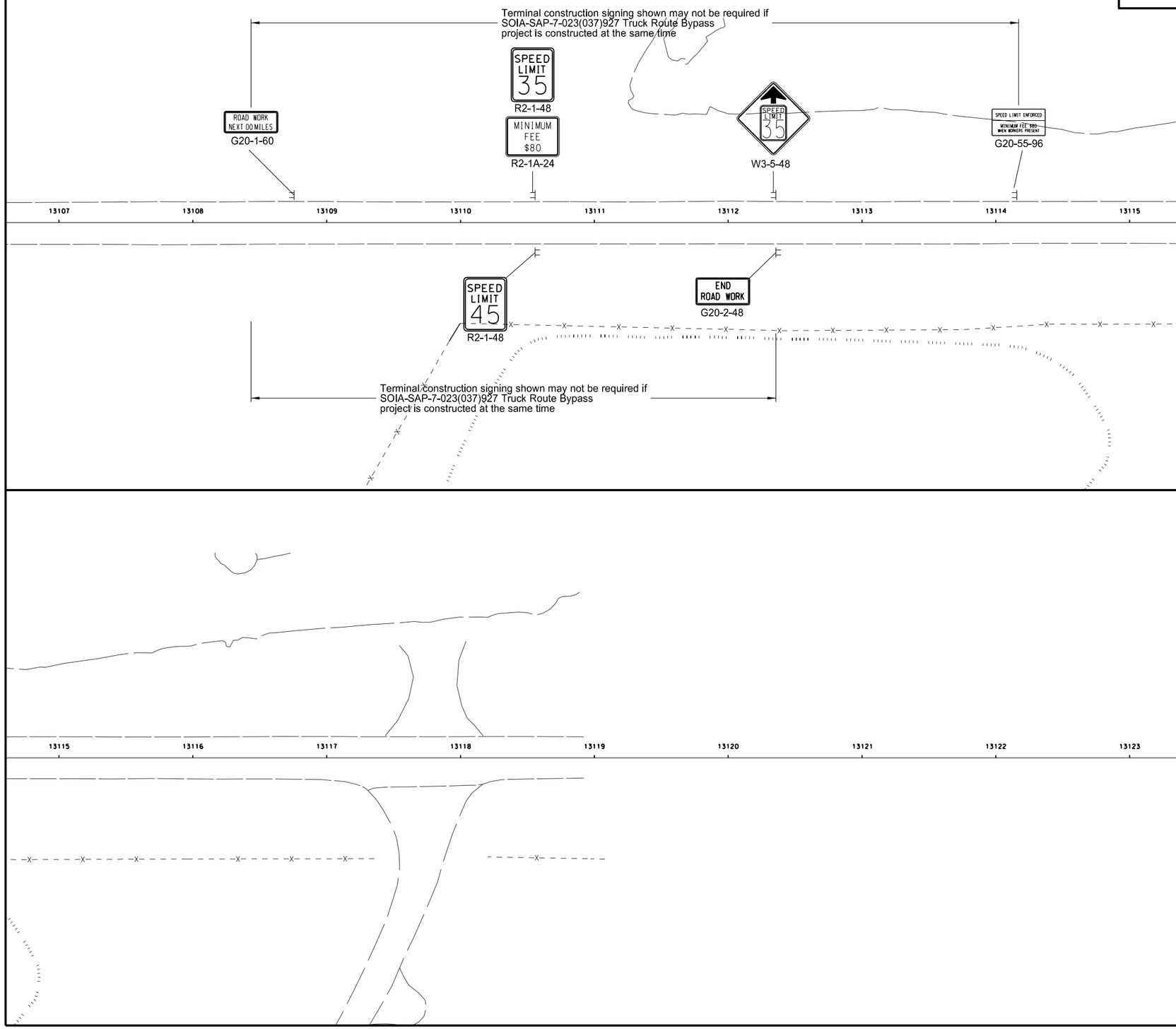
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Phase 2

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	19



Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

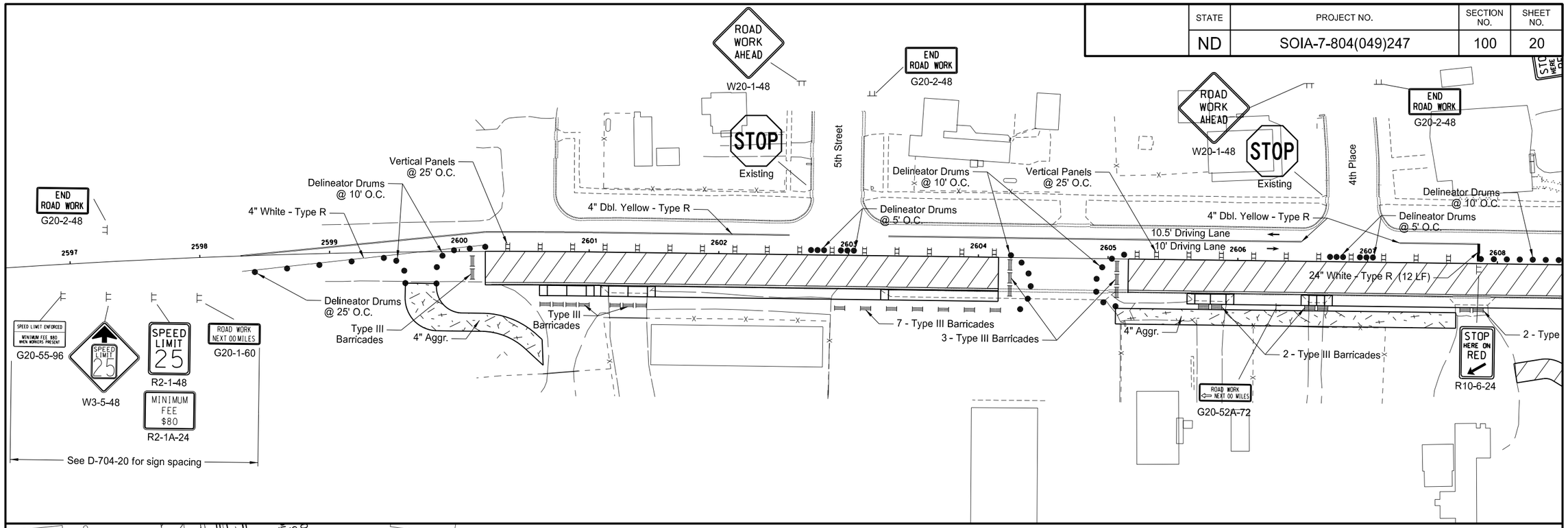
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

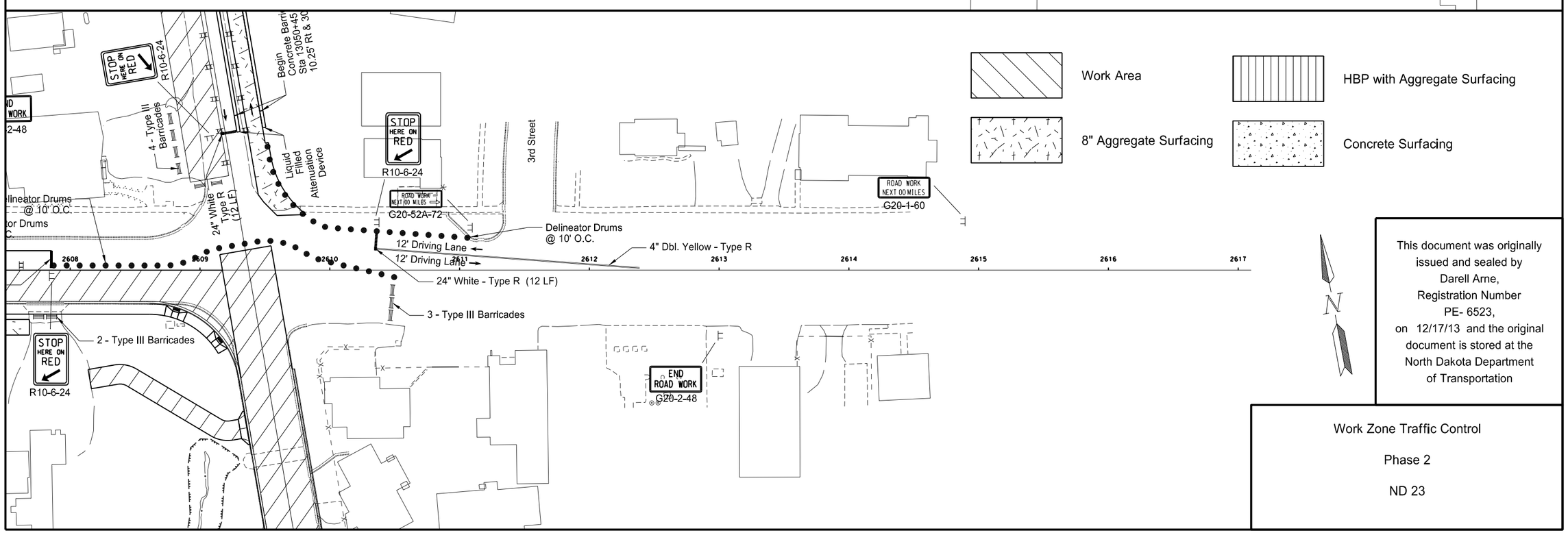
Work Zone Traffic Control

Phase 2

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	20





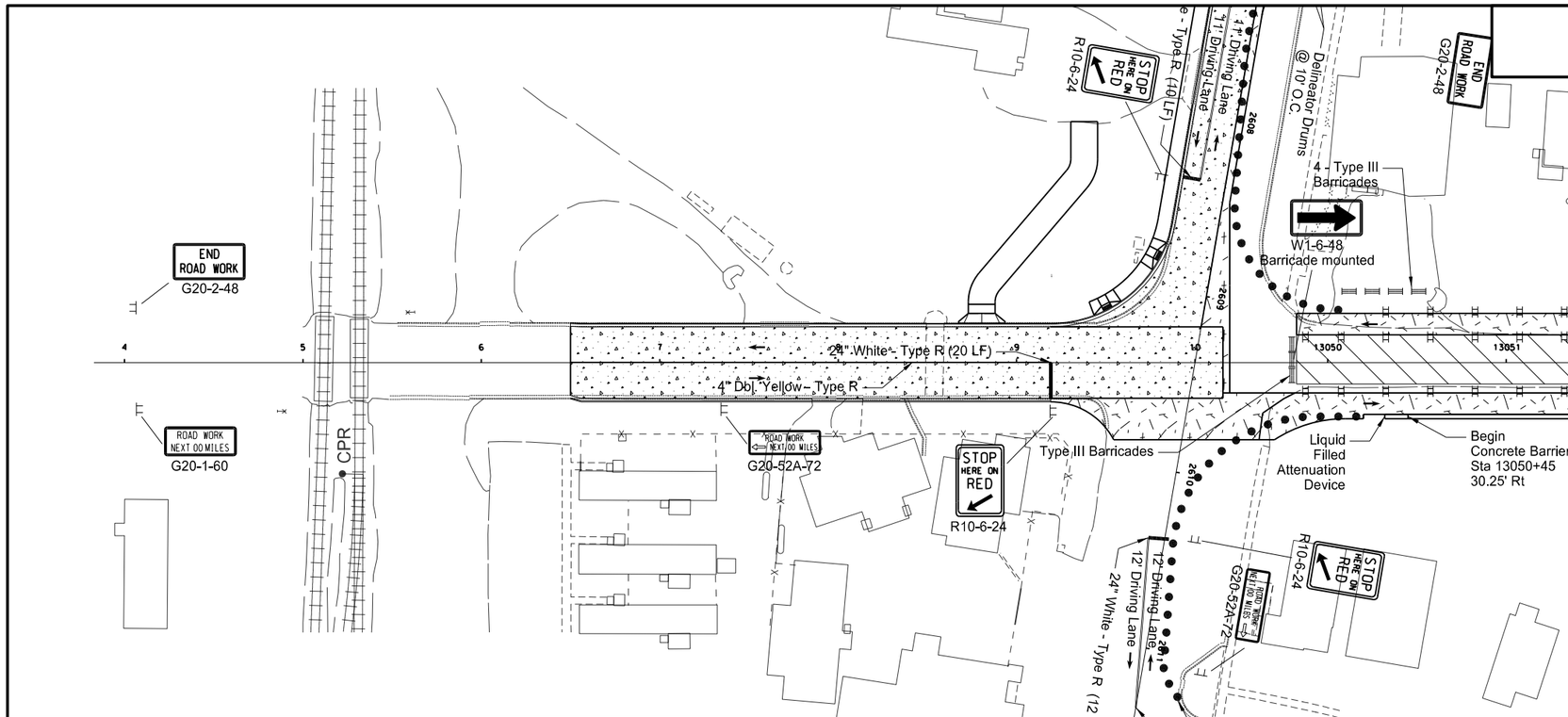
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

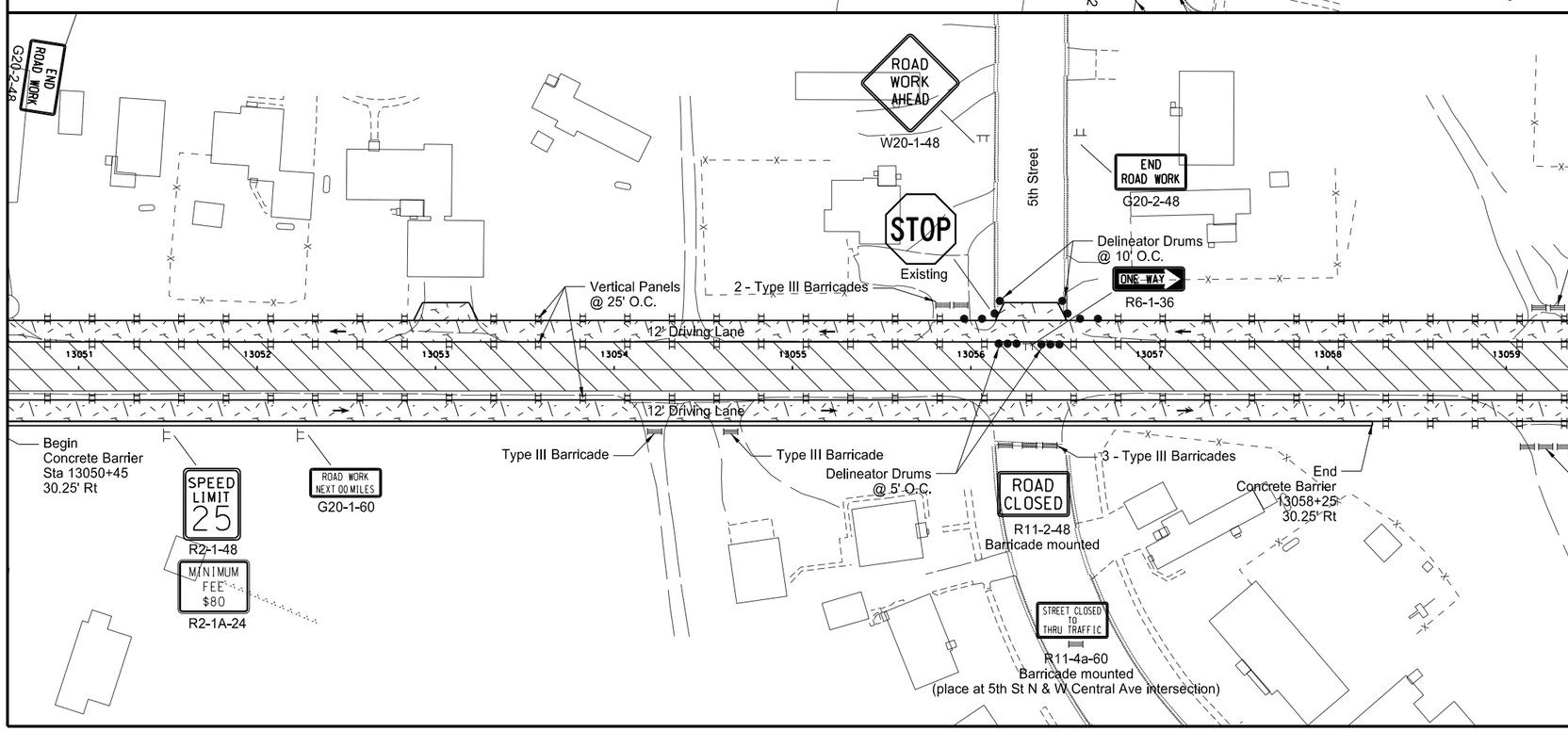
Work Zone Traffic Control

Phase 2

ND 23

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	21





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

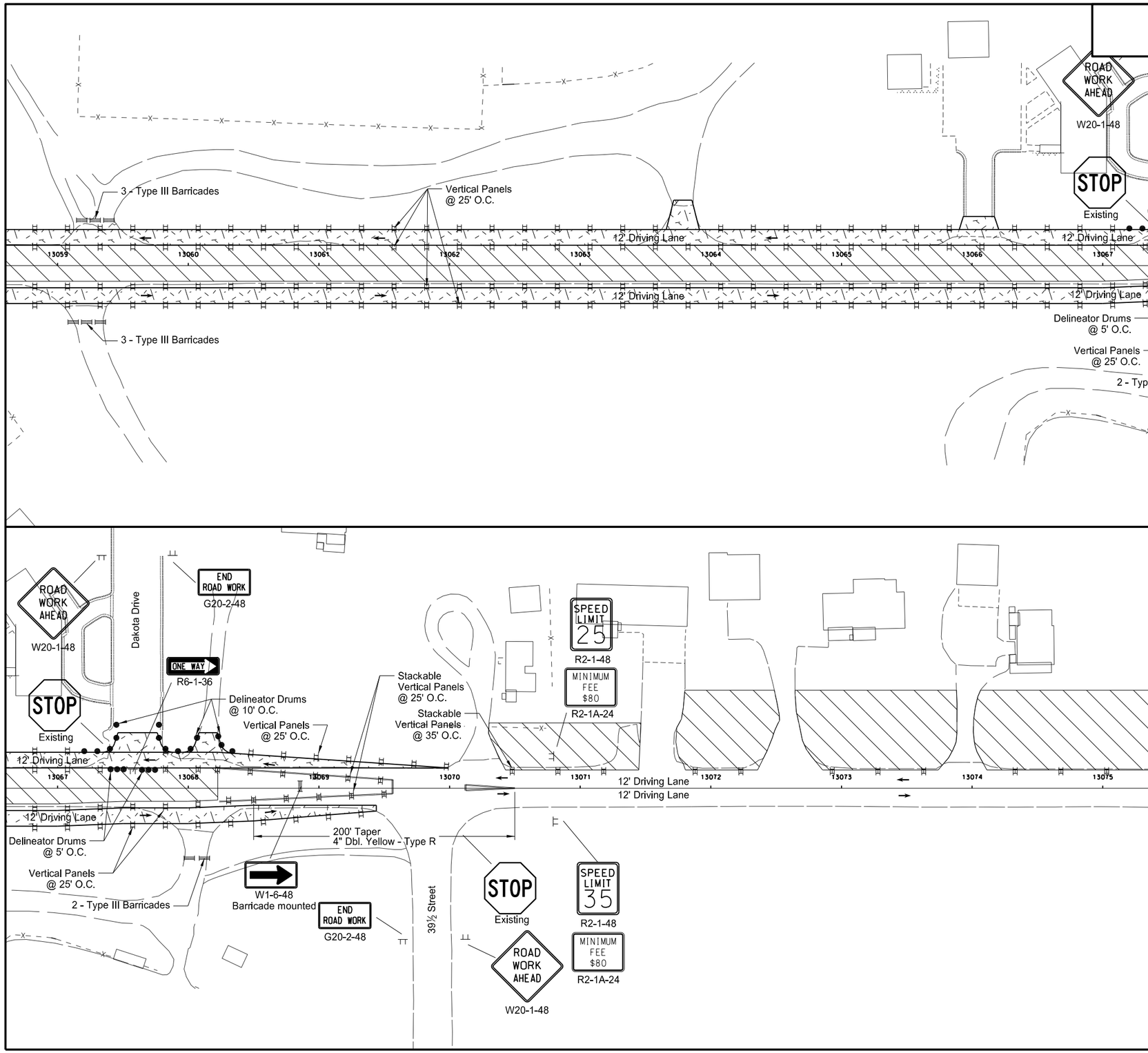
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Phase 3

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	22



Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

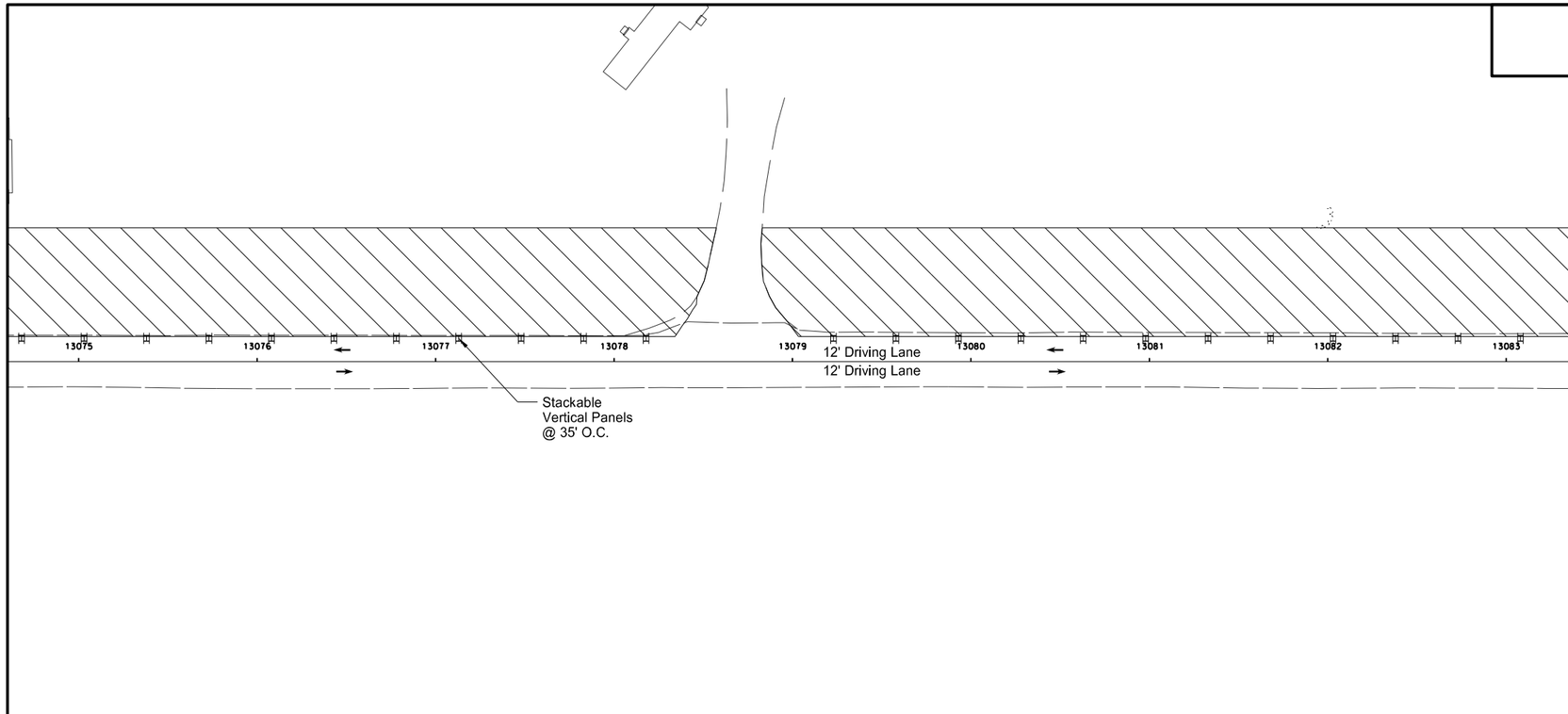
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

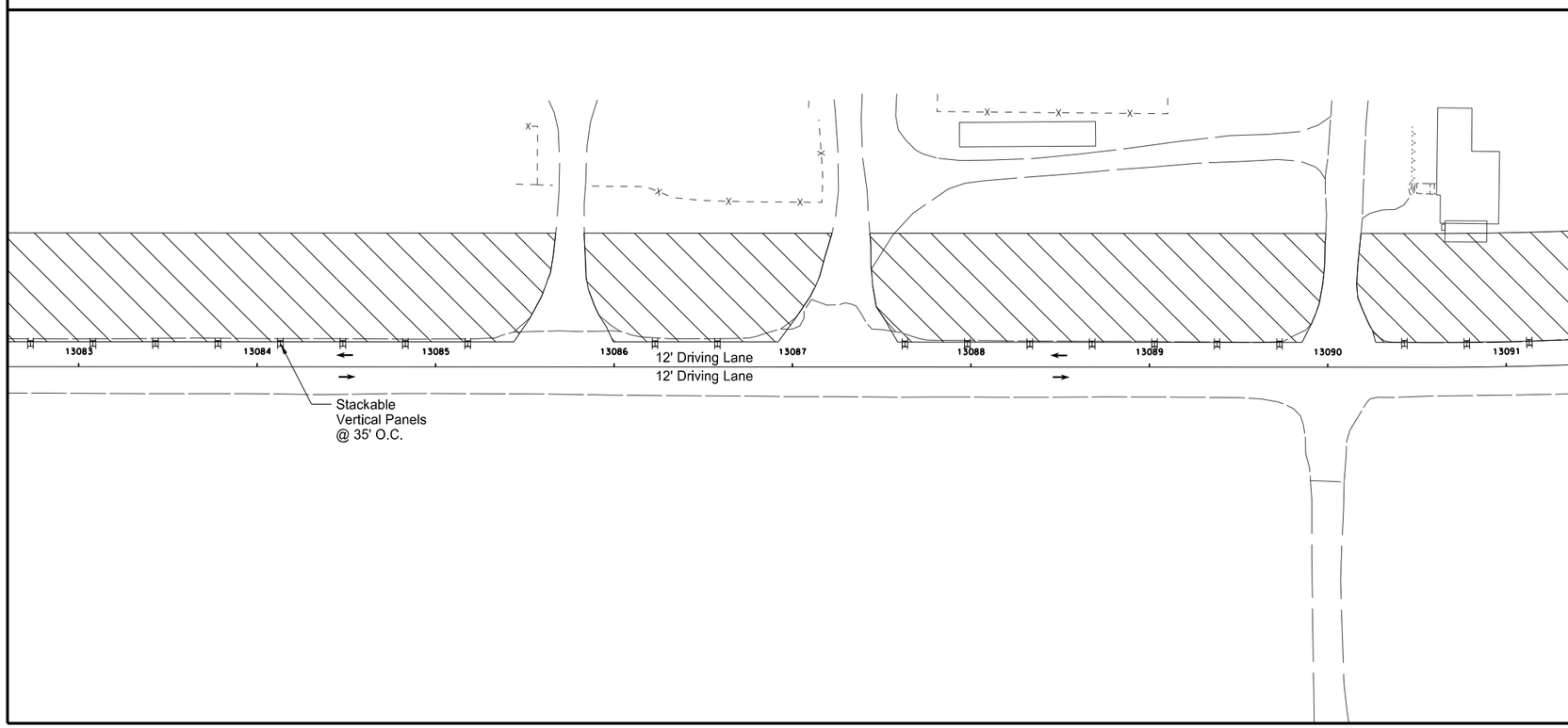
Work Zone Traffic Control

Phase 3

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	23





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

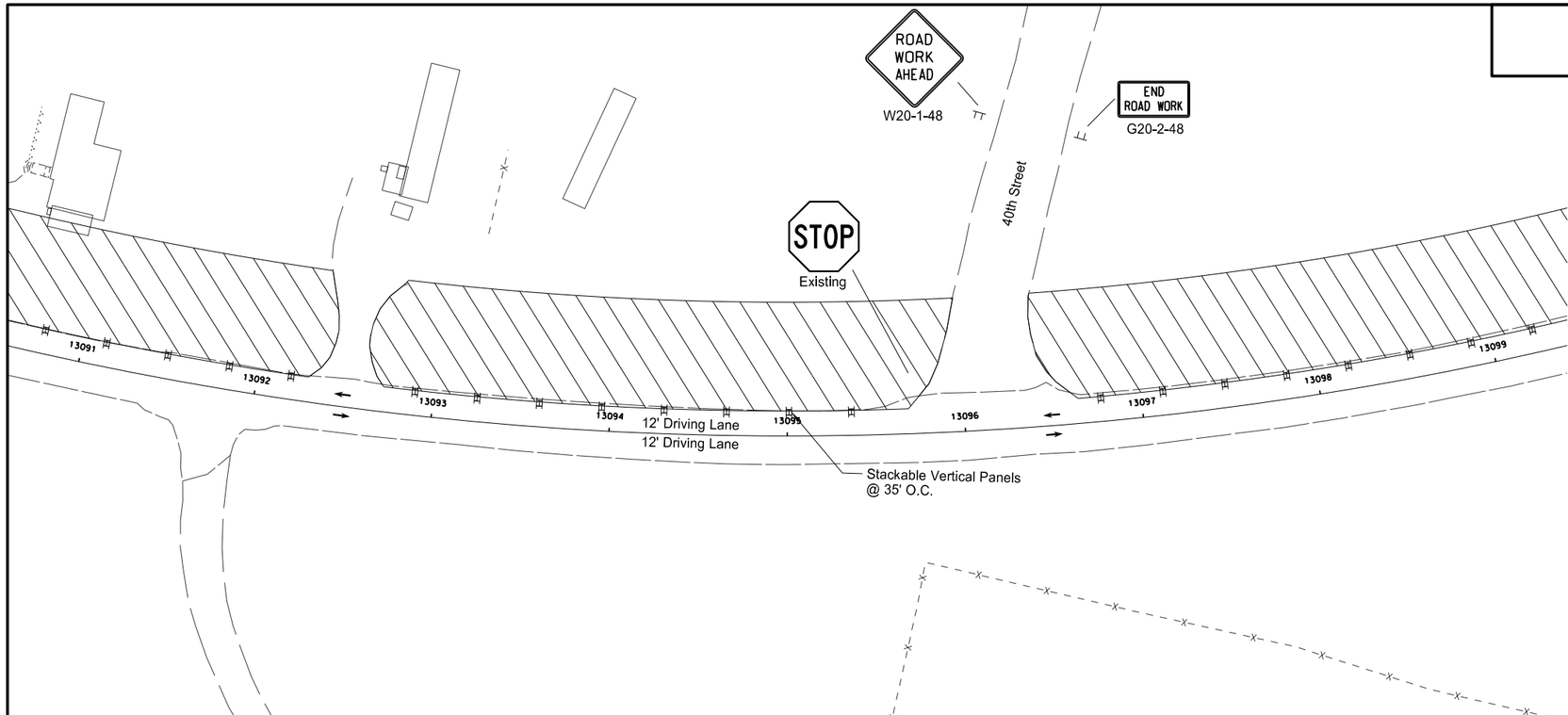
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

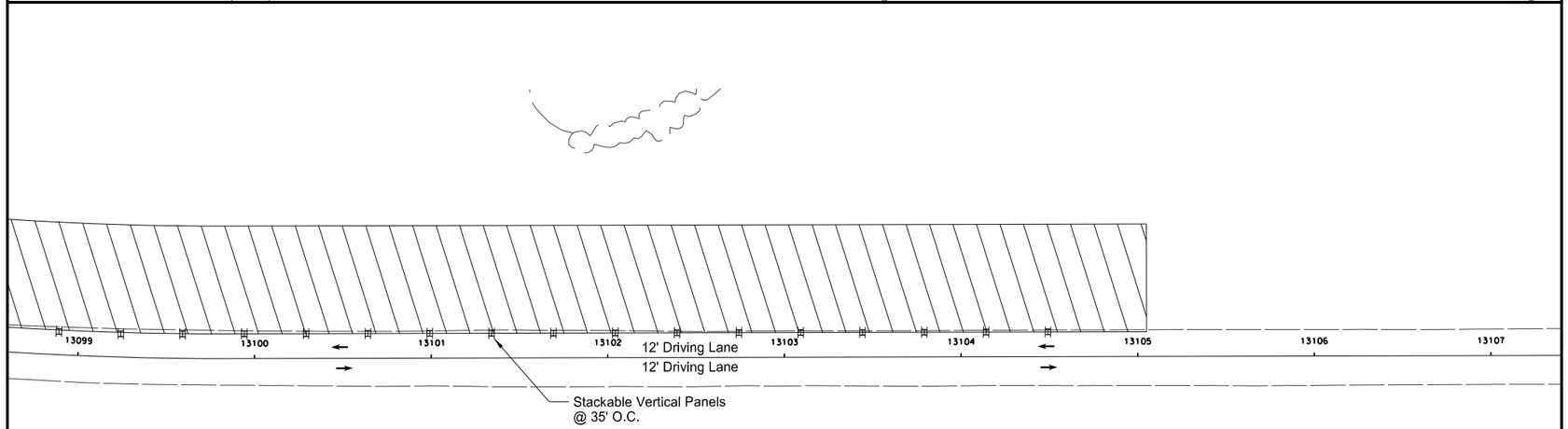
Work Zone Traffic Control

Phase 3

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	24





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

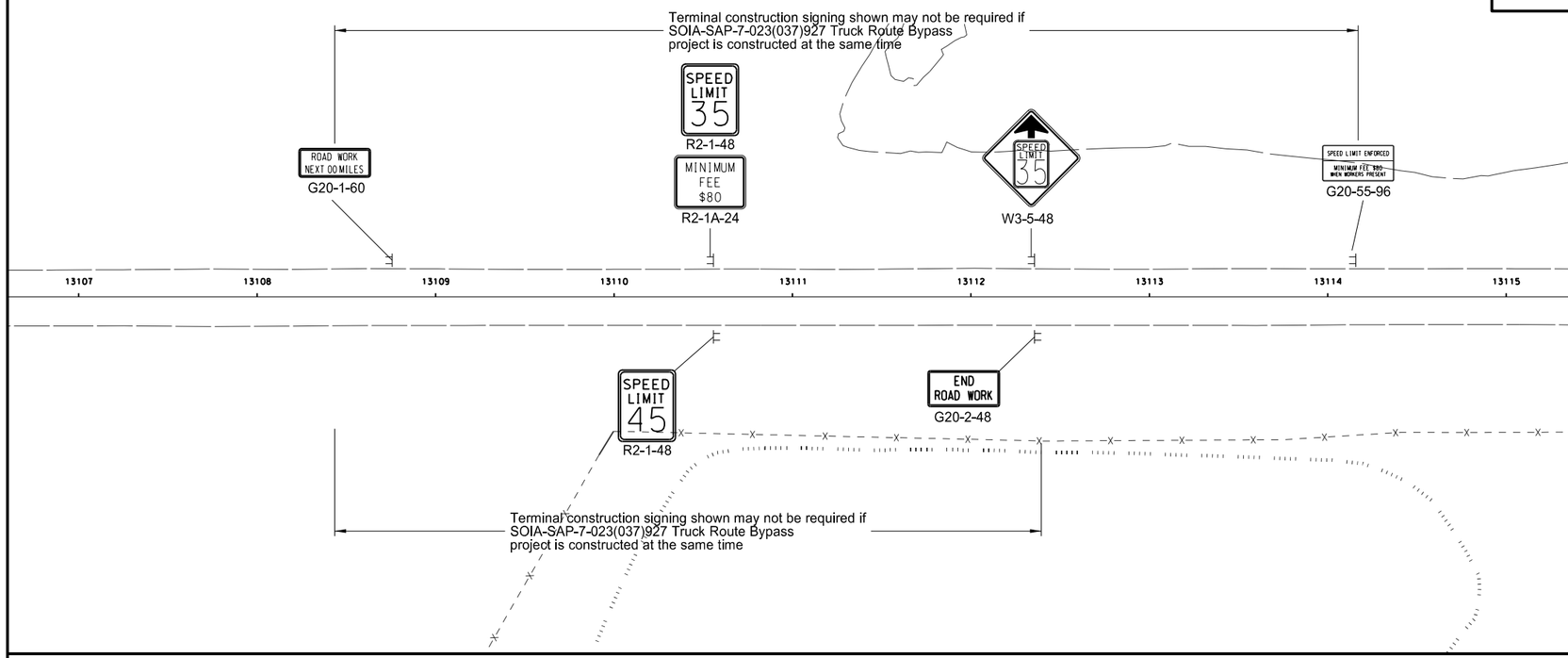
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

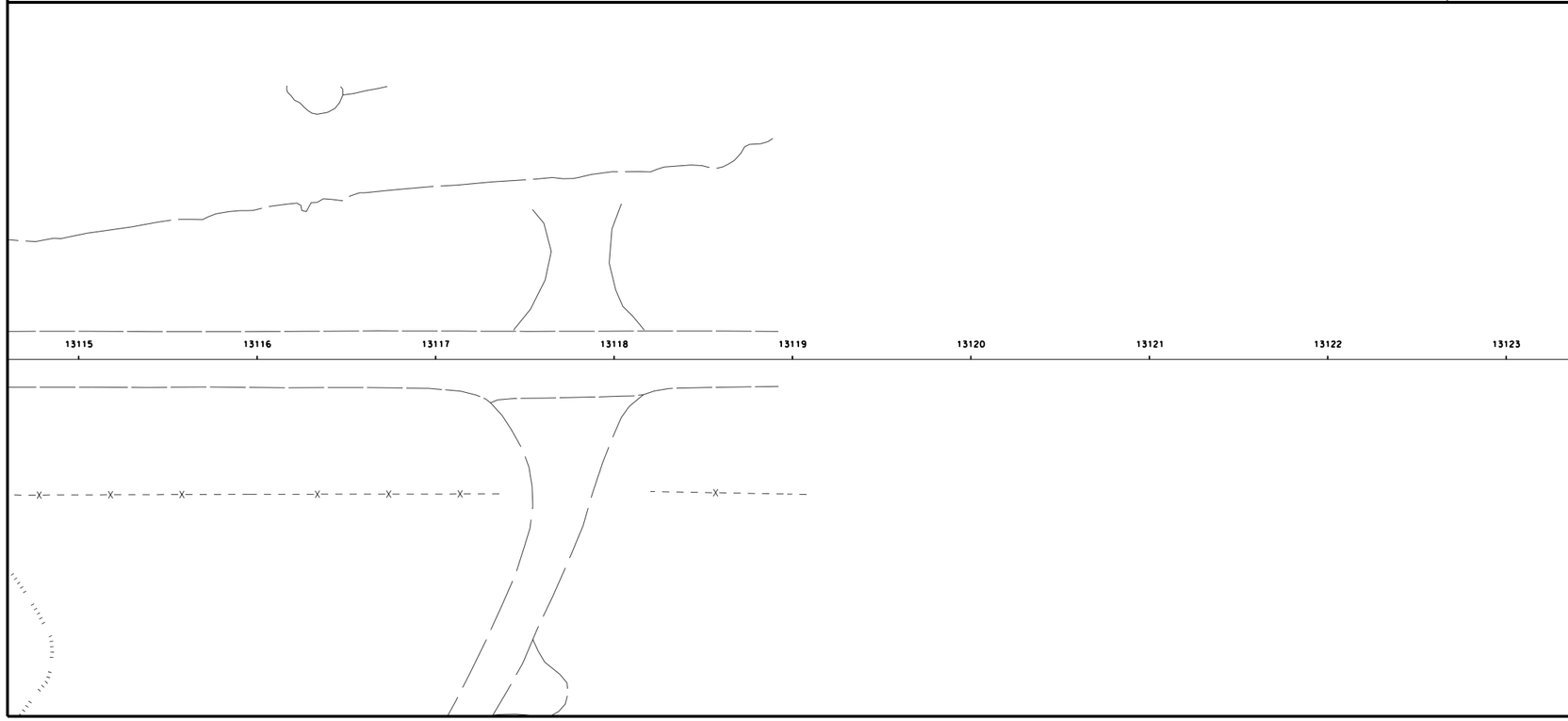
Work Zone Traffic Control

Phase 3

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	25





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

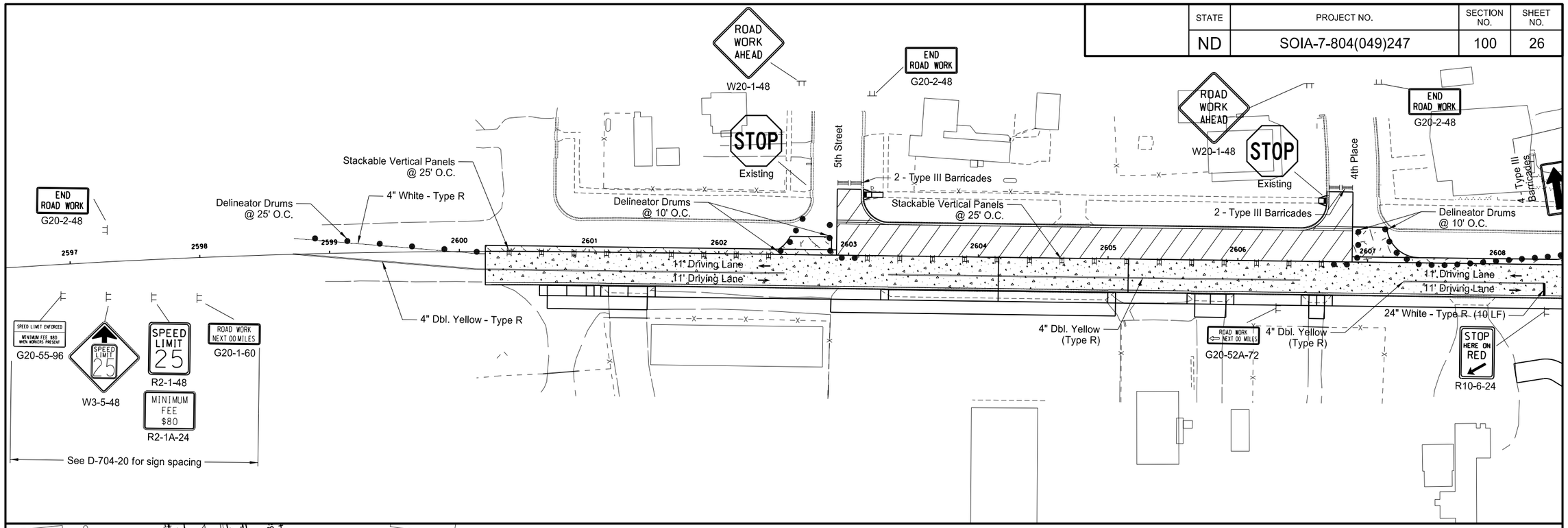
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

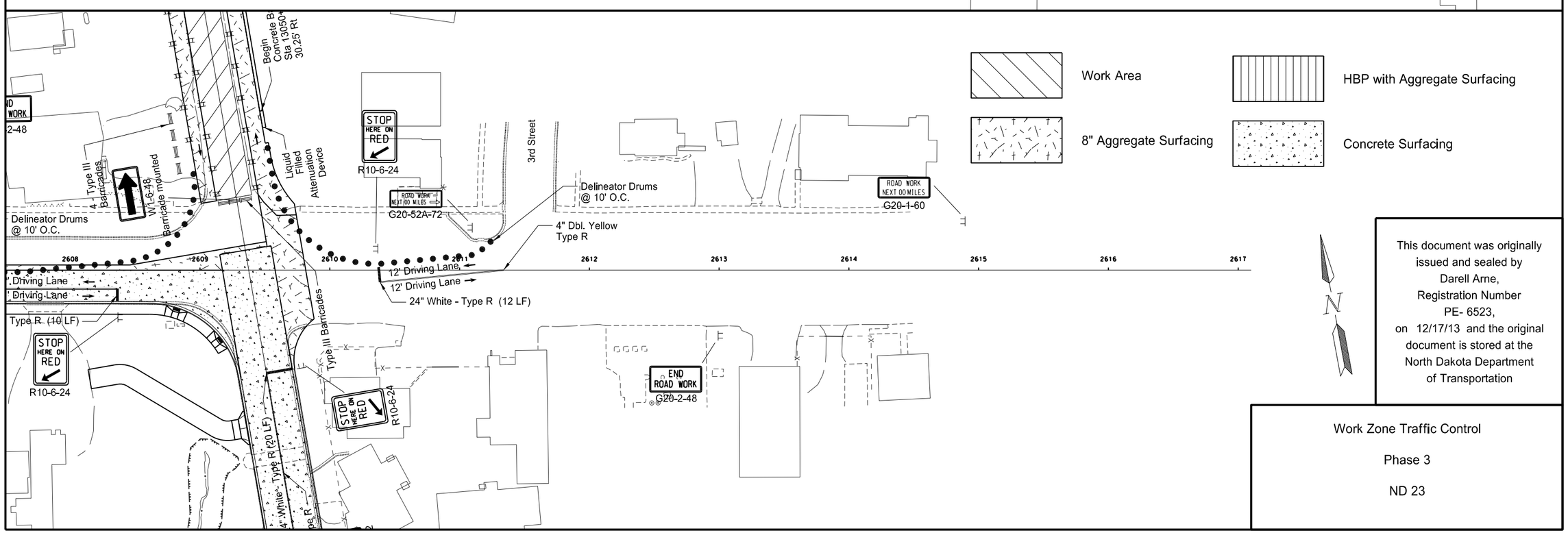
Work Zone Traffic Control

Phase 3

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	26





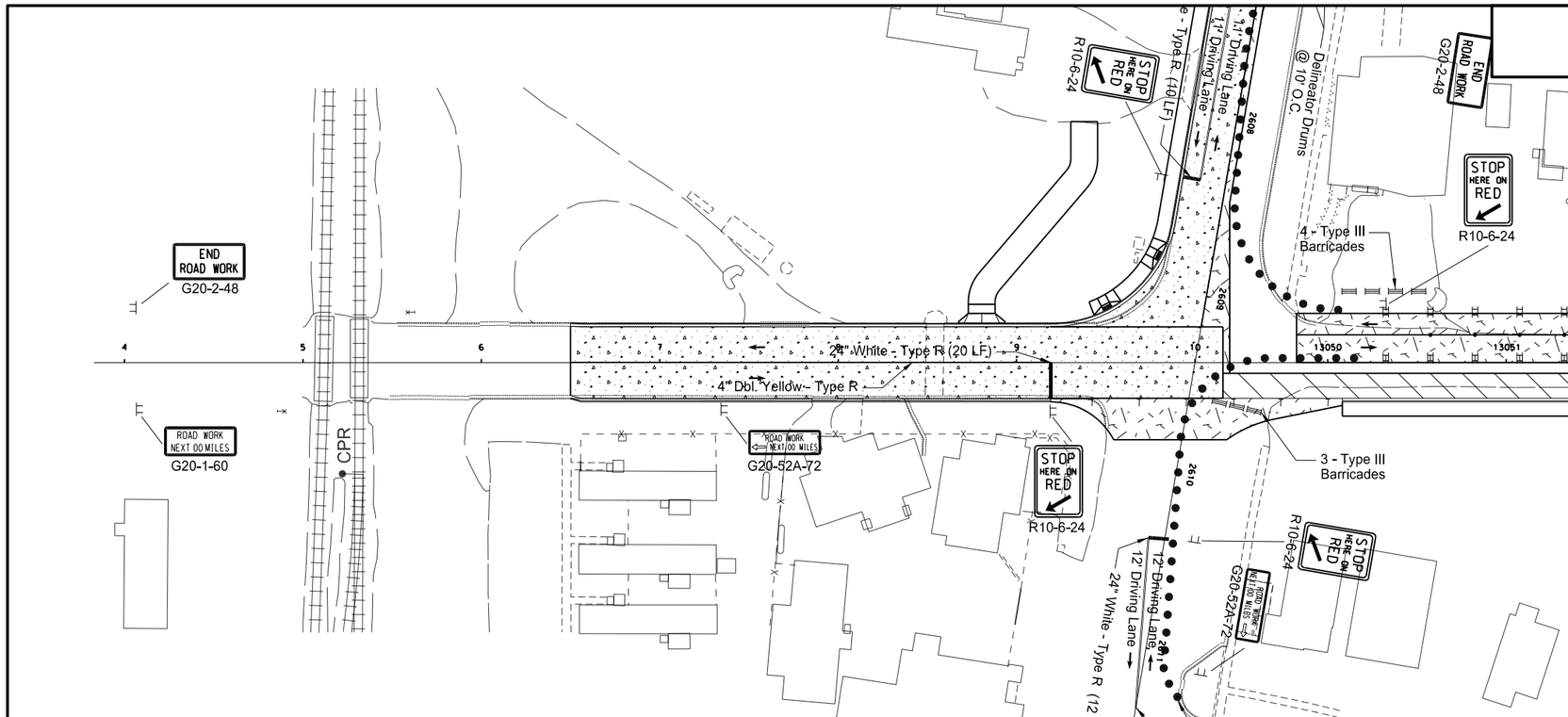
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

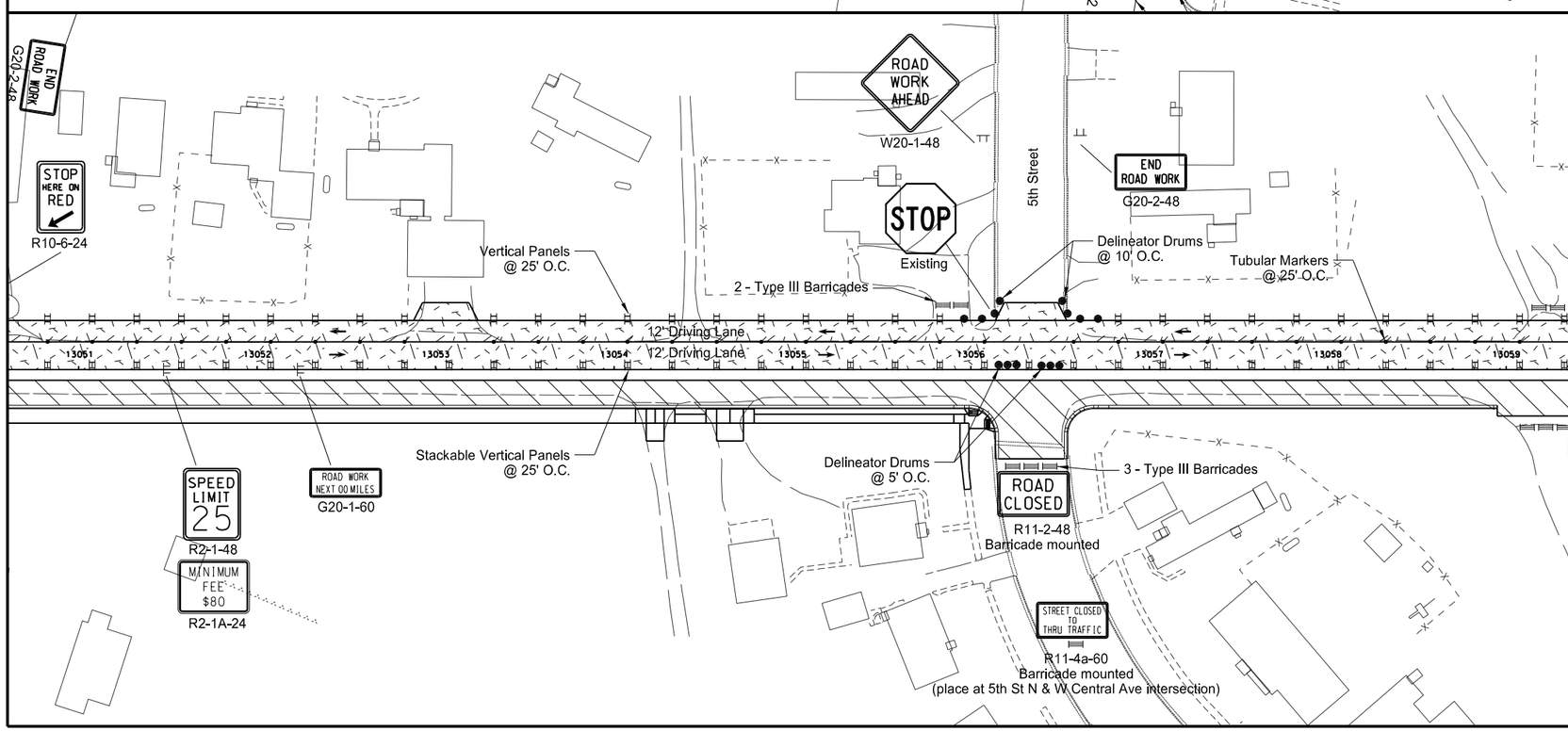
Work Zone Traffic Control

Phase 3

ND 23

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	27





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

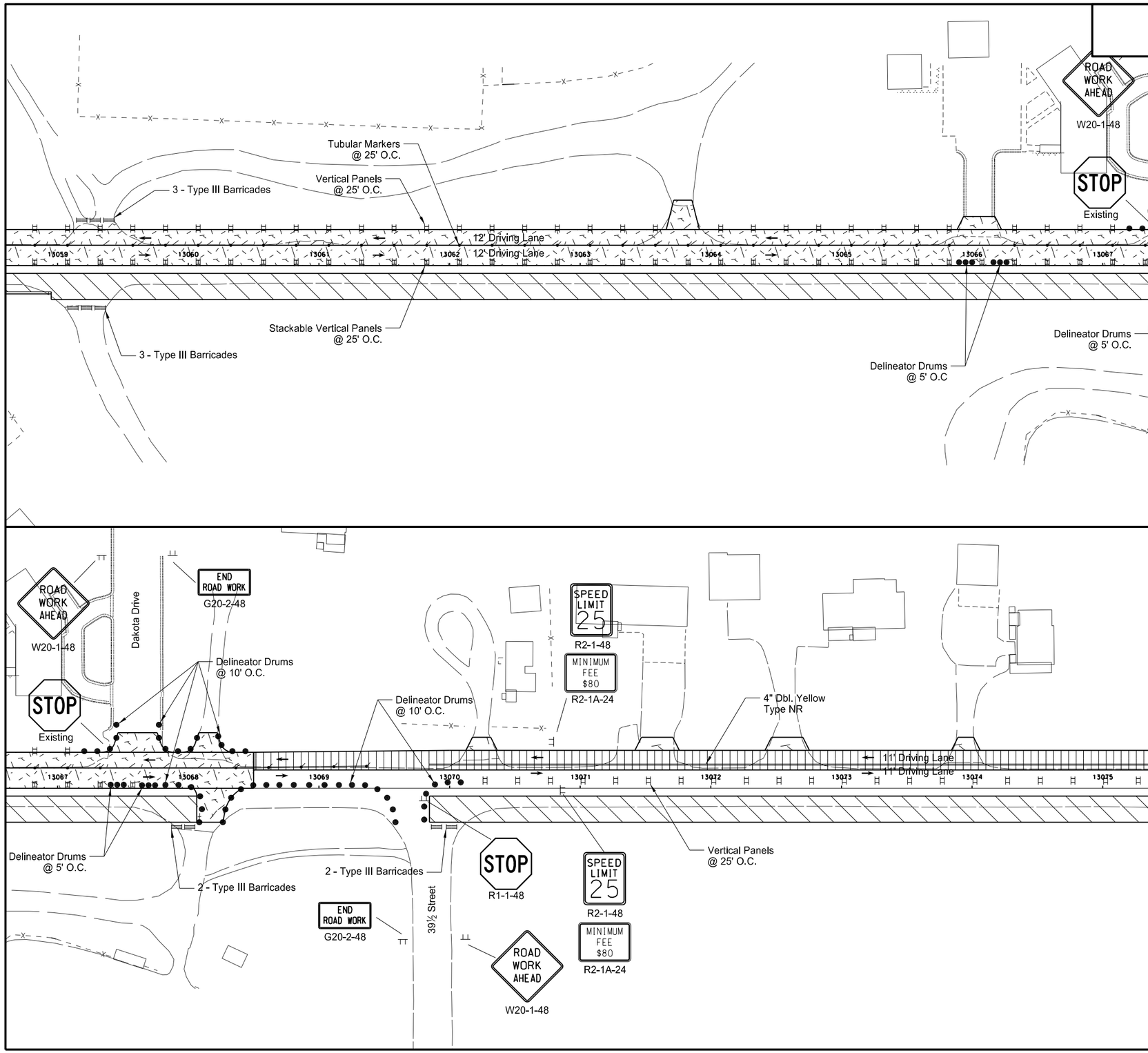
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Phase 4

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	28



Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

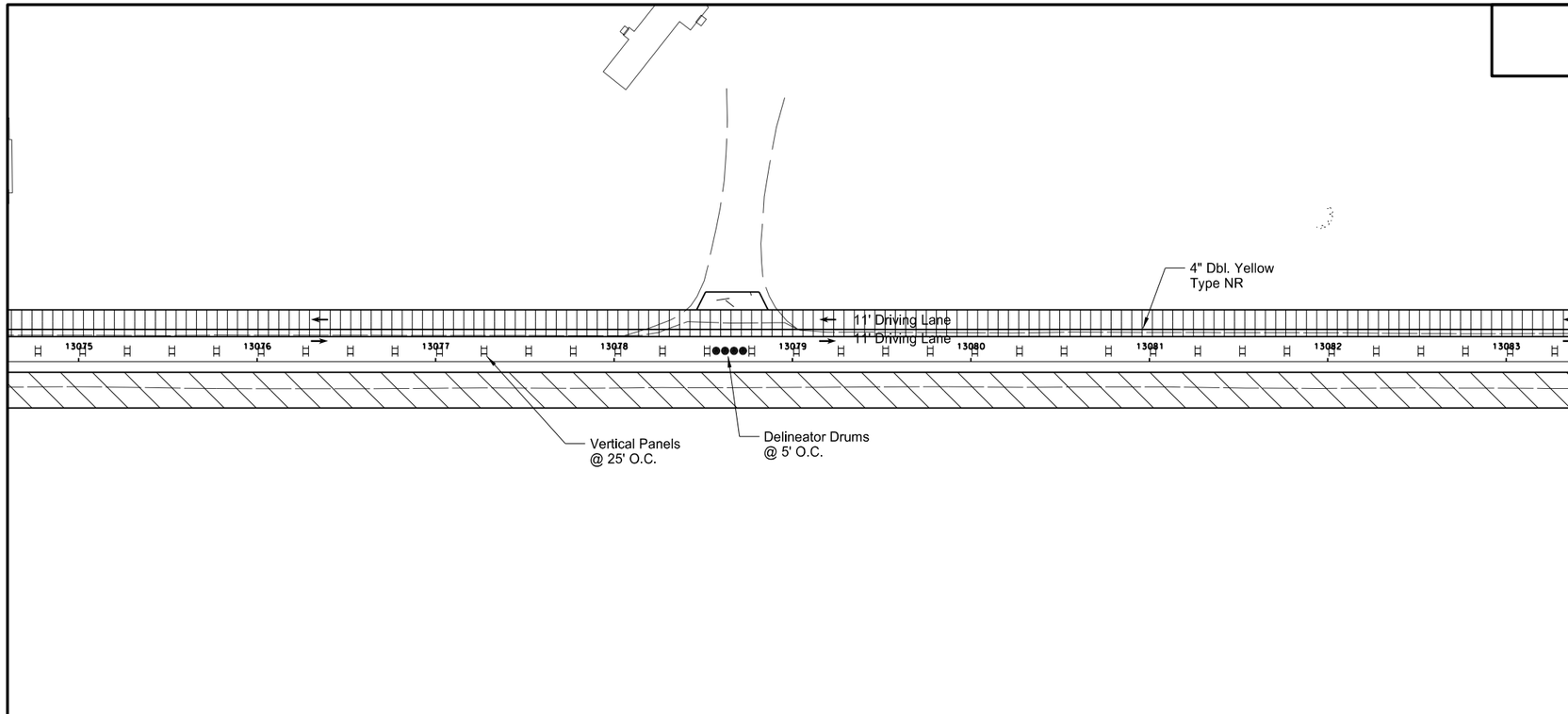
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

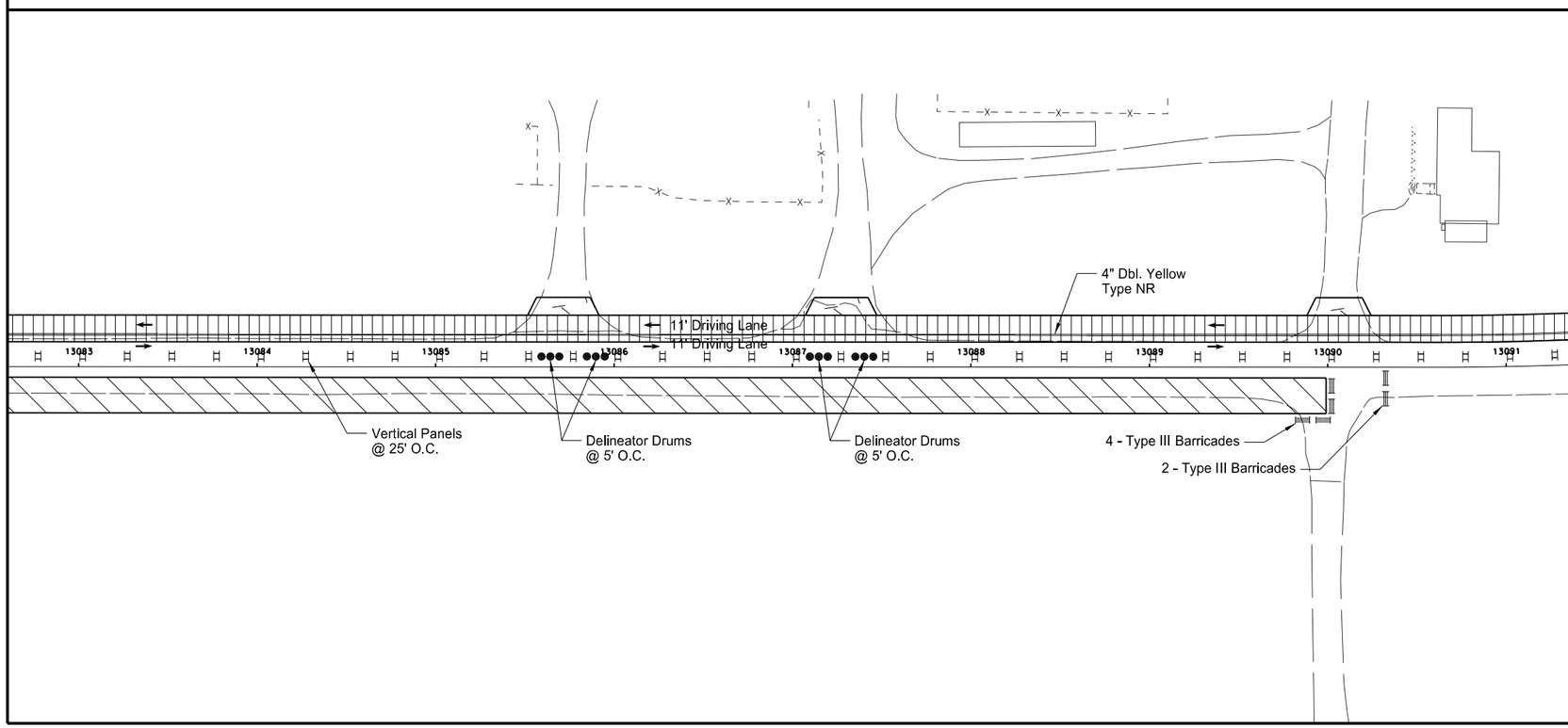
Work Zone Traffic Control

Phase 4

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	29





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

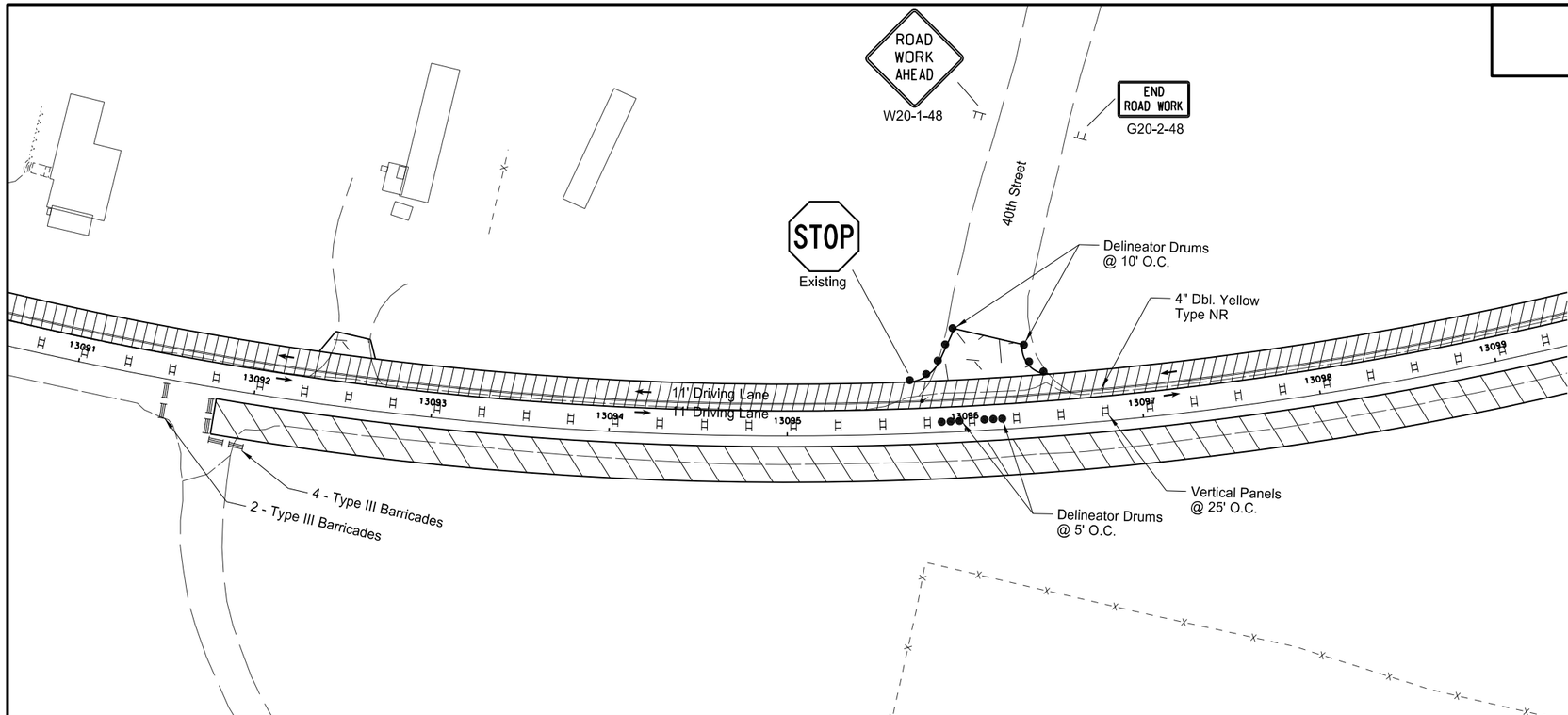
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

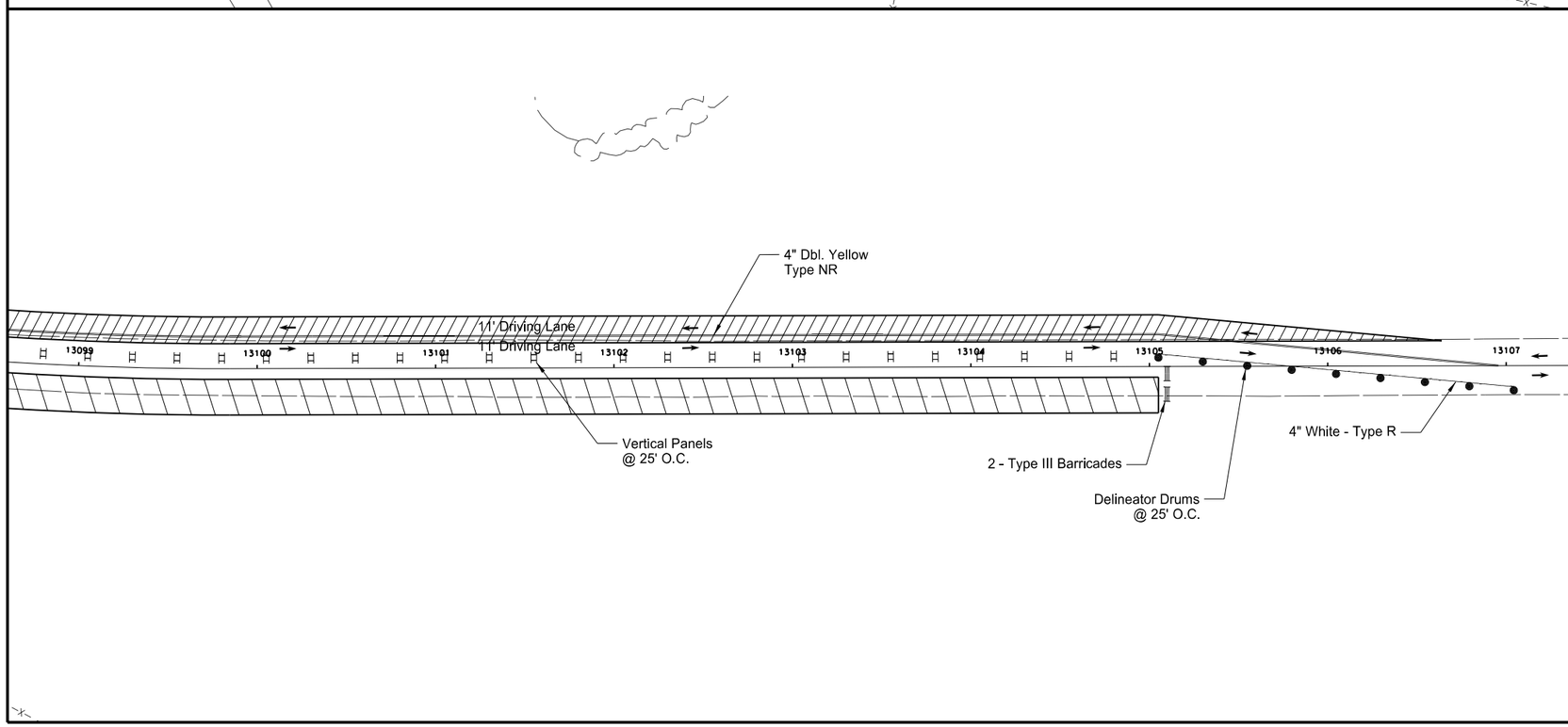
Work Zone Traffic Control

Phase 4

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	30





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

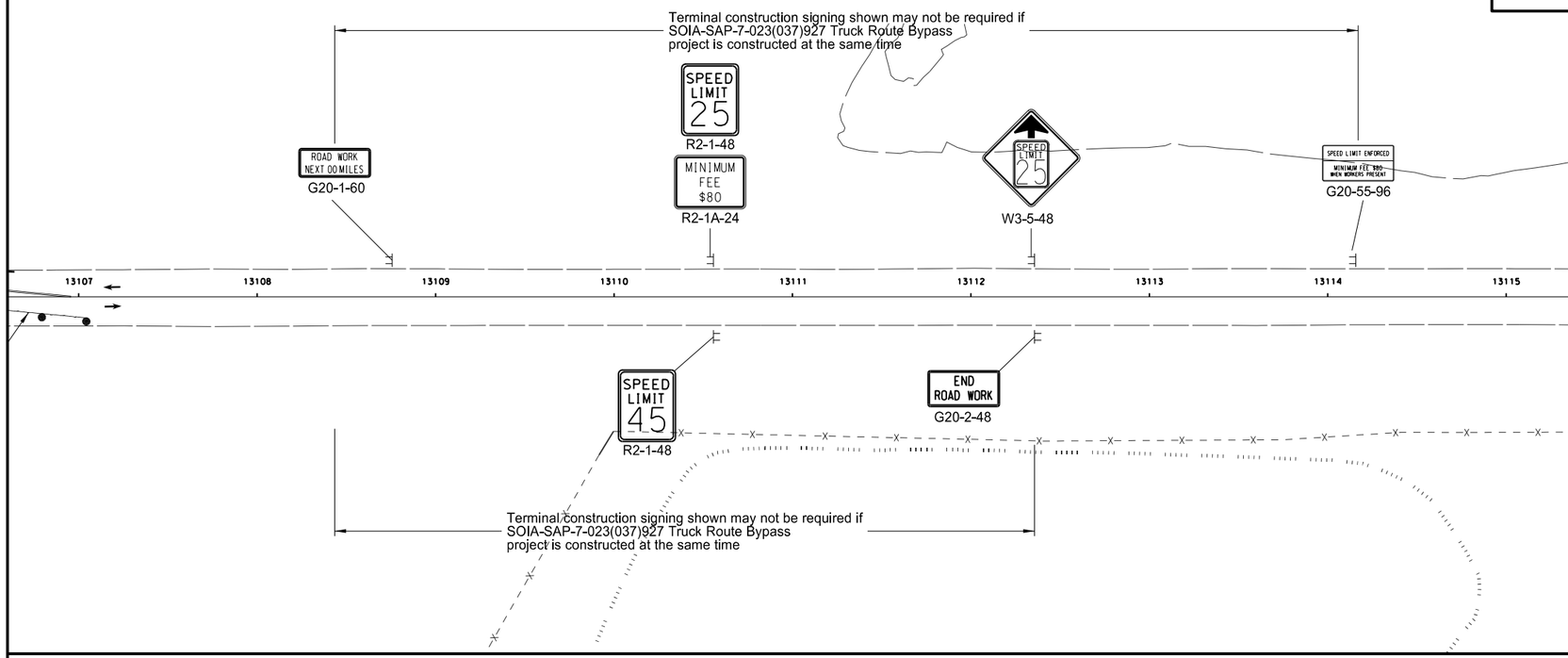
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

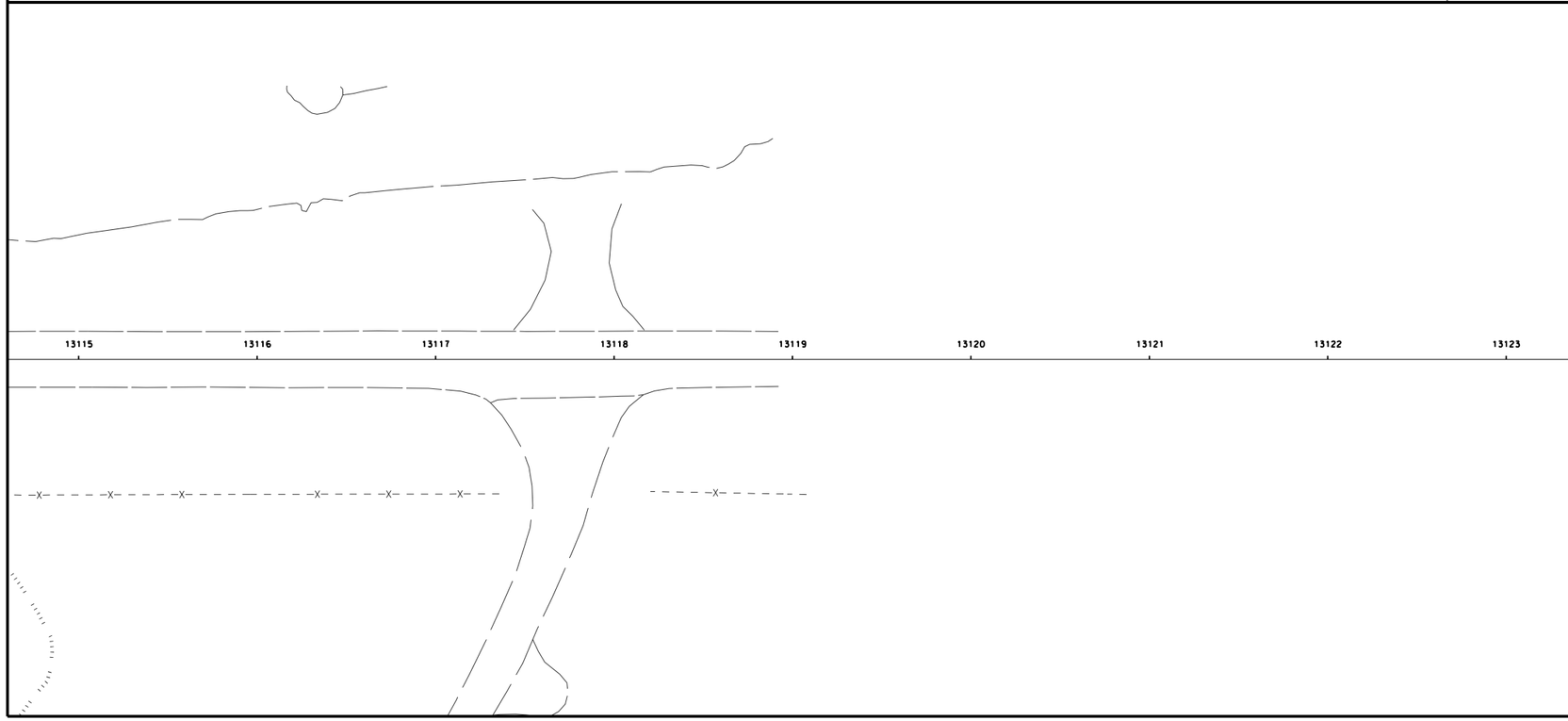
Work Zone Traffic Control

Phase 4

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	31





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

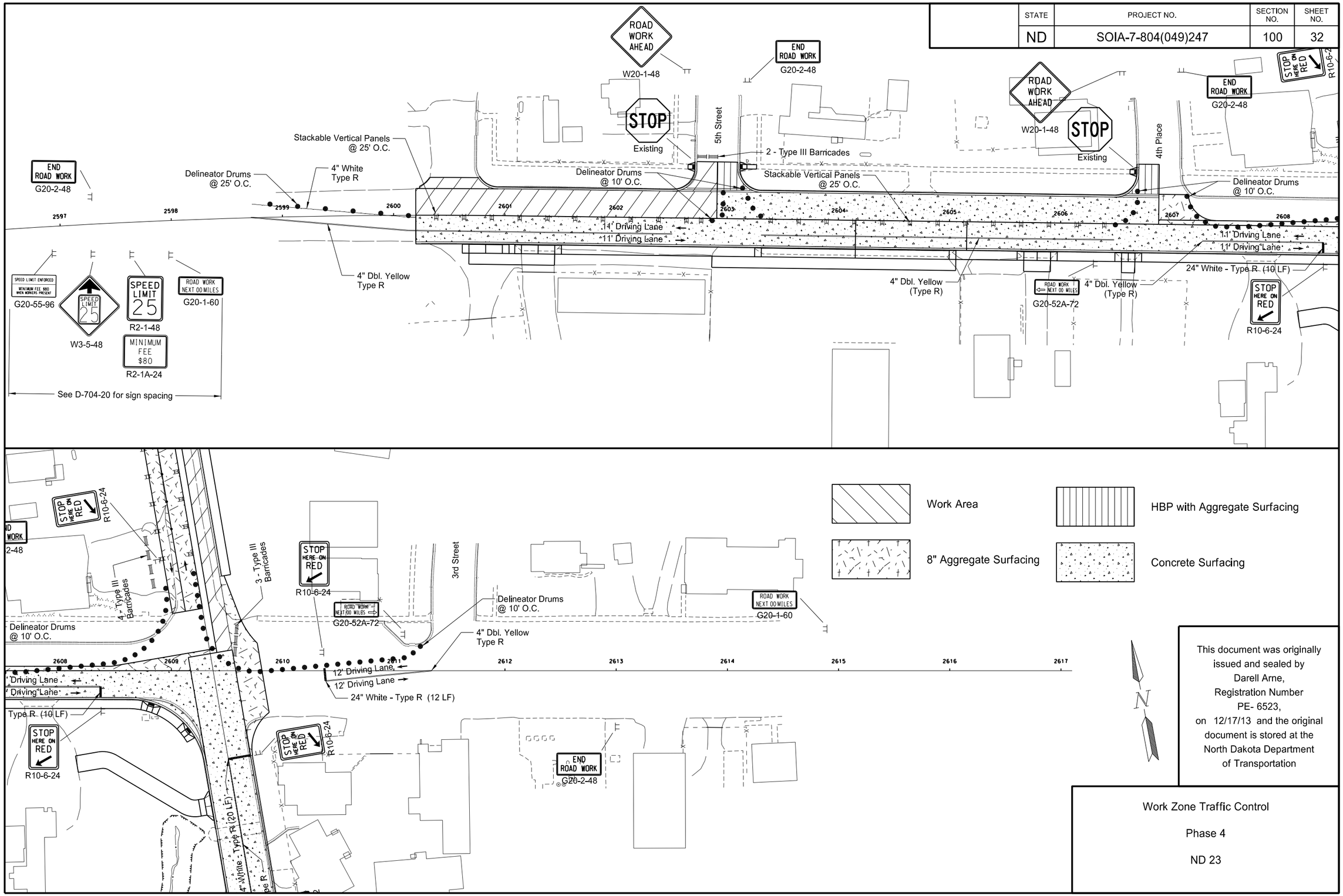
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Phase 4

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	32



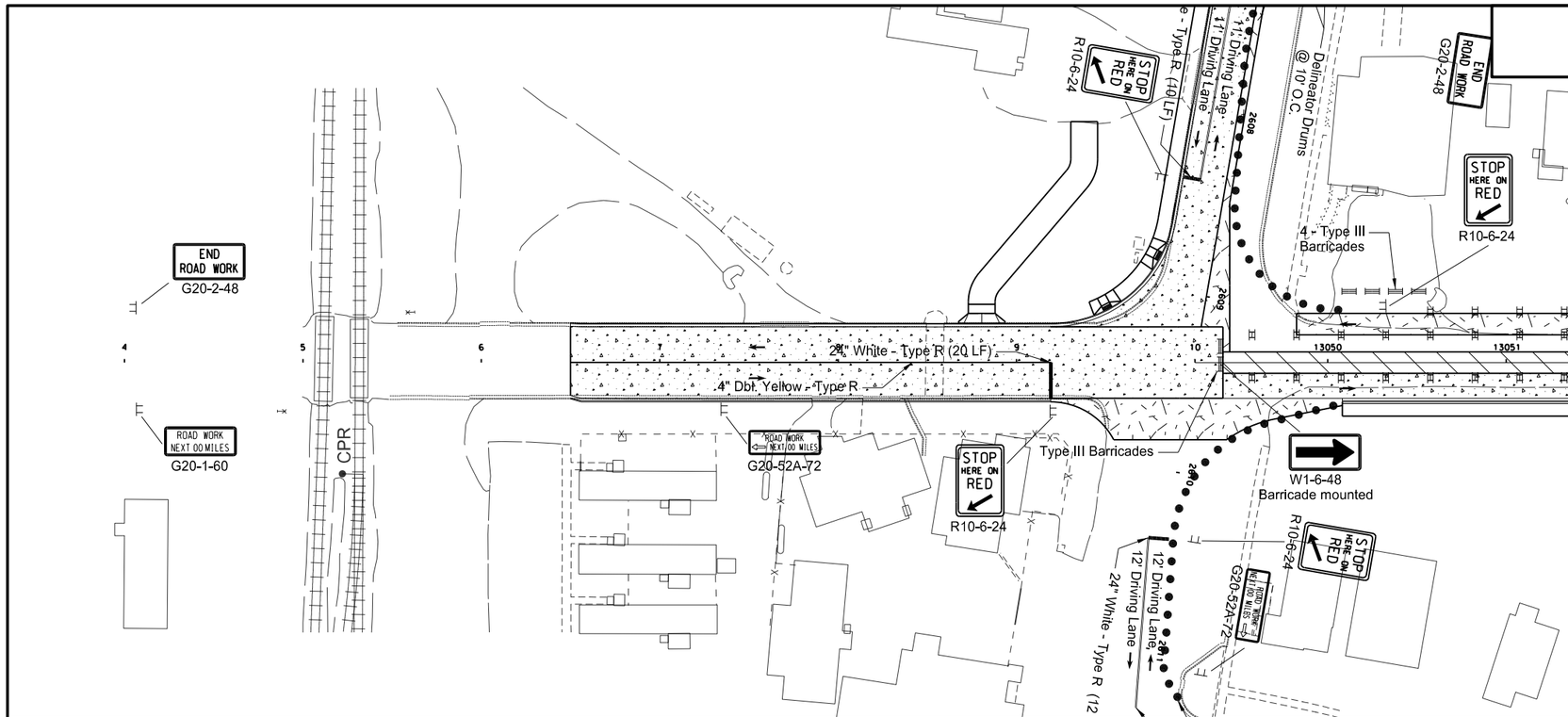
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

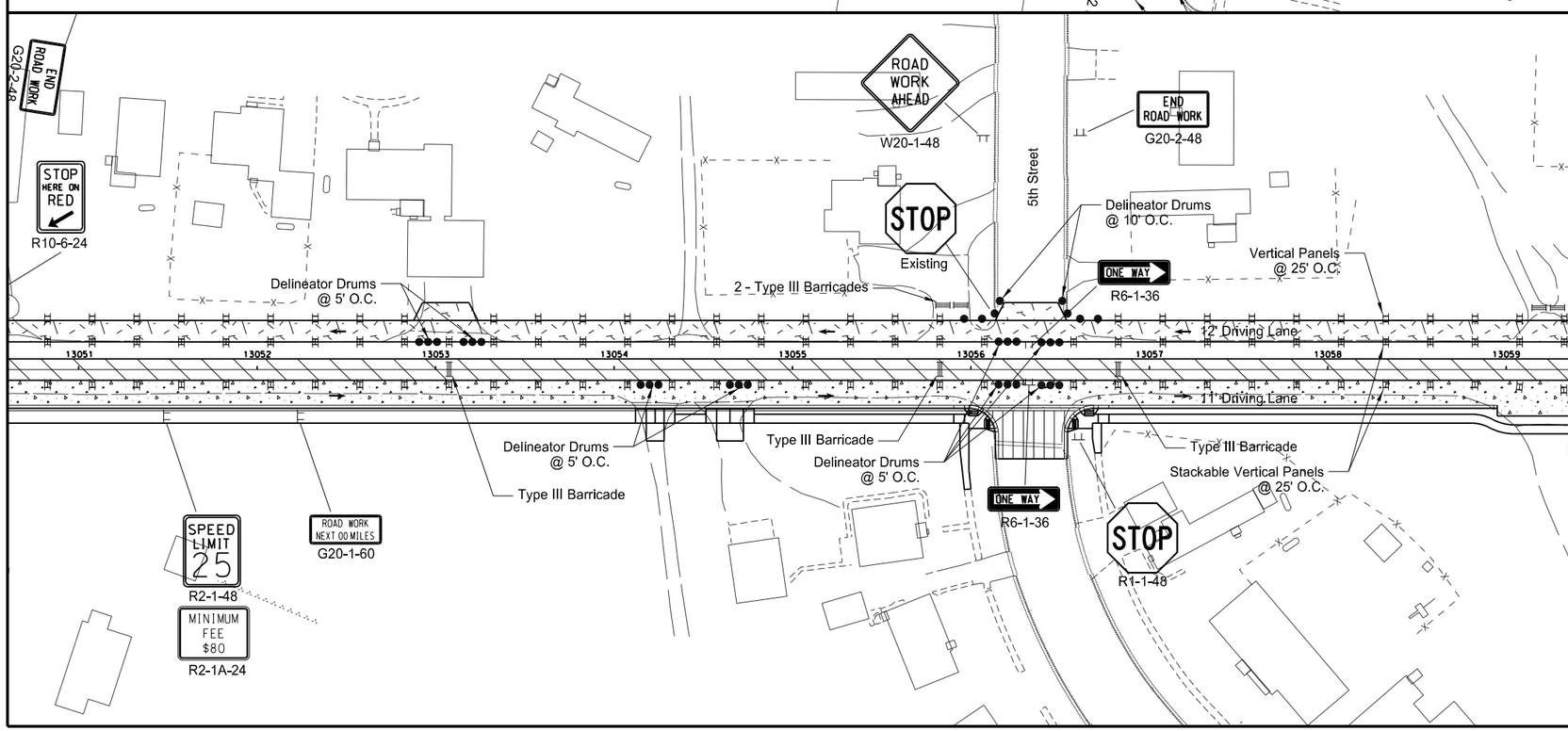
Work Zone Traffic Control

Phase 4

ND 23

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	33





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

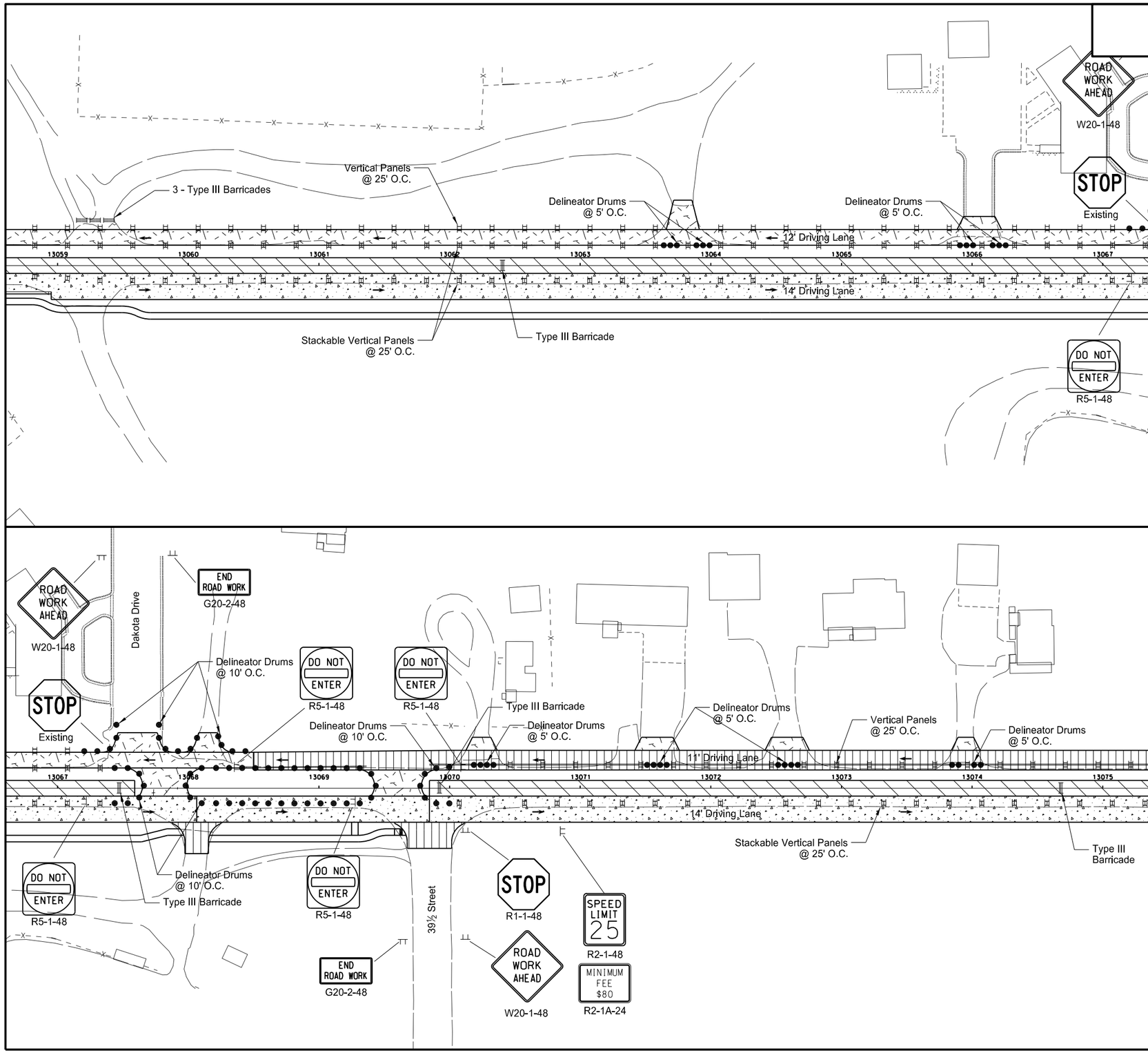
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Phase 5

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	34



Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

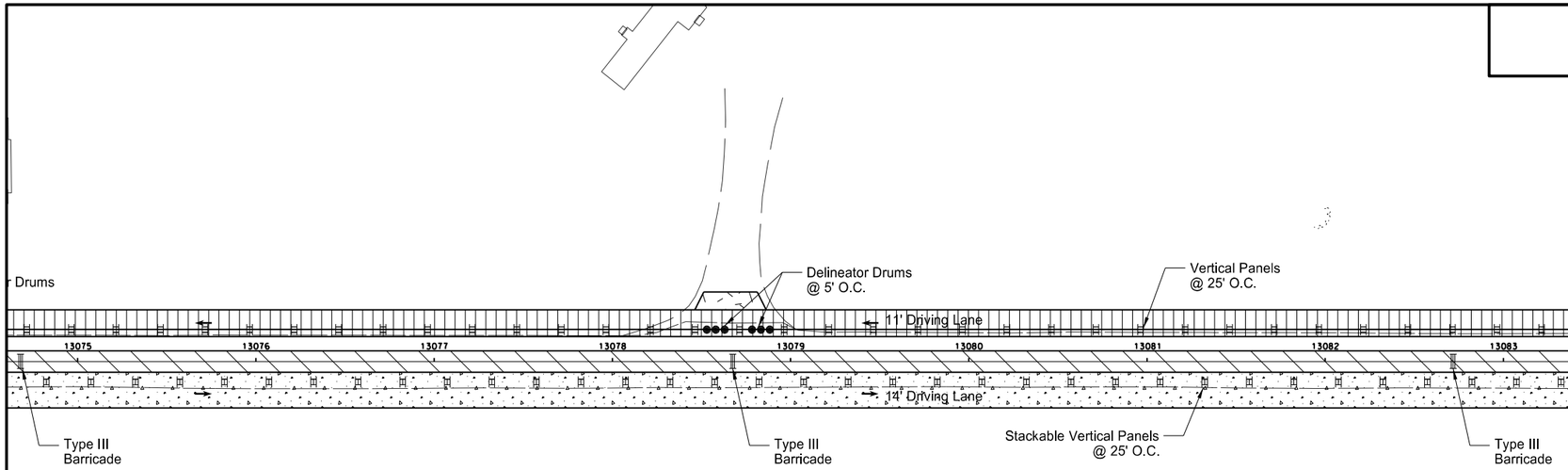
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

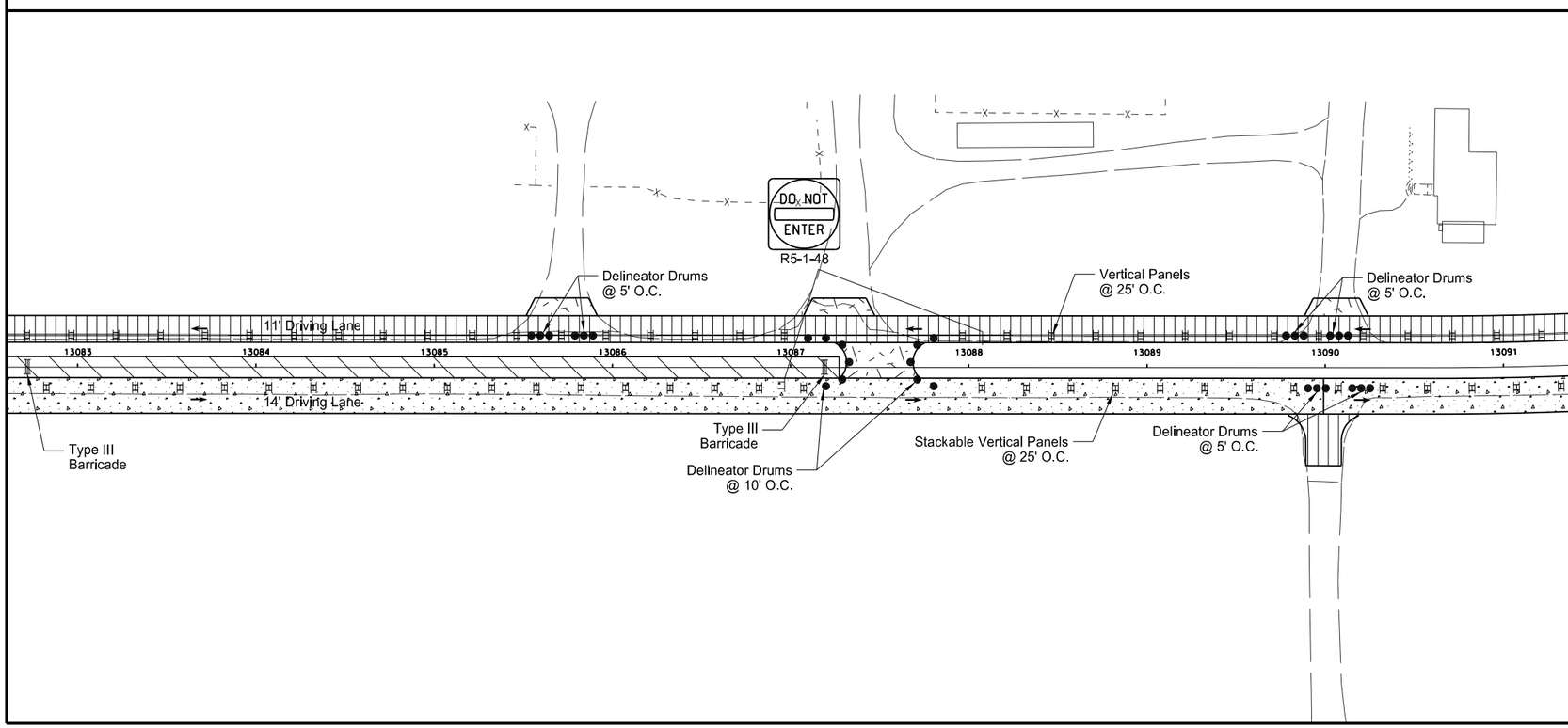
Work Zone Traffic Control

Phase 5

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	35





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

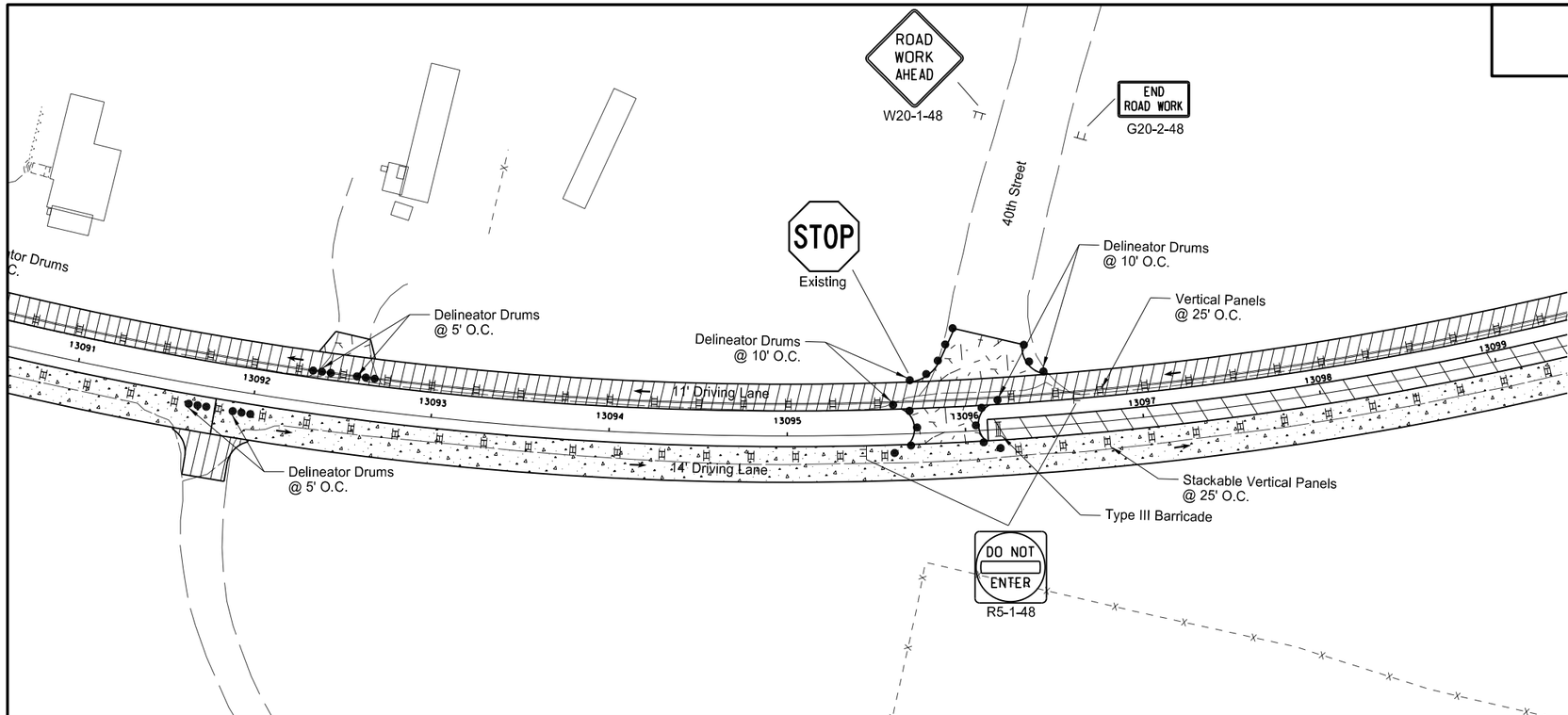
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

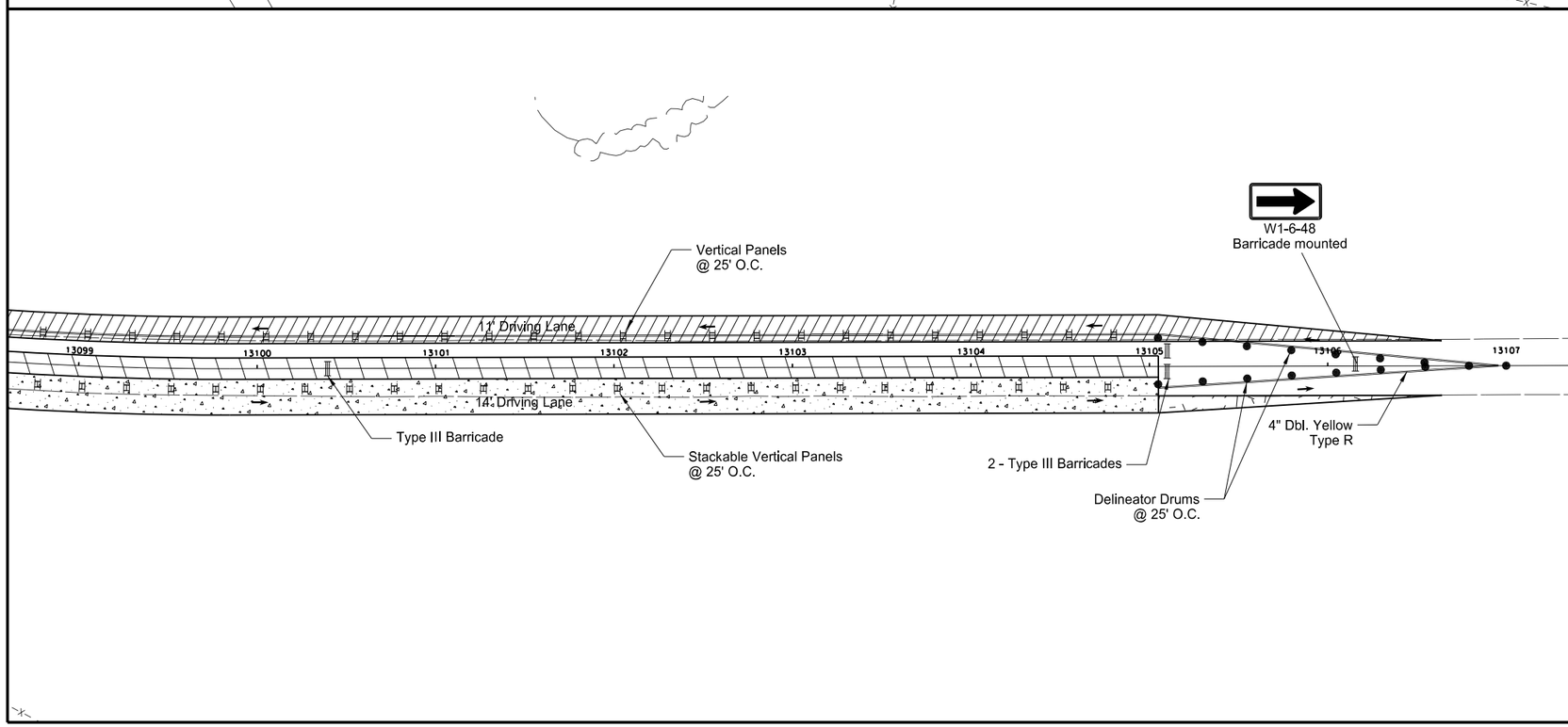
Work Zone Traffic Control

Phase 5

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	36





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

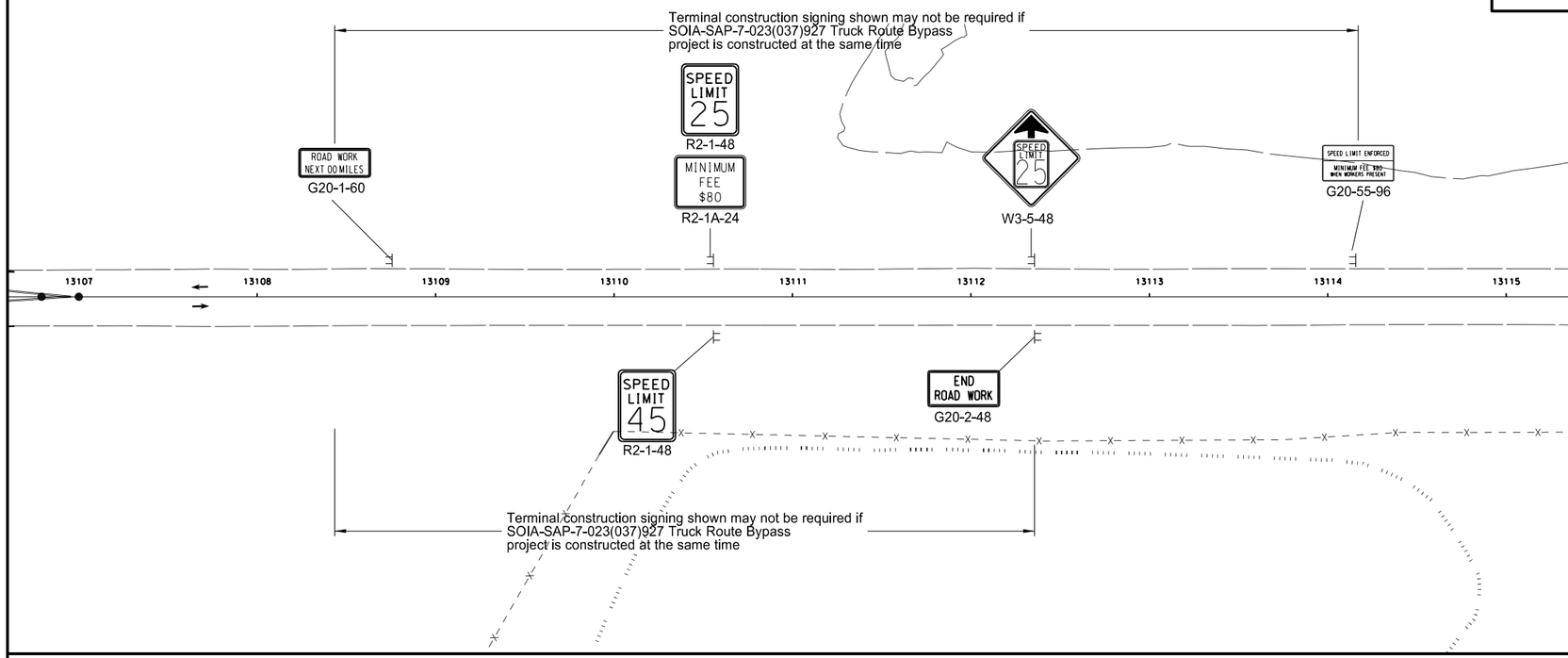
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

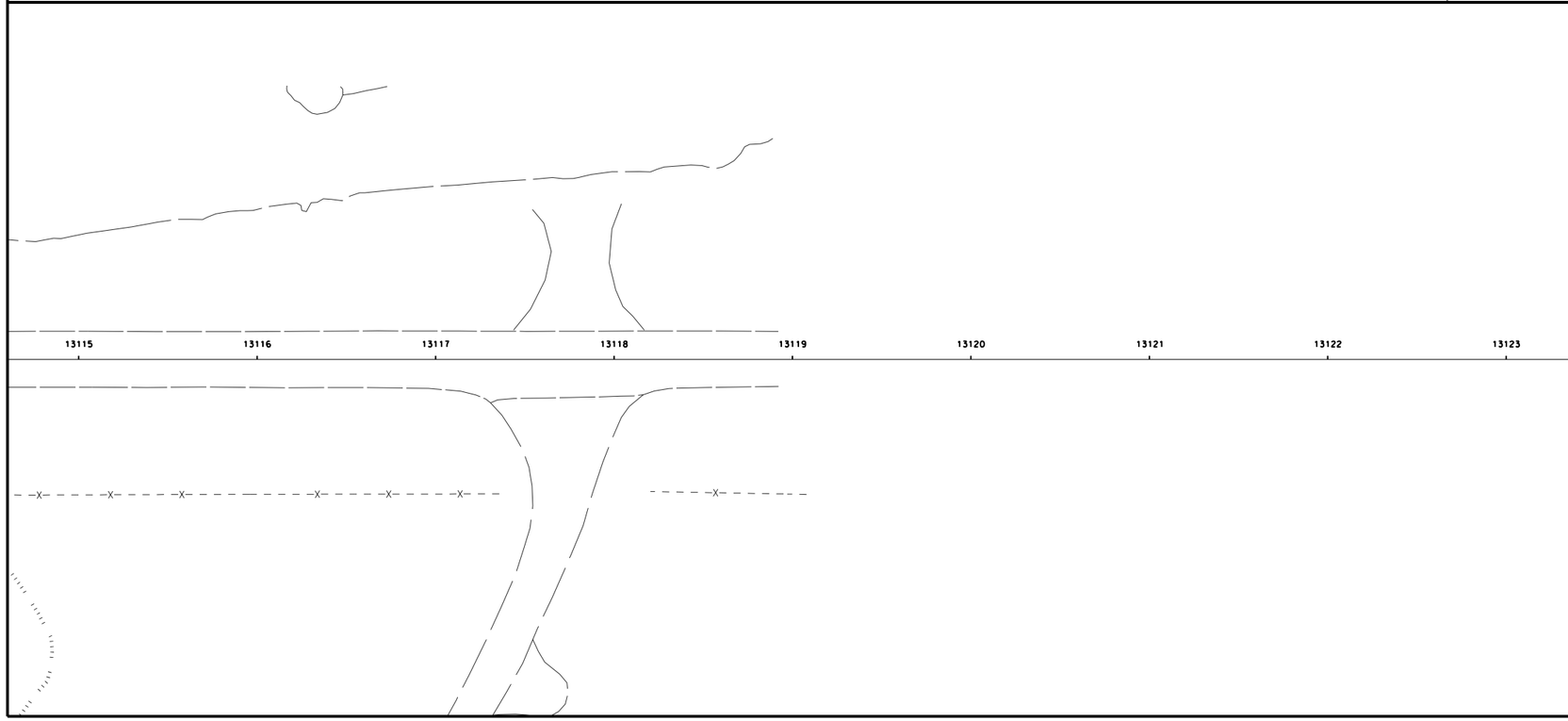
Work Zone Traffic Control

Phase 5

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	37





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

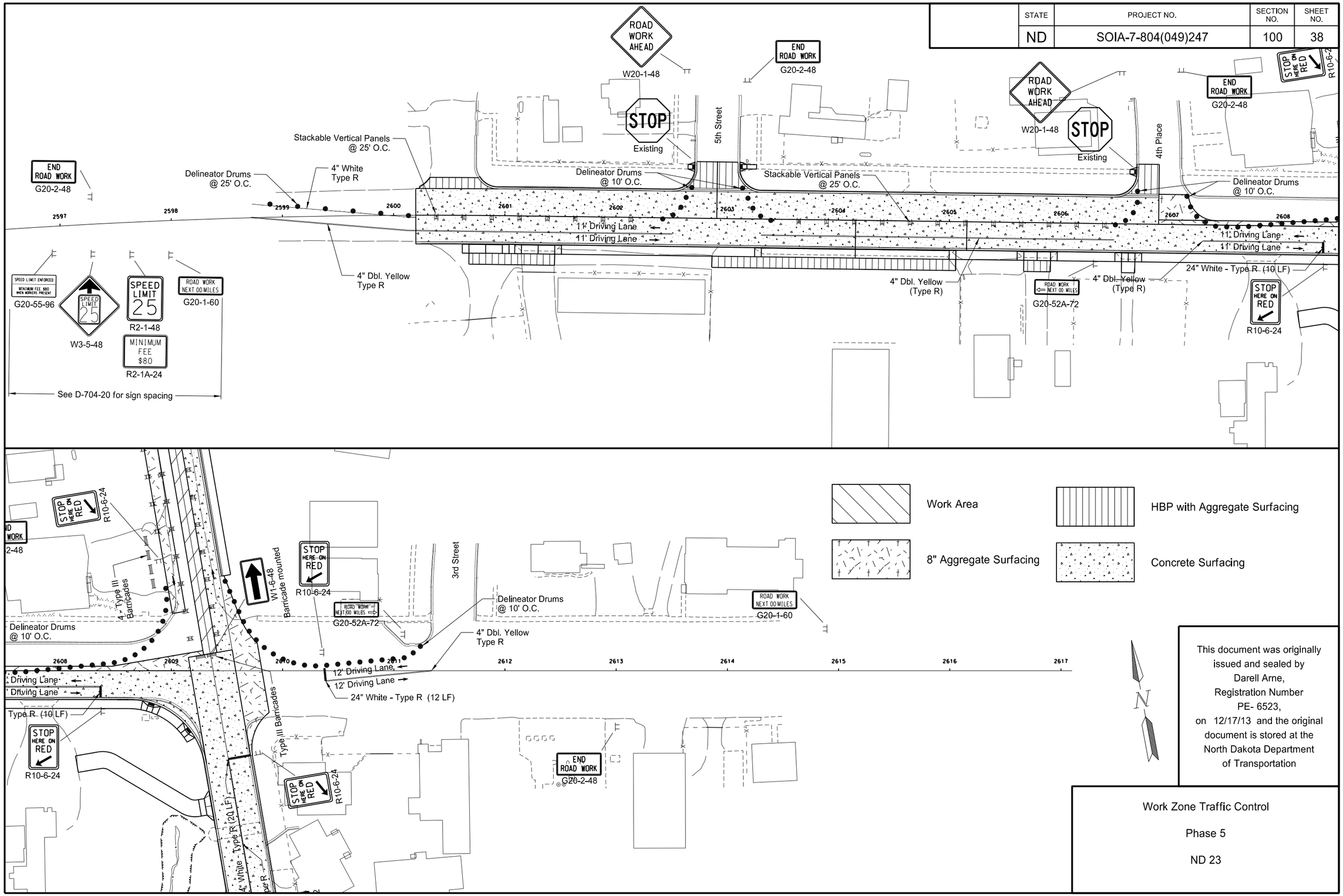
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Phase 5

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	38



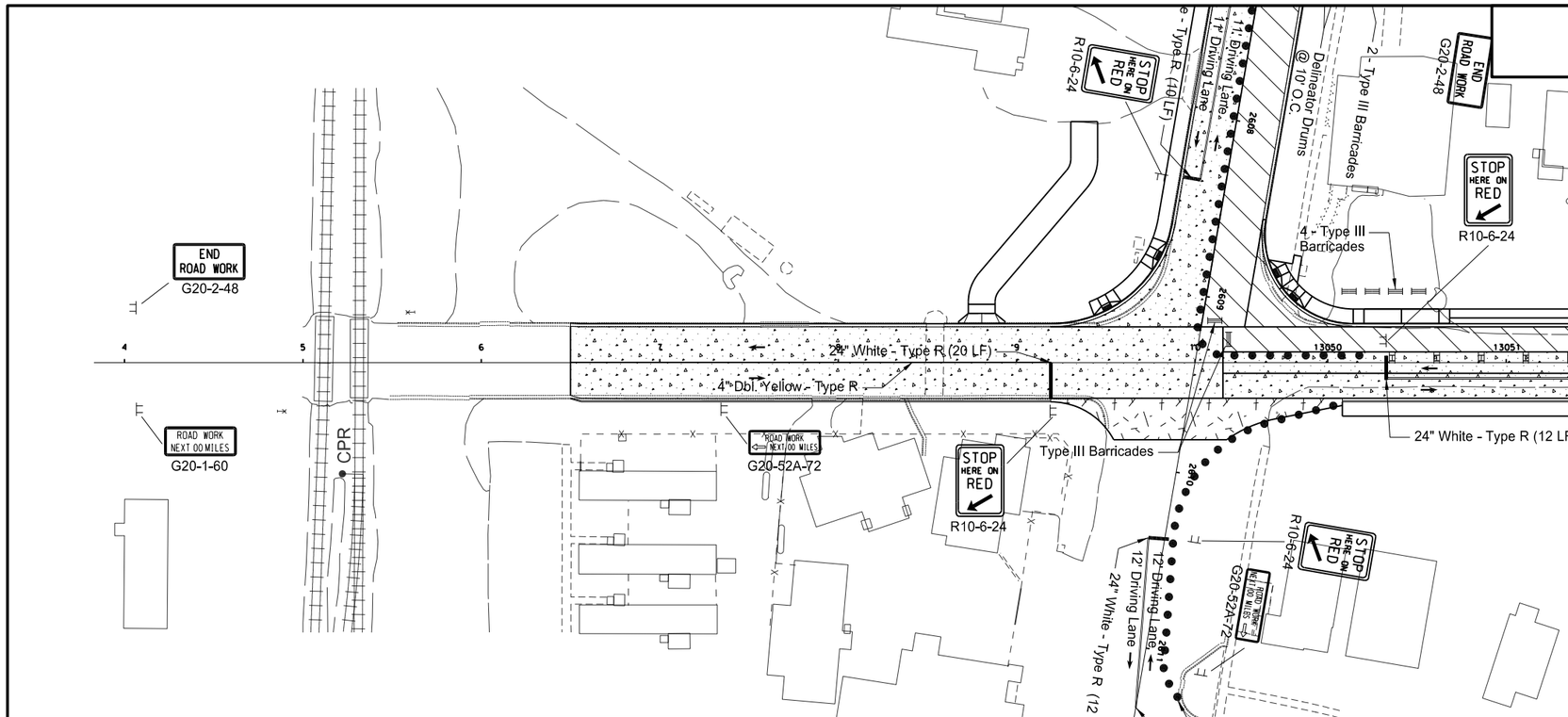
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

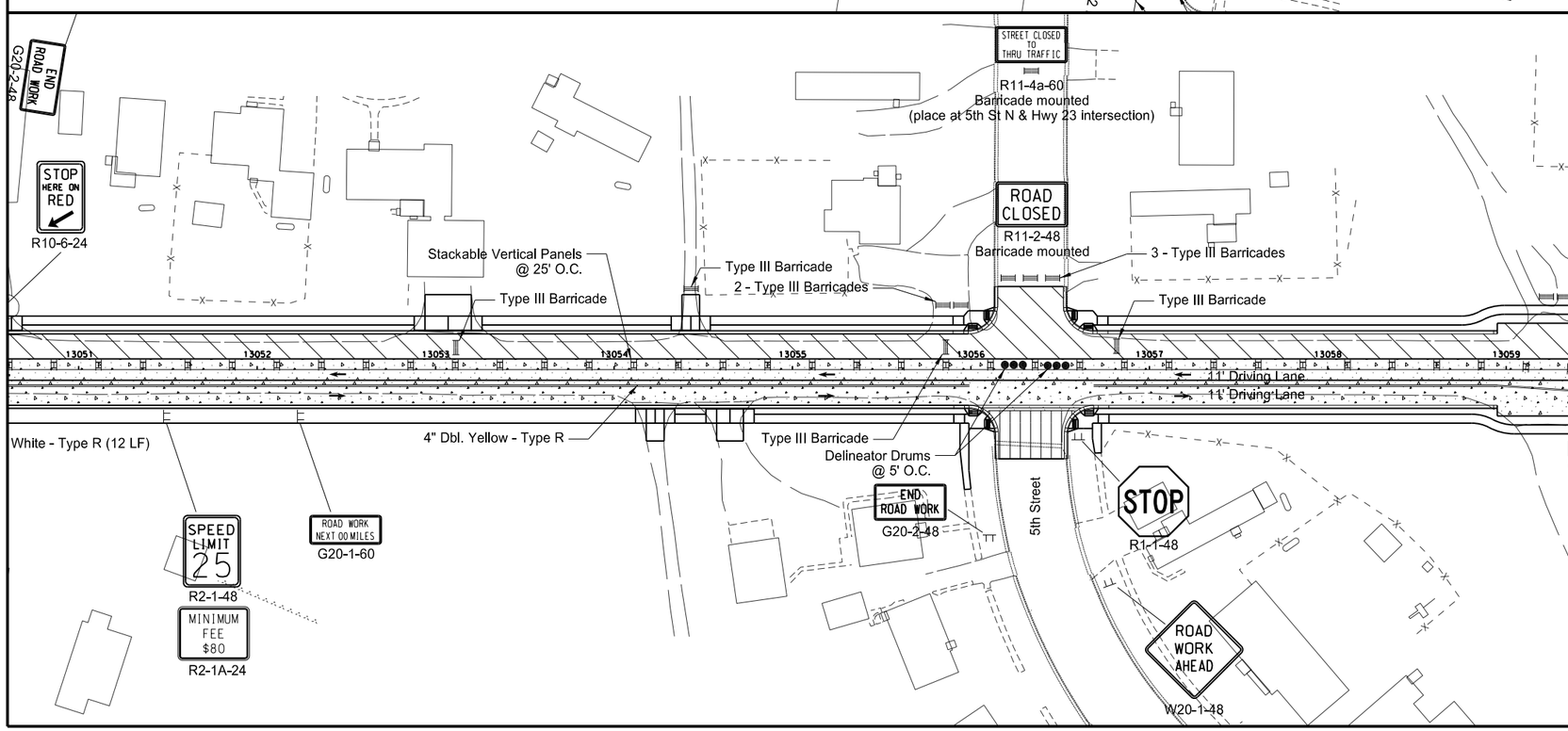
Work Zone Traffic Control

Phase 5

ND 23

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	39





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

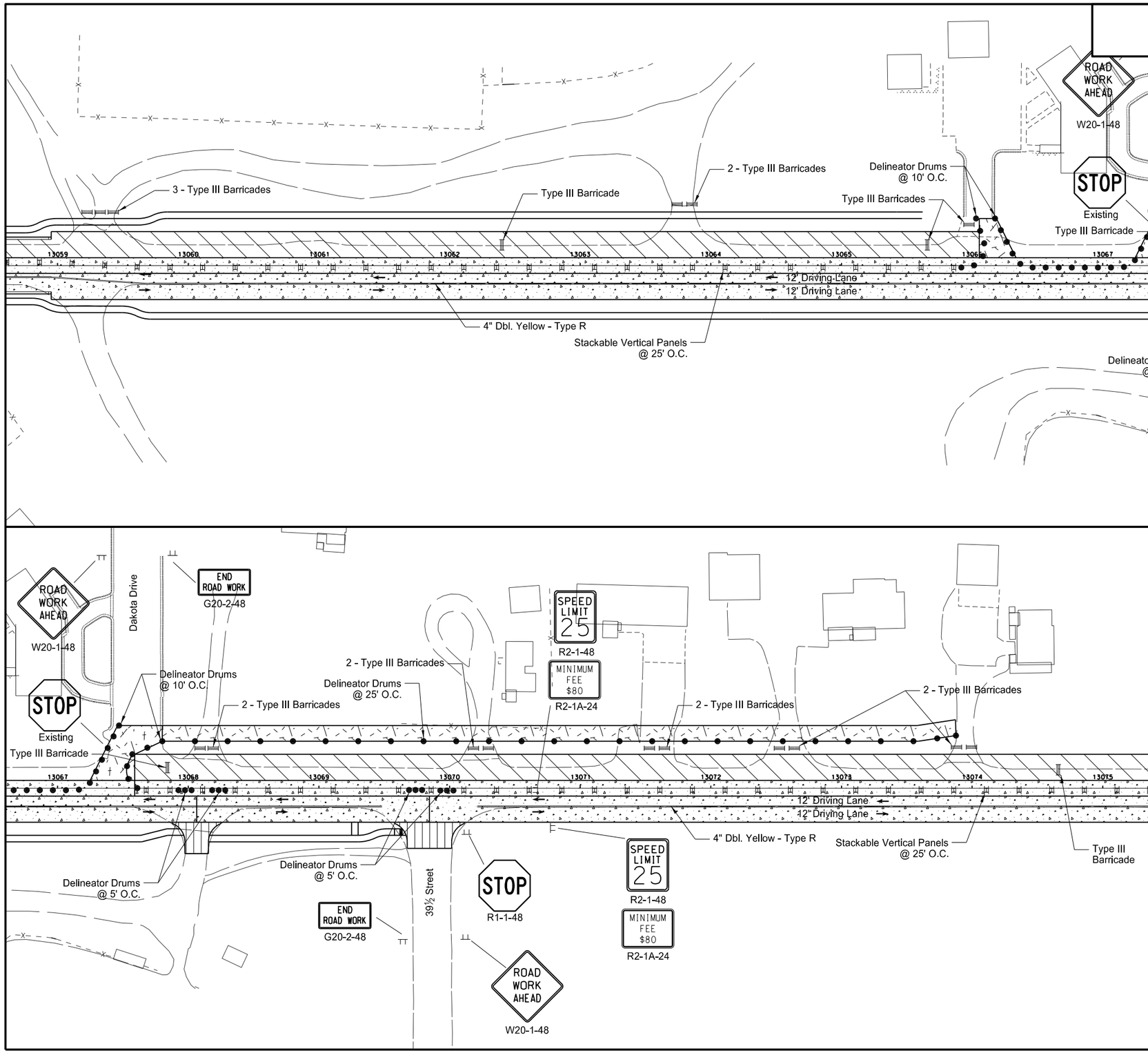
Work Zone Traffic Control

Phase 6

ND 1804

12/18/2013 3:28:48 PM darne R:\project\71804247.049\design\WZTC\100WZ_039_Hwy_1804_Phase_6.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	40



Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

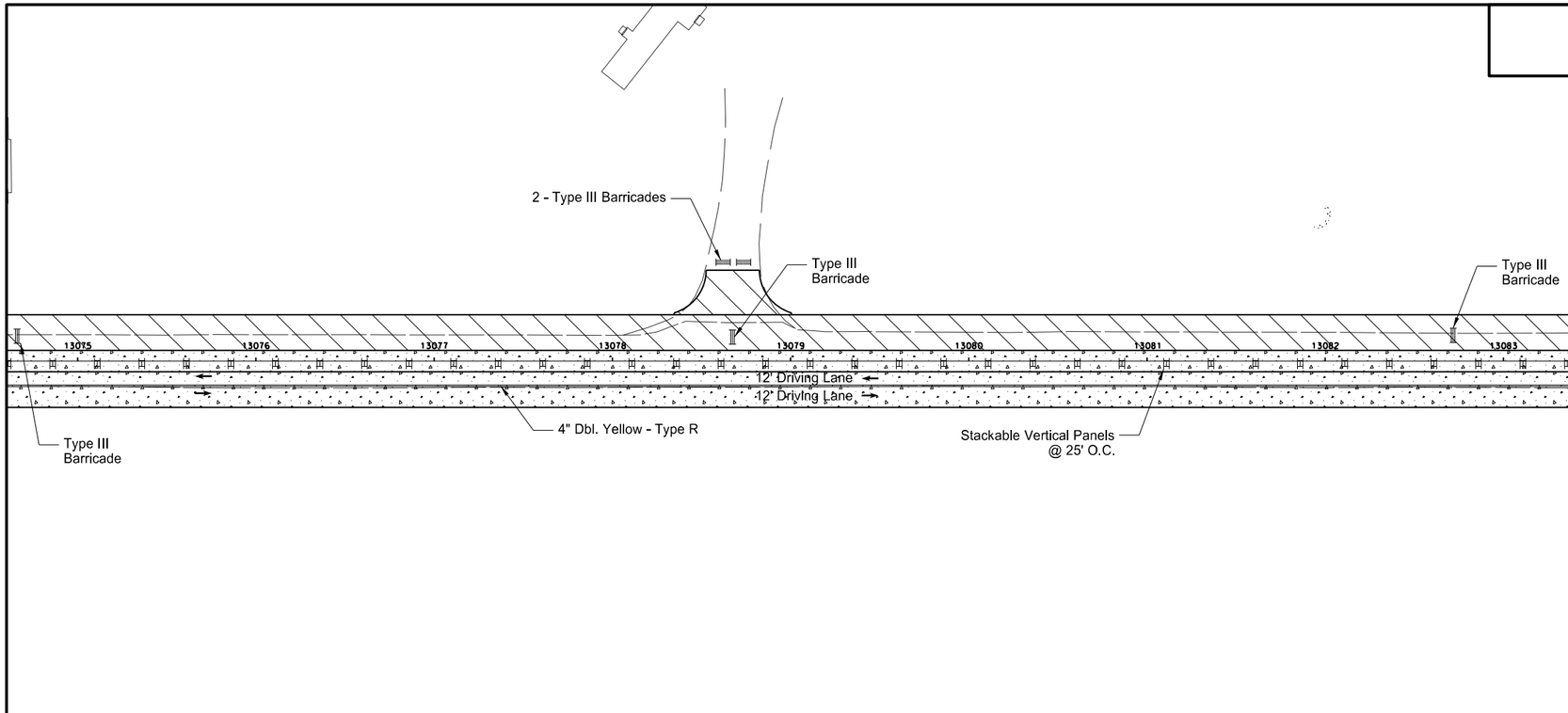
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

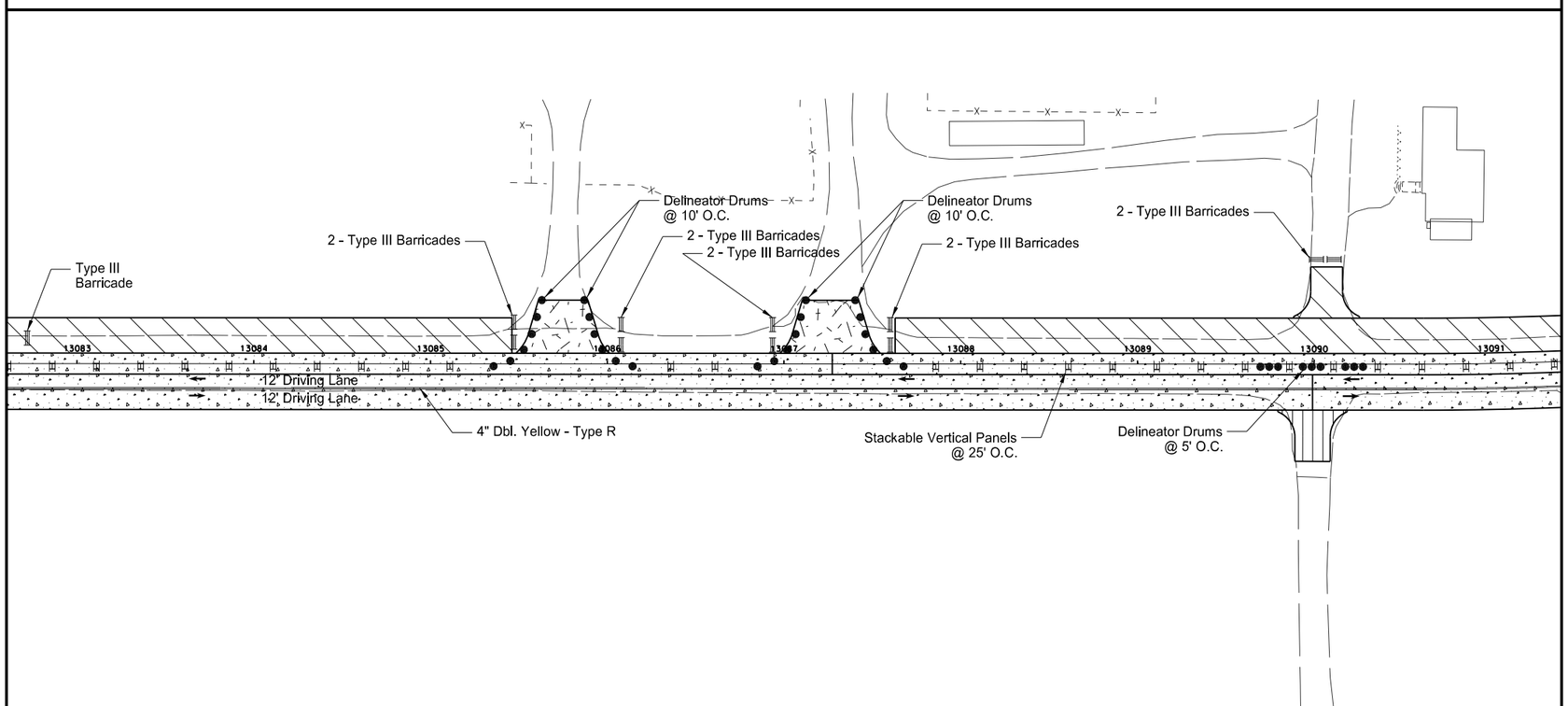
Work Zone Traffic Control

Phase 6

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	41





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

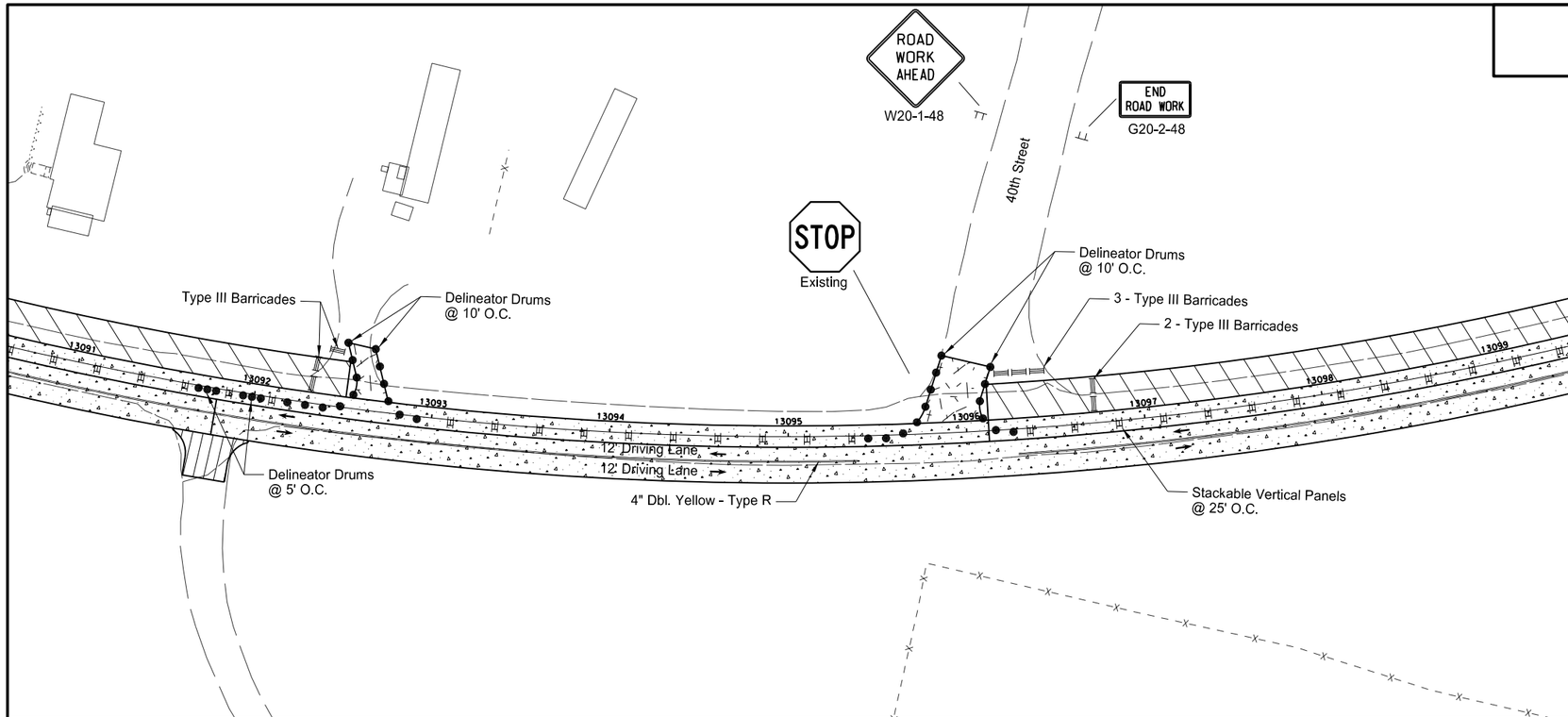
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

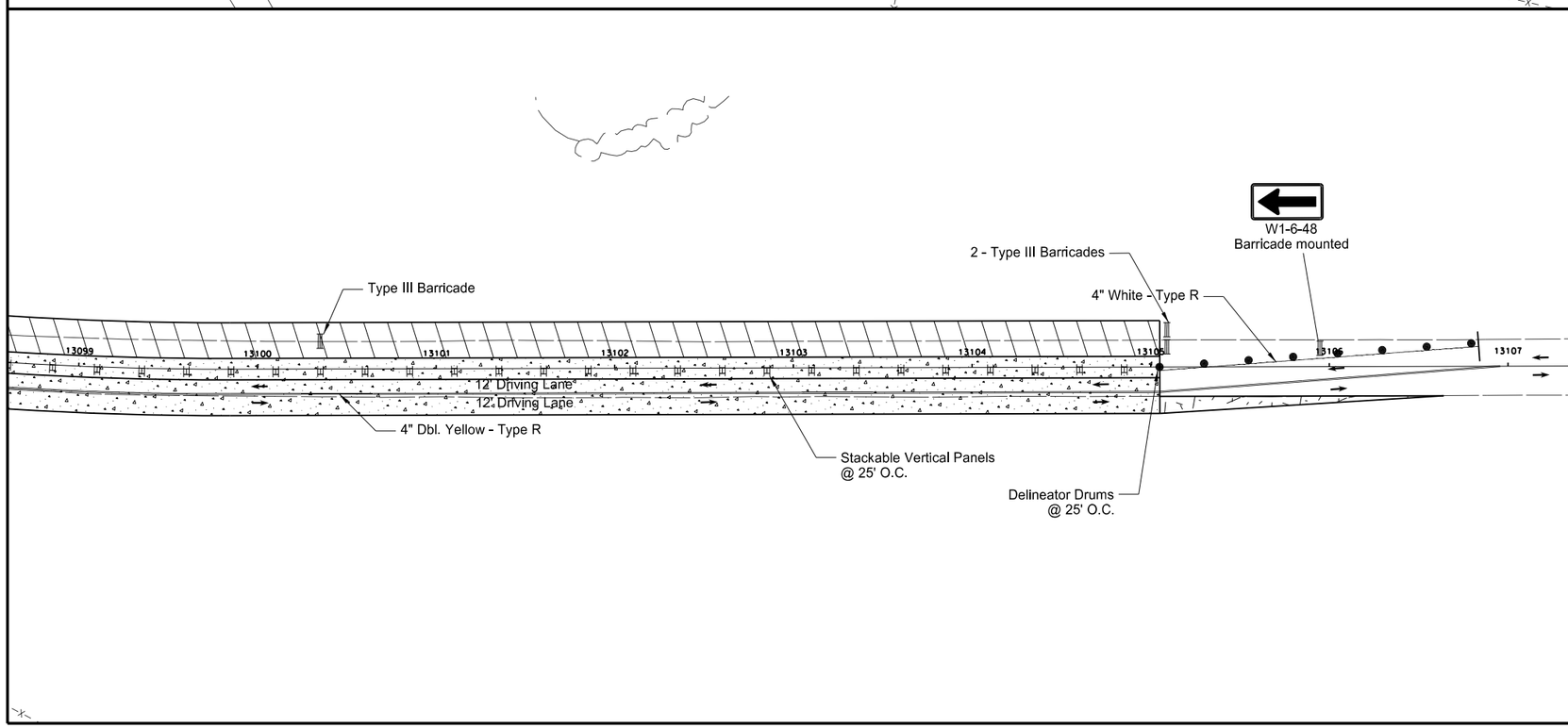
Work Zone Traffic Control

Phase 6

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	42





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

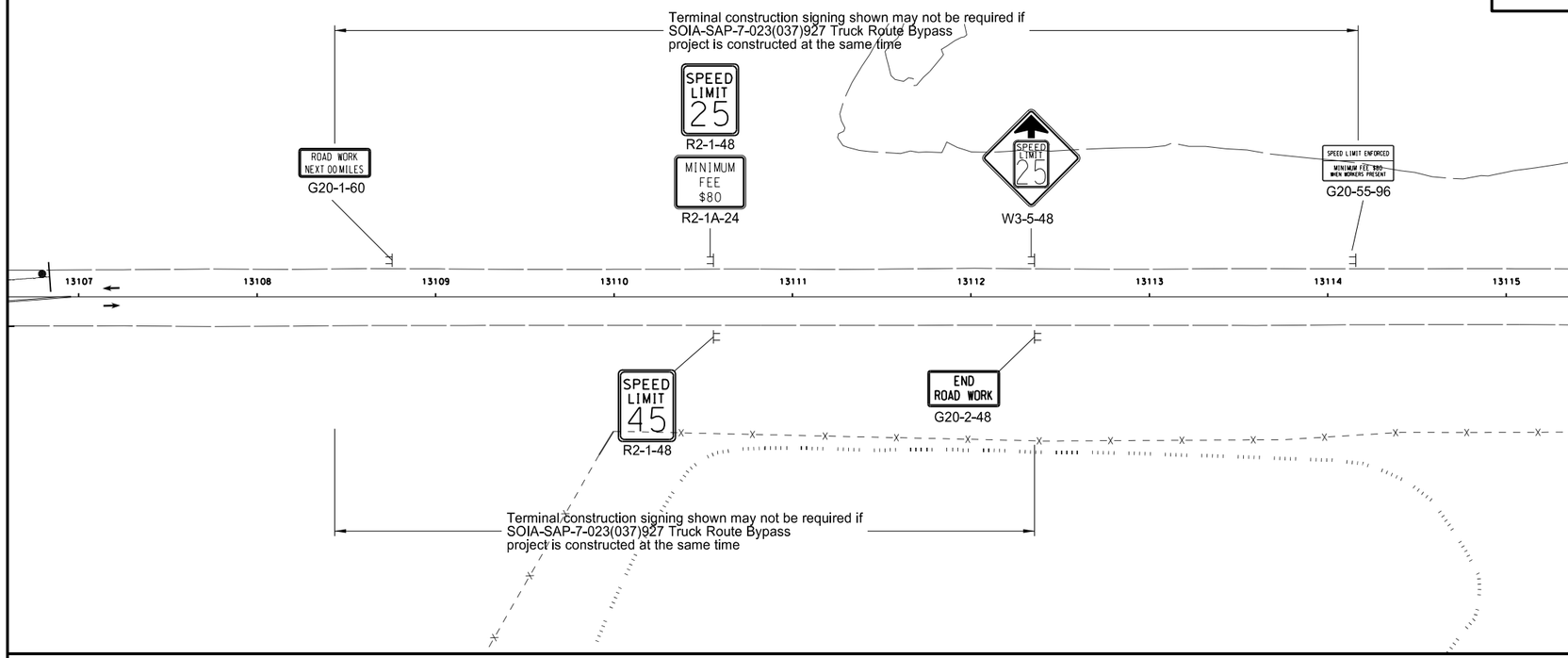
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

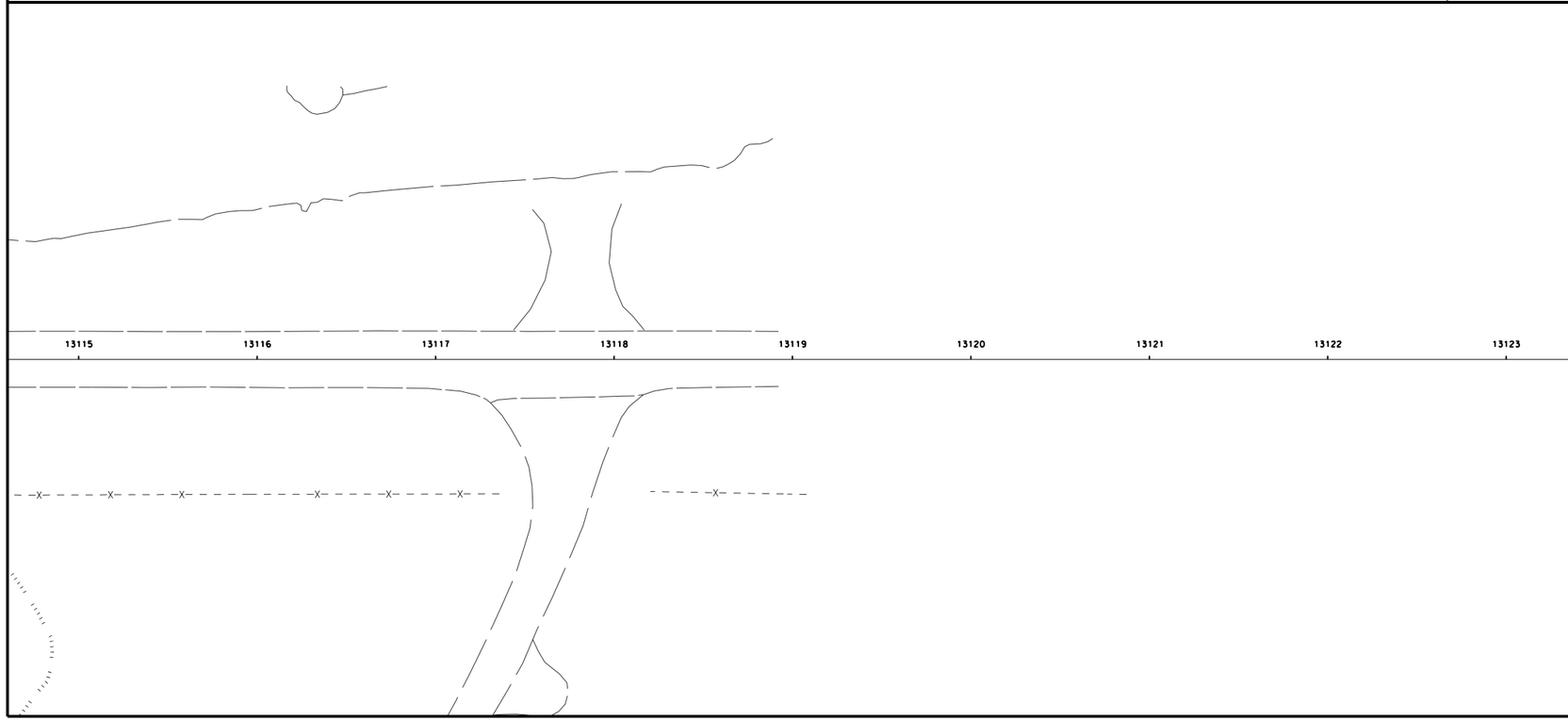
Work Zone Traffic Control

Phase 6

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	43





Work Area

8" Aggregate Surfacing

HBP with Aggregate Surfacing

Concrete Surfacing

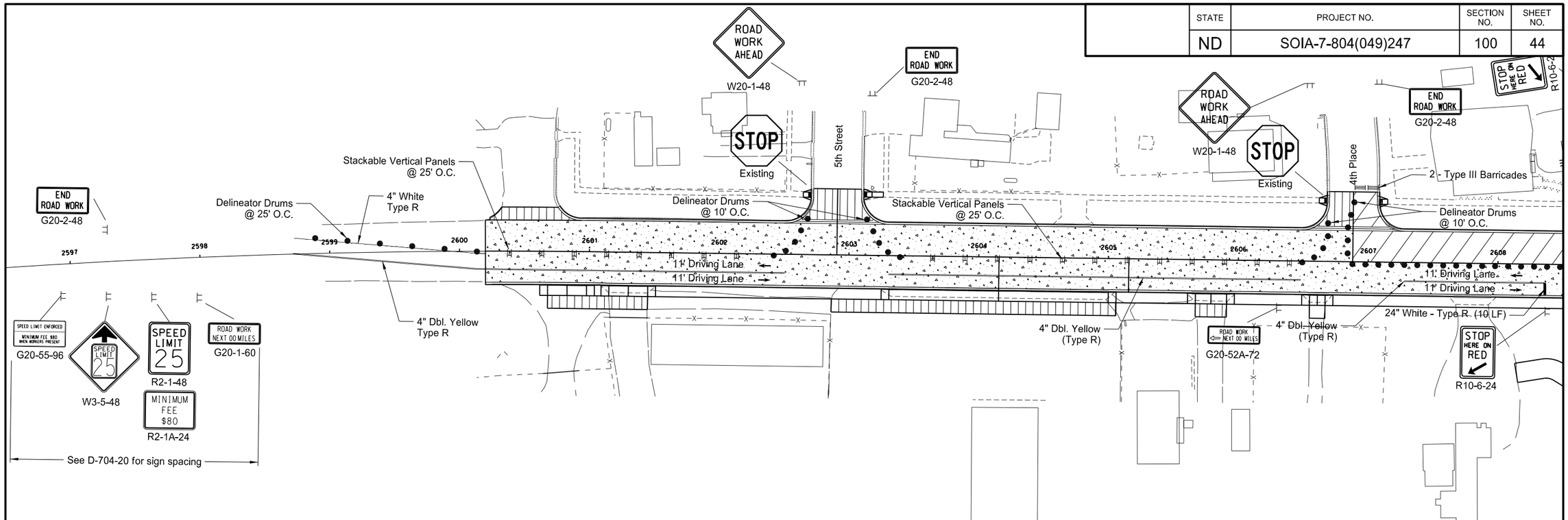
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

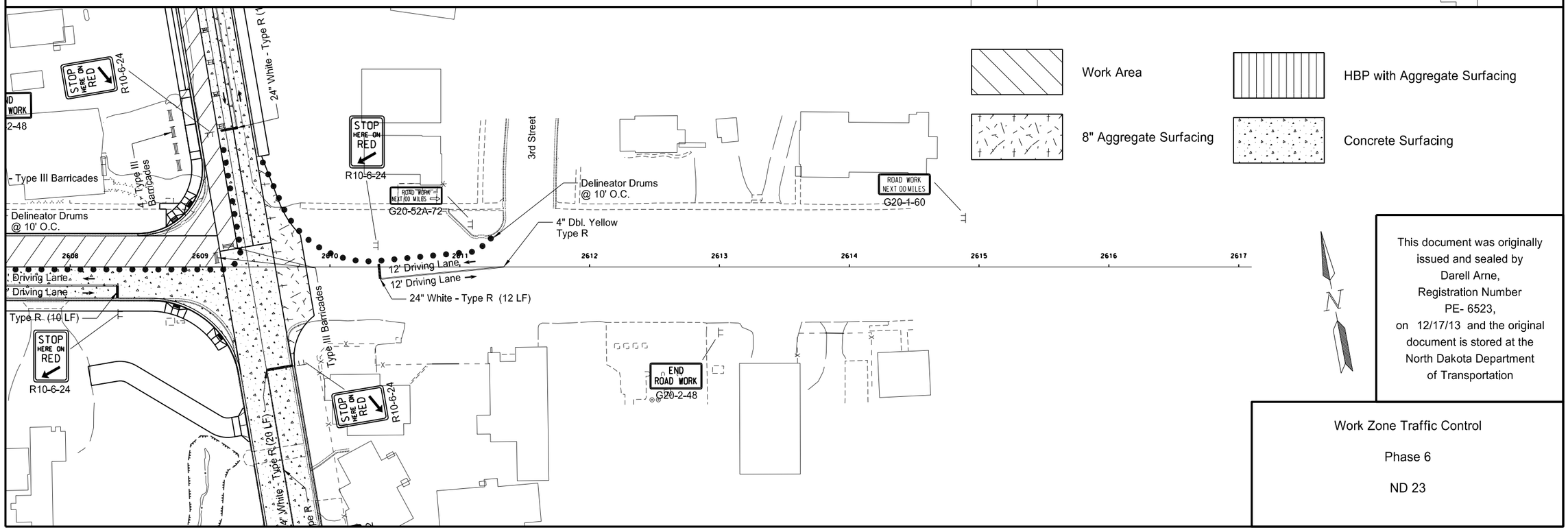
Work Zone Traffic Control

Phase 6

ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	44





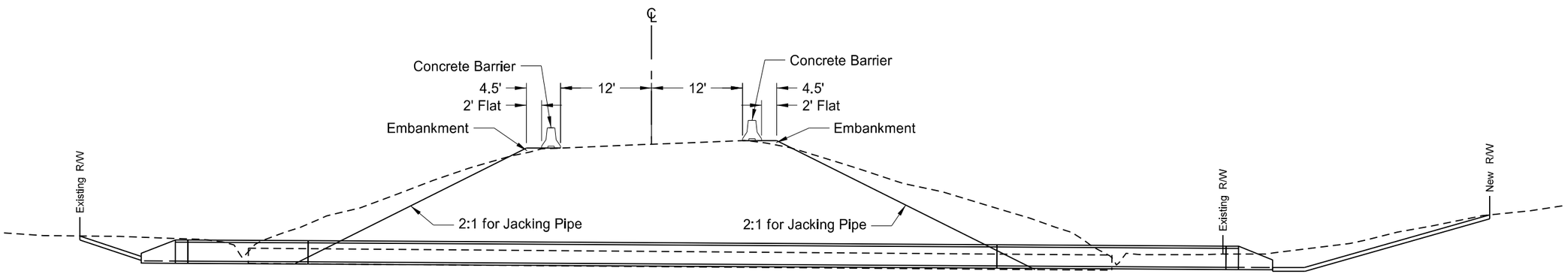
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Phase 6

ND 23

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	45



Shoulder Widening and Concrete Barrier Placement
at Pipe Boring/Jacking Location

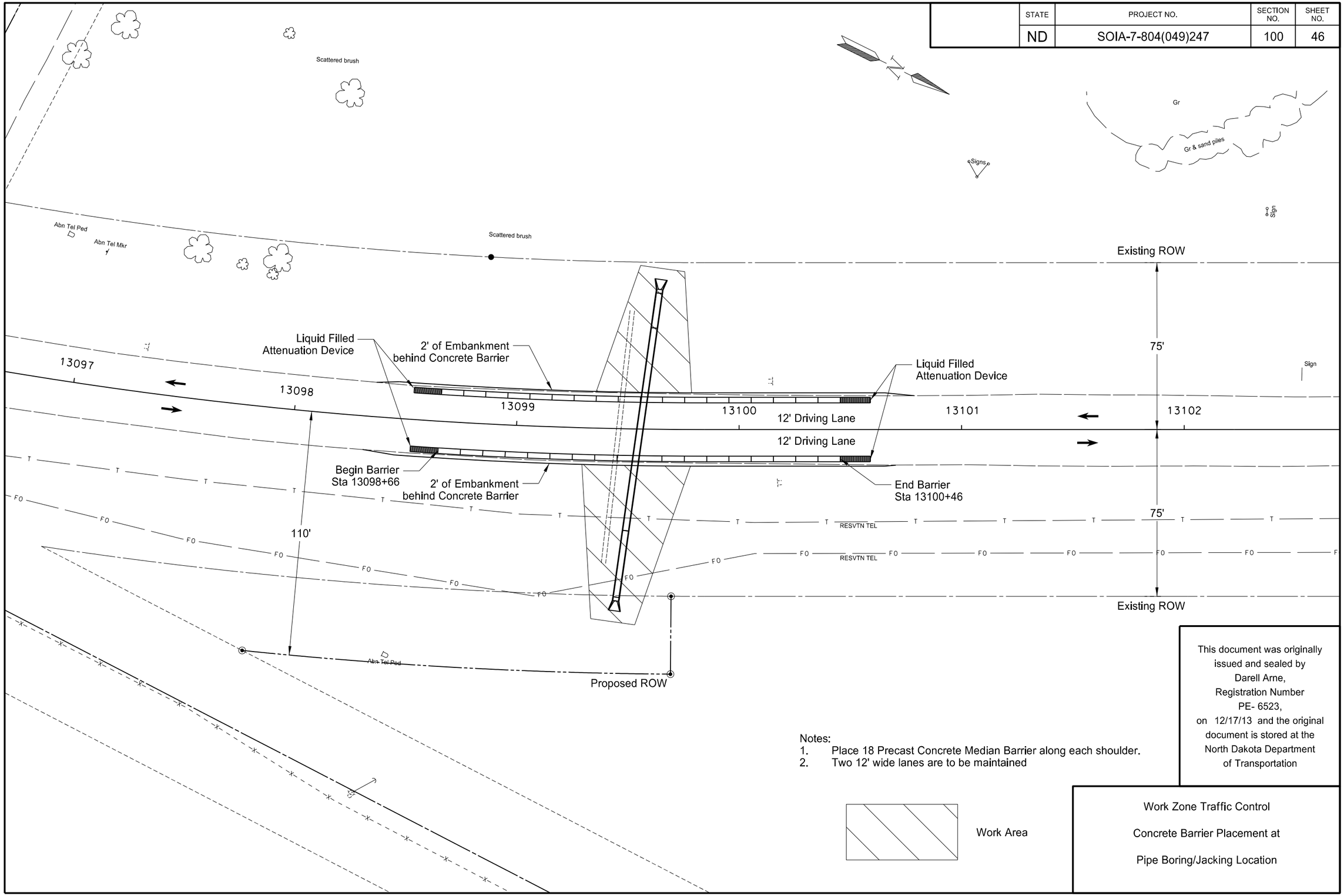
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Note:
The quantity of embankment for the 2' of widening behind the barrier is approximately 20 CY / side = 40 CY total. This embankment will not be measured or paid for separately but shall be included in the price bid for "Borrow - Excavation".

Work Zone Traffic Control

Concrete Barrier Placement
with Shoulder Widening Detail at
Pipe Boring/Jacking Location

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	46



Notes:
1. Place 18 Precast Concrete Median Barrier along each shoulder.
2. Two 12' wide lanes are to be maintained

Work Area

This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Traffic Control

Concrete Barrier Placement at

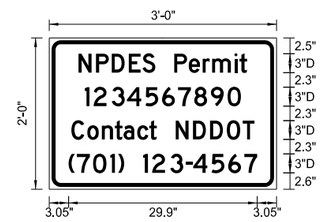
Pipe Boring/Jacking Location

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	47

SIGN NUMBER	NPDES Permit
WIDTH x HEIGHT	3'-0" x 2'-0"
BORDER WIDTH	0.63" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: Diamond Grade
	COLOR: Fluorescent Orange
LEGEND/BORDER	TYPE: Non-reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 6.0 Sq.Ft.



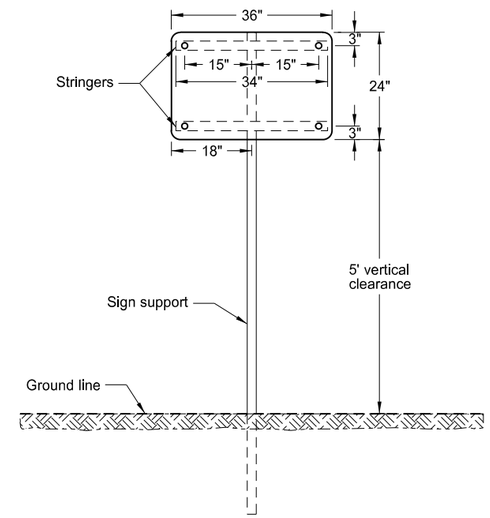
Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
N	P	D	E	S		P	e	r	m	i	t								26.7	3/2.3	D 2000
4.7	7.4	9.9	12.6	14.8	16.8	19.8	22.1	24.3	25.8	29.3	30.2										
1	2	3	4	5	6	7	8	9	0		See	Note								3	D 2000
C	o	n	t	a	c	t		N	D	D	O	T							29	3/2.3	D 2000
3.5	6	8.3	10.4	11.8	13.9	15.8	17	20	22.8	25.5	28.1	30.6									
(	7	0	1	)		1	2	3	-	4	5	6	7		See	Note				3	D 2000

Note: Permit number shall be obtained from the NPDES permit and phone number shall be obtained from the NDDOT District Office.

One sign shall be placed at each end of the project. The signs shall be placed 60' from roadway centerline, on the right hand side visible to traffic entering the project. One sign shall be placed on the west end of ND 23 and the other sign shall be placed on the north end of 1804.



NPDES Permit Sign
at construction site

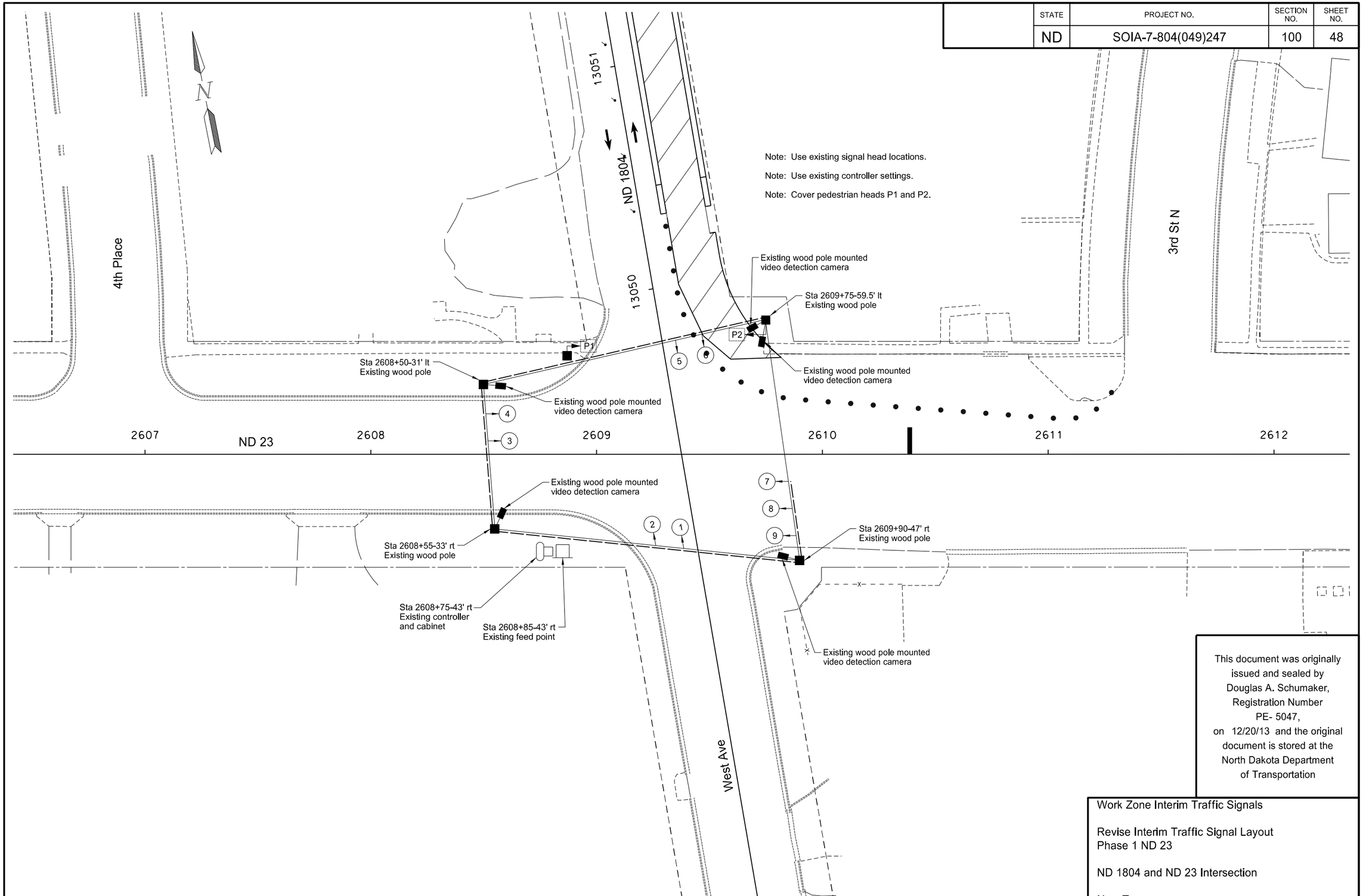
This document was originally issued and sealed by Darell Arne, Registration Number PE- 6523, on 12/17/13 and the original document is stored at the North Dakota Department of Transportation

NPDES Permit Sign

ND 1804

Jct of ND 23 Extending North 1 Mile

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	48



This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

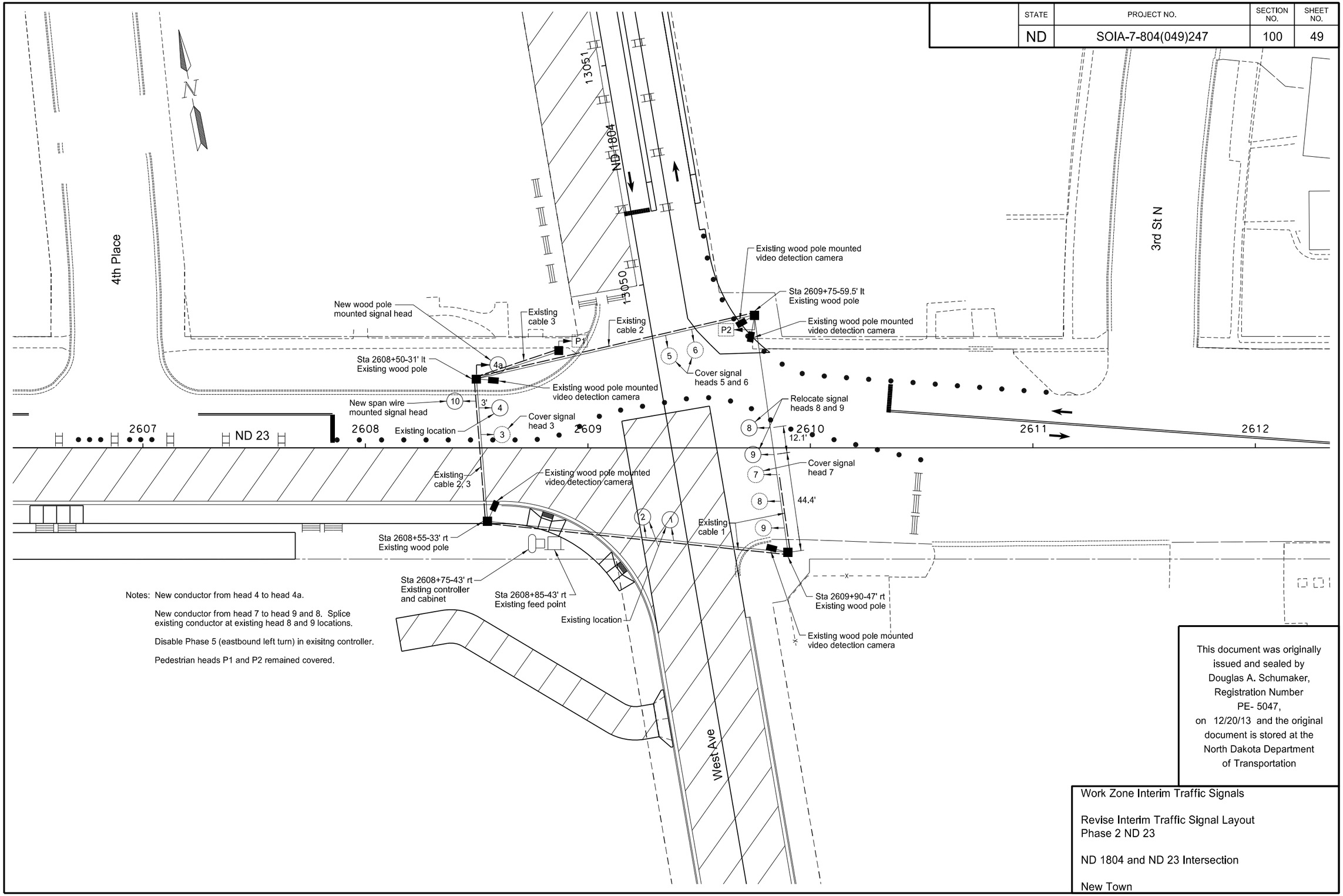
Work Zone Interim Traffic Signals

Revise Interim Traffic Signal Layout
Phase 1 ND 23

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	49



Notes: New conductor from head 4 to head 4a.

New conductor from head 7 to head 9 and 8. Splice existing conductor at existing head 8 and 9 locations.

Disable Phase 5 (eastbound left turn) in exisitng controller.

Pedestrian heads P1 and P2 remained covered.

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

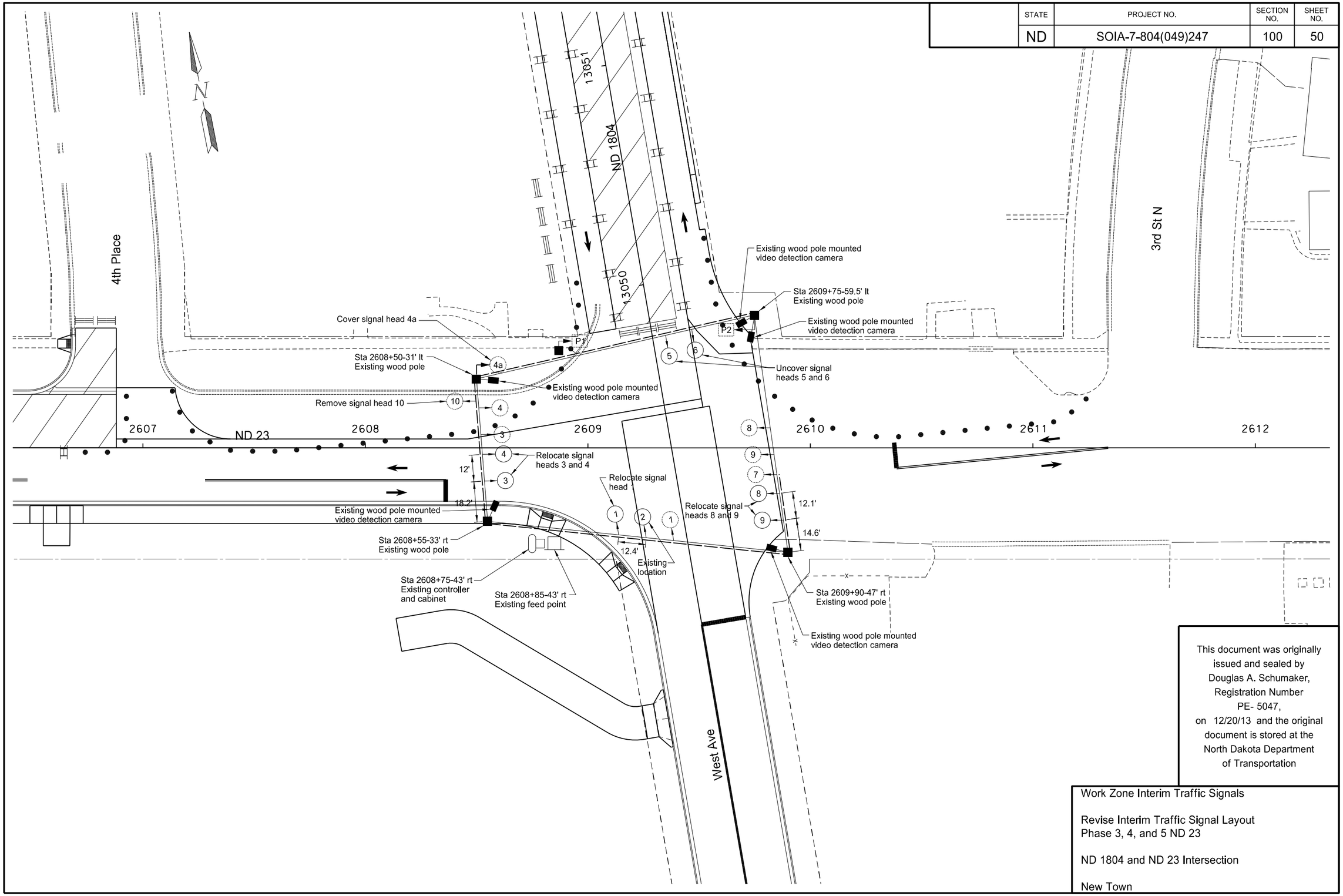
Work Zone Interim Traffic Signals

Revise Interim Traffic Signal Layout
Phase 2 ND 23

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	50



This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

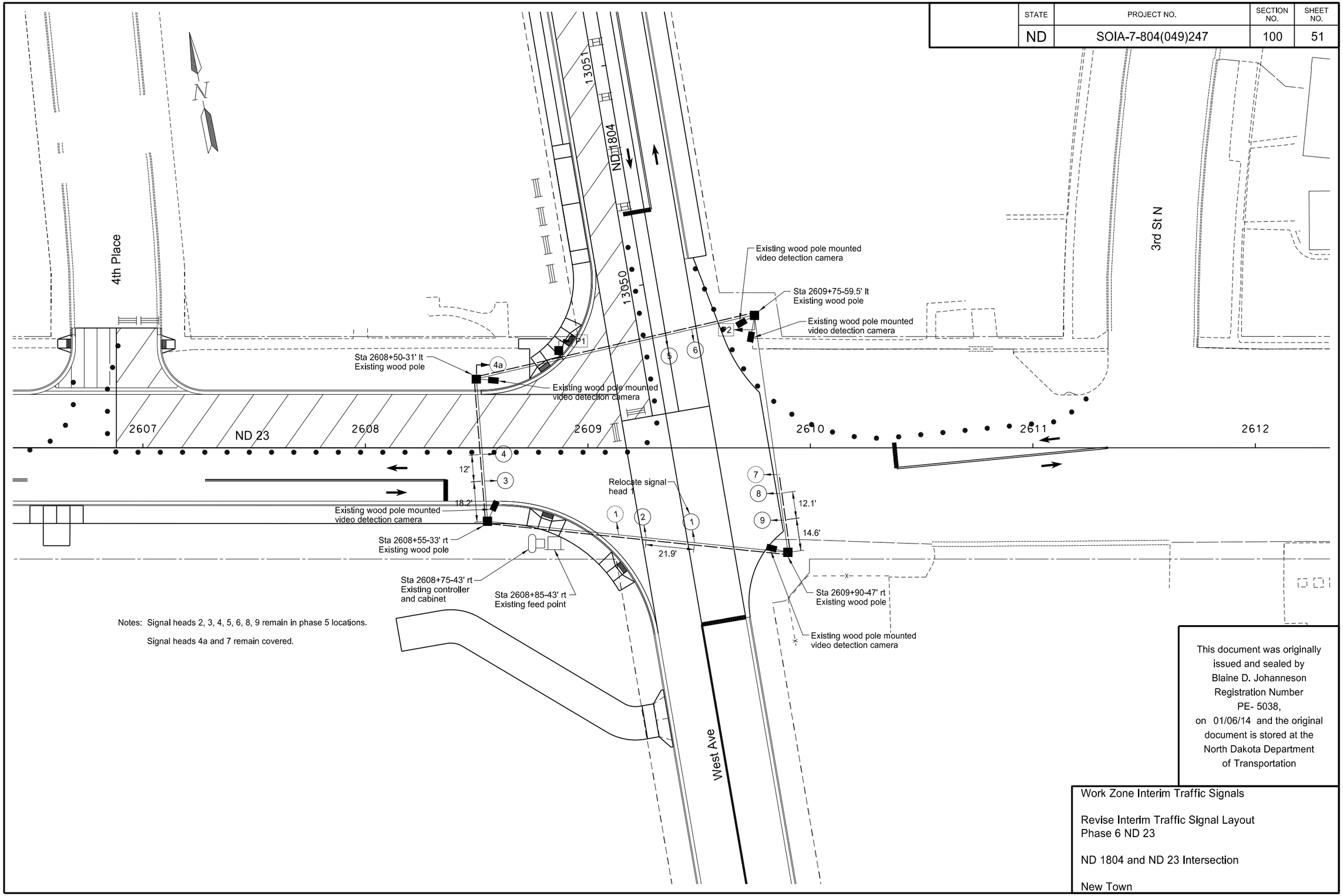
Work Zone Interim Traffic Signals

Revise Interim Traffic Signal Layout
Phase 3, 4, and 5 ND 23

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	51



Notes: Signal heads 2, 3, 4, 5, 6, 8, 9 remain in phase 5 locations.

Signal heads 4a and 7 remain covered.

This document was originally issued and sealed by Blaine D. Johanneson Registration Number PE- 5038, on 01/06/14 and the original document is stored at the North Dakota Department of Transportation

Work Zone Interim Traffic Signals

Revise Interim Traffic Signal Layout
Phase 6 ND 23

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	52

SIGNAL HEAD	CONDUIT RUNS		CABLE RUNS	
	LF	DIA	LF	Type
Phase 2				
Signal head 4 to 2608+50-31' lt (wood pole) to Signal head 4a	24 (D)	1" (D)	50	No. 12 AWG 5
Signal head 10			9	No. 12 AWG 5
Signal head 7 to Signal head 9 to Signal head 8			23 25	No. 12 AWG 5 No. 12 AWG 5
Phase 3, 4, 5				
Signal head 1			9	No. 12 AWG 5
Signal head 3			9	No. 12 AWG 5
Signal head 4			9	No. 12 AWG 5
Signal head 8			9	No. 12 AWG 5
Signal head 9			9	No. 12 AWG 5
Phase 6				
Signal head 1			9	No. 12 AWG 5

(D) Wood Pole Mounted Conduit

	QUANTITIES (A)												
	1" Dia Rigid Conduit	No. 12 AWG 5 Conductor Cable	1-Way 3 Section Head W/12" Lens - Span Wire Mounted	1-Way 3 Section Head W/12" Lens - Wood Pole Mounted	Relocate Span Wire Mounted Signal Head	Remove Span Wire Mounted Signal Head	Revise Controller (B)	Revise Video Detection System (C)					Revise Interim Traffic Signals
	LF	LF	EA	EA	EA	EA	EA	EA					EA
TOTAL	24	161	1	1	8	1	1	1					1

(A) These items shall not be bid separately but shall be included in the item "Revise Interim Traffic Signals".

(B) "Revise Controller" shall include controller timing revisions, controller phasing revisions, and malfuction management unit revisions for the different construction phases.

(C) "Revise Video Detection System" shall include changing the video detection zones for the different construction phases and aiming the video detection cameras if needed.

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Interim Traffic Signals

Cable Runs and Quantities
Phases 1 - 6

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	53

CONDUCTORS			EXISTING CABLE 1 (NO.12 AWG 12)	
	BASE	TRACER	HEAD	INDICATION
1	Black			Spare
2	White			Neutral
3	Red		7, 8, 9	Red
4	Green			Ground
5	Orange		7, 8, 9	Yellow
6	Blue		7, 8, 9	Green
7	White	Black	7	Yellow Arrow (A)
8	Red	Black	1, 2	Red
9	Green	Black	7	Green Arrow (A)
10	Orange	Black	1, 2	Yellow
11	Blue	Black	1, 2	Green
12	Black	White		Spare

(A) Phase disabled during phases 2 - 6.

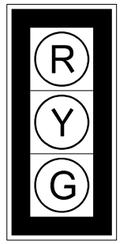
CONDUCTORS			EXISTING CABLE 2 (NO.12 AWG 12)	
	BASE	TRACER	HEAD	INDICATION
1	Black		10	Green
2	White			Neutral
3	Red		3, 4, 4a	Red
4	Green			Ground
5	Orange		3, 4, 4a	Yellow
6	Blue		3, 4, 4a	Green
7	White	Black	10	Yellow
8	Red	Black	5, 6	Red
9	Green	Black	P2	Walk (B)
10	Orange	Black	5, 6	Yellow
11	Blue	Black	5, 6	Green
12	Black	White	P2	Don't Walk (B)

(B) Pedestrian phase disabled during phases 1 - 6.

CONDUCTORS			EXISTING CABLE 3 (NO.12 AWG 5)	
	BASE	TRACER	HEAD	INDICATION
1	Black		10	Red
2	White			Neutral
3	Red		P1	Don't Walk (B)
4	Green			Ground
5	Orange		P1	Walk (B)

(B) Pedestrian phase disabled during phases 1 - 6.

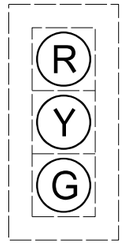
New Heads 4a, 10



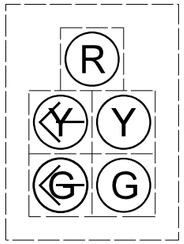
12" Lenses
5" Louvered Backplate

New traffic signal heads shall be LED

Existing Heads 1, 2, 3, 4, 5, 6, 8, 9



Existing Head 7



Existing Heads P1, P2

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Interim Traffic Signals

Signal Heads and Conductors
Phases 1 - 6

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	54

N

Head #	Phase 1 Future								Phase 2 →								Phase 3 Future							
	R/W	Clear To Ø							R/W	Clear To Ø							R/W	Clear To Ø						
		2	3	4	5	6	7	8			4	5	6		8			4	5	6	7	8	1	2
1																								
2																								
3																								
4																								
5																								
6																								
7																								
									G		Y	(A)	(A)		Y									
8									G		Y	(A)	(A)		Y									
9									G		Y	(A)	(A)		Y									

Head #	Phase 4 ↑								Phase 5 ↳								Phase 6 (B) ↔							
	R/W	Clear To Ø							R/W	Clear To Ø							R/W	Clear To Ø						
		5	6		8		2			6		8		2		4		8		2		4	5	
1																								
2																								
3																	G		Y	(A)		Y	Y	
4																	G		Y	(A)		Y	Y	
5	G	Y	Y		(A)		Y																	
6	G	Y	Y		(A)		Y																	
7									G	Y		Y		(A)		Y								
8																								
9																								

Head #	Phase 7 Future								Phase 8 ↓							
	R/W	Clear To Ø							R/W	Clear To Ø						
		8	1	2	3	4	5	6			2		4	5	6	
1									G		Y		(A)	Y	Y	
2									G		Y		(A)	Y	Y	
3																
4																
5																
6																
7																
8																
9																

Blank Squares Denote a Red Indication.

(A) When one phase is on alone, any nonconflicting phase may start timing concurrently without a clearance interval. (See Chart A)

(B) Disable pedestrian phase 6.

CHART A

On Phase	Non-Conflicting Phase Allowed to Time Concurrently
1	Future
2	5 or 6
3	Future
4	8
5	2
6	2
7	Future
8	4

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Interim Traffic Signals

Controller Phasing
Phase 1 ND 23

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	55

N

Head #	Phase 1								Phase 2								Phase 3							
	Future								→								Future							
	R/W	Clear To ∅							R/W	Clear To ∅							R/W	Clear To ∅						
		2	3	4	5	6	7	8			4	5	6		8			4	5	6	7	8	1	2
1																								
2																								
3 (C)																								
4																								
4a																								
5 (C)																								
6 (C)																								
7 (C)																								
									G		Y		Y		Y									
8									G		Y		Y		Y									
9									G		Y		Y		Y									
10									G		Y		Y		Y									

Head #	Phase 4								Phase 5								Phase 6							
	↑ Northbound lane closed								Disabled ↑								(B) ↔							
	R/W	Clear To ∅							R/W	Clear To ∅							R/W	Clear To ∅						
		5	6		8		2			6		8		2		4			8		2		4	5
1																								
2																								
3 (C)																	G		Y		Y		Y	
4																	G		Y		Y		Y	
4a																	G		Y		Y		Y	
5 (C)	G		Y		(A)		Y																	
6 (C)	G		Y		(A)		Y																	
7 (C)																								
8																								
9																								
10																								

Head #	Phase 7								Phase 8							
	Future								↓							
	R/W	Clear To ∅							R/W	Clear To ∅						
		8	1	2	3	4	5	6			2		4	5	6	
1									G		Y		(A)		Y	
2									G		Y		(A)		Y	
3 (C)																
4																
4a																
5 (C)																
6 (C)																
7 (C)																
8																
9																
10																

Blank Squares Denote a Red Indication.

Phase 2 and 6 cannot time concurrently.

(A) When one phase is on alone, any nonconflicting phase may start timing concurrently without a clearance interval. (See Chart A)

(B) Pedestrian phase 6 disabled.

(C) Head covered.

CHART A

On Phase	Non-Conflicting Phase Allowed to Time Concurrently
1	Future
2	None
3	Future
4	8
5	Disabled
6	None
7	Future
8	4

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Interim Traffic Signals

Controller Phasing
Phase 2 ND 23

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	56

N

Head #	Phase 1 (Future)								Phase 2 (→)								Phase 3 (Future)							
	R/W	Clear To Ø							R/W	Clear To Ø							R/W	Clear To Ø						
		2	3	4	5	6	7	8			4	5	6		8			4	5	6	7	8	1	2
1																								
2																								
3																								
4																								
4a (C)																								
5																								
6																								
7 (C)																								
									G		Y		Y		Y									
8									G		Y		Y		Y									
9									G		Y		Y		Y									

Head #	Phase 4 (↑)								Phase 5 (Disabled)								Phase 6 (B)							
	R/W	Clear To Ø							R/W	Clear To Ø							R/W	Clear To Ø						
		5	6		8		2			6		8		2		4		8		2		4	5	
1																								
2																								
3																	G		Y		Y		Y	
4																	G		Y		Y		Y	
4a (C)																	G		Y		Y		Y	
5	G		Y		Y		Y																	
6	G		Y		Y		Y																	
7 (C)																								
8																								
9																								

Head #	Phase 7 (Future)								Phase 8 (↓)							
	R/W	Clear To Ø							R/W	Clear To Ø						
		8	1	2	3	4	5	6			2		4	5	6	
1									G		Y		Y		Y	
2									G		Y		Y		Y	
3																
4																
4a (C)																
5																
6																
7 (C)																
8																
9																

Blank Squares Denote a Red Indication.

Phase 2 and 6 cannot time concurrently.

Phase 4 and 8 cannot time concurrently.

(B) Pedestrian phase 6 disabled.

(C) Head covered.

CHART A

On Phase	Non-Conflicting Phase Allowed to Time Concurrently
1	Future
2	None
3	Future
4	None
5	Disabled
6	None
7	Future
8	None

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Interim Traffic Signals

Controller Phasing
Phases 3, 4, 5, and 6 ND 23

ND 1804 and ND 23 Intersection

New Town

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIA-7-804(049)247	100	57

Construction Phase 1 uses existing timings

Construction Phase 2

	01	02	03	04	05 (A)	06	07	08
BASIC INTERVALS (or FUNCTIONS)								
Minimum Green/Initial		10.0		4.0	4.0	10.0		4.0
Vehicle Extension/Passage Time		4.0		4.0	4.0	4.0		4.0
Maximum Green		40.0		20.0	20.0	40.0		20.0
Yellow Change		3.0		3.0	3.0	3.0		3.0
Red Clearance		8.0		7.0	2.5	5.0		7.0
Walk						7.0 (B)		
Pedestrian Clearance						16.0 (B)		

Future Future Future

(A) Phase 5 disabled.

(B) Pedestrian Phase 6 is disabled.

Construction Phase 3, 4, 5

	01	02	03	04	05 (A)	06	07	08
BASIC INTERVALS (or FUNCTIONS)								
Minimum Green/Initial		10.0		4.0	4.0	10.0		4.0
Vehicle Extension/Passage Time		4.0		4.0	4.0	4.0		4.0
Maximum Green		35.0		15.0	20.0	35.0		20.0
Yellow Change		3.0		3.0	3.0	3.0		3.0
Red Clearance		5.0		5.0	2.5	5.0		5.0
Walk						7.0 (B)		
Pedestrian Clearance						16.0 (B)		

Future Future Future

(A) Phase 5 disabled.

(B) Pedestrian Phase 6 is disabled.

Construction Phase 6

	01	02	03	04	05 (A)	06	07	08
BASIC INTERVALS (or FUNCTIONS)								
Minimum Green/Initial		10.0		4.0	4.0	10.0		4.0
Vehicle Extension/Passage Time		4.0		4.0	4.0	4.0		4.0
Maximum Green		35.0		15.0	20.0	35.0		20.0
Yellow Change		3.0		3.0	3.0	3.0		3.0
Red Clearance		5.0		5.0	2.5	5.0		9.0
Walk						7.0 (B)		
Pedestrian Clearance						16.0 (B)		

Future Future Future

(A) Phase 5 disabled.

(B) Pedestrian Phase 6 is disabled.

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 12/20/13 and the original document is stored at the North Dakota Department of Transportation

Work Zone Interim Traffic Signals

Controller Timings

ND 1804 and ND 23 Intersection

New Town